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

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid Receiving - PWGSC
1550, Avenue d'Estimauville
1550, D'Estimauville Avenue
Québec
Québec
G1J 0C7

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

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

Issuing Office - Bureau de distribution
TPSGC/PWGSC
601-1550, Avenue d'Estimauville
Québec
Québec
G1J 0C7

Title - Sujet Replacement of bearings	
Solicitation No. - N° de l'invitation F3012-15N180/A	**Amendment No. - N° modif.** 003
Client Reference No. - N° de référence du client F3012-15N180	**Date** 2015-11-24
GETS Reference No. - N° de référence de SEAG PW-$QCL-036-16599	
File No. - N° de dossier QCL-5-38216 (036)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2015-12-08**	**Time Zone** **Fuseau horaire** Heure Normale du l'Est HNE
F.O.B. - F.A.B. Specified Herein - Précisé dans les présentes **Plant-Usine:** ☐ **Destination:** ☐ **Other-Autre:** ☑	
Address Enquiries to: - Adresser toutes questions à: Gagnon, Mathieu	**Buyer Id - Id de l'acheteur** qcl036
Telephone No. - N° de téléphone (418) 649-2883 ( )	**FAX No. - N° de FAX** (418) 648-2209
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:**	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
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**	

Canada

Please amend the above mentioned bidding solicitation with the changes below:

Item 1

Question 1 – Complete spare kit :
Please define complete spare kit.

Answer 1 :
The required spare part is a inner bearing # 01EB700EX.

Item 2

Question 2 – Dock and sea trials duration :
In item 1.4 of the t*echnical specification, the French version mentions that the trial period is 8 hours and the English version* mentions one day. Which one should be use? Does that includes sea trials?

Answer 2 :
The required time to be considered for the trials is 8 hours. This includes dock trials and sea trials.

Item 3

Question 3 – Vibration analysis :
In item 1.5 of the technical specification, is it relevant to perform vibration analysis (before and after) by two different entities?

Answer 3 :
The vibration analysis requirement is removed from the specification and the Invitation to Tender. Howevere CCG will take action to perfomed the vibration analysis before commencement of work and during sea trials.

Item 4

Question 4 – Alternators weight :
What is the weight of the alternators?

Answer 4 :
The Contractor shall design, fabricate and install a temporary structure for supporting the rotor of 13,000 lbs., allowing removal of the existing bearing and installation / alignment of the new Cooper bearing.

Item 5

Question 5 – Air gap :
What is the required air gaps?

Answer 5 :
Before removal the air gaps to be recorded, and follow installations instruction to balance air gap.

Also see the attached, pictures, guidance documents and drawings.

Item 6 – Additional Documents :

Also see the attached, minutes from the Bidder's Conference as well as pictures, guidance documents and drawings.

All other clauses and conditions from the bidding solicitation remain the same.

NGCC MARTHA L. BLACK – REMPLACEMENT DES PALIERS /
CCGS MARTHA L. BLACK – BEARING REPLACEMENT

F3012-15N180/A

CONFÉRENCE DE SOUMISSIONNAIRES / BIDDERS' CONFERENCE

PROCÈS VERBAL / MINUTES OF MEETING

La conférence de soumissionnaires est tenue à bord du navire à 09h30, le 23 novembre 2015. /

The bidders' conference is held on board the vessel at 09:30 am, November 23rd, 2015.

A) MOT DE BIENVENUE / WELCOMING MESSAGE:

Le président s'est présenté et a souhaité la bienvenue à tous les participants et remercier les soumissionnaires présents pour leur intérêt pour le présent projet. /
The Chairperson introduced himself and welcomed all attendees and thanked the bidders in attendance for their interest in this project.

B) INTRODUCTION:

Le président a expliqué que le but de la présente réunion était de passer en revue le document d'Appel d'offres portant le numéro F3012-15N180/A et le devis technique afin d'éclaircir tout point qui pourrait être obscur pour les soumissionnaires présents. /
The Chairperson explained that this meeting was aimed at reviewing the Invitation to Tender document bearing serial number F3012-15N180/A in order to clarify any points brought up by any participant.

C) PRÉSENCES / PERSONS IN ATTENDANCE

Le président à indiqué qu'il agirait à titre d'autorité contractuelle pour le projet. Il a demandé aux participants de se présenter à tour de rôle. /
The Chairperson stated that he will be acting as the Contracting Authority during the project. He asked the attendees to introduce themselves.

