

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 :3417/4

27 Oct 20

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**PRE QUALIFICATION FOR SHORT REFIT (SR-6) 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** of **ICGS Meera Behn** based at Okha for **90 days** duration along with serial wise CGRHQ (NW) remarks has been forwarded to date **27 Oct 20** :-

(a)	Hull	:	HA-1001 to HA-1108
(b)	Engineering	:	EA-3001 to EB-3134
(c)	Electrical	:	LA 5001 to LA- 5077

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

3. **The refit is to be undertaken in Gujarat/ Maharashtra/ Goa coast of India only.** The refit is tentatively scheduled to commence in the month of **Feb 2021** 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.



Contd . . .2/-

4. The conduct of refit including other general conditions, payment terms, etc. will be governed in accordance with provisions of Defence Procurement Manual in vogue.

5. For details of defects on machinery, systems and ship's Hull, you are requested to contact "**The District Technical Officer, CGDHQ-15, Okha (Tele No. 02892-262258, Email: cgs-okh@indiancoastguard.nic.in)**" to ascertain availability of ship in harbour and clearance to visit the ship.

6. It is intimated that a Request for Information Conference (**RFIC**) will be held at **CGRHQ(NW), Gandhinagar/CGDHQ-15/onboard ship/Video Conferencing** to discuss /clarify the scope of work and to bring all the participating yards at par. It may be noted that the date and venue for RFIC will be intimated by **CGRHQ(NW)** at a later date.

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

8. It is also desired that suitable reps may be deputed for attending the RFIC. Alternatively, a communication may be sent to **CGRHQ(NW)** that you would accept the work package as finalized during the RFIC.

9. In the event that shipyard/ refit yard do not have its own infrastructure including workshop facility at the place of refit, it should have a "Memorandum of Understanding" (MoU) with a local firm which owns at least a workshop facility befitting the refit of a ship. The shipyard/ refit yard should be a licensee or have a MoU/ agreement with a Port/ PSU/ private refit yard (ICG registered) in whose dock the ship is going to be docked as part of refit. The proof for both the facilities (workshop and dock) is to be attached along with the technical bid so as to ascertain the technical qualification of the yard. The refit including docking of the ship shall be undertaken at one location.

10. **It may be noted that RFP will be issued to all those yards who have not conveyed their unwillingness to undertake the refit in accordance with provisions of DPM, irrespective of whether they attend RFIC or not.** As such, if you do not wish to undertake the refit you should communicate it in writing before the RFIC takes place.

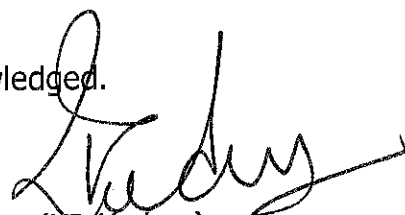
11. It may be noted that CGHQ is contemplating AIAMC contract for certain equipment/systems fitted onboard ship. Although, defects on these equipment have been added in defect list but in case the AIAMC contract is concluded prior commencement of contract, Indian Coast Guard will have right to delete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

12. It is requested that your **technical comments/queries** for the defect list serials remarked "DO" by CGRHQ(NW) as per the enclosure be forwarded to reach **Coast Guard Region(NW), Gandhinagar with one copy each to CGDHQ-15, Okha and ICGS Meera Behn** at the addresses given below by **17 Nov 2020**:-



- (a) The Commander  
{for CSO (Tech)}  
Coast Guard Region (NW)  
Post Box No. 09, Gandhinagar  
Gujarat-382010  
Email- [tech-nw@indiancoastguard.nic.in](mailto:tech-nw@indiancoastguard.nic.in)
- (b) The Commander  
{for (DTO)}  
Coast Guard District Headquarters No.15  
Post Box No 16  
Okha Port, Dist: Devbhumi Dwaraka  
Gujarat-361350  
Email- [dhq15@indiancoastguard.nic.in](mailto:dhq15@indiancoastguard.nic.in), [cgs-okh@indiancoastguard.nic.in](mailto:cgs-okh@indiancoastguard.nic.in)
- (c) The Commanding Officer  
ICGS Meera Behn  
C/o Coast Guard District Headquarters No.15  
Post Box No 16  
Okha Port, Dist: Devbhumi Dwaraka  
Gujarat-361350  
Email- [m-behn@indiancoastguard.nic.in](mailto:m-behn@indiancoastguard.nic.in)

