

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION

1. Introduction
2. Summary
3. Debriefings

PART 2 - OFFEROR INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions
2. Submission of Offers
3. Enquiries - Request for Standing Offers
4. Applicable Laws

PART 3 - OFFER PREPARATION INSTRUCTIONS

1. Offer Preparation Instructions

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures
2. Basis of Selection

PART 5 - CERTIFICATIONS

1. Mandatory Certifications Required Precedent to Issuance of a Standing Offer

PART 6 - STANDING OFFER AND RESULTING CONTRACT CLAUSES

A. STANDING OFFER

1. Offer
2. Standard Clauses and Conditions
3. Term of Standing Offer
4. Authorities
5. Identified Users
6. Call-up Instrument
7. Limitation of Call-ups
8. Financial Limitation
9. Priority of Documents
10. Certifications
11. Applicable Laws

B. RESULTING CONTRACT CLAUSES

1. Requirement
2. Standard Clauses and Conditions
3. Term of Contract
4. Payment

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

File No. - N° du dossier

QCL-3-36014

CCC No./N° CCC - FMS No/ N° VME

5. Invoicing Instructions
6. Shipping Instructions
7. Insurance
8. *SACC Manual* Clauses

List of Annexes:

- Annex A - Requirement
- Annex B - Basis of Payment
- Annex C - Manufacturer's Requirements

PART 1 - GENERAL INFORMATION

1. Introduction

The Request for Standing Offers (RFSO) is divided into six parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Offeror Instructions: provides the instructions applicable to the clauses and conditions of the RFSO;
- Part 3 Offer Preparation Instructions: provides offerors with instructions on how to prepare their offer to address the evaluation criteria specified;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria which must be addressed in the offer, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 6A, Standing Offer, and 6B, Resulting Contract Clauses:

6A, includes the Standing Offer containing the offer from the Offeror and the applicable clauses and conditions;

6B, includes the clauses and conditions which will apply to any contract resulting from a call-up made pursuant to the Standing Offer.

The Annexes include the Requirement , the Basis of Payment and any other annexes.

2. Summary

To provide and deliver on an as and when ordered basis, bulk motor oil for Alco 251 V-16, to Fisheries and Oceans Canada / Canadian Coast Guard Quebec, QC, for ships Amundsen, DesGroseillers, Pierre Radisson and Martha L. Black.

The initial period of the Standing Offer will be from the issuance of the Standing Offer to September 30, 2014, with the possibility of two (2) additional one-year periods.

The estimated amount provided per year is 100,000 liters for four ships.

"The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT)."

3. Debriefings

After issuance of a standing offer, offerors may request a debriefing on the results of the request for standing offers process. Offerors should make the request to the Standing Offer Authority

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

File No. - N° du dossier

QCL-3-36014

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

CCC No./N° CCC - FMS No/ N° VME

within 15 working days of receipt of the results of the request for standing offers process. The debriefing may be in writing, by telephone or in person.

PART 2 - OFFEROR INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the Request for Standing Offers (RFSO) 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.

Offerors who submit an offer agree to be bound by the instructions, clauses and conditions of the RFSO and accept the clauses and conditions of the Standing Offer and resulting contract(s).

The 2006 (2013-06-01) Standard Instructions - Request for Standing Offers - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the RFSO.

1.1 Equivalent Products

1. Products that are equivalent in form, fit, function and quality to the item(s) specified in the bid solicitation will be considered where the Bidder:
 - a. designates the brand name, model and/or part number of the substitute product;
 - b. states that the substitute product is fully interchangeable with the item specified;
 - c. provides complete specifications and descriptive literature for each substitute product;
 - d. provides compliance statements that include technical specifics showing the substitute product meets all mandatory performance criteria that are specified in the bid solicitation; and
 - e. clearly identifies those areas in the specifications and descriptive literature that support the substitute product's compliance with any mandatory performance criteria.
2. Products offered as equivalent in form, fit, function and quality will not be considered if:
 - a. the bid fails to provide all the information requested to allow the Contracting Authority to fully evaluate the equivalency of each substitute product; or
 - b. the substitute product fails to meet or exceed the mandatory performance criteria specified in the bid solicitation for that item.
3. In conducting its evaluation of the bids, Canada may, but will have no obligation to, request bidders offering a substitute product to demonstrate, at the sole cost of bidders, that the substitute product is equivalent to the item specified in the bid solicitation.

