

Tele:-079-23243374

Reply should be addressed
to the Commander

SPEED POST/E-Mail

Headquarters
Coast Guard Region (NW)
Udyog Bhavan
Post Box No. 09
Sector-11,
Gandhinagar – 382 010

Quoting :3467/4

30 Jun 21

**PRE QUALIFICATION FOR SHORT REFIT (SR-3) OF ICGS RAJRATAN:
INVITATION OF EXPRESSION OF INTEREST AND COMMENTS/QUERIES**

Sir,

1. It is intimated that e-mail containing following defect list serials (Hull, Engineering and Electrical) in respect of **Short Refit** of **ICGS Rajratan** based at Porbandar for **150 days** duration along with serial wise CGRHQ (NW) remarks has been forwarded to date **30 Jun 21** :-

(a)	Hull	:	HA-1001 to HA-1107
(b)	Engineering	:	EA-3001 to EA-3210
(c)	Electrical	:	LA 5001 to LA- 5083

2. Item wise Technical comments/ queries are invited for the defects remarked "DO" by CGRHQ(NW) on the defect list enclosed. Please note that only technical comments/queries need to be forwarded and no "Budgetary Quote" is to be forwarded. Forwarding of budgetary offer will disqualify the concerned refitting yard from the tendering process.

3. **The refit is to be undertaken in Gujarat/ Maharashtra/ Goa coast of India only.** The refit is tentatively scheduled to commence in the month of **Sep 2021** for period of **150 days**. The refit of the ship is to start within 30 days of signing the Refit Contract. However, in case the ship is not available during this period of 30 days, the refit of the ship would deemed to have commenced with effect from the date the ship is subsequently made available for refit by Indian Coast Guard.

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4. The conduct of refit including other general conditions, payment terms, etc. will be governed in accordance with provisions of Defence Procurement Manual in vogue.
5. For details of defects on machinery, systems and ship's Hull, you are requested to contact **"The District Technical Officer, CGDHQ-1, Porbandar (Tele No. 0286-2241794, Email: dhq1@indiancoastguard.nic.in)"** to ascertain availability of ship in harbour and clearance to visit the ship.
6. It is intimated that a Request for Information Conference (RFIC) will be held at **CGRHQ(NW), Gandhinagar/CGDHQ-1/onboard ship/Video Conferencing** to discuss /clarify the scope of work and to bring all the participating yards at par. It may be noted that the date and venue for RFIC will be intimated by **CGRHQ(NW)** at a later date.
7. You are advised to depute your reps to the ship for meeting the technical Officer/ Executive Officer in order to assess the defect wise work package physically prior submitting technical comments/queries.
8. It is also desired that suitable reps may be deputed for attending the RFIC. Alternatively, a communication may be sent to **CGRHQ(NW)** that you would accept the work package as finalized during the RFIC.
9. 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 along with 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.
10. **It may be noted that RFP will be issued to all those yards who have not conveyed their unwillingness to undertake the refit in accordance with provisions of DPM, irrespective of whether they attend RFIC or not.** As such, if you do not wish to undertake the refit you should communicate it in writing before the RFIC takes place.
11. It may be noted that CGHQ is contemplating AIAMC contract for certain equipment/systems fitted onboard ship. Although, defects on these equipment have been added in defect list but in case the AIAMC contract is concluded prior commencement of contract, Indian Coast Guard will have right to delete the same from the refit package.

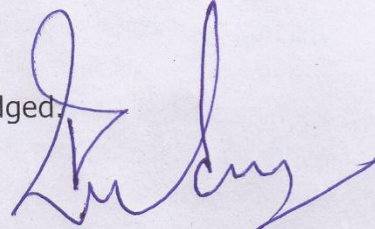
Contd . . .3/-

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12. It is requested that your **technical comments/queries** for the defect list serials remarked "DO" by CGRHQ(NW) as per the enclosure be forwarded to reach **Coast Guard Region(NW), Gandhinagar with one copy each to CGDHQ-1, Porbandar and ICGS Rajratan** at the addresses given below by 20 Jul 2021:-

- (a) The Commander
{for CSO (Tech)}
Coast Guard Region (NW)
Post Box No. 09, Gandhinagar
Gujarat-382010
Email- tech-nw@indiancoastguard.nic.in
- (b) The Commander
{for (DTO)}
Coast Guard District Headquarters No.1
Post Box No 25, Porbandar
Gujarat - 360 575
Email- dhq1@indiancoastguard.nic.in
- (c) The Commanding Officer
ICGS Rajratan
C/o Coast Guard District Headquarters No.1
Post Box No 25, Porbandar
Gujarat - 360 575
Email- r-ratan@indiancoastguard.nic.in

13. It is requested that receipt of this letter be acknowledged.



(Kalpesh R Kadam)
Dy Commandant
RTO (Refit)
for Commander
Coast Guard Region (NW)

Enclosure:- Main Defect list of SR-3 of ICGS Rajratan (Hull, Engg and Electrical) by email.

Copy to :

The Commander
{for (DTO)}
Coast Guard District Headquarters No.1
Post Box No 25, Porbandar, Gujarat - 360 575

The Commanding Officer
ICGS Rajratan
C/o Coast Guard District Headquarters No.1
Post Box No 25, Porbandar, Gujarat - 360 575

ICGS RAJRATAN: SR-3
DEFECT LIST: HULL

<u>DL NO</u>	<u>DEFECT DESCRIPTION</u>	<u>DHQ-1 REMARKS</u>	<u>CGRHQ(NW) REMARKS</u>
<u>YARD SERVICES</u>			
HA 1001	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 sentry each, wherever hot work is in progress. If yard do not have facility for round the clock fire main pressure, yard to make arrangement for fire tender to be stand-by all the times.	DO as per RFIC minutes.	DO for DL SIs HA-1001 to HA-1028 as per the standard RFIC minutes.
HA 1002	Garbage clearances and disposal facility to be provided for the entire duration of refit.		
HA 1003	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 150KW. Payment will be made on pro rata basis as per actual power consumption. Shore supply 415V, 50 Hz, 3 Phase to be provided for the duration of refit with provision of KWH meter for measurement of electricity units.		
HA 1004	Crane facility (Cap- 10T) is to be provided as and when required. Yard to cater for 70 hours operation during the entire refit period. However, payment will be made at actuals.		
HA 1005	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.		
HA 1006	All OEM/PAC and refitting firms 'Hull', 'Engineering' and 'Electrical' reps are to embark ship for pre and post refit trials sailing till satisfactory performance/ acceptance of the machinery by the ship.		

HA 1007	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.		
HA 1008	Keel blocks are to be arranged as per latest approved docking plan, and ship is to be dry-docked in both versions.		
HA 1009	Tug for docking, undocking, berthing and un-berthing are to be provided as and when required from pre- routine trials till refit completion.		
HA 1010	Pilot is to be provided while entering and leaving dock and harbour.		
HA 1011	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/overseeing team.		
HA 1012	Refitting yard to extend fax/ e-mail facility to COA/ Refit Overseeing Team and SS as and when required basis.		
HA 1013	<u>TRANSPORT</u> 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.		
HA 1014	Provide temporary lights to ensure illumination at appropriate level.		
HA 1015	Compressed air supply as and when required.		
HA 1016	Berthing and un-berthing at wet basin including basin hire charges are to be catered for.		
HA 1017	A/C 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.		

HA 1018	Proper alongside berthing facility (not alongside pontoon/ 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.		
HA 1019	Appropriate refit offices with necessary furniture, A/c and locking facility for COA and crew separately, size 15x15 ft each.		
HA 1020	Adequate storage space to be provided to IBs during major hull repair work. Approx store room size 15 X 15 ft.		
HA 1021	Shore galley facilities including gas burners, gas cylinder, dining arrangement, one no. water purifier with cooler, garbage disposal facility near galley, storage space for dry and fresh ration, utensil washing, vessel provision storage, dining area and fridge. Cost of cooking gas to be provided when the ship's galley become non-operational.		
HA 1022	At the time of de-ratting/ de-cockroaching, alternate necessary arrangement for the galley should be provided by the refitting firm.		
HA 1023	The refitting firm to arrange Gas free Certificate for all Fuel/ Lube oil tanks prior commencing hot work. For this purpose provision of blowers with hoses and visit of Inspector of Explosive are to be catered for.		
HA 1024	The refitting firm is to provide suitable containers/space for storing residual fuel.		
HA 1025	Sufficient ventilation to be provided when ship's AC becomes non-ops.		
HA 1026	Yard to provide facilities for DP testing/load testing of Capstan/ towing hook/ Davits etc.		
HA 1027	Yard to provide staging /scaffolding for jobs on ship's sides / water-jets in the dry dock.		
HA 1028	ACCOMMODATION During the uninhabitable period, accommodation is to be provided for following crew as per the scale of accommodation indicated below:- (i) Officers. A/C cabin accommodation for 05 officer with following amenities:-		

	<p>(aa) One single occupancy room with A/C.</p> <p>(ab) 02 double occupancy rooms with A/C.</p> <p>(ac) Attached toilet with bathroom.</p> <p>(ad) Basic room curtain, table, chairs and TV.</p> <p>(ae) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets.</p> <p>(af) Dinning space and cooking area.</p> <p>(ag) One single occupancy room with A/C for isolation purpose in view of COVID-19</p> <p>(ii) <u>Subordinate Officers.</u> Cabin accommodation for 10 SOs with following facilities:</p> <p>(aa) 05 nos. double bedrooms with A/C.</p> <p>(ab) Attached toilet & bathroom.</p> <p>(ac) Basic room table, chairs, curtain and TV.</p> <p>(ad) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets.</p> <p>(ae) Common dining space with TV.</p> <p>(af) One single occupancy room with A/C for isolation purpose in view of COVID-19</p> <p>(iii) <u>Enrolled Personnel.</u> Dormitory type accommodation with curtains for 22 Enrolled Personnel to be provided. The scale of accommodation is as follows: -</p> <p>(aa) 22 in nos. single bed/cots. Rooms to have Air cooler circulator.</p> <p>(ab) Each single bed/cot to be provided with mattress, bed sheet, pillow cover.</p> <p>(ac) Six W/C and Six bathrooms.</p> <p>(ad) Dormitory room to have basic upholstery like teapoy, TV, curtains and easy chairs and wardrobe for keeping uniforms and day to days items.</p> <p>(ae) Dinning space and Cooking area.</p> <p>(af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.</p>		
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	(ag) One room with 03 beds for isolation purpose in view of COVID-19.		
<u>UNDERWATER WORK PACKAGE</u>			
HA 1029	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.	DO both version docking in conjunction with yard services DL SIs HA-1007 & HA-1008. SS to provide latest docking plan. Seven 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.
HA 1030	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 and clean with fresh water thoroughly. (Underwater area: 320sqm, boot top area:100 sqm. Yard to cater for staging and crane facility).	DO.	DO. Material yard supply. All in way jobs included.
HA 1031	After cleaning, examine the whole underwater 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. Class surveyor to be associated for inspections.	DO. Report of class surveyor to be submitted.	DO survey of underwater hull including appendages by class surveyor. Material yard supply. All in way jobs included.
HA 1032	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	DO. Yard to cater for 750 UTG points and 02 tons steel	DO. Yard to cater for Robotic scanning and 100 UTG Points through CG approved firm of entire underwater area

	than 10% to be cropped and renewed. Critical plates to be marked in drawings for renewal in forth coming refit. Report of UTG survey to be given to ship and CGRPS in shell expansion drawing and tabular form along with photographs of underwater fittings.	renewal. Inspection during renewal / survey mandatory by class.	including boot top & tunnel area in association with class surveyor. Yard to submit 07 copies of Robotic scanning, & UTGs reports endorsed by class alongwith class recommendations. Yard to cater for 02 Ton steel renewal. Plate to be renewed as per class surveyor recommendation. Material yard supply. All in way jobs included. Plate thickness: 5mm Mat/Grade - AH-36 . SS to provide shell expansion drawing.
HA 1033	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	Delete. SS
HA 1034	U/W hull to be sand /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. (Yard to cater for blasting of 30 % of the total area). Touch up painting 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 the 30% blasted area and one coat A/F paint for entire under water hull area (320sqm). Paint Yard Supply. (make: M/s AKZO	DO. 30% of total U/W hull to be spot blasted to SA 2.5 and touch up paint scheme to be applied.	DO. Yard to cater for sand/ vacuum/ grit blasting up to SA 2.5 of entire underwater area including boot top and application of full paint scheme (FRC) of entire underwater area

	NOBEL)		including boot top & tunnel area as per CGBR-382 (M/s Akzo Noble/ M/s Sigma/ M/s Jotun) under supervision of paint manufacturer rep. Total under water area including boot top area is 410M² . Paint and Mat - yard supply. All in way jobs included.
HA 1035	Anti Fouling black on entire boot top area (100 sqmtr) to be applied during dry docking. Paint Yard Supply. (make: M/s AKZO NOBEL)	DO.	Delete. Covered in HA 1034.
HA 1036	Remove, examine and overhaul 50% u/w storm valves and carry out pressure testing after over hauling (1.5 times of WP).Overhauling of 02 in no. U/W storm valves (size-65 NB) of galley mandatory.	DO. 100% U/W storm valves to be overhauled. Mat yard supply.	DO. Yard to cater for 07 Nos Valves, Size-50mm. Test pressure 05 bar Material yard supply. All in way jobs included.
HA 1037	Examine sacrificial anode fitted on sea chest and jet tube area. Renew those consumed 50% and more. (12 Inlet ducts each having one anode, jet inlets-02 each, impeller housing- 02 ring shapes, jet outer-07 disc shapes anode each). As per sample (Type: Cylindrical, Qty – 12 Nos, Size: 18 mm dia and 60 mm length) (Material yard supply)	DO.	DO. Renew all anodes. Yard to cater for renewal of 12 Nos sea chest anodes. Specifications of anodes: Candle type zinc anodes. Size - 25 mm X 125 mm Material yard supply. All in way jobs included.

HA 1038	<p>Remove, clean, paint and refit all sea chest gratings (Qty – 15 Nos)</p> <p>(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 (j) Oily water separator – 01 no</p>	<p>DO. Paint yard supply. Paint make M/s Akzonobel.</p>	<p>DO in conjunction with DL SL HA-1034. All consumables including fasteners yard supply. Renewal if any against AWRF.</p> <p>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 (j) Oily water separator – 100 mm Dia Paint as per U/W paint scheme. Paint yard supply.</p>
HA 1039	<p>Dielectric shield to be examined for wear and damaged layer of resin /araldite to be relayed as per specification.</p>	<p>Do under AIAMC.</p>	<p>Delete under AIAMC.</p>

HA 1040	Draught markings to be scraped to bare metal, thereafter cleaned and painted. Total 03 places either side. Apply white paint (U/W) and black paint (above W/L). Paint M/s Akzonobel	DO. Paint yard supply. Paint make M/s Akzonobel.	DO. Paint yard supply.
<u>STEEL DECKS (EXPOSED), SHIP SIDE</u>			
HA 1041	Carry out UTG survey of exposed steel deck area and reading to be taken at 300 points. Areas below portable fittings to be inspected for corrosion and paint failure. Obscured structure to be removed and areas hidden behind to be inspected. All structures and portable fittings are to be refitted after inspection. Detailed report of class surveyor of assessed extent of corrosion/damage along with diagram to be forwarded to SS/ CGRPS in quadruplicate. Specific defects observed by above examination to be projected. Plates found thinned below 20 % or as recommended by surveyor to be renewed after UTG evaluation.	DO. Cater for 300 UTG points and Steel renewal as per class recommendatio ns.	DO for DL serials HA-1041 to HA-1043. Yard to cater for 1ton steel renewal, 300 UTG points , joint survey by class surveyor and CGRPT.
HA 1042	Scrap, clean/ blast the deck to bare metal at selected areas (50 sqm approx) and touch up paint scheme to be applied. Final coat of deck to be applied with CGHQ approved paint scheme (Paint scheme enclosed) on entire deck (area: 225sqm). 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. Paint yard supply (make: M/s AKZO NOBEL)	DO. Paint CG supply.	Touch up paint scheme (M/s Akzo Noble) to be undertaken by the yard. Total Area, steel deck - 225 Sq mtrs. Paint CG supply. Material yard supply. Renewal of bimetallic joint if any, under AWRF.
HA 1043	Bi-metallic joint on weather deck to super structure (Al) has been corroded and thinned at various places. Bimetallic joint to be scrap, clean and touch up paint scheme to be applied(approx length 20 mtrs)	DO.	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.

HA 1044	Final coat of ship side to be applied on entire surface (approx area: 205 sqm). Blue strips marking by airless spray painting, Coast Guard lettering in Hindi and English on either side to be done. Ship's name (Red paint) in Hindi & English on both sides and pennant number on sides as well as stern to be painted. Painting to be done under supervision of Paint rep and SS. Paint thickness report to be rendered to ship. Paint yard supply (make: M/s AKZO NOBLE)	DO. Paint CG supply.	DO. Paint CG supply. Material yard supply. SS to provide drawings/dimensions. Total area -205 Sq. Mtrs.
HB 1045	One in no. dents on port ship side occurred due to heavy sea waves and rubbing of fender. Strength of sheer strakes to be analysed by approved surveyor and dents to be removed.	DO in conjunction with DL HA 1016. Repair/renewal as per class recommendations.	DO in conjunction with DL SL HA-1041 as per class recommendations.
HB 1046	Metallic fenders of port/stbd shipside at Weather deck bent and thinned. Metallic fenders to be renewed. Approx length 04 Mtrs.	DO as per class recommendations.	DO as per class recommendations.
<u>SUPER STRUCTURE AREA EXPOSED (ALUMINIUM) AND ALUMINIUM EXPOSED DECK / BULKHEAD</u>			
<u>NOTE:</u> Aluminum Structures are not to be blasted / hard tools not to be used for scraping or chipping.			
HA 1047	Entire structure to be examined/surveyed 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 compt, bridge area and boundaries for corrosion and deterioration. Portable fittings may be removed for inspection wherever applicable..	DO.	DO Survey and one final coat of paint on super structure including main mast and aluminium decks against DL SLs HA-

HB 1048	Super structure area including main mast to be washed with fresh water (approx area 660sqm including fittings) and to be painted with final coat of CGHQ approved paint scheme. (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. Paint yard supply (Make: M/s AKZO NOBEL)	DO. Paint CG supply.	1047 and HA-1048. Area of Super Structure 660 Sq Mtrs and area of aluminum deck 125 Sq Mtrs. Paint CG supply. Structural repairs if any under AWRF.
HB 1049	Ship's name plate on bridge top (Port & stbd side) deteriorated. To be renewed as per sample. Mat- SS and acrylic.	Delete. Do in ship's DFP	Delete. Undertake under DFP.
HB 1050	Ship's name plate on outside of bridge wing (Port & stbd side) deteriorated. To be renewed as per sample. Mat- SS and Wood.	Delete. Do in ship's DFP	Delete. Undertake under DFP.
<u>GENERAL COMPARTMENTS DECK NO 2,1 AND ABOVE ACCOMODATION AREA/ LOBBIES AND PASSAGES, ELECTRICAL STORE, DECK STORE, ATU COMPARTMENT, BAGGAGE STORE</u>			
HA 1051	Lagging/ paneling or deck covering to be removed for inspection at various places where corrosion is likely to occur (approx area 200 sqm). 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 to be projected. Lagging/ paneling to be refitted after inspection.	DO. Inspection and renewal if any to be carried as per class recommendatio ns.	DO internal survey including bulk heads by class surveyor and CGRPT. Yard to cater for renewal of 10 Sq. mtr MFMB lagging to facilitate inspection. All in-way jobs included. Material yard supply.
<u>GALLEY AND ASSOCIATED FITTINGS</u>			
HA 1052	Clean filters and trunkings. 02 Nos. galley grease filters to be renewed as per sample. Mat- SS wire mesh with SS frames, size-1.5 x 1.5 ft.	DO. Mat yard supply.	DO. Mat yard supply.
HB 1053	Exhaust trunking leaking in SO's cabin. Entire trunking to be opened, cleaned, painted and affected area to be repaired. Approx Length : 10 m	DO. Mat yard supply.	DO. Mat yard supply. All in way jobs included.

HB 1054	Platform for food preparation/ cutting deteriorated to be renewed. Job including replacement of washbasin, drainage pipe line. Size – (6 feet x 2 feet). Mat- SS.	DO. Mat yard supply.	Delete. Delete. Undertake under DFP.										
HB 1055	Fabrication of platform for 01 refrigerator and 01 deep freezer. Size-(2'x2'x2"). Total Qty -02 Nos. Mat:- SS. In ways job includes.	DO. Mat yard supply.	Delete.										
<u>MACHINERY COMPARTMENTS (FWD AND AFT E/R, W/J COMPARTMENT)</u>													
HA 1056	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. Any damage/defect found to be noted and projected for repair. Carry out one final coat on entire bilge area as per scheme (approx area 160 sqm) Paint yard supply. (make: M/s AKZO NOBLE)	DO. Paint CG supply. Repair/renewal as per class recommendations.	DO. Yard to cater for 100 UTG points and damaged area to be repaired as per paint scheme. Material yard supply. Paint CG supply. Approx area 510 sqm. Steel renewal if any covered under DL SI HA-1032.										
<u>ELECTRICAL STORE / BATTERY COMPARTMENT</u>													
HA 1057	Examine all bulk heads, decks and boundaries. Clean, scrap and paint the rusted area.	DO.	Delete. SS										
<u>BATHROOMS/ WCs</u>													
HA 1058	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: <table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><u>Size</u></th> <th style="text-align: left;"><u>Length</u></th> </tr> </thead> <tbody> <tr> <td>50 mm</td> <td>75 mtr</td> </tr> <tr> <td>40 mm</td> <td>22 mtr</td> </tr> <tr> <td>32 mm</td> <td>14 mtr</td> </tr> <tr> <td>15 mm</td> <td>03 mtr</td> </tr> </tbody> </table>	<u>Size</u>	<u>Length</u>	50 mm	75 mtr	40 mm	22 mtr	32 mm	14 mtr	15 mm	03 mtr	DO. Mat yard Supply	DO 25%. Material including paint yard supply. Renewal if any against AWRF.
<u>Size</u>	<u>Length</u>												
50 mm	75 mtr												
40 mm	22 mtr												
32 mm	14 mtr												
15 mm	03 mtr												
HA 1059	Examine structure not covered by lagging or deck covering, paying particular attention to deck boundaries lower area of bulkhead and ship sides areas around side scuttles. Portable or semi portable fittings and soil pipe trunk assess plates are to be removed for	DO. All in way jobs included.	DO survey by class. All in way jobs included. Renewal if any against										

	examination of structure. Different section of pipe line area to removed at successive examination.		AWRF.
HB 1060	Exhaust trunking leaking in officer's bathroom. Entire trunking to be opened, cleaned, painted and affected area to be repaired. Approx Length : 04 mtr	Delete.	Delete.
HB 1061	All fresh water pipe line, taps and isolating stop cocks including assemble in officer's, SO's and EP's bathroom to be renewed as per sample. Mat:- SS.	Delete. Ship to project exact defect during RFIC	Delete.
<u>VOID SPACES</u>			
HA 1062	Open and thoroughly clean 05 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 gaskets of manholes.	DO. Mat yard supply	DO. Yard to cater Gas free certificate, cleaning, class survey and application of touch up paint scheme as per existing paint scheme. Yard to submit class report and recommendation. Paint CG supply. Total area of three void spaces – 100 Sq. Mtr. Material yard supply. All in way jobs included.
<u>DIRTY WATER TANK AND DIRTY OIL TANK</u>			
HA 1063	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) Paint Yard Supply.	DO touch up paint scheme. Paint CG supply.	DO. Yard to cater cleaning, class survey and application of touch up paint scheme as per existing paint scheme. Yard to submit class

			report and recommendation. Paint CG supply. Total area – 20 Sq. Mtr. Material yard supply. All in way jobs included.
<u>FRESH WATER TANK</u>			
HA 1064	Dry out and inspect compartment structure of 01 in no. fresh water tank (10 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 80 sqm). Paint Yard Supply. Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint. Manhole gasket to be renewed.	DO touch up paint scheme. Paint CG supply. Mat – Yard Supply.	DO. Yard to cater cleaning, class survey and application of touch up paint scheme as per existing paint scheme. Yard to submit class report and recommendation. Paint CG supply. Total area – 80 Sq. Mtr. Material yard supply. All in way jobs included.
<u>FUEL OIL / LUB OIL TANKS</u>			
HA 1065	Following tanks are to be cleaned and inspected for material state by class surveyor. (a) Fuel oil tank - 03 No (b) Fuel RU tanks - 02 No (c) Lub oil tank 15 W 40 - 02 No (d) Lub oil tank HLP-68 - 01 No	DO. Mat- yard supply. Replace defective/ missing studs only.	DO. Yard to cater Gas free certificate, cleaning, class survey and application of touch up paint scheme as per existing paint scheme.

	<p><u>Lube oil tanks.</u> Clean tank and examine interior surface for corrosion. Recoat paint as per specification. Pressure test the tanks, if any steel renewal/ repair to be 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><u>Diesel tanks.</u> Clean the tanks and survey.</p>		
HB 1066	Overhaul 15 Nos. tank breathers and renew wire meshes with frames (Mat-SS). Spares yard supply.	DO.	DO. Material yard supply.
	<u>MAGAZINE SPRINKLING SYSTEM</u>		
HA 1067	100 % of pipe lines to be dismantled, chemically cleaned and pressure tested. Mat- Cu Ni, Total Length 07 Mtrs, Dia- 50 MM.	DO.	DO. Material yard supply. Working pressure 04 Bar, Test pressure 06 Bar. Renewal of pipes if any against AWRF.
HA 1068	02 in no Operating valves of magazine and CRN 91 gun to be overhauled and pressure tested and proved.	DO.	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.
	<u>BAGGAGE STORE</u>		
HA 1069	Examine all steel structure & checkered plate paying particular attention to the area under vertical support & boundaries. Clean scrap and paint the rusted area.	DO. survey by class	DO survey by class surveyor and damaged area to be repaired as per paint scheme. Paint CG supply. Material yard supply.

<u>VENTILATION SYSTEM</u>			
HA 1070	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.	DO. Material yard supply. Renewal if any against AWRF.
HA 1071	All rubber coaming of vent flaps on weather deck, to be renewed and chalk test to be carried out. Total no 24. (Mat: EPDM for weather deck and Neoprene for internal areas, approx size, length: 10 m, width: 30 mm, depth: 15 mm and length: 10 m width: 15 mm, depth: 10 mm).	DO. Mat yard supply	DO. Material yard supply.
<u>CABLE LOCKER</u>			
HA 1072	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. Specific defects if any to be projected. Recoat after repair as per scheme.	DO. Survey by class.	DO. Yard to cater cleaning, class survey and application of touch up paint scheme of cable locker including suction strainer & all fittings as per existing paint scheme. Yard to submit class report and recommendation. Paint CG supply. Total area – SS to be provided during RFIC. Material yard supply. All in way jobs included.
<u>CABLE LOCKER</u>			

HA 1072	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. Specific defects if any to be projected. Recoat after repair as per scheme.	DO. Survey by class.	DO. Yard to cater cleaning, class survey and application of touch up paint scheme of cable locker including suction strainer & all fittings as per existing paint scheme. Yard to submit class report and recommendation. Paint CG supply. Total area – SS to be provided during RFIC. Material yard supply. All in way jobs included.
HA 1073	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.	DO.	Delete. Covered in HA-1074.
<u>ANCHOR & CHAIN CABLE</u>			
HA 1074	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 blake 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. (Paint/Material yard supply).	DO.	DO. Yard to cater grit / hydro blasting, cleaning, calibration/ gauging class survey and application of touch up paint scheme as per existing paint scheme as DL serial. Yard to submit 07 copies of gauging report endorsed by class surveyor, class report and recommendation. Paint CG supply.

			Material yard supply. All in way jobs included. * No load test to be conducted on Chain cable and accessories.
HA 1075	Anchor hammer test to be carried out.	DO.	Delete.
DECK CRANE (NED DECK MARINE, TYPE: SCTT 10/2.6-4.0 S, SWL -999Kg)			
HA 1076	<p>Survey and load test Boat davit together with all associated fittings, ropes, blocks, pulleys etc. Any defect to be projected (SWL-999Kg, static load-2 x SWL, 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"> 1. Hoist and lower the main hook 2. Auxiliary hook load and boom 3. Slewing and leafing 4. Test of safety 5. Fail safe and limit switches 6. Load movement 7. Boom angle indicators <p>B. After testing the following should be examined</p> <ol style="list-style-type: none"> 1. Foundation 2. Sheaves and rope guides 3. Wire ropes and end connectors 4. Hoist, brakes and clutches 5. Hooks 6. Bolting arrangements 	DO. SS to provide last load test certificate.	<p>DO Overhauling and load testing of crane through authorised firm.</p> <p>Oil and spares CG supply.</p> <p>Material yard supply.</p> <p>All in way jobs included.</p> <p>Test load-1250 Kg</p>

TOWING HOOK, BOLLARD, BULL RINGS CLEAT AND STAG HORN

HA 1077	Overhaul the electric motor, clutches and hydraulic system. Prove the hydraulic system for 240 bar operating pressure. Change hydraulic hoses which are leaking and damaged. Replace hydraulic oil. Check the current rating (power pack). Open gearbox and inspect the gears for any physical damage. Dismantle the fixed arm and telescopic arm. Inspect the arms and bearings. Inspect the gliding plate units inside telescopic arms. Check all hydraulic valves and cylinders. On completion refit the system and prove for operation at specified SWL-999 Kg (Any defects observed to be raised).	DO. Overhauling of electric motor covered in electrical MDL LA-5074, ser (xxvii). Renew only damaged hoses. Oil & Spares-CG supply.	Delete. Overhauling of electric motor covered in electrical MDL LA-5074.
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GEMINI CRAFT, RIB, WATER SCOOTER, LIFERAFTS				
HA 1078	Inspect the chocks of Gemini and RIB for proper seating. Cushion including leather cover of Gemini and RIB chocks deteriorated. To be renewed as per sample.		Delete. Do in ship's DFP	Delete. SS
HA 1079	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 lub oil.		Delete. Do in ship's DFP	Delete.
HA 1080	RIB and 01 in no Gemini boats buoyancy chambers and chamber valves to be tested for air leak. Boat leak test to be carried out and proved.		DO.	Delete.
HA 1081	Load test and certify following:- (a) Bollard SWL:2.0 tons 09 in nos. (b) Fair lead SWL: 1.5 tons 10 in nos. (c) Bull Ring SWL: 2.0 tons 2 in nos. (d) Stag Horn SWL: 1.0 tons 08 in nos. (e) Towing hook SWL: 5.0 tons 01 in no (f) Ammunition Davit SWL : 100 Kg (g) Lifting Slings of RIB/Gemini/Water Scooter 03 in nos.		Load test to be carried out for serials e, f & g. DPT to be carried out serials 'a' to 'd'.	DO. Load test to be carried out for serials e, f & g. DPT to be carried out serials 'a' to 'd'.
ANCHOR CAPSTAN (GRSE, KOLKATA), CAPACITY: 2 TONS				
HA 1082	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.		DO. Also carryout load testing. Spares & oil CG supply.	DO. Overhauling of both anchor capstans. Material yard supply. Oil CG supply. Spares yard supply as per RFIC minute. Yard to

			cater Load test in associate with class survey. Yard to submit load certificates and class reports. Test Load- 2 tons.
HB 1083	Anchor capstan control panel stand and cover deteriorated due to rusting. To be renewed as per sample. (Mat: Aluminum sheet Size: 1.5 feet x 1 feet, MS Frame 3.5 ft)	DO. Mat yard supply	DO. Material yard supply.
<u>MOORING CAPSTAN (GRSE, KOLKATA), CAPACITY: 1.5 TONS</u>			
HA 1084	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.	DO. Also carry out load testing. Spares & oil CG supply.	DO. Overhauling of mooring capstan. Material yard supply. Oil CG supply. Spares yard supply as per RFIC minute. Yard to cater Load test in associate with class survey. Yard to submit load certificates and class reports. Test Load- 2 tons.
HB 1085	Mooring Capstan control panel stand and cover deteriorated due to rusting. To be renewed as per sample. (Mat: Aluminum sheet Size: 1 feet x 0.5 feet, MS Frame 3.5 ft)	DO. Mat yard supply	DO. Material yard supply.
<u>STRUCTURAL FITTINGS (DOOR, HATCHES MANHOLES, SCUTTLES, BRIDGE OBSERVATION WINDOW)</u>			
HA 1086	Rubber beadings of 9 weather deck doors, 05 internal WT doors, 06 hatches of weather deck, CRN-91 Gun hatch/door and 05 internal hatches have deteriorated and lost water tight integrity (approx. Length – 110 m, width 35 mm and thickness 20 mm). To be renewed and proven. (Chalk test). Renew rubber seating scuttles. Renew the rubber	DO.	DO. EPDM rubber for external and Neoprene rubber for internal doors, hatches and scuttles. Material yard supply.

	seating of toughened glasses and hose test to be conducted.		Water tight integrity to be witnessed by class surveyor. Repair/ renewal of doors/ hatches if any against AWRF.
HA 1087	10 in nos port hole/scuttle seal and framing to be examined and hose test to be carried out.	Do in conjunction with HA 1061.	Do in conjunction with HA 1086.
<u>AWNINGS AND STANCHIONS</u>			
HB 1088	Examine 13 awning stanchion and stays, cleats, eye bolts, eye plates and structures to be renewed.	Delete.	Delete.
<u>LADDER, RUNGS & STAIRS</u>			
HA 1089	Inspect and renew necessary portable aluminum treads. Treads were broken, defective to be re-welded.	Delete.	Delete.
HB 1090	04 in nos gratings for bollard, 02 in nos for HMG, 01 in no for MMG, 01 in no for LMG, 02 in nos for gyro repeater in bridge wing, 01 in no for magnet compass and all bathrooms to be fabricated as per sample. Total area- 120 sq feet. Mat- Wood.	Delete. Do under ship's DFP.	Delete.
<u>FIRE MAIN/ SEAWATER SYSTEM</u>			
HA 1091	Chemical cleaning of system pipelines to be carried out. Pressure testing of system to be carried out. Painting of full system to be carried out as per paint scheme	Do only 25% system pipes.	Delete. Covered in EA-3200.
<u>FRESH WATER SYSTEM</u>			
HA 1092	Remove 50% of system pipelines and 25 in nos globe valves. Clean and pressure test the lines and valves and fitted back <u>Size</u> <u>Length</u>	Do only 25% system pipes and valves.	Delete. Overhauling of valve covered in EA-3189 & pipe line covered in EA-3199.

	50 mm 40 mm 32 mm 15 mm	15 mtr 20 mtr 15 mtr 25 mtr		
<u>GENERAL COMPARTMENTS</u>				
HB 1093	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 250 Sq mtr.		DO only top coat.	DO Top coat only. Material yard supply. All in way jobs included. Total area 250 Sq mtr.
<u>DECK FITTINGS</u>				
HB 1094	Spring loaded securing clips of 10 in no hatches defective. To be renewed (Mat: SS).		DO. Mat yard supply	DO. Material yard supply
HB 1095	40 stanchions and 30 stanchion shoes on weather deck broken and uprooted. To be renewed and fitted back onboard. Yard to issue gas free certificate from government agency.		Do only stanchion shoes on class recommendation.	Do renewal of stanchion shoes only as recommend by class. Material yard supply.
HB 1096	Deck eyes and jack staff/Ensign staff sporting stanchion eyes deteriorated. To be renewed as per sample. Mat- MS.		Delete. Do under Ship's DFP.	Delete.
HB 1097	100 in no. EMC bonding straps along with nuts & bolts to be renewed. (Nuts & bolts mat: SS)		DO. Mat yard supply.	DO. Material yard supply.
HB 1098	All guard rail along with bottle screw slip, chain and D-shackles to be renewed as per sample. (Chain, Bottle screw slip & D – Shackle Mat:-SS)		Delete. Do under Ship's DFP.	Delete.
HB 1099	Fresh water drainage pipeline clamps at Stbd Catwalk deteriorated. To be renewed as per sample. Mat- MS. Qty-05 Nos.		DO. Mat yard supply	Delete.

HB 1100	Telephone junction Box supporting bracket at Boat deck (Stbd side) deteriorated. To be renewed. Mat- MS.	DO. Mat yard supply.	Delete.
HB 1101	AHU Exhaust vanes at Boat deck deteriorated. To be renewed as per sample. Mat- MS.	Delete. Do under Ship's DFP.	Delete.
HA 1102	Rope Reel 04 In Nos (02 Each In Q/Deck & Foxle) overhauling and locking system is not working properly. Same to be renewed as per sample. Mat- Al.	DO. Mat yard supply	Delete.
<u>SEWAGE TREATMENT PLANT</u>			
HA 1103	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.	DO under AIAMC	Delete under AIAMC
HA 1104	Basic overhauling of Vacuumator pump and black and grey water transfer pump to be carried out.	DO under AIAMC	Delete under AIAMC
HB 1105	Functional checks of seven in no WC's to be carried out. Renew Defective parts & WC's to be proved for operation.	DO under AIAMC	Delete under AIAMC

HB 1106	03 in nos W/C commode including wooden base uprooted from base to be renewed and fitted back as per existing sample. Mat:- Ceramic (Porcelain).	DO.	DO. Material yard supply. All in way jobs included.
<u>SCUPPER AND DRAINS</u>			
HA 1107	Remove, examine and overhaul 50% storm valves and carry out pressure testing. Associated deck drain pipes to be removed, chemically cleaned, pressure tested and fitted back. All in way jobs included. Mat- yard supply.	DO.	DO 25 Mtr pipes only. Valve covered against HA-1036. Material yard supply.

ICGS RAJRATAN: SR-3
DEFECT LIST: ENGINEERING

<u>DL NO</u>	<u>DESCRIPTION</u>	<u>DHQ-1 REMARKS</u>	<u>CGRHQ(NW) REMARKS</u>
1. DRY DOCK ROUTINES (EA-3001 to EB-3007)			
EA-3001	Clean and inspect following sub-assemblies of Water Jet system:- Impeller shaft Impeller Blade Cone ring Guide vane chamber Steering Nozzle Steering and Reversing unit Lower bucket Upper bucket Link arm Pump unit screw.	DO.	DO for DL SIs EA-3001 & EA-3002 through PAC firm. Material yard supply.
EA-3002	Check for any mechanical damage of impeller and guide vane chamber.	DO through PAC firm	
EA-3003	Remove micro-organism and marine growth inside the inlet duct, tunnel area, steering nozzle and guide vane.	Delete, covered in HA-1005	Delete. Covered in HA-1030.
EA-3004	Disc type zinc anodes on all three W/J buckets to be replaced. Total Qty – 21 nos., Dia- 65 mm, Thickness- 25 mm, Make: M/s Rolls-Royce, Part No. 155446B (Spares CG supply, Mat- Yard Supply)	DO.	DO. Material yard supply.
EA-3005	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)	DO.	DO. Material yard supply.
EA-3006	Sacrificial zinc anodes (pattern no. - R155446A/C-03 nos, & R155446B/C-03 nos.) in water jet impeller area to be replaced. (Spares CG supply, Mat – Yard Supply).	DO	DO. Material yard supply.

EA -3007	Overhaul and pressure test following under water and overboard valves. All nut and bolts to be renewed with SS. (SI 1 to 7 Sea-Chest valves – Test Pressure: 1.5 Bar, SI 8 to 17 – Overboard valves – Test Pressure :05 bar) :-					Do overhauling of valves, which includes mandatory replacement of all defective material, gasket, joints fasteners, and bridge piece and valve seats. Renewal of 25 % spindle to be catered. Renewal of valves against yard indent. Painting of valve with 02 coats (one primer and another as per colour coding) to be carried out. Material yard supply.	DO. Spares and Material yard supply as per standard RFIC minutes.
<u>Sl No.</u>	<u>Description</u>	<u>Mat</u>	<u>Size (NB) (in mm)</u>	<u>Qty in nos</u>	<u>Equip.</u>		
1.	SDSL	Gun Metal	150	03	Main Engine		
2.	SDSL	Gun Metal	125	01	Magazine direct flooding		
3.	SDSL	Gun Metal	80	02	GS Pump		
4.	SDSL	Gun Metal	65	01	A/C condenser		
5.	SDSL	Gun Metal	50	03	D/A		
6.	SDSL	Gun Metal	32	01	RO plant		
7.	SDSL	Gun Metal	32	01	OBS		
8.	SDNR	Gun Metal	125	03	Main Engine		
9.	SDNR	Gun Metal	65	02	GS pump		
10.	SDNR	Gun Metal	25	01	RO plant		
11.	SDNR	Gun Metal	20	01	OBS		
12.	SDNR	Gun Metal	32	01	Galley		
13.	SDNR	Gun Metal	50	03	D/A		
14.	SDNR	Gun Metal	50	01	AC condenser		
15.	SDNR	Gun Metal	32	01	STP		
16.	SDNR	Gun Metal	65	06	Eductors		
17.	SDNR	Gun Metal	40	03	Gearbox		
(Material Yard Supply)							

2. MAIN ENGINE MAKE: M/S MTU, GERMANY, MODEL: 16V4000M90, QTY- 03 NOS, OEM FIRM: M/S MTU(PUNE), PAC FIRM : M/S YMPL MUMBAI			
EA-3008	STBD MAIN ENGINE W-5 (6000 hourly) routine falling due Jul 21. 6000 hourly routines on STBD ME to be carried out. Jobs for Stbd Main Engine are enumerated in subsequent defect lists. (Make:- MTU, GERMANY, Type:- 16V4000M90)	EA-3008 to EA-3026 Do through PAC firm. Spares CG supply. Yard to provide logistic support on hourly basis for crane.	DO W5 routines of Stbd ME against DL SLs EA-3008 to EA-3026 through PAC firm. Spares CG supply. Material yard supply.
EA-3009	Valve gear- remove and check rocker arms and valve bridges check rocker arms and rocker arm bearing for wear.		
EA-3010	Cylinder- remove check inlet valve guide, replace exhaust valve guide, recondition valves and valve seats. Replace O-ring on protective sleeves. Replace all gaskets joints.		
EA-3011	Check and inspect wear pattern of cylinder liners.		
EA-3012	Vibration Damper- Remove And Examine, Replace If Necessary		
EA-3013	Overhaul complete exhaust turbocharger, clean and inspect components, measures clearances of bearing and between compressor wheel and casing.		
EA-3014	Air supply pipe work- remove clean, and replace gaskets.		
EA-3015	Clean inspect and pressure test intercooler for leaks, replace gaskets joints.		
EA-3016	Check function of air sequential control valve.		
EA-3017	Replace Fuel Injectors.		
EA-3018	Replace pressure sensor (High-pressure fuel)		
EA-3019	Overhaul engine coolant pump.		
EA-3020	Disassemble inspect components replace bearing and gaskets of raw water pump.		
EA-3021	Clean inspect and pressure test engine coolant cooler for leaks.		
EA-3022	Check inspects and replace engine coolant thermostat if necessary.		
EA-3023	Clean inspect and pressure test engine oil heat exchanger for leaks replace sealing rings.		
EA-3024	Check inspect and replace bearing of centrifugal oil filter if necessary.		
EA-3025	Strip the air starter motor, check rotors and advance mechanism, clean same and replace worm or rusted parts.		
EA-3026	Checks the air starter motor driving pinion for wear and replace it if necessary.		

EA-3027	W-6 routines on Port main engine (Make:- MTU, GERMANY, Type:- 16V4000M90) to be carried out. Jobs for Port Main Engine :-W-6 routines requires complete disassembly of the engines.	Do through OEM/PAC. Yard Scope of removal and fitment of soft patch, alignment of engine with Gear box. Associated jobs to be catered for renewal and fitment engine.	DO W6 routines of Port ME through PAC firm. Spares CG supply. Material yard supply.
EA-3028	W-6 routines on Centre main engine (Make:- MTU, GERMANY, Type:- 16V4000M90) to be carried out. Jobs for Centre Main Engine:-W-6 routines require complete disassembly of the engines.	Do through OEM/PAC. Scope for removal and fitment of soft patch, alignment of engine with Gear box. Associated jobs to be catered for renewal and fitment engine.	DO W6 routines of Centre ME through PAC firm. Spares CG supply. Material yard supply.
GEAR BOX MAKE:M/S ZF MARINE MODEL : ZF 7600 (TOTAL QTY:-03 NOS), PAC : M/S DYNATRON SERVICES.			
EA-3029	STBD GEAR BOX- Stbd Gear Box A-4 (6000 hourly) routine falling due Jul 21. 6000 hourly routines on Stbd Gear Box to be carried out. Jobs for Stbd Gear Box are as follows:-	EA-3029 to EA-3041 Do through PAC firm. Spares CG supply.	DO A4/6000 Hrly routines of Stbd Gear Box against DL SIs EA-3029 to EA-3041 through PAC firm. Spares CG supply. Material yard supply.
EA-3030	Visually check flexible coupling.		
EA-3031	Visually check flexible engine and transmission mounting		
EA-3032	Visually check clutch discs.		
EA-3033	Visually check running gear.		
EA-3034	Check Priming Oil Pump And Trailing Oil Pump.		

EA-3035	Check/ overhaul control unit.		
EA-3036	Check actuation device.		
EA-3037	Chemical cleaning and pressure testing of oil cooler.		
EA-3038	Check input and output shaft seal.		
EA-3039	Testing/ calibration / certificate of all sensor/ switches/ safety device.		
EA-3040	Check hoses and cable for wear and tear/ damage, replace as necessary.		
EA-3041	Check flow limiting and oil jet control valve.		
EA-3042	PORT AND CENTRE GEAR BOXES - A-5 (12000 hourly) routine falling due Jul 21. 12000 hourly routines on Port And Centre Gear Box to be carried out. Jobs for Gear Boxes are as follows:-	EA-3042 to EA-3044 Do through PAC firm. Spares CG supply.	DO A5/12000 Hrly routines of Port & Centre Gear Box against DL SIs EA-3042 and EA-3043 through PAC firm. Spares CG supply. Material yard supply.
EA-3043	Major overhauling routine involving complete strip down of the equipment. Detailed inspection, gauging and replacement of parts. Replacement of bearings, inspection of shafts, NDT of gear casing and overhaul of clutch assemblies including plates/ carriers/ piston etc. Inspection / overhaul/ replacement of all seals/ gaskets, slotted nuts, pumps, controls block.		
EA-3044	All three gear box coolers (heat exchangers) to be chemically cleaned and pressure tested. (Test pressure-06 bar) material yard supply	Do.	DO. Material yard supply.
3. SHAFTING {M/S KOPFLEX JAURE, S.A. TYPE-11257 (P & S), 11256 (C), QTY-03 NOS}			
EA-3045	Inspection of the Lamidisc coupling to be carried out as follows: 1. Check for any disc pack failure. If found any failure, replace it and investigate the cause of failure. 2. Inspect the Lamidisc coupling disc packs for any misalignment using stroboscopic method as enumerated in the user manual.	EA-3045 to EA-3049. Do through PAC/Authorized firm	DO for DL SLs EA-3045 to EA-3049 through PAC/authorized firm. Spares and Grease CG supply. Material yard supply.
EA-3046	Inspection of the Plummer blocks (05 Nos) to be carried out as follows: 1. Check the Cooper roller bearings for wear and tear. 2. Renew the lubricating grease. (Grease type: Lithium based type 2 grease with extreme pressure additives) (Material Yard supply)		
EA-3047	Calibrate 05 Nos Plummer block temperature sensors.		
EA-3048	Flush through air system lines of all three shaft inflatable seal (Dia: 12 mm , Total length: 60 m, Mat: Copper).		
EA-3049	All three shafts to be cleaned and anti-rust chemical coating (Rust keeper 999) to be		

	applied. (Material yard supply)		
4. WATER JETS & SYSTEM (MAKE- M/S KAMEWA ROLLS-ROYCE , SWEDEN, TYPE 63 S3 NP, QTY- 03 NOS, PAC FIRM: M/S KONGSBERG PVT LTD MUMBAI)			
EA-3050	Carry out pressure test of cylinders and seals of steering and reversing unit of all three water jets and replace seals if required. Seals CG supply.	EA-3050 to EA-3060. Do through PAC firm. Spares CG supply	DO for DL SLs EA-3050 to EA-3060 through PAC firm. Spares CG supply. Material yard supply. All in-way jobs included.
EA-3051	Carry out pressure and crack test of hydraulic hoses of steering and reversing unit of all three water jets and replace if required. 06 Nos hoses per W/J on steering and reversing unit. Part No: RRM200001557 POS21- 04 Nos (Steering hose) Part No: RRM200001557 POS24- 02 Nos (Reversing hose) (Hose CG supply)		
EA-3052	Check out pressure test of hub seal		
EA-3053	Carry out inspection of shaft and flange bolt, shaft seal, shaft coupling, bulkhead seal and split cone ring. Carry out adjustments of shaft seal.		
EA-3054	Carry out functional test/adjust of PTO pump and electric motor driven lub oil pump.		
EA-3055	Carry out functional test/adjust of hydraulic power pack tank with valve manifold.		
EA-3056	Carry out functional test of counterbalance valve steering and Counterbalance valve reversing system.		
EA-3057	Replace filters in hydraulic and lub oil system. Hyd Filter Make: M/s Rolls-Royce, Part No: RRM200001783 POS13, Qty: 01 no, LO Filter Make: M/s Rolls-Royce, Part No: RRM200001783 POS30, Qty – 01 no (Filters CG supply)		
EA-3058	Carry out functional test and adjustment of W/J alarm switches, pressure gauges and remote control system.		
EA-3059	Replace feedback protection hoses (03 Nos per W/J) (Hose CG supply)		
EA-3060	Carry out inspection of shaft seal zinc anodes (Ring type-Total - 03 Nos, on shaft seal.		

5. DIESEL ALTERNATOR (MAKE: M/S CUMMINS INDIA LTD, 6CTA 8.3 DM, PAC FIRM M/S SUDHIR SALES AND SERVICES JAMNAGAR.		
EA-3061	STBD DA 12000 hourly routine falling due Jul 21. 12000 hourly routines on STBD DA to be carried out. Jobs for DA are as follows:- (Make:- Cummins India Ltd Pune, Type:- 6 CTA 8.3 D(M) 85 Kw)	EA-3061 to EA-3090. Do through PAC/ Authorized firm. Spares CG supply. DO 12000 Hrly routines on Stbd DA against DL SLs EA-3061 to EA-3090 through PAC firm. Spares CG supply. Material yard supply. All in-way jobs included.
EA-3062	Start DG operate for few minutes and record all parameters stop and then drain Lub oil when warm.	
EA-3063	Drain water sediments from fuel water separator and fuel RU tank	
EA-3064	Check all engine mounted safeties for functionality and calibrate gauges. Replace if required.	
EA-3065	Check fuel High Pressure Pipe Line. Replaced ferules and rubber gaskets	
EA-3066	Replace thermostat along with seal.	
EA-3067	Overhaul fresh water pump.	
EA-3068	Check the condition of engine mounts, renew if required.	
EA-3069	Engine major overhauling (engine to be removed from base rail)	
EA-3070	Dismantle engine de-scale cooling system	
EA-3071	Clean and check all dismantled components.	
EA-3072	Check crankshaft dimension and regrind if required.	
EA-3073	Check condition of connecting rod and main bearing in line with crankshaft size, replace if required.	
EA-3074	Replaced sleeves/liners on cylinder block if required.	
EA-3075	Check and recondition or replace starting motor and battery charger alternator.	
EA-3076	Dismantle cylinder heads and recondition with all valves, guider, springs and related parts.	
EA-3077	Change fuel and Lub oil filter, clean fuel strainer.	
EA-3078	Replaced air filter.	
EA-3079	Overhaul vibration damper.	
EA-3080	Overhaul sea water pump.	
EA-3081	Check engine blow bye, take corrective action. if required.	
EA-3082	Replace all rubber hoses/clamps of fuel, coolant lub oil and air system.	
EA-3083	Drain coolant, flush cooling system and refill new coolant.	

EA-3084	Overhaul turbocharger.		
EA-3085	Calibrate fuel injector pump (FIP) and injectors.		
EA-3086	Clean heat exchangers and pressure test.		
EA-3087	Replace all engine related wiring harness.		
EA-3688	Mount engine on the base rail and couple to alternator after checking coupling alignment.		
EA-3089	Change lub oil.		
EB-3090	Vent fuel line and injector supply line.		
6. EMERGENCY DIESEL ALTERNATOR (MAKE:M/S FIELD MARSHAL, TYPE:FH 786, QTY:01 NO)			
EA-3091	Fuel oil injector (01 no.) to be tested and calibrated.	DO.	Delete.
EA-3092	Inspection of generator set vibration mounting to be carried out.		
EA-3093	Carry out calibration of exhaust temp gauge (Range: 0 – 600 C)		
EB-3094	DA exhaust pipe line lagging cracked many places Lagging To Be replaced.(dimension)		
7. FUEL OIL CENTRIFUGE (MAKE:M/S ALFA LAVAL, TYPE:MMB 304S-11, QTY:01 NO)			
EA-3095	Clean and inspect the following: (i) Oil mist fan (ii) Oil pump (iii) Bowl spindle (iv) Bowl bearing housing indentations (v) Oil sump (vi) Oil filling device	EA-3095 to EA-3097. Do through PAC/Authorized firm. Spares CG supply	DO for DL SLs EA-3095 to EA-3097 through PAC/ authorised firm. Spares CG supply. Material yard supply.
EA-3096	Check radial wobbling of bowl spindle.		
EA-3097	Clean and inspect brakes and friction coupling.		
EA-3098	Replace bearings of separator motor. (Bearing Part No: 37535, Qty – 02 nos., Material yard supply)	Delete covered in LA -5074 (XVIII)	Delete.
EA-3099	High fuel oil level safety of drain tank to be checked and proved.	Do	DO through PAC/ authorised firm. Spares CG supply. Material yard supply.
8. FUEL OIL TRANSFER PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-4MT, QTY: 02 NOS)			

EA-3100	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling. (Mechanical seal part No.104124LP, Material yard supply)	Do	DO. Spares CG supply. Material yard supply.
EA-3101	Carry out calibration of following gauges: (a) Suction gauge (Range: -1 to 1 bar, Qty: 02 nos) (b) Discharge gauge (Range: 0 to 10 bar, Qty: 02 nos)	Do. Spares CG supply	DO. Material yard supply.
EB-3102	Oil leaking from gauge adaptors and bent copper lines. Adaptors and copper lines to be renewed as per sample. Adaptors (Qty: 04 nos., Material: Brass) Tube (dia: 5 mm, Length: 15 mtrs) (Material yard supply)	Delete. Do in ship's DFP	Delete. Undertake under DFP.
9. MAIN HP AIR COMPRESSOR (MAKE:M/S INGERSOLL RAND, TYPE: 7T2, QTY: 02 NOS)			
EA-3103	Inspect and overhaul compressor valves	Delete	Delete.
EA-3104	Carry out calibration of following gauges and safety valve: Pressure Gauge (Range:0-40 bar, Qty: 01 no) Pressure Gauge (Range: 0-20 bar, Qty: 01 no) Digital Temp. Gauge (Range: 0-200 C, Qty: 01 no) High pressure safety valve (Set point: 30 bar) Inter cooler safety valve. (Set point: 10 bar)	Do. Spare CG supply.	DO. Material yard supply.
EA-3105	Clean airflow internally.	Delete.	Delete.
EB-3106	Automatic moisture drain valves of both the compressors malfunctioning intermittently. To be overhauled and proved.	Delete. Do in ship's DFP	Delete. Undertake under DFP.
10. RO PLANT (MAKE: M/S ROCHEM SEPARATION SYS (I) PVT LTD, TYPE: DT 5S, QTY: 01 NO)			
EA-3107	Preserve RO plant before commencement of refit	EA-3107 to EA-3126. Do through PAC firm. Spares CG supply	DO for DL SIs EA-3107 to EA-3126 through PAC/ authorised firm. Spares CG supply. Material yard supply.
EA-3108	Overhaul of HP pump suction and discharge valves.		
EA-3109	Replace Anode plug, seal kit of HP pump.		
EA-3110	Service Pre Filter Pump PK 30. Replace mechanical seals. Check wear parts and replace as necessary.		
EA-3111	Check Anti Vibration Mounts of the HP pump. Replace as required.		
EA-3112	Calibrate torque wrench.		
EA-3113	Calibrate hand conductivity meter.		
EA-3114	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		
EA-3115	Replace all high pressure flexible hoses. Size: ¼" dia, length:1000 mm, Part no. 101800202015, Qty: 01 no Size: ¼" dia, length: 800 mm, Part no. 101800202008, Qty: 01 no Size: ¼" dia, length: 600 mm, Part no. 101800202003, Qty: 01 no		
EA-3116	Inspect PS 51, PS 71, PS 81 pressure switches.		
EA-3117	Renew dolomite in DA filter.		
EA-3118	Check and Replace PT 60 Potentiometer.		
EA-3119	Clean conductivity meter probe and calibrate.		
EA-3120	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		
EA-3121	Check/ correct HP pump-pulley alignment.		
EA-3122	Check HP Relief valve for operation. Calibrate / repair / replace as required.		
EA-3123	Check DT Modules for serviceability / operation / leakages.		
EA-3124	Check Non Return Valves of sand filter back wash and Module permeate line. Replace as necessary.		
EA-3125	Replace Pulsation Damper Charging plug seal ring. Recharge with Nitrogen to 30 Bar.		
EA-3126	Check Air Regulator for operation. Calibrate / replace as necessary.		
11. AC PLANT {MAKE: M/S BOCK (I) LTD, TYPE: HG6 1240 4S, QTY: 02 NOS, PAC FIRM- HEINEN & HOFFMEN, KOLKATA}			
EA-3127	Withdraw and inspect compressor suction and delivery valves for wear down, scoring marks. (i) Suction valve (size: 1 5/8"): 02 nos (ii)Delivery valve (size: 1 3/8"): 02 nos (Material yard supply)	EA-3127 to EA-3135. Do through PAC/ Authorized firm	DO complete overhauling of semi hermetically sealed compressors against DL SLs EA-3127 to EA-3135. Qty:02 Nos Spares CG supply. Material yard supply.
EA-3128	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.(Spares CG supply)		
EA-3129	Inspect small end bushes and gudgeon pins and replace if not within tolerance. (Spares CG supply)		
EA-3130	Inspect all bearings for wear down and renew the bearing if required. (Part no. 80176).		

	(Spares CG supply)		
EA-3131	Measure ovulation of cylinder and record and replace if necessary. (Spares CG supply)		
EA-3132	Inspect unloading device for correct working.		
EA-3133	Inspect crank shaft, undertake measurement, polish and refit if not within tolerance limit		
EA-3134	Strip and examine lub oil pump of compressor.		
EA-3135	While assembling the compressor undertake measurement of clearances and record.		
EA-3136	Clean all motor bearings inspect for wear and tear. (Part no. 590241950074) (Spares CG supply)	Delete covered in LA-5074	Delete. Covered in LA-5074
EA-3137	Overhaul condenser pump and renew the required spares. (Spares CG supply)	Do	DO. Spares and material yard supply as per the standard RFIC remarks.
EA-3138	Clean condenser, 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. (Material yard supply)	Do	DO. Material yard supply.
EA-3139	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. (a) Vacuum test pressure: -0.9 Kg/cm ² (b) Low side test pressure: 10 Kg/cm ² (c) High side test pressure: 25 Kg/cm ² (Material yard supply)	EA-3139 to EA-3141. Do through PAC/ Authorized firm. Freon CG supply.	DO for DL SLs EA-3139 to EA-3141. Spares and material yard supply as per the standard RFIC remarks.
EA-3140	Overhaul following Freon system valves and replace valve stem glands: (a) Globe valve (Brassomatic) (size: 2 1/8"): 02 nos (b) Globe valve (Brassomatic) (size: 1 3/8"): 04 nos (c) Globe valve (Brassomatic) (size: 1 5/8"): 02 nos (d) NR valve (size: 1 5/8"): 02 nos (e) Shut off valve (size: 1/4"): 20 nos (Material yard supply)		Yard to cater for complete pumping down of the system gas and recharging of the same on completion. Yard to cater for 60 Kg refrigerant.
EA-3141	Recharge (oil and Freon) the system on satisfactory completion of pressure tests and undertake trials of plant including functional checks of all safeties and cutouts.		On satisfactory

	(Material yard supply)		completion of checks yard to undertake trials of plant. Checking of safeties and cut outs to be undertaken in conjunction with EA-3143.
EA-3142	Overhaul air handling unit and renew the bearing. (Make: M/s ZecoAircon Industries (I) Pvt Ltd. Model-ZDS-80) (Material yard supply)	Do	DO. Material yard supply.
EA-3143	Carry out calibration of following gauges and safety cutout: Freon Pressure Gauge (Range:-1 to 30 bar, Qty:02 nos) Freon Pressure Gauge (Range:-1 to 20 bar, Qty: 04 nos) Pressure Gauge (Range:-1 to 1 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 03 nos) Low pressure cutout High pressure cutout Oil pressure cutout Sea water pressure cutout	Do through PAC/ Authorized firm. Spares CG supply.	DO. Calibration certificate to be provided. Renewal if any against CG supply.
EB-3144	AHU bottom plate corroded and deteriorated at various places. Corrosion to be removed by buffing. Weak plates to be renewed and complete AHU to be painted internally post repairs.(area 6 sq meter, Mat – GI Sheet, Thickness: 4 mm, Material yard supply)	Do.	DO. Material yard supply.
EB-3145	AHU condensate drain pipe deteriorated and uprooted from deck flange. Pipe along with flange to be renewed.(Mat- SS, Length – 6', Dia – 40 mm) In way job includes removal and re-fitment of AC duct.	Do. Material Yard supply	DO. Material yard supply.
12. BILGE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO)			
EA-3146	Dismantle the pump completely, clean and inspect each item thoroughly and renew worn out parts.	Do.	DO for DL SLs EA-3146 to EA-3149. Spares and material yard supply as per the standard RFIC remarks.
EA-3147	Check and flush all tube work and suction and delivery piping.	Do.	
EA-3148	Overhaul and prove float control unit	Do.	
EA-3149	Renew all mountings showing any sign of deterioration of rubber, lacquer of bond (Type: Resistoflex FM-50A/40)	Do.	