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



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

**Enclosure:-** Main Defect list of SR-6 of ICGS Meera Behn (Hull, Engg and Electrical) by email.

**Copy to :**

The Commander  
{for (DTO)}  
Coast Guard District Headquarters No.15  
Post Box No 16  
Okha Port, Dist: Devbhumi Dwaraka  
Gujarat-361350  
Email- [dhq15@indiancoastguard.nic.in](mailto:dhq15@indiancoastguard.nic.in), [cgs-okh@indiancoastguard.nic.in](mailto:cgs-okh@indiancoastguard.nic.in)

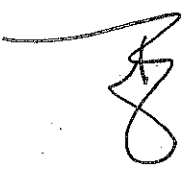
The Commanding Officer  
ICGS Meera Behn  
C/o Coast Guard District Headquarters No.15  
Post Box No 16  
Okha Port, Dist: Devbhumi Dwaraka  
Gujarat-361350  
Email- [m-behn@indiancoastguard.nic.in](mailto:m-behn@indiancoastguard.nic.in)



**1**  
**MAIN DEFECT LIST: HULL**

**SHORT REFIT (SR-6): ICGS MEERA BEHN**

SL NO	JOB DESCRIPTION	CGRHQ(NW) REMARKS
<b>HULL AND APPENDAGES</b>		
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 for both versions. SS to provide latest docking plan. Seven copies of docking report to be submitted by ship.
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. Total area – 410 SQ MTRS	Do. Material yard supply
HA 1003	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. Underwater survey by class surveyor including appendages. Total Underwater area- 410 M <sup>2</sup> .
HA 1004	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)	DO. Drawings to be provided by ship. Material and Anodes yard supply.
HA 1005	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 10% 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. <b>No of UTG points: 500.</b>	Do. UTG hull survey only. Plate thinned down more than 20% to be renewed as per surveyor recommendation. Yard to cater for 01 Ton steel renewal and 750 UTG points. Payment on pro rata basis. All in way jobs included. SS to provide shell expansion drawing. Steel Grade- ABS Grade-A. Robotic scanning DTNR.
HA 1006	Di-electric shield to be examined for wear and damaged layer of resin/araldite. To be redone as per specification if damaged. Under AIAMC.	Delete. Covered under AIAMC



HA 1007	<p>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. <b>Paint Yard supply.</b></p> <p><b>Under water area</b></p> <p>(i) Sigma Cover 280 (Yellow Green)</p> <p>(ii) Sigma Cover 630 (Aluminium)</p> <p>(iii) Sigma Cover 630 (Grey)</p> <p>(iv) Sigma Cover 525 (Black)</p> <p>(v) Sigma Alphasen 650 (Brown)</p> <p>(vi) Sigma Alphasen 650 (Red Brown)</p>	<p>Do. Yard to cater for touch up paint scheme of existing M/s Sigma Coatings (PPG Asian Paints) SPC paint scheme for total U/W area including boot top &amp; tunnel (410 M<sup>2</sup>). Paint yard supply. Yard to undertake surface preparation/ painting under the supervision of paint manufacturer rep.</p>
HA 1008	<p>Under Water Hull to be sand/ vacuum/ grit blasted to SA to 2.5 on completion of u/w inspection. Area required to be blasted be decided according to sea growth, fouling, blisters, paint damage and peel off area. Touch up scheme be followed and apply anti fouling on entire area.</p>	<p>Delete. Covered in HA-1007.</p>
HA 1009	<p>Apply antifouling black on entire Boot Top area, during dry docking. <b>Paint yard supply</b></p> <p><b>Boot Topping Area (Approximate surface area 50 Sq. Mtrs)</b></p> <p>(i) Sigma Cover 525 (Black)</p> <p>(ii) Sigma Alphasen 650 (Black)</p>	<p>Delete. Covered in HA-1007.</p>
HA 1010	<p>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 SqMtrs) including water jet guard. Components to be opened, cleaned, painted and refitted in position. <b>Paint Yard supply</b></p>	<p>DO in conjunction with HA-1007. Renewal if any against AWRP. Paint yard supply.</p>
HA 1011	<p>All under water storm valves to be overhauled and carryout pressure tested to 1.5 times of working pressure, then fitted back.</p>	<p>DO including renewal of leather seating. Material yard supply.</p>
HA 1012	<p>The complete underwater hull to be recoated with one full coat of antifouling paint using airless spray. <b>Paint Yard supply</b></p>	<p>Delete. Covered in HA-1007.</p>
HA 1013	<p>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.</p>	<p>Delete. Covered in HA-1007.</p>
HA 1014	<p>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<sup>2</sup>.</p>	<p>Do. Material yard supply</p>

