

Tele:- 079-23243374

Reply should be addressed
to the Commander

SPEED POST/E-Mail

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

Quoting : 3417/3

12 Jul 18

**PRE QUALIFICATION FOR SHORT REFIT (SR-19) OF ICGS MEERA BEHN
INVITATION OF EXPRESSION OF INTEREST AND COMMENTS/QUERIES**

Sir,

1. It is intimated that e-mail containing following defect list serials (Hull, Engineering and Electrical) in respect of **Short Refit (SR-19)** of **ICGS Meera Behn** based at Okha for **90 days** duration of alongwith serial wise CGRHQ (NW) remarks has been forwarded todate 12 Jul 18 :-

- (a) Hull : HA 1001 to HB 1076
- (b) Engg : EA 3001 to EA 3176
- (c) Elect : LA 5001 to LA 5087

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 **Jan 2019** for period of **90 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.

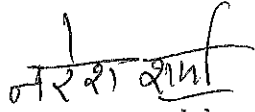
5. For details of defects on machinery, systems and ship's Hull, you are requested to contact **"The Station Technical Officer, ICGS Okha, Okha (Tele No.02892-263421/262260)"** to ascertain availability of ship in harbour and clearance to visit the ship.

Contd . . . 2/-

6. It is intimated that a Request for Information Conference (RFIC) will be held at **CGRHQ (NW), Gandhinagar/ CGDHQ-1, Porbandar/ICGS Okha/ 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.
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, ICGS Okha and ICGS Meera Behn** at the addresses given below by **01 Aug 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 Okha
Post Box No.16, Port Okha,
Dist: Devbhumi Dwarka-3615 350
Email- cgs-okh@indiancoastguard.nic.in
- (d) The Commanding Officer
ICGS Meera Behn
C/o ICGS Okha
Post Box No.16, Port Okha,
Dist: Devbhumi Dwarka-3615 350
Email- m-behn@indiancoastguard.nic.in

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


(NK Sharma)
Commandant
Regional Technical Officer (Refit)
for Commander
Coast Guard Region (NW)

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

Copy to :

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

The Commanding Officer
ICGS Okha
Post Box No.16, Port Okha,
Dist: Devbhumi Dwarka-3615 350

The Commanding Officer
ICGS Meera Behn
C/o ICGS Okha
Post Box No.16, Port Okha,
Dist: Devbhumi Dwarka-3615 350

ICGS MEERA BEHN MAIN DEFECT LIST SHORT REFIT- 2019

HULL

SL NO	JOB DESCRIPTION	CGRHQ(NW) REMARKS
HULL AND APPENDAGES		
HA 1001	Ship to be Docked in version I & II as per Docking plan for maintenance of underwater hull, fittings including sea chest, Water Jet tunnel/Guard and fixed fins. Joint under water inspection to be carried out with paint manufacturer rep, ABS / IRS Surveyor and CG Overseer/rep.	Do. SS to provide docking plan
HA 1002	Wash and clean under water hull and Boot Top Area with hydro dynamic jet (3000 PSI) and brushes, then clean with F/W thoroughly. TOATL AREA – 410 SQ MTRS	Do
HA 1003	Carry out robotic scanning and UTG survey of underwater area paying particular attention to E/R, tanks, shaft areas and sea tubes. Those plates thinned down more than 20% to be cropped and renewed. Critical plates to be marked in drawings for renewal in forth coming refit, report of UTG survey be given in shell expansion drawing and tabular form. No of UTG points: 500.	Do. Yard to cater for 750 Nos. UTG points and 02 tons of steel renewal only. Nil robotic scanning. Material yard supply.
HA 1004	After cleaning examine the whole under water area paying particular attention being given to hull plating in the vicinity of brackets zinc protectors, sea chest and all other fastenings and wind water areas for signs of corrosion defects and damage. Class surveyor be associated for all inspections.	Do. Survey by class surveyor
HA 1005	Underwater hull exposed to bare metal to be repaired by scraping the surrounding coating back to a sound feathering edges followed by spot blasting to SA 2.5 and touching up with full paint scheme. Product performance guarantee (PPG) to be issued for 36 months by paint manufacture. Paint Yard supply. Under water area (i) Sigma Cover 280 (Yellow Green) (ii) Sigma Cover 630 (Aluminium) (iii) Sigma Cover 630 (Grey) (iv) Sigma Cover 525 (Black) (v) Sigma Alphasgen 650 (Brown) (vi) Sigma Alphasgen 650 (Red Brown)	Do. For HA-1005 & HA-1006. Yard to cater for touch up paint scheme of M/s Sigma Coatings (SPC Scheme) as per existing paint scheme including boot top area. Paint yard supply. Paint application under supervision of paint manufacturer rep. Total under water area including boot top area is 410M ² .
HA 1006	Underwater areas where antifouling paint has detached from underlying anticorrosive coat, to be scraped to sound feathering edge and areas abraded and touched up with tie coat and antifouling paint.	Do. Anodes CG supply
HA 1007	Examine sacrificial anodes fitted on sea chest. Renew those consumed 50% and more (06 no. inlet duct, 18 no at transom, 06 no at sea tube, 04 no at fixed fins, 06 no at aft cut up, 16 no sea chest opening)	Deleted. Under AIAMC
HA 1008	Di-electric shield to be examined for wear and damaged layer of resin/araldite. To be redone as per specification if damaged. Under AIAMC.	Deleted. Under AIAMC
HA 1009	Photographs of underwater hull fittings/ damages during docking to be taken similarly photographs of all equipment's, systems, compartments, cabins, tanks, void spaces and bilges to be undertaken prior commencement of job, during dismantling of equipment/ system and post completion of job. Prints to be	SS

	given to ship (02 sets)	
HA 1010	The complete underwater hull to be recoated with one full coat of antifouling paint using airless spray. Paint Yard supply Under water area (Approximate surface area 360 Sq. Mtrs) (i) Sigma Alphagen 650 (Brown) (ii) Sigma Alphagen 650 (Red Brown)	Deleted. Covered under SI HA-1005 & HA-1006
HA 1011	Apply antifouling black on entire Boot Top area. During dry docking. Paint yard supply Boot Topping Area (Approximate surface area 50 Sq. Mtrs) (i) Sigma Cover 525 (Black) (ii) Sigma Alphagen 650 (Black)	
HA 1012	Paint manufacturer rep along with CG overseers/ ships rep. to inspect condition of anticorrosive and antifouling paints. Record DFT and wear down of SPC coating. After high pressure fresh-water wash, paint manufacturer rep to recommend course of action after ascertaining whether the condition of protective coating is sound or defective.	Deleted. Covered under SI HA-1005 & 1006
HA 1013	Survey of 12 Nos sea tubes to be carried out. 02 fixed fins to be tested for air tightness with a pressure of 0.2 Kg f / CM ² .	Do.
HA 1014	Remove, clean and refit all sea chest gratings, Survey underwater fitting i.e. water jet tunnels (03) , 11 sea chest valves and 03 other underwater openings (Jet inlet duct each area 30 Sq Mtrs) including water jet guard. Components to be opened, cleaned, painted and refitted in position. Paint Yard supply	DO. All consumables / fasteners yard supply, spares CG supply, paint as per U/W paint scheme. Paint yard supply.
SHIP SIDE		
HA 1015	Inspect along with class surveyor for structural integrity/ UTG to be carried out in 200 point. Touch up as per approved paint scheme. Paint CG supply (Approximate Surface Area 310 Sq m) (i) Sigma Cover 280 (Yellow Green) (ii) Sigma Cover 380 (Aluminium) (iii) Sigma Cover 380 (Grey) (iv) Sigmadur gloss White 550 (v) Sigmadur gloss White 550	Do. For DI SI HA-1015 and HA-1016. Yard to cater for survey by class surveyor, 200 UTG point 01 ton of steel renewal and touch up paint scheme as per CGBR 382. Paint CG supply
HA 1016	Final coat on ship side to be applied on entire surface. Blue strip marking and inscribed Indian coast guard both side in Hindi and English by airless spray painting. Painting to be carried out under the supervision of paint rep and SS. Area – 310 sq mtrs, Paint CG supply.	
STEEL DECKS (EXPOSED DECKS)		
HA 1017	Hull survey/ UTG reading to be carried out for 200 points and class surveyor be associated to assess extent of corrosion/damage. Plates found thinned below 20% be renewed on surveyor recommendation after UTG evaluation. Required deck and deck fitting to be blasted to bare metal and touch up full paint scheme to be applied. Paint CG supply and Material Yard supply. Main Weather Deck (Approx Area 275 Sq Mtrs). (i) Sigma cover 280 (Yellow Green) (ii) Sigma cover 380 (Grey) (iii) Sigma cover 380 (Green)	Do. Yard to cater for survey by class surveyor, 200 UTG points, 01 ton of steel renewal and touch up paint scheme after grit blasting of any CG approved paint manufacturer. Paint CG supply. Material yard supply.

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	(iv) Sigma cover 350 (Green 4199)		
HA 1018	Examine bi-metallic joint on weather deck. Do super structure (AL) paying particular attention to joint where failure of structure may occur. Defects observed to be rectified according with surveyor recommendation.	Do. Material yard supply	
HB 1019	06 in nos. Mushroom and trunking to be opened cleaned and inspected. Wire mesh and nuts to be renewed. Mushroom and trunking to be painted as per paint scheme. Defective trunking to be renewed. Mat of nuts, wire mesh- SS, wire mesh dia. -27 cm, 24 no. M8 bolt and nuts. Paint Yard supply.	Do. All material yard supply. Renewal of trunkings, if any against AWRF	
HB 1020	Wire mesh of 22 in numbers goose necks / Breathers along with nuts corroded. To be renewed. Wire mesh dia.- 5cm, Mat of nuts- SS, M6, Qty-24 nos.	Deleted. To be undertaken under DFPR	
HB 1021	02 in no. supporting leg of Jack Staff corroded and pitted. To be renewed as per sample. L- 1.5 Mtrs each, Dia : 30 mm, Material – MS	Deleted. To be undertaken under DFPR	
HB 1022	01 in no stag horn uprooted from base to be renewed and proved. Mat : MS	Deleted. To be undertaken under DFPR	
HB 1023	60 in nos. stanchions alongwith shoes corroded and thinned on weather deck. To be renewed with earth bonding as per sample. Material - GI	Do. Material yard supply	
HB 1024	03 in nos. toilet doors locking system damaged. To be renewed as per sample.	Deleted. To be undertaken under DFPR	
HB 1025	Self-locking mechanism on all following hatches to be fitted as per CGWO recommendations. (a) Boatswain Store (b) Foxle Hatch (c) Fwd and aft engine room hatch (d) Water jet hatch	Deleted. To be undertaken under DFPR	
ALUMINIUM DECKS, SUPERSTRUCTURE (APPROX AREA 400 SQM)			
HA 1026	Examine all structure paying particular attention to all areas where abrasion is possible. Check bulkhead and ship side above main deck (bimetallic joint) for paint failure, structural damage etc. Check flag decks, ATU compts, bridge areas and boundaries for corrosion and deterioration. suspicious areas where obscured structure, portable fittings may be removed for inspection.	Do for Sls. HA-1026 & HA-1027. Yard to cater for survey by class surveyor, 200 UTG points and 500 kg of aluminium renewal for aluminium decks, super structure and mast.	
HA 1027	UTG reading to be carried out at 200 points of Aluminium decks (super structure). Renewal as per UTG reading and surveyors recommendations. Material Yard supply.	Do. Paint CG Supply	
HA 1028	Final coat on Aluminium decks, superstructure to be applied on entire surface. Paint CG supply. Aluminium Exposed Deck (Approximate Surface area 120 Sq. Mtrs) (i) Sigma cover 350 Green 4199 Superstructure exterior & Mast (Approx Surface area 210 Sq. Mtr) (i) Sigma Sigmadrur 550 White		
GENERAL COMPARTMENTS (DK-1, DK-2)			
HA 1029	Inspect the structure by removing lagging/paneling or deck covering at surrounding areas of bathrooms and where corrosion is likely to occur. Check the thickness and renew as per surveyor recommendation. Structure revealed by removal of fittings be re-painted before fixing the portable fittings. UTG points 200. Paint CG supply.	Do. Survey & UTG 200 points of suspected area. Steel renewal catered in DL HA-1015 & 1017. Material yard supply.	
ACCOMMODATION OFFICERS, SOs AND OTHERS			
HA 1030	Inspect the structure by remove lagging / paneling or deck covering at surrounding areas of	DoO. Survey & UTG 200 points of	

	accommodation of Officers, SOs and others where corrosion is likely to occur. Check the thickness and renew as per surveyor recommendation. Structure revealed by removal of fittings be repainted before fixing the portable fittings. UTG points 200. Paint CG supply.	suspected area steel renewal catered in DI 1015 & 1017. Material yard supply.
HA 1031	Macrotech flooring deteriorated in following compartment. To be renewed. In-way jobs includes removal & fitment of all fittings e.g. lockers, tables, sofa, bunk. Area 99 Sq. Mtrs. All inway jobs included. (i) CO's bathroom (ii) Officer's Bathroom (iii) Ward Room Pantry (iv) Deck-2 Lobby (v) Ship's Galley (vi) Dining hall (vii) SOs and Navik bathroom (viii) 18 Rating mess (ix) Canteen (x) Locker Compt (xi) MCR	Do. Yard to cater for only finishing coat of flooring. Material yard supply.
HB 1032	20 in nos crew locker corroded/damaged at various places. To be renewed as per sample. Material - GI. Material Yard supply	Deleted. To be undertaken under DFPR
GALLEY		
HA 1033	Renew the grease filters if damaged, and clean the flue collector trunking & renew if damaged. Galley exhaust canopy with grease filter to be cleaned. 02 filters to be renewed (size 400x450x450 mm). Approx length - 03 Mtrs	Do. Yard to cater for renewal of filter and cleaning of exhaust canopy/ flue collector trunking. Material yard supply.
HA 1034	All drain pipes to be removed, chemically cleaned and fitted back (Dia 45 mm, Length - 30 Mtrs approx)	Do. Chemically cleaned PT and repaint pipe line prior fitment, Material yard supply
FLATS, LOBBIES PASSAGES		
HA 1035	Remove/ Inspect structures by removing lagging/ paneling deck covering at places where corrosion suspected. Clean to bare metal, dry the surface and touch up as per paint scheme. Paint CG supply. Approx 15 M ² area and 100 UTG points. Specific defects be projected to undertake in AWRF. Material Yard supply.	Deleted. Covered in HA-1029 & HA-1030
MACHINERY COMPARTMENTS (FWD E/R, AFT E/R, MCR & WATER JET)		
HA 1036	Clean all bilges, limber holes, inspect the frames, girders, stiffeners, Deck Heads, Bulk heads behind Insulation, Bilges, Sea Chest and sea gratings etc. UTG points 100. Damage areas to be surface prepared and repaint as per touch up paint scheme. Paint CG supply. Approx area 1050 sq. mtrs. (i) Sigma cover 280 (ii) Sigma cover 380 (Green) (iii) Sigma cover 380 (Grey)	Do. Yard to cater for survey by class surveyor, 100 UTG points & touch up paint scheme, paint CG supply (Area-255 M ²)
ELECTRICAL STORE/BATTERY COMPARTMENT/EMERGENCY DA COMPT		
HA 1037	Suspected areas covered by lagging/paneling deck covering may be removed to assess condition of steel /Al structure. Semi portable fittings be removed and inspected. Carry out UTG of deck and lower portion of	Do in conjunction with HA-1017 & HA-1027