EA-3150	Carry out calibration of following instruments: 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. Spares CG supply	DO. Calibration certificate to be provided. Renewal if any against CG supply.
13. FIRE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO)			
EA-3151	Dismantle the pump completely, clean and inspect each item thoroughly and renew worn out parts.	Do.	DO for DL SLs EA-3151 to EA-3154. Spares and material yard supply as per the standard RFIC remarks.
EA-3152	Check and flush all tube work and suction and delivery piping.	Do.	
EA-3153	Overhaul and prove float control unit	Do.	
EA-3154	Renew all mountings showing any sign of deterioration of rubber, lacquer of bond(Type: Resistoflex FM-50A/40)	Do.	
EA-3155	Carry out calibration of following instruments: 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. Spares CG supply	DO. Calibration certificate to be provided. Renewal if any against CG supply.
14. DOMESTIC FRESH WATER PUMP (MAKE: M/S BE PUMPS, TYPE: AO 3120K-1E-WCF-MS5, QTY-02 NOS)			
EA-3156	Dismantle the pump completely, clean and inspect each item thoroughly and renew as necessary.	DO.	DO for DL SLs EA-3156 and EA-3157. Spares and material yard supply as per the standard RFIC remarks.
EA-3157	Check and flush all tube work and suction and delivery piping.	Do.	
EA-3158	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. Spares CG supply	DO. Calibration certificate to be provided. Renewal if any against CG supply.
15. HYDROPHORE TANK (CAPACITY: 200 LTRS, QTY: 01 NO)			
EA-3159	Chemically clean hydrophore tank and repaint as per approved paint scheme. (Paint yard supply) (Paint scheme Interline 850 Grey: 01 coat, Interline 850 white:01 coat)	Do.	DO. Material yard supply.

EA-3160	Carry out calibration of following gauges, safety valve and cutout: Pressure Gauges (Range: 0 to 10 bar, Qty: 01 no) Safety valve (Qty: 01 no, Set point: 5 bar) if required switch to be replaced Pressure switch (Range: 0 to 5 bar, 230 V, AC) if required switch to be replaced.	Do. Spares CG supply	DO. Calibration certificate to be provided. Renewal if any against CG supply.
EA-3161	Overhaul LP air valve on the bottle and carry out pressure test up to 6 bar.		DO. Material yard supply.
EB-3162	Sight glass of Hydrophore tank faded and scratched. Isolating valves are leaking. To be renewed as per sample. (Material yard supply)	Do.	DO. Material yard supply.
16. AIR SYSTEM AND BOTTLES (CAPACITY: 500 LTRS, QTY: 02 NOS)			
EA-3163	HP air bottles (02 nos.) are to be pressure tested, internally checked and painted after inspection. (Paint yard supply).	Do.	DO. Material yard supply.
EA-3164	Overhaul following air system valves: Ball valve (Size: 1 3/8", Qty: 02 nos): TP 45 bar Ball valve (Size: 1", Qty: 02 nos): TP 45 bar Ball valve (Size: 1/2", Qty: 02 nos): TP 45 bar Ball valve (Size: 1/4", Qty: 02 nos): TP 45 bar	Do. Renewal if any against yard indent	DO. Material yard supply.
EA-3165	Carry out calibration of following gauges and relief valves: Pressure Gauge (Range: 0 to 40 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 02 nos) Safety valve (Set point: 32 bar, Qty: 02 nos)	Do. Spares CG supply	DO. Calibration certificate to be provided. Renewal if any against CG supply.
17. OILY BILGE WATER SEPARATOR (MAKE: M/S GEORIM ENGG. CO., S KOREA, TYPE: GRS-03 EB, QTY: 01 NO)			
EA-3166	Overhaul following valves:- (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)	DO. Mat yard supply.	DO. Material yard supply.
EA-3167	Bilge pump (Piston type) to be overhauled and proved.	Do	DO for DL SLs EA-3167 to EA-3170.
EA-3168	Inspect safety valve.	Do	

EA-3169	Inspect bolts and screws.	Do	Material yard supply.
EA-3170	Inspect coalescer filter and clean by backwashing.	Do	
EA-3171	Carry out calibration of following gauges: Pressure Gauge (Range: 0-6 bar, Qty: 01 no) Pressure Gauge (Range: -1 to +1 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 5 bar, Qty: 01 no)	Do. Spares CG supply	DO. Calibration certificate to be provided. Renewal if any against CG supply.
EA-3172	Overhaul and clean inside of the equipment. (Clean the system by "the cleaning procedure when it stops" before overhauling)	Do	DO. Material yard supply.
EA-3173	Test the function of Oil level detector and solenoid valve.	Do	DO. Material yard supply.
18. FM-200 MAJOR FIRE FIGHTING SYSTEM (MAKE: M/S SUPER FIRE ENGG PVT LTD, TYPE: FIRE SUPPRESSION SYSTEM (KIDDE FENWAL, USA, QTY: 02 NOS)			
EA-3174	Test 02 in no FM-200 pressure switches (Operating pressure: 50 psi)	Do	DO through PAC/authorised firm. Spares CG supply. Material yard supply. SS to provide the details of last one time check carried out on FM-200 system during the RFIC
EA-3175	Test electrical control heads. (02 Nos). 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.	Do	
19. PORTABLE SUBMERSIBLE PUMPS (MAKE: M/S KIRLOSKAR BROTHERS LTD., TYPE: NS20/10, QTY: 05 NOS)			
EA-3176	Overhaul the pump and replace spares as required. (Material yard supply)	Do	DO overhauling and external painting of 03 pumps only. Spares CG supply. Material yard supply.
EA-3177	Paint pump casing internally and externally. (paint yard supply)	Do	
20. 50 HP OBM (MAKE: M/S YAMAHA, TYPE: 6H 5K, QTY: 01 NO. PAC FIRM- M/S FIBROPLAST)			
EA-3178	Replace water pump impeller and fuel pump. Entire overhauling of OBM to be carried out. All bearings (Qty- 02 nos, Part no. 93306-305U8) to be greased, bushes and	Do through PAC/competent	DO through PAC/authorised firm.

	seals to be renewed.	firm	Spares CG supply. Material yard supply.
21. 25 HP OBM (MAKE: M/S MERCURY MARINER, TYPE: 25M, QTY: 02 NOS, PAC FIRM- M/S FIBROPLAST)			
EA-3179	Replace water pump impeller and fuel pump. Entire overhauling of OBM to be carried out. All bearings (Qty- 02) to be greased, bushes and seals to be renewed.	Do through PAC/competent firm	DO through PAC/ authorised firm. Spares CG supply. Material yard supply.
22. DIRTY OIL PUMP (MAKE: M/s ROYSONS ENGG (P) LTD, TYPE: RGB-1, QTY: 01 NO)			
EA-3180	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling.	Do	DO. Spares CG supply. Material yard supply.
EA-3181	Carry out calibration of following gauges: Pressure gauge: -1 to +1 bar, Qty: 01 no Pressure gauge: 0 to 10 bar, Qty: 01 no	Do. Spares CG supply	Delete.
EB-3182	Oil leaking from gauge adaptor and Crack copper lines. Adaptor and copper line to be renewed as per sample. Adaptors (Qty: 04 nos., Martial: Brass) Tube (dia: 5 mm, Length: 15 mtrs) (Material yard supply)	Delete.	Delete.
23. PORTABLE LUB OIL PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-1, QTY: 01 NO)			
EA-3183	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling.	Do	DO. Spares CG supply. Material yard supply.
EA-3184	Carry out calibration of following gauges: Pressure gauge: -1 to +1 bar, Qty: 01 no Pressure gauge: 0 to 10 bar, Qty: 01 no	Do. Spares CG supply	Delete.
24. AIR WHISTLE (MAKE: M/S ZOLLNER, TYPE: M75F, QTY: 01 NO)			
EA-3185	Overhaul the unit. Change the parts if necessary. Prove the unit for smooth operation.	Do	DO. Spares CG supply. Material yard supply.

26. BILGE EDUCTORS(QTY – 06 NOS)			
EA-3186	Carry out chemical cleaning of bilge Educators at following compartments and check for their performance (a) Paint Store (b) Magazine (c) Victual ling and baggage store (d) Fwd Engine Room (e) Aft Engine Room (f) Water Jet compartment	Do	DO. Material yard supply.
27. QUICK SHUT OFF VALVES – 10 NOS			
EA-3187	Overhauling of following Quick shut off valves to be carried out: Fuel Storage Tanks – 03 Nos Main Engines – 04 Nos Diesel Generators – 03 Nos	Do. Post overhauling valves to be operated through linkage mechanism.	DO. Material yard supply.
EA-3188	Overhauling of following A/C sea water system valves to be carried out: <u>Type of valve</u> <u>Size</u> <u>Qty</u> <u>Test Pressure</u> (i) Pressure reducing valve 65NB 01 6 bar (ii) Butterfly valve 65NB 02 5 bar (iii)NR valve 65NB 01 6 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.
EA-3189	Overhauling of following Fresh water Hydrophore system valves to be carried out: <u>Type of valve</u> <u>Size</u> <u>Qty</u> <u>Test Pressure</u> (i) SD Globe valve 12NB 05 5 bar (ii) SD Globe valve 15NB 01 5 bar (iii)SD Globe valve 25NB 01 5 bar (iv)SD Globe valve 32NB 01 5 bar (v) SDNR valve 25NB 01 5 bar (vi)SDNR valve 32NB 01 5 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.