**STEEL DECKS (EXPOSED DECKS)****SHIP SIDE**

HA 1015	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. <b>Paint CG supply and Material Yard supply.</b> <b>Main Weather Deck (Approx Area 275 SqMtrs).</b> (i) Sigma cover 280 (Yellow Green) (ii) Sigma cover 380 (Grey) (iii) Sigma cover 380 (Green) (iv) Sigma cover 350 (Green 4199)	DO DL Sis HA-1015 to HA-1017 in association with class surveyor for entire weather decks. Yard to cater for 200 UTG points, 500Kg of steel and 100 Kg of Aluminium renewal which is thinned down more than 25%, payment on pro rata basis. Steel Grade- ABS Grade-B. Yard to submit UTG/Survey report. Touch up paint scheme to be applied under supervision of paint rep. All in way jobs included. Paint CG Supply. Area: 275 m <sup>2</sup> steel and 120 m <sup>2</sup> Aluminium. Material yard supply.
HA 1016	Examine bi-metallic joint on weather deck to super structure (AL) paying particular attention to joint where failure of structure may occur. Defects observed to be rectified according with surveyor recommendation.	
HA 1017	Scrap, clean/ blast the deck to bare metal at selected areas. Touch up scheme be applied at those areas (area to be projected by SS). Final coat of deck be applied. <b>Paint CG supply</b> <b>(Approximate Surface Area 310 Sq m)</b> (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	Paint remover/power tooling to be used for surface preparation of Aluminium structures/ deck.
HA 1018	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, <b>Paint CG supply.</b>	DO. Yard to cater for survey by class surveyor, touch up paint scheme, 200 UTG points and renewal of shell plates thinned down more than 25%. Paint CG supply. Total Ship Side area: 310 sqm. Yard to arrange inspection by the paint rep.

HB 1019	06 in nos. Mushroom and trunking to be opened cleaned and inspected. Wire mesh and nuts to be renewed. Mushroom and trucking to be painted as per paint scheme. Defective trucking to be renewed. Mat of nuts, wire mesh- SS, wire mesh dia. -27 cm, 24 no. M8 bolt and nuts. <b>Paint Yard supply.</b>	Do. Material including Paint yard supply.												
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.	Delete. Undertake under DFP.												
HB 1021	30 in no. deck eye plate and 04 in no. anchor platform base eye corroded and pitted. To be renewed as per sample. Material – MS	Do. Material yard supply.												
HB 1022	04 in no rope reel legs uprooted from base to be renewed. Mat -AL	Delete. Undertake under DFP.												
HB 1023	40 in nos. stanchions along with shoes corroded and thinned on weather deck. To be renewed with earth bonding as per sample. Material – GI	Do for 20 nos only. Material yard supply.												
HB 1024	04 in nos (FER, AER) ventilation flap rotating handle assembly deteriorated. Resulting insufficient air supply to the machinery spaces which intern resulting frequent activation of false alarm in FDS system. Ventilation flap to be repaired and proved.	Delete. Undertake under DFP.												
HB 1025	01 in no ventilation exhaust of baggage store at port catwalk corroded from base to be renewed. Size- 6X12 Inch. Mat- AL	Delete. Undertake under DFP.												
HB 1026	Cradle for stowage of Gemini craft needs to be reconstructed as per size of latest Gemini craft supplied by CGSD (PBD). Dimension of Gemini craft as follows: <table border="1" data-bbox="893 873 1053 1982"> <thead> <tr> <th>Sl</th> <th>Particular</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>Overall length</td> <td>4.5-4.7 Mtrs</td> </tr> <tr> <td>(b)</td> <td>Overall width</td> <td>1.8 Mtrs</td> </tr> <tr> <td>(c)</td> <td>Weight</td> <td>115-125 Kgs</td> </tr> </tbody> </table>	Sl	Particular	Size	(a)	Overall length	4.5-4.7 Mtrs	(b)	Overall width	1.8 Mtrs	(c)	Weight	115-125 Kgs	Do. Material yard supply.
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(a)	Overall length	4.5-4.7 Mtrs												
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(c)	Weight	115-125 Kgs												
<b>DECKS/ BULKHEADS- AREAS EXPOSED (ALUMINUM) APPROX AREA 400 SQM)</b>														
HA 1027	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. Specific defects observed on decks and bulkheads and boundaries be recorded and projected by SS.	Delete covered in DL SL HA-1015.												
HA 1028	UTG reading to be carried out at 200 points of Aluminum decks (super structure). Renewal as per UTG reading and surveyors recommendations.	Delete covered in DL SL HA-1015.												



