Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage , Phase III
Gatineau
Québec

Title - Sujet CASE Phase 2 RFP
Canadian Advanced Synthetic Environment (CASE) Phase 2 RFP

Solicitation No. - N° de l'invitation	Date
W8475-16VMT2/G	2021-07-09

Client Reference No. - N° de référence du client
W8475-16VMT2

GETS Reference No. - N° de référence de SEAG
PW-$$QF-123-28281

File No. - N° de dossier	CCC No./N° CCC - FMS No./N° VME
123qf.W8475-16VMT2	

Solicitation Closes - L'invitation prend fin

at - à 02:00 PM Eastern Daylight Saving Time EDT
on - le 2021-08-20 Heure Avancée de l'Est HAE

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☑ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	Buyer Id - Id de l'acheteur
Blahey, Tim	123qf

Telephone No. - N° de téléphone	FAX No. - N° de FAX
(873) 354-1679 ( )	( ) -

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:

Specified Herein
Précisé dans les présentes

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
See Herein – Voir ci-inclus	

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution

Electronics, Simulators and Defence Systems Div. /Division des systèmes électroniques et des systèmes de simulation et de défense
11 Laurier St. / 11, rue Laurier
8C2, Place du Portage
Gatineau
Québec
K1A 0S5

Canada

REQUEST FOR PROPOSAL

FOR

CANADIAN ADVANCED SYNTHETIC ENVIRONMENT (CASE) PHASE 2

“THIS DOCUMENT CONTAINS A SECURITY REQUIREMENT”

TABLE OF CONTENTS

LIST OF ANNEXES AND APPENDEXIES

PART 1 - GENERAL INFORMATION

1.1 Introduction

The draft bid solicitation is divided into eight parts plus attachments and annexes, as follows:

Part 1 General Information: provides a general description of the requirement;

Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;

Part 3 Bid Preparation Instructions: provides Bidders with instructions on how to prepare their bid;

Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;

Part 5 Certifications and Additional Information: includes the certifications and additional information to be provided;

Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by Bidders; and

Part 7 Resulting Contract Clauses- CASE 2 Acquisition (CASE 2-ACQ): includes the clauses and conditions that will apply to any resulting contract for the CASE 2 VMT and PTT acquisitions.

Part 8 Resulting Contract Clauses- CASE 2 ISS (CASE 2-ISS): includes the clauses and conditions that will apply to any resulting contract for CASE 2 In-Service Support.

1.1.1 The Annexes include the Statement of Work (2), the Basis of Payment (2), the Security Requirements Checklist, the Federal Contractors Program for Employment Equity - Certification, the Electronic Payment Instruments, DND 626 Task Authorization Form and any other annexes.

1.2 Summary

1.2.1 The Department of National Defence (DND) has the provision to modernize the apprentice level Royal Canadian Air Force (RCAF) aircraft maintenance technician training conducted at the Canadian Forces School of Aerospace Technology and Engineering (CFSATE) at 16 Wing, CFB Borden, ON.

1.2.2 CASE Phase 2 will procure Virtual Maintenance Trainer (VMT) suites under an acquisition contract to facilitate the instruction of the theory and operation of aircraft systems, the troubleshooting of those systems and the performance of functional checks. Six (6) VMT suites are required to be installed within CFSATE classroom areas.

1.2.3 CASE Phase 2 will also procure Part Task Trainer (PTT) devices under this same acquisition contract which will enable the students to bring the knowledge acquired from the VMT suite onto a physical training platform. The total number of PTT devices will include a minimum of eight (8) Communications Systems (CS) trainers, eight (8) Cockpit Instrumentation (CI) trainers, eight (8) Pitot Static (PS) trainers, eight (8) Navigation Systems (NS) trainers, and eight (8) Automatic Flight Control Systems (AFCS) trainers.

1.2.4 There are also tasks to be performed by the Contractor in the provision of In-Service Support (ISS) for the CASE Phase 2 VMT Suites and PTT Devices described above, which will be awarded as a separate ISS contract.

1.2.5 This bid solicitation is intended to result in the award of two (2) contracts to only one (1) successful Bidder: the CASE Phase 2 Acquisition Contract (CASE 2-ACQ) and the CASE Phase 2 In-Service Support (ISS) Contract (CASE 2-ISS).

1.2.6 There are security provisions required for this solicitation or the resulting contract.

1.2.7 This requirement is subject to the provisions of the following Trade Agreements:

Canadian Free Trade Agreement (CFTA)
Canada - European Union Comprehensive Economic and Trade Agreement (CETA);
World Trade Organization Agreement on Government Procurement (WTO-AGP);
Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP);
Canada - Chile Free Trade Agreement (CCFTA);
Canada - Colombia Free Trade Agreement;
Canada - Honduras Free Trade Agreement;
Canada - Korea Free Trade Agreement;
Canada - Panama Free Trade Agreement;
Canada - Peru Free Trade Agreement (CPFTA);
Canada - Ukraine Free Trade Agreement (CUFTA

1.2.8 This procurement is subject to the Controlled Goods Program. The Defence Production Act defines Canadian Controlled Goods as certain goods listed in Canada's Export Control List, a regulation made pursuant to the Export and Import Permits Act (EIPA).

1.2.9 The Federal Contractors Program for Employment Equity (FCP-EE) applies to this procurement; see Part 5 – Certifications and Additional Information, Part 7 - Resulting Contract Clauses – CASE Phase 2 Acquisitions (CASE 2-ACQ), Part 8 - Resulting Contract Clauses – CASE Phase 2 In-Service Support (CASE 2-ISS) and Annex F titled Federal Contractors Program for Employment Equity - Certification."

1.2.10 This bid solicitation requests bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

1.3 Debriefings

1.3.1 Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.4 Phased Bid Compliance Process

1.4.1 The Phased Bid Compliance Process applies to this requirement.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

2.1.1 All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

2.1.2 Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

2.1.3 The 2003 (2020-05-08) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.1.4 Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 365 days

2.2 SACC Manual Clauses

2.2.1 The following SACC Manual Clause is incorporated by reference into and form part of the bid Solicitation:

A0222T (2014-06-26) Evaluation of Price - Canadian / Foreign Bidders

2.3 Submission of Bids

2.3.1 Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated in the bid solicitation.

2.3.2 Bidders must submit using epost Connect. For bids closing at the Bid Receiving Unit in the National Capital Region (NCR) the email address is:

tpsgc.dgareceptiondessoumissions-abbidreceiving.pwgsc@tpsgc-pwgsc.gc.ca

2.3.3 Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions 2003, or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

2.3.4 Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

2.4 Former Public Servant

2.4.1 A3025T (2020-05-04) Former Public Service- Competitive Bid - is incorporated by reference into and forms part of the bid solicitation.

2.5 Enquiries - Bid Solicitation

2.5.1 All enquiries must be submitted in writing to the Contracting Authority no later than 15 calendar days before the bid closing date. Enquiries received after that time may not be answered.

2.5.2 Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as “proprietary” will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.6 Applicable Laws

2.6.1 Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

2.6.2 Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

2.7 Improvement of Requirement during Solicitation Period

2.7.1 Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must **(**clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least twenty (20) days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.8 Bid Challenge and Recourse Mechanisms

2.8.1 (a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.

2.8.2 (b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada’s Buy and Sell website, under the heading “Bid Challenge and Recourse Mechanisms” contains information on potential complaint bodies such as:

- Office of the Procurement Ombudsman (OPO)
- Canadian International Trade Tribunal (CITT)

2.8.3 (c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

2.9 References

Unless otherwise indicated, a reference to “Contract” or “contract” in Parts I to VI of this Solicitation means each of the CASE Phase 2 Acquisition Contract and the Case Phase 2 In-Service Support Contract, as the context requires; and, a reference to “Contracts” of “contracts” means both of them.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

3.1.1 Due to the present restrictions associated with the Covid 19 pandemic, hard copy bids for this solicitation will not be accepted, and the use of the epost Connect system for bid submission is mandatory.

3.1.2 As the Bidder must submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 - 2.) epost Connect, of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

3.1.3 The bid must be gathered per section and separated as follows:

Section I: Technical Bid
Section II: Financial Bid
Section III: Certifications

3.1.4 Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

3.1.5 Canada requests that Bidders clearly distinguish between the CASE Phase 2 Acquisition requirement (Annex A) and the CASE Phase 2 In-Service Support requirement (Annex C).

3.1.6 Canada requests that bidders follow the format instructions described below in the preparation of epost copies of their bid:

(a) Use a numbering system that corresponds to the bid solicitation.

3.2 Section I: Technical Bid

3.2.1 In their technical bid, Bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability, and describe their approach in a thorough, concise and clear manner for carrying out the work.

3.2.2. The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

3.3 Section II: Financial Bid

3.3.1 Bidders must submit their financial bid in accordance with the Basis' of Payment, Annex B for Acquisitions (CASE 2-ACQ), and Annex D for ISS (CASE 2-ISS)

3.4 Electronic Payment of Invoices – Bid

3.4.1 If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex G Electronic Payment Instruments, to identify which ones are accepted.

3.4.2 If Annex G Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

3.4.3 Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.5 Exchange Rate Fluctuation

3.5.1 The following Exchange Rate Fluctuation Clauses are incorporated by reference into and form part of the bid solicitation:

C3010T (2014-11-27) Exchange Rate Fluctuation Risk Mitigation
C3015C (2017-08-17) Exchange Rate Fluctuation Adjustment

3.6 Section III: Certifications

3.6.1 Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

4.1.1 Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria. For the purpose of this solicitation, Canada will utilize a two-phased evaluation process as more fully described herein

4.1.2 An evaluation team composed of representatives of Canada will evaluate the bids. This team includes representatives from Public Services and Procurement Canada (PSPC), and the Department of National Defence (DND).

4.1.3 If Canada seeks clarification or verification from the Bidder about its bid, the Bidder will have two (2) working days (or a longer period if specified in writing by the Contracting Authority) to provide the necessary information to Canada as specified in the request. Failure to meet this deadline will result in the bid being declared non-responsive. If additional time is required by the Bidder, the Contracting Authority may grant an extension at his or her sole discretion.

4.1.4 Nothing in the bid evaluation process shall limit Canada's rights under SACC Manual Clause 2003 (2018-05-22) Standard instructions – Goods or Services – Competitive Requirements nor Canada's right to request or accept any information during the solicitation period or after bid solicitation closing in circumstances where the bid solicitation expressly provides for this right.

4.2 Technical Evaluation

4.2.1 Mandatory and point rated technical evaluation criteria are included in Appendices 4, 5, 6, 7, 8 and 9.

4.3 Financial Evaluation

4.3.1 Mandatory Financial Criteria

SACC Manual Clause A0220T (2014-06-26), Evaluation of Price-Bid is incorporated by reference and forms part of the bid solicitation.
SACC Manual Clause A0222T (2014-06-26), Evaluation of Price-Canadian/Foreign Bidders is incorporated by reference and forms part of the bid solicitation.

4.3.2 Mandatory Contractual Criteria

4.3.3 The Bidder's proposal shall include the following**:**

4.3.4 The front page of the Request for Proposal form, properly signed by a person duly authorized to sign on behalf of the Bidder's company, in the space provided on page 1 of the RFP, which acknowledges acceptance of all terms and conditions under this RFP, including resulting clauses and conditions;

4.3.5 The Bidder shall provide the name and telephone number of a representative who may be contacted for clarification or other matters relating to the Bidder's proposal:

4.3.6 If there is a discrepancy between the English and French contractual documents, including the Request for Proposal, the English language document takes precedence.

4.4 Phased Bid Compliance Process

4.4.1 (2018-07-19) General

(a) Canada is conducting the PBCP described below for this requirement.

(b) Notwithstanding any review by Canada at Phase I or II of the PBCP, Bidders are and will remain solely responsible for the accuracy, consistency and completeness of their Bids and Canada does not undertake, by reason of this review, any obligations or responsibility for identifying any or all errors or omissions in Bids or in responses by a Bidder to any communication from Canada.

THE BIDDER ACKNOWLEDGES THAT THE REVIEWS IN PHASE I AND II OF THIS PBCP ARE PRELIMINARY AND DO NOT PRECLUDE A FINDING IN PHASE III THAT THE BID IS NON-RESPONSIVE, EVEN FOR MANDATORY

REQUIREMENTS WHICH WERE SUBJECT TO REVIEW IN PHASE I OR II AND NOTWITHSTANDING THAT THE BID HAD BEEN FOUND RESPONSIVE IN SUCH EARLIER PHASE. CANADA MAY DEEM A BID TO BE NON-RESPONSIVE TO A MANDATORY REQUIREMENT AT ANY PHASE.
THE BIDDER ALSO ACKNOWLEDGES THAT ITS RESPONSE TO A NOTICE OR A COMPLIANCE ASSESSMENT REPORT (CAR) (EACH DEFINED BELOW) IN PHASE I OR II MAY NOT BE SUCCESSFUL IN RENDERING ITS BID RESPONSIVE TO THE MANDATORY REQUIREMENTS THAT ARE THE SUBJECT OF THE NOTICE OR CAR, AND MAY RENDER ITS BID NON-RESPONSIVE TO OTHER MANDATORY REQUIREMENTS.

(c) Canada may, in its discretion, request and accept at any time from a Bidder and consider as part of the Bid, any information to correct errors or deficiencies in the Bid that are clerical or administrative, such as, without limitation, failure to sign the Bid or any part or to checkmark a box in a form, or other failure of format or form or failure to acknowledge; failure to provide a procurement business number or contact information such as names, addresses and telephone numbers; inadvertent errors in numbers or calculations that do not change the amount the Bidder has specified as the price or of any component thereof that is subject to evaluation. This shall not limit Canada's right to request or accept any information after the bid solicitation closing in circumstances where the bid solicitation expressly provides for this right. The Bidder will have the time period specified in writing by Canada to provide the necessary documentation. Failure to meet this deadline will result in the Bid being declared non-responsive.

(d) The PBCP does not limit Canada's rights under Standard Acquisition Clauses and Conditions (SACC) 2003 (2020-05-28) Standard Instructions – Goods or Services – Competitive Requirements nor Canada's right to request or accept any information during the solicitation period or after bid solicitation closing in circumstances where the bid solicitation expressly provides for this right, or in the circumstances described in subsection (c).

(e) Canada will send any Notice or CAR by any method Canada chooses, in its absolute discretion. The Bidder must submit its response by the method stipulated in the Notice or CAR. Responses are deemed to be received by Canada at the date and time they are delivered to Canada by the method and at the address specified in the Notice or CAR. An email response permitted by the Notice or CAR is deemed received by Canada on the date and time it is received in Canada's email inbox at Canada's email address specified in the Notice or CAR. A Notice or CAR sent by Canada to the Bidder at any address provided by the Bidder in or pursuant to the Bid is deemed received by the Bidder on the date it is sent by Canada. Canada is not responsible for late receipt by Canada of a response, however caused.

4.4.2 (2018-03-13) Phase I: Financial Bid

(a) After the closing date and time of this bid solicitation, Canada will examine the Bid to determine whether it includes a Financial Bid and whether any Financial Bid includes all information required by the solicitation. Canada's review in Phase I will be limited to identifying whether any information that is required under the bid solicitation to be included in the Financial Bid is missing from the Financial Bid. This review will not assess whether the Financial Bid meets any standard or is responsive to all solicitation requirements.

(b) Canada's review in Phase I will be performed by officials of the Department of Public Works and Government Services.

(c) If Canada determines, in its absolute discretion that there is no Financial Bid or that the Financial Bid is missing all of the information required by the bid solicitation to be included in the Financial Bid, then the Bid will be considered non-responsive and will be given no further consideration.

(d) For Bids other than those described in c), Canada will send a written notice to the Bidder ("Notice") identifying where the Financial Bid is missing information. A Bidder, whose Financial Bid has been found responsive to the requirements that are reviewed at Phase I, will not receive a Notice. Such Bidders shall not be entitled to submit any additional information in respect of their Financial Bid.

(e) The Bidders who have been sent a Notice shall have the time period specified in the Notice (the "Remedy Period") to remedy the matters identified in the Notice by providing to Canada, in writing, additional information or clarification in response to the Notice. Responses received after the end of the Remedy Period will not be considered by Canada, except in circumstances and on terms expressly provided for in the Notice.

(f) In its response to the Notice, the Bidder will be entitled to remedy only that part of its Financial Bid which is identified in the Notice. For instance, where the Notice states that a required line item has been left blank, only the missing information may be added to the Financial Bid, except that, in those instances where the addition of such information will necessarily result in a change to other calculations previously submitted in its Financial Bid, (for example, the calculation to determine a total price), such necessary adjustments shall be identified by the Bidder and only these adjustments shall be made. All submitted information must comply with the requirements of this solicitation.

(g) Any other changes to the Financial Bid submitted by the Bidder will be considered to be new information and will be disregarded. There will be no change permitted to any other Section of the Bidder's Bid. Information submitted in accordance with the requirements of this solicitation in response to the Notice will replace, in full, **only** that part of the original Financial Bid as is permitted above, and will be used for the remainder of the bid evaluation process.

(h) Canada will determine whether the Financial Bid is responsive to the requirements reviewed at Phase I, considering such additional information or clarification as may have been provided by the Bidder in accordance with this Section. If the Financial Bid is not found responsive for the requirements reviewed at Phase I to the satisfaction of Canada, then the Bid shall be considered non-responsive and will receive no further consideration.

(i) Only Bids found responsive to the requirements reviewed in Phase I to the satisfaction of Canada, will receive a Phase II review.

4.4.3 (2018-03-13) Phase II: Technical Bid

(a) Canada's review at Phase II will be limited to a review of the Technical Bid to identify any instances where the Bidder has failed to meet any Eligible Mandatory Criterion. This review will not assess whether the Technical Bid meets any standard or is responsive to all solicitation requirements. Eligible Mandatory Criteria are all mandatory technical criteria that are identified in this solicitation as being subject to the PBCP. Mandatory technical criteria that are not identified in the solicitation as being subject to the PBCP, will not be evaluated until Phase III.

(b) Canada will send a written notice to the Bidder (Compliance Assessment Report or "CAR") identifying any Eligible Mandatory Criteria that the Bid has failed to meet. A Bidder whose Bid has been found responsive to the requirements that are reviewed at Phase II will receive a CAR that states that its Bid has been found responsive to the requirements reviewed at Phase II. Such Bidder shall not be entitled to submit any response to the CAR.

(c) A Bidder shall have the period specified in the CAR (the "Remedy Period") to remedy the failure to meet any Eligible Mandatory Criterion identified in the CAR by providing to Canada in writing additional or different information or clarification in response to the CAR. Responses received after the end of the Remedy Period will not be considered by Canada, except in circumstances and on terms expressly provided for in the CAR.

(d) The Bidder's response must address only the Eligible Mandatory Criteria listed in the CAR as not having been achieved, and must include only such information as is necessary to achieve such compliance. Any additional information provided by the Bidder which is not necessary to achieve such compliance will not be considered by Canada, except that, in those instances where such a response to the Eligible Mandatory Criteria specified in the CAR will necessarily result in a consequential change to other parts of the Bid, the Bidder shall identify such additional changes, provided that its response must not include any change to the Financial Bid.

(e) The Bidder's response to the CAR should identify in each case the Eligible Mandatory Criterion in the CAR to which it is responding, including identifying in the corresponding section of the original Bid, the wording of the proposed change to that section, and the wording and location in the Bid of any other consequential changes that necessarily result from such change. In respect of any such consequential change, the Bidder must include a rationale explaining why such consequential change is a necessary result of the change proposed to meet the Eligible Mandatory Criterion. It is not up to Canada to revise the Bidder's Bid, and failure of the Bidder to do so in accordance with this subparagraph is at the Bidder's own risk. All submitted information must comply with the requirements of this solicitation.

(f) Any changes to the Bid submitted by the Bidder other than as permitted in this solicitation, will be considered to be new information and will be disregarded. Information submitted in accordance with the requirements of this solicitation in response to the CAR will replace, in full, **only** that part of the original Bid as is permitted in this Section.

(g) Additional or different information submitted during Phase II permitted by this section will be considered as included in the Bid, but will be considered by Canada in the evaluation of the Bid at Phase II only for the purpose of determining whether the Bid meets the Eligible Mandatory Criteria. It will not be used at any Phase of the evaluation to increase any score that the original Bid would achieve without the benefit of such additional or different information. For instance, an Eligible Mandatory Criterion that requires a mandatory minimum number of points to achieve compliance will be assessed at Phase II to determine whether such mandatory minimum score would be achieved with such additional or different information submitted by the Bidder in response to the CAR. If so, the Bid will be considered responsive in respect of such Eligible Mandatory Criterion, and the additional or different information submitted by the Bidder shall bind the Bidder as part of its Bid, but the Bidder's original score, which was less than the mandatory minimum for such Eligible Mandatory Criterion, will not change, and it will be that original score that is used to calculate any score for the Bid

(h) Canada will determine whether the Bid is responsive for the requirements reviewed at Phase II, considering such additional or different information or clarification as may have been provided by the Bidder in accordance with this Section. If the Bid is not found responsive for the requirements reviewed at Phase II to the satisfaction of Canada, then the Bid shall be considered non-responsive and will receive no further consideration.

(i) Only Bids found responsive to the requirements reviewed in Phase II to the satisfaction of Canada, will receive a Phase III evaluation.

4.4.4 (2018-03-13) Phase III: Final Evaluation of the Bid

(a) In Phase III, Canada will complete the evaluation of all Bids found responsive to the requirements reviewed at Phase II. Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

(b) A Bid is non-responsive and will receive no further consideration if it does not meet all mandatory evaluation criteria of the solicitation.

4.4.5 (2017-07-31) Technical Evaluation

4.4.5.1 (2017-07-31) Mandatory Technical Criteria

The Phased Bid Compliance Process will apply to all mandatory technical criteria.

4.5 Basis of Selection

1. To be declared responsive, a bid must:

    a. comply with all the requirements of the bid solicitation; and

    b. meet all mandatory criteria;

2. Bids not meeting (a) or (b) will be declared non-responsive.

3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70 % for the technical merit and 30 % for the price.

4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70 %

5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30 %.

6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

8. The table below (table 1) illustrates an **example** where all three bids are responsive and the selection of the contractor is determined by a 70/30 ratio of technical merit and price, respectively.

TABLE 1: Example of highest combined rating of technical merit and price			
Highest Compliant Combined Rating of Technical Merit and Price With Technical Merit weight of 70% and Price weight of 30%			
	Bidder 1	**Bidder 2**	**Bidder 3**
Technical Points	912	857	799
Price Quoted	$8.75M	$8.15M	$7.45M
Calculation			
	Technical Points**	**Price Points**	**Total Points**
Bidder 1	(912/1000) X 70 = 63.84	(*7.45/8.75) X 30 = 25.54	89.38***
Bidder 2	(857/1000) X 70 = 59.99	(7.45/8.15) X 30 = 27.42	87.41
Bidder 3	(799/1000) X 70 = 55.93	(7.45/7.45) X 30 = 30	85.93

* Represents the lowest priced compliant proposal (in this case $7.45M).

** Assuming three compliant bids have been received and the maximum technical score that can be obtained is 1000 points. 1000 points value is used for example purposes only.

*** The Winner is the bidder scoring the highest total points established by adding the technical score and the price proposal score. Based on the calculations above, a contract would be awarded to Bidder 1, which offers the highest total score taking into consideration the technical merit and price of the bidder proposal.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

5.1 Certifications and information

5.1.1 Bidders must provide the required certifications and additional information to be awarded a contract.

5.1.2 The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

5.1.3 The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.2 Certifications Required with the Bid

5.2.1 Bidders must submit the following duly completed certifications as part of their bid.

5.3 Integrity Provisions - Declaration of Convicted Offences

5.3.1 In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the Integrity declaration form available on the Forms for the Integrity Regime website (http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html), to be given further consideration in the procurement process.

5.4 Certifications Precedent to Contract Award and Additional Information

5.4.1 The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

5.5 Integrity Provisions – Required Documentation

5.5.1 In accordance with the section titled Information to be provided when bidding, contracting or entering into a real property agreement of the Ineligibility and Suspension Policy (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.6 Federal Contractors Program for Employment Equity - Bid Certification

5.6.1 By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#).

5.6.2 Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the “FCP Limited Eligibility to Bid list at the time of contract award.

5.6.3 Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the “FCP Limited Eligibility to Bid” list during the period of the Contract.

5.6.4 The Bidder must provide the Contracting Authority with a completed annex titled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Security Requirements

6.1.1 There is a security requirement associated with this requirement, which is as follows:

6.1.2 Before award of a contract, the following conditions must be met:

(a) the Bidder must hold a valid organization security clearance as indicated in Part 7 - Resulting Contract Clauses - Acquisitions (CASE 2-ACQ), and Part 8 - Resulting Contract Clauses - In-Service Support (CASE 2-ISS);

(b) the Bidder's proposed individuals requiring access to classified or protected information, assets or sensitive work site(s) must meet the security requirements as indicated in Part 7 - Resulting Contract Clauses - Acquisitions (CASE 2-ACQ), and Part 8 – Resulting Contract Clauses - In-Service Support (CASE 2-ISS);

(c) the Bidder must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites;

(d) the Bidder's proposed location of work performance and document safeguarding must meet the security requirements as indicated in Part 7 - Resulting Contract Clauses - Acquisitions (CASE 2-ACQ), and Part 8 - Resulting Contract Clauses - In-Service Support (CASE 2-ISS).

6.1.3 For additional information on security requirements, bidder should refer to the Industrial Security Program (ISP) of Public Works and Government Services Canada (http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html) website.

6.2 Financial Capability

6.2.1 SACC Manual clause A9033T (2012-07-16) Financial Capability – is incorporated by reference into and forms part of the bid solicitation.

PART 7 – RESULTING CONTRACT CLAUSES – ACQUISITION (CASE 2-ACQ)

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

7.1 Statement of Work

7.1.1 The Contractor must perform the Work in accordance with the Statement of Work at Annex A, and the technical portions of the Contractor's bid entitled _____, dated _____.

7.2 Task Authorization

7.2.1 The Work or a portion of the Work to be performed under the Contract could be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

7.3 Task Authorization Process

7.3.1 The Technical Authority will provide the Contractor with a description of the task using the "Task Authorization Form for non-DND clients" *or* "DND 626, Task Authorization Form" *or* "Task Authorization" form specified in Annex H.

7.3.2 The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis and methods of payment as specified in the Contract.

7.3.3 The Contractor must provide the Technical Authority within 15 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.

7.3.4 The Contractor must not commence work until a TA authorized by the Technical Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

7.4 Task Authorization Limit

7.4.1 The Project Authority may authorize individual task authorizations up to a limit of $25,000.00, Applicable Taxes included, inclusive of any revisions.

7.4.2 Any task authorization to be issued in excess of that limit must be authorized by the Contract Authority before issuance.

7.5 Canada's Obligation - Portion of the Work - Task Authorizations

7.5.1 Canada’s Obligation-Portion of the Work-Task Authorizations (2011-05-16) – B9031C is incorporated by reference into and forms part of the bid solicitation.

7.6 Task Authorization - Department of National Defence

7.6.1 The administration of the Task Authorization process will be carried out by DAP 8-5.This process includes monitoring, controlling and reporting on expenditures of the contract with task authorizations to the contractor.

7.7 Standard Clauses and Conditions

7.7.1 All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

7.8 General Conditions

7.8.1 2030 (2020-05-28), General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.
1031-2 (2012-07-16) - Contract Cost Principles, apply to and form part of the Contract.

7.9 Supplemental General Conditions

4001 (2015-04-01) Hardware Purchase Lease and Maintenance, apply to and form part of the Contract
4002 (2010-08-16) Software Development or Modification Services, apply to and form part of the Contract
4003 (2010-08-16) Licensed Software, apply to and form part of the Contract
4004 (2013-04-25) Maintenance and Support Services for Licensed Software, apply to and form part of the Contract
4006 (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.
4012 (2012-07-16) Goods-Higher Complexity, apply to and form part of the Contract.

7.10 Security Requirements

7.10.1 The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (DOS), issued by the Contract Security Program (CSP), Public Works and Government Services Canada (PWGSC).

7.10.2 The Contractor/Offeror personnel requiring access to sensitive site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by the CSP, PWGSC.

7.10.3 Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP, PWGSC.

7.10.3 The Contractor/Offeror must comply with the provisions of the:

a) Security Requirements Check List and security guide (if applicable), attached at Annex E;

b) *Industrial Security Manual* (Latest Edition

7.11 Term of Contract

7.12 Period of the Contract

7.12.1 The period of the CASE Phase 2 Acquisition Contract is from date of contract award, until the Technical Authority has confirmed that all of the required deliverable's as outlined in Annex A, Statement of Work have been accepted and received to the satisfaction of DND. This includes, but is not limited to, all VMT and PTT requirements, meetings, and all DIDs and CIDRLs, as outlined in table 4 of Annex B, Basis of Payment.

7.12.2 Canada will confirm the conclusion of the period of the Contract in writing, following which the CASE Phase 2 Acquisition Contract (CASE 2-ACQ) will be deemed to be closed.

7.13 Delivery Date

7.13.1 All the deliverables must be received in accordance with the milestone table 4 provided in Annex B – (Basis of Payment) of the CASE Phase 2 Contract (CASE 2-ACQ) prior to Contract closure.

7.13.2 The delivery of the first VMT and PTT (including test set) must be within 6 months of contract award, and the delivery of the last VMT and PTT (including test set) must be within 24 months of contract award.

7.14 Delivery Points

7.14.1 Delivery of the requirement will be made to the following delivery point:

Canadian Forces School of Aerospace Technology and Engineering (CFSATE)
CFB Borden
Borden, Ontario
LOM 1C0

7.14.2 Goods must be consigned to the destination specified in the Contract and delivered:
b. Delivered Duty Paid (DDP) to CFB Borden, Ont. Incoterms 2000 for shipments from a commercial contractor.

7.14.3 The Contractor must ship the goods prepaid via method of their choice, including all delivery charges to CFB Borden, Ont. Prepaid transportation costs must be shown as a separate item on the invoice, supported by a certified copy of the prepaid transportation bill of lading

7.15 Authorities

7.15.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Tim Blahey
Title: Supply Team Leader
Public Works and Government Services Canada
Acquisitions Branch
Directorate: Defence and Marine Procurement-QT
Address: 11 Laurier Ave, 8C2, Gatineau, Quebec

Telephone: 873-354-1679
E-mail address: tim.blahey@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

7.15.2 Technical Authority

The Technical Authority for the Contract is: (***TBD and inserted at Contract award)***

Name: _____

Title: _____
Organization: _____
Address: _____

Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority; however, the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

7.15.3 Procurement Authority

The Procurement Authority for the Contract is: (***TBD and inserted at Contract award)***

Name: _____
Title: _____
Organization: _____

Address: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

7.15.4 Contractor's Representative *(TBD and inserted at Contract award)*

General Inquiries:

Name: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

Delivery Inquiries:

Name: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

7.16 Proactive Disclosure of Contracts with Former Public Servants

7.16.1 By providing information on its status, with respect to being a former public servant in receipt of a *Public Service Superannuation Act* (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

7.17 Payment

7.18 Basis of Payment

7.18.1 In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in Annex B for a cost of $ _____ (amount to be inserted at contract award). Customs duties are included and Applicable Taxes are extra.

7.19 Limitation of Price

7.19.1 Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

7.20 Milestone Payments - Not subject to holdback

7.20.1 Canada will make milestone payments in accordance with the Schedule of Milestones detailed in Annex B – Basis of Payment at Table 4 and the payment provisions of the Contract if:

a. an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;

b. all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;

c. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.21 Schedule of Milestones

7.21.1 The schedule of milestones for which payments will be made in accordance with the Contract is in Annex B – Basis of Payment, at table 4.

7.22 Electronic Payment of Invoices – Contract

7.22.1 The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s) (to be filled out at contract award):

a. Direct Deposit (Domestic and International);
b. Electronic Data Interchange (EDI);
c. Wire Transfer (International Only);

7.23 Time Verification

7.23.1 C0711C (2008-05-12) Time Verification –- is incorporated by reference into and forms part of the bid solicitation

7.24 Invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.
   Each claim must show:

   a. all information required on form PWGSC-TPSGC 1111;

   b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
   c. the description and value of the milestone claimed as detailed in the Contract.

   Each claim must be supported by:

   a. a copy of time sheets to support the time claimed (for AWRs);

   b. a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses (for AWRs);

   c. in the case of table 4 milestones, necessary supporting documentation for acceptance and approval by DND TA, in order to substantiate the payment of each milestone.

2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.
3. The Contractor must prepare and certify one original of the claim on form PWGSC-TPSGC 1111, and forward it to the Technical Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place. The Technical Authority will then forward the electronic copy of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.
4. The Contractor must not submit claims until all work identified in the claim is completed.

7.25 Certifications and Additional Information

7.26 Compliance

7.26.1 Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

7.27 Federal Contractors Program for Employment Equity - Default by the Contractor

7.27.1 The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

7.28 Applicable Laws

7.28.1 The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

7.29 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

(a) the Articles of Agreement;
(b) the general conditions 1031-2 (2012-07-16) - Contract Cost Principles,
(c) the general conditions 2030 (2020-05-28), General Conditions - Higher Complexity - Goods,
(d) the supplemental general conditions 4001 (2015-04-01) Hardware Purchase Lease and Maintenance,
(e) the supplemental general conditions 4002 (2010-08-16) Software Development or Modification Services,
(f) the supplemental general conditions 4003 (2010-08-16) Licensed Software, apply to and form part of the Contract
(g) the supplemental general conditions 4004 (2013-04-25) Maintenance and Support Services for Licensed Software,
(h) the supplemental general conditions 4006 (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information,
(i) the supplemental general conditions 4012 (2012-07-16) Goods-Higher Complexity,
(j) Annex A, Statement of Work;
(k) Annex B, Basis of Payment;
(l) Annex E, Security Requirements Check List;
(m) the Contractor's bid dated _____, (*insert date of bid*) (*If the bid was amended, insert at the time of contract award)* as amended on _____*and insert date(s) of amendment(s)*

7.30 Defence Contract

7.30.1 The following SACC clauses are included by reference and form part of the solicitation:
SACC Manual clause A9006C (2020-08-25) Defence Contract
SACC Manual clause A9062C (2011-05-16) Canadian Forces Site Regulations
SACC Manual clause B1006C (2014-06-26) Condition of Material
SACC Manual clause B1204C (2011-05-16) Shelf Life
SACC Manual clause B1501C (2018-06-21) Electrical Equipment
SACC Manual clause B7500C (2026-06-16) Excess Goods
SACC Manual clause D2000C (30/11/2007) Marking
SACC Manual clause D2001C (2007-11-30) Labelling
SACC Manual clause D5540C (2019-05-30) ISO 9001:2015 Quality Management Systems - Requirements (Quality Assurance Code Q)
SACC Manual clause D5605C (2010-01-11) Release Documents USA
SACC Manual clause D5606C (2017-11-28) Release Documents Canadian
SACC Manual clause D5620C (2012-07-16) Release Documents Distribution

7.31 Foreign Nationals

(Clause to be updated at time of contract award)

<u>For Canadian Bidders:</u>

SACC Manual clause A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)

Or

For All Foreign Bidders:

SACC Manual clause A2001C (2006-06-16) Foreign Nationals (Foreign Contractor)

7.32 Insurance

7.33.1 *SACC Manual* clause G1005C (2016-01-28) Insurance - No Specific Requirement

7.33 Dispute Resolution

(a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.

(b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.

(c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.

(d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "Dispute Resolution".

PART 8 – RESULTING CONTRACT CLAUSES – IN-SERVICE SUPPORT (CASE-ISS)

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

8.1 Statement of Work

8.1.1 The Contractor must perform the Work in accordance with the Statement of Work at Annex C, and the technical portions of the Contractor's bid entitled _____, dated _____.

8.2 Task Authorization

8.2.1 The Work or a portion of the Work to be performed under the Contract could be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

8.3 Task Authorization Process

8.3.1 The Technical Authority will provide the Contractor with a description of the task using the "Task Authorization Form for non-DND clients" *or* "DND 626, Task Authorization Form" *or* "Task Authorization" form specified in Annex D.

8.3.2 The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis and methods of payment as specified in the Contract.

8.3.3 The Contractor must provide the Technical Authority within 15 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.

8.3.4 The Contractor must not commence work until a TA authorized by the Technical Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

8.4 Task Authorization Limit

8.4.1 The Project Authority may authorize individual task authorizations up to a limit of $25,000.00, Applicable Taxes included, inclusive of any revisions.

8.4.2 Any task authorization to be issued in excess of that limit must be authorized by the Project Authority before issuance.

8.5 Canada's Obligation - Portion of the Work - Task Authorizations

8.5.1 Canada’s Obligation-Portion of the Work-Task Authorizations (2011-05-16) – B9031C is incorporated by reference into and forms part of the bid solicitation.

8.6 Task Authorization - Department of National Defence

8.6.1 The administration of the Task Authorization process will be carried out by DAP 8-5.This process includes monitoring, controlling and reporting on expenditures of the contract with task authorizations to the contractor.

8.7 Standard Clauses and Conditions

8.7.1 All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

8.8 General Conditions

8.8.1 2035 (2018-06-21), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

8.9 Supplemental General Conditions

4006 (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.
4001 (2015-04-01), Hardware Purchase, Lease and Maintenance, apply to and form part of the Contract;
4003 (2010-08-16), Licensed Software, apply to and form part of the Contract;
4004 (2013-04-25), Maintenance and Support for Licensed Software, apply to and form part of the Contract;

8.10 Security Requirements

8.10.1 There is a security requirement applicable to this Contract, referenced at 6.1.

8.11 Term of Contract

8.12 Period of the Contract

8.12.1 The period of the Contract is 4 years from the date of contract award, (to be filled in at contract award)

8.13 Option to Extend the Contract

8.13.1 The Contractor grants to Canada the irrevocable option to extend the term of the Contract by 1 (one) additional one-year period under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment, Annex D.

8.13.2 Canada may exercise this option at any time by sending a written notice to the Contractor at least thirty (30) calendar days before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

8.14 Delivery Points

8.14.1 Delivery of the requirement will be made at the following delivery point:

Canadian Forces School of Aerospace Technology and Engineering (CFSATE)
CFB Borden
Borden, Ontario
LOM 1C0

8.14.2 Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP) to CFB Borden, Ont. Incoterms 2000 for shipments from a commercial contractor.

8.14.3 The Contractor must ship the goods prepaid via method of their choice, including all delivery charges to CFB Borden, Ont. Prepaid transportation costs must be shown as a separate item on the invoice, supported by a certified copy of the prepaid transportation bill of lading

8.15 Authorities

8.15.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Tim Blahey
Title: Supply Team Leader
Public Works and Government Services Canada
Acquisitions Branch
Directorate: Defence and Marine Procurement-QT
Address: 11 Laurier Ave, 8C2, Gatineau, Quebec

Telephone: 873-354-1679
E-mail address: tim.blahey@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

8.15.2 Technical Authority

The Technical Authority for the Contract is: ***(TBD and inserted at Contract award)***

Name: _____
Title: _____
Organization: _____

Address: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority; however, the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

8.15.3 Procurement Authority

The Procurement Authority for the Contract is: (***TBD and inserted at Contract award)***

Name: _____
Title: _____
Organization: _____

Address: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

8.15.4 Contractor's Representative ***(TBD and inserted at Contract award)***

General Inquiries:

Name: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

Delivery Inquiries:

Name: _____
Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

8.16 Proactive Disclosure of Contracts with Former Public Servants

8.16.1 By providing information on its status, with respect to being a former public servant in receipt of a *Public Service Superannuation Act* (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

8.17 Payment

8.17.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the contract, the Contractor will be paid a firm price/labour rates, as specified in Annex D - Basis of Payment. Custom duties are included, and applicable taxes are extra

8.18 Monthly Payment

8.18.1 Canada will pay the Contractor on a monthly basis for work performed during the month covered by the invoice in accordance with the payment provisions of the Contract if:

a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;

b. all such documents have been verified by Canada;

c. the Work performed has been accepted by Canada.

8.19 Limitation of Expenditure

8.19.1 Canada's total liability to the Contractor under the Contract must not exceed $ _____. (to be inserted at contract award). Customs duties are excluded and Applicable Taxes are extra.

1. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:
   a. when it is 75% committed, or
   b. four months before the contract expiry date, or
   c. as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work, whichever comes first.
2. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

8.20 SACC Manual Clauses

8.20.1 The following SACC Manual Clauses are incorporated by reference, and form part of the solicitation.

SACC Manual clause A9117C (2007-11-30) T1204 - Direct Request by Customer Department
SACC Manual clause C2000C (2007-11-30) Taxes - Foreign-based Contractor
SACC Manual clause C2000C (2017-08-17) - Priority Rating, Canadian Based Contractors
SACC Manual clause C2800C (2013-01-28) - Priority Rating

8.21 Time Verification

8.21.1 Time charged and the accuracy of the Contractor's time recording system are subject to verification by Canada, before or after payment is made to the Contractor. If verification is done after payment, the Contractor must repay any overpayment, at Canada's request.

8.22 Invoicing Instructions

8.22.1 The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.

8.22.2 Each claim must show (as applicable):
a. all information required on form PWGSC-TPSGC 1111;
b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
c. a list of all expenses;
d. expenditures plus pro-rated profit or fee;

8.22.3 Each claim must be supported by:
e. a copy of time sheets to support the time claimed;
f. a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;
g. a copy of the monthly progress report.

8.22.4 Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

8.22.5 The Contractor must prepare and certify one electronic original of the claim on form PWGSC-TPSGC 1111, and forward it to the Procurement Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

8.22.6 The Procurement Authority will then forward the electronic original of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

8.22.7 The Contractor must not submit claims until all work identified in the claim is completed.

8.23 Certifications and Additional Information

8.24 Compliance

8.24.1 Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

8.25 Federal Contractors Program for Employment Equity - Default by the Contractor

8.25.1 The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

8.26 Applicable Laws

8.26.1 The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in (*to be entered at Contract Award*).

8.27 Priority of Documents

8.27.1 If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list:

(a) the Articles of Agreement;
(b) General Conditions 2035 (2018-06-21) - Higher Complexity – Services;
(c) the supplemental general conditions 4001 (2015-04-01), Hardware Purchase, Lease and Maintenance;
(d) the supplemental general conditions 4003 (2010-08-16), Licensed Software;
(e) the supplemental general conditions 4004 (2013-04-25), Maintenance and Support for Licensed Software;
(f) the supplemental general conditions 4006 (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information;

(g) Annex B, Statement of Work;
(h) Annex D, Basis of Payment;
(i) Annex F, Security Requirements Check List;
(j) the Contractor's bid dated _____, (*insert date of bid*) (*If the bid was amended, insert at the time of contract award,* as amended on _____*and insert date(s) of amendment(s).*

8.28 Defence Contract

8.28.1 The following SACC clauses are included by reference and form part of the solicitation:
SACC Manual clause A9006C (2020-08-25) Defence Contract
SACC Manual clause A9062C (2011-05-16) Canadian Forces Site Regulations
SACC Manual clause B1006C (2014-06-26) Condition of Material
SACC Manual clause B1204C (2011-05-16) Shelf Life
SACC Manual clause B1501C (2018-06-21) Electrical Equipment
SACC Manual clause B7500C (2026-06-16) Excess Goods
SACC Manual clause C2000C (2017-08-17) - Priority Rating, Canadian Based Contractors
SACC Manual clause C2800C (2013-01-28) - Priority Rating
SACC Manual clause D2000C (2011-07-30) Marking
SACC Manual clause D2001C (2007-11-30) Labelling
SACC Manual clause D5540C (2019-05-30) ISO 9001:2015 Quality Management Systems - Requirements (Quality Assurance Code Q)
SACC Manual clause D5605C (2010-01-11) Release Documents USA
SACC Manual clause D5606C (2017-11-28) Release Documents Canadian
SACC Manual clause D5620C (2012-07-16) Release Documents Distribution

8.29 Foreign Nationals (Canadian Contractor *OR* Foreign Contractor)
(Clause will be updated at time of contract award)

For Canadian Bidders:

SACC Manual clause A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)

Or

For All Foreign Bidders:

SACC Manual clause A2001C (2006-06-16) Foreign Nationals (Foreign Contractor)

8.30 Insurance Requirements

8.30.1 SACC Manual clause G1005C (2016-01-28) Insurance - No Specific Requirement is included by reference and forms part of this solicitation.

8.31 Dispute Resolution

(a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.

(b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.

(c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.

(d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "Dispute Resolution".

Annex A – Statement of Work (SOW)

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
VMT and PTT

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1.0 Introduction

1.1 Background

1.1.1 Canadian Advanced Synthetic Environment (CASE) Phase 2 is the second phase of a two-phase major Capital Project. During the first phase, the project successfully implemented a joint Distributed Mission Training network for the Canadian Armed Forces. From a sustainment perspective, there is no link between CASE Phase 1 and 2. The Estimated Life Expectancy (ELE) of the equipment acquired as part of CASE Phase 2 is fifteen years.

1.1.2 CASE Phase 2 is focused on modernization of apprentice level Royal Canadian Air Force (RCAF) aircraft maintenance technician training conducted at the Canadian Forces School of Aerospace Technology and Engineering (CFSATE) at 16 Wing, Borden, ON. The current ability of CFSATE instructors to train aircraft maintenance technicians on highly integrated, modern aircraft with complex avionics systems and advanced materials is severely limited by the lack of relevant training aids.

1.1.3 CASE Phase 2 will procure Virtual Maintenance Trainer (VMT) suites to facilitate the instruction of the theory and operation of aircraft systems, the troubleshooting of those systems and the performance of functional checks. Six (6) VMT suites are required to be installed within CFSATE classroom areas. Each VMT suite shall consist of one instructor station with eight student stations, each capable of accommodating two students per station for a total of 16 students. In addition, each VMT suite shall include a classroom audio system and be compatible with existing classroom display systems used in CFSATE; and

1.1.4 CASE Phase 2 will procure Part Task Trainer (PTT) devices which will enable the students to bring the knowledge acquired from the VMT suite onto a physical training platform. The PTT devices will support fault insertion capabilities, functional checks, troubleshooting, component removal and installation and system repairs. The total number of PTT devices will include a minimum of eight (8) Communications Systems (CS) trainers, eight (8) Cockpit Instrumentation (CI) trainers, eight (8) Pitot Static (PS) trainers, eight (8) Navigation Systems (NS) trainers, and eight (8) Automatic Flight Control Systems (AFCS) trainers.

1.2 Purpose

1.2.1 The purpose of this Statement of Work (SOW) is to detail the requirements and the tasks to be performed by the Contractor in the acquisition of the CASE Phase 2 VMT Suites and PTT Devices described above.

1.2.2 This SOW defines the work to be done by the Contractor to plan, design, develop, construct, integrate, test and deliver the VMT suites and PTT devices.

1.2.3 This SOW defines the material and data to be delivered by the Contractor to enable the operation of the VMT suites and PTT devices.

1.3 Assumptions

1.3.1 The VMT suites and PTT devices will be available as Commercial off the Shelf (COTS) equipment and will not require extensive engineering to meet requirements.

1.3.2 With Initial Cadre Training (ICT) and technical documentation provided under this contract, CFSATE staff will have the technical abilities required to operate the VMT suites and PTT devices.

1.3.3 With ICT and technical documentation provided under this contract, CFSATE staff will have the technical abilities required to conduct all preventive and corrective maintenance on the VMT suites and PTT devices.

1.4 Scope

1.4.1 Under the scope of the ISS contract, the Contractor will be responsible for delivering VMT suites and PTT devices as described in this SOW as well as providing the following:

a. Project Management.

b. Systems Engineering; and

c. Integrated Logistics Support.

1.5 Objectives

1.5.1 DND's objectives for the in-service support of CASE Phase 2 VMT suites and PTT devices are to:

a. Establish a strategic, contractual relationship with the Contractor based on a mutual understanding of respective roles and responsibilities; and

b. Establish a clear set of Contractor activities that can be measured against defined prescribed requirements, ensuring that the systems are delivered to support CFSATE training.

1.6 DND Roles, Authorities, and Responsibilities

1.6.1 In addition to the authorities defined in the terms and conditions of this contract, this SOW defines the following DND specific roles, authorities, and responsibilities.

1.6.2 Technical Authority – The Department of National Defence (DND) Technical Authority (TA) for this acquisition contract is the DAEPM (TA&S) CASE Project Manager and serves as the principal DND point of contact.

1.6.3 CFSATE Primary Point of Contact – The CFSATE Primary Point of Contact (POC) for the acquisition contract is the CFSATE Operations Officer (Ops O) a.