Participants:
Attendees:

Nom/Name	Occupation/Rank	Cie.ou min./Co. or Dept
Mark Hall	Project Manager / Chargé de projet	CME
Vladimir Pozdneacov	Contremaître mécanique Mechanical Foreman	NAVAMAR
Alain Thériault	Project Manager / Chargé de projet	NAVAMAR
Doris Chevrier	Project Manager / Chargé de projet	RNIO
Eric Lapointe	Chef Ingénieur – NGCC Martha L. Black / Chief Engineer – CCGS Martha L. Black	GCC-MPO / DFO-GCC
Richard Bourdeau	Gestionnaire d'entretien des navires / Vessel's Maintenance Manager	GCC-MPO / DFO-GCC
Mathieu Gagnon	Chef aux approvisionnements (marine) / Supply Chief (marine)	TPSGC / PWGSC

D) RÉVISION DES DOCUMENTS DE SOUMISSION / BID PACKAGE REVIEW

1) DOCUMENT D'APPEL D'OFFRES / INVITATION FOR TENDER

- PARTIE 1 RENSEIGNEMENTS GÉNÉRAUX
  PART 1 GENERAL INFORMATION

- Le contrat sera d'effectuer les travaux de remplacement des paliers d'alternateurs du navire de la Garde côtière canadienne (NGCC) Martha L. Black conformément aux spécifications techniques. /
  The contract will be to perform the replacement of the alternators bearings on the Canadian Coast Guard ship (CCGS) Martha L. Black in accordance with the technical specifications.

- PARTIE 2 INSTRUCTIONS À L'INTENTION DES SOUMISSIONNAIRES
  PART 2 BIDDER INSTRUCTIONS

- (2.7) Période des travaux : Début des travaux : La date de début des travaux ne devrait pas changée.
  (2.7) Work period: Commencement: The beginning date of work should not change.

- PARTIE 3 INSTRUCTION POUR LA PRÉPARATION DES SOUMISSIONS
  PART 3 BID PREPARATION INSTRUCTIONS

- Sans commentaire /
  No comment

- PARTIE 4 PROCÉDURES D'ÉVALUATION ET MÉTHODE DE SÉLECTION
  PART 4 EVALUATION PROCEDURES AND BASIS OF SELECTION

- Énumération de la liste des exigences obligatoires à rencontrer à la fermeture des soumissions (Tableau 4.1.3). /
  Enumerating of the list of mandatory documents to meet the tender closing (Table 4.1.3) requirements.

- TPSGC fait un rappel à l'égard des éléments de l'article 4.1.5 qui devront être fournis rapidement après l'octroi du contrat. /
  PWGSC recall the elements of section 4.1.5 to be provided soon after the contract award.

- PARTIE 5 ATTESTATIONS
  PART 5 CERTIFICATIONS

- En déposant une soumission les soumissionnaires confirment rencontrer les attestations requises.
  By submitting a bid, the Bidders confirm to meet the required certifications.

- PARTIE 6 EXIGENCES RELATIVES À LA SÉCURITÉ, EXIGENCES FINANCIÈRES ET AUTRES EXIGENCES
  PART 6 SECURITY, FINANCIAL AND OTHER REQUIREMENTS

- Sans commentaire /
  No comment

- PARTIE 7 CLAUSES DU CONTRAT SUBSÉQUENT
  PART 7 RESULTING CONTRACT CLAUSES

- (2.2) Il est prévu que le navire soit armé pour la durée des travaux. /
  (2.2) It is expected that the ship will be armed for the duration of work.

- (5) Responsables */ Authority :*
  - Autorité contractante / *Contracting Authority : Mathieu Gagnon*
  - Autorité technique / *Technical Authority* : GCC / *CCG*
  - Un chargé de projet de la GCC sera aussi nommé après l'octroi du contrat /
    A project manager from CCG will also be named after the award of the contract.
  - Responsable de l'inspection */ Inspection Authority* : GCC / *CCG*

- (6.2) Les modalités de paiement ont été changées pour des Paiements multiples au sein de la modification no.001 de l'invitation :
  - 1er paiement envisagé lors de la livraison des équipements avant le 15 mars 2016.
  - Autres paiements envisagés lors de l'exécution des travaux de remplacement et après la complétion des travaux. /

  (6.2) Payment terms were changed to Multiple Payments in Solicitation Amendment no.001 :
  - 1st payment planned after delivery of equipment, prior March 15 2016.
  - Other payment planned during replacement work process and after work completion. /

- (7.3) Rappel sur la retenue de garantie. /
  (7.3) Reminder of the Warranty Holdback.

- (26) Rappel de la clause B5007C – Modification techniques ou travaux supplémentaires. /
  (26) Reminder of clause B5007C – Procedure for Design Change or Additional Work.

- Il est confirmé que le formulaire 1379 sera créé par l'Autorité Technique (ou sont représentant) en collaboration avec le chargé de projet de l'entrepreneur. /
  It is confirmed that the 1379 form will be originated by the Technical Authority (or it's representative) in collaboration with the Contractor's Project Manager.

ANNEXE A DEVIS TECHNIQUE
ANNEX A TECHNICAL SPECIFICATION

- À l'item 1.3 b) du devis technique, il est demandé de définir '' l'ensemble complet de pièces de rechange pour un palier ''. Cette information sera fournie au sein de la modification no.003 de l'invitation. /
In item 1.3 b) of the technical specification, it is requested to define '' complete spare kit for one bearing ''. This information will be provide within Amendment no.003 of the invitation.