HA 1029	Final coat on Aluminum decks, superstructure to be applied on entire surface. <b>Paint CG supply.</b> <b>Aluminum Exposed Deck (Approximate Surface area 120 Sq. Mtrs)</b> (i) Sigma cover 350 Green 4199 <b>Superstructure exterior &amp; Mast (Approx Surface area 210 Sq. Mtr)</b> (i) Sigma Sigmadur 550 White	Do only for Superstructure & Mast. Aluminum decks Delete covered in DL SL HA-1015. Paint CG supply.
HB 1030	02 in no electrical panel at port & stbd bridge wing to be relocated for convenient operation of HMG Gun.	Delete. As & As
HB 1031	01 in no. overflow pipe of STP at flag deck corroded and pitted. To be renewed. Mat- MS, Size-7 Mtrs, Dia-6 Inch.	Do. Material yard supply. All in way jobs included.
HB 1032	01 in no. blower of battery compartment corroded and thinned. To be renewed. Mat- MS	Do. Material yard supply. All in way jobs included.
<b>GENERAL COMPARTMENTS, DECK NO. 2, 1 AND ABOVE</b>		
HA 1033	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. <b>Paint CG supply.</b>	Do survey by class surveyor for all the internal compartments. Yard to cater for removal of lagging / paneling or deck covering for inspection of approx. sample area 15 sq. meter and to cater for 200 UTG points. Paint CG supply. All in way jobs included. Material yard supply.
<b>ACCOMMODATION FOR OFFICERS, SOS AND OTHER RATINGS</b>		
HA 1034	Inspect the structure by remove lagging / paneling or deck covering as sample at areas where corrosion is likely to occur. Check the thickness and specific defects be projected by SS. Structure revealed by removal of fittings be re-painted before fixing the portable fittings. UTG points 200. <b>Paint CG supply.</b>	Delete covered in Sl. HA-1033.
HB 1035	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	Do. Yard to cater for full scheme of 20 Sq.Mtrs area at different locations and 99 Sq.Mtrs for final coat only. Material yard supply. All in way jobs included.

	(viii) 18 Rating mess (ix) Canteen (x) Locker Compt (xi) MCR	
<b>GALLEY AND ASSOCIATE FITTINGS</b>		
HA 1036	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 dimensions (size 400x450x450 mm). Approx length – 03 Mtrs	Do. Material Yard supply
HA 1037	All Drain pipes to be removed, chemically cleaned and fitted back (Dia 45 mm, Length – 30 Mtrs approx)	Do cleaning for 25% of drain pipes. Renewal if any against AWRP.
HB 1038	01 in no wash basin drainage system at galley not working to be renewed. Mat-SS	Delete. Undertake under DFP.
<b>FLATS, LOBBIES AND PASSAGES</b>		
HA 1039	Sample areas where covered by lagging/ paneling deck covering may be removed to assess condition of steel/ Al structure. Semi portable fittings be removed and inspected. Specific defects be projected to undertake in AWRP. Recoating of structure be completed before refitting of covering and portable fitting. <b>Paint CG supply.</b> Approx 15 M <sup>2</sup> area and 100 UTG points. <b>Material Yard supply</b>	Delete covered in SI. HA-1033.
<b>MACHINERY COMPARTMENTS (FWD E/R)</b>		
HA 1040	Clean all bilges, limber holes, inspect the frames, girders and stiffeners etc. Any damage/ defect found to be noted and projected for repairs. Scrap, clean and dry the surface and touch up paint as per scheme. <b>Paint CG supply</b>	Do Cleaning, Survey and Touch up Paint scheme for the bilges of all machinery spaces against DL SIs. HA 1040 to HA 1045 for a Total area of 255 Sq. Mtrs.
HA 1041	Scrap, clean and removed all flaked paint films to bare metal and area where paint failure occurred. Carry out UTG at critical areas. Renew as per recommendation of class surveyor. Apply paint as per scheme. <b>Paint CG supply</b>	Paint CG supply. Material yard supply.