HA 1031

	bulkhead. Renew as per recommendation of class surveyor. Scrap, clean and removed all flaked paint film to bare metal at area where paint failure occurred. Apply paint as per scheme. Paint C supply																	
BATHROOMS AND WCs																		
HA 1038	Remove all scuppers, drain pipes of bath rooms and toilets. To be Chemically cleaned and refitted after pressure testing. 50% renewal of pipes. Following pipe lines in scupper and discharge system to be dismantled, chemically cleaned and pressure tested upto 5 bar pressure. Eliminate all leakages, repair all defective pipe and carryout painting as per colour coding :- Mat:- MS. Paint Yard supply	Do. Cater for chemical cleaning and pressure testing of 50% pipe line. Renewal if any against AWRP. Material yard supply.																
	<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Size</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>50 mm pipe</td> <td>75 Mtr approx</td> </tr> <tr> <td>(b)</td> <td>40 mm pipe</td> <td>22 Mtr approx</td> </tr> <tr> <td>(c)</td> <td>32 mm pipe</td> <td>14 Mtr approx</td> </tr> <tr> <td>(d)</td> <td>15 mm pipe</td> <td>03 Mtr approx</td> </tr> </tbody> </table>	Sl. No.	Size	Length	(a)	50 mm pipe	75 Mtr approx	(b)	40 mm pipe	22 Mtr approx	(c)	32 mm pipe	14 Mtr approx	(d)	15 mm pipe	03 Mtr approx		
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HA 1039	Examine structure not covered by lagging or deck covering, paying particular attention to deck boundaries lower area of bulkhead, bulkhead of shower room 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 pipeline areas to be removed at successive points for examination.	Deleted. Covered under HA-1029 and HA-1030																
HB 1040	Following WC commodes cracked/faded. To be renewed as per sample. Material- SS (a) Officer's toilet - 01 (b) SO'S-01 (c) Junior Sailors toilet -03	Deleted. S&D																
HB 1041	07 in nos. telescopic showers and securing stands/clamps damaged. To be changed as per sample.	Deleted. To be undertaken under DFPR.																
HB 1042	12 in nos. open / close valve of WC fresh water pipeline deteriorated. To be renewed as per sample.	Deleted. To be undertaken under DFPR.																
FORE PEAK & VOID SPACES																		
HA 1043	Open the void spaces (04 nos.) & fore peak compartment and ventilate for main entry. Scrap and remove all flaked paint films to bare metal. Area to be cleaned. Nut/bolts (SS) and gaskets of void space covers to be renewed and fitted back. Paint and Material Yard Supply. Approximate Surface Area 785 Sq Mtrs (i) Sigma cover 280 (ii) Sigma cover 380 (Green) (iii) Sigma cover 380 (Grey)	Do for DI Sls HA-1043 and HA-1044. Yard to cater for survey by class surveyor, 100 UTG points & touch up paint scheme, paint CG supply (Area-215 M ²).																
HA 1044	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, any defects to be rectified/ repaired as per surveyor recommendation and applied paint as per scheme. Paint Yard supply.																	
STORAGE TANKS																		
HA 1045	Following fuel tanks to be opened, gas free certificate to be obtained, cleaned, painted as per paint scheme, coated with linseed oil, pressure tested upto 760 mm of Hg, tank covers nut/bolts, gaskets to be renewed and fitted back. Cleaning and application of oil, renewal of nut, bolts of material SS and gaskets.	Do for HA-1045 & HA-1046 as per DI SL yard to cater for following																

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Paint and Material Yard Supply.		QTY	
LOCATION	(APP. CAPACITY) (in cubic mtrs)		
FR 2-6	5.7	02 (P & S)	
FR 11-13	4.9	02 (P & S)	
FR 13.5 – 16.5	9.5	01 (Centre)	
FR 20 – 23	12.6	01 (Centre)	
Paint scheme as follows :-			
(i) Sigmaguard 720 (Green)			
(ii) Sigmaguard 720 (Grey)			
HA 1046 Following tanks to be opened and gas free certificate to be obtained, cleaned, 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. Painted with paint scheme mentioned below, pressure tested upto 760 mm of Hg, tank covers nut/bolts(SS), gaskets to be renewed and fitted back, carry out paint as per scheme. Paint Yard Supply.			
TANK		(APP. CAPACITY)	QTY AREA (APPROX)
(in cubic mtrs)			
Fresh water (FR 25-28)	13	01	81
Dirty water (FR 20-21)	0.475	02	26
Dirty oil (FR 17-18)	0.741	02	26
Lub oil tank (FR 15-17)	01	02	02
Paint scheme as follows :-			
(a) For fresh water:			
(i) sigma cover 280 (Yellow Green)			
(ii) Sigmaguard 720 (Green)			
(iii) Sigmaguard 720 (Grey)			
(b) For Dirty water:			
(i) Sigmaguard 720 (Green)			
(ii) Sigmaguard 720 (Aluminium)			
(c) For Dirty Oil:			
(i) Sigmaguard 720 (Green)			
(ii) Sigmaguard 720 (Grey)			
(d) For Lub Oil:			
(i) Sigmaguard 720 (Green)			
(ii) Sigmaguard 720 (Grey)			
ATU & FAN			
HA 1047 Survey structures not covered by lagging, 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. Scraping and cleaning on best attempt basis. Paint and Material Yard supply. Area – 120 sq mtrs.			Delete. Covered in HA-1026

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MAGAZINE

HA 1048	Operating mechanism of sprinkling system and manually flooding valve to be overhauled and pressure tested and proved. Size : 125 mm, Type : Gate valve	Do. (Only sprinkling system valve. Flooding valve covered under EA-3017)																				
HA 1049	All pipelines to be removed, Chemically cleaned, defect rectified and pressure tested to 1.5 times of working pressure. Damaged pipeline to be renewed as per sample. Mat – Copper Nickel, length – 12 Mtrs approx. Renewal against AWRP.	Do. Chemical cleaning and pressure testing. Renewal if any against AWRP.																				
BAGGAGE STORE / VICT STORE/ PROVISION STORE AND PAINT STORE																						
HA 1050	Examine structure not covered with permanent lagging paying particular attention to decks, decks boundaries, lower area storages, racks and bins to be clean, scrap and paint the rusted area. Area approx 50 sq. mtrs.	Do. Cater survey by class surveyor. Renewal if any against HA-1015 and HA-1017																				
HA 1051	Examine all steel structure/ rack paying particular attention to the area under vertical supports & boundaries. Clean, scrap and paint the rusted area.																					
ANCHOR AND CHAIN CABLE (COMMON STUD ANCHOR CHAIN)																						
HA 1052	Layout chain cable on deck. Survey cable and shackles (Two Chain cables, each has 5 shackles) by class surveyor. Strip, Clean and grease all joining shackles (6 joining shackles on each). Change ends of cable to ensure equality of wear. Remark cable lengths. Move and lubricate anchor flukes. Gauge the cable in consecutive all links and record. Any links dia found below permitted limits to be renewed. Examine Blake slip, bottle screw slip and associated deck fittings and carry out load test of the same. Examine state of paint along with paint manufacturer technical rep for Naval pipe, hawse pipe and anchor, cable. On completion of all jobs apply paint as per paint scheme and take the cable onboard. Paint Yard Supply. (i) Sigma vikote 63 Black	Do. As per DI Sl. Associate surveyor for survey, gauging certification of anchor, chain cable and associated fittings, Nil load testing of fittings. Paint CG supply.																				
CABLE LOCKER																						
HA 1053	Range out cable from cable locker. Remove portable perforated plates. Clear the sump and suction strainer and box. Examine structure in vicinity of cable clench, shipside, plates and bars, stiffeners etc. Specific defects if any projected. Recoat after repair as per scheme. Fix the cable to cable clench after applying grease XG274 to D- Shackle. Paint and Grease Yard supply. Note:- SS to physically witness the fastening process, condition of locking pin and record in ships data/ ND data book. Paint scheme as follows:- (i) Sigma cover 380 Brown/Green 720 (Green) (ii) Sigma cover 380(Grey)	Do. Paint CG Supply																				
FRESHWATER SYSTEM																						
HA 1054	Remove, chemically clean pressure test 50% of Fresh water system pipelines, defective pipes to be repaired. Gaskets to be renewed. Paint and Material Yard supply.	Do for 50 mm and 15 mm dia pipe line only, remaining all pipe covered under EA-3174																				
	<table border="1"> <thead> <tr> <th>SIZE</th> <th>LENGTH</th> <th>MATERIAL</th> <th>TEST PRESSURE</th> </tr> </thead> <tbody> <tr> <td>50 mm</td> <td>06 Mtrs</td> <td>Seamless Steel</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>32 mm</td> <td>30 Mtrs</td> <td>Seamless Copper</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>20 mm</td> <td>53 Mtrs</td> <td>Seamless Copper</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>15 mm</td> <td>88 Mtrs</td> <td>Seamless Copper</td> <td>7.5 Kg/cm²</td> </tr> </tbody> </table>	SIZE	LENGTH	MATERIAL	TEST PRESSURE	50 mm	06 Mtrs	Seamless Steel	7.5 Kg/cm ²	32 mm	30 Mtrs	Seamless Copper	7.5 Kg/cm ²	20 mm	53 Mtrs	Seamless Copper	7.5 Kg/cm ²	15 mm	88 Mtrs	Seamless Copper	7.5 Kg/cm ²	
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15 mm	88 Mtrs	Seamless Copper	7.5 Kg/cm ²																			

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HA 1055	Remove, overhaul and refit following valves in the Fresh water system as mentioned below. (Test pressure: 7.5 Kg/sq. cm). Material Yard Supply	Do. Material yard supply.															
	<table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>QTY</th> </tr> </thead> <tbody> <tr> <td>32 MM</td> <td>SDSL</td> <td>06 no.</td> </tr> <tr> <td>32 MM</td> <td>SDNR</td> <td>04 nos.</td> </tr> <tr> <td>20 MM</td> <td>SDSL</td> <td>04 nos.</td> </tr> <tr> <td>15 MM</td> <td>SDSL</td> <td>35 nos.</td> </tr> </tbody> </table>	SIZE	TYPE	QTY	32 MM	SDSL	06 no.	32 MM	SDNR	04 nos.	20 MM	SDSL	04 nos.	15 MM	SDSL	35 nos.	
SIZE	TYPE	QTY															
32 MM	SDSL	06 no.															
32 MM	SDNR	04 nos.															
20 MM	SDSL	04 nos.															
15 MM	SDSL	35 nos.															
SCUPPER AND DRAINS																	
HA 1056	Strip, examine and refit and pressure test of 05 in nos storm valves and pipes (50% of total number). Renew the leather seating. Size-50 mm, Length of pipe- 15 mtrs, Mat-MS.	Do for 05 valves and 25 % pipe length. Material yard supply.															
HA 1057	Deck drain pipes to be removed cleaned and pressure tested (50% of total number) & damaged pipe to be renewed as per sample. (Dia 45 mm , Length – 30 m approx, Mat - MS)	Do for 25 % only. Material Yard supply															
VENTILATION/AIR CONDITIONING SYSTEM																	
HA 1058	Blow through with LP air, ventilation trunking of all compartments and then examine for any crack/hole/any other defects. Damaged area to be renewed as per sample against AWRP. Length of trunking 50 mtr approx.	Do. All inway jobs included															
HB 1059	22 in no Vent flaps on weather decks with rubber coaming and hinges of flap doors to be inspected, Chalk test and renewed. Material Yard supply. Rubber coamings to be procured from agency as per CGHQ directives. Size-30mm X 20 mm and length 50.5 mtrs.	Do. Rubber material per CGHQ policy letter FM/0305/CGWO/Gen dated 29 Jan 14. Material Yard supply.															
DECK CRANE (MAKE – NED DECK MARINE B.V. SFSWR, SWL -7.5KN)																	

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HA 1060	<p>Carry out complete overhauling of crane including Survey and load test of deck crane together with all associated fittings, SW ropes, blocks pulleys etc. Load Test certificate to be provided to ship. Crane to be proved for safe load ratings. Spares CG supply.</p> <p>(SWL-7.5 KN, static load-2 x SWL, Wire rope breaking strength – 1960 n.mm² Wire rope dia -10 mm Wire rope length - 20m)</p> <p>(a) Proof test shall include</p> <ul style="list-style-type: none"> (i) Hoist and lower the main hook (ii) Auxiliary hook load and boom (iii) Slewing and luffing (iv) Test of safety (v) Fail safe and limit switches (vi) Load movement (vii) Boom angle indicators <p>(b) After testing the following should be examined</p> <ul style="list-style-type: none"> (i) Foundation (ii) Sheaves and rope guides (iii) Wire ropes and end connectors (iv) Hoist, brakes and clutches (v) Hooks (vi) Bolting arrangements 	Do through PAC firm. Spares CG supply & Mat yard supply.
HA 1061	Change Hydraulic oil. Oil CG supply	SS
HA 1062	<p>Overhaul the clutches and hydraulic system. Prove the hydraulic system for 240 bar operating pressure. Change hydraulic hoses which are leaking and damaged. 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 paint as per paint scheme and prove for operation at specified SWL – 7.5 KN, Spares CG supply, Material Yard supply.</p>	Do through PAC firm. Spares CG supply & Mat yard supply.
TOWING EQUIPMENT		
HA 1063	Conduct load test of towing slip and fittings as per CGHQ policy letter and load test certificate to be provided.	Do.
ANCHOR CAPSTAN		
HA 1064	Dismantle the capstan, cable holder and lower the gear box. Strip down capstans (02 in number) and examine all bearings, clutch and brake mechanism. Check strength of Base. Overhaul complete equipment and change oil. Grease all pins and adjust / replace. Test the capstan on no load and then on load and prove. Load test certificate to be provided. Spares/ Oil CG supply. Material Yard supply.	Do. Spares CG supply Material yard supply
MOORING CAPSTAN		
HA 1065	Dismantle the capstan, cable holder and lower the gear box. Strip down mooring capstan and examine all Bearings, clutch and brake mechanisms. Check strength of base. Overhaul complete equipment and change oil. Grease all pins and adjust / replace. Test the capstan on no load and then on load and prove.	Do. Spares CG supply Material yard supply

	Load test certificate to be provide. Spare/ Oil CG supply. Material yard supply.	
STRUCTURAL FITTING – DOORS, HATCHES & MANHOLES		
HA 1066	Inspect all rubber coaming, repair for any defects in all doors, hatches and manholes and their hinges/coaming to be renewed. Chalk test to be carried out. Material Yard supply. Rubber coamings to be procured from agency as per CGHQ directives. Sizes doors 1.7 X 0.8 mtrs hatches 0.8 X 0.8 mtrs vent flap -0.3 X 0.3 mtrs. (a) Doors - 10 nos. (b) Hatches – 10 nos. (c) Vent flap- 12 nos	Do. Rubber material per CGHQ policy letter FM/0305/CGWO/Gen dated 29 Jan 14. Material yard supply.
HB 1067	Following doors water tight locking mechanism alongwith handle deformed/perished at various places. To be renewed. (a) Port entrance. (b) Stbd entrance. (c) ATU compt port entrance. (d) ATU compt stbd entrance.	Do. Material yard supply
HB 1068	04 in nos Engine room/MCR door deteriorated due to fair wear and tear. To be renewed (sound proof).	QSD
SIDE SCUTTLES, DECK LIGHTS ETC.		
HA 1069	Inspect rubber seating of all scuttles and dead light. Renew the rubber seating of toughened glasses and hose test be conducted. Scuttles -05 nos, deck lights -16 nos.	Do.
BRIDGE / OBSERVATION WINDOWS		
HA 1070	Renew all seals of view glass in bulkhead and conduct hose test.	QSD
HA 1071	03 in nos Clear View screen assembly pitted, scratched and deteriorated affecting visibility. To be renewed as per sample. Dia- 37cm. Material yard supply.	S & D
HB 1072	Turning handle of fixed loud hailer in bridge deteriorated due to fair wear and tear to be renewed. (Mat- SS, L-1.5 Mtrs). Material Yard supply.	Deleted. To be undertaken under DFP.
BOLLARDS, FAIRLEADS, STAG HORN		
HA 1073	Non destructive test (DP Test) AND LOAD TEST to be conducted as per standard for following (a) Bollards -08 (b) Fair leads -08 (c) Towing Bollards-01 (d) Bullring-02 (e) Stag Horn-10 (f) Ships Brow-01	Do only NDT. Renewal if any under AWRf. Sl (c) deleted as undertaken on DL SL HA-1063.
MAST (APPROX AREA 400 SQM)		
HA 1074	Carry out visual inspection of entire mast. Scrap, clean the mast to bare metal at defective areas. Touch up scheme be applied to those areas. Final coat of mast be applied. Paint CG supply. Paints scheme as follows: (i) Sigma cover 280 (Yellow/Green) (ii) Sigma cover 380 (Aluminium)	Deleted. Covered under DI Sls. HA-1026 to HA-1028

	<p>(iii) Sigma cover 380 (Grey) (iv) Sigmadur 550 (White) (iv) Sigmadur 550 (White)</p>	
GENERAL SERVICES		
HB 1075	<p>Following services are to be provided during the ship stay at yard till departure.</p> <p>(a) Berthing at Yard with tug and pilot assistance.</p> <p>(b) Fresh water 05 Tons / day with storage and distributing arrangement onboard / for ships company.</p> <p>(c) Electricity (415 V 50Hz 3 phase 100 A).</p> <p>(d) Telephone connection with fax facility (direct shore connection with internet facility).</p> <p>(e) Following Transport facility for officers and EPs for logistics support be provided.</p> <p>(i) 20 seater minibus for ship's coy- 01 (ii) Staff car for Officers - 01 (iii) Staff car for CGRPT - 01</p> <p>(f) Cranes facility for shifting/loading /unloading.</p> <p>(g) Two in nos. room(16 ft x 20 ft) for lay apart stores with locking facility for storing items/stores/ spares/ oil drums etc.</p> <p>(h) Fire main for 24 Hrs (Three Bar pressure with flexible hoses), extinguishers, fire sentry, fire tenders services, as required by ship.</p> <p>(i) Storage drums/tanks for storing oil/fuel while cleaning tanks with transferring facility.</p> <p>(k) Two in nos. (16 ft x 20 ft) A/C cabins for ship's office / reg. office/ store office and refit/ project office work to be provided with 06 nos table, 14 nos chairs and 06 nos cupboards.</p> <p>(l) 250 Ltr drinking water (RO Purified) per day.</p> <p>(m) shore supply up to 150 KW to be provided including shore supply cable connection and cable to be disconnected as when repaired.</p>	Do as per RFIC minutes
HB 1076	<p>When the ship is uninhabitable/ during the period of dry docking additional services required are as follows:-</p> <p>(a) Separate A/C accommodation for 05 Officers with following facilities:-</p> <p>(i) Attached western style toilet with bath.</p> <p>(ii) Basic room carpet, curtain etc.</p> <p>(iii) Study table and two chairs.</p> <p>(iv) Basic linen viz foam mattress, bed sheets, pillows, pillow covers, blankets to be provided including provision for changing bed sheet, pillow cover everyday.</p> <p>(v) 27" colour TV with cable connection and DVD player.</p> <p>(vi) 300 Ltrs refrigerator.</p> <p>(vii) Dining space and cooking area to be provided for officers.</p> <p>(viii) Telephone connection with fax and internet facility.</p> <p>(ix) One in no. washing machine.</p> <p>(b) Accommodation for 08 subordinate officers to be provided. Details of accommodation is as follows:</p> <p>(i) Four rooms for 08 subordinate officers. Each room to accommodate 02 subordinate officers.</p> <p>(ii) Each room to have 02 nos. single bed/cot (size 7 x 3 ft).</p>	Do as per RFIC minutes

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	<ul style="list-style-type: none"> (iii) Each single bed cot to be equipped with foam mattress, bed sheets, pillow and pillow cover including provision for changing bed sheet, pillow cover everyday. (iv) One attached WC and bathroom with each room. (v) Each room to have one study table and two chairs. (vi) Each room to have basic upholstery like carpet/curtains. (vii) Two colour TV with cable connection and DVD player to be provided for subordinate officers. (viii) Telephone connection with internet facility. (ix) One in no. washing machine. <p>(c) Dormitory type accommodation for 28 Naviks. The details of accommodation are as follows:-</p> <ul style="list-style-type: none"> (i) 28 in nos. single bed/cot (7 x 3 ft) room to have air circulator in summer/heater in winter. (ii) Each single bed/cot to be equipped with foam Mattress, bed sheet, pillow, pillow cover etc including provision for changing bed sheet, pillow cover everyday. (iii) Five attached WC and Five attached bathroom. (iv) Dormitory room to have 04 teapoy and 04 easy chairs. (v) Dormitory room to have basic upholstery like Carpet/curtain. (vi) Two colour TV with cable connection and DVD player to be provided. <p>(d) Miscellaneous services:-</p> <ul style="list-style-type: none"> (i) Galley services catering for cooking arrangements for 05 Officers and 35 sailors with 01 deep freezer and 02 in nos fridge and 02 in nos. cooking range with gas cylinders. (ii) WC facility for Officers and EPs at dockyard. (iii) Lay apart store. (iv) 02 containers for spares & equipment. (v) 03 aqua guards one each for officers, SOs and Galley. 	
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ICGS MEERA BEHN SHORT REFIT (SR-19)
MAIN DEFECT LIST: ENGINEERING

<u>SL NO</u>	<u>DEFECT DESCRIPTION</u>	<u>RHQ (NW) REMARKS</u>
<u>UNDERWATER PACKAGE: DRY DOCK ROUTINES 02 YEARLY/ REFIT PROPULSION SHAFTS/WATER JETS, MAKE: KAMEWA, SWEDEN, MODEL: 71 S II, QTY: 03 NOS, PAC FIRM M/S ROLLS ROYCE, MUMBAI</u>		
EA 3001	Clean and in-situ inspection of all impellers, guide vane chamber and transom flange assembly for pitting, dents and cracks. Carry out repairs as recommended by class surveyor/OEM.	Do for DI SIs 3001 to 3013 through PAC firm as per the CGHQ letter FM/1158/Maintenance Schedule dated 29 Jan 14 (Copy enclosed). Spares CG supply.
EA 3002	Clean and in-situ inspection of shaft seal, shaft coupling and flange bolts. Carry out repairs/renewal as recommended by class surveyor/OEM.	
EA 3003	Carry out in-situ inspection of bulk head seals (05 Nos)	
EA 3004	Carryout functional test of the counter balance valve (V41, V42 & V18) steering and reversing system.	
EA 3005	Carryout functional test on PTO pumps. Readjust if required.	
EA 3006	Carry out functional test on electric motor driven lub oil pump. Readjust pressure if required	
EA 3007	Carryout functional test on Hydraulic oil tank with valve manifold. Readjust pressure if required.	
EA 3008	Check the condition of the hanging anodes, anodes below shaft protection tube, on ship transom and shaft seal. Replace if required. Spares CG supply	
EA 3009	Carry out in-situ pressure testing of the steering and reversing cylinder seals. Replace the seal if found leakage(spares - CG supply).	
EA 3010	Carry out pressure test and crack test of hydraulic hoses. Replace if found leakage during pressure testing(spares - CG supply)	
EA 3011	Carry out in-situ inspection of split cone ring.	
EA 3012	Carry out readjustment of shaft seals	
EA 3013	Replace the steering and reversing feedback cables. Spares CG supply.	
EA 3014	Replace the anodes below shaft protection tube, on ship transom and shaft seal. Spares CG supply.	
EA 3015	Check the condition of the hanging anodes, replace if required. Spares CG supply.	
EB 3016	Leakage observed on port and centre Shaft seals view defective bellows. To be renewed and proved for satisfactory operation (SPARES -CG SUPPLY) all in way job involves complete removal of shaft and seals and fitment of new seals.	
		Do through PAC firm. All in way jobs included. Only intermediate shaft to be dismantled/removed for renewal of bellows. Spares CG supply

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EA 3017	Following sea chest valves to be removed, overhauled, pressure tested up to 05 kg/cm ² and fitted back.	Do. Material Yard Supply as per RFCIC Minutes.																																				
EA 3018	Following over board valves to be removed, overhauled, pressure tested up to 05 kg/cm ² and fitted back. <table border="1" data-bbox="638 392 1037 1243"> <thead> <tr> <th>Size</th> <th>Type</th> <th>Qty</th> <th>Equipment / System</th> </tr> </thead> <tbody> <tr> <td>125 MM</td> <td>SDNR</td> <td>03 nos</td> <td>Main Engine</td> </tr> <tr> <td>65 MM</td> <td>SDNR</td> <td>05 nos</td> <td>GS pump, A/C, Educators</td> </tr> <tr> <td>32 MM</td> <td>SDNR</td> <td>02 nos</td> <td>shower & bilge pump</td> </tr> <tr> <td>25 MM</td> <td>SDNR</td> <td>01 no</td> <td>RO plant</td> </tr> <tr> <td>32 MM</td> <td>NR Valve</td> <td>01 no</td> <td>Galley</td> </tr> <tr> <td>20 MM</td> <td>SDNR</td> <td>01 no</td> <td>Oily Water Separator</td> </tr> <tr> <td>40 MM</td> <td>SDNR</td> <td>03 No</td> <td>D/A Exhaust tube</td> </tr> <tr> <td>65 MM</td> <td>SDNR</td> <td>03 Nos</td> <td>M/E Exhaust tube</td> </tr> </tbody> </table>	Size	Type	Qty	Equipment / System	125 MM	SDNR	03 nos	Main Engine	65 MM	SDNR	05 nos	GS pump, A/C, Educators	32 MM	SDNR	02 nos	shower & bilge pump	25 MM	SDNR	01 no	RO plant	32 MM	NR Valve	01 no	Galley	20 MM	SDNR	01 no	Oily Water Separator	40 MM	SDNR	03 No	D/A Exhaust tube	65 MM	SDNR	03 Nos	M/E Exhaust tube	Do. Material Yard Supply as per RFCIC Minutes.
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EA 3019	Remove, overhaul & pressure test up to 10 bar sea chest weed cleaning SDNR valves. (Qty-10 Nos). Size-15 mm	Do. Material Yard Supply as per RFCIC Minutes.																																				
MAIN ENGINE (MTU GERMANY, TYPE 16V 4000 M90): W5 ROUTINE (6000 HRLY) QTY-03, PAC FIRM M/S YEOMAN MARINE MUMBAI																																						
EA 3020	Valve gear - Remove and check rocker arms and valve bridges Check rocker arms and rocker arm bearing for wear.	Do through OEM/PAC firms for DIs EA-3020 to EA-3037.																																				
EA 3021	Cylinder - Remove and Check inlet valve guides, replace exhaust, Valve Guides. Recondition valves and valve seats. Replace O-rings on protective sleeves. Replace gaskets.	Scope of job included functional checks of engine control and monitoring system as well as proving of safeties.																																				
EA 3022	Check and inspect wear pattern of cylinder liners	Spares CG supply.																																				
EA 3023	Vibration damper - Remove and examine, replace if necessary	All in way jobs included.																																				
EA 3024	Overhaul complete exhaust turbocharger. Clean and inspect components, measures clearances of bearings and between compressor wheel and casing.																																					

EA 3025	Air supply pipe work – Remove, clean, and replace gaskets	
EA 3026	Clean, inspect and pressure test intercooler for leaks, replace gaskets	
EA 3027	Check function of air transfer valve.	
EA 3028	Replace fuel injectors.	
EA 3029	Replace pressure sensor (high-pressure fuel)	
EA 3030	Replace engine coolant pump.	
EA 3031	Disassemble, inspect components, replace bearing and gaskets of raw water pump	
EA 3032	Clean, inspect and pressure test engine coolant cooler for leaks.	
EA 3033	Check, inspect and replace engine coolant thermostat if necessary.	
EA 3034	Clean, inspect and pressure test engine oil heat exchanger for leaks, replace sealing rings.	
EA 3035	Check, inspect and replace bearing of centrifugal oil filter if necessary	
EA 3036	Strip the Air starter motor, check rotors and advance mechanism, clean same and replace worn or rusted parts	
EA 3037	Check the Air starter motor driving pinion for wear and replace it if necessary, revise all valves and replace joints	
EB 3038	All three main engine exhaust pipe from turbo charger outlet to overboard including water injection piece, exhaust flap to be inspected and 03 in no exhaust bellow to be renewed (Dimension Exhaust pipe Dia: 460 mm length - 240 mm thick -16 mm) Job includes renewal of lagging and cladding. Lagging material ceramic wool capable to withstand 1000 degree centigrade. Mat: SS. Cladding Mat: 16 gauge SS sheet, Area: 40 sqm.	QSD
EB 3039	All three main engines sea water bleeding line corroded and leaking at various places. Line to be renewed along with isolating ball valve. Pipe length- 20 mtrs, Dia- 10 mm, Mat- CU.	Do. Material Yard Supply.
GEAR BOXES (ZF 7550): A4 ROUTINE (6000 HRLY) QTY-03, PAC FIRM M/S DYNATRON SERVICES, CHENNAI		
EA 3040	Visually inspect flexible coupling	
EA 3041	Flexible transmission support: visual inspection of resilient mount.	
EA 3042	Visually inspect clutch disc	
EA 3043	carry out visual inspection of running gears	
EA 3044	Check primary oil pump	
EA 3045	Check trailing pump	
EA 3046	Check /overhaul control unit	
EA 3047	Check actuation device	
EA 3048	Testing / calibration / Certification of all sensors / switches / safety devices as required. Replace defective sensor and switches	Do for EA-3040 to EA-3054 through PAC firm. Spares CG supply. Material yard supply. All inway jobs included

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EA 3049	chemical cleaning and pressure testing of oil cooler	
EA 3050	Check shaft seal of input shaft	
EA 3051	Check shaft seal of output shaft.	
EA 3052	Check hoses and cables for wear and tear/damages. Replace as necessary	
EA 3053	Check flow limiting valve	
EA 3054	Check oil jet control valve	
12000 HRLY ROUTINES OF CENTRE DIESEL ALTERNATOR (MAKE -CUMMINS MODEL -6 BT 5.9 MG) QTY -01		
CAPACITY -80 KW, OEM- M/S CUMMINS INDIA, PUNE		
EA 3055	Test engine on load and record all engine parameters and defects.	Do for DI SIs EA-3055 to EA-3074 through PAC firm. Spares CG supply. Material yard supply. All inway jobs included. Yard to cater for removal of soft patch, preservation, transportation to and fro to M/s Cummins Workshop also. Load trials to be carried out in conjunction with LA-5019.
EA 3056	Remove engine from base rail.	
EA 3057	Dismantle engine totally and de-scale cooling system. Clean and check all dismantled components. Clean heat exchanger and pressure test up to 4 bar.	
EA 3058	Check crank shaft dimension and regrind if needed.	
EA 3059	Check and record engine crank shaft and turbo charger end play.	
EA 3060	Check condition of connecting rod and main bearing in line with crank shaft size. Replace if needed. Spare CG supply.	
EA 3061	Replace sleeves/liners on cylinder block. Spare CG supply	
EA 3062	Check cylinder head, clean/Decarbonize and reassemble with all valves, guides, springs and related parts. Spare CG supply.	
EA 3063	Replace all engine related wiring harness. Spare CG supply	
EA 3064	Replace all rubber hoses and clamps of fuel, coolant, lub oil system. Spare CG supply	
EA 3065	Overhaul turbo charger. Material Yard Supply	
EA 3066	Clean heat exchanger and Lub oil Coolers	
EA 3067	Calibrate PT pump and injectors.	
EA 3068	Check all engine mounted safeties for functionality and calibrate gauges	
EA 3069	Check fuel tubing and replace ferrules and rubber gaskets	
EA 3070	Replace thermostat along with their seals. Spare CG supply.	
EA 3071	Replace fresh water pump. Spare CG supply	
EA 3072	Check condition of engine mount	
EA 3073	Mount engine on base rail and couple to alternator after carrying out alignment	
EA 3074	On completion of overhaul start engine and carry out load trials and record all parameters.	

**REVERSE OSMOSIS PLANT (MAKE: ROCHEM MUMBAI, MODEL: RO 0510 DT 02-S, CAPACITY: 5 TPD, QTY: 01 NO.),
PAC FIRM M/S ROCHEM INDIA, MUMBAI**

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EA 3075	Inspect pulsation and recharge damper	Do for EA-3075 to EB-3084 except EA -3080 through PAC firm.												
EA 3076	Inspect de-acidification filter dolomite level and top up as required													
EA 3077	Service HP pump's suction & discharge valves													
EA 3078	Replace seal kit of HP pump	SS to liaise with CGAE PBD for in-house calibration for EA-3080.												
EA 3079	Replace mechanical seal of PK-20 and PK 30 pump. (mono block). Replace (Make - SPECK, Type-NPY 2051													
EA 3080	Calibrate torque wrench	Spares CG supply.												
EA 3081	Replace all low pressure hoses	Material yard supply.												
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20 mm	2.5Mtrs	02 Nos												
32 mm	2.5Mtrs	02 Nos												
EA 3082	Renew zinc anode plug.													
EA 3083	Prove plant for satisfactory operation and rated output during post refit sea trials.													
EB 3084	Servo motor control valve is malfunctioning. To be calibrated and proved for satisfactory operation													
STP/VACUUM PLANT (MAKE: HAMWORTHY KSE LTD, MODEL: ST2A, QTY: 01 NOS.), PAC FIRM M/S DOLPHIN CONSULTANT, MUMBAI														
EA 3085	Overhaul the discharge pump (Make: Hamworthy, Model: B 50 x 50 HC, Qty: 01) with motor [mono block, motor capacity: 1.75 KW] and renew the spares as required.	Do for DI SIs EA-3085 to EA-3096 through PAC firm.												
EA 3086	Drain and clean the compartments of the unit. Inspect the Compartment thoroughly paying particular attention to the condition of the coating.	Spares CG supply.												
EA 3087	Overhaul Ejector pumps (Make: Hamworthy, Model: 5.5 QSH 101-F, Qty -02) with motor [mono block, motor capacity: 4 KW] and renew the spares as required.	Material Yard supply												
EA 3088	Overhaul compressor (Make: Hamworthy, Model: DLT 15 6147, Qty: 01) including motor [motor capacity: 0.55 KW] and renew the spares as required.	All inway jobs included												
EA 3089	Replace air diffuser elements. (Qty: 12 in nos. Mat: SS)													
EA 3090	Renew all Conversion Kit assembly/sewage discharge valve by yard with CG supply spares. Qty: 07 in nos.													
EA 3091	Renew flush control mechanism by yard with CG supply spares. Qty: 07 in nos. (FCM Patten No - 6558400115)													
EA 3092	Renew all push button mechanism by yard with CG supply spares. (Qty - 07 nos Mechanism Pattern No - 655840015).													

at

EA 3093	Renew all check valves by yard with CG supply spares. (Qty – 07 nos)																						
EA 3094	Renew all vacuum tubes in the system. (Dia 10 mm, total length- 15 m). Spare CG supply.																						
EA 3095	Sewage discharge pipe lines (65 mm-38 mtrs, 50 mm-31 mtrs) in the system are to be chemically cleaned, pressure tested & refitted with new gaskets.																						
EA 3096	Remove 02 in No Ejectors clean and inspect and refit in the system.																						
EA 3097	Remove, overhaul the following system valves, pressure test and refit. Test pressure 5 Kg/cm ²	Do for EA-3097 & EA-3098. Spares & Material yard supply as per RFIC Minutes.																					
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3/4"	3 way cock	01 no																					
3/4"	Globe Valve	01 no																					
EA 3098	Overhaul 04 no. non return valve fitted in sewage discharge line. Size:																						
EA 3099	Vacuum breaker unit (02 nos. flap valve and valve seat fitted in system to maintain vacuum in sewage discharge line) to be overhauled. Spares CG supply.	Do through PAC firm. Spares CG supply																					
HP AIR COMPRESSOR MAKE –ELGI HP 10 300, OEM – M/S ELGI, COIMBATORE																							
EA 3100	Remove cylinder head and Inspect valve plates. Renew worn out valve plates	Do for EA-3100 to EA-3107 through PAC firm.																					
EA 3101	Dismantle oil water separator and inspect NRV stiffness and valve seat.	Spares CG supply.																					
EA 3102	Clean and pressure test inter cooler and after cooler	Material Yard supply																					
EA 3103	Overhaul auto drain valve.	PAC- M/s Maxim Marine Enterprise, Mumbai																					
EA 3104	Overhaul and reset pressure relief valves.																						
EA 3105	Overhaul un-loader mechanism.																						
EA 3106	Renew all safety valves in system. Spare CG supply																						
EA 3107	Prove plant for satisfactory operation and rated output during post refit sea trials.																						
A/C PLANT MAKE-BOCK, MODEL –HG610804S, CAP-25 TR, PAC FIRM- M/S BOCK INDIA, VADODARA																							

EA 3108	<p>Overhaul Both compressors. Job includes the following:-</p> <p>(a) Withdraw suction and delivery valves (reeds). Inspect valve reeds, valve plates for wear down and scoring marks.</p> <p>(b) Withdraw piston and inspect for wear down and scoring. Measure wear down of piston rings and oil scraper rings, replace if not within tolerance</p> <p>(c) Measure ovalates of cylinder liner, record and renew if necessary.</p> <p>(d) Inspect small end bushes and gudgeon pins and replace if not within tolerance.</p> <p>(e) Strip and examine lubricating oil pump of compressor</p> <p>(f) Overhaul unloading device for correct functioning.</p> <p>(g) Inspect crank shaft, undertake measurement, polish and refit if within tolerance limit.</p> <p>(h) Clean all motor bearings inspect for wear and tear and replace if wear down is observed.</p> <p>(i) Before/ during assembly of compressor, under take measurement of clearance and record.</p>	<p>Do complete overhauling of both compressor through PAC firm. Spares CG supply. Material yard supply.</p>
EA 3109	<p>Check 18 in nos. valve stems in refrigerant line. Renew all valve glands and Teflon seating.</p>	<p>Do. Spares CG supply. Material yard supply as per RFIC minutes.</p>
EA 3110	<p>Check all controls, carry out functional test. Reset/replace as required.</p>	<p>Deleted. Covered under EA-3114.</p>
EA 3111	<p>Clean condenser, inspect for corrosion and fouling and pressure test on completion for 24 hours. Renew condenser cover gaskets/ O ring. (Test pressure: 350 PSI). Overhaul and pressure test condenser safety valve (Test pressure: 350 PSI).</p>	<p>Do. Material yard supply. All inway jobs included.</p>
EA 3112	<p>A/C condenser sea water pump to be overhauled and proved. Spares CG supply. Material yard supply (Make: M/s Johnson, Model: KGEFC-12.5)</p>	<p>Do. Spares CG supply. Material Yard supply as per RFIC minutes.</p>
EA 3113	<p>Carry out pressure test, vacuum test, and leak test for complete plant. Inspect cooling coils and return bends and checks for weak spots, glands of valves etc by hydrostatic testing. (Testing pressure: LP section- 200 PSI, HP section-350 PSI).</p>	<p>Do for EA-3113 to EA-3115 through PAC firm in conjunction with EA-3109 through single agency for ensuring smooth work and single point responsibility.</p>
EA 3114	<p>Recharge the system with Freon-22 gas and prove the plant for satisfactory operation by undertaking trials including functional checks of all safeties and cut outs. (Capacity -40 Kg) Freon CG supply.</p>	<p>Spares CG supply.</p>
EA 3115	<p>Check alignment of blower and motor in AHU. Renew bearings</p>	<p>Material Yard supply as per RFIC minutes.</p>

5/12

EA 3116	Chilled air spiral ducting in AHU compartment corroded and leaking at many places. Spiral ducting along with isolation flaps to be renewed as per sample. Mat- Pre insulated galvanized duct. Dia- 250mm, L-10 mtrs, Isolation flaps-09 nos. Material yard supply.	Do for EA-3116 and EA-3117. Material Yard supply
EA 3117	A/C condenser seawater cooling pipe line partially choked with sea weeds. Pipe to be chemically cleaned and pressure tested up to 05 bar. (Length – 15 mtr, Dia - 65 mm, Mat- CU NI)	
EA 3118	Overhaul all isolating valves on cooling water system and pressure test at 05 bar. Type SDSL/SDNR, Size 65 mm, qty: 04 nos.	Do. Material Yard Supply as per RfIC minutes.
EB 3119	01 in no oil separator of aft a/c compressor not draining oil properly suspect separator partially choked. To be renewed. job involves cutting of oil separator and brazing of new separator(separator – CG supply)	Do for EB-3119 to EB-3121 through PAC firm in conjunction with EA-3113. Spares CG supply and material yard supply. All inway jobs included.
EB 3120	02 in no isolating valve of fwd and aft a/c compressor not holding pressure suspect valve seat worn out. to be renewed as per sample job involves cutting of old valve and renewal of new valve	
EB 3121	A/c plant discharge side pipe line from compressor to inlet of condenser deteriorated due fair wear and tear to be renewed as per sample job involves cutting of old copper line and fabrication of new line and brazing (copper pipe dia- 45 mm length- 4 mtrs)	
OILY BILGE WATER SEPARATOR: (MODEL: IR, 0.15 TPH, MAKE: SUYASH ENTERPRISES) QTY-01, OEM-M/S SUYASH ENTERPRISES, MUMBAI		
EA 3122	Replace pump bearing, impeller, seals, and seating rings. Spare CG supply.	Do for EA-3122 to EA-3126 through PAC firm. Spares CG supply
EB 3123	Clean separator body internally and coat with coal tar epoxy. Switch on the heater before carrying out cleaning of separator body.	Material Yard supply
EA 3124	Remove and check to ensure the filter is in working condition.	
EA 3125	Check and ensure the proper operation of fine separating unit, air vent valve and safety valve.	
EB 3126	Oily bilge water separator dry run protection unit malfunctioning. Unit to be overhauled and proved.	
FRESH WATER HYDROPHORE PUMP (MAKE: SPX FLOW TECHNOLOGIES PVT LTD, ERSTWHILE JOHNSON PUMPS) MODEL: BUS 49, CAPACITY: 2.5 TPH, QUANTITY: 02 NOS, ROUTINE: REFIT		
EA 3127	Overhaul the pump and renew all defective parts. On completion of overhauling pump to be proved for its rated output. Mechanical seal, coupling pad, fasteners, gaskets, Spare yard supply)	DO for EA-3127 to EB-3130. Spares CG supply Material Yard supply
EA 3128	Chemically clean hydrophore tank & pressure test. Test pressure: 10 bar. Capacity: 200 Ltrs.	Undertake EB-3130 in conjunction with EB-3129.

EB 3129	04 in nos vibration mountings for each fresh water hydrophore pump deteriorated. Mounting to be renewed as per sample.	
EB 3130	Check the alignment of the pump with motor. Realign if required.	
FUEL OIL TRANSFER PUMP (MAKE: M/S TUSHACO PUMP LTD, MODEL: R-25 EG-F, CAPACITY: 06 M3/HOUR QTY: 02 NOS.) ROUTINE: REFIT		
EA 3131	Dismantle the pump, inspect all sub components and renew all defective parts. On completion of overhauling, pump to be proved for rated output. Mechanical seal, coupling pad, fasteners, gaskets, etc yard supply.	DO for EA-3131 and EA-3132. Spares CG supply and Material Yard supply.
EA 3132	Check alignment of the pump with motor	
FIRE & GS AND BILGE & GS PUMPS (MAKE: SPX FLOW TECHNOLOGIES PVT LTD, ERSTWHILE JOHNSON PUMPS) MODEL: CV 50 -- 200 B3 M2 TL, CAPACITY: 40 TPH, QUANTITY: 02 NOS., PAC FIRM- M/S SPX FLOW TECHNOLOGY, AHMEDABAD, ROUTINE: REFIT		
EA 3133	Overhaul the pumps, inspect all sub components and renew all defective components. On completion of overhauling, pump to be proved for rated output. Mechanical seal, coupling pad, fasteners, gaskets, etc yard supply)	DO for EA-3133 to EA-3135. Spares CG supply. Material yard supply as per RFIC minutes.
EA 3134	Check alignment of pump shaft with motor.	
EA 3135	De-aeration tank flexible hose to be renewed as per sample(Dia: 10 mm, L: 01 mtrs each, Qty: 06 nos)	QSD
EB 3136	Both pump's suction/discharge line thinned excessively. To be renewed as per sample. Dia: 80 mm, Length: 10 mtrs, Mat: Cu-Ni.	
EB 3137	Fire and GS pump and Bilge GS pump anti vibration mounting to be renewed as per sample. Qty: 08 Nos. Mounts yard supply.	Do as per DI SI in conjunction with EA-3133. Material yard supply
SHOWER AND BILGE PUMP (MAKE: M/S ROTO PUMP LTD, MODEL: RDA4-491 R7 CDII) CAPACITY: 1.5 M3/HOUR QUANTITY: 02 NOS, ROUTINE: REFIT		
EA 3138	Overhaul the pump, change parts if necessary. Check the condition of wear and corrosion of all parts. Measure the sliding face in contact with casing ring. Renew stator. Spares CG Supply. Material yard supply.	Do for EA-3138 and EA-3139. Spares CG supply. Material yard supply as per RFIC minutes
EA 3139	Overhaul pressure relief valve(32 mm, Globe valves -02 Nos)	
EA 3140	Overhaul and refit system valves (50 mm, Globe valves-03 Nos)	Do. Material yard Supply as per RFIC Minutes.
EA 3141	Remove system pipe lines, clean using chemicals (Dia-50 mm, Length-20 mtrs).	Do. Material yard supply as per RFIC minutes
EB 3142	Excessive sludge formation observed in dirty water carrying pipe line from tank to both shower and bilges pump. To be removed, chemically cleaned and	Do. Material yard supply as per RFIC minutes.

	pressure tested. Dia: 50 mm, Length: 06 mtrs Dia: 32 mm, Length: 14 mtrs. Test pressure: 05 bar													
FM-200 FIRE EXTINGUISHING SYSTEM, (PORT & STBD), QTY: 02 NOS, MAKE: KIDDIE FENNER, USA, ROUTINE:														
REFIT, PAC FIRM- M/S CARBONIC INDUSTRIES, JAMNAGAR														
EA 3143	Check Nitrogen cylinder weight. Recharge if loss in weight more than 10%	Do for EA-3143 to EA-3146 through PAC firm or through any CG approved competent firm. Spares CG supply.												
EA 3144	Check FM-200 cylinder weight and pressures. Recharge if loss in weight by 10%	Material Yard supply.												
EA 3145	Blow out distribution piping.	Recharging if required against AWRP.												
EA 3146	Cylinder valve assembly to be serviced/reconditioned/renewed and pressure tested prior refitment (in way job includes inspection of inner components like o ring /safety disc etc renew if required)													
FUEL OIL PURIFIER: (MAKE ALFA LAVAL MODEL: MMP X 404 SGP-11) QTY-01, PAC FIRM-M/S ALFA LAVAL, PUNE														
EA 3147	Overhaul feed pump assembly.	Do through PAC firm for EA-3147 to EA-3150.												
EA 3148	Overhaul of Sludge pump assembly	Spares CG supply.												
EA 3149	Complete overhaul of separator including functional checks of solenoids	Material Yard supply.												
EA 3150	Overhauling of air reducer (7-1.5 bar) assembly													
SHIP'S SIREN, MODEL: KA-200, QTY: 01 NO, MAKE: KRIST ENGG, GHAZIABAD, ROUTINE: REFIT														
EA 3151	Overhaul the unit including electrical fitting, renew metallic air filter and prove the unit for operation post overhauling.	Do. Spares CG supply. Material yard supply as per RFIC minutes.												
OBM MOTOR BOAT ENGINE: (25 HP MERCURY) QTY-02, ROUTINE: REFIT														
EA 3152	Overhaul OBM change parts if required. Prove the units for optimum performance (Make: Mercury, Qty: 02). Spares CG supply. Material yard supply.	QSD.												
EMERGENCY DA (SAWAFUJI ELECTRICAL CO. JAPAN, MODEL H7000DX) QTY-01, ROUTINE: REFIT														
EA 3153	Overhaul emergency DA and prove satisfactory operation also perished/corroded body to be renewed. Spares CG Supply. Material yard supply.	Deleted. Routines undertaken in MR -16												
EA 3154	Tune carburetor and check all safety controls.													
EA 3155	Replace spark plug and change engine oil.													
LUB OIL SYSTEM:														
EA 3156	Following valves in Lub oil system to be overhauled and pressure tested up to 7.5 Kg/cm ² .	Do overhauling of 25 % valves only. Material yard supply as per RFIC minutes.												
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Size	Type	Qty												
20 mm	SDSL valve	05 nos												
20 mm	Self-closing Cock	02 nos												
20 mm	3 way cock	03 nos												

of 21

EB 3157	02 nos Lub oil RU tanks gauge glass with 04 nos self-closing valve not working. Valve to be overhauled and worn out rubber bushes of gauge glass to be renewed as per sample.	Do. Material Yard supply			
AIR SYSTEM					
EA 3158	02 in nos air bottles (capacity 500 ltrs) to be chemically cleaned and pressure tested.	Do for EA-3158 to EA-3162. Material Yard supply			
EA 3159	02 in nos air bottle head valves assembly to be overhauled pressure tested and all defective parts to be renewed.				
EA 3160	30/5 bar air reducer to be overhauled and diaphragm to be renewed.				
EA 3161	5/0.5 bar air reducer to be overhauled and diaphragm to be renewed				
EA 3162	02 in nos. moisture cum air filter to be overhauled.				
EA 3163	Remove, chemically clean pressure test Air system pipelines, defective pipes to be repaired. Gaskets to be renewed. (50% pipe line)	Do for 25 % valves only. Material Yard supply as per RFIC minutes. Renewal if any against AWRF.			
EA 3164	Overhaul and refit following valves/cocks in the Air system. Renew damaged spares. (50%)	Do for 25 % valves only. Material Yard supply as per RFIC minutes. Renewal if any against AWRF.			
	SIZE		TYPE	QTY	TEST PRESSURE
	15 MM		SDSL	02 nos	45 bar
	15 MM		SDSL	03 nos	20 bar
	15 MM		SDNR	03 nos	20 bar
	15 MM		Air Hydrant	4 nos	20 bar
	15 MM		Ball valve	02 nos	45 bar
	32 MM		SDNR	03 nos	45 bar
	10 MM		Needle valve	04 nos	45 bar
	3/8"		SDSL	04 nos	20 bar
	15 MM		PRV	02 nos	20 bar
	EA 3165		Remove, chemically clean pressure test fuel oil filling, transfer and service system pipelines, defective pipes to be repaired. Gaskets to be renewed. (50%)	Do chemical cleaning and pressure testing of 25 % pipes only. Material Yard supply as per RFIC minutes. Renewal if any against AWRF	
	EA 3165		SIZE	LENGTH	MATERIAL
32 mm		20 Mtrs	Seamless Steel	5.0 Kg/cm ²	
20 mm		30 Mtrs	Seamless Steel	5.0 Kg/cm ²	
15 mm		45 Mtrs	Seamless Steel	5.0 Kg/cm ²	
10 mm		50 Mtrs	Seamless Steel	5.0 Kg/cm ²	