1.7 Acronyms and Abbreviations

AWR	Additional Work Request
CA	Contracting Authority
CAF	Canadian Armed Forces
CASE	Canadian Advanced Synthetic Environment
CDRL	Contract Data Requirements List
CFB	Canadian Forces Base
CFSATE	Canadian Forces School of Aerospace Technology and Engineering
COTS	Commercial Off the Shelf
DGAEPM	Director General Aerospace Equipment Program Management
DID	Data Item Description
DND	Department of National Defence
ELE	Estimated Life Expectancy
FSR	Field Service Representative
GFE	Government Furnished Equipment
GFI	Government Furnished Information
IAW	In Accordance With
ICT	Initial Cadre Training
ILS	Integrated Logistic Support
OEM	Original Equipment Manufacturer
PA	Procurement Authority
PRM	Progress Review Meeting
PSPC	Public Service and Procurement Canada
PTT	Part Task Trainer
RCAF	Royal Canadian Air Force
R&O	Repair and Overhaul
SOW	Statement of Work
STTE	Specialty Tools and Test Equipment
TA	Technical Authority
TIES	Technical Investigation and Engineering Support
TPM	Technical Problem Management
VMT	Virtual Maintenance Trainer

2.0 PROJECT MANAGEMENT

2.1 General

2.1.1 The Contractor must provide all aspects of project management necessary for planning, designing, developing, constructing, integrating, testing, and delivering the VMT suites and the PTT devices, as well as for providing the material, services, and data detailed in this SOW.

2.1.2 The Contractor must deliver the VMT suites in accordance with Appendix 1, VMT Requirements.

2.1.3 The Contractor must deliver the PTT devices in accordance with Appendix 2, PTT Requirements.

2.1.4 The Contractor must deliver the required data in accordance with Appendix 3, Contract Data Requirements List (CDRLs) and Data Item Descriptions (DIDs).

2.2 Project Management Plan

2.2.1 The Contractor must submit and maintain a Project Management Plan (PMP) in accordance with (IAW) CDRL-001/PM-001 which details the Contractor's management processes for the delivery of the Contract requirements.

2.2.2 The PMP must include a project schedule to depict the overall project status and reflect the time-phased sequence of the Contractor activities, deliverables and milestones.

2.3 Contract Milestones

2.3.1 The approved project schedule must include the following major contract milestones:

a. Contract award;
b. Kick-Off meeting;
c. Preliminary Design Review (PDR) meeting; and
d. Critical Design Review (CDR) meeting.

2.4 Progress Reports

2.4.1 The Contractor must submit progress reports IAW CDRL-002/PM-002.

2.4.2 Progress Reports must include minutes of all Progress Review Meetings (PRMs) held during the reporting period.

2.5 Reviews and Meetings

2.5.1 The Contractor must conduct reviews and meetings with the appropriate DND authorities as approved by the DND Technical Authority (TA).

2.5.2 All meetings will be co-chaired by the DND TA and designated Contractor personnel.

2.5.3 The Contractor must ensure that the required data, personnel, and facilities are available for each review.

2.5.4 The Contractor must submit an agenda to the DND TA for review at least five business days in advance of each meeting.

2.5.5 The Contractor must take and provide minutes of all scheduled meetings to the DND TA within 10 business days of the meeting.

2.6 Kickoff Meeting

2.6.1 The Contractor must plan and host a single Project Kick-Off meeting with all DND stakeholders to review requirements for both the Aircraft Maintenance Trainers Acquisition Contract as well as the Aircraft Maintenance Trainers in Service Support Contract. The kick-off meeting must be scheduled within 5 weeks (35 calendar days) of contract award. The kick-off meeting, including a site visit by DND personnel, will be held at the Contractor's facility.

2.6.2 The Contractor must submit an agenda for the kick-off meeting to the DND TA for review at least five business days in advance of each meeting.

2.6.3 The Contractor must take and provide minutes to the DND TA for the kick-off meeting within 10 business days of the meeting.

2.7 Progress Review Meetings

2.7.1 The Contractor must plan and hold monthly Progress Review Meetings (PRMs).

2.7.2 PRMs must encompass total project status as of the review date and must present a summary of project progress, known problems, proposed resolutions, and impact on the schedule.

2.7.3 The monthly PRM will normally be held via telecom unless an in-person meeting is deemed necessary by the DND TA. In such cases, the meeting will normally be held at CFSATE

2.7.4 The DND TA may cancel PRMs by issuing written notice at least five working days prior to the meeting.

2.8 Preliminary Design Review (PDR)

2.8.1 The Contractor must hold the Preliminary Design Review (PDR) meeting as per approved project schedule to review the VMT suite and PTT device preliminary designs and to resolve any outstanding issues.

2.9 Critical Design Review (CDR)

2.9.1 The Contractor must hold the Critical Design Review (CDR) meeting to ensure that the detailed design will meet DND requirements within the identified cost and schedule constraints, and is appropriate to proceed with full-scale assembly, and integration.

2.9.2 The VMT suite and PTT device design and configuration must be frozen upon DND TA approval of the design solution presented at CDR.

3.0 SYSTEMS ENGINEERING

3.1 Systems Engineering Management

3.1.1 The Contractor must provide the system engineering required for installation and testing of the VMT suites and PTT devices.

3.1.2 The Contractor must prepare and submit a Systems Engineering Management Plan (SEMP) IAW CDRL-003/SE-001.

3.1.3 The Contractor must conduct hardware and software requirements analysis and must conduct design IAW the approved SEMP.

3.1.4 Contractor must implement, maintain, and use the approved SEMP in the performance of the work.

3.2 Implementation, Integration and Installation

3.2.1 The Contractor must implement the VMT suite and PTT device design IAW the approved SEMP.

3.2.2 The Contractor must commence installation of the VMT suites and PTT devices at CFSATE in 16 Wing, CFB Borden upon written approval from DND TA, following execution of the Acceptance Test Procedures.

3.3 Acceptance Plan (AP)

3.3.1 The Contractor must submit an Acceptance Plan (AP) IAW CDRL-004/SE-002.

3.3.2 Execution of the AP at 16 Wing, CFB Borden must be co-ordinated with DND IAW the approved project schedule.

3.4 Testing / Configuration Management

3.4.1 The Contractor must prepare and submit Acceptance Test Procedures (ATPs) in IAW CDRL-005/SE-003. ATPs are part of the Acceptance Plan (AP)

3.4.2 As per the approved AP, execution of the ATPs must verify the serviceability, configuration and functionality of the VMT and PTTs before delivery.

3.4.3 Approved ATPs must be re-submitted after each testing phase to include the test results.

3.4.4 Upon delivery, DND will verify by execution of the ATPs, as per approved AP, that the VMT suites and PTT devices meet the specified system performance and technical requirements, specified in Appendix 1 and 2.

3.4.5 The project schedule must establish a Design Baseline Control Date upon DND approval of the Equipment Design Baseline Report. The Contractor must prepare and submit the Equipment Design Baseline Report IAW CDRL-006/SE-004.

4.0 INTEGRATED LOGISTICS SUPPORT

4.1 Training for Instructors

4.1.1 The Contractor must provide initial cadre training (ICT) for VMT and PTT device operation for up to 64 of the instructional staff at CFSATE, in a "train the trainer" type scenario.

4.1.2 The Contractor must submit a Training Plan (TP) for DND approval IAW CDRL-007/ILS-001.

4.1.3 The Contractor must deliver the entire Instructor training package, in both English and French, IAW CDRL-008/ILS-002. This includes course materials, documentation and the training syllabus, as specified in the approved TP.

4.2 Student Training Package

4.2.1 The VMT and each type of PTT must have an accompanying Student Training Package (STP), delivered by the Contractor, in both English and French, IAW CDRL-009/ILS-003. The STP must include the maintenance training procedures for the VMT and PTTs.

4.3 PTT and VMT Parts List

4.3.1 The contractor must submit an itemized parts list IAW CDRL-010/ILS-004.

4.4 Quality Management

4.4.1 In the performance of the work described herein, the Contractor must comply with the requirements of ISO 9001:2008, "Quality Management Systems Requirements".

4.4.2 The Contractor must submit a Quality Assurance (QA) Plan IAW CDRL-011/ILS-005.

4.4.3 The QA Plan must describe how the Contractor will meet the quality assurance requirements for the planning, design, development, construction, integration, testing, and delivery of the VMT and the PTT.

4.5 Documentation, Drawings and Publications

4.5.1 The Contractor must deliver in both English and French:

4.5.1.1 VMT Operating Instructions IAW CDRL-012/ILS-006;

4.5.1.2 PTT Operating Instructions IAW CDRL-013/ILS-007;

4.5.1.3 Drawings and Maintenance Manuals IAW CDRL-014/ILS-008; and

4.5.1.4 Software Documentation IAW CDRL-015/ILS-009.

4.5.2 Following unconditional acceptance of the device, Operating Instructions, Drawings and Software Documentation must be validated and certified as complete by the Contractor, and final copies must be submitted to DND TA for acceptance.

4.6 Acceptance of Integrated Logistics Support Deliverables

4.6.1 Following conditional product acceptance, all Integrated Logistics Support (ILS) deliverables must be validated and certified as complete by the Contractor, and final copies must be submitted to DND for acceptance.

4.6.2 The Contractor must correct within 30 working days of DND notification any deficiencies, discrepancies or anomalies found during the 12 months following delivery to DND of the approved final copy.

5.0 EQUIPMENT DELIVERABLES

5.1 Virtual Maintenance Trainers

5.1.1 The Contractor must deliver a quantity of six VMT suites in accordance with the technical requirements found in Appendix 1 to this SOW.

5.1.2 In consideration of the Contractor satisfactorily completing its obligations under the Contract, payment for the delivery of the VMT suites will be made in accordance with Annex B, Basis of Payment.

5.2 Part Task Trainers

5.2.1 The Contractor must deliver the following PTTs IAW the technical requirements found in Appendix 2 to this SOW:

5.2.1.1 Quantity of eight Communications Systems (CS) PTT devices;

5.2.1.2 Quantity of eight Cockpit Instrumentation (CI) PTT devices;

5.2.1.3 Quantity of eight Pitot Static (PS) PTT devices;

5.2.1.4 Quantity of eight Navigation Systems (NS) PTT devices; and

5.2.1.5 Quantity of eight Automatic Flight Control Systems (AFCS) PTT devices.

5.2.2 In consideration of the Contractor satisfactorily completing its obligations under the Contract, payment for the delivery of the PTT devices will be made in accordance with Annex B, Acquisition Basis of Payment.

6.0 ADDITIONAL WORK REQUESTS

6.1.1 AWRs will cover exceptional cases that were not anticipated as part of the acquisition of the VMT suites and PTT devices and as described under Annex B, Acquisition Basis of Payment.

ANNEX B – BASIS OF PAYMENT

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
VMT and PTT

ANNEX B – BASIS OF PAYMENT
CASE Phase 2 Acquisition

*(**Bidder proposed pricing input required in the blank table fields**)*

1.0 In consideration of the Contractor's satisfactory performance of its obligations under this contract, the Contractor shall be paid Firm Fixed Milestone prices, and Firm Labour Rates for Additional Work Requests (AWR's), as applicable.

1.1 The winning bid will be bound by the prices quoted, and for the duration of the contract.

2.0 Acquisition Pricing

2.1 Virtual Maintenance Trainer (VMT) Acquisition

2.1.1 General - Customs duties are excluded and Goods and Services Tax (GST) or Harmonized Sales Tax (HST), if applicable, is extra. In the event of a discrepancy between the unit and extended unit prices, the unit prices shall apply.

2.1.2 Currency – All prices are provided in the following currency: _____

3.0 Table 1 – VMT Acquisition Requirement, Meeting and Documentation Pricing

Item	Description	Qty	Firm Unit Price	Extended Price
1	VMT Computer Systems The Contractor must provide 6 VMT Suite computer systems as defined in Annex A Statement of Work and related appendices	6		
2	VMT Software Licenses The Contractor must provide 6 VMT Suite software licenses as defined in Annex A Statement of Work and related appendices	6		
3	Transportation The Contractor must deliver all VMT Suite equipment to CFSATE, 16 Wing, Borden, Ontario as detailed in the DND approved project schedule		N/A	
4	Installation The Contractor must install the VMT Suite equipment within CFSATE facilities as detailed in the DND approved project schedule		N/A	
5	Meetings The Contractor must deliver a Kick off meeting, Preliminary Design and Critical Design review meetings per Annex A Statement of Work		N/A	

6	Documentation The Contractor must deliver all Plans and CDRLs as outlined in Annex A Statement of Work		N/A	
7	Training The Contractor must provide VMT Suite operator and maintenance training to CFSATE staff and students as defined in Annex A Statement of Work and related appendices		N/A	
Total Extended Price for all VMT Acquisition requirement pricing categories (1 thru 7):				

4. 0 Part Task Trainer (PTT) Device Acquisition

4.1.1 General - Customs duties are excluded and Goods and Services Tax (GST) or Harmonized Sales Tax (HST), if applicable, is extra. In the event of a discrepancy between the unit and extended unit process, the unit prices shall apply.

4.1.2 Currency – All prices are provided in the following currency: _____

4.1.3 Table 2 – PTT Acquisition Requirement Pricing

Item	Description	Qty	Firm Unit Price	Extended Price
1	Aircraft Communications Systems PTT The Contractor must provide eight (8) Aircraft Communications PTT devices as defined in Annex A Statement of Work and related appendices	08		
2	Aircraft Cockpit Instrumentation PTT The Contractor must provide eight (8) Aircraft Cockpit Instrumentation PTT devices as defined in Annex A Statement of Work and related appendices	08		
3	Pitot Static Systems PTT The Contractor must provide eight (8) Pitot Static Systems PTT devices as defined in Annex A Statement of Work and related appendices	08		
4	Navigation Systems PTT	08		

	The Contractor must provide eight (8) Navigation Systems PTT devices as defined in Annex A Statement of Work and related appendices			
5	Automatic Flight Control Systems PTT The Contractor must provide eight (8) Automatic Flight Control Systems PTT devices as defined in Annex A Statement of Work and related appendices	08		
6	Distance Measuring / Transponder Systems Test Set The Contractor must provide eight (8) Distance Measuring / Transponder Systems Test Sets as defined in Annex A Statement of Work and related appendices	08		
7	Pitot Static System Test Set The Contractor must provide eight (8) Pitot Static System Test Sets as defined in Annex A Statement of Work and related appendices	08		
8	Navigation / Communication Systems Test Set The Contractor must provide eight (8) Navigation / Communication Systems Test Sets as defined in Annex A Statement of Work and related appendices	08		
9	Transportation The Contractor must deliver all PTT devices to CFSATE, 16 Wing, Borden, Ontario as detailed in the DND approved project schedule		N/A	
10	Installation The Contractor must install the PTT devices within CFSATE facilities as detailed in the DND approved project schedule		N/A	
11	Training The Contractor must provide operator and maintenance training to CFSATE staff and students as defined in Annex A Statement of Work and related appendices		N/A	
Total Extended Price for all PTT Acquisition requirement pricing categories (1 thru 11):				

5.0 Additional Work Requests (AWRs)

5.1 If and when requested by Canada, Additional Work Requests shall only be authorized by the Procurement Authority (PA) on a task by task basis, utilizing a DND 626 Task Authorization form.

5.2 Payment for AWR Work completed by the Contractor will be made in Canadian dollars. All prices and amounts of money are exclusive of applicable taxes, unless otherwise indicated.

5.3 Under exceptional circumstances, the Contractor may be reimbursed authorized travel and living expenses reasonably and properly incurred in the performance of an AWR, at cost, without any allowance for profit, in accordance with the meal and private vehicle as provided in Appendices B, C and D of the National Joint Council Travel Directive, and with the other provisions of the directive referring to "travelers", rather than those referring to "employees".

5.4 All travel shall be authorized in advance and in writing by the DND Procurement Authority (PA) prior to making any travel arrangements. The Contractor shall provide the details of the travel and living expenses with each claim including copies of invoices, and remit copies of original receipts to the PA for reimbursement. All travel and living expenses are subject to Government Audit before or after the claim is paid.

5.5 Table 3 – Additional Work Request (AWR) Pricing

5.6 For the purpose of this evaluation, pricing will be calculated using an estimated level of effort of 20 hours per category.

5.7 The 20 hours of estimated level of effort are for evaluation purposes only. Hourly rates entered here however will form the firm hourly rates if authorized and used for Additional Work Requests.

5.8 Bidders are required to input firm hourly rates for each labour category x 20 hours with a cumulative evaluated total at the end. AWR pricing in table 3 does not form part of the Initial CASE 2 acquisition contract value, as defined at 6.2.

Additional Work Request Pricing - Labour		**Rates and total**
Hourly Rate for AWR Support. Contractor shall be paid the hourly rate indicated for each category	Firm Hourly Rate – Program Manager x 20 hours	$
	Firm Hourly Rate – Sr Engineer x 20 hours	$
	Firm Hourly Rate – Jr Engineer x 20 hours	$
	Firm Hourly Rate – Senior Maintenance Technician x 20 hours	$
	Firm Hourly Rate – Junior Maintenance Technician x 20 hours	$
	Firm Hourly Rate – Logistician x 20 hours	$
	Firm Hourly Rate – Other x 20 hours	$
	Total for Additional Work Request (Labour):	

6.0 Acquisition Milestone Payments Schedule

6.1 Payment for the completion of Milestones for the CASE 2 Acquisition contract will be a firm fixed price based on the percentage of the overall contract value as detailed in Table 4.

6.2 Total value of all the Milestones contained in table 4 to be paid to the Contractor is based on the Initial CASE 2 Acquisition contract value, which is calculated by adding the total extended value of both table 1 (VMT requirements) and table 2 (PTT requirements) together.

6.3 Individual numbered milestones will be paid to the Contractor based on their percentage of total contract value as defined in table 4, upon satisfactory completion and acceptance by the DND Technical Authority.

6.4 Bidders are requested to fill out the Approximate Delivery Date column for each of the Milestones, which will not be evaluated, in addition to section 2.3 Contract Milestones in Annex A SOW.

6.5 Notwithstanding the information provided in Part 7 – Resulting Contract Clauses (CASE 2-ACQ), article 7.13.2 Delivery Date, the Bidder is requested to add their own approximate date for delivery of the VMT and PTT systems (at four places indicated **).

6.5 Table 4 –Milestone Payments Schedule

Category	Description of Activity	Milestone #	Approx. Delivery Date (months after contract award)	Amount $	SOW Ref	% of Contract	Supporting Documentation & Deliverables
Meetings	Kick-Off Meeting	**001**			2.6.1	2.5%	Completion and acceptance confirmation by DND TA
	Preliminary Design Review Meeting	**002**			2.8.1	2.5%	Completion and acceptance confirmation by DND TA
	Critical Design Review Meeting	**003**			2.9.1	5%	Completion and acceptance confirmation by DND TA
Documentation	Delivery and acceptance of final Project Management Plan (CDRL-001), Progress Reports (CDRL-002) and Quality Assurance Plan (CDRL-011)	**004**			2.2.1 2.4.1 4.4.2	5%	Completion and acceptance confirmation by DND TA
	Delivery and acceptance of all Systems Engineering and Acceptance Plan documents IAW CDRL-003, CDRL-004, CDRL-005 and CDRL-006	**005**			3.1.2 3.3.1 3.4.1 3.4.5	5%	Completion and acceptance confirmation by DND TA
	Delivery and acceptance of all Integrated Logistic System documents IAW CDRL-007, CDRL-008, CDRL-009, CDRL-010, CDRL-012, CDRL-013, CDRL-014 and CDRL-015	**006**			4.1.2 4.1.3 4.2.1 4.3.1 4.4.1 4.5.1	10%	Completion and acceptance confirmation by DND TA
**Initial VMT Delivery ** **	Delivery, installation and successful acceptance testing of one VMT classroom suite	**007**			5.1.1	15%	Completion and acceptance confirmation by DND TA
**Final VMT Delivery ** **	Delivery, installation and successful acceptance testing of the remaining 5 VMT classroom suites for a total of 6 VMT classroom suites available at CFSATE	**008**			5.1.1	20%	Completion and acceptance confirmation by DND TA

Initial PTT Delivery **	Delivery, installation and successful acceptance testing of the following; a. one Communications Systems PTT b. one Cockpit Instrumentation PTT c. one Pitot Static PTT d. one Navigation Systems PTT; and e. one Automatic Flight Control System PTT f. one Distance measuring and Transponder test set, one Pitot Static system test set, and one Navigation/Communication test set	**009**			5.2.1	15%	Completion and acceptance confirmation by DND TA
Final PTT Delivery **	Delivery, installation and successful acceptance testing of all remaining 39 PTT devices and 23 test sets, for a total of 40 PTT devices and 24 test sets available at CFSATE	**010**			5.2.1	20%	Completion and acceptance confirmation by DND TA
	Total $ Value of Milestones:	(to be populated upon contract award)					

7.0 Total Evaluated Price

7.1 For financial evaluation purposes, the grand total evaluated amount for Annex B will be the total amount of **Table One + Table Two + Table Three = Total Evaluated Price:** $_____.

Appendix 1– Virtual Maintenance Trainer (VMT) Requirements

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

1. Introduction

1.1 This document establishes the software and hardware requirements of the Virtual Maintenance Trainer (VMT) for use at the Canadian Forces School of Aerospace Technology and Engineering (CFSATE).

VMT – Concept of Operation The VMT is a training device that operates in accordance with the theory of operation of an aircraft system, simulating the functionality of that system to a sufficient degree to enable the student to carry out troubleshooting procedures and functional checks on the system in accordance with the maintenance manual. Input and output is to duplicate that of the aircraft system to the degree necessary for the instructional goal. Effects such as control surface movement may be displayed in virtual models on-screen. The VMT may include visualisation aids that illustrate aerodynamic forces, electrical, gas or heat flow to facilitate learning.

1.2 The CFSATE instructor cadre is largely comprised of current or former military aircraft technicians, who have been identified to instruct at CFSATE based on their technical and leadership abilities. Although they receive some instructor training, they are not experts in Information Technology or adult education, and will be operating the VMT without this expertise.

1.3 The instructor would introduce the lesson, explain the system's purpose within the aircraft's mission profile, use the VMT to demonstrate its normal function and describe the principles by which it operates. The instructor would go on to present the applicable maintenance manuals and describe the type of maintenance activities that the student will be expected to carry out on the VMT.

1.4 The class would then be led through maintenance scenarios in which instructor-selected unserviceabilities are encountered. The instructor would encourage the students to identify possible causes of the unserviceability by applying the principles of operation to the systems. This would serve to enhance a student's understanding and better prepare them for practical hands on training exercises and ultimately their jobs as journeymen technicians at tactical units.

1.5 Providing the ability to insert faults of varying degrees of difficulty, involving all integrated systems and cockpit indicating systems to which the students will detect and diagnose system malfunctions utilizing supporting technical documentation and instructor assistance.

2. General Requirements

2.1 The VMT must be a computer software-based training device which simulates aircraft system operations and allows for the practice of aircraft maintenance procedures on aircraft systems

2.2 The VMT must operate at an UNCLASSIFIED level.

2.3 The VMT must be used as a part of an integrated classroom suite that supports demonstrations and presentations with one instructor and 16 students.

2.4 Each VMT suite must be designed for use in a single classroom and operate independently from other training devices

2.5 Each VMT suite must include components to distribute power from the facility provided power source (110V, 60Hz) to the system components.

2.6 All VMT suite hardware must be available as Commercial Off the Shelf (COTS) equipment

2.7 The VMT suite hardware components must meet CSA, ULC or other equivalent recognized safety certification

2.8 Each VMT suite must include an instructor station and eight student stations able to accommodate 2 students per station

2.9 The VMT suite must use desktop style personal computers for the instructor and student workstations

2.10 Each VMT personal computer must use a commercially supportable operating system

2.11 Each VMT instructor and student workstation personal computer must include a minimum of two spare USB ports (USB 2.0 or higher)

2.12 Each VMT instructor and student workstation personal computer must include a minimum of two 27” 4K UHD LED computer display monitors

2.13 Each VMT instructor and student workstation personal computer must include a keyboard and wired mouse

2.14 Each VMT suite must include a classroom audio system

2.15 The VMT suite classroom audio system must include all components and interfaces necessary to transmit audio from the instructor workstation

2.16 The VMT ambient noise levels must be consistent with Canadian Labour Code standards

3. VMT Requirements

3.1 The VMT must allow trainees to conduct simulated aircraft system functional testing procedures

3.2 The VMT must allow for insertion of simulated aircraft system faults

3.3 The VMT must ensure that users are required to log in to use an instructor station.

3.4 The VMT must ensure that users are required to log in to use a trainee station.

3.5 The VMT must provide a unique ID for each trainee workstation which is identifiable by the instructor.

3.6 The VMT default language must be in English.

3.7 The VMT menu and navigation tools must be selectable to be displayed in either English or French.

3.8 The VMT systems functional and troubleshooting checklists must be selectable for use in either English or French.

3.9 The VMT trainee task plans must be selectable for use in either English or French.

3.10 The VMT should be based on an aircraft that has a Transport Canada (or equivalent) approved Master Minimum Equipment List (MMEL)

3.11 The VMT should allow trainees to conduct simulated aircraft system inspections

3.12 The VMT should allow trainees to access and interpret simulated aircraft wiring diagrams

3.13 The VMT should allow trainees to access and interpret simulated aircraft schematic diagrams

3.14 The VMT should allow trainees to access and interpret simulated aircraft component location diagrams

3.15 The VMT should allow trainees to access and interpret simulated aircraft parts publications

3.16 The VMT should allow trainees to simulate the removal and installation of aircraft system components, complete with part number

3.17 The VMT should include an ‘instructor configuration” or similarly named mode that provides the capability to control student accessibility and distribution of scenarios

3.18 The VMT should track individual trainee progress, tasks completed, and allow the information to be accessed from the instructor station

3.19 The VMT should provide the trainee with full interactivity, minus the instructor configuration and monitoring capability

3.20 The VMT should replicate real aircraft performance except where, under instructor control, it is desirable from a training perspective to enhance or degrade the performance

3.21 The VMT should make it possible to distort the impression of real time for training benefit. For example, curing of a sealing compound.

3.22 The VMT instructor workstation should be able to select and view any trainee's workstation display for the duration of a trainee's login session

3.23 The VMT should include a Task Plan Mode. In Task Plan mode the VMT device should be controlled and monitored by instructor selectable Task Plans containing events preselected to occur in a given sequence or at specified times during a training exercise.

3.24 The VMT should identify and record errors in the trainee performance while in task plan mode. The results of the trainee's performance should be storable.

3.25 The VMT should allow for the instructor to select the task and initialize the task mode for the trainee.

3.26 The VMT should record and display time since trainee login.

3.27 The VMT should record and display time since task plan mode selected.

3.28 The VMT should record and display the title of the task selected by the trainee.

3.29 The VMT should record and display the list of components disconnected/removed by the trainee.

3.30 The VMT should record and display the list of trainee error(s).

3.31 The VMT should record and display the list of components replaced/repaired by the trainee.

3.32 The VMT should record and display any safety infractions (missed power on or maintenance checklist items) carried out by the trainee.

3.33 The VMT should record and display that an area inspection and area specific FOD check were carried out.

3.34 The VMT should record and display if the malfunction was rectified and if a functional check was carried out serviceable.

3.35 The VMT should include a Free-Play Mode which is controlled by the trainee, and where the VMT device operates independent of automated monitoring.

3.36 The VMT should allow the trainee to Freeze/Unfreeze the simulation during free play mode.

3.37 The VMT should allow the trainee to reset the simulation during free play mode.

3.38 The VMT should allow the trainee to accelerate the simulation during free play mode.

3.39 The VMT should allow the trainee to access functional and troubleshooting document(s) during free play mode.

3.40 The VMT should allow the trainee to access test sets / tools during free play mode.

3.41 The VMT should allow the trainee to select a desired aircraft and aircraft system power setting during free play mode.

3.42 The VMT should allow the trainee to navigate throughout the aircraft during free play mode.

3.43 The VMT should allow the trainee to use all simulated systems under normal condition and carry out functional checks during free play mode.

3.44 The VMT should allow administrators to define and store User IDs.

3.45 The VMT should allow administrators to define and store User Account Name.

3.46 The VMT should allow administrators to define and store Passwords.

3.47 The VMT should allow administrators to define and store User Types (trainee, instructor, Maintainer, and/or Administrator).

3.48 The VMT should allow administrators to define and store Instructor Name (chosen from a list of instructor users).

3.49 The VMT should ensure that the User Name and User Account Name are required to create a password-protected user account.

3.50 The VMT should provide the instructor with the capability to monitor and control all appropriate aspects of the simulation

3.51 The VMT should provide the instructor with the capability to record and later replay a previously recorded exercise or segment thereof, on one or more VMT devices (either student or instructor display) for demonstration purposes.

3.52 The VMT should provide the instructor with the capability to select the VMT mode of operation as either Free-Play mode or Task mode.

3.53 The VMT should provide the instructor with the capability to control the training exercise using software tools such as freezes time and accelerate time

3.54 The VMT should allow the instructor to control the application and removal of aircraft power.

3.55 The VMT should allow the instructor to control the connection, disconnection, and application of the aircraft hydraulic systems.

3.56 The VMT should allow the instructor to carry out an INS quick alignment.

3.57 The VMT should allow the instructor to control aircraft refueling and defueling operations.

3.58 The VMT should allow the instructor to control aircraft engine starting and stopping.

3.59 The VMT should allow the instructor to control quick engine settings (ie. selecting a % rpm).

3.60 The VMT should allow the instructor to control the starting and stopping of the APU.

3.61 The VMT should allow the instructor to control the installation and removal of ground safety devices (bonding wires).

3.62 The VMT should allow the instructor to control the application of aircraft pressurization and air conditioning.

3.63 The VMT should allow the instructor to control the performance of a pitot static leak check.

3.64 The VMT should allow the instructor to control the performance of final area closeout and visual inspections.

3.65 The VMT should allow the instructor to control the performance of a EWIS zonal inspection.

3.66 The VMT should allow the instructor to monitor and control all VMT Devices within the network from any instructor station.

3.67 The VMT simulated malfunctions should be based on the troubleshooting procedures contained in the provided document for the equipment degraded modes of operation.

3.68 The VMT simulated malfunctions should cause realistic indications and effects in both primary and related supporting systems.

3.69 The VMT should provide the instructor the capability to select malfunctions during Task mode, or for the trainee to select during Free-Play mode.

3.70 In both the Task mode and Free-Play mode of operation, the instructor should have the capability to record and later replay, on one or more VMT devices (either student or instructor display), the last scenario performed on the workstation for demonstration purposes.

4. VMT Aircraft Technical Documentation

4.1 The VMT documentation should include aircraft block diagrams for all systems, subsystems and components simulated in the VMT

4.2 The VMT documentation should include aircraft wiring diagrams for all systems, subsystems and components simulated in the VMT

4.3 The VMT documentation should include aircraft component location diagrams for all systems, subsystems and components simulated in the VMT

4.4 The VMT documentation should include power requirements for all systems, subsystems and components simulated in the VMT

4.5 The VMT documentation should include any safety concerns / considerations for the equipment and users

5. VMT Aircraft Systems Requirements

5 Aircraft Systems

5.1 The VMT should be based on a Transport Canada, Federal Aviation Administration or European Aviation Safety Agency certified multi-engine, turbo prop, transport aircraft

5.2 Aircraft Electrical Wiring Interconnect System (EWIS)

5.2.2 The VMT should include an aircraft Electrical Wiring Interconnect System (EWIS)

5.2.3 The VMT EWIS should include wires and cables.

5.2.4 The VMT EWIS should include bus bars

5.2.5 The VMT EWIS should include termination points on electrical devices, including on relays, interrupters, switches, connectors, termination blocks, circuit breakers and other circuit protection devices.

5.2.6 The VMT EWIS should include electrical connectors, including feed-through connectors and connector accessories.

5.2.7 The VMT EWIS should include electrical grounding and bonding devices and associated connections.

5.2.8 The VMT EWIS should include wire insulation, wire sleeving and conduits that have electrical termination for the purpose of bonding.

5.2.9 The VMT EWIS should include shields or braids.

5.2.10 The VMT EWIS should include clamps and other devices used to route and support wire bundles.

5.2.11 The VMT EWIS should include pressure seals.

5.2.12 The VMT EWIS should include fiber optics.

5.2.13 The VMT should allow the trainee to analyze aircraft systems and wiring diagrams.

5.2.14 The VMT wiring diagrams should depict specific components, location, power, voltage, frequency, phase and test points.

5.2.15 The VMT wiring diagrams should depict the power flow, signal flow, controls function and sequence of operation that are possible.

5.2.16 The VMT should have EWIS troubleshooting on various aircraft systems.

5.2.17 The VMT should allow students to troubleshoot, diagnose and isolate faults in system wires, wiring devices, and termination devices, , including data and signals, between two or more intended termination points

5.2.18 The VMT should permit virtual quick repair of wires and electrical components during troubleshooting

5.2.19 The VMT should permit the virtual removal and installation of lockwire and witness wire as required during system troubleshooting.

5.2.20 The VMT should permit for rectification of EWIS faults by allowing the trainee to replace faulty EWIS components that are inside shelves, panels, racks, junction boxes, distribution panels, wire integration units, and external wiring of equipment.

5.2.21 The VMT should allow fault rectification to be verified by performing final functional checks on the EWIS.

5.2.22 The VMT should represent systems RF Cable and RF Cable Termination on radio communication systems.

5.2.23 The VMT should represent a minimum of 3 types of connectors (RF, Data Bus and Generic Circular Connectors) with lockwire/witness-wire for applicable connectors. The VMT should permit virtual lockwire/witness-wire removal and installation during troubleshooting.

5.2.24 The VMT should allow the trainee to perform a Zonal Inspection Process (ZIP) in order to inspect EWIS for degradation caused by; vibration, moisture, maintenance, indirect damage, contamination, heat and cold.

5.3 Aircraft Power Generation and Voltage Regulation System

5.3.1 The VMT should include an aircraft electrical power generation and voltage regulation system.

5.3.2 The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical power generation and voltage regulation system.

5.3.3 The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during engine startup.

5.3.4 The VMT should simulate an aircraft electrical power generation and voltage regulation system with system functionals and operation during normal electrical power.

5.3.5 The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during power transfer.

5.3.6 The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during periods of abnormal electric power situation (ie one bus out etc)

5.3.7 The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during a power failure.

5.3.8 The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during emergency electrical power operations.

5.3.9 The VMT should include an aircraft ground power system with system functionals and operation during ground power application.

5.3.10 The VMT should include an aircraft electrical power conversion system with system functionals and operation during power conversion.

5.3.11 The VMT should include an aircraft Electrical Power Distribution System with system functionals and operation during power distribution.

5.3.12 The VMT aircraft electrical power generation and voltage regulation system should include 2 Constant Frequency Generation type generators, or

5.3.13 The VMT aircraft electrical power generation and voltage regulation system should include 2 Constant Speed Drive (CSD) type generators, or

5.3.14 The VMT aircraft electrical power generation and voltage regulation system should include 2 Integrated Drive Generator (IDG) type generators, or

5.3.15 The VMT aircraft electrical power generation and voltage regulation system should include 2 Variable speed constant frequency (VSCF) type generators or

5.3.16 The VMT aircraft electrical power generation and voltage regulation system should include 2 Variable Frequency (VF) type generators.

5.3.17 The VMT should include an aircraft secondary electrical power source with an auxiliary power generator.

5.3.18 The VMT should include an emergency electrical power source with two batteries.

5.3.19 The VMT aircraft electrical power generation and voltage regulation system should include an aircraft generator monitor.

5.3.20 The VMT should include current protection such as fuses, power contactors, circuit breakers, solenoids, relays, reverse current relay, solid state power controller, limiting resistors.

5.3.20 The VMT aircraft electrical power generation and voltage regulation system should include a control station or display.

5.4 Aircraft Ground Power System

5.4.1 The VMT should include an aircraft ground power system.

5.4.2 The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical ground power system

5.4.3 The VMT aircraft ground power system should include connection with hangar power or ground power unit (GPU).

5.4.4 The VMT aircraft ground power system should include aircraft power source selection controls.

5.5 Aircraft Electrical Power Conversion System

5.5.1 The VMT should include an aircraft electrical power conversion system.

5.5.2 The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical power conversion system

5.5.3 The VMT aircraft electrical power conversion system should include components required to convert AC power to DC power.

5.5.4 The VMT aircraft electrical power conversion system should include components required to convert DC power to AC power.

5.5.5 The VMT aircraft electrical power conversion system should include components required to convert AC power to AC power.

5.6 Aircraft Electrical Power Distribution System

5.6.1 The VMT should include an aircraft electrical power distribution system, capable of demonstrating electrical loads.

5.6.2 The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical power distribution system

5.6.3 The VMT aircraft electrical power distribution system should be capable of demonstrating electrical loads.

5.6.4 The VMT aircraft electrical power distribution system should display non-essential electrical loads.

5.6.5 The VMT aircraft electrical power distribution system should display essential electrical loads.

5.6.6 The VMT aircraft electrical power distribution system should display emergency electrical loads.

5.7 Engine Electrical Control and Indicating Systems

5.7.1 The VMT should include an engine electrical control and indicating system.

5.7.2 The VMT aircraft engine control and indication system should include system functionals and operation during main engine start

5.7.3 The VMT aircraft engine control and indication system should include ignition system operation during engine start or restart

5.7.4 The VMT aircraft engine control and indication system should include representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.7.5 The VMT engine electrical control and indicating system should include an engine parameter indicating system

5.7.6 The VMT engine electrical control and indicating system should include jet engine starter system including circuit components.

5.7.7 The VMT engine electrical control and indicating systems should include a jet engine ignition system.

5.7.8 The VMT jet engine ignition system should include ignition exciters.

5.7.9 The VMT jet engine ignition system should include igniter plugs.

5.7.10 The VMT engine control systems should include a Full Authority Digital Engine Control (FADEC) system, with hydro-mechanical and digital portions.

5.7.11 The VMT FADEC system should include an Electrical Control Unit (ECU).

5.7.12 The VMT FADEC system should include a power link ignition system.

5.7.13 The VMT FADEC system should include a booster coil.

5.7.14 The VMT FADEC system should include an impulse coupling.

5.7.15 The VMT FADEC system should include a high-tension retard breaker vibrator.

5.7.16 The VMT FADEC system should include a low-tension retard breaker vibrator.

5.7.17 The VMT FADEC system should include components required to integrate with the avionics systems.

5.7.18 The VMT engine control systems should include a fuel control unit (FCU).

5.7.19 The VMT engine control systems should include a fuel Management Unit (FMU).

5.7.20 The VMT engine control systems should include electronic fuel control.

5.7.21 The VMT electronic fuel control should include an electronic engine controller.

5.7.22 The VMT electronic fuel control should include a control panel.

5.8 Propeller Electrical Control and Indicating System

5.8.1 The VMT should include a propeller electrical control and indicating system (if proposed VMT is a propeller aircraft).

5.8.2 The VMT aircraft propeller electrical control and indicating system should include a minimum of two operating engines with rotating propellers to carry out propeller control and indicating system functional check and troubleshooting.

5.8.3 The VMT aircraft propeller electrical control and indicating system (if applicable) should include the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.8.4 The VMT propeller electrical control and indicating system should include a constant speed propeller system (electrical).

5.8.5 The VMT constant speed propeller system (electrical) should include propeller rpm control and indication.

5.8.6 The VMT constant speed propeller system (electrical) should include pitch angle control and indication.

5.8.7 The VMT constant speed propeller system (electrical) should include a control and indication warning system.

5.8.9 The VMT propeller electrical control and indicating system should include a propeller synchronization system.

5.8.10 The VMT propeller synchronization system should include a magnetic pickup.

5.8.11 The VMT propeller synchronization system should include a synchrophaser box.

5.8.12 The VMT propeller synchronization system should include a propeller control mechanism.

5.8.13 The VMT propeller synchronization system should include synchrophaser controls.

5.8.14 The VMT propeller synchronization system should include a feathering system (electrical and mechanical).

5.8.15 The VMT propeller synchronization system should include a propeller reversing system (electrical and mechanical).

5.9 Fuel Management Electrical Control and Indicating Systems

5.9.1 The VMT should include a fuel management electrical control and indicating system.

5.9.2 The VMT fuel management control and indication system should include a minimum of three fuel tanks to carry out fuel management control and indicating system for functional check and troubleshooting during refuel / de-fuel systems operation and during fuel transfer between fuel storage tanks.

5.9.3 The VMT fuel management control and indication system should include the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.9.4 The VMT fuel management electrical control and indicating system should include fuel boost pumps.

5.9.5 The VMT fuel management electrical control and indicating system should include fuel selector valves.

5.9.6 The VMT fuel management electrical control and indicating system should include fuel pressure gauges.

5.9.7 The VMT fuel management electrical control and indicating system should include fuel storage tanks (minimum of 3 tanks).

5.9.8 The VMT fuel management electrical control and indicating system should include a fuel management computer.

5.9.9 The VMT fuel management computer should include a fuel quantity indicating system.

5.9.10 The VMT fuel quantity indicating system should include capacitance probes.

5.9.11 The VMT fuel quantity indicating system should include compensator probes.

5.9.12 The VMT fuel management electrical control and indicating system should include a fuel control indicating system.

5.9.13 The VMT fuel management electrical control and indicating system should include a fuel flow indicating system.

5.9.14 The VMT fuel flow indicating system should include a fuel pressure indication system

5.9.15 The VMT fuel flow indicating system should include a fuel quantity warning indication system.

5.9.16 The VMT fuel flow indicating system should include fuel temperature indication.

5.9.17 The VMT fuel flow indicating system should include a fuel flow indicator/transmitter.

5.9.18 The VMT fuel management electrical control and indicating system should include a vent system.

5.9.19 The VMT fuel management electrical control and indicating system should include a close circuit high pressure refueling with cross feed.

5.9.20 The VMT fuel management electrical control and indicating system should include valves and controls

5.10 Environmental Control and Indication System

5.10.1 The VMT should include an environmental control and indication system.

5.10.2 The VMT aircraft environmental control system should allow for the performance of system functional checks and troubleshooting.

5.10.3 The VMT aircraft environmental control system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.10.4 The VMT environmental control and indication system should include a cabin pressurization temperature control system.

5.10.5 The VMT cabin pressurization temperature control system should include a control panel.

5.10.6 The VMT cabin pressurization temperature control system should include a pressure regulator.

5.10.7 The VMT cabin pressurization temperature control system should include an outflow valve

5.10.8 The VMT cabin pressurization temperature control system should include a negative relief valve or safety valve

5.10.9 The VMT cabin pressurization temperature control system should include a cabin altimeter.

5.10.10 The VMT cabin pressurization temperature control system should include a pressure dump control.

5.10.11 The VMT cabin pressurization temperature control system should include a differential pressure indicator.

5.10.12 The VMT environmental control and indication system should include an environmental control system (ECS).

5.10.13 The VMT environmental control system (ECS) should include bleed air.

5.10.14 The VMT environmental control system (ECS) should include engine driven compressors.

5.10.15 The VMT environmental control system (ECS) should include turbo compressors.

5.10.16 The VMT environmental control system (ECS) should include an external cart.

5.10.17 The VMT environmental control and indication system should include a primary heat exchanger system.

5.10.18 The VMT primary heat exchanger system should include a primary heat exchanger.

5.10.19 The VMT primary heat exchanger system should include a primary heat exchanger bypass valve.

5.10.20 The VMT primary heat exchanger system should include a shut-off valve.

5.10.21 The VMT primary heat exchanger system should include a refrigeration bypass valve.

5.10.22 The VMT primary heat exchanger system should include a refrigeration unit.

5.10.23 The VMT primary heat exchanger system should include a mixing valve.

5.10.24 The VMT primary heat exchanger system should include a water separator(s).

5.10.25 The VMT primary heat exchanger system should include ram air valve(s).

5.10.26 The VMT environmental control and indication system should include an aircraft air distribution system.

5.10.27 The VMT aircraft air distribution system should include filters.

5.10.28 The VMT aircraft air distribution system should include temp sensors.

5.10.29 The VMT aircraft air distribution system should include air ducts.

5.10.30 The VMT environmental control and indication system should include an air cycle cooling system with a temp control system.

5.10.31 The VMT air cycle cooling system should include a cockpit air temperature selector.

5.10.32 The VMT air cycle cooling system should include a cockpit air temperature control regulator.

5.10.33 The VMT air cycle cooling system should include an air inlet overheat switch.

5.10.34 The VMT environmental control and indication system should include a basic oxygen system to include indication.

5.11 Anti-Icing/De-Icing Electrical Control and Indicating System

5.11.1 The VMT should include an Anti-Icing/De-Icing electrical control and indicating system.

5.11.2 The VMT anti-icing and de-icing control and indicating system should allow for the performance of functional checks and troubleshooting.

5.11.3 The VMT anti-icing and de-icing control and indicating system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.11.4 The VMT Anti-Icing/De-Icing electrical control and indicating system should include an engine anti-ice system (electrical and mechanical actuation of the anti-icing valve).

5.11.5 The VMT Anti-Icing/De-Icing electrical control and indicating system should include a wing or tail anti-ice/de-ice system.

5.11.6 The VMT Anti-Icing/De-Icing electrical control and indicating system should include a pitot tube anti-icing system.

5.11.7 The VMT Anti-Icing/De-Icing electrical control and indicating system should include an electric anti-ice/de-ice system.

5.11.8 The VMT Anti-Icing/De-Icing electrical control and indicating system should include a windshield anti-ice/defogging system and rain protection system.

5.11.9 The VMT windshield anti-ice/defogging system and rain protection system should include a metallic film method of protection or wire elements method of protection.

5.11.10 The VMT windshield anti-ice/defogging system and rain protection system should include a wiper blade method of protection.

5.11.11 The VMT Anti-Icing/De-Icing electrical control and indicating system should include ice detectors.

5.11.12 The VMT Anti-Icing/De-Icing electrical control and indicating system should include a pneumatic / bleed air anti-icing/de-icing system to include a temperature or overheat sensor.

5.12 Flight Control and Indicating System

5.12.1 The VMT Aviation Instrument Electrical Systems should include a flight control and indicating system.

5.12.2 The VMT flight control and indicating system should allow for the performance of functional checks and troubleshooting

5.12.3 The VMT flight control and indicating system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.12.4 The VMT flight control and indicating system should include primary flight controls (aileron, elevator and rudder).

5.12.5 The VMT flight control electrical and indicating system should include flaps.

5.12.6 The VMT flight control and indicating system should include trim control systems.

5.12.7 The VMT flight control and indicating system should include a flight control system.

5.12.8 The VMT flight control system should include cables, with turnbuckles.

5.12.9 The VMT flight control system should include pulleys.

5.12.10 The VMT flight control system should include bell cranks or quadrants.

5.12.11 The VMT flight control system should include associated components of a hydro-mechanical system.

5.12.12 The VMT flight control electrical and indicating system should include electrically controlled secondary flight control surfaces including flaps and trim tabs.

5.12.13 The VMT flight control and indicating system should include surface position indicators and position transmitter components.

5.12.14 The VMT surface position indicators and position transmitter components should include synchro systems.

5.12.15 The VMT surface position indicators and position transmitter components should include potentiometer transmitters.

5.12.16 The VMT surface position indicators and position transmitter components should include LVDT (linear variable differential transformer).

5.12.17 The VMT surface position indicators and position transmitter components should include RVDT (rotary variable differential transformer).

5.13 Landing Gear/Brake Control and indicating System.

5.13.1 The VMT Aviation Instrument Electrical Systems should include a Landing gear/Brake Control and indicating system.

5.13.2 The VMT landing gear / brake control and indication system should allow for the performance of functional checks and troubleshooting.

5.13.3 The VMT landing gear / brake control and indication system should include representation of the use of analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.13.4 The VMT landing gear control and indicating systems should include landing gear controls (electrical, mechanical, and hydraulic).

5.13.5 The VMT landing gear control and indicating system should include a landing gear position selector.

5.13.6 The VMT landing gear control and indicating system should include a landing gear position indicator.

5.13.7 The VMT landing gear control and indicating system should include an actuating cylinder.

5.13.8 The VMT landing gear control and indicating system should include valves.

5.13.9 The VMT landing gear control and indicating system should include oleo pneumatic shock strut (includes strut and piston).

5.13.10 The VMT landing gear control and indicating system should include a landing gear door.

5.13.11 The VMT landing gear control and indicating system should include mechanical and electrical ground safety devices.

5.13.12 The VMT landing gear control and indicating system should include a gear up and locked indicator.

5.13.13 The VMT landing gear control and indicating system should include an up-lock switch.

5.13.14 The VMT landing gear control and indicating system should include a weight on wheel switch.

5.13.15 The VMT landing gear control and indicating system should include a landing gear in transit (or unlocked) indication.

5.13.16 The VMT landing gear control and indicating system should include a down and locked indication.

5.13.17 The VMT landing gear control and indicating systems should include a landing gear extension and retraction system.