- À l'item 1.3 e) du devis technique, il est établi que la période requise afin de permettre à l'équipage de prendre les mesures de déflection des arbres manivelles sur les moteurs, est d'une heure avant et après le remplacement de chacun des paliers. /
In item 1.3 e) of the technical specification, it is establish that the required period to allow CCG to take measurement of crankshaft deflection on the engines is of one hours before and after the bearing replacement for each bearing.

- À l'item 1.4 du devis technique, la version française mentionne que la durée des essais est de 8 heures et la version anglaise mentionne 1 journée. De plus, il est demandé de préciser si des essais en mer sont requis. Cette information sera clarifiée au sein de la modification no.003 de l'invitation. /
In item 1.4 of the technical specification, the French version mentions that the trial period is 8 hours and the English version mentions one day. This information will be clarified within Amendment no.003 of the invitation.

- À l'item 1.5 du devis technique, la pertinence de faire effectuer les analyses de vibration par deux entités différentes est questionnée. Cette information sera clarifiée au sein de la modification no.003 de l'invitation. /
In item 1.5 of the technical specification, the relevance to perform vibration analysis by two different entities is questioned. This information will be clarified within Amendment no.003 of the invitation.

E) VISITE / VIEWING

- Les questions suivantes émises lors de la visite seront traitées au sein de la modification no.003 de l'invitation.
    - Quel est le poids des alternateurs ?
    - Quelle est la clairance requise?
    - Est –ce que les soupapes doivent être capées?
    - Est-ce que des photos seront fournies? /

The following question, asked during the viewing will be dealt with in Amendment no.003 of the invitation.
    - *What is the weight of the generators?*
    - *What is the required clearance?*
    - *Are the valves requires to be capped?*
    - *Will there be photos provided?*

F) AJOURNEMENT / ADJOURNMENT.

- La conférence a pris fin à 10h25. /
The conference was adjourned at 10:25 am.

Mathieu Gagnon
Autorité contractante / Contracting Authority
Travaux publics et services gouvernementaux Canada
Public Works and Government Services Canada.

INSTALLATION INSTRUCTIONS

This generator is shipped disassembled. It is designed for indoor operation. Before the generator is put into service at any time, ensure that the requirements of the notes on outline drawing 4005E1203CP are fulfilled.

BOLTED JOINTS

Refer to drawings 4004D1009DA and 4004D1041BH. Examine the rotor for loose nuts or bolts. Correct any deficiencies and ensure that each nut is locked with either lockwashers or a turned-up corner of a locking plate. It is recommended that a corner be turned up only once to minimize the possibility of a failure in service. With two corners available for locking, the locking plate should be replaced on the third assembly or second re-tightening of that joint. Unless otherwise specified, the torque values to be used are given in table 1 of instruction TPP-7515 in Part 5 of this manual.

INSTALLATION PROCEDURE

1. Prepare the base (supplied by others).

2. Inspect the pedestal and bearing. Ensure that they are clean internally and that the mounting surfaces are also free from dirt and burrs. Position the pedestal on the base using the materials identified in group 1 on drawing 4003C1119MC. Partially tighten the pedestal hold-down bolts. Ensure that the insulation resistance to ground (by multimeter) of the pedestal is at least 20,000 ohms. All electrical and mechanical connections must be electrically insulated from this pedestal. Apply an oil film on the bearing spherical seat to prevent rusting and to facilitate bearing alignment. Remove the slushing compound from the shaft and lubricate the journal with oil. Position the lower half of the bearing in place.

3. Remove the air shields from both ends of the stator. Measure the insulation resistance of the stator winding. If the value is less than 1.6 megohms when corrected to 40°C, maintenance is required in accordance with Part 5 of this manual.

4. Measure the insulation resistance of the generator rotor and the exciter armature winding as described in Part 7 of this manual. If the reading is equal to or less than 1.4 megohms when corrected to 40°C, isolate the various system components to locate the faulty one. Refer to Part 5 of this manual if maintenance is required.

5. To facilitate air gap measurements at a later stage, remove any excess epoxy paint from each end at the centre of one field pole and from each end of the stator core tooth nearest the top centerline and at 90° intervals around the inner bore of the stator.

6. The rotor may be carried in the stator when the lifting shim (supplied) is in the air gap. Thread the rotor carefully into the stator. Take care to avoid damaging the stator winding, core, rotor winding and exciter armature.

7. Place the estimated requirement of stator foot shims on the cleaned base. Lift the stator and rotor onto the base, carefully guiding the shaft journal onto the lower bearing half. Place the rotor in the bearing so that the face of the shaft flange is in the proper axial position with respect to the flywheel (assuming that the flywheel is supported by the diesel engine, which should also contain the fixed bearing for the set). Move the bearing pedestal so that the clearance at each end of the bearing is 0.20 inches (5.1 mm).

