

Tele:- 079-23243374

SPEED POST/E-Mail

Reply should be addressed
to the Commander

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

Quoting : 3467/2

19 Sep 18

**PRE QUALIFICATION FOR NORMAL REFIT (NR-19) OF ICGS RAJRATAN
INVITATION OF EXPRESSION OF INTEREST AND COMMENTS/QUERIES**

Sir,

1. It is intimated that e-mail containing following defect list serials (Hull, Engineering and Electrical) in respect of **Normal Refit (NR-19)** of **ICGS Rajratan** based at Porbandar for **120 days** duration of alongwith serial wise CGRHQ (NW) remarks has been forwarded to date **19 Sep 18** :-

- (a) Hull : HA 1001 to HB 1084
- (b) Engg : EA 3001 to EA 3173
- (c) Elect : LA 5001 to LA 5131

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

3. **The refit is to be undertaken in Gujarat/ Maharashtra/ Goa coast of India only.** The refit is tentatively scheduled to commence in the month of **Feb 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 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.

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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/ CGDHQ-1, Porbandar/ onboard ship** to discuss/clarify the scope of work and to bring all the participating yards at par. It may be noted that the date and venue for RFIC will be intimated by **CGRHQ (NW)** at a later date.

7. You are advised to depute your reps to the ship for meeting the technical Officer/Executive Officer in order to assess the defect wise work package physically prior submitting technical comments/queries.

8. It is also desired that suitable reps may be deputed for attending the RFIC on receiving intimation from **CGRHQ (NW)**. 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.

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.

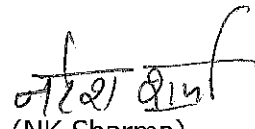
Handwritten signature/initials

Contd . . .3/-

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), Gandhi Nagar with one copy each to CGDHQ-1, Porbandar and ICGS Rajratan** at the addresses given below by **11 Oct 2018:-**

- (a) The Commander
{for CSO (Tech)}
Coast Guard Region (NW)
Post Box No. 09, Gandhi Nagar
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.


(NK Sharma)
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

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ICGS RAJRATAN NORMAL REFIT (NR-19)

MAIN DEFECT LIST- HULL

<u>DL NO</u>	<u>DEFECT DESCRIPTION</u>	<u>RHO(NW) REMARKS</u>
YARD SERVICES		
HA 1001	<p>GENERAL SERVICES</p> <p>(a) 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</p> <p>(b) Preparation of keel blocks to be made for docking in version I and II Necessary drawings as arranged to be provided in quadruplicate for records.</p> <p>(c) Tug hiring charges for docking / undocking and berthing / un-berthing are to be provided.</p> <p>(d) Pilot to be provided for all movements during docking and undocking.</p> <p>(e) Berthing / un-berthing at wet basin to be provided including basin charges.</p> <p>(f) Fire main supply of 4-bar pressure to be supplied to ship for entire duration of refit.</p> <p>(g) A/C sea water cooling line to be provided during dry docking whenever ship's A/C system is in use.</p> <p>(h) Supply of fresh water to be catered for 06 tons including 250 litres drinking water (RO purified) per day. However, payment to be made for actual consumption on pro rata basis.</p> <p>(i) Supply of compressed air to be made available as and when required.</p> <p>(k) Shore supply up to 150 KW to be provided including shore supply cable connection and cable to be disconnected as and when required. However, the payment to be made for actual consumption on pro rata basis. If any trader uses ship's supply for welding or other works, the same to be</p>	DO as per RFIC minutes.

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	<p>billed to the trader as per consumption and accounted for separately with details submitted for records.</p> <p>(l) 02 in nos. Carry away pipes for hull discharge openings to be provided during dry-docking.</p> <p>(m) 02 in nos. Garbage boxes (200 Ltrs each) to be provided and clearance to be done twice a day.</p> <p>(n) Crane facility to be provided as and when required. Yard to cater for a total duration of 70 hrs.</p> <p>(p) Yard to provide 01 telephone connection with STD, FAX & Internet facility and one more telephone connection for local use for entire duration of refit.</p> <p>(q) Fire sentries to be provided during hot work.</p> <p>(r) Cool air circulator with ventilation blowers (06 in nos.) to be provided for adequate ventilation.</p> <p>(s) Gas free certification for all tanks and confined spaces to be obtained from department of explosives.</p>	
HA1002	<p><u>TRANSPORT</u></p> <p>Yard to provide following transport facility during the period of refit including holidays and payment will be on pro rata basis:</p> <p>(a) 01 Jeep (12 hrs/100 km per day or 80 hrs per week)</p> <p>(b) 02 Car(12 hrs/100 km per day or 80 hrs per week)</p> <p>(c) 01 Mini bus (100 km or 12 hrs per day or 80 hrs per week)</p> <p>(d) In addition 01 One tonner as and when required basis.</p>	DO as per RFIC minutes.
HA 1003	<p><u>ACCOMMODATION</u></p> <p>(a) 02 in nos. containers(with approx floor area 1000 sq feet each) to be provided with AC facilities for office spaces and 01 container with shelves (20 ft x 20 ft) for lay-apart storage during entire duration of refit.</p> <p>(b) 05 in no. rooms (02 beds each) with AC, TV, laundry facility/ Washing machine, kitchen facilities, attached washrooms, full length cupboards and a dining table with 06 chairs for officers to be provided during entire duration of refit.</p> <p>(c) 04 in nos. rooms (02 beds each) with AC, TV, laundry facility/</p>	DO as per RFIC minutes.

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	<p>washing machine, full length cupboard and attached washrooms facilities for SOs to be provided during entire duration of refit.</p> <p>(d) 04 in nos. AC dormitory type accommodation for 28 EP (07 EP each) with TV & washing machine including attached washroom facilities to be provided during entire duration of refit.</p> <p>(e) Mattress with bed sheet and pillow with pillow cover for each officer, SO & EP including provision for changing them every day.</p> <p>(f) 01 in no. kitchen (15 ft x 15 ft) with 01 deep freezer (350 ltr with Double Door), 02 in nos. Fridge (320 ltr) and 02 in nos. cooking range with gas cylinders to be provided for ships galley.</p> <p>(g) 03 dining tables with chairs catering for 06 persons per dining table, for SOs and EP, to be provided along with dormitory as mentioned in para (d) above.</p> <p>(h) One portable cabin with separate WCs facility for officers and EPs at the site of the refit.</p>	
<u>UNDERWATER WORK PACKAGE</u>		
HA1004	Ship is to be dry docked in version I and II and necessary information/ details to be entered in docking form. Three copies of duly approved docking report complete with all data to be provided.	DO
HA1005	Washing of underwater hull with high pressure hydro dynamic jet (3000 PSI) followed by cleaning and thorough removal of sea growth with brushes from underwater hull and fittings including water jet, sea chest & grating to be carried out immediately after dry docking. (Underwater area: 320 sqm, boot top area: 100 sqm. Yard to cater for staging and crane facility). Then clean with fresh water thoroughly.	DO
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. Joint survey by class surveyor, CGRPT and SS.
HA1007	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	DO. Yard to cater for 500 UTG points, 02 tons of steel renewal of the plates /

at the end

	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.						stiffeners thinned down more than 20 % and automated hull scanning for full underwater area.	
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. Paint yard supply.	
	SL NO.	DFT	BRAND NAME	COLOUR	PSR SOM/ LTR	NO OF COATS		
	01	50	Intergrad 269, Epoxy primer, EGA 088/A	Red	5.64	01		
	02	125	Inter Tuf 262 KHA 304/A	Black	4.08	01		
	03	125	Inter Tuf 262 KHA/303/A	Red	4.08	01		
	04	75	Intergrad 263 FAJ 034/A	Light Grey	5.32	01		
	05	125	Interswift 6800	HS Black	3.47	01		

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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)					DO. Yard to cater for touch up paint scheme. Paint yard supply.
	<u>SL NO.</u>	<u>DFI</u>	<u>BRAND NAME</u>	<u>COLOUR</u>	<u>PSR SQM/LTR</u>	<u>NO OF COATS</u>
	01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	6.1	01
	02	150	Inter Tuf 727 JXA727/ JXA 720 KHA 304/A	HS Brown	3.36	01
	03	100	Inter Tuf 674 JXA 674/JXA675 KHA/303/A	HS Black	4.69	01
	04	115 Each	Interswift 655 A/F (SPC) BMA 009	Black	3.53	02
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. SS to mention number of Valves during RFIC.
HA 1012	Remove, Clean and refit all Sea Chest grating (Qty-15 nos)					DO. Yard to cater for 15 Nos gratings of various sizes. Renewal if any, against AWRF.
	(a)	Water jet-03 nos				
	(b)	Main engine-03 nos				
	(c)	DA - 03 nos				
	(d)	Fire & GS Pump - 01 no				
	(e)	Bilge & GS pump-01 no				
	(f)	AC Condenser pump - 01 no				
	(g)	RO plant - 01 no				
	(h)	Magazine flooding valve - 01 no				
	(j)	Oily water separator - 01 no				
HA 1013	Examine sacrificial anodes fitted on sea chest and jet tube area. Renew those consumed 50% and more (12 inlet ducts each having one anode, jet inlets-02 each, impeller housing-02 rings shapes, jet outer-07 disc shape anode each). Anodes - yard Supply					DO. Anodes yard supply and water jet anodes CG supply.
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.