2. Submission of Offers

Offers must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the Request for Standing Offers.

3. Enquiries - Request for Standing Offers

All enquiries must be submitted in writing to the Standing Offer Authority no later than five (5) calendar days before the Request for Standing Offers (RFSO) closing date. Enquiries received after that time may not be answered.

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

File No. - N° du dossier

QCL-3-36014

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

CCC No./N° CCC - FMS No/ N° VME

Offerors should reference as accurately as possible the numbered item of the RFSO to which the enquiry relates. Care should be taken by offerors 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 questions or may request that offerors do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all offerors. Enquiries not submitted in a form that can be distributed to all offerors may not be answered by Canada.

4. Applicable Laws

The Standing Offer and any contract resulting from the Standing Offer must be interpreted and governed, and the relations between the parties determined, by the laws in force in Québec.

Offerors may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their offer, 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 offerors.

PART 3 - OFFER PREPARATION INSTRUCTIONS

1. Offer Preparation Instructions

Canada requests that offerors provide their offer in separately bound sections as follows:

Section I: Technical Offer (1 hard copy)
 Section II: Financial Offer (1 hard copy)
 Section III: Certifications (1 hard copy)

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

Canada requests that offerors follow the format instructions described below in the preparation of their offer.

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to that of the Request for Standing Offers.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html)

(<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>).

. To assist Canada in reaching its objectives, offerors should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Offer

In their technical offer, offerors should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Offer

Offerors must submit their financial offer in accordance with the Annex B, Basis of Payment. The total amount of Goods and Services Tax (GST)Quebec Sales Tax (QST) be shown separately, if applicable.

Payment by Credit Card

Canada requests that offerors complete one of the following:

- (a) () Government of Canada Acquisition Cards (credit cards) will be accepted for payment of call-ups against the standing offer.

The following credit card(s) are accepted:

VISA _____

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

File No. - N° du dossier

QCL-3-36014

CCC No./N° CCC - FMS No/ N° VME

Master Card _____

- (b) () Government of Canada Acquisition Cards (credit cards) will not be accepted for payment of call-ups against the standing offer.

The Offeror is not obligated to accept payment by credit card.

Acceptance of credit cards for payment of call-ups will not be considered as an evaluation criterion.

Section III: Certifications

Offerors must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Offers will be assessed in accordance with the entire requirement of the Request for Standing Offers including the technical evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the offers.

1.1. Technical Evaluation

1.1.1 Mandatory Technical Criteria

For any proposed equivalent products:

The Offeror must provide with his Offer all documents required at section 1.1 "Equivalent Product" of Part 2 - Bidder Instructions. The equivalent products must be compliant to the manufacturer's requirements (provided at Annex C) AND must be compatible with the existing product Petro Canada Raluble 940 CF (grade 40).

1.2 Financial Evaluation

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties, excise taxes and environmental handling fees included.

2. Basis of Selection

An offer must comply with the requirements of the Request for Standing Offers and meet all mandatory technical evaluation criteria to be declared responsive. The responsive offer with the lowest evaluated price will be recommended for issuance of a standing offer.

PART 5 - CERTIFICATIONS

Offerors must provide the required certifications and documentation to be issued a standing offer. The certifications provided by offerors to Canada are subject to verification by Canada at all times. Canada will declare an offer non-responsive, will have the right to set-aside a standing offer, or will declare a contractor in default, if any certification is found to be untrue whether during the offer evaluation period, during the Standing Offer period, or during the contract period.

The Standing Offer Authority will have the right to ask for additional information to verify the Offeror's certifications. Failure to comply with this request will also render the Offer non-responsive or may result in the setting aside of the Standing Offer or will constitute a default under the Contract.