5.13.18 The VMT landing gear extension and retraction system should demonstrate normal operation.

5.13.19 The VMT landing gear extension and retraction system should demonstrate emergency operation.

5.13.20 The VMT landing gear extension and retraction system should demonstrate door sequencing.

5.13.21 The VMT should include a brake control system.

5.13.22 The VMT brake control system should include a disk brake.

5.13.23 The VMT brake control system should include a brake assembly (caliper).

5.13.24 The VMT brake control system should include a master cylinder.

5.13.25 The VMT brake control system should include a brake pedal.

5.13.26 The VMT brake control system should include a fluid reservoir.

5.13.27 The VMT brake control system should include a parking brake.

5.13.28 The VMT brake system should include an anti-skid system.

5.13.29 The VMT anti-skid system should include a control unit.

5.13.30 The VMT anti-skid system should include wheel speed sensors.

5.13.31 The VMT anti-skid system should include anti-skid control valves.

5.13.32 The VMT anti-skid system should include auto brakes with touchdown and lock wheel protection with indicating/ warning system, to include hot brakes.

5.13.33 The VMT landing gear control and indicating system should include a nose wheel steering control system.

5.13.34 The VMT nose wheel steering control system should include a shimmy damper.

5.13.35 The VMT nose wheel steering control system should include a command and feedback system.

5.13.36 The VMT nose wheel steering control system should include sensor potentiometers.

5.13.37 The VMT nose wheel steering control system should include failure indication components.

5.14 Aircraft Lighting Systems

5.14.1 The VMT should include aircraft lighting systems.

5.14.2 The VMT lighting systems should allow for the performance of functional checks and troubleshooting of the interior and exterior lighting.

5.14.3 The VMT lighting systems should allow include the representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.14.4 The VMT interior lighting systems should include instrument lighting systems.

5.14.5 The VMT interior lighting systems should include cockpit lighting systems.

5.14.6 The VMT interior lighting systems should include cabin and passageway lighting systems.

5.14.7 The VMT interior lighting systems should include boarding lighting systems.

5.14.8 The VMT interior lighting systems should include service lighting systems.

5.14.9 The VMT interior lighting systems should include emergency lighting systems.

5.14.10 The VMT interior lighting systems should include aircraft caution and warning systems lighting.

5.14.11 The VMT interior lighting systems should include aircraft advisory lighting systems.

5.14.12 The VMT external lighting systems should include navigation lighting systems.

5.14.13 The VMT external lighting systems should include anti-collision lighting systems.

5.14.14 The VMT external lighting systems should include formation lighting systems.

5.14.15 The VMT external lighting systems should include taxi and landing lighting systems.

5.15 Fire / Overheat Detection and Suppression Systems

5.15.1 The VMT should include an aircraft fire and overheat detection system which allows for the performance of functional checks and troubleshooting.

5.15.2 The VMT should include an aircraft fire and overheat detection system which includes a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.15.3 The VMT Fire and Overheat Detection Systems should include spot-type fire detectors which include thermal switch circuits or thermocouple fire warning circuits.

5.15.4 The VMT Fire and Overheat Detection Systems should include linear type fire sensing elements which include Fenwal Fire and Overheat Detection System Sensing Element or Kidde Fire and Overheat Detection System Sensing Element or Systron Donner (Pneumatic) Fire and Overheat Detection System Sensing Element

5.15.5 The VMT Fire and Overheat Detection Systems should include smoke and toxic gas detection system.

5.15.6 The VMT should include a high-rate discharge (HRD) aircraft fire suppression system which allows for the performance of functional checks and troubleshooting.

5.15.7 The VMT should include a high-rate discharge (HRD) aircraft fire suppression system which includes a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.15.8 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include extinguisher agent and propellant.

5.15.9 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include a fire bottle.

5.15.10 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include an explosive cartridge (squib).

5.15.11 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include indicator discs.

5.15.12 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include check valves.

5.15.13 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include a directional control valve.

5.15.14 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include a fire handle.

5.15.15 The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include distribution lines.

5.16 Intercommunication Systems

5.16.1 The VMT should include an aircraft intercommunication system.

5.16.2 The VMT intercommunication system should allow for the performance of functional checks and troubleshooting.

5.16.3 The VMT intercommunication system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.16.4 The VMT aircraft intercommunication system should include an intercom/interphone system.

5.16.5 The VMT aircraft intercommunication system should include an aircraft public address system.

5.16.6 The VMT aircraft intercommunication system should include an aircraft audio integrating.

5.16.7 The VMT aircraft intercommunication system should include an audio control panel.

5.17 Radio Systems

5.17.1 The VMT should include an Ultra High Frequency (UHF) radio system OR the VMT should include a Very High Frequency (VHF) radio system OR the VMT should include a Very/Ultra High Frequency (V/UHF) multiband radio system.

5.17.2 The VMT UHF radio system should include a control unit.

5.17.3 The VMT UHF radio system should include a transceiver.

5.17.4 The VMT UHF radio system should include antennas.

5.17.5 The VMT UHF radio system should include antenna logic units.

5.17.6 The VMT VHF radio system should include a control unit.

5.17.7 The VMT VHF radio system should include a transceiver.

5.17.8 The VMT VHF radio system should include antennas.

5.17.9 The VMT VHF radio system should include antenna logic units.

5.17.10 The VMT V/UHF multiband radio system should include a control unit.

5.17.11 The VMT V/UHF multiband radio system should include a transceiver.

5.17.12 The VMT V/UHF multiband radio system should include antennas.

5.17.13 The VMT V/UHF multiband radio system should include antenna logic units.

5.17.14 The VMT should include a High Frequency (HF) system.

5.17.15 The VMT HF system should include a control unit.

5.17.16 The VMT HF system should include a transceiver.

5.17.17 The VMT HF system should include antennas.

5.17.18 The VMT HF system should include couplers.

5.17.19 The VMT HF system should include a SELCAL system.

5.17.20 The VMT radio systems should allow for the performance of functional checks and troubleshooting.

5.17.21 The VMT radio systems should include a representation of the use of TDR and the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.18 Navigation Systems

5.18.1 The VMT should include an Attitude Heading Reference System (AHRS).

5.18.2 The VMT should include a DF / Homing system.

5.18.3 The VMT DF / Homing system should include a Direction Finder (DF)/Automatic Direction Finder (ADF) indication.

5.18.4 The VMT DF / Homing system should include a type of horizontal situation indication with two bearing indicators.

5.18.5 The VMT DF / Homing system should include a Non-Directional Beacon (NDB) frequency input voice signal components.

5.18.6 The VMT should include a VOR/DME system.

5.18.7 The VOR/DME system should include a frequency selector.

5.18.8 The VOR/DME system should include an indication system.

5.18.9 The VOR/DME system should include a bearing indication.

5.18.10 The VOR/DME system should include an OFF-flag indication.

5.18.11 The VOR/DME system should include a course deviation indication.

5.18.12 The VOR/DME system should include a TO/FROM flag.

5.18.13 The VOR/DME system should include an omni bearing / course select indication.

5.18.14 The VOR/DME system should include VOR antennas.

5.18.15 The VOR/DME system should include a VOR receiver/transmitter.

5.18.16 The VOR/DME system should include a Ground-to-air voice communication and Automatic Terminal Information Service (ATIS) (data or weather broadcasts).

5.18.17 The VOR/DME system should include an Instrument Landing System (ILS) frequency input.

5.18.18 The VOR/DME system should include a localiser and glide slope circuitry.

5.18.19 The VOR/DME system should include ILS antennae.

5.18.20 The VOR/DME system should include ILS indications.

5.18.21 The VMT should include a VOR/ILS system which allows for the performance of functional checks and troubleshooting.

5.18.22 The VMT VOR/ILS system should include a representation of the use of a navigation test set and analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.18.23 The VMT should include separate GPS and INS systems or the VMT should include an Embedded GPS and INS system (EGI).

5.18.24 The VMT EGI system should have an Inertial Navigation / Inertial Referencing System (INS / IRS System) which includes an alignment procedure, error and integration.

5.18.25 The INS/IRS system should have an interface for data input and system control.

5.18.26 The INS/IRS system should allow for the performance of functional checks and troubleshooting.

5.18.27 The VMT INS/IRS system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.18.28 The VMT should include an aircraft clock.

5.19 Transponder Systems

5.19.1 The VMT should include a Traffic Collision Avoidance System (TCAS).

5.19.2 The VMT should include a Traffic Collision Avoidance System (TCAS) which allows for the performance of functional checks and troubleshooting.

5.19.3 The VMT Traffic Collision Avoidance System (TCAS) should include a representation of the use of a TCAS test set and analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.19.4 The VMT TCAS should include ground proximity modes.

5.19.5 The VMT TCAS should include aural and visual warnings.

5.19.6 The VMT should include a Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS)

5.19.7 The VMT should include a Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS) which allows for the performance of functional checks and troubleshooting.

5.19.8 The VMT Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS) should include a representation of the use of applicable test sets and analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.19.9 The VMT should include an Air Traffic Control (ATC) transponder system.

5.19.10 The VMT ATC transponder system should include a control panel.

5.19.11 The VMT ATC transponder system should include mode S.

5.19.12 The VMT ATC transponder system should include Automatic Dependant Surveillance Broadcast Node (Ads-B).

5.20 Flight Director System

5.20.1 The VMT should include a Flight director (FD) system.

5.20.2 The VMT FD system should include operation of a Primary Flight Display (PFD).

5.20.3 The VMT FD system should include flight director warning indications.

5.20.4 The VMT FD system should include an Off mode.

5.20.5 The VMT FD system should include a HDG mode.

5.20.6 The VMT FD system should include a VOR (NAV)/LOC mode.

5.20.7 The VMT FD system should include a GS mode.

5.20.8 The VMT FD system should include an ALT mode.

5.20.9 The VMT FD system should include an APPR I mode.

5.20.10 The VMT FD system should include an APPR II mode.

5.20.11 The VMT FD system should include a GA mode.

5.20.12 The VMT FD system should include an IAS mode.

5.20.13 The VMT FD system should include a V/S mode.

5.20.14 The VMT FD system should include a MACH mode.

5.20.15 The VMT FD system should include an L NAV mode.

5.20.16 The VMT FD system should include a V NAV mode.

5.21 Automatic Flight Systems

5.21.1 The VMT should include an auto-flight system which allows for the performance of maintenance functional checks and troubleshooting.

5.21.2 The VMT auto-flight system should include a representation of the use of applicable test sets and analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.21.3 The VMT should include an Automatic Flight Control System (AFCS) for the rudder, ailerons and elevators.

5.21.4 The VMT AFCS should include a directional gyro heading indicator

5.21.5 The VMT AFCS should include a turn and bank indicator gyro

5.21.6 The VMT AFCS should include an altitude indicator

5.21.7 The VMT AFCS should include a computer and amplifier.

5.21.8 The VMT AFCS should include an aileron servo actuator

5.21.9 The VMT AFCS should include an elevator servo actuator

5.21.10 The VMT AFCS should include an rudder servo actuator

5.21.11 The VMT AFCS should include a flight controller

5.21.12 The VMT AFCS should include a radio navigation input selector

5.21.13 The VMT AFCS should include feedback elements.

5.21.14 The VMT AFCS should include the operation of interlocks.

5.21.15 The VMT should include a Stability augmentation system (SAS).

5.21.16 The VMT SAS should include the operation of a SAS.

5.21.17 The VMT SAS should include the operation of a yaw damper.

5.21.18 The VMT should include an Auto thrust system.

5.21.19 The VMT auto thrust system should include a take-off mode.

5.21.20 The VMT auto thrust system should include a speed control mode.

5.21.21 The VMT auto thrust system should include a go-around mode.

5.21.22 The VMT should include a Flight Management System (FMS).

5.21.23 The VMT should include a Flight Management Systems (FMS) which allows for the performance of functional checks and troubleshooting.

5.21.24 The VMT Flight Management Systems (FMS) should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.

5.22 Integrated Systems

5.22.1 The VMT should include a rate of turn indicating system.

5.22.2 The VMT should include a standby attitude indicating system.

5.22.3 The VMT should include a Pitot static system.

5.22.4 The VMT Pitot static system should include pitot-static probes.

5.22.5 The VMT should include an air data computer system.

5.22.6 The VMT should include a rate of climb indicating system.

5.22.7 The VMT should include an altitude indicating systems.

5.22.8 The VMT altitude indicating system should include a barometric altitude indicator with pressure adjustment.

5.22.9 The VMT altitude indicating systems should include a standard altitude indicator.

5.22.10 The VMT should include an Aircraft Radio Altimeter (Rad Alt) system.

5.22.11 The VMT Rad Alt system should include a transceiver.

5.22.12 The VMT Rad Alt system should include antennas.

5.22.13 The VMT Rad Alt system should include controls / switches / indicators.

5.22.14 The VMT should include an airspeed indicating system.

5.22.15 The VMT should include a Mach indicating system.

5.22.16 The VMT should include a stall warning/protection and indication system.

5.22.17 The VMT stall warning/protection and indication system should include an angle of attack probe.

5.22.18 The VMT stall warning/protection and indication system should include a Vertical speed indicating system.

5.22.19 The VMT stall warning/protection and indication system should include a total air temperature probe.

5.22.20 The VMT should include a Data Management System which includes aircraft maintenance training functionality.

5.22.21 The VMT data management system should include a data bus.

5.22.22 The VMT data bus should include integrated avionics systems bidirectional data bus control architecture, preferable Mil-Stds-1553B.

5.22.23 The VMT data bus should use a centrally controlled architecture containing redundant bus controllers (minimum of two).

5.22.24 The VMT data bus should contain a unidirectional data bus, preferably the ARINC 429 Data Bus for at least one integrated system within the integrated avionics system.

5.22.25 The VMT data bus should include coupler panels.

5.22.26 The VMT data bus should include stub cables.

5.22.27 The VMT data bus should include terminators.

5.22.28 The VMT data bus should include at least one bus monitor for recording and backup of the bus controller.

5.22.29 The VMT data management systems should include mission computers.

5.22.30 The VMT data management systems should include routers and switches.

5.22.31 The VMT data management systems should include a Centralized Maintenance System (CMS)

5.22.32 The VMT CMS should include Built-In Test Equipment (BITE).

5.22.33 The VMT CMS should include functions to enable diagnostic programs and display fault information.

5.22.34 The VMT data management systems should include a Structural Data Recording System (SDRS) or Flight Data Recorder (FDR) including strain gauges.

5.22.35 The VMT aircraft integrated systems should include an Electronic Flight Instrument System (EFIS).

5.22.36 The VMT EFIS should include an aircraft display system (e.g. HDD, and CDU).

5.22.37 The VMT EFIS should include glass cockpit and displays.

5.23 Airframe Structure

5.23.1 The VMT structural components should include longerons / Spars.

5.23.2 The VMT structural components should include bulkheads.

5.23.3 The VMT structural components should include ribs.

5.23.4 The VMT structural components should include stringers.

5.23.5 The VMT structural components should include stiffeners.

5.23.6 The VMT should include an access door with open/close mechanism operation.

5.23.7 The VMT should include a cargo ramp with controls and components.

5.23.8 The VMT should include windshield and windows.

5.24 Hydraulic Systems

5.24.1 The VMT should include a hydraulic closed-center system.

5.24.2 The VMT hydraulic closed-center system should include reservoirs.

5.24.3 The VMT hydraulic closed-center system should include pumps / motors.

5.24.4 The VMT hydraulic closed-center system should include filters.

5.24.5 The VMT hydraulic closed-center system should include an oil cooler.

5.24.6 The VMT hydraulic closed-center system should include valves.

5.24.7 The VMT hydraulic closed-center system should include a pressure indicator.

5.24.8 The VMT hydraulic closed-center system should include a quantity indicator.

5.24.9 The VMT hydraulic closed-center system should include an actuator.

5.24.10 The VMT hydraulic closed-center system should include an accumulator.

6 VMT Simulated Test Equipment and System Faults

6.1 Tools and Test Equipment

6.1.1 The VMT should include a frequency analyser (or similar test equipment).

6.1.2 The VMT should include a phase rotation checker.

6.1.3 The VMT should include a TDR/RFL Advanced System Tester.

6.2 Electrical Power Generation and Voltage Regulation System

6.2.1 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system wiring snag (x1).

6.2.2 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system with one failed generator (x1).

6.2.3 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system with two failed generators (x1).

6.2.4 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system with a total power failure (x1).

6.2.5 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system Transformer Rectifier Unit (TRU) failure (x1)

6.2.6 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system battery failure (x1).

6.2.7 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system bus fault/failure (x1).

6.2.8 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system circuit breaker fault (x1).

6.2.9 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system inverter failure (x1).

6.2.10 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system relay failure (open coil or contacts) (x1).

6.2.11 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system contactor failure (x1).

6.2.12 The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system power indicator failure (amperage and voltage) (x1).

6.3 Ground Power System

6.3.1 The VMT should be capable of simulating an aircraft ground power system wiring snag (x1).

6.3.2 The VMT should be capable of simulating an aircraft ground power system bus fault / failure (x1).

6.3.3 The VMT should be capable of simulating an aircraft ground power system circuit breaker fault (x1).

6.3.4 The VMT should be capable of simulating an aircraft ground power system inverter failure (x1).

6.3.5 The VMT should be capable of simulating an aircraft ground power system relay failure (to include open coil or contacts) (x1).

6.3.6 The VMT should be capable of simulating an aircraft ground power system contactor failure (x1).

6.3.7 The VMT should be capable of simulating an aircraft ground power system power indicators failure (amperage and voltage) (x1).

6.4 Electrical Power Conversion

6.4.1 The VMT should be capable of simulating an Aircraft electrical power conversion system wiring snag (x1).

6.4.2 The VMT should be capable of simulating an aircraft electrical power conversion system bus fault / failure (x1).

6.4.3 The VMT should be capable of simulating an aircraft electrical power conversion system circuit breaker fault (x1).

6.4.4 The VMT should be capable of simulating an aircraft electrical power conversion system inverter failure (x1).

6.4.5 The VMT should be capable of simulating an aircraft electrical power conversion system transformer failure (x1).

6.4.6 The VMT should be capable of simulating an aircraft electrical power conversion system relay failure (open coil or contacts) (x1).

6.4.7 The VMT should be capable of simulating an aircraft electrical power conversion system contactor failure (x1).

6.4.8 The VMT should be capable of simulating an aircraft electrical power conversion system power indicator failure (amperage and voltage) (x1).

6.5 Electrical Power Distribution System

6.5.1 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System wiring snag (x1).

6.5.2 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System bus fault/failure (x1).

6.5.3 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System circuit breaker fault (x1 min).

6.5.4 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System inverter failure (x1).

6.5.5 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System transformer failure (x1).

6.5.6 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System Relay failure (open coil or contacts) (x1).

6.5.7 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System contactor failure (x1).

6.5.8 The VMT should be capable of simulating an Aircraft Electrical Power Distribution System power indicators failure (amperage and voltage) (x1).

6.6 Engine Electrical Control and Indicating Systems

6.6.1 The VMT should be capable of simulating an engine not starting (x2).

6.6.2 The VMT should be capable of simulating an engine start but shut down (x2).

6.6.3 The VMT should be capable of simulating a hung start (x2).

6.6.4 The VMT should be capable of simulating a fuel flow failure (x2).

6.6.5 The VMT should be capable of simulating an RPM Variation (x2).

6.6.6 The VMT should be capable of simulating an indicator Fail on N1 and/or N2 (x2).

6.6.7 The VMT should be capable of simulating an Exhaust Gas Temp (EGT) failure (x2).

6.7 Propeller Electrical Control and Indicating Systems (if applicable)

6.7.1 The VMT should be capable of simulating faults in the controllable pitch propeller system (x2).

6.7.2 The VMT should be capable of simulating faults in the propeller synchronization system (x2).

6.7.3 The VMT should be capable of simulating faults in the propeller feathering system (x2).

6.7.4 The VMT should be capable of simulating faults in the propeller reversing system (x2).

6.8 Fuel Management Electrical Control and Indicating Systems

6.8.1 The VMT should be capable of simulating a fuel management electrical control and indicating system pressure gauge sensor fault (x2).

6.8.2 The VMT should be capable of simulating fuel management electrical control and indicating system boost electrical pump failure (x2).

6.8.3 The VMT should be capable of simulating fuel management electrical control and indicating system quantity sensor failure (x2).

6.8.4 The VMT should be capable of simulating fuel management electrical control and indicating system selector valve failure (x2).

6.8.5 The VMT should be capable of simulating fuel management electrical control and indicating system indicator failure (x2).

6.8.6 The VMT should be capable of simulating fuel management electrical control and indicating system fuel quantity indicator calibration using GTF6 test set.

6.9 Environmental Control and Indication Systems

6.9.1 The VMT should be capable of simulating cabin pressurization temperature control systems component malfunctions (x2).

6.9.2 The VMT should be capable of simulating cabin pressurization temperature control systems electrical malfunctions (x2).

6.9.3 The VMT should be capable of simulating environmental control system component malfunctions (x2).

6.9.4 The VMT should be capable of simulating environmental control system electrical malfunctions (x2).

6.9.5 The VMT should be capable of simulating primary/secondary heat exchangers components malfunctions (x2).

6.9.6 The VMT should be capable of simulating primary/secondary heat exchangers electrical malfunctions (x2).

6.9.7 The VMT should be capable of simulating aircraft air distribution system component malfunctions (x2).

6.9.8 The VMT should be capable of simulating aircraft air distribution system electrical malfunctions (x2).

6.9.9 The VMT should be capable of simulating air cycle cooling system component malfunctions (x2).

6.9.10 The VMT should be capable of simulating air cycle cooling system electrical malfunctions (x2).

6.9.11 The VMT should be capable of simulating basic oxygen system component malfunctions (x2).

6.9.12 The VMT should be capable of simulating basic oxygen system electrical malfunctions (x2).

6.10 Anti-Icing/De-Icing Electrical Control and Indicating Systems

6.10.1 The VMT should be capable of simulating engine anti-ice systems component malfunctions (x2).

6.10.2 The VMT should be capable of simulating engine anti-ice systems electrical malfunctions (x2).

6.10.3 The VMT should be capable of simulating wing and tail anti-ice/de-ice systems component malfunctions (x2).

6.10.4 The VMT should be capable of simulating wing and tail anti-ice/de-ice systems electrical malfunctions (x2).

6.10.5 The VMT should be capable of simulating pitot tube anti-icing systems component malfunctions (x2).

6.10.6 The VMT should be capable of simulating pitot tube anti-icing systems electrical malfunctions (x2).

6.10.7 The VMT should be capable of simulating electric anti-ice/de-ice systems component malfunctions (x2).

6.10.8 The VMT should be capable of simulating electric anti-ice/de-ice systems electrical malfunctions (x2).

6.10.9 The VMT should be capable of simulating windshield anti-ice/defogging systems and rain protection system component malfunction (x2 min).

6.10.10 The VMT should be capable of simulating windshield anti-ice/defogging systems and rain protection system electrical malfunctions (x2).

6.10.11 The VMT should be capable of simulating ice detectors component malfunctions (x2).

6.10.12 The VMT should be capable of simulating ice detectors electrical malfunctions (x2).

6.10.13 The VMT should be capable of simulating pneumatic / bleed air anti-icing/de-icing systems component malfunctions (x2).

6.10.14 The VMT should be capable of simulating pneumatic / bleed air anti-icing/de-icing systems electrical malfunctions (x2).

6.10.15 The VMT should be capable of simulating propeller anti-ice and de-icing systems component malfunctions (x2).

6.10.16 The VMT should be capable of simulating propeller anti-ice and de-icing systems electrical malfunctions (x2).

6.11 Flight Control Electrical and Indicating Systems

6.11.1 The VMT flight control electrical and indicating system should be capable of simulating an electrical failure of the flaps (x2).

6.11.2 The VMT flight control electrical and indicating system should be capable of simulating an electrical failure of the trim tabs (x2).

6.11.3 The VMT flight control electrical and indicating system should be capable of simulating a position sensor failure of the flaps (x2).

6.11.4 The VMT flight control electrical and indicating system should be capable of simulating a position sensor failure of the trim tabs (x2 min).

6.11.5 The VMT flight control electrical and indicating system should be capable of simulating a slow flap extension or retraction fault.

6.11.6 The VMT flight control electrical and indicating system should be capable of simulating an improper travel of one or more of the primary flight controls.

6.12 Landing Gear and Hydraulic Electrical Control and Indicating Systems

6.12.1 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a command feedback failure (x1).

6.12.2 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a sensor potentiometer failure (x1).

6.12.3 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating an indicator failure (x1).

6.12.4 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a warning indication failure (x1).

6.12.5 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a gear up and locked indication failure (x1).

6.12.6 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a gear in transit indication failure (x1).

6.12.7 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a gear down and locked indication failure (x1).

6.12.8 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a landing gear door sequencing failure(x1).

6.12.9 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a hot brake indicator failure (x1).

6.12.10 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a wheel speed sensor failure (x1).

6.12.11 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a nose wheel control failure (x1).

6.12.12 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating an anti-skid control valve failure (x1).

6.12.13 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating an auto brake failure (x1).

6.12.14 The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a slow gear extension or retraction.

6.13 Lighting Systems

6.13.1 The VMT interior lighting system should be capable of simulating an unserviceable light bulb (x2).

6.13.2 The VMT interior lighting system should be capable of simulating a control panel failure (e.g. a broken switch) (x2).

6.13.3 The VMT interior lighting system should be capable of simulating an open ground wire electrical failure (x2).

6.13.4 The VMT interior lighting system should be capable of simulating an open power wire electrical failure (x2).

6.13.5 The VMT exterior lighting system should be capable of simulating an unserviceable light bulb (x2).

6.13.6 The VMT exterior lighting system should be capable of simulating a control panel failure (e.g. a broken switch) (x2).

6.13.7 The VMT exterior lighting system should be capable of simulating an open ground wire electrical failure (x2).

6.13.8 The VMT exterior lighting system should be capable of simulating an open power wire electrical failure (x2).

6.14 Fire / Overheat Detection and Suppression System

6.14.1 The VMT aircraft fire and overheat detection system should be capable of simulating a fire detection failure (x2).

6.14.2 The VMT aircraft fire and overheat detection system should be capable of simulating a detection out of range /tolerance (x2).

6.14.3 The VMT aircraft fire and overheat detection system should be capable of simulating a fire detection system indicator failure (x1).

6.14.4 The VMT aircraft fire and overheat detection system should be capable of simulating a caution light failure (x1).

6.14.5 The VMT aircraft fire suppression system should be capable of simulating a fire suppression control failure (x2).

6.14.6 The VMT aircraft fire suppression system should be capable of simulating an electrical wiring (control to squib) failure (x2).

6.15 Intercommunication Systems

6.15.1 The VMT aircraft intercommunication system should be capable of simulating a control panel failure (x2).

6.15.2 The VMT aircraft intercommunication system should be capable of simulating a push to talk button failure (x2).

6.15.3 The VMT aircraft intercommunication system should be capable of simulating a headset failure (x2).

6.15.4 The VMT aircraft intercommunication system should be capable of simulating a system integration failure (x2).

6.15.5 The VMT aircraft intercommunication system should be capable of simulating a speaker failure (x2).

6.16 Radio Systems

6.16.1 The VMT aircraft radio system should be capable of simulating an internal transceiver failure (x2).

6.16.2 The VMT aircraft radio system should be capable of simulating a power failure to the transceiver (x2).

6.16.3 The VMT aircraft radio system should be capable of simulating a control panel failure (x2).

6.16.4 The VMT aircraft radio system should be capable of simulating an antenna failure (x2).

6.16.5 The VMT aircraft radio system should be capable of simulating a coaxial cable failure from the transceiver to the antenna (x2).

6.16.6 The VMT aircraft radio system should be capable of simulating an integration communication system failure (x3).

6.16.7 The VMT aircraft radio system should be capable of simulating a software malfunction (x2).

6.17 Integrated Systems

6.17.1 The VMT aircraft attitude and direction data system should be capable of simulating an angle of attack component failure (x1).

6.17.2 The VMT aircraft attitude and direction data system should be capable of simulating an angle of attack electrical failure (x1).

6.17.3 The VMT aircraft attitude and direction data system should be capable of simulating a rate of turn indicator failure (x1).

6.17.4 The VMT aircraft attitude and direction data system should be capable of simulating a standby attitude indicator component failure (x1).

6.17.5 The VMT aircraft attitude and direction data system should be capable of simulating a standby attitude indicator electrical failure (x1).

6.17.6 The VMT aircraft attitude and direction data system should be capable of simulating an aircraft direct reading standby compass component failure (x1).

6.17.7 The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI electrical power failure (x2).

6.17.8 The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI electrical power failure (x2).

6.17.9 The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI integrated communication failure (x2).

6.17.10 The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI software malfunction (x2).

6.18 Flight Environment Data Systems

6.18.1 The VMT aircraft flight environment data system should be capable of simulating a total air temperature probe failure (x1).

6.18.2 The VMT aircraft flight environment data system should be capable of simulating a total air temperature electrical failure (x1).

6.18.3 The VMT aircraft flight environment data system should be capable of simulating an angle of attack probe failure (x1).

6.18.4 The VMT aircraft flight environment data system should be capable of simulating an angle of attack electrical failure (x1).

6.18.5 The VMT aircraft flight environment data system should be capable of simulating a stall warning indicator failure (x1).

6.18.6 The VMT aircraft flight environment data system should be capable of simulating an air data computer (ADC) system failure (x1).

6.18.7 The VMT aircraft flight environment data system should be capable of simulating an indicator failure (x1).

6.18.8 The VMT aircraft flight environment data system should be capable of simulating a Mach failure (x1).

6.18.9 The VMT aircraft flight environment data system should be capable of simulating a maximum operating limit speed (Vmo) failure (x1).

6.18.10 The VMT aircraft flight environment data system should be capable of simulating a barometric pressure failure (x1).

6.18.11 The VMT aircraft flight environment data system should be capable of simulating a vertical speed indicator (VSI) failure (x1).

6.18.12 The VMT aircraft flight environment data system should be capable of simulating a leak in the pitot system (x2).

6.18.13 The VMT aircraft flight environment data system should be capable of simulating a leak in the static system (x2).

6.19 Aircraft Position Determining Systems

6.19.1 The VMT aircraft position determining system should be capable of simulating an off-flag failure (x1).

6.19.2 The VMT aircraft position determining system should be capable of simulating a Course Deviation Indicator (CDI) failure (x1).

6.19.3 The VMT aircraft position determining system should be capable of simulating a To-From flag failure (x1).

6.19.4 The VMT aircraft position determining system should be capable of simulating a course selector failure (x1).

6.19.5 The VMT aircraft position determining system should be capable of simulating a VOR antenna failure (x1).

6.19.6 The VMT aircraft position determining system should be capable of simulating a faulty coaxial cable (x1).

6.19.7 The VMT aircraft position determining system should be capable of simulating a VOR Receiver/Transmitter failure (x1).

6.19.8 The VMT aircraft position determining system should be capable of simulating a VOR receiver/transmitter electrical power input failure (x1).

6.19.9 The VMT aircraft position determining system should be capable of simulating a VOR receiver/transmitter internal failure (x1).

6.19.10 The VMT aircraft position determining system should be capable of simulating a VOR electrical wiring failure (x3).

6.19.11 The VMT aircraft position determining system should be capable of simulating an Automatic Terminal Information Service (ATIS) failure (x1).

6.19.12 The VMT aircraft position determining system should be capable of simulating an ILS Localizer failure (x2).

6.19.13 The VMT aircraft position determining system should be capable of simulating an ILS control failure (x1).

6.19.14 The VMT aircraft position determining system should be capable of simulating an ILS Electrical wiring failure (x1).

6.19.15 The VMT aircraft position determining system should be capable of simulating an ILS Antenna failure (x1).

6.19.16 The VMT aircraft position determining system should be capable of simulating an ILS Glide Slope failure (x2).

6.20 Inertial Navigation / Inertial Referencing Systems (INS/IRS Systems)

6.20.1 The VMT INS/IRS should be capable of simulating a no alignment failure(x1).

6.20.2 The VMT INS/IRS should be capable of simulating a too long to align failure (x1).

6.20.3 The VMT INS/IRS should be capable of simulating a restart failure (x1).

6.20.4 The VMT INS/IRS should be capable of simulating a no data input or position entry failure (x1).

6.20.5 The VMT INS/IRS should be capable of simulating a discrepancy between the INS1 and INS2 (x1).

6.20.6 The VMT INS/IRS should be capable of simulating a figure of merit (FOM) too high (x1).

6.20.7 The VMT INS/IRS should be capable of simulating an error horizontal estimate (EHE) too high (x1).

6.20.8 The VMT INS/IRS should be capable of simulating a not starting failure (x1).

6.21 Traffic Collision Avoidance System (TCAS)

6.21.1 The VMT TCAS should be capable of simulating a TCAS processor failure (x1).

6.21.2 The VMT TCAS should be capable of simulating a TCAS receiver transmitter failure (x1).

6.21.3 The VMT TCAS should be capable of simulating an upper TCAS antenna (x1).

6.21.4 The VMT TCAS should be capable of simulating a lower TCAS antenna (x1).

6.21.5 The VMT TCAS should be capable of simulating a display fault (TA/VSI and/or PFD) (x1).

6.21.6 The VMT TCAS should be capable of simulating an IFF Mode S fault (x1).

6.21.7 The VMT TCAS should be capable of simulating a Radalt fault (x1).

6.21.8 The VMT TCAS should be capable of simulating an AHRS/INU fault (x1).

6.21.9 The VMT TCAS should be capable of simulating a CDU fault (x1).

6.21.10 The VMT TCAS should be capable of simulating a EWIS failure to include TCAS processor and applicable auxiliary system inputs.

6.22 Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS)

6.22.1 The VMT GCAS / TAWS should be capable of simulating a database failure (x1).

6.22.2 The VMT GCAS / TAWS should be capable of simulating a GPWS computer failure (x1).

6.22.3 The VMT GCAS / TAWS should be capable of simulating an ICS (Aural warnings) failure (x1).

6.22.4 The VMT GCAS / TAWS should be capable of simulating an antenna failure (x1).

6.22.5 The VMT GCAS / TAWS should be capable of simulating a Radalt failure (x1).

6.22.6 The VMT GCAS / TAWS should be capable of simulating an INS failure (x1).

6.22.7 The VMT GCAS / TAWS should be capable of simulating an Air Data Computer failure (x1).

6.22.8 The VMT GCAS / TAWS should be capable of simulating an Angle of Attack failure (x1).

6.22.9 The VMT GCAS / TAWS should be capable of simulating a GPS failure (x1).

6.23 Auto-Flight Systems

6.23.1 The VMT Flight director system should be capable of simulating a mode not engaging (x2).

6.23.2 The VMT Flight director system should be capable of simulating a complete computer failure (x1 min).

6.23.3 The VMT Flight director system should be capable of simulating no power to computer (x1).

6.23.4 The VMT Flight director system should be capable of simulating a computer internal failure (x1).

6.23.5 The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator sensing element fault (x1 for each control surface).

6.23.6 The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator computer and amplifier fault (x1 for each control).

6.23.7 The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator output element fault (x1 for each control).

6.23.8 The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator command elements fault (x1 for each control).

6.23.9 The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator feedback element fault (x1 for each control).

6.23.10 The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator interlock fault (x1 for each control).

6.23.11 The VMT Auto pilot system should be capable of simulating a complete auto pilot computer failure (x1).

6.23.12 The VMT Auto pilot system should be capable of simulating no power to auto pilot computer (x1).

6.23.13 The VMT Auto pilot system should be capable of simulating an auto pilot control panel failure (x1).

6.23.14 The VMT Auto pilot system should be capable of simulating an auto pilot single channel failure (x1).

6.23.15 The VMT Auto pilot system should be capable of simulating an auto pilot double channel failure (x1).

6.24 Stability Augmentation System (SAS)

6.24.1 The VMT SAS should be capable of simulating a complete SAS computer failure (x1).

6.24.2 The VMT SAS should be capable of simulating no power to SAS computer (x1).

6.24.3 The VMT SAS should be capable of simulating a SAS computer internal failure (x1).

6.24.4 The VMT SAS should be capable of simulating a SAS not engaging (x1).

6.24.5 The VMT SAS should be capable of simulating a single channel yaw damper failure (x1).

6.24.6 The VMT SAS should be capable of simulating a double channel yaw damper failure (x1).

6.24.7 The VMT SAS should be capable of simulating a SAS input failure (x2 min).

6.25 Auto Thrust System

6.25.1 The VMT auto thrust system should be capable of simulating a take-off mode failure (x1).

6.25.2 The VMT auto thrust system should be capable of simulating a speed control mode failure (x1).

6.25.3 The VMT auto thrust system should be capable of simulating a go-around mode failure (x1).

6.26 Stall Warning Protection System

6.26.1 The VMT stall warning protection system should be capable of simulating a complete computer failure (x1).

6.26.2 The VMT stall warning protection system should be capable of simulating no power to computer (x1).

6.26.3 The VMT stall warning protection system should be capable of simulating an internal failure (x1).

6.26.4 The VMT stall warning protection system should be capable of simulating a "G" switch failure (vertical accelerometer failure) (x1).

6.26.5 The VMT stall warning protection system should be capable of simulating a steering wheel shaker failure (x1).

6.26.6 The VMT stall warning protection system should be capable of simulating a steering wheel pusher failure (x1).

6.27 Flight Management System (FMS)

6.27.1 The VMT FMS should be capable of simulating complete failure of FMS computer (x1).

6.27.2 The VMT FMS should be capable of simulating no power to FMS computer (x1).

6.27.3 The VMT FMS should be capable of simulating an internal failure of FMS computer (x1).

6.27.4 The VMT FMS should be capable of simulating a control unit malfunction (x1).

6.27.5 The VMT FMS should be capable of simulating an FMS software malfunction (x1).

6.27.6 The VMT FMS should be capable of simulating an FMS electrical wire failure (x1).

6.28 Data Management Systems

6.28.1 The VMT data management system should be capable of simulating a bidirectional data bus single channel communication failure (x1).

6.28.2 The VMT data management system should be capable of simulating a bidirectional data bus both channels communication failure (x1).

6.28.3 The VMT data management system should be capable of simulating a bidirectional data bus coupler failure (x1).

6.28.4 The VMT data management system should be capable of simulating a bidirectional data bus stub cable failure (x1).

6.28.5 The VMT data management system should be capable of simulating a bidirectional data bus terminator failure (x1).

6.28.6 The VMT data management system should be capable of simulating a unidirectional data bus cable failure (x1).

6.28.7 The VMT data management system should be capable of simulating a bus controller failure (single controller) (x1).

6.28.8 The VMT data management system should be capable of simulating bus controller failure (all controllers) (x1).

6.28.9 The VMT data management system should be capable of simulating a bus remote terminal communication failure (x1).

6.28.10 The VMT data management system should be capable of simulating a bus remote terminal communication failure (x1).

6.28.11 The VMT data management system should be capable of simulating a bus remote terminal software failure (x1).

6.29 Electronic Flight Instrument System (EFIS)

6.29.1 The VMT EFIS should be capable of simulating a display internal failure (x1).

6.29.2 The VMT EFIS should be capable of simulating no power to display (x1).

6.29.3 The VMT EFIS should be capable of simulating an EFIS control malfunction (x1).

7 VMT Simulated Training Tasks

7.1 Fuel Management Electrical Control and Indicating Systems

7.1.1 The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a capacitance probe.

7.1.2 The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a compensator probe.

7.1.3 The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a boost pump.

7.1.4 The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a selector valve.

7.1.5 The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a fuel quantity indicator.

7.2 Environmental Control and Indication Systems

7.2.1 The VMT environmental control and indication system should be capable of simulating removal and installation of an outflow valve.

7.2.2 The VMT environmental control and indication system should be capable of simulating removal and installation of a pressure regulator.

7.2.3 The VMT environmental control and indication system should be capable of simulating removal and installation of a cabin safety valve.

7.2.4 The VMT environmental control and indication system should be capable of simulating removal and installation of a negative pressure relief valve.

7.2.5 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning shutoff valve.

7.2.6 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning water separator.

7.2.7 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning refrigeration bypass valve.

7.2.8 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning temperature controller.

7.2.9 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning temperature sensor.

7.2.10 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning refrigeration turbine.

7.2.11 The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning heat exchanger.

7.3 Anti-Icing/De-Icing Electrical Control and Indicating Systems

7.3.1 The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a bleed air valve.

7.3.2 The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of an electrically heated parting strip.

7.3.3 The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a heated windshield.

7.3.4 The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a windshield wiper arm or blade.

7.3.5 The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a windshield wiper motor.

7.4 Flight control electrical and indicating systems

7.4.1 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the ailerons.

7.4.2 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the elevators.

7.4.3 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the rudder.

7.4.4 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the flaps.

7.4.5 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the trim tabs.

7.4.6 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the torque tubes or push-pull rods.

7.4.7 The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the primary flight control actuator.

7.4.8 The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment of the control cables.

7.4.9 The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment of the link rods.

7.4.10 The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment of the turnbuckles.

7.4.11 The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment allowing the use of rigging pins and a travel measurement template.

7.5 Landing Gear and Hydraulic Power Electrical Control and Indicating Systems

7.5.1 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the main landing gear.

7.5.2 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the nose landing gear.

7.5.3 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the uplock assembly.

7.5.4 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the brake assembly.

7.5.5 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating servicing of the oleo strut.

7.5.6 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating servicing of the brake system.

7.5.7 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the landing gear door.

7.5.8 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the nose wheel steering.

7.5.9 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the weight on wheel switch.

7.5.10 The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the up-lock switch.

Appendix 2– Part Task Trainer (PTT) Requirements

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

1. INTRODUCTION

1.1 This document establishes the performance and technical requirements of the following Part Task Trainers (PTT):

1.1.1 Communications Systems (CS);
1.1.2 Cockpit Instrumentation (CI);
1.1.3 Pitot Static (PS);
1.1.4 Navigation Systems (NS); and
1.1.5 Automatic Flight Control System (AFCS).

2. PTT GENERAL PERFORMANCE REQUIREMENTS

2.1 The PTTs must allow students to perform system inspections.

2.2 The PTTs must allow students to perform component removal and installation.

2.3 The PTTs must allow students to perform system functional tests.

2.4 The PTTs must be delivered with a checklist, in both English and French to allow for the functional testing of all included systems / components

2.5 The PTTs must allow students to perform system diagnosis.

2.6 The PTTs must allow students to perform system troubleshooting.

2.7 The PTTs must be designed so system faults can be induced through DIP (Dual in-line package) switches or equivalent circuitry.

2.8 The PTTs must be designed so that the DIP switches are not visible to the students during troubleshooting exercises.

2.9 The PTTs power supplies and electrical components must meet CSA, ULC or other equivalent recognized safety certification.

2.10 Each PTT must be delivered with a user operating manual in both English and French.

2.11 Each PTT must be delivered with a PTT system / component block diagrams in both English and French.

2.12 Each PTT must be delivered with a maintenance manual.

2.13 Each PTT must be delivered with a PTT system wiring diagram.

2.14 The PTTs must be ergonomically designed to accommodate the range of motion of the 5th percentile (%) female to the 95th percentile (%) male.

2.15 The PTTs must be portable and of sufficient size to allow all eight PTT devices belonging to a specific aircraft system (ie. 8 comm sys PTTs) to be housed in an area measuring 70 square metres or 750 square feet

3. COMMUNICATIONS SYSTEM PTT

3.1 Communications Systems PTT Requirements

3.1.1 The Communication Systems PTT must include two of the following radio systems: an HF radio system, a UHF FM radio system, and a VHF AM radio system.

3.1.2 The Communication Systems PTT must include one antenna per radio system capable of receiving and transmitting within the ranges specified.

3.1.3 The Communication Systems PTT radio systems must be wattage restricted to allow the user to safely stand in front of the antenna at a distance of 1 m.

3.1.4 The Communication Systems PTT must contain a Control Display Unit (CDU) including a radio select box.

3.1.5 The Communication Systems PTT must include an aircraft data bus integrating the CDU with all radio transceivers.

3.1.6 The Communication Systems PTT should include an HF radio system, a UHF FM radio system, and a VHF AM radio system.

3.1.7 The Communication Systems PTT radio systems should include an indication that shows when the radio is transmitting.

3.1.8 The Communication Systems PTT radio systems should include a push to talk switch for the mic.

3.1.9 The Communication Systems PTT radio systems should include a voice activated mic switch (VOX).

3.1.10 The Communication Systems PTT should include a MILD-STDS 1553 or 1773 aircraft data bus.

3.1.11 The Communication Systems PTT data bus should be visible to the students for demonstration purposes.

3.1.12 The Communication Systems PTT CDU should display error codes from the data bus when the Communication Systems PTT is in a fault state.

3.1.13 The Communication Systems PTT should provide the user with a tuning indication for the radio system selected via the CDU.

3.1.14 The Communication Systems PTT should include the ability to plug in three headsets.

3.1.15 The Communication Systems PTT headset plugs should be compatible with a David Clark Headset (H10-76).

3.1.16 The Communication Systems PTT should include an intercom selector switch (ICS).

3.1.17 The Communication Systems PTT should include a manual or automatic squelch control system.

3.1.18 The Communication Systems PTT must provide the user with a tuning indication for the radio system selected.

3.1.19 The Communication Systems PTT should include a simulated (non-broadcasting) Emergency Locator Transmitter (ELT) system.

3.1.20 The Communication Systems PTT ELT should be integrated into the audio output, whereby, upon activation, the students will hear the ELT over the headset.

3.1.21 The Communication Systems PTT should include a simulated (non-broadcasting) Underwater Acoustic Beacon (UAB) system.

3.1.22 The Communication Systems PTT UAB should be integrated into the audio output, whereby, upon activation, the students will hear the UAB over the headset.

3.1.23 The Communication Systems PTT should include a solid-state cockpit voice recorder (CVR) with a voice record and on-unit playback function.

3.1.24 The Communication Systems PTT CVR should include a fault indicator on the CDU.

3.1.25 The Communication Systems PTT documentation should include a block diagram for each radio transmitter.

3.1.26 The Communication Systems PTT documentation should include a block diagram for each radio receiver provided.

3.2 Communications System PTT Training Faults

3.2.1 The Communication Systems PTT must allow for insertion of at least 16 different communication system faults.

3.2.2 The Communication Systems PTT must have power and ground test points at the inputs and output of all incorporated components.

3.2.3 The Communication Systems PTT should allow for insertion of a fault replicating a faulty headset.

3.2.4 The Communication Systems PTT should allow for insertion of a fault replicating a faulty speaker.

3.2.5 The Communication Systems PTT should allow for insertion of a fault replicating a faulty mic.

3.2.6 The Communication Systems PTT should allow for insertion of a fault replicating a broken canon plug wire.

3.2.7 The Communication Systems PTT should allow for insertion of a fault replicating a faulty CDU.

3.2.8 The Communication Systems PTT should allow for insertion of a fault replicating a radio without a side tone.

3.2.9 The Communication Systems PTT should allow for insertion of a fault replicating a broken interconnect box.

3.2.10 The Communication Systems PTT should allow for insertion of a fault replicating a faulty radio transmitter.

3.2.11 The Communication Systems PTT should allow for insertion of a fault replicating a faulty radio receiver.

3.2.12 The Communication Systems PTT should allow for insertion of a fault replicating a broken antenna.

3.2.13 The Communication Systems PTT should allow for insertion of a fault replicating a faulty HF coupler.

3.2.14 The Communication Systems PTT should allow for insertion of a fault replicating a broken PTT button on the radio.

3.2.15 The Communication Systems PTT should allow for insertion of a fault replicating a broken VOX on the radio.

3.2.16 The Communication Systems PTT should allow for insertion of a fault replicating a bus initialization error.

3.2.17 The Communication Systems PTT should allow for insertion of a fault replicating a CVR not recording audio.

3.2.18 The Communication Systems PTT should allow for insertion of a fault replicating a CVR not recording video.

4. COCKPIT INSTRUMENTATION PTT

4.1 Cockpit Instrumentation PTT Requirements

4.1.1 The Cockpit Instrumentation PTT must utilize an Electronic Flight Information System (EFIS) to display the indicators' information.

4.1.2 The Cockpit Instrumentation PTT must include an aircraft temperature indication system, complete with sensor(s) and indicators.

4.1.3 The Cockpit Instrumentation PTT must include an aircraft position sensor indication system, complete with sensor(s) and indicators.

4.1.4 The Cockpit Instrumentation PTT must include an aircraft pressure indication system, complete with sensor(s) and indicators.

4.1.5 The Cockpit Instrumentation PTT should duplicate the EFIS display using the equivalent analogue indicators.

4.1.6 The Cockpit Instrumentation PTT should include fault indicators (Flags) for the EFIS and analogue displays, except for the HSI and VSI.