<b>MACHINERY COMPARTMENTS (AFT E/R)</b>																
HA 1042	Clean all bilges, limber holes, inspect the frames, girders and stiffeners etc. any damage/ defect found to be noted and projected for repairs. Scrap, clean and dry the surface and touch up paint as per scheme. <b>Paint CG supply</b>															
HA 1043	Scrap, clean and removed all flaked paint films to bare metal and area where paint failure occurred. Carry out UTG at critical areas. Renew as per recommendation of class surveyor. Apply paint as per scheme. <b>Paint CG supply</b>															
<b>JET COMPARTMENTS STEERING GEAR ROOM</b>																
HA 1044	Clean all bilges, limber holes, inspect the frames, girders and stiffeners etc. any damage/ defect found to be noted and projected for repairs. Scrap, clean and dry the surface and touch up paint as per scheme. <b>Paint CG supply</b>															
HA 1045	Scrap, clean and removed all flaked paint films to bare metal and area where paint failure occurred. Carry out UTG at critical areas. Renew as per recommendation of class surveyor. Apply paint as per scheme. <b>Paint CG supply</b>															
<b>ELECTRICAL STORE</b>																
HA 1046	Sample areas where covered by lagging/paneling deck covering may be removed to assess condition of steel /Al structure. Semi portable fittings be removed and inspected. Specific defects be projected to undertake in AWRF. Recoating of structure be completed before refitting of covering and portable fitting. Specific defects to be raised by SS.															
<b>BATHROOMS/ WCs</b>																
HA 1047	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. <b>Paint Yard supply</b>															
	<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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(d)	15 mm pipe	03 Mtr (approx.)														
	Do. 25% only. Testing pressure up to 5 bar. Paint yard supply.															

HA 1048	Examine structure not covered by lagging or deck covering, paying particular attention to deck boundaries lower area of bulkhead and ship side's areas around side scuttles. Portable or semi portable fittings and soil pipe trunk access plates are to be removed for examination of structure. Different section of pipeline areas to be removed at successive examination. Actual defect raised by SS	Delete covered in SI. HA-1033.
HB 1049	12 in nos. open / close valve of WC fresh water pipeline deteriorated. To be renewed as per sample.	Delete. Undertake under DFP.
<b>VOID SPACES</b>		
HA 1050	To be opened and gas free certificate to be obtained. 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. <b>Paint and Material Yard Supply.</b>	Do Cleaning, Survey and Touch up Paint scheme. Paint CG supply. Total area- 215 Sq.Mtrs
<b>TANKS- DIRTY WATER</b>		
HA 1051	To be opened and gas free certificate to be obtained. Dry out and inspect compartment structure for failure of paint coating. Remove any loose or flaking paint and all signs of corrosion by scraping and wire brushing. Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint. <b>Paint Yard Supply.</b> Paint scheme as follows:- (i) Sigmaguard 720 (green) (ii) Sigmaguard 720 ( Aluminium)	Do Cleaning, Survey and Touch up Paint scheme for DL SI. HA 1051 and HA 1052. Paint CG supply. Total area- 27 Sq.Mtrs.
HA 1052	Associate the class surveyor during internal inspection and project specific defect for repair. Apply paint as per scheme. Ensure all manhole covers are free of corrosion and intact at seating. Pressure test the tanks after completion of repair.	

<b>TANKS- FRESH WATER</b>	
HA 1053	To be opened and gas free certificate to be obtained. Dry out and inspect compartment structure for failure of paint coating. Remove any loose or flaking paint and all signs of corrosion by scraping and wire brushing. Ensure all strainers, limber holes and valves are clear and thoroughly dry before applying paint.
HA 1054	Associate the class surveyor during internal inspection and project specific defect for repair. Apply paint as per scheme. Ensure all man hole covers are free of corrosion and intact at seating. Pressure tests the tanks after completion of repair. Apply paint as per scheme. <b>Paint Yard Supply</b> Paint scheme as follows:- (i) Sigma cover 280 (yellow green) (ii) Sigma guard 720(green) (iii) Sigma guard 720( grey)
<b>TANKS- DIESEL OIL, LUB OIL, LUB OIL DRAIN TANKS</b>	
HA 1055	Following tanks to be opened and gas free certificate to be obtained. <u>Lub oil tank.</u> Clean tank and examine interior surface for corrosion. Recoat paint as per specification. <u>Diesel oil tank.</u> Clean tanks, survey and repainted if necessary. <u>Lub oil tank.</u> Survey compartments and structure after draining oil. Pressure tests the tanks. If any leakage found to be rectified. <b>Paint Yard Supply</b> Paint scheme as follows:- (i) Sigma guard 720( Green) (ii) Sigma guard 720(Grey)
<b>ATU &amp; FAN</b>	
HA 1056	Inspect 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. Paint and material yard supply.
	Do. Survey by class surveyor. Paint and material yard supply.