EA-3190	<p>Overhauling of following Bilge and Fire main system valves to be carried out:</p> <table border="1"> <thead> <tr> <th><u>Type of</u></th> <th><u>valve Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr><td>(i) Gate valve</td><td>100NB</td><td>01</td><td>4 bar</td></tr> <tr><td>(ii) SDSL valve</td><td>20NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(iii)SDSL valve</td><td>100NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(iv)SDNR valve</td><td>50NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(v) SDNR valve</td><td>32NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(vi)SDNR valve</td><td>65NB</td><td>05</td><td>5 bar</td></tr> <tr><td>(vii)SDNR valve</td><td>40NB</td><td>02</td><td>5 bar</td></tr> <tr><td>(viii)Gate valve</td><td>65NB</td><td>02</td><td>4 bar</td></tr> <tr><td>(ix) SD valve</td><td>25NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(x) NR vertical lift valve</td><td>50NB</td><td>03</td><td>5 bar</td></tr> <tr><td>(xi) SD valve</td><td>50NB</td><td>02</td><td>5 bar</td></tr> <tr><td>(xii)Ball valve</td><td>50NB</td><td>03</td><td>5 bar</td></tr> <tr><td>(xiii)Pressure relief valve</td><td>50NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(xiv)Non return foot valve</td><td>50NB</td><td>01</td><td>5 bar</td></tr> <tr><td colspan="4">With strainer</td></tr> <tr><td>(xv)Fire hydrant valve</td><td>65NB</td><td>03</td><td>6 bar</td></tr> <tr><td>(xvi)SDNR valve</td><td>80NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(xvii)Pressure reducing valve</td><td>65NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(xviii)Ball valve</td><td>80NB</td><td>01</td><td>5 bar</td></tr> <tr><td>(xix) Ball valve</td><td>65NB</td><td>01</td><td>5 bar</td></tr> </tbody> </table>	<u>Type of</u>	<u>valve Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Gate valve	100NB	01	4 bar	(ii) SDSL valve	20NB	01	5 bar	(iii)SDSL valve	100NB	01	5 bar	(iv)SDNR valve	50NB	01	5 bar	(v) SDNR valve	32NB	01	5 bar	(vi)SDNR valve	65NB	05	5 bar	(vii)SDNR valve	40NB	02	5 bar	(viii)Gate valve	65NB	02	4 bar	(ix) SD valve	25NB	01	5 bar	(x) NR vertical lift valve	50NB	03	5 bar	(xi) SD valve	50NB	02	5 bar	(xii)Ball valve	50NB	03	5 bar	(xiii)Pressure relief valve	50NB	01	5 bar	(xiv)Non return foot valve	50NB	01	5 bar	With strainer				(xv)Fire hydrant valve	65NB	03	6 bar	(xvi)SDNR valve	80NB	01	5 bar	(xvii)Pressure reducing valve	65NB	01	5 bar	(xviii)Ball valve	80NB	01	5 bar	(xix) Ball valve	65NB	01	5 bar	Do. 50 % only. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.
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(v) SDNR valve	32NB	01	5 bar																																																																																				
(vi)SDNR valve	65NB	05	5 bar																																																																																				
(vii)SDNR valve	40NB	02	5 bar																																																																																				
(viii)Gate valve	65NB	02	4 bar																																																																																				
(ix) SD valve	25NB	01	5 bar																																																																																				
(x) NR vertical lift valve	50NB	03	5 bar																																																																																				
(xi) SD valve	50NB	02	5 bar																																																																																				
(xii)Ball valve	50NB	03	5 bar																																																																																				
(xiii)Pressure relief valve	50NB	01	5 bar																																																																																				
(xiv)Non return foot valve	50NB	01	5 bar																																																																																				
With strainer																																																																																							
(xv)Fire hydrant valve	65NB	03	6 bar																																																																																				
(xvi)SDNR valve	80NB	01	5 bar																																																																																				
(xvii)Pressure reducing valve	65NB	01	5 bar																																																																																				
(xviii)Ball valve	80NB	01	5 bar																																																																																				
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EA-3191	<p>Overhauling of following Domestic compressed air system valves to be carried out:</p> <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr><td>(i) SDSL valve</td><td>15NB</td><td>04</td><td>12 bar</td></tr> <tr><td>(ii) SDNR valve (RA)</td><td>15NB</td><td>04</td><td>12 bar</td></tr> <tr><td>(iii) SDSL valve</td><td>10NB</td><td>02</td><td>12 bar</td></tr> <tr><td>(iv) Air hydrant valve</td><td>15NB</td><td>02</td><td>12 bar</td></tr> <tr><td>(v) Relief valve (6-10 bar)</td><td>15NB</td><td>02</td><td>NA</td></tr> <tr><td>(vi)Pressure reducing valve (30 bar to 8 bar)</td><td>15NB</td><td>01</td><td>NA</td></tr> <tr><td>(vii)Pressure reducing valve (8 bar to 4 bar)</td><td>15NB</td><td>01</td><td>NA</td></tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) SDSL valve	15NB	04	12 bar	(ii) SDNR valve (RA)	15NB	04	12 bar	(iii) SDSL valve	10NB	02	12 bar	(iv) Air hydrant valve	15NB	02	12 bar	(v) Relief valve (6-10 bar)	15NB	02	NA	(vi)Pressure reducing valve (30 bar to 8 bar)	15NB	01	NA	(vii)Pressure reducing valve (8 bar to 4 bar)	15NB	01	NA	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.																																																				
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EA-3192	Overhauling of following Main engine starting air system valves to be carried out: <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Isolating valve</td> <td>32NB</td> <td>03</td> <td>45 bar</td> </tr> <tr> <td>(iii) SDNR valve</td> <td>32NB</td> <td>03</td> <td>45 bar</td> </tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Isolating valve	32NB	03	45 bar	(iii) SDNR valve	32NB	03	45 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.																								
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EA-3193	Overhauling of following Main engine sea water system valves to be carried out: <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Gate valve</td> <td>150NB</td> <td>03</td> <td>5 bar</td> </tr> <tr> <td>(ii) SDNR valve</td> <td>65NB</td> <td>03</td> <td>5 bar</td> </tr> <tr> <td>(iii) SDNR valve</td> <td>40NB</td> <td>02</td> <td>5 bar</td> </tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Gate valve	150NB	03	5 bar	(ii) SDNR valve	65NB	03	5 bar	(iii) SDNR valve	40NB	02	5 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.																				
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EA-3194	Overhauling of following Main engine fuel system valves to be carried out: <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Ball valve</td> <td>32NB</td> <td>01</td> <td>10 bar</td> </tr> <tr> <td>(ii)Ball valve</td> <td>50NB</td> <td>01</td> <td>10 bar</td> </tr> <tr> <td>(iii)Ball valve</td> <td>10NB</td> <td>02</td> <td>10 bar</td> </tr> <tr> <td>(iv)SD Globe valve</td> <td>15NB</td> <td>02</td> <td>10 bar</td> </tr> <tr> <td>(v) Shut off valve</td> <td>15NB</td> <td>02</td> <td>10 bar</td> </tr> <tr> <td>(vi)Shut off valve</td> <td>32NB</td> <td>02</td> <td>10 bar</td> </tr> <tr> <td>(vii)Ball valve</td> <td>25NB</td> <td>03</td> <td>10 bar</td> </tr> <tr> <td>(viii)Swing check valve</td> <td>32NB</td> <td>02</td> <td>10 bar</td> </tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Ball valve	32NB	01	10 bar	(ii)Ball valve	50NB	01	10 bar	(iii)Ball valve	10NB	02	10 bar	(iv)SD Globe valve	15NB	02	10 bar	(v) Shut off valve	15NB	02	10 bar	(vi)Shut off valve	32NB	02	10 bar	(vii)Ball valve	25NB	03	10 bar	(viii)Swing check valve	32NB	02	10 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.
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EA-3195	Overhauling of following Fuel transfer and filling system including DG system valves to be carried out: <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Ball valve</td> <td>50NB</td> <td>02</td> <td>6 bar</td> </tr> <tr> <td>(ii)SD Globe valve</td> <td>25NB</td> <td>02</td> <td>6 bar</td> </tr> <tr> <td>(iii)SD Globe valve</td> <td>40NB</td> <td>02</td> <td>6 bar</td> </tr> <tr> <td>(iv)Ball valve</td> <td>40NB</td> <td>02</td> <td>6 bar</td> </tr> <tr> <td>(v) SDNR Globe valve</td> <td>32NB</td> <td>01</td> <td>6 bar</td> </tr> <tr> <td>(vi)Ball valve</td> <td>15NB</td> <td>02</td> <td>6 bar</td> </tr> <tr> <td>(vii)Swing check valve</td> <td>40NB</td> <td>02</td> <td>6 bar</td> </tr> <tr> <td>(viii)Ball valve</td> <td>25NB</td> <td>01</td> <td>6 bar</td> </tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Ball valve	50NB	02	6 bar	(ii)SD Globe valve	25NB	02	6 bar	(iii)SD Globe valve	40NB	02	6 bar	(iv)Ball valve	40NB	02	6 bar	(v) SDNR Globe valve	32NB	01	6 bar	(vi)Ball valve	15NB	02	6 bar	(vii)Swing check valve	40NB	02	6 bar	(viii)Ball valve	25NB	01	6 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.
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EA-3196	<p>Overhauling of following Sea water system for auxiliary equipments valves to be carried out:</p> <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Gate valve</td> <td>50NB</td> <td>01</td> <td>5 bar</td> </tr> <tr> <td>(ii) SDSL valve</td> <td>50NB</td> <td>01</td> <td>5 bar</td> </tr> <tr> <td>(iii) SDNR valve</td> <td>50NB</td> <td>01</td> <td>5 bar</td> </tr> <tr> <td>(vi) SDSL valve</td> <td>50NB</td> <td>01</td> <td>5 bar</td> </tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Gate valve	50NB	01	5 bar	(ii) SDSL valve	50NB	01	5 bar	(iii) SDNR valve	50NB	01	5 bar	(vi) SDSL valve	50NB	01	5 bar	Do. Renewal of valve/ spindle against yard indent	DO 25% only. Spares and material yard supply as per standard RFIC minutes.															
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EA-3197	<p>Chemical cleaning and pressure testing of RO plant pipelines to be carried out:</p> <table border="1"> <thead> <tr> <th><u>Pipe line</u></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i) Product water line</td> <td>15mm</td> <td>1 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(ii) Brine line</td> <td>15mm</td> <td>1 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(iii) Raw water line</td> <td>25mm</td> <td>1 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> </tbody> </table>	<u>Pipe line</u>	<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(i) Product water line	15mm	1 mtrs	SS	5 bar	(ii) Brine line	15mm	1 mtrs	SS	5 bar	(iii) Raw water line	25mm	1 mtrs	Cu-Ni	5 bar	Do. Renewal of pipeline against yard indent	DO. Material yard supply. Renewal if any against AWRF.															
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EA-3199	<p>Chemical cleaning and pressure testing of Fresh water hydrophore system pipelines to be carried out:</p> <table border="1"> <thead> <tr> <th></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>50 mm</td> <td>5 mtrs</td> <td>Copper</td> <td>5 bar</td> </tr> <tr> <td>(ii)</td> <td>32 mm</td> <td>5 mtrs</td> <td>Copper</td> <td>5 bar</td> </tr> <tr> <td>(iii)</td> <td>25 mm</td> <td>20 mtrs</td> <td>Copper</td> <td>5 bar</td> </tr> <tr> <td>(iv)</td> <td>15 mm</td> <td>05 mtrs</td> <td>Copper</td> <td>5 bar</td> </tr> <tr> <td>(v)</td> <td>12 mm</td> <td>25 mtrs</td> <td>Copper</td> <td>5 bar</td> </tr> </tbody> </table>		<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(i)	50 mm	5 mtrs	Copper	5 bar	(ii)	32 mm	5 mtrs	Copper	5 bar	(iii)	25 mm	20 mtrs	Copper	5 bar	(iv)	15 mm	05 mtrs	Copper	5 bar	(v)	12 mm	25 mtrs	Copper	5 bar	Do 50% only. Renewal of pipeline against yard indent	DO 25% only. Material yard supply. Renewal if any against AWRF.					
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	(vii) 80 mm 05 mtrs Seamless steel 4 bar (viii) 65 mm 15 mtrs Seamless steel 4 bar (ix) 50 mm 20 mtrs Seamless steel 4 bar (x) 40 mm 05 mtrs Seamless steel 4 bar (xi) 25 mm 03 mtrs Seamless steel 4 bar (xii) 20 mm 5 mtrs Seamless steel 4 bar																																
EA-3201	Chemical cleaning and pressure testing of Compressed air system other than main engine pipelines to be carried out: <table border="0"> <thead> <tr> <th></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>15 mm</td> <td>15 mtrs</td> <td>Seamless steel</td> <td>12 bar</td> </tr> <tr> <td>(ii)</td> <td>12 mm</td> <td>05 mtrs</td> <td>Seamless steel</td> <td>12 bar</td> </tr> <tr> <td>(iii)</td> <td>8 mm</td> <td>10 mtrs</td> <td>Copper</td> <td>2 bar</td> </tr> </tbody> </table>		<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(i)	15 mm	15 mtrs	Seamless steel	12 bar	(ii)	12 mm	05 mtrs	Seamless steel	12 bar	(iii)	8 mm	10 mtrs	Copper	2 bar	Do. Renewal of pipeline against yard indent	DO 25% only. Material yard supply. Renewal if any against AWRF.										
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EA-3202	Chemical cleaning and pressure testing of Lub oil system pipelines to be carried out: <table border="0"> <thead> <tr> <th></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>20 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>4 bar</td> </tr> <tr> <td>(ii)</td> <td>15 mm</td> <td>05 mtrs</td> <td>Seamless steel</td> <td>4 bar</td> </tr> </tbody> </table>		<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(i)	20 mm	10 mtrs	Seamless steel	4 bar	(ii)	15 mm	05 mtrs	Seamless steel	4 bar	Do	DO 25% only. Material yard supply. Renewal if any against AWRF.															
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EA-3203	Chemical cleaning and pressure testing of Fuel system for main engine pipelines to be carried out: <table border="0"> <thead> <tr> <th></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>50 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>5 bar</td> </tr> <tr> <td>(ii)</td> <td>32 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>5 bar</td> </tr> <tr> <td>(iii)</td> <td>25 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>5 bar</td> </tr> <tr> <td>(iv)</td> <td>15 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>5 bar</td> </tr> <tr> <td>(v)</td> <td>10 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>5 bar</td> </tr> </tbody> </table>		<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(i)	50 mm	10 mtrs	Seamless steel	5 bar	(ii)	32 mm	10 mtrs	Seamless steel	5 bar	(iii)	25 mm	10 mtrs	Seamless steel	5 bar	(iv)	15 mm	10 mtrs	Seamless steel	5 bar	(v)	10 mm	10 mtrs	Seamless steel	5 bar	Do 50% only. Renewal of pipeline against yard indent	DO 25% only. Material yard supply. Renewal if any against AWRF.
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(iii)	25 mm	10 mtrs	Seamless steel	5 bar																													
(iv)	15 mm	10 mtrs	Seamless steel	5 bar																													
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EA-3204	Chemical cleaning and pressure testing of Starting air system for Main engine pipelines to be carried out: <table border="0"> <thead> <tr> <th></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>32 mm</td> <td>10 mtrs</td> <td>Seamless steel</td> <td>45 bar</td> </tr> </tbody> </table>		<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(i)	32 mm	10 mtrs	Seamless steel	45 bar	Do	DO 25% only. Material yard supply. Renewal if any against AWRF.																				
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EA-3205	<p>Chemical cleaning and pressure testing of Main Engine sea water system pipelines to be carried out:</p> <table border="1"> <thead> <tr> <th></th> <th><u>Size</u></th> <th><u>Length</u></th> <th><u>Material</u></th> <th><u>TP</u></th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>150 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(ii)</td> <td>125 mm</td> <td>15 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(iii)</td> <td>65 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(iv)</td> <td>40 mm</td> <td>15 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(v)</td> <td>15 mm</td> <td>05 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(vi)</td> <td>12 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> </tbody> </table>		<u>Size</u>	<u>Length</u>	<u>Material</u>	<u>TP</u>	(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. Renewal of pipeline against yard indent	DO 25% only. Material yard supply. Renewal if any against AWRF.
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EA-3208	Chemical cleaning and pressure testing of sprinklers of magazine compartment and CRN 91 gun to be carried. (Qty – 11 Nos, Mat – Yard Supply)	Do	DO. Material yard supply. Renewal if any against AWRF.																																			
EA-3209	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	Delete. Covered in EA-3150 & EA-3155	Delete.																																			

EA-3210	<p>NOISE AND VIBRATION ANALYSIS</p> <p>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.</p> <ul style="list-style-type: none"> (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 (j) 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 	Do through authorised firm in presence of IRS/ CGRPT/SS/ Yard rep	DO. The Noise and Vibration trials are to be undertaken during pre-refit trials and also on completion of the refit as part of post refit trials.
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ICGSRAJRATAN: SR-3
DEFECT LIST: ELECTRICAL

<u>DL NO</u>	<u>DESCRIPTION</u>	<u>DHQ-1 REMARKS</u>	<u>CGRHQ(NW) REMARKS</u>
UNDERWATER PACKAGE (LA-5001 to LA-5016)			
ICCP SYSTEM, MAKE: M/S SARGAM METAL CHENNAI, TYPE- 230V, 20AMPS			
LA-5001	Clean and inspect ICCP anodes and reference electrodes (02 each) for any mechanical damage. Record insulation of anodes and ref electrodes with respect to hull.	Do. in AIAMC	Delete. Under AIAMC
LA-5002	Peeled off shield paint and paste around the anodes of ICCP to be recoated. The surface preparation for recoating is required as same as that of new coating (area 02 SqMtrapprox). Measure the resistance between hull and anode after drying up. Hose test to be carried out on both anodes and both reference electrodes to find if there is any water seepage in junction boxes/cofferdams. Renew shaft grounding carbon brushes (Qty 06 Nos).		
LA-5003	Check the condition of underwater hull.	Delete. Covered under DL H-1007	Delete. Covered under DL SL HA-1031
LA-5004	Check all the circuit and thoroughly inspect the wiring/unit/sub-unit, renew them wherever necessary.	Do. in AIAMC	Delete. Under AIAMC
LA-5005	Clean and preserve all anodes and reference electrodes after docking and ensure cleaning of same before undocking.	Do.	
ECHO SOUNDER (MAKE :SKIPPER, NORWAY, MODEL:GDS 101)			
LA-5006	Check condition of transducer mounts / brackets for corrosion and repair if needed.	Do through PAC/competent firm. Material Yard supply. Spares CG supply	DO for DL SLs LA-5006 to LA-5011 through PAC/authorised firm. Spares CG supply. Material yard supply.
LA-5007	Check external transducer condition of sensor pins for build up or wear.		
LA-5008	Open output distribution junction box and check all terminal block connections and tighten if becoming loose.		
LA-5009	Overhaul the equipment.		

LA-5010	On dry docking of vessel, after seating on blocks, clean and preserve transducers and before undocking ensure preservation material to be removed and transducers are to be thoroughly cleaned. Clean and inspect transducer tank (02 nos. in baggage store) of echo sounder.		
LA-5011	Check insulation and continuity of cables from both transducer still electronic unit and record.		
ELECTRO MAGNETIC SPEED AND DISTANCE LOG, (MAKE :WALKER, MODEL:P110 7080)			
LA-5012	Check condition of transducer mounts / brackets for corrosion and repair if needed.	Do through PAC firm. Material Yard supply. Spares CG supply	DO for DL SLs LA-5012 to LA-5016 through PAC/authorised firm. Spares CG supply. Material yard supply.
LA-5013	Check external transducer condition of sensor pins for build up or wear and clean with fresh water.		
LA-5014	Open output distribution junction box 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.		
LA-5015	Overhaul the equipment and carry out calibration of EM Log by measured distance run procedure with minimum three calibration points.		
LA-5016	On dry docking of vessel, after seating on blocks, clean and preserve the sensor and before undocking ensure preservation material is removed and transducers are thoroughly cleaned.		
DIESEL ALTERNATORS (PORT, CENTER &STBD)			
MAKE: NEWAGE STAMFORD, 415 V, 3 PH, 50 HZ, QTY 03 NOS. (120 KW – 02, 80 KW – 01)			
LA-5017	Overhaul complete generators (Qty -03) including starter motor dynamo , governor motors. Inspect the winding, cleaning, varnishing and backings of winding to be done and replacement of bearing to be carried out. Rotor-stator clearance to be checked and mechanically balanced. Ensure that the alternator shaft is properly aligned with prime mover. Record alignment values. Bearings shall be quality control cleared through notified agencies and shown to ship staff prior replacement.(All material and all in way jobs under yard scope)	Do through PAC/authorised dealer. Material yard supply Spares CG supply	DO for DL SLs LA-5017 to LA-5019 through PAC/authorised firm. Spares CG supply. Material yard supply.
LA-5018	Complete overhaul of DA starting control panels to be carried out including governor,AVR, battery circuit, control /monitoring PCBs and exciter by		

	stripping thoroughly. (All material and all in way jobs under yard scope)		
LA-5019	After overhauling, full load trials of 03 DAs to be carried out with ship's load and proved for parallel operation.	Do.	
LA-5020	Complete spray painting of all three DAs including Alternator, Control panel, self starter motor and governor motors using international marine standard heat resistant equipment paint. (Paint yard supply)	Do.	DO. Material yard supply.
LA-5021	Check alternator circuits and thoroughly inspect complete wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.	Do through authorised firm. Material yard supply Spares CG supply.	DO through PAC/authorised firm. Spares CG supply. Material yard supply.
LA-5022	<p><u>Generator control panel (Make: Cummins)</u></p> <p>Overhaul the control panel and 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 and replace defective components.</p> <p><u>Sl.No.DescriptionQty</u></p> <p>(a) Over speed trip (1650 rpm) -03 Nos.</p> <p>(b) Low lube oil pressure alarm(1.2 bar) -03 Nos.</p> <p>(c) Low lube oil pressure trip(0.85 bar) -03 Nos.</p> <p>(d) High fresh water temperature alarm (92 deg c) -03 Nos.</p> <p>(e) High fresh water temperature trip (96 deg c) -03 Nos.</p> <p>(f) High lub oil temperature alarm (120 deg c) -03 Nos.</p> <p>After calibration full functional test of alarm/ safeties to be proved.</p> <p>(All material and all in way jobs under yard scope)</p>	DO through PAC/authorised firm. Material yard supply spares CG supply	DO through PAC/authorised firm. Spares CG supply. Material yard supply.
MAIN SWITCH BOARD (MAKE: LARSON &TUBRO LTD)			
LA-5023	Overhaul Complete MSB including painting of complete MSB panels using international marine paint for equipment, clean all the contacts, switches, relays and ACR and replace all damaged contacts if any. Following safeties to be calibrated and proved or replace if found defective and calibration certificate of OEM to be issued. (all material and all in way jobs under yard scope)	Do.	DO for DL SLs LA-5023 to LA-5026. Calibration certificate to be provided. Spares and material yard supply as per standard RFIC minutes.
	(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.		
LA-5024	Calibrate all meters of MSB and replace if found defective and 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 No (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 authorised firm. Spares CG supply	
LA -5025	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-5026	All indications of outgoing feeders to be checked & proved.	Do.	
MAIN ENGINE CONTROLS (MTU GERMANY, TYPE 16V 4000 M90) PAC FIRM M/S MTU, PUNE			
LA-5027	Calibrate following sensors for safeties cutout /alarm and parameters to be recorded for proper functioning for permissible limit. Calibration certificate to be issued by certified firm. <u>Pressure Sensors:</u> (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 (h) Gear box control oil Alarm(16.5bar) -03	Do through OEM/PAC firm. Material yard supply. Spares CG supply	DO for DL SLs LA-5027 to LA-5030 through OEM/PAC firm. Calibration certificate to be provided. Spares CG supply. Material yard supply.

	(j) Starting air Alarm(20 bar) -03 (k) Stern tube flow water -03 Temperature Sensors: Qty (Nos.) (a) Exhaust gas Alarm (750°C) -48 (b) Gear box lube oil Alarm (90°C) -03 © Gear box lube oil Trip (95°C) -03 (d) Engine lube oil Alarm (92°C) -03 (e) Engine cooling water Alarm(95°C) -03 (f) Charge air temperature Alarm(90°C) -03 Speed Sensors:Qty (Nos.) (a) Engine speed sensors Alarm (2415 rpm) -03 (b) Shaft speed sensors Alarm (2100 rpm) -03		
LA-5028	Three M/E control levers in ECR and wheel house to be serviced and calibrated and calibration certificate to be produced by OEM. Reading of all control levers to be synchronized and record for performance to be proved.	Do through OEM/PAC firm. Material yard supply. Spares CG supply	
LA -5029	Tank level sensors of 05 no fuel tanks and 01 no fresh water tank to be calibrated in MCS-5 and replace if found defective. Calibration certificate to be produced by OEM.	Do through OEM/PAC firm. Material yard supply. Spares CG supply	
LA-5030	Functional checks of following bilge level sensors (14 Nos.) to be carried out with MCS-5 and calibrated and replace if found defective (Calibration certificate to be produced by OEM). S.No.DescriptionQty (a) Boatswain store 01 (b) 7 Navik mess 01 (c) Magazine Compt01 (d) Baggage Compt01 (e) Provisional store 01 (f) Jr sailors WC01 (g) FERfwd port 01 (h) FERfwdstbd01	Do through OEM/PAC firm. Material yard supply. Spares CG supply	

	(j) FER aft port 01 (k) FER aft stbd01 (l) AERfwd01 (m) AER aft 01 (n) Water jet fwd01 (p) Water jet aft01		
WATERJET (M/s KAMEWA, SWEDEN), PAC FIRM M/S KONGSBERG, MUMBAI			
LA-5031	<p>Carryout overhaul for complete electrical system of hydraulic power pack system (03 Nos) including follows:-</p> <p>(a) Carry out functional test.</p> <p>(b) Following alarms and sensor are to be calibrated (Calibration certificate to be issued):-</p> <p>(i) Low hydraulic oil pressure (15 bar). -03Nos.</p> <p>(ii) High temperature (65°C) and low oil level. -03Nos.</p> <p>(iii) Low oil flow and low lube oil pressure (1.5 bars). -03Nos.</p> <p>(c) Overhaul of Hydraulic power pack pump motor and starter panel. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, and check the insulation of same and record.</p> <p>(All material and all in way jobs under yard scope)</p>	Do through OEM/PAC firm. Material yard supply. Spares CG supply. Yard to provide calibration certificate.	DO through PAC firm. Calibration certificate to be provided. Spares CG supply. Material yard supply.
POWER DISTRIBUTION BOX AND LIGHT DISTRIBUTION BOX (AC POWER SYSTEM, KOLKATA)			
LA- 5032	<p>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)</p> <p>(a) Clean all contacts, switches, MCBs, transformer and relays and check the proper operating of MCBs, switches & control units and replace the defective components with correct ratings.</p> <p>(b) 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.</p> <p>(c) Scrap old paint and apply new paint using international marine standard equipment paint (Electrical Grey).</p> <p>(d) Check the corroded mounting platform and take corrective action.</p> <p>(e) Calibrate following meters of 01 each power distribution board and light</p>	Do.	DO. Spares and material yard supply as per standard RFIC minutes. Calibration certificate to be provided.

	<p>distribution board and replace if found defective. Calibration certificate to be issued.</p> <p><u>S No.DescriptionQty.</u></p> <p>(i) Volt meter (0-30 Volt)-02 Nos. (ii) Ammeter (0-01 Amps)- 01 No. (iii) Ammeter (0-75 Amps)- 01 No.</p>		
A/C CONTROL PANEL: MAKE; SWITCH AND CONTROL GEARS, MUMBAI			
LA-5033	<p>Servicing of complete control panel is to be carried out including following:-</p> <p>(a) Clean all contacts, switches, MCBs, transformer and relays and check the proper operating of MCBs, switches & control units and replace all the defective components with correct ratings.</p> <p>(b) Calibration of 06 in no. OLRs {calibration certificate to be issued, (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.</p> <p>(c) Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.</p> <p>(d) Scrap old paint and apply new paint using international marine standard equipment paint.</p> <p>(All material and all in way jobs under yard scope)</p>	<p>Do. Calibrate through authorised firm. Material yard supply. Spares CG supply.</p>	<p>DO for DL SLs LA-5033 and LA-5034 through authorised firm. Spares and material yard supply as per standard RFIC minutes. Calibration certificate to be provided.</p>
LA-5034	<p>Calibrate following meters. Calibration certificate to be issued.</p> <p>(a) Ammeter (0-30 Amps)-01 No (b) Ammeter (0-10 Amps)- 01 No (c) Ammeter (0-75 Amps)- 02 Nos.</p>	<p>Do. Calibration only. Yard to provide calibration certificate. Spares CG supply</p>	
STARTER PANELS, M/S MARINE ELECTRICALS			
LA-5035	<p>Carryout complete overhauling/servicing of following control/starter panels. Job includes following:-</p> <p>(a) Calibration of OLRs to be carried out by using CIT set (calibration</p>	<p>Do. Material yard supply CG Spares</p>	<p>DO. Spares and material yard supply as per standard</p>

certificate to be issued) and replace if found defective.
 (b) Check the corroded mounting bases and take corrective action if necessary. (c) Clean all contacts, switches, MCBs, relays & re-varnishing of transformer and check the proper operating of MCB's, switches, control units, contactors, transformer and OLRs. Replace all the defective components with correct ratings.
 (d) Check the insulation of cables, transformer and record. Repaint all starter panels. Rubber gaskets to be renewed. All overload relays to be calibrated, control/starter panel operation to be proved. Replace all earthing straps.
 (e) 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.
 (f) Check the condition of battery of all UPS and replace all if found defective.
(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)	UPS for main engine controls	MTU	----	02	FER/ECR
(ii)	Water jet hydraulic power pack starter panel	M/s Rolls Royce	415 V AC 3phase	03	Water jet compartment, AER (02 Nos.)
(iii)	DOL starter for portable lub oil pump	M/s ECC	Portable type	01	Loose item
(iv)	DOL starter for dirty oil pump	M/s ECC	DOL	01	FER
(v)	Bilge & GS pump starter	M/s Fabricons	Star delta	01	FER

supply.

RFIC minutes.
 Calibration certificate to be provided.

(vi)	Bilge & fire pump starter	M/s BE pump	Star delta	01	AER		
(vii)	FWHydrophore pump starter	M/s ECC	415 V, 1.5 KW	02	FER		
(viii)	Oily water separator control panel	M/s KMC, Korea	-----	01	FER		
(ix)	RO Plant Control Panel	M/s ROCHEM	----	01	FER		
(x)	FO Transfer Pump Starter	M/s ECC	415 V, 2.2 KW	02	FER		
(xi)	Fuel oil purifier control cabinet	M/s Marine Electricals	----	01	AER		
(xii)	Engine Room Ventilation Fan Starter	M/s Switch n control gears	---	02	FER,AER		
(xiii)	Mooring capstan starter panel	M/s ECC	415 V AC	01	Water jet compartment		
(xiv)	Control Pedestal For Mooring Capstan	M/s ECC	415 V AC	01	Quarter deck		
(xv)	Anchor capstan control panel	M/s L &T	415 V AC	02	Fwd mess		
(xvi)	Control Pedestal for anchor capstan	M/s L &T	415 VAC	01	Foxle		

	(xvii)	Electrical crane control panel & remote control	M/s NED-deck marine	415V, 3Ph, 50Hz, 7.5 KW	01	Mounted on crane		
	(xviii)	Garbage disposal unit	M/s IMC	415 V AC	01	Galley		
	(xix)	UPS for MB/SRE		230VAC, 1KVA	01	Wheel House		
	(xx)	Power supply unit (CRN-91)	M/s APLAB	L3299s	01	18 Navik rating mess		
	(xxi)	Power supply unit (IFF)	M/s HAL, Hyderabad	IFF 1410 NV	01	MSO (Radio room)		

BATTERY CHARGER, 30 AMPS (02 NOS) AND 60 AMPS (01NO.) (MAKE: M/s RADIANT ELECTRONICS, KOLKATA)			
LA-5036	<p>Overhauling of 04 in nos. Battery chargers and control panel (01 no.) to be carried out. Job includes following.</p> <p>(a) Transformers varnishing and take insulation before and after varnishing i.e. insulation to be improved.</p> <p>(b) Securing of battery charging panel cable.</p> <p>(c) Scrap old paint and applying of new equipment marine international paint.</p> <p>(d) following meters to be Calibrated and certificate to be provided:-</p> <p style="padding-left: 40px;">(i) 04 Voltmeters [Voltmeter (0-50 V)- 02 no, (0-40 V)- 02 Nos)</p> <p style="padding-left: 40px;">(ii) 06 Ammeters (Ammeter (0-75 Amps)- 02 Nos, (0-15 Amps)- 02 Nos, (0-40 Amps)- 02 nos)</p> <p>(e) Clean all contacts, switches and relays and check the proper operating of MCB's, switches, control units, contactors and transformer. Replace all the defective components with correct ratings.</p> <p>(f) Check all the circuit and thoroughly inspect complete wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.</p> <p>(g) Check all safety trips for proper functioning and if not carry out replacement of defective components.</p> <p>(All material and all in way jobs under yard scope).</p>	Do. SI (d) Calibrate through authorised firm and provide calibration certificate. Material yard supply. Spares CG supply.	DO. Spares and material yard supply as per standard RFIC minutes. Calibration certificate to be provided.
MAIN LIGHTING TRANSFORMER (415 V/230 V, AIR COOLED30 KVA, M/s RADIANT ELECTRONICS)			
LA- 5037	<p>Overhaul the transformer including following:-</p> <p>(a) Cleaning, varnishing and baking of winding and cleaning of earthing straps.</p> <p>(b) Check and record insulation resistance of windings before and after varnishing i.e. insulation to be improved.</p> <p>(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.</p> <p>(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.</p> <p>(All material and all in way jobs under yard scope)</p>	Do.	DO. Material yard supply.
FIRE DETECTION SYSTEM: MAKE: AUTRONICA, NORWAY, PAC FIRM M/SELCOME INTEGRATED SYSTEM			

LA-5038	Overhaul the complete system including following heat/smoke detectors and manual call point. Sensors to be checked for correct operation. System to be proved in all the loops (03 Nos.) (a) Optical smoke detector-26 Nos. (b) Multi sensor smoke detector-08 Nos. (c) Optical smoke detector water tight ex- 01 No. (d) Manual call point-15 Nos. (e) Heat detector-01 No.	Do through PAC firm. Material yard supply. Spares CG supply	DO through PAC/authorised firm. Spares CG supply. Material yard supply. Calibration certificate to be provided.
COOKING RANGE (MAKE: BONHOFF, HOLLAND, 11.5 KW)			
LA-5039	Carry out complete overhauling of cooking range. Job includes following:- (a) Replacement of porcelain insulators and earthing strips. (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. (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. (f) Clean all contacts, switches and relays and check the proper operating of MCB's, switches, control units, contactors. Replace the defective components with correct ratings. (All material and all in way jobs under yard scope)	Do. Material yard supply. Spares CG supply	DO. Spares CG supply. Material yard supply.
INTEGRATED BRIDGE SYSTEM (TRANSAS, SWEDEN)			
LA-5040	Overhaul the complete panel. Job includes following:- (a) Check all terminal block connections in processors and tighten. Carry out first redundancy check , switch off matrix # 1 and test all system operations. Carry out Second redundancy check , 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. Securing of cable inside wheel house console and Check the insulation of same and record.	Do through competent firm. Material yard supply. Spares CG supply.	DO through PAC/authorised firm. Spares CG supply. Material yard supply.
RADAR (MAKE: TRANSAS, SWEDEN, TYPE: NR4000, 12KW & 25 KW – 02 NOS.)			
LA-5041	Check transmitter power output including performance of magnetron.	Do through PAC	DO for DL SLs LA-5041

LA-5042	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. Replace earth bondage strap, if needed	firm. Material yard supply. Spares CG supply	to LA-5043 through PAC/authorised firm. Spares CG supply. Material yard supply.
LA-5043	Carry out complete overhauling including scanner motor and replace bearings.		
AIS (MAKE : M/s SAAB SYSTEMS, TYPE: R4-AIS)			
LA-5044	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.	Do through competent firm. Material yard supply. Spares CG supply	Delete.
LA-5045	Open multiplexer unit and check internal wiring and tighten terminals, if loose.		
DGPS (MAKE : M/s SAAB SYSTEMS, TYPE: R4-TRANSPONDER)			
LA-5046	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	Delete.
LA-5047	Open multiplexer unit and check internal wiring and tighten terminals, if loose.	Delete	Delete.
ECDIS (MAKE : M/s TRANSAS, SWEDEN)			
LA-5048	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. Calibration certificate to be provided by PAC firm.	Delete	Delete.
ECHO SOUNDER (MAKE :SKIPPER,NORWAYMODEL:GDS 101)			
LA-5049	Overhaul the equipment and replace defective components, if any. Open output distribution junction box 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. Calibration certificate to be provided by PAC firm	Delete Cover in DL LA 5006 to LA 5011.	Delete.
GYRO COMPASS (MAKE : M/S ANSCHUTZ, STD 22) PAC FIRM M/S ELCOME INTEGRATED SYSTEM P LTD			
LA-5050	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. Check the insulation of same and record.	Do through PAC firm. Material yard supply. Spares CG	DO through PAC firm. Spares CG supply. Material yard supply.