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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 20 % 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, CGRPT and SS, full paint scheme after abrasive blasting to SA 2.5 as per CGBR-382 and renewal of bimetallic joint if any, under AWRP. Paint CG supply. Material yard supply. Total Area, steel deck -225 Sq mtrs.

SL NO.	DFT	BRAND NAME	COLOUR	PSR SOM/ LTR	NO OF COATS
01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	8.1	01
02	150	Inter Tuf 262 KHA 303/KHA 062	Red	3.41	01
03	100	Inter Tuf 263 (FAJ 034/FAA 262)	Grey	3.99	01
04	50 Each	Inter Thane 990, (PHB 000/PHA 046)	White	7.98	02

HA 1018 Bi-metallic joint on weather deck to super structure (A1) 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

of 200 81m

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

SL NO.	DFI	BRAND NAME	COLOUR	PSR SOM/ LTR	NO OF COATS
01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	6.1	01
02	125	Intergrad 400, Epoxy Primer EPA, 001/740	Grey	3.64	01
03	50 Each	Intergrad 700, (ECL 549/ECA 914)	Signal Green Non Skid	8.93	02

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)

Full coat of ship side to be applied on entire surface (approx area: 300 sqm). Blue strips marking by airless spray painting. "भारतीयतराशक" 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: "INDIAN COAST GUARD" lettering in English on port side and "भारतीयतराशक" 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 Complete area to be blasted to SA 2.5 and complete paint scheme to be applied using airless spray machine as per CGBR 382 and CGHQ letter SA/100/Paints dated 23 Feb 18 refers. Paint CG Supply. Including draft markings

SUPER STRUCTURE AREA EXPOSED (ALUMINIUM) AND ALUMINIUM EXPOSED DECK / BULKHEAD

NOTE: Aluminum Structures are not to be blasted / hard tools not to be used for scraping or chipping.

HA 1021 Entire structure to be examined paying particular attentions to all areas (including exposed decks and bulkheads) where aberration is possible. Check bulkhead and ships side (bimetallic joint) for paint failure, structural damage etc. Check flag decks, Emergency DA compartment, bridge area and boundaries for corrosion and deterioration. Doubtful areas where obscured structure, portable fittings may be

HA 1021

removed for inspection.

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

SL NO.	DFT	BRAND NAME	COLOUR	PSR SOM/ LTR	NO OF COATS
01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	8.1	01
02	150	Inter Tuf 262 KHA 303/KHA 062	Red	3.41	01
03	100	Inter Tuf 263 (FAJ 034/FAA 262)	Grey	3.99	01
04	50	Inter Thane 990, (PHB 000/PHA 046)	White	7.98	02

GENERAL COMPARTMENTS DECK NO 2, 1 AND ABOVE/ACCOMMODATION AREA/ LOBBIES AND PASSAGES, ELECTRICAL STORE, DECK STORE, ATU COMPARTMENT, BAGGAGE STORE

HA 1023

Lagging/ paneling or deck covering to be removed for inspection at various places where corrosion is likely to occur (approx area 300 sq m). Where lagging or deck covering is peeled cracked blistered lost adherence or structure is excessively corroded clean to bare metal dry the surface and recoat as per paint scheme. Thickness to be checked and any specific defect be projected. Lagging/ paneling to be refitted after inspection.

DO survey by class surveyor, CGRPT and SS. Yard to cater for 50 Sq. mtr area for sample inspection. All in-way jobs included. Material yard supply.

of 1023

GALLEY AND ASSOCIATED FITTINGS

HA 1024 02 Nos galley exhaust filters to be renewed as per sample. Mat- SS wire mesh with SS frames, size- 1.5 x 1.5 ft.

Deleted. Undertake under DFP.

ACCOMMODATION, LOBBIES AND PASSAGES

HA 1025 Inspect areas that are covered by lagging/panelling deck covering where corrosion is likely to occur. Check the thickness, assess condition of lower portion of bulkheads boundaries and structures obscured by fittings. Specific defects if any to be projected to undertake in AWRF.

Deleted covered in HA-1023.

MACHINERY COMPARTMENTS (FWD AND AFT E/R, W/J COMPARTMENT)

HA 1026 Clean machinery compartment bilges and limber holes and carry out visual survey for internal hull structure and fittings along with class surveyor. Inspect the frames, girders and stiffeners. Remove flaked paint film to bare metal and area where paint failure occurred. Carry out UTG at critical areas. Renew as per recommendation of class surveyor. Any damage/defect found to be noted and projected for repair. Carry out one final coat on entire bilge area as per scheme (approx area 160 sqm) **Paint yard supply.** (make: M/s AKZO NOBLE)

DO. Yard to cater for 200 UTG points and touch up paint scheme. Material yard supply. Paint CG supply.

<u>SL NO.</u>	<u>DFT</u>	<u>BRAND NAME</u>	<u>COLOUR</u>	<u>PSR SQM/LTR</u>	<u>NO OF COATS</u>
01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	6.1	01
02	125	Intergrad 403, (KBA400/KBA403)	Buff	3.79	01
03	125	Intergrad 403, (KBA402/KBA403)	Grey	3.79	01

ELECTRICAL STORE / BATTERY COMPARTMENT

HA1027 Examine all bulk heads, decks and boundaries. Clean, scrap and paint the rusted area.

Deleted. SS

steel and

BOATSWAIN STORE												
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. Paint CG supply.										
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" style="width: 100%;"> <tr> <td style="text-align: center;"><u>Size</u></td> <td style="text-align: center;"><u>Length</u></td> </tr> <tr> <td>50 mm</td> <td>75 mtr</td> </tr> <tr> <td>40 mm</td> <td>22 mtr</td> </tr> <tr> <td>32 mm</td> <td>14 mtr</td> </tr> <tr> <td>15 mm</td> <td>03 mtr</td> </tr> </table>	<u>Size</u>	<u>Length</u>	50 mm	75 mtr	40 mm	22 mtr	32 mm	14 mtr	15 mm	03 mtr	DO. Material yard supply.
<u>Size</u>	<u>Length</u>											
50 mm	75 mtr											
40 mm	22 mtr											
32 mm	14 mtr											
15 mm	03 mtr											
HA 1030	Examine structure not covered by lagging or deck covering, paying particular attention to deck boundaries lower area of bulkhead and ship side's areas around side scuttles. Portable or semi portable fittings and soil pipe trunk access plates are to be removed for examination of structure. Different section of pipelines area to be removed at successive examination. Strip examine and pressure test 05 in nos storm valve and pipes, renew leather seating and rubber lips. Specific defects to be reported to ship.	DO survey only. Storm valves covered in HA-1011.										
HB 1031	05 in no commode uprooted from base to be fitted as per existing sample. Mat-wood.	DO.										
HA 1032	Renew all taps and isolating stop cocks in Officers, senior sailor's and junior sailor's bathroom.	Deleted.										
HB 1033	Renew all wooden gratings of Officer's and Sailor's bathroom as per sample. Area total - 50 sq ft Mat-wood.	Deleted.										
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	DO survey by class surveyor and touch up paint scheme. Paint CG supply.										

of 1034

to be projected. Renew four cover gaskets of manholes.

<u>SL NO.</u>	<u>DFT</u>	<u>BRAND NAME</u>	<u>COLOUR</u>	<u>PSR SOM/ LTR</u>	<u>NO OF COATS</u>
01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	6.1	01
02	125	Intergrad 403, (KBA400/KBA403)	Buff	3.79	01
03	125	Intergrad 403, (KBA402/KBA403)	Grey	3.79	01

DIRTY WATER TANK AND DIRTY OIL TANK

Note 1: 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.

<u>SL NO.</u>	<u>DFT</u>	<u>BRAND NAME</u>	<u>COLOUR</u>	<u>PSR SOM/ LTR</u>	<u>NO OF COATS</u>
01	50	Intergrad 269, Epoxy primer, EGA 088/EGA 089	Red	6.1	01
02	125	Intergrad 403, (KBA400/KBA403)	Buff	3.79	01
03	125	Intergrad 403, (KBA402/KBA403)	Grey	3.79	01

FRESH WATER TANK

Atul Singh

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 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.

<u>SL NO.</u>	<u>DFT</u>	<u>BRAND NAME</u>	<u>COLOUR</u>	<u>PSR SOM/ LTR</u>	<u>NO OF COATS</u>
01	50	Intergrad 982, Epoxy primer, (TPA 018/019)	Primorse	3.9	01
02	125	Interline 204, Epoxy THA 206/201	Pink	3.14	01
03	125	Interline 204, Epoxy THA 200/201	White	3.14	01

DO survey by class surveyor and touch up paint scheme. Paint CG supply.

HA 1037 Associate the class surveyor during internal inspection and project specific defect for repair. Apply paint as per scheme. Ensure all manhole covers are free of corrosion and intact at seating. Pressure test tank if steel renewal /repair carried out. Paint as per scheme. Renew 04 in nos of taps and isolating stop cocks in galley, dining hall, std/ port bridge wing and quarter deck.

Deleted. 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)</p> <p>(b) Fuel RU tanks - 02 Nos (total volume-13.40 cu mtr)</p> <p>(c) Lube oil tank 15 W 40 - 02 No (total volume-1.40 cu mtr)</p> <p>(d) Lube oil tank HLP-68 - 01 No 1.00 cu mtr</p> <p><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.</p> <p>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 touch paint as per existing scheme. Paint CG supply. Material yard supply.
HB 1039	Overhaul 15 Nos tank breathers and renew wire meshes with frames, Area total- 15 sq feet. (Mat-SS). Spares yard supply.	Do.
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.	Deleted. Covered in HA-1023.

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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	DO.
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.

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. Paint CG supply.
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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 including survey by class surveyor.
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.	DO. Material yard supply.

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	DO.
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.	DO. Renewal if any against AWRF. Material yard supply.

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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)	DO. EPDM rubber material to be used as per CGHQ policy letter _____. Material yard supply.
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.	DO only survey, gauging and calibration of Anchor & Chain Cable and associated fittings. No load test to be conducted on Chain cable.
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).	DO. Paint CG supply
HB 1051	02 in nos. Anchor Wire Stropps (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.

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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 for SI HA 1052 and HA-1053. Complete overhauling of deck crane with associated fitting and load tested as per last load test certificate.
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>	

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GEMINI CRAFT, RIB, WATER SCOOTER, LIFERAFTS

HA 1054	Inspect the chocks of Gemini and RIB for proper seating. Any defect be projected for rectification.	Deleted. 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	Deleted. SS
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.	Deleted. SS
HA 1057	04 in nos. life rafts service due in the month of Nov. To be serviced.	Deleted. Undertake against service rate contract.
HB 1058	Stand of RIB and water scooter rusted and corroded to be renewed as per existing sample. Mat-SS (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)	QSD.
<u>TOWING HOOK, BOLLARD, BULL RINGS CLEAT AND STAG HORN</u>		
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 survey visually only
HB 1060	Renewal of sl (a),(b),(d) and (d) with enlarged size to facilitate housing of additional/ large diaphragm ropes (48 mm and above). Load test and certify following:- (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	Deleted.

ATC/AT/AMF

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

HA 1061	Dismantle 02 in nos. capstan, cable holder and gear box. Strip down for examination of all bearings, bushes, shafts, gears, clutch and brake lining. Holding bolts to be removed and examined. Assembly gear oil to be changed. Brake-lining to be renewed. Grease all pins. Operation of both capstans after assembly without and with load to be proved in both modes. Load test certificate to be provided.	DO overhauling of two capstans. Material yard supply. Spares and oil CG supply.
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 overhauling. Material yard supply. Spares and oil CG supply.
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)	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 as per CGHQ policy letter _____, Material yard supply. Water tight integrity to be witnessed by class surveyor.
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.	DO in conjunction with HB-1065.
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.	Deleted. SS
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.	Deleted.
HA 1069	Deteriorated rubber step grip in stairs to be renewed with new one as per existing sample. Total - 25 nos.	Deleted.
<u>FIRE MAIN / SEAWATER SYSTEM</u>		
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	DO 50% only.
<u>GENERAL COMPARTMENTS</u>		
HB 1071	05 in no. bunk uprooted from base to be fitted back. Location 18 rating mess.	Do. Material yard supply
HB 1072	18 in nos. locks of cupboard & shoe lockers defective. To be renewed as per sample.	Deleted.
<u>DECK FITTINGS</u>		
HB 1073	Spring loaded securing clips of 10 in no hatches defective. To be renewed (Mat: SS).	Deleted.
HB 1074	Lagging in naval store damaged to be repaired. Approx area 1 X 3 sq ft.	Deleted.
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. All in-way jobs included. Material yard supply.
HB 1077	Metallic fender on stbd side bent to be renewed. Approx area- (02 X0 .50 sq ft)	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.	Deleted.
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.	To be discussed during RFIC.

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HB 1081	<p>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.</p>	To be discussed during RFIC.
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SEWAGE TREATMENT PLANT

HA-1082	<p>Following routine to be carried out during refit</p> <ul style="list-style-type: none"> (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. 	Deleted. Covered under AIAMC.
HA-1083	<p>Basic overhauling of Vacuumerator pump and black and grey water transfer pump to be carried out.</p>	Deleted. Covered under AIAMC.
HB-1084	<p>All three water jet transom flanges to be renewed. (transom flange CG supply)</p>	

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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 (iv) Lower bucket (v) Upper bucket (vi) Link arm	DO inspection post cleaning with wooden scrappers and high pressure water jet.																																								
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																																								
EA-3005	All three water Jets shaft protection tube sacrificial Zinc anodes fitted base corroded (.) To be renewed as per sample. (Qty - 03, Mat- MS)	DO in conjunction with EA-3026. Material yard supply.																																								
EA-3006	Following under water and sea chest/sea suction line valves to be overhauled and pressure tested, Test pressure-06 bar. Renewal of spindle, disk and lid if required and painting to be carried out. All nut and bolts to be renewed with SS during fitment. (Material Yard Supply)	DO. Spares and material yard supply as per RFIC minutes.																																								
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EA-3007	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)	DO. Spares and material yard supply as per RFLC minutes.																																											
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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:

EA-3008	Check for any disc pack failure. If found any failure, replace it and investigate the cause of failure.	DO inspection only for EA-3008 and EA-3009. Repairs, if any, under AWRP.
EA-3009	Inspect the Lamidisc coupling disc packs for any misalignment using stroboscopic method as enumerated in the user manual.	
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
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EA-3011	Renew the lubricating grease. (Grease type: Lithium based type 2 grease with extreme pressure additives) (Material Yard supply)	DO. Material yard supply
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EA-3012	All three shafts to be cleaned with soft pad and polished. Shafts to be applied anti-rust chemical coating (Rust keeper 999).	DO in-situ cleaning and polishing. Material yard supply.
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EA-3013	Calibrate 05 Nos Plummer block temperature sensors.	DO calibration only. Sensor renewal if any against CG supply.
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EA-3014	All three shaft inflatable seals air lines to be flushed with compressed air (Dia: 12 mm, total length: 60 m, Mat: Copper).	DO. Material yard supply. All in way jobs included.
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**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**

2 Yearly and 5 Yearly routines on all three water jets to be carried out. Jobs are as follows:-

EA-3015	Carry out in-situ visual inspection of impeller, guide van chamber and transom flange assembly.	DO for DL Sls EA-3015 to EA-3040 through PAC firm M/s RRMI, Mumbai. Spares CG supply. Repair/ renewal if any against AWRF. Yard to quote for all sub serials separately.
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.	
EA-3017	Carry out in- situ inspection of bulkhead seal.	
EA-3018	Carry out functional test of counter balance valve of steering and reversing system.	
EA-3019	Carry out functional test/adjust of PTO pump and electric motor driven lub oil pump.	
EA-3020	Replace filters in hydraulic and lub oil system.	
EA-3021	Carry out functional test and adjustment of W/J alarm switches, pressure gauges and remote control system.	
EA-3022	Carry out functional test/adjust of hydraulic power pack tank with valve manifold.	
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.	
EA-3024	Replace feedback protection hoses (02 nos per W/J).Total 06 Nos.	
EA-3025	Overhaul the cylinders and replace all the cylinder seals	
EA-3026	Replace the anodes below shaft protection tube, on ship transom and shaft seal anode.	
EA-3027	Carry out calibration of levers, Feedback units and re adjust indicators.	
EA-3028	Check out pressure test of hub seal.	

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EA-3029	Replace the hub bearings.	
EA-3030	Replace the hub seal.	
EA-3031	Replace 'o' rings in pump unit.	
EA-3032	Replace bolts of impeller/stud shaft in pump unit.	
EA-3033	Refurbish the shaft seal.	
EA-3034	Replace the split cone ring.	
EA-3035	Inspect mechanical interface between impeller shaft and impeller shaft journal	
EA-3036	Replace the bushings.	
EA-3037	Replace the locking plates.	
EA-3038	Carry out through inspection of complete plate areas.	
EA-3039	Renew the complete hydraulic oil of the system.	
EA-3040	Replace the counterbalance valve (V41, V42 and V18).	

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

EA-3041	Test Injectors of engine.	Discuss during RFTC for EA-3041 and EA-3042.
EA-3042	Inspection of generator set vibration mounting to be carried out.	SS to indicate running hrs since installation
EA-3043	Carry out calibration of exhaust temp gauge (Range: 0 – 600 C)	DO calibration only.
EB-3044	DA exhaust line lagging found perished/deteriorated. To be renewed as per sample.	Deleted. To be undertaken under DFP.

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 EA-3045 to EA-3049 through PAC firm. Spares CG supply. Material yard supply.
EA-3046	Check radial wobbling of bowl spindle.	
EA-3047	Clean and inspect brakes and friction coupling.	
EA-3048	Replace bearings of separator motor.	
EA-3049	Carry out calibration and renewal of pressure gauges if required.	

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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 only calibration.
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 through PAC firm. Spares CG supply. Material yard supply.
EA-3053	Calibration of Pressure Gauge (Range: 0-40 bar, Qty: 01 no) DO only calibration.
EA-3054	Calibration of Pressure Gauge (Range: 0-20 bar, Qty: 01 no)
EA-3055	Calibration of Digital Temp. Gauge (Range: 0-200 C, Qty: 01 no)
EA-3056	Calibration of High pressure safety valve (Set point: 30 bar)
EA-3057	Calibration of Inter cooler safety valve. (Set point: 10 bar)
EA-3058	Check airflow internally and clean the air coils.
EA-3059	Automatic moisture drain valves of STBD HP air compressors malfunctioning intermittently. To be overhauled and proved.
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.
EA-3061	Inspect the valve plates and replace worn out valve plates.
EA-3062	All the pipelines should be checked for leaks at joints and replace packing if necessary.
EA-3063	Dismantle NRV, examine the spring for stiffness, check valve seat. Replace the spring and valve seat.
EA-3064	Decarbonizes the after cooler pipe and intercooler.
EA-3065	Lubricate the electric motor bearings.
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) DO calibration only.

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EMERGENCY AIR COMPRESSOR ENGINE (MAKE:M/S GREAVES, COIMBATORE, TYPE: 1510, QTY: 01 NO)		
EA-3067	Check fastenings.	Do.
EA-3068	Check valve clearance, adjust if necessary.	
EB-3069	Compressed air system line relief valve to be serviced and proved.	
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 and inspect high pressure hoses.	DO through PAC firm for DL SIs EA-3070 to EA-3079. Spares CG supply. Material Yard supply.
EA-3071	Renew the seal kit of HP pump.	
EA-3072	Overhaul the PK-20 and PK-30 Pumps and renew the defective components	
EA-3073	Calibrate torque wrench and hand conductivity meter	
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	
EA-3075	Replace all high pressure flexible hoses. Size: 1/4" dia, length:1000 mm, Part no. 101800202015, Qty: 01 no Size: 1/4" dia, length: 800 mm, Part no. 101800202008, Qty: 01 no Size: 1/4" dia, length: 600 mm, Part no. 101800202003, Qty: 01 no	
EA-3076	Inspection of PS 51, PS 71, PS 81 pressure switches.	
EA-3077	Renew dolomite in DA filter.	
EA-3078	PT 60 Potentiometer to be checked and calibrated/renewed.	
EA-3079	Conductivity meter probe to be cleaned and calibrated.	
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 only.
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 for DL SIs EA-3084 to EA-3086 through PAC firm. Spares CG supply. Material yard supply.
EA-3085	Replace HP pump manifold heads.	
EA-3086	Replace DT modules with service exchange modules.	
EA-3087	Replace circuit breakers and contractors as required.	Deleted. Covered under LA-5057

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AC PLANT {MAKE: M/S BOCK (I) LTD, TYPE: HG6 1240 4S, QTY: 02 NOS, PAC FIRM- HEINEN & HOFFMEN, KOLKATA}		DO through PAC/authorize firm for DL SIs EA-3088 to EA-3195. Spares CG supply. Material yard supply.
EA-3088	Overhaul the AC compressors and renew the defective components.	
EA-3089	Withdraw piston and inspect for wear down and scoring marks. Measure wear and tear of piston, piston rings and oil scraper rings. Replace if not within tolerance.	
EA-3090	Inspect small end bushes and gudgeon pins and replace if not within tolerance.	
EA-3091	Inspect all bearings for wear down and renew the bearing if required.	
EA-3092	Inspect unloading device for correct working.	
EA-3093	Inspect crank shaft, undertake measurement, polish and refit if not within tolerance limit	
EA-3094	Strip and examine lub oil pump of compressor	
EA-3095	Clean all motor bearings inspect for wear and tear.	
EA-3096	Overhaul condenser pump and renew the required spares. Post overhauling pump and motor to be aligned.	DO. Spares and material yard supply as per RFIC minutes.
EA-3097	AC condenser to be cleaned and inspect for corrosion and fouling. Perform the pressure test to 1.5 times of working pressure for 24 hrs. Replace condenser cover gasket/ 'O' ring and anodes on end covers. (Material yard supply)	DO. Material 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. (i) Vacuum test pressure: -0.9 Kg/cm ² (ii) Low side test pressure: 10 Kg/cm ² (iii) High side test pressure: 25 Kg/cm ² (Material yard supply)	DO. Material 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 as per RFIC minutes.
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) Isolating valves of the sea water system to be overhauled and pressure tested. (Size- 65 MM, SD valve, Qty- 01 No)	DO. Material yard supply as per RFIC minutes.

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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 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 only.
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. Material yard supply. All in way jobs included. Oil and Freon gas CG supply.
EA-3104	Entire duct of conditioned air of the ship to be cleaned with compressed air.	DO. Material yard supply.
EA-3105	Calibrate all pressure gauge and renewed all temperature gauge in the system.	Delete. Calibration of pressure gauges covered in EA-3202. S&D for temperature gauge renewal if any.
EB-3106	AC compressors suction, discharge and oil pressure gauge line dent at many places and adaptors leaking. 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.
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.
EB-3108	AC plant pressure gauge shut off valve not holding and leaking through glands. To be renewed as per sample (size: 1/4", Qty- 06 Nos, Mat- Brass)	Deleted. S&D
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 and material yard supply as per RFI minutes.
EA-3110	Check and flush all tube work and suction and delivery piping.	DO.
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 yard supply. All in way jobs included.

of the ship

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 calibration only.
<u>FIRE AND GS PUMP (MAKE: M/S BE PUMPS, TYPE: SBV 50-200M, QTY: 01 NO), OEM: M/S BE PUMPS</u>		
EA-3114	Overhaul the pump completely, clean and inspect each item thoroughly and renew worn out parts.	DO. Spares and material yard supply as per RFIC minutes.
EA-3115	Check and flush all tube work and suction and delivery piping.	DO.
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 calibration only.
<u>DOMESTIC FRESH WATER PUMP (MAKE: M/S BE PUMPS, TYPE: AO 3120K-1E-WCF-MS5, QTY-02 NOS) OEM: M/S BE PUMPS</u>		
EA-3119	Overhaul the pump completely, clean and inspect each item thoroughly and renew the worn out components.	DO. Spares and material yard supply as per RFIC minutes.
EA-3120	Check and flush suction and discharge pressure gauge lines	DO.
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 only.
<u>HYDROPHORE TANK (CAPACITY: 200 LTRS, QTY: 01 NO)</u>		
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. Paint CG supply. Material yard supply.
EA-3123	Carry out calibration of following gauges, safety valve and cutout: (a) Pressure Gauges (Range: 0 to 10 bar, Qty: 01 no) (b) Safety valve (Qty: 01 no, Set point: 5 bar) (c) Pressure switch (Range: 0 to 5 bar, 230 V, AC) (d) Overhaul LP air valve on the bottle and carry out pressure test up to 6 bar. (e) Sight glass of Hydrophore tank deteriorated and isolating valves are not holding/ leaking. To be renewed as per sample. (Mat- Brass, Material yard supply)	DO calibration only.

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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.
EA-3125	Overhaul following air system valves: (a) Ball valve (Size: 1 3/8", Qty: 02 nos): TP 45 bar (b) Ball valve (Size: 1", Qty: 02 nos): TP 45 bar (c) Ball valve (Size: 1/2", Qty: 02 nos): TP 45 bar (d) Ball valve (Size: 1/4", Qty: 02 nos): TP 45 bar	DO. Spares and material yard supply as per RFIC minutes.
EA-3126	Carry out calibration of following gauges and relief valves: (a) Pressure Gauge (Range: 0 to 40 bar, Qty: 01 no) (b) Pressure Gauge (Range: 0 to 10 bar, Qty: 02 nos) (c) Safety valve (Set point: 32 bar, Qty: 02 nos)	DO calibration only.
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.	Discuss during RFIC.
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 as per RFIC minutes.
EA-3129	Bilge pump (Piston type) to be overhauled and proved.	DO. Spares CG supply.
EA-3130	Inspection of safety valve to be carried out.	DO in conjunction with DL SI EA-3227.
EA-3131	Inspect coalescer filter and clean by backwashing.	DO in conjunction with DL SI EA-3227.
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 only.
EA-3133	Test the function of Oil level detector and solenoid valve.	DO in conjunction with DL SI EA-3227.

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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)
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)
PORTABLE SUBMERSIBLE PUMPS (MAKE: M/S KIRLOSKAR BROTHERS LTD., TYPE: NS20/10, QTY: 04 NOS)	
EA-3136	Overhaul the all submersible pumps and renew the defective components as required. (Material 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.
EB-3139	Anodes fitted on OBM found worn out. To be renewed as per sample (Mat- Zinc, 04 Nos)
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.
EB-3141	Anodes fitted on OBM found worn out. To be renewed as per sample (Mat- Zinc, 04 Nos)
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.
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
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.

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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)			
EA-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 overhauling of valves and renewal of sight glasses. Material yard supply.	
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.	DO. Spares and material yard supply. All in way jobs included.	
SYSTEM VALVES			
EA-3150	Overhauling of following A/C sea water system valves to be carried out: Description of valve (i) Condenser pump suction/discharge(SD Valve) (ii) Condenser Inlet/out let valve(Butterfly valve) (iii) Emergency cooling w(SDNR Valve)	DO. 50% only. Spares and material yard supply as per RFIC minutes.	
	Size 65 MM 65 MM 65 MM	Qty 02 Nos 02 Nos 01 No	TP 06 Bar 06 Bar 06 Bar

at 10/1/2017

EA-3151	Overhauling of following Fresh water Hydrophore system valves to be carried out Type of valve (i) SD Globe valve (ii) SD Globe valve (iii) SD Globe valve (iv) SD Globe valve (v) SDNR valve (vi) SDNR valve	DO 50% only. Spares and material yard supply as per RFIC minutes.
EA-3152	Overhauling of following Bilge and Fire main system valves to be carried out: Type of valve (i) Gate valve (ii) SDSL valve (iii) SDSL valve (iv) SDNR valve (v) SD valve (vi) SD valve (vii) SDNR valve (viii) Gate valve (ix) SD valve (x) NR vertical lift valve (xi) SD valve (xii) Ball valve (xiii) Pressure relief valve (xiv) Non return foot valve With strainer (xv) Fire hydrant valve (xvi) SDNR valve (xvii) Pressure reducing valve (xviii) Ball valve (xix) Ball valve	DO 50% only. Spares and material yard supply as per RFIC minutes.
EA-3153	Overhauling of following Domestic compressed air system valves to be carried out: Type of valve (i) SD valve (ii) SDNR valve (RA) (iii) SDSL valve	DO 50 % only. Spares and material yard supply as per RFIC minutes.

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EA-3154	(iv) Air hydrant valve 15NB 02 12 bar (v) Relief valve (6-10 bar) 15NB 02 NA (vi) Pressure reducing valve 15NB 01 NA(30 bar to 8 bar) (vii) Pressure reducing valve 15NB 01 NA (8 bar to 4 bar) Overhauling of following Main engine starting air system valves to be carried out:	DO 50% only.. Spares and material yard supply as per RFIC minutes.																																				
EA-3155	<table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Isolating valve</td> <td>32NB</td> <td>03</td> <td>45 bar</td> </tr> <tr> <td>(iii) SDNR valve</td> <td>32NB</td> <td>03</td> <td>45 bar</td> </tr> </tbody> </table> Overhauling of following Main engine sea water system valves to be carried out: <table border="1"> <thead> <tr> <th><u>Type of valve</u></th> <th><u>Size</u></th> <th><u>Qty</u></th> <th><u>Test Pressure</u></th> </tr> </thead> <tbody> <tr> <td>(i) Gate valve</td> <td>150NB</td> <td>03</td> <td>5 bar</td> </tr> <tr> <td>(ii) SDNR valve</td> <td>65NB</td> <td>03</td> <td>5 bar</td> </tr> <tr> <td>(iii) SDNR valve</td> <td>40NB</td> <td>02</td> <td>5 bar</td> </tr> </tbody> </table>	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Isolating valve	32NB	03	45 bar	(iii) SDNR valve	32NB	03	45 bar	<u>Type of valve</u>	<u>Size</u>	<u>Qty</u>	<u>Test Pressure</u>	(i) Gate valve	150NB	03	5 bar	(ii) SDNR valve	65NB	03	5 bar	(iii) SDNR valve	40NB	02	5 bar	DO 50% only. Spares and material yard supply as per RFIC minutes.								
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EA-3159	<p>Chemical cleaning and pressure testing of RO plant pipelines to be carried out:</p> <table border="1"> <thead> <tr> <th>Pipe line</th> <th>Size</th> <th>Length</th> <th>Material</th> <th>TP</th> </tr> </thead> <tbody> <tr> <td>(i) Product water line</td> <td>15mm</td> <td>1 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(ii) Brine line</td> <td>15mm</td> <td>1 mtrs</td> <td>SS</td> <td>5 bar</td> </tr> <tr> <td>(iii) Raw water line</td> <td>25mm</td> <td>1 mtrs</td> <td>Cu-Ni</td> <td>5 bar</td> </tr> </tbody> </table>	Pipe line	Size	Length	Material	TP	(i) Product water line	15mm	1 mtrs	SS	5 bar	(ii) Brine line	15mm	1 mtrs	SS	5 bar	(iii) Raw water line	25mm	1 mtrs	Cu-Ni	5 bar	DO. Material yard supply.				
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A/C/S/2014

EA-3162	Chemical cleaning and pressure testing of Fire main and bilge system pipeline to be carried out:	DO 50% only. Material yard supply.																																																				
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EA-3166	Chemical cleaning and pressure testing of Starting air system for Main engine pipelines to be carried out: Size 32 mm Length 12 mtrs Material SS TP 45 bar	DO 50% only. Material yard supply.
EA-3167	Chemical cleaning and pressure testing of Main Engine sea water system pipelines to be carried out: Size 150 mm Length 10 mtrs Material Cu-Ni TP 5 bar (i) 125 mm Length 15 mtrs Material Cu-Ni TP 5 bar (ii) 65 mm Length 10 mtrs Material Cu-Ni TP 5 bar (iii) 40 mm Length 15 mtrs Material Cu-Ni TP 5 bar (iv) 15 mm Length 05 mtrs Material Cu-Ni TP 5 bar (v) 12 mm Length 10 mtrs Material Cu-Ni TP 5 bar (vi)	DO 50% only. Material yard supply.
EA-3168	Chemical cleaning and pressure testing of Fuel oil transfer and filling system including DG pipelines to be carried out: Size 50 mm Length 15 mtrs Material SS TP 6 bar (i) 40 mm Length 10 mtrs Material SS TP 6 bar (ii) 25 mm Length 05 mtrs Material SS TP 6 bar (iii) 15 mm Length 10 mtrs Material SS TP 6 bar (iv) 08 mm Length 10 mtrs Material SS TP 6 bar (v)	DO 50% only. Material yard supply.
EA-3169	Chemical cleaning and pressure testing of Sea water system for auxiliary equipments pipelines to be carried out: Size 50 mm Length 10 mtrs Material Cu-Ni TP 6 bar (i)	DO 50% only. Material yard supply.
EA-3170	Chemical cleaning and pressure testing of sprinklers of magazine compartment and CRN 91 gun to be carried. (Qty - 11 Nos, Mat - Yard Supply)	DO. Material yard supply.
EA-3171	Carry out calibration of following gauges fire and bilge system: Pressure gauge: -1 to +1 bar, Qty: 06 Nos Pressure gauge: 0 to 7 bar, Qty: 06 Nos	DO only calibration
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	Deleted. To be undertaken during RFIC

10/10/2024

EA-3173	<p>NOISE AND VIBRATION ANALYSIS</p> <p>Noise and vibration analysis of the following Machinerie/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.</p> <p>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>	DO. All in way jobs included.
	<p>(a) Main Engines -03 Nos</p> <p>(b) Gear box -03 Nos</p> <p>(c) Main shaft -03 Nos</p> <p>(d) Plummer block -05 Nos</p> <p>(e) Diesel Alternators -03 Nos</p> <p>(f) Water Jets -03 Nos</p> <p>(g) AC Foundation -01 Nos</p> <p>(h) A/C Compressor -02 Nos</p> <p>(j) Main AHU -01 Nos</p> <p>(k) HP Air-Compressor -02 Nos</p> <p>(l) Centrifuges -01 Nos</p> <p>(m) Condenser Pump -01 Nos</p> <p>(n) Emergency DA -01 No</p> <p>(p) RO Plant -01 No</p> <p>(q) STP and vacuum toilet system -01 No</p> <p>(r) Anchor and Mooring Capstan -03 Nos</p> <p>(s) MCR Compartment -01 No</p> <p>(t) Engine room blowers -06 Nos</p> <p>(u) Bilge and GS pump -01 No</p> <p>(v) Fire and GS pump -01 No</p>	

7/2/2017

ICGS RAJRATAN NORMAL REFIT (NR-19)

MAIN DEFECT LIST - ELECTRICAL

DL NO.	DESCRIPTION OF JOB	RHQ(NW) REMARKS
1. 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.	Deleted. Covered under AIAMC.
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.	Deleted. SS to undertake serial (h) 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.	Deleted 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.	

atlast done

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.	Deleted. Covered under AIAMC.
LA-5015	Check external transducer condition of sensor pins for build up or wear and clean with fresh water.	
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.	

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2. DIESEL ALTERNATORS (PORT, CENTER & STBD) MAKE: NEWAGE STAMFORD, 415 V, 3 PH, 50 HZ, QTY 03 NOS (120 KW – 02, 80 KW – 01), PAC FIRM: M/S SUDHIR SALES AND SERVICES, AHMEDABAD, GUJRAT	
LA-5019	<p>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 and mechanically balanced. Ensure that the alternator shaft is properly aligned with prime mover. Record alignment values. (All material and all in way jobs under yard scope)</p> <p>DO through authorised firm. Material yard supply as per RFIC minutes</p>
LA-5020	<p>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.</p> <p>Do.</p>
LA-5021	<p>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)</p> <p>DO through authorised firm. Material yard supply as per RFIC minutes</p>
LA-5022	<p>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.</p> <p>DO. Yard to carry out load trials upto maximum sustainable ships load.</p> <p style="text-align: right;"><i>STB</i></p>

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>	<p>DO only calibration through PAC firm. Yard to provide calibration certificate. Spares CG supply.</p>																					
	<table border="1"> <thead> <tr> <th data-bbox="1236 291 1276 392">Sl No</th> <th data-bbox="1236 392 1276 1332">Description</th> <th data-bbox="1236 1332 1276 1579">Qty</th> </tr> </thead> <tbody> <tr> <td data-bbox="1204 291 1236 392">(a)</td> <td data-bbox="1204 392 1236 1332">Over speed trip (1650 rpm)</td> <td data-bbox="1204 1332 1236 1579">03 nos</td> </tr> <tr> <td data-bbox="1173 291 1204 392">(b)</td> <td data-bbox="1173 392 1204 1332">Low lube oil pressure alarm(1.2 bar)</td> <td data-bbox="1173 1332 1204 1579">03 nos</td> </tr> <tr> <td data-bbox="1141 291 1173 392">(c)</td> <td data-bbox="1141 392 1173 1332">Low lube oil pressure trip(0.8 bar)</td> <td data-bbox="1141 1332 1173 1579">03 nos</td> </tr> <tr> <td data-bbox="1109 291 1141 392">(d)</td> <td data-bbox="1109 392 1141 1332">High fresh water temperature alarm (92 deg c)</td> <td data-bbox="1109 1332 1141 1579">03 nos</td> </tr> <tr> <td data-bbox="1077 291 1109 392">(e)</td> <td data-bbox="1077 392 1109 1332">High fresh water temperature trip (97deg c)</td> <td data-bbox="1077 1332 1109 1579">03 nos</td> </tr> <tr> <td data-bbox="1045 291 1077 392">(f)</td> <td data-bbox="1045 392 1077 1332">High lub oil temperature alarm (120 deg c)</td> <td data-bbox="1045 1332 1077 1579">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>	Sl 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 (97deg c)	03 nos	(f)	High lub oil temperature alarm (120 deg c)	03 nos	<p>DO only calibration. Yard to provide calibration certificate. Spares CG supply.</p>
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(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"> <tbody> <tr> <td data-bbox="853 291 885 392">a)</td> <td data-bbox="853 392 885 1332">RPM meter</td> <td data-bbox="853 1332 885 1579">03 Nos</td> </tr> <tr> <td data-bbox="821 291 853 392">b)</td> <td data-bbox="821 392 853 1332">Exhaust temp</td> <td data-bbox="821 1332 853 1579">03 Nos</td> </tr> <tr> <td data-bbox="790 291 821 392">c)</td> <td data-bbox="790 392 821 1332">Fresh water temp</td> <td data-bbox="790 1332 821 1579">03 Nos</td> </tr> <tr> <td data-bbox="758 291 790 392">d)</td> <td data-bbox="758 392 790 1332">Sea water pressure</td> <td data-bbox="758 1332 790 1579">03 Nos</td> </tr> <tr> <td data-bbox="726 291 758 392">e)</td> <td data-bbox="726 392 758 1332">Lub oil temp</td> <td data-bbox="726 1332 758 1579">03 Nos</td> </tr> <tr> <td data-bbox="694 291 726 392">f)</td> <td data-bbox="694 392 726 1332">Lub oil pressure</td> <td data-bbox="694 1332 726 1579">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	<p>DO overhauling and calibration only. Yard to provide certificate. Material yard supply.</p>			
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																					
<p>3. MAIN SWITCH BOARD (MAKE: LARSON & TUBRO LTD) OEM FIRM : M/S LARSON & TUBRO LTD</p>																							
LA -5025	<p>Overhaul Complete MSB including painting of complete MSB panels using international marine equipment paint, 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"> <tbody> <tr> <td data-bbox="359 291 391 392">(a)</td> <td data-bbox="359 392 391 1332">Over current protection/short circuit relay</td> <td data-bbox="359 1332 391 1579">- 03 nos</td> </tr> <tr> <td data-bbox="327 291 359 392">(b)</td> <td data-bbox="327 392 359 1332">Under voltage protection relay</td> <td data-bbox="327 1332 359 1579">- 08 nos</td> </tr> <tr> <td data-bbox="295 291 327 392">(c)</td> <td data-bbox="295 392 327 1332">Reverse power tripping relay</td> <td data-bbox="295 1332 327 1579">- 03 nos</td> </tr> <tr> <td data-bbox="263 291 295 392">(d)</td> <td data-bbox="263 392 295 1332">Insulation monitor relay</td> <td data-bbox="263 1332 295 1579">- 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.	<p>DO overhauling and calibration only. Yard to provide certificate. Material yard supply.</p>									
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(c)	Reverse power tripping relay	- 03 nos																					
(d)	Insulation monitor relay	- 01 no.																					

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LA-5026	<p>Calibrate all meters of MSB. Calibration certificate to be issued.</p> <p>(a) KW meters (0-150 KW) - 02 Nos (b) KW meters (0-100 KW) - 01 No (c) Ammeter (0-300 Amps) - 02 Nos (d) Ammeter (0-200 Amps) - 02 Nos (e) Volt meter (0-300 V) - 01 No (f) Volt meter (0-500 V) - 04 Nos (g) Frequency meter (45-55 Hz) - 04 Nos (h) Synchroscope - 01 No (j) Double frequency meter (45-55 Hz) - 01 No (k) Double voltmeter (0-500V) - 01 No</p>	DO only calibration. Yard to provide calibration certificate. Spares CG supply.
LA-5027	<p>Overhaul 03 in no ACBs. Rating 350VA, 415 V. 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.</p>	Do in conjunction with LA-5025. Material yard supply.
LA-5028	<p>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.</p>	Do in conjunction with LA-5025. Material yard supply.
LA-5029	<p>All indications of outgoing feeders to be checked & proved.</p>	Do in conjunction with LA-5025. Material yard supply.

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4. EMERGENCY DA (MAKE: M/S ELMOT, TEFC, 2.5KW 230V 1Ph 50Hz, 0.8 LAG)

LA-5030	(a) Overhaul the alternator completely including starter motor. Thoroughly inspect the windings, cleaning, varnishing and baking of windings to be done. However before re-varnishing the revolving diode disc must be removed and refitted in exactly same position after re-varnishing. 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 and mechanically balanced (All material under yard scope).	DO including painting. Spare CG supply. Paint & 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)	Deleted. Covered in LA-5030
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.
LA-5035	Calibration of OLRs (10-16 Amps-01 no, 0.4-0.63 Amps- 01 no.) using CTT 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.	Deleted.

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5. 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. Calibration certificate to be issued by certified firm. Yard to provide calibration certificate. Spares CG supply.

	<u>Qty (nos)</u>
Pressure sensors:	
(a) Lube oil Trip (1.2 bar)	03
(b) Lube oil Alarm (1.5 bar)	03
(c) S/W Alarm (0.4 bar)	03
(d) Fuel oil Alarm (3.0 bar)	03
(e) Gear box lube oil Alarm(0.2 bar)	03
(f) Cooling water Alarm(0.5bar)	03
(g) Gear box control oil Trip (15.5 bar)	03
(h) Gear box control oil Alarm(16.5bar)	03
(j) Starting air Alarm(20 bar)	03
(k) Stern tube flow water	03
Temperature sensors:	
(a) Exhaust gas Alarm (750°C)	48
(b) Gear box lube oil Alarm (90°C)	03
(c) Gear box lube oil Trip (95°C)	03
(d) Engine lube oil Alarm (92°C)	03
(e) Engine cooling water Alarm(95°C)	03
(f) Charge air temperature Alarm(90°C)	03
Speed sensors:	
(a) Engine speed sensors Alarm (2415 rpm)	03
(b) Shaft speed sensors Alarm (2100 rpm)	03

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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 calibration only through PAC firm. Yard to provide calibration certificate.																																													
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 calibration only through PAC firm. Yard to provide calibration certificate. 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="438 280 1098 1003"> <thead> <tr> <th>S.no.</th> <th>Description</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>Boatswain store</td> <td>01</td> </tr> <tr> <td>(b)</td> <td>7 Navik mess</td> <td>01</td> </tr> <tr> <td>(c)</td> <td>Magazine compt</td> <td>01</td> </tr> <tr> <td>(d)</td> <td>Baggage compt</td> <td>01</td> </tr> <tr> <td>(e)</td> <td>Provisional store</td> <td>01</td> </tr> <tr> <td>(f)</td> <td>Jr sailors WC</td> <td>01</td> </tr> <tr> <td>(g)</td> <td>FER fwd port</td> <td>01</td> </tr> <tr> <td>(h)</td> <td>FER fwdstbd</td> <td>01</td> </tr> <tr> <td>(i)</td> <td>FER aft port</td> <td>01</td> </tr> <tr> <td>(k)</td> <td>FER aft stbd</td> <td>01</td> </tr> <tr> <td>(l)</td> <td>AER fwd</td> <td>01</td> </tr> <tr> <td>(m)</td> <td>AER aft</td> <td>01</td> </tr> <tr> <td>(n)</td> <td>Water jet fwd</td> <td>01</td> </tr> <tr> <td>(p)</td> <td>Water jet aft</td> <td>01</td> </tr> </tbody> </table>	S.no.	Description	Qty	(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 calibration only through PAC firm. Yard to provide calibration certificate. Spares CG supply.
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LA-5042	Functional checks of 17 In Nos Doors/Hatch sensors (Position Monitors) are to be carried out and certificate to be issued.	DO through PAC firm. Yard to provide calibration certificate. Spares CG supply.																																													
LB-5043	03 in nos door/Hatch sensor found defective. Defect to be rectified and proved for satisfactory operation.	DO. Spares CG supply.																																													

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6. MCR AND WHEEL HOUSE CONSOLE (MAKE : M/S ECC KOLKATA)	
LA-5044	<p>Overhaul complete Engine control panels in MCR and wheel House including painting of complete console. 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)</p>
LA-5045	Check the mounting base for proper functioning / any corrosion and renew if required.
LA-5046	<p>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):-</p> <p>(a) Shaft Speed indicator : 06 Nos (b) Reversing Position Indicator : 06 Nos (c) Engine Speed Indicator : 06 Nos (d) Bucket Position Indicator : 06 Nos</p>
	DO through PAC firm. Yard to provide calibration certificate. Spares CG supply.
	Discuss during RFIC.
	DO through PAC firm. Yard to provide calibration certificate. Spares CG supply.
7. WATER JET (M/S KAMEWA, SWEDEN), PAC FIRM M/S ROLLS ROYCE, MUMBAI	
LA- 5047	<p>Following alarms and sensor are to be calibrated (Calibration certificate to be issued):-</p> <p>(i) Low hydraulic oil pressure (15 bar). - 03Nos (ii) High temperature (65°C) and low oil level. - 03Nos (iii) Low oil flow and low lube oil pressure (1.5 bars). - 03Nos</p>
	DO only calibration through PAC firm. Yard to provide calibration certificate. Spares CG supply.
LA- 5048	Calibration and functional test of Feedback units for steering and reversing (total 06 Nos) to be carried out.
	DO. Yard to provide calibration certificate. Spares CG supply.

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8. HP AIR COMPRESSOR PANEL (M/s ECC, KOLKATA 415/230 V AC 02 NOS)	
LA-5049	<p>Check the corrosion in mounting bases. 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 as per RFIC minutes.
9. 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>
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. Spares CG supply.

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10. A/C CONTROL PANEL: MAKE; SWITCH AND CONTROL GEARS, MUMBAI

LA-5052	<p>Serviceing of complete control 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) Renew the power circuit wiring with appropriate cable rating. All cables to be properly legged with appropriate rating. Marking of cables with cable labels to be provided. Laying out of cable properly. Adequate cable to be provided for further future uses. R,Y,B color coding to be maintained.</p> <p>(c) Check all the control circuit 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>(d) Check the corroded mounting platform and take corrective action.</p> <p>(e) Renew all earthing straps. (All material and all in way jobs under yard scope)</p>	DO including painting. Material and paint yard supply as per RFIC minutes.
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.	DO calibration only. Yard to provide calibration certificate. Spares CG supply.
LA-5054	Scrap old paint and apply new paint using international marine standard equipment paint (Paint Yard supply).	Deleted.
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).	Deleted.
LA-5056	<p>Calibrate following meters. Calibration certificate to be issued.</p> <p>(a) Ammeter (0-30 Amps)-01 no</p> <p>(b) Ammeter (0-10 Amps)- 01 no</p> <p>(c) Ammeter (0-75 Amps)- 02 nos</p>	DO calibration only. Yard to provide calibration certificate. Spares CG supply.

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Sl	Motor description	Rating	Nos. Fitted	Location	Remarks
(I)	Galley supply / exhaust fan Motor	0.37 KW	02	Galley	DO . Material yard supply as per RFIC minutes.
(II)	Anchor capstan motor	5.5 KW	02	Foxle	Deleted. Undertaken under DFP.
(III)	Emergency DA compt. Exhaust fan motor	0.157 KW	01	Emergency DA compt.	DO . Material yard supply as per RFIC minutes.
(IV)	AHU motor	9.3 KW	01	ATU Compt	Deleted. Undertaken under DFP.
(V)	Exhaust fan motor for CO's bathroom	0.062 KW	01	CO's bathroom	Deleted. Undertaken under DFP.
(VI)	Naval store exhaust motor	0.157 KW	01	Naval Store	
(VII)	Baggage store supply fan motor	0.157 KW	01	Baggage store	
(VIII)	STP exhaust fan motor	0.318 KW	01	STP Compt	
(IX)	STP supply fan motor.	0.318 KW	01	STP Compt	
(X)	FM 200 Compt Supply Fan	0.157 KW	01	ATU Compt	
(XI)	Water Jet compt. Supply fan motor	3.7 KW	01	Jet Compt	DO . Material yard supply as per RFIC minutes.
(XII)	Exhaust fan motor for SO'S & Navik bathroom	0.314 KW	01	Navik bathroom	Deleted. Undertaken under DFP.
(XIII)	Dirty oil pump motor	1.5 KW	01	FER	DO . Material yard supply as per RFIC minutes.
(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	

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(XVII)	Oilly bilge water separator motor	1.1 KW	01	FER	--	
(XVIII)	Low pressure booster pump motor (RO plant)	0.37 KW	01	FER	--	Deleted. 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	2.2 KW	01	FER	--	DO . Material yard supply as per RFIC minutes.
(XXII)	Fuel oil purifier pump motor	0.75 KW	01	FER	--	
(XXIII)	Air compressor motor	7.5 KW	02	FER	--	
(XXIV)	AC sea water pump motor(main)	3.7 KW	01	FER	--	
(XXV)	Exhaust fan motor officer's bathroom	0.318 KW	01	Officer's Bathroom	--	Deleted. Covered under EA-3084
(XXVI)	AC compressor motor	27 KW	02	FER	--	DO . Material yard supply as per RFIC minutes.
(XXVII)	Fuel oil transfer pump motors	2.2 KW	02	FER	--	
(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	--	

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(XXXI)	Aft E/R supply fan motors	7.5 KW	01	Q/deck	--	DO . Material yard supply as per RFIC minutes.
(XXXII)	Electric motor for crane	7.5 KW	01	Quarter deck	--	Deleted. Covered under HA-1053
(XXXIII)	Mooring capstan motor	4.0 KW	01	WJ Compt	--	DO . Material yard supply as per RFIC minutes.
(XXXIV)	Paint store supply fan	0.37 KW	01	Paint store	--	Deleted. 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. Material yard supply as per RFIC minutes.
(XXXVII)	Garbage Disposal Motor	0.55 KW	01	Galley	--	Deleted. Undertaken under DFP.
13. SHORE CONNECTION BOX(SCB) 02 NOS (MAKE: M/S AIM ENGG)						
LA-5059	<p>Complete overhauling of the shore connection box including following:-</p> <p>(a) Check condition of mounting bases and insulation of the cable and record. Repaint the complete panel with equipment international marine paint.</p> <p>(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.</p> <p>(c) Check the insulation of cables and record.</p>					
	<p>DO. Material yard supply.</p>					

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14. 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 MCBs, switches, control units, contactors, transformer and OLRs. Replace all the defective components with correct ratings. (d) Check the insulation of cables, transformer and record. Repaint 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).					DO serials (I) to (XVI). Delete serials (XVII) to (XXII). Material yard supply. Calibration certificate to be provided.
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	

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(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	

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(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,50 Hz, 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	M50 (Radio room)	
(XX)	Auxiliary Power supply unit & Auto change over power supply unit	M/s AZDEC Ltd, England	Type: 060701/141 &	01 (each)	Ships Office	
			970306/210			
(XXI)	Power supply unit for TVRO	M/sFuruno, Japan	230VAC/24VD C	01	Ward room	
(XXII)	UPS for Main Engine Controls	M/s MTU	415V/230V/2 4VDC	02	Fwd E/R MCR	

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15. SEWAGE TREATMENT PLANT (MAKE: OMNI PURE MARINES) PAC FIRM : M/S HI-POINT, MUMBAI

Following motors to be overhauled as per defect sl. LA-5058						Deleted.	Covered	under
SI	Motor description	Rating	Nos. Fitted	Location		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					Deleted.	Covered	under
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. Permanent Identification no. PIN NE/fh-01/2017-B/029]</p>					Deleted.	Covered	under

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16. BATTERY CHARGER, 30 AMPS (03 NOS) AND 60 AMPS (01NO.) (MAKE: M/S RADIANT ELECTRONICS, KOLKATA)

LA-5064	Overhauling of 04 in nos. Battery chargers and control panel (01 no.) to be carried out. Job includes following. (a) Transformers varnishing and take insulation before and after varnishing i.e. insulation to be improved. (b) Securing of battery charging panel cable. (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. (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. (e) Check all safety trips for proper functioning and if not carry out replacement of defective components. (f) Renew all earthing straps.	DO including painting. Material and Paint yard supply.
LA-5065	Calibrate of following meters and calibration certificate to be issued. (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	DO calibration only. Yard to provide calibration certificate. Spares CG supply.
LA-5066	Scrap old paint and apply new paint using international marine standard equipment paint (Paint Yard supply).	Deleted. SS

Other stuff

17. 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>© 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>
18. GENERAL LIGHT FITTING, WALL MOUNTED FANS & SWITCH SOCKETS	
LB- 5068	20 nos. Light fitting along with bracket in machinery spaces perished. To be replaced. Deleted.
19. 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>
20. 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>
	DO. Material and paint yard supply.
	DO. Material yard supply.

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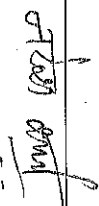
LB-5071	(f) Clean all contacts, switches & relays and check the proper operating of MCB's, switches, control units, contactors. Replace the defective components with correct ratings. (All material and all in way jobs under yard scope)	Deleted. S&D.
21. INTEGRATED BRIDGE SYSTEM (TRANSAS, SWEDEN), PAC FIRM: M/S TRANSAS, MUMBAI		
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.	Deleted. Covered under AIAMC.
22. RADAR (MAKE: TRANSAS, SWEDEN, TYPE: NR4000, 12KW & 25 KW – 02 NOS.) PAC FIRM : M/S TRANSAS, MUMBAI		
LA-5073	Check transmitter power output.	Deleted. 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.	
23. 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.	Deleted. Covered under AIAMC.
LA-5079	Open multiplexer unit and check internal wiring and tighten terminals, if loose	

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24. 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.	Deleted. Covered under AIAMC.
LA-5081	Open multiplexer unit and check internal wiring and tighten terminals, if loose.	
25. 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.	Deleted. 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.	
26. 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.	Deleted. Covered under AIAMC.
LA-5085	Ensure repeaters are aligned with main Gyro and Gyro feed is available to RADAR, ECDIS and other connected equipment.	

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27. 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.	Deleted. Equipment declared Obsolete by OEM. ABER approved vide DHQ-1
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.	ABER serial no. DHQ-1/ABER/ 11/18-19 dated 01 Jun 18.
28. ANEMOMETER AND WEATHER (M/S LILLEY & GILLIE, U.K WALKER 7080), PAC FIRM : M/S TRANSAS, MUMBAI		
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.	Deleted. 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.	
29. AUTOPILOT CUM STEERING GEAR SYSTEM (M/S RAYTHEON, TYPE NAUTOPILOT- 20X5) PAC FIRM : M/S ELCOME INTEGRATED PVT LTD, NAVI MUMBAI		
LA-5091	Complete overhaul of autopilot cum steering gear system to be carried out.	Deleted. Covered under AIAMC.
30. SOUND POWERED TELEPHONE(MAKE: M/S MARINE ELECTRONICS GENOVA ITALY, TYPE: IMCOS), PAC FIRM M/S ELCOME INTEGRATED SYSTEM (P) LTD		
LA- 5092	Overhaul the complete system. Prove the system from each location (Total 15 nos fitted in various Locations).	Deleted. SS
31. MAIN BROADCAST (MAKE: M/s MARINE ELECTRONICS GENOVA ITALY, TYPE: IMCOS 1151), PAC FIRM M/S ELCOME INTEGRATED SYSTEM (P) LTD		
LB-5093	Main Broad cast system found to be non-operational. Defect to be rectified and proved for satisfactory operation.	Delete LB-5093 to LB-5096.
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.	

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LB-5095	Cable for main broadcast junction box at foxle found to be deteriorated. Cable to be renewed as per sample. Main Broad cast to be proved for satisfactory operation.	
LB-5096	Foxle/ Quarterdeck main broadcast junction box and socket deteriorated. To be repaired and proved. Housing box to be renewed.	
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.	Do.
32. 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	Deleted.
33. 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.	Deleted.
34. 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.	Deleted.
35. 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.	Deleted. Under take under DFP.
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.	
36. HF TRANSCEIVER 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	Deleted.

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	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)	
37. INMARSAT 'C' TERMINAL (M/S SAILORS THRANE AND THRANE DENMARK, DENMARK, TT-300E)		
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.	Deleted.
38. VHF RADIO TELEPHONE (SAILORS THRANE AND THRANE DENMARK RT 5022 02 NOS.)		
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.	Deleted.
39. FLEET BROAD BAND 500 (SAILORS THRANE AND THRANE DENMARK)		
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	Deleted.
40. VLF/HF RECIEVER EK-896 (M/S BEL, BANGALORE)		
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.	Deleted.
41. NAVTEX RECEIVER (MAKE M/S SAMYUNG, TYPE SNX-300)		
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	Deleted.
42. PORTABLE HF TX/RX PRC 6020 (M/S BEL)		
LA- 5109	Overhaul the complete unit internally, check performance in all functional modes and prove it for satisfactory operation.	Deleted.
43. 5" HAND SIGNALING ALDIS LANTERN 60W (M/S RAY ENTERPRISES, KOLKATA 02 NOS)		

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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.	Deleted.
44. PAE - 3060 (MAKE: ECIL, HYDERABAD)		
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.	Deleted.
45. 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.	DO. Spares CG supply
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)	DO. Spares CG supply
46. 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)	Deleted.
47. 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)	DO. Material yard supply.
48. 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.	DO. Material yard supply.

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	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)	
49. 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)	DO. Material yard supply.
50. REFRIGERATOR AND DEEP FREEZER (MAKE GODREJ TYPE 230 LTRS (02 NOS)/90 LTRS (01NO)/235 LTRS (01 NO) EACH)		
LA-5118	Overhaul the complete system including following:- (a) Check for any mechanical damage / corrosion and replace defective Door seal, Door hinge & handle. Inspect the surface & paint whole assembly using international marine standard equipment paint. (b) Overhaul compressor or replace if found defective. (All material and all in way jobs under yard scope)	Deleted.
51. SART (MAKE M/S THRANE & THRANE TYPE SAILOR SART-II, 02 NOS)		
LA-5119	Perform the functional tests. Servicing of the equipment to be carried out by PAC firm with servicing/ test report.	Deleted.
52. EPIRB (MAKE M/S THRANE & THRANE, TYPE SAILOR SGE-II, 01 NOS)		
LA-5120	Perform the functional tests and Replacement of BATT 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.	Deleted.
53. MAGNETIC COMPASS (MAKE: LILLEY AND GILLIE ENGLAND U.K. MODEL: MK 2000)		
PAC FIRM M/S ELCOME MARINE SERVICES (P) LTD		
LA-5121	Overhauling of Magnetic compass to be carried out. Supporting Liquid and gasket to be renewed. Replace all defective components.	Deleted.
LA-5122	Calibration of magnetic compass to be carried out and calibration certificate to be issued.	Deleted.

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	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.	
54. TVRO SYSTEM (MAKE: M/S INTELLIAN) PAC FIRM M/S MOLOOBHOY PVT LTD, MUMBAI		
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)	Deleted. To be undertaken under DFP.
55. INFRARED COMMUNICATION SYSTEM (MAKE: M/S AZDEC LTD, ENGLAND), PAC FIRM M/S ELCOME INTEGRATED SYSTEM PVT LTD, MUMBAI		
LA-5124	Complete overhauling of infrared communication system. Job includes as follows:- (a) Cleaning of all IR Antenna thoroughly and carrying out functional checks of same including base station. Replace all the defective components. (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. (c) Check the functionality of Antennas from all the positions. Check the mounting bases of IR antenna & base station. Repair / replace if found defective. 03 in Nos IR Antennas (Aft E/R - 02 Nos, and Water Jet compf - 01 no) non-operational. Defective antennas to be repaired and proved for satisfactory operation.	DO through PAC firm.
LB-5125		Discuss during RFIC.
56. IFF IDENTIFICATION OF FRIEND & FOE (MAKE: M/S HAL, HYDERABAD)}		
LA-5126	Complete overhauling of IFF system including as follows:- (a) Check all the mounting base and fitment of IR antenna & base station and repair / replace if found defective. (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	Deleted.

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	same and record. (c) Carry out the complete functional checks of IFF system as per manual specification & procedure and replace the all defective components.	
57. FM-200 MAJOR FF SYSTEM (MAKE: M/S SUPER FIRE ENGG PVT LTD) PAC FIRM: M/S SUPER FIRE ENGG PVT LTD, MUMBAI		
LA-5127	Complete overhauling of Electrical annunciation panel to be carried out. All relays to be checked.	DO through authorized firm.
LA-5128	Renew control supply emergency sealed battery (12V, 17AH - 02 Nos)	Delete. S&D
LA-5129	Following Alarms and all Indication lamps in Annunciation panel to be proved. (a) Pre-Discharge hooter+flasher - 06Nos (W/H,MCR, AER and FER) (b) Alarm Bell - 01 No (Main Deck) ⊙ Strobes - 01 No (Main Deck)	DO through authorized firm.
58. 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.	Deleted. To be undertaken under DFP.
59. 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.	DO. Material yard supply.

Atul Singh