<b>MAGAZINE</b>																						
HA 1057	Operating mechanism of sprinkling system and manually flooding valve to be overhauled and pressure tested and proved. Size : 125 mm, Type : Gate valve	Do. Testing pressure 1.5 times of working pressure.																				
HA 1058	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.																					
<b>BAGGAGE STORE / VICT STORE/ PROVISION STORE AND PAINT STORE</b>																						
HA 1059	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 survey only for DL Sls. HA 1059 and HA 1060. Repair if any under AWRP.																				
HA 1060	Examine all steel structure/ rack paying particular attention to the area under vertical supports & boundaries. Clean, scrap and paint the rusted area.																					
<b>CABLE LOCKER</b>																						
HA 1061	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. <b>Paint and Grease Yard supply.</b> <b>Note:-</b> 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. Survey by class surveyor. Paint and Grease Yard Supply.																				
<b>FRESHWATER SYSTEM</b>																						
HA 1062	Remove, chemically clean pressure test 50% of Fresh water system pipelines, defective pipes to be repaired. Gaskets to be renewed. <b>Paint and Material Yard supply.</b>	Do. 25% only. Paint and material yard supply.																				
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HA 1063	Remove, overhaul and refit following valves in the Fresh water system as mentioned below. (Test pressure: 7.5 Kg/sq. cm). Carryout paint of all valves. Paint and Material Yard Supply	Do. Testing pressure 1.5 times of working pressure. Paint and material yard supply.															
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15 MM	SDSL	35 nos.															
HA 1064	Renew 50% of taps and isolating stop cocks in bathrooms, toilets and galley.	Delete. Undertake under DFP.															
<b>SCUPPER AND DRAINS</b>																	
HA 1065	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.	Delete. Covered in HA-1011 and HA-1066.															
HA 1066	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. 25% only. Testing pressure 1.5 times of working pressure															
<b>VENTILATION/AIR CONDITIONING SYSTEM</b>																	
HA 1067	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 AWRF. Length of trunking 50 mtr approx.	Do. Repair/ renewal if any against AWRF.															
HA 1068	22 in no Vent flaps on weather decks with rubber coaming and hinges of flap doors to be inspected, carry out 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 EPDM for external and Neoprene for internal vent flaps. Material yard supply.															
<b>ANCHOR AND CHAIN CABLE (COMMON STUD ANCHOR CHAIN)</b>																	
HA 1069	Layout chain cable, survey the entire length ( <b>two Chain cables, each has 5 shackles</b> ) by class surveyor. All joining shackles to break open, clean, grease, tallow and refit. Gauge the cable in consecutive links and records. Any links, dia found below permitted limits to be removed. Change the cable end to end to ensure equality of wear. Mark the cable length. Move and lubricate anchors fluke. Examine <b>Blake slip, bottle screw slip</b> 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 boiled linseed oil and take cable onboard. Paint Yard supply (i) Sigma vikote 63 Black	Do in conjunction with HA-1061. Paint yard supply. Spares CG supply. Class surveyor to be associated. Renewal if any, against AWRF.															

**DECK CRANE (MAKE – NED DECK MARINE B.V. SFSWR, SWL -7.5KN)**

HA 1070	<p>Carry out complete overhauling of crane by PAC firm 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"> <li>(i) Hoist and lower the main hook</li> <li>(ii) Auxiliary hook load and boom</li> <li>(iii) Slewing and luffing</li> <li>(iv) Test of safety</li> <li>(v) Fail safe and limit switches.</li> <li>(vi) Load movement</li> <li>(vii) Boom angle indicators</li> </ul> <p>(b) After testing the following should be examined</p> <ul style="list-style-type: none"> <li>(i) Foundation</li> <li>(ii) Sheaves and rope guides</li> <li>(iii) Wire ropes and end connectors</li> