

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 : 3467/3

24 Apr 19

RE-TENDER

**PRE QUALIFICATION FOR NORMAL REFIT (NR-1) OF ICGS RAJRATAN
INVITATION OF EXPRESSION OF INTEREST AND COMMENTS/QUERIES**

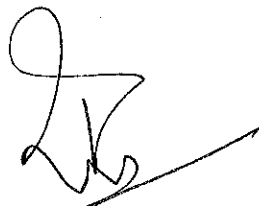
Sir,

1. It is intimated that e-mail containing defect list serials (Hull, Engineering and Electrical) in respect of **Normal Refit (NR-1)** of **ICGS Rajratan** based at Porbandar for **120 days** duration of alongwith serial wise CGRHQ (NW) remarks has been forwarded to date 24 Apr 19 :-

- | | | | |
|-----|-------------|---|---------------------|
| (a) | Hull | : | HA-1001 to HC-1119 |
| (b) | Engineering | : | EA-3001 to EA-3206 |
| (c) | Electrical | : | LA 5001 to LB- 5132 |

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.**

Contd . . .2/-



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 **Jun 2019** for period of **120 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 be deemed to have commenced with effect from the date the ship is subsequently made available for refit by Indian Coast Guard.
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.0286-2248610)**" 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 at 10.30 Hrs on 09 May 19** to discuss/clarify the scope of work and to bring all the participating yards at par.
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 firm /refitting firms does 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 atleast a workshop facility befitting the refit of a ship. The refitting firm / refitting firms should be a licensee or have a MoU with a local firm who is a licensee of Port/ PSU/private refitting firm in whose dry dock the ship is going to be docked. The proof for both the facilities (workshop and drydock) is to be attached with the technical bid so as to ascertain the technical qualification of the yard.
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.

Contd . . .3/-

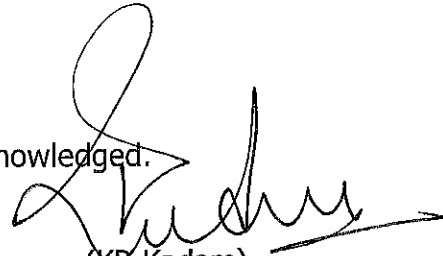


11. It may be noted that CGHQ is contemplating AIAMC contract for certain equipment/ systems fitted onboard ship. Although, defects on these equipment have been added in defect list but in case the AIAMC contract is concluded prior commencement of contract, Indian Coast Guard will have right to delete the same from the refit package.

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 **08 May 2019:-**

- (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
(Gujarat) Post Box No 25
Porbandar – 360575
Email- dhq1@indiancoastguard.nic.in
- (c) The Commanding Officer
ICGS Rajratan
C/o Coast Guard District Headquarters No. 1
(Gujarat) Post Box No 25
Porbandar – 360575
Email- rajratan@indiancoastguard.nic.in

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



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

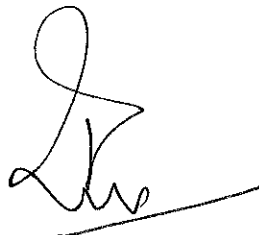
Enclosure:- Main Defect list of NR-19 of ICGS Rajratan (Hull, Engg and Electrical) by e-mail.

Contd . . .4/-

Copy to :

The Commander
{for (DTO)}
Coast Guard District Headquarters No. 1 (Gujarat)
Porbandar

The Commanding Officer
ICGS Rajratan
C/o Coast Guard District Headquarters No. 1 (Gujarat)
Porbandar

A handwritten signature in black ink, consisting of a large, stylized initial 'L' followed by a horizontal line.

**ICGS RAJRATAN NORMAL REFIT (NR-19)
MAIN DEFECT LIST- HULL**

DL NO	DESCRIPTION	RHQ(NW) REMARKS
<u>YARD SERVICES</u>		
HA 1001	Pre and post refit trials to be carried out to assess the performance and status of all equipment and fittings. All PAC, yard reps from Hull, Engg, Electrical departments to embark onboard	DO.
HA 1002	<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.	DO.
HA 1003	<u>ACCOMMODATION</u> The refitting yard is to provide accommodation for following crew as per the scale of accommodation indicated below:- (i) <u>Officers</u> . Cabin accommodation for 05 officers with following Amenities :- (aa) One single occupancy room with A/C (ab) 02 double occupancy rooms officers with A/C (ac) Attached toilet with bathroom. (ad) Basic room curtain and TV. (ae) Table and chairs. (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided. (ag) Dinning space and cooking area. (ii) <u>Subordinate Officer</u> . Cabin accommodation for 08 SOs with following facilities :- (aa) 04 nos. double bedrooms with air cooler. (ab) Attached toilet & bathroom.	DO. Shore galley facilities with appropriate exhaust system including gas burners and cost of cooking gas to be provided when the ship's galley becomes non-operational.



	<ul style="list-style-type: none"> (ac) Basic room curtain and TV. (ad) Table and chairs. (ae) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided. (af) Common dining space with TV. <p>(iii) <u>Enrolled Personnel.</u> Dormitory type accommodation with curtains for 26 Enrolled Personnel to be provided. The scale of accommodation is as follows: -</p> <ul style="list-style-type: none"> (aa) 26 in nos. single bed/cots. Rooms to have air cooler circulator. (ab) Each single bed/cot to be provided with mattress, bed sheet, pillow cover. (ac) Six W/C and Six bathrooms. (ad) Dormitory room to have basic upholstery like teapoy, TV, curtains and easy chairs and wardrobe for keeping uniforms and day to days items. (ae) Dining space and Cooking area. (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided. 	
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UNDERWATER WORK PACKAGE

<p>HA1004</p>	<p>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.</p>	<p>DO both version docking against yard services. SS to provide latest docking plan. Six copies of docking report to be provided by ship. All necessary documents to be attached with the docking report are to be provided by the refitting yard.</p>
<p>HA 1005</p>	<p>Washing of underwater hull with high pressure hydro dynamic jet (3000 PSI) followed by cleaning and thorough removal of sea growth with brushes from underwater hull and fittings including water jet, sea chest & grating to be carried out immediately after dry docking. (Underwater area: 320 sqm, boot top area: 100 sqm. Yard to cater for staging and crane facility). Then clean with fresh water thoroughly.</p>	<p>DO. Material yard supply.</p>



HA 1006	After cleaning, examine the whole under water area paying particular attention to hull plate in the vicinity of water jet tube, zinc protectors, sea chest and all other fastenings areas for signs of corrosion defects and damage. Defect observed to be rectified. Class surveyor to be associated for inspections.	DO survey of underwater hull including appendages jointly by class surveyor and CGRPT.
HA 1007	Carry out UTG survey of underwater area paying particular attention to E/R, tanks, coffer dams, WB tanks, sludge tank and jet tube areas and sea chests immediately on commencement of refit/ docking (for under water hull) and report is to be rendered at the earliest to enable assessment of work package. Those plates thinned down more than 10% to be cropped and renewed. Report of UTG survey to be given to ship and CGRPS in shell expansion drawing and tabular form along with photographs of underwater fittings.	DO. Yard to cater for 750 UTG points, 02 tons of steel renewal of the plates/ stiffeners thinned down more than 20 %/ as per class recommendations. Payment for steel renewal on pro rata basis. Robotic scanning not required. Material yard supply. Steel Grade: AH-36 All in way job included. SS to provide shell expansion drawing. No underwater photography by yard.
HA 1008	Photography of underwater hull fitting/ damages appendages, fittings, openings and major repair/renewal works etc. to be undertaken and 04 sets of album to be submitted to ship.	Delete. SS
HA 1009	U/W hull to be vacuum/ grit blasted to SA 2.5 on completion of U/W inspection. Area required to be blasted be decided according to sea growth, fouling, blisters, paint damage and peel off area. Full paint to be carried out as per CGHQ policy letter for entire under water hull and boot top areas including U/W appendages. Yard to cater for full scheme painting by airless spray under supervision of paint rep for entire under water hull area (320sqm). Paint Yard Supply. (make: M/s AKZO NOBLE)	DO. Yard to cater for touch up paint scheme of M/s Akzo Noble (SPC scheme) as per existing paint scheme including boot top area. Paint yard supply. Application of Paint under supervision of paint manufacturer rep. Record of DFT to be submitted. Total under water area including boot top area is 410M ² .
HA 1010	Anti Fouling black on entire boot top area (100 sqm) to be applied during dry docking. Paint Yard Supply. (make: M/s AKZO NOBLE)	Delete. Covered in HA 1009.

HA 1011	Remove, examine and overhaul all u/w storm valves. Carry out chemical cleaning and pressure testing after over hauling (1.5 times of WP).	DO. Yard to cater for 07 Nos Valves, Size-50mm. Test pressure 05 bar
HA 1012	Remove, Clean and refit all Sea Chest grating (Qty-15 nos) (a) Water jet-03 nos (b) Main engine-03 nos (c) DA – 03 nos (d) Fire & GS Pump – 01 no (e) Bilge & GS pump-01 no (f) AC Condenser pump – 01 no (g) RO plant – 01 no (h) Magazine flooding valve – 01 no (i) Oily water separator – 01 no	DO. All consumables including fasteners yard supply. Spares CG supply. Renewal if any against AWR/F. Grating size:- (a) Water jet-1200 x 504 mm approx (b) Main engine-414 x 314mm approx (c) DA - 110 mm Dia (d) Fire & GS Pump – 110 mm Dia (e) Bilge & GS pump-110 mm Dia (f) AC Condenser pump – 90 mm Dia (g) RO plant – 60 mm Dia (h) Magazine flooding valve – 275 mm Dia (i) Oily water separator – 100 mm Dia Paint as per U/W paint scheme. Paint yard supply.
HA 1013	Examine sacrificial anodes fitted in all sea chests and renew. Anodes – yard Supply	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 SS to provide Anode drawings.
HA 1014	Di-electric shield to be examined for wear and damaged layer of resin/araldite to be re-laid as per specification.	Delete. Covered in LA-5002.
HB 1015	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).	Delete, covered under HA-1009 and HA-1020



HB 1016	02 in no. U/W storm valves (size-65 NB) of galley to be overhauled. Pressure testing after overhauling (1.5 times of WP) to be carried out. Pressure test certificate to be submitted to ship. Remove, clean and refit all sea chest gratings.	Delete, covered under SI HA-1011.
STEEL DECKS (EXPOSED)		
HA 1017	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 25 % or as recommended by surveyor to be renewed after UTG evaluation.	DO for DL serials HA-1017 to HA-1019 . Yard to cater for one ton steel renewal, 300 UTG points, joint survey by class surveyor and CGRPT. 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 AWRP.
HA 1018	Bi-metallic joint on weather deck to super structure (AI) to be examined paying particular attention to joint where failure of structure may occur. Specific defects observed to be reported to ship.	
HA 1019	Examine structure paying particular attention to the deck plate. Inspect area below portable fittings for corrosion and paint failure. Complete deck to be UTG surveyed. Renew plating as required/ recommended by surveyor/ CGRPS. Scrap, / blast the deck to bare metal. Full paint scheme of deck to be applied on entire deck (area: 350sqm). Yard to cover all scuttles/ port holes, ventilation openings, bridge glasses, canvas covers, RIB boats, electrical cables and equipment while painting. Painting to be done under supervision of rep of paint manufacturer to inspect, monitor and obtain required paint thickness during painting. Paint thickness report to be rendered to ship. Paint yard supply (make: M/s AKZO NOBEL)	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 1020	Full coat of ship side to be applied on entire surface (approx area: 300 sqm). Blue strips marking by airless spray painting. "भारतीयतरक्षक" lettering in Hindi on port side and " INDIAN COAST GUARD " in English on starboard side to be inscribed. Ship's name (Red paint) in Hindi & English on both sides and pennant number on sides as well as on stern to be painted. Painting to be done under supervision of Paint rep and SS. Paint thickness report to be rendered to ship. Paint yard supply (make: M/s AKZO NOBLE)	DO. Touch up paint scheme. Scope includes painting of draft markings also. Total area -205 Sq. Mtrs. " INDIAN COAST GUARD " lettering in English on port side and " भारतीय तरक्षक " in Hindi on stbd side to be inscribed. Ship's

		name (Blue colour paint RAL code 5026, Pearl Night Blue) in Hindi & English on both sides and pennant number on sides as well as on stern to be painted. Blue band markings to be painted on both sides. Paint CG Supply. Material yard supply.
<u>SUPER STRUCTURE AREA EXPOSED (ALUMINIUM) AND ALUMINIUM EXPOSED DECK / BULKHEAD</u>		
NOTE: Aluminium Structures are not to be blasted / hard tools not to be used for scraping or chipping.		
HA 1021	Entire structure to be examined paying particular attentions to all areas (including exposed decks and bulkheads) where aberration is possible. Check bulkhead and ships side (bimetallic joint) for paint failure, structural damage etc. Check flag decks, Emergency DA compartment, bridge area and boundaries for corrosion and deterioration. Doubtful areas where obscured structure, portable fittings may be removed for inspection.	DO. Survey and one final coat of paint on super structure including main mast and aluminium decks. Area of Super Structure 660 Sq Mtrs and area of aluminium deck 125 Sq Mtrs. Paint CG supply. Structural repairs if any under AWRF.
HA 1022	Super structure area including main mast to be washed with fresh water (approx area 550 sqm including fittings) and to be painted with final coat. (Paint scheme attached) Yard to cover all scuttles/ port holes, ventilation openings, bridge glasses, canvas covers, RIB boats, electrical cables and equipment, etc while painting. Painting to be done under supervision of rep of paint manufacturer & Ship staff. Paint thickness report to be rendered to ship. Paint yard supply (Make: M/s AKZO NOBEL)	Deleted. SS
<u>GENERAL COMPARTMENTS DECK NO 2, 1 AND ABOVE/ACCOMMODATION AREA/ LOBBIES AND PASSAGES, ELECTRICAL STORE, DECK STORE, ATU COMPARTMENT, BAGGAGE STORE</u>		
HA 1023	Lagging/ paneling or deck covering to be removed for inspection at various places where corrosion is likely to occur (approx area 300 sq m). Where lagging or deck covering is peeled cracked blistered lost adherence or structure is excessively corroded clean to bare metal dry the surface and recoat as per paint scheme. Thickness to be checked and any specific defect be projected. Lagging/ paneling to be refitted after inspection.	DO internal survey including bulk heads by class surveyor and CGRPT. Yard to cater for renewal of 10 Sq. mtr MFMB lagging to facilitate inspection. All in-way jobs included. Material yard supply.

<u>GALLEY AND ASSOCIATED FITTINGS</u>	
HA 1024	02 Nos galley exhaust filters to be renewed as per sample. Mat- SS wire mesh with SS frames, size- 1.5 x 1.5 ft. DO. Material yard supply.
<u>ACCOMMODATION, LOBBIES AND PASSAGES</u>	
HA 1025	Inspect areas that are covered by lagging/panelling deck covering where corrosion is likely to occur. Check the thickness, assess condition of lower portion of bulkheads boundaries and structures obscured by fittings. Specific defects if any to be projected to undertake in AWRP. Delete. Covered in HA-1023.
<u>MACHINERY COMPARTMENTS (FWD AND AFT E/R, W/J COMPARTMENT)</u>	
HA 1026	Clean machinery compartment bilges and limber holes and carry out visual survey for internal hull structure and fittings along with class surveyor. Inspect the frames, girders and stiffeners. Remove flaked paint film to bare metal and area where paint failure occurred. Carry out UTG at critical areas. Renew as per recommendation of class surveyor. Any damage/defect found to be noted and projected for repair. Carry out one final coat on entire bilge area as per scheme (approx area 510 sqm) Paint yard supply. (make: M/s AKZO NOBLE) DO. Yard to cater for 200 UTG points and touch up paint scheme. Material yard supply. Paint CG supply. Approx area 510 sqm. Steel renewal if any covered under DL SI HA-1007.
<u>ELECTRICAL STORE / BATTERY COMPARTMENT</u>	
HA 1027	Examine all bulk heads, decks and boundaries. Clean, scrap and paint the rusted area. Deleted. SS
<u>BOATSWAIN STORE</u>	
HA 1028	Scrap, clean and remove all flaked paint films to be bare metal and area where paint failure occurred. Apply paint as per scheme. DO. Material yard supply. Paint CG supply. Area 50 Sq Mtr.

BATHROOMS/ WCS											
HA 1029	Remove all scuppers, drain pipes of bath rooms and toilets. Clean chemically and Refit after pressure testing and painting. Defects if any to be projected (Mat: MS). Length and size of pipelines as follows: <table border="0"> <tr> <td style="text-align: center;"><u>Size</u></td> <td style="text-align: center;"><u>Length</u></td> </tr> <tr> <td>(a) 50 mm</td> <td>50 mtr</td> </tr> <tr> <td>(b) 40 mm</td> <td>20 mtr</td> </tr> <tr> <td>(c) 32 mm</td> <td>10 mtr</td> </tr> <tr> <td>(d) 65 mm</td> <td>15 mtr (Soil/ Black water pipe)</td> </tr> </table>	<u>Size</u>	<u>Length</u>	(a) 50 mm	50 mtr	(b) 40 mm	20 mtr	(c) 32 mm	10 mtr	(d) 65 mm	15 mtr (Soil/ Black water pipe)
<u>Size</u>	<u>Length</u>										
(a) 50 mm	50 mtr										
(b) 40 mm	20 mtr										
(c) 32 mm	10 mtr										
(d) 65 mm	15 mtr (Soil/ Black water pipe)										
HA 1030	Examine structure not covered by lagging or deck covering, paying particular attention to deck boundaries lower area of bulkhead and ship side's areas around side scuttles. Portable or semi portable fittings and soil pipe trunk access plates are to be removed for examination of structure. Different section of pipelines area to be removed at successive examination. Strip examine and pressure test 05 in nos storm valve and pipes, renew leather seating and rubber lips. Specific defects to be reported to ship.										
HB 1031	05 in no commode uprooted from base to be fitted as per existing sample. Mat-wood.										
HA 1032	Renew all taps and isolating stop cocks in Officers, senior sailor's and junior sailor's bathroom.										
HB 1033	Renew all wooden gratings of Officer's and Sailor's bathroom as per sample. Area total – 50 sq ft Mat- wood.										
VOID SPACES											
HA 1034	Open and thoroughly clean 03 in nos. void spaces and carry out survey with class surveyor for state of material and paint. Examine the structure paying particular attention to the junction of framing with vertical plating, outer bottom plating and especially area not readily visible such as the back of framing and stiffeners. Surveyor report to be submitted. Specific defects after surveyor recommendation to be projected. Renew four cover gaskets of manholes.										
	DO survey by class surveyor and touch up paint scheme. Paint CG supply. Total area of three void spaces – 100 Sq. Mtr.										

DIRTY WATER TANK AND DIRTY OIL TANK

Note : Yard to issue gas free certificate from govt. agency before entering to the tank/ confined space. Air pressure test of tanks to be proved in case of any repair works.

HA 1035	Dry out and inspect compartment structure for failure of paint coating. Remove any loose or flaking paint and all signs of corrosion by scraping and wire brushing. Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint. (Approx area 20 sqm) Paint Yard Supply.	DO survey by class surveyor and touch up paint scheme. Paint CG supply.
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FRESH WATER TANK

HA 1036	Dry out and inspect compartment structure of 01 in no. fresh water tank (14 Tons) for failure of paint coating. Remove any loose or flaking paint and all signs of corrosion by scraping and wire brushing. Paint is to be applied as per scheme (area 95 sqm). Paint Yard Supply. Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint. Manhole gasket to be renewed.	DO survey by class surveyor and touch up paint scheme. Paint CG supply.
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HA 1037	Associate the class surveyor during internal inspection and project specific defect for repair. Apply paint as per scheme. Ensure all manhole covers are free of corrosion and intact at seating. Pressure test tank if steel renewal /repair carried out. Paint as per scheme. Renew 04 in nos of taps and isolating stop cocks in galley, dining hall, stbd/ port bridge wing and quarter deck.	Delete. Covered in HA-1036.
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FUEL OIL / LUB OIL TANKS

HA 1038	<p>Following tanks are to be cleaned and inspected for material state by class surveyor.</p> <p>(a) Fuel oil tank - 03 Nos (total volume-49.99 cu mtr) (b) Fuel RU tanks - 02 Nos (total volume-13.40 cu mtr) (c) Lube oil tank 15 W 40 - 02 No (total volume-1.40 cu mtr) (d) Lube oil tank HLP-68 - 01 No 1.00 cu mtr</p> <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 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>	DO. Yard to cater for internal survey and touch paint scheme. Paint CG supply. Material yard supply.
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HB 1039	Overhaul 15 Nos tank breathers and renew wire meshes with frames, Area total- 15 sq feet. Spares yard supply.	DO. Material yard supply.
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ATU COMPARTMENT		
HA 1040	Inspect structures not covered by lagging, (Area 11 X 7.4 Sq ft) paying particular attention to decks boundaries, lower portion of bulkheads and structures obscured by fittings. Where paint is peeled, cracked, blistered lost adherence or structure is excessively corroded, clean to bare metal, dry the surface and re-coat as per paint scheme.	Delete. Covered in HA-1023.
MAGAZINE SPRINKLING SYSTEM		
HA 1041	100% pipe lines to be dismantled chemically cleaned and defects if any to be rectified and pressure tested 1.5 times of working pressure. Mat- Cu Ni, Total Length 07 Mtrs, Dia- 50 MM and 04 Mtrs of 32 MM	DO. Material yard supply. Working pressure 04 Bar, Test pressure 06 Bar. Renewal of pipes if any against AWRF.
HA 1042	02 in no Operating valves of magazine and CRN 91 gun to be overhauled and pressure tested 1.5 times of working pressure and proved.	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.
BAGGAGE STORE		
HA1043	Examine all steel structure & chequered plate paying particular attention to the area under vertical support & boundaries. Clean scrap and paint the rusted area.	DO touch up paint scheme. Paint CG supply. Area-50 Sq. mtr. Renewal of steel if any, to be catered against HA-1007.
CABLE LOCKERS (02 NOS)		
HA 1044	All Wooden grating in cable locker to be renewed as per sample. Cable to be ranged out from cable locker. Remove portable perforated plates. Sump, suction strainer and box to be cleared. Structure in vicinity of cable clench, shipside, plates and bars, stiffeners to be examined. (Area 7.6 X 13.6 sq ft). Recoat after repair as per scheme.	DO cleaning including suction strainer and box and survey (class surveyor) of cable locker. Undertake touch up paint scheme. Paint CG supply.
HA 1045	Cable to be fixed to the cable clench after applying XG 274 grease to D-shackle. The fastening process be done in presence of SS, CGRPT rep and class surveyor. Same to be surveyed by a class surveyor and certificate to be provided.	Delete.

VENTILATION SYSTEM	
HA 1046	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
HA 1047	All AC diffusers to be removed cleaned and fitted back. Defected diffusers to be renewed as per sample. Total No. of Diffusers 37.
HA 1048	All rubber coaming of vent flaps on weather deck to be renewed and chalk test to be carried out. Total no 20. approx size, length: 10 m, width: 30 mm, depth: 15 mm (as per sample)
ANCHOR & CHAIN CABLE	
HA 1049	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.
HB 1050	Survey naval pipe and hawse pipe. Same to be inspected for secure stowage of anchors specially at sea. Carry out painting as per scheme. (Area 20 sqm). (Paint yard supply , make: M/s AKZO NOBLE).
HB 1051	02 in nos. Anchor Wire Strops (SWR) weakened due to corrosion. To be renewed as per sample and test certificate to be rendered. (Mat: SS, Dia: 10 mm), Length- 01 mtr each.
	DO. Material yard supply.
	DO. Renewal if any against AWRP. Material yard supply.
	DO. EPDM rubber material to be used. Material yard supply. Length of rubber 15 Mtrs.
	DO cleaning, survey, gauging, calibration and painting of Anchor & Chain Cable and associated fittings. No load test to be conducted on Chain cable and accessories. Paint CG supply.
	DO. Paint CG supply
	DO. Material yard supply. Load on anchor wire strops- 02 ton. Mat-SS, Dia-10 mm, length-01 mtr each.



DECK CRANE (NED DECK MARINE, TYPE: SCTT 10/2.6-4.0 S, SWL -999Kg)

HA 1052	<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. Load testing weight: 1250 Kg.
HA 1053	<p>Overhaul the electric motor, clutches and hydraulic system. Prove the hydraulic system for 240 bar operating pressure. All hydraulic hoses are to be changed. 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).</p>	Delete.



GEMINI CRAFT, RIB, WATER SCOOTER, LIFERAFTS		
HA 1054	Inspect the chocks of Gemini and RIB for proper seating. Any defect be projected for rectification.	Delete. SS
HA 1055	Overhaul water scooter. Job includes following (a) Replacement of spark plugs (b) Adjustment of choke cable. (c) Re conditioning of battery (d) Lubrication of lubricating points (e) Engine tuning (f) Renewals of fuel filters (g) Change of lube oil	Delete.
HA 1056	RIB and 02 in no Gemini boats buoyancy chambers and chamber valves to be tested for air leak. Boat leak test to be carried out and proved.	Delete. SS
HA 1057	04 in nos. life rafts service due in the month of Nov. To be serviced.	Delete. Undertake against service rate contract.
HB 1058	Stand of RIB and water scooter rusted and corroded to be renewed as per existing sample. Mat-MS (RIB stand size 7.10 X 2.9 X 2.1 ft), (Water Scooter stand size 5.4 X 2.9 X 1.9 ft)	Delete.
TOWING HOOK, BOLLARD, BULL RINGS CLEAT AND STAG HORN		
HA 1059	Die penetration test to be conducted on 09 bollards, 10 fair leads, 02 bull rings and 08 stag horn as per standards specific defects to be reported to ship.	DO. DP test and visual survey only. Renewal if any under AWRF.
HB 1060	Renewal of sl (a),(b),(c) and (d) with enlarged size to facilitate housing of additional/ large diaphragm ropes (48 mm and above). Load test and certify:- (a) Bollard 09 in nos. SWL : 2.0 tons (b) Fair lead 10 in nos. SWL : 1.5 tons (c) Bull Ring 02 in nos. SWL : 2.0 tons (d) Stag Horn 08 in nos. SWL : 1.0 tons (e) Towing hook 01 in no SWL : 5.0 tons	Delete.
ANCHOR CAPSTAN (GRSE, KOLKATA), CAPACITY: 2 TONS		
HA 1061	Dismantle 02 in nos. capstan, cable holder and gear box. Strip down for examination of all bearings, bushes, shafts, gears, clutch and brake lining. Holding bolts to be removed and examined. Assembly gear oil to be changed. Brake lining to be renewed. Grease all pins. Operation of both capstans after assembly without	DO overhauling of two capstans. Material yard supply. Spares and oil CG supply. Load test certificate to be provided by yard.

	and with load to be proved in both modes. Load test certificate to be provided.	Test Load- 2 tons.
HB 1062	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. Material yard supply.
MOORING CAPSTAN (GRSE, KOLKATA), CAPACITY: 1.5 TONS		
HA 1063	Dismantle mooring capstan and lower the gear box. Strip down for examination of all bearings, bushes, shafts, gears, clutch and brake lining. Holding bolts to be removed and examined. Assembly gear oil to be changed. Renew brake lining. Grease all pins. Operation of mooring capstan after assembly without and with load to be proved. Load test certificate to be provided.	DO. Oil and spares CG supply. Material yard supply. Load test certificate to be provided by yard.
HB 1064	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)	Test Load- 1.5 tons. DO. Material yard supply.
STRUCTURAL FITTINGS (DOOR, HATCHES MANHOLES, SCUTTLES, BRIDGE OBSERVATION WINDOW)		
HB 1065	Rubber beadings of 9 weather deck doors and 06 hatches deteriorated and lost water tight integrity (approx, length 65 m, width 35 mm and thickness 20 mm) To be renewed and proven. (Chalk test). Renew rubber seating scuttles. Renew the rubber seating of toughened glasses and hose test to be conducted. As per sample.	DO. EPDM rubber for external and Neoprene rubber for internal doors, hatches and scuttles. Material yard supply. Water tight integrity to be witnessed by class surveyor. Repair/ renewal of doors/ hatches if any against AWRP.
HA 1066	Renew rubber seating in 14 in nos windows seal and framing 10 in nos Port holes and hose test to be carried out. As per sample.	Delete.
AWNINGS AND STANCHIONS		
HA1067	Examine awning stanchion and stays, cleats, eye bolts, eye plates and structures in immediate vicinity for distortion, corrosion and cracking of welds.	Delete.
LADDER, RUNGS & STAIRS		
HA 1068	Inspect 06 in nos ladder (Boatswain store/7-Rating mess/18-Rating mess / Water jet compartment/Fwd engine room/Aft engine room) and renew necessary portable aluminum trade. Trades where broken, defective to be re-welded.	Delete.
HA 1069	Deteriorated rubber step grip in stairs to be renewed with new one as per existing sample. Total – 25 nos.	Delete.

FIRE MAIN/ SEAWATER SYSTEM		
HA1070	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	Delete. Covered in EA-3162.
GENERAL COMPARTMENTS		
HB 1071	05 in no. bunk uprooted from base to be fitted back. Location 18 rating mess.	Delete.
HB 1072	18 in nos. locks of cupboard & shoe lockers defective. To be renewed as per sample.	Delete.
DECK FITTINGS		
HB 1073	Spring loaded securing clips of 10 in no hatches defective. To be renewed (Mat: SS).	Delete.
HB 1074	Lagging in naval store damaged to be repaired. Approx area 1 X 3 sq ft.	Delete.
HB 1075	150 in nos EMC bonding straps along with nuts & bolts (pvc coated) to be renewed. (Nuts & bolts mat: SS) Size (length-01 ft, breadth-01 inch, thickness-01mm)	DO. Material yard supply.
HB 1076	Stanchion 50 in nos and shoe 42 in nos as per existing sample along with nuts & bolts to be renewed. Mat-MS.	DO renewal of 20 Nos stanchion shoes and 25 stanchions. All in-way jobs included. Material yard supply.
HB 1077	Metallic fender on stbd side bent to be renewed. Length:- 05 Mtrs	DO. All in-way jobs included. Material yard supply.
HB 1078	Deteriorated/rusted metallic coaming all around the upper deck to be renewed. Approx running length 100.00 mtrs.	Delete.
HB 1079	Rope reel 04 in nos (02 each in q/deck & foxle) uprooted from base to be renewed as per sample. Mat -Al.	DO. Material yard supply.
HB 1080	Wooden flooring as per sample to be done in ward room and captain's cabin.	Delete.
HB 1081	Macrotek as per existing sample to be done in inner deck Bridge, MSO, Exo's Cabin, TO's cabin and NO's Cabin, Officers alleyway, MCR, ATU Compartment, & 7-Rating mess, 18-Rating mess, SO's Cabin, Officers Bathroom, Senior sailor's bathroom, Junior sailor's bathroom, Dining hall, Store Office, Ship's Office, Galley and Pantry, total area 241 Sq mtr.	DO only for final coat of Macrotek. Area- 241 Sq. mtr. Material yard supply.

SEWAGE TREATMENT PLANT

HA-1082	Following routine to be carried out during refit (a) Overhaul book shell (b) Overhaul electrodes. (c) Overhaul Oxidizing chamber. (d) Overhaul all system valves. (e) Cleaning of all pipelines and tanks to be carried out.	Delete. Covered under AIAMC.
HA-1083	Basic overhauling of Vacuumerator pump and black and grey water transfer pump to be carried out.	Delete. Covered under AIAMC.
HB-1084	All three water jet transom flanges (integrated hull fitting) to be renewed. (transom flange CG supply)	DO. Renewal of three transom flanges. Scope of job to be undertaken by yard includes following: (a) Carry out shaft line sighting (LOS) before and after renewal of transom flanges with inspection of class surveyor and M/s RRMI. (b) Check the existing alignment of shaft seal and transom flanges before dismantling. (c) Replace transom flanges. (d) Check alignment of transom flanges post renewal. (e) Carry out chock fasting. Chock fasting material yard supply. (f) Yard to provide all tools/ tackles, fixtures, staging/ scaffolding and lifting appliances required for carrying out all evolution (g) All in-way jobs included. M/s RRMI will provide technical support and necessary documentation. Transom flanges and spares CG supply. Material and paint yard supply.



YARD SERVICES

HA-1085	Fire main supply of 04 bar pressure at the rate 40 TPH to be supplied to ship invariably for full duration of refit. Refitting yard is to provide 02 qualified fire sentries each, wherever hot work is in progress. SS is also to provide their own fire sentry as required. If the refitting firm does not have facility for round the clock fire main pressure, yard to make arrangement for fire tender to be stand by all the times.	DO.
HA-1086	Garbage clearances and disposal facility to be provided for the entire duration of refit.	DO.
HA-1087	Shore supply power connection (415V,50 Hz, 3 Phase) for consumption power up to 500 units per day and connecting / disconnecting cable as and when required with feeder breaker capacity of not less than 150 KW. Payment will be made at actuals. Ships staff to maintain a logbook for actual power consumption. Shore supply 415V, 50 Hz, 3 Phase to be provided for the duration of refit with provision of voltage meter.	DO. Payment will be made at actual on pro rata basis.
HA-1088	Crane facility is to be provided as and when required. Yard to cater for 70 hours operations during the entire refit period. However, Payment will be made at actuals. Ship staff to maintain a record/ logbook on this aspect.	DO.
HA-1089	Supply of fresh water to be catered for 06 tons per day including 250 ltrs of drinking water per day. However, payment will be made at actuals and SS to keep record of water received during refit.	DO. Payment will be made at actual on pro rata basis.
HA-1090	All OEM/PAC and refitting firms 'H', 'E' and 'L' reps are to embark the ship for pre and post refit trials sailing till satisfactory performance/acceptance of the machinery by the ship.	DO.
HA-1091	Preparation of keel blocks and certificate of suitability is to be issued by the refitting firm. Keel blocks are to be offered to overseeing authority for inspection, prior docking of the ship.	DO.
HA-1092	Keel blocks are to be arranged as per latest approved docking plan, and ship is to be dry-docked in both versions.	DO both version docking against yard services. SS to provide latest docking plan.
HA-1093	Tug for docking, undocking, berthing and un-berthing are to be provided as and when required from pre- refit trials till refit completion.	DO.
HA-1094	Pilot is to be provided while entering and leaving dock and harbour.	DO.

HA-1095	Shipyard is to provide 02 nos mobile phones with unlimited calling in India and one unlimited data connection for voice communication and E-mail respectively during entire refit duration. Yard's office fax facility will be used for fax in/out by the ship.	DO.
HA-1096	Berthing and unberthing at wet basin including basin hire charges are to be catered for.	DO.
HA-1097	Provide temporary lights to ensure illumination at appropriate level.	DO.
HA-1098	Compressed air supply as and when required.	DO.
HA-1099	Refitting firm to extend fax/e-mail facility to COA/ Refit Overseeing Team on as and when required basis.	DO.
HA-1100	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. Three split ACs of adequate capacity to be provided in CO cabin, ward room, dining hall when ship's AC is rendered non operational.	DO.
HA-1101	Proper alongside berthing facility (not alongside pantoon/ floating dock, etc.) and yard services for ship are to be provided for the entire period of refit. The refitting firm is to ensure that there is no unnecessary shifting of ship during the ship's refit. In event of berthing and yard services provided by ICG, the cost of the same would be deducted at actuals.	DO. Berthing and unberthing at wet basin including basin hire charges are to be catered for. In event of berthing and yard services provided by ICG, the cost of the same would be deducted at actuals.
HA-1102	Appropriate refit office for overseeing team with necessary furniture and A/C.	DO. Refit office to include WC facility for EPs and Officers.
HA-1103	Adequate storage space to be provided to ship during the major hull repair work. Approx store room size - 15 x 15 ft.	DO.
HA-1104	Shore galley facilities including gas burners and cost of cooking gas to be provided when the ship's galley becomes non-operational.	DO.
HA-1105	At the time of de-ratting/ de-cockroaching, alternate necessary arrangement for the Galley should be provided by the refitting firm.	DO.

HA-1106	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 Explosives are to be catered for.	DO. The refitting firm to arrange Gas Free Certificate for all Fuel/ Lube oil tanks prior commencing survey/ hot work. For this purpose provision of blowers with hoses and visit of Inspector of Explosives are to be catered for.
HA-1107	The ship is to carry out de-fueling prior coming in dry-dock. The refitting firm is to provide suitable containers/space for storing the residual fuel. The Ship to collect fuel prior departing from the yard.	DO.
HA-1108	Sufficient ventilation to be provided when ship's AC becomes non-ops.	DO. Sufficient ventilation to be provided when ship's AC becomes non-ops.
HA-1109	Yard to provide facilities for DP testing/load testing of Capstan/towing hook / Davits etc.	DO.
DECK FITTINGS		
HB 1110	Jack staff and Ensign staff deteriorated. To be renewed as per sample. Mat: MS	DO renewal including supporting shoes. Material yard supply.
HB 1111	Spring Loaded securing clips of 03 in number hatches defective along with supporting frame. To be renewed as per sample. Mat: MS	DO. Material yard supply
GENERAL COMPARTMENTS		
HB 1112	04 nos Shoe locker in 18 rating mess damaged to be repaired.	Delete.
HB 1113	Lagging deteriorated in Dining Hall, 18 Rating mess, 7 Rating mess, Ships Office, Jr Sailors Washroom. Approximate area 100 Sqm. Type of Lagging- MFMB	DO renewal of 50 Sqm MFMB lagging. Material yard supply. All in way jobs included.
HB-1114	Renewal of 15 Mtrs, 60 mm Dia, water-jet guards pipe (MS) and 08 Mtrs X 300 mm X 05 mm aluminium chequered plate platform.	DO. Material including pipe and plates yard supply. All in way jobs included.
HB-1115	Load test of towing hook (SWL-05 tons)	DO. All in-way jobs included. Yard to provide load test certificate through authorised agency.
HB-1116	Pressure testing and internal painting of spray rails (04 nos) to be undertaken.	DO. All in-way jobs included.
HB-1117	06 Nos Mushroom hoods to be overhauled and wire mesh to be renewed. Size of Mushroom hood: 500 mm- 06 Nos.	DO. Material yard supply.

HB-1118	03 Nos goose neck to be overhauled and wire mesh to be renewed. Size: 180 mm X 150 mm.	DO. Material yard supply.
HC-1119	<p>Modification of tank (fr 28-30) to be carried out under supervision of IRS class surveyor. The scope of work includes:-</p> <p>(a) Modification of Tank as per DRG No.2073-79/110221 [Attached]</p> <p>(b) Details of scallops/notches/snips/collar plates & welding as per DRG no 2072-79/160101. [Attached]</p> <p>(c) BLOCK DRG NO 2072-79/110201-20 [Attached]</p> <p>(d) The job involves additional steel fabrication inside the tank for erection of transverse bulkhead and longitudinal bulkhead inside tanks.</p> <p>(e) The details of material list i.e plates/sections are shown in the drs no.2072-79/160101. [Attached]</p> <p>(f) The Welders are to be IRS Certified.</p> <p>(g) Pressure test- water pressure testing by filling up to top of air pipe i.e 900 mm above main deck. Fresh water to be used for WPT.</p>	<p>DO. [As & As Approved vide CGHQ letter TS/300/63/Tanks/Rajshree class dated 28 Mar 19]</p> <p>(a) Yard to undertake modification as per modification drgs under class supervision and proved</p> <p>(b) All Material yard supply</p> <p>(c) All inway jobs included</p>



ICGS RAJRATAN NORMAL REFIT (NR-19)
MAIN DEFECT LIST: ENGINEERING

DL NO	DESCRIPTION	RHQ(NW) REMARKS																																												
DRY DOCK ROUTINES, PAC: M/S ROLLS ROYCE MARINE INDIA, MUMBAI																																														
EA-3001	Clean and inspect Water Jet buckets (03 Nos) including following :- (i) Impeller shaft (ii) Impeller Blade (iii) Steering and Reversing unit	Delete covered under water jet five yearly routines.																																												
EA-3002	Check for any mechanical damage of impeller and guide van chamber.	Deleted. Covered in EA -3015																																												
EA-3003	Remove micro-organism and marine growth inside the inlet duct, tunnel area, steering nozzle and guide vane.	Deleted. Covered in HA-1005																																												
EA-3004	Sacrificial Zinc anodes on all three impeller shaft protection tubes along with securing bolts to be replaced. Total Qty – 06 Nos, Size: 200 mm x 50 mm x 22 mm, Make: M/s Rolls-Royce, Part No. R101454A (Spares CG supply, Mat – Yard Supply)	Deleted. Covered in EA-3026																																												
EB-3005	All three water jets shaft protection tube sacrificial Zinc anodes fitted base corroded (.) To be renewed as per sample. (Qty – 03, Mat- MS)	Delete.																																												
EA-3006	Following under water and sea chest/sea suction line valves to be overhauled and pressure tested, Test pressure-06 bar. Renewal of spindle, disk and lid if required and painting to be carried out. All nut and bolts to be renewed with SS during fitment. (Material Yard Supply) <table border="1"> <thead> <tr> <th>Sl</th> <th>Description</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Main Engine Sea chest valves(Gate Vv)</td> <td>150 MM</td> <td>03 Nos</td> </tr> <tr> <td>2.</td> <td>Main Engine Sea suction line valve (Gate Vv)</td> <td>150 MM</td> <td>03 Nos</td> </tr> <tr> <td>3.</td> <td>DA's sea chest valves(Gate vv)</td> <td>65 MM</td> <td>03 Nos</td> </tr> <tr> <td>4.</td> <td>GS pump's sea chest valves (Gate vv)</td> <td>80 MM</td> <td>02 Nos</td> </tr> <tr> <td>5.</td> <td>GS pump's sea suction line valves(Gate vv)</td> <td>80 MM</td> <td>02 Nos</td> </tr> <tr> <td>6.</td> <td>AC condenser Pump sea chest valve(Gate vv)</td> <td>65 MM</td> <td>01 No</td> </tr> <tr> <td>7.</td> <td>AC condenser Pump sea suction line valve(Gate vv)</td> <td>65 MM</td> <td>01 No</td> </tr> <tr> <td>8.</td> <td>RO Plant sea chest valve</td> <td>32 MM</td> <td>01 No</td> </tr> <tr> <td>9.</td> <td>OBWS sea chest valve</td> <td>32 MM</td> <td>01 No</td> </tr> <tr> <td>10.</td> <td>Magazine Flooding valve</td> <td>125 MM</td> <td>01 No</td> </tr> </tbody> </table>	Sl	Description	Size	Qty	1.	Main Engine Sea chest valves(Gate Vv)	150 MM	03 Nos	2.	Main Engine Sea suction line valve (Gate Vv)	150 MM	03 Nos	3.	DA's sea chest valves(Gate vv)	65 MM	03 Nos	4.	GS pump's sea chest valves (Gate vv)	80 MM	02 Nos	5.	GS pump's sea suction line valves(Gate vv)	80 MM	02 Nos	6.	AC condenser Pump sea chest valve(Gate vv)	65 MM	01 No	7.	AC condenser Pump sea suction line valve(Gate vv)	65 MM	01 No	8.	RO Plant sea chest valve	32 MM	01 No	9.	OBWS sea chest valve	32 MM	01 No	10.	Magazine Flooding valve	125 MM	01 No	DO. Material yard supply. Test pressure: 06 bar
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EA-3007	<p>Overboard valves of the following equipment to be overhauled and pressure tested. Test pressure-06 bar. Renewal of spindle+, disk and lid if required and painting to be carried out. All nut and bolts to be renewed with SS during fitment. (Material Yard Supply)</p> <table border="1"> <thead> <tr> <th>Sl</th> <th>Description</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Main Engines (Angle SD Vv)</td> <td>150 MM</td> <td>03 Nos</td> </tr> <tr> <td>2.</td> <td>DA's (Angle SD Vv)</td> <td>65 MM</td> <td>03 Nos</td> </tr> <tr> <td>3.</td> <td>GS pump's (Angle SD Vv)</td> <td>80 MM</td> <td>02 Nos</td> </tr> <tr> <td>4.</td> <td>AC condenser Pump (Angle SD Vv)</td> <td>65 MM</td> <td>01 No</td> </tr> <tr> <td>5.</td> <td>RO Plant (Angle SD Vv) b</td> <td>32 MM</td> <td>01 No</td> </tr> <tr> <td>6.</td> <td>OBWS(Angle SD Vv)</td> <td>32 MM</td> <td>01 No</td> </tr> <tr> <td>7.</td> <td>Galley (Angle SDNR Vv)</td> <td>32 MM</td> <td>01 No</td> </tr> <tr> <td>8.</td> <td>Sewage Treatment Plant(Angle SD Vv)</td> <td>40 MM</td> <td>01 No</td> </tr> <tr> <td>9.</td> <td>Eductors (Angle SD Vv)</td> <td>65 MM</td> <td>06 Nos</td> </tr> <tr> <td>10.</td> <td>Gearbox (Angle SD Vv)</td> <td>40 MM</td> <td>03 Nos</td> </tr> </tbody> </table>	Sl	Description	Size	Qty	1.	Main Engines (Angle SD Vv)	150 MM	03 Nos	2.	DA's (Angle SD Vv)	65 MM	03 Nos	3.	GS pump's (Angle SD Vv)	80 MM	02 Nos	4.	AC condenser Pump (Angle SD Vv)	65 MM	01 No	5.	RO Plant (Angle SD Vv) b	32 MM	01 No	6.	OBWS(Angle SD Vv)	32 MM	01 No	7.	Galley (Angle SDNR Vv)	32 MM	01 No	8.	Sewage Treatment Plant(Angle SD Vv)	40 MM	01 No	9.	Eductors (Angle SD Vv)	65 MM	06 Nos	10.	Gearbox (Angle SD Vv)	40 MM	03 Nos	DO. Material yard supply. Test pressure-06 bar
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<p>SHAFTING (M/S KOPFLEX JAURE, S.A. TYPE-11257 (P & S), 11256 (C), QTY-03 NOS) PAC: M/S ROLLS ROYCE MARINE INDIA, MUMBAI Inspection of the Lamidisc coupling to be carried out as follows:</p>																																														
EA-3008	Check for any disc pack failure. If found any failure, replace it and investigate the cause of failure.	DO through PAC firm M/s RRMI. Spares CG supply. Repairs/ renewal if any against AWRP.																																												
EA-3009	Inspect the Lamidisc coupling disc packs for any misalignment using stroboscopic method as enumerated in the user manual.	DO only inspection of Lami disc coupling through PAC firm M/s RRMI. Alignment checks covered in HA-1084. Spares CG supply. Repairs, if any, under AWRP.																																												
Inspection of the Plummer blocks (05 Nos) to be carried out as follows:																																														
EA-3010	Check the Cooper roller bearings for wear and tear.	DO. Material yard supply. Renewal, if any, under AWRP.																																												
EA-3011	Renew the lubricating grease. (Grease type: Lithium based type 2 grease with extreme pressure additives) (Material Yard supply)	DO. Material yard supply																																												
EA-3012	All three shafts to be cleaned with soft pad and polished. Shafts to be applied anti-rust chemical coating (Rust keeper 999).	SS.																																												
EA-3013	Calibrate 05 Nos Plummer block temperature sensors.	Delete covered under LA-5047.																																												
EA-3014	All three shaft inflatable seals air lines to be flushed with compressed air (Dia: 12	DO. Material yard supply. All in way jobs																																												



WATER JETS & SYSTEM (MAKE- M/S KAMEWA ROLLS-ROYCE, SWEDEN, TYPE 63 S3 NP, QTY - 03 NOS**PAC: M/S ROLLS ROYCE MARINE INDIA, MUMBAI****5 Yearly routines on all three water jets to be carried out. Jobs for each water jet are as follows:-**

EA-3015	Carry out in-situ visual inspection of impeller, guide van chamber and transom flange assembly.	Delete covered under EA-3029 to EA-3038 .
EA-3016	Carry out in-situ visual inspection of shaft, flange bolts, shaft seal, shaft coupling and split cone ring. If required, carry out readjustment of shaft seal.	Delete covered under EA-3029 to EA-3038 .
EA-3017	Carry out in- situ inspection of bulkhead seals (Total :05 Nos for three water jets).	DO through PAC firm M/s RRRMI. Spares CG supply.
EA-3018	Carry out functional test of counter balance valve of steering and reversing system.	Delete. Covered in EA-3040.
EA-3019	Carry out functional test of PTO pump and electric motor driven lub oil pump.	DO through PAC firm M/s RRRMI. Spares CG supply.
EA-3020	Replace filters in hydraulic and lub oil system.	DO through PAC firm M/s RRRMI. Spares CG supply.
EA-3021	Carry out functional test and adjustment of W/J alarm switches, pressure gauges and remote control system.	Delete covered under LA-5046 and LA-5047.
EA-3022	Carry out functional test/adjustment of hydraulic power pack tank with valve manifold.	DO through PAC firm M/s RRRMI. Spares CG supply.
EA-3023	Carry out pressure and crack test of hydraulic hoses of steering and reversing unit of all three water jets and replace if required.	DO renewal of hydraulic hoses through PAC firm M/s RRRMI. Spares CG supply.
EA-3024	Replace feedback protection hoses (02 nos per W/J).Total 06 Nos.	DO through PAC firm M/s RRRMI. Spares CG supply.
EA-3025	Replace all the cylinder seals	DO through PAC firm M/s RRRMI. Spares CG supply. Cylinder seals to be replaced and pressure tested.
EA-3026	Replace the anodes of shaft protection tube (05 per water jet), hanging anodes (01 set per water jet), disk type anodes on the jet (07 per water jet) and shaft seal (01 set per water jet).	DO through PAC firm M/s RRRMI. Anodes CG supply.
EA-3027	Carry out calibration of levers, Feedback units and re adjust indicators.	Delete. Covered in LA-5038, LA-5046 and LA-5047 and LA-5048.
EA-3028	Check out pressure test of hub seal.	Delete covered under EA-3030.

EA-3029	Replace the hub bearings.	DO through PAC firm M/s RRMI. Spares CG supply. Scaffolding/ staging required, all in-way jobs for removal/ refitment of water jets, provision of covered work shop space for undertaking five yearly water jet routines and painting of water jets covered in yard's scope of work. Stern clearance of 8-10 Mtrs is to be catered for removal of water jets in the dry dock.
EA-3030	Replace the hub seal.	DO through PAC firm M/s RRMI. Spares CG supply.
EA-3031	Replace 'o' rings in pump unit.	DO through PAC firm M/s RRMI. Spares CG supply.
EA-3032	Replace bolts of impeller/stud shaft in pump unit.	DO through PAC firm M/s RRMI. Spares CG supply.
EA-3033	Renew shaft seal assembly along with inflatable seal.	DO through PAC firm M/s RRMI. Spares CG supply.
EA-3034	Replace the split cone ring.	DO through PAC firm M/s RRMI. Spares CG supply.
EA-3035	Inspect mechanical interface between impeller shaft and impeller shaft journal	DO through PAC firm M/s RRMI. Spares CG supply.
EA-3036	Replace the bushings.	Delete. Replacement of bushings only during alternate 5 Yrly routines.
EA-3037	Replace the locking plates.	Delete.
EA-3038	Carry out thorough inspection of complete plate areas.	DO through PAC firm M/s RRMI. Spare locking plate CG supply.
EA-3039	Renew the complete hydraulic oil of the system.	DO through PAC firm M/s RRMI. Oil CG supply.
EA-3040	Replace the counterbalance valve (V41, V42 and V18).	DO through PAC firm M/s RRMI. Spares CG supply.



EMERGENCY DIESEL ALTERNATOR (MAKE:M/S FIELD MARSHAL, TYPE:FH 786, QTY:01 NO)

EA-3041	Test Injectors of engine.	Delete.
EA-3042	Inspection of generator set vibration mounting to be carried out.	SS.
EA-3043	Carry out calibration of exhaust temp gauge (Range: 0 – 600 C)	Delete. S&D
EB-3044	DA exhaust line lagging found perished/deteriorated. To be renewed as per sample.	Delete.
FUEL OIL CENTRIFUGE (MAKE:M/S ALFA LAVAL, TYPE:MMB 304S-11, QTY:01 NO) PAC: M/S ALFA LAVAL, BANER, PUNE		
Overhauling of fuel oil centrifuge to be carried out. Job includes following:-		
EA-3045	Clean and inspect oil mist fan, Oil pump, Bowl spindle, Bowl bearing housing, Oil sump and Oil filling device.	DO through PAC firm M/s Alfa Laval Spares CG supply. Material yard supply
EA-3046	Check radial wobbling of bowl spindle.	DO through PAC firm M/s Alfa Laval Spares CG supply. Material yard supply
EA-3047	Clean and inspect brakes and friction coupling.	DO through PAC firm M/s Alfa Laval Spares CG supply. Material yard supply
EA-3048	Replace bearings of separator motor.	DO through PAC firm M/s Alfa Laval Spares CG supply. Material yard supply
EA-3049	Carry out calibration and renewal of pressure gauges if required.	DO calibration and certificate to be provided. Renewal if any against CG supply.
FUEL OIL TRANSFER PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-4MT, QTY: 02 NOS)		
EA-3050	Overhaul the FOT pump and renew the defective components including bearings and mechanical seal. Alignment with motor to be carried out post overhauling.	DO. Spares CG supply. Material yard supply.
EA-3051	Carry out calibration of following gauges of FOT pump: Suction gauge (Range: -1 to 1 bar, Qty: 02 nos, FOT pump) Discharge gauge (Range: 0 to 10 bar, Qty: 02 nos, FOT pump)	DO. Calibration certificate to be provided.

MAIN HP AIR COMPRESSOR (MAKE:M/S INGERSOLL RAND, TYPE: 7T2, QTY: 02 NOS)

EA-3052	Overhauling of Air compressors to be carried out and renew the worn out parts. Post overhauling compressor to be proved for optimum performance.	DO. Spares CG supply. Material yard supply.
EA-3053	Calibration of Pressure Gauge (Range:0-40 bar, Qty: 01 no)	DO. Calibration certificate to be provided.
EA-3054	Calibration of Pressure Gauge (Range: 0-20 bar, Qty: 01 no)	DO. Calibration certificate to be provided.
EA-3055	Calibration of Digital Temp. Gauge (Range: 0-200 C, Qty: 01 no)	DO. Calibration certificate to be provided.
EA-3056	Calibration of High pressure safety valve (Set point: 30 bar)	DO. Calibration certificate to be provided. Renewal if any against CG supply.
EA-3057	Calibration of Inter cooler safety valve. (Set point: 10 bar)	DO. Calibration certificate to be provided.
EA-3058	Check airflow internally and clean the air coils.	DO. Material yard supply.
EB-3059	Automatic moisture drain valves of STBD HP air compressors malfunctioning intermittently. To be overhauled and proved.	Delete. Undertake under DFP.
EMERGENCY AIR COMPRESSOR (MAKE:M/S ELGI, COIMBATORE, TYPE: HP 05 300, QTY: 01 NO)		
EA-3060	Compressor loading/unloading valve to be overhauled and proved.	Delete.
EA-3061	Inspect the valve plates and replace worn out valve plates.	Delete.
EA-3062	All the pipelines should be checked for leaks at joints and replace packing if necessary.	Delete.
EA-3063	Dismantle NRV, examine the spring for stiffness, check valve seat. Replace the spring and valve seat.	Delete.
EA-3064	Decarbonizes the after cooler pipe and intercooler.	Delete.
EA-3065	Lubricate the electric motor bearings.	Delete.
EA-3066	Following gauges to be calibrated (a) Pressure Gauge (Range: 0-100 bar, Qty: 01 no) (b) Pressure Gauge (Range: 0-100 bar, Qty: 03 nos)	Delete.
EMERGENCY AIR COMPRESSOR ENGINE (MAKE:M/S GREAVES, COIMBATORE, TYPE: 1510, QTY: 01 NO)		
EA-3067	Check fastenings.	Delete.
EA-3068	Check valve clearance, adjust if necessary.	Delete.
EB-3069	Compressed air system line relief valve to be serviced and proved.	Delete.
RO PLANT (MAKE: M/S ROCHEM SEPARATION SYS (I) PVT LTD, TYPE: DT 5S, QTY: 01 NO), PAC: M/S ROCHEM SEPARATION SYS (I) PVT LTD.		
EA-3070	Overhauling of HP pump suction and discharge valves.	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.



EA-3071	Renew the seal kit of HP pump.		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3072	Overhaul the PK-20 and PK-30 Pumps and renew the defective components		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3073	Calibrate torque wrench and hand conductivity meter		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Calibration certificate to be provided. Spares CG supply.
EA-3074	Replace all low pressure hoses. Size: 12x2.5 mm, Part no. 100800108001, Qty: 02 nos Size: 26.7x2.7 mm, Part no. 100800108005, Qty: 02 nos		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3075	Replace all high pressure flexible hoses. Size: 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		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3076	Inspection of PS 51, PS 71, PS 81 pressure switches.		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3077	Renew dolomite in DA filter.		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3078	PT 60 Potentiometer to be checked and calibrated/renewed.		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3079	Conductivity meter probe to be cleaned and calibrated.		DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply.
EA-3080	Carry out calibration of following gauges: Pressure Gauge (Range: 0-100 bar, Qty: 01 no) Pressure Gauge (Range: 0-10 bar, Qty: 03 nos) Permeate flow meter. 01 no		DO. Calibration certificate to be provided.
EA-3081	Check and replace PT60 and potential meter as required.		Delete. Covered in EA-3078
EA-3082	Clean conductivity meter probe and calibrate.		Delete. Covered in EA-3079

EA-3083	Carry out calibration/renewal of all pressure gauge.	Delete. Covered in EA-3080
EA-3084	Overhaul Filter pump and HP pump motors.	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply. Material yard supply.
EA-3085	Replace HP pump manifold heads.	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Spares CG supply. Material yard supply.
EA-3086	Replace DT modules with service exchange modules.	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Material yard supply.
EA-3087	Replace circuit breakers and contractors as required.	Delete. Covered under LA-5057
AC PLANT {MAKE: M/S BOCK (I) LTD, TYPE: HG6 1240 4S, QTY: 02 NOS, PAC FIRM- HEINEN & HOFFMEN, KOLKATA}		
EA-3088	Overhaul the AC compressors and renew the defective components.	DO complete overhauling of both compressors including motors through M/s GEA Bock India Pvt Ltd, Vadodara for DL Sls EA-3088 to EA-3095.
EA-3089	Withdraw piston and inspect for wear down and scoring marks. Measure wear and tear of piston, piston rings and oil scraper rings. Replace if not within tolerance.	Spares CG supply. Material yard supply. All inway jobs included.
EA-3090	Inspect small end bushes and gudgeon pins and replace if not within tolerance.	
EA-3091	Inspect all bearings for wear down and renew the bearing if required.	
EA-3092	Inspect unloading device for correct working.	
EA-3093	Inspect crank shaft, undertake measurement, polish and refit if not within tolerance limit	
EA-3094	Strip and examine lub oil pump of compressor	
EA-3095	Clean all motor bearings inspect for wear and tear.	
EA-3096	Overhaul condenser pump and renew the required spares. Post overhauling pump and motor to be aligned	DO. Spares CG supply. Material yard supply.
EA-3097	AC condenser to be cleaned and inspect for corrosion and fouling. Perform the pressure test to 1.5 times of working pressure for 24 hrs. Replace condenser cover gasket/ 'O' ring and anodes on end covers. (Material yard supply)	DO. Material including anodes yard supply.
EA-3098	Carry out Pressure test. Vacuum test, leak test of complete plant. Inspect cooling coil and return bends and check weak spots, glands of valves etc. by hydrostatic testing. Cleaning of cooling coil to be carried out by brush. (Material yard supply)	DO. Material including nitrogen gas yard supply. All in way jobs included.
EA-3099	AC compressors suction and discharge valves to be overhauled. Renew the gland packing and bushing. (Mat- Brass, Size- 50 MM, Qty- 04 Nos)	DO. Material yard supply.

EA-3100	Overhaul following Freon system valves and replace valve stem glands: Globe valve (Bras somatic) (size:2 1/8"): 02 nos Globe valve (Bras somatic) (size:1 3/8"): 04 nos Globe valve (Bras somatic) (size:1 5/8"): 02 nos NR valve (size:1 5/8"): 02 nos Shut off valve (size: 1/4"): 20 nos (Material yard supply)	DO. Material yard supply.
EA-3101	Overhaul air handling unit and renew the bearing. (Make: M/s Zeco Aircon Industries (I) Pvt Ltd. Model-ZDS-80) (Material yard supply)	DO. Material including pedestal bearings (02 Nos) yard supply. All in way jobs included.
EA-3102	Carry out calibration of following gauges and safety cutout: (a) Freon Pressure Gauge (Range:-1 to 30 bar, Qty:02 nos) (b) Freon Pressure Gauge (Range:-1 to 20 bar, Qty: 04 nos) (c) Pressure Gauge (Range:-1 to 1 bar, Qty: 01 no) (d) Pressure Gauge (Range: 0 to 10 bar, Qty: 03 nos) (e) Low pressure cutout (f) High pressure cutout (g) Oil pressure cutout (h) Sea water pressure cutout	DO. Calibration certificate from certified agency to be provided.
EA-3103	Recharge (oil and Freon) the system on satisfactory completion of vacuum/pressure tests and undertake trials of plant including functional checks of all safeties and cutouts. (Material yard supply)	DO. Oil and Freon gas CG supply. Material yard supply. All in way jobs included.
EA-3104	Entire duct of conditioned air of the ship to be cleaned with compressed air.	Delete. Covered in HA-1046.
EA-3105	Calibrate all pressure gauge and renewed all temperature gauge in the system.	Delete. Calibration of pressure gauges covered in EA-3102. S&D for temperature gauges defective if any.
EB-3106	AC compressors suction, discharge and oil pressure gauge line dent at many places. Line along with adaptors to be renewed as per sample (Adaptors- 08 Nos, Mat- Copper, Line mat- Copper, length- 10 Mtrs)	DO. Material yard supply. All in way jobs included. Pressure/ vacuum test covered at EA-3098.
EB-3107	Both AC compressors oil system interconnecting copper line dent at many places. To be renewed(Mat- Copper, Dia- 6 MM, Length- 03 Mtr)	DO. Material yard supply. All in way jobs included.
EB-3108	AC plant pressure gauge shut off valve not holding. To be renewed as per sample (size: 1/4", Qty- 06 Nos, Mat- Brass)	DO. Material including valves yard supply.
BILGE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO), OEM: M/S BE PUMPS		
EA-3109	Overhaul the pump completely, clean and inspect each item thoroughly and renew worn out parts.	DO. Spares CG supply. Material yard supply.

EA-3110	Check and flush all tube work and suction and delivery piping.	DO. Material yard supply.
EA-3111	Overhaul and prove float control unit	DO. Material yard supply.
EA-3112	Renew all mountings showing any sign of deterioration of rubber, lacquer of bond (Type: Resistoflex FM-50A/40)	DO. Material including mountings (04 Nos. of rubber and lacquer bond type mounting) yard supply. All in way jobs included.
EA-3113	Carry out calibration and renewed if required of following pressure gauge. Compound Gauge (Range: -1 to +1 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 01 no) pressure switch (Type: RT200, qty: 01 no)	DO renewal of gauges and pressure switches. Gauges and pressure switches yard supply.
FIRE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO), OEM: M/S BE PUMPS		
EA-3114	Overhaul the pump completely, clean and inspect each item thoroughly and renew worn out parts.	DO. Spares CG supply. Material yard supply.
EA-3115	Check and flush all tube work and suction and delivery piping.	DO. Material yard supply.
EA-3116	Overhaul and prove float control unit	DO. Material yard supply.
EA-3117	Renew all mountings showing any sign of deterioration of rubber, lacquer of bond (Type: Resistoflex FM-50A/40)	DO. Material including mountings yard supply. All in way jobs included.
EA-3118	Carry out calibration and renewed if required of following pressure gauge. Compound Gauge (Range: -1 to +1 bar, Qty: 01 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 01 no) pressure switch (Type: RT200, qty: 01 no)	DO renewal of gauges and pressure switches. Gauges and pressure switches yard supply.
DOMESTIC FRESH WATER PUMP (MAKE: M/S BE PUMPS, TYPE: AO 3120K-1E-WCF-MS5, QTY-02 NOS), OEM: M/S BE PUMPS		
EA-3119	Overhaul the pump completely, clean and inspect each item thoroughly and renew the worn out components.	DO. Spares and material yard supply.
EA-3120	Check and flush suction and discharge pressure gauge lines	DO. Material yard supply.
EA-3121	Carry out calibration of following gauges: Pressure Gauges (Range: -1 to +1 bar, Qty: 02 no) Pressure Gauge (Range: 0 to 10 bar, Qty: 02 no)	DO. Calibration certificate to be provided.
HYDROPHORE TANK (CAPACITY: 200 LTRS, QTY: 01 NO)		
EA-3122	Chemically clean hydrophore tank and paint internally as per paint scheme. (Paint yard supply) (Paint scheme Interline 850 Grey: 01 coat, Interline 850 white: 01 coat)	DO. Yard to cater for chemical cleaning only. Material yard supply.

EA-3123	<p>Carry out calibration of following gauges, safety valve and cutout:</p> <p>(a) Pressure Gauges (Range: 0 to 10 bar, Qty: 01 no)</p> <p>(b) Safety valve (Qty: 01 no, Set point: 5 bar)</p> <p>(c) Pressure switch (Range: 0 to 5 bar, 230 V, AC)</p> <p>(d) Overhaul LP air valve on the bottle and carry out pressure test up to 6 bar.</p> <p>(e) Sight glass of Hydrophore tank deteriorated and isolating valves are not holding/leaking. To be renewed as per sample. (Mat- Brass, Material yard supply)</p>	DO. Material yard supply. Calibration certificate to be provided.
AIR SYSTEM AND BOTTLES (CAPACITY: 500 LTRS, QTY: 02 NOS), PAC: M/S BE PUMPS.		
EA-3124	HP air bottles (02 nos.) are to be cleaned internally with compressed air and pressure tested upto 1.5 times more than working pressure.	DO. Material yard supply. Repair/ renewal if any against AWRFF. Working pressure: 30 Bar Test pressure: 45 Bar
EA-3125	<p>Overhaul following air system valves:</p> <p>(a) Ball valve (Size: 1 3/8", Qty: 02 nos): TP 45 bar</p> <p>(b) Ball valve (Size: 1", Qty: 02 nos): TP 45 bar</p> <p>(c) Ball valve (Size: 1/2", Qty: 02 nos): TP 45 bar</p> <p>(d) Ball valve (Size: 1/4", Qty: 02 nos): TP 45 bar</p>	DO. Spares and material yard supply.
EA-3126	<p>Carry out calibration of following gauges and relief valves:</p> <p>(a) Pressure Gauge (Range: 0 to 40 bar, Qty: 01 no)</p> <p>(b) Pressure Gauge (Range: 0 to 10 bar, Qty: 02 nos)</p> <p>(c) Safety valve (Set point: 32 bar, Qty: 02 nos)</p>	DO. Calibration certificate to be provided.
OILY BILGE WATER SEPARATOR (MAKE: M/s GEORIM ENGG. CO., S KOREA, TYPE: GRS-03 EB, QTY: 01 NO)		
EA-3127	Complete overhauling of the plant to be carried out and to be proved for optimum performance. Defective components to be renewed during overhauling.	DO. Spares CG supply. Material yard supply.



EA-3128	Following valves fitted on OBWS to be overhauled and proved:- (a) Sea water Suction valve (Size: 20 NB, Qty: 01 no) (b) Sea water discharge valve (Size: 20 NB, Qty: 01 nos) (c) Ball valve (Size: 3/4", Qty: 02 nos) (d) SDSL valve (Size: 20 NB, Qty: 02 nos) (e) Shut off valve (Size: 1/4", Qty: 03 nos) (f) Fresh water shut off valve (Size: 1/2", Qty: 03 nos)	DO. Spares and material yard supply.
EA-3129	Bilge pump (Piston type) to be overhauled and proved.	DO. Spares CG supply.
EA-3130	Inspection of safety valve to be carried out.	Delete. Covered under EA-3127.
EA-3131	Inspect coalescer filter and clean by backwashing.	Delete. Covered under EA-3127.
EA-3132	Carry out calibration of following gauges: (a) Pressure Gauge (Range: 0-6 bar, Qty: 01 no) (b) Pressure Gauge (Range: -1 to +1 bar, Qty: 01 no) (c) Pressure Gauge (Range: 0 to 5 bar, Qty: 01 no)	DO. Calibration certificate from authorised agency to be provided.
EA-3133	Test the function of Oil level detector and solenoid valve.	DO in conjunction with DL SI EA-3127.
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-3134	Carry out test of all pressure switches. (02 in no. Operating pressure 50 PSI)	DO through authorized firm. Spares CG supply. Material yard supply. All in way jobs included.
EA-3135	Test electrical control heads. All control heads must be removed from FM-200 cylinders and nitrogen pilot cylinders prior to testing to prevent accidental discharge. Electric control heads must be reset before connecting to cylinder valve(Total heads- 06 Nos)	DO through authorized firm. Spares CG supply. Material yard supply. All in way jobs included.
PORTABLE SUBMERSIBLE PUMPS (MAKE: M/S KIRLOSKAR BROTHERS LTD, TYPE: NS20/10, QTY: 05 NOS)		
EA-3136	Overhaul the all submersible pumps and renew the defective components as required. (Material yard supply)	DO overhauling and external painting of 03 pumps only. Spares CG supply. Material including paint yard supply.
EA-3137	Paint pump casing internally and externally. (paint yard supply)	
50 HP OBM (MAKE: M/S YAMAHA, TYPE: 6H 5K, QTY: 01 NO. PAC FIRM- M/S FIBROPLAST)		
EA-3138	Complete overhauling of OBM to be carried out and renew the worn out components. Replace water pump impeller and fuel pump. All bearings to be greased, bushes and seals to be renewed.	DO. Spares CG supply.
EB-3139	Anodes fitted on OBM found worn out. To be renewed as per sample(Mat- Zinc, 04 Nos)	DO. Anode yard supply.

25 HP OBM (MAKE: M/S MERCURY MARINER, TYPE: 25M, QTY: 02 NOS, PAC FIRM- M/S FIBROPLAST)

PAC: M/S ESMARIO EXPORT ENTERPRISES SECUNDARABAD.

EA-3140	Complete overhauling of OBM to be carried out and renew the worn out components. Replace water pump impeller and fuel pump. All bearings to be greased, bushes and seals to be renewed.	DO one 25 HP OBM. Spares CG supply.
EB-3141	Anodes fitted on OBM found worn out. To be renewed as per sample(Mat- Zinc, 04 Nos)	DO. Anode yard supply.
DIRTY OIL PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-1, QTY: 01 NO)		
EA-3142	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling.	Delete.
EA-3143	Carry out calibration of following gauges: (a) Pressure gauge: -1 to +1 bar, Qty: 01 no (b) Pressure gauge: 0 to 10 bar, Qty: 01 no	Delete.
PORTABLE LUB OIL PUMP (MAKE: M/S ROYSONS ENGG (P) LTD, TYPE: RGB-1, QTY: 01 NO)		
EA-3144	Overhaul the pump including renewal of mechanical seal and alignment with motor post overhauling.	Delete.
AIR WHISTLE (MAKE: M/S ZOLLNER, TYPE: M75F, QTY: 01 NO)		
EA-3145	Overhaul the air whistle and change the parts if necessary. Prove the unit for smooth operation.	DO. Spares CG supply. Material yard supply.
FUEL RU TANK(CAPACITY- 6.0 KL, QTY- 02 NOS) AND OIL STORAGE TANKS, (CAPACITY – 700 LTRS, QTY – 03 NOS)		
EB-3146	Sight glass of both fuel and lub oil storage tanks and hydraulic oil storage tank is not visible and isolating valves leaking/not holding. Overhauling of sight glasses and valves to be carried out. (Qty – Sight glass- 05 nos, valves- 10 Nos, Material yard supply)	DO renewal of valves and sight glasses. Valve, sight glasses and material yard supply. All in way jobs included. Size of valve: Spring loaded 15 mm valve.
BILGE EDUCTORS (QTY – 06 NOS)		
EA-3147	Carry out servicing and chemical cleaning of bilge Eductors 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. Material yard supply. All in way jobs included.

QUICK SHUT OFF VALVES – 10 NOS

EA-3148 Overhauling of following Quick shut off valves to be carried out:

- (a) Fuel Storage Tanks – 03 Nos
 (b) Main Engines – 04 Nos
 (c) Diesel Generators – 03 Nos

DO. Material yard supply.

EB-3149 Quick shut off valves are hard to operate view jammed pulleys. Pulleys to be serviced and wire rope to be renewed and system to be proved.

Delete. Defect rectified under ship's DFPR.

SYSTEM VALVES

EA-3150 Overhauling of following A/C sea water system valves to be carried out:

Description of valve	Size	Qty	TP
(i) Condenser pump suction/discharge(SD Valve)	65 MM	02 Nos	06 Bar
(ii) Condenser Inlet/out let valve(Butterfly valve)	65 MM	02 Nos	06 Bar
(iii) Emergency cooling w(SDNR Valve)	65 MM	01 No	06 Bar

DO overhauling of following valves.

Sl	Type	Size	Qty
(i)	Condenser pump suction/ discharge (SD valve)	65 MM	02 Nos
(ii)	Emergency cooling w (SDNR valve)	65 MM	01 No

Spares and material yard supply.

EA-3151 Overhauling of following Fresh water Hydrophore system valves to be carried out:

Type of valve	Size	Qty	Test Pressure
(i) SD Globe valve	12NB	05	05 bar
(ii) SD Globe valve	15NB	01	05 bar
(iii)SD Globe valve	25NB	01	05 bar
(iv)SD Globe valve	32NB	01	05 bar
(v) SDNR valve	25NB	01	05 bar
(vi)SDNR valve	32NB	01	05 bar

DO overhauling of following valves.

Sl	Type	Size	Qty
(i)	SD Globe valve	15NB	01 No
(ii)	SD Globe valve	25NB	01 No
(iii)	SD Globe valve	32NB	01 No
(iv)	SDNR valve	25NB	01 No
(v)	SDNR valve	32NB	01 No

Spares and material yard supply.

EA-3152 Overhauling of following Bilge and Fire main system valves to be carried out:

Type of valve	valve Size	Qty	Test Pressure
(i) Gate valve	100NB	01	06 bar
(ii) SDSL valve	20NB	01	05 bar
(iii)SDSL valve	100NB	01	05 bar
(iv)SDNR valve	50NB	01	05 bar
(v) SD valve	32NB	01	05 bar
(vi)SD valve	65NB	05	05 bar
(vii)SDNR valve	40NB	02	05 bar
(viii)Gate valve	65NB	02	05 bar
(ix) SD valve	25NB	01	05 bar
(x) NR vertical lift valve	50NB	03	05 bar

DO overhauling of following valves.

Sl	Type	Size	Qty
(i)	Gate valve	100NB	01 No
(ii)	SDSL valve	100NB	01 No
(iii)	SDNR valve	50NB	01 No
(iv)	Gate valve	65NB	02 Nos
(v)	NR vertical lift valve	50NB	01 No
(vi)	SD valve	50NB	02 Nos
(vii)	Non return foot valve with strainer	50NB	01 No
(viii)	Fire hydrant valve	65NB	06 Nos


	(xi) SD valve	50NB	02	05 bar				(ix) SDNR valve	80NB	01 No
	(xii) Ball valve	50NB	03	05 bar				(x) SD valve	65NB	03 Nos
	(xiii) Pressure relief valve	50NB	01	05 bar			Spares and material yard supply.			
	(xiv) Non return foot valve With strainer	50NB	01	05 bar						
	(xv) Fire hydrant valve	65NB	06	06 bar						
	(xvi) SDNR valve	80NB	01	05 bar						
	(xvii) Pressure reducing valve	65NB	01	05 bar						
	(xviii) Ball valve	80NB	01	05 bar						
	(xix) Ball valve	65NB	01	05 bar						
EA-3153	Overhauling of following Domestic compressed air system valves to be carried out:									
	Type of valve	Size	Qty	Test Pressure						
	(i) SD valve	15NB	04	12 bar				Sl	Type	Qty
	(ii) SDNR valve (RA)	15NB	04	12 bar				(i)	SDNR valve(RA)	15NB
	(iii) SDNR valve	15NB	04	12 bar				(ii)	SDSL valve	10NB
	(iv) Air hydrant valve	10NB	02	12 bar				(iii)	Air hydrant valve	15NB
	(v) Relief valve (6-10 bar)	15NB	02	12 bar				(iv)	Relief valve (6-10 bar)	15NB
	(vi) Pressure reducing valve	15NB	02	NA				(v)	Pressure reducing valve	15NB
	(vii) Pressure reducing valve	15NB	01	NA(30 bar to 8 bar)				(vi)	Pressure reducing valve	15NB
	(viii) Pressure reducing valve	15NB	01	NA (8 bar to 4 bar)						
EA-3154	Overhauling of following Main engine starting air system valves to be carried out:									
	Type of valve	Size	Qty	Test Pressure						
	(i) Isolating valve	32NB	03	45 bar				Sl	Type	Qty
	(ii) SDNR valve	32NB	03	45 bar				(i)	Isolating valve	32NB
								(ii)	SDNR valve	32NB
EA-3155	Overhauling of following Main engine sea water system valves to be carried out:									
	Type of valve	Size	Qty	Test Pressure						
	(i) Gate valve	150NB	03	5 bar				Sl	Type	Qty
	(ii) SDNR valve	65NB	03	5 bar				(i)	SDNR valve	65NB
	(iii) SDNR valve	40NB	02	5 bar				(ii)	SDNR valve	40NB

<p>EA-3156</p> <p>Overhauling of following Main engine fuel system valves to be carried out:</p> <p>Type of valve</p> <p>(i) Ball valve (ii) Ball valve (iii) Ball valve (iv) SD Globe valve (v) Shut off valve (vi) Shut off valve (vii) Ball valve (viii) Swing check valve</p> <p>Size</p> <p>32NB 50NB 10NB 15NB 15NB 32NB 25NB 32NB</p> <p>Qty</p> <p>01 01 02 02 02 02 03 02</p> <p>Test Pressure</p> <p>10 bar 10 bar 10 bar 10 bar 10 bar 10 bar 10 bar 10 bar</p>	<p>DO overhauling of following valves.</p> <table border="1"> <thead> <tr> <th>Sl</th> <th>Type</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>Ball valve</td> <td>32NB</td> <td>01 No</td> </tr> <tr> <td>(ii)</td> <td>Ball valve</td> <td>50NB</td> <td>01 No</td> </tr> <tr> <td>(iii)</td> <td>Ball valve</td> <td>10NB</td> <td>01 No</td> </tr> <tr> <td>(iv)</td> <td>SD Globe valve</td> <td>15NB</td> <td>01 No</td> </tr> <tr> <td>(v)</td> <td>Shut off valve</td> <td>15NB</td> <td>02 Nos</td> </tr> <tr> <td>(vi)</td> <td>Shut off valve</td> <td>32NB</td> <td>02 Nos</td> </tr> </tbody> </table> <p>Spares and material yard supply.</p>	Sl	Type	Size	Qty	(i)	Ball valve	32NB	01 No	(ii)	Ball valve	50NB	01 No	(iii)	Ball valve	10NB	01 No	(iv)	SD Globe valve	15NB	01 No	(v)	Shut off valve	15NB	02 Nos	(vi)	Shut off valve	32NB	02 Nos				
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(v)	Shut off valve	15NB	02 Nos																														
(vi)	Shut off valve	32NB	02 Nos																														
<p>EA-3157</p> <p>Overhauling of following Fuel transfer and filling system including DG system valves to be carried out:</p> <p>Type of valve</p> <p>(i) Ball valve (ii) SD Globe valve (iii) SD Globe valve (iv) Ball valve (v) SDNR Globe valve (vi) Ball valve (vii) Swing check valve (viii) Ball valve</p> <p>Size</p> <p>50NB 25NB 40NB 40NB 32NB 15NB 40NB 25NB</p> <p>Qty</p> <p>02 02 02 02 01 02 02 01</p> <p>Test Pressure</p> <p>6 bar 6 bar 6 bar 6 bar 6 bar 6 bar 6 bar 6 bar</p>	<p>DO overhauling of following valves.</p> <table border="1"> <thead> <tr> <th>Sl</th> <th>Type</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>Ball valve</td> <td>32NB</td> <td>01 No</td> </tr> <tr> <td>(ii)</td> <td>SD Globe valve</td> <td>50NB</td> <td>01 No</td> </tr> <tr> <td>(iii)</td> <td>SD Globe valve</td> <td>10NB</td> <td>01 No</td> </tr> <tr> <td>(iv)</td> <td>Ball valve</td> <td>15NB</td> <td>01 No</td> </tr> <tr> <td>(v)</td> <td>SDNR Globe valve</td> <td>15NB</td> <td>01 No</td> </tr> <tr> <td>(vi)</td> <td>Ball valve</td> <td>32NB</td> <td>01 No</td> </tr> <tr> <td>(vii)</td> <td>Swing check valve</td> <td>40NB</td> <td>01 No</td> </tr> </tbody> </table> <p>Spares and material yard supply.</p>	Sl	Type	Size	Qty	(i)	Ball valve	32NB	01 No	(ii)	SD Globe valve	50NB	01 No	(iii)	SD Globe valve	10NB	01 No	(iv)	Ball valve	15NB	01 No	(v)	SDNR Globe valve	15NB	01 No	(vi)	Ball valve	32NB	01 No	(vii)	Swing check valve	40NB	01 No
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<p>EA-3158</p> <p>Overhauling of following Sea water system for auxiliary equipments valves to be carried out:</p> <p>Type of valve</p> <p>(i) Gate valve (ii) SDSL valve (iii) SDNR valve (vi) SDSL valve</p> <p>Size</p> <p>50NB 50NB 50NB 50NB</p> <p>Qty</p> <p>01 01 01 01</p> <p>Test Pressure</p> <p>5 bar 5 bar 5 bar 5 bar</p>	<p>DO overhauling of following valves.</p> <table border="1"> <thead> <tr> <th>Sl</th> <th>Type</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>(i)</td> <td>Gate valve</td> <td>50NB</td> <td>01 No</td> </tr> <tr> <td>(ii)</td> <td>SDSL valve</td> <td>50NB</td> <td>01 No</td> </tr> </tbody> </table> <p>Spares and material yard supply.</p>	Sl	Type	Size	Qty	(i)	Gate valve	50NB	01 No	(ii)	SDSL valve	50NB	01 No																				
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SYSTEM PIPE LINES				
EA-3159	Chemical cleaning and pressure testing of RO plant pipelines to be carried out: Pipe line (i) Product water line (ii) Brine line (iii) Raw water line	Size 15mm 15mm 25mm Length 1 mtrs 1 mtrs 1 mtrs Material SS SS Cu-Ni TP 5 bar 5 bar 5 bar	DO. Material yard supply. Renewal if any against AWRP.	
EA-3160	Chemical cleaning and pressure testing of AC sea water pipeline to be carried out: Pipe line (i) Suction line (ii) Discharge line	Size 65mm 50mm Length 2 mtrs 2 mtrs Material Cu-Ni Cu-Ni TP 5 bar 5 bar	DO. Material yard supply. Renewal if any against AWRP.	
EA-3161	Chemical cleaning and pressure testing of Fresh water hydrophore system pipelines to be carried out: Size (i) 50 mm (ii) 32 mm (iii) 25 mm (iv) 15 mm (v) 12 mm	Length 5 mtrs 5 mtrs 20 mtrs 05 mtrs 25 mtrs Material Copper Copper Copper Copper Copper TP 5 bar 5 bar 5 bar 5 bar 5 bar	DO 50% only. Material yard supply. Renewal if any against AWRP.	
EA-3162	Chemical cleaning and pressure testing of Fire main and bilge system pipeline to be carried out: Size (i) 100 mm (ii) 65 mm (iii) 50 mm (iv) 32 mm (v) 25 mm (vi) 20 mm (vii) 80 mm (viii) 65 mm (ix) 50 mm (x) 40 mm (xi) 25 mm (xii) 20 mm	Length 05 mtrs 35 mtrs 10 mtrs 10 mtrs 05 mtrs 02 mtrs 05 mtrs 15 mtrs 20 mtrs 05 mtrs 03 mtrs 5 mtrs Material Cu-Ni Cu-Ni Cu-Ni Cu-Ni Cu-Ni SS SS SS SS SS SS SS TP 6 bar 6 bar 6 bar 6 bar 6 bar 4 bar 4 bar 4 bar 4 bar 4 bar 4 bar 4 bar	DO 50% only. Material yard supply. Renewal if any against AWRP.	

EA-3163	<p>Chemical cleaning and pressure testing of Compressed air system other than main engine pipelines to be carried out:</p> <table border="0"> <tr> <td>Size</td> <td>Length</td> <td>Material</td> <td>TP</td> </tr> <tr> <td>(i) 15 mm</td> <td>15 mtrs</td> <td>SS</td> <td>12 bar</td> </tr> <tr> <td>(ii) 12 mm</td> <td>05 mtrs</td> <td>SS</td> <td>12 bar</td> </tr> <tr> <td>(iii) 8 mm</td> <td>10 mtrs</td> <td>Copper</td> <td>12 bar</td> </tr> </table>	Size	Length	Material	TP	(i) 15 mm	15 mtrs	SS	12 bar	(ii) 12 mm	05 mtrs	SS	12 bar	(iii) 8 mm	10 mtrs	Copper	12 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.												
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(i) 20 mm	10 mtrs	SS	4 bar																											
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EA-3165	<p>Chemical cleaning and pressure testing of Fuel system for main engine pipelines to be carried out:</p> <table border="0"> <tr> <td>Size</td> <td>Length</td> <td>Material</td> <td>TP</td> </tr> <tr> <td>(i) 50 mm</td> <td>10 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(ii) 32 mm</td> <td>10 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(iii) 25 mm</td> <td>10 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(iv) 15 mm</td> <td>10 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(v) 10 mm</td> <td>10 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> </table>	Size	Length	Material	TP	(i) 50 mm	10 mtrs	SS	5 bar	(ii) 32 mm	10 mtrs	SS	5 bar	(iii) 25 mm	10 mtrs	SS	5 bar	(iv) 15 mm	10 mtrs	SS	5 bar	(v) 10 mm	10 mtrs	SS	5 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.				
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EA-3166	<p>Chemical cleaning and pressure testing of Starting air system for Main engine pipelines to be carried out:</p> <table border="0"> <tr> <td>Size</td> <td>Length</td> <td>Material</td> <td>TP</td> </tr> <tr> <td>(i) 32 mm</td> <td>12 mtrs</td> <td>SS</td> <td>45 bar</td> </tr> </table>	Size	Length	Material	TP	(i) 32 mm	12 mtrs	SS	45 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.																				
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EA-3167	<p>Chemical cleaning and pressure testing of Main Engine sea water system pipelines to be carried out:</p> <table border="0"> <tr> <td>Size</td> <td>Length</td> <td>Material</td> <td>TP</td> </tr> <tr> <td>(i) 150 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(ii) 125 mm</td> <td>15 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(iii) 65 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(iv) 40 mm</td> <td>15 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(v) 15 mm</td> <td>05 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> <tr> <td>(vi) 12 mm</td> <td>10 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> </table>	Size	Length	Material	TP	(i) 150 mm	10 mtrs	Cu-Ni	5 bar	(ii) 125 mm	15 mtrs	Cu-Ni	5 bar	(iii) 65 mm	10 mtrs	Cu-Ni	5 bar	(iv) 40 mm	15 mtrs	Cu-Ni	5 bar	(v) 15 mm	05 mtrs	Cu-Ni	5 bar	(vi) 12 mm	10 mtrs	Cu-Ni	5 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.
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EA-3168	<p>Chemical cleaning and pressure testing of Fuel oil transfer and filling system including DG pipelines to be carried out:</p> <table border="1"> <thead> <tr> <th>Size</th> <th>Length</th> <th>Material</th> <th>TP</th> </tr> </thead> <tbody> <tr> <td>(i) 50 mm</td> <td>15 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(ii) 40 mm</td> <td>10 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(iii) 25 mm</td> <td>05 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(iv) 15 mm</td> <td>10 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> <tr> <td>(v) 08 mm</td> <td>10 mtrs</td> <td>SS</td> <td>6 bar</td> </tr> </tbody> </table>	Size	Length	Material	TP	(i) 50 mm	15 mtrs	SS	6 bar	(ii) 40 mm	10 mtrs	SS	6 bar	(iii) 25 mm	05 mtrs	SS	6 bar	(iv) 15 mm	10 mtrs	SS	6 bar	(v) 08 mm	10 mtrs	SS	6 bar	DO 50% only. Material yard supply. Renewal if any against AWRF.
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EA-3169	Chemical cleaning and pressure testing of Sea water system for auxiliary equipments pipelines to be carried out:		DO 50% only. Material yard supply. Renewal if any against AWRF.																							
EA-3170	(i) 50 mm 10 mtrs	Material Cu-Ni	TP 6 bar																							
EA-3171	<p>Chemical cleaning and pressure testing of sprinklers of magazine compartment and CRN 91 gun to be carried. (Qty – 11 Nos, Mat – Yard Supply)</p> <p>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</p>		DO. Material yard supply. Renewal if any against AWRF.																							
GEAR BOX MAKE : M/S ZF MARINE MODEL : ZF 7600 (TOTAL QTY:-03 NOS), PAC : M/S DYNATRON SERVICES.																										
EB-3172	All three gear box coolers (heat exchangers) to be chemically cleaned and pressure tested. (Test pressure-06 bar) material yard supply		Delete.																							
EA-3173	<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> <table border="1"> <tbody> <tr> <td>(a) Main Engines</td> <td>-03 Nos</td> </tr> <tr> <td>(b) Gear box</td> <td>-03 Nos</td> </tr> <tr> <td>(c) Main shaft</td> <td>-03 Nos</td> </tr> <tr> <td>(d) Plummer block</td> <td>-05 Nos</td> </tr> <tr> <td>(e) Diesel Alternators</td> <td>-03 Nos</td> </tr> <tr> <td>(f) Water Jets</td> <td>-03 Nos</td> </tr> </tbody> </table>	(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		DO except sl (f), (k), (p), (q) and (r).											
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	<p>(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 (o) RO Plant -01 No (p) STP and vacuum toilet system -01 No (q) Anchor and Mooring Capstan -03 Nos (r) MCR Compartment -01 No (s) Engine room blowers -06 Nos (t) Bilge and GS pump -01 No (u) Fire and GS pump -01 No (v)</p>	
EB-3174	<p>Exhaust gas leakage observed from Centre DA exhaust bellow. Bellow is found deteriorated/ corroded. Bellow to be manufactured as per sample (Mat- MS, size- 100 NB, 114.3 x 6 mm (OD x THK) 01 No) In way job includes following:- (a) Removal and refitting of exhaust bellow from position. (b) Renewal of HT bolts nuts of both flanges. (c) Renewal of both flange gaskets. (d) Post completion of trials lagging to be done as per sample.</p>	<p>DO. Material yard supply. All in way jobs included.</p>
EB-3175	<p>Chequered plate supporting frames found broken at various places in machinery spaces, supporting frames to be fabricated. (Total length of frame: 20 Mtrs (Approx)). Plate to be secured with ss screws. Supporting Frame Material: Aluminium. Total no of SS screws : 150 Nos (Approx)</p>	<p>DO. Material yard supply. All in way jobs included.</p>
EB-3176	<p>PME and CME Paint Pealed off at many places. To be Spray Painted as per paint scheme of OEM.</p>	<p>DO. Material including heat resistant paint yard supply. All in way jobs included.</p>
<p>DIESEL ALTERNATOR, MAKE:- CUMMINS INDIA LTD PUNE, TYPE:- 6 CTA 8.3 D(M) 120 KW</p>		
EA-3177	<p>Port and centre DA 12000 hourly routines will be falling due in Jun 19. 12000 hourly routines on Port and Centre DA to be carried out. Jobs for each DA are as follows:- [Make:- Cummins India Ltd Pune, Type:- 6 CTA 8.3 D(M) 120 Kw]</p>	<p>DO through PAC firm. Spares CG supply</p>

EA-3178	H-1. Test engine on load and record all complaints and engine parameters.	DO through PAC firm. Spares CG supply
EA-3179	H-3. Engine major overhauling (engine to be removed from base rail)	DO through PAC firm. Spares CG supply
EA-3180	H-4. Dismantle engine. De-scale cooling system	DO through PAC firm. Spares CG supply
EA-3181	H-5. Clean and check all dismantled components.	DO through PAC firm. Spares CG supply
EA-3182	H-6. Check crankshaft dimension and grind if required.	DO through PAC firm. Spares CG supply
EA-3183	H-7. Check condition of connecting rod and main bearing in line with crankshaft size, replace if required.	DO through PAC firm. Spares CG supply
EA-3184	H-8. Replace sleeves/liners on cylinder block if required.	DO through PAC firm. Spares CG supply
EA-3185	H-9. Check and recondition or replace starting motor and battery charger alternator.	DO through PAC firm. Spares CG supply
EA-3186	H-10. Check cylinder head, clean/de-carbonize and reassemble with all valves, guides, spring and related parts.	DO through PAC firm. Spares CG supply
EA-3187	H-11. Replace all engine related wiring harness.	DO through PAC firm. Spares CG supply
EA-3188	H-12. Mount engine on the base rail and couple to alternator after checking coupling alignment.	DO through PAC firm. Spares CG supply
EA-3189	H-13. Start engine and carry out load trials. Record all parameters.	DO through PAC firm. Spares CG supply
EA-3190	D-2. Check engine blow by, take corrective action, if required.	DO through PAC firm. Spares CG supply



EA-3191	D-3. Replace all rubber hoses/clamps of fuel, coolant lub oil and air system.	DO through PAC firm. Spares CG supply
EA-3192	D-4. Replace all clamps of hoses	DO through PAC firm. Spares CG supply
EA-3193	D-5. Drain coolant, flush cooling system and refill new coolant.	DO through PAC firm. Spares CG supply
EA-3194	D-6. Overhaul turbocharger.	DO through PAC firm. Spares CG supply
EA-3195	D-7. Calibrate fuel injection pump (fip), PT pump and injectors.	DO through PAC firm. Spares CG supply
EA-3196	D-8. Clean heat exchangers and pressure test.	DO through PAC firm. Spares CG supply
EA-3197	D-9. Check all engine mounted safeties for functionality and calibrate gauges. Replace if required.	DO through PAC firm. Spares CG supply
EA-3198	D-10. Check fuel tubings. Replace ferules and rubber gaskets	DO through PAC firm. Spares CG supply
EA-3199	D-11. Replace thermostat along with seal	DO through PAC firm. Spares CG supply
EA-3200	D-12. Replace fresh water pump, if required.	DO through PAC firm. Spares CG supply
EA-3201	D-13. Check the condition of engine mounts, renew if required.	DO through PAC firm. Spares CG supply
EA-3202	C-6. Adjust valves.	DO through PAC firm. Spares CG supply
EA-3203	C-7. Check vibration dampers.	DO through PAC firm. Spares CG supply

EA-3204	C-8. Check and record engine crankshaft and Turbocharger end play.	DO through PAC firm. Spares CG supply
EA-3205	C-9. Check engine alternator alignment and correct if required.	DO through PAC firm. Spares CG supply
EA-3206	C-10. Check sea water pump and replace it if required.	DO through PAC firm. Spares CG supply



ICGS RAJRATAN NORMAL REFIT (NR-1)

MAIN DEFECT LIST -ELECTRICAL

DL NO	DESCRIPTION	RHQ(NW) REMARKS
UNDERWATER PACKAGE (LA-5001 to LA-5018)		
ICCP SYSTEM, MAKE: M/S CATHELCO, TYPE- I/P-230V AC & O/P-24V DC, 20 AMPS, PAC FIRM : M/S CATHELCO, MUMBAI		
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 for DL serials LA-5001 to LA-5005 through PAC firm M/s Cathelco, Mumbai.
LA-5002	Peeled off shield paint and paste around the anodes and reference electrodes of ICCP to be recoated. The surface preparation for recoating is required as same as that of new coating (area 02 Sq Mtr approx). 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 any water seepage in junction boxes/cofferdams.	
LA-5003	Renew shaft grounding Ag/ AgCl brushes (Qty 06 nos).	
LA-5004	Overhauling of control panel. Check all the circuit and thoroughly inspect the wiring/unit/sub-unit.	
LA-5005	Clean and preserve all anodes and reference electrodes after docking and ensure cleaning of same before undocking.	
LA-5006	Portable ICCP reference electrode be calibrated and issued calibration certificate.	Delete. SS to undertake through NMRL/BMU(CHN).
ECHO SOUNDER (MAKE: SKIPPER, NORWAY, MODEL: GDS 101) PAC FIRM: M/S NORINCO PRIVATE LTD, MUMBAI.		
LA-5007	Check condition of transducer mounts / brackets for corrosion and repair if needed.	Delete. DL serials LA-5007 to LA-5013 covered under AIAMC.
LA-5008	Carry out depth calibration of echo sounder during dry docking by simulation through PAC firm. Calibration certificate to be produced.	
LA-5009	Check external transducer condition of sensor pins for build up or wear. Transducer should be cleaned using a plastic scrubber or scrubbing brush.	
LA-5010	Open output distribution junction box and check all terminal block connections and tighten all connections. 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.	
LA-5011	Overhaul the equipment and replace defective components. Performance of equipment and accuracy of readings to be checked before dry dock.	
LA-5012	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-5013	Check insulation and continuity of cables from both transducers to electronic unit and record.	
ELECTRO MAGNETIC SPEED AND DISTANCE LOG, (MAKE:WALKER, MODEL:P110 7080)		
PAC FIRM : M/S TRANSAS MARINE, MUMBAI		
LA-5014	Check condition of transducer mounts / brackets for corrosion and repair if needed.	Delete. DL serials LA-5014 to LA-
LA-5015	Check external transducer condition of sensor pins for build up or wear and clean with fresh water.	5018 covered under AIAMC.
LA-5016	Open output distribution junction box and check all terminal block connections and tighten if loose. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.	
LA-5017	Overhaul the equipment and carry out calibration of EM Log by measured distance run procedure with minimum three calibration points.	
LA-5018	On dry docking of vessel, after sitting on blocks, clean and preserve the sensor and before undocking ensure preservation material is removed and transducers are thoroughly cleaned.	
<u>DIESEL ALTERNATORS (PORT, CENTER & STBD) MAKE: NEWAGE STAMFORD, 415 V, 3 PH, 50 HZ, QTY 03 NOS (120 KW – 02, 80 KW – 01)</u>		
LA-5019	Overhaul complete generator including starter motor and dynamo. Thoroughly inspect the windings, cleaning, varnishing and baking of windings to be done. Check the insulation of windings and record. Bearings to be renewed. Bearings should be quality control cleared through notified agencies and shown to ship staff prior replacement. Rotor-stator clearance to be checked. Ensure that the alternator shaft is properly aligned with prime mover. (All material and all in way jobs under yard scope)	DO. Material including OEM certified bearings yard supply. All in-way jobs included.
LA-5020	Complete spray painting of all three DAs including Prime mover, Alternator, Control panel, self-starter motor and governor motors using international marine standard heat resistant equipment paint. (Paint yard supply) . Before painting surface preparation to be carried out.	DO. Heat resistant paint yard supply.
LA-5021	Complete overhaul of DA starting control panel and alternator circuits to be carried out including governor, governor motors, AVR, battery circuit, control /monitoring PCBs, wirings and exciter by stripping thoroughly. (All material and all in way jobs under yard scope)	DO through authorised firm. Material yard supply.

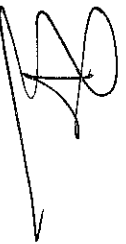
LA-5022	After overhauling, load trials of 03 DAs to be carried out with tank load test up to 110% capacity, proved for parallel, synchronize and equal load sharing on DAs during parallel operation in both auto and manual mode. Load sharing should be without fluctuations and tripping.	DO. Yard to carry out load trials on maximum sustainable ships load.																					
LA-5023	<p>Generator control panel(Make: Cummins) 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.</p> <table border="1" data-bbox="411 801 715 1935"> <thead> <tr> <th>SI No</th> <th>Description</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>Over speed trip (1650 rpm)</td> <td>- 03 nos</td> </tr> <tr> <td>(b)</td> <td>Low lube oil pressure alarm(1.2 bar)</td> <td>- 03 nos</td> </tr> <tr> <td>(c)</td> <td>Low lube oil pressure trip(0.8 bar)</td> <td>- 03 nos</td> </tr> <tr> <td>(d)</td> <td>High fresh water temperature alarm (92 deg c)</td> <td>- 03 nos</td> </tr> <tr> <td>(e)</td> <td>High fresh water temperature trip (97 deg c)</td> <td>- 03 nos</td> </tr> <tr> <td>(f)</td> <td>High lub oil temperature alarm (120 deg c)</td> <td>- 03 nos</td> </tr> </tbody> </table> <p>After calibration full functional test of alarm/ safeties to be proved. (All material and all in way jobs under yard scope)</p>	SI No	Description	Qty	(a)	Over speed trip (1650 rpm)	- 03 nos	(b)	Low lube oil pressure alarm(1.2 bar)	- 03 nos	(c)	Low lube oil pressure trip(0.8 bar)	- 03 nos	(d)	High fresh water temperature alarm (92 deg c)	- 03 nos	(e)	High fresh water temperature trip (97 deg c)	- 03 nos	(f)	High lub oil temperature alarm (120 deg c)	- 03 nos	DO through PAC /authorized dealer of M/s Cummins. PAC firm report to be submitted. Spares CG supply. Material yard supply.
SI No	Description	Qty																					
(a)	Over speed trip (1650 rpm)	- 03 nos																					
(b)	Low lube oil pressure alarm(1.2 bar)	- 03 nos																					
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(e)	High fresh water temperature trip (97 deg c)	- 03 nos																					
(f)	High lub oil temperature alarm (120 deg c)	- 03 nos																					
LA-5024	<p>Calibrate following meters in Generator control panel and provide calibration certificate.</p> <table border="1" data-bbox="810 1137 1034 1935"> <tbody> <tr> <td>a) RPM meter</td> <td>- 03 Nos</td> </tr> <tr> <td>b) Exhaust temp</td> <td>- 03 Nos</td> </tr> <tr> <td>c) Fresh water temp</td> <td>- 03 Nos</td> </tr> <tr> <td>d) Sea water pressure</td> <td>- 03 Nos</td> </tr> <tr> <td>e) Lub oil temp</td> <td>- 03 Nos</td> </tr> <tr> <td>f) Lub oil pressure</td> <td>- 03 Nos</td> </tr> </tbody> </table>	a) RPM meter	- 03 Nos	b) Exhaust temp	- 03 Nos	c) Fresh water temp	- 03 Nos	d) Sea water pressure	- 03 Nos	e) Lub oil temp	- 03 Nos	f) Lub oil pressure	- 03 Nos	DO only calibration. Yard to provide calibration certificate. Renewal if any against CG supply.									
a) RPM meter	- 03 Nos																						
b) Exhaust temp	- 03 Nos																						
c) Fresh water temp	- 03 Nos																						
d) Sea water pressure	- 03 Nos																						
e) Lub oil temp	- 03 Nos																						
f) Lub oil pressure	- 03 Nos																						
MAIN SWITCH BOARD (MAKE: LARSON & TUBRO LTD) OEM FIRM : M/S LARSON & TUBRO LTD																							
LA -5025	<p>Overhaul Complete MSB, clean all the contacts, switches, relays and ACR and replace all damaged contacts if any. Ensure tightness of panel's earthing bolts. Following safeties to be calibrated and proved or replaced if found defective. Calibration certificate to be issued. (all material and all in way jobs under yard scope)</p> <table border="1" data-bbox="1230 1137 1378 1935"> <tbody> <tr> <td>(a) Over current protection/short circuit relay</td> <td>- 03 nos</td> </tr> <tr> <td>(b) Under voltage protection relay</td> <td>- 08 nos</td> </tr> <tr> <td>(c) Reverse power tripping relay</td> <td>- 03 nos</td> </tr> <tr> <td>(d) Insulation monitor relay</td> <td>- 01 no.</td> </tr> </tbody> </table>	(a) Over current protection/short circuit relay	- 03 nos	(b) Under voltage protection relay	- 08 nos	(c) Reverse power tripping relay	- 03 nos	(d) Insulation monitor relay	- 01 no.	DO. Yard to provide calibration certificate. Spares CG supply. Repairs if any against AWRFF. Prove paralleling operation for all three DAs.													
(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-5026	Calibrate all meters of MSB. Calibration certificate to be issued. (a) KW meters (0-150 KW) - 02 Nos (b) KW meters (0-100 KW) - 01 No (c) Ammeter (0-300 Amps) - 02 Nos (d) Ammeter (0-200 Amps) - 02 Nos (e) Volt meter (0-300 V) - 01 No (f) Volt meter (0-500 V) - 04 Nos (g) Frequency meter (45-55 Hz) - 04 Nos (h) Synchroscope - 01 No (i) Double frequency meter (45-55 Hz) - 01 No (k) Double voltmeter (0-500V) - 01 No	DO calibration only. Yard to provide calibration certificate through authorized firm. Spares CG supply. Renewal if any against NA spares.
LA-5027	Overhaul 03 in no ACBs. Rating 350VA, 415 V 250 Amps. All fixed and moving contacts and deteriorated wiring to be renewed (Mat yard supply). Auto motorized mechanism to be proved for all three DA's ACB. Also check all MCBs with safety trips/relay and replace defective components.	DO. Material yard supply.
LA-5028	Earth lamp circuitry, interlocking, space heater circuits & synchronizing circuits to be serviced and proved. Insulation test of complete MSB to be carried out including main incoming power supply cables. Check the incoming power supply and take corrective action to regulate the supply if required.	DO. Material yard supply.
LA-5029	All indications of outgoing feeders to be checked & proved.	DO. Material yard supply.
EMERGENCY DA (MAKE: M/S ELMOT, TEFC, 2.5KW 230V 1Ph 50Hz, 0.8 LAG)		
LA-5030	Overhaul the alternator completely including starter motor. Bearings to be renewed. Bearings should be quality control cleared through notified agencies and shown to ship staff prior replacement.	DO. OEM certified bearings and material yard supply.
LA-5031	Check the performance of AVR and HVR. DA to be proved with ships load.	DO.
LA-5032	Complete spray painting of the DA using international marine standard heat resistant equipment paint. (Paint yard supply)	Delete.
LA-5033	Calibrate following meters of emergency DA panel and calibration certificate to be issued. (a) Voltmeter (0-300 V) - 01 No (b) Ammeter (0-50 Amps) - 01 No (c) Frequency meter (45-55 Hz) - 01 No (d) KW meter digital - 01 No	DO only calibration. Yard to provide calibration certificate. Spares CG supply.

LA-5034	Carry out complete overhauling of panel. All Battery charging circuits to be proved. All connectors to be renewed as per rating.	DO. Material yard supply.
LA-5035	Calibration of OLRs (10-16 Amps-01 no, 0.4-0.63 Amps- 01 no.) using CIT set. Calibration certificate to be issued.	DO only calibration. Yard to provide calibration certificate.
LA-5036	Painting of panel by using international marine standard equipment paint after scrapping old paint.	Delete.
MAIN ENGINE CONTROLS (MTU GERMANY, TYPE 16V 4000 M90) PAC FIRM M/s MTU, PUNE/ M/s Yeoman Marine Services Pvt Ltd, Mumbai		
LA-5037	Calibrate following sensors for safeties cutout /alarm and parameters to be recorded for proper functioning for permissible limit. Pressure sensors: (a) Lube oil Trip (1.2 bar) (b) Lube oil Alarm (1.5 bar) (c) S/W Alarm (0.4 bar) (d) Fuel oil Alarm (3.0 bar) (e) Gear box lube oil Alarm(0.2 bar) (f) Cooling water Alarm(0.5bar) (g) Gear box control oil Trip (15.5 bar) (h) Gear box control oil Alarm(16.5bar) (i) Starting air Alarm(20 bar) (k) Stern tube flow water (alarm) Temperature sensors: (a) Exhaust gas Alarm (750°C) (b) Gear box lube oil Alarm (90°C) (c) Gear box lube oil Trip (95°C) (d) Engine lube oil Alarm (92°C) (e) Engine cooling water Alarm(95°C) (f) Charge air temperature Alarm(90°C) Speed sensors: (a) Engine speed sensors Alarm (2415 rpm) (b) Shaft speed sensors Alarm (2100 rpm)	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.

