

**MINUTES OF THE REQUEST FOR INFORMATION CONFERENCE  
FOR NORMAL REFIT- 1 (NR-1) OF ICGS RAJRATAN**

1. A meeting for Request For Information Conference towards NR-1 of ICGS Rajratan was conducted at CGRHQ(NW), Gandhinagar on 09 May 19. Following were present:-

**CGRHQ (NW)**

- |     |                           |              |
|-----|---------------------------|--------------|
| (a) | DIG A Amarender Reddy, TM | CSO (Tech)   |
| (b) | Dy Comdt KR Kadam         | RTO (Refit)  |
| (c) | J Singh, PSE (SW)         | SSO(Refit)   |
| (d) | Sanjay Kumar, SE(ER)      | ASSO (Refit) |

**CGDHQ-1**

- |     |                    |              |
|-----|--------------------|--------------|
| (e) | Comdt Rajbir Dalal | DTO, CGDHQ-1 |
|-----|--------------------|--------------|

**ICGS RAJRATAN**

- |     |                       |                          |
|-----|-----------------------|--------------------------|
| (f) | Comdt (JG) NR Singh   | Commanding Officer       |
| (g) | Lakhvir Singh, SE(P)  | SO In-Charge Electrical  |
| (h) | Vinay Kumar, Adh(QA)  | SO In-Charge Hull        |
| (j) | Hardeep Singh, SE(ER) | SO In-Charge Engineering |

**CGRPT (SURAT)**

- |     |                     |           |
|-----|---------------------|-----------|
| (k) | S Gireesh, PSE (SW) | CGRPT Rep |
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**SHIPYARDS**

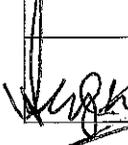
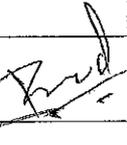
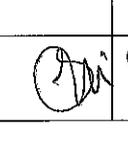
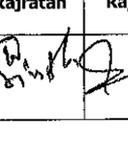
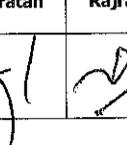
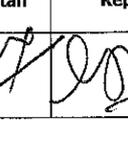
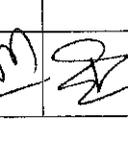
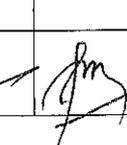
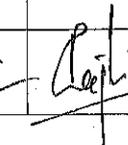
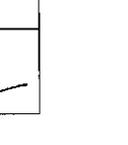
- |     |                                  |   |
|-----|----------------------------------|---|
| (l) | Mr. Srinu<br>Refit Coordinator   | M/s Shoft Shipyard Pvt. Ltd<br>Bharuch    |
| (m) | Mr. Sunil Jain<br>Admin Manager  | M/s Chowgule & Company<br>Pvt Ltd, Goa    |
| (n) | Mr. Pramod Patil<br>Sr. Engineer | M/s Krasny Defence Technologies<br>Mumbai |

2. At the outset, CSO (Tech) welcomed members present in the meeting. The CSO(Tech) emphasized that all queries be clarified during the course of defect wise discussion. The refitting firms will have to submit two separate bids in sealed envelopes i.e. technical bid and

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHQ-1

commercial bid for the refit of the ship. **The NR-1 of ICGS Rajratan is to be undertaken at Gujarat/ Maharashtra/Goa Coast only being the immediate geographical vicinity from base port (Porbandar).** He also intimated that the refitting firms must quote for complete scope of the work (all in way jobs included) at fixed rates for refit duration of **120 calendar days.** CSO (Tech) further emphasized on the following points related to the conduct of refit:-

- (a) NR-1 of ICGS Rajratan is to be undertaken at Gujarat/ Maharashtra/ Goa coast only. In the event that shipyard/ refit yard do not have its own infrastructure including workshop facility at the place of refit, it should have a "Memorandum of Understanding" (MoU) with a local firm which owns at least a workshop facility befitting the refit of a ship. The shipyard/ refit yard should be a licensee or have a MoU/ agreement with a Port/ PSU/ private refit yard (ICG registered) in whose dock the ship is going to be docked as part of refit. The proof for both the facilities (workshop and dock) is to be attached alongwith the technical bid so as to ascertain the technical qualification of the yard. The refit including docking of the ship shall be undertaken at one location.
- (b) Ship staff to prepare list of long lead spares and initiate procurement of CG supply spares and surface paints.
- (c) Refitting firm winning contract is to submit BAR chart (indicating critical path) along with Quality Assurance Plan (QAP) and PBG. BAR chart and QAP are to be submitted by the refitting firm within 15 days of signing the Refit Contract and is to be finalized during pre refit meeting.
- (d) Requirement of class surveyor as defined in these minutes/SOW are to be strictly adhered by the yards.
- (e) During dry dock period, work may continue round the clock, including blasting/painting. Request for such extended hours should reach the ship 48 hours in advance. During this period, the refitting firm is to arrange suitable bus/vehicle for turnaround of ship's personnel between ship and place of stay provided by refitting firm, at no extra cost. Any specific requirement over and above the working hours indicated, is to be intimated by refitting firm to CGRPS/COA with justification, who will consider the request based upon merit.
- (f) For effective and timely execution of refit, a good co-ordination is expected between CGRPT, ship and the refitting firm.

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(g) No stoppage of work is permitted unless the same is linked to ship's safety and security. In case of such need arises, the matter is to be immediately referred to the COA.

(h) For undertaking post refit Guarantee Defects away from base port/ port of conduct of refit, no additional charges (including travelling/ boarding/ lodging) will be reimbursed by ICG to the refitting firm / subcontractor/ PAC firms. The refitting firm is to have necessary arrangements at different ports for attending the guarantee defects.

(j) Any loss to Govt. property (including during docking and undocking of ship) will have to be made good by the refitting firm by providing the same in serviceable condition/replenished. The refitting firm and its subcontractors will not have any lien on these materials.

(k) Being refitting firm's subcontractors, obtaining services and quotes from the PAC/OEM firms will remain yard liability.

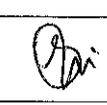
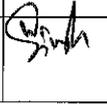
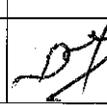
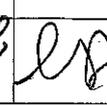
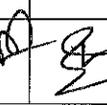
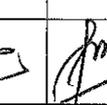
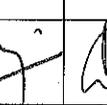
(l) The refitting yard is to submit an indent for spares within two working days from opening of a particular machinery or equipment and same is to be vetted by CGRPS/COA within the next two working days. The ship to thereafter raise demand within the subsequent two working days to the Store Depot. The depot is to process this demand within three working days and forward NACs by fax/email. Ink signed NACs are to be forwarded by the depot by post/by hand of Ship's representative.

(m) EPDM rubber and neoprene rubber for external and internal WT doors and hatches respectively to be used. In this regard CGHQ policy letter FM/0305/CGWO/Gen dated 29 Jan 14 be followed.

(n) The itemwise or defect list wise quote is to be submitted within 15 days of CNC and the refit of the ship is to start within one month of signing the refit contract.

(p) PBG for an amount of 10% of contract price is to be submitted by the refitting firm within 30 days of signing of contract. This PBG will remain valid upto eight months from refit completion date. No separate BG needs to be provided by refitting firm for release of stage VIII payment, if the PBG provided earlier covers the guarantee period.

(q) LD, if applicable, is to be levied only at stage -VI prior raising of "Full & Final payment" certificate. Deduction of amount for jobs approved for deletion will be as per item wise quote submitted by refitting firm.

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(r) No supply order for NA spares is to be placed after refit completion. Further, for timely settlement of refit bills towards NA spares, the refitting yard should ensure that invoices for the same are accompanied by ink signed NAC.

(s) Blanking of flanges, pump openings, pipelines have to be carried out if the valves, pumps, pipes are removed for repairs as per standard marine practice. Water tight integrity in all circumstances between compartments is to be maintained to ensure safety of ship during entire duration of refit.

3. Following is the summary of response from the participating refitting firms /firms:-

(a) Expression of interest/ comments on the main defect list along with acceptance towards terms and conditions **for undertaking NR-1 of ICGS Rajratan at Gujarat/Maharashtra/ Goa Coast of India only** were invited from the following refitting firms vide CGRHQ (NW) letter 3467/3 dated 24 Apr 19 :-

- (i) M/s Goa Shipyard, Goa
- (ii) M/s Krasny Defence Technologies Pvt Ltd, Mumbai
- (iii) M/s Yeoman Marine Services Pvt Ltd, Mumbai
- (iv) M/s Chowgule & Company Pvt Ltd, Goa
- (v) M/s Sadhav Offshore Engg Company, Mumbai
- (vi) M/s Sagar Ship Repairers & Marine Services, Mumbai
- (vii) M/s Homa Engineering Works, Mumbai
- (viii) M/s L&T Ship Building Ltd, Mumbai
- (ix) M/s Shoft Shipyard Pvt Ltd, Bharuch

(b) M/s Shoft Shipyard Pvt Ltd, Bharuch submitted their technical comments/ queries vide e-mail dated 02 May 19 and also attended the RFIC.

(c) M/s Sadhav Offshore Engg. Co., Mumbai vide email dated 03 May 19 expressed interest to participate in tender however, submitted inability to attend RFIC due to preoccupation.

(d) M/s Chowgule & Company Pvt Ltd. Vide Fax CCPL/LY/CG/RAJRATAN/R019/015/01 dated 04 May 19 have expressed interest and attended the RFIC.

(e) M/S Krasny Defence Technologies Pvt Ltd, Mumbai Vide letter KDT/200/RTN dated 07 May 19 have expressed their interest and attended the RFIC.

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(f) The following refitting firms have not responded:-

- (i) M/s Goa Shipyard, Goa
- (ii) M/s Yeoman Marine Services Pvt Ltd, Mumbai
- (iii) M/s Sagar Ship Repairers & Marine Services, Mumbai
- (iv) M/s Homa Engineering Works, Mumbai
- (v) M/s L&T Ship Building Ltd, Mumbai

4. The main defect list contains defect serials **HA-1001 to HC-1119, EA-3001 to EA-3200** and **LA-5001 to LA-5132** is placed at **Annexure-I**.

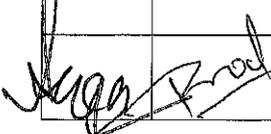
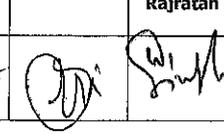
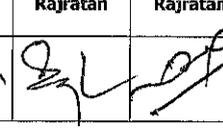
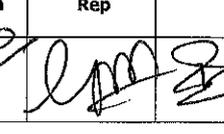
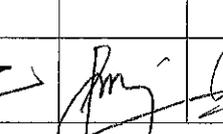
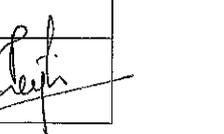
5. The remarks given earlier by CGRHQ (NW) on the main defect list were further elaborated and deliberated during 'Request for Information Conference' and changes in remarks are mentioned as final RFIC remarks and the same have been incorporated in the refit work package. The complete work package with 'Final RFIC remarks' is placed at **Annexure-I**. The existing FO tank (Fr 22-25) and FW tank (Fr 28-30) to be modified as per "Modification of Tank Extend Drawing" Drg No. 2072-79/110221 (placed at **Annexure-II**) under supervision of class surveyor as specified at DL No HC-1119. The refitting yards are required to make note of these remarks and include cost in the final offer while submitting technical and commercial bids/during CNC accordingly.

6. The technical queries/ comments of all the shipyards were scrutinised during 'Request for Information Conference'. To bring all the yards technically at par, the scope of work was discussed and clarifications have been incorporated in the final RFIC remarks. All the queries and doubts were discussed and necessary clarifications are included in the Annexures to this document. The amendments and clarifications arising during discussions with each refitting firm in RFIC will also be applicable to the other competing refitting firms.

7. The defect description and CGRHQ (NW) remarks in the Main defect list were discussed and scope of work finalised and understood by all who participated in RFIC. The defect list has been checked, scrutinised and it is certified that there is no repetition of defects.

#### 8. Provision of Accommodation during Refit

(a) The refitting firm is to provide accommodation to Ship's crew when the ship becomes uninhabitable. The accommodation is to be provided within a reasonable distance (less than 10 Kms) from the ship in consultation with CGRPT/RHQ. The ship will be considered uninhabitable under any of the following conditions in consultation with CGRPS/COA who will decide upon ship becoming uninhabitable and habitable:-

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- (i) Non availability of toilet and bathrooms.
- (ii) Non availability of galley.
- (iii) Non availability of A/C and ventilation.
- (iv) If more than 50 % of living spaces are disturbed due to degutting-regutting.

(b) During the uninhabitable period, accommodation is to be provided for following crew as per the scale of accommodation indicated below:-

(i) Officers. Cabin accommodation for 05 officers with following Amenities :-

- (aa) One single occupancy room with A/C
- (ab) 02 double occupancy rooms officers with A/C
- (ac) Attached toilet with bathroom.
- (ad) Basic room curtain and TV.
- (ae) Table and chairs.
- (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.
- (ag) Dinning space and cooking area.

(ii) Subordinate Officer. Cabin accommodation for 08 SOs with following facilities :-

- (aa) 04 nos. double bedrooms with air cooler.
- (ab) Attached toilet & bathroom.
- (ac) Basic room curtain and TV.
- (ad) Table and chairs.
- (ae) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.
- (af) Common dinning space with TV.

(iii) Enrolled Personnel. Dormitory type accommodation with curtains for 28 Enrolled Personnel to be provided. The scale of accommodation is as follows: -

- (aa) 28 in nos. single bed/cots. Rooms to have air cooler circulator.
- (ab) Each single bed/cot to be provided with mattress, bed sheet, pillow cover.
- (ac) Six W/C and Six bathrooms.
- (ad) Dormitory room to have basic upholstery like teapoy, TV, curtains and easy chairs and wardrobe for keeping uniforms and day to days items.
- (ae) Dinning space and Cooking area.
- (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Huli Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHQ-1

9. **Yard Services.** The yard is to include following services required to be provided to the Ship for the duration of refit against yard services. No additional service charges to be levied for the jobs undertaken by ICG under DFPR. The item wise quote submitted by the L-1 yard after CNC should separately include charges for each of the below mentioned yard services:-

(a) Fire main supply of 04 bar pressure at the rate 40 TPH to be supplied to ship invariably for full duration of refit. Refitting yard is to provide 02 qualified fire sentries each, wherever hot work is in progress. SS is also to provide their own fire sentry as required. If the refitting firm does not have facility for round the clock fire main pressure, yard to make arrangement for fire tender to be stand by all the times.

(b) Garbage clearances and disposal facility to be provided for the entire duration of refit.

(c) Shore supply power connection (415V,50 Hz, 3 Phase) for consumption power up to **500 units per day** and connecting / disconnecting cable as and when required with feeder breaker capacity of not less than 150 KW. Payment will be made at actuals. Ships staff to maintain a logbook for actual power consumption. Shore supply 415V, 50 Hz, 3 Phase to be provided for the duration of refit with provision of voltage meter.

(d) Crane facility is to be provided as and when required. Yard to cater for **70 hours** operations during the entire refit period. However, Payment will be made at actuals. Ship staff to maintain a record/ logbook on this aspect.

(e) Supply of fresh water to be catered for **06 tons per day including 250 ltrs** of drinking water per day. However, payment will be made at actuals and SS to keep record of water received during refit.

(f) All OEM/PAC and refitting firms 'H', 'E' and 'L' reps are to embark the ship for pre and post refit trials sailing till satisfactory performance/acceptance of the machinery by the ship.

(g) Preparation of keel blocks and certificate of suitability is to be issued by the refitting firm. Keel blocks are to be offered to overseeing authority for inspection, prior docking of the ship.

(h) Keel blocks are to be arranged as per latest approved docking plan, and ship is to be dry-docked in both versions.

(j) Tug for docking, undocking, berthing and un-berthing are to be provided as and when required from pre- refit trials till refit completion.

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- (k) Pilot is to be provided while entering and leaving dock and harbour.
- (l) Shipyard is to provide 02 nos mobile phones with unlimited calling in India and one unlimited data connection for voice communication and E-mail respectively during entire refit duration. Yard's office fax facility will be used for fax in/out by the ship.
- (m) Berthing and unberthing at wet basin including basin hire charges are to be catered for.
- (n) The refitting yard is to provide transport for refit duration as follows for 100 Km/day or 12 hrs/day whichever is exhausted earlier (The transport usage commences and terminates at the gangway):-
- (i) Two mini buses (12-14 seater) for ship.
  - (ii) One car for ship.
  - (iii) One car for COA/ CGRPS.
  - (iv) One mini truck to be provided twice a week or as and when required for store collection to the nearest railway station etc.
- (p) Provide temporary lights to ensure illumination at appropriate level.
- (q) Compressed air supply as and when required.
- (r) Refitting firm to extend fax/e-mail facility to COA/ Refit Overseeing Team on as and when required basis.
- (s) AC system is to be kept operational for maximum duration of the refit and alternate seawater cooling lines are to be provided whenever feasible to keep system operational. Three split ACs of adequate capacity to be provided in CO cabin, ward room, dining hall when ship's AC is rendered non operational.
- (t) Proper alongside berthing facility (not alongside pantoon/ floating dock, etc.) and yard services for ship are to be provided for the entire period of refit. The refitting firm is to ensure that there is no unnecessary shifting of ship during the ship's refit. In event of berthing and yard services provided by ICG, the cost of the same would be deducted at actuals.
- (u) Appropriate refit office for overseeing team with necessary furniture and AC.
- (v) Adequate storage space to be provided to ship during the major hull repair work. Approx store room size - 15 x 15 ft.

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(w) Shore galley facilities including gas burners and cost of cooking gas to be provided when the ship's galley becomes non-operational.

(x) At the time of de-ratting/ de-cockroaching, alternate necessary arrangement for the Galley should be provided by the refitting firm.

(y) The refitting firm to arrange Gas Free Certificate for all Fuel/Avcat/Lube oil tanks prior commencing hot work. For this purpose provision of blowers with hoses and visit of Inspector of Explosives are to be catered for.

(z) The ship is to carry out de-fueling prior coming in dry-dock. The refitting firm is to provide suitable containers/space for storing the residual fuel. The Ship to collect fuel prior departing from the yard.

(aa) Sufficient ventilation to be provided when ship's AC becomes non-ops.

(ab) Yard to provide facilities for DP testing/load testing of Capstan/towing hook / Davits etc.

10. PAC Firms. Routines and defect rectification of the equipment are to undertaken in totality and only through OEM/PAC/Authorised reps for defect list serials mentioned at Annexures I .

**NOTE: Deviation from the above, if unavoidable, may be considered with prior approval of CGRHQ. However, requests for such deviation should be projected within 15 days of commencement of refit through CGRPS/Overseeing Authority for necessary action.**

11. General Discussions. All technical queries pertaining to the refit of the ship were discussed during RFIC held on 09 May 19 at CGRHQ (NW) and following decisions have been agreed by all concerned for action by refitting firm:-

(a) The list of sub-contractors for undertaking repairs on equipment & machinery not mentioned in para 10 are to be submitted to CGRPS/CG Overseeing authority for approval.

(b) All welding jobs are to be undertaken by qualified welders duly certified by LRA/ IRS / ABS / MMD for HT Steel, MS, SS, Aluminum etc. during the refit.

(c) Scope of well-defined work in defects indicating 'To be renewed, To be replaced' include supply of spares and material, fitment, commissioning and trials within quoted amount for that defect. No NAC/AWRF will be provided against such

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defects until otherwise specified/discussed specifically during 'Request For Information Conference' (RFIC).

(d) The quotation of refitting firm for overhauling of pumps (except equipment mounted pumps and motors) will constitute all work including supply of spares except renewal of impellers, shafts and casing. Pumps are to be painted as per existing paint scheme by spray paint after overhauling within price agreed during PNC/CNC.

(e) Overhauling/refitting of all valves includes mandatory replacement of all defective material, gaskets, joints, fasteners, bridge piece and valve seats. In addition, renewal of 25% spindles to be catered against each defect serial where valve overhauling is specified. Painting of valve with 02 coats (one primer and another colour coding) to be carried out.

(f) Overhauling of Capstan / windlass will include supply of all spares except for gears, shaft, casing.

