



Khulna Shipyard Limited (KSY)
Bangladesh Navy (BN), Khulna-9201
Phone: 02-44110987, 02-477720003
Fax: 02-477720404
E-mail: contact@khulnashipyard.gov.bd
plans@khulnashipyard.gov.bd

Project-768/201

05 May 2026

INVITATION FOR EXPRESSION OF INTEREST (EOI)

Reference:

A. Invitation for Tender Number 249.07.180.25 Dated 28 December 2025.

1. Khulna Shipyard Ltd (KSY) invites Expression of Interest (EOI) from reputed supplier for Procurement of Spares and Refurbishment of Propulsion System for BNS TURAG, Qty: 01 Set. It shall be carried out to rectify the existing defects of the propulsion system.

2. **Existing Defects of the Main Engines.** The current defects experienced in both Main Engines are in article 3 of Enclosure-1.

3. **Scope of Works/ Supply.** Both Main Engines and their auxiliaries are to be refurbished/ repaired/ serviced by the OEM/ experienced organization for regaining almost original performance so that the engines can run trouble free for next 10 years. The works under the title 'Procurement of Spares and Refurbishment of the Main Engines of BNS TURAG' will include but not limited to as mentioned in article 4 of Enclosure-1.

4. **Tender Specification.** A tender specification for necessary refurbishment/ repair/servicing/upgradation of the complete propulsion system of BNS TURAG including tender terms and conditions is enclosed herewith as Enclosure-1. The foreign company/ partner has to submit the offer fulfilling all the tender requirements as per Enclosure-1.

5. **Shipment and Delivery.** Shipment and delivery to be carried out as follows:

a. The BIDDER is to arrange shipment of all items by sea/air to Chattogram or Mongla as per the scheduled timeline to the following address:

The Commanding Officer, Naval Stores Depot, New Mooring, Chattogram, Bangladesh.
or

The Commanding Officer, Naval Stores Depot Khulna Town Khalishpur, Khulna

b. All items are to be delivered in suitable protective packing to ensure safe transit.

c. All packages are to have packing notes showing their contents in detail and all packages shall be marked with the name and address of the consignee and gross weight.

d. BN will assist in completing custom formalities. The BIDDER will arrange transportation of all supplied items to NSD Chittagong or NSD Khulna.

e. **Port of Shipment.** Any port of the manufacturing country.

6. **Eligibility of the BIDDER.** The Bidder shall be competent and experienced in similar repair/ refurbishment work onboard ship. The Bidder shall be any of the followings:

- a. OEM of any of the Main Engine.
 - b. Any reputed company who is competent and experienced in similar repair/ refurbishment works onboard ship.
 - c. A reputed company who is authorized by OEM or authorized by any reputed company who is competent and experienced in similar repair/ refurbishment work onboard ship.
7. **Certificate.** The BIDDER is to furnish following certificates:
- a. Guarantee Certificate.
 - b. Warranty Certificate.
 - c. In case, BIDDER himself is not accomplishing the repair or refurbishment work, necessary authorization certificate or proof of partnership from the company/ OEM/ organization doing the refurbishment/repair work are to be submitted with the tender.
8. **Terms of Payment.** Letter of Credit (LC) shall be opened for full amount of contract price in favor of BIDDER for the complete scope of supply with the following terms of payment:
- a. 50% (Fifty percent) of total LC value will be paid on delivery of all spare and tools for ME overhauling to the consignee.
 - b. 50% (Fifty percent) of total LC value will be paid after satisfactory test/trial (HAT/SAT) and acceptance by BN and on submission a Bank Guarantee for Warranty amounting 5% (Five percent) of the LC value issued by any scheduled bank of Bangladesh. The Guarantee and warranty shall remain valid until expiry date of the warranty period.
9. **Compliance Statement.** A clear and complete compliance statement of the tender specification supported by brochure/ booklet, etc in English is to be submitted with the offer. Any deviation from this specification is also to be clearly mentioned in the offer. Incomplete compliance statement may attribute to cancellation of the offer.
10. **Scope of Supply for Supplier.**
- a. Maintain liaison with Khulna Shipyard Ltd and Procuring Entity.
 - b. Complete works for necessary refurbishment/ repair/ servicing/ upgradation of the complete propulsion system of BNS TURAG as per tender specification at Enclosure-1.
 - c. If it is required to open the LC by KSY, in that case, all expenses related to LC Charges, LC amendment Cost, LC Confirmation Cost (if any), Marine Insurance, Custom Duty, C&F Agent commission, Port charges, Transportation cost, etc will be borne by Supplier/ Principal/ Manufacturer.
 - d. Supplier/ Principal/ Manufacturer will furnish Performance Guarantee (PG), Bank Guarantee (BG) as per payment terms, BG for Warranty, etc through scheduled Bank of Bangladesh as per contract if awarded. PG must be submitted before signing the contract.

- e. Supplier/ Principal/ Manufacturer will submit 1% (one percent) BG of TCP value as Tender Security to KSY before submission of tender offer to DGDP. Tender Security will be released after submission of PG for the contract.
- f. During implementation of the project, the amount of Liquidated Damage (LD) imposed on KSY from the procuring entity due to delay in delivery of the items (if imposed).
- g. The amount of speed penalty imposed on KSY from the procuring entity due to less speed as mentioned in the technical specification (if imposed).
- h. All charges related to Boarding, Lodging, Fooding, Medical Support, and transportation etc. of OEM Engineers/ Foreign Experts.
- i. Warranty of the project as per technical specification (Enclosure-1).
- j. Authorization letter to submit the tender with the offer of Foreign Partner.
- k. Any other expenses for successful completion, test/ trial and delivery of the project.

11. **Scope of Supply for KSY.** KSY scope of supply will be as follows:

- a. KSY will maintain liaison with procuring entity i.e. Bangladesh Navy and Foreign Partner for successful completion of the project as appropriate if awarded.
- b. Responsible for Bid Bond as tender security.
- c. KSY will act as local agent to deliver the subject mentioned project.
- d. KSY will sign the tender document and relevant papers in order to submit tender documents to the procuring entity.
- e. If it is required to open the LC by KSY, in that case, all expenses related to LC Charges, LC amendment Cost, LC Confirmation Cost (if any), Marine Insurance, Custom Duty, C&F Agent commission, Port charges, Transportation cost, etc will be borne by Supplier/ Principal/ Manufacturer.
- f. KSY will not have any types of monetary involvement throughout the project.
- g. KSY will receive a service charge from the Bidder/ Bidder's Principal/ Manufacturer/ Supplier (Which will be finalised afterwards and should not be included in financial offer).
- h. KSY will provide shipyard facilities and services at mutual agreement with foreign partner cost to cost basis.

12. **Selection Criteria.** The participants are to submit both technical and financial offer in complete in single envelope (02 Sets). The technically suitable offer will be considered for financial selection process. However, company profile and experiences will also be a factor to select the suitable Bidder. Upon submission of complete documents, the final bidder (most responsive) will be selected based on both technical and financial offer.

13. Interested Bidder/ Supplier is hereby requested to contact following person:

Lt Cdr Rashad Mahmud, (E), BN
Officer-In-Charge (Repair Section)

Design & Planning Department
Khulna Shipyard Ltd., Bangladesh Navy, Khulna-9201
Cell: +8801769-784616 (whatsapp)
Email: plans@khulnashipyard.gov.bd

14. Interested Bidder/ Bidder's Principal/ Manufacturer/ Supplier will have to submit within the following deadline:

a. Technical offer documents with seal and sign by 06 May 2026 at email: **plans@khulnashipyard.gov.bd**

b. Financial offer documents with seal and sign by 06 May 2026 2026 only at email: **ksygmndp@gmail.com**

15. **Offer Validity.** The offer should remain valid up to 30 June 2026.

16. For any queries on the tender document, please send in details by email (plans@khulnashipyard.gov.bd) before 05 May 2026.



SADI MOHAMMAD RAIYAN
Commander BN
For Managing Director

Enclosure:

1. Tender Specification (Ref A) - 01 (One) Set.

TENDER SPECIFICATION FOR PROCUREMENT OF SPARES AND REFURBISHMENT OF PROPULSION SYSTEM FOR BNS TURAG

1. **Preamble.** Necessary refurbishment/ repair/ servicing of the two in number Main Propulsion Engines of BNS TURAG (Ex Island Class Offshore Patrol Vessel of British Royal Navy) shall be carried out to rectify the existing defects.

2. **Particulars of Main Engine.**

| Brand and Model | Country of Manufacture | Year of Manufacture | Manufacturer's Address |
|---|------------------------|---------------------|---|
| RUSTON DIESELS Model: 12RK3CM, 12 Cylinders | UK | 1977 | Ruston Diesels Ltd, Newton – Le – Willows, Merseyside, England |

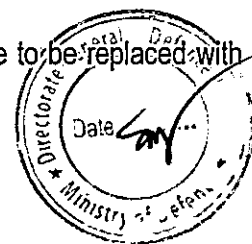
3. **Existing Defects of the Main Engines.** The current defects experienced in both Main Engines are as follows:

| Area of Defect | Description of Defects |
|---|---|
| Reduced Power and Speed | The main engines of BNS TURAG are rated for a maximum 750 rpm, but in service cannot be operated above 560 rpm. |
| Engine Governor | The engine governors do not respond properly and cannot increase the fuel supply as per ordered RPM. |
| High Fresh Water Temperature at Increased RPM | The jacket water coolers are defective and are not able to exchange heat properly. Fresh water and sea water pump performance is low due to long usage. |
| Lube Oil Heat Exchanger | Heat is not exchanged properly through lube oil coolers. |
| Turbo Charger | Turbo chargers cannot be operated at maximum speed. All the turbo chargers sound very noisy because of bearing wear down and carbon deposits. |
| Fuel Consumption | The engines consume excessive fuel than the normal. |
| Alarms and Sensors | Most of the main engine sensors and alarms are malfunctioning. |
| Air Starting System | Leakage has been observed in both main engine air starting valves, the distributors, and the air lines. |
| Fuel Feed Pump | Fuel feed pumps continuously leak due to wear and tear. |

4. **Scope of Work/ Supply.** Both Main Engines and their auxiliaries are to be refurbished/ repaired/ serviced by the OEM/ experienced organization for regaining almost original performance so that the engines can run trouble free for next 10 years. The works under the title **PROCUREMENT OF SPARES AND REFURBISHMENT OF THE MAIN ENGINES OF BNS TURAG** will include but not limited to followings:

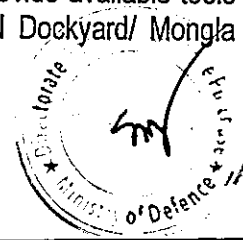
a. The required 30,000-hour overhaul routine for the two main engines of the ship is to be carried out as per OEM standard and based on actual need for smooth operation and full performance of the engines. Details of required maintenance works are listed in Annex A as per OEM maintenance manual.

b. All main bearings, big end bearings, small end bearings and injectors are to be replaced with new.



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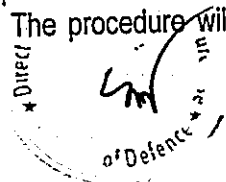
- c. Engine liners, pistons, connecting rods are to be inspected and repaired or replaced with refurbished items.
- d. Both ME's crank shafts are to be inspected for crankshaft deflection and trueness and shall be rectified/repared as per standard requirement.
- e. All ME auxiliaries such as jacket water pumps, sea water pumps, fuel oil booster pumps, fuel feed pumps, high pressure fuel pumps etc are to be overhauled/serviced with new or refurbished spares.
- f. All ME sub systems (jacket water, fuel, air, and lube oil) are to be inspected thoroughly and all related sensors, meters and gauges (pressure, temperature, speed etc) are to be replaced with new. Associated pipelines should be repaired or renewed with their valves and reducers.
- g. All four Turbo-chargers/ Blowers (SA-085) fitted with main engines are to be replaced with refurbished Turbo-chargers/ Blowers (SA-085).
- h. Local gauge boards and gauges boards in control room for both main engines are to be refurbished. New gauges for local engines gauge boards and gauges boards in control room are to be fitted.
- j. Exhaust monitoring system, thermocouples, rails in engine control room are to be fitted new. Display in engine control room are to be replaced.
- k. Existing mechanical 1131V governors are to be refurbished.
- l. All items, auxiliaries and spare parts required for the above repair, refurbishment and renewal works are to be supplied by the BIDDER.
5. **Project Schedule/ Delivery Time.** Project Schedule/ Delivery Time will be as follows:
- a. The BIDDER must complete the project within 12 (Twelve) months from the date of signing the contract including HAT and SAT. The actual onboard work period shall be coordinated between BIDDER and NHQ so that the ship remains non-operational for a short period of time only.
- b. The BIDDER shall submit a complete project schedule with the offer covering initial evaluation, shipment of spares, repair/refurbishment works and test/trials in the offer. The sequence of repair work should be carefully planned as to affect the operational period, ships activities and other repair work to the minimum. Applicable logical and technical sequence should also be followed in consultation with the NHQ. Details may be discussed during pre-bid meeting.
6. **Spares Required.** The BIDDER should supply all necessary spares required to complete the scope of work/supply mentioned in Paragraph 4. As such the offer shall include a list of all spares with itemized prices. If any spares mentioned for scope of works are not consumed during the servicing, it will be handed over as BN/Ship on completion of the project with a complete list and pattern number. If the spares from BN stock is used, the BN store is to be replenished by the BIDDER. BIDDER may also offer with spare parts exchange request with separate list of such spares.
7. **Special Tools.** BN Dockyard at Chattogram/ Mongla Dockyard/ the Ship will provide available tools for the project works. The BIDDER will arrange all the special tools, if not held at BN Dockyard/ Mongla



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Dockyard/ Ship for the project work. The special tools are to be handed over to BN/Ship on completion of the works. The BIDDER, where necessary, may conduct survey to ascertain existing BN facilities at their own cost.

8. **Eligibility of the BIDDER.** The BIDDER shall be competent and experienced in similar repair/ refurbishment work onboard ship. The BIDDER shall be any of the followings:
- OEM of any of the Main Engine or
 - Any reputed company who is competent and experienced in similar repair/ refurbishment work onboard ship, or
 - A reputed company who is authorized by OEM or authorized by any reputed company who is competent and experienced in similar repair/ refurbishment work onboard ship.
9. **Eligibility of Technicians.** All Technicians should be skilled in Ruston engine repair and overhaul work. The Technicians should also be led and guided by subject matter expert (SME). The credentials, travel itinerary, passport, bio-data and other relevant documents including VISA of the technicians are to be submitted prior 01 (one) month of commencement of the actual works for approval of the PURCHASER. After vetting necessary credentials and security clearance from concerned authority, The PURCHASER will notify the BIDDER about clearance of the technicians visit.
10. **Responsibilities of BN.** BN will ensure availability of BNS TURAG at preferred jetty/ Naval Berth as applicable. BN (Ship's authority) will also provide necessary support/assistance to facilitate the refurbishment/overhauling activities. A technical team will be formed under the Engineer Officer of the Ship to supervise, monitor the refurbishment work and render necessary support and assistance to foreign technical team as and when required.
11. **Support from BN Dockyard/ Mongla Dockyard.** All administrative, logistic and transport facilities for the work on site are to be provided by the BIDDER. BN will provide available crane and forklift support within the naval premises. All repair/maintenance/installation materials, cablings, spares, tool set are to be provided by the BIDDER. BIDDER may use general workshop facilities available BN Dockyard at Chattogram/ Mongla Dockyard. BIDDER may mention supports necessary from BN Dockyard/ Mongla Dockyard in the offer. Ship will not be given with any docking schedule for the refurbishment work.
12. **Site of Repair Work.** Ship will be stationed at Naval Berth MONGLA during the entire tenure of repair/refurbishing work. Since the ship does not need any docking, all related work will be undertaken while the ship is at Naval Berth. BIDDER will ensure safe movement of the vessel by securing all repair gears for emergency movement of the ship (if required) with the assistance of BN.
13. **Accommodation and Transportation.** BN will provide necessary accommodation and food facility for the foreign staffs. Cost of food will be borne by BIDDER as per mess policy. Transportation for carrying foreigner, local engineer, spares, goods and components to and from the workshop/ship will be the responsibility of BIDDER.
14. **Test, Trial and Acceptance.** Test and Trial and Acceptance will be carried out as follows:
- After refurbishment and satisfactory running in at different rpm, the engines should undergo on load test/trial (HAT/SAT). HAT & SAT of the Main Engines is to be done by the BIDDER in the presence of BN representative/Acceptance Committee on completion of work. The BIDDER is to submit detailed HAT and SAT procedure at least 02 (Two) months before the commencement of test/trials to NHQ for approval. HAT and SAT procedure are to include condition of test/trial, test procedure and desired standard parameters for the test covering all auxiliaries of the Main Engines. The procedure will be



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finalized after incorporating the NHQ's comments. Following tests must be included in the HAT/SAT procedure:

- (1) Both Main Engines should be tested for correct running parameters at harbour after maintenance.
 - (2) Both main engines shall be engaged with the gearbox and run near their maximum rated RPM. All parameters shall remain within their allowable limits while the engines are operating near maximum rated RPM (750 RPM).
 - (3) Both main engines should be operated at sea with maximum output for reasonable period of time to measure running parameters in full load condition. Engine BHP to be measured by the BIDDER at full load condition with suitable measuring device (by measuring the torque). Minimum allowable BHP is 85% of maximum continuous rated power 2190 hp for each engine.
 - (4) Both Main Engines shall be operated for a reasonable period to verify that known issues have been rectified specifically; the inability to reach the rated maximum RPM, any parameters exceeding allowable limits, the exhaust "red hot" condition and to confirm that none of these issues persist.
 - (5) Turbo blower and governor performance is to be inspected, compared and recorded for correct functioning.
 - (6) Stock of spares held onboard and supplied by the BIDDER are to be inspected, compared and listed.
 - (7) All replaced/renewed/repared sensors are to be checked for correct functioning.
- b. Operating tests and performance checks for propulsion system should also include:
- (1) Progressive Speed Trial (Ahead, Astern) with full power trial.
 - (2) ME starting & control air system check.
 - (3) Fuel Oil Consumption Test.
- c. **Desired Parameters.** After completion of the repair/ refurbishment work, each Main Engine should produce minimum 85% of MCR power (MCR Power 2190 hp) as maximum power during trial. This power to be measured and shown with suitable torque measuring device.
- d. After satisfactory test & trial (HAT/SAT), an Acceptance Certificate shall be provided by the BN/Ship/Acceptance Committee.
- e. Necessary arrangements for SAT at sea shall be done by the BN/Ship. The BIDDER shall supervise accordingly. BIDDER is to arrange the presence and supervision of experts during HAT and SAT.



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15. **Insufficient Speed and Power.** The BIDDER shall have to give guarantee that the repair/refurbishment will enable the ship to achieve the desired maximum power (85% of 2190 hp) for each engine and to be measured and shown to ship's crew by suitable torque measuring device. For every percent of reduction of power output from single engine beyond 85% penalty amounting to 1% of total contract price will be applicable.

16. **On-site Inspection.** The BIDDER may inspect the Ship to assess the existing operational state of the ship before submitting their offer at BIDDER'S own cost.

17. **Warranty.** The BIDDER shall provide warranty period of minimum 01 (one) year after signing final acceptance by Acceptance Committee. During warranty period, all necessary service/repair of the Main Engines are to be done by BIDDER without any charge/payment. If any defect arises within these one years, BIDDER will rectify the defect by replacing the respective module. If the equipment remains non-operational for more than 03 (three) months (date count from the date of initial reporting to BIDDER or local agent) due to defect in any sub unit/component during the warranty period, the warranty period will further be extended for that period.

18. **Guarantee for Warranty.** The BIDDER shall furnish to DGDP a bank guarantee for warranty amounting 5% (Five percent) of the LC value after satisfactory test/trial (HAT/SAT), local training and acceptance by BN which shall remain valid until expiry date of the warranty period.

19. **Certificate.** The BIDDER is to furnish following certificates:

- a. Guarantee Certificate.
- b. Warranty Certificate.
- c. In case, BIDDER himself is not accomplishing the repair or refurbishment work, necessary authorization certificate or proof of partnership from the company/ OEM/ organization doing the refurbishment/repair work are to be submitted with the tender.

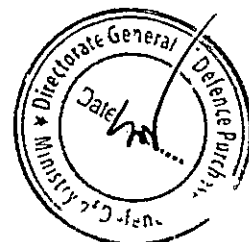
20. **List of Documents.** An evaluation of propulsion system covering all components and sub systems is to be done by the BIDDER with a report prior commencement of the refurbishment work. BIDDER is to submit a report on completion of refurbishment work attaching all records and document related to changes, repair works and modifications. Documents are to be submitted by the BIDDER in both hard and soft copies. The list of documents is:

a. Prior Starting Refurbishment/Repair work:

- (1) Evaluation report based on inspection carried out.
- (2) Overall/ Repair work schedule will be provided.
- (3) List of Spares for Overhauling.

b. During/after the refurbish/repair work:

- (1) Complete report of repair works (On site work quality plan).
- (2) HAT & SAT procedure document (before 2 months of test/trial).
- (3) Parts Catalogue for newly installed components and spare parts of ME.
- (4) Documents related to trouble shooting, if something newly installed.



21. **Shipment and Delivery.** Shipment and delivery to be carried out as follows:

a. The BIDDER is to arrange shipment of all items by sea/air to Chattogram or Mongla as per the scheduled timeline to the following address:

The Commanding Officer
Naval Stores Depot, New Mooring,
Chattogram, Bangladesh.

or

The Commanding Officer
Naval Stores Depot Khulna
Town Khalishpur, Khulna

b. All items are to be delivered in suitable protective packing to ensure safe transit.

c. All packages are to have packing notes showing their contents in detail and all packages shall be marked with the name and address of the consignee and gross weight.

d. BN will assist in completing custom formalities. The BIDDER will arrange transportation of all supplied items to NSD Chittagong or NSD Khulna.

e. **Port of Shipment.** Any port of the manufacturing country.

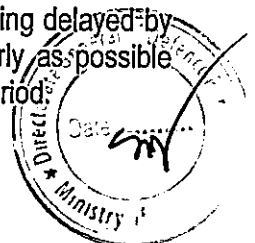
22. **Maintenance of Existing Operational State.** In any case, the existing operation state of the propulsion system must not be degraded. Necessary checks shall be carried out prior commencement of the project to assess and evaluate the existing operation state in presence of all concerned.

23. **Custom Duties and Taxes.** The spare parts, tools and other accessories to be purchased for repair/ re-furbishing of 2 X Main Engine of BNS TURAG will, in general, be considered as defence stores. These defence stores shall be used by the Defence Forces of Bangladesh only and hence are exempted from payment of custom duties, supplementary duties and sales taxes etc. BN shall take necessary steps to arrange exemption from payment of custom duties, supplementary duties and sales taxes etc. The said charges are not included in the contract price. If any custom duty, supplementary duties etc. is charged considering luxurious item, the related cost in this regards shall be borne by BN. BIDDER will be responsible for all funding for any special device, tools or equipment carried by him particularly for their return to his home country.

24. **Force Majeure.** The delivery time of the said 2 X Main Engine for repair/ re-furbishing will be subject to force majeure for which the consideration will be for:

a. War, rebellion, political unrest, labour strike, fire, explosion affecting KSY/IMPS (UK)'s infrastructure, natural calamities, e.g. unusual weather condition, earth quake, flood, etc, accident delay in payment and/or such other reasons or circumstances which are beyond the control of the supplier during the construction of the said air conditioning plants.

b. In the event of delivery of the said 2 X Main Engine for repair/ re-furbishing being delayed by any of the above mentioned cases, notice in writing shall be given to the BN as early as possible intimating the force majeure case or cases and asking for extension of the completion period.

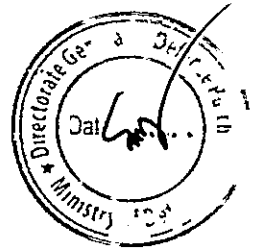


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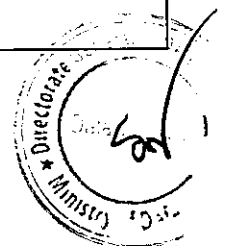
25. **Price Quotation.** The BIDDER is to offer full itemized price for supplies, spares and services for each of the components of the propulsion system. The PURCHASER will have the right to procure particular supplies, spares and services from the offered price quotation depending on actual requirements and OEM recommendations.
26. **Price.** If the item is imported against this order, price to be quoted without import duties.
27. **Terms of Payment.** Letter of Credit (LC) shall be opened for full amount of contract price in favor of BIDDER for the complete scope of supply with the following terms of payment:
- 50% (Fifty percent) of total LC value will be paid on delivery of all spare and tools for ME overhauling to the consignee.
 - 50% (Fifty percent) of total LC value will be paid after satisfactory test/trial (HAT/SAT) and acceptance by BN and on submission a Bank Guarantee for Warranty amounting 5% (Five percent) of the LC value issued by any scheduled bank of Bangladesh. The Guarantee and warranty shall remain valid until expiry date of the warranty period.
28. **Validity of the Offer.** The offer shall remain valid up to 30 June 2026.
29. **Compliance Statement.** A clear and complete compliance statement of the tender specification supported by brochure/ booklet, etc in English is to be submitted with the offer. Any deviation from this specification is also to be clearly mentioned in the offer. Incomplete compliance statement may attribute to cancellation of the offer.
30. **Condition for Acceptance of Quotation.** Quotation may not be considered if detailed information/specifications, maker's brochures/booklet of offered item, accessories and scope of supply/work etc are not provided. The PURCHASER may purchase part or whole of the consumables/accessories/test equipment.

Enclosures:

- Main Engine 30,000 hour's Scheduled Maintenance.
- List of ME Pumps/Accessories.

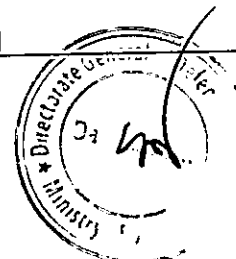


| MAIN ENGINE | | | | |
|---|----------------------|--|--|-------------------------------|
| MAINTENANCE SCHEDULE | | | Organization and period of maintenance | |
| Maint Op No | JIC/ User No | Job Description | By Whom | Period |
| 30000 Hrs (Major overhauling) | | | | |
| 1. | 30000H ₁ | Engine to be completely taken apart and carried out overhauling its associated parts accordingly. | DY | 30000 Hours Routine |
| 2. | 30000H ₂ | Examine the main bearing shells and determine the bearing clearances. Clean the bedplate. Inspect the main bearing bolt lower nuts and split pins before reassembly. | DY | |
| 3. | 30000H ₄ | Inspect the crankshaft for cracks; check the journals for wear and ovality. Clean and flush the oil ways. Check the crankshaft alignment when the engine is reassembled. | DY | |
| 4. | 30000H ₄ | Withdraw the balance shaft (8v engine) after checking the backlash in the gears. Calibrate the bearing clearance and end floats. Dismantle the balance weight and idler gear; inspect and calibrate. | DY | |
| 5. | 30000H ₅ | Flush through oil ways in the hubs. | DY | |
| 6. | 30000H ₆ | Clean, de-scale the crankcase. | SS | |
| 7. | 30000H ₇ | Remove and clean the cylinder liners, check the bores and renew the sealing rings. | DY | |
| 8. | 30000H ₈ | Dismantle the auxiliary drive and check the bearing clearance. | DY | |
| 9. | 30000H ₉ | Dismantle and inspect the oil and water pumps. | SSRR | |
| 10. | 30000H ₁₀ | Examine camshaft gears, shafts and bushes. Remove camshafts and check journals, couplings and bushes. Check running clearances. | DY | |
| 11. | 30000H ₁₁ | Fit new parts as necessary. | DY | |
| 12. | 30000H ₁₂ | Examine and lubricate the motor-driven speeder gear. | DY | |
| 13. | 30000H ₁₃ | Dismantle the over speed trip. Clean all parts and check for damage and/or wear. Renew parts as necessary. | DY | |
| 14. | 30000H ₁₄ | Renew big-end bearings and big-end bolts, nuts and washers. | DY | |
| 15. | 30000H ₁₅ | Check the fuel transfer pump and drive. Clean all parts and discard the oil seal. Renew any parts which are damaged | DY | 30000 Hrs (Major overhauling) |
| 16. | 30000H ₁₆ | Clean out the bedplate lubricating oil suction pipes and strainer; renew all synthetic rubber hose connections and joints which have been disturbed. | SS | |
| 17. | 30000H ₁₇ | Descale the engine water spaces. | SS | |
| 18. | 30000H ₁₈ | Clean the air and water sides of the charge cooler. Clean the oil and water sides of the lubricating oil cooler. Clean the fresh and sea water sides of the heat exchanger. Renew all joints and hoses | DY | |
| Issue No: 01 | | | Side 06 of 06 | |
| Equipment Description: Main Engine (Model- 12RKCM), Diesel Engine | | | Schedule Number E-101 | |
| Schedule Title: 30000 Hours | | | | |



| MAIN ENGINE | | | |
|--|----------------------|---|--|
| MAINTENANCE SCHEDULE | | | Organization and Period of Maintenance |
| Maint Op No | JIC/ User No | Job Description | By Whom Per |
| 30000 Hrs Routine (Major Overhauling) | | | |
| 1. | 30000H ₁ | Engine to be completely taken apart and carried out major overhauling its integrated parts. | DY |
| 2. | 30000H ₂ | Remove the main bearing caps and examine the mating surfaces of the caps and the bedplate. Inspect the top half bearing shells. | DY |
| 3. | 30000H ₃ | Examine the crankpin surfaces and determine the bearing clearances. | DY |
| 4. | 30000H ₄ | Examine each cylinder liner bore. | DY |
| 5. | 30000H ₅ | Examine the camshaft gears and the cam follower rollers. Fit new parts as necessary. | DY |
| 6. | 30000H ₆ | Withdraw the pistons and connecting rods and examine the big end bearing shells and inspect the big end bearing bolts. | DY |
| 7. | 30000H ₇ | Clean and examine the pistons and check the gudgeon pin clearances. | DY |
| 8. | 30000H ₈ | Renew chrome plated position rings; renew others when ring gap reaches the maximum limit. | DY |
| 9. | 30000H ₉ | Connecting rod large end bores (not bearings) to be checked for ovality. | DY |
| 10. | 30000H ₁₀ | Check the injectors and air start tubes. Decarbonizes combustion faces. | DY |
| 11. | 30000H ₁₁ | Dismantle and examine valve gear parts. Reface valves and valve seats. | DY |
| 12. | 30000H ₁₂ | Renew cylinder head liner joints, push rod tube seals, pipe seals, rocker bracket transfer sleeve sealing rings, flexible drain hoses and cover joints. | DY |
| 13. | 30000H ₁₃ | Dismantle and clean the air start distributor. | DY |
| 14. | 30000H ₁₄ | Carry out servicing the fuel injection pumps. | DY |
| 15. | 30000H ₁₅ | Dismantle and examine the fuel transfer pump. | DY |
| 16. | 30000H ₁₆ | Dismantle, clean and examine the air separator and relief valve (if fitted) | DY |
| 17. | 30000H ₁₇ | Examine the pins and bushes in the fuel control mechanism and check tightness of nuts. | DY |
| 18. | 30000H ₁₈ | Dismantle the lubricating oil pump. Check the bearing clearances and examine the gears for wear. | DY |
| 19. | 30000H ₁₉ | Dismantle and inspect the lubricating oil pressure reducing valve. | DY |
| Issue No:01 | | | Side 04 of 04 Sides |
| Equipment Description: Ruston Diesels Engine, Makers Address: Ruston Diesels Ltd, Newton- le- Willows, Merseyside, UK Model: 12 RK3CM Schedule Title: 30000 Hrs Routine. | | | Schedule No: E-101 |

30000 Hrs (Major overhaul)



LIST OF PUMP ACCESSORIES OF MAIN ENGINE
BNS TURAG

MAIN ENGINE:

1. Exhaust Manifold
2. F/W pump
3. S/W pump
4. Lub oil pump
5. Lub oil cooler
6. F/W cooler
7. Turbo super charger
8. Fuel feed pump

GEAR BOX:

1. Gear box standby pump
2. Gear box cooler

CPP:

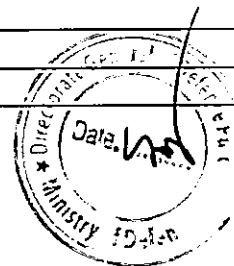
1. CPP hydraulic oilpump
2. OD Box
3. CPP hydraulic oil cooler

PROPULSION:

1. MA Seal
2. Gland cooling pump
3. Deep Sea Seal

MANIFOLD EXHAUST:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Manifold Exhaust |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 08 (Left Side: 04, Right Side:04) Both Engine |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

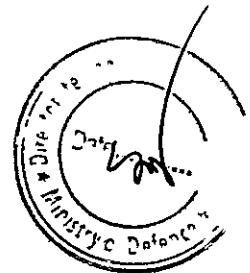


FRESH WATER PUMP:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Fresh water pump |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 01 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

SEA WATER PUMP:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Sea Water Pump |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 01 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

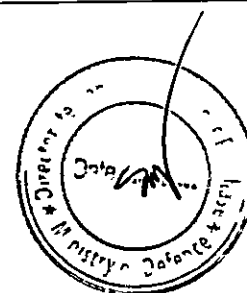


LUB OIL PUMP:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Lub Oil Pump |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 02 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

LUB OIL COOLER:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Lub Oil Cooler |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 01 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

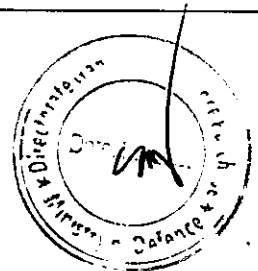


FRESH WATER COOLER:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Fresh Water Cooler |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 02 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

TURBO SUPER CHARGER:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Turbo Super Charger |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 02 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

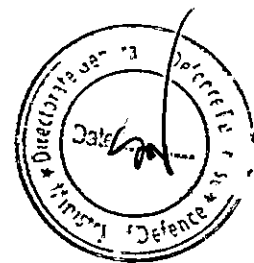


FUEL FEED PUMP:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Fuel Feed Pump |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 02 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

FUEL HIGH PRESSURE PUMP:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Fuel High Pressure Pump |
| 2. | Name of Main Equipment | Main Engine |
| 3. | Quantity | 24 |
| 4. | Equipment Brand | Ruston |
| 5. | Equipment Model | 12RK3CM |
| 6. | Equipment Serial no | IH-3459 |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Ruston Diesel (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

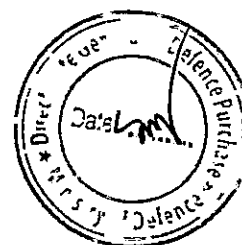


CPP HYDRAULIC OIL PUMP:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | CPP Hydraulic Oil Pump |
| 2. | Name of Main Equipment | CPP |
| 3. | Quantity | 02 |
| 4. | Equipment Brand/Type | ALA45 - 4LNSEHH OIL SCREW PUMP |
| 5. | Equipment Model | ALA45 - 4LNSEHH |
| 6. | Equipment Serial no | - |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | Sulzer Bros (UK) Ltd |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Sulzer Bros (UK) Ltd |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

CPP HYDRAULIC OIL COOLER:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Hydraulic Oil Cooler |
| 2. | Name of Main Equipment | CPP |
| 3. | Quantity | 01 |
| 4. | Equipment Brand | - |
| 5. | Equipment Model | BOXMAN FC-140-3126-4 |
| 6. | Equipment Serial no | - |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | BIRMINHAM,UK |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | BIRMINHAM,UK |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |



OIL DISTRIBUTION BOX:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Oil Distribution Box |
| 2. | Name of Main Equipment | OD Box |
| 3. | Quantity | 01 |
| 4. | Equipment Brand | Sulzer Bros |
| 5. | Equipment Model | |
| 6. | Equipment Serial no | - |
| 7. | Country of Origin (Main Equipment) | UK |
| 8. | Country of Manufacture | Sulzer Bros (UK) Ltd |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Sulzer Bros Ltd. Farn Borough, UK |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

DEEP SEA SEAL:

| Ser | Particulars | Description |
|-----|--|---|
| 1. | Name of Item | Deep Sea Seal |
| 2. | Name of Main Equipment | Propulsion System |
| 3. | Quantity | 02 |
| 4. | Equipment Brand | - |
| 5. | Equipment Model | - |
| 6. | Equipment Serial no | - |
| 7. | Country of Origin (Main Equipment) | Germany. |
| 8. | Country of Manufacture | Germany. |
| 9. | Year of Manufacture (Spares) | 2024 or later |
| 10. | Source of Supply | OEM |
| 11. | Port of Shipment | N/A |
| 12. | Manufacture's Name and Address | Simplex Turbulo Marine Co Ltd, howaldtswerke-DeutscheWerft. Aktiengesellschaft, Hamburg, Germany. P.o.box 111480 Tel.(040) 7411 Telex.217603/21763 |
| 13. | Supplier/Local Agent | To be mentioned |
| 14. | Certificate and Document of Authentication | OEM Certificate |
| 15. | Packing/labeling | To be mentioned |
| 16. | Warranty | At least 12 months from date of acceptance. |
| 17. | Installation/Compatibility/Interfacing | N/A |
| 18. | Test, Trial and acceptance | N/A |
| 19. | Site visit (Focal Point) | N/A |