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EA 3166	<p>Remove, overhaul and refit following valves in fuel oil filling, transfer and service system as mentioned below. (50 %)</p> <table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>QTY</th> <th>TEST PRESSURE</th> </tr> </thead> <tbody> <tr> <td>32 MM</td> <td>SDSL</td> <td>06 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>15 MM</td> <td>SDSL</td> <td>09 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>10 MM</td> <td>SDSL</td> <td>03 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>10 MM</td> <td>NR</td> <td>01 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>10 MM</td> <td>Needle valve</td> <td>06 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>50 MM</td> <td>SDSL</td> <td>04 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>40 MM</td> <td>SDSL</td> <td>11 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>40 MM</td> <td>SDNR</td> <td>02 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>40 MM</td> <td>SDSL(Angle type)</td> <td>01 nos</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>40 MM</td> <td>SDSL (Quick closing)</td> <td>05 nos</td> <td>7.5 Kg/cm²</td> </tr> </tbody> </table>	SIZE	TYPE	QTY	TEST PRESSURE	32 MM	SDSL	06 nos	7.5 Kg/cm ²	15 MM	SDSL	09 nos	7.5 Kg/cm ²	10 MM	SDSL	03 nos	7.5 Kg/cm ²	10 MM	NR	01 nos	7.5 Kg/cm ²	10 MM	Needle valve	06 nos	7.5 Kg/cm ²	50 MM	SDSL	04 nos	7.5 Kg/cm ²	40 MM	SDSL	11 nos	7.5 Kg/cm ²	40 MM	SDNR	02 nos	7.5 Kg/cm ²	40 MM	SDSL(Angle type)	01 nos	7.5 Kg/cm ²	40 MM	SDSL (Quick closing)	05 nos	7.5 Kg/cm ²	Do 25 % valves only. Material Yard supply as per RFIC minutes. Renewal if any against AWR/F.
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EA 3167	<p>Remove, chemically clean pressure test sea water system pipelines, defective pipes to be repaired. Gaskets to be renewed. (50 %)</p> <table border="1"> <thead> <tr> <th>SIZE</th> <th>LENGTH</th> <th>MATERIAL</th> <th>TEST PRESSURE</th> </tr> </thead> <tbody> <tr> <td>150 mm</td> <td>18 Mtrs</td> <td>90/10 CU-NI</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>125 mm</td> <td>25 Mtrs</td> <td>90/10 CU-NI</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>40 mm</td> <td>77 Mtrs</td> <td>90/10 CU-NI</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>32 mm</td> <td>26 Mtrs</td> <td>90/10 CU-NI</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>25 mm</td> <td>08 Mtrs</td> <td>90/10 CU-NI</td> <td>7.5 Kg/cm²</td> </tr> <tr> <td>65 mm</td> <td>60 Mtrs</td> <td>90/10 CU-NI</td> <td></td> </tr> </tbody> </table>	SIZE	LENGTH	MATERIAL	TEST PRESSURE	150 mm	18 Mtrs	90/10 CU-NI	7.5 Kg/cm ²	125 mm	25 Mtrs	90/10 CU-NI	7.5 Kg/cm ²	40 mm	77 Mtrs	90/10 CU-NI	7.5 Kg/cm ²	32 mm	26 Mtrs	90/10 CU-NI	7.5 Kg/cm ²	25 mm	08 Mtrs	90/10 CU-NI	7.5 Kg/cm ²	65 mm	60 Mtrs	90/10 CU-NI		Do chemical cleaning and pressure testing of 25 % pipes only. Material Yard supply as per RFIC minutes. Renewal if any against AWR/F																
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07/18/17

AUXILIARY SEA WATER COOLING SYSTEM

EA 3169

Remove, chemically clean pressure test auxiliary sea water system pipelines, defective pipes to be repaired. Gaskets to be renewed. (50 %)

SIZE	LENGTH	MATERIAL	TEST PRESSURE
65 mm	06 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
50 mm	20 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
15 mm	45 Mtrs	90/10 CU-NI	7.5 Kg/cm ²

Do 25 % pipeline only.
Material Yard supply as per RFIC minutes.
Renewal if any against AWRF.

EA 3170

Remove overhaul and refit following valves in the auxiliary cooling system as mentioned below. (Test pressure: 7.5 Kg/sq. cm) (50 %)

SIZE	TYPE	Qty
65 MM	SDSL	02 nos.
50 MM	SDSL	01 no
15 MM	SDSL	02 no
10 MM	Drain cock	01 no
65 MM	SDNR	01 no

Do 25 % valves only.
Material Yard supply as per RFIC minutes.
Renewal if any against AWRF.

EA 3171

Remove and chemically clean strainer box of Main Engine, DA, GS Pumps, AC, RO Plant and Fresh water system. Renew strainers. (Mat -Brass, mesh size 2 mm). (Test pressure: 7.5 Kg/sq. cm) (50 %)

SIZE	QTY
150 mm	03
50 MM	03
65mm	01
80 mm	02
32mm	02

Do cleaning only for strainer boxes.
Renewal of strainers if any against AWRF. Material yard supply.

EA 3172

Remove, chemically clean pressure test Bilge and Fire Main system pipelines, defective pipes to be repaired. Gaskets to be renewed. (50%)

SIZE	LENGTH	MATERIAL	TEST PRESSURE
65 mm	60 Mtrs	Seamless Steel	7.5 Kg/cm ²
50 mm	104 Mtrs	Seamless Steel	7.5 Kg/cm ²

Do chemical cleaning and pressure testing of 25 % pipes only.
Material Yard supply as per RFIC minutes. Renewal if any against AWRF

ATJ

40 mm	42 Mtrs	Seamless Steel	7.5 Kg/cm ²
20 mm	45 Mtrs	Seamless Steel	7.5 Kg/cm ²
15 mm	10 Mtrs	Seamless Steel	7.5 Kg/cm ²
80 mm	15 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
65 mm	93 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
50 mm	07 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
40 mm	15 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
10 mm	12 Mtrs	90/10 CU-NI	7.5 Kg/cm ²

EA 3173 Remove overhaul and refit Bilge and Fire Main system valves as mentioned below. (Test pressure: 7.5 Kg/sq. cm) (50 %)

SIZE	TYPE	QTY
80 MM	Butterfly	02 nos
50 MM	SDSL	12 nos
50 MM	SDNR	08nos
40 MM	SDSL	05 nos
20 MM	SDNR	04 nos
65 MM	SDSL	09 nos
65 MM	SDNR	04 nos
65 MM	Hydrant Valve	07 nos
50 MM	Foot Valve with Strainer	09 nos
40 MM	Foot Valve with Strainer	04 nos
50 MM	International Shore Connection Valve	02 nos

Do 25 % valves only. Material Yard supply as per RFIC minutes. Renewal if any against AWR/F.

EB 3174 04 in no. bilge suction strainers of engine rooms corroded and perished. To be renewed as per sample. Mat- Brass, Dia- 50mm

Deleted. To be undertaken under DFPR.

RO PLANT SYSTEM

EA 3175 Remove, chemically clean pressure test Fresh water system pipelines, defective pipes to be repaired. Gaskets to be renewed. (50 %)

Do chemical cleaning and pressure testing of 25 % pipes only. Material Yard supply as per RFIC minutes. Renewal if any against AWR/F

SIZE	LENGTH	MATERIAL	TEST PRESSURE
20 mm	15 Mtrs	Seamless	7.5 Kg/cm ²

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EA 3176	20 mm	05 Mtrs	Copper	
	25 mm	05 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
	32 mm	02 Mtrs	90/10 CU-NI	7.5 Kg/cm ²
				90/10 CU-NI
Remove overhaul and refit following valves in the Fresh water system as mentioned below. (Test pressure: 7.5 Kg/sq. cm) (50 %)				
	SIZE	TYPE	QTY	
	32 MM	SDSL	01 no.	
	20 MM	SDSL	01 nos.	
	25 MM	SDSL	02 nos.	
				Do as per DL SI for 25 % valves only. Material Yard supply as per RFIC minutes. Renewal if any against AWRFF.

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ICGS MEERA BEHN SR-19
MAIN DEFECT LIST: ELECTRICAL

DL NO.	DEFECT DESCRIPTION	RHQ REMARKS
LA 5001	MAIN SWITCH BOARD, QTY:01 MAKE: MARINE ELECTRICALS, GOA LOCATION: MCR Calibration of circuit all breakers for over load and under voltage protection. Carry out insulation resistance test of breakers and associated controls (minimum acceptable value 1 mega ohm). Total No of 415 V breakers - 44 NOS Total No of 230 V breakers- 19 NOS	Do only calibration. Yard to provide calibration certificate. Spares CG supply.
LA 5002	Accuracy of Synchro scope is to be checked with 3-lamp method.	Do.
LA 5003	Following MSB meters are to be calibrated. Defective meters to be renewed. (a) 415 Volt Section (i) Volt meter -04 Nos (ii) Ammeter -04 Nos (iii) KW meter -03 Nos (iv) Power factor meter -03 Nos (v) Frequency meter -04 Nos (vi) Double frequency meter -01 No (vii) Double volt meter -01 No (viii) Synchroscope -01 No (b) 230 Volt Section (i) Volt meter -01 No (ii) Ammeter - 01 No Note: Calibration certificate to be provided on completion.	Do. calibration only. Yard to provide calibration certificate. Spares CG supply
LA 5004	Clean and inspect accessible components, Check for the deterioration of rubber. Renew rubber components at earliest opportunity if defective. Ensure all nuts and bolts are tight and earthing strap intact. Test that continuity resistance of earthing is less than 0.05 ohm measured with a Bridge Megger.	Do. Material yard supply.
LA 5005	Functional test of all MSB changeover switches / breakers to be carried out. Check the complete MSB wiring condition and to be renewed wherever necessary.	Do. Spares CG Supply. Calibration of breakers covered in LA 5001.
LA 5006	Three in nos supply breakers (TP, 250 A, motor mechanism 220 V Make: Merlin Gerin) and one in no shore supply breaker (Make: Merlin Gerin, Model: NS 160N, 160A) to be overhauled and calibrated for overload and under voltage protection. Carry out insulation resistance test of breakers and associated controls (minimum acceptable value 1 M Ohm). All breakers to be proved on completion of overhauling with full load current.	Deleted. Covered under LA -5001.
ICCP: QTY-01 MAKE: CATHODIC CONTROLS, BANGALORE MODEL:25 A, 230 VOEM/PAC: CATHODIC CONTROLS COMPANY PVT. LTD, BANGALORE LOCATION: MCR		
LA 5007	Inspect the anodes and the reference cells (Two Nos. each) for mechanical damage. Replace if required.	Deleted for LA-5007 to LA-5013. Covered under AIAMC
LA 5008	Inspect the shield paint and paste around the anode and reference electrodes. If any peeling off is found, the area must be recoated .In this case the surface preparation is required as same as new procedures.	
LA 5009	Measure and improve the insulation to 01 Mega ohms between hull and anode after drying up for 04 nos. junction boxes.	
LA 5010	Check all the circuit and thoroughly inspect the wiring / unit / sub-unit, renew them wherever	

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LA 5011	necessary	Inspect the water seepage in the junction boxes bonding area located in the coffer dam accessible through man holes (Qty-04). Rebounding if leakage found.	
LA 5012		Check the condition of underwater hull.	
LA 5013		All control panel meters are to be calibrated.	
GYRO COMPASS, QTY: 01 NO, MAKE: RAYTHEON, GERMANY MODEL - STD 20 WITH TMC LOCATION: BRIDGE, ROUTINE: REFIT, PAC FIRM: M/S ELCOME INTEGRATED SYSTEM PVT LTD, MUMBAI			
LA 5014		Complete overhauling of Gyro compass to be carried out. Change the supporting liquid 'O' rings / gaskets and fused bulbs. Check the Gyro compass for optimum performance.	Do through PAC firm. Spares CG supply
LA 5015		Ensure repeaters are aligned with Main Gyro and Gyro feed is available to RADAR, ECDIS, DGPS and other connected equipment. Check the TMC mode and auto pilot mode and prove.	Do through PAC firm. Spares CG supply
MAIN GENERATOR, QTY: 03 NOS (80 KW - 01 NO, 120 KW 2 NOS) MAKE: STAMFORD, UK, MODEL: AVR -MX321 UCM2734 E 1. LOCATION: FER/AER			
LA 5016		Check steady state of generators.	Deleted. SS
LA 5017		Inspect the winding, improve insulation. Replace all components showing deterioration/wear.	Do. Spare CG Supply and material yard supply.
LA 5018		Overhaul the full generator assembly including AVR, battery circuit & self starting motor and space heater.	Do. Material and OEM certified bearings yard supply.
LA 5019		Carry out load test of (03 Nos.) Generators with external load tank, voltage recovery, voltage regulation and governor trials. Operation of individual DA's to be proved for transient loads of 25% 50% & 100% of rated load.	Do. Undertake load trials with external load tank for centre DA only. Load trials for Port & Stbd DA to be undertaken up to maximum sustainable load on ship's load.
LA 5020		Parallel operations of all 03 DA's in all combinations are to be proved for proper load sharing (Auto/Manual mode) and for a transient load variation.	Do. Yard to cater for proving of parallel operation of all 03 DAs in all combinations.
LA 5021		Following safety trips and alarm along with sensors for all the main generators to be calibrated (a) Low lub oil pressure alarm/trip - Qty 03 each (b) High water temperature alarm/trip-Qty-03 each (c) Over Speed trip-Qty-03 (d) High lub oil temperature alarm/trip- Qty 03 each (e) High winding temperature alarm - Qty 03 Note: Calibration certificate to be provided	DO. Yard to provide calibration certificate and carryout in-situ trials of for all safeties. Spares CG supply.
ENGINE CONTROL/MCS/RCS/WJ-5 Type : II MAKE: MTU, GERMANY (JOBS TO BE UNDERTAKEN BY OEM/PAC FIRM, M/s MTU/ M/s Yeoman Marine Services)			
LA 5022		Following safety trips and alarms along with sensors of all three main engines to be calibrated/simulated by PAC/OEM firm only. (a) Low lub oil pressure. (b) Over speed trip. (c) Low fresh water pressure. (d) Low gear box lub oil pressure alarm. (e) Low fresh water level in expansion tank. (f) Operation of exhaust shut down. (g) High fresh water temperature alarm. (h) High lub oil temperature. (i) High Gear box temperature. (j) Low fuel oil pressure alarm.	Do for LA-5022 to LA-5024 through PAC firm. Yard to provide calibration certificate. Spares CG supply.