1. **Mandatory Certifications Required Precedent to Issuance of a Standing Offer**

1.1 **Code of Conduct and Certifications - Related documentation**

By submitting an offer, the Offeror certifies that the Offeror and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Offer of Standard Instructions 2006 . The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 **Federal Contractors Program for Employment Equity - Standing Offer Certification**

By submitting an offer, the Offeror certifies that the Offeror, and any of the Offeror's members if the Offeror is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [HRSDC-Labour's website](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml).

Canada will have the right to declare an offer non-responsive, or to set-aside a Standing Offer, if the Offeror, or any member of the Offeror if the Offeror is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list at the time of issuing of a Standing Offer or during the period of the Standing Offer.

PART 6 - STANDING OFFER AND RESULTING CONTRACT CLAUSES

A. STANDING OFFER

1. Offer

- 1.1 The Offeror offers to fulfill the requirement in accordance with the Statement of Work at Annex "A".

2. Standard Clauses and Conditions

All clauses and conditions identified in the Standing Offer and resulting contract(s) 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 General Conditions

2005 (2012-11-19) General Conditions - Standing Offers - Goods or Services, apply to and form part of the Standing Offer.

2.2 Standing Offers Reporting

The Offeror must compile and maintain records on its provision of goods, services or both to the federal government under contracts resulting from the Standing Offer. This data must include all purchases, including those paid for by a Government of Canada Acquisition Card.

The Offeror must provide this data in accordance with the reporting requirements detailed below. If some data is not available, the reason must be indicated. If no goods or services are provided during a given period, the Offeror must still provide a "nil" report.

The data must be submitted on a quarterly basis to the Standing Offer Authority.

The quarterly reporting periods are defined as follows:

1st quarter: October 1 to December 31;

2nd quarter: January 1 to March 31;

3rd quarter: April 1 to June 30;

4th quarter: July 1 to September 30;

The data must be submitted to the Standing Offer Authority no later than 15 calendar days after the end of the reporting period.

Periodic Usage Reports

Regional Individual Standing Offer (RISO)

F3059-13R472, Bulk Motor Oil

Offeror : _____

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

File No. - N° du dossier

QCL-3-36014

CCC No./N° CCC - FMS No/ N° VME

Period : From _____ to _____

Department / Client : _____

| Date | Vessel | Qty/liter | Amount \$ |
|----------------|--------|-----------|-----------|
| | | | \$ |
| | | | \$ |
| | | | \$ |
| | | | \$ |
| | | | \$ |
| | | | \$ |
| Total : | | | \$ |

Signature : _____

Date (AAAA-MM-JJ) : _____

3. Term of Standing Offer

3.1 Period of the Standing Offer

The period for making call-ups against the Standing Offer is from the issuance of the Standing Offer to September 30, 2014.

3.2 Extension of Standing Offer

If the Standing Offer is authorized for use beyond the initial period, the Offeror offers to extend its offer for two (2) additional one- (1-) year period, from October 1, 2014 to September 30, 2015 and from October 1, 2015 to September 30, 2016 under the same conditions and at the prices calculated in accordance with the formula specified in the Standing Offer.

The Offeror will be advised of the decision to authorize the use of the Standing Offer for an extended period by the Standing Offer Authority thirty (30) days before the expiry date of the Standing Offer. A revision to the Standing Offer will be issued by the Standing Offer Authority.

3.3 Price Adjustment - Petroleum Products

1. The prices detailed in the Contract are subject to upward or downward adjustment after September 30, 2014 to allow for:
 - a. changes due to price adjustment in petroleum products that are a direct result of increased or decreased prices imposed by the petroleum producer. A copy of the Contractor's notification of price increase or decrease from the petroleum producer must be provided to the Contracting Authority; and/or

b. imposition of any new or changes to any existing levies, tariffs or fees of whatsoever nature applicable to any petroleum product, authorized, imposed or agreed to by Canada or any provincial government or by any Governmental Regulatory Authority.

2. The Contract will be amended to reflect the actual price of the increase or decrease at time of delivery. The Contractor must not invoice at prices other than those specified in the Contract.

4. Authorities

4.1 Standing Offer Authority

The Standing Offer Authority is:

Nicolas Champoux
Supply Officer
Public Works and Government Services Canada
Acquisitions Branch
601-1550 D'Estimauville Ave
Québec (Québec)
G1J 0C7

Telephone: (418) 649-2821
Facsimile: (418) 648-2209
E-mail address: nicolas.champoux@pwgsc-tpsgc.gc.ca

The Standing Offer Authority is responsible for the establishment of the Standing Offer, its administration and its revision, if applicable. Upon the making of a call-up, as Contracting Authority, he is responsible for any contractual issues relating to individual call-ups made against the Standing Offer by any Identified User.

4.2 Project Authority

The Project Authority for the Standing Offer is identified in the call-up against the Standing Offer.

The Project Authority is the representative of the department or agency for whom the Work will be carried out pursuant to a call-up against the Standing Offer and is responsible for all the technical content of the Work under the resulting Contract.

4.3 Offeror's Representative

Name: _____

Title: _____

Telephone No. _____

Facsimile No. _____

E-mail address: _____

5. Identified Users

The Identified User authorized to make call-ups against the Standing Offer is: Fisheries and Oceans Canada / Canadian Coast Guard, province of Quebec

6. Call-up Instrument

The Work will be authorized or confirmed by the Identified User(s) using form PWGSC-TPSGC 942, Call-up Against a Standing Offer, or an electronic version.

7. Limitation of Call-ups

Individual call-ups against the Standing Offer must not exceed \$50,000.00 (applicable taxes included).

8. Financial Limitation

The total cost to Canada resulting from call-ups against the Standing Offer must not exceed the sum of \$384,000.00 (applicable taxes excluded) unless otherwise authorized in writing by the Standing Offer Authority. The Offeror must not perform any work or services or supply any articles in response to call-ups which would cause the total cost to Canada to exceed the said sum, unless an increase is so authorized.

The Offeror must notify the Standing Offer Authority as to the adequacy of this sum when 75 percent of this amount has been committed, or two (2) months before the expiry date of the Standing Offer, whichever comes first. However, if at any time, the Offeror considers that the said sum may be exceeded, the Offeror must promptly notify the Standing Offer Authority.

9. 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 call up against the Standing Offer, including any annexes;
- b) the articles of the Standing Offer;
- c) the general conditions 2005 (2012-11-19), General Conditions - Standing Offers - Goods or Services
- d) the general conditions 2010A (2013-04-25), General Conditions - Goods (Medium Complexity);
- e) Annex A, Requirement;
- f) Annex B, Basis of Payment;
- g) Annex C, Manufacturer's Requirement;
- h) the Offeror's offer dated_____ .

10. Certifications

10.1 Compliance

Compliance with the certifications and related documentation provided by the Offeror is a condition of authorization of the Standing Offer and subject to verification by Canada during the term of the Standing Offer and of any resulting contract that would continue beyond the period of the Standing Offer. In the event that the Offeror does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Offeror in its offer is untrue, whether made knowingly or

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

File No. - N° du dossier

QCL-3-36014

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

CCC No./N° CCC - FMS No/ N° VME

unknowingly, Canada has the right to terminate any resulting contract for default and set aside the Standing Offer.

11. Applicable Laws

The Standing Offer and any contract resulting from the Standing Offer must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

B. RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from a call-up against the Standing Offer.

1. Requirement

The Contractor must provide and deliver the items detailed in the call-up against the Standing Offer.

2. Standard Clauses and Conditions**2.1 General Conditions**

2010A (2013-04-25), General Conditions - Goods (Medium Complexity) apply to and form part of the Contract.

Section 16 Interest on Overdue Accounts, of General Conditions 2010A (2013-04-25), will not apply to payments made by credit cards.

3. Term of Contract**3.1 Delivery Date**

Delivery must be completed in accordance with the call-up against the Standing Offer.