(g) Overhauling of lub oil coolers, freshwater cooler, condenser and all other heat exchangers include replacement of 'O' rings and Gaskets/fasteners. Renewal of anodes is mandatory, as and when cooler/ condenser opened and plugging of leaking tubes is permitted up to 10%. Coolers/condenser are to be painted as per existing paint scheme.

(h) Routines on AC / Refrigeration Plant include replacement of all teflon seating and spindle for all line valves along with painting of compressors, condensers and pumps.

(j) Cost of removal and refitting of paneling and renewal of lagging and insulation removed during defectation is to be included in the quoted cost. No additional cost for additional degutting and regutting will be admissible.

(k) All relief/safety valves fitted with pumps and compressors are to be checked for correct operation during overhauling.

(l) Ship's hull/structure, all welded joints which are accessible and visible are to be checked and survey to be carried out and repairs as per ABS/LRA/IRS recommendation.

(m) Removal / fitment of pumps / prime mover / Generators include alignment as per procedure along with in way jobs.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHQ-1

(n) All in way jobs whether specified or not in CGRHQ (NW) final RFIC remarks are to be undertaken by yard within the quoted price except in cases where the in way job entails removal of heavy machinery for steel renewal.

(p) The refitting firm is to submit details of sub-contractors to whom work is intended to be offloaded within 15 days of signing the Refit Contract and the same is to be approved/finalized by CGRPS during the pre refit meeting. Request for Information Conference with OEM / PAC firm and sub-contractor of the yards is to be conducted with the reps of CGRPS/overseeing authority and ship staff prior to awarding the contract. Work orders are to be issued within two weeks of refit commencement. If any firm is found technically unsuitable and / or not agreeing with the terms and conditions of Coast Guard, same to be disqualified for undertaking work. CGRPS/Refitting Authority rep to be included in PNC/CNC for AWRF jobs with sub contractors.

(q) The refitting firm to place order for yard supply items within 15 days from the date of pre refit trials or as mutually agreed between Coast Guard and Yard and forward a copy of supply order to CGRPS / Overseeing Authority.

(r) All work is to be carried out as per the directives of CGRPS / Overseeing authority based on the approved defect list as confirmed during Request for Information Conference.

(s) Any hold up in timely completion of refit is to be intimated CGRHQ through COA / CGRPS/Overseeing Authority at least 30 days prior to scheduled completion of refit with revised estimated date of completion and in addition fortnightly progress report of refit is to be forwarded by COA along with refit expenditure on work package and AWRFs.

(t) Overhauling of motors and their control panels includes following:-

- (i) Renewal of bearings.
- (ii) Cleaning of stator/rotor and varnishing.
- (iii) Internal and external repairing of motor yoke.
- (iv) Examination of rotor, impeller, shaft, bearing housing and impeller non-driven end (in case of ventilation motors) for flaws, cracks and corrosion. Same to be repaired if found defective.
- (v) Removal and renewal of bearing seals and gasket.
- (vi) Repair of terminal box.
- (vii) Replacement of defective nut and bolts.
- (viii) Overhauling of EM brake assembly, associated gear and resistance bar control unit, in case of windlass and capstan.
- (ix) External painting of motor as per paint scheme.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHC-1



/recommendation on same is to be submitted in shortest possible time to finalise areas requiring steel renewal. Scanning is to be undertaken through class approved agency.

### 13. Spares Management

(a) The list of exact requirement of spares for routines/defect rectification to be rendered to CGRPS/ Ship by the yard within 02 days from the date of opening of equipment/machinery.

(b) The spares required for any equipment will be procured by the refitting yard from the authorised dealer against NACs. The spares for equipment for which authorised agencies are not available would be procured on competitive basis on approval of CGRPS/overseeing authority. The spares procured through the refitting yard shipyard against NACs would be reimbursed at actuals plus overheads as per DPM in vogue. Taxes, duties etc. will be paid on production of documents. Procurement of spares through refitting yard will be authorised by CGRPS/Overseeing authority after ascertaining availability of sanction. The detailed procedure for procurement of spares against NAC from refit account is to be undertaken as per policy in vogue.

(c) Unless, otherwise specified in defect List/Request For Information Conference minutes, spares for refit will be CG supply.

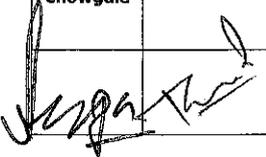
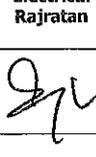
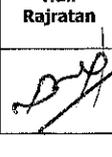
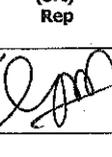
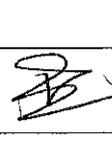
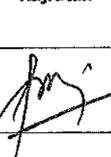
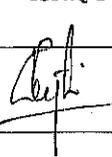
### 14. Trials

(a) The refitting Yard to conduct pre-refit trials along with reps of nominated OEM/PAC firms before taking over the ship for refit. Yard is to conduct sea trials post successful completion of Harbour/Basin Trials.

(b) DA's load trials are to be carried out on completion of major routines on engines and alternators with load tank. All DA's are to be proved on parallel operation also. However, no load tank trial is to be conducted, if no major repair/routines have been carried out.

(c) The refitting yard is to provide Test and trials reports as per format. Ship is to hand over copy of format for test and trial reports.

(d) On completion of refit, the refitting yard is to conduct Harbour/Basin Trials for all machinery and defects, if any, are to be liquidated prior to Sea Trials.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHQ-1
									

15. **Supply of Materials by Yard.** Following materials are considered as yard supply materials and the cost of the same would be deemed to have been included in the quotation for the respective defect list serials: -

- (a) Lagging material for renewal of laggings.
- (b) Joints for pipes & manhole covers.
- (c) Rubber Coaming for doors and hatches.
- (d) Nuts, Bolts, Washers and fasteners wherever required (Material –as per original fit).
- (e) Material for all wood repair jobs.
- (f) Pipes, flanges and fittings for pipe renewal jobs.
- (g) Bearings for pumps and motors (except for pumps fitted on Main Engines and Gear Boxes).
- (h) Gland packing including rudder gland packing & stabilizer gland packing.
- (j) Material for furniture repair jobs (wooden as well as metal).
- (k) Sacrificial anodes except for water jet system wherever renewal envisaged.
- (l) Manufacture of shaft key during overhauling of pumps if required.
- (m) Steel for Steel renewal jobs along with class certificate.
- (n) Material for cleaning electrical contacts, electrical equipment and their accessories, which are to be overhauled.
- (p) Tiles, underlay, chock fast, araldite, putties, etc.
- (q) Industrial gases for testing/trials of systems, like Nitrogen for A/C /Ref plant pressure testing.
- (r) Electrical items like Switch, plugs, cable, pin, fuse, terminal box, contacts, washers, nuts, split pins, wood polish, putties , teflon tape, seal tight, hold tight latches, blanks and flanges etc.
- (s) Spares for batteries, water cooler, refrigerator, deep freezer, Photocopier machine (except drum), washing machine, air horn, motor horn, mixer, iron box, TV, VCR/DVD , domestic fan, etc.
- (t) All materials as indicated in remarks against individual defect serials.

16. **Dry Docking.** Dry docking of the ship to be done in both versions or as per latest approved version of docking plan within the final amount agreed during the CNC. The ship should generally be docked within four weeks of commencement of refit and under water hull survey and growth of underwater work package if any, be finalised. The entire underwater hull including areas covered by keel blocks are to be painted as per the approved paint scheme indicated in main defect list.

17. **Paints.**

(a) The refitting firm is to include supply of paints as per the scope of work and Request For Information Conference (RFIC) minutes. Representative of paint manufacturer to be involved for the supervision during surface preparation and

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHC-1

painting. The refitting yard to obtain back to back performance guarantee of 60 months from paint manufacturer and stand guarantee against failure. The failure is defined as appearance of visible macroscopic fouling or detachment of whole or part of film, amounting to 10% (ten percent) or more of the total surface area, within 36 months, from the date of final application of paint provided :-

(i) Percentage of visible macroscopic fouling be established through Data plan (provided by paint manufacturer rep at site, in consultation with repair yard and CGRPS/ CG nominated rep).

(ii) Failure of paint is not due to external cause like bacterial attack, mechanical damage, welding, heating, fairing or cleaning during guarantee period (in service).

(iii) Fitted ICCP (Impressed Current Cathodic Protection) system or equivalent is working satisfactorily during guarantee period.

(b) The paints are to be procured only from ICG authorised paint manufacturers/ suppliers. To maintain uniformity, complete quantities of paints should be procured from one of these firms only. **Paint used by this ship is of M/s Akzo Noble make.**

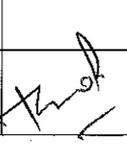
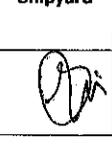
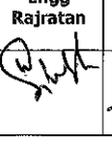
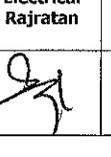
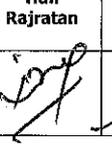
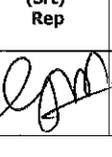
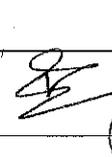
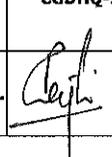
(c) The guarantee towards painted surface is as follows:-

(i) The paint is to be procured from manufacturer who will agree to give guarantee towards painted surface in consonance with the "**Product Performance Guarantee**" (PPG) placed at Annexure-III to this minutes. No deviation from PPG placed at **Annexure-III** will be accepted.

(ii) The refitting yard will also to ensure that a confirmatory certificate from the site supervisor of the paint manufacturer is obtained and submit the same with second stage bill. In case of any objection recorded by the supervisor at site, the overseeing authority's decision would be final which shall be recorded on the confirmatory certificate.

**\*Note.** Paint failure to be defined as visible microbiological growth (i.e. fouling, barnacles weeds etc.) visible corrosion marks, peeling and blistering of paint on underwater surface.

(d) Touch Up Paint Scheme. The refit yard to cater for surface preparation (grit blasting or any other method advised by CGRPT/ class surveyor) of 30 % area and

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application of all inner coats of paint in the 30 % area followed by application of one final coat on the entire area.

18. **Disclaimer.** Name of any firm/agency/supplier other than OEM/PAC as mentioned in para 10 above is advisory/matter of reference and not binding on yard. The status of OEM/PAC firm as mentioned para 10 will remain unchanged.

19. **Noise and Vibration Trials.** Noise Level Measurement of the ship are to be undertaken as part of refit. The recommendations/information are to be utilised for undertaking routines/repairs on ship's equipment/fittings. **The Noise and Vibration trials are also to be undertaken during pre-refit trials and also on completion of the refit as part of post refit trials.** The vibration measurement of major machinery (Main Engines, DAs, Gear Boxes, Pumps Compressors, etc.) are to include frequency analysis in addition to all amplitude measurements in horizontal, vertical and axial directions.

20. **Entry of AIAMC firms during Refit duration.** Yard will not have any objection on working of reps of AIAMC contractor/ other local traders whose jobs are not related to refit package onboard ship during the period of refit and the yard service so rendered is to be absorbed with no extra cost. Yard will allow the reps of firms having AIAMC with ICG during the refit to work in their premises and will assist ship staff to arrange necessary security approvals/ gate pass etc. ICG will have the right to delete the work package for equipment for which the AIAMC has been under consideration at the time of issuing RFP and finalized later.

21. **Association of Surveyor.** ABS/IRS/LRA surveyor is to be associated, wherever applicable, for survey of hull / all steel renewal, shafting, Main Engines, Gear boxes and other shaft sub assembly jobs as listed below. Yard's quotation is to include surveyor's fees also.

- (a) Survey of hull externally including decks, side shell and bottom.
- (b) Complete survey of hull internally including tanks, cofferdams, longitudinal/ transverse frames, other structural members, void spaces, bilge spaces, watertight/non-watertight bulkhead.
- (c) Review of hull gauging.
- (d) Witnessing of air/hydro tests of all fresh water, ballast, fuel oil and lube oil tanks.
- (e) Examination of water jet inlet ducts, shaft protection tubes and transom flanges renewal etc.
- (f) Ranging and examination of Anchor and Chain cables.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHQ-1

- (g) Examination of chain locker, hawse pipes, chain stoppers with testing of pumping arrangement of chain locker.
- (h) Examination of watertight doors and hatches for watertight integrity.
- (j) Examination of all openings in shell including overboard discharges, underwater valve openings etc., dry space, cofferdams, tanks, plating and framing, bilging, draining, sounding, venting and pumping.
- (k) Load testing of all lifting appliances and deck machinery for running and static load.
- (l) Only class approved and ASNT qualified USG surveyors are to be employed by yard and the same to be verified by CG Overseeing authority.

22. **Terms and Conditions.** In addition to above, following additional terms and conditions are to be accepted by all the refitting yards:-

- (a) All defects/jobs marked in the defect list as DO and as agreed whether quoted or not are to be undertaken by the shipyard under this contract within cost agreed during the CNC.
- (b) The refitting firm does not have privilege of offloading the 'Complete Refit Work Package' to a third party. In addition, shipyard is to furnish details of work load of refit of Coast Guard Ships during scheduled period of refit of ICGS Rajratan and the same should not exceed the capacity indicated in the Registration Certificate issued by Coast Guard Headquarters.
- (c) If refitting firm fails to settle all payments of CG nominated PAC firms pertaining to this refit within 45 days of refit completion, CG holds the right to settle the payment directly to PAC firm from the refit sanction against work completion certificate authenticated by CG rep.
- (d) Shipyard is to permit the vendors registered with Coast Guard authorities for carrying out jobs against work order issued by RHQ/ DHQ/ Ship under DFP.

23. **Conclusion**

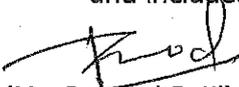
(a) The scope of work of main defect list has been discussed in detail and all technical aspects have been clarified. The refitting firm's reps are to quote for complete work package including Main Defect List and scope of work as elaborated during RFIC. Yard is to ensure placing of requisite counter weights as and when major sub assemblies/ equipment are removed.

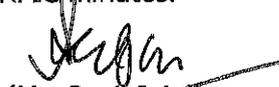
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(b) Shipyards participating in tendering were advised to consult PAC firms for RFIC remarks (specified in Main Defect list) prior submission of bids for realistic charges of PAC firms towards undertaking defect list serials to avert any ambiguity at later stage.

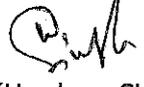
(c) All the members have understood the work package, Minutes of RFIC and there are no further queries/clarifications. Clarifications sought by the refitting yards have been cleared in RFIC and same mentioned against each defect list serials in RFIC remarks column.

(d) Further, the scope of work of Main Defect List has been discussed and all technical aspects have been clarified in detail with CSO (Tech) in chair along with RTO (Refit), DTO/ CGDHQ-1, Representative of CGRPT (Surat), Commanding Officer, all concerned department in-charges of ICGS Rajratan and representative of firms. All participants of the RFIC have agreed and confirmed that all points have been covered and included in the RFIC minutes.

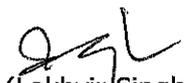
  
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 M/s Krasny Defence  
 Technologies,  
 Mumbai

  
 (Mr. Sunil Jain)  
 M/s Chowgule &  
 Company Pvt Ltd  
 Goa

  
 (Mr. Srinu)  
 M/s Shoft Shipyard  
 Pvt Ltd  
 Bharuch

  
 (Hardeep Singh)  
 SE (ER)  
 SO(Engg)  
 Rajratan

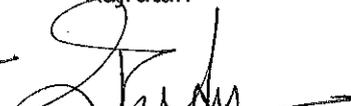
  
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 Adh (QA)  
 SO (Hull)  
 Rajratan

  
 (Lakhvir Singh)  
 SE (P)  
 SO (Elect)  
 Rajratan

  
 (Sanjay Kumar)  
 SE (ER)  
 ASSO (Refit)  
 CGRHQ(NW)

  
 (S Gireesh)  
 PSE (SW)  
 CGRPT(Srt)  
 Rep

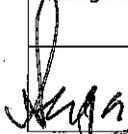
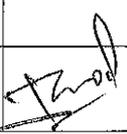
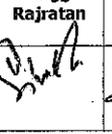
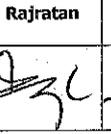
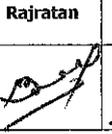
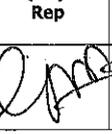
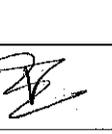
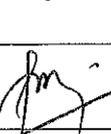
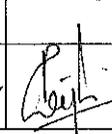
  
 (J Singh)  
 PSE (SW)  
 SSO(Refit)  
 CGRHQ(NW)

  
 (KR Kadam)  
 DY Comdt  
 RTO (Refit)  
 CGRHQ (NW)

  
 (MR Singh)  
 Comdt (JG)  
 CO  
 Rajratan

  
 (Rajbir Dalal)  
 Commandant  
 DTO  
 CGDHQ-1

  
 (A Amarender Reddy)  
 Deputy Inspector General  
 CSO (Tech)  
 CGRHQ(NW)

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	RTO (Refit)	CO Rajratan	DTO CGDHQ-1
									

**ICGS RAJRATAN NORMAL REFIT (NR-1)  
MAIN DEFECT LIST- HULL**

DL NO	DESCRIPTION	FINAL RFIC REMARKS
<b>YARD SERVICES</b>		
HA 1001	Pre and post refit trials to be carried out to assess the performance and status of all equipment and fittings. All PAC, yard reps from Hull, Engg, Electrical departments to embark onboard	DO. Yard to undertake pre and post refit trails as per sl (a) para 14 of RFIC minutes.
HA 1002	<b>TRANSPORT</b> The refitting yard is to provide transport for refit duration as follows for 100 Km/day or 12 hrs/day whichever is exhausted earlier (The transport usage commences and terminates at the gangway):- (i) Two mini buses (12-14 seater) for ship. (ii) One car for ship. (iii) One car for COA/ CGRPS. (iv) One mini truck to be provided twice a week or as and when required for store collection to the nearest railway station etc.	DO.
HA 1003	<b>ACCOMMODATION</b> The refitting yard is to provide accommodation for following crew as per the scale of accommodation indicated below:- (i) <u>Officers.</u> Cabin accommodation for 05 officers with following Amenities :- (aa) One single occupancy room with A/C (ab) 02 double occupancy rooms officers with A/C (ac) Attached toilet with bathroom. (ad) Basic room curtain and TV. (ae) Table and chairs. (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided. (ag) Dinning space and cooking area.	DO. Yard to provide accommodation as per para 8 of RFIC minutes.  Shore galley facilities with appropriate exhaust system including gas burners and cost of cooking gas to be provided when the ship's galley becomes non-operational.

M/s Chowgute	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHC-1	RTO (Refit)

- (ii) Subordinate Officer. Cabin accommodation for 08 SOs with following facilities :-
- (aa) 04 nos. double bedrooms with air cooler.
  - (ab) Attached toilet & bathroom.
  - (ac) Basic room curtain and TV.
  - (ad) Table and chairs.
  - (ae) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.
  - (af) Common dining space with TV.
- (iii) Enrolled Personnel. Dormitory type accommodation with curtains for 28 Enrolled Personnel to be provided. The scale of accommodation is as follows: -
- (aa) 28 in nos. single bed/cots. Rooms to have air cooler circulator.
  - (ab) Each single bed/cot to be provided with mattress, bed sheet, pillow cover.
  - (ac) Six W/C and Six bathrooms.
  - (ad) Dormitory room to have basic upholstery like teapoy, TV, curtains and easy chairs and wardrobe for keeping uniforms and day to days items.
  - (ae) Dining space and Cooking area.
  - (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.

**UNDERWATER WORK PACKAGE**

HA1004 Ship is to be dry docked in version I and II and necessary information/ details to be entered in docking form. Three copies of duly approved docking report complete with all data to be provided.