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LA 5023	(h) High lub oil temperature. (i) High Gear box temperature. (j) Low fuel oil pressure alarm.		
LA 5024	Exhaust gas monitoring system to be checked and proved for proper operation. Following measuring instruments in BRIDGE/MCR to be calibrated. All indication lights, dimming circuit to be proved for proper operation. (a) RPM Gauge – 06 Nos (b) Shaft rpm – 06 Nos (C) Steering indicator – 06 Nos (d) Ahead/astern indicator – 06 Nos		
LB-5025	Port and Stbd engine order telegraph not working. During defect investigation by the PAC firm M/s yeoman marine Mumbai it was observed that power supply cable and command cable are defective. Firm recommended that cables to be renewed as per sample from Bridge to MCR and local control panel. For the same cable to be renewed and both EOT to be proved for operation.	Do through PAC firm. Spares CG supply.	
RADAR (QTY- 01 NO) MAKE: RAYTHEON, GERMANY MODEL: PATH FINDER MK 2 LOCATION: BRIDGE PAC FIRM: M/S ELCOME INTEGRATED SYSTEM PVT LTD, MUMBAI			
LA 5026	Measure VSWR, noise figure as per the procedure given in the maintenance manual (Raytheon)		Deleted for LA-5026 to LA-5032.
LA 5027	Check the power output of MTR unit. It should be approx. 25 KW.) Noise figure should be below approx 12 DB.		Covered under AIAMC.
LA 5028	Remove the filter used in the modulator unit, inverter unit & display unit. Clean the filter and mesh.		
LA 5029	Change the oil in the antenna base		
LA 5030	Every 2 years or 5000 hours of operation the antenna base should be subject to a general overhaul & lubrication.		
LA 5031	During overhaul all bearing & oil seal rings should be replaced		
LA 5032	Examine bearing & general condition of the following motors :- (a) In MTR unit (b) In display unit		
EM LOG. QTY: 01 NO, MAKE: SAGEM MODEL LH 92 OEM: SAGEM MODEL LH 92, LOCATION: BRIDGE PAC FIRM: M/S TECHNO COMP SERVICES PVT. LTD, MUMBAI			
LA 5033	Overhaul the complete system and full performance check is to be carried out.		Do. Spares CG supply
LA 5034	Clean the exterior of electronic cabinet and repeater. Open the cabinet and clean it with vacuum cleaner and check the tightness of all connections.		Deleted covered under LA-5033.
LA 5035	Connect a pick up head 'simulator' and check on the one hand that the speed displayed increases towards a balance value equal to 20 knots, roughly (+/- 5 knots). On the other hand that the indication of the distance, run indicator is in accordance with the speed displayed		Do.
LA 5036	Check the performance of equipment and accuracy of readings before Dry Dock as part of pre refit trials.		Deleted. SS
LA 5037	Overhaul the complete system. Prove the performance of system prior undocking with simulator. During dry dock, clean the pickup head sensor. Renew if damaged / defective and prove the system. Calibration of system to be carried out post refit sea trials.		Deleted. Covered in LA-5033 and LA-5035.
ECHO SOUNDER: QTY-01 MAKE: RAYTHEON, GERMANY, MODEL: SKIPPER GDS 101 OEM/PAC: M/S ELCOME INTEGRATED SYSTEMS LTD, MUMBAI LOCATION: BRIDGE			
LA 5038	Check performance of equipment and accuracy of readings before dry-docking.		Do through PAC firm.
LA 5039	The transducer should be cleaned using a plastic scraper or scrubbing brush. Check transducer casing for water tightness and cables for insulation.		Do.

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LA 5040 Echo sounder to be calibrated by simulation/known depth readings through PAC firm. Calibration chart and certificate to be submitted for onboard reference. Do only calibration. Firm to provide calibration certificate.

MOTORS AND CONTROL PANEL

LA 5041	<p>Following Motors and control panels to be overhauled. Material yard supply</p> <p>Overhauling of motors includes following</p> <ul style="list-style-type: none"> a) Checking insulation and varnishing of motor winding. b) Painting of motor body. c) Examine for rotor impeller shaft & bearing housing for flaws, cracks or corrosion. Make good or replace as necessary. d) Renewal of bearing , seals, e) Balance of rotor f) Repair of terminal box as necessary g) Replacements of bolts & nuts where necessary. h) Preparation of the foundation of motor and fitment. j) Running test after assembling & installation onboard ship. <p>Overhauling of control panel includes following</p> <ul style="list-style-type: none"> a) Renewal of contactor kits b) Calibration of overload relays c) Renewal of defective interconnecting cables and terminal/ connectors d) Renewal of defective indication lamps/lamp covers, fuses and gaskets. e) Varnishing of step down control transformers. f) Calibration of safeties/ sensors if fitted. g) Check function of auto mode and condition of float switches if provided. h) Pressure Switches to be calibrated and auto cut-out/cut-in operation to be proved. <p>(Note: Material Yard supply)</p>	<p>Do. Material and OEM certified bearings yard supply.</p>																																																															
	<table border="1"> <tr> <td>Mooring capstan</td> <td>4KW</td> <td>01</td> </tr> <tr> <td>Anchor windlass</td> <td>4KW</td> <td>02</td> </tr> <tr> <td>Articulated crane</td> <td>5.5 KW</td> <td>01</td> </tr> <tr> <td>Oily bilge water separator</td> <td>0.56 KW</td> <td>01</td> </tr> <tr> <td>Discharge pump motor</td> <td>1.75 KW</td> <td>01</td> </tr> <tr> <td>STP ejector pump motor</td> <td>4 KW</td> <td>02</td> </tr> <tr> <td>Bilge & GS pump</td> <td>9.3 KW</td> <td>01</td> </tr> <tr> <td>HP Pump Motor</td> <td>2.2 KW</td> <td>01</td> </tr> <tr> <td>Fire / GS pump motor</td> <td>9.3 KW</td> <td>01</td> </tr> <tr> <td>Fresh water Hydrophore pump motors</td> <td>1.1 KW</td> <td>02</td> </tr> <tr> <td>Fuel purifire pump motor</td> <td>3.7 KW</td> <td>02</td> </tr> <tr> <td>Air compressor motors</td> <td>7.5KW</td> <td>02</td> </tr> <tr> <td>Fuel oil transfer pump motors</td> <td>5HP</td> <td>02</td> </tr> <tr> <td>Shower and bilge pump motors</td> <td>0.56 KW</td> <td>02</td> </tr> <tr> <td>ATU motor</td> <td>15KW</td> <td>01</td> </tr> <tr> <td>AC sea water pump motor</td> <td>2.2 KW</td> <td>01</td> </tr> <tr> <td>Fwd E/R ventilation fan motors</td> <td>9.3KW</td> <td>02</td> </tr> <tr> <td>Fwd E/R ventilation fan motors</td> <td>3.7KW</td> <td>02</td> </tr> <tr> <td>Aft E/R ventilation fan motors</td> <td>9.3 KW</td> <td>01</td> </tr> <tr> <td>Aft E/R ventilation fan motors</td> <td>3.7 KW</td> <td>01</td> </tr> <tr> <td>Galley supply fan motor</td> <td>0.37 KW</td> <td>01</td> </tr> </table>	Mooring capstan	4KW	01	Anchor windlass	4KW	02	Articulated crane	5.5 KW	01	Oily bilge water separator	0.56 KW	01	Discharge pump motor	1.75 KW	01	STP ejector pump motor	4 KW	02	Bilge & GS pump	9.3 KW	01	HP Pump Motor	2.2 KW	01	Fire / GS pump motor	9.3 KW	01	Fresh water Hydrophore pump motors	1.1 KW	02	Fuel purifire pump motor	3.7 KW	02	Air compressor motors	7.5KW	02	Fuel oil transfer pump motors	5HP	02	Shower and bilge pump motors	0.56 KW	02	ATU motor	15KW	01	AC sea water pump motor	2.2 KW	01	Fwd E/R ventilation fan motors	9.3KW	02	Fwd E/R ventilation fan motors	3.7KW	02	Aft E/R ventilation fan motors	9.3 KW	01	Aft E/R ventilation fan motors	3.7 KW	01	Galley supply fan motor	0.37 KW	01	
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	Galley exhaust fan motor	0.37 KW	01
	Pantry exhaust fan motor	0.37 KW	01
	Toilet exhaust fan motor	0.37 KW	01
	Ammunition locker exhaust fan motor	0.37 KW	01
	Battery compt. Fan	0.37 KW	01
	Water jet exhaust fan	0.37 KW	01
	Fan coil unit	0.18KW	02
	Engineering store fan motor	0.37 KW	01
	ATU compartment fan motor	0.37 KW	01
	Emergency DA fan motor	0.37 KW	01
	Victualing store fan motor	0.37 KW	01
	Baggage compartment fan motor	0.37 KW	01
	Garbage disposal machine motor	1.1 KW	01
<u>LIGHTING TRANSFORMER 415V/230V 1 PH 10 KVA, QTY 04 NOS MAKE - STATIC TRANSFORMER, INDORE, LOCATION: E/R</u>			
LA 5042	04 Nos. lighting transformers 415/230V, 10 KVA are to be overhauled including cleaning, varnishing and internal and external spray painting and load trials. Transformers are to be painted with light gray heat		Do. Material yard supply.
<u>MB/SRE SYSTEM</u>			
LB 5043	Ships New MB/SRE system With Accessories procurement is in progress by ICGS Okha and likely to received before SR-19. New MB/SRE system to be installed and proved for normal operation at all posts. System to be interface with ships AUTO Telephone for paging.		To be discussed during RFIC.
<u>AUTO TELEPHONE EXCHANGE, MAKE: AMPLIDAN, DENMARK</u>			
LA 5044	Replace aged/ deteriorated Components and wiring. System to be proved for satisfactory operation.		Deleted.
<u>SHORE CONNECTION BOX AND ENERGY METER, QTY: 01 NO. MAKE: MARINE ELECTRICALS, GOA, LOCATION: O' DECK</u>			
LA 5045	Shore supply box at quarter deck to be overhauled.		Do. Material yard supply.
LA 5046	Calibration of volt meter (0-500V), Ammeter (0-150A) and energy meter to be carried out.		Do calibration only. Yard to provide calibration certificate.
<u>FIRE ALARM / GENERAL ALARM SYSTEM MAKE: ELNA, GERMANY PAC FIRM: M/S DYNATRON SERVICES, MUMBAI LOCATION: BRIDGE, ROUTINE: REFIT</u>			
LA 5047	Fire detection and general alarm Control Panel to be overhauled in Wheel house. Complete system to be proved on completion of overhauling of control panels.		Do. Spares CG supply.
LA 5048	38 nos. smoke detectors and 01 in no heat detector including base to be serviced and proved for proper operation. Sensitivity of each detector to be checked.		Do. Spares CG supply.
<u>AIR HORN, MAKE:-KRIST ENGINEERING BARODA, TYPE:-KA/5/KA200</u>			
LA 5049	Overhaul the equipment. Replace defective/deteriorated components.		Deleted. Covered in EA-3151.
<u>ELECTRIC SIREN ZETIFON QTY:01 NO. MAKE: ZOLLNER (COMBINED SIGNAL AUTOMATION), MODEL: 400/310, LOCATION: BRIDGE, ROUTINE:</u>			
LA 5050	Overhaul the equipment completely.		Do.
LA 5051	Check the components showing ageing and sign of deterioration Replace deteriorated wiring.		Deleted. Covered in LA-5050
LA 5052	Check all weather sealing gaskets.		Deleted. Covered in LA-5050
<u>COOKING RANGE, QTY:01 SET, (10 KW 415 V, 3 Ph, 50 HZ) MAKE: KANTILAL CHUNTILAL , SURAT, YEARLY ROUTINE</u>			
LA 5053	Remove hot plate and dip tray and clean them properly.		Deleted. Covered in LA-5058.
LA 5054	Paint hot plate bearers and mild steel surface using heat resisting paint (Approx. area 02 sq ft.) Refit hot plates and dip tray on completion of the work and ensure they are fixed properly. Paint yard supply-Silver colour.		Do. Material yard supply.