4.1.7 The Cockpit Instrumentation PTT should include a Control Display Unit (CDU), with user interface.

4.1.8 The Cockpit Instrumentation PTT CDU should interface with the EFIS displays.

4.1.9 The Cockpit Instrumentation PTT CDU should display error codes for non-functioning EFIS displays.

4.1.10 The Cockpit Instrumentation PTT should include a Horizontal Situation Indicator (HSI).

4.1.11 The Cockpit Instrumentation PTT should include a Vertical Situation Display (VSD).

4.1.12 The Cockpit Instrumentation PTT aircraft temperature indication system should include an engine temperature probe.

4.1.13 The Cockpit Instrumentation PTT aircraft temperature indication system should include an engine temperature indicator.

4.1.14 The Cockpit Instrumentation PTT aircraft temperature indication system should include an outside air temperature probe.

4.1.15 The Cockpit Instrumentation PTT aircraft temperature indication system should include an outside air temperature indicator.

4.1.16 The Cockpit Instrumentation PTT aircraft temperature indication system should include a fuel temperature probe.

4.1.17 The Cockpit Instrumentation PTT aircraft temperature indication system should include a fuel temperature indicator.

4.1.18 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a landing gear position sensor.

4.1.19 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a landing gear up-lock indicator.

4.1.20 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a landing gear down-lock light.

4.1.21 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a main door position sensor.

4.1.22 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a main door open indicator light.

4.1.23 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a weight-on-wheel position sensor.

4.1.24 The Cockpit Instrumentation PTT aircraft position sensor indication system should include a weight-on-wheel indicator.

4.1.25 The Cockpit Instrumentation PTT pressure indication system should include a fuel pressure sensor.

4.1.26 The Cockpit Instrumentation PTT pressure indication system should include a fuel pressure indicator.

4.1.27 The Cockpit Instrumentation PTT pressure indication system should include a hydraulic system pressure sensor.

4.1.28 The Cockpit Instrumentation PTT pressure indication system should include a hydraulic system pressure indicator.

4.1.29 The Cockpit Instrumentation PTT pressure indication system should include an oil system pressure sensor.

4.1.30 The Cockpit Instrumentation PTT pressure indication system should include an oil pressure indicator.

4.1.31 The Cockpit Instrumentation PTT should include a fuel quantity sensor.

4.1.32 The Cockpit Instrumentation PTT should include a fuel quantity gauge.

4.1.33 The Cockpit Instrumentation PTT should include an annunciator panel which is functionally integrated with the PTT temperature, pressure and position indicating systems.

4.1.34 The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low oil temperature.

4.1.35 The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low hydraulic temperature.

4.1.36 The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low fuel temperature.

4.1.37 The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low oil pressure.

4.1.38 The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low hydraulic pressure.

4.1.39 The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low fuel pressure.

4.1.40 The Cockpit Instrumentation PTT annunciator panel should include warnings for low fuel quantity.

4.2 Cockpit Instrumentation PTT Training Faults

4.2.1 The Cockpit Instrumentation PTT must allow for the insertion of at least 12 different faults.

4.2.2 The Cockpit Instrumentation PTT must have power, ground and signal test points at the input and the output of all incorporated sensors and indicators.

4.2.3 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty engine temperature indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.4 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty outside air temperature indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.5 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty fuel temperature indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.6 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty temperature probe as a result of a loss of signal input or an erratic signal input.

4.2.7 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a wiring fault between the temperature probe and its respective indicators.

4.2.8 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty oil pressure indication as a result of a loss of power, a loss of signal input, or broken indicator.

4.2.9 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty hydraulics pressure indication as a result of a loss of power, a loss of signal input, or broken indicator.

4.2.10 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty fuel pressure indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.11 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty fuel quantity indication as a result of a loss of power, a loss of signal input, or broken indicator.

4.2.12 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty pressure sensor as a result of a loss of signal input or an erratic signal input. .

4.2.13 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a wiring fault between the pressure sensor and its respective indicators.

4.2.14 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear up-lock indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.15 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear up-lock switch.

4.2.16 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear lock-down light indication as a result of a loss of power, a loss of signal input, or unserviceable indicator..

4.2.17 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear position sensor as a result of a loss of signal input or an erratic signal input.

4.2.18 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty main door open indicator light as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.19 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty main door switch.

4.2.20 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty main door sensor as a result of a loss of signal input or an erratic signal input.

4.2.21 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty weight-on-wheels indicator as a result of a loss of power, a loss of signal input, or unserviceable indicator.

4.2.22 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty weight-on-wheel switch.

4.2.23 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty weight-on-wheels sensor as a result of a loss of signal input or an erratic signal input.

4.2.24 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty flight control position sensor as a result of a loss of signal input or an erratic signal input.

4.2.25 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating wiring faults between one of the flight control position sensors and its respective indicators.

4.2.26 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating burned out lights in the annunciator panel.

4.2.27 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a false warning in the annunciator panel.

4.2.28 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating no warning on the annunciator panel.

4.2.29 The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a discrepancy between the analogue and EFIS display indicators.

4.2.30 The Cockpit Instrumentation PTT CDU should only display "sensor unavailable" or similar for all induced EFIS faults. The CDU should not display which sensor / system is unavailable.

5. PITOT STATIC PTT

5.1 Pitot Static PTT Requirements

5.1.1 The Pitot Static PTT must allow students to carry out a pitot static system leak check.

5.1.2 Each Pitot Static PTT must come equipped with a supporting pitot static test set. An integrated unit is not acceptable.

5.1.3 The Pitot Static PTT must include an Air Data Computer (ADC) System.

5.1.4 The Pitot Static PTT ADC must include an outside air temperature probe.

5.1.5 The Pitot Static PTT must include a Vertical Speed Indicator (VSI).

5.1.6 The Pitot Static PTT must contain an Air Speed Indicator (ASI).

5.1.7 The Pitot Static PTT must contain a Mach Airspeed Indicator (MASI).

5.1.8 The Pitot Static PTT VSI should be displayed on the EFIS flight display.

5.1.9 The Pitot Static PTT ASI should be displayed on the EFIS flight display.

5.1.10 The Pitot Static PTT MASI should be displayed on the EFIS flight display.

5.1.11 The Pitot Static PTT DH alert should be displayed on the EFIS display.

5.1.12 The Pitot Static PTT should contain a standby altitude indicator.

5.1.13 The Pitot Static PTT should include the ability for users to simulate changes in outside air temperature.

5.1.14 The Pitot Static PTT should include the ability for users to simulate changes in angle of attack.

5.1.15 The Pitot Static PTT should include the ability for users to simulate changes in barometric pressure.

5.1.16 The Pitot Static PTT should have a means of providing a decision height (DH) alert.

5.2 Pitot Static PTT Training Fault Requirements

5.2.1 The Pitot Static PTT must allow for insertion of at least 12 different faults.

5.2.2 The Pitot Static PTT must have power and ground test points at the input and output of all sensors and indicators.

5.2.3 The Pitot Static PTT should allow students to carry out a pitot static probe heater functional check.

5.2.4 The Pitot Static PTT should allow for insertion of a fault replicating a pitot static leak (non-functioning or open pitot static line).

5.2.5 The Pitot Static PTT should allow for insertion of a fault replicating a broken fitting

along the pitot static lines.

5.2.6 The Pitot Static PTT should allow for insertion of a fault replicating a blocked pitot static line.

5.2.7 The Pitot Static PTT should allow for insertion of a fault replicating a non-functioning air data computer.

5.2.8 The Pitot Static PTT should allow for insertion of a fault replicating a discrepancy between the air data computer and the sensor input(s).

5.2.9 The Pitot Static PTT should allow for insertion of a fault replicating an open in a system connector.

5.2.10 The Pitot Static PTT should allow for insertion of a fault replicating a short in a system connector.

5.2.11 The Pitot Static PTT should allow for insertion of a fault replicating a short circuit in the system wiring.

5.2.12 The Pitot Static PTT should allow for insertion of a fault replicating an open circuit in the system wiring.

5.2.13 The Pitot Static PTT should allow for insertion of a fault replicating a faulty pitot static probe heater.

5.2.14 The Pitot Static PTT should allow for insertion of a fault replicating a frozen indicator.

5.2.15 The Pitot Static PTT should allow for insertion of a fault replicating the indicator not providing indications.

5.2.16 The Pitot Static PTT should allow for insertion of a fault replicating a discrepancy between the test set inputs and the PTT indications.

5.2.17 The Pitot Static PTT should allow for insertion of a fault replicating an error flag on analogue indicators.

5.2.18 The Pitot Static PTT should allow for insertion of a fault replicating an error message on EFIS indicators.

6. NAVIGATION SYSTEMS PTT

6.1 Navigation Systems PTT Requirements

6.1.1 Each Navigation Systems PTT must come equipped with a separate radio navigation system test set capable of testing the TACAN, VOR, and ILS radio navigation systems. A test set integrated within the PTT is not acceptable.

6.1.2 The Navigation Systems PTT must include an Attitude and Heading Reference System (AHRS).

6.1.3 The Navigation Systems PTT must include an Attitude Display Indicator (ADI).

6.1.4 The Navigation Systems PTT must include a Horizontal Situation Indicator (HSI).

6.1.5 The Navigation Systems PTT must include an Instrument Landing System (ILS) radio navigation system.

6.1.6 The Navigation Systems PTT must include a Very High Frequency Omni-Directional Range (VOR) radio navigation system.

6.1.7 The Navigation Systems PTT must include a separate antenna for each radio navigation system.

6.1.8 The Navigation Systems PTT must include a transceiver for each radio navigation system.

6.1.9 The Navigation Systems PTT must include a Control Display Unit (CDU).

6.1.10 The Navigation Systems PTT must allow all radio navigation system user inputs to be carried out using the CDU.

6.1.11 The Navigation Systems PTT must include an aircraft data bus integrating the CDU with all radio navigation systems.

6.1.12 The Navigation Systems PTT must include a deviation indicator for both localizer and glide slope signals.

6.1.13 The Navigation Systems PTT should include an Automatic Direction Finder (ADF) radio navigation system.

6.1.14 The Navigation Systems PTT should include a Tactical Air Navigation (TACAN) radio navigation system.

6.1.15 The Navigation Systems PTT should include three marker beacon indicator lights.

6.1.16 The Navigation Systems PTT should include a Radio Magnetic Indicator (RMI).

6.1.17 The Navigation Systems PTT should include a stand-by compass.

6.1.18 The Navigation Systems PTT aircraft data bus should be a MILD-STDS 1553 or 1773 data bus.

6.1.19 The Navigation Systems PTT should include three headsets plugs compatible with a David Clark Headset (NSN H10-76)

6.1.20 The Navigation Systems PTT should include an EFIS display.

6.1.21 The Navigation Systems PTT ADI information should be displayed on an EFIS display.

6.1.22 The Navigation Systems PTT HSI information should be displayed on the EFIS display.

6.1.23 The Navigation Systems PTT localizer and glide slope deviation indications should be displayed on the EFIS display.

6.1.24 The Navigation Systems PTT RMI should be displayed on the EFIS display.

6.2 Navigation Systems PTT Training Fault Requirements

6.2.1 The Navigation Systems PTT must allow for insertion of at least 12 different system / component faults.

6.2.2 The Navigation Systems PTT must have power and ground test points at the input and output of all sensors and indicators.

6.2.3 The Navigation Systems PTT should allow for insertion of a fault replicating a failed flux valve within the AHRS as a result of a loss of power or an unserviceable flux valve.

6.2.4 The Navigation Systems PTT should allow for insertion of a fault replicating a failed gyroscope within the AHRS as a result of a loss of power or an unserviceable gyroscope.

6.2.5 The Navigation Systems PTT should allow for insertion of a fault replicating an AHRS computer failure as a result of a loss of power or an unserviceable computer.

6.2.6 The Navigation Systems PTT should allow for insertion of a fault replicating a failed antenna as a result of a loss of power or an unserviceable antenna for each radio navigation system.

6.2.7 The Navigation Systems PTT should allow for insertion of a fault replicating a failed transceiver / receiver as a result of a loss of power or an unserviceable transceiver / receiver for each radio navigation system.

6.2.8 The Navigation Systems PTT should allow for insertion of a fault replicating a failed CDU as a result of a loss of power or an unserviceable CDU.

6.2.9 The Navigation Systems PTT should allow for insertion of a fault replicating a failed CDU whereby the desired frequency is non-selectable.

6.2.10 The Navigation Systems PTT should allow for insertion of a fault replicating a failed CDU button.

6.2.11 The Navigation Systems PTT should allow for insertion of a fault replicating the user's inability to select the desired radio navigation function.

6.2.12 The Navigation Systems PTT should allow for insertion of a fault replicating an open in a system connector.

6.2.13 The Navigation Systems PTT should allow for insertion of a fault replicating a short in a system connector.

6.2.14 The Navigation Systems PTT should allow for insertion of a fault replicating an open circuit in the non-coaxial system wiring.

6.2.15 The Navigation Systems PTT should allow for insertion of a fault replicating a short circuit in the non-coaxial system wiring.

6.2.16 The Navigation Systems PTT should allow for insertion of a fault replicating a short circuit in the system coaxial cables.

6.2.17 The Navigation Systems PTT should allow for insertion of a fault replicating an open circuit in system coaxial cables.

6.2.18 The Navigation Systems PTT should allow for insertion of a fault replicating a failed indicator as a result of a loss of power, a loss of signal input, or unserviceable indicator.

6.2.19 The Navigation Systems PTT should allow for insertion of a fault replicating inaccurate marker beacon readings.

6.2.20 The Navigation Systems PTT should allow for insertion of a fault replicating disagreements between the marker beacons.

7. AUTOMATIC FLIGHT CONTROL SYSTEM PTT

7.1 Automatic Flight Control System PTT Requirements

7.1.1 The Automatic Flight Control System PTT must include a 3-axis Auto-pilot computer with yaw damper function.

7.1.2 The Automatic Flight Control System PTT must include an auto-pilot mode selector.

7.1.3 The Automatic Flight Control System PTT must disengage when user input is applied to the control column or rudder pedals.

7.1.4 The Automatic Flight Control System PTT must include a Flight Director system.

7.1.5 The Automatic Flight Control System PTT must include a Horizontal Situation Indicator (HSI).

7.1.6 The Automatic Flight Control System PTT must include a Heading Indicator.

7.1.7 The Automatic Flight Control System PTT must include an Attitude Display Indicator (ADI).

7.1.8 The Automatic Flight Control System PTT must include a navigation select panel.

7.1.9 The Automatic Flight Control System PTT control surface representations must move accordingly when the control column or rudder pedal are moved

7.1.10 The Automatic Flight Control System PTT must include the ability to manipulate the control surfaces for the ailerons, elevator, rudder, and flaps, through means such as a control column or a joystick.

7.1.11 The Automatic Flight Control System PTT must include rudder pedals.

7.1.12 The Automatic Flight Control System PTT rudder pedals, flight control surface control column, and scaled flight control surfaces must be linked with functioning servos

7.1.13 The Automatic Flight Control System PTT should include an aural and visual warning system for auto-pilot disconnect.

7.1.14 The Automatic Flight Control System PTT Flight Director system should function in pitch mode (no specific mode specified).

7.1.15 The Automatic Flight Control System PTT Flight Director system should function in roll mode (no specific mode specified).

7.1.16 The Automatic Flight Control System PTT Flight Director system should function in yaw mode (no specific mode specified).

7.1.17 The Automatic Flight Control System PTT Flight Director system should display the command bars on the ADI.

7.1.18 The Automatic Flight Control System PTT should include an EFIS display

7.1.19 The Automatic Flight Control System PTT HSI information should be displayed on an EFIS display.

7.1.20 The Automatic Flight Control System PTT ADI information should be displayed on an EFIS display.

7.1.21 The Automatic Flight Control System PTT should provide fault indicators (Flags) for the EFIS display

7.1.22 The Automatic Flight Control System PTT should provide fault indicators (Flags) for the analogue indicators

7.1.23 The Automatic Flight Control System PTT navigation select panel should include an altitude select mode.

7.1.24 The Automatic Flight Control System PTT navigation select panel should include a heading select mode.

7.1.25 The Automatic Flight Control System PTT navigation select panel should include a yaw damper selection mode.

7.1.26 The Automatic Flight Control System PTT should include a scaled physical representation of the rudder flight control surfaces.

7.1.27 The Automatic Flight Control System PTT should include a scaled physical representation of the aileron flight control surfaces.

7.1.28 The Automatic Flight Control System PTT should include a scaled physical representation of the elevator flight control surfaces.

7.1.29 The Automatic Flight Control System PTT flight control surfaces should be electrically actuated.

7.2 Automatic Flight Control System PTT Training Faults Requirements

7.2.1 The Automatic Flight Control System PTT must allow for insertion of at least 9 different system / component faults

7.2.2 The Automatic Flight Control System PTT must include power and ground test points at the input and the output of all incorporated sensors and indicators.

7.2.3 The Automatic Flight Control System PTT must include signal test points at the input and the output of all incorporated sensors and indicators.

7.2.4 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a power loss to the flight director.

7.2.5 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a failed auto-pilot computer as a result of power loss or an unserviceable computer.

7.2.6 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a power loss to the yaw damper system.

7.2.7 The Automatic Flight Control System PTT should allow for insertion of a fault replicating the inability for a user to select a flight director mode.

7.2.8 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a short in a system connector.

7.2.9 The Automatic Flight Control System PTT should allow for insertion of a fault replicating an open in a system connector.

7.2.10 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a short circuit in the system wiring.

7.2.11 The Automatic Flight Control System PTT should allow for insertion of a fault replicating an open circuit in the system wiring.

7.2.12 The Automatic Flight Control System PTT should allow for insertion of a fault replicating an un-commanded auto-pilot disengage.

7.2.13 The Automatic Flight Control System PTT should allow for insertion of a fault replicating the auto-pilot not engaging.

7.2.14 The Automatic Flight Control System PTT should allow for insertion of a fault replicating the auto-pilot not providing feedback to the control column or rudder pedals.

7.2.15 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a failed indicator as a result of a loss of power, a loss of signal input, or unserviceable indicator.

7.2.16 The Automatic Flight Control System PTT should allow for insertion of a fault replicating a fault whereby the control column and the servo moves out of sync.

7.2.17 The Automatic Flight Control System PTT should allow the instructor to insert a fault replicating a failed flight control servo as a result of a loss of power or an unserviceable flight control servo.

Appendix 3 – Acquisition CDRL's and DID's

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

1.0 CONTRACT DATA REQUIREMENTS LIST (CDRLS)

1.1 CDRL Template

A description of each block of information used in the CDRL template follows:

Block 1 – CDRL Item Number - The CDRL Item Number is a sequential three-digit number commencing with 001 to uniquely identify the individual Data Item (DI).

Block 2 – Title - The title of the DI.

Block 3 – Subtitle - Not used.

Block 4 – Data Item Number - The Data Item Description (DID) number associated with the CDRL item.

Block 5 – SOW Reference - Statement of Work (SOW) paragraph that references CDRL.

Block 6 – Technical Office - Not used.

Block 7 – Inspection - Not Used.

Block 8 – Approval Code - The following codes may be used

a. An "A" in Block 8 means that draft approval is required before submission of the final document. If advance approval is not needed, Block 8 is left blank.
b. An "R" in Block 8 means that the DI will be reviewed by Canada for acceptability of format, clarity and completeness. Once accepted, the DI must be considered for information only; and
c. An "I" in Block 8 means that the DI is for information only.

Block 9 – Review Period - Denotes the number of working days that are required for the TA to approve or review the DI.

Block 10 – Frequency - Indicates the submission frequency of the DI. A description of the submission codes used in Block 10 follows:

CODE	DESCRIPTION
ANNLY	Annually
ASREQ	As and when required
MACA	Months after contract award
MNTHY	Monthly
ONCE	One-time delivery

R/ASR	Revisions as required

Block 11 – As of Date - Not used.

Block 12 – 1st Submission - Specifies the date on which the DI must be submitted. See Block 10 for submission codes.

Block 13 – Subsequent Submission - Specifies the required submittal date(s) for any subsequent deliveries if the DI is submitted more than once.

Block 14 – Distribution and Addressees - Not used.

Block 15 – Media and Quantity - The media and, in the case of hard copy, the number of copies in which the data item is to be delivered. The following codes may be used:

a. Hard Copy;
b. Email;
c. CD: electronic media stored on CD ROM.

Block 16 – Remarks - Provides additional or clarifying information. Where other blocks refer to Block 16 – Remarks, then the associated block number is indicated with the information, and a "See Block 16" note is entered in the referring block.

1.2 CDRL-001 Project Management Plan (PMP)

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-001</td><td colspan="2">Block 2 – Title

Project Management Plan (PMP)</td><td>Block 3 – Subtitle</td><td>Block 4 – Data Item Number

PM-001</td></tr>
<tr><td>Block 5 – SOW Reference

2.2.1</td><td>Block 6 – Technical Office</td><td>Block 7 - Inspection</td><td>Block 8 – Approval Code

A</td><td>Block 9 – Review Period

10</td></tr>
<tr><td>Block 10 – Frequency

Block 16</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td>Block 13 – Subsequent Submission
Block 16</td></tr>
<tr><td colspan="2">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

An electronic copy of the PMP must be included with Contractor’s Proposal, either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. No paper copy is required for the schedule.</td></tr>
<tr><td colspan="5">Block 16 – Remarks

First Submission: Draft PMP must be submitted with Contractor’s Proposal.
Subsequent Submission: Final approved PMP must be submitted 1 week prior to initial kick off meeting or 1 MACA, whichever comes first</td></tr>
</table>

1.3 CDRL-002 Progress Reports

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-002</td><td colspan="2">Block 2 – Title

Progress Reports</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

PM-002</td></tr>
<tr><td>Block 5 – SOW Reference

2.4.1</td><td>Block 6 – Technical Office</td><td>Block 7 - Inspection</td><td>Block 8 – Approval Code

R</td><td colspan="2">Block 9 – Review Period

5</td></tr>
<tr><td>Block 10 – Frequency

Block 16</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

Email or any other electronic transfer media acceptable to TA. Progress Reports must be provided in a file type acceptable to the TA. No paper copy is required for the progress reports.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission– Progress Reports must be submitted 5 business days before each PRM, which must occur IAW approved schedule and whenever the Contractor and the TA agree to meet to solve specific issues.</td></tr>
</table>

1.4 CDRL-003 System Engineering Management Plan (SEMP)

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-003</td><td colspan="2">Block 2 – Title

System Engineering Management Plan (SEMP)</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

SE-001</td></tr>
<tr><td>Block 5 – SOW Reference

3.1.2</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td>Block 8 – Approval Code

A</td><td colspan="2">Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

An electronic Copy must be included with Contractor’s Proposal, either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. The SEMP must be submitted in Microsoft Word format to the TA. No paper copy is required for the SEMP.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission: Draft SEMP must be submitted with the Contractor’s Proposal
Subsequent Submission: Final SEMP must be submitted 10 business days prior to the Critical Design Review (CDR) meeting as per the approved project schedule</td></tr>
</table>

1.5 CDRL-004 Acceptance Plan

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-004</td><td colspan="2">Block 2 – Title

Acceptance Plan (AP)</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

SE-002</td></tr>
<tr><td>Block 5 – SOW Reference

3.3.1</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td>Block 8 – Approval Code

A</td><td colspan="2">Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

An electronic copy must be included with Contractor’s Proposal, either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. The AP must be submitted in MS Word format to the TA. No paper copy is required for the AP.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission: Draft AP must be submitted with the Contractor’s proposal and be based on the Contractor’s proposed equipment solution.
Subsequent Submission: The AP must be re-submitted after on-site testing in accordance with the approved schedule, and must reflect any changes in the plan arising from testing, as required, and to summarize and analyze test results.</td></tr>
</table>

1.6 CDRL-005 Acceptance Test Procedures

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-005</td><td colspan="2">Block 2 – Title

Acceptance Test Procedures (ATP)</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

SE-003</td></tr>
<tr><td>Block 5 – SOW Reference

3.4.1</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td>Block 8 – Approval Code

A</td><td colspan="2">Block 9 – Review Period

Block 16</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

ATPs delivered must include an electronic copy using any file type acceptable to the TA and one hardcopy. Electronic File transfer may occur via disk in the mail, email or any other electronic transfer means acceptable to the TA.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission– The initial ATPs must be submitted 60 calendar days prior to the commencement of on-site equipment acceptance testing as per the approved schedule. DND will then have 30 calendar days to review and provide feedback.
Subsequent submission –ATPs with DND feedback included, as applicable, must be submitted 14 calendar days before commencement of on-site equipment acceptance testing.
Final Submission – ATPs must be re-submitted within 14 calendar days following the completion of the post-installation test phase, in accordance with the approved schedule and must include all acceptance test results observed.</td></tr>
</table>

1.7 CDRL-006 Equipment Design Baseline Report

Block 1 – CDRL Item Number	Block 2 – Title	Block 3 – Subtitle	Block 4 – Data Item Number
CDRL-006	Equipment Design Baseline Report		SE-004

Block 5 – SOW Reference	Block 6 – Technical Office	Block 7 – Inspection	Block 8 – Approval Code	Block 9 – Review Period
3.4.5			A	30

Block 10 – Frequency	Block 11 – As Of Date	Block 12 – First Submission	Block 13 – Subsequent Submission
R/ASR		Block 16	Block 16

Block 14 – Distribution and Addressees	Block 15 – Media and Quantity
	All versions of the Equipment Baseline Design Report must be submitted in MS Word format to the DND TA. No paper copy is required.

Block 16 – Remarks
First Submission: The draft Equipment Baseline Design Report must be submitted 5 business days prior to the Preliminary Design Review (PDR) meeting.
Subsequent Submission: The final Equipment Baseline Design Report must be submitted 5 business days prior to the Critical Design Review (CDR) meeting.

1.8 CDRL-007 Training Plan (TP)

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-007</td><td colspan="2">Block 2 – Title

Training Plan (TP)</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

ILS-001</td></tr>
<tr><td>Block 5 – SOW Reference

4.1.2</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

A</td><td>Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

Hardcopy and electronic Copy, either on CD/DVD or flash drive, must be included with Contractor's Proposal. File type used must be MS Word. No paper copy is required for subsequent submission(s) of the TP.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission- A draft must be submitted with the Contractor's proposal. Draft submission need only be concerned with planning/process issues.

Subsequent Submission- The final delivery must be IAW the approved schedule. 30 days must be allowed for DND review and comment.</td></tr>
</table>

1.9 CDRL-008 Instructor Operator Training Package

Block 1 – CDRL Item Number CDRL-008	Block 2 – Title Instructor Training Package	Block 3 – Subtitle	Block 4 – Data Item Number ILS-002

Block 5 – SOW Reference 4.1.3	Block 6 – Technical Office	Block 7 – Inspection	Block 8 – Approval Code R	Block 9 – Review Period 30

Block 10 – Frequency Block 16	Block 11 – As Of Date	Block 12 – First Submission Block 16	Block 13 – Subsequent Submission Block 16

Block 14 – Distribution and Addressees	Block 15 – Media and Quantity All documentation must be in English and French and in electronic copy only, using a file type acceptable to the TA. File transfer may occur via disk in the mail, email or any other electronic transfer means acceptable to the TA.

Block 16 – Remarks

First Submission- A draft (English only) must be submitted with the Contractor's proposal.

Subsequent Submission- The final delivery must be in both English and French and be IAW the approved schedule. 30 days must be allowed for DND review and comment.

1.10 CDRL-009 Student Training Package

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-009</td><td colspan="3">Block 2 – Title

Student Training Package</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

ILS-003</td></tr>
<tr><td>Block 5 – SOW Reference

4.2.1</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

R</td><td colspan="2">Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

Block 16</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="3">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="4">Block 15 – Media and Quantity

All documentation must be in English and French and in electronic copy only, using a file type acceptable to the TA. File transfer may occur via disk in the mail, email or any other electronic transfer means acceptable to the TA.</td></tr>
<tr><td colspan="7">Block 16 – Remarks
First Submission- A draft (English only) must be submitted with the Contractor’s proposal.

Subsequent Submission- The final delivery must be in both English and French and be IAW the approved schedule. 30 days must be allowed for DND review and comment.</td></tr>
</table>

1.11 CDRL-010 Itemized Parts List

Block 1 – CDRL Item Number CDRL-010	Block 2 – Title Itemized Parts List	Block 3 – Subtitle	Block 4 – Data Item Number ILS-004

Block 5 – SOW Reference 4.3.1	Block 6 – Technical Office	Block 7 – Inspection	Block 8 – Approval Code R	Block 9 – Review Period 30

Block 10 – Frequency Block 16	Block 11 – As Of Date	Block 12 – First Submission Block 16	Block 13 – Subsequent Submission Block 16

Block 14 – Distribution and Addressees	Block 15 – Media and Quantity All documentation must be in electronic copy only, using a file type acceptable to the TA. File transfer may occur via disk in the mail, email or any other electronic transfer means acceptable to the TA.

Block 16 – Remarks

First Submission– The initial Itemized Parts List must be submitted with the Contractor's proposal.
Subsequent submission – Updated parts lists must be submitted 5 business prior to the annual PRM

1.12 CDRL-011 Quality Assurance Plan

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-011</td><td colspan="2">Block 2 – Title

Quality Assurance (QA) Plan</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

ILS-005</td></tr>
<tr><td>Block 5 – SOW Reference

4.4.2</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

A</td><td>Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

Once</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

Hardcopy and an electronic copy, either on CD/DVD or flash drive, must be included with Contractor’s Proposal. File type used must be MS Word. No paper copy is required for the final copy of the QA Plan.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First & Subsequent Submission: A draft QA Plan must be submitted with the Contractor’s proposal. Following DND review and comment, the final must be submitted for DND approval by 1 MACA.</td></tr>
</table>

1.13 CDRL-012 VMT Operating Instructions

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-012</td><td colspan="2">Block 2 – Title

VMT Operating Instructions</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

ILS-006</td></tr>
<tr><td>Block 5 – SOW Reference

4.5.1.1</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

A</td><td>Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

Once</td><td colspan="2">Block 11 – As Of Date</td><td>Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

A total of four hard copies (2 English, 2 French) must be provided by the contractor. The hard copy submissions must be in the form of a printed amendments package. DND will then remove superseded pages from the existing publications and insert the amendments. An electronic Copy must be delivered either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. The Operating Instructions must use any file type acceptable to the TA.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission: Draft: in both English and French 30 working days prior to on-site acceptance testing.

Subsequent Submission: Final: in both English and French no more than 3 calendar months after completion of on-site acceptance testing.</td></tr>
</table>

1.14 CDRL-013 PTT Operating Instructions

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-013</td><td colspan="2">Block 2 – Title

PTT Operating Instructions</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

ILS-007</td></tr>
<tr><td>Block 5 – SOW Reference

4.5.1.2</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

A</td><td>Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

Once</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

A total of four hard copies (2 English, 2 French) must be provided by the contractor. The hard copy submissions must be in the form of a printed amendments package. DND will then remove superseded pages from the existing publications and insert the amendments. An electronic Copy must be delivered either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. The Operating Instructions must use any file type acceptable to the TA.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

First Submission: Draft: in both English and French 30 working days prior to on-site acceptance testing.

Subsequent Submission: Final: in both English and French no more than 3 calendar months after completion of on-site acceptance testing.</td></tr>
</table>

1.15 CDRL-014 Drawings and Maintenance Manuals

Block 1 – CDRL Item Number	Block 2 – Title	Block 3 – Subtitle	Block 4 – Data Item Number
CDRL-014	Drawings and Maintenance Manuals		ILS-008

Block 5 – SOW Reference	Block 6 – Technical Office	Block 7 – Inspection	Block 8 – Approval Code	Block 9 – Review Period
4.5.1.3			A	30

Block 10 – Frequency	Block 11 – As Of Date	Block 12 – First Submission	Block 13 – Subsequent Submission
Once		Block 16	Block 16

Block 14 – Distribution and Addressees	Block 15 – Media and Quantity
	A total of four hard copies (2 English, 2 French) must be provided by the contractor. The hard copy submissions must be in the form of a printed amendments package. DND will then remove superseded pages from the existing publications and insert the amendments. An electronic Copy must be delivered either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. The Operating Instructions must use any file type acceptable to the TA.

Block 16 – Remarks

First Submission: Draft: in both English and French 30 working days prior to on-site acceptance testing.

Subsequent Submission: Final: in both English and French no more than 3 calendar months after completion of on-site acceptance testing.

1. The Drawing Package hardcopies Qty (4) must be delivered as Size "D" IAW ANSI Standard US Engineering Drawing Sizes (width 22.0 inches) x (Length 34.0 inches).
   It is desired of these drawings be delivered as follows:
   a. 1 set English, 1 set French to the TA at DGAEPM (TA&S) 4-4 &
   b. 1 set English, 1 set French delivered to CFSATE

1.16 CDRL-015 Software Documentation

Block 1 – CDRL Item Number	Block 2 – Title	Block 3 – Subtitle	Block 4 – Data Item Number
CDRL-015	Software Documentation		ILS-009

Block 5 – SOW Reference	Block 6 – Technical Office	Block 7 – Inspection	Block 8 – Approval Code	Block 9 – Review Period
4.5.1.4			R	30

Block 10 – Frequency	Block 11 – As Of Date	Block 12 – First Submission	Block 13 – Subsequent Submission
Block 16		Block 16	Block 16

Block 14 – Distribution and Addressees	Block 15 – Media and Quantity
	All documentation must be in electronic copy only, using a file type acceptable to the TA. File transfer may occur via disk in the mail, email or any other electronic transfer means acceptable to the TA.

Block 16 – Remarks

First Submission: Draft 30 working days prior to on-site acceptance testing.

Subsequent Submission: Updates as required based on software changes

2.0 DATA ITEM DESCRIPTIONS (DID)

2.1 DID Template

A description of each block of information used in the DID template follows:

Block 1 – Title - This is the title of the DID and corresponds to the associated CDRL.

Block 2 – Identification Number - This is the number assigned to the DID.

Block 3 – Description/Purpose - This provides general information on how the Data Item (DI) is to be used.

Block 4 – Approval Date - Not used.

Block 5 – Office of Primary Interest - Not used.

Block 6 – Office of Collateral Interest - Not used.

Block 7 – Interrelationship - The Statement of Work paragraph that references the DID.

Block 8 – Originator - Not used.

Block 9 – References - This points to the standard(s) to be used for completion of DI.

Block 10 – Preparation Instructions - This provides the preparation details for the format and for the content in the DID.

2.2 PM-001 Project Management Plan (PMP)

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Project Management Plan (PMP)		2. IDENTIFICATION NUMBER CDRL-001/PM-001
3. DESCRIPTION/PURPOSE The Project Management Plan must describe the Contractor's processes and organization for integrating and carrying out all management activities necessary to complete the Work to meet all contractual requirements required by the Contract within the accepted schedule and budgetary constraints.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST)	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 2.2.1		
8. ORIGINATOR	9. REFERENCES	

10. PREPARATION INSTRUCTIONS

10.1 The PMP must include the Contractor's procedures to address requirements in the SOW. The procedures must include, but not be limited to, a description of the following:

10.1.1 Schedule control, including work breakdown structuring;

10.1.2 Progress reporting;

10.1.3 Internal and external channels of communication;

10.1.4 Problem resolution;

10.1.5 Document delivery process; and

10.1.6 Other program management procedures as defined by the Contractor.

10.2 The Project Management Plan must identify the Contractor's internal organizational elements and major sub-contractors responsible for accomplishing the work detailed in the SOW.

10.3 The PMP must include a project schedule. The Project Schedule must be used to depict the schedule status of the overall project and reflect the time-phased sequence of the Contractor activities, deliverables and milestones. The Project Schedule must include:

10.3.1 a tracking Gantt chart showing the contract work elements;

10.3.2 major contract milestones;

10.3.3 production start, completion and dates for each deliverable;

10.3.4	on-site Acceptance Test dates; and
10.3.5	update submissions must be in the form of a re-issuance of the complete Project Schedule. The Project Schedule status reporting requirements must include progress indications and planned or actual schedule slippage/accelerations of the current schedule must be clearly shown in relation to the baseline schedule.

2.3 PM-002 Progress Reports

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Progress Report		2. IDENTIFICATION NUMBER CDRL-002/PM-002
3. DESCRIPTION/PURPOSE The Progress Report summarizes the Contractor's progress in relation to the Contract.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 2.4.1		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

10.1 The Progress Report must be submitted in Contractor format. The Progress Report must include the following information:

10.1.1 an update on risks and issues containing, as a minimum: description of issues and associated risks, their impact, their likelihood, proposed mitigation and response action;

10.1.2 a narrative detailing design changes, progress against milestones, expected date of completion of near milestones, problem areas, and work-around plans where required;

10.1.3 significant incidents including, as a minimum, significant technical, supply or quality problems, anticipation of a significant schedule slippage involving the work;

10.1.4 production status against each deliverable and the timing of significant stages of production, testing, and delivery;

10.1.5 all minutes of all meetings, in Contractor format, within the reporting period; and

10.1.6 outstanding action items.

2.4 SE-001 System Engineering Management Plan (SEMP)

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Systems Engineering Management Plan (SEMP)		2. IDENTIFICATION NUMBER CDRL-003/SE-001
3. DESCRIPTION The SEMP describes the engineering processes, methods and designs used by the contractor to ensure system integration and product performance. The SEMP describes the Contractor's Plan for the conduct and management of a fully integrated engineering effort that satisfies the technical requirements of the Contract.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. APPLICATION / INTERRELATIONSHIP SOW 3.1.2		
8. ORIGINATOR	9. REFERENCES	

10. PREPARATION INSTRUCTIONS

10.1 The SEMP must be in Contractor format. The SEMP must contain the following information:

10.1.1 Introduction: defines the scope and purpose of the plan, together with applicable definitions, references and related documents;

10.1.2 Management: this section must explain the engineering management plan to deliver all technical deliverables, from design to acceptance;

10.1.3 Design: this section must overview the selection of systems (hardware and software), subsystems and determine their performance requirements and interfaces. The design must provide an overview of the plans and methods used to aggregate, interconnect, and test the hardware, software, and other components to deliver the specified functionality. The SEMP must reference the following associated plans and reports, as a minimum, for amplifying details:

10.1.3.1 Project Management Plan;

10.1.3.2 Acceptance Plan; and,

10.1.3.3 Quality Assurance Plan.

2.5 SE-002 Acceptance Plan

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Acceptance Plan (AP)		2. IDENTIFICATION NUMBER CDRL-004/SE-002
3. DESCRIPTION/PURPOSE The AP must describe the Contractor's overall plan to demonstrate product conformance to the Contract requirements. The AP must describe how the Contractor will verify the serviceability, functionality and configuration and verify product conformance to the approved Design Baseline. After testing, a new version of the AP must be submitted to analyze the test results noted during the Acceptance Test Procedures (ATPs), to demonstrate product conformance.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 3.3.1		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

10.1 The AP must be in Contractor's format.

10.2 The AP must describe how the Contractor intends to manage all acceptance testing activities to demonstrate product conformance to the contract requirements. The AP must describe how the Contractor will verify the serviceability and prove product conformance to the approved Design Baseline.

10.3 The AP must detail the development of Acceptance Test Procedures (ATPs), the execution of the acceptance tests, and the analysis of the acceptance test results.

10.4 The AP must demonstrate that the system meets the requirements through reviews of subsystems, component analysis, and test results. Following installation, test results must be reported in the ATPs, but summarized and analyzed in subsequent submissions of the AP.

10.5 The AP must outline the coordination mechanisms to ensure participation of DND TA in the testing activities.

2.6 SE-003 Acceptance Test Procedures

<table>
<tr><td>DATA ITEM DESCRIPTION (DID)</td><td colspan="3">DND Form 1409</td></tr>
<tr><td>1. TITLE

Acceptance Test Procedures</td><td colspan="3">2. IDENTIFICATION NUMBER

CDRL-005/SE-003</td></tr>
<tr><td colspan="4">3. DESCRIPTION/PURPOSE

ATPs document the criteria and acceptance procedures to demonstrate that the product meets the requirements of the contract following installation.</td></tr>
<tr><td>4. APPROVAL DATE</td><td>5. OFFICE OF PRIMARY INTEREST</td><td colspan="2">6. OFFICE OF COLLATERAL INTEREST</td></tr>
<tr><td colspan="4">7. INTERRELATIONSHIP
SOW 3.4.1</td></tr>
<tr><td colspan="2">8. ORIGINATOR</td><td colspan="2">9. REFERENCES</td></tr>
<tr><td colspan="4">10. PREPARATION INSTRUCTIONS
10.1 Acceptance test procedures describe the tests that define the criteria for the acceptance of the final delivered product.
10.2 The Acceptance test procedures must be formatted to combine the procedures and results into one document. Included in the format will be columns for Contractor and DND initials to verify results and to document action items resulting from testing, as required.</td></tr>
</table>

2.7 SE-004 Equipment Design Baseline Report

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Equipment Design Baseline Report		2. IDENTIFICATION NUMBER CDRL-006/SE-004
3. DESCRIPTION/PURPOSE The Equipment Design Baseline Report must define the baseline configuration, including all software, parts, and components used in the design and construction of the VMT suites and PTT devices		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 3.4.5		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

10.1 The Equipment Design Baseline Report must be prepared and submitted for DND approval in Contractor format. Where reference to other documents is made from within the baseline report, such documents must be attached as annexes baseline report.

10.2 The Draft Equipment Design Baseline Report must include the following

10.2.1 Planned VMT suite and PTT device configuration.

10.2.2 Planned version(s) of all software to be installed in the VMT suites and PTT devices.

10.2.3 Part number(s) of all parts and components to be installed in the VMT suites and PTT devices.

10.3 The Final Equipment Design Baseline Report must include the following

10.3.1 Final baseline VMT suite and PTT device configuration.

10.3.2 Final baseline version(s) of all software installed in the VMT suites and PTT devices.

10.3.3 Part number(s) of all parts and components installed in the VMT suites and PTT devices.

10.3.4 Serial numbers of all parts, and components installed in the VMT suites and PTT devices.

2.8 ILS-001 Training Plan (TP)

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Training Plan (TP)		2. IDENTIFICATION NUMBER CDRL-007/ILS-001
3. DESCRIPTION/PURPOSE The TP must provide all information required to deliver on-site training to DND instructors to enable operation and maintenance of the VMTs and PTTs.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.1.2		
8. ORIGINATOR		9. REFERENCES

10.0 PREPARATION INSTRUCTIONS

10.1 The TP must be prepared in Contractor format and must describe how the Contractor will provide training to DND instructors. Training must be in sufficient depth to enable:

a. CFSATE instructors to operate the VMT and PTT devices:

b. CFSATE instructors to maintain the VMT and PTT devices; and

c. CFSATE instructors to edit built in lesson plans and troubleshooting scenarios as applicable.

10.2 The TP must include the preparation of all documentation, and all other information and material necessary to conduct the training of the instructors.

10.3 The TP must be tailored to support an initial cadre of approximately 64 DND instructing staff.

2.9 ILS-002 Instructor Training Package

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Instructor Operator Training Package		2. IDENTIFICATION NUMBER CDRL-008/ILS-002
3. DESCRIPTION/PURPOSE The Instructor Training Package must provide instructors with the required knowledge to operate and instruct scenarios with the PTTs and VMTs, to perform operator level daily maintenance actions on the VMT suites and PTT devices, including installing software updates, upgrades and patches on the VMT suites.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.1.3		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

10.1 The Instructor Training Package must be in both English and French.

10.2 The Instructor Training Package must be in the Contractor's format.

10.3 The Instructor Training Package images must be printed in colour.

10.4 CONTENT

10.4.1 The Contractor must design the training to enable DND personnel to:

10.4.1.1 use devices to instruct apprentices; and

10.4.1.2 develop and edit lesson plans without assistance.

10.4.2 The Contractor must provide on-site initial cadre training at CFSATE (Borden, ON) to 64 instructors IAW the approved TP and project schedule.

10.4.3 The training package must be sufficient for the instructors to operate, develop and teach scenarios with the VMT.

10.4.4 The training package must be sufficient for instructors to operate, develop and teach scenarios, with the PTTs.

10.4.5 The training data package must be supplied electronically and conform to instructional design best practice. The design must make best use of distributed learning and include a hands-on portion to take place on the training device(s) for demonstrations and practice. This requirement is subject to modification based on a vendor developed training analysis and final training plan.

10.4.6	The instructor course must describe the operation of all equipment in support of all instructional requirements. The course must reflect the lesson plans and other material that will be used on an ongoing basis to train new instructors in the future. It is expected that any individual will be able to operate the trainer even if they possess no previous training experience.

2.10 ILS-003 Student Training Package

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Student Training Package	2. IDENTIFICATION NUMBER CDRL-009/ILS-003	
3. DESCRIPTION/PURPOSE The Student Training Package (STP) details the simulated unserviceability, including corrective actions, for every simulated fault included with the VMT and PTTs.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.2.1		
8. ORIGINATOR	9. REFERENCES	

10. PREPARATION INSTRUCTIONS

10.1 The Student Training Package must be in both English and French.

10.2 The Student Training Package must be in the Contractor's format.

10.3 The Student Training Package images must be printed in colour.

10.4 CONTENT

10.4.1 The Student Training Package must meet these requirements by including the following as a minimum:

10.4.1.1 Descriptions of each fault, how to trigger them, what the effects are and what the resolving solution is; and

10.4.1.2 Technical manuals for the maintenance procedures to be performed by the student in the simulated VMT or PTT environment.

10.4.2 Technical manuals must include the following:

10.4.2.1 General description of the system and components;

10.4.2.2 System diagrams;

10.4.2.3 Functional check-out procedures;

10.4.2.4 Troubleshooting flow charts;

10.4.2.5 Parts removal and installation procedures;

10.4.2.6 Parts lists;

10.4.2.7 Parts location diagrams;

10.4.2.8 Block diagrams; and

10.4.2.9 Wiring diagrams.

2.11 ILS-004 Itemized Parts List

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Itemized Parts List		2. IDENTIFICATION NUMBER CDRL-010/ILS-004
3. DESCRIPTION/PURPOSE To provide a comprehensive list of the parts available from the vendor to support PTT and VMT operation.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.3.1		
8. ORIGINATOR		9. REFERENCES
10. PREPARATION INSTRUCTIONS 10.1 The Contractor must submit an itemized list of the parts required to support the PTT and VMT operation. As a minimum, for each item, the list shall include the following: 10.1.1 OEM and source of supply; 10.1.2 OEM part number; 10.1.3 Contractor part number; 10.1.4 Unit cost; and 10.1.5 Quantity per unit.		

2.12 ILS-005 Quality Assurance Plan

<table>
<tr><td>DATA ITEM DESCRIPTION (DID)</td><td colspan="3">DND Form 1409</td></tr>
<tr><td>1. TITLE
Quality Assurance (QA) Plan</td><td colspan="3">2. IDENTIFICATION NUMBER
CDRL-011/ILS-005</td></tr>
<tr><td colspan="4">3. DESCRIPTION/PURPOSE
This plan describes the Contractor’s Quality Assurance Programme</td></tr>
<tr><td>4. APPROVAL DATE</td><td>5. OFFICE OF PRIMARY INTEREST
PMO</td><td colspan="2">6. OFFICE OF COLLATERAL INTEREST</td></tr>
<tr><td colspan="4">7. INTERRELATIONSHIP
SOW 4.4.2</td></tr>
<tr><td colspan="2">8. ORIGINATOR</td><td colspan="2">9. REFERENCES
ISO 9001:2015
ISO 10005:2018</td></tr>
<tr><td colspan="4">10. PREPARATION INSTRUCTIONS
10.1 Format
10.1.1 The QA Plan must be prepared in Contractor format
10.1.2 The QA Plan must be prepared in accordance with the latest issue (at contract date) of ISO 10005 “Quality Management Systems – Guidelines for Quality Plans”
10.1.3 The QA Plan must describe how the Contractor will conform to the quality requirements of the contract and specify how the required quality activities are to be carried out, including the quality assurance of any required subcontractors.
10.2 Specific Content
10.2.1 The QA Plan must describe the organizational structure, training, roles, and responsibilities of personnel assigned to perform QA duties in all areas of work in the SOW</td></tr>
</table>

2.13 ILS-006 VMT Operating Instructions

<table>
<tr><td colspan="3">DATA ITEM DESCRIPTION (DID) DND Form 1409</td></tr>
<tr><td colspan="2">1. TITLE
VMT Operating Instructions</td><td>2. IDENTIFICATION NUMBER
CDRL-012/ILS-006</td></tr>
<tr><td colspan="3">3. DESCRIPTION/PURPOSE
To provide VMT Operating Instructions manual to allow instructors and maintainers to operate the VMT.</td></tr>
<tr><td>4. APPROVAL DATE</td><td>5. OFFICE OF PRIMARY INTEREST</td><td>6. OFFICE OF COLLATERAL INTEREST</td></tr>
<tr><td colspan="3">7. INTERRELATIONSHIP
SOW 4.5.1.1</td></tr>
<tr><td colspan="2">8. ORIGINATOR</td><td>9. REFERENCES</td></tr>
<tr><td colspan="3">10. PREPARATION INSTRUCTIONS
10.1 The VMT Operating Instructions must be the sole reference necessary for VMT operation. The manual will also be a reference handbook for operators and maintenance personnel who will need to operate the VMT for maintenance purposes. It must include descriptions of all VMT modes and procedures. Descriptions must cover every control, button, switch, readout, and display affected by the program at the level required for efficient operation. Illustrations must be included to aid operators in locating controls. Equipment interconnections necessary for correct system operation must be included.
10.2 The VMT Operating Instructions must be provided in both English and French.</td></tr>
</table>

2.14 ILS-007 PTT Operating Instructions

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE PTT Operating Instructions		2. IDENTIFICATION NUMBER CDRL-013/ILS-007
3. DESCRIPTION/PURPOSE To provide PTT Operating Instructions manual to allow instructors and maintainers to operate the VMT.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.5.1.2		
8. ORIGINATOR		9. REFERENCES
10. PREPARATION INSTRUCTIONS 10.1 The PTT manuals must be the sole reference necessary for PTT operation. The manual will also be a reference handbook for operators and maintenance personnel who will need to operate the PTT for maintenance purposes. It must include descriptions of all PTT modes, and procedures. Descriptions must cover every control, button, switch, readout, and display affected by the program at the level required for efficient operation. Illustrations must be included to aid operators in locating controls. Equipment interconnections necessary for correct system operation must be included. 10.2 The PTT Operating Instructions must be provided in both English and French.		

2.15 ILS-008 Drawings and Maintenance Manuals

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Drawings & Maintenance Manuals		2. IDENTIFICATION NUMBER CDRL-014/ILS-008
3. DESCRIPTION/PURPOSE To provide Engineering drawings, their associated lists and Maintenance Manuals that enable support to the VMT and PTTs over their lifecycle.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.5.1.3		
8. ORIGINATOR		9. REFERENCES D-01-100-214/SF-000, Para 3.8.3

10. PREPARATION INSTRUCTIONS

10.1 The Contractor must provide engineering drawings and maintenance manuals necessary to support the VMT and PTTs. The engineering drawings and maintenance manuals must be provided in both English and French.

10.2 Engineering Drawings: The drawing set must conform to paragraph 3.8.3 of D-01-100-214/SF-000 and must include:

10.2.1 Drawings essential to accommodate installation, maintenance, removal, and repair of all equipment;

10.2.2 Drawings for all electrical schematics, cabling, interconnections, and wiring diagrams.

10.3 System Maintenance Manuals: Manuals must outline the scope and configuration of the system and must augment and relate to manuals supplied with vendor equipment (e.g. computer). Manuals must include as a minimum:

10.3.1 operating procedures;

10.3.2 guidance on routine servicing;

10.3.3 system fault finding, use of maintenance and test programs, and corrections;

10.3.4 a functional description showing the parameters and interrelationship of the equipment comprising the total system;

10.3.5 illustrations, block, wiring, and system diagrams showing equipment inter-connection and signal paths;

10.3.6 information on any modifications, special configuration or options to vendor equipment,

10.3.7 information on fabricated cables and connectors peculiar to the system;

10.3.8 information on special parts required which are not covered by individual manual parts lists; and

10.3.9 information relating to system assembly/disassembly and setup procedures.

10.4 Vendor Publications: Publications prepared by manufacturers of commercial vendor equipment must be included with the publication set.

2.16 ILS-009 Software Documentation

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Software Documentation		2. IDENTIFICATION NUMBER CDRL-015/ILS-009
3. DESCRIPTION/PURPOSE To provide software documentation package that will enable software use of the VMT throughout the Estimated Life Expectancy (ELE) of 15 years		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW 4.5.1.4		
8. ORIGINATOR		9. REFERENCES ISO/IEC 90003:2018
10. PREPARATION INSTRUCTIONS 10.1 The Contractor must deliver all software documentation required to operate and maintain VMT software over its lifecycle. Software documentation must conform to ISO/IEC 90003:2018 (version effective at contract signature). The documentation provided must include amendments to existing documents where applicable, and any new documents IAW the approved technical proposal.		

Appendix 4 – Mandatory Technical Evaluation Criteria – Virtual Maintenance Trainer (VMT)

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
Appendix 4 – Mandatory Technical Evaluation Criteria – Virtual Maintenance Trainer (VMT)

Para	Mandatory Virtual Maintenance Trainer Requirements		Evaluation Criteria	Requirement Met? Y / N	Reference
2		**General Requirements**			
2.1	VM 1	The VMT must be a computer software based training device which simulates aircraft system operations and allows for the practice of aircraft maintenance procedures on aircraft systems	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.2	VM 2	The VMT must operate at an UNCLASSIFIED level.	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.3	VM 3	The VMT must be used as a part of an integrated classroom suite that supports demonstrations and presentations with one instructor and 16 students.	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.4	VM 4	Each VMT suite must be designed for use in a single classroom and operate independently from other training devices	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.5	VM 5	Each VMT suite must include components to distribute power from the facility provided power source (110V, 60Hz) to the system components.	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.6	VM 6	All VMT suite hardware must be available as Commercial Off the Shelf (COTS) equipment	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.7	VM 7	The VMT suite hardware components must meet CSA, ULC or other equivalent recognized safety certification	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.8	VM 8	Each VMT suite must include an instructor station and eight student stations able to accommodate 2 students per station	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.9	VM 9	The VMT suite must use desktop style personal	Bidder has attested that their proposed		

		computers for the instructor and student workstations	VMT solution satisfies this requirement		
2.10	VM 10	Each VMT personal computer must use a commercially supportable operating system	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.11	VM 11	Each VMT instructor and student workstation personal computer must include a minimum of two spare USB ports (USB 2.0 or higher)	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.12	VM 12	Each VMT instructor and student workstation personal computer must include a minimum of two 27” 4K UHD LED computer display monitors	Some VMT solutions may use more than 2 displays. Bidder has attested that their proposed VMT solution satisfies this requirement		
2.13	VM 13	Each VMT instructor and student workstation personal computer must include a keyboard and wired mouse	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.14	VM 14	Each VMT suite must include a classroom audio system	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.15	VM 15	The VMT suite classroom audio system must include all components and interfaces necessary to transmit audio from the instructor workstation	Bidder has attested that their proposed VMT solution satisfies this requirement		
2.16	VM 16	The VMT ambient noise levels must be consistent with Canadian Labour Code standards	Bidder has attested that their proposed VMT solution satisfies this requirement		
3		**VMT Requirements**			
3.1	VM 17	The VMT must allow trainees to conduct simulated aircraft system functional testing procedures	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.2	VM 18	The VMT must allow for insertion of simulated aircraft system faults	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.3	VM 19	The VMT must ensure that users are required to log in to use an instructor station.	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.4	VM 20	The VMT must ensure that users are required to log in to use a trainee station.	Bidder has attested that their proposed VMT solution satisfies this requirement		

3.5	VM 21	The VMT must provide a unique ID for each trainee workstation which is identifiable by the instructor.	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.6	VM 22	The VMT default language must be in English..	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.7	VM 23	The VMT menu and navigation tools must be selectable to be displayed in either English or French.	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.8	VM 24	The VMT systems functional and troubleshooting checklists must be selectable for use in either English or French.	Bidder has attested that their proposed VMT solution satisfies this requirement		
3.9	VM 25	The VMT trainee task plans must be selectable for use in either English or French.	Bidder has attested that their proposed VMT solution satisfies this requirement		

Appendix 5 – Mandatory Technical Evaluation Criteria – Part Task Trainer (PTT)

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
Appendix 5 – Mandatory Technical Evaluation Criteria – Part Task Trainer (PTT)

Para	Mandatory Part Task Trainer Requirements		Evaluation Criteria	Requirement Met? Y / N	Reference
2	**PTT General Performance Requirements**				
2.1	PM 1	The PTTs must allow students to perform system inspections.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.2	PM 2	The PTTs must allow students to perform component removal and installation.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.3	PM 3	The PTTs must allow students to perform system functional tests.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.4	PM 4	The PTTs must be delivered with a checklist, in both English and French to allow for the functional testing of all included systems / components	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.5	PM 5	The PTTs must allow students to perform system diagnosis.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.6	PM 6	The PTTs must allow students to perform system troubleshooting.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.7	PM 7	The PTTs must be designed so system faults can be induced through DIP (Dual in-line package) switches or equivalent circuitry.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.8	PM 8	The PTTs must be designed so that the DIP switches are not visible to the students during troubleshooting exercises.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.9	PM 9	The PTTs power supplies and electrical components must meet CSA, ULC or other equivalent recognized safety certification.	Bidder has attested that their proposed PTT solution satisfies this requirement		

2.10	PM 10	Each PTT must be delivered with a user operating manual in both English and French.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.11	PM 11	Each PTT must be delivered with a PTT system / component block diagrams in both English and French.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.12	PM 12	Each PTT must be delivered with a maintenance manual.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.13	PM 13	Each PTT must be delivered with a PTT system wiring diagram.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.14	PM 14	The PTTs must be ergonomically designed to accommodate the range of motion of the 5th percentile (%) female to the 95th percentile (%) male.	Bidder has attested that their proposed PTT solution satisfies this requirement		
2.15	PM 15	The PTTs must be portable and of sufficient size to allow all eight PTT devices belonging to a specific aircraft system (ie. 8 comm sys PTTs) to be housed in an area measuring 70 square metres or 750 square feet	Bidder has attested that their proposed PTT solution satisfies this requirement		
3	**Communications Systems PTT**				
3.1		**Communications Systems PTT Requirements**			
3.1.1	PM 16	The Communication Systems PTT must include two of the following radio systems: an HF radio system, a UHF FM radio system, and a VHF AM radio system.	Bidder has attested that their proposed PTT solution satisfies this requirement		
3.1.2	PM 17	The Communication Systems PTT must include one antenna per radio system capable of receiving and transmitting within the ranges specified.	Bidder has attested that their proposed PTT solution satisfies this requirement		
3.1.3	PM 18	The Communication Systems PTT radio systems must be wattage restricted to allow the user to safely stand in front of	Bidder has attested that their proposed PTT solution satisfies this requirement		

		the antenna at a distance of 1 m.			
3.1.4	PM 19	The Communication Systems PTT must contain a Control Display Unit (CDU) including a radio select box .	Bidder has attested that their proposed PTT solution satisfies this requirement		
3.1.5	PM 20	The Communication Systems PTT must include an aircraft data bus integrating the CDU with all radio transceivers.	Bidder has attested that their proposed PTT solution satisfies this requirement		
3.2		**Communications System PTT Training Faults**			
3.2.1	PM 21	The Communication Systems PTT must allow for insertion of at least 16 different communication system faults.	Bidder has attested that their proposed PTT solution satisfies this requirement		
3.2.2	PM 22	The Communication Systems PTT must have power and ground test points at the inputs and output of all incorporated components.	Bidder has attested that their proposed PTT solution satisfies this requirement		
4	**Cockpit Instrumentation PTT**				
4.1		**Cockpit Instrumentation PTT Requirements**			
4.1.1	PM 23	The Cockpit Instrumentation PTT must utilize an Electronic Flight Information System (EFIS) to display the indicators' information.	Bidder has attested that their proposed PTT solution satisfies this requirement		
4.1.2	PM 24	The Cockpit Instrumentation PTT must include an aircraft temperature indication system, complete with sensor(s) and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
4.1.3	PM 25	The Cockpit Instrumentation PTT must include an aircraft position sensor indication system, complete with sensor(s) and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
4.1.4	PM 26	The Cockpit Instrumentation PTT must include an aircraft pressure indication system, complete with sensor(s) and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
4.2		**Cockpit Instrumentation PTT Training Faults**			
4.2.1	PM 27	The Cockpit Instrumentation PTT must	Bidder has attested that their proposed PTT		

		allow for the insertion of at least 12 different faults	solution satisfies this requirement		
4.2.2	PM 28	The Cockpit Instrumentation PTT must have power, ground and signal test points at the input and the output of all incorporated sensors and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
5	**Pitot Static PTT**				
5.1		**Pitot Static PTT Requirements**			
5.1.1	PM 29	The Pitot Static PTT must allow students to carry out a pitot static system leak check.	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.1.2	PM 30	Each Pitot Static PTT must come equipped with a supporting pitot static test set. An integrated unit is not acceptable.	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.1.3	PM 31	The Pitot Static PTT must include an Air Data Computer (ADC) System.	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.1.4	PM 32	The Pitot Static PTT ADC must include an outside air temperature probe.	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.1.5	PM 33	The Pitot Static PTT must include a Vertical Speed Indicator (VSI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.1.6	PM 34	The Pitot Static PTT must contain an Air Speed Indicator (ASI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.1.7	PM 35	The Pitot Static PTT must contain a Mach Airspeed Indicator (MASI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.2		**Pitot Static PTT Training Fault Requirements**			
5.2.1	PM 36	The Pitot Static PTT must allow for insertion of at least 12 different faults.	Bidder has attested that their proposed PTT solution satisfies this requirement		
5.2.2	PM 37	The Pitot Static PTT must have power and ground test points at the input and output of all sensors and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6	**Navigation Systems PTT**				
6.1		**Navigation Systems PTT Requirements**			

6.1.1	PM 38	Each Navigation Systems PTT must come equipped with a separate radio navigation system test set capable of testing the TACAN, VOR, and ILS radio navigation systems. A test set integrated within the PTT is not acceptable.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.2	PM 39	The Navigation Systems PTT must include an Attitude and Heading Reference System (AHRS).	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.3	PM 40	The Navigation Systems PTT must include an Attitude Display Indicator (ADI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.4	PM 41	The Navigation Systems PTT must include a Horizontal Situation Indicator (HSI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.5	PM 42	The Navigation Systems PTT must include an Instrument Landing System (ILS) radio navigation system.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.6	PM 43	The Navigation Systems PTT must include a Very High Frequency Omni-Directional Range (VOR) radio navigation system.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.7	PM 44	The Navigation Systems PTT must include a separate antenna for each radio navigation system.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.8	PM 45	The Navigation Systems PTT must include a transceiver for each radio navigation system.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.9	PM 46	The Navigation Systems PTT must include a Control Display Unit (CDU).	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.10	PM 47	The Navigation Systems PTT must allow all radio navigation system user inputs to be carried out using the CDU.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.11	PM 48	The Navigation Systems PTT must include an aircraft data bus integrating the CDU with all radio navigation systems.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.1.12	PM 49	The Navigation Systems PTT must include a deviation indicator for both	Bidder has attested that their proposed PTT		

		localizer and glide slope signals.	solution satisfies this requirement		
6.2		**Navigation Systems PTT Training Fault Requirements**			
6.2.1	PM 50	The Navigation Systems PTT must allow for insertion of at least 12 different system / component faults.	Bidder has attested that their proposed PTT solution satisfies this requirement		
6.2.2	PM 51	The Navigation Systems PTT must have power and ground test points at the input and output of all sensors and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7	**Automatic Flight Control System PTT**				
7.1		**Automatic Flight Control System PTT Requirements**			
7.1.1	PM 52	The Automatic Flight Control System PTT must include a 3-axis Auto-pilot computer with yaw damper function.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.2	PM 53	The Automatic Flight Control System PTT must include an auto-pilot mode selector.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.3	PM 54	The Automatic Flight Control System PTT must disengage when user input is applied to the control column or rudder pedals.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.4	PM 55	The Automatic Flight Control System PTT must include a Flight Director system.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.5	PM 56	The Automatic Flight Control System PTT must include a Horizontal Situation Indicator (HSI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.6	PM 57	The Automatic Flight Control System PTT must include a Heading Indicator.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.7	PM 58	The Automatic Flight Control System PTT must include an Attitude Display Indicator (ADI).	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.8	PM 59	The Automatic Flight Control System PTT must include a navigation select panel.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.9	PM 60	The Automatic Flight Control System PTT control surface representations must	Bidder has attested that their proposed PTT solution satisfies this requirement		

		move accordingly when the control column or rudder pedal are moved			
7.1.10	PM 61	The Automatic Flight Control System PTT must include the ability to manipulate the control surfaces for the ailerons, elevator, rudder, and flaps, through means such as a control column or a joystick.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.11	PM 62	The Automatic Flight Control System PTT must include rudder pedals.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.1.12	PM 63	The Automatic Flight Control System PTT rudder pedals, flight control surface control column, and scaled flight control surfaces must be linked with functioning servos	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.2		**Automatic Flight Control System PTT Training Faults Requirements**			
7.2.1	PM 64	The Automatic Flight Control System PTT must allow for insertion of at least 9 different system / component faults	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.2.2	PM 65	The Automatic Flight Control System PTT must include power and ground test points at the input and the output of all incorporated sensors and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		
7.2.3	PM 66	The Automatic Flight Control System PTT must include signal test points at the input and the output of all incorporated sensors and indicators.	Bidder has attested that their proposed PTT solution satisfies this requirement		

Appendix 6 – Rated Technical Evaluation Criteria – Virtual Maintenance Trainer (VMT)

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

Canadian Advanced Synthetic Environment (CASE) Phase 2 Acquisition of Aircraft Maintenance Trainers Appendix 6 – Rated Technical Evaluation Criteria – Virtual Maintenance Trainer (VMT)					Criteria Points Awarded	Section Scores	Final Score
Appendix 1	**Point Rated Virtual Maintenance Trainer Requirements**		**Evaluation Criteria**	**Scoring Directive for Rated Requirements (Number of Points to Award)**	**Max**	**1413**	**1250**
3		**VMT Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **0.846**	**Max 192**	**192**	**162.4**
3.10	VR 1	The VMT should be based on an aircraft that has a Transport Canada (or equivalent) approved Master Minimum Equipment List (MMEL)	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT is not based on an aircraft that has a Transport Canada (or equivalent) approved Master Minimum Equipment List (MMEL) **10** - The VMT is based on an aircraft that has a Transport Canada (or equivalent) approved Master Minimum Equipment List (MMEL)	**10**		
3.11	VR 2	The VMT should allow trainees to conduct simulated aircraft system inspections	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow trainees to conduct the described activity **7** - The VMT allows trainees to conduct the described activity	**7**		
3.12	VR 3	The VMT should allow trainees to access and interpret simulated aircraft wiring diagrams	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow trainees to conduct the described activity **7** - The VMT allows trainees to conduct the described activity	**7**		
3.13	VR 4	The VMT should allow trainees to access and interpret simulated aircraft schematic diagrams	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow trainees to conduct the described activity **7** - The VMT allows trainees to conduct the described activity	**7**		

3.14	VR 5	The VMT should allow trainees to access and interpret simulated aircraft component location diagrams	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow trainees to conduct the described activity **7** - The VMT allows trainees to conduct the described activity	**7**		
3.15	VR 6	The VMT should allow trainees to access and interpret simulated aircraft parts publications	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow trainees to conduct the described activity **7** - The VMT allows trainees to conduct the described activity	**7**		
3.16	VR 7	The VMT should allow trainees to simulate the removal and installation of aircraft system components, complete with part number	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow trainees to conduct the described activity **7** - The VMT allows trainees to conduct the described activity	**7**		
3.17	VR 8	The VMT should include an 'instructor configuration" or similarly named mode that provides the capability to control student accessibility and distribution of scenarios	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not include the desired mode **2** - The VMT includes the desired mode	**2**		
3.18	VR 9	The VMT should track individual trainee progress, tasks completed, and allow the information to be accessed from the instructor station	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not include the desired mode **2** - The VMT includes the desired mode	**2**		
3.19	VR 10	The VMT should provide the trainee with full interactivity, minus the instructor configuration and monitoring capability	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.20	VR 11	The VMT should replicate real aircraft performance except where, under instructor control, it is desirable from a	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		

		training perspective to enhance or degrade the performance					
3.21	VR 12	The VMT should make it possible to distort the impression of real time for training benefit. For example, curing of a sealing compound.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.22	VR 13	The VMT instructor workstation should be able to select and view any trainee's workstation display for the duration of a trainee's login session	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.23	VR 14	The VMT should include a Task Plan Mode. In Task Plan mode the VMT device should be controlled and monitored by instructor selectable Task Plans containing events preselected to occur in a given sequence or at specified times during a training exercise.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not include the desired mode **3** - The VMT includes the desired mode	**3**		
3.24	VR 15	The VMT should identify and record errors in the trainee performance while in task plan mode. The results of the trainee's performance should be storable.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.25	VR 16	The VMT should allow for the instructor to select the task and initialize the task mode for the trainee.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		

3.26	VR 17	The VMT should record and display time since trainee login.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.27	VR 18	The VMT should record and display time since task plan mode selected.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.28	VR 19	The VMT should record and display the title of the task selected by the trainee.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.29	VR 20	The VMT should record and display the list of components disconnected/removed by the trainee.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.30	VR 21	The VMT should record and display the list of trainee error(s).	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.31	VR 22	The VMT should record and display the list of components replaced/repaired by the trainee.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.32	VR 23	The VMT should record and display any safety infractions (missed power on or maintenance checklist items) carried out by the trainee.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.33	VR 24	The VMT should record and display that an area inspection and area specific FOD check were carried out.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		

3.34	VR 25	The VMT should record and display if the malfunction was rectified and if a functional check was carried out serviceable.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the described requirement **2** - The VMT allows the described requirement	**2**		
3.35	VR 26	The VMT should include a Free-Play Mode which is controlled by the trainee, and where the VMT device operates independent of automated monitoring.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not include the desired mode **3** - The VMT includes the desired mode	**3**		
3.36	VR 27	The VMT should allow the trainee to Freeze/Unfreeze the simulation during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.37	VR 28	The VMT should allow the trainee to reset the simulation during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.38	VR 29	The VMT should allow the trainee to accelerate the simulation during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.39	VR 30	The VMT should allow the trainee to access functional and troubleshooting document(s) during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.40	VR 31	The VMT should allow the trainee to access test sets / tools during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		

3.41	VR 32	The VMT should allow the trainee to select a desired aircraft or aircraft system power setting during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.42	VR 33	The VMT should allow the trainee to navigate throughout the aircraft during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.43	VR 34	The VMT should allow the trainee to use all simulated systems under normal condition and carry out functional checks during free play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.44	VR 35	The VMT should allow administrators to define and store User IDs.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.45	VR 36	The VMT should allow administrators to define and store User Account Name.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.46	VR 37	The VMT should allow administrators to define and store Passwords.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.47	VR 38	The VMT should allow administrators to define and store User Types (trainee, instructor, Maintainer, and/or Administrator).	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		

3.48	VR 39	The VMT should allow administrators to define and store Instructor Name (chosen from a list of instructor users).	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.49	VR 40	The VMT should ensure that the User Name and User Account Name are required to create a password-protected user account.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the trainee to conduct described activity **2** - The VMT allows the trainee to conduct described activity	**2**		
3.50	VR 41	The VMT should provide the instructor with the capability to monitor and control all appropriate aspects of the simulation	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.51	VR 42	The VMT should provide the instructor with the capability to record and later replay a previously recorded exercise or segment thereof, on one or more VMT devices (either student or instructor display) for demonstration purposes.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.52	VR 43	The VMT should provide the instructor with the capability to select the VMT mode of operation as either Free-Play mode or Task mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.53	VR 44	The VMT should provide the instructor with the capability to control the training exercise using software tools such as freezes time and accelerate time	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		

3.54	VR 45	The VMT should allow the instructor to control the application and removal of aircraft power.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.55	VR 46	The VMT should allow the instructor to control the connection, disconnection and application of the aircraft hydraulic systems.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.56	VR 47	The VMT should allow the instructor to carry out an INS quick alignment.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.57	VR 48	The VMT should allow the instructor to control aircraft refueling and defueling operations.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.58	VR 49	The VMT should allow the instructor to control aircraft engine starting and stopping.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.59	VR 50	The VMT should allow the instructor to control quick engine settings (ie. selecting a % rpm).	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.60	VR 51	The VMT should allow the instructor to control the starting and stopping of the APU.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.61	VR 52	The VMT should allow the instructor	Bidder has attested that	**0** - The VMT does not allow the	**2**		

		to control the installation and removal of ground safety devices (bonding wires).	their proposed VMT solution satisfies this requirement	instructor to perform described activity **2** - The VMT allows the instructor to perform described activity			
3.62	VR 53	The VMT should allow the instructor to control the application of aircraft pressurization and air conditioning.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.63	VR 54	The VMT should allow the instructor to control the performance of a pitot static leak check.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.64	VR 55	The VMT should allow the instructor to control the performance of final area closeout and visual inspections.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.65	VR 56	The VMT should allow the instructor to control the performance of a EWIS zonal inspection.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.66	VR 57	The VMT should allow the instructor to monitor and control all VMT Devices within the network from any instructor station.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.67	VR 58	The VMT simulated malfunctions should be based on the troubleshooting procedures contained in the provided document for the equipment degraded modes of operation.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		

3.68	VR 59	The VMT simulated malfunctions should cause realistic indications and effects in both primary and related supporting systems.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.69	VR 60	The VMT should provide the instructor the capability to select malfunctions during Task mode, or for the trainee to select during Free-Play mode.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
3.70	VR 61	In both the Task mode and Free-Play mode of operation, the instructor should have the capability to record and later replay, on one or more VMT devices (either student or instructor display), the last scenario performed on the workstation for demonstration purposes.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allow the instructor to perform described activity **2** - The VMT allows the instructor to perform described activity	**2**		
4		**VMT Aircraft Technical Documentation**					
4.1	VR 62	The VMT documentation should include aircraft block diagrams for all systems, subsystems and components simulated in the VMT	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The proposed VMT solution does not include the described documents **6** - The proposed VMT solution includes the described documents	**6**		
4.2	VR 63	The VMT documentation should include aircraft wiring diagrams for all systems, subsystems and components simulated in the VMT	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The proposed VMT solution does not include the described documents **6** - The proposed VMT solution includes the described documents	**6**		

4.3	VR 64	The VMT documentation should include aircraft component location diagrams for all systems, subsystems and components simulated in the VMT	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The proposed VMT solution does not include the described documents **6** - The proposed VMT solution includes the described documents	**6**		
4.4	VR 65	The VMT documentation should include power requirements for all systems, subsystems and components simulated in the VMT	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The proposed VMT solution does not include the described documents **6** - The proposed VMT solution includes the described documents	**6**		
4.5	VR 66	The VMT documentation should include any safety concerns / considerations for the equipment and users	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The proposed VMT solution does not include the described documents **6** - The proposed VMT solution includes the described documents	**6**		
5		**Aircraft Systems**		To obtain the final score, the number of points obtained in this section will be multiplied by **0.9**	**Maximum 513**	**513**	**461.7**
5.1	VR 67	The VMT should be based on a Transport Canada, Federal Aviation Administration or European Aviation Safety Agency certified multi-engine, turbo prop, transport aircraft	Bidder has attested to what model of aircraft the VMT is based upon.	**0** - The VMT is not based on a Transport Canada, Federal Aviation Administration or European Aviation Safety Agency certified multi-engine, turbo prop, transport aircraft. **10** - The VMT is based on a Transport Canada, Federal Aviation Administration or European Aviation Safety Agency certified multi-engine, turbo prop, transport aircraft.	**10**		
5.2		**Aircraft Electrical Wiring Interconnect System (EWIS)**					

5.2.2	VR 68	The VMT should include an aircraft Electrical Wiring Interconnect System (EWIS)	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **3 -** VMT includes described system.	**3**		
5.2.3	VR 69	The VMT EWIS should include wires and cables.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.2.4	VR 70	The VMT EWIS should include bus bars	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.2.5	VR 71	The VMT EWIS should include termination points on electrical devices, including on relays, interrupters, switches, connectors, termination blocks, circuit breakers and other circuit protection devices.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.6	VR 72	The VMT EWIS should include electrical connectors, including feed-through connectors and connector accessories.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.7	VR 73	The VMT EWIS should include electrical grounding and bonding devices and associated connections.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.8	VR 74	The VMT EWIS should include wire insulation, wire sleeving and conduits that have electrical termination for the purpose of bonding.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.9	VR 75	The VMT EWIS should include shields or braids.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.2.10	VR 76	The VMT EWIS should include clamps and other devices used to route and support wire bundles.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.11	VR 77	The VMT EWIS should include pressure seals.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.12	VR 78	The VMT EWIS should include fiber optics.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.2.13	VR 79	The VMT should allow the trainee to analyze aircraft systems and wiring diagrams.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not allow trainees to carry out the described activity **2 -** VMT allows trainees to carry out the described activity	**2**		
5.2.14	VR 80	The VMT wiring diagrams should depict specific components, location, power, voltage, frequency, phase and test points.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not allow trainees to carry out the described activity **2 -** VMT allows trainees to carry out the described activity	**2**		
5.2.15	VR 81	The VMT wiring diagrams should depict the power flow, signal flow, controls function and sequence of operation that are possible.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not allow trainees to carry out the described activity **2 -** VMT allows trainees to carry out the described activity	**2**		
5.2.16	VR 82	The VMT should have EWIS troubleshooting on various aircraft systems.	Bidder has attested that the proposed VMT has EWIS troubleshootin g on various aircraft systems.	**0 -** VMT does not have EWIS troubleshooting **3 -** VMT has EWIS troubleshooting on 1 - 3 aircraft systems **5** - VMT has EWIS troubleshooting on more than 3 aircraft systems	**5**		
5.2.17	VR 83	The VMT should allow students to troubleshoot, diagnose and isolate faults in system wires, wiring devices, and termination devices including	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not allows students to troubleshoot, diagnose and isolate faults in wires, wiring devices, and termination devices, including data and signals, between two	**3**		

		data and signals, between two or more intended termination points		or more intended termination points. **3** - The VMT allows students to troubleshoot, diagnose and isolate faults in wires, wiring devices, and termination devices, including data and signals, between two or more intended termination points.			
5.2.18	VR 84	The VMT should permit virtual quick repair of wires and electrical components during troubleshooting	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not allow trainees to carry out the described activity **1 -** VMT allows trainees to carry out the described activity	**1**		
5.2.19	VR 85	The VMT should permit the virtual removal and installation of lockwire and witness wire as required during system troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not allow trainees to carry out the described activity **1 -** VMT allows trainees to carry out the described activity	**1**		
5.2.20	VR 86	The VMT should permit for rectification of EWIS faults by allowing the trainee to replace faulty EWIS components that are inside shelves, panels, racks, junction boxes, distribution panels, wire integration units, and external wiring of equipment.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0** - The VMT does not permit rectification of EWIS faults by allowing the trainee to replace faulty EWIS components that are inside shelves, panels, racks, junction boxes, distribution panels, wire integration units, and external wiring of equipment. The VMT must allow fault rectification to be verified by performing final functional checks on the EWIS. **3** - The VMT permits rectification of EWIS faults by allowing the trainee to replace faulty EWIS components that are inside shelves, panels, racks, junction boxes,	**3**		

				distribution panels, wire integration units, and external wiring of equipment. The VMT must allow fault rectification to be verified by performing final functional checks on the EWIS.			
5.2.21	VR 87	The VMT should allow fault rectification to be verified by performing final functional checks on the EWIS.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not allow trainees to carry out the described activity **1 -** VMT allows trainees to carry out the described activity	**1**		
5.2.22	VR 88	The VMT should represent systems RF Cable and RF Cable Termination on radio communication systems.	Bidder has attested that their proposed VMT solution satisfies this requirement	**0 -** VMT does not represent RF Cable and RF Cable Termination on radio communication systems. **1 -** VMT represents RF Cable and RF Cable Termination on radio communication systems.	**1**		
5.2.23	VR 89	The VMT should represent a minimum of 3 types of connectors (RF, Data Bus and Generic Circular Connectors) with lockwire/witness-wire for applicable connectors. The VMT should permit virtual lockwire/witness-wire removal and installation during troubleshooting.	The proposed VMT represents a minimum of 3 types of connectors (RF, Data Bus and Generic Circular Connectors) with lockwire/witness-wire for applicable connectors. The proposed VMT permits virtual lockwire/witness-wire removal and installation during troubleshooting.	**0 -** VMT does not represent connectors with lockwire/witness-wire for applicable connectors. **1 -** VMT represents a minimum of one type of connector (RF, Data Bus or Generic Circular Connectors) with lockwire/witness-wire for applicable connectors. The proposed VMT does not permit virtual lockwire/witness-wire removal and installation during troubleshooting. **3 -** VMT represents a minimum of three types of connector (RF, Data Bus and Generic Circular Connectors) with lockwire/witness-wire	**5**		

				for applicable connectors. The proposed VMT does not permit virtual lockwire/witness-wire removal and installation during troubleshooting. **5 -** VMT represents a minimum of three types of connector (RF, Data Bus and Generic Circular Connectors) with lockwire/witness-wire for applicable connectors. The proposed VMT permits virtual lockwire/witness-wire removal and installation during troubleshooting.			
5.2.24	VR 90	The VMT should allow the trainee to perform a Zonal Inspection Process (ZIP) in order to inspect EWIS for degradation caused by; vibration, moisture, maintenance, indirect damage, contamination, heat and cold.	Bidder has attested the proposed VMT allows the trainee to perform a Zonal Inspection Process (ZIP) in order to inspect EWIS for degradation caused by; vibration, moisture, maintenance, indirect damage, contamination, heat and cold.	**0 -** VMT does not allow the trainee to perform a Zonal Inspection Process (ZIP) in order to inspect EWIS for degradation. **1 -** VMT allows the trainee to perform a Zonal Inspection Process (ZIP) in order to inspect EWIS for degradation.	**1**		
5.3		**Aircraft Power Generation and Voltage Regulation System**					
5.3.1	VR 91	The VMT should include an aircraft electrical power generation and voltage regulation system.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		

5.3.2	VR 92	The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical power generation and voltage regulation system.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not allow trainees to carry out the described activities **3 -** VMT allows trainees to carry out the described activities	**3**		
5.3.3	VR 93	The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during engine startup.	Bidder has attested that their proposed VMT solution satisfies this system requirement during the described event	**0 -** VMT does not simulate electrical power generation and voltage regulation system with system functionals and operation during the described event. **1 -** VMT simulates electrical power generation and voltage regulation system with system functionals and operation during the described event.	**1**		
5.3.4	VR 94	The VMT should simulate an aircraft electrical power generation and voltage regulation system with system functionals and operation during normal electrical power.	Bidder has attested that their proposed VMT solution satisfies this system requirement during the described event	**0 -** VMT does not simulate electrical power generation and voltage regulation system with system functionals and operation during the described event. **1 -** VMT simulates electrical power generation and voltage regulation system with system functionals and operation during the described event.	**1**		
5.3.5	VR 95	The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during power transfer.	Bidder has attested that their proposed VMT solution satisfies this system requirement during the described event	**0 -** VMT does not simulate electrical power generation and voltage regulation system with system functionals and operation during the described event. **1 -** VMT simulates electrical power generation and voltage regulation	**1**		

				system with system functionals and operation during the described event.			
5.3.6	VR 96	The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during periods of abnormal electric power situation (ie. one bus out etc.)	Bidder has attested that their proposed VMT solution satisfies this system requirement during the described event	**0 -** VMT does not simulate electrical power generation and voltage regulation system with system functionals and operation during the described event. **1 -** VMT simulates electrical power generation and voltage regulation system with system functionals and operation during the described event.	**1**		
5.3.7	VR 97	The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during a power failure.	Bidder has attested that their proposed VMT solution satisfies this system requirement during the described event	**0 -** VMT does not simulate electrical power generation and voltage regulation system with system functionals and operation during the described event. **1 -** VMT simulates electrical power generation and voltage regulation system with system functionals and operation during the described event.	**1**		
5.3.8	VR 98	The VMT should include aircraft electrical power generation and voltage regulation system functionals and operation during emergency electrical power operations.	Bidder has attested that their proposed VMT solution satisfies this system requirement during the described event	**0 -** VMT does not simulate electrical power generation and voltage regulation system with system functionals and operation during the described event. **1 -** VMT simulates electrical power generation and voltage regulation system with system functionals and operation during the described event.	**1**		

5.3.9	VR 99	The VMT should include an aircraft ground power system with system functionals and operation during ground power application.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not represent described system. **1 -** VMT represents described system.	**1**		
5.3.10	VR 100	The VMT should include an aircraft electrical power conversion system with system functionals and operation during power conversion.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not represent described system. **1 -** VMT represents described system.	**1**		
5.3.11	VR 101	The VMT should include an aircraft Electrical Power Distribution System with system functionals and operation during power distribution.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not represent described system. **1 -** VMT represents described system.	**1**		
5.3.12	VR 102	The VMT aircraft electrical power generation and voltage regulation system should include 2 Constant Frequency Generation type generators, or	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.13	VR 103	The VMT aircraft electrical power generation and voltage regulation system should include 2 Constant Speed Drive (CSD) type generators, or	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.14	VR 104	The VMT aircraft electrical power generation and voltage regulation system should include 2 Integrated Drive Generator (IDG) type generators, or	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.15	VR 105	The VMT aircraft electrical power generation and voltage regulation system should include 2 Variable speed constant	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		frequency (VSCF) type generators or					
5.3.16	VR 106	The VMT aircraft electrical power generation and voltage regulation system should include 2 Variable Frequency (VF) type generators.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.17	VR 107	The VMT should include an aircraft secondary electrical power source with an auxiliary power generator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.18	VR 108	The VMT should include an emergency electrical power source with two batteries.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.19	VR 109	The VMT aircraft electrical power generation and voltage regulation system should include an aircraft generator monitor.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.20	VR 110	The VMT should include current protection such as fuses, power contactors, circuit breakers, solenoids, relays, reverse current relay, solid state power controller, limiting resistors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.3.20	VR 111	The VMT aircraft electrical power generation and voltage regulation system should include a control station or display.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.4		**Aircraft Ground Power System**					
5.4.1	VR 112	The VMT should include an aircraft ground power system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		

5.4.2	VR 113	The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical ground power system	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not allow trainees to carry out the described activities **3 -** VMT allows trainees to carry out the described activities	**3**		
5.4.3	VR 114	The VMT aircraft ground power system should include connection with hangar power or ground power unit (GPU).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.4.4	VR 115	The VMT aircraft ground power system should include aircraft power source selection controls.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.5		**Aircraft Electrical Power Conversion System**					
5.5.1	VR 116	The VMT should include an aircraft electrical power conversion system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.5.2	VR 117	The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical power conversion system	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not allow trainees to carry out the described activities **3 -** VMT allows trainees to carry out the described activities	**3**		
5.5.3	VR 118	The VMT aircraft electrical power conversion system should include components required to convert AC power to DC power.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.5.4	VR 119	The VMT aircraft electrical power conversion system should include components required to convert DC power to AC power.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.5.5	VR 120	The VMT aircraft electrical power conversion system should include components required to convert AC power to AC power.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.6		**Aircraft Electrical Power Distribution System**					
5.6.1	VR 121	The VMT should include an aircraft electrical power distribution system, capable of demonstrating electrical loads.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.6.2	VR 122	The VMT should include system operations and allow for simulated completion of maintenance tasks on the aircraft electrical power distribution system	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not allow trainees to carry out the described activities **3 -** VMT allows trainees to carry out the described activities	**3**		
5.6.3	VR 123	The VMT aircraft electrical power distribution system should be capable of demonstrating electrical loads.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.6.4	VR 124	The VMT aircraft electrical power distribution system should display non-essential electrical loads.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.6.5	VR 125	The VMT aircraft electrical power distribution system should display essential electrical loads.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.6.6	VR 126	The VMT aircraft electrical power distribution system should display emergency electrical loads.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7		**Engine Electrical Control and Indicating Systems**					

5.7.1	VR 127	The VMT should include an engine electrical control and indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.7.2	VR 128	The VMT aircraft engine control and indication system should include system functionals and operation during main engine start	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.3	VR 129	The VMT aircraft engine control and indication system should include ignition system operation during engine start or restart	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.4	VR 130	The VMT aircraft engine control and indication system should include representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.5	VR 131	The VMT engine electrical control and indicating system should include an engine parameter indicating system	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.6	VR 132	The VMT engine electrical control and indicating system should include jet engine starter system including circuit components.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.7	VR 133	The VMT engine electrical control and indicating systems should include a jet engine ignition system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.8	VR 134	The VMT jet engine ignition system should	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		include ignition exciters.	system / components	**1 -** VMT includes described system.			
5.7.9	VR 135	The VMT jet engine ignition system should include igniter plugs.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.10	VR 136	The VMT engine control systems should include a Full Authority Digital Engine Control (FADEC) system, with hydro-mechanical and digital portions.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.7.11	VR 137	The VMT FADEC system should include an Electrical Control Unit (ECU).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.12	VR 138	The VMT FADEC system should include a power link ignition system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.13	VR 139	The VMT FADEC system should include a booster coil.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.14	VR 140	The VMT FADEC system should include an impulse coupling.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.15	VR 141	The VMT FADEC system should include a high-tension retard breaker vibrator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.16	VR 142	The VMT FADEC system should include a low-tension retard breaker vibrator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.17	VR 143	The VMT FADEC system should include components required to integrate with the avionics systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.18	VR 144	The VMT engine control systems should include a	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		fuel control unit (FCU).	system / components	**1 -** VMT includes described system.			
5.7.19	VR 145	The VMT engine control systems should include a fuel Management Unit (FMU).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.20	VR 146	The VMT engine control systems should include electronic fuel control.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.21	VR 147	The VMT electronic fuel control should include an electronic engine controller.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.7.22	VR 148	The VMT electronic fuel control should include a control panel.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.8		**Propeller Electrical Control and Indicating System**					
5.8.1	VR 149	The VMT should include a propeller electrical control and indicating system (if proposed VMT is a propeller aircraft).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.2	VR 150	The VMT aircraft propeller electrical control and indicating system should include a minimum of two operating engines with rotating propellers to carry out propeller control and indicating system functional check and troubleshooting.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **5 -** VMT includes described system.	**5**		
5.8.3	VR 151	The VMT aircraft propeller electrical control and indicating system (if applicable) should include the use of the analog/digital multimeters, if	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		

		required, during the functional and/or troubleshooting.					
5.8.4	VR 152	The VMT propeller electrical control and indicating system should include a constant speed propeller system (electrical).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.5	VR 153	The VMT constant speed propeller system (electrical) should include propeller rpm control and indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.6	VR 154	The VMT constant speed propeller system (electrical) should include pitch angle control and indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.7	VR 155	The VMT constant speed propeller system (electrical) should include a control and indication warning system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.9	VR 156	The VMT propeller electrical control and indicating system should include a propeller synchronization system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.10	VR 157	The VMT propeller synchronization system should include a magnetic pickup.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **3 -** VMT includes described system.	**3**		
5.8.11	VR 158	The VMT propeller synchronization system should include a synchrophaser box.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **3 -** VMT includes described system.	**3**		
5.8.12	VR 159	The VMT propeller synchronization system should include a propeller control mechanism.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **3 -** VMT includes described system.	**3**		
5.8.13	VR 160	The VMT propeller synchronization system should	Ideal VMT includes the described	**0 -** VMT does not include described system.	**2**		

		include synchrophaser controls.	system / components	**2 -** VMT includes described system.			
5.8.14	VR 161	The VMT propeller synchronization system should include a feathering system (electrical and mechanical).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.8.15	VR 162	The VMT propeller synchronization system should include a propeller reversing system (electrical and mechanical).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9		**Fuel Management Electrical Control and Indicating Systems**					
5.9.1	VR 163	The VMT should include a fuel management electrical control and indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.2	VR 1	The VMT fuel management control and indication system should include a minimum of three fuel tanks to carry out fuel management control and indicating system for functional check and troubleshooting during refuel / de-fuel systems operation and during fuel transfer between fuel storage tanks.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.9.3	VR 2	The VMT fuel management control and indication system should include the use of the analog/digital multimeters, if required, during the functional	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		and/or troubleshooting.					
5.9.4	VR 164	The VMT fuel management electrical control and indicating system should include fuel boost pumps.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.5	VR 165	The VMT fuel management electrical control and indicating system should include fuel selector valves.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.6	VR 166	The VMT fuel management electrical control and indicating system should include fuel pressure gauges.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.7	VR 167	The VMT fuel management electrical control and indicating system should include fuel storage tanks (minimum of 3 tanks).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.8	VR 168	The VMT fuel management electrical control and indicating system should include a fuel management computer.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.9	VR 169	The VMT fuel management computer should include a fuel quantity indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.10	VR 170	The VMT fuel quantity indicating system should include capacitance probes.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.11	VR 171	The VMT fuel quantity indicating system should include	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		

		compensator probes.					
5.9.12	VR 172	The VMT fuel management electrical control and indicating system should include a fuel control indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.13	VR 173	The VMT fuel management electrical control and indicating system should include a fuel flow indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.14	VR 174	The VMT fuel flow indicating system should include a fuel pressure indication system	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.15	VR 175	The VMT fuel flow indicating system should include a fuel quantity warning indication system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.16	VR 176	The VMT fuel flow indicating system should include fuel temperature indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.17	VR 177	The VMT fuel flow indicating system should include a fuel flow indicator/transmitte r.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.18	VR 178	The VMT fuel management electrical control and indicating system should include a vent system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.19	VR 179	The VMT fuel management electrical control and indicating system should include a close circuit high pressure refueling with cross feed.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.9.20	VR 180	The VMT fuel management electrical control	Ideal VMT includes the described	**0 -** VMT does not include described system.	**2**		

		and indicating system should include valves and controls	system / components	**2 -** VMT includes described system.			
5.10		**Environmental Control and Indication System**					
5.10.1	VR 181	The VMT should include an environmental control and indication system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.10.2	VR 182	The VMT aircraft environmental control system should allow for the performance of system functional checks and troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.3	VR 183	The VMT aircraft environmental control system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.4	VR 184	The VMT environmental control and indication system should include a cabin pressurization temperature control system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.5	VR 185	The VMT cabin pressurization temperature control system should include a control panel.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.6	VR 186	The VMT cabin pressurization temperature control system should include a pressure regulator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.7	VR 187	The VMT cabin pressurization temperature control system	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		should include an outflow valve					
5.10.8	VR 188	The VMT cabin pressurization temperature control system should include a negative relief valve or safety valve	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.9	VR 189	The VMT cabin pressurization temperature control system should include a cabin altimeter.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.10	VR 190	The VMT cabin pressurization temperature control system should include a pressure dump control.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.11	VR 191	The VMT cabin pressurization temperature control system should include a differential pressure indicator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.12	VR 192	The VMT environmental control and indication system should include an environmental control system (ECS).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.13	VR 193	The VMT environmental control system (ECS) should include bleed air.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.14	VR 194	The VMT environmental control system (ECS) should include engine driven compressors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.15	VR 195	The VMT environmental control system (ECS) should include turbo compressors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.16	VR 196	The VMT environmental	Ideal VMT includes the	**0 -** VMT does not include described	**1**		

		control system (ECS) should include an external cart.	described system / components	system. **1 -** VMT includes described system.			
5.10.17	VR 197	The VMT environmental control and indication system should include a primary heat exchanger system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.18	VR 198	The VMT primary heat exchanger system should include a primary heat exchanger.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.19	VR 199	The VMT primary heat exchanger system should include a primary heat exchanger bypass valve.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.20	VR 200	The VMT primary heat exchanger system should include a shut-off valve.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.21	VR 201	The VMT primary heat exchanger system should include a refrigeration bypass valve.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.22	VR 202	The VMT primary heat exchanger system should include a refrigeration unit.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.1.23	VR 203	The VMT primary heat exchanger system should include a mixing valve.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.24	VR 204	The VMT primary heat exchanger system should include a water separator(s).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.25	VR 205	The VMT primary heat exchanger system should include ram air valve(s).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.26	VR 206	The VMT environmental control and indication system should include an	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		aircraft air distribution system.					
5.10.27	VR 207	The VMT aircraft air distribution system should include filters.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.28	VR 208	The VMT aircraft air distribution system should include temp sensors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.29	VR 209	The VMT aircraft air distribution system should include air ducts.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.30	VR 210	The VMT environmental control and indication system should include an air cycle cooling system with a temp control system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.31	VR 211	The VMT air cycle cooling system should include a cockpit air temperature selector.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.32	VR 212	The VMT air cycle cooling system should include a cockpit air temperature control regulator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.33	VR 213	The VMT air cycle cooling system should include an air inlet overheat switch.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.10.34	VR 214	The VMT environmental control and indication system should include a basic oxygen system to include indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11		**Anti-Icing/De-Icing Electrical Control and Indicating System**					
5.11.1	VR 215	The VMT should include an Anti-Icing/De-Icing electrical control	Ideal VMT includes the described	**0 -** VMT does not include described system.	**2**		

		and indicating system.	system / components	**2 -** VMT includes described system.			
5.11.2	VR 184	The VMT anti-icing and de-icing control and indicating system should allow for the performance of functional checks and troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.3	VR 185	The VMT anti-icing and de-icing control and indicating system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.4	VR 216	The VMT Anti-Icing/De-Icing electrical control and indicating system should include an engine anti-ice system (electrical and mechanical actuation of the anti-icing valve).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.5	VR 217	The VMT Anti-Icing/De-Icing electrical control and indicating system should include a wing or tail anti-ice/de-ice system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.6	VR 218	The VMT Anti-Icing/De-Icing electrical control and indicating system should include a pitot tube anti-icing system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.7	VR 219	The VMT Anti-Icing/De-Icing electrical control and indicating system should include an electric	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		anti-ice/de-ice system.					
5.11.8	VR 220	The VMT Anti-Icing/De-Icing electrical control and indicating system should include a windshield anti-ice/defogging system and rain protection system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.9	VR 221	The VMT windshield anti-ice/defogging system and rain protection system should include a metallic film method of protection or wire elements method of protection.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.10	VR 222	The VMT windshield anti-ice/defogging system and rain protection system should include a wiper blade method of protection.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.11	VR 223	The VMT Anti-Icing/De-Icing electrical control and indicating system should include ice detectors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.11.12	VR 224	The VMT Anti-Icing/De-Icing electrical control and indicating system should include a pneumatic / bleed air anti-icing/de-icing system to include a temperature or overheat sensor.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12		**Flight Control and Indicating System**					
5.12.1	VR 225	The VMT Aviation Instrument Electrical Systems	Ideal VMT includes the described	**0 -** VMT does not include described system.	**2**		

		should include a flight control and indicating system.	system / components	**2-** VMT includes described system.			
5.12.2	VR 186	The VMT flight control and indicating system should allow for the performance of functional checks and troubleshooting	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.3	VR 187	The VMT flight control and indicating system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Bidder has attested that their proposed VMT solution satisfies this system requirement	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.4	VR 226	The VMT flight control and indicating system should include primary flight controls (aileron, elevator and rudder).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.5	VR 227	The VMT flight control electrical and indicating system should include flaps.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.6	VR 228	The VMT flight control and indicating system should include trim control systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.7	VR 229	The VMT flight control and indicating system should include a flight control system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.8	VR 230	The VMT flight control system should include cables, with turnbuckles.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.9	VR 231	The VMT flight control system should include pulleys.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.12.10	VR 232	The VMT flight control system should include bell cranks or quadrants.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.11	VR 233	The VMT flight control system should include associated components of a hydro-mechanical system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.12	VR 234	The VMT flight control electrical and indicating system should include electrically controlled secondary flight control surfaces including flaps and trim tabs.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.13	VR 235	The VMT flight control and indicating system should include surface position indicators and position transmitter components.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.14	VR 236	The VMT surface position indicators and position transmitter components should include synchro systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.15	VR 237	The VMT surface position indicators and position transmitter components should include potentiometer transmitters.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.16	VR 238	The VMT surface position indicators and position transmitter components should include LVDT (linear variable differential transformer).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.12.17	VR 239	The VMT surface position indicators and position transmitter	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		components should include RVDT (rotary variable differential transformer).	system / components	**1 -** VMT includes described system.			
5.13		**Landing Gear/Brake Control and indicating System.**					
5.13.1	VR 240	The VMT Aviation Instrument Electrical Systems should include a Landing gear/Brake Control and indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.13.2	VR 188	The VMT landing gear / brake control and indication system should allow for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.3	VR 189	The VMT landing gear / brake control and indication system should include representation of the use of analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.4	VR 241	The VMT landing gear control and indicating systems should include landing gear controls (electrical, mechanical and hydraulic).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.5	VR 242	The VMT landing gear control and indicating system should include a landing gear position selector.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.6	VR 243	The VMT landing gear control and indicating system should include a	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		landing gear position indicator.	system / components	**1 -** VMT includes described system.			
5.13.7	VR 244	The VMT landing gear control and indicating system should include an actuating cylinder.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.8	VR 245	The VMT landing gear control and indicating system should include valves.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.9	VR 246	The VMT landing gear control and indicating system should include oleo pneumatic shock strut (includes strut and piston).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.10	VR 247	The VMT landing gear control and indicating system should include a landing gear door.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.11	VR 248	The VMT landing gear control and indicating system should include mechanical and electrical ground safety devices.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.12	VR 249	The VMT landing gear control and indicating system should include a gear up and locked indicator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.13	VR 250	The VMT landing gear control and indicating system should include an up-lock switch.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.14	VR 251	The VMT landing gear control and indicating system should include a weight on wheel switch.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.15	VR 252	The VMT landing gear control and indicating system should include a landing gear in transit (or unlocked) indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.16	VR 253	The VMT landing gear control and	Ideal VMT includes the	**0 -** VMT does not include described	**1**		

		indicating system should include a down and locked indication.	described system / components	system. **1 -** VMT includes described system.			
5.13.17	VR 254	The VMT landing gear control and indicating systems should include a landing gear extension and retraction system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.18	VR 255	The VMT landing gear extension and retraction system should demonstrate normal operation.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.19	VR 256	The VMT landing gear extension and retraction system should demonstrate emergency operation.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.20	VR 257	The VMT landing gear extension and retraction system should demonstrate door sequencing.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.21	VR 258	The VMT should include a brake control system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.22	VR 259	The VMT brake control system should include a disk brake.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.23	VR 260	The VMT brake control system should include a brake assembly (caliper).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.24	VR 261	The VMT brake control system should include a master cylinder.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.25	VR 262	The VMT brake control system should include a brake pedal.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.26	VR 263	The VMT brake control system	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		should include a fluid reservoir.	system / components	**1 -** VMT includes described system.			
5.13.27	VR 264	The VMT brake control system should include a parking brake.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.28	VR 265	The VMT brake system should include an anti-skid system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.29	VR 266	The VMT anti-skid system should include a control unit.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.30	VR 267	The VMT anti-skid system should include wheel speed sensors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.31	VR 268	The VMT anti-skid system should include anti-skid control valves.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.32	VR 269	The VMT anti-skid system should include auto brakes with touchdown and lock wheel protection with indicating/ warning system, to include hot brakes.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.33	VR 270	The VMT landing gear control and indicating system should include a nose wheel steering control system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.34	VR 271	The VMT nose wheel steering control system should include a shimmy damper.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.35	VR 272	The VMT nose wheel steering control system should include a command and feedback system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.13.36	VR 273	The VMT nose wheel steering control system	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		should include sensor potentiometers.	system / components	**1 -** VMT includes described system.			
5.13.37	VR 274	The VMT nose wheel steering control system should include failure indication components.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14		**Aircraft Lighting Systems**					
5.14.1	VR 275	The VMT should include aircraft lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.14.2	VR 276	The VMT lighting systems should allow for the performance of functional checks and troubleshooting of the interior and exterior lighting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.3	VR 277	The VMT lighting systems should allow include the representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.4	VR 278	The VMT interior lighting systems should include instrument lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.5	VR 279	The VMT interior lighting systems should include cockpit lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.6	VR 280	The VMT interior lighting systems should include cabin and passageway lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.7	VR 281	The VMT interior lighting systems should include boarding lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.14.8	VR 282	The VMT interior lighting systems should include service lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.9	VR 283	The VMT interior lighting systems should include emergency lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.10	VR 284	The VMT interior lighting systems should include aircraft caution and warning systems lighting.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.11	VR 285	The VMT interior lighting systems should include aircraft advisory lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.12	VR 286	The VMT external lighting systems should include navigation lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.13	VR 287	The VMT external lighting systems should include anti-collision lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.14	VR 288	The VMT external lighting systems should include formation lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.14.15	VR 289	The VMT external lighting systems should include taxi and landing lighting systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15		**Fire / Overheat Detection and Suppression Systems**					
5.15.1	VR 290	The VMT should include an aircraft fire and overheat detection system which allows for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.15.2	VR 291	The VMT should include an aircraft fire and overheat detection system	Ideal VMT includes described system.	**0 -** VMT does not include described system.	**1**		

		which includes a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.		**1 -** VMT includes described system.			
5.15.3	VR 292	The VMT Fire and Overheat Detection Systems should include spot-type fire detectors which include thermal switch circuits or thermocouple fire warning circuits.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.4	VR 293	The VMT Fire and Overheat Detection Systems should include linear type fire sensing elements which include Fenwal Fire and Overheat Detection System Sensing Element or Kidde Fire and Overheat Detection System Sensing Element or Systron Donner (Pneumatic) Fire and Overheat Detection System Sensing Element	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.5	VR 294	The VMT Fire and Overheat Detection Systems should include smoke and toxic gas detection system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.6	VR 295	The VMT should include a high-rate discharge (HRD) aircraft fire suppression system which allows for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**2**		

5.15.7	VR 296	The VMT should include a high-rate discharge (HRD) aircraft fire suppression system which includes a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.8	VR 297	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include extinguisher agent and propellant.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.9	VR 298	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include a fire bottle.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.10	VR 299	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include an explosive cartridge (squib).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.11	VR 300	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include indicator discs.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.12	VR 301	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include check valves.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.13	VR 302	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include a	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		directional control valve.					
5.15.14	VR 303	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include a fire handle.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.15.15	VR 304	The VMT High-Rate Discharge (HRD) Aircraft Fire Suppression System should include distribution lines.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.16		**Intercommunication Systems**					
5.16.1	VR 305	The VMT should include an aircraft intercommunication system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.16.2	VR 306	The VMT intercommunication system should allow for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.16.3	VR 307	The VMT intercommunication system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.16.4	VR 308	The VMT aircraft intercommunication system should include an intercom/interphone system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.16.5	VR 309	The VMT aircraft intercommunication system should include an aircraft public address system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.16.6	VR 310	The VMT aircraft intercommunication system should include an aircraft audio integrating.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.16.7	VR 311	The VMT aircraft intercommunication system should include an audio control panel.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17		**Radio Systems**					
5.17.1	VR 312	The VMT should include an Ultra High Frequency (UHF) radio system OR the VMT should include a Very High Frequency (VHF) radio system OR the VMT should include a Very/Ultra High Frequency (V/UHF) multiband radio system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 - The** VMT includes one of the described radio systems **4** - The VMT includes two of the described radio systems **8** - The VMT includes all of the described radio systems	**8**		
5.17.2	VR 313	The VMT UHF radio system should include a control unit.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.3	VR 314	The VMT UHF radio system should include a transceiver.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.4	VR 315	The VMT UHF radio system should include antennas.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.5	VR 316	The VMT UHF radio system should include antenna logic units.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.6	VR 317	The VMT VHF radio system should include a control unit.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.7	VR 318	The VMT VHF radio system should include a transceiver.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.17.8	VR 319	The VMT VHF radio system should include antennas.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.9	VR 320	The VMT VHF radio system should include antenna logic units.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.10	VR 321	The VMT V/UHF multiband radio system should include a control unit.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.11	VR 322	The VMT V/UHF multiband radio system should include a transceiver.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.12	VR 323	The VMT V/UHF multiband radio system should include antennas.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.13	VR 324	The VMT V/UHF multiband radio system should include antenna logic units.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.14	VR 325	The VMT should include a High Frequency (HF) system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.15	VR 326	The VMT HF system should include a control unit.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.16	VR 327	The VMT HF system should include a transceiver.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.17	VR 328	The VMT HF system should include antennas.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.18	VR 329	The VMT HF system should include couplers.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.19	VR 330	The VMT HF system should	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		include a SELCAL system.	system / components	**1 -** VMT includes described system.			
5.17.20	VR 331	The VMT radio systems should allow for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.17.21	VR 332	The VMT radio systems should include a representation of the use of TDR and the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18		**Navigation Systems**					
5.18.1	VR 333	The VMT should include an Attitude Heading Reference System (AHRS).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.18.2	VR 334	The VMT should include a DF / Homing system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.18.3	VR 335	The VMT DF / Homing system should include a Direction Finder (DF)/Automatic Direction Finder (ADF) indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.4	VR 336	The VMT DF / Homing system should include a type of horizontal situation indication with two bearing indicators.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.5	VR 337	The VMT DF / Homing system should include a Non-Directional Beacon (NDB) frequency input voice signal components.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.6	VR 338	The VMT should include a VOR/DME system.	Ideal VMT includes the described	**0 -** VMT does not include described system.	**2**		

			system / components	**2 -** VMT includes described system.			
5.18.7	VR 339	The VOR/DME system should include a frequency selector.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.8	VR 340	The VOR/DME system should include an indication system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.9	VR 341	The VOR/DME system should include a bearing indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.10	VR 342	The VOR/DME system should include an OFF-flag indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.11	VR 343	The VOR/DME system should include a course deviation indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.12	VR 344	The VOR/DME system should include a TO/FROM flag.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.13	VR 345	The VOR/DME system should include an omni bearing / course select indication.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.14	VR 346	The VOR/DME system should include VOR antennas.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.15	VR 347	The VOR/DME system should include a VOR receiver/transmitter .	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.16	VR 348	The VOR/DME system should include a Ground-to-air voice communication and Automatic Terminal Information Service (ATIS) (data or weather broadcasts).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.18.17	VR 349	The VOR/DME system should include a Instrument Landing System (ILS) frequency input.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.18	VR 350	The VOR/DME system should include a localiser and glide slope circuitry.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.19	VR 351	The VOR/DME system should include ILS antennae.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.20	VR 352	The VOR/DME system should include ILS indications.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.21	VR 353	The VMT should include a VOR/ILS system which allows for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.18.22	VR 354	The VMT VOR/ILS system should include a representation of the use of a navigation test set and analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.23	VR 355	The VMT should include separate GPS and INS systems or the VMT should include an Embedded GPS and INS system (EGI).	Ideal VMT includes the described system / components	**0 -** VMT does not include the described systems. **1 -** VMT includes separate GPS and INS systems **3** - VMT includes Embedded GPS and INS systems (EGI)	**3**		
5.18.24	VR 356	The VMT EGI system should have an Inertial Navigation / Inertial Referencing System (INS / IRS System) which includes an	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		alignment procedure, error and integration.					
5.18.25	VR 357	The INS/IRS system should have an interface for data input and system control.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.26	VR 358	The INS/IRS system should allow for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.27	VR 359	The VMT INS/IRS system should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.18.28	VR 360	The VMT should include an aircraft clock.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19		**Transponder Systems**					
5.19.1	VR 361	The VMT should include a Traffic Collision Avoidance System (TCAS).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.19.2	VR 362	The VMT should include a Traffic Collision Avoidance System (TCAS) which allows for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.3	VR 363	The VMT Traffic Collision Avoidance System (TCAS) should include a representation of the use of a TCAS test set and analog/digital multimeters, if	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		required, during the functional and/or troubleshooting.					
5.19.4	VR 364	The VMT TCAS should include ground proximity modes.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.5	VR 365	The VMT TCAS should include aural and visual warnings.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.6	VR 366	The VMT should include a Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS)	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		
5.19.7	VR 367	The VMT should include a Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS) which allows for the performance of functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.8	VR 368	The VMT Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS) should include a representation of the use of applicable test sets and analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.9	VR 369	The VMT should include an Air Traffic Control (ATC) transponder system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **2 -** VMT includes described system.	**2**		

5.19.10	VR 370	The VMT ATC transponder system should include a control panel.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.11	VR 371	The VMT ATC transponder system should include mode S.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.19.12	VR 372	The VMT ATC transponder system should include Automatic Dependant Surveillance Broadcast Node (Ads-B).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20		**Flight Director System**					
5.20.1	VR 373	The VMT should include a Flight director (FD) system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.2	VR 374	The VMT FD system should include operation of a Primary Flight Display (PFD).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.3	VR 375	The VMT FD system should include flight director warning indications.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.4	VR 376	The VMT FD system should include an Off mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.5	VR 377	The VMT FD system should include a HDG mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.6	VR 378	The VMT FD system should include a VOR (NAV)/LOC mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.7	VR 379	The VMT FD system should include a GS mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.8	VR 380	The VMT FD system should	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		include an ALT mode.	system / components	**1 -** VMT includes described system.			
5.20.9	VR 381	The VMT FD system should include an APPR I mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.10	VR 382	The VMT FD system should include an APPR II mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.11	VR 383	The VMT FD system should include a GA mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.12	VR 384	The VMT FD system should include an IAS mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.13	VR 385	The VMT FD system should include a V/S mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.14	VR 386	The VMT FD system should include a MACH mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.15	VR 387	The VMT FD system should include an L NAV mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.20.16	VR 388	The VMT FD system should include a V NAV mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21		**Automatic Flight Systems**					
5.21.1	VR 389	The VMT should include an auto-flight system which allows for the performance of maintenance functional checks and troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.2	VR 390	The VMT auto-flight system should include a representation of the use of	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		applicable test sets and analog/digital multimeters, if required, during the functional and/or troubleshooting.					
5.21.3	VR 391	The VMT should include an Automatic Flight Control System (AFCS) for the rudder, ailerons and elevators.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.4	VR 392	The VMT AFCS should include a directional gyro heading indicator	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.5	VR 393	The VMT AFCS should include a turn and bank indicator gyro	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.6	VR 394	The VMT AFCS should include an altitude indicator	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.7	VR 395	The VMT AFCS should include a computer and amplifier.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.8	VR 396	The VMT AFCS should include an aileron servo actuator	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.9	VR 397	The VMT AFCS should include an elevator servo actuator	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.10	VR 398	The VMT AFCS should include an rudder servo actuator	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.11	VR 399	The VMT AFCS should include a flight controller	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.12	VR 400	The VMT AFCS should include a radio navigation input selector	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

			system / components	**1 -** VMT includes described system.			
5.21.13	VR 401	The VMT AFCS should include feedback elements.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.14	VR 402	The VMT AFCS should include the operation of interlocks.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.15	VR 403	The VMT should include a Stability augmentation system (SAS).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.16	VR 404	The VMT SAS should include the operation of a SAS.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.17	VR 405	The VMT SAS should include the operation of a yaw damper.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.18	VR 406	The VMT should include an Auto thrust system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.19	VR 407	The VMT auto thrust system should include a take-off mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.20	VR 408	The VMT auto thrust system should include a speed control mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.21	VR 409	The VMT auto thrust system should include a go-around mode.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.22	VR 410	The VMT should include a Flight Management System (FMS).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.21.23	VR 411	The VMT should include a Flight Management Systems (FMS) which allows for the performance of	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		functional checks and troubleshooting.					
5.21.24	VR 412	The VMT Flight Management Systems (FMS) should include a representation of the use of the analog/digital multimeters, if required, during the functional and/or troubleshooting.	Ideal VMT includes described system.	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22		**Integrated Systems**					
5.22.1	VR 413	The VMT should include a rate of turn indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.2	VR 414	The VMT should include a standby attitude indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.3	VR 415	The VMT should include a Pitot static system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.4	VR 416	The VMT Pitot static system should include pitot-static probes.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.5	VR 417	The VMT should include an air data computer system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.6	VR 418	The VMT should include a rate of climb indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.7	VR 419	The VMT should include an altitude indicating systems.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.8	VR 420	The VMT altitude indicating system should include a barometric altitude indicator with	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

		pressure adjustment.					
5.22.9	VR 421	The VMT altitude indicating systems should include a standard altitude indicator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.10	VR 422	The VMT should include an Aircraft Radio Altimeter (Rad Alt) system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.11	VR 423	The VMT Rad Alt system should include a transceiver.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.12	VR 424	The VMT Rad Alt system should include antennas.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.13	VR 425	The VMT Rad Alt system should include controls / switches / indicators.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.14	VR 426	The VMT should include an airspeed indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.15	VR 427	The VMT should include a Mach indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.16	VR 428	The VMT should include a stall warning/protection and indication system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.17	VR 429	The VMT stall warning/protection and indication system should include an angle of attack probe.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.18	VR 430	The VMT stall warning/protection and indication system should include a Vertical speed indicating system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.19	VR 431	The VMT stall warning/protection and indication	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		system should include a total air temperature probe.	system / components	**1 -** VMT includes described system.			
5.22.20	VR 432	The VMT should include a Data Management System which includes maintenance training functionality.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.21	VR 433	The VMT data management system should include a data bus.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.22	VR 434	The VMT data bus should include integrated avionics systems bidirectional data bus control architecture, preferable Mil-Stds-1553B.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.23	VR 435	The VMT data bus should use a centrally controlled architecture containing redundant bus controllers (minimum of two).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.24	VR 436	The VMT data bus should contain a unidirectional data bus, preferably the ARINC 429 Data Bus for at least one integrated system within the integrated avionics system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.25	VR 437	The VMT data bus should include coupler panels.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.26	VR 438	The VMT data bus should include stub cables.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.27	VR 439	The VMT data bus should include terminators.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.22.28	VR 440	The VMT data bus should include at least one bus monitor for recording and backup of the bus controller.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.29	VR 441	The VMT data management systems should include mission computers.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.30	VR 442	The VMT data management systems should include routers and switches.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.31	VR 443	The VMT data management systems should include a Centralized Maintenance System (CMS)	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.32	VR 444	The VMT CMS should include Built-In Test Equipment (BITE).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.33	VR 445	The VMT CMS should include functions to enable diagnostic programs and display fault information.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.34	VR 446	The VMT data management systems should include a Structural Data Recording System (SDRS) or Flight Data Recorder (FDR) including strain gauges.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.35	VR 447	The VMT aircraft integrated systems should include an Electronic Flight Instrument System (EFIS).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.22.36	VR 448	The VMT EFIS should include an aircraft display system (e.g. HDD, and CDU).	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		

5.22.37	VR 449	The VMT EFIS should include glass cockpit and displays.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23		**Airframe Structure**					
5.23.1	VR 450	The VMT structural components should include longerons / Spars.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.2	VR 451	The VMT structural components should include bulkheads.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.3	VR 452	The VMT structural components should include ribs.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.4	VR 453	The VMT structural components should include stringers.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.5	VR 454	The VMT structural components should include stiffeners.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.6	VR 455	The VMT should include an access door with open/close mechanism operation.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.7	VR 456	The VMT should include a cargo ramp with controls and components.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.23.8	VR 457	The VMT should include windshield and windows.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24		**Hydraulic Systems**					
5.24.1	VR 458	The VMT should include a hydraulic closed-center system.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.2	VR 459	The VMT hydraulic closed-center	Ideal VMT includes the described	**0 -** VMT does not include described system.	**1**		

		system should include reservoirs.	system / components	**1 -** VMT includes described system.			
5.24.3	VR 460	The VMT hydraulic closed-center system should include pumps / motors.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.4	VR 461	The VMT hydraulic closed-center system should include filters.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.5	VR 462	The VMT hydraulic closed-center system should include an oil cooler.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.6	VR 463	The VMT hydraulic closed-center system should include valves.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.7	VR 464	The VMT hydraulic closed-center system should include a pressure indicator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.8	VR 465	The VMT hydraulic closed-center system should include a quantity indicator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.9	VR 466	The VMT hydraulic closed-center system should include an actuator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
5.24.10	VR 467	The VMT hydraulic closed-center system should include an accumulator.	Ideal VMT includes the described system / components	**0 -** VMT does not include described system. **1 -** VMT includes described system.	**1**		
6		**VMT Simulated Test Equipment and System Faults**		To obtain the final score, the number of points obtained in this section will be multiplied by **0.9**	**Maximum 498**	**498**	**448.2**
6.1		**Tools and Test Equipment**					
6.1.1	VR 468	The VMT should include a frequency analyser (or similar test equipment).	Ideal VMT includes the described tools and test equipment	**0 -** VMT does not include described system. **4 -** VMT includes described tools and test equipment.	**4**		
6.1.2	VR 469	The VMT should include a phase rotation checker.	Ideal VMT includes the described	**0 -** VMT does not include described system. **4 -** VMT includes	**4**		

			tools and test equipment	described tools and test equipment.			
6.1.3	VR 470	The VMT should include a TDR/RFL Advanced System Tester.	Ideal VMT includes the described tools and test equipment	**0 -** VMT does not include described system. **4 -** VMT includes described tools and test equipment.	**4**		
6.2		**Electrical Power Generation and Voltage Regulation System**					
6.2.1	VR 471	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system wiring snag (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.2	VR 472	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system with one failed generator (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.3	VR 473	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system with two failed generators (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.4	VR 474	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system with a total power failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.5	VR 475	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system Transformer Rectifier Unit (TRU) failure (x1)	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.2.6	VR 476	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system battery failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.7	VR 477	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system bus fault/failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.8	VR 478	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system circuit breaker fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.9	VR 479	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system inverter failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.10	VR 480	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system relay failure (open coil or contacts) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.11	VR 481	The VMT should be capable of simulating an aircraft electrical power generation and voltage regulation system contactor failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.2.12	VR 482	The VMT should be capable of simulating an aircraft electrical	Ideal VMT includes described failures.	**0 -** VMT does not include described failures.	**2**		

		power generation and voltage regulation system power indicator failure (amperage and voltage) (x1).		**2 -** VMT includes described failures.			
6.3		**Ground Power System**					
6.3.1	VR 483	The VMT should be capable of simulating an aircraft ground power system wiring snag (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.3.2	VR 484	The VMT should be capable of simulating an aircraft ground power system bus fault / failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.3.3	VR 485	The VMT should be capable of simulating an aircraft ground power system circuit breaker fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.3.4	VR 486	The VMT should be capable of simulating an aircraft ground power system inverter failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.3.5	VR 487	The VMT should be capable of simulating an aircraft ground power system relay failure (to include open coil or contacts) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.3.6	VR 488	The VMT should be capable of simulating an aircraft ground power system contactor failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.3.7	VR 489	The VMT should be capable of simulating an aircraft ground power system power indicators failure (amperage and voltage) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.4		**Electrical Power Conversion**					
6.4.1	VR 490	The VMT should be capable of simulating an Aircraft electrical power conversion system wiring snag (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.2	VR 491	The VMT should be capable of simulating an aircraft electrical power conversion system bus fault / failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.3	VR 492	The VMT should be capable of simulating an aircraft electrical power conversion system circuit breaker fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.4	VR 493	The VMT should be capable of simulating an aircraft electrical power conversion system inverter failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.5	VR 494	The VMT should be capable of simulating an aircraft electrical power conversion system transformer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.6	VR 495	The VMT should be capable of simulating an aircraft electrical power conversion system relay failure (open coil or contacts) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.7	VR 496	The VMT should be capable of simulating an aircraft electrical power conversion system contactor failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.4.8	VR 497	The VMT should be capable of simulating an aircraft electrical power conversion system power	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		indicator failure (amperage and voltage) (x1).					
6.5		**Electrical Power Distribution System**					
6.5.1	VR 498	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System wiring snag (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.5.2	VR 499	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System bus fault/failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.5.3	VR 500	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System circuit breaker fault (x1 min).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.5.4	VR 501	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System inverter failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.5.5	VR 502	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System transformer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.5.6	VR 503	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System Relay failure (open coil or contacts) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.5.7	VR 504	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System contactor failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.5.8	VR 505	The VMT should be capable of simulating an Aircraft Electrical Power Distribution System power indicators failure (amperage and voltage) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6		**Engine Electrical Control and Indicating Systems**					
6.6.1	VR 506	The VMT should be capable of simulating an engine not starting (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6.2	VR 507	The VMT should be capable of simulating an engine start but shut down (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6.3	VR 508	The VMT should be capable of simulating a hung start (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6.4	VR 509	The VMT should be capable of simulating a fuel flow failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6.5	VR 510	The VMT should be capable of simulating an RPM Variation (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6.6	VR 511	The VMT should be capable of simulating an indicator Fail on N1 and/or N2 (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.6.7	VR 512	The VMT should be capable of simulating an Exhaust Gas Temp (EGT) failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.7		**Propeller Electrical Control and Indicating Systems (if applicable)**					
6.7.1	VR 513	The VMT should be capable of simulating faults in the controllable	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		pitch propeller system (x2).					
6.7.2	VR 514	The VMT should be capable of simulating faults in the propeller synchronization system (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.7.3	VR 515	The VMT should be capable of simulating faults in the propeller feathering system (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.7.4	VR 516	The VMT should be capable of simulating faults in the propeller reversing system (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.8		**Fuel Management Electrical Control and Indicating Systems**					
6.8.1	VR 517	The VMT should be capable of simulating a fuel management electrical control and indicating system pressure gauge sensor fault (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.8.2	VR 518	The VMT should be capable of simulating fuel management electrical control and indicating system boost electrical pump failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.8.3	VR 519	The VMT should be capable of simulating fuel management electrical control and indicating system quantity sensor failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.8.4	VR 520	The VMT should be capable of simulating fuel management electrical control and indicating system selector valve failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.8.5	VR 521	The VMT should be capable of simulating fuel management electrical control and indicating system indicator failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.8.6	VR 522	The VMT should be capable of simulating fuel management electrical control and indicating system fuel quantity indicator calibration using GTF6 test set.	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9		**Environmental Control and Indication Systems**					
6.9.1	VR 523	The VMT should be capable of simulating cabin pressurization temperature control systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.2	VR 524	The VMT should be capable of simulating cabin pressurization temperature control systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.3	VR 525	The VMT should be capable of simulating environmental control system component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.4	VR 526	The VMT should be capable of simulating environmental control system electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.5	VR 527	The VMT should be capable of simulating primary/secondary heat exchangers	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		components malfunctions (x2).					
6.9.6	VR 528	The VMT should be capable of simulating primary/secondary heat exchangers electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.7	VR 529	The VMT should be capable of simulating aircraft air distribution system component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.8	VR 530	The VMT should be capable of simulating aircraft air distribution system electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.9	VR 531	The VMT should be capable of simulating air cycle cooling system component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.10	VR 532	The VMT should be capable of simulating air cycle cooling system electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.11	VR 533	The VMT should be capable of simulating basic oxygen system component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.9.12	VR 534	The VMT should be capable of simulating basic oxygen system electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10		**Anti-Icing/De-Icing Electrical Control and Indicating Systems**					
6.10.1	VR 535	The VMT should be capable of simulating engine anti-ice systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.10.2	VR 536	The VMT should be capable of simulating engine anti-ice systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.3	VR 537	The VMT should be capable of simulating wing and tail anti-ice/de-ice systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.4	VR 538	The VMT should be capable of simulating wing and tail anti-ice/de-ice systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.5	VR 539	The VMT should be capable of simulating pitot tube anti-icing systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.6	VR 540	The VMT should be capable of simulating pitot tube anti-icing systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.7	VR 541	The VMT should be capable of simulating electric anti-ice/de-ice systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.8	VR 542	The VMT should be capable of simulating electric anti-ice/de-ice systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.9	VR 543	The VMT should be capable of simulating windshield anti-ice/defogging systems and rain protection system component malfunction (x2 min).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.10	VR 544	The VMT should be capable of	Ideal VMT includes	**0 -** VMT does not include described	**2**		

		simulating windshield anti-ice/defogging systems and rain protection system electrical malfunctions (x2).	described failures.	failures. **2 -** VMT includes described failures.			
6.10.11	VR 545	The VMT should be capable of simulating ice detectors component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.12	VR 546	The VMT should be capable of simulating ice detectors electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.13	VR 547	The VMT should be capable of simulating pneumatic / bleed air anti-icing/de-icing systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.14	VR 548	The VMT should be capable of simulating pneumatic / bleed air anti-icing/de-icing systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.15	VR 549	The VMT should be capable of simulating propeller anti-ice and de-icing systems component malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.10.16	VR 550	The VMT should be capable of simulating propeller anti-ice and de-icing systems electrical malfunctions (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.11		**Flight Control Electrical and Indicating Systems**					
6.11.1	VR 551	The VMT flight control electrical and indicating system should be capable of	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		simulating an electrical failure of the flaps (x2).					
6.11.2	VR 552	The VMT flight control electrical and indicating system should be capable of simulating an electrical failure of the trim tabs (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.11.3	VR 553	The VMT flight control electrical and indicating system should be capable of simulating a position sensor failure of the flaps (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.11.4	VR 554	The VMT flight control electrical and indicating system should be capable of simulating a position sensor failure of the trim tabs (x2 min).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.11.5	VR 555	The VMT flight control electrical and indicating system should be capable of simulating a slow flap extension or retraction fault.	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.11.6	VR 556	The VMT flight control electrical and indicating system should be capable of simulating an improper travel of one or more of the primary flight controls.	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12		**Landing Gear and Hydraulic Electrical Control and Indicating Systems**					
6.12.1	VR 557	The VMT landing gear and hydraulic power electrical control and indicating system should be capable	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		of simulating a command feedback failure (x1).					
6.12.2	VR 558	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a sensor potentiometer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.3	VR 559	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating an indicator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.4	VR 560	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a warning indication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.5	VR 561	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a gear up and locked indication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.6	VR 562	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a gear in transit indication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.7	VR 563	The VMT landing gear and hydraulic power electrical control and indicating system should be capable	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		of simulating a gear down and locked indication failure (x1).					
6.12.8	VR 564	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a landing gear door sequencing failure(x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.9	VR 565	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a hot brake indicator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.10	VR 566	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a wheel speed sensor failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.11	VR 567	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a nose wheel control failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.12	VR 568	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating an anti-skid control valve failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.12.13	VR 569	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		auto brake failure (x1).					
6.12.14	VR 570	The VMT landing gear and hydraulic power electrical control and indicating system should be capable of simulating a slow gear extension or retraction.	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13		**Lighting Systems**					
6.13.1	VR 571	The VMT interior lighting system should be capable of simulating an unserviceable light bulb (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13.2	VR 572	The VMT interior lighting system should be capable of simulating a control panel failure (e.g. a broken switch) (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13.3	VR 573	The VMT interior lighting system should be capable of simulating an open ground wire electrical failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13.4	VR 574	The VMT interior lighting system should be capable of simulating an open power wire electrical failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13.5	VR 575	The VMT exterior lighting system should be capable of simulating an unserviceable light bulb (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13.6	VR 576	The VMT exterior lighting system should be capable of simulating a control panel failure (e.g. a broken switch) (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.13.7	VR 577	The VMT exterior lighting system	Ideal VMT includes	**0 -** VMT does not include described	**2**		

		should be capable of simulating an open ground wire electrical failure (x2).	described failures.	failures. **2 -** VMT includes described failures.			
6.13.8	VR 578	The VMT exterior lighting system should be capable of simulating an open power wire electrical failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.14		**Fire / Overheat Detection and Suppression System**					
6.14.1	VR 579	The VMT aircraft fire and overheat detection system should be capable of simulating a fire detection failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.14.2	VR 580	The VMT aircraft fire and overheat detection system should be capable of simulating a detection out of range /tolerance (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.14.3	VR 581	The VMT aircraft fire and overheat detection system should be capable of simulating a fire detection system indicator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.14.4	VR 582	The VMT aircraft fire and overheat detection system should be capable of simulating a caution light failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.14.5	VR 583	The VMT aircraft fire suppression system should be capable of simulating a fire suppression control failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.14.6	VR 584	The VMT aircraft fire suppression system should be capable of simulating an	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		electrical wiring (control to squib) failure (x2).					
6.15		**Intercommunication Systems**					
6.15.1	VR 585	The VMT aircraft intercommunication system should be capable of simulating a control panel failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.15.2	VR 586	The VMT aircraft intercommunication system should be capable of simulating a push to talk button failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.15.3	VR 587	The VMT aircraft intercommunication system should be capable of simulating a headset failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.15.4	VR 588	The VMT aircraft intercommunication system should be capable of simulating a system integration failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.15.5	VR 589	The VMT aircraft intercommunication system should be capable of simulating a speaker failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.16		**Radio Systems**					
6.16.1	VR 590	The VMT aircraft radio system should be capable of simulating an internal transceiver failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.16.2	VR 591	The VMT aircraft radio system should be capable of simulating a power failure to the transceiver (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.16.3	VR 592	The VMT aircraft radio system should be capable of simulating a	Ideal VMT includes described failures.	**0 -** VMT does not include described failures.	**2**		

		control panel failure (x2).		**2 -** VMT includes described failures.			
6.16.4	VR 593	The VMT aircraft radio system should be capable of simulating an antenna failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.16.5	VR 594	The VMT aircraft radio system should be capable of simulating a coaxial cable failure from the transceiver to the antenna (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.16.6	VR 595	The VMT aircraft radio system should be capable of simulating an integration communication system failure (x3).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.16.7	VR 596	The VMT aircraft radio system should be capable of simulating a software malfunction (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17		**Integrated Systems**					
6.17.1	VR 597	The VMT aircraft attitude and direction data system should be capable of simulating an angle of attack component failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.2	VR 598	The VMT aircraft attitude and direction data system should be capable of simulating an angle of attack electrical failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.3	VR 599	The VMT aircraft attitude and direction data system should be capable of simulating a rate of turn indicator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.17.4	VR 600	The VMT aircraft attitude and direction data system should be capable of simulating a standby attitude indicator component failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.5	VR 601	The VMT aircraft attitude and direction data system should be capable of simulating a standby attitude indicator electrical failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.6	VR 602	The VMT aircraft attitude and direction data system should be capable of simulating an aircraft direct reading standby compass component failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.7	VR 603	The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI electrical power failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.8	VR 604	The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI electrical power failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.17.9	VR 605	The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI integrated communication failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.17.10	VR 606	The VMT aircraft attitude and direction data system should be capable of simulating an AHRS or EGI software malfunction (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18		**Flight Environment Data Systems**					
6.18.1	VR 607	The VMT aircraft flight environment data system should be capable of simulating a total air temperature probe failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.2	VR 608	The VMT aircraft flight environment data system should be capable of simulating a total air temperature electrical failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.3	VR 609	The VMT aircraft flight environment data system should be capable of simulating an angle of attack probe failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.4	VR 610	The VMT aircraft flight environment data system should be capable of simulating an angle of attack electrical failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.5	VR 611	The VMT aircraft flight environment data system should be capable of simulating a stall warning indicator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.6	VR 612	The VMT aircraft flight environment data system should be capable of simulating an air data computer	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		(ADC) system failure (x1).					
6.18.7	VR 613	The VMT aircraft flight environment data system should be capable of simulating an indicator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.8	VR 614	The VMT aircraft flight environment data system should be capable of simulating a Mach failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.9	VR 615	The VMT aircraft flight environment data system should be capable of simulating a maximum operating limit speed (Vmo) failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.10	VR 616	The VMT aircraft flight environment data system should be capable of simulating a barometric pressure failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.11	VR 617	The VMT aircraft flight environment data system should be capable of simulating a vertical speed indicator (VSI) failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.12	VR 618	The VMT aircraft flight environment data system should be capable of simulating a leak in the pitot system (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.18.13	VR 619	The VMT aircraft flight environment data system should be capable of simulating a leak in the static system (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19		**Aircraft Position Determining Systems**					

6.19.1	VR 620	The VMT aircraft position determining system should be capable of simulating an off-flag failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.2	VR 621	The VMT aircraft position determining system should be capable of simulating a Course Deviation Indicator (CDI) failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.3	VR 622	The VMT aircraft position determining system should be capable of simulating a To-From flag failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.4	VR 623	The VMT aircraft position determining system should be capable of simulating a course selector failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.5	VR 624	The VMT aircraft position determining system should be capable of simulating a VOR antenna failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.6	VR 625	The VMT aircraft position determining system should be capable of simulating a faulty coaxial cable (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.7	VR 626	The VMT aircraft position determining system should be capable of simulating a VOR Receiver/Transmitter failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.8	VR 627	The VMT aircraft position determining	Ideal VMT includes	**0 -** VMT does not include described failures.	**2**		

		system should be capable of simulating a VOR receiver/transmitter electrical power input failure (x1).	described failures.	**2 -** VMT includes described failures.			
6.19.9	VR 628	The VMT aircraft position determining system should be capable of simulating a VOR receiver/transmitter internal failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.10	VR 629	The VMT aircraft position determining system should be capable of simulating a VOR electrical wiring failure (x3).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.11	VR 630	The VMT aircraft position determining system should be capable of simulating an Automatic Terminal Information Service (ATIS) failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.12	VR 631	The VMT aircraft position determining system should be capable of simulating an ILS Localizer failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.13	VR 632	The VMT aircraft position determining system should be capable of simulating an ILS control failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.14	VR 633	The VMT aircraft position determining system should be capable of simulating an ILS Electrical wiring failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.19.15	VR 634	The VMT aircraft position	Ideal VMT includes	**0 -** VMT does not include described	**2**		

		determining system should be capable of simulating an ILS Antenna failure (x1).	described failures.	failures. **2 -** VMT includes described failures.			
6.19.16	VR 635	The VMT aircraft position determining system should be capable of simulating an ILS Glide Slope failure (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20		**Inertial Navigation / Inertial Referencing Systems (INS/IRS Systems)**					
6.20.1	VR 636	The VMT INS/IRS should be capable of simulating a no alignment failure(x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20.2	VR 637	The VMT INS/IRS should be capable of simulating a too long to align failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20.3	VR 638	The VMT INS/IRS should be capable of simulating a restart failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20.4	VR 639	The VMT INS/IRS should be capable of simulating a no data input or position entry failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20.5	VR 640	The VMT INS/IRS should be capable of simulating a discrepancy between the INS1 and INS2 (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20.6	VR 641	The VMT INS/IRS should be capable of simulating a figure of merit (FOM) too high (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.20.7	VR 642	The VMT INS/IRS should be capable of simulating an error horizontal	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		estimate (EHE) too high (x1).					
6.20.8	VR 643	The VMT INS/IRS should be capable of simulating a not starting failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21		**Traffic Collision Avoidance System (TCAS)**					
6.21.1	VR 644	The VMT TCAS should be capable of simulating a TCAS processor failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.2	VR 645	The VMT TCAS should be capable of simulating a TCAS receiver transmitter failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.3	VR 646	The VMT TCAS should be capable of simulating an upper TCAS antenna (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.4	VR 647	The VMT TCAS should be capable of simulating a lower TCAS antenna (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.5	VR 648	The VMT TCAS should be capable of simulating a display fault (TA/VSI and/or PFD) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.6	VR 649	The VMT TCAS should be capable of simulating an IFF Mode S fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.7	VR 650	The VMT TCAS should be capable of simulating a Radalt fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.8	VR 651	The VMT TCAS should be capable of simulating an AHRS/INU fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.21.9	VR 652	The VMT TCAS should be capable of simulating a CDU fault (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.21.10	VR 653	The VMT TCAS should be capable of simulating a EWIS failure to include TCAS processor and applicable auxiliary system inputs.	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22		**Ground Collision Avoidance Systems (GCAS) / Terrain Awareness and Warning System (TAWS)**					
6.22.1	VR 654	The VMT GCAS / TAWS should be capable of simulating a database failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.2	VR 655	The VMT GCAS / TAWS should be capable of simulating a GPWS computer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.3	VR 656	The VMT GCAS / TAWS should be capable of simulating an ICS (Aural warnings) failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.4	VR 657	The VMT GCAS / TAWS should be capable of simulating an antenna failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.5	VR 658	The VMT GCAS / TAWS should be capable of simulating a Radalt failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.6	VR 659	The VMT GCAS / TAWS should be capable of simulating an INS failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.7	VR 660	The VMT GCAS / TAWS should be capable of simulating an Air Data Computer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.22.8	VR 661	The VMT GCAS / TAWS should be capable of	Ideal VMT includes	**0 -** VMT does not include described failures.	**2**		

		simulating an Angle of Attack failure (x1).	described failures.	**2 -** VMT includes described failures.			
6.22.9	VR 662	The VMT GCAS / TAWS should be capable of simulating a GPS failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23		**Auto-Flight Systems**					
6.23.1	VR 663	The VMT Flight director system should be capable of simulating a mode not engaging (x2).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.2	VR 664	The VMT Flight director system should be capable of simulating a complete computer failure (x1 min).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.3	VR 665	The VMT Flight director system should be capable of simulating no power to computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.4	VR 666	The VMT Flight director system should be capable of simulating a computer internal failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.5	VR 667	The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator sensing element fault (x1 for each control surface).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.6	VR 668	The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator computer and amplifier fault (x1 for each control).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.7	VR 669	The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator output	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		element fault (x1 for each control).					
6.23.8	VR 670	The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator command elements fault (x1 for each control).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.9	VR 671	The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator feedback element fault (x1 for each control).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.10	VR 672	The VMT Auto pilot system should be capable of simulating a rudder, aileron and elevator interlock fault (x1 for each control).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.11	VR 673	The VMT Auto pilot system should be capable of simulating a complete auto pilot computer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.12	VR 674	The VMT Auto pilot system should be capable of simulating no power to auto pilot computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.13	VR 675	The VMT Auto pilot system should be capable of simulating an auto pilot control panel failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.14	VR 676	The VMT Auto pilot system should be capable of simulating an auto pilot single channel failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.23.15	VR 677	The VMT Auto pilot system should be capable of simulating an auto pilot double channel failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.24		**Stability Augmentation System (SAS)**					
6.24.1	VR 678	The VMT SAS should be capable of simulating a complete SAS computer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.24.2	VR 679	The VMT SAS should be capable of simulating no power to SAS computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.24.3	VR 680	The VMT SAS should be capable of simulating a SAS computer internal failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.24.4	VR 681	The VMT SAS should be capable of simulating a SAS not engaging (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.24.5	VR 682	The VMT SAS should be capable of simulating a single channel yaw damper failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.24.6	VR 683	The VMT SAS should be capable of simulating a double channel yaw damper failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.24.7	VR 684	The VMT SAS should be capable of simulating a SAS input failure (x2 min).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.25		**Auto Thrust System**					
6.25.1	VR 685	The VMT auto thrust system should be capable of simulating a take-off mode failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.25.2	VR 686	The VMT auto thrust system should be capable of simulating a speed control mode failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.25.3	VR 687	The VMT auto thrust system should be capable	Ideal VMT includes	**0 -** VMT does not include described failures.	**2**		

		of simulating a go-around mode failure (x1).	described failures.	**2 -** VMT includes described failures.			
6.26		**Stall Warning Protection System**					
6.26.1	VR 688	The VMT stall warning protection system should be capable of simulating a complete computer failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.26.2	VR 689	The VMT stall warning protection system should be capable of simulating no power to computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.26.3	VR 690	The VMT stall warning protection system should be capable of simulating an internal failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.26.4	VR 691	The VMT stall warning protection system should be capable of simulating a “G” switch failure (vertical accelerometer failure) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.26.5	VR 692	The VMT stall warning protection system should be capable of simulating a steering wheel shaker failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.26.6	VR 693	The VMT stall warning protection system should be capable of simulating a steering wheel pusher failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.27		**Flight Management System (FMS)**					
6.27.1	VR 694	The VMT FMS should be capable of simulating complete failure of FMS computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

6.27.2	VR 695	The VMT FMS should be capable of simulating no power to FMS computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.27.3	VR 696	The VMT FMS should be capable of simulating an internal failure of FMS computer (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.27.4	VR 697	The VMT FMS should be capable of simulating a control unit malfunction (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.27.5	VR 698	The VMT FMS should be capable of simulating an FMS software malfunction (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.27.6	VR 699	The VMT FMS should be capable of simulating an FMS electrical wire failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28		**Data Management Systems**					
6.28.1	VR 700	The VMT data management system should be capable of simulating a bidirectional data bus single channel communication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.2	VR 701	The VMT data management system should be capable of simulating a bidirectional data bus both channels communication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.3	VR 702	The VMT data management system should be capable of simulating a bidirectional data bus coupler failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.4	VR 703	The VMT data management system should be capable of	Ideal VMT includes described failures.	**0 -** VMT does not include described failures.	**2**		

		simulating a bidirectional data bus stub cable failure (x1).		**2 -** VMT includes described failures.			
6.28.5	VR 704	The VMT data management system should be capable of simulating a bidirectional data bus terminator failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.6	VR 705	The VMT data management system should be capable of simulating a unidirectional data bus cable failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.7	VR 706	The VMT data management system should be capable of simulating a bus controller failure (single controller) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.8	VR 707	The VMT data management system should be capable of simulating bus controller failure (all controllers) (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.9	VR 708	The VMT data management system should be capable of simulating a bus remote terminal communication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.10	VR 709	The VMT data management system should be capable of simulating a bus remote terminal communication failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.28.11	VR 710	The VMT data management system should be capable of simulating a bus remote terminal	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		

		software failure (x1).					
6.29		**Electronic Flight Instrument System (EFIS)**					
6.29.1	VR 711	The VMT EFIS should be capable of simulating a display internal failure (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.29.2	VR 712	The VMT EFIS should be capable of simulating no power to display (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
6.29.3	VR 713	The VMT EFIS should be capable of simulating an EFIS control malfunction (x1).	Ideal VMT includes described failures.	**0 -** VMT does not include described failures. **2 -** VMT includes described failures.	**2**		
7		**VMT Simulated Training Tasks**		To obtain the final score, the number of points obtained in this section will be multiplied by **0.846**	**Maximum 210**	**210**	**177.7**
7.1		**Fuel Management Electrical Control and Indicating Systems**					
7.1.1	VR 714	The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a capacitance probe.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.1.2	VR 715	The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a compensator probe.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.1.3	VR 716	The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a boost pump.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.1.4	VR 717	The VMT fuel management electrical control	Ideal VMT includes	**0 -** VMT does not include described tasks.	**5**		

		and indicating system should be capable of simulating removal and installation of a selector valve.	described tasks.	**5 -** VMT includes described tasks.			
7.1.5	VR 718	The VMT fuel management electrical control and indicating system should be capable of simulating removal and installation of a fuel quantity indicator.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2		**Environmental Control and Indication Systems**					
7.2.1	VR 719	The VMT environmental control and indication system should be capable of simulating removal and installation of an outflow valve.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.2	VR 720	The VMT environmental control and indication system should be capable of simulating removal and installation of a pressure regulator.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.3	VR 721	The VMT environmental control and indication system should be capable of simulating removal and installation of a cabin safety valve.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.4	VR 722	The VMT environmental control and indication system should be capable of simulating removal and installation of a negative pressure relief valve.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		

7.2.5	VR 723	The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning shutoff valve.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.6	VR 724	The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning water separator.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.7	VR 725	The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning refrigeration bypass valve.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.8	VR 726	The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning temperature controller.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.9	VR 727	The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning temperature sensor.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.2.10	VR 728	The VMT environmental control and indication system should be capable	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		

		of simulating removal and installation of the air conditioning refrigeration turbine.					
7.2.11	VR 729	The VMT environmental control and indication system should be capable of simulating removal and installation of the air conditioning heat exchanger.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.3		**Anti-Icing/De-Icing Electrical Control and Indicating Systems**					
7.3.1	VR 730	The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a bleed air valve.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.3.2	VR 731	The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of an electrically heated parting strip.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.3.3	VR 732	The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a heated windshield.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.3.4	VR 733	The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		

		and installation of a windshield wiper arm or blade.					
7.3.5	VR 734	The VMT anti-icing/de-icing electrical control and indicating system should be capable of simulating removal and installation of a windshield wiper motor.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4		**Flight control electrical and indicating systems**					
7.4.1	VR 735	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the ailerons.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.2	VR 736	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the elevators.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.3	VR 737	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the rudder.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.4	VR 738	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the flaps.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.5	VR 739	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the trim tabs.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		

7.4.6	VR 740	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the torque tubes or push-pull rods.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.7	VR 741	The VMT flight control electrical and indicating system should be capable of simulating removal and installation of the primary flight control actuator.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.8	VR 742	The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment of the control cables.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.9	VR 743	The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment of the link rods.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.10	VR 744	The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment of the turnbuckles.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.4.11	VR 745	The VMT flight control electrical and indicating system should be capable of simulating rigging adjustment allowing the use of rigging pins and a travel measurement template.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5		**Landing Gear and Hydraulic Power Electrical Control**					

		and Indicating Systems					
7.5.1	VR 746	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the main landing gear.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.2	VR 747	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the nose landing gear.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.3	VR 748	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the uplock assembly.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.4	VR 749	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating removal and installation of the brake assembly.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.5	VR 750	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating servicing of the oleo strut.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.6	VR 751	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		

		servicing of the brake system.					
7.5.7	VR 752	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the landing gear door.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.8	VR 753	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the nose wheel steering.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.9	VR 754	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the weight on wheel switch.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		
7.5.10	VR 755	The VMT landing gear and hydraulic power electrical control and indicating systems should be capable of simulating the rigging adjustment of the up-lock switch.	Ideal VMT includes described tasks.	**0 -** VMT does not include described tasks. **5 -** VMT includes described tasks.	**5**		

Section	**Total Possible Bidder Points (Section Score)**	**Multiplication Factor**	**Final Score**
3 - VMT Req 4 - VMT Documentation	**192**	0.846	162.4
5 - Aircraft Systems	**513**	0.900	461.7

6 - Training Faults	**498**	0.900	448.2
7 - Training Tasks	**210**	0.846	177.7
Total			**1250**

Note: The bidder's total final score will be derived from the total of each section score multiplied by the multiplication factor for the applicable section. These resultant section final scores will be added together to provide the total final score, which has a maximum value of 1250 points.

Appendix 7 – Rated Technical Evaluation Criteria – Part Task Trainer (PTT)

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

Ref / Para	Criteria ID	Statement of Work Topic	Evaluation Criteria	Scoring Directive for Rated Requirements (Number of Points to Award)	Criteria Points Awarded	Section Scores	Final Score
Canadian Advanced Synthetic Environment (CASE) Phase 2 Acquisition of Aircraft Maintenance Trainers Appendix 7 – Rated Technical Evaluation Criteria – Part Task Trainer (PTT)					**Maximum**	**501**	**750**
		Part Task Trainer Requirements	**Notes to Bidder**	**Bidder's Substantiation**			
3	**Communication Systems PTT**						
3.1		**Communications Systems PTT Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **1.531**	**Maximum 57**	**57**	**87.3**
3.1.6	PR 1	The Communication Systems PTT should include an HF radio system, a UHF FM radio system, and a VHF AM radio system	Mandatory requirement is two of the three systems listed. The ideal proposed Communication Systems PTT includes all three radio systems.	**0** - The PTT contains two of the three listed radio systems **10 -** The PTT contains all three listed radio systems	**10**		
3.1.7	PR 2	The Communication Systems PTT radio systems should include an indication that shows when the radio is transmitting.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.8	PR 3	The Communication Systems PTT radio systems should include a push to talk switch for the mic.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.9	PR 4	The Communication Systems PTT	The ideal proposed Communication	**0 -** PTT does not include the described system requirement	**2**		

		radio systems should include a voice activated mic switch (VOX).	Systems PTT includes the described system requirement.	**2 -** PTT includes the described system requirement			
3.1.10	PR 5	The Communication Systems PTT should include a MILD-STDS 1553 or 1773 aircraft data bus.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
3.1.11	PR 6	The Communication Systems PTT data bus should be visible to the students for demonstration purposes.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.12	PR 7	The Communication Systems PTT CDU should display error codes from the data bus when the Communication Systems PTT is in a fault state.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.13	PR 8	The Communication Systems PTT should provide the user with a tuning indication for the radio system selected via the CDU.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.14	PR 9	The Communication Systems PTT should include the ability to plug in three headsets.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0** - The PTT does not allow headsets to be plugged in **1 -** The PTT allows 1 or 2 headsets to be plugged in simultaneously **3 -** The PTT allows three headsets to be plugged in simultaneously	**3**		
3.1.15	PR 10	The Communication Systems PTT headset plugs should be compatible with a	The ideal proposed Communication Systems PTT includes the described	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		

		David Clark Headset (H10-76).	system requirement.				
3.1.16	PR 11	The Communication Systems PTT should include an intercom selector switch (ICS).	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.17	PR 12	The Communication Systems PTT should include a manual or automatic squelch control system.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.18	PR 13	The Communication Systems PTT must provide the user with a tuning indication for the radio system selected.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.19	PR 14	The Communication Systems PTT should include a simulated (non-broadcasting) Emergency Locator Transmitter (ELT) system.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
3.1.20	PR 15	The Communication Systems PTT ELT should be integrated into the audio output, whereby, upon activation, the students will hear the ELT over the headset.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.21	PR 16	The Communication Systems PTT should include a simulated (non-broadcasting) Underwater Acoustic Beacon (UAB) system.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		

3.1.22	PR 17	The Communication Systems PTT UAB should be integrated into the audio output, whereby, upon activation, the students will hear the UAB over the headset.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.23	PR 18	The Communication Systems PTT should include a solid-state cockpit voice recorder (CVR) with a voice record and on-unit playback function.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
3.1.24	PR 19	The Communication Systems PTT CVR should include a fault indicator on the CDU.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
3.1.25	PR 20	The Communication Systems PTT documentation should include a block diagram for each radio transmitter.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **1 -** PTT includes the described system requirement	**3**		
3.1.26	PR 21	The Communication Systems PTT documentation should include a block diagram for each radio receiver provided.	The ideal proposed Communication Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **1 -** PTT includes the described system requirement	**3**		
3.2		**Communications System PTT Training Faults**		To obtain the final score, the number of points obtained in this section will be multiplied by **1.531**	**Maximum 41**	**41**	**62.8**
3.2.3	PR 22	The Communication Systems PTT should allow for insertion of a fault replicating a faulty headset.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.4	PR 23	The Communication	The ideal Communication	**0 -** PTT is not able to replicate the desired	**2**		

		Systems PTT should allow for insertion of a fault replicating a faulty speaker.	s Systems PTT provides the ability to insert the described fault.	fault **2 -** PTT is able to replicate the desired fault			
3.2.5	PR 24	The Communication Systems PTT should allow for insertion of a fault replicating a faulty mic.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.6	PR 25	The Communication Systems PTT should allow for insertion of a fault replicating a broken canon plug wire.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.7	PR 26	The Communication Systems PTT should allow for insertion of a fault replicating a faulty CDU.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.8	PR 27	The Communication Systems PTT should allow for insertion of a fault replicating a radio without a side tone.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.9	PR 28	The Communication Systems PTT should allow for insertion of a fault replicating a broken interconnect box.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.10	PR 29	The Communication Systems PTT should allow for insertion of a fault replicating a faulty radio transmitter.	The ideal Communication s Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **1** - PTT is able to replicate the desired fault on one radio system **2 -** PTT is able to replicate the desired fault on two radio systems **5** - PTT is able to replicate the desired fault on three radio systems	**5**		

3.2.11	PR 30	The Communication Systems PTT should allow for insertion of a fault replicating a faulty radio receiver.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **1** - PTT is able to replicate the desired fault on one radio system **2 -** PTT is able to replicate the desired fault on two radio systems **5** - PTT is able to replicate the desired fault on three radio systems	**5**		
3.2.12	PR 31	The Communication Systems PTT should allow for insertion of a fault replicating a broken antenna.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **1** - PTT is able to replicate the desired fault on one radio system **2 -** PTT is able to replicate the desired fault on two radio systems **5** - PTT is able to replicate the desired fault on three radio systems	**5**		
3.2.13	PR 32	The Communication Systems PTT should allow for insertion of a fault replicating a faulty HF coupler.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.14	PR 33	The Communication Systems PTT should allow for insertion of a fault replicating a broken PTT button on the radio.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.15	PR 34	The Communication Systems PTT should allow for insertion of a fault replicating a broken VOX on the radio.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.16	PR 35	The Communication Systems PTT should allow for insertion of a fault	The ideal Communications Systems PTT provides the ability to insert	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to	**2**		

		replicating a bus initialization error.	the described fault.	replicate the desired fault			
3.2.17	PR 36	The Communication Systems PTT should allow for insertion of a fault replicating a CVR not recording audio.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
3.2.18	PR 37	The Communication Systems PTT should allow for insertion of a fault replicating a CVR not recording video.	The ideal Communications Systems PTT provides the ability to insert the described fault.	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
4	**Cockpit Instrumentation PTT**						
4.1		**Cockpit Instrumentation PTT Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **0.909**	**Maximum 81**	**81**	**73.6**
4.1.5	PR 38	The Cockpit Instrumentation PTT should duplicate the EFIS display using the equivalent analogue indicators.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **5 -** PTT includes the described system requirement	**5**		
4.1.6	PR 39	The Cockpit Instrumentation PTT should include fault indicators (Flags) for the EFIS and analogue displays, except for the HSI and VSI.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.7	PR 40	The Cockpit Instrumentation PTT should include a Control Display Unit (CDU), with user interface.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **6 -** PTT includes the described system requirement	**6**		
4.1.8	PR 41	The Cockpit Instrumentation PTT CDU should interface with the EFIS displays.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		

4.1.9	PR 42	The Cockpit Instrumentation PTT CDU should display error codes for non-functioning EFIS displays.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.10	PR 43	The Cockpit Instrumentation PTT should include a Horizontal Situation Indicator (HSI).	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.11	PR 44	The Cockpit Instrumentation PTT should include a Vertical Situation Display (VSD).	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.12	PR 45	The Cockpit Instrumentation PTT aircraft temperature indication system should include an engine temperature probe.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.13	PR 46	The Cockpit Instrumentation PTT aircraft temperature indication system should include an engine temperature indicator.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.14	PR 47	The Cockpit Instrumentation PTT aircraft temperature indication system should include an outside air temperature probe.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.15	PR 48	The Cockpit Instrumentation PTT aircraft temperature indication system should include an outside air	The ideal proposed Cockpit Instrumentation PTT includes the described	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		

		temperature indicator.	system requirement.				
4.1.16	PR 49	The Cockpit Instrumentation PTT aircraft temperature indication system should include a fuel temperature probe.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.17	PR 50	The Cockpit Instrumentation PTT aircraft temperature indication system should include a fuel temperature indicator.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.18	PR 51	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a landing gear position sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.19	PR 52	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a landing gear up-lock indicator.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.20	PR 53	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a landing gear down-lock light.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.21	PR 54	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a main door position sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.22	PR 55	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a main door open indicator light.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		

4.1.23	PR 56	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a weight-on-wheel position sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.24	PR 57	The Cockpit Instrumentation PTT aircraft position sensor indication system should include a weight-on-wheel indicator.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.25	PR 58	The Cockpit Instrumentation PTT pressure indication system should include a fuel pressure sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.26	PR 59	The Cockpit Instrumentation PTT pressure indication system should include a fuel pressure indicator.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.27	PR 60	The Cockpit Instrumentation PTT pressure indication system should include a hydraulic system pressure sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.28	PR 61	The Cockpit Instrumentation PTT pressure indication system should include a hydraulic system pressure indicator.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.29	PR 62	The Cockpit Instrumentation PTT pressure indication system should include an oil system pressure sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.30	PR 63	The Cockpit Instrumentation	The ideal proposed	**0 -** PTT does not include the described	**2**		

		PTT pressure indication system should include an oil pressure indicator.	Cockpit Instrumentation PTT includes the described system requirement.	system requirement **2 -** PTT includes the described system requirement			
4.1.31	PR 64	The Cockpit Instrumentation PTT should include a fuel quantity sensor.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.32	PR 65	The Cockpit Instrumentation PTT should include a fuel quantity gauge.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.33	PR 66	The Cockpit Instrumentation PTT should include an annunciator panel which is functionally integrated with the PTT temperature, pressure and position indicating systems.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
4.1.34	PR 67	The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low oil temperature.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.35	PR 68	The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low hydraulic temperature.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.36	PR 69	The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low fuel temperature.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		

4.1.37	PR 70	The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low oil pressure.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.38	PR 71	The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low hydraulic pressure.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.39	PR 72	The Cockpit Instrumentation PTT annunciator panel should include warnings for high and low fuel pressure.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.1.40	PR 73	The Cockpit Instrumentation PTT annunciator panel should include warnings for low fuel quantity.	The ideal proposed Cockpit Instrumentation PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
4.2		**Cockpit Instrumentation PTT Training Faults**		To obtain the final score, the number of points obtained in this section will be multiplied by 0.909	**Maximum 84**	**84**	**76.4**
4.2.3	PR 74	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty engine temperature indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.4	PR 75	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty outside air temperature indication as a	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the	**4**		

		result of a loss of power, a loss of signal input, or unserviceable indicator.		desired fault modes **4** - PTT is able to replicate all three desired fault modes			
4.2.5	PR 76	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty fuel temperature indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.6	PR 77	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty temperature probe as a result of a loss of signal input or an erratic signal input.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
4.2.7	PR 78	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a wiring fault between the temperature probe and its respective indicators.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
4.2.8	PR 79	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty oil pressure indication as a result of a loss of power, a loss of signal input, or broken indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.9	PR 80	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty hydraulics pressure indication as a result of a	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the	**4**		

		loss of power, a loss of signal input, or broken indicator.		desired fault modes **4** - PTT is able to replicate all three desired fault modes			
4.2.10	PR 81	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty fuel pressure indication as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.11	PR 82	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty fuel quantity indication as a result of a loss of power, a loss of signal input, or broken indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.12	PR 83	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty pressure sensor as a result of a loss of signal input or an erratic signal input. .	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate two of the desired fault modes	**3**		
4.2.13	PR 84	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a wiring fault between the pressure sensor and its respective indicators.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
4.2.14	PR 85	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear up-lock indication as a result of a loss of power, a loss of signal	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **3** - PTT is able to	**3**		

		input, or unserviceable indicator.		replicate three of the desired fault modes			
4.2.15	PR 86	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear up-lock switch.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault 2 **-** PTT is able to replicate the desired fault	**2**		
4.2.16	PR 87	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear lock-down light indication as a result of a loss of power, a loss of signal input, or unserviceable indicator..	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.17	PR 88	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty landing gear position sensor as a result of a loss of signal input or an erratic signal input.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes	**2**		
4.2.18	PR 89	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty main door open indicator light as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
4.2.19	PR 90	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty main door switch.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault 2 **-** PTT is able to replicate the desired fault	**2**		

4.2.20	PR 91	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty main door sensor as a result of a loss of signal input or an erratic signal input.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
4.2.21	PR 92	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty weight-on-wheels indicator as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **3** - PTT is able to replicate three of the desired fault modes	**3**		
4.2.22	PR 93	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty weight-on-wheel switch.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault 2 **-** PTT is able to replicate the desired fault	**2**		
4.2.23	PR 94	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty weight-on-wheels sensor as a result of a loss of signal input or an erratic signal input.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
4.2.24	PR 95	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a faulty flight control position sensor as a result of a loss of signal input or an erratic signal input.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
4.2.25	PR 96	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating wiring faults between one of	The ideal Cockpit Instrumentation PTT provides the ability to insert the	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		

		the flight control position sensors and its respective indicators.	described fault(s).				
4.2.26	PR 97	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating burned out lights in the annunciator panel.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate the fault on at least two warning indicators **3 -** PTT is able to replicate the fault on all warning indicators	**3**		
4.2.27	PR 98	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a false warning in the annunciator panel.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate the fault on at least two warning indicators **3 -** PTT is able to replicate the fault on all warning indicators	**3**		
4.2.28	PR 99	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating no warning on the annunciator panel.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate the fault on at least two warning indicators **3 -** PTT is able to replicate the fault on all warning indicators	**3**		
4.2.29	PR 100	The Cockpit Instrumentation PTT should allow for insertion of a fault replicating a discrepancy between the analogue and EFIS display indicators.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
4.2.30	PR 101	The Cockpit Instrumentation PTT CDU should only display "sensor unavailable" or similar for all induced EFIS faults. The CDU should not display which sensor / system is unavailable.	The ideal Cockpit Instrumentation PTT provides the ability to insert the described result	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
5		**Pitot Static PTT**			**Maximum 27**	**27**	**68.6**

5.1		**Pitot Static PTT Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **2.542**			
5.1.8	PR 102	The Pitot Static PTT VSI should be displayed on the EFIS flight display.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.9	PR 103	The Pitot Static PTT ASI should be displayed on the EFIS flight display.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.10	PR 104	The Pitot Static PTT MASI should be displayed on the EFIS flight display.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.11	PR 105	The Pitot Static PTT DH alert should be displayed on the EFIS display.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.12	PR 106	The Pitot Static PTT should contain a standby altitude indicator.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.13	PR 107	The Pitot Static PTT should include the ability for users to simulate changes in outside air temperature.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.14	PR 108	The Pitot Static PTT should include the ability for users to simulate changes in angle of attack.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.1.15	PR 109	The Pitot Static PTT should include the ability for users to	The ideal proposed Pitot Static PTT includes the	**0 -** PTT does not include the described system requirement **3 -** PTT includes the	**3**		

		simulate changes in barometric pressure.	described system requirement.	described system requirement			
5.1.16	PR 110	The Pitot Static PTT should have a means of providing a decision height (DH) alert.	The ideal proposed Pitot Static PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
5.2		**Pitot Static PTT Training Fault Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **2.542**	**Maximum 32**	**32**	**81.3**
5.2.3	PR 111	The Pitot Static PTT should allow students to carry out a pitot static probe heater functional check.	The ideal Pitot Static PTT provides the ability to carry out the described action	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.4	PR 112	The Pitot Static PTT should allow for insertion of a fault replicating a pitot static leak (non-functioning or open pitot static line).	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.5	PR 113	The Pitot Static PTT should allow for insertion of a fault replicating a broken fitting along the pitot static lines.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.6	PR 114	The Pitot Static PTT should allow for insertion of a fault replicating a blocked pitot static line.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.7	PR 115	The Pitot Static PTT should allow for insertion of a fault replicating a non-functioning air data computer.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.8	PR 116	The Pitot Static PTT should allow for insertion of a fault replicating a discrepancy between the air data computer and the sensor input(s).	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		

5.2.9	PR 117	The Pitot Static PTT should allow for insertion of a fault replicating an open in a system connector.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.10	PR 118	The Pitot Static PTT should allow for insertion of a fault replicating a short in a system connector.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.11	PR 119	The Pitot Static PTT should allow for insertion of a fault replicating a short circuit in the system wiring.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.12	PR 120	The Pitot Static PTT should allow for insertion of a fault replicating an open circuit in the system wiring.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.13	PR 121	The Pitot Static PTT should allow for insertion of a fault replicating a faulty pitot static probe heater.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.14	PR 122	The Pitot Static PTT should allow for insertion of a fault replicating a frozen indicator.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.15	PR 123	The Pitot Static PTT should allow for insertion of a fault replicating the indicator not providing indications.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.16	PR 124	The Pitot Static PTT should allow for insertion of a fault replicating a discrepancy between the test set inputs and the PTT indications.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
5.2.17	PR 125	The Pitot Static PTT should allow for insertion of a fault replicating an error flag on analogue indicators.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		

5.2.18	PR 126	The Pitot Static PTT should allow for insertion of a fault replicating an error message on EFIS indicators.	The ideal Pitot Static PTT provides the ability to insert the described fault(s).	**0 -** PTT does not enable performance of desired action **2 -** PTT enables performance of desired action	**2**		
6	**Navigation Systems PTT**						
6.1		**Navigation Systems PTT Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **1.630**	**Maximum 44**	**44**	**71.7**
6.1.13	PR 127	The Navigation Systems PTT should include an Automatic Direction Finder (ADF) radio navigation system.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
6.1.14	PR 128	The Navigation Systems PTT should include a Tactical Air Navigation (TACAN) radio navigation system.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
6.1.15	PR 129	The Navigation Systems PTT should include three marker beacon indicator lights.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
6.1.16	PR 130	The Navigation Systems PTT should include a Radio Magnetic Indicator (RMI).	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
6.1.17	PR 131	The Navigation Systems PTT should include a stand-by compass.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
6.1.18	PR 132	The Navigation Systems PTT aircraft data bus should be a MILD-	The ideal proposed Navigation Systems PTT includes the	**0 -** PTT does not include the described system requirement **4 -** PTT includes the	**6**		

		STDS 1553 or 1773 data bus.	described system requirement.	described system requirement			
6.1.19	PR 133	The Navigation Systems PTT should include three headsets plugs compatible with a David Clark Headset (NSN H10-76)	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **4 -** PTT includes the described system requirement	**4**		
6.1.20	PR 134	The Navigation Systems PTT should include an EFIS display.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **6 -** PTT includes the described system requirement	**6**		
6.1.21	PR 135	The Navigation Systems PTT ADI information should be displayed on an EFIS display.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
6.1.22	PR 136	The Navigation Systems PTT HSI information should be displayed on the EFIS display.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
6.1.23	PR 137	The Navigation Systems PTT localizer and glide slope deviation indications should be displayed on the EFIS display.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
6.1.24	PR 138	The Navigation Systems PTT RMI should be displayed on the EFIS display.	The ideal proposed Navigation Systems PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
6.2		**Navigation Systems PTT Training Fault Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **1.630**	**Maximum 48**	**48**	**78.2**

6.2.3	PR 139	The Navigation Systems PTT should allow for insertion of a fault replicating a failed flux valve within the AHRS as a result of a loss of power or an unserviceable flux valve.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
6.2.4	PR 140	The Navigation Systems PTT should allow for insertion of a fault replicating a failed gyroscope within the AHRS as a result of a loss of power or an unserviceable gyroscope.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
6.2.5	PR 141	The Navigation Systems PTT should allow for insertion of a fault replicating an AHRS computer failure as a result of a loss of power or an unserviceable computer.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
6.2.6	PR 142	The Navigation Systems PTT should allow for insertion of a fault replicating a failed antenna as a result of a loss of power or an unserviceable antenna for each radio navigation system.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one desired fault modes in one radio navigation system **2** - PTT is able to replicate the two desired fault modes in one radio navigation system **3 -** PTT is able to replicate one desired fault modes in two or more radio navigation systems **5 -** PTT is able to replicate the two desired fault modes in two or more radio navigation systems	**5**		

6.2.7	PR	143	The Navigation Systems PTT should allow for insertion of a fault replicating a failed transceiver / receiver as a result of a loss of power or an unserviceable transceiver / receiver for each radio navigation system.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one desired fault modes in one radio navigation system **2** - PTT is able to replicate the two desired fault modes in one radio navigation system **3 -** PTT is able to replicate one desired fault modes in two or more radio navigation systems **5 -** PTT is able to replicate the two desired fault modes in two or more radio navigation systems	**5**		
6.2.8	PR	144	The Navigation Systems PTT should allow for insertion of a fault replicating a failed CDU as a result of a loss of power or an unserviceable CDU.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **3 -** PTT is able to replicate both of the desired fault modes	**3**		
6.2.9	PR	145	The Navigation Systems PTT should allow for insertion of a fault replicating a failed CDU whereby the desired frequency is non-selectable.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.10	PR	146	The Navigation Systems PTT should allow for insertion of a fault replicating a failed CDU button.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.11	PR	147	The Navigation Systems PTT should allow for insertion of a fault replicating the user's inability to select the desired radio navigation function.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.12	PR	148	The Navigation Systems PTT	The ideal Navigation	**0 -** PTT is not able to replicate the desired	**2**		

		should allow for insertion of a fault replicating an open in a system connector.	Systems PTT provides the ability to insert the described fault(s).	fault **2 -** PTT is able to replicate the desired fault			
6.2.13	PR 149	The Navigation Systems PTT should allow for insertion of a fault replicating a short in a system connector.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.14	PR 150	The Navigation Systems PTT should allow for insertion of a fault replicating an open circuit in the non-coaxial system wiring.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.15	PR 151	The Navigation Systems PTT should allow for insertion of a fault replicating a short circuit in the non-coaxial system wiring.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.16	PR 152	The Navigation Systems PTT should allow for insertion of a fault replicating a short circuit in the system coaxial cables.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.17	PR 153	The Navigation Systems PTT should allow for insertion of a fault replicating an open circuit in system coaxial cables.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
6.2.18	PR 154	The Navigation Systems PTT should allow for insertion of a fault replicating a failed indicator as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
6.2.19	PR 155	The Navigation Systems PTT should allow for	The ideal Navigation Systems PTT	**0 -** PTT is not able to replicate the desired fault	**2**		

		insertion of a fault replicating inaccurate marker beacon readings.	provides the ability to insert the described fault(s).	**2 -** PTT is able to replicate the desired fault			
6.2.20	PR 156	The Navigation Systems PTT should allow for insertion of a fault replicating disagreements between the marker beacons.	The ideal Navigation Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7	**Automatic Flight Control Systems PTT**						
7.1		**Automatic Flight Control Systems PTT Requirements**		To obtain the final score, the number of points obtained in this section will be multiplied by **1.724**	**Maximum 52**	**52**	**89.6**
7.1.13	PR 157	The Automatic Flight Control System PTT should include an aural and visual warning system for auto-pilot disconnect.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.14	PR 158	The Automatic Flight Control System PTT Flight Director system should function in pitch mode (no specific mode specified).	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.15	PR 159	The Automatic Flight Control System PTT Flight Director system should function in roll mode (no specific mode specified).	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.16	PR 160	The Automatic Flight Control System PTT Flight Director system should function in yaw mode (no specific mode specified).	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.17	PR 161	The Automatic Flight Control System PTT Flight Director system should display the command bars on the ADI.	The ideal proposed Automatic Flight Control System PTT includes the described	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		

			system requirement.				
7.1.18	PR 162	The Automatic Flight Control System PTT should include an EFIS display	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **6 -** PTT includes the described system requirement	**6**		
7.1.19	PR 163	The Automatic Flight Control System PTT HSI information should be displayed on an EFIS display.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
7.1.20	PR 164	The Automatic Flight Control System PTT ADI information should be displayed on an EFIS display.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **2 -** PTT includes the described system requirement	**2**		
7.1.21	PR 165	The Automatic Flight Control System PTT should provide fault indicators (Flags) for the EFIS display	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.22	PR 166	The Automatic Flight Control System PTT should provide fault indicators (Flags) for the analogue indicators	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.23	PR 167	The Automatic Flight Control System PTT navigation select panel should include an altitude select mode.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.24	PR 168	The Automatic Flight Control System PTT navigation select panel should include a heading select mode.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		

7.1.25	PR 169	The Automatic Flight Control System PTT navigation select panel should include a yaw damper selection mode.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.26	PR 170	The Automatic Flight Control System PTT should include a scaled physical representation of the rudder flight control surfaces.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.27	PR 171	The Automatic Flight Control System PTT should include a scaled physical representation of the aileron flight control surfaces.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.28	PR 172	The Automatic Flight Control System PTT should include a scaled physical representation of the elevator flight control surfaces.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.1.29	PR 173	The Automatic Flight Control System PTT flight control surfaces should be electrically actuated.	The ideal proposed Automatic Flight Control System PTT includes the described system requirement.	**0 -** PTT does not include the described system requirement **3 -** PTT includes the described system requirement	**3**		
7.2		Automatic Flight Control Systems PTT Training Fault Requirements		To obtain the final score, the number of points obtained in this section will be multiplied by **1.724**	**Maximum 35**	**35**	**60.3**
7.2.4	PR 174	The Automatic Flight Control System PTT should allow for insertion of a fault replicating a power loss to the flight director.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.5	PR 175	The Automatic Flight Control System PTT should allow for insertion of a fault	The ideal Automatic Flight Control Systems PTT provides the ability to	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the	**3**		

		replicating a failed auto-pilot computer as a result of power loss or an unserviceable computer.	insert the described fault(s).	desired fault modes **3 -** PTT is able to replicate both of the desired fault modes			
7.2.6	PR 176	The Automatic Flight Control System PTT should allow for insertion of a fault replicating a power loss to the yaw damper system.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.7	PR 177	The Automatic Flight Control System PTT should allow for insertion of a fault replicating the inability for a user to select a flight director mode.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.8	PR 178	The Automatic Flight Control System PTT should allow for insertion of a fault replicating a short in a system connector.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.9	PR 179	The Automatic Flight Control System PTT should allow for insertion of a fault replicating an open in a system connector.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.10	PR 180	The Automatic Flight Control System PTT should allow for insertion of a fault replicating a short circuit in the system wiring.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.11	PR 181	The Automatic Flight Control System PTT should allow for insertion of a fault replicating an open circuit in the system wiring.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.12	PR 182	The Automatic Flight Control	The ideal Automatic Flight	**0 -** PTT is not able to replicate the desired	**2**		

		System PTT should allow for insertion of a fault replicating an un-commanded auto-pilot disengage.	Control Systems PTT provides the ability to insert the described fault(s).	fault **2 -** PTT is able to replicate the desired fault			
7.2.13	PR 183	The Automatic Flight Control System PTT should allow for insertion of a fault replicating the auto-pilot not engaging.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.14	PR 184	The Automatic Flight Control System PTT should allow for insertion of a fault replicating the auto-pilot not providing feedback to the control column or rudder pedals.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.15	PR 185	The Automatic Flight Control System PTT should allow for insertion of a fault replicating a failed indicator as a result of a loss of power, a loss of signal input, or unserviceable indicator.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one of the desired fault modes **2 -** PTT is able to replicate two of the desired fault modes **4** - PTT is able to replicate all three desired fault modes	**4**		
7.2.16	PR 186	The Automatic Flight Control System PTT should allow for insertion of a fault replicating a fault whereby the control column and the servo moves out of sync.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate the desired fault **2 -** PTT is able to replicate the desired fault	**2**		
7.2.17	PR 187	The Automatic Flight Control System PTT should allow the instructor to insert a fault replicating a failed flight control servo as a result of a loss of power or an unserviceable flight control servo.	The ideal Automatic Flight Control Systems PTT provides the ability to insert the described fault(s).	**0 -** PTT is not able to replicate any of the desired fault modes **1** - PTT is able to replicate one desired fault mode on one or two servos **2** - PTT is able to replicate one desired fault mode on all three servos	**6**		

				3 - PTT is able to replicate two desired fault modes on one or two servos **6 -** PTT is able to replicate two desired fault modes on all three servos			

PTT	PTT Requirements Score	Training Fault Requirements Score	Total	Multiplication Factor	Final Score
3 - Comms	57	41	**98**	1.531	150
4 - Cockpit Instrument	81	84	**165**	0.909	150
5 - Pitot Static	27	32	**59**	2.542	150
6 - Navigation	44	48	**92**	1.630	150
7 - AFCS	52	35	**87**	1.724	150
Total					**750**

Note: The bidder's final technical score will be derived from the sum of the PTT Requirements Score and the Training Fault Requirements for each PTT. This total, will then be multiplied by the multiplication factor provided for each PTT, which varies depending on PTT and has a maximum final score of 150 points per PTT. The final score for each PTT will be added together to provide the total final score, which has a maximum value of 750 points.

Appendix 8 – Technical Evaluation Criteria – CDRL and DID

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
Appendix 8 – Technical Evaluation Criteria – CDRL and DID

CDRL #	DID #	Requirement	Evaluation Criteria	Requirement Met? Y / N	Reference
CDRL-001	PM 001	A draft Project Management Plan (PMP) must be submitted with the Contractor's proposal	A draft Project Management Plan has been submitted in accordance with CDRL-001/PM-001		
CDRL-003	SE 001	A draft Systems Engineering Management Plan (SEMP) must be submitted with the Contractor's proposal	A draft Systems Engineering Management Plan has been submitted in accordance with CDRL-003/SE-001		
CDRL-004	SE 002	A draft equipment Acceptance Plan (AP) must be submitted with the Contractor's proposal	A draft Acceptance Plan has been submitted in accordance with CDRL-004/SE-002		
CDRL-007	ILS 001	A draft Training Plan must be submitted with the Contractor's proposal	A draft Training Plan has been submitted in accordance with CDRL-007 / ILS-001		
CDRL-008	ILS 002	A draft Instructor Training Package (English only) must be submitted with the Contractor's proposal	A draft Instructor Training Package has been submitted in accordance with CDRL-008 / ILS-002		
CDRL-009	ILS 003	A draft Student Training Package (English only) must be submitted with the Contractor's proposal	A draft Student Training Package has been submitted in accordance with CDRL-009 / ILS-003		
CDRL-010	ILS 004	An Itemized Parts List must be submitted with the Contractor's proposal	An Itemized parts list has been submitted in accordance with CDRL-010 / ILS-004		
CDRL-011	ILS 005	A draft Quality Assurance (QA) Plan must be submitted with the Contractor's proposal	A draft Quality Assurance Plan has been submitted in accordance with CDRL-011 / ILS-005		

Appendix 9 – Technical Evaluation Criteria – CDRL and DID

Canadian Advanced Synthetic Environment (CASE) Phase 2 In Service Support (ISS) of Aircraft Maintenance Trainers

Canadian Advanced Synthetic Environment (CASE) Phase 2 In Service Support (ISS) of Aircraft Maintenance Trainers Appendix 9 – Technical Evaluation Criteria – CDRL and DID					
CDRL #	**DID #**	**Requirement**	**Evaluation Criteria**	**Requirement Met? Y / N**	**Reference**
CDRL-001	TW 001	A draft In Service Support Plan (ISSP) must be submitted with the Contractor's proposal	A draft In Service Support Plan has been submitted in accordance with CDRL-001/TW-001		
CDRL-002	TW 002	A draft Maintenance Support Plan (MSP) must be submitted with the Contractor's proposal	A draft Maintenance Support Plan has been submitted in accordance with CDRL-002/SE-001		
CDRL-004	TW 004	A draft equipment Spares Forecast and Costing Report must be submitted with the Contractor's proposal	A draft Spares Forecast and Costing Report has been submitted in accordance with CDRL-004/SE-002		

Annex C – Statement of Work (SOW)

Canadian Advanced Synthetic Environment (CASE) Phase 2
In Service Support (ISS) of Aircraft Maintenance Trainers

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List of Appendices

1.0 INTRODUCTION

1.1 Background

1.1.1 Canadian Advanced Synthetic Environment (CASE) Phase 2 is the second phase of a two-phase major Capital Project. During the first phase, the project successfully implemented a joint Distributed Mission Training network for the Canadian Armed Forces. From a sustainment perspective, there is no link between CASE Phase 1 and 2. The Estimated Life Expectancy (ELE) of the equipment acquired as part of CASE Phase 2 is fifteen years.

1.1.2 CASE Phase 2 is focused on modernization of apprentice level Royal Canadian Air Force (RCAF) aircraft maintenance technician training conducted at the Canadian Forces School of Aerospace Technology and Engineering (CFSATE) at 16 Wing, Borden, ON. The current ability of CFSATE instructors to train aircraft maintenance technicians on highly integrated, modern aircraft with complex avionics systems and advanced materials is severely limited by the lack of relevant training aids.

1.1.3 CASE Phase 2 will procure Virtual Maintenance Trainer (VMT) suites to facilitate the instruction of the theory and operation of aircraft systems, the troubleshooting of those systems and the performance of functional checks. Six (6) VMT suites are required to be installed within CFSATE classroom areas. Each VMT suite shall consist of one instructor station with eight student stations, each capable of accommodating two students per station for a total of 16 students. In addition, each VMT suite shall include a classroom audio system and be compatible with existing classroom display systems used in CFSATE; and

1.1.4 CASE Phase 2 will procure Part Task Trainer (PTT) devices which will enable the students to bring the knowledge acquired from the VMT suite onto a physical training platform. The PTT devices will support fault insertion capabilities, functional checks, troubleshooting, component removal and installation and system repairs. The total number of PTT devices will include a minimum of eight (8) Communications Systems (CS) trainers, eight (8) Cockpit Instrumentation (CI) trainers, eight (8) Pitot Static (PS) trainers, eight (8) Navigation Systems (NS) trainers, and eight (8) Automatic Flight Control Systems (AFCS) trainers.

1.2 Purpose

1.2.1 The purpose of this Statement of Work (SOW) is to detail the requirements and the tasks to be performed by the Contractor in the provision of In-Service Support (ISS) for the CASE Phase 2 VMT Suites and PTT Devices described above.

1.2.2 This SOW defines the material and data to be delivered by the Contractor to enable the sustainment of the VMT suites and PTT devices

1.3 Assumptions

1.3.1 With Initial Cadre Training (ICT) and technical documentation provided under the acquisition contract, CFSATE staff will have the technical abilities required to operate the VMT suites and PTT devices.

1.3.2 With ICT and technical documentation provided under the acquisition contract, CFSATE staff will have the technical abilities required to conduct all preventive and corrective maintenance on the VMT suites and PTT devices.

1.3.3 The Contractor will be capable of providing all spare parts, components and consumables required in the preventive and corrective maintenance of the VMT suites and PTT devices in accordance with the ISS contract for the duration of the contract.

1.3.4 The Contractor will be capable of providing technical support in accordance with the ISS contract in the event a VMT suite or PTT device unserviceability occurs which is beyond the capability or capacity of CFSATE personnel to rectify.

1.4 Maintenance Concept

1.4.1 The maintenance concept for the VMT suites and PTT devices is for RCAF technicians to conduct all preventive and corrective maintenance activities and for the Contractor to provide the equipment support needed to ensure the operational usage requirements are met.

1.4.2 Contractor equipment support is comprised of the following main activities:

a. Technical problem reporting system.

b. Spares procurement and logistics.

c. Equipment repair & overhaul; and

d. Other maintenance taskings as and when required.

1.5 Scope

1.5.1 Under the scope of the ISS contract, the Contractor will be responsible for delivering the following goods and services:

a. Program Support.

b. Technical and Engineering Support; and

c. Materiel Parts Support.

1.6 Objectives

1.6.1 DND's objectives for the in-service support of CASE Phase 2 VMT suites and PTT devices are to:

a. Establish a strategic, contractual relationship with the Contractor based on a mutual understanding of respective roles and responsibilities; and

b. Establish a clear set of Contractor services that can be measured against defined service standards and prescribed requirements, ensuring that the systems are supported in an operationally sustainable manner.

1.7 DND Roles, Authorities and Responsibilities

1.7.1 In addition to the authorities defined in the terms and conditions of this contract, this SOW defines the following DND specific roles, authorities, and responsibilities.

1.7.2 Technical Authority – The Department of National Defence (DND) Technical Authority (TA) for this ISS contract is DAEPM (TA&S) 4-3 and serves as the principal DND point of contact.

1.7.3 Life Cycle Material Manager (LCMM) – The Technical Authority has delegated authority over several LCMMs who are responsible for simulators and trainers assigned to them. The LCMM is the DND Office of Primary Interest (OPI) for the day-to-day monitoring of the contract.

1.7.4 Task Specific Authority - is a Department of National Defence (DND) representative delegated in accordance with this SOW to exercise certain authorities and scope as may be provided for in any additional task-based SOWs issued under this contract. Task Authorities have specific scopes and there may be numerous Task Authorities with differing areas of responsibility at any one time. However, each task issued under this contract will have a single Task Specific Authority.

1.7.5 CFSATE Primary Point of Contact – The CFSATE Primary Point of Contact (POC) for the ISS Contract is the Air Maintenance Flight (AMF) Flight Commander at CFSATE and is responsible for the maintenance of all VMT suites and PTT devices at CFSATE.

1.8 Acronyms and Abbreviations

AWR	Additional Work Request
CA	Contracting Authority
CAF	Canadian Armed Forces
CASE	Canadian Advanced Synthetic Environment
CDRL	Contract Data Requirements List
CFB	Canadian Forces Base
CFSATE	Canadian Forces School of Aerospace Technology and Engineering
COTS	Commercial Off the Shelf

DGAEPM	Director General Aerospace Equipment Program Management
DID	Data Item Description
DND	Department of National Defence
ELE	Estimated Life Expectancy
FOC	Final Operational Capability
FSR	Field Service Representative
GFE	Government Furnished Equipment
GFI	Government Furnished Information
IAW	In Accordance With
ICT	Initial Cadre Training
ILS	Integrated Logistic Support
IOC	Initial Operational Capability
LCMM	Life Cycle Material Manager
OEM	Original Equipment Manufacturer
PA	Procurement Authority
POC	Point of Contact
PRM	Progress Review Meeting
PSPC	Public Service and Procurement Canada
PTT	Part Task Trainer
RCAF	Royal Canadian Air Force
R&O	Repair and Overhaul
SOW	Statement of Work
STTE	Specialty Tools and Test Equipment
TA	Technical Authority
TIES	Technical Investigation and Engineering Support
TPM	Technical Problem Management
VMT	Virtual Maintenance Trainer

2.0 ADMINISTRATION

2.1 Deliverable Data

2.1.1 The Contractor must prepare and deliver, to Canada's satisfaction, all data specified in the Contract Data Requirements List (CDRL) and Data Item Descriptions (DIDs) in accordance with the instructions contained in Appendix 1 of this SOW.

2.2 Government Furnished Equipment and Miscellaneous Requirements

2.2.1 Office Space – If required to carry out on-site maintenance action(s) on the VMT suites and PTT devices at CFSATE, DND will provide office space, storage space with existing furniture, and access to fax and photocopiers as required by the Contractor. The Contractor must not use nor allow the use of government property of any kind, for anything other than that specified in this SOW.

2.2.2 CFSATE Business Hours – CFSATE facilities will typically only be accessible to the Contractor during normal working hours Monday to Friday, from 8 a.m. until 5 p.m.,

Eastern Time. Requests by the Contractor to access CFSATE facilities after normal working hours must be forwarded to CFSATE management staff for approval.

2.2.3 Specialty Tools and Test Equipment – If required to carry out on-site maintenance action(s) on the VMT suites and PTT devices at CFSATE, the Contractor must provide all specialty tools and test equipment required to carry out maintenance activities.

2.2.4 Compliance to CFSATE Safety Regulations – If required to carry out on-site maintenance action(s) on the VMT suites and PTT devices at CFSATE, the Contractor must ensure that all personnel comply with CFSATE safety regulations and orders. These regulations will be available on site.

2.2.5 WHMIS – If required to carry out on-site maintenance action(s) on the VMT suites and PTT devices at CFSATE, the Contractor must ensure that all personnel are knowledgeable in the handling of workplace hazardous materials. DND will provide local Workplace Hazardous Materials Information System (WHMIS) training as required. The Contractor will be responsible for the disposal of hazardous materials in accordance with local procedures. These procedures will be available on site.

3.0 TRANSITION WORK

3.1 Transition Work Activities – General

3.1.1 The transition period is defined as the time between contract award and the achievement of Full Operational Capability (FOC). FOC will be considered achieved when all equipment is delivered, installed, tested and capable of being used in CFSATE training. Current estimated date of FOC is 31 March 2024.

3.1.2 The Contractor must perform the transition work activities as detailed in this section of the SOW. Transition work is the work required during the transition period to ensure the necessary documentation and processes are in place for CASE Phase 2 to reach FOC.

3.1.3 Transition Work activities will be charged as part of the Fixed Firm Prices identified in Annex B, Basis of Payment.

3.2 Program Support

3.2.1 Kick-Off Meeting

3.2.1.1 The Contractor must plan and host a single Project Kick-Off meeting with all DND stakeholders to review requirements for both the Aircraft Maintenance Trainers Acquisition Contract as well as the Aircraft Maintenance Trainers in Service Support Contract. The kick-off meeting must be scheduled within 5 weeks (35 days) of contract award. The kick-off meeting, including a site visit by DND personnel, will be held at the Contractor's facility.

3.2.1.2 The Contractor must submit an agenda for the kick-off meeting to the DND TA for review at least five business days in advance of each meeting.

3.2.1.3 The Contractor must take and provide minutes to the DND TA for the kick-off meeting within 10 business days of the meeting.

3.2.2 In-Service Support Plan (ISSP)

3.2.2.1 The Contractor must develop an ISSP which defines the procedures to be followed to implement and perform all requirements of this SOW. The ISSP must be prepared in accordance with CDRL-001/TW-001.

3.2.2.2 In the ISSP, the Contractor must identify the project management team assigned to deliver the requirements of the SOW, including the Program Manager and other key project management team members

3.2.3 Maintenance Support Plan (MSP)

3.2.3.1 The Contractor must produce a Maintenance Support Plan (MSP) for the VMT suites and PTT devices hardware components in accordance with CDRL-002/TW-002.

3.2.3.2 The Contractor must identify all known preventive maintenance activities (e.g. inspections, calibration, etc.) required for the duration of the contract for the VMT suites and PTT devices.

3.2.3.3 The Contractor must provide an estimate of the corrective maintenance required over duration of the contract for the VMT suites and PTT devices based on anticipated equipment usage listed in Table 1 and the equipment Mean Time Between Failure (MTBF) data.

Table 1: *VMT Suite and PTT Device Usage*

Equipment	Anticipated Usage
VMT Suite	1938 training hours/suite/year
PTT- Communication Systems (CS)	850 training hours/PTT/year
PTT-Cockpit Instrumentation (CI)	850 training hours/PTT/year
PTT-Pitot Static (PS)	850 training hours/PTT/year
PTT-Navigation Systems (NS)	850 training hours/PTT/year
PTT- Automatic Flight Control Systems (AFCS)	850 training hours/PTT/year

3.2.4 Obsolescence Management Support Plan (OMSP)

3.2.4.1 The Contractor must produce an Obsolescence Management Support Plan (OMSP) for the VMT suites and PTT devices. The OMSP must be completed in accordance with CDRL-003/TW-003.

3.2.4.2 The OMSP must identify components in the VMT suites and PTT devices that, if they become unavailable over the duration of the contract, would make the equipment difficult or impossible to maintain.

3.3 Material Spares Support

3.3.1 General

3.3.1.1 Spares are classified as either preventive or corrective maintenance spares as follows:

a. Preventive maintenance spares consist of software, spare parts, components and consumables required to carry out all scheduled maintenance activities detailed in the approved MSP.

b. Corrective maintenance spares consist of software, spare parts, components and consumables required to carry out unscheduled maintenance, modifications, or obsolescence management activities.