DO both version docking against yard services as per SI (h) of Para 9 of RFIC minutes. SS to provide latest docking plan. Six copies of docking report to be provided by ship. All necessary documents to be attached with the docking report are to be provided by the refitting yard.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHDQ-1	RTO (Refit)

HA 1005	Washing of underwater hull with high pressure hydro dynamic jet (3000 PSI) followed by cleaning and thorough removal of sea growth with brushes from underwater hull and fittings including water jet, sea chest & grating to be carried out immediately after dry docking. (Underwater area: 320 sqm, boot top area: 100 sqm. Yard to cater for staging and crane facility). Then clean with fresh water thoroughly.	DO. Material yard supply.
HA 1006	After cleaning, examine the whole under water area paying particular attention to hull plate in the vicinity of water jet tube, zinc protectors, sea chest and all other fastenings areas for signs of corrosion defects and damage. Defect observed to be rectified. Class surveyor to be associated for inspections.	DO survey of underwater hull including appendages jointly by class surveyor and CGRPT. Class as per serial 21 of RFIC minutes.
HA 1007	Carry out UTG survey of underwater area paying particular attention to E/R, tanks, coffer dams, WB tanks, sludge tank and jet tube areas and sea chests immediately on commencement of refit/ docking (for under water hull) and report is to be rendered at the earliest to enable assessment of work package. Those plates thinned down more than 10% to be cropped and renewed. Report of UTG survey to be given to ship and CGRPS in shell expansion drawing and tabular form along with photographs of underwater fittings.	DO. Yard to cater for robotic scanning of underwater including boot top area and 100 UTG points, 02 tons of steel renewal of the plates/ stiffeners thinned down more than 20% or as per class recommendations. Payment for steel renewal on pro rata basis. Material yard supply. Steel Grade: AH-36. All in way job included. SS to provide shell expansion drawing. No underwater photography by yard.
HA 1008	Photography of underwater hull fitting/ damages appendages, fittings, openings and major repair/renewal works etc. to be undertaken and 04 sets of album to be submitted to ship.	Delete. SS

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

HA 1009	U/W hull to be vacuum/ grit blasted to SA 2.5 on completion of U/W inspection. Area required to be blasted be decided according to sea growth, fouling, blisters, paint damage and peel off area. Full paint to be carried out as per CGHQ policy letter for entire under water hull and boot top areas including U/W appendages. Yard to cater for full scheme painting by airless spray under supervision of paint rep for entire under water hull area (320sqm). <b>Paint Yard Supply.</b> (make: M/s AKZO NOBLE)	DO. Yard to cater for touch up paint scheme of M/s Akzo Noble (SPC scheme) as per existing paint scheme including boot top area. Paint yard supply. Application of Paint under supervision of paint manufacturer rep. Record of DFT to be submitted. Total under water area including boot top area is 410M <sup>2</sup> .
HA 1010	Anti Fouling black on entire boot top area (100 sqm) to be applied during dry docking. <b>Paint Yard Supply.</b> (make: M/s AKZO NOBLE)	Delete. Covered in HA 1009.
HA 1011	Remove, examine and overhaul all u/w storm valves. Carry out chemical cleaning and pressure testing after over hauling (1.5 times of WP).	DO. Yard to cater for 07 Nos Valves, Size-50mm. Test pressure 05 bar
HA 1012	Remove, Clean and refit all Sea Chest grating (Qty-15 nos) (a) Water jet-03 nos (b) Main engine-03 nos (c) DA - 03 nos (d) Fire & GS Pump - 01 no (e) Bilge & GS pump-01 no (f) AC Condenser pump - 01 no (g) RO plant - 01 no (h) Magazine flooding valve - 01 no (i) Oily water separator - 01 no	DO. All consumables including fasteners yard supply. Renewal if any against AWRP. Grating size:- (a) Water jet-1200 x 504 mm approx (b) Main engine-414 x 314mm approx (c) DA - 110 mm Dia (d) Fire & GS Pump - 110 mm Dia (e) Bilge & GS pump-110 mm Dia (f) AC Condenser pump - 90 mm Dia (g) RO plant - 60 mm Dia (h) Magazine flooding valve - 275 mm Dia (i) Oily water separator - 100 mm Dia (j) Paint as per U/W paint scheme. Paint yard supply.

M/s Chowgule	M/s Krasny	M/s Shoaf Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)
<i>M. Krasny</i>	<i>Krasny</i>	<i>Shoaf</i>	<i>Engg</i>	<i>Electrical</i>	<i>Hull</i>	<i>Rep</i>	<i>Rajratan</i>	<i>CGDHQ-1</i>	<i>RTO</i>



	/ blast the deck to bare metal. Full paint scheme of deck to be applied on entire deck (area: 350sqm). Yard to cover all scuttles/ port holes, ventilation openings, bridge glasses, canvas covers, RIB boats, electrical cables and equipment while painting. Painting to be done under supervision of rep of paint manufacturer to inspect, monitor and obtain required paint thickness during painting. Paint thickness report to be rendered to ship. <b>Paint yard supply</b> (make: M/s AKZO NOBEL)	HA 1020 Full coat of ship side to be applied on entire surface (approx area: 300 sqm). Blue strips marking by airless spray painting. "भारतीय तटरक्षक" lettering in Hindi on port side and "INDIAN COAST GUARD" in English on starboard side to be inscribed. Ship's name (Red paint) in Hindi & English on both sides and pennant number on sides as well as on stern to be painted. Painting to be done under supervision of Paint rep and SS. Paint thickness report to be rendered to ship. <b>Paint yard supply</b> (make: M/s AKZO NOBLE)	03 RU lockers from foxle and Q-Deck are required to be removed and refitted for UTG survey/ inspection. Size of lockers: 3 X 2 X 2 feet Approx. DO. Touch up paint scheme. Scope includes painting of draft markings also. Total area -205 Sq. Mtrs. "INDIAN COAST GUARD" lettering in English on port side and "भारतीय तटरक्षक" in Hindi on stbd side to be inscribed. Ship's name (Blue colour paint RAL code 5026, Pearl Night Blue) in Hindi & English on both sides and pennant number on sides as well as on stern to be painted. Blue band markings to be painted on both sides. Drawing will be provided by SS. Paint CG Supply. Material yard supply.
<b>SUPER STRUCTURE AREA EXPOSED (ALUMINIUM) AND ALUMINIUM EXPOSED DECK / BULKHEAD</b>			
<b>NOTE:</b> Aluminum Structures are not to be blasted / hard tools not to be used for scraping or chipping.			
HA 1021	Entire structure to be examined paying particular attentions to all areas (including exposed decks and bulkheads) where aberration is possible. Check bulkhead and ships side (bimetallic joint) for paint failure, structural damage etc. Check flag decks, Emergency DA compartment, bridge area and boundaries for corrosion and deterioration. Doubtful areas where obscured structure, portable fittings may be removed for inspection.		DO. Survey and one final coat of paint on super structure including main mast and aluminium decks. Area of Super Structure 660 Sq Mtrs and area of aluminium deck 125 Sq Mtrs. Paint CG supply. Structural repairs if any under AWRP.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Rent)
<i>M/s Chowgule</i>	<i>M/s Krasny</i>	<i>M/s Shoft Shipyard</i>	<i>SO I/C Engg Rajratan</i>	<i>SO I/C Electrical Rajratan</i>	<i>SO I/C Hull Rajratan</i>	<i>CGRPT (Srt) Rep</i>	<i>CO Rajratan</i>	<i>DTO CGDHQ-1</i>	<i>RTO (Rent)</i>

HA 1022	Super structure area including main mast to be washed with fresh water (approx area 550 sqm including fittings) and to be painted with final coat. (Paint scheme attached) Yard to cover all scuttles/ port holes, ventilation openings, bridge glasses, canvas covers, RIB boats, electrical cables and equipment, etc while painting. Painting to be done under supervision of rep of paint manufacturer & Ship staff. Paint thickness report to be rendered to ship. <b>Paint yard supply</b> (Make: M/s AKZO NOBEL)	Deleted. SS
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**GENERAL COMPARTMENTS DECK NO 2, 1 AND ABOVE/ACCOMMODATION AREA/ LOBBIES AND PASSAGES, ELECTRICAL STORE, DECK STORE, ATU COMPARTMENT, BAGGAGE STORE**

HA 1023	Lagging/ paneling or deck covering to be removed for inspection at various places where corrosion is likely to occur (approx area 300 sq m). Where lagging or deck covering is peeled cracked blistered lost adherence or structure is excessively corroded clean to bare metal dry the surface and recoat as per paint scheme. Thickness to be checked and any specific defect be projected. Lagging/ paneling to be refitted after inspection.	DO internal survey including bulk heads by class surveyor and CGRPT. Yard to cater for renewal of 15 Sq. mtr MFMB lagging to facilitate inspection. All in-way jobs included. Material yard supply.
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**GALLEY AND ASSOCIATED FITTINGS**

HA 1024	02 Nos galley exhaust filters to be renewed as per sample. Mat- SS wire mesh with SS frames, size- 1.5 x 1.5 ft.	DO. Material yard supply.
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**ACCOMMODATION, LOBBIES AND PASSAGES**

HA 1025	Inspect areas that are covered by lagging/panelling deck covering where corrosion is likely to occur. Check the thickness, assess condition of lower portion of bulkheads boundaries and structures obscured by fittings. Specific defects if any to be projected to undertake in AWRP.	Delete. Covered in HA-1023.
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**MACHINERY COMPARTMENTS (FWD AND AFT E/R, W/J COMPARTMENT)**

HA 1026	Clean machinery compartment bilges and limber holes and carry out visual survey for internal hull structure and fittings along with class surveyor. Inspect the frames, girders and stiffeners. Remove flaked paint film to bare metal and area where paint failure occurred. Carry out UTG at critical areas. Renew as per recommendation of class surveyor. Any damage/defect found to be noted and	DO. Yard to cater for 200 UTG points and touch up paint scheme. Material yard supply. Paint CG supply. Approx area 510 sqm. Steel renewal if any covered under DL SI HA-1007.
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M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Sirt) Rep	CO Rajratan	DTO CGDHO-1	RTO (Refit)

	projected for repair. Carry out one final coat on entire bilge area as per scheme (approx area 510 sqm) <b>Paint yard supply.</b> (make: M/s AKZO NOBLE)								
<b>ELECTRICAL STORE / BATTERY COMPARTMENT</b>									
HA 1027	Examine all bulk heads, decks and boundaries. Clean, scrap and paint the rusted area.						Deleted. SS		
<b>BOATSWAIN STORE</b>									
HA 1028	Scrap, clean and remove all flaked paint films to be bare metal and area where paint failure occurred. Apply paint as per scheme.						DO. Material yard supply. Paint CG supply. Area 50 Sq Mtr.		
<b>BATHROOMS/ WCS</b>									
HA 1029	Remove all scuppers, drain pipes of bath rooms and toilets. Clean chemically and Refit after pressure testing and painting. Defects if any to be projected (Mat: MS). Length and size of pipelines as follows:						DO 50% of pipes for sl (a) to (c) and 100% for sl(d). Material including paint yard supply. Inway jobs included. Renewal if any against AWRP.		
	<b>Size</b>	<b>Length</b>							
	(a) 50 mm	50 mtr							
	(b) 40 mm	20 mtr							
	(c) 32 mm	10 mtr							
	(d) 65 mm	15 mtr (Soil/ Black water pipe)							
HA 1030	Examine structure not covered by lagging or deck covering, paying particular attention to deck boundaries lower area of bulkhead and ship side's areas around side scuttles. Portable or semi portable fittings and soil pipe trunk access plates are to be removed for examination of structure. Different section of pipelines area to be removed at successive examination. Strip examine and pressure test 05 in nos storm valve and pipes, renew leather seating and rubber lips. Specific defects to be reported to ship.						DO survey by class surveyor only. Storm valves covered in HA-1011. Renewal if any against AWRP.		
HB 1031	05 in no commode uprooted from base to be fitted as per existing sample. Mat-wood.						DO. Material yard supply. All in-way jobs included.		
HA 1032	Renew all taps and isolating stop cocks in Officers, senior sailor's and junior						Delete.		
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)
<i>Krasny</i>	<i>Krasny</i>	<i>Shoft</i>	<i>Engg</i>	<i>Electrical</i>	<i>Hull</i>	<i>Rep</i>	<i>Rajratan</i>	<i>CGDHQ-1</i>	<i>RTO</i>

	sailor's bathroom.									
HB 1033	Renew all wooden gratings of Officer's and Sailor's bathroom as per sample. Area total – 50 sq ft Mat- wood.								Delete.	
<b>VOID SPACES</b>										
HA 1034	Open and thoroughly clean 03 in nos. void spaces and carry out survey with class surveyor for state of material and paint. Examine the structure paying particular attention to the junction of framing with vertical plating, outer bottom plating and especially area not readily visible such as the back of framing and stiffeners. Surveyor report to be submitted. Specific defects after surveyor recommendation to be projected. Renew four cover gaskets of manholes.								DO survey by class surveyor and touch up paint scheme. Paint CG supply. Total area of three void spaces – 100 Sq. Mtr.	
<b>DIRTY WATER TANK AND DIRTY OIL TANK</b>										
<b>Note :</b> Yard to issue gas free certificate from govt. agency before entering to the tank/ confined space. Air pressure test of tanks to be proved in case of any repair works.										
HA 1035	Dry out and inspect compartment structure for failure of paint coating. Remove any loose or flaking paint and all signs of corrosion by scraping and wire brushing. Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint. (Approx area 20 sqm) <b>Paint Yard Supply.</b>								DO survey by class surveyor and touch up paint scheme. Paint CG supply.	
<b>FRESH WATER TANK</b>										
HA 1036	Dry out and inspect compartment structure of 01 in no. fresh water tank (14 Tons) for failure of paint coating. Remove any loose or flaking paint and all signs of corrosion by scraping and wire brushing. Paint is to be applied as per scheme (area 95 sqm). <b>Paint Yard Supply.</b> Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint. Manhole gasket to be renewed.								DO survey by class surveyor and touch up paint scheme. Paint CG supply.	
HA 1037	Associate the class surveyor during internal inspection and project specific defect for repair. Apply paint as per scheme. Ensure all manhole covers are free of corrosion and intact at seating. Pressure test tank if steel renewal /repair carried out. Paint as per scheme. Renew 04 in nos of taps and isolating stop cocks in galley, dining hall, stbd/ port bridge wing and quarter deck.								Delete. Covered in HA-1036.	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

**FUEL OIL / LUB OIL TANKS**

<p>HA 1038 Following tanks are to be cleaned and inspected for material state by class surveyor.</p> <p>(a) Fuel oil tank - 03 Nos (total volume-49.99 cu mtr)</p> <p>(b) Fuel RU tanks - 02 Nos (total volume-13.40 cu mtr)</p> <p>(c) Lube oil tank 15 W 40 - 02 No (total volume-1.40 cu mtr)</p> <p>(d) Lube oil tank HLP-68 - 01 No 1.00 cu mtr</p> <p>Lube oil tanks. Clean tank and examine interior surface for corrosion. Recoat paint as per specification. Pressure test the tanks if any steel renewal/ repair carried out. All 08 manhole gaskets and securing bolts to be renewed. Yard to issue gas free certificate from govt. agency before entering into the tank/ confined space. Air pressure test of all tanks to be carried out in case of any repair works.</p>	<p>DO. Yard to cater for internal survey and touch paint scheme. Paint CG supply. Material yard supply.</p>
<p>HB 1039 Overhaul 15 Nos tank breathers and renew wire meshes with frames, Area total- 15 sq feet. (Mat-SS). <b>Spares yard supply.</b></p>	<p>DO. Material yard supply.</p>
<p><b>ATU COMPARTMENT</b></p>	
<p>HA 1040 Inspect structures not covered by lagging, (Area 11 X 7.4 Sq ft) paying particular attention to decks boundaries, lower portion of bulkheads and structures obscured by fittings. Where paint is peeled, cracked, blistered lost adherence or structure is excessively corroded, clean to bare metal, dry the surface and re-coat as per paint scheme.</p>	<p>Delete. Covered in HA-1023.</p>

M/s Chowgule	M/s Krasny	M/s Shaft Shipyard	SO I/C Engr Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)
<i>W. G. G. K.</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>	<i>Shree</i>

<b>MAGAZINE SPRINKLING SYSTEM</b>	
HA 1041	100% pipe lines to be dismantled chemically cleaned and defects if any to be rectified and pressure tested 1.5 times of working pressure. Mat- Cu Ni, Total Length 07 Mtrs, Dia- 50 MM and 04 Mtrs of 32 MM
HA 1042	02 in no Operating valves of magazine and CRN 91 gun to be overhauled and pressure tested 1.5 times of working pressure and proved.
<b>BAGGAGE STORE</b>	
HA1043	Examine all steel structure & chequered plate paying particular attention to the area under vertical support & boundaries. Clean scrap and paint the rusted area.
<b>CABLE LOCKERS (02 NOS)</b>	
HA 1044	All Wooden grating in cable locker to be renewed as per sample. Cable to be ranged out from cable locker. Remove portable perforated plates. Sump, suction strainer and box to be cleared. Structure in vicinity of cable clench, shipside, plates and bars, stiffeners to be examined. (Area 7.6 X 13.6 sq ft). Recoat after repair as per scheme.
HA 1045	Cable to be fixed to the cable clench after applying XG 274 grease to D-shackle. The fastening process be done in presence of SS, CGRPT rep and class surveyor. Same to be surveyed by a class surveyor and certificate to be provided.

HA 1041	DO. Material yard supply. Working pressure 04 Bar, Test pressure 06 Bar. Renewal of pipes if any against AWRP.									
HA 1042	DO. Material yard supply. Type of valves- SD Size- 50 mm valve - 01 no, 32 mm valve- 01 no. Working pressure 04 Bar, test pressure 06 Bar.									
<b>BAGGAGE STORE</b>										
HA1043	DO touch up paint scheme. Paint CG supply. Area-50 Sq. mtr. Renewal of steel if any, to be catered against HA-1007.									
<b>CABLE LOCKERS (02 NOS)</b>										
HA 1044	DO cleaning including suction strainer and box and survey (class surveyor) of cable locker. Undertake touch up paint scheme. Paint CG supply.									
HA 1045	Delete.									

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

**ANCHOR & CHAIN CABLE**

HA 1046	Layout entire chain cable. Shot / grit blast, calibrate and carry out survey by class surveyor (length: 275 m). All joining shackles (12 in no) to be break opened, greased, and fitted back. Gauge the cable in consecutive links and record. Any links dia found below permitted limits to be renewed. Change the cable end to end to ensure equality of wear. Mark the cable length. Lubricate anchor flukes. Examine slips (04 in nos.) and associated fittings. Both bottle screw slips and blade slips to be load tested and certificate to be produced. Apply boiled linseed oil on cable. On completion of all jobs, cable clench be inspected in presence of SS.	DO cleaning, survey, gauging, calibration and painting of Anchor & Chain Cable and associated fittings. No load test to be conducted on Chain cable and accessories. Paint CG supply.
HB 1047	Survey naval pipe and hawse pipe. Same to be inspected for secure stowage of anchors specially at sea. Carry out painting as per scheme. (Area 20 sqm). (Paint yard supply, make: M/s AKZO NOBLE).	DO. Paint CG supply
HB 1048	02 in nos. Anchor Wire Strops (SWR) weakened due to corrosion. To be renewed as per sample and test certificate to be rendered. (Mat: SS, Dia: 10 mm), Length-01 mtr each.	DO. Material yard supply. Load on anchor wire strops- 02 ton. Mat-SS, Dia-10 mm, length-01 mtr each.

**VENTILATION SYSTEM**

HA 1049	Blow through with LP air in all air ventilation trunking and associated fittings of all compartments other than magazine. Examine trunking for any crack and hole Length- 120 Mtrs (Approx). Interior of galley exhaust trunking. from canopy to be cleaned(by dismantling and immersing in degreasing bath) and preserved	DO. Material yard supply.
HA 1050	All AC diffusers to be removed cleaned and fitted back. Defected diffusers to be renewed as per sample. Total No. of Diffusers 37.	DO. Renewal if any against AWRP. Material yard supply.
HA 1051	All rubber coaming of vent flaps on weather deck to be renewed and chalk test to be carried out. Total no 20. approx size, length: 10 m, width: 30 mm, depth: 15 mm(as per sample)	DO. EPDM rubber material to be used. Material yard supply. Length of rubber 15 Mtrs.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engrg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Str) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

<b>DECK CRANE (NED DECK MARINE, TYPE: SCTT 10/2.6-4.0 S, SWL -999Kg)</b>	
HA 1052	<p>Survey and load test deck crane together with all associated fittings, ropes, blocks pulleys etc. Any defect to be projected (SWL-999Kg, Wire rope breaking strength – min 50 kN Wire rope dia - 10 mm, Wire rope length : 27m)</p> <p>A. Proof test shall include</p> <ol style="list-style-type: none"> <li>1. Hoist and lower the main hook</li> <li>2. Auxiliary hook load and boom</li> <li>3. Slewing and leafing</li> <li>4. Test of safety</li> <li>5. Fail safe and limit switches</li> <li>6. Load movement</li> <li>7. Boom angle indicators</li> </ol> <p>B. After testing the following should be examined</p> <ol style="list-style-type: none"> <li>1. Foundation</li> <li>2. Sheaves and rope guides</li> <li>3. Wire ropes and end connectors</li> <li>4. Hoist, brakes and clutches</li> <li>5. Hooks</li> <li>6. Bolting arrangements</li> </ol>
HA 1053	<p>Delete.</p>

DO only load testing.

Delete.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	GGRPT (Srt) Rep	CO Rajratan	DTO CGDHC-1	RTO (Refit)

**GEMINI CRAFT, RIB, WATER SCOOTER, LIFERAFTS**

HA 1054	Inspect the chocks of Gemini and RIB for proper seating. Any defect be projected for rectification.											
HA 1055	Overhaul water scooter. Job includes following (a) Replacement of spark plugs (b) Adjustment of choke cable. (c) Re conditioning of battery (d) Lubrication of lubricating points (e) Engine tuning (f) Renewals of fuel filters (g) Change of lube oil											
HA 1056	RIB and 02 in no Gemini boats buoyancy chambers and chamber valves to be tested for air leak. Boat leak test to be carried out and proved.											
HA 1057	04 in nos. life rafts service due in the month of Nov. To be serviced.											
HB 1058	Stand of RIB and water scooter rusted and corroded to be renewed as per existing sample. Mat-MS (RIB stand size 7.10 X 2.9 X 2.1 ft), (Water Scooter stand size 5.4 X 2.9 X 1.9 ft)											
<b>TOWING HOOK, BOLLARD, BULL RINGS CLEAT AND STAG HORN</b>												
HA 1059	Die penetration test to be conducted on 09 bollards, 10 fair leads, 02 bull rings and 08 stag horn as per standards specific defects to be reported to ship.											
HB 1060	Renewal of sl (a),(b),(c) and (d) with enlarged size to facilitate housing of additional/ large diaphragm ropes (48 mm and above). Load test and certify:- (a) Bollard (b) Fair lead (c) Bull Ring (d) Stag Horn (e) Towing hook 09 in nos. SWL : 2.0 tons 10 in nos. SWL : 1.5 tons 02 in nos. SWL : 2.0 tons 08 in nos. SWL : 1.0 tons 01 in no SWL : 5.0 tons											
<b>DO. DP test and visual survey only. Renewal if any under AWRP.</b>												
<b>Delete.</b>												

M/s Chowgule	M/s Krasmy	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Str) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)
<i>Chowgule</i>	<i>Krasmy</i>	<i>Shoft</i>	<i>Engg</i>	<i>Electrical</i>	<i>Hull</i>	<i>Rep</i>	<i>CO</i>	<i>DTO</i>	<i>RTO</i>

**ANCHOR CAPSTAN (GRSE, KOLKATA), CAPACITY: 2 TONS**

HA 1061	Dismantle 02 in nos. capstan, cable holder and gear box. Strip down for examination of all bearings, bushes, shafts, gears, clutch and brake lining. Holding bolts to be removed and examined. Assembly gear oil to be changed. Brake lining to be renewed. Grease all pins. Operation of both capstans after assembly without and with load to be proved in both modes. Load test certificate to be provided.	DO overhauling of two capstans. Material yard supply. Spares and oil CG supply. Load test certificate to be provided by yard. Test Load- 2 tons.
HB 1062	Anchor capstan control panel stand and cover deteriorated due to rusting. To be renewed as per sample. (Mat: Aluminium sheet Size: 1.5 feet x 1 feet, MS Frame 3.5 ft)	DO. Material yard supply.

**MOORING CAPSTAN (GRSE, KOLKATA), CAPACITY: 1.5 TONS**

HA 1063	Dismantle mooring capstan and lower the gear box. Strip down for examination of all bearings, bushes, shafts, gears, clutch and brake lining. Holding bolts to be removed and examined. Assembly gear oil to be changed. Renew brake lining. Grease all pins. Operation of mooring capstan after assembly without and with load to be proved. Load test certificate to be provided.	DO. Oil and spares CG supply. Material yard supply as per RFIC minutes. Load test certificate to be provided by yard. Test Load- 1.5 tons.
HB 1064	Capstan control panel stand and cover deteriorated due to rusting. To be renewed as per sample. (Mat: Aluminium sheet Size: 1 feet x 0.5 feet, MS Frame 3.5 ft)	DO. Material yard supply.

**STRUCTURAL FITTINGS (DOOR, HATCHES MANHOLES, SCUTTLES, BRIDGE OBSERVATION WINDOW)**

HB 1065	Rubber beadings of 9 weather deck doors and 06 hatches deteriorated and lost water tight integrity (approx, length 65 m, width 35 mm and thickness 20 mm) To be renewed and proven. (Chalk test). Renew rubber seating scuttles. Renew the rubber seating of toughened glasses and hose test to be conducted. As per sample.	DO. EPDM rubber for external and Neoprene rubber for internal doors, hatches and scuttles. Material yard supply. Water tight integrity to be witnessed by class surveyor. Repair/ renewal of doors/ hatches if any against AWRP.
HA 1066	Renew rubber seating in 14 in nos windows seal and framing 10 in nos Port holes and hose test to be carried out. As per sample.	Delete.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Sft) Rep	CO Rajratan	DTO CGD/HQ-1	RTO (Refit)



HB 1078	Deteriorated/rusted metallic coaming all around the upper deck to be renewed. Approx running length 100.00 mtrs.	Delete.
HB 1079	Rope reel 04 in nos (02 each in q/deck & foxle) uprooted from base to be renewed as per sample. Mat -Al.	DO. Material yard supply.
HB 1080	Wooden flooring as per sample to be done in ward room and captain's cabin.	Delete.
HB 1081	Macrotek as per existing sample to be done in inner deck Bridge, MSO, Exo's Cabin, TO's cabin and NO's Cabin, Officers alleyway, MCR, ATU Compartment, & 7-Rating mess, 18-Rating mess, SO's Cabin, Officers Bathroom, Senior sailor's bathroom, Junior sailor's bathroom, Dining hall, Store Office, Ship's Office, Galley and Pantry, total area 241 Sq mtr. <b>Queries: M/s Shoft Shipyard Pvt Ltd: Final coat colour to be specified in the defect list</b>	DO only for final coat of Macrotek. Area- 241 Sq. mtr. Material yard supply. Existing grey colour to be maintained.
<b>SEWAGE TREATMENT PLANT</b>		
HA-1082	Following routine to be carried out during refit (a) Overhaul book shell (b) Overhaul electrodes. (c) Overhaul Oxidizing chamber. (d) Overhaul all system valves. (e) Cleaning of all pipelines and tanks to be carried out.	Delete. Covered under AIAMC.
HA-1083	Basic overhauling of Vacuumerator pump and black and grey water transfer pump to be carried out.	Delete. Covered under AIAMC.
HB-1084	All three water jet transom flanges (integrated hull fitting) to be renewed. (transom flange CG supply)	DO. Renewal of three transom flanges. Scope of job to be undertaken by yard includes following: (a) Carry out shaft line sighting (LOS) before and after renewal of transom flanges with inspection of class surveyor and PAC firm. (b) Check the existing alignment of shaft seal and transom flanges before dismantling.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)



	actuals. Ship staff to maintain a record/ logbook on this aspect.	
HA-1089	Supply of fresh water to be catered for <b>06 tons per day including 250 ltrs</b> of drinking water per day. However, payment will be made at actuals and SS to keep record of water received during refit.	DO. Payment will be made at actual on pro rata basis.
HA-1090	All OEM/PAC and refitting firms 'H', 'E' and 'L' reps are to embark the ship for pre and post refit trials sailing till satisfactory performance/acceptance of the machinery by the ship.	DO.
HA-1091	Preparation of keel blocks and certificate of suitability is to be issued by the refitting firm. Keel blocks are to be offered to overseeing authority for inspection, prior docking of the ship.	DO.
HA-1092	Keel blocks are to be arranged as per latest approved docking plan, and ship is to be dry-docked in both versions.	DO both version docking against yard services as per SI (g) and (h) of Para 9 of RFIC minutes. SS to provide latest docking plan.
HA-1093	Tug for docking, undocking, berthing and un-berthing are to be provided as and when required from pre- refit trials till refit completion.	DO.
HA-1094	Pilot is to be provided while entering and leaving dock and harbour.	DO.
HA-1095	Shipyard is to provide 02 nos mobile phones with unlimited calling in India and one unlimited data connection for voice communication and E-mail respectively during entire refit duration. Yard's office fax facility will be used for fax in/out by the ship.	DO.
HA-1096	Berthing and unberthing at wet basin including basin hire charges are to be catered for.	DO.
HA-1097	Provide temporary lights to ensure illumination at appropriate level.	DO.
HA-1098	Compressed air supply as and when required.	DO.
HA-1099	Refitting firm to extend fax/e-mail facility to COA/ Refit Overseeing Team on as and when required basis.	DO.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Sft) Rep	CO Rajratan	DTO CGDHO-1	RTO (Refit)



HA-1109	Yard to provide facilities for DP testing/load testing of Capstan/towing hook / Davits etc.	ship's AC becomes non-ops. DO.							
<b>DECK FITTINGS</b>									
HB 1110	Jack staff and Ensign staff deteriorated. To be renewed as per sample. Mat: MS	DO renewal including supporting shoes. Material yard supply.							
HB 1111	Spring Loaded securing clips of 03 in number hatches defective along with supporting frame. To be renewed as per sample. Mat: MS	DO. Material yard supply							
<b>GENERAL COMPARTMENTS</b>									
HB 1112	04 nos Shoe locker in 18 rating mess damaged to be repaired.	Delete.							
HB 1113	Lagging deteriorated in Dining Hall, 18 Rating mess, 7 Rating mess, Ships Office, Jr Sailors Washroom. Approximate area 100 Sqm. Type of Lagging- MFMB	DO renewal of 50 Sqm MFMB lagging. Material yard supply. All in way jobs included.							
HB-1114	Renewal of 15 Mtrs, 60 mm Dia, water-jet guards pipe (MS) and 08 Mtrs X 300 mm X 05 mm aluminium chequered plate platform.	DO. Material including pipe and plates yard supply. All in way jobs included.							
HB-1115	Load test of towing hook (SWL-05 tons)	DO. All in-way jobs included. Yard to provide load test certificate through authorised agency.							
HB-1116	Pressure testing and internal painting of spray rails (04 nos) to be undertaken.	DO. All in-way jobs included.							
HB-1117	06 Nos Mushroom hoods to be overhauled and wire mesh to be renewed. Size of Mushroom hood: 500 mm- 06 Nos.	DO. Material yard supply.							
HB-1118	03 Nos goose neck to be overhauled and wire mesh to be renewed. Size: 180 mm X 150 mm.	DO. Material yard supply.							
HC-1119	The existing FO tank (Fr 22-25) and FW tank (Fr 28-30) to be modified as per "Modification of Tank Extend Drawing" Drg No. 2072-79/110221 [attached] under supervision of class surveyor.	DO.							
(a) The other drawings to be referred are as follows:-									
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHO-1	RTO (Refit)

<p>(i) Details of scallops/notches/snips/collar plates &amp; welding as per Drg No 2072-79/150101.                  (ii) Block Drawing No. 2072-79/110201-20                  (iii) Shipping route for taking the materials/ plates are shown in the drawing drawig no. 2072-79/160101.</p> <p>(b) The job involves introduction of new tank bulkheads frame structures/ out board girders etc and omission of certain existing tank bulkheads. The scope of work and bill of material are specified in the drawing. Steel grade-AH36.                  (c) Scope includes pressure tests post modification.</p>	<p>provide reference drawings to yard as required.                  (b) All Material yard supply                  (c) All inway jobs included</p>
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M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refn)
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

**ICGS RAJRATAN NORMAL REFIT (NR-1)**  
**MAIN DEFECT LIST: ENGINEERING**

DL NO		DESCRIPTION	FINAL RFIC REMARKS						
<b>DRY DOCK ROUTINES</b>									
EA-3001	Clean and inspect Water Jet buckets (03 Nos) including following :- (i) Impeller Blade (ii) Steering and Reversing unit	Delete covered under water jet five yearly routines.							
EA-3002	Check for any mechanical damage of impeller and guide van chamber.	Deleted. Covered in EA -3015							
EA-3003	Remove micro-organism and marine growth inside the inlet duct, tunnel area, steering nozzle and guide vane.	Deleted. Covered in HA-1005							
EA-3004	Sacrificial Zinc anodes on all three impeller shaft protection tubes along with securing bolts to be replaced. Total Qty - 06 Nos, Size: 200 mm x 50 mm x 22 mm, Make: M/s Rolls-Royce, Part No. R101454A (Spares CG supply, Mat - Yard Supply)	Deleted. Covered in EA-3026							
EB-3005	All three water Jets shaft protection tube sacrificial Zinc anodes fitted base corroded (.) To be renewed as per sample. (Qty - 03, Mat- MS)	Delete.							
EA-3006	Following under water and sea chest/sea suction line valves to be overhauled and pressure tested, Test pressure-06 bar. Renewal of spindle, disk and lid if required and painting to be carried out. All nut and bolts to be renewed with SS during fitment. (Material Yard Supply)	DO overhauling of valves as per Para 11 sl(e) of RFIC minutes. Material yard supply as per RFIC minutes. Test pressure: 06 bar							
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Sft) Rep	CO Rajratan	DTO CGD/HQ-1	RTO (Refit)



EA-3011	Renew the lubricating grease. (Grease type: Lithium based type 2 grease with extreme pressure additives) (Material Yard supply)	DO. Material yard supply
EA-3012	All three shafts to be cleaned with soft pad and polished. Shafts to be applied anti-rust chemical coating (Rust keeper 999).	Delete. SS.
EA-3013	Calibrate 05 Nos Plummer block temperature sensors.	Delete covered under LA-5047.
EA-3014	All three shaft inflatable seals air lines to be flushed with compressed air (Dia: 12 mm, total length: 60 m, Mat: Copper).	DO. Material yard supply. All in way jobs included.
<b>WATER JETS &amp; SYSTEM (MAKE- M/S KAMEWA ROLLS-ROYCE, SWEDEN, TYPE 63 S3 NP, QTY - 03 NOS</b>		
<b>PAC: M/S ROLLS ROYCE MARINE INDIA, MUMBAI/ M/s Kongsberg Maritime CM India Pvt Ltd.</b>		
<b>5 Yearly routines on all three water jets to be carried out. Jobs for each water jet are as follows:-</b>		
EA-3015	Carry out in-situ visual inspection of impeller, guide van chamber and transom flange assembly.	Delete covered under EA-3029 to EA-3038 .
EA-3016	Carry out in-situ visual inspection of shaft, flange bolts, shaft seal, shaft coupling and split cone ring. If required, carry out readjustment of shaft seal.	Delete covered under EA-3029 to EA-3038 .
EA-3017	Carry out in- situ inspection of bulkhead seals (Total :05 Nos for three water jets).	DO through PAC firm M/s RRFMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.
EA-3018	Carry out functional test of counter balance valve of steering and reversing system.	Delete. Covered in EA-3040.
EA-3019	Carry out functional test of PTO pump and electric motor driven lub oil pump.	DO through PAC firm M/s RRFMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.
EA-3020	Replace filters in hydraulic and lub oil system.	DO through PAC firm M/s RRFMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.
EA-3021	Carry out functional test and adjustment of W/J alarm switches, pressure gauges and remote control system.	Delete covered under LA-5046 and LA-5047.
EA-3022	Carry out functional test/adjustment of hydraulic power pack tank with valve manifold.	DO through PAC firm M/s RRFMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHC-1	RTO (Refit)

EA-3023	Carry out pressure and crack test of hydraulic hoses of steering and reversing unit of all three water jets and replace if required.	DO renewal of hydraulic hoses through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.
EA-3024	Replace feedback protection hoses (02 nos per W/J). Total 06 Nos.	DO through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.
EA-3025	Replace all the cylinder seals	DO through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply. Cylinder seals to be replaced and pressure tested.
EA-3026	Replace the anodes of shaft protection tube (05 per water jet), hanging anodes (01 set per water jet), disk type anodes on the jet (07 per water jet) and shaft seal (01 set per water jet).	DO through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Anodes CG supply.
EA-3027	Carry out calibration of levers, Feedback units and re adjust indicators.	Delete. Covered in LA-5038, LA-5046 and LA-5047 and LA-5048.
EA-3028	Check out pressure test of hub seal.	Delete covered under EA-3030.
EA-3029	Replace the hub bearings.	DO through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply. Scaffolding/ staging required, all in-way jobs for removal/ refitment of water jets, provision of covered work shop space for undertaking five yearly water jet routines and painting of water jets covered in yard's scope of work. Stern clearance of 8-10 Mtrs is to be catered for removal of water jets in the dry dock.
EA-3030	Replace the hub seal.	DO through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.). Spares CG supply.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)







EA-3073	Calibrate torque wrench and hand conductivity meter								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Calibration certificate to be provided. Spares CG supply.
EA-3074	Replace all low pressure hoses. Size: 12x2.5 mm, Part no. 100800108001, Qty: 02 nos Size: 26.7x2.7 mm, Part no. 100800108005, Qty: 02 nos								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3075	Replace all high pressure flexible hoses. Size: 1/4" dia, length: 1000 mm, Part no. 101800202015, Qty: 01 no Size: 1/4" dia, length: 800 mm, Part no. 101800202008, Qty: 01 no Size: 1/4" dia, length: 600 mm, Part no. 101800202003, Qty: 01 no								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3076	Inspection of PS 51, PS 71, PS 81 pressure switches.								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3077	Renew dolomite in DA filter.								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3078	PT 60 Potentiometer to be checked and calibrated/renewed.								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3079	Conductivity meter probe to be cleaned and calibrated.								DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3080	Carry out calibration of following gauges: Pressure Gauge (Range: 0-100 bar, Qty: 01 no) Pressure Gauge (Range: 0-10 bar, Qty: 03 nos) Permeate flow meter. 01 no								DO. Calibration certificate to be provided.
EA-3081	Check and replace PT60 and potential meter as required.								Delete. Covered in EA-3078
EA-3082	Clean conductivity meter probe and calibrate.								Delete. Covered in EA-3079
EA-3083	Carry out calibration/renewal of all pressure gauge.								Delete. Covered in EA-3080
EA-3084	Overhaul Filter pump and HP pump motors.								DO through PAC firm M/s Rochem Separation
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	GRRPT (Sht) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

EA-3085	Replace HP pump manifold heads.	systems (India) Pvt Ltd., Mumbai. Spares CG supply. Material yard supply.
EA-3086	Replace DT modules with service exchange modules.	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply. Material yard supply.
EA-3087	Replace circuit breakers and contractors as required.	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Material yard supply. Delete. Covered under LA-5057
<b>AC PLANT {MAKE: M/S BOCK (I) LTD, TYPE: HG6 1240 4S, QTY: 02 NOS,</b>		
EA-3088	Overhaul the AC compressors and renew the defective components.	DO complete overhauling of both compressors including motors through M/s GEA Bock India Pvt Ltd, Vadodara for DL Sls EA-3088 to EA-3095, EA-3098. Spares CG supply. Material yard supply. All in-way jobs included.
EA-3089	Withdraw piston and inspect for wear down and scoring marks. Measure wear and tear of piston, piston rings and oil scraper rings. Replace if not within tolerance.	
EA-3090	Inspect small end bushes and gudgeon pins and replace if not within tolerance.	
EA-3091	Inspect all bearings for wear down and renew the bearing if required.	
EA-3092	Inspect unloading device for correct working.	
EA-3093	Inspect crank shaft, undertake measurement, polish and refit if not within tolerance limit	
EA-3094	Strip and examine lub oil pump of compressor	
EA-3095	Clean all motor bearings inspect for wear and tear.	
EA-3096	Overhaul condenser pump and renew the required spares. Post overhauling pump and motor to be aligned	DO. Spares CG supply. Material yard supply as per RFIC minutes.
EA-3097	AC condenser to be cleaned and inspect for corrosion and fouling. Perform the pressure test to 1.5 times of working pressure for 24 hrs. Replace condenser cover gasket/ 'O' ring and anodes on end covers. (Material yard supply)	DO. Material including anodes yard supply.
EA-3098	Carry out Pressure test. Vacuum test, leak test of complete plant. Inspect cooling coil and return bends and check weak spots, glands of valves etc. by hydrostatic testing. Cleaning of cooling coil to be carried out by brush. (Material yard supply)	DO. Material including nitrogen gas yard supply as per RFIC minutes. All in way jobs included.
EA-3099	AC compressors suction and discharge valves to be overhauled. Renew the gland packing and bushing. (Mat- Brass, Size- 50 MM, Qty- 04 Nos)	DO. Material yard supply as per RFIC minutes.

M/s Chowgule	M/s Krasny	M/s Shaft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)



<b><u>BILGE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO), OEM: M/S BE PUMPS</u></b>	
EA-3109	Overhaul the pump completely, clean and inspect each item thoroughly and renew worn out parts. DO. Spares CG supply. Material yard supply as per RFIC minutes.
EA-3110	Check and flush all tube work and suction and delivery piping. DO. Material yard supply.
EA-3111	Overhaul and prove float control unit. DO. Material yard supply.
EA-3112	Renew all mountings showing any sign of deterioration of rubber, lacquer of bond (Type: Resistoflex FM-50A/40) DO. Material including mountings (04 Nos. of rubber and lacquer bond type mounting) yard supply. All in way jobs included.
EA-3113	Carry out calibration and renewed if required of following pressure gauge. Compound Gauge (Range: -1 to +1 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 01 no) pressure switch (Type: RT200, qty: 01 no) DO renewal of gauges and pressure switches. Gauges and pressure switches yard supply.
<b><u>FIRE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO), OEM: M/S BE PUMPS</u></b>	
EA-3114	Overhaul the pump completely, clean and inspect each item thoroughly and renew worn out parts. DO. Spares CG supply. Material yard supply as per RFIC minutes.
EA-3115	Check and flush all tube work and suction and delivery piping. DO. Material yard supply.
EA-3116	Overhaul and prove float control unit. DO. Material yard supply.
EA-3117	Renew all mountings showing any sign of deterioration of rubber, lacquer of bond (Type: Resistoflex FM-50A/40) DO. Material including mountings yard supply. All in way jobs included.
EA-3118	Carry out calibration and renewed if required of following pressure gauge. Compound Gauge (Range: -1 to +1 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 01 no) pressure switch (Type: RT200, qty: 01 no) DO renewal of gauges and pressure switches. Gauges and pressure switches yard supply.
<b><u>DOMESTIC FRESH WATER PUMP (MAKE: M/S BE PUMPS, TYPE: AO 3120K-1E-WCF-MS5, QTY-02 NOS), OEM: M/S BE PUMPS</u></b>	
EA-3119	Overhaul the pump completely, clean and inspect each item thoroughly and renew the worn out components. DO. Spares and material yard supply as per RFIC minutes.
EA-3120	Check and flush suction and discharge pressure gauge lines. DO. Material yard supply.
EA-3121	Carry out calibration of following gauges: Pressure Gauges (Range: -1 to +1 bar, Qty: 02 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 02 no) DO. Calibration certificate to be provided.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

<b>HYDROPHORE TANK (CAPACITY: 200 LTRS, QTY: 01 NO)</b>	
EA-3122	Chemically clean hydrophore tank and paint internally as per paint scheme. (Paint yard supply) (Paint scheme Interline 850 Grey: 01 coat, Interline 850 white: 01 coat)
EA-3123	Carry out calibration of following gauges, safety valve and cutout: (a) Pressure Gauges (Range: 0 to 10 bar, Qty: 01 no) (b) Safety valve (Qty: 01 no, Set point: 5 bar) (c) Pressure switch (Range: 0 to 5 bar, 230 V, AC) (d) Overhaul LP air valve on the bottle and carry out pressure test up to 6 bar. (e) Sight glass of Hydrophore tank deteriorated and isolating valves are not holding/leaking. To be renewed as per sample. (Mat- Brass, Material yard supply)
<b>AIR SYSTEM AND BOTTLES (CAPACITY: 500 LTRS, QTY: 02 NOS), PAC: M/S BE PUMPS.</b>	
EA-3124	HP air bottles (02 nos.) are to be cleaned internally with compressed air and pressure tested upto 1.5 times more than working pressure.
EA-3125	Overhaul following air system valves: (a) Ball valve (Size: 1 3/8", Qty: 02 nos): TP 45 bar (b) Ball valve (Size: 1", Qty: 02 nos): TP 45 bar (c) Ball valve (Size: 1/2", Qty: 02 nos): TP 45 bar (d) Ball valve (Size: 1/4", Qty: 02 nos): TP 45 bar
EA-3126	Carry out calibration of following gauges and relief valves: (a) Pressure Gauge (Range: 0 to 40 bar, Qty: 01 no) (b) Pressure Gauge (Range: 0 to 10 bar, Qty: 02 nos) (c) Safety valve (Set point: 32 bar, Qty: 02 nos)
<b>OILY BILGE WATER SEPARATOR (MAKE: M/s GEORIM ENGG. CO., S KOREA, TYPE: GRS-03 EB, QTY: 01 NO)</b>	
EA-3127	Complete overhauling of the plant to be carried out and to be proved for optimum performance. Defective components to be renewed during overhauling.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Sht) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)
<i>Repair</i>	<i>Repair</i>	<i>Ship</i>	<i>Engg</i>	<i>Electrical</i>	<i>Hull</i>	<i>Rep</i>	<i>CO</i>	<i>DTO</i>	<i>RTO</i>

EA-3128	<p>Following valves fitted on OBWS to be overhauled and proved:-                  (a) Sea water Suction valve (Size: 20 NB, Qty: 01 no)                  (b) Sea water discharge valve (Size: 20 NB, Qty: 01 nos))                  (c) Ball valve (Size: 3/4", Qty: 02 nos)                  (d) SDSL valve (Size: 20 NB, Qty: 02 nos)                  (e) Shut off valve (Size: 1/4", Qty: 03 nos)                  (f) Fresh water shut off valve (Size: 1/2", Qty: 03 nos)</p>	DO. Spares and material yard supply as per RFIC minutes.							
EA-3129	Bilge pump (Piston type) to be overhauled and proved.	DO. Spares CG supply.							
EA-3130	Inspection of safety valve to be carried out.	Delete. Covered under EA-3127.							
EA-3131	Inspect coalescer filter and clean by backwashing.	Delete. Covered under EA-3127.							
EA-3132	<p>Carry out calibration of following gauges:                  (a) Pressure Gauge (Range: 0-6 bar, Qty: 01 no)                  (b) Pressure Gauge (Range: -1 to +1 bar, Qty: 01 no)                  (c) Pressure Gauge (Range: 0 to 5 bar, Qty: 01 no)</p>	DO. Calibration certificate from authorised agency to be provided.							
EA-3133	Test the function of Oil level detector and solenoid valve.	DO in conjunction with DL SI EA-3127.							
<b>FM-200 MAJOR FIRE FIGHTING SYSTEM (MAKE: M/S SUPER FIRE ENGG PVT LTD, TYPE: FIRE SUPPRESSION SYSTEM (KIDDE FENWAL, USA, QTY: 02 NOS))</b>									
EA-3134	Carry out test of all pressure switches. (02 in no. Operating pressure 50 PSI)	DO through authorized firm. Spares CG supply. Material yard supply. All in way jobs included.							
EA-3135	Test electrical control heads. All control heads must be removed from FM-200 cylinders and nitrogen pilot cylinders prior to testing to prevent accidental discharge. Electric control heads must be reset before connecting to cylinder valve (Total heads- 06 Nos)	DO through authorized firm. Spares CG supply. Material yard supply. All in way jobs included.							
<b>PORTABLE SUBMERSIBLE PUMPS (MAKE: M/S KIRLOSKAR BROTHERS LTD., TYPE: NS20/10, QTY: 05 NOS)</b>									
EA-3136	Overhaul the all submersible pumps and renew the defective components as required. ( Material yard supply)	DO overhauling and external painting of 03 pumps only. Spares CG supply. Material including paint yard supply.							
EA-3137	Paint pump casing internally and externally. (paint yard supply)								
<b>50 HP OBM (MAKE: M/S YAMAHA, TYPE: 6H 5K, QTY: 01 NO, PAC FIRM- M/S FIBROPLAST)</b>									
EA-3138	Complete overhauling of OBM to be carried out and renew the worn out components. Replace water pump impeller and fuel pump. All bearings to be greased, bushes and seals to be renewed.	Delete							
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

EB-3139	Anodes fitted on OBM found worn out. To be renewed as per sample(Mat- Zinc, 04 Nos)	DO. Anode yard supply.
<b>25 HP OBM (MAKE: M/S MERCURY MARINER, TYPE: 25M, QTY: 02 NOS, PAC: M/S ESMARIO EXPORT ENTERPRISES SECUNDARABAD.</b>		
EA-3140	Complete overhauling of OBM to be carried out and renew the worn out components. Replace water pump impeller and fuel pump. All bearings to be greased, bushes and seals to be renewed.	Delete
EB-3141	Anodes fitted on OBM found worn out. To be renewed as per sample(Mat- Zinc, 04 Nos)	DO. Anode yard supply.
<b>DIRTY OIL PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-1, QTY: 01 NO)</b>		
EA-3142	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling.	Delete.
EA-3143	Carry out calibration of following gauges: (a) Pressure gauge: -1 to +1 bar, Qty: 01 no (b) Pressure gauge: 0 to 10 bar, Qty: 01 no	Delete.
<b>PORTABLE LUB OIL PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-1, QTY: 01 NO)</b>		
EA-3144	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling.	Delete.
<b>AIR WHISTLE (MAKE: M/S ZOLLNER, TYPE: M75F, QTY: 01 NO)</b>		
EA-3145	Overhaul the air whistle and change the parts if necessary. Prove the unit for smooth operation.	DO. Spares CG supply. Material yard supply.
<b>FUEL RU TANK(CAPACITY- 6.0 KL, QTY- 02 NOS) AND OIL STORAGE TANKS, (CAPACITY – 700 LTRS, QTY – 03 NOS)</b>		
EB-3146	Sight glass of both fuel and lub oil storage tanks and hydraulic oil storage tank is not visible and isolating valves leaking/not holding. Overhauling of sight glasses and valves to be carried out. (Qty – Sight glass- 05 nos, valves- 10 Nos, Material yard supply)	DO renewal of valves and sight glasses. Valve, sight glasses and material yard supply. All in way jobs included. Size of valve: Spring loaded 15 mm valve.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)





EA-3153	Overhauling of following Domestic compressed air system valves to be carried out:	DO overhauling of following valves.
<p><b>Type of valve</b></p> <p>(i) SD valve</p> <p>(ii) SDNR valve (RA)</p> <p>(iii) SDSL valve</p> <p>(iv) Air hydrant valve</p> <p>(v) Relief valve (6-10 bar)</p> <p>(vi) Pressure reducing valve</p> <p>(vii) Pressure reducing valve</p>	<p><b>Size</b></p> <p>15NB</p> <p>15NB</p> <p>10NB</p> <p>15NB</p> <p>15NB</p> <p>15NB</p> <p>15NB</p> <p>NA</p> <p>NA(30 bar to 8 bar)</p> <p>NA (8 bar to 4 bar)</p>	<p><b>Qty</b></p> <p>04</p> <p>04</p> <p>02</p> <p>02</p> <p>02</p> <p>01</p> <p>01</p>
	<p><b>Test Pressure</b></p> <p>12 bar</p> <p>12 bar</p> <p>12 bar</p> <p>12 bar</p> <p>NA</p> <p>NA(30 bar to 8 bar)</p> <p>NA (8 bar to 4 bar)</p>	<p><b>Size</b></p> <p>15NB</p> <p>10NB</p> <p>15NB</p> <p>15NB</p> <p>15NB</p> <p>15NB</p> <p>15NB</p>
		<p><b>Qty</b></p> <p>02 Nos</p> <p>01 No</p> <p>01 No</p> <p>02 Nos</p> <p>01 No</p> <p>01 No</p>
	Spares and material yard supply as per RFIC minutes.	Spares and material yard supply as per RFIC minutes.
EA-3154	Overhauling of following Main engine starting air system valves to be carried out:	DO overhauling of following valves.
<p><b>Type of valve</b></p> <p>(i) Isolating valve</p> <p>(iii) SDNR valve</p>	<p><b>Size</b></p> <p>32NB</p> <p>32NB</p>	<p><b>Qty</b></p> <p>03</p> <p>03</p>
	<p><b>Test Pressure</b></p> <p>45 bar</p> <p>45 bar</p>	<p><b>Size</b></p> <p>32NB</p> <p>32NB</p>
		<p><b>Qty</b></p> <p>02 Nos</p> <p>01 No</p>
	Spares and material yard supply as per RFIC minutes.	Spares and material yard supply as per RFIC minutes.
EA-3155	Overhauling of following Main engine sea water system valves to be carried out:	DO overhauling of following valves.
<p><b>Type of valve</b></p> <p>(i) Gate valve</p> <p>(ii) SDNR valve</p> <p>(iii) SDNR valve</p>	<p><b>Size</b></p> <p>150NB</p> <p>65NB</p> <p>40NB</p>	<p><b>Qty</b></p> <p>03</p> <p>03</p> <p>02</p>
	<p><b>Test Pressure</b></p> <p>5 bar</p> <p>5 bar</p> <p>5 bar</p>	<p><b>Size</b></p> <p>65NB</p> <p>40NB</p>
		<p><b>Qty</b></p> <p>03 No</p> <p>01 No</p>
	Spares and material yard supply as per RFIC minutes.	Spares and material yard supply as per RFIC minutes.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Stt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)





	(xi) 25 mm (xii) 20 mm	03 mtrs 5 mtrs	SS SS	4 bar 4 bar					
EA-3163	Chemical cleaning and pressure testing of Compressed air system other than main engine pipelines to be carried out:				DO 50% only. Material yard supply. Renewal if any against AWRF.				
	<b>Size</b>	<b>Length</b>	<b>Material</b>	<b>TP</b>					
	(i) 15 mm (ii) 12 mm (iii) 8 mm	15 mtrs 05 mtrs 10 mtrs	SS SS Copper	12 bar 12 bar 12 bar					
EA-3164	Chemical cleaning and pressure testing of Lub oil system pipelines to be carried out:				DO 50% only. Material yard supply. Renewal if any against AWRF.				
	<b>Size</b>	<b>Length</b>	<b>Material</b>	<b>TP</b>					
	(i) 20 mm (ii) 15 mm	10 mtrs 05 mtrs	SS SS	4 bar 4 bar					
EA-3165	Chemical cleaning and pressure testing of Fuel system for main engine pipelines to be carried out:				DO 50% only. Material yard supply. Renewal if any against AWRF.				
	<b>Size</b>	<b>Length</b>	<b>Material</b>	<b>TP</b>					
	(i) 50 mm (ii) 32 mm (iii) 25 mm (iv) 15 mm (v) 10 mm	10 mtrs 10 mtrs 10 mtrs 10 mtrs 10 mtrs	SS SS SS SS SS	5 bar 5 bar 5 bar 5 bar 5 bar					
EA-3166	Chemical cleaning and pressure testing of Starting air system for Main engine pipelines to be carried out:				DO 50% only. Material yard supply. Renewal if any against AWRF.				
	<b>Size</b>	<b>Length</b>	<b>Material</b>	<b>TP</b>					
	(i) 32 mm	12 mtrs	SS	45 bar					

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	GRRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refte)
<i>K. Krasny</i>	<i>K. Krasny</i>	<i>Shoft</i>	<i>Engg</i>	<i>Electrical</i>	<i>Hull</i>	<i>Rep</i>	<i>Rajratan</i>	<i>CGDHQ-1</i>	<i>RTO</i>

EA-3167	Chemical cleaning and pressure testing of Main Engine sea water system pipelines to be carried out:  <table border="1"> <thead> <tr> <th>Size</th> <th>Length</th> <th>Material</th> <th>TP</th> </tr> </thead> <tbody> <tr> <td>(i) 150 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(ii) 125 mm</td> <td>15 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(iii) 65 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(iv) 40 mm</td> <td>15 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(v) 15 mm</td> <td>05 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(vi) 12 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> </tbody> </table>	Size	Length	Material	TP	(i) 150 mm	10 mtrs	Cu-Ni	5 bar	(ii) 125 mm	15 mtrs	Cu-Ni	5 bar	(iii) 65 mm	10 mtrs	Cu-Ni	5 bar	(iv) 40 mm	15 mtrs	Cu-Ni	5 bar	(v) 15 mm	05 mtrs	Cu-Ni	5 bar	(vi) 12 mm	10 mtrs	Cu-Ni	5 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.
Size	Length	Material	TP																											
(i) 150 mm	10 mtrs	Cu-Ni	5 bar																											
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(v) 15 mm	05 mtrs	Cu-Ni	5 bar																											
(vi) 12 mm	10 mtrs	Cu-Ni	5 bar																											
EA-3168	Chemical cleaning and pressure testing of Fuel oil transfer and filling system including DG pipelines to be carried out:  <table border="1"> <thead> <tr> <th>Size</th> <th>Length</th> <th>Material</th> <th>TP</th> </tr> </thead> <tbody> <tr> <td>(i) 50 mm</td> <td>15 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(ii) 40 mm</td> <td>10 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(iii) 25 mm</td> <td>05 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(iv) 15 mm</td> <td>10 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(v) 08 mm</td> <td>10 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> </tbody> </table>	Size	Length	Material	TP	(i) 50 mm	15 mtrs	SS	6 bar	(ii) 40 mm	10 mtrs	SS	6 bar	(iii) 25 mm	05 mtrs	SS	6 bar	(iv) 15 mm	10 mtrs	SS	6 bar	(v) 08 mm	10 mtrs	SS	6 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.				
Size	Length	Material	TP																											
(i) 50 mm	15 mtrs	SS	6 bar																											
(ii) 40 mm	10 mtrs	SS	6 bar																											
(iii) 25 mm	05 mtrs	SS	6 bar																											
(iv) 15 mm	10 mtrs	SS	6 bar																											
(v) 08 mm	10 mtrs	SS	6 bar																											
EA-3169	Chemical cleaning and pressure testing of Sea water system for auxiliary equipments pipelines to be carried out:  <table border="1"> <thead> <tr> <th>Size</th> <th>Length</th> <th>Material</th> <th>TP</th> </tr> </thead> <tbody> <tr> <td>(i) 50 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>6 bar</td> </tr> </tbody> </table>	Size	Length	Material	TP	(i) 50 mm	10 mtrs	Cu-Ni	6 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.																				
Size	Length	Material	TP																											
(i) 50 mm	10 mtrs	Cu-Ni	6 bar																											
EA-3170	Chemical cleaning and pressure testing of sprinklers of magazine compartment and CRN 91 gun to be carried. (Qty - 11 Nos, Mat - Yard Supply)	DO. Material yard supply. Renewal if any against AWRF.																												
EA-3171	Carry out calibration of following gauges fire and bilge system: Pressure gauge: -1 to +1 bar, Qty: 06 Nos Pressure gauge: 0 to 7 bar, Qty: 06 Nos	DO. Calibration certificate from authorised firm to be provided.																												
<b>GEAR BOX MAKE :M/S ZF MARINE MODEL : ZF 7600 (TOTAL QTY:-03 NOS), PAC : M/S DYNATRON SERVICES.</b>																														
EB-3172	All three gear box coolers (heat exchangers) to be chemically cleaned and pressure tested. (Test pressure-06 bar) material yard supply	Delete.																												

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

EA-3173

**NOISE AND VIBRATION ANALYSIS**

Noise and vibration analysis of the following Machineries/Equipments to be carried out during pre-refit and post-refit trials. Vibration measurements are to be taken on the equipment bearing points in the axial, radial, vertical and horizontal directions. Also the vibrations readings are to be taken on the top and bottom of equipment's anti-vibration pads to know the level of attenuation. In case the vibration levels are more than the accepted level detailed frequency analysis is to be carried out to find the cause of excessive vibration. Remedial actions to be taken based on recommendations after analysis of vibration signatures.

DO except sl (f), (k), (p), (q) and (r). Yard to undertake noise and vibration analysis as per para 19 of RFIC minutes.

- (a) Main Engines -03 Nos
- (b) Gear box -03 Nos
- (c) Main shaft -03 Nos
- (d) Plummer block -05 Nos
- (e) Diesel Alternators -03 Nos
- (f) Water Jets -03 Nos
- (g) AC Foundation -01 Nos
- (h) A/C Compressor -02 Nos
- (i) Main AHU -01 Nos
- (k) HP Air Compressor -02 Nos
- (l) Centrifuges -01 Nos
- (m) Condenser Pump -01 Nos
- (n) Emergency DA -01 No
- (p) RO Plant -01 No
- (q) STP and vacuum toilet system -01 No
- (r) Anchor and Mooring Capstan -03 Nos
- (s) MCR Compartment -01 No
- (t) Engine room blowers -06 Nos
- (u) Bilge and GS pump -01 No
- (v) Fire and GS pump -01 No

M/s Chowgule	M/s Krasny	M/s Short Shipyard	SO I/C Engg Rajfratan	SO I/C Electrical Rajfratan	SO I/C Hull Rajfratan	CGRPT (Srt) Rep	CO Rajfratan	DTO CGDHQ-1	RTO (Refit)

EB-3174	Exhaust gas leakage observed from Centre DA exhaust bellow. Bellow is found deteriorated/ corroded. Bellow to be manufactured as per sample (Mat- MS, size- 100 NB, 114.3 x 6 mm (OD x THK) 01 No) In way job includes following:- (a) Removal and refitting of exhaust bellow from position. (b) Renewal of HT bolts nuts of both flanges. (c) Renewal of both flange gaskets. (d) Post completion of trials lagging to be done as per sample.	DO. Material yard supply. All in way jobs included.
EB-3175	Chequered plate supporting frames found broken at various places in machinery spaces. supporting frames to be fabricated. (Total length of frame: 20 Mtrs (Approx)). Plate to be secured with SS screws. Supporting Frame Material: Aluminium. Total no of SS screws : 150 Nos (Approx)	DO. Material yard supply. All in way jobs included.
EB-3176	PME and CME Paint Pealed off at many places. To be Spray Painted as per paint scheme of OEM.	DO. Material including heat resistant paint yard supply. All in way jobs included.
<b>DIESEL ALTERNATOR, MAKE:- CUMMINS INDIA LTD PUNE, TYPE:- 6 CTA 8.3 D(M) 120 KW</b>		
EA-3177	12000 hourly routines on Port and Centre DA to be carried out. Jobs for each DA are as follows:-[Make:- Cummins India Ltd Pune, Type:- 6 CTA 8.3 D(M) 120 Kw]	DO EA-3178 to EA-3183 as part of 12000 hrly routine on port and centre DA through PAC firm/authorized dealer of M/s Cummins. Spares CG supply
EA-3178	H-1. Test engine on load and record all complaints and engine parameters.	
EA-3179	H-3. Engine major overhauling (engine to be removed from base rail)	
EA-3180	H-4. Dismantle engine. De-scale cooling system	
EA-3181	H-5. Clean and check all dismantled components.	
EA-3182	H-6. Check crankshaft dimension and regrind if required.	
EA-3183	H-7. Check condition of connecting rod and main bearing in line with crankshaft size, replace if required.	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

EA-3184	H-8. Replace sleeves/liners on cylinder block if required.	DO EA-3184 to EA-3188 & EA-3190 to EA-3198 as part of 12000 hrly routine on port and centre DA through PAC firm/authorized dealer of M/s Cummins. EA-3189 to be carried out in conjunction with LA-5022. Spares CG supply
EA-3185	H-9. Check and recondition or replace starting motor and battery charger alternator.	
EA-3186	H-10. Check cylinder head, clean/de-carbonize and reassemble with all valves, guides, spring and related parts.	
EA-3187	H-11. Replace all engine related wiring harness.	
EA-3188	H-12. Mount engine on the base rail and couple to alternator after checking coupling alignment.	
EA-3189	H-13. Start engine and carry out load trials. Record all parameters.	
EA-3190	D-3. Replace all rubber hoses/clamps of fuel, coolant lub oil and air system.	
EA-3191	D-6. Overhaul turbocharger.	
EA-3192	D-7. Calibrate fuel injection pump (fip), PT pump and injectors.	
EA-3193	D-8. Clean heat exchangers and pressure test.	
EA-3194	D-9. Check all engine mounted safeties for functionality and calibrate gauges. Replace if required.	
EA-3195	D-10. Check fuel tubings. Replace ferrules and rubber gaskets	
EA-3196	D-11. Replace thermostat along with seal	
EA-3197	D-12. Replace fresh water pump.	
EA-3198	D-13. Check the condition of engine mounts, renew if required.	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refn)

EA-3199	C-7. Check vibration dampers.	DO EA-3199 to EA-3200 as part of 12000 hrly routine on port and centre DA through PAC firm/authorized dealer of M/s Cummins. Spares CG supply.
EA-3200	C-10. Check sea water pump and replace it if required.	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)





LA-5013	Check insulation and continuity of cables from both transducers to electronic unit and record.		
<b>ELECTRO MAGNETIC SPEED AND DISTANCE LOG, (MAKE:WALKER, MODEL:P110 7080)</b>			
<b>PAC FIRM : M/S TRANSAS MARINE, MUMBAI</b>			
LA-5014	Check condition of transducer mounts / brackets for corrosion and repair if needed.	Do through M/s Elcome	
LA-5015	Check external transducer condition of sensor pins for build up or wear and clean with fresh water.	Integrated system for SL. LA 5014 to EA-5018. Material yard supply. Spares CG supply.	
LA-5016	Open output distribution junction box and check all terminal block connections and tighten if loose. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.		
LA-5017	Overhaul the equipment and carry out calibration of EM Log by measured distance run procedure with minimum three calibration points.		
LA-5018	On dry docking of vessel, after sitting on blocks, clean and preserve the sensor and before undocking ensure preservation material is removed and transducers are thoroughly cleaned.		
<b>DIESEL ALTERNATORS (PORT, CENTER &amp; STBD) MAKE: NEWAGE STAMFORD, 415 V, 3 PH, 50 HZ, QTY 03 NOS (120 KW - 02, 80 KW - 01)</b>			
LA-5019	Overhaul complete generator including starter motor and dynamo. Thoroughly inspect the windings, cleaning, varnishing and baking of windings to be done. Check the insulation of windings and record. Bearings to be renewed. Bearings should be quality control cleared through notified agencies and shown to ship staff prior replacement. Rotor-stator clearance to be checked. Ensure that the alternator shaft is properly aligned with prime mover. (All material and all in way jobs under yard scope)	DO. Material including OEM certified bearings yard supply. All in-way jobs included.	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)

LA-5020	Complete spray painting of all three DAs including Prime mover, Alternator, Control panel, self-starter motor and governor motors using international marine standard heat resistant equipment paint. (Paint yard supply). Before painting surface preparation to be carried out.	DO. Heat resistant paint yard supply.
LA-5021	Complete overhaul of DA starting control panel and alternator circuits to be carried out including governor, governor motors, AVR, battery circuit, control /monitoring PCBs, wirings and exciter by stripping thoroughly. (All material and all in way jobs under yard scope)	DO through authorised firm. Material yard supply as per RFIC minutes
LA-5022	After overhauling, load trials of 03 DAs to be carried out with tank load test up to 110% capacity, proved for parallel, synchronize and equal load sharing on DAs during parallel operation in both auto and manual mode. Load sharing should be without fluctuations and tripping.	DO. Yard to carry out load trials on maximum sustainable ships load for stbd DA and external load for port & center DAs.
LA-5023	<b>Generator control panel (Make: Cummins)</b> Calibrate following pressure/ temperature switches and over speed relay with the help of test kits as per specification. Calibration certificate of PAC firm to be submitted. <b>SI No</b> <b>Description</b> <b>Qty</b> (a) Over speed trip (1650 rpm)      -      03 nos (b) Low lube oil pressure alarm(1.2 bar)      -      03 nos (c) Low lube oil pressure trip(0.8 bar)      -      03 nos (d) High fresh water temperature alarm (92 deg c) -      03 nos (e) High fresh water temperature trip (97 deg c) -      03 nos (f) High lub oil temperature alarm (120 deg c) -      03 nos After calibration full functional test of alarm/ safeties to be proved. <b>(All material and all in way jobs under yard scope)</b>	DO through PAC /authorized dealer of M/s Cummins. PAC firm report to be submitted. Spares CG supply. Material yard supply.
LA-5024	Calibrate following meters in Generator control panel and provide calibration certificate. a) RPM meter      -      03 Nos b) Exhaust temp      -      03 Nos c) Fresh water temp      -      03 Nos d) Sea water pressure      -      03 Nos e) Lub oil temp      -      03 Nos f) Lub oil pressure      -      03 Nos	DO only calibration. Yard to provide calibration certificate. Renewal if any against CG supply.

M/s Chowgule	M/s Krasny	M/s Shoft. Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

**MAIN SWITCH BOARD (MAKE: LARSON & TURBO LTD) OEM FIRM : M/S LARSON & TURBO LTD**

LA-5025	Overhaul Complete MSB, clean all the contacts, switches, relays and ACR and replace all damaged contacts if any. Ensure tightness of panel's earthing bolts. Following safeties to be calibrated and proved or replaced if found defective. Calibration certificate to be issued. (all material and all in way jobs under yard scope)	(a) Over current protection/short circuit relay - 03 nos (b) Under voltage protection relay - 08 nos (c) Reverse power tripping relay - 03 nos (d) Insulation monitor relay - 01 no.	DO. Yard to provide calibration certificate. Spares CG supply. Repairs if any against AWRP. Prove paralleling operation for all three DAs.
LA-5026	Calibrate all meters of MSB. Calibration certificate to be issued. (a) KW meters (0-150 KW) - 02 Nos (b) KW meters (0-100 KW) - 01 No (c) Ammeter (0-300 Amps) - 02 Nos (d) Ammeter (0-200 Amps) - 02 Nos (e) Volt meter (0-300 V) - 01 No (f) Volt meter (0-500 V) - 04 Nos (g) Frequency meter (45-55 Hz) - 04 Nos (h) Synchroscope - 01 No (j) Double frequency meter (45-55 Hz) - 01 No (k) Double voltmeter (0-500V) - 01 No		DO calibration only. Yard to provide calibration certificate through authorized firm. Spares CG supply. Renewal if any against NA spares.
LA-5027	Overhaul 03 in no ACBs. Rating 350VA, 415 V 250 Amps. All fixed and moving contacts and deteriorated wiring to be renewed (Mat yard supply). Auto motorized mechanism to be proved for all three DA's ACB. Also check all MCBs with safety trips/relay and replace defective components.		DO. Material yard supply.
LA-5028	Earth lamp circuitry, interlocking, space heater circuits & synchronizing circuits to be serviced and proved. Insulation test of complete MSB to be carried out including main incoming power supply cables. Check the incoming power supply and take corrective action to regulate the supply if required.		DO. Material yard supply.
LA-5029	All indications of outgoing feeders to be checked & proved.		DO. Material yard supply.

M/s Chowguile	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)

<b>EMERGENCY DA (MAKE: M/s ELMOT, TEFC, 2.5KW 230V 1Ph 50Hz, 0.8 LAG)</b>									
LA-5030	Overhaul the alternator completely including starter motor. Bearings to be renewed. Bearings should be quality control cleared through notified agencies and shown to ship staff prior replacement.	DO. OEM certified bearings and material yard supply.							
LA-5031	Check the performance of AVR and HVR. DA to be proved with ships load.	DO.							
LA-5032	Complete spray painting of the DA using international marine standard heat resistant equipment paint. <b>(Paint yard supply)</b>	Delete.							
LA-5033	Calibrate following meters of emergency DA panel and calibration certificate to be issued. (a) Voltmeter (0-300 V) - 01 No (b) Ammeter (0-50 Amps) - 01 No (c) Frequency meter (45-55 Hz) - 01 No (d) KW meter digital - 01 No	DO only calibration. Yard to provide calibration certificate. Spares CG supply.							
LA-5034	Carry out complete overhauling of panel. All Battery charging circuits to be proved. All connectors to be renewed as per rating.	DO. Material yard supply.							
LA-5035	Calibration of OLRs (10-16 Amps-01 no, 0.4-0.63 Amps- 01 no.) using CIT set. Calibration certificate to be issued.	DO only calibration. Yard to provide calibration certificate.							
LA-5036	Painting of panel by using international marine standard equipment paint after scrapping old paint.	Delete.							
<b>MAIN ENGINE CONTROLS (MTU GERMANY, TYPE 16V 4000 M90) PAC FIRM M/s MTU, PUNE/ M/s Yeoman Marine Services Pvt Ltd, Mumbai</b>									
LA-5037	Calibrate following sensors for safeties cutout /alarm and parameters to be recorded for proper functioning for permissible limit. <b>Pressure sensors:</b> (a) Lube oil Trip (1.2 bar) - 03 (b) Lube oil Alarm (1.5 bar) - 03 (c) S/W Alarm (0.4 bar) - 03 (d) Fuel oil Alarm (3.0 bar) - 03 (e) Gear box lube oil Alarm(0.2 bar) - 03 (f) Cooling water Alarm(0.5bar) - 03 (g) Gear box control oil Trip (15.5 bar) - 03	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.							
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHO-1	RTO (Refit)





(a) Shaft Speed indicator	:	06 Nos	PAC firm report to be submitted.
(b) Reversing Position Indicator	:	06 Nos	Spares CG supply.
(c) Engine Speed Indicator	:	06 Nos	
(d) Bucket Position Indicator	:	06 Nos	

**WATER JET (M/S KAMEWA, SWEDEN), PAC FIRM M/S ROLLS ROYCE, MUMBAI**

LA- 5047 Carry out functional test of alarms, switches and pressure gauges.

Do through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.) . PAC firm report to be submitted.  
Spares CG supply.

LA- 5048 Calibration and functional test of Feedback units for steering and reversing (total 06 Nos) to be carried out.

Do through PAC firm M/s RRMI (M/s Kongsberg Maritime CM India Pvt Ltd.) PAC firm report to be submitted.  
Spares CG supply.

**HP AIR COMPRESSOR PANEL (M/s ECC, KOLKATA 415/230 V AC 02 NOS)**

LA-5049 Check the proper operating of MCBs, switches & control units, contactors and OLRs. Replace all contacts in contactor by using contactor kit. Check the insulation of the cable. Replace all the defective components. Repaint the control panel using international marine equipment standard paint after scrapping old paint. Check the functioning of MPU card (02 Nos) for overload, short circuit, and under voltage. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record. (All material and all in way jobs under yard scope)

DO. Material yard supply as per RFIC minutes.

**DISTRIBUTION BOARDS (AC POWER SYSTEM, KOLKATA)**

LA-5050 Following checks of 18 in no. distribution panels (415 V/230V AC and 24 V DC) to be carried out. (all material and all in way jobs under yard scope)  
a) Clean all contacts, switches, MCBs, transformer and relays and check the proper operation of MCBs, switches & control units and replace the defective components with correct ratings.  
b) Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.  
c) Scrap old paint and apply new paint using international marine standard equipment paint.

DO as per Para 11 of RFIC minutes.  
Material yard supply.

M/s Chowguile	M/s Krasny	M/s Short Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Snt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)

	d) Check the corroded mounting platform and take corrective action.	
LA-5051	Calibrate following meters of distribution board and replace if found defective. Calibration certificate to be issued. (a) Volt meter (0-30 Volt)-02 nos (b) Ammeter (0-01 Amps)- 01 no (c) Ammeter (0-75 Amps)- 01 no	DO calibration only. Yard to provide calibration certificate. Renewal if any against CG supply.
<b>A/C CONTROL PANEL: MAKE; SWITCH AND CONTROL GEARS, MUMBAI</b>		
LA-5052	Servicing of complete control / starter panel is to be carried out including following:- (a) Clean all switches, MCBs, transformer and relays and check the proper operation of MCBs, switches & control units. Renew all defective components with correct ratings. (b) Check all the power and control circuits and thoroughly inspect all the wiring/unit/sub-unit/cables. All Control cables to be properly laid out. Cable insulation to be checked and wherever necessary to be renewed. (c) Check the corroded mounting platform and take corrective action. (d) Renew all earthing straps. (All material and all in way jobs under yard scope)	DO as per Para 11 of RFIC minutes. Material yard supply.
LA-5053	Calibrate 06 in no. OLRs (Capacity- 12-18 Amps -01 no, 30-37 Amps - 02 no, 16 – 24 Amps - 02 nos, 07 – 10 Amps - 01 no.) and replace the same if found defective. Calibration certificate to be issued.	Delete.
LA-5054	Scrap old paint and apply new paint using international marine standard equipment paint (Paint Yard supply).	Delete.
LA-5055	Renew all the contacts in contactor by using contactor kits (Make: Schneider Electric, Model : LC1D18 – 02 Nos, LC1D38 – 04 Nos, LC1D12 – 02 Nos).	Delete.
LA-5056	Calibrate following meters. Calibration certificate to be issued. (a) Ammeter (0-30 Amps)-01 no (b) Ammeter (0-10 Amps)- 01 no (c) Ammeter (0-75 Amps)- 02 nos	DO calibration only. Yard to provide calibration certificate. Renewal if any against CG supply.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

**RO PLANT ( MAKE : ROCHEM, MUMBAI MODEL: ROCHEM DT-5S,05TPD ) PAC FIRM: M/S ROCHEM, MUMBAI**

<p>LA-5057 RO plant control panel to be overhauled completely. Contact strips of contactors (03 nos to be renewed) and 03 in nos over load relays to be calibrated (calibration certificate to be issued). Potentiometer, conductivity meters with switch, flow switch, flow meter and level switch to be checked. 3/2 way solenoid valve, pressure switch for raw water, brine water and pure water and servo motor control valve to be serviced and system to be proved during harbour/sea trials. Replace the all defective components. (All material and all in way jobs under yard scope)</p>	<p>DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Yard to provide calibration certificate. Material yard supply. Spares CG supply.</p>
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**MOTORS (49 NOS)**

<p>LA-5058 Following Motors to be overhauled completely. (all material under yard scope) Overhauling of motors includes following:- (a) Removal of motor from ship and strip thoroughly (b) External and internal body of motor to be scraped and painted with International marine standard anti corrosive and equipment color paint. (c) Re-impregnation / varnishing of windings. (d) Re-balancing of rotor and cooling fan. (e) Renewal of bearings, bushes, seals, gaskets and fan covers. (f) Checking of rotor shaft and bearing housing for flaws, cracks and corrosion. (g) Renewal of terminal box and lugs. (h) Renewal of corroded nuts and bolts. (Material SS) (i) Baking, bench trials after assembling. (j) Starting and running currents to be measured and should be as per specifications. (k) Preparation of the foundation of motor and re-fitment. (l) Running test after assembling &amp; installation onboard ship (m) Replace all earthing straps. (n)</p> <p>Bearings being renewed shall be quality control cleared through notified agencies and shown to ship's staff prior replacement.</p>	
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M/S Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHDQ-1	RTO (Refit)

SI	Motor description	Rating	Nos. Fitted	Location	
(I)	Galley supply / exhaust fan Motor	0.37 KW	02	Galley	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(II)	Anchor capstan motor	5.5 KW	02	Foxle	Delete.
(III)	Emergency DA compt. Exhaust fan motor	0.157 KW	01	Emergency DA compt.	
(IV)	AHU motor	9.3 KW	01	ATU Compt	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(V)	Exhaust fan motor for CO's bathroom	0.062 KW	01	CO's bathroom	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(VI)	Naval store exhaust motor	0.157 KW	01	Naval Store	Delete.
(VII)	Baggage store supply fan motor	0.157 KW	01	Baggage store	Delete.
(VIII)	STP exhaust fan motor	0.318 KW	01	STP Compt	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(IX)	STP supply fan motor	0.318 KW	01	STP Compt	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(X)	FM 200 Compt Supply Fan	0.157 KW	01	ATU Compt	Delete.
(XI)	Water Jet compt. Supply fan motor	3.7 KW	01	Jet Compt	DO. Scope of work for motor overhauling will be as per Para
(XII)	Exhaust fan motor for SO'S & Navik bathroom	0.314 KW	01	Navik bathroom	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XIII)	Dirty oil pump motor	1.5 KW	01	FER	DO. Scope of work for motor

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Sr) Rep	CO Rajratan	DTO CGD HQ-1	RTO (Refit)

(XIV)	Bilge & GS pump motor	15 KW	01	FER	overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XV)	Bilge & fire pump motor	15 KW	01	AER	
(XVI)	Fresh water Hydrophore pump motor	1.5 KW	02	FER	
(XVII)	Oily bilge water separator motor	1.1 KW	01	FER	
(XVIII)	Low pressure booster pump motor (RO plant)	0.37 KW	01	FER	Delete. Covered under EA-3084
(XIX)	Cleaning pump motor(RO plant)	0.33 KW	01	FER	
(XX)	HP pump motor(RO plant)	2.2 KW	01	FER	
(XXI)	Fuel oil purifier separator pump motor	2.2 KW	01	FER	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXII)	Fuel oil purifier pump motor	0.75 KW	01	FER	
(XXIII)	Air compressor motor	7.5 KW	02	FER	
(XXIV)	AC sea water pump motor(main)	3.7 KW	01	FER	
(XXV)	Exhaust fan motor officer's bathroom	0.318 KW	01	Officer's Bathroom	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXVI)	AC compressor motor	27 KW	02	FER	Delete covered in EA-3088.
(XXVII)	Fuel oil transfer pump motors	2.2 KW	02	FER	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXVIII)	Fwd E/R ventilation fan motors	3.7 KW	02	Q/deck	
(XXIX)	Fwd E/R supply fan motors	7.5 KW	02	Q/deck	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTØ CGDHQ-1	RTO (Rett)

(XXX)	Aft E/R ventilation fan motors	3.7 KW	01	Q/deck	
(XXXI)	Aft E/R supply fan motors	7.5 KW	01	Q/deck	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXXII)	Electric motor for crane	7.5 KW	01	Quarter deck	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXXIII)	Mooring capstan motor	4.0 KW	01	WJ Compt	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXXIV)	Paint store supply fan	0.37 KW	01	Paint store	Delete. Undertaken under DFP.
(XXXV)	Priming pump for bilge & GS pump	0.75 KW	01	FER	
(XXXVI)	Priming pump for fire & GS pump	0.75 KW	01	AER	
(XXXVII)	Portable Lub oil transfer motor	0.55 KW	01	WJ Compt	
(XXXVIII)	Hydraulic power pack motor	2.2 KW	03	02 – Fwd E/R 01 – Water Jet	DO. Scope of work for motor overhauling will be as per Para 11 SI (t) of RFIC minutes.
(XXXIX)	Garbage Disposal Motor	0.55 KW	01	Galley	Delete.

**SHORE CONNECTION BOX(SCB) 02 NOS (MAKE: M/S AIM ENGG)**

LA-5059	Complete overhauling of the shore connection box including following:- (a) Check condition of mounting bases and insulation of the cable and record. Repaint the complete panel with equipment international marine paint. (b) Clean all contacts, switches, MCBs, relays and check the proper operation of MCBs, switches, control units & Phase sequence meter. Replace all the defective components with correct ratings. (c) Check the insulation of cables and record.	DO. Material yard supply as per RFIC minutes.
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M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

**STARTER PANELS, M/S MARINE ELECTRICALS**

LA-5060

Carryout complete overhauling/servicing of following control/starter panels. Job includes following:-

- Calibration of OLRs to be carried out by using CIT set (calibration certificate to be issued).
  - Check the corroded mounting bases and take corrective action if necessary.
  - Clean all contacts, switches, MCBs, relays & re-varnishing of transformer and check the proper operating of MCBs, switches, control units, contactors, transformer and OLRs. Replace all the defective components with correct ratings.
  - Check the insulation of cables, transformer and record. Repaint the complete panel with equipment international marine paint. Rubber gaskets to be renewed. Control/starter panel operation to be proved. Replace all earthing straps.
  - Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.
- (all material and all in way jobs under yard scope). Functional checks of MPU (Motor Protection Unit) card (10 Nos).

SI	Equipment	Make	Type	No. Fitted	Location
(I)	Water jet hydraulic power pack starter panel	M/s Rolls Royce	415 V AC 3phase	03	Water jet compartment (01 no), FER (02 nos)
(II)	DOL starter for portable lub oil pump	M/s ECC	Portable type	01	Loose item
(III)	DOL starter for dirty oil pump	M/s ECC	DOL	01	FER
(IV)	Bilge & GS pump starter	M/s Fabricons	Star delta	01	FER

DO for serials (I) to (VII), (IX) to (XVI) and (XXII).

SI (VIII) Delete as covered in LA-5057(XVI).

Serials (XVII) to (XXI) delete.

Scope of work for overhauling / servicing will be as per Para 11 of RFIC minutes.

Material yard supply as per RFIC minutes. Calibration certificate to be provided.

Yard to quote separately for each serial.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refn)

(V)	Bilge & fire pump starter	M/s BE pump	Star delta	01	AER
(VI)	FW Hydrophore pump starter	M/s ECC	415 V, 1.5 -KW	02	FER
(VII)	Oily water separator control panel	M/s KMC, Korea	415 V AC	01	FER
(VIII)	RO Plant Control Panel	M/s ROCHEM	415 V AC	01	FER
(IX)	FO Transfer Pump Starter	M/s ECC	415 V, 2.2 KW	02	FER
(X)	Fuel oil purifier control cabinet	M/s Marine Electricals	415 V AC	01	AER
(XI)	Engine Room Ventilation Fan Starter	M/s Switch n control gears	415 V AC	06	FER,AER
(XII)	Mooring capstan starter panel	M/s ECC	415 V AC	01	Water jet compartment
(XIII)	Control Pedestal For Mooring Capstan	M/s ECC	415 V AC	01	Quarter deck
(XIV)	Anchor capstan control panel	M/s L & T	415 V AC	02	Fwd mess
(XV)	Control Pedestal for anchor capstan	M/s L & T	415 VAC	01	Foxle

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGD HQ-1	RTO (Refit)



LC-5063	<p>H<sub>2</sub>S sensor to be installed in STP Compartment. Inway Jobs as follows:-</p> <p>(a) 02 sensor to be installed in STP compartment</p> <p>(b) Main control panel to be fitted in Dining Hall with suitable brackets.</p> <p>(c) Casing to be fabricated for storage of batteries and UPS.</p> <p>(d) One Audio Visual alarm to be provided in inside the STP compartment and one to be provided Main alleyway</p> <p>(e) Job includes laying out and securing of associated cables (Approx 150 Mtrs)</p> <p>[As &amp; As approved by CGHQ vide TS/300/63/STP/RC E CLASS dated 04 May 18. Permanent Identification no. PIN NE/fh-01/2017-B/029 ]</p>	DO.
<p>Scope of work of yard includes supply and fitment of items as per bill of material given below:</p>		
Sl	Description	Qty
a	H <sub>2</sub> S Sensor Assembly, Model: GT-2511-FLP	02
b	Dual Channel Monitor, Model: GM-2211	01
c	Audio visual Alarm, Model: YL 40 (1 red and 1 orange)	02 sets
d	Cable 3x1.5 Sq mm	150 Mtrs
e	1 KVA UPS-01 no, 12V 42 Ah set SMF Battery-03 nos and suitable Battery Rack-01 no	01 set
<b>OBS</b>		
f	Audio Visual Alarm, Model-YL 40 (01 Red and 01 Orange)	01 set

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)



LA- 5066	Scrap old paint and apply new paint using international marine standard equipment paint (Paint Yard supply).	Delete.
<b>MAIN LIGHTING TRANSFORMER (415 V/230 V, AIR COOLED 10 KVA, M/s RADIANT ELECTRONICS)</b>		
LA-5067	Overhaul the transformer including following:- (a) Cleaning, varnishing and baking of winding and cleaning of earthing straps. (b) Check and record insulation resistance of windings before and after varnishing i.e. insulation to be improved. Replace earthing straps. (c) External and internal body of transformer to be scraped and painted with international marine heat resistant paint. One coat of air drying varnish to be applied on frame parts. (d) Check all the circuit and thoroughly inspect the all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record. <b>(All material and all in way jobs under yard scope)</b>	DO. Material and paint yard supply.
<b>GENERAL LIGHT FITTING, WALL MOUNTED FANS &amp; SWITCH SOCKETS</b>		
LB- 5068	20 nos. Light fitting along with bracket in machinery spaces perished. To be replaced.	Delete.
<b>FIRE DETECTION SYSTEM: MAKE: AUTRONICA, NORWAY, PAC FIRM - M/s ELCOME INTEGRATED SYSTEM</b>		
LA-5069	Overhaul the complete system including following heat/smoke detectors and manual call point. Sensors to be checked for correct operation and replace if found defective. System to be proved in all the loops (03 nos.) (a) Optical smoke detector-25 nos. (b) Multi sensor smoke detector-09 nos. (c) Manual call point-15 nos. (d) Heat detector-01 no.	DO through PAC firm M/s Elcome Integrated systems Pvt Ltd, Navi Mumbai. Spares CG supply.
<b>COOKING RANGE (01 NOS., MAKE: BONHOFF, HOLLAND, 11.5 KW)</b>		
LA-5070	Carry out complete overhauling of cooking range. Job includes following:- (a) Replacement of porcelain insulators and earthing strips. Replace all defective selector switches/ knobs (b) Replace heat resistant cables of all hot plates (15 Amps, length: 10 meters approx). (c) Check and record the overall insulation resistance of the complete range and control panel (d) Check and record the insulation resistance of the individual heating element.	DO. Material yard supply.

M/s Chowgule	M/s Krasny	M/s Skofft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGD/HQ-1	RTO (Refit)

LB-5071	01 in no hot plate (Type: Moulded with 04 terminal heating element) Size: 220 X 220 mm, 2KW, 415 V AC in the cooking range is defective. Hot plate to be renewed and proved for satisfactory operation.	DO. Hot plate yard supply.
<p>(e) Check all the circuit and thoroughly inspect the all wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.</p> <p>(f) Clean all contacts, switches &amp; relays and check the proper operating of MCB's, switches, control units, contactors. Replace the defective components with correct ratings. <b>(All material and all in way jobs under yard scope)</b></p>		
<p><b>INTEGRATED BRIDGE SYSTEM (TRANSAS, SWEDEN), PAC FIRM: M/S TRANSAS, MUMBAI</b></p>		
LA-5072	Overhaul the complete panel. Job includes following:- (a) Check all terminal block connections in processors and tighten. Carry out <b>first redundancy check</b> , switch off matrix # 1 and test all system operations. Carry out <b>Second redundancy check</b> , switch off matrix # 2 and test all system operations as per daily checks, assure to switch matrix # 2 back on. (b) Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.	Delete.
<p><b>RADAR (MAKE: TRANSAS, SWEDEN, TYPE: NR4000, 12KW &amp; 25 KW – 02 NOS.)</b> <b>PAC FIRM : M/S TRANSAS, MUMBAI</b></p>		
LA-5073	Check transmitter power output.	Do through PAC firm
LA-5074	Check Condition of Transmitter mounts and repair and replace, if needed. Check all the circuit thoroughly and inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.	M/s Transas Marine Ltd. India, Mumbai. Spares CG supply. Material yard supply. OEM certified bearing to be renewed as per sample.
LA-5075	Replace earth bondage strap, if needed	
LA-5076	Assess general condition of transmitter units (e.g. Array, rotary joints),	
LA-5077	Carry out complete overhauling including scanner motor and replace bearings.	

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Reft)

<b><u>AIS ( MAKE : M/s SAAB SYSTEMS, TYPE: R4-AIS) PAC FIRM : M/S TRANSAS, MUMBAI</u></b>										
LA-5078	Check condition of antenna mounts/ brackets for corrosion and repair, if needed. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.							Delete		
LA-5079	Open multiplexer unit and check internal wiring and tighten terminals, if loose.									
<b><u>DGPS ( MAKE : M/s SAAB SYSTEMS, TYPE: R4-TRANSPONDER) PAC FIRM : M/S TRANSAS, MUMBAI</u></b>										
LA-5080	Check condition of antenna mounts/ brackets for corrosion and repair, if needed. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.							Delete.		
LA-5081	Open multiplexer unit and check internal wiring and tighten terminals, if loose.									
<b><u>ECDIS ( MAKE : M/s TRANSAS, SWEDEN), PAC FIRM : M/S TRANSAS, MUMBAI</u></b>										
LA-5082	Check chart permit licenses / permit expiry and carry out updation of ECDIS chart.							Delete.		
LA-5083	Open panels and check all terminal block connections and tighten if becoming loose. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.							Delete.		
<b><u>GYRO COMPASS (MAKE : M/S ANSCHUTZ, STD 22) PAC FIRM M/S ELCOME INTEGRATED SYSTEM P LTD</u></b>										
LA-5084	Complete overhauling of Gyro compass to be carried out. Renew the "O" rings / gaskets, Gyro liquid and fused bulbs. Check the Gyro compass for optimum performance. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.							Delete.		
LA-5085	Ensure repeaters are aligned with main Gyro and Gyro feed is available to RADAR, ECDIS and other connected equipment.									
<b><u>SVDR (MAKE : M/s TRANSAS, SWEDEN, Model – SVDR -3200)</u></b>										
LA-5086	Annual performance test (APT) to be carried out by certified Transas technician including up gradation of software and hardware. All microphones (06 in nos.) are to be checked and proved.							Delete.		
LA-5087	Open panels and check all terminal block connections and tighten if becoming loose. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.							Delete.		
<b><u>ANEMOMETER AND WEATHER (M/s LILLEY &amp; GILLIE, U.K WALKER 7080).</u></b>										
LA-5088	Monitor general wear of equipment and wind vane.							Delete. SS		
M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)	



LA-5097	and proved. Housing box to be renewed. Complete overhaul of Main broadcast system and intercom systems including amplifiers and associated speakers (33 nos) and microphones (07 nos). Full performance checks to be carried out at all speaker points and volume control to be checked. Check continuity and insulation of all speaker cables and record. Replace all defective components.	Delete.
<b>AUTO TELEPHONE EXCHANGE (MAKE: SIEMENS / UNIFY ENTERPRISES COMMUNICATION PVT LTD)</b>		
LA-5098	Overhaul complete system. Check all telephones cables lines/cables junction boxes and replaces defective component, if any. <b>Model- HIPATH 3550</b>	Delete.
<b>STAND ALONE COMMUNICATION SYSTEM SACU (M/s BEL, KOTDWARA 3100 DCT) PAC FIRM : M/S BEL, KOTDWARA</b>		
LA-5099	Overhaul the complete equipment including renewal of Lithium memory backup battery. Check PCBs and components showing ageing and sign of deterioration. Replace the deteriorated wiring, components/ PCB. Also check the interfacing terminal points, memory accessibility. Check the mounting condition of main unit and repair / replace if required. Check the insulation of all cables and record.	Delete.
<b>SMART-F (M/S BEL, KOTDWARA, 4563R) OEM M/S BEL KOTDWARA, PAC FIRM : M/S BEL, KOTDWARA</b>		
LA-5100	Carry out complete overhauling of system. Check co-axial cable for any damage if defective replace. Check the performance along with interfacing with MF/HF set and system to be proved.	Delete.
<b>SOP FOR CRN-91 GUN, OEM – BHARAT ELECTRONICSLTD PAC FIRM : M/S BHARAT ELECTRONICS, CHENNAI</b>		
LA-5101	Carry out complete overhaul of the system and check the performance along with interfacing with CRN 91.	Delete.
LB-5102	Thermal Imager video found not available in CDU due to defective slip ring assembly. Slip ring assembly to be renewed and SOP to be proved for satisfactory operation.	Delete.
<b>HF TRANSCEIVER SET (MAKE: FURUNO, JAPAN Model: FS 5070) PAC FIRM M/S MOLOBHOY, MUMBAI</b>		
LA-5103	Carryout complete overhauling and tuning of the equipment and test for optimum performance as per service manual. Clean the antenna. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record. <b>(All material and all in way jobs under yard scope)</b>	Delete.
<b>INMARSAT 'C' TERMINAL (M/S SAILORS THRANE AND THRANE, DENMARK, TT-300E)</b>		

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)

LA- 5104	Overhaul the complete unit internally, check the performance in all functional modes and prove it for satisfactory operation. Check the insulation of cables and record. Replace the defective components.	Delete.
<b>VHF RADIO TELEPHONE (SAILORS THRANE AND THRANE DENMARK RT 5022 02 NOS.)</b>		
LA-5105	Overhaul the complete unit, check the performance in all functional modes and prove it for satisfactory operation. Check the insulation of cables and record. Replace the defective components.	Delete.
<b>FLEET BROAD BAND 500 ( SAILORS THRANE AND THRANE DENMARK )</b>		
LA- 5106	Overhaul the complete units internally, check the performance in all functional modes and prove it for satisfactory operation. Check the insulation of all cables and record. Replace the defective components. Check insulation of Aerial and replace mounting nuts	Delete.
<b>VLF/HF RECEIVER EK-896 ( M/S BEL, BANGALORE )</b>		
LA- 5107	Overhaul the complete units internally, check the performance in all functional modes and prove it for satisfactory operation. Check the insulation of all cables and record. Replace the defective components. Check insulation of Aerial and replace mounting nuts.	Delete.
<b>NAVTEX RECEIVER (MAKE M/S SAMYUNG, TYPE SNX-300)</b>		
LA-5108	Complete overhaul the equipment. Check the performance in all functional modes and prove it for satisfactory operation. Check the insulation of all cables and record. Replace the defective components. Check insulation of Aerial and replace mounting nuts	Delete.
<b>PORTABLE HF TX/RX PRC 6020 (M/S BEL)</b>		
LA- 5109	Overhaul the complete unit internally, check performance in all functional modes and prove it for satisfactory operation.	Delete.
<b>5" HAND SIGNALING ALDIS LANTERN 60W (M/S RAY ENTERPRISES, KOLKATA 02 NOS)</b>		
LA-5110	Overhaul the complete light assembly including flaps and revolving mechanism after dismantling. Renew all weather sealing gaskets and rubber components, polish reflecting mirror and prove for operation.	Delete.
<b>PAE - 3060 (MAKE: ECIL, HYDERABAD)</b>		
LA-5111	Carryout overhaul of the complete system along with cleaning and painting of antenna with navy grey polyurethane paint (RF paint). Carryout performance checks & tuning of system. (paint yard supply) OEM firm M/s ECIL, Hyderabad. Check the insulation resistance of cable	Delete.

M/s Chowgule	M/s Krasny	M/s Shoft Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Srt) Rep	CO Rajratan	DTO CGDHQ-1	RTO (Refit)







<b>WASHING MACHINE (MAKE: M/S HAIER, CAPACITY – 05 KG), QTY – 02 NOS</b>	
LA-5130	Overhauling of washing machine to be carried out. Renewed all defective components. Washing Machine proved for satisfactory operation.
	Delete.
<b>MISCELLANEOUS</b>	
LA-5131	03 in no. Bridge window wipers to be overhauled including motor, spray mechanism and gear assembly. Wiper blades to be renewed. After completion of overhauling, to be proved for proper speed control.
	DO. Spares and material yard supply.
LB-5132	Battery box (Mat: MS fabrication with wooden flooring and wooden covering) in engine room found perished and corroded. To be fabricated as per sample. Total no. of boxes : 06 Nos. Size as follows:- (Size: 88 cm x 78 cm x 34 cm)(LxBxH) – 03 Nos (Size: 56 cm x 38 cm x 34 cm)(LxBxH) – 03 Nos
	DO. Material yard supply.

M/s Chowgule	M/s Krasny	M/s Short Shipyard	SO I/C Engg Rajratan	SO I/C Electrical Rajratan	SO I/C Hull Rajratan	CGRPT (Str) Rep	CO Rajratan	DTO CGDHO-1	RTO (Refn)

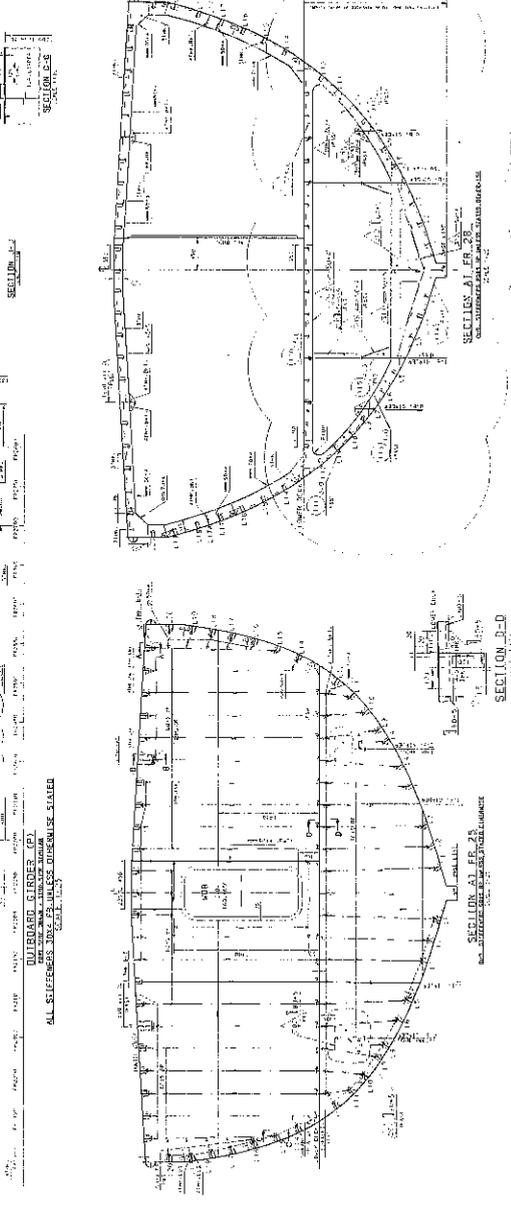
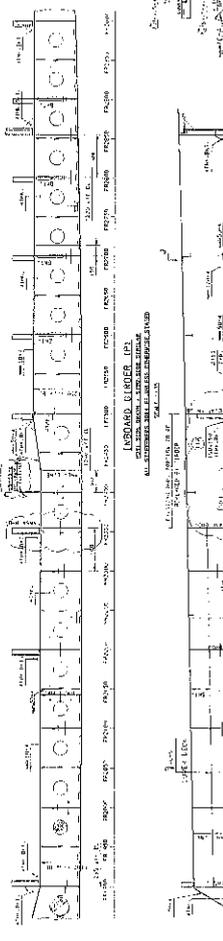
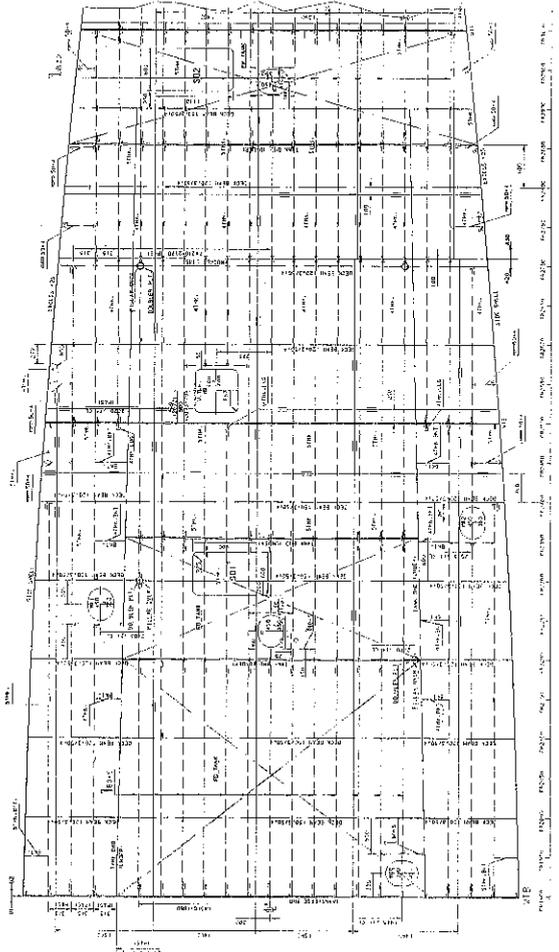
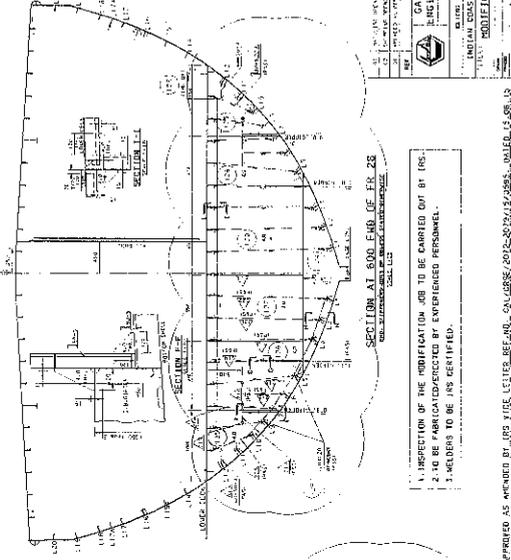
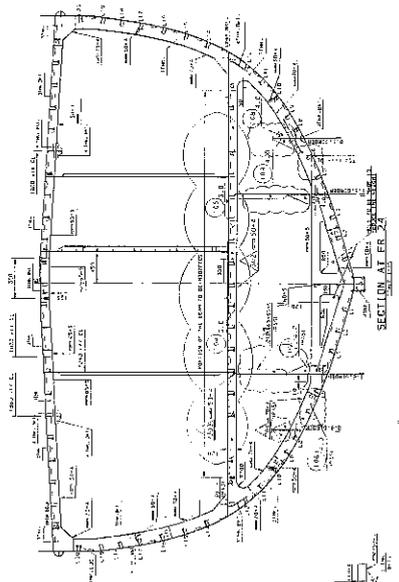
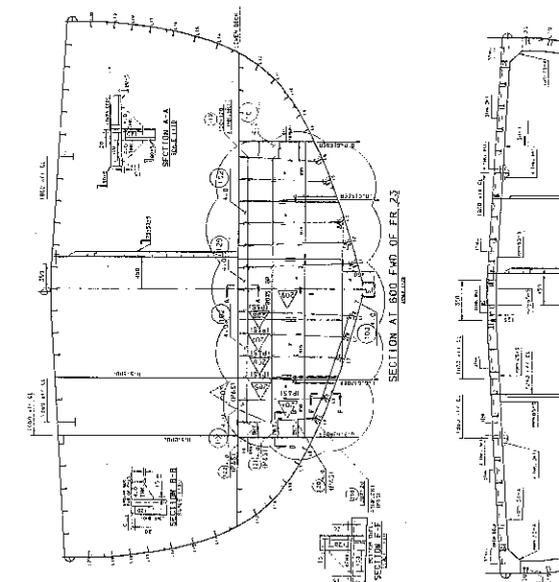
# Annexure - II OF RFIc Minutes

**GENERAL NOTE**

NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
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**NOTE:**

1. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS OF THE CLIENT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES CONCERNED.
3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND PUBLIC ROADS AT ALL TIMES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND STRUCTURES EXISTING ON THE SITE.
5. THE CONTRACTOR SHALL MAINTAIN A SAFE WORKING ENVIRONMENT AT ALL TIMES AND SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL AND THE PUBLIC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ENVIRONMENT AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT POLLUTION AND DAMAGE TO THE ENVIRONMENT.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ADJACENT PROPERTIES AND PUBLIC ROADS AT ALL TIMES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND STRUCTURES EXISTING ON THE SITE.
9. THE CONTRACTOR SHALL MAINTAIN A SAFE WORKING ENVIRONMENT AT ALL TIMES AND SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL AND THE PUBLIC.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ENVIRONMENT AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT POLLUTION AND DAMAGE TO THE ENVIRONMENT.



1. INSPECTION OF THE MODIFICATION JOB TO BE CARRIED OUT BY THE CONTRACTOR SHALL BE CARRIED OUT BY THE ARCHITECT.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES CONCERNED.

3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND PUBLIC ROADS AT ALL TIMES.

APPROVED AS SHOWN BY THE FIRE CONTROL OFFICER, CALICUT FIRE DEPARTMENT, CALICUT.

**GARDEN REACH SHIPBUILDERS & ENGINEERS LTD. - CALCUTTA-700024**

PROJECT NO. 1072-79

DATE: 20/11/2022

SCALE: AS SHOWN



Annexure-III of RFIC Minutes

Refer to Para 6.2 of Chapter 6 of CGBR 382

**PRODUCT PERFORMANCE GUARANTEE CONTRACT FOR  
SUPPLY OF SELF POLISHING COPOLYMER (SPC)/BIOCIDE FREE  
FOUL RELEASE COATINGS FOR EXTERNAL UNDER WATER (FRC)**

**FOR INDIAN COAST GUARD**

CONTRACT NO. : \_\_\_\_\_ DATED \_\_\_\_\_

BETWEEN

THE PRESIDENT OF INDIA

AND

M/S..... (NAME AND ADDRESS OF THE PAINT MANUFACTURER)

1. **Preamble.** This CONTRACT is made and entered into this..... day of ....., Year Two Thousand and ..... by and between the President of India, represented by the, Indian Coast Guard, India (hereinafter referred to as the CUSTOMER, which expression shall mean and include his permitted successors and assignees), the Party on one part, and M/s .....(hereinafter referred to as the SUPPLIER which expression shall mean and include the firm's executors, administrators, successors and permitted assignees), the Party on the other part. And whereas, the SUPPLIER has agreed to supply high performance marine paints for application on specified Vessel, ICGS..... at..... under SUPPLIER's supervision.

2. **Scope of the CONTRACT.**

2.1 The SUPPLIER undertakes to supply the paints for application under the audit/supervision of the SUPPLIER.

2.2 The types and quantities of paints required to be supplied under this Contract are as indicated in the Customer's Purchase Order No..... dated.....

2.3 The complete details of the Paint Scheme for which the paints are supplied are placed at **Chapter 2** to this CONTRACT.

2.4 The CUSTOMER would utilize the paints for application on the specified areas of the designated vessels. In doing so, the rest of the coats in the specified paint scheme of the SUPPLIER concurred to by the CUSTOMER, would also be those received from the SUPPLIER as part of this supply in this CONTRACT or which are already held in stock. If the materials are drawn from stock, it should be ensured by the Customer that they are within the shelf life given in the Suppliers Product Data Sheet.

2.5 The CUSTOMER would ensure that the requisite conditions are adhered to during the surface preparation and application of the paints and that it is undertaken in the presence and under the documented audit/ supervision of a suitable representative of the SUPPLIER. In this context the supplier undertakes to guide and advice the CUSTOMER/APPLICATOR in surface preparation and paint application, with regard to the technical and safety requirements of the paints concerned as per the SUPPLIER's Product and Material Safety Data Sheets.

2.6 The SUPPLIER should satisfy that the requisite application conditions are adhered to and would be an advisor to the CUSTOMER/APPLICATOR who is responsible to achieve coatings standards including spread rate and DFT and jointly sign a working protocol along with the CUSTOMER and APPLICATOR (if a separate entity) to this effect for each and every vessel where the application is undertaken with the paints under this CONTRACT. The guarantee documentation will necessarily include the following "vessel specific" documents in three copies, one each for the Directorate of Logistics, Coast Guard Headquarters (If ordered by them), Regional Headquarters (If ordered by them), Repair agency, Ship and Paint supplier.

2.6.1 The coatings specification, along with recommended surface preparation standards (preferably to SA 2.5 standard).

2.6.2 The agreed upon scale of corrosion shall be either of following international standards namely ASTM D610 or ISO 4628-3:1982 or EXTENT DIAGRAMS or EUROPEAN RE SCALE

2.6.3 Notice from CUSTOMER to SUPPLIER informing of vessel name, dates and venue of planned coating application, with 7 days notice.

2.6.4 The working protocol signed by the SUPPLIER, the CUSTOMER and the APPLICATOR (if a separate entity from the CUSTOMER).

2.6.5 The daily weather conditions monitoring data.

2.6.6 In case of non-adherence to the SUPPLIER's representative's advice, "exception reports" shall be issued and attached, and shall form part of the guarantee. The areas covered under the "exception report" will not be covered under the guarantee.

2.6.7 The Surface Preparation and DFT report, which will contain all data on the surface preparation achieved and final DFTs of various coatings, by demarcated vessel area.

2.6.8 The final consumption report, along with products, quantities, batch numbers, etc.

2.6.9 It is also recommended that photographs of the in pre- and post-coating conditions are taken, and filed along with guarantee document with the CUSTOMER, repair agency and the vessel.

### 3. Performance Guarantee.

3.1 The following will be considered as paint failure/defect:-

3.1.1 Visible corrosion marks

3.1.2 Blistering

3.1.3 Cracking

3.1.4 Delamination, flaking or peeling

3.1.5 Softening or swelling

3.1.6 Visible Microscopic fouling (marine algae length exceeding 5 mm or shell/barnacles fouling exciding height of 3 mm.

3.2 The SUPPLIER will stand guarantee for the paints supplied hereby and also for the balance coats of paints applied, if any received from the SUPPLIER, which are drawn from stock and undertake restoration of the complete paint scheme over the entire area of the vessel where the paints under this CONTRACT are applied, inclusive of supply, surface preparation and application, under the following circumstances:-

TIME PERIOD (MONTHS)	NORMAL WEAR & TEAR, NO LIABILITY ON FIRM	FIRM TO ONLY SUPPLY PAINT FREE OF COST FOR TOUCH UP DEFECTIVE AREAS	FIRM TO SUPPLY, PREPARE & APPLY PAINT FOR REPAIR OF DEFECTIVE AREAS ONLY	TOTAL RENEWAL OF SCHEME. FIRM TO SUPPLY, PREPARE & APPLY PAINT
	% DEFECTIVE AREA	% DEFECTIVE AREA	% DEFECTIVE AREA	% DEFECTIVE AREA
12	Less than 3 %	3 to 10 %	10 to 25 %	Greater than 25 %
24	Less than 6 %	6 to 10 %		
36	Less than 10 %	-----		
48	Less than 15%	15 to 18 %	18 to 25 %	
60	Less than 18 %	18 to 20 %	20 to 25 %	

**Note.**

1. The above percentages shall be determined after a HPFWW - High Pressure Fresh Water Wash - of the Hull Exterior.
2. The performance guarantee of 05 years is applicable for the entire paint system. During the repairs of defective areas, the paint scheme should be restored from the visible coat after surface preparation according to the paint scheme.
3. If incident of paint failure (>25%) are reported more than once for a particular vendor/paint scheme, then the firm will be given vender holiday for a period of 06 months by Coast Guard Headquarters.

3.3 In case paint failure is less than the levels specified above, the SUPPLIER agrees to undertake supply of paints required for touch up/ maintenance on payment basis at the rates specified in the contract.

3.4 In case of maintenance of paint scheme beyond the performance guarantee period the SUPPLIER agrees to supply the paints required for touch up/maintenance at the rates specified in the Contract.

3.5 The SUPPLIER undertakes to position the required paints at the indicated place within three weeks of receipt of request.

3.6 Areas if any, as identified under Clause 3.2 above and touched up by the CUSTOMER would also be cumulatively added during assessment of areas of failure during further inspections within the duration of the CONTRACT. The paint used for touch up will have to be purchased from the Supplier and will have to be applied under the supervision of the Supplier. A joint report will be filed within 7 days of completion of the job.

3.7 Failure caused due to hot work or any mechanical damage to the coating due to physical effects would not be considered as paint failure.

3.8 **Pro-Rata Cost.** The SUPPLIER can take on job or compensate CUSTOMER in terms of pro-rata cost for surface preparation & paint application for repair of defective areas. The basis for determining the pro rata cost will be the prevailing rates in commercial shipyard where the docking is scheduled.

4. **Commencement and Duration.**

4.1 The performance guarantee under this CONTRACT will be valid for a period of **60 months** for the complete paint scheme, which shall be considered applicable from the date of application of the last coat of the scheme. The paints will be the applied in sequence as recommended by the Supplier and the intervals between coatings and other technical requirements as per Product Data Sheet will have to be adhered too. If not, firm's exception report will be considered for final claim.

4.2 This guarantee will expire and the SUPPLIER's obligations, except in respect of claims already validly notified under this guarantee, shall terminate 60 months from the effective date.

5. **Touch UPS During Routine Examination.**

5.1 Since there are no equivalent products, and since this is an extended performance scheme, the CUSTOMER **WILL NOT** apply paints from other sources, unless cleared by the SUPPLIER. In case of evidence of such application, any failure over the touched up areas will not be the liability of the SUPPLIER as per the terms of this CONTRACT.

5.2 The balance areas however, coated with the SUPPLIER's paints would continue to be covered by the provisions of this CONTRACT for the full duration.

5.3 The CUSTOMER shall inform the SUPPLIER and jointly record areas requiring touch ups on CUSTOMER's liability and also about use of paints from other firms, if actually applied.

5.4 The CUSTOMER may apply paints received from the SUPPLIER over areas requiring touch ups, which are not the liability of the SUPPLIER as per Para 3 and reserves the right to use paints of other firms for this purpose.

5.5 However in the event of touch ups using paints from other sources, any further failure over the touched up areas would not be the liability of the SUPPLIER as per the terms of this CONTRACT, except for assessing cumulative areas of failure explained in Para 3.3 within the duration of this CONTRACT.

6. **Claims.**

6.1 The CUSTOMER shall notify the SUPPLIER of claim by letter or facsimile transmission giving brief details of the nature of defects and the circumstances in which it was discovered, including the date of detection.

6.2 If the SUPPLIER wishes to inspect the area upon which a claim is being made, the vessel will be made available for inspection as soon as possible considering the operational requirement of the vessel.

6.3 The SUPPLIER shall depute his representative to inspect the vessel within three days on receipt of written or facsimile communication of availability of the vessel for inspection at any port in India.

6.4 On acceptance of liability, the SUPPLIER undertakes to position the required paints at any Indian port where the vessel is, for repairs of the coating within two weeks of joint inspection.

6.5 The CUSTOMER shall inform the SUPPLIER in writing of any scheduled refit period/dry docking of the vessels covered under this CONTRACT during the guarantee period. The SUPPLIER may depute a representative for undertaking inspection of the areas coated with paints covered under this CONTRACT.

6.6 Under no circumstances shall the CUSTOMER be responsible for arrangements for travel, boarding and lodging of representatives and personnel for undertaking inspection, supervision and repairs.

7. **Arbitration.**

7.1 In the event of a dispute arising out of the terms of this CONTRACT, the Parties undertake to make every effort to reach an amicable settlement. The arbitrations in this regard will be held at place of paint application yard.

7.2 Notwithstanding anything elsewhere provided in this CONTRACT, dispute, disagreement or any question arising of or relating to this CONTRACT, or relating to its construction or performance which cannot be settled amicably within sixty (60) days or longer period as may be mutually agreed upon, from the date of which either Party informs the other in writing by a notice that such a dispute, disagree mentor question exists be referred to the Coast Guard Administrative Authority (AA).

7.3 The arbitration Tribunal shall have its seat at place of paint application yard.

8. **Signatures and Witnessing by Parties.** In witness whereof the parties hereto have hereunder set their respective hands the day, the month and the year first above written.

**For and on behalf of  
M/s**

**For and on behalf of  
The President of India**

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**In the Presence of Witnesses**

**in the Presence of Witnesses**

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