4. Payment**4.1 Basis of Payment**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm prices as specified in Annex B. Customs duties and environmental handling fees are included, and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

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.

4.2 Multiple Payments

SACC Manual clause H1001C (2008-05-12), Multiple Payments

5. Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
 - The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

3. Billing shall be by ship and it must contain:

- Price per liter
- Qty
- Type of Oil
- Delivery Date

6. **Shipping Instructions - Delivery at Destination**

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

Delivered Duty Paid (DDP) port of Quebec Incoterms 2000 for shipments from a commercial contractor.

Note

The Chief engineer will contact the oil supplier directly to specify the location of the ship in the port of Quebec

7. **Insurance**

SACC Manual clause G1005C (2008-05-12) Insurance

8. **SACC Manual Clauses**

A9006C (2012-07-16), Defence Contract
B1505C (2006-06-16), Shipment of Hazardous Materials
D3015C (2007-11-30), Dangerous Goods/Hazardous Products

ANNEX "A" - REQUIREMENT**Engine oil order for Alco 251 V-16 engines****Description:**

To provide and deliver on an as and when ordered basis, bulk motor oil for Alco 251 V-16, to Fisheries and Oceans Canada / Canadian Coast Guard Quebec, QC, for ships Amundsen, DesGroseillers, Pierre Radisson and Martha L. Black.

Engine oil for Alco 251 V-16 engines

Petro Canada Raluble 940 CF (grade 40) or equivalent such as Esso diol 9 RD 20W40. Other products could be considered equivalent as long as they meet the manufacturer's requirements (see Annex C) AND that they are compatible with the existing product Petro Canada Raluble 940 CF (grade 40).

Quantity:

Estimated quantities for one (1) year

| | |
|-----------------|---------------|
| Pierre Radisson | 30,000 liters |
| Des Groseillers | 30,000 liters |
| Amundsen | 30,000 liters |
| Martha L. Black | 10,000 liters |

Delivery

The contractor must be able to provide valid test certificates for the hoses used during the transfer.

The Contractor shall provide a sample of oil to the chief engineer.

Delivery must take place between the hours of 07:00 am and 07:00 pm.

Solicitation No. - N° de l'invitation

F3059-13R472/A

Client Ref. No. - N° de réf. du client

F3059-13R472

Amd. No. - N° de la modif.

File No. - N° du dossier

QCL-3-36014

Buyer ID - Id de l'acheteur

qcl014

CCC No./N° CCC - FMS No/ N° VME

ANNEX "B" - BASIS OF PAYMENT

| Item | Description | Qty | Firm Price per liter* | Extended Price |
|------|--|----------------|-----------------------|----------------|
| 1 | Engine oil for Alco 251 V-16 Proposed Product : _____ | 100,000 liters | \$ | \$ |
| | TOTAL (GST/QST extra) | | | \$ |

*** Firm price includes:**

- Delivery costs and pumping oil aboard
- Customs duties
- Environmental handling fees

Solicitation No. - N° de l'invitation

F3059-13R472/A

Amd. No. - N° de la modif.

File No. - N° du dossier

QCL-3-36014

Buyer ID - Id de l'acheteur

qcl014

Client Ref. No. - N° de réf. du client

F3059-13R472

CCC No./N° CCC - FMS No/ N° VME

ANNEX "C" - MANUFACTURER'S REQUIREMENTS

(see attached document)



LUBE OIL SPECIFICATIONS
FM/ALCO Turbocharged Diesel Engines

SERVICE CLASSIFICATIONS

Lubricating oils meet the API CD service classification requirements are required for use in FM/ALCO engines.

Lubricating oils listed as Generation 3 or Generation 4 by the Locomotive Maintenance Officers Association (LMOA) meet these requirements.

Lubricating oils meeting the requirements of MIL-L-2104C are acceptable.

The lubricating oil must be in the SAE 40 viscosity classification.

Pentane insolubles designates the total contaminants in the used lube oil sample including soot, wear products, insoluble additives, and oxidized oil. It is recommended the pentane insolubles not exceed 3%. If exceeded, filters and oil should be changed. Pentane insolubles of 5% are acceptable with 4th generation oils.

The amount of oxidized oil (toluene solubles) in the used lube oil sample is obtained by subtracting the toluene insolubles from the pentane insolubles. This resulting value should not exceed 1%. If exceeded, filters and oil should be changed.

The insolubles content should be determined in accordance the ASTM-D893, Procedure B. If other test methods are used, correlation of the results with reference to ASTM-D893 should be obtained.

Lubricating oil viscosity should be maintained between 70 and 100 SSU (13.0 and 20.4 CS) at 210° F.

Water content should be no more than 0.2%

OIL CONTROL GUIDELINES

The Control of the oil quality by the operator is as important to satisfactory operation as is the quality of the new oil. It is essential that oil samples be obtained and analyzed regularly to determine the condition of the oil.

Lube oil samples should be taken every 300 hours of operation, or at the middle and end of the month, whichever is first.

The oil properties to be determined are the following:

1. Pentane and toluene insolubles
2. Viscosity
3. Water Content
4. Total Base Number (TBN)
5. Particulate matter
6. Wear products analysis

The total base number of the lubricating oil in the crankcase must be maintained above the minimum value as shown below:

| Fuel Sulfur, Wt. % | Minimum TBN Level (ASTM-D2896) of Used Oil |
|--------------------|---|
| Less than 0.5 | 1.0 |
| 0.5 - 1.0 | 3.0 |
| Greater than 1.0 | three times the fuel sulfur content |

The minimum TBN level must be maintained either through the addition of make-up oil or by draining the oil and adding new oil.

SEE MI-12009 AND 12050 FOR COMPLETE SPECIFICATIONS.

LUBE OIL SPECIFICATIONS – Cont.
FM/ALCO Turbocharged Diesel Engines

ENGINES USING ANTIFREEZE

Lubricating oils and glycol are **NOT** compatible.

The lubricating oil should be checked for glycol content monthly by using a test method recommended by the lubricant supplier whenever water is suspected in the lubricating oil. If any glycol is detected in the oil, the oil must be drained, the source of the glycol found and corrected. Lubricating oil system must be flushed, new oil filters fitted, and a new charge of oil installed.

LUBE OIL CENTRIFUGERS

Fairbanks Morse does **NOT** recommend the use of lube oil centrifugers. Although centrifugers remove carbon, water and heavy insoluble sludge, they do not remove material more harmful to the engine such as oxidation or polymerisation products. A centrifuger used with water washing results in removal of additives and must not be used.

LUBE OIL CONSUMPTION

Generally the lube oil consumption is 0.8% of the full load fuel consumption.



LUBRICATING OIL

INTRODUCTION

Development of high output diesel and the difficulty in obtaining distillate fuels with sulphur levels below 1%, adds increasing importance to the role of lubricating oils for properly protecting the dynamic components of the engine.

The oil industry, in keeping pace with these developments has developed or can develop lubricants which satisfactorily meet today's requirements.

The recommendations included in this Maintenance Instruction are offered as a guide to our customers, in selection and maintenance of engine lubricating oil.

OIL SPECIFICATION AND EVALUATION PROCEDURE

Unless the lubricant has earlier been successfully used on FM/ALCO manufactured engines, selection and evaluation of a suitable heavy duty lubricant should be carried out as suggested hereunder, before a lubricant is considered suitable.

Oil Supplier

A reliable oil supplier capable of making product recommendations, commensurate with FM/ALCO specifications and specific environmental influences, as well as having ability to furnish lubricants on a consistent quality level, should be consulted.

Oil Specification

Only an SAE 40 additive type lubricant conforming at least to API "CD" with adequate Alkalinity, (properties of a typical oil are listed below) and having been qualified through satisfactory field evaluation tests, as suggested in this M.I., should be used on FM/ALCO engines.

| Property | Limits New Oil |
|---------------------------------|----------------|
| Viscosity: | |
| SUS at 98.9°C (210°F) | 72 - 85 |
| CSt at 98.9°C (210°F) | 13.5 - 16.8 |
| SUS at 37.8°C (100°F) | 700 - 1100 |
| CSt at 37.8°C (100°F) | 151 - 237.5 |
| Viscosity Index | 60 - 100 |
| Flash Point °C | 216 |

Viscosity:

- Pour Point °C 4.5 max.
- Total Base No. 7 - 10 if sulphur content of fuel is 0.5% to .7%)
10 - 13 (if sulphur content of fuel is 0.7% to 1%)

- NOTE -

FM/ALCO should be consulted for lubricating oil requirements if the sulphur content of fuel oil is above 1%.

Field Evaluation

Oils meeting the above specification are considered suitable for a field test. The field test should be conducted on a minimum of two FM/ALCO engines. The test duration should not be less than one year. The test engines should be subjected to normal service and maintenance schedule.

Data, in respect of physical and dimensional checks of the key components as listed below, should be collected before and on completion of the field test.

1. Cylinder Liner Diameter (Inside) - Fully Cleaned
 - a. Location of top ring travel
 - b. 6" from location (1)
 - c. At bottom liner seat location

Diameters to be measured at two right angle axes along longitudinal and transverse directions.

2. Piston Dimensions
 - a. Diameter (location crown top) - 2 axes - along axis of piston pin and at right angle
 - b. Diameter (location crown bottom) 2 axes along axes of piston pin and at right angle
 - c. Diameter (location below pin) - 2 axes - along axis of piston pin and at right angle
 - d. Diameter piston pin hole - 2 locations
 - e. Ring groove depth - all five grooves
 - f. Piston pin diameter - 3 locations



The FM/ALCO 251 Engine

3. Piston Rings
 - a. Ring gaps - Use a new liner for measuring gap all five rings
 - b. Ring depth - all five rings
4. Sizes for:
 - a. Valve guides - Use standard mandrills
 - b. Valve lever shaft diameters
 - c. Fuel pump lever bushing
 - d. Fuel pump roller pin
5. Crankpin Diameters (All pins)
6. Visually observe and record conditions of:
 - a. Small end bushings)
 - b. Big end bearings) Take
 - c. Main bearings) Photographs
 - d. Camshaft lobes and rollers)
 - e. Valves and seats)
 - f. Turbocharger bearings)
7. Engine performance data for:
 - a. Engine load
 - b. Exhaust temperatures
 - c. Lubricating oil pressures in the manifold
 - d. Air manifold pressures
 - e. Turbine inlet temperatures

The wear rate and physical condition data supplied by the customer/oil supplier will be evaluated by FM/ALCO.

After successful completion of the field test program, the oil will be considered satisfactory for use.

Oil formulation established and proven by the above program should not be changed. Any change in the additives or revision of the formulation in any way must be evaluated by the above method the oil is considered suitable for use.

- NOTE -

The above evaluation program is a complete responsibility both financially and otherwise, of the oil supplier, and/or the user. FM/ALCO will assist in carrying out analysis of test data and act only in an advisory capacity.

Mixing of Lubricants

FM/ALCO's recommendations against mixing of oil types cannot be over-emphasized. However, if this becomes mandatory, following suggestions are made to assist in reducing the risks associated with this practice.

- The number of lubricating oils to be mixed must be restricted to three for a given area of operation.
- The lubricants considered for mixing should have same additive concentrate.
- After the lubricants have been selected, an equally proportioned mixture must be subjected to field evaluation test listed above, and results analyzed by FM/ALCO before adopting this practice for the fleet operation.

MAINTENANCE/LUBRICANT CONTROL

Key to proper evaluation and control of used lubricants, for satisfactory engine performance lies in:

- Knowing the oil type, the engine and the service severity
- Developing histories to a series of tests
- Correlating analytical results with engine condition
- Watching for abrupt changes for normal use oil condition

See Table for recommended test, frequency, ASTM test method, limits and action for lubricating oil used on FM/ALCO engines.



The FM/ALCO 251 Engine

| RECOMMENDED TESTING AND LIMITS FOR USED OIL | | | |
|---|-----------------------|---|--|
| TEST | RECOMMENDED FREQUENCY | ASTM TEST DESIGNATION | USED OIL LIMITS |
| Appearance & odor | Trip | No Numerical Limits - Interpreted by observer | |
| Crackle | Trip | No Numerical Limits - Interpreted by observer | |
| Blotter Spot Test | Trip | No Numerical Limits - Interpreted by observer | |
| Viscosity Increase at 100°C | Monthly | D 88 or D 445 | + 20% |
| Viscosity Increase at 40°C | Trip | D 88 or D 445 | + 30% |
| Viscosity Index | Monthly | D 567 | |
| Pentane Insolubles | Monthly | D 893 | 3% max. (coagulated) |
| Benzene Insolubles | Monthly | D 893 | Report |
| Fuel Dilution Vol. % | Trip | D 322 | 5% max |
| Sulphated Ash Content | Monthly | D 874 | 6% of new value |
| Total Base No. | Monthly | D 2896 | 3 - for oils with TBN of 7 to 10 when new |
| Total Base No. | Monthly | D 2896 | 6 - for oils with TBN of 10 to 13 when new |
| PH | Monthly | D 664 | 5 |

| TRACE ELEMENTS PPM MAXIMUM | | | | |
|----------------------------|-----------------------|-----------------------|-----------------|---|
| TEST | RECOMMENDED FREQUENCY | ASTM TEST DESIGNATION | USED OIL LIMITS | if results higher than limit inspect |
| Aluminium | Monthly | Spectrographic | 5 PPM | Piston |
| Chromium | Monthly | Spectrographic | 10 PPM | Liner & water leaks |
| Copper | Monthly | Spectrographic | 20 PPM | Bushings |
| Iron | Monthly | Spectrographic | 50 PPM | Rings and other ferrous parts |
| Lead | Monthly | Spectrographic | 10 PPM | Main con. rod & turbo, lead bearing |
| Silicon | Monthly | Spectrographic | 5 PPM | Air filters |
| Sodium | Monthly | Spectrographic | 30 PPM | Water leaks (water treatment contains sodium) |

Note: If any trace elements show a sudden or unexplained increase, this is sufficient reason to inspect engine components for unusual wear.



The FM/ALCO 251 Engine

**LIST OF LUBRICATING OILS KNOWN TO HAVE PERFORMED
SATISFACTORILY ON 251 ENGINES**

The inclusion of a product in this list does not imply approval or endorsement by FM/ALCO. It is published for the information of operators of 251 engines to assist them in obtaining satisfactory engine performance.

| SUPPLIER | BRAND NAME | TBN |
|-------------------------------------|---------------------|------------|
| BP Canada Ltd. | BP Energol 1C-RG40 | 6 |
| BP Oil Company (USA) | BP Dieselube RR240 | 6 |
| BP Trading Co. Ltd. (International) | BP Energol 1C-R1140 | 6 |
| | BP Energol 1C-RT40 | 7 |
| Gulf Oil Canada Ltd. | Ralube 950 | |
| Gulf Oil (USA) | Gulf Oil 493 | |
| Exxon (Imperial Oil Ltd., Canada) | Galena RD 40 | 6.4 |
| Exxon Corporation | Dion RDX | |
| *Mobil | MobilGard 412 | 15 |
| Pemex (Mexico) | Dieselmex | |
| Shell Canada Ltd. | Tornus Oil 40 | |
| Shell Oil Company and Affiliates | Caprinus T Oil 40 | 7 |
| | Caprinus R Oil 40 | 10 |
| | Tornus Oil 40 | 7 |
| | Caprinus Oil 40 | 10 |
| | Janus Oil 40 | 11 |
| | Rotella T Oil 40 | 9 |
| | Rotella TX Oil 40 | 9.5 |
| Texaco Canada | DEO 1570 | 6.5 |



The FM/ALCO 251 Engine

| | | |
|--------------------------------|----------------|--|
| Texaco Inc. (USA and overseas) | 2208 Taro 4-80 | |
|--------------------------------|----------------|--|

* - Added or changed since last issue.