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LA 5055	Remove both side screens and bottom cover of ovens. Clean inside thoroughly and ensure all elements are fixed properly in the places.	Do. Material yard supply.
LA 5056	Clean and check properly thermostat bulb and Ensure that they are in order.	Delete. SS
LA 5057	Change the heat resistance wire from control panel to cooking range.	Delete. Covered in LA-5059
LA 5058	Remove hot plate and dip tray and clean them properly. Replace all securing nut/bolts. (12 nos Mat: SS).	Do. Material yard supply.
LA 5059	Check and record insulation resistance of complete range and control panel. Change the internal heat resistance wiring of cooking range.	Do. Material yard supply.
LA 5060	15 LTR WATER BOILER, QTY:01 NO, 415 V, 3 Ph, 50 HZ, 3.5 KW MAKE: KANTILAL CHUNILAL, SURAT Dismantle the water boiler from its position after disconnecting water & electrical connection.	Deleted. To be undertaken under DFPR.
LA 5061	Dismantle the heating elements and clean or rescale them thoroughly. Check the switches, fuses, dry cut out and reassemble them correctly as per drawing	Deleted. To be undertaken under DFPR.
LA 5062	DEEP FRIZER BESTFROST (QTY:-01 NO),REFRIGERATOR (QTY:- 02 NOS).CELFROST,SAMSUNG Overhaul the complete system& check for any mechanical damage / corrosion. Repair/replace them if required.	Deleted. To be undertaken under DFPR.
LA 5063	Inspect the surface & paint whole assembly if required	Deleted. To be undertaken under DFPR.
LA 5064	Ensure that following are checked & functioning correctly:- a) Door Seal! b) Door hinges c)Door fastening & handle. (d) Door closing correctly with proper sealing. Replace seal if necessary.	Deleted. To be undertaken under DFPR.
XEROX MACHINE, MAKE:- RICOH Model:-MP 2014		
LA 5065	Over haul the Xerox Machine.	Deleted for LA-5065 to LA-5067 as covered under ALAMC.
LA 5066	Check the drum status , if there is any scratches replace the drum if required.	
LA 5067	Check the developer and its quality ,if required replace the developer	
WATER JET SYSTEM MODEL: 3 X 7I S II, QTY: 03 NOS, MAKE: KAMEWA (JOBS TO BE UNDERTAKEN BY PAC FIRM M/S ROLLS ROYCE MARINE INDIA)		
LA 5068	03 nos. Hydraulic power pack motors (2.2 KW) to be overhauled and insulation to be recorded prior and after overhauling, winding to be varnished with quick drying anti moisture super thermal conductive insulation varnish. Renewal of terminal box gaskets/seals & terminal strips to be catered and motors to be painted with light gray thermal conductive paint. Material yard supply.	Do. Material and OEM certified bearings yard supply as per RFIC minutes.
LA 5069	Calibrate 03 Nos. over load relays (4-6 Amps) pertaining to above motors by current injection test (CIT). Note:- Calibration certificate to be provided.	Do. Yard to provide calibration certificate.
LA 5070	Following alarms and sensors are to be calibrated in MCS 5 system through PAC firm. (a) Low hydraulic oil pressure (b) High temperature and low oil level (c) Low oil flow and lube oil pressure.	Do through PAC firm. Spares CG supply.
LA 5071	03 in control panel to be overhauled and functional test to be carried out.	Do. Material yard supply.
LA 5072	Overhaul 03 no. starter control panel including cleaning of 03 no. contactors and calibration of 03 nos thermal over load relay.	Deleted. Covered in LA-5071.
LA 5073	Carry out functional test of the control system and replace components if required.	Do.
TRANSFORMER RECTIFIER (BATTERY CHARGER), MAKE:-WAVE ELECTRO-NICS PVT. LTD, KOCH, 40 A 230/24V DC, Qty:-02 nos		
LA 5074	Calibrate all meters. Replace if found defective. Overhaul the transformer-rectifier unit.	Do. Yard to provide calibration

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		certificate.
REMOTE OPERATING PANEL		
LA 5075	Following remote operating control box to be overhauled. Overhauling includes: Renewal of contactor kits, defective interconnecting cables and terminal/ connectors, defective indication lamps/lamp covers and gaskets. a) Windlass Capstan Remote operating hand held control panel b) Deck crane Remote operating hand held control panel	Do. Material yard supply.
SEARCH LIGHT (1000 W,230 V AC), QTY:01 MAKE: RAY ENTERPRISES, LOCATION: BRIDGE TOP		
LA 5076	Overhaul search light, job involves- overhauling of motors, renewal of damping clamps, recoating of reflectors, renewal of lamp and gaskets and springs. Light to be spray painted with heat resistance paint	Do. Spares CG supply.
SIGNALING PROJECTORS (1000 W,230 V AC), QTY:02 MAKE: RAY ENTERPRISES, LOCATION: BRIDGE TOP,		
LA 5077	Overhaul both signaling projectors, job involved reassembling of units, cleaning of glass, recoating of reflectors, renewal of gaskets and springs. Projectors to be spray painted with heat resistance paint.	Do. Spares CG supply. Material and paint yard supply.
FIRE SUPPRESSION CONTROL SYSTEM (FM 200) PAC FIRM: M/S SUPPER FIRE ENGG. MUMBAI		
LA 5078	Control panel located at Wheel house to be overhauled. Following associated circuits to be tested and proved for satisfactory operations (a) Pressure switches Qty (02 nos) (b) Pilot cylinder operating solenoid Qty (02 nos) (c) Discharged pressure switches Qty(02 nos) (d) Hooter at bridge Qty (01 nos) (e) Visual indication Qty (02 nos) (Note: Test to be carried out without discharging FM 200)	Do through authorized firm. Spares CG supply.
NAVIGATIONAL LIGHT, MAKE -- MARINE ELECTRICAL, LOCATION: BRIDGE		
LA 5079	Navigational light control panel (230 V AC & 24 V DC) to be overhauled. Overhauling includes repairing of defective circuits, replacement of defective fuse ratings, indication lamps, push buttons, toggle switches and replacement of defective PCB guides. System to be proved after overhauling.	Do. Material yard supply. Spares CG supply.
CLEAR VIEW SCREEN MAKE: MHR LA AUXILIARY NAVAL S.A ESPAN		
LB 5080	01 clear view screen motor (230V/ 24V DC, 1500 Rpm) procurement is in progress and 02 in no motor demanded. 03 in no's motors to be fitted with accessories and proved for satisfactory operation.	Do.
A/C CONTROL PANEL (MAKE: ELECTRONIC CONTROL CORPORATION, CALCUTTA) 415 V, 50 HZ, 3 PH)		
LA 5081	Complete control panels to be overhauled. Panel to be cleaned by contactor cleaner and soft brushes. 23 nos contactors (09 in nos 25 A, 04 in nos 16 A, 10 in nos 6 A contactors), to be cleaned. 06 in nos overload relays (45- 75 A - 02 Nos, 14 -23 A - 01 No, 3-5 A -01 No, 0.3 - 0.5 A -02 Nos) to be calibrated by current injection method. Star/Delta Timers (03 Nos) to be calibrated (Make: Siemens). 05 nos solenoid and temperature sensor to be calibrated and proved.	Do. Material yard supply.
SHOWER & BILGE PUMP MOTOR CONTROL PANEL - 02 Nos		
LA 5082	Low-level/ High-level float switches (02 nos each) to be overhauled and system to be proved for cut-in/ cut-out in auto mode	Deleted. Covered under LA-5041.
FRESH WATER HYDROPHORE CONTROL PANEL- 02 Nos,		
LA 5083	One in no pressure switch (0-6 Kg / cm2) Make: Indfos, to be calibrated. System to be proved for auto pressure cut-out/cut-in Operation after calibration	Deleted. Covered under LA-5041.
ELECTRO HYDRAULIC CRANE (2.2 KW, 415V , 3 Ph , 50 HZ) MAKE: NED-DECK, HOLLAND PAC: M/S VANSON ENGINEERING		

LA 5084	Overhaul the motor (2.2 KW), starter panel and remote control unit. Calibrate overload relay by current injection test set. Starter panel beading to be replaced. Renew all deteriorated internal wiring. Crane to be proved for satisfactory operation.	Do. Material yard supply.
OILY WATER SEPARATOR MODEL: ILD-1(MAKE: SUYASH ENTERPRISES, PUNE)		
LA 5085	Overhaul all interlock relays, controller unit, 03 nos capacitance probes, 02 nos solenoid valves. Overload relay to be calibrated. Optical cell to be removed cleaned and calibrated. System to be proved for manual and Auto mode. 3	Deleted.
NAVIGATIONAL LIGHTS & CONTROL PANEL (230 V & 24 V) MAKE: MARINE ELECTRICAL		
LA 5086	Navigation control panel to over hauling and all navigation light to be proved in ac and dc supply.	Deleted. Covered in LA-5079
ECDIS (MAKE- SIMRAD, MODEL-E 5024) PAC- ELEKTONIK LAB, MUMBAI		
LA 5087	Ships ECDIS Operating software to be updated and check all NMEA Interface with interface unites. IF found any wire and component deteriorated to be replaced.	Deleted.

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**DRAFT AMENDED MAINTENANCE SCHEDULE
 (FOR SII & S3 SERIES KAMEWA WATER JETS)**

Periodicity	Maintenance Instruction	Sub-assembly	Responsibility
Daily			
D-1	Visual inspection of shaft & flange.	Impeller shafting	SS
D-2	Visual inspection of shaft seal. Check shaft seal coolant water flow rate and pressure.		SS
D-3	Visual inspection of support bearing/shaft coupling.		SS
D-4	Visual inspection of PTO pump.	Hydraulic & lub oil system	SS
D-5	Visual inspection of Electrical motor and lub oil pump.		SS
D-6	Visual inspection of tank and valve manifold.		SS
D-7	Check dirt indication on filters.		SS
D-8	Inspect the oil level in the hydraulic oil tank and refill, if required.		SS
Weekly			
W-1	Carry out all daily routines.	---	SS
W-2	Functional test of Remote control system.	Control system	SS
W-3	Open all control cabinet and inspect any loose fittings (electronic components) in the cabinet.		SS
Monthly			
M-1	Carry out all weekly routines.	---	SS
M-2	Visual inspection of hydraulic hoses.	Steering and Reversing gear system	SS
M-3	For S II Series Water jets Visual inspection of feedback cables.		SS
	For S 3 Series Water jets Visual inspection of feedback protection hoses.		SS
M-4	Visual inspection of feedback transmitters.		SS
M-5	For S II Series Water jets only Visual inspection of locking plates.	SS	
M-6	Inspection of hanging anodes and zinc anodes on hull.	Cathodic protection	SS (underwater diving required)
3 Monthly			
3 M-1	Carry out all monthly routines.	---	SS

Periodicity	Maintenance Instruction	Sub-assembly	Responsibility
3 M-2	Carry out lab test of Hydraulic Power Pack (HPP) oil, for contamination.	Hydraulic & lub oil system	SS (Assistance of Lab for analysis may be taken)
Yearly			
Y-1	Carry out all 3 monthly routines.	---	SS
Y-2	Applicable only for IBs (fitted with S II series Water jets). Check mechanical damage to impeller and guide van chamber.	Pump unit	DYD
Y-3	Carry out <i>in-situ</i> visual inspection of shaft, shaft seal and shaft coupling.	Impeller shafting	DYD
Y-4	Carry out <i>in-situ</i> inspection of bulkhead seal.		DYD
Y-5	Carry out grease renewal of support bearing.		SS
Y-6	Carry out functional test of counterbalance valve of steering and reversing system.		DYD
Y-7	Carry out functional test on PTO pump. Readjust, if required.	Hydraulic & lub oil system	DYD
Y-8	Carry out functional test on Electric motor driven lub oil pump. Readjust Pressure, if required.		DYD
Y-9	Carry out functional test on Hydraulic oil tank with valve manifold. Readjust Pressure, if required.		DYD
Y-10	Replace the high and low pressure filters.		SS
Y-11	Check the condition of anodes below shaft protection tube and on ship transom.	Cathodic protection	SS (underwater diving required)
Y-12	Check the condition of hanging anodes. Replace, if required.		DYD
Y-13	Carry out the function test on control system. Readjust, if required.	Control system	DYD
Y-14	Carry out functional test of alarms switches and pressure gauges.		DYD
Y-15	Carry out <i>in-situ</i> pressure tests of cylinder seals.	Steering and Reversing gear system	DYD
Y-16	Carry out pressure test and crack test of hydraulic hoses.		DYD
2 Yearly			
2Y-1	Carry out all yearly routines.	---	SS/DYD
2Y-2	Carry out <i>in-situ</i> inspection of impeller, Guide vane chamber and transom flange assembly.	Pump unit	DYD
2Y-3	Carry out inspection of shaft & flange bolts.		DYD
2Y-4	Carry out <i>in-situ</i> inspection of split cone ring.	Impeller shafting	DYD
2Y-5	Carry out readjustment of shaft seal.		DYD
2Y-6	Replace the cylinder seals.	Steering and Reversing gear system	DYD

Periodicity	Maintenance Instruction	Sub-assembly	Responsibility
2Y-7	Replace the Hydraulic hoses.	Steering and Reversing gear system	DYD
2Y-8	For S II Series Water jets Replace the feedback cables. For S 3 Series Water jets Replace the protection hoses (feedback encodes).	Steering and Reversing gear system	DYD
2Y-9	Replace the anodes below shaft protection tube, on ship transom and shaft seal anode	Cathodic protection	DYD
2Y-10	Carry out calibration of Levers, Feedback units and readjust indicators.	Control system	DYD
5 Yearly			
5Y-1	Carry out all 2 yearly routines.	---	DYD
5Y-2	For S II Series Water jets Replace the hub bearings. For S 3 Series Water jets Carry out inspection of hub bearings (Note: Replacement of hub bearing to be undertaken during alternate (i.e., 2 nd , 4 th , 6 th ...) 5 Yrly routines.	Pump unit	DYD
5Y-3	Replace the hub seal		DYD
5Y-4	Replace O rings in pump unit.		DYD
5Y-5	Replace bolts of impeller/stub shaft in pump unit.		DYD
5Y-6	Refurbish the shaft seal		DYD
5Y-7	Replace the spill cone ring.	Impeller shafting	DYD
5Y-8	Inspect mechanical interface between impeller shaft and impeller shaft journal.		DYD
5Y-9	For S II Series Water jets Replace the bushings. For S 3 Series Water jets Carry out inspection of bushings. (Note: Replacement of bushings to be undertaken during alternate (i.e., 2 nd , 4 th , 6 th ...) 5 Yrly routines.	Steering and Reversing gear system	DYD
5Y-10	For S II Series Water jets only Replace the locking plates.		DYD
5Y-11	Carry out through inspection of complete plate areas.		DYD
5Y-12	Renew the complete hydraulic oil of the system.	Hydraulic & lub oil system	DYD
5Y-13	Replace the counterbalance valve (V41, V42 & V18)		DYD

- * **PTO Pump:** (i) No overhauling of pump will be carried out.
(ii) Pump recommended to be replaced after 25000 Hrs of operation/10 Yrs (approx.) subject to the condition during functional checks