   Move the bearing pedestal transversely so that the flange is aligned in the horizontal plane. Ensure that the lower half of the bearing is axially in line with the shaft journal by measuring the clearance between the shaft and the four top corners of the bearing half.

   Adjust the number of shims under the pedestal to obtain alignment in the vertical direction. Normally, the shaft should be horizontal within 0.010 inches (0.25 mm), with the outboard end raised slightly to compensate for shaft deflection. This measurement should be taken from the top of the shaft journal. An allowance for generator shaft movement from ambient to running temperature should be calculated using a temperature coefficient of linear expansion of 0.0000114 per °C for the pedestal.

   Alignment should be checked in accordance with instructions by the engine manufacturer.

8. Couple the generator to the flywheel in accordance with instructions by the engine manufacturer.

9. Refer to drawing 4004D1025HT. Pour a small amount of oil over the shaft journal. Assemble the top half of the bearing. Assemble the bearing pedestal cap, which has a locating dowel. Fill the pedestal chamber to the centre of the gauge -0 + 0.4 inches (10 mm - approximately 5 Imperial gallons or 23 liters) with oil that meets CGE specification DQ6B6B. This material specification is met by Imperial Oil Teresso 68 Gulf Harmony 68, Shell Turbo 68, Texaco Regal 68 or Sunoco SW-931. The oil is to be free of water, sediments, resin, soaps or detergents. It can contain corrosion and rust inhibitors. Do not use automotive engine oil or oil containing high-pressure or slippery additives. The oil should be filtered through a 10 micron filter as it goes into the reservoir.

10. The air gap is measured at each end between the centre of one field pole and a stator tooth in 90° intervals in the areas that were scraped ahead of time. Rotate the rotor by manual means to use the same pole. Equalize the air gap on each end separately so that the top measurement is the same as the bottom one and the two side measurements are equal. The stator should be set to obtain these measurements as close as practical. A difference in the diametrically-opposite readings of 5% from their average is a good setting. The maximum difference between any pair of diametrically-opposite readings should not exceed 0.015 inches (0.38 mm).

    Final measurements should be taken with the stator feet hold-down bolts tightened. When the air gap is properly adjusted, the stator

feet and the pedestal should be dowelled to the base in accordance with groups 3 and 1 respectively of drawing 4003C1119MC.

11. Refer to drawing 4004D1041BH. Remove the covers from the exciter magnet frame. Ensure that the field leads at both terminal blocks near the split in the magnet frame are connected. Measure the insulation resistance of the exciter field winding (F1,F2). If the value is less than 1.1 megohms when corrected to 40°C, maintenance is required in accordance with Part 5 of this manual.

12. Mount the support for the exciter in accordance with group 2 of drawing 4003C1119MC.

13. Refer to drawing 4004D1041BH. Disconnect the field leads at the two terminal blocks at the split in the magnet frame. Split the magnet frame, then mount it around the armature and on the exciter support to align their cores and to equalize the air gap (nominally 0.100 inches or 2.54 mm). Connect the loose ends of the F1,F2 leads to their terminal block on the magnet frame. Assemble the exciter covers. Dowel the magnet frame feet to the base in accordance with instruction TPP-7529 or equivalent.

14. Refer to drawing 4002B1114BG. Remove the brush (part 2) from its holder (part 3). Remove the shipping wrapping from the shaft and thoroughly clean the shaft. Install the brush in its holder in accordance with the drawing.

15. Assemble the stator shields at both ends of the generator, leaving the upper half off at the exciter (connection) end.

16. Refer to drawing 4005E1200EA. Make the T1 through T6 connections between the stator winding and the conduit box and insulate them for 5000 volts in accordance with instruction TPP-7536 or equivalent. Mount the remaining half of the stator shield.

17. Refer to drawing 4005E1200DW. Mount the top hat assembly above the stator frame and fasten it with parts 42, 48 and 103. Assemble the enclosing covers except those for the conduit box and the upper end of the stator at the connection end. Check to ensure that all gasketing is in good condition. If repairs are necessary, use closed cell, adhesive-backed sponge neoprene in the following sizes:
    (a) part 38 is 1/4 by 1 inch (6 by 25 mm).
    (b) part 39 is 1/4 by 1 1/2 inches (6 by 38 mm).
    (c) part 40 is 1/2 by 1 inch (13 by 25 mm).

    Ensure that all covers mate flush with the mounting surfaces. If any gaps are apparent where there may not be a gasketing seal, fill the gap with RTV. Use Loctite on the threads of capscrews for covers that are to maintain watertight enclosures.

18. Refer to drawing 4004D1001NW. Make the connections from the leads bundled on the stator into the conduit box for the excitation (F1,F2), space heaters (H1,H1A,H2,H2A) and six stator RTD's. Note that this should complete the internal connections so that the remaining stator covers may now be assembled but not the conduit box covers.

MANUAL ROTATION

Rotate the rotor by manual means to ensure that it does not rub or scrape. If possible, ten revolutions are recommended.

ENCLOSURE AND VENTILATION

The assembled generator components are totally enclosed water-to-air cooled, watertight to the bottom of the shaft and splashproof from above when all covers, closures and seals are in place. Provide water to the generator and bearing coolers in accordance with notes 5 and 6 on the outline drawing. Note that the water lines to the bearing cooler are insulated from the pedestal by a gasket (part 22 of drawing 4004D1025HT). Condensation drainage from the generator cooler is provided in accordance with drawing 4003C1119LW.

ACCESSORY CONNECTIONS

Refer to drawing 4004D1001NW.

1. Connect the 600 volt, single phase power cables for the 1172 watt space heaters.

2. Connect the stator winding RTD's to the instrumentation. Suggested settings are to alarm at 120°C and to trip at 130°C.

3. Connect the bearing temperature detector to its instrumentation. Suggested settings are to alarm at 80°C and to trip at 90°C.

4. Connect the air temperature detector to its instrumentation. Suggested settings are to alarm at 78°C and to trip at 85°C.

5. Connect the secondaries of the current transformers to the metering.

6. Connect the 600 volt, three phase power cables for the 1/4 HP make up blower motors.

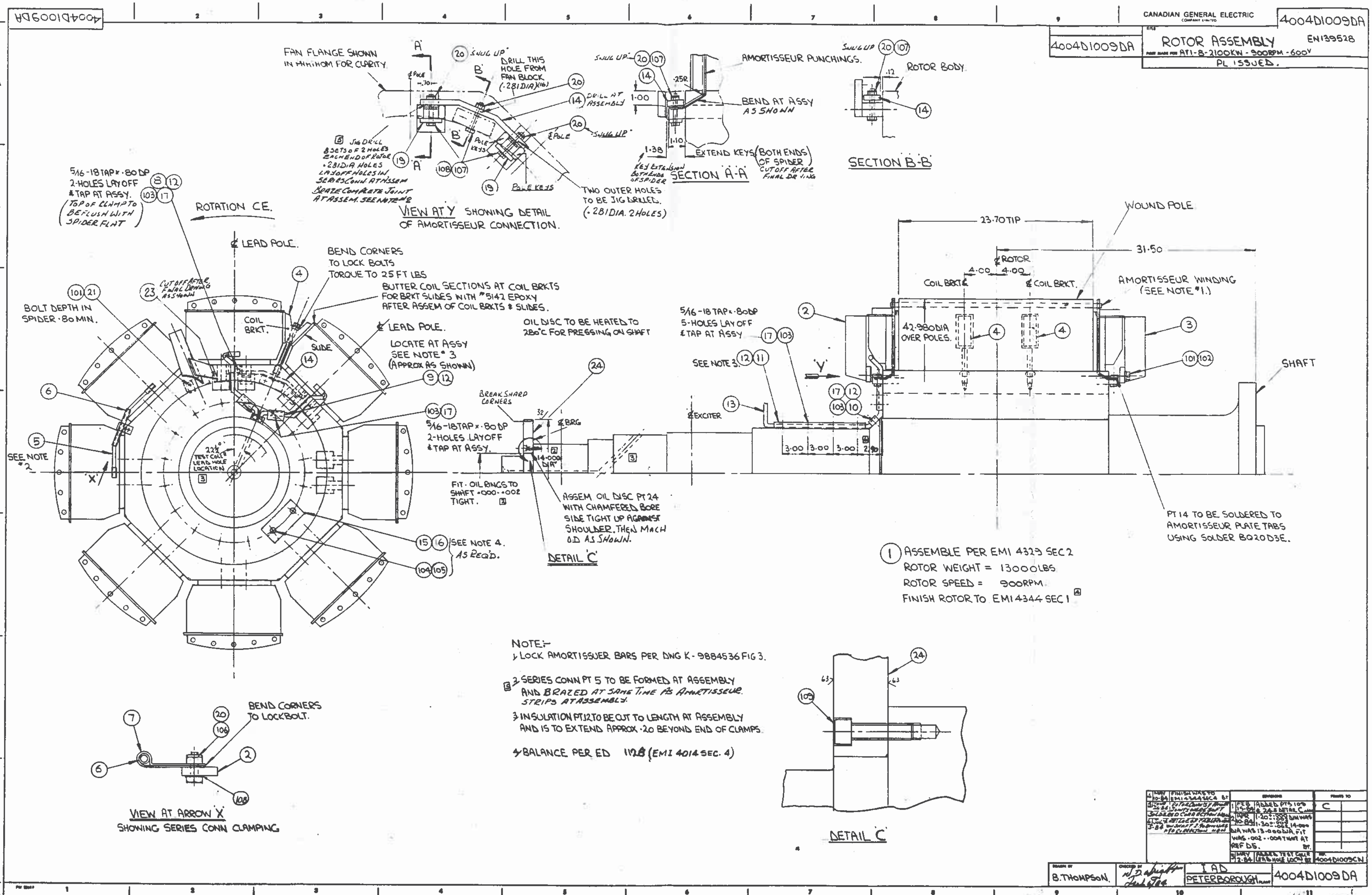
7. Connect the 120 volt, single phase power cables for the 100 watt lighting circuit.

8. Connect any other accessories that may have been supplied by others.

9. Make the interconnections for the excitation circuit in accordance with separate instruction manual PGEI-11513.

CONNECTING TO LOAD, EXCITATION AND GROUNDING

1. Ensure that the main conduit box is grounded to the frame and the frame is connected to the vessel ground.


CANADIAN GENERAL ELECTRIC
4004D1009DA
ROTOR ASSEMBLY
EN139528
AT1-B-2100KW-900RPM-600V
PL ISSUED.
FAN FLANGE SHOWN IN MINIMUM FOR CLARITY.
SNUG UP
DRILL THIS HOLE FROM FAN BLOCK (.281DIA)
DRILL AT ASSEMBLY
POLE KEYS
TWO OUTER HOLES TO BE JIG DRILLED. (.281DIA. 2 HOLES)
VIEW AT Y SHOWING DETAIL OF AMORTISSEUR CONNECTION.
AMORTISSEUR PUNCHINGS.
BEND AT ASSY AS SHOWN
EXTEND KEYS (BOTH ENDS OF SPIDER
SECTION A-A
ROTOR BODY.
SECTION B-B
5/16-18TAP x .80DP 2-HOLES LAYOFF &TAP AT ASSY. (TOP OF CLAMP TO BE FLUSH WITH SPIDER FLAT)
ROTATION C.E.
LEAD POLE.
BEND CORNERS TO LOCK BOLTS TORQUE TO 25 FT LBS
BUTTER COIL SECTIONS AT COIL BRKTS FOR BRKT SLIDES WITH #5142 EPOXY AFTER ASSEM OF COIL BRKTS & SLIDES.
BOLT DEPTH IN SPIDER .80 MIN.
COIL BRKT.
SLIDE
LOCATE AT ASSY SEE NOTE* 3 (APPROX AS SHOWN)
OIL DISC TO BE HEATED TO 280°C FOR PRESSING ON SHAFT
5/16-18TAP x .80DP 2-HOLES LAYOFF &TAP AT ASSY.
BREAK SHARP CORNERS
BRG
FIT-OIL RINGS TO SHAFT +.000-.002 TIGHT.
ASSEM OIL DISC PT24 WITH CHAMFERED BORE SIDE TIGHT UP AGAINST SHOULDER. THEN MACH O.D AS SHOWN.
DETAIL 'C'
SEE NOTE 4. AS REQ'D.
SEE NOTE 2
5/16-18 TAP x .80DP 5-HOLES LAY OFF &TAP AT ASSY
SEE NOTE 3
EXCITER
23.70TIP
31.50
ROTOR
4.00
4.00
COIL BRKT.
42.980DIA OVER POLES.
WOUND POLE
AMORTISSEUR WINDING (SEE NOTE *1.)
SHAFT
3.00
3.00
3.00
2.90
PT 14 TO BE SOLDERED TO AMORTISSEUR PLATE TABS USING SOLDER BQ20D3E.
1 ASSEMBLE PER EMI 4323 SEC 2
ROTOR WEIGHT = 13000LBS
ROTOR SPEED = 900RPM
FINISH ROTOR TO EMI 4344 SEC 1
NOTE:-
1 LOCK AMORTISSUER BARS PER DWG K-9884536 FIG 3.
2 SERIES CONN PT 5 TO BE FORMED AT ASSEMBLY AND BRAZED AT SAME TIME AS AMORTISSEUR STRIPS AT ASSEMBLY.
3 INSULATION PT12 TO BE CUT TO LENGTH AT ASSEMBLY AND IS TO EXTEND APPROX .20 BEYOND END OF CLAMPS.
4 BALANCE PER ED 112B (EMI 4014 SEC. 4)
BEND CORNERS TO LOCKBOLT.
VIEW AT ARROW 'X' SHOWING SERIES CONN CLAMPING
DETAIL 'C'
B.THOMPSON.
IAD
PETERBOROUGH
4004D1009DA

4003C1119MC

Canadian General Electric

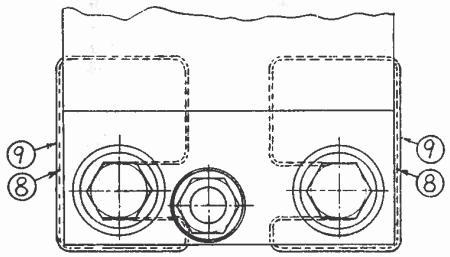
MACHINE ASSEMBLY

FIRST MADE FOR NAVAIDS — EN-139528-33

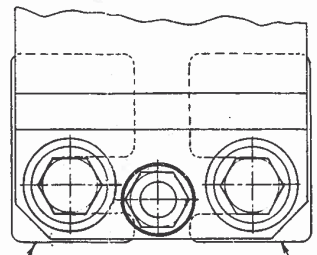
G4	G.3	G.2	G.1	PT.	NAME	DESCRIPTION
			X	1	ASSEMBLY	BEARING PEDESTAL TO BASE
		X		2	ASSEMBLY	EXCITER SUPPORT TO BASE
	X			3	ASSEMBLY	STATOR FRAME TO BASE
X				4	ASSEMBLY	EXCITER TO SUPPORT (NOT SHOWN)
			2	5	FITTED STUD	4001A1176 CF GR.1
		2		6	FITTED STUD	4001A1176 CM PT.1
	4			7	FITTED STUD	4001A1176 CM PT.2
		36	16	8	SHIM	131B9552 PT.1
			4	9	INSUL. SHIM ASM.	4001A1128 CA (2 OF PT.10 + 1 OF PT.8 MAKES 1 ASM.)
			8	10	INSULATED SHIM	131B9552 PT.2
	36			11	SHIM	131B9552 PT.7
4		4	4	12	WASHER	153A7925 PT.1
			4	13	INSUL. WASHER	4001A1128 BM PT.4
			2	14	INSUL. WASHER	4001A1128 BM PT.7
		4	2	15	WASHER	4001A1102 TK PT.2
	8			16	WASHER	4001A1102 TK PT.4
			4	17	BOLT & TUBE ASM.	4001A1128 EM (2 OF PT.20 + 1 OF PT.10 MAKES 1 ASM.)
2				18	DOWEL	123A6445 PT.4
1				19	DOWEL KIT	115L938 GR.1
			4	20	INSUL. TUBING	4001A1128 BL PT.5

STANDARD HARDWARE

G4	G.3	G.2	G.1	PT.	NAME	DESCRIPTION
			4	101	CAPSCREW	HEX. HD. STL. 1"-8 x 4.50
		4		102	CAPSCREW	HEX. HD. STL. 1"-8 x 3.00
4	4			103	CAPSCREW	HEX. HD. STL. 1"-8 x 2.50
		4	4	104	JAM NUT	HEX. STL. 1"-8
	8			105	JAM NUT	HEX. STL. 1¼"-8
		4	4	106	NUT	HEX. STL. STD. 1"-8
	8			107	NUT	HEX. STL. STD. 1¼"-8



PLAN VIEW



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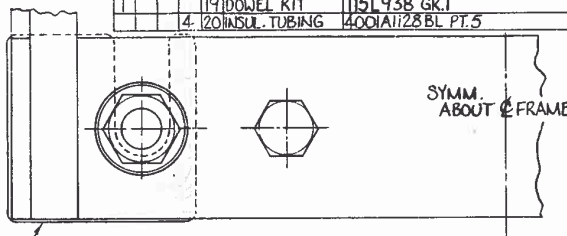
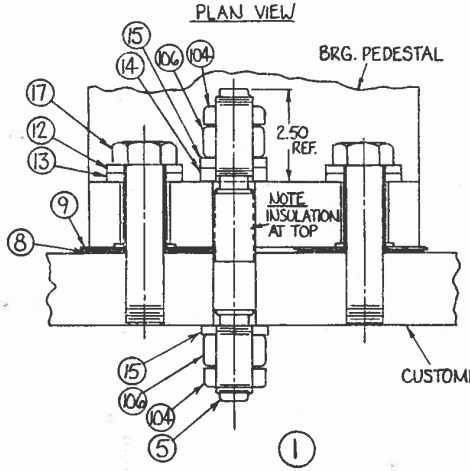
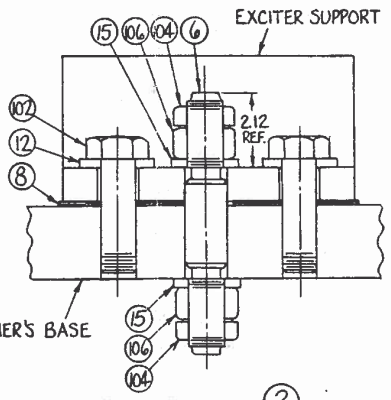
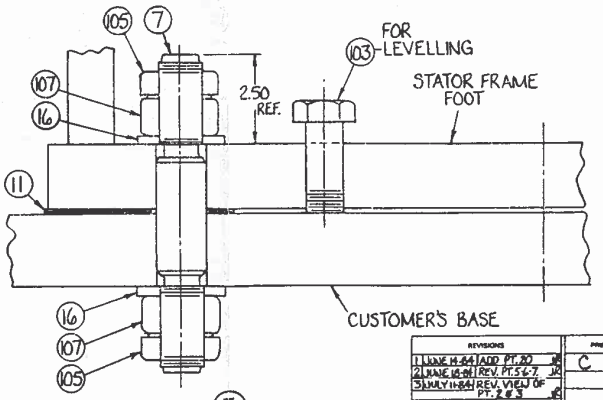