LA-5038	Three M/E control levers in ECR and wheel house to be serviced and calibrated. Calibration certificate to be issued by OEM. Reading of all control levers to be synchronized and record. Performance to be proved.	DO functional test of control system and carry out re-adjustment. Jobs to be undertaken through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.																																													
LA-5039	Tank level sensors of 05 no fuel tanks and 01 no fresh water tank to be calibrated. Calibration certificate to be issued by OEM.	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.																																													
LB-5040	Fuel Tank sensor (19-22) found to be non-operational. To be renewed and system to be proved for satisfactory operation.	DO. Spares CG supply.																																													
LA-5041	<p>Functional checks of bilge level sensors (14 nos) at following locations to be carried out with MCS-5 and calibrated. Calibration certificate to be produced by OEM.</p> <table border="1" data-bbox="333 315 991 1659"> <thead> <tr> <th data-bbox="874 315 906 465"><u>S.no.</u></th> <th data-bbox="874 465 906 987"><u>Description</u></th> <th data-bbox="874 987 906 1211"><u>Qty</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="842 315 874 465">(a)</td> <td data-bbox="842 465 874 987">Boatswain store</td> <td data-bbox="842 987 874 1211">01</td> </tr> <tr> <td data-bbox="810 315 842 465">(b)</td> <td data-bbox="810 465 842 987">7 Navik mess</td> <td data-bbox="810 987 842 1211">01</td> </tr> <tr> <td data-bbox="778 315 810 465">(c)</td> <td data-bbox="778 465 810 987">Magazine compt</td> <td data-bbox="778 987 810 1211">01</td> </tr> <tr> <td data-bbox="746 315 778 465">(d)</td> <td data-bbox="746 465 778 987">Baggage compt</td> <td data-bbox="746 987 778 1211">01</td> </tr> <tr> <td data-bbox="715 315 746 465">(e)</td> <td data-bbox="715 465 746 987">Provisional store</td> <td data-bbox="715 987 746 1211">01</td> </tr> <tr> <td data-bbox="683 315 715 465">(f)</td> <td data-bbox="683 465 715 987">Jr sailors WC</td> <td data-bbox="683 987 715 1211">01</td> </tr> <tr> <td data-bbox="651 315 683 465">(g)</td> <td data-bbox="651 465 683 987">FER fwd port</td> <td data-bbox="651 987 683 1211">01</td> </tr> <tr> <td data-bbox="619 315 651 465">(h)</td> <td data-bbox="619 465 651 987">FER fwdstbd</td> <td data-bbox="619 987 651 1211">01</td> </tr> <tr> <td data-bbox="587 315 619 465">(i)</td> <td data-bbox="587 465 619 987">FER aft port</td> <td data-bbox="587 987 619 1211">01</td> </tr> <tr> <td data-bbox="555 315 587 465">(k)</td> <td data-bbox="555 465 587 987">FER aft stbd</td> <td data-bbox="555 987 587 1211">01</td> </tr> <tr> <td data-bbox="523 315 555 465">(l)</td> <td data-bbox="523 465 555 987">AER fwd</td> <td data-bbox="523 987 555 1211">01</td> </tr> <tr> <td data-bbox="491 315 523 465">(m)</td> <td data-bbox="491 465 523 987">AER aft</td> <td data-bbox="491 987 523 1211">01</td> </tr> <tr> <td data-bbox="459 315 491 465">(n)</td> <td data-bbox="459 465 491 987">Water jet fwd</td> <td data-bbox="459 987 491 1211">01</td> </tr> <tr> <td data-bbox="427 315 459 465">(p)</td> <td data-bbox="427 465 459 987">Water jet aft</td> <td data-bbox="427 987 459 1211">01</td> </tr> </tbody> </table>	<u>S.no.</u>	<u>Description</u>	<u>Qty</u>	(a)	Boatswain store	01	(b)	7 Navik mess	01	(c)	Magazine compt	01	(d)	Baggage compt	01	(e)	Provisional store	01	(f)	Jr sailors WC	01	(g)	FER fwd port	01	(h)	FER fwdstbd	01	(i)	FER aft port	01	(k)	FER aft stbd	01	(l)	AER fwd	01	(m)	AER aft	01	(n)	Water jet fwd	01	(p)	Water jet aft	01	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.
<u>S.no.</u>	<u>Description</u>	<u>Qty</u>																																													
(a)	Boatswain store	01																																													
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LA-5042	Functional checks of 14 out of 17 In Nos Doors/Hatch sensors (Position Monitors) are to be carried out and certificate to be issued.	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.
LB-5043	03 in nos door/Hatch sensor found defective. Defect to be rectified and proved for satisfactory operation.	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.
<u>MCR AND WHEEL HOUSE CONSOLE</u>		
LA-5044	Overhaul complete Engine control panels in MCR and wheel House. All indication lights, dimming circuits to be proved for proper operation. Clean all the contacts, switches, relays, MCBs and replace damaged contacts if any. Check for their proper operation. Check the insulation of all the internal wiring cables, monitor all outputs and all parameters are to be recorded for proper functioning of same with permissible limits. All safeties/cutout to be calibrated proved and calibration certificate of PAC firm (M/S MTU, Pune) to be issued. (All material and all in way jobs under yard scope)	Delete.
LA-5045	Check the mounting base for proper functioning / any corrosion and renew if required.	Delete.
LA-5046	Functional test and calibration of following meters in MCR and Wheel House to be carried out. Calibration certificate to be produced by PAC Firm (M/s MTU, Pune):- (a) Shaft Speed indicator : 06 Nos (b) Reversing Position Indicator : 06 Nos (c) Engine Speed Indicator : 06 Nos (d) Bucket Position Indicator : 06 Nos	DO through PAC firm M/s MTU/ M/s YMPL. PAC firm report to be submitted. Spares CG supply.
<u>WATER JET (M/S KAMEWA, SWEDEN), PAC FIRM M/S ROLLS ROYCE, MUMBAI</u>		
LA- 5047	Carry out functional test of alarms, switches and pressure gauges.	Do through PAC firm M/s RRMIL. PAC firm report to be submitted. Spares CG supply.
LA- 5048	Calibration and functional test of Feedback units for steering and reversing (total 06 Nos) to be carried out.	Do through PAC firm M/s RRMIL. PAC firm report to be submitted. Spares CG supply.

HP AIR COMPRESSOR PANEL (M/s ECC, KOLKATA 415/230 V AC 02 NOS)		
LA-5049	<p>Check the proper operating of MCBs, switches & control units, contactors and OLRs. Replace all contacts in contactor by using contactor kit. Check the insulation of the cable. Replace all the defective components. Repaint the control panel using international marine equipment standard paint after scrapping old paint. Check the functioning of MPU card (02 Nos) for overload, short circuit, and under voltage. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record. (All material and all in way jobs under yard scope)</p>	DO. Material yard supply.
DISTRIBUTION BOARDS (AC POWER SYSTEM, KOLKATA)		
LA-5050	<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 operation of MCBs, switches & control units and replace the defective components with correct ratings.</p> <p>b) Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.</p> <p>c) Scrap old paint and apply new paint using international marine standard equipment paint.</p> <p>d) Check the corroded mounting platform and take corrective action.</p>	DO. Material yard supply.
LA-5051	<p>Calibrate following meters of distribution board and replace if found defective. Calibration certificate to be issued.</p> <p>(a) Volt meter (0-30 Volt)-02 nos</p> <p>(b) Ammeter (0-01 Amps)- 01 no</p> <p>(c) Ammeter (0-75 Amps)- 01 no</p>	DO calibration only. Yard to provide calibration certificate. Renewal if any against CG supply.
A/C CONTROL PANEL: MAKE; SWITCH AND CONTROL GEARS, MUMBAI		
LA-5052	<p>Servicing of complete control / starter panel is to be carried out including following:-</p> <p>(a) Clean all switches, MCBs, transformer and relays and check the proper operation of MCBs, switches & control units. Renew all defective components with correct ratings.</p> <p>(b) Check all the power and control circuits and thoroughly inspect all the wiring/unit/sub-unit/cables. All Control cables to be properly laid out. Cable insulation to be checked and wherever necessary to be renewed.</p> <p>(c) Check the corroded mounting platform and take corrective action.</p> <p>(d) Renew all earthing straps. (All material and all in way jobs under yard scope)</p>	DO. Material yard supply.



LA-5053	Calibrate 06 in no. OLRs (Capacity- 12-18 Amps -01 no, 30-37 Amps - 02 no, 16 – 24 Amps - 02 nos, 07 – 10 Amps - 01 no.) and replace the same if found defective. Calibration certificate to be issued.	Delete.
LA-5054	Scrap old paint and apply new paint using international marine standard equipment paint (Paint Yard supply).	Delete.
LA-5055	Renew all the contacts in contactor by using contactor kits (Make: Schneider Electric, Model : LC1D18 – 02 Nos, LC1D38 – 04 Nos, LC1D12 – 02 Nos).	Delete.
LA-5056	Calibrate following meters. Calibration certificate to be issued. (a) Ammeter (0-30 Amps)-01 no (b) Ammeter (0-10 Amps)- 01 no (c) Ammeter (0-75 Amps)- 02 nos	DO calibration only. Yard to provide calibration certificate. Renewal if any against CG supply.
RO PLANT (MAKE : ROCHEM, MUMBAI MODEL: ROCHEM DT-5S.05TPD) PAC FIRM: M/S ROCHEM, MUMBAI		
LA-5057	RO plant control panel to be overhauled completely. Contact strips of contactors (03 nos to be renewed) and 03 in nos over load relays to be calibrated (calibration certificate to be issued). Potentiometer, conductivity meters with switch, flow switch, flow meter and level switch to be checked. 3/2 way solenoid valve, pressure switch for raw water, brine water and pure water and servo motor control valve to be serviced and system to be proved during harbour/sea trials. Replace the all defective components. (All material and all in way jobs under yard scope)	DO through PAC firm M/s Rochem Separation systems (India) Pvt Ltd., Mumbai. Yard to provide calibration certificate. Material yard supply. Spares CG supply.
MOTORS (49 NOS)		
LA-5058	Following Motors to be overhauled completely. (all material under yard scope) Overhauling of motors includes following:- (a) Removal of motor from ship and strip thoroughly (b) External and internal body of motor to be scraped and painted with International marine standard anti corrosive and equipment color paint. (c) Re-impregnation / varnishing of windings. (d) Re-balancing of rotor and cooling fan. (e) Renewal of bearings, bushes, seals, gaskets and fan covers. (f) Checking of rotor shaft and bearing housing for flaws, cracks and corrosion. (g) Renewal of terminal box and lugs.	

SI	Motor description	Rating	Nos. Fitted	Location	
(I)	Galley supply / exhaust fan Motor	0.37 KW	02	Galley	DO.
(II)	Anchor capstan motor	5.5 KW	02	Foxle	
(III)	Emergency DA compt. Exhaust fan motor	0.157 KW	01	Emergency DA compt.	Delete. Undertaken under DFP.
(IV)	AHU motor	9.3 KW	01	ATU Compt	DO.
(V)	Exhaust fan motor for CO's bathroom	0.062 KW	01	CO's bathroom	DO.
(VI)	Naval store exhaust motor	0.157 KW	01	Naval Store	Delete. Undertaken under DFP.
(VII)	Baggage store supply fan motor	0.157 KW	01	Baggage store	Delete. Undertaken under DFP.
(VIII)	STP exhaust fan motor	0.318 KW	01	STP Compt	DO.
(IX)	STP supply fan motor	0.318 KW	01	STP Compt	DO.
(X)	FM 200 Compt Supply Fan	0.157 KW	01	ATU Compt	Delete. Undertaken under DFP.
(XI)	Water Jet compt. Supply fan motor	3.7 KW	01	Jet Compt	DO.
(XII)	Exhaust fan motor for SO'S & Navik bathroom	0.314 KW	01	Navik bathroom	DO.

- (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.
 (m) Running test after assembling & installation onboard ship
 (n) Replace all earthing straps.

Bearings being renewed shall be quality control cleared through notified agencies and shown to ship's staff prior replacement.



(XIII)	Dirty oil pump motor	1.5 KW	01	FER	DO.
(XIV)	Bilge & GS pump motor	15 KW	01	FER	
(XV)	Bilge & fire pump motor	15 KW	01	AER	
(XVI)	Fresh water Hydrophore pump motor	1.5 KW	02	FER	
(XVII)	Oily bilge water separator motor	1.1 KW	01	FER	
(XVIII)	Low pressure booster pump motor (RO plant)	0.37 KW	01	FER	Delete. Covered under EA-3084
(XIX)	Cleaning pump motor(RO plant)	0.33 KW	01	FER	
(XX)	HP pump motor(RO plant)	2.2 KW	01	FER	
(XXI)	Fuel oil purifier separator pump motor	2.2 KW	01	FER	DO.
(XXII)	Fuel oil purifier pump motor	0.75 KW	01	FER	
(XXIII)	Air compressor motor	7.5 KW	02	FER	
(XXIV)	AC sea water pump motor(main)	3.7 KW	01	FER	
(XXV)	Exhaust fan motor officer's bathroom	0.318 KW	01	Officer's Bathroom	DO.
(XXVI)	AC compressor motor	27 KW	02	FER	Delete covered in EA-3088.
(XXVII)	Fuel oil transfer pump motors	2.2 KW	02	FER	DO.
(XXVIII)	Fwd E/R ventilation fan motors	3.7 KW	02	Q/deck	
(XXIX)	Fwd E/R supply fan motors	7.5 KW	02	Q/deck	

(XXX)	Aft E/R ventilation fan motors	3.7 KW	01	Q/deck	
XXXI)	Aft E/R supply fan motors	7.5 KW	01	Q/deck	DO.
XXXII)	Electric motor for crane	7.5 KW	01	Quarter deck	DO.
XXXIII)	Mooring capstan motor	4.0 KW	01	WJ Compt	DO.
XXXIV)	Paint store supply fan	0.37 KW	01	Paint store	Delete. Undertaken under DFP.
XXXV)	Priming pump for bilge & GS pump	0.75 KW	01	FER	
XXXVI)	Priming pump for fire & GS pump	0.75 KW	01	AER	
XXXV)	Portable Lub oil transfer motor	0.55 KW	01	WJ Compt	
XXXVI)	Hydraulic power pack motor	2.2 KW	03	02 – Fwd E/R 01 – Water Jet	DO.
XXXVII)	Garbage Disposal Motor	0.55 KW	01	Galley	Delete.
SHORE CONNECTION BOX(SCB) 02 NOS (MAKE: M/S AIM ENGG)					
LA-5059	Complete overhauling of the shore connection box including following:- (a) Check condition of mounting bases and insulation of the cable and record. Repaint the complete panel with equipment international marine paint. (b) Clean all contacts, switches, MCBs, relays and check the proper operation of MCBs, switches, control units & Phase sequence meter. Replace all the defective components with correct ratings. (c) Check the insulation of cables and record.				DO. Material yard supply.
STARTER PANELS, M/S MARINE ELECTRICALS					
LA-5060	Carryout complete overhauling/servicing of following control/starter panels. Job includes following:- (a) Calibration of OLRs to be carried out by using CIT set (calibration certificate to be issued). (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.				DO for serials (I) to (VII), (IX) to (XVI) and (XXII). SI (VIII) Delete as covered in LA-5057(XVI). Serials (XVII) to (XXI) delete.

(d) Check the insulation of cables, transformer and record. Repaint the complete panel with equipment international marine paint. Rubber gaskets to be renewed. Control/starter panel operation to be proved. Replace all earthing straps.
 (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.
(all material and all in way jobs under yard scope). Functional checks of MPU (Motor Protection Unit) card (10 Nos).

Material yard supply. Calibration certificate to be provided.

Yard to quote separately for each serial.

Sl	Equipment	Make	Type	No. Fitted	Location
(I)	Water jet hydraulic power pack starter panel	M/s Rolls Royce	415 V AC 3phase	03	Water jet compartment (01 no), FER (02 nos)
(II)	DOL starter for portable lub oil pump	M/s ECC	Portable type	01	Loose item
(III)	DOL starter for dirty oil pump	M/s ECC	DOL	01	FER
(IV)	Bilge & GS pump starter	M/s Fabricons	Star delta	01	FER
(V)	Bilge & fire pump starter	M/s BE pump	Star delta	01	AER
(VI)	FW Hydrophore pump starter	M/s ECC	415 V, 1.5 –KW	02	FER
(VII)	Oily water separator control panel	M/s KMC, Korea	415 V AC	01	FER
(VIII)	RO Plant Control Panel	M/s ROCHEM	415 V AC	01	FER

(IX)	FO Transfer Pump Starter	M/s ECC	415 V, 2.2 KW	02	FER	
(X)	Fuel oil purifier control cabinet	M/s Marine Electricals	415 V AC	01	AER	
(XI)	Engine Room Ventilation Fan Starter	M/s Switch n control gears	415 V AC	06	FER,AER	
(XII)	Mooring capstan starter panel	M/s ECC	415 V AC	01	Water jet compartment	
(XIII)	Control Pedestal For Mooring Capstan	M/s ECC	415 V AC	01	Quarter deck	
(XIV)	Anchor capstan control panel	M/s L & T	415 V AC	02	Fwd mess	
(XV)	Control Pedestal for anchor capstan	M/s L & T	415 VAC	01	Foxle	
(XVI)	Electrical crane control panel & remote control	M/s NED-deck marine	415V,3ph,50Hz, 7.5 KW	01	Mounted on crane	
(XVII)	Garbage disposal unit	M/s IMC	415 V AC	01	Galley	
(XVIII)	Power supply unit (CRN-91)	M/s APLAB	L3299s	01	18 Navik rating mess	
(XIX)	Power supply unit (IFF)	M/s HAL, Hyderabad	IFF 1410 NV	01	MSO (Radio room)	
(XX)	Auxiliary Power supply unit & Auto change over	M/s AZDEC Ltd, England	Type: 060701/141 & 970306/210	01 (each)	Ships Office	



	power supply unit								
(XXI)	Power supply unit for TVRO	M/sFuruno, Japan	230VAC/24VDC	01				Ward room	
(XXII)	UPS for Main Engine Controls	M/s MTU	415V/230V/24VD C	02				Fwd E/R MCR	
SEWAGE TREATMENT PLANT (MAKE: OMNI PURE MARINES) PAC FIRM : M/S HI-POINT, MUMBAI									
LA-5061	Following motors to be overhauled as per defect sl. LA-5058								
	SI	Motor description	Rating	Nos. Fitted	Location	Delete. Covered under AIAMC			
	(I)	Sewage transfer pump motor	0.75 KW	01	STP Compt				
	(II)	STP overboard pump motor	0.75 KW	01	STP Compt				
	(III)	Vacumrator pump motor – 1	2.2 KW	01	STP Compt				
	(IV)	Vacumrator pump motor – 2	2.2 KW	01	STP Compt				
LA-5062	STP/EVAC Control Panel to be overhauled as per defect Sl. LA 5060								
LC-5063	<p>H₂S sensor to be installed in STP Compartment. Inway Jobs as follows:-</p> <p>(a) 02 sensor to be installed in STP compartment</p> <p>(b) Main control panel to be fitted in Dining Hall with suitable brackets.</p> <p>(c) Casing to be fabricated for storage of batteries and UPS.</p> <p>(d) One Audio Visual alarm to be provided in inside the STP compartment and one to be provided Main alleyway</p> <p>(e) Job includes laying out and securing of associated cables (Approx 150 Mtrs)</p> <p>[As & As approved by CGHQ vide TS/300/63/STP/RC E CLASS dated 04 May 18.</p> <p>Permanent Identification no. PIN NE/fh-01/2017-B/029]</p>								
	SI	Description	Qty	Delete. Covered under AIAMC.					
a	H ₂ S Assembly, Model: GT-2511-FLP	Sensor	02						
b	Dual Monitor, GM-2211	Channel Model:	01						

c	Audio Alarm, Model: YL 40 (1 red and 1 orange)	Visual YL sets	02
d	Cable 3x1.5 mm	Sq	150 Mtrs
e	1 KVA UPS-01 no, 12V 42 Ah SMF Battery-03 nos and suitable Battery Rack-01 no		01 set
OBS			
f	Audio Alarm, Model-YL 40 (01 Red and 01 Orange)	Visual YL sets	01 set
g	Transmitter Card		01 no

Yard to install the system as per the attached block diagram and prove the system.

Material yard supply.
All in way jobs included.



BATTERY CHARGER, 30 AMPS (03 NOS) AND 60 AMPS (01NO.) (MAKE: M/s RADIANT ELECTRONICS, KOLKATA)																						
LA-5064	<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) Clean all contacts, switches, rectifier units, 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>(d) 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>(e) Check all safety trips for proper functioning and if not carry out replacement of defective components.</p> <p>(f) Renew all earthing straps.</p>																					
LA-5065	<p>Calibrate of following meters and calibration certificate to be issued.</p> <table border="0"> <tr> <td>(a) Voltmeter (0-50 V)</td> <td>-</td> <td>02 Nos</td> </tr> <tr> <td>(b) Voltmeter(0-40 V)</td> <td>-</td> <td>06 Nos (04 in Nos fitted with MCS-5 UPS)</td> </tr> <tr> <td>(c) Ammeter (0-75 Amps)</td> <td>-</td> <td>02 Nos</td> </tr> <tr> <td>(d) Ammeter (0-15 Amps)</td> <td>-</td> <td>02 Nos</td> </tr> <tr> <td>(e) Ammeter (0-40 Amps)</td> <td>-</td> <td>02 Nos</td> </tr> <tr> <td>(f) Ammeter (-100- +100 A)</td> <td>-</td> <td>02 Nos</td> </tr> <tr> <td>(g) Ammeter (0 - 100 Amps)</td> <td>-</td> <td>02 Nos</td> </tr> </table>	(a) Voltmeter (0-50 V)	-	02 Nos	(b) Voltmeter(0-40 V)	-	06 Nos (04 in Nos fitted with MCS-5 UPS)	(c) Ammeter (0-75 Amps)	-	02 Nos	(d) Ammeter (0-15 Amps)	-	02 Nos	(e) Ammeter (0-40 Amps)	-	02 Nos	(f) Ammeter (-100- +100 A)	-	02 Nos	(g) Ammeter (0 - 100 Amps)	-	02 Nos
(a) Voltmeter (0-50 V)	-	02 Nos																				
(b) Voltmeter(0-40 V)	-	06 Nos (04 in Nos fitted with MCS-5 UPS)																				
(c) Ammeter (0-75 Amps)	-	02 Nos																				
(d) Ammeter (0-15 Amps)	-	02 Nos																				
(e) Ammeter (0-40 Amps)	-	02 Nos																				
(f) Ammeter (-100- +100 A)	-	02 Nos																				
(g) Ammeter (0 - 100 Amps)	-	02 Nos																				
LA- 5066	<p>Scrap old paint and apply new paint using international marine standard equipment paint (Paint Yard supply).</p>																					
	<p>DO calibration only. Yard to provide calibration certificate. Spares CG supply.</p>																					
	<p>Delete.</p>																					



MAIN LIGHTING TRANSFORMER (415 V/230 V, AIR COOLED 10 KVA, M/S RADIANT ELECTRONICS)	
LA-5067	<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. Replace earthing straps.</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. Material and paint yard supply.
GENERAL LIGHT FITTING, WALL MOUNTED FANS & SWITCH SOCKETS	
LB- 5068	20 nos. Light fitting along with bracket in machinery spaces perished. To be replaced.
	Delete.
FIRE DETECTION SYSTEM: MAKE: AUTRONICA, NORWAY, PAC FIRM - M/S ELCOME INTEGRATED SYSTEM	
LA-5069	<p>Overhaul the complete system including following heat/smoke detectors and manual call point. Sensors to be checked for correct operation and replace if found defective. System to be proved in all the loops (03 nos.)</p> <p>(a) Optical smoke detector-25 nos.</p> <p>(b) Multi sensor smoke detector-09 nos.</p> <p>(c) Manual call point-15 nos.</p> <p>(d) Heat detector-01 no.</p>
	DO through PAC firm M/s Elcome Integrated systems Pvt Ltd, Navi Mumbai. Spares CG supply.
COOKING RANGE (01 NOS., MAKE: BONHOFF, HOLLAND, 11.5 KW)	
LA-5070	<p>Carry out complete overhauling of cooking range. Job includes following:-</p> <p>(a) Replacement of porcelain insulators and earthing strips. Replace all defective selector switches/ knobs</p> <p>(b) Replace heat resistant cables of all hot plates (15 Amps, length: 10 meters approx).</p> <p>(c) Check and record the overall insulation resistance of the complete range and control panel</p> <p>(d) Check and record the insulation resistance of the individual heating element.</p> <p>(e) Check all the circuit and thoroughly inspect the all wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.</p> <p>(f) Clean all contacts, switches & relays and check the proper operating of MCB's, switches, control units, contactors. Replace the defective components with correct ratings.</p>
	DO. Material yard supply.

LB-5071	01 in no hot plate (Type: Moulded with 04 terminal heating element) Size: 220 X 220 mm, 2KW, 415 V AC in the cooking range is defective. Hot plate to be renewed and proved for satisfactory operation.	DO. Hot plate yard supply.
<u>INTEGRATED BRIDGE SYSTEM (TRANSAS, SWEDEN), PAC FIRM: M/S TRANSAS, MUMBAI</u>		
LA-5072	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. Check the insulation of same and record.	Delete. Covered under AIAMC
<u>RADAR (MAKE: TRANSAS, SWEDEN, TYPE: NR4000, 12KW & 25 KW – 02 NOS.)</u> <u>PAC FIRM : M/S TRANSAS, MUMBAI</u>		
LA-5073	Check transmitter power output.	Delete. Covered under AIAMC.
LA-5074	Check Condition of Transmitter mounts and repair and replace, if needed. Check all the circuit thoroughly and inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.	
LA-5075	Replace earth bondage strap, if needed	
LA-5076	Assess general condition of transmitter units (e.g. Array, rotary joints), if needed	
LA-5077	Carry out complete overhauling including scanner motor and replace bearings.	



AIS (MAKE : M/S SAAB SYSTEMS, TYPE: R4-AIS) PAC FIRM : M/S TRANSAS, MUMBAI		
LA-5078	Check condition of antenna mounts/ brackets for corrosion and repair, if needed. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.	Delete. Covered under AIAMC.
LA-5079	Open multiplexer unit and check internal wiring and tighten terminals, if loose.	
DGPS (MAKE : M/S SAAB SYSTEMS, TYPE: R4-TRANSPONDER) PAC FIRM : M/S TRANSAS, MUMBAI		
LA-5080	Check condition of antenna mounts/ brackets for corrosion and repair, if needed. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.	Delete. Covered under AIAMC.
LA-5081	Open multiplexer unit and check internal wiring and tighten terminals, if loose.	
ECDIS (MAKE : M/S TRANSAS, SWEDEN), PAC FIRM : M/S TRANSAS, MUMBAI		
LA-5082	Check chart permit licenses / permit expiry and carry out updation of ECDIS chart.	Delete. Covered under AIAMC.
LA-5083	Open panels and check all terminal block connections and tighten if becoming loose. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.	
GYRO COMPASS (MAKE : M/S ANSCHUTZ, STD 22) PAC FIRM M/S ELCOME INTEGRATED SYSTEM P LTD		
PAC FIRM : M/S TRANSAS, MUMBAI		
LA-5084	Complete overhauling of Gyro compass to be carried out. Renew the "O" rings / gaskets, Gyro liquid and fused bulbs. Check the Gyro compass for optimum performance. Check all the circuit and thoroughly inspect all the wiring/unit/sub-unit/cables, renew them wherever necessary. Check the insulation of same and record.	Delete. Covered under AIAMC.
LA-5085	Ensure repeaters are aligned with main Gyro and Gyro feed is available to RADAR, ECDIS and other connected equipment.	
SVDR (MAKE : M/S TRANSAS, SWEDEN, Model – SVDR -3200)		
LA-5086	Annual performance test (APT) to be carried out by certified Transas technician including up gradation of software and hardware. All microphones (06 in nos.) are to be checked and proved.	Delete.
LA-5087	Open panels and check all terminal block connections and tighten if becoming loose. Check all the circuit and thoroughly inspect all wiring/unit/sub-unit/cables, renew them wherever necessary and check the insulation of same and record.	Delete.

<u>ANEMOMETER AND WEATHER (M/s LILLEY & GILLIE, U.K WALKER 7080), PAC FIRM : M/S TRANSAS, MUMBAI</u>	
LA-5089	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, renew them wherever necessary and check the insulation of same and record. Delete. Covered under AIAMC.
LA-5090	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 for correct input to ECDIS.
<u>AUTOPILOT CUM STEERING GEAR SYSTEM (M/S RAYTHEON, TYPE NAUTOPILOT- 20X5) PAC FIRM : M/S ELCOME INTEGRATED PVT LTD, NAVI MUMBAI</u>	
LA-5091	Complete overhaul of autopilot cum steering gear system to be carried out. Delete. Covered under AIAMC.
<u>SOUND POWERED TELEPHONE (MAKE: M/S MARINE ELECTRONICS GENOVA ITALY, TYPE: IMCOS), PAC FIRM M/S ELCOME INTEGRATED SYSTEM (P) LTD</u>	
LA- 5092	Overhaul the complete system. Prove the system from each location (Total 15 nos fitted in various Locations). Delete.
<u>MAIN BROADCAST (MAKE: M/s MARINE ELECTRONICS GENOVA ITALY, TYPE: IMCOS 1151), PAC FIRM M/S ELCOME INTEGRATED SYSTEM (P) LTD</u>	
LB-5093	Main Broadcast system found to be non-operational. Defect to be rectified and proved for satisfactory operation. Delete.
LA-5094	Check the condition of mounts / brackets and replace / repair if required. 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.
LB-5095	Cable for main broadcast junction box at foxle found to be deteriorated. Cable to be renewed as per sample. Main Broadcast to be proved for satisfactory operation. DO. Specification of cable: Size: 2 X 1.5 Sq mm, Type: LFH Sheathed screened cable. Length- 20 mtrs. Cable yard supply. All in-way jobs included.
LB-5096	Foxle/ Quarterdeck main broadcast junction box and socket deteriorated. To be repaired and proved. Housing box to be renewed. Delete.

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

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

NAVIGATION LIGHTS AND CONTROL PANEL (MAKE: ECC, KOLKATA)	
LA-5112	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.
LA-5113	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 including checks of auto changeover (230/24 V DC) relay circuit and repair if required. (All material and all in way jobs under yard scope)
GENERAL ALARM SYSTEM (MAKE: M/s ELNA TYPE GA-2)	
LA-5114	Overhaul the complete system. Replace defective / deteriorated components. (All material and all in way jobs under yard scope)
ELECTRIC SIREN (MAKE: M/S ZOLLNER)	
LA-5115	Overhaul the equipment completely. Replace defective / deteriorated components. (all material and all in way jobs under yard scope)
SEARCH LIGHT (MAKE: WISKA DENMARK, 215 V, SINGLE PHASE, 50 HZ, 1000 W)	
LA-5116	Overhaul the complete search light assembly including revolving mechanism by dismantling. Clean all gears for azimuth and horizontal movements and replace defective components. Check all seals and gaskets and renew if degraded. Paint the light assembly using international marine equipment paint (paint yard supply) (All material and all in way jobs under yard scope)
10" SIGNALING PROJECTOR (MAKE: RAY ENTERPRISES, KOLKATA, 215 V, SINGLE PHASE, 50 HZ, 02 NOS.)	
LA-5117	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)

<u>REFRIGERATOR AND DEEP FREEZER (MAKE GODREJ TYPE 230 LTRS (02 NOS)/90 LTRS (01NO)/235 LTS (01 NO) EACH)</u>		
LA-5118	Overhaul the complete system including following:- (a) Check for any mechanical damage / corrosion and replace defective Door seal, Door hinges & handle. Inspect the surface & paint whole assembly using international marine standard equipment paint. (b) Overhaul of compressor or replace if found defective. (All material and all in way jobs under yard scope)	Delete.
<u>SART (MAKE M/S THRANE & THRANE, TYPE SAILOR SART-II, 02 NOS)</u>		
LA-5119	Perform the functional tests. Servicing of the equipment to be carried out by PAC firm with servicing/ test report.	Delete.
<u>EPIRB (MAKE M/S THRANE & THRANE, TYPE SAILOR SGE-II, 01 NOS)</u>		
LA-5120	Perform the functional tests and Replacement of HRU to be carried out as per procedure laid down in EPIRB user's manual page. Servicing of the equipment to be carried out by PAC firm with servicing/ test report.	Delete.
<u>MAGNETIC COMPASS (MAKE: LILLEY AND GILLIE ENGLAND U.K. MODEL: MK 2000)</u>		
<u>PAC FIRM M/S ELCOME MARINE SERVICES (P) LTD</u>		
LA-5121	Overhauling of Magnetic compass to be carried out. Supporting Liquid and gasket to be renewed. Replace all defective components.	Delete.
LA-5122	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 and correction to be carried out at sea. Carry out the functional checks of magnetic compass.	Delete.
<u>TVRO SYSTEM (MAKE: M/S INTELLIAN) PAC FIRM M/S MOLOOBHOY PVT LTD, MUMBAI</u>		
LA-5123	Complete overhauling of TVRO system including followings:- (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.

INFRARED COMMUNICATION SYSTEM (MAKE: M/S AZDEC LTD, ENGLAND), PAC FIRM M/S ELCOME INTEGRATED SYSTEM PVT LTD, MUMBAI		
LA-5124	<p>Complete overhauling of infrared communication system. Job includes as follows:-</p> <p>(a) Cleaning of all IR Antenna thoroughly and carrying out functional checks of same including base station. 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 the functionality of Antennas from all the positions. Check the mounting bases of IR antenna & base station. Repair / replace if found defective.</p>	Delete.
LB-5125	<p>03 in Nos IR Antennas (Aft E/R - 02 Nos, and Water Jet compt - 01 no) non-operational. Defective antennas to be repaired and proved for satisfactory operation.</p>	S&D
IFF {IDENTIFICATION OF FRIEND & FOE (MAKE: M/S HAL, HYDERABAD)}		
LA-5126	<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.
FM-200 MAJOR FF SYSTEM (MAKE: M/S SUPER FIRE ENGG PVT LTD)		
LA-5127	Complete overhauling of Electrical annunciation panel to be carried out. All relays to be checked.	DO through authorized firm. Spares CG supply.
LA-5128	Renew control supply emergency sealed battery (12V, 17AH - 02 Nos)	Delete. S&D
LA-5129	<p>Following Alarms and all Indication lamps in Annunciation panel to be proved.</p> <p>(a) Pre-Discharge hooter+flasher - 06Nos (W/H,MCR, AER and FER)</p> <p>(b) Alarm Bell - 01 No (Main Deck)</p> <p>(c) Strobes - 01 No (Main Deck)</p>	DO through authorized firm. Spares CG supply
WASHING MACHINE (MAKE: M/S HAIER, CAPACITY - 05 KG), QTY - 02 NOS		
LA-5130	Overhauling of washing machine to be carried out. Renewed all defective components. Washing Machine proved for satisfactory operation.	Delete.

MISCELLANEOUS	
LA-5131	03 in no. Bridge window wipers to be overhauled including motor, spray mechanism and gear assembly. Wiper blades to be renewed. After completion of overhauling, to be proved for proper speed control.
MISCELLANEOUS	
LB-5132	Battery box (Mat: MS fabrication with wooden flooring and wooden covering) in engine room found perished and corroded. To be fabricated as per sample. Total no. of boxes : 06 Nos. Size as follows:- (Size: 88 cm x 78 cm x 34 cm)(LxBxH) – 03 Nos (Size: 56 cm x 38 cm x 34 cm)(LxBxH) – 03 Nos
	DO. Spares and material yard supply.
	DO. Material yard supply.