3.3.2 Spare Parts Forecasting and Costing

3.3.2.1 The Contractor must forecast the requirement of all software, spare parts, components and consumables required to maintain the VMT suites and PTT devices for the duration of the contract in accordance with CDRL-004/TW-004. The forecasted requirement must be based on the following:

a. All preventive maintenance spares required to carry out scheduled preventive maintenance activities in accordance with the MSP; and

b. All corrective maintenance spares required to carry out unscheduled corrective maintenance activities in accordance with the MSP.

3.3.2.2 The purchase of preventive maintenance spares will be carried out as part of Core Work and will be charged in accordance with Annex B, Basis of Payment.

3.3.2.3 The purchase of corrective maintenance spares will be carried out as part of Supplementary Work and will be charged in accordance with Annex B, Basis of Payment.

4.0 CORE WORK

4.1 Core Work Activities – General

4.1.1 The Contractor must perform the Core Work activities as detailed in this section of the SOW. Core Work is deemed to be work that is performed on a regular basis over the duration of the contract.

4.1.2 Core work activities will be charged as part of the Fixed Firm Prices identified in Annex B, Basis of Payment.

4.2 Program Support

4.2.1 Annual PRM

4.2.1.1 As part of Core Work, the Contractor must plan an annual Progress Review Meeting (PRM) beginning at the completion of contract year one and every year thereafter for the remaining contract duration. Annual PRMs will address the overall ISS program status, known problems, proposed solutions and any other topics as agreed upon by the Contractor and DND.

4.2.1.2 As part of the annual PRM, the Contractor must identify all known preventive maintenance actions required in the upcoming year in accordance with the MSP. The Contractor must provide an itemized list, including the cost to DND of all spare parts, components, and consumables as required.

4.2.1.3 As part of the annual PRM, the Contractor must identify all obsolescence issues that may require DND attention in the upcoming year in accordance with the OMSP. Upon request from DND, the Contractor must provide an itemized list, including the cost to DND of all spare parts, components, and consumables required in accordance with section 5.2.4 of this SOW.

4.2.1.4 The annual PRM will be scheduled by the Contractor a minimum of 30 days prior to the meeting and will be co-chaired by the Contractor and the DND TA. The annual PRM will normally be held via telecom unless an in-person meeting is deemed necessary by the DND TA. In such cases, the meeting will normally be held at CFSATE and the Contractor will be authorized Travel and Living (T&L) as per Annex B, Basis of Payment.

4.2.1.5 The Contractor must submit an agenda for each annual PRM to the DND TA for review at least five business days in advance of each meeting.

4.2.1.6 The Contractor must take and provide minutes of the annual PRM to the DND TA within 10 business days of the meeting.

4.3 Technical and Engineering Support

4.3.1 Technical Problem Management

4.3.1.1 No later than 28 calendar days after contract award, the Contractor must establish a Technical Problem Management (TPM) system, including communication procedures for DND personnel to report problems encountered with the VMT suites and PTT devices. This communication could be in the form of a toll-free telephone number or through an email reporting system at the Contractor discretion.

4.3.1.2 All problems will be reported to the Contractor based on the severity criteria established in table 2.

4.3.1.3 Upon receipt, the Contractor must analyze the problems, determine the likely root cause, and provide a rectification recommendation based on the response times detailed in table 2.

Table 2: *Technical Problem Response Times*

Severity	Description	Response Time
Level 1 (Urgent)	1. Any technical issue affecting scheduled CFSATE training, including but not limited to the following: a. software or component failures b. software or component reduction in functionality c. equipment defects 2. Any safety concerns raised by DND	2 business days after problem reported
Level 2 (Routine)	1. Any technical issue not affecting scheduled CFSATE training, including but not limited to the following: a. software or component failures b. software or component reduction in functionality c. equipment defects d. publication discrepancies	5 business days after problem reported

4.3.1.4 All Contractor replies must occur during normal CFSATE business hours as specified in this SOW. For example, a Level 1 issue reported at 3 PM Eastern Time shall have a target response time of 3 PM Eastern time on the second business day following the report, excluding statutory holidays observed by the Government of Canada and the Province of Ontario.

4.3.1.5 Any parts procurement or FSR support required due to reported problems and approved by the DND TA will be carried out as Supplementary Work in accordance with section 5 of this SOW.

4.4 Materiel Spares Support

4.4.1 Spare Parts Procurement and Logistics

4.4.1.1 As part of Core Work, the Contractor must procure all preventive maintenance spares required for scheduled maintenance activities identified in the MSP.

4.4.1.2 The initial purchase of preventive maintenance spares must cover all preventive maintenance requirements for the first Contract Calendar Year (CY). Spares will then be replenished on a yearly basis based on updated Contractor estimates delivered as part of the annual PRM.

4.4.1.3 The Contractor must provide transportation from the Contractor facility to CFSATE and return for all preventive maintenance spares as required.

4.4.1.4 The Contractor must pick-up and deliver all preventive maintenance spares at the designated CFSATE location during normal business hours.

4.4.1.5 The Contractor must provide all materials and equipment necessary to ensure that the spare parts, components, and consumables are not damaged during transit, dependent on the mode of transportation used.

4.4.2 **Repair and Overhaul (R&O) Activities**

4.4.2.1 As part of Core Work, the Contractor must carry out the repair, overhaul, or reconditioning of unserviceable parts and components as required due to scheduled preventive maintenance activities identified in the MSP.

4.4.2.2 Repair, overhaul, or reconditioning of parts or components that is required due to equipment or CFSATE operator safety concerns are the sole responsibility of the Contractor.

4.4.2.3 All parts or components repaired, overhauled, or reconditioned by the Contractor must meet the standards of performance described in the applicable governing specification(s).

4.4.2.4 All parts or components repaired, overhauled, or reconditioned by the Contractor must be returned to DND with the same part number configuration, unless otherwise specified by the DND TA/LCMM.

5.0 SUPPLEMENTARY WORK

5.1 Supplementary Work Activities – General

5.1.1 The Contractor must perform the supplementary work activities as detailed in this section of the SOW. Supplementary work is work that is performed, within the Contract scope, on an 'as and when required basis'.

5.1.2 Supplementary work is subject to the rates identified in Annex B, Basis of Payment. All supplementary work will be authorized via a DND 626 Task Authorization.

5.2 Technical and Engineering Support

5.2.1 **Corrective Maintenance**

5.2.1.1 As part of Supplementary Work and when approved by the DND TA/LCMM, the Contractor must provide corrective maintenance support for problems reported by DND in accordance with section 3, Core Work.

5.2.1.2 For software related issues, the Contractor must provide any software upgrades, updates, renames, bug fixes or software patches as required either remotely or by removable media in accordance with section 5.3.2 of this SOW.

5.2.1.3 If the software upgrades, updates, renames, bug fixes or software patches cannot be repaired or incorporated remotely or by removable media or fail to resolve the problem, the Contractor may be requested by the DND TA/LCMM to provide an FSR at CFSATE in accordance with section 5.2.2 of this SOW.

5.2.1.4 For hardware related issues, the contractor must provide all spare parts, components, and consumables required in accordance with section 5.3.2 of this SOW.

5.2.1.5 If the spare parts, components and consumables fail to resolve the problem, the Contractor may be requested by the DND TA/LCMM to provide an FSR at CFSATE in accordance with section 5.2.2 of this SOW.

5.2.2 **Field Service Representative (FSR)**

5.2.2.1 The Contractor must provide FSR services when authorized by the DND TA/LCMM via a DND 626 Task Authorization. FSR activities will be authorized on an as required basis when problems occur with the VMT Suites or PTT devices which require on-site assistance.

5.2.2.2 When requested by DND, The Contractor must provide an FSR at CFSATE to carry out software maintenance. Examples are as follows.

a. Software upgrades, updates, renames, bug fixes or software patches required due to corrective maintenance, modifications, or obsolescence issues that cannot be incorporated remotely; or

b. As otherwise deemed required by the DND TA/LCMM.

5.2.2.3 When requested by DND, The Contractor must provide an FSR at CFSATE to carry out hardware maintenance. Examples are as follows.

a. Maintenance actions that are deemed by the DND TA/LCMM to be beyond the capability or capacity of CFSATE personnel; or

b. As otherwise deemed required by the DND TA/LCMM.

5.2.2.4 The Contractor FSR will be authorized Travel and Living (T&L) as per Annex B, Basis of Payment

5.2.3 **Equipment Modification Implementation**

5.2.3.1 During the period of the contract, there may be a need for DND to carry out modifications on the VMT suites or PTT device software or hardware. Modifications are categorized as follows:

a. Technological – Technological modifications change the VMT suite or PTT device hardware or software functionality to remain current with industry standards; and
b. Operational – Operational modifications change the VMT suite or PTT device hardware or software capabilities to reflect changing aircraft maintenance training curriculum requirements or proposed continuous improvement initiatives.

5.2.3.2 As part of Supplementary Work, the Contractor must provide technical investigations and engineering support (TIES) for implementing equipment modifications when requested by DND and when authorized via a DND 626 Task Authorization.

5.2.3.3 As part of the TIES activities, the Contractor must provide a cost estimate breakdown for all equipment modifications. Estimates must include the cost of all required parts and consumables as well as the cost of any updates to the MSP, equipment operating instructions, drawings, maintenance manuals and software documentation, as applicable.

5.2.3.4 The Contractor must provide all software, spare parts, components, and consumables required to implement equipment modifications in accordance with section 5.3.2 of this SOW.

5.2.3.5 If approved by the DND TA/LCMM, the Contractor must provide an FSR to implement equipment modifications in accordance with section 5.2.2 of this SOW.

5.2.3.6 Modifications to VMT suites or PTT device components required due to equipment or CFSATE operator safety concerns are the sole responsibility of the Contractor.

5.2.4 **Obsolescence Management Support Implementation**

5.2.4.1 During the period of the contract, DND may elect to address impending obsolescence issues identified in the OMSP by replacing affected VMT suite and PTT device components. Obsolescence management activities can be categorized as follows:

a. Technological – Changes to the VMT suite or PTT device hardware or software required to remain current with industry standards due to rapidly changing technology; and

b. Supportability – Changes to the VMT suite or PTT device hardware or software required due to diminishing manufacturing sources and material shortages.

5.2.4.2 As part of Supplementary Work, the Contractor must provide technical investigations and engineering support (TIES) for carrying out obsolescence management activities when requested by DND and authorized via a DND 626 Task Authorization.

5.2.4.3 As part of the TIES activities, the Contractor must provide a cost estimate breakdown for all equipment replacement required due to obsolescence issues identified in the OMSP. Estimates must include the cost of all required parts and consumables as well as the cost of any updates to the OMSP, equipment operating instructions, drawings, maintenance manuals and software documentation, as applicable.

5.2.4.4 The Contractor must provide all software, spare parts, components, and consumables required to rectify equipment obsolescence concerns in accordance with section 5.3.2 of this SOW.

5.2.4.5 If approved by the DND TA/LCMM, the Contractor must provide an FSR to rectify equipment obsolescence concerns in accordance with section 5.2.2 of this SOW.

5.3 Materiel Parts Support

5.3.1 Repair and Overhaul (R&O) Activities

5.3.1.1 As part of Supplementary Work, the Contractor must carry out the repair, overhaul, or reconditioning of unserviceable parts and components in the following circumstances:

a. Repair, overhaul, or reconditioning required due to corrective maintenance activities.

b. Repair, overhaul, or reconditioning required because of technological or operational modifications; or

c. Repair, overhaul, or reconditioning required due to obsolescence issues in accordance with the OMSP.

5.3.1.2 All parts or components repaired, overhauled, or reconditioned by the Contractor must meet the standards of performance described in the applicable governing specification(s).

All parts or components repaired, overhauled, or reconditioned by the Contractor must be returned to DND with the same part number configuration, unless otherwise specified by the DND TA/LCMM.

5.3.2 Spares Procurement and Logistics

5.3.2.1 As part of supplementary work and when authorized via a DND 626 Task Authorization, the contractor must procure all corrective maintenance spares as follows:

a. Software upgrades, updates, renames, bug fixes or software patches not covered under existing warranty or licences and required to carry out software related corrective maintenance activities.

b. Spare parts, components and consumables not covered under warranty and required to carry out hardware related corrective maintenance activities.

c. Spare parts, components and consumables required to implement technological or operational modifications; or

d. Spare parts, components and consumables required to address obsolescence issues in accordance with the OMSP.

5.3.2.2 All parts procurement will be carried out in accordance with Annex B, Basis of Payment.

5.3.2.3 The Contractor must provide transportation from the Contractor facility to CFSATE and return for all corrective maintenance spares as required.

5.3.2.4 The Contractor must pick-up and deliver all corrective maintenance spares at the designated CFSATE location during normal business hours

5.3.2.5 The Contractor must provide all materials and equipment necessary to ensure that the parts and components are not damaged during transit, dependent on the mode of transportation used.

6.0 ADDITIONAL WORK REQUESTS (AWRS)

6.1.1.1 AWRs will cover exceptional cases of support that were not anticipated as part of the normal day to day support of the VMT suites and PTT devices and as described under Annex B, Basis of Payment.

ANNEX D – BASIS OF PAYMENT

Canadian Advanced Synthetic Environment (CASE) Phase 2
In Service Support (ISS) of Aircraft Maintenance Trainers

ANNEX D – BASIS OF PAYMENT
CASE Phase 2 In-Service Support (ISS)

*(**Bidder proposed pricing input required in the blank table fields**)*

1.0 Definitions

a. Laid Down Cost – the actual cost incurred by the Contractor to acquire a specific product or service for resale to Canada. This includes, but is not limited to, the Contractor invoice cost (less trade discounts) plus any applicable charges for incoming transportation, foreign exchange, customs, duty and brokerage, but excludes applicable taxes.

b. Calendar Year (CY) – period from 01 January to 31 December of the same year.

c. Canada's Fiscal Year (FY) – period from 01 April of one CY to 31 March of the following CY.

d. Hourly Rate – firm hourly rate to be charged for each hour worked and prorated for any period less than an hour

e. Markup – includes applicable purchasing expenses, internal handling, general and administrative expenses (G &A), plus profit.

f. General and Administrative (G & A): Including remuneration of executive and corporate officers, office wages and salaries and expenses such as stationery, office supplies, postage and other necessary administration and management expenses.

1.1 Payment Currency

a. Payment for Work completed by the Contractor will be made in Canadian dollars. All prices and amounts of money are exclusive of applicable taxes, unless otherwise indicated. Applicable Canadian taxes, payable on Work completed by the Contractor, shall be made in Canadian dollars and paid by Canada.

b. For each Basis of Payment line item being billed, the Contractor shall use the Bank of Canada "Daily Currency Converter" and use the conversion rate of any foreign currency to Canadian dollars, to two decimal places, in effect on the first business day in the month in which the Work was completed, and apply that conversion rate to the foreign currency value of all Work completed in that billing period.

c. All Canadian dollar invoices are to contain a separate line item for applicable Canadian taxes, payable on Work completed by the Contractor. The value of the applicable Canadian tax due shall be calculated in accordance with the currency conversion process described in para b above.

2.0 Basis of Payment Tables

2.1 In consideration of the Contractor's satisfactory performance of its obligations under this contract, the Contractor shall be paid Firm Fixed Prices and Firm Labour Rates in each of the following categories and tables, as applicable.

2.2 The winning bid will be bound by the prices and rates quoted, and for the duration as stipulated in the Basis of Payment.

2.3 The bidder proposed pricing in table 1 and 2 shall form the firm fixed amounts paid under the CASE 2 ISS contract.

2.4 The bidder proposed rates under table 3 shall form fixed hourly rates for Supplementary Work and Engineering Support Tasking, as and when required by DND.

2.5 Bidder proposed yearly amounts in table 1 and 2 shall be paid monthly per section 8.8, Invoicing Instructions.

3.0 Table 1 – Transition Work Firm Fixed Pricing (bidder input for Year 1 Required)

Activity	SOW Ref	Year 1	Year 2	Year 3	Year 4	Option Year 1
Kick-Off Meeting	3.2.1	$	N/A	N/A	N/A	N/A
In-Service Support Plan (ISSP)	3.2.2	$	N/A	N/A	N/A	N/A
Maintenance Support Plan (MSP)	3.2.3	$	N/A	N/A	N/A	N/A
Obsolescence Management Support Plan (OMSP)	3.2.4	$	N/A	N/A	N/A	N/A
Spares Forecasting and Costing	3.3.1	$	N/A	N/A	N/A	N/A
Total for Year 1 Transition Work Firm Fixed Pricing:		$	N/A	N/A	N/A	N/A

4.0 Table 2 – Core Work Firm Fixed Pricing (bidder input for Years 1 through 4 required, along with the Option Year)

Activity	SOW Ref	Year 1	Year 2	Year 3	Year 4	Option Year 1
Annual PRM	4.2.1	$	$	$	$	$
Problem Reporting	4.3.1	$	$	$	$	$
Spares Procurement and Logistics	4.4.1	$	$	$	$	$
Repair & Overhaul Activities	4.4.2	$	$	$	$	$
Total:		$	$	$	$	$
Total for Core Work Firm Fixed Pricing, Years 1 through 4, plus Option Yr :						

5.0 Table 3 - Supplementary Work and Engineering Support Tasking and Pricing (bidder input required for entire table)

5.1 For the provision of Supplementary Work and Engineering Support Tasking, unless it is a fixed price task, the Contractor will be reimbursed for their actual labour per table 3, and travel and living expenses in accordance with 5.4 below, which were reasonably and properly incurred in the performance of the work. The Contractor shall be paid at firm hourly rates, and actual material costs plus any mark-ups, as detailed in Table 4. This Supplementary Work and Engineering Support Tasking includes the following Statement of Work reference and Work descriptions:

a. SOW 5.2.1 - Corrective Maintenance;
b. SOW 5.2.2 - Field Service Representative (FSR);
c. SOW 5.2.3 - Equipment Modification Implementation;
d. SOW 5.2.4 - Obsolescence Management Support Implementation;
e. SOW 5.3.1 - Repair and Overhaul Activities; and
f. SOW 5.3.2 - Spares Procurement and Logistics.

5.2 For the purpose of this evaluation, pricing at table 3 will be calculated using an estimated annual level of effort of 40 hours per category.

5.3 The 40 hours of estimated level of effort are for evaluation purposes only. Firm hourly rates entered here however will form the firm hourly rates if authorized and used for Supplementary Work and Engineering Support Tasking Pricing. Bidders are required to input firm hourly rates for years 1 through 4, plus the option year in table 3. This will then form the total for each labour category (firm fixed rate x 40 hours = total value per labour category per year).

5.4 Travel and Living - Under exceptional circumstances, the Contractor may be reimbursed authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit, in accordance with the meal and private vehicle, as provided in Appendices B, C and D of the National Joint Council Travel Directive, and with the other provisions of the directive referring to "travelers", rather than those referring to "employees". All travel shall be authorized in advance and in writing by the DND PA prior to making any travel arrangements. The Contractor shall provide the details of the travel and living expenses with each claim including copies of invoices, and remit copies of original receipts to the PA for reimbursement. All travel and living expenses are subject to Government Audit before or after the claim is paid.

Table 3

Supplementary Work and Engineering Support Labour		**Year 1 Rates and total $**	**Year 2 Rates and total $**	**Year 3 Rates and total $**	**Year 4 Rates and total $**	**Option Year 1 Rates and total $**
Hourly Rate for Supplementary Work and Engineering Support. Contractor shall be paid the hourly rate indicated for each category	Firm Hourly Rate – Program Manager x 40 hours	$	$	$	$	$
	Firm Hourly Rate – Senior Engineer x 40 hours	$	$	$	$	$
	Firm Hourly Rate – Junior Engineer x 40 hours	$	$	$	$	$
	Firm Hourly Rate – Senior Maintenance Technician x 40 hours	$	$	$	$	$

	Firm Hourly Rate – Junior Maintenance Technician x 40 hours	$	$	$	$	$
	Firm Hourly Rate - Logistician x 40 hours	$	$	$	$	$
	Firm Hourly Rate - Other x 40 hours	$	$	$	$	$
	Yearly Totals:					
Total for Supplementary Work and Engineering Support Labour, Years 1 through 4, plus Option Year :						

6.0 Table 4 - Supplementary Work and Engineering Support Mark Ups

6.1 For the purpose of this evaluation, table 4 cost will be calculated using an estimated material markup value. Estimated material value per year, for calculation purposes only, is $100,000.00 CAD.

6.2 The $100,000.00 of parts cost are for evaluation purposes only. Markup rates entered here however will form the firm markup rates in the resulting contract, if used for Supplementary Work and Engineering Support Markups.

Table 4

Supplementary Work and Engineering Support Mark Ups		**Year 1 Mark Up**	**Year 2 Mark Up**	**Year 3 Mark Up**	**Year 4 Mark Up**	**Option Year 1 Mark Up**
The Contractor shall be paid the actual Laid Down Costs plus the firm markup indicated. Pre-negotiated parts via spare parts list excluded.	Parts Mark-up Rate (%)	%	%	%	%	%
	Parts Cost $	$100,000.00	$100,000.00	$100,000.00	$100,000.00	$100,000.00
	Rate % x Parts Cost (Total $)					
Total for Supplementary Work and Engineering Support Markups, Years 1 through 4, plus Option Year:						

7.0 Evaluation calculation

For financial evaluation purposes, the grand total evaluated for Annex D will be the total amount of **Table 1 + Table 2 + Table 3 + Table 4 = Total Evaluated Price:** $_____.

Appendix 10 – In Service Support (ISS) CDRL's & DID's

Canadian Advanced Synthetic Environment (CASE) Phase 2
In Service Support (ISS) of Aircraft Maintenance Trainers

1.0 CONTRACT DATA REQUIREMENTS LIST (CDRL)

1.1 CDRL Template

A description of each block of information used in the CDRL template follows:

Block 1 – CDRL Item Number - The CDRL Item Number is a sequential three-digit number commencing with 001 to identify the individual Data Item (DI).

Block 2 – Title - The title of the DI.

Block 3 – Subtitle - Not used.

Block 4 – Data Item Number - If applicable, the Data Item Description (DID) number associated with the CDRL.

Block 5 – SOW Reference - The Statement of Work (SOW) paragraph that references the CDRL.

Block 6 – Technical Office - Not used.

Block 7 – Inspection - Not Used.

Block 8 – Approval Code - The following codes may be used

a. An "A" in Block 8 means that draft approval is required before submission of the final document. If advance approval is not needed, Block 8 is left blank.
b. An "R" in Block 8 means that the DI will be reviewed by Canada for acceptability of format, clarity and completeness. Once accepted, the DI must be considered for information only; and
c. An "I" in Block 8 means that the DI is for information only.

Block 9 – Review Period - Denotes the number of working days that are required for the TA to approve or review the DI.

Block 10 – Frequency - Indicates the submission frequency of the DI. A description of the submission codes used in Block 10 follows:

CODE	DESCRIPTION
ANNLY	Annually
ASREQ	As and when required
MACA	Months after contract award
MNTHY	Monthly

ONCE	One-time delivery
R/ASR	Revisions as required

Block 11 – As of Date - Not used.

Block 12 – 1st Submission - Specifies the date on which the DI must be submitted.

Block 13 – Subsequent Submission - Specifies the required submittal date(s) for any subsequent deliveries if the DI is submitted more than once.

Block 14 – Distribution and Addressees - Not used.

Block 15 – Media and Quantity - The media and, in the case of hard copy, the number of copies in which the data item is to be delivered. The following codes may be used:

a. Hard Copy;
b. E-mail;
c. CD ROM

Block 16 – Remarks - Provides additional or clarifying information. Where other blocks refer to Block 16 – Remarks, then the associated block number is indicated with the information, and a "See Block 16" note is entered in the referring block.

1.2 CDRL-001 In-Service Support Plan (ISSP)

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-001</td><td colspan="3">Block 2 – Title

In-Service Support Plan (ISSP)</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

TW-001</td></tr>
<tr><td>Block 5 – SOW Reference

Part 2
3.2.2</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td>Block 8 – Approval Code

A</td><td colspan="2">Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="4">Block 15 – Media and Quantity

An electronic Copy must be included with Contractor’s Proposal, either on CD/DVD or via an electronic transfer medium deemed acceptable by the TA. The ISSP must be submitted in Microsoft Word format to the TA. No paper copy is required for the ISSP.</td></tr>
<tr><td colspan="7">Block 16 – Remarks
First Submission: Draft ISSP must be submitted with the Contractor’s Proposal
Subsequent Submission: The ISSP must be updated as required for major changes and as requested by DND</td></tr>
</table>

1.3 CDRL-002 Maintenance Support Plan (MSP)

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-002</td><td colspan="2">Block 2 – Title

Maintenance Support Plan (MSP)</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

TW-002</td></tr>
<tr><td>Block 5 – SOW Reference

Part 2
3.2.3</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td>Block 8 – Approval Code

A</td><td colspan="2">Block 9 – Review Period

Block 16</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

Delivered MSP must include a hard copy and an electronic copy using CD, DVD, USB key or any other file type acceptable to the TA.</td></tr>
<tr><td colspan="6">Block 16 – Remarks

Draft Submission: A draft MSP must be submitted with the Contractor’s proposal and be based on the Contractor’s proposed equipment solution.
Finalized Submission: Finalized MSP must be submitted 10 business days prior to the Critical Design Review (CDR) meeting and must include any equipment upgrades (if applicable) requested by DND.
Subsequent Submission: Yearly updates required as part of the annual Progress Review Meeting (PRM)</td></tr>
</table>

1.4 CDRL-003 Obsolescence Management Support Plan (OMSP)

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-003</td><td colspan="2">Block 2 – Title

Obsolescence Management Support Plan (OMSP) Report</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

TW-003</td></tr>
<tr><td>Block 5 – SOW Reference

Part 2
3.2.4</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

A</td><td>Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

ANNLY</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

12 MACA</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

Delivered OMSP report must include a hard copy and an electronic copy using CD, DVD, USB key or any other file type acceptable to the TA</td></tr>
<tr><td colspan="6">Block 16 – Remarks
First Submission: Initial OMSP report due 12 MACA or 30 days prior to the initial annual Progress Review Meeting (PRM), whichever comes first.
Subsequent Submission: Updates required as part of the annual PRM.</td></tr>
</table>

1.5 CDRL-004 Spares Forecast and Costing

<table>
<tr><td>Block 1 – CDRL Item Number

CDRL-004</td><td colspan="2">Block 2 – Title

Spares Forecast and Costing Report</td><td>Block 3 – Subtitle</td><td colspan="2">Block 4 – Data Item Number

TW-004</td></tr>
<tr><td>Block 5 – SOW Reference

Part 2
3.3.1</td><td>Block 6 – Technical Office</td><td>Block 7 – Inspection</td><td colspan="2">Block 8 – Approval Code

A</td><td>Block 9 – Review Period

30</td></tr>
<tr><td>Block 10 – Frequency

R/ASR</td><td>Block 11 – As Of Date</td><td colspan="2">Block 12 – First Submission

Block 16</td><td colspan="2">Block 13 – Subsequent Submission

Block 16</td></tr>
<tr><td colspan="3">Block 14 – Distribution and Addressees</td><td colspan="3">Block 15 – Media and Quantity

Delivered Spares Forecast and Costing report must include a hard copy and an electronic copy using CD, DVD, USB key or any other file type acceptable to the TA</td></tr>
<tr><td colspan="6">Block 16 – Remarks
First Submission: Draft Spares Forecast and Costing Report must be submitted with the Contractor’s proposal and be based on the Contractor’s proposed equipment solution.
Finalized Submission: Finalized Spares Forecast and Costing Report must be submitted 10 business days prior to the Critical Design Review (CDR) meeting and must include any equipment upgrades (if applicable) requested by DND.
Subsequent Submission: Yearly updates required as part of the annual Progress Review Meeting (PRM). Annual updates must include detailed cost estimates of spare parts, components, consumables and software required to carry out maintenance actions in the upcoming year as per the MSP.</td></tr>
</table>

2.0 DATA ITEM DESCRIPTIONS (DID)

2.1 DID Template

A description of each block of information used in the DID template follows:

Block 1 – Title - This is the title of the DID and corresponds to the associated CDRL.

Block 2 – Identification Number - This is the number assigned to the DID.

Block 3 – Description/Purpose - This provides general information on how the Data Item (DI) is to be used.

Block 4 – Approval Date - Not used.

Block 5 – Office of Primary Interest - Not used.

Block 6 – Office of Collateral Interest - Not used.

Block 7 – Interrelationship - The Statement of Work paragraph that references the DID.

Block 8 – Originator - Not used.

Block 9 – References - This points to the standard(s) to be used for completion of DI.

Block 10 – Preparation Instructions - This provides the preparation details for the format and for the content in the DID.

2.2 TW-001 In-Service Support Plan (ISSP)

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE In-Service Support Plan (ISSP)		2. IDENTIFICATION NUMBER CDRL-001/TW-001
3. DESCRIPTION The ISSP describes the processes, methods and designs used by the contractor to perform all requirements of the SOW.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. APPLICATION / INTERRELATIONSHIP SOW Part 2 Para 3.2.2		
8. ORIGINATOR	9. REFERENCES	

10. PREPARATION INSTRUCTIONS

10.1 The ISSP must be in Contractor format. The ISSP must contain the following information:

10.1.1 Introduction: defines the scope and purpose of the plan, together with applicable definitions, references, and related documents.

10.1.2 ISS Plan: this section must detail the Contractor plan to provide the following.

10.1.2.1 Technical Support (SOW 4.3, SOW 5.2) – details on how the Contractor will provide a means of reporting issues encountered during the day to day use of the equipment as well as how the Contractor will provide maintenance support, including provision of an FSR, when requested by DND for software issues, hardware issues, or assistance with equipment modifications and obsolescence issues.

10.1.2.2 Procurement and Logistics (SOW 4.4, SOW 5.3) – details on how the Contractor will provide the software, spare parts, components, and consumables required by CFSATE to carry out any preventive maintenance requirements identified in the MSP. This section will also details the plans for providing costing estimates as required and transportation of the required materials from the Contractor facility to CFSATE.

10.1.2.3 Repair and Overhaul (R&O) Activities (SOW 4.4.2, SOW 5.3) – details on how the Contractor will provide R&O capability to DND for all spare parts and components due to preventive or corrective maintenance as well as modification or obsolescence issues.

2.3 TW-002 Maintenance Support Plan (MSP)

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Maintenance Support Plan (MSP)		2. IDENTIFICATION NUMBER CDRL-002/TW-002
3. DESCRIPTION/PURPOSE The Maintenance Support Plan (MSP) must provide details of the VMT Suite and PTT Device known preventive and estimated corrective maintenance.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW Part 2 Para 3.2.3		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

The MSP must be in Contractor format. The MSP must provide details of VMT Suite and PTT Device known preventive and estimated corrective maintenance required and must include.

10.1 Introduction: Defines the scope and purpose of the plan, together with applicable definitions, references, and related documents.

10.2 Plan: This section must detail the following.

10.2.1 Preventive Maintenance

The MSP must identify all preventive maintenance activities required to support the PTTs and VMTs over the duration of the contract and identify the following.

10.2.1.1 All software, spare parts, and components requiring routine preventive maintenance actions.

10.2.1.2 Type and frequency of routine preventive maintenance action(s) required; and

10.2.1.3 Estimated level of effort (LoE), in person hours, required to carry out each preventive maintenance action.

10.2.2 Corrective Maintenance

The MSP must include an estimate of the corrective maintenance required over the duration of the contract based on the anticipated equipment usage detailed in Table 2 of the ISS SOW and the equipment Mean Time Between Failure (MTBF) data.

2.4 TW-003 Obsolescence Management Support Plan (OMSP)

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Obsolescence Management Support Plan Report (OMSP)		2. IDENTIFICATION NUMBER CDRL-003/TW-003
3. DESCRIPTION/PURPOSE The Contractors Obsolescence Management Support Plan (OMSP) report must identify components in the VMT suites and PTT devices that, if they become unavailable, would make the equipment difficult or impossible to maintain.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST DND TA	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW Part 2 Para 3.2.4		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

10.1 The OMSP report must be in Contractor format and contain the following information:

10.1.1 Introduction: defines the scope and purpose of the plan, together with applicable definitions, references and related documents.

10.1.2 Management: this section must explain the obsolescence management support plan to deliver all required deliverables.

10.1.3 Plan: This section must detail the critical components in the VMT suites and PTT devices that, if they become unavailable, would make the equipment difficult or impossible to maintain. The components must be categorized as follows.

10.1.3.1 Immediate - Items unavailable within 24 months;

10.1.3.2 Near term - Items unavailable within 24-60 months; and

10.1.3.3 Far Term - Items unavailable greater than 60 months.

10.1.4 Recommendations: This section must detail the corrective maintenance actions required to resolve the applicable obsolescence issues, including estimated cost and level of effort (LoE) in person hours.

2.5 TW-004 Spares Forecasting and Costing

DATA ITEM DESCRIPTION (DID)		DND Form 1409
1. TITLE Spares Forecast and Costing		2. IDENTIFICATION NUMBER CDRL-004/TW-004
3. DESCRIPTION/PURPOSE The Contractor Spares Forecast and Costing report must include all software, spare parts, components and consumables required to maintain the VMT suites and PTT devices for the duration of the contract.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST DND TA	6. OFFICE OF COLLATERAL INTEREST
7. INTERRELATIONSHIP SOW Part 2 Para 3.3.2		
8. ORIGINATOR		9. REFERENCES

10. PREPARATION INSTRUCTIONS

10.1 The Spares Forecasting and Spares report must be in Contractor format and contain the following information based on the Contractor MSP:

10.1.1 Preventive Maintenance Spares

10.1.1.1 Number and types of spare parts, components, consumeables and software required to carry out routine preventive maintenance actions as per the MSP; and

10.1.1.1 Detailed cost of all spare parts, components, consumeables and software required to carry out routine preventive maintenance actions as per the MSP.

10.1.2 Corrective Maintenance Spares

10.1.2.1 Number and types of spare parts, components, consumeables and software to carry out the estimated corrective maintenance actions as per the MSP.

10.1.2.2 Detailed cost of all spare parts, components, consumeables and software required to carry out estimated corrective maintenance actions as per the MSP

Annex E – Security Requirements Check List (SRCL)

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
VMT and PTT

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
W8475-16VMT2
Security Classification / Classification de sécurité
UNCLASS

SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organizati Ministère ou organisme gouvernemental d'origine: DND	2. Branch or Directorate / Direction générale ou Direction: ADM(Mat)
3. a) Subcontract Number / Numéro du contrat de sous-traitance	3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant

4. Brief Description of Work / Brève description du travail

The objective of the CASE Phase 2 project is to develop, deliver and install Virtual Maintenance Trainers and Part Task Trainers that will be used to teach and assess theory and maintenance of aircraft systems to the Canadian Forces School of Aerospace Technology and Engineering (CFSATE) at 16 Wing, Borden, Ontario.

	No / Non	Yes / Oui
5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?	✓	
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?	✓	
6. Indicate the type of access required / Indiquer le type d'accès requis		
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)	✓	
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.		✓
6. c) Is this a commercial courier or delivery requirement with **no** overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale **sans** entreposage de nuit?	✓	

7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès

Canada	NATO / OTAN	Foreign / Étranger
7. b) Release restrictions / Restrictions relatives à la diffusion		
No release restrictions Aucune restriction relative à la diffusion	All NATO countries Tous les pays de l'OTAN	No release restrictions Aucune restriction relative à la diffusion
Not releasable À ne pas diffuser		
Restricted to: / Limité à :	Restricted to: / Limité à :	Restricted to: / Limité à :
Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :

7. c) Level of information / Niveau d'information

PROTECTED A PROTÉGÉ A	NATO UNCLASSIFIED NATO NON CLASSIFIÉ	PROTECTED A PROTÉGÉ A
PROTECTED B PROTÉGÉ B	NATO RESTRICTED NATO DIFFUSION RESTREINTE	PROTECTED B PROTÉGÉ B
PROTECTED C PROTÉGÉ C	NATO CONFIDENTIAL NATO CONFIDENTIEL	PROTECTED C PROTÉGÉ C
CONFIDENTIAL CONFIDENTIEL	NATO SECRET NATO SECRET	CONFIDENTIAL CONFIDENTIEL
SECRET SECRET	COSMIC TOP SECRET COSMIC TRÈS SECRET	SECRET SECRET
TOP SECRET TRÈS SECRET		TOP SECRET TRÈS SECRET
TOP SECRET (SIGINT) TRÈS SECRET (SIGINT)		TOP SECRET (SIGINT) TRÈS SECRET (SIGINT)

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PART A *(continued)* / PARTIE A *(suite)*

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets? ✓ No / Non ☐ Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?
If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets? ✓ No / Non ☐ Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

✓ RELIABILITY STATUS / COTE DE FIABILITÉ	☐ CONFIDENTIAL / CONFIDENTIEL	☐ SECRET / SECRET	☐ TOP SECRET / TRÈS SECRET
☐ TOP SECRET– SIGINT / TRÈS SECRET – SIGINT	☐ NATO CONFIDENTIAL / NATO CONFIDENTIEL	☐ NATO SECRET / NATO SECRET	☐ COSMIC TOP SECRET / COSMIC TRÈS SECRET
☐ SITE ACCESS / ACCÈS AUX EMPLACEMENTS			

Special comments:
Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.
REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work? ON DND PREMISES, UNSCREENED PERSONNEL MAY ONLY ACCESS PUBLIC/RECEPTION ZONES ☐ No / Non ✓ Yes / Oui
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?
If Yes, will unscreened personnel be escorted? ✓ No / Non ☐ Yes / Oui
Dans l'affirmative, le personnel en question sera-t-il escorté?

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises? ✓ No / Non ☐ Yes / Oui
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?

11. b) Will the supplier be required to safeguard COMSEC information or assets? ✓ No / Non ☐ Yes / Oui
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC?

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises? ✓ No / Non ☐ Yes / Oui
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data? ✓ No / Non ☐ Yes / Oui
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS?

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency? ✓ No / Non ☐ Yes / Oui
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale?

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PART C - *(continued)* / PARTIE C - *(suite)*

For users completing the form **manually** use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.
Les utilisateurs qui remplissent le formulaire **manuellement** doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form **online** (via the Internet), the summary chart is automatically populated by your responses to previous questions.
Dans le cas des utilisateurs qui remplissent le formulaire **en ligne** (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

Category Catégorie	PROTECTED PROTÉGÉ			CLASSIFIED CLASSIFIÉ			NATO				COMSEC					
	A	B	C	CONFIDENTIAL CONFIDENTIEL	SECRET	TOP SECRET TRÈS SECRET	NATO RESTRICTED NATO DIFFUSION RESTREINTE	NATO CONFIDENTIAL NATO CONFIDENTIEL	NATO SECRET	COSMIC TOP SECRET COSMIC TRÈS SECRET	PROTECTED PROTÉGÉ A	PROTECTED PROTÉGÉ B	PROTECTED PROTÉGÉ C	CONFIDENTIAL CONFIDENTIEL	SECRET	TOP SECRET TRES SECRET
Information / Assets Renseignements / Biens							✓									
Production																
IT Media / Support TI																
IT Link / Lien électronique																

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?
La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE?

✓ No / Non ☐ Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".
Dans l'affirmative, classifier le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?
La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE?

✓ No / Non ☐ Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).
Dans l'affirmative, classifier le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquer qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).

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PART D - AUTHORIZATION / PARTIE D - AUTORISATION

13. Organization Project Authority / Chargé de projet de l'organisme

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
Capt Robert Wengel	Project Manager	

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
819-939-4430	819-939-4656	robert.wengel@forces.gc.ca	

14. Organization Security Authority / Responsable de la sécurité de l'organisme

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
DAWN MURRAY	SRCL/VCR TEAM LEADER	

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
6193-996-0274		DAWN.MURRAY@FORCES.GC.CA	14 SEPTEMBER 2020

15. Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached?
Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes?

✓ No / Non — Yes / Oui

16. Procurement Officer / Agent d'approvisionnement

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
Mr Tim Blahey	Procurement Officer	

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date

17. Contracting Security Authority / Autorité contractante en matière de sécurité

N[redacted]	[redacted]	Signature
[redacted]	[redacted]	

T[redacted]	E-mail address - Adresse courriel	Date
cynthia.laverdure@pwgsc.gc.ca		

ANNEX F to Part 5 of the Bid Solicitation

Federal Contractors Program for Employment Equity – Certification

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
VMT and PTT

ANNEX F to PART 5 OF THE BID SOLICITATION

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC) – Labour's website.

Date :_____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

( ) A1. The Bidder certifies having no work force in Canada.

( ) A2. The Bidder certifies being a public sector employer.

( ) A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.

( ) A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

( ) A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

( ) A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

( ) B1. The Bidder is not a Joint Venture.

OR

( ) B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions

Annex G to Part 3 of the Bid Solicitation

Electronic Payment Instrument

Canadian Advanced Synthetic Environment (CASE) Phase 2
Acquisition of Aircraft Maintenance Trainers
VMT and PTT

ANNEX G to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts to be paid by any of the following Electronic Payment Instrument(s):

( ) a. Direct Deposit (Domestic and International);

( ) b. Electronic Data Interchange (EDI);

( ) c. Wire Transfer (International Only);

Annex H

DND 626 -Task Authorization

Canadian Advanced Synthetic Environment (CASE) Phase 2

National Defence / Défense nationale

TASK AUTHORIZATION
AUTORISATION DES TÂCHES

All invoices/progress claims must show the reference Contract and Task numbers.
Toutes les factures doivent indiquer les numéros du contrat et de la tâche.

Contract no. – N° du contrat

Task no. – N° de la tâche

Amendment no. – N° de la modification	Increase/Decrease – Augmentation/Réduction	Previous value – Valeur précédente

To – À

Delivery location – Expédiez à

Delivery/Completion date – Date de livraison/d'achèvement

TO THE CONTRACTOR

You are requested to supply the following services in accordance with the terms of the above reference contract. Only services included in the contract shall be supplied against this task.

Please advise the undersigned if the completion date cannot be met. Invoices/progress claims shall be prepared in accordance with the instructions set out in the contract.

À L'ENTREPRENEUR

Vous êtes prié de fournir les services suivants en conformité des termes du contrat mentionné ci-dessus. Seuls les services mentionnés dans le contrat doivent être fournis à l'appui de cette demande.

Prière d'aviser le signataire si la livraison ne peut se faire dans les délais prescrits. Les factures doivent être établies selon les instructions énoncées dans le contrat.

Date

for the Department of National Defence
pour le ministère de la Défense nationale

Contract item no. Nº d'article du contrat	Services	Cost Prix
	GST/HST TPS/TVH	
	Total	

APPLICABLE ONLY TO PWGSC CONTRACTS: The Contract Authority signature is required when the total value of the DND 626 exceeds the threshold specified in the contract.

NE S'APPLIQUE QU'AUX CONTRATS DE TPSGC : La signature de l'autorité contractante est requise lorsque la valeur totale du formulaire DND 626 est supérieure au seuil précisé dans le contrat.

for the Department of Public Works and Government Services
pour le ministère des Travaux publics et services gouvernementaux

Design: Forms Management 993-4050
Conception : Gestion des formulaires 993-4062

Instructions for completing DND 626 - Task Authorization

Contract no.
Enter the PWGSC contract number in full.

Task no.
Enter the sequential Task number.

Amendment no.
Enter the amendment number.when the original Task is amended to change the scope or the value.

Increase/Decrease
Enter the increase or decrease total dollar amount including taxes.

Previous value
Enter the previous total dollar amount including taxes.

To
Name of the contractor.

Delivery location
Location where the work will be completed, if other than the contractor's location.

Delivery/Completion date
Completion date for the task.

for the Department of National Defence
Signature of the DND person who has delegated **Authority** for signing DND 626 (level of authority based on the dollar value of the task and the equivalent signing authority in the PAM 1.4). **Note:** the person signing in this block ensures that the work is within the scope of the contract, that sufficient funds remain in the contract to cover this task and that the task is affordable within the Project/Unit budget.

Services
Define the requirement briefly (attach the SOW) and identify the cost of the task using the contractor's quote on the level of effort. The Task must use the basis of payment stipulated in the contract. If there are several basis of payment then list here the one(s) that will apply to the task quote (e.g. milestone payments; per diem rates/labour category hourly rates; travel and living rates; firm price/ceiling price, etc.). All the terms and conditions of the contract apply to this Task Authorization and cannot be ignored or amended for this task. Therefore it is not necessary to restate these general contract terms and conditions on the DND 626 Task form.

Cost
The cost of the Task broken out into the individual costed items in **Services**.

GST/HST
The GST/HST cost as appropriate.

Total
The total cost of the task. The contractor may not exceed this amount without the approval of DND indicated on an amended DND 626. The amendment value may not exceed 50% (or the percentage for amendments established in the contract) of the original value of the task authorization. The total cost of a DND 626, including all amendments, may not exceed the funding limit identified in the contract.

Applicable only to PWGSC contracts
This block only applies to those Task Authorization contracts awarded by PWGSC. The contract will include a specified threshold for DND sole approval of the DND 626 and a percentage for DND to approve amendments to the original DND 626. Tasks that will exceed these thresholds must be passed to the PWGSC Contracting Authority for review and signature prior to authorizing the contractor to begin work.

Note:
Work on the task may not commence prior to the date this form is signed by the DA Authority - for tasks within the DND threshold; and by both DND and PWGSC for those tasks over the DND threshold.

Instructions pour compléter le formulaire DND 626 - Autorisation des tâches

Nº du contrat
Inscrivez le numéro du contrat de TPSGC en entier.

Nº de la tâche
Inscrivez le numéro de tâche séquentiel.

Nº de la modification
Inscrivez le numéro de modification lorsque la tâche originale est modifiée pour en changer la portée.

Augmentation/Réduction
Inscrivez le montant total de l'augmentation ou de la diminution, y compris les taxes.

Valeur précédente
Inscrivez le montant total précédent, y compris les taxes.

À
Nom de l'entrepreneur.

Expédiez à
Endroit où le travail sera effectué, si celui-ci diffère du lieu d'affaires de l'entrepreneur.

Date de livraison/d'achèvement
Date d'achèvement de la tâche.

pour le ministère de la Défense nationale
Signature du représentant du MDN auquel on a délégué le **pouvoir d'approbation** en ce qui a trait à la signature du formulaire DND 626 (niveau d'autorité basé sur la valeur de la tâche et le signataire autorisé équivalent mentionné dans le MAA 1.4). **Nota :** la personne qui signe cette attache de signature confirme que les travaux respectent la portée du contrat, que suffisamment de fonds sont prévus au contrat pour couvrir cette tâche et que le budget alloué à l'unité ou pour le projet le permet.

Services
Définissez brièvement le besoin (joignez l'ET) et établissez le coût de la tâche à l'aide de la soumission de l'entrepreneur selon le niveau de difficulté de celle-ci. Les modalités de paiement stipulées dans le contrat s'appliquent à la tâche. Si plusieurs d'entre elles sont prévues, énumérez ici celle/celles qui s'appliquera/ront à la soumission pour la tâche à accomplir (p.ex. acompte fondé sur les étapes franchies; taux quotidien ou taux horaire établi selon la catégorie de main-d'œuvre; frais de déplacement et de séjour; prix fixe ou prix plafond; etc.). Toutes les modalités du contrat s'appliquent à cette autorisation de tâche et ne peuvent être négligées ou modifiées quant à la tâche en question. Il n'est donc pas nécessaire de répéter ces modalités générales afférentes au contrat sur le formulaire DND 626.

Prix
Mentionnez le coût de la tâche en le répartissant selon les frais afférents à chaque item mentionné dans la rubrique **Services**.

TPS/TVH
Mentionnez le montant de la TPS/TVH, s'il y lieu.

Total
Mentionnez le coût total de la tâche. L'entrepreneur ne peut dépasser ce montant sans l'approbation du MDN, formulaire DND 626 modifié à l'appui. Le coût de la modification ne peut pas être supérieur à 50 p. 100 du montant initial prévu dans l'autorisation de tâche (ou au pourcentage prévu dans le contrat pour les modifications). Le coût total spécifié dans le formulaire DND 626, y compris toutes les modifications, ne peut dépasser le plafond de financement mentionné dans le contrat.

Ne s'applique qu'aux contrats de TPSGC
Le présent paragraphe s'applique uniquement aux autorisations de tâche accordées par TPSGC. On inscrira dans le formulaire DND 626 un plafond précis qui ne pourra être approuvé que par le MDN et un pourcentage selon lequel le MDN pourra approuver des modifications au formulaire DND 626 original. Les tâches dont le coût dépasse ces plafonds doivent être soumises à l'autorité contractante de TPSGC pour examen et signature avant qu'on autorise l'entrepreneur à débuter les travaux.

Nota :
Les travaux ne peuvent commencer avant la date de signature de ce formulaire par le responsable du MDN, pour les tâches dont le coût est inférieur au plafond établi par le MDN, et par le MDN et TPSGC pour les tâches dont le coût dépasse le plafond établi par le MDN.