PLAN VIEW







REVISIONS	PRINTS TO
1 JUNE 14-84 ADD PT. 20 JC	C
2 JUNE 18-84 REV. PTS 6-7 JC	
3 JULY 11-84 REV. VIEW OF PTS. 2 & 3 JC	
4 JAN. 29-85 PT. 13 WAS 4-001A1102 TK PT. 3 JC	

DRAWN BY	CHECKED BY			
J. RAY	J. Ray JUNE 12/84	I.A.D. PETERBOROUGH PLANT	4003C1119MC	


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT

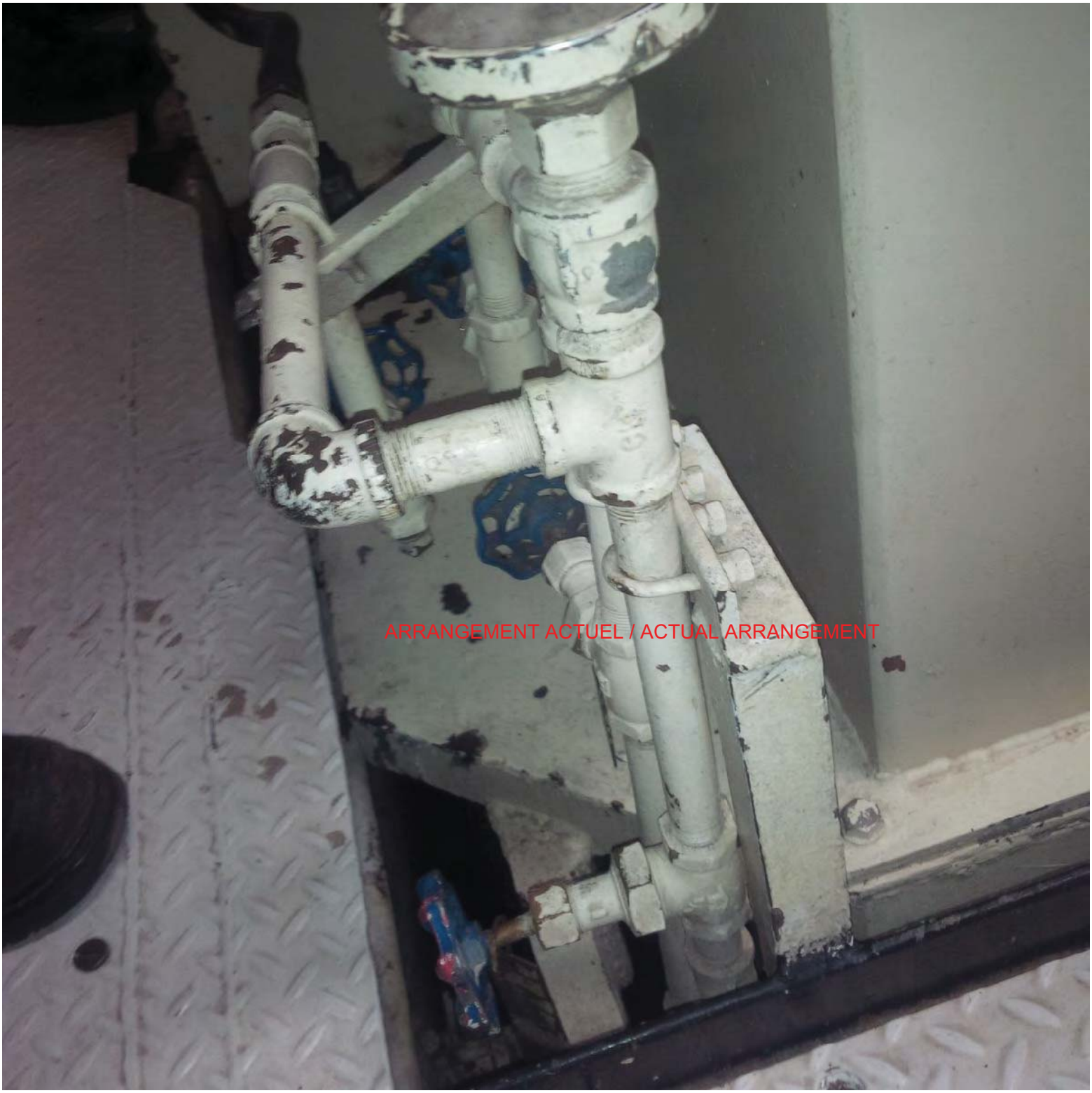

ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


BD
ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT


ARRANGEMENT ACTUEL / ACTUAL ARRANGEMENT

TYPICAL NEW BEARING