LA-5051	Ensure repeaters are aligned with main Gyro and Gyro feed is available to RADAR and other connected equipment. Calibration certificate to be provided by PAC firm	supply	
SVDR (MAKE : M/s TRANSAS,SWEDEN, Model – SVDR -3200)			
LA-5052	Annual performance test (APT) to be carried out by OEM/ PAC firm including up gradation of software and hardware. 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. Do in ship's DFPR	Delete. Undertake under DFP.
ANEMOMETER AND WEATHER (M/s LILLEY & GILLIE, U.K WALKER 7080)			
LA-5053	Overhaul the equipment including sensors and calibrate anemometer for speed and direction with reference to hand held anemometer and standard readings (calibration certificate to be issued for same). Check condition of wind vane mounts/brackets for corrosion and repair if needed. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, and check the insulation of same and record.	Do through PAC firm. Material yard supply. Spares CG supply	DO through PAC firm. Spares CG supply. Material yard supply.
AUTOPILOT CUM STEERING GEAR SYSTEM (M/S RAYTHEON, TYPE NAUTOPILOT- 20X5)			
LA-5054	Complete overhaul of autopilot cum steering gear system to be carried out.	Do through PAC/authorized firm. Material yard supply. Spares CG supply	DO through PAC/authorised firm. Spares CG supply. Material yard supply.
MAIN BROADCAST (MAKE: M/s MARINE ELECTRONICS GENOVA ITALY, TYPE: IMCOS 1151), PAC FIRM M/S ELCOME INTEGRATED SYSTEM (P) LTD			
LA-5055	Complete overhaul of Main broadcast system including amplifier and associated speakers (33 Nos.) and microphones (07 Nos.) to be overhauled for optimum performance. 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.	Do through PAC firm. Material yard supply. Spares CG supply	Delete for DL SLs LA-5055 and LA-5056.
LA-5056	Check the condition of mounts / brackets. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and	Do.	

	check the insulation of same and record. (All material and all in way jobs under yard scope)		
AUTO TELEPHONE EXCHANGE (MAKE: SIEMENS / UNIFY ENTERPRISES COMMUNICATION PVT LTD)			
LA-5057	Overhaul complete system. Check all telephones cables lines/cables junction boxes. Model- HIPATH 3550	Do.	Delete.
SMART-F (M/S BEL,KOTDWARA, 4563R) OEM M/S BELKOTDWARA			
LA-5058	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. Under Ship's DFPR	Delete. Undertake under DFP.
SOP FOR CRN-91 GUN, OEM – BHARAT ELECTRONICSLTD			
LA-5059	Carry out complete overhaul of the system and check the performance along with interfacing with CRN 91.	Delete. Under Ship's DFPR	Delete. Undertake under DFP.
HF TRANSCEIVER SET (MAKE: FURUNO,JAPAN Model: FS 5070) PAC FIRM M/S MOOLOOBHOY			
LA-5060	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, and check the insulation of same and record. (All material and all in way jobs under yard scope)	Do through PAC firm. Material yard supply. Spares CG	DO through PAC/authorised firm. Spares CG supply. Material yard supply.
INMARSAT 'C' TERMINAL (M/S SAILORS, DENMARK, TT-300E)			
LA- 5061	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.	Delete.
VHF RADIO TELEPHONE (SAILORS THRANE AND THRANE DENMARK RT5022 02 NOS.)			
LA-5062	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.	Delete.
FLEET BROAD BAND 500 (SAILORS DENMARK)			
LA- 5063	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.	Delete.	Delete.
FLEET BROAD BAND AERIAL (SAILORS DENMARK)			

LA-5064	Remove and replace mounting nuts.	Delete.	Delete.
NAVTEX RECEIVER (MAKE M/S SAMYUNG, TYPE SNX-300)			
LA-5065	Complete overhaul the equipment.	Delete.	Delete.
PORTABLE HF TX/RX PRC 6020 (M/S BEL)			
LA- 5066	Overhaul the complete unit internally, check performance in all functional modes and prove it for satisfactory operation.	Delete.	Delete.
5" HAND SIGNALING DISLANTERN (M/s RAY ENTERPRISES, KOLKATA 02 NOS)			
LA-5067	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.	Do.	Delete.
PAE – 3060 (MAKE: ECIL, HYDERABAD)			
LA-5068	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 / antenna and record.	Delete.	Delete.
NAVIGATION LIGHT PANEL (MAKE: ECC, KOLKATA)			
LA-5069	Carry out complete overhauling of the panel including as follows:- (a) Prove 12 no. lights in normal and emergency mode. (b) All the checks and tests are to be carried out as per manual and replace Defective / deteriorated components. (c) Check the insulation and terminal connection (both end) and record. Retighten all cable connection.	Do.	DO. Material yard supply.
GENERAL ALARM SYSTEM (MAKE: M/s ELNA TYPE GA-2)			
LA-5070	Overhaul the complete system. (All material and all in way jobs under yard scope)	Do through authorized firm. Material yard supply. Spares CG supply	DO through authorized firm. Material yard supply.
ELECTRIC SIREN (MAKE: M/S ZOLLNER)			
LA-5071	Overhaul the equipment completely. (all material and all in way jobs under yard scope)	Do. Material yard supply	DO. Material yard supply.

SEARCH LIGHT (Make: WISKA DENMARK, 215 V, SINGLE PHASE, 50 HZ, 1000 W)			
LA-5072	Overhaul the complete search light assembly including revolving mechanism by dismantling. Clean all gears for azimuth and horizontal movements and replace defective components. Paint the light assembly using international marine equipment paint (paint yard supply). Check Limit switches for gear mechanism. Defect to be rectified and system to be proved (All material and all in way jobs under yard scope)	Do. Material yard supply.	DO. Material yard supply.
10" SIGNALING PROJECTOR (MAKE: RAY ENTERPRISES, KOLKATA. 215 V, SINGLE PHASE, 50 HZ, 02 NOS.)			
LA-5073	Overhaul the complete light assembly including flaps and revolving mechanism by dismantling. Renew all weather sealing gaskets and rubber components, polish reflecting mirror and prove for operation. (All material and all in way jobs under yard scope)	Do. Material yard supply	DO. Material yard supply.
MOTORS			
LA-5074	Following Motors to be overhauled completely. (all material under yard scope) Overhauling of motors includes following:- <ul style="list-style-type: none"> (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) (j) Baking, bench trials after assembling. (k) Starting and running currents to be measured and should be as per specifications. (l) Preparation of the foundation of motor and re-fitment. Bearings being renewed shall be quality control cleared through notified agencies and shown to ship's staff prior replacement.	Do. Material yard supply. Spares CG supply	DO. Spares and material yard supply as per the standard RFIC minutes.

SI	Motor description	Rating	Nos. Fitted	Location
(i)	Galley supply / exhaust fan Motor	0.37 KW	02	Galley
(ii)	Anchor capstan motor	5.5 KW	02	Foxle
(iii)	Emergency DA compt. Exhaust fan motor	0.157 KW	01	Emergency DA compt.
(iv)	AHU motor	9.3 KW	01	ATUCompt
(v)	FM 200 Compt exhaust fan motor	0.062 KW	01	FM 200 compt.
(vi)	Naval store exhaust motor	0.157 KW	01	Naval. Store
(vii)	STP exhaust fan motor	0.318 KW	01	STPCompt
(viii)	STP supply fan motor	0.318 KW	01	STPCompt
(ix)	AHU supply fan	0.157 KW	01	ATUCompt
(x)	Jet compt. Supply fan motor	3.7 KW	01	Jet Compt
(xi)	Exhaust fan motor for SO'S&Navik bathroom	0.314 KW	01	Navik bathroom
(xii)	Dirty oil pump motor	1.5 KW	01	FER
(xiii)	Bilge &GS pump motor	15 KW	01	FER
(xiv)	Bilge & fire pump motor	15 KW	01	AER
(xv)	Fresh water Hydrophore pump motor	1.5 KW	02	FER
(xvi)	Oily bilge water separator motor	1.1 KW	01	FER

(xvii)	Fuel oil purifier separator pump	2.2 KW	01	FER		
(xviii)	Fuel oil purifier pump motor	0.75 KW	01	FER		
(xix)	Air compressor motor	7.5 KW	02	FER		
(xx)	AC sea water pump motor(main)	3.7 KW	01	FER		
(xxi)	AC compressor motor	30 KW	02	FER		
(xxii)	Fuel oil transfer pump motors	2.2 KW	02	FER		
(xxiv)	Fwd E/R ventilation fan motors	3.7 KW	02	Q/deck		
(xxv)	Fwd E/R supply fan motors	7.5 KW	02	Q/deck		
(xxvi)	Aft E/R ventilation fan motors	3.7 KW	01	Q/deck		
(xxvii)	Aft E/R supply fan motors	7.5 KW	01	Q/deck		
(xxviii)	Electric motor for crane	7.5 KW	01	Quarter deck		
(xxix)	Mooring capstan motor	4.0 KW	01	WJCompt		
(xxx)	Paint store supply fan	0.37 KW	01	Paint store		
(xxxii)	Priming pump for bilge &GS pump	0.75 KW	01	FER		
(xxxiii)	Priming pump for fire &GS pump	0.75 KW	01	AER		

48. EMERGENCY DA (M/s ELMOT, TEFC, 2.5KW 230V 1Ph 50Hz, 0.8 LAG)

LA-5075	Overhaul the alternator completely. Job includes following:- (a) Renewal of bearing. Bearings shall be quality control cleared and shown to ship staff prior replacement. (b) Check insulation resistance of the winding and same will be improved by re-varnishing of windings as per procedure given in the manual be followed.	Do through authorized firm. Material yard supply. Spares CG supply.	DO for DL SLs LA-5075 and LA-5076. Spares CG supply. Material yard supply. Calibration certificate to
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	<p>However before re-varnishing the revolving diode disc must be removed and refitted in exactly same position after re-varnishing.</p> <p>(c) Check the self starter motor, governor motor, AVR, battery circuit, dynamo, and exciter and replace / repair the defective components.</p> <p>(d) Rotor-stator clearance to be checked and mechanically balanced.</p> <p>(All material under yard scope)</p>		be provided.
LA-5076	<p>Calibrate following meters of emergency DA panel and calibration certificate to be issued.</p> <p><u>S No.DescriptionQty.</u></p> <p>(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</p>	Do calibrate through competent firm and yard to provide calibration certificate.	
LA-5077	<p>Carry out complete overhauling of panel. Job includes calibration of OLRs(10-16 Amps-01 No, 0.4-0.63 Amps- 01 No.) using CIT set (calibration certificate to be issued) and painting of panel by using international marine standard equipment paint after scrapping old paint.</p>		DO. Material yard supply.
HP AIR COMPRESSOR PANEL (M/s ECC, KOLKATA 415/230 V AC 02 NOS)			
LA-5078	<p>Calibration of over load relays to be carried out using CIT (Current Injection Transformer). Check the corrosion in mounting bases. Check the proper operating of MCBs, switches & control units, contactors and OLRs. 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 for overload, short circuit, and under voltage. 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.</p> <p>(All material and all in way jobs under yard scope)</p>	Do Material yard supply. Spares CG supply.	DO. Material yard supply.
MAGNETIC COMPASS (MAKE: LILLEY AND GILLIE ENGLAND U.K, MODEL: MK 2000) PAC FIRM M/S ELCOME MARINE			

SERVICES (P) LTD			
LA-5079	Calibration of magnetic compass to be carried out and calibration certificate to be issued. Job includes renewal of soft iron correction bars. Magnetic compass swing to be carried out at sea. Carry out the functional checks of magnetic compass including lamp operation and replace the defective components.	Do through PAC firm. Material yard supply. Spares CG supply	DO through PAC firm. Spares CG supply. Material yard supply.
RO PLANT (MAKE : ROCHEM, MUMBAI MODEL: ROCHEM DT-5S,05TPD)			
LA-5080	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. Including overhauling of Pre- filter pump motor and HP pump motor. (All material and all in way jobs under yard scope)	Do through PAC firm. Yard to provide calibration certificate. Material yard supply. Spares CG supply.	DO through PAC firm. Spares CG supply. Material yard supply. Calibration certificate to be provided.
TVRO SYSTEM (MAKE: M/S INTELLIAN) PAC FIRM M/S MOLOOBHOYPVT LTD, MUMBAI			
LA-5081	Complete overhauling of TVRO system including as follows:- (a) Check the mounting base of Antenna, Control Unit & Power supply unit for proper functioning / any corrosion and renew if required. (b) Check thoroughly the Antenna and replace the all the defective components. (c) Check all the circuit and thoroughly inspect the all wiring/unit/sub-unit/cables, renew / replace them wherever necessary and check the insulation of same and record. (d) Repainting of Antenna using international marine standard RF paint. (e) Up gradation of Software, Tuning and configuration for Automatic control unit for optimum performance. Functional checks of complete system to be carried out and proved. (all material and all in way jobs under yard scope)	Delete. Covered under AIAMC	Delete. Undertake under DFP.
INFRARED COMMUNICATION SYSTEM (MAKE: M/S AZDEC LTD, ENGLAND) PAC FIRM M/S ELCOME INTEGRATED			

SYSTEM PVT LTD, MUMBAI			
LA-5082	<p>Complete overhauling of infrared communication system. Job includes as follows:-</p> <p>(a) Cleaning of all IR Antenna thoroughly and carry out functional checks of same including base station and replace all the defective components.</p> <p>(b) Check all the circuit, terminal connection and thoroughly inspect the all wiring/unit/sub-unit/cables, repair / renew / replace them wherever necessary and check the insulation of same and record.</p> <p>(c) Check all the mounting base and fitment of IR antenna & base station and repair / replace if found defective.</p>	Do through PAC firm. Material yard supply. Spares CG supply	DO through PAC firm. Spares CG supply. Material yard supply.
IFF {IDENTIFICATION OF FRIEND & FOE (MAKE: M/S HAL, HYDERABAD)}			
LA-5083	<p>Complete overhauling of IFF system including as follows:-</p> <p>(a) Check all the mounting base and fitment of IR antenna & base station and repair / replace if found defective.</p> <p>(b) Check all the circuit, terminal connection and thoroughly inspect all wiring/unit/sub-unit/cables, repair / renew / replace them wherever necessary and check the insulation of same and record.</p> <p>(c) Carry out the complete functional checks of IFF system as per manual specification & procedure and replace the all defective components.</p>	Delete. Under Ship's DFPR	Delete. Undertake under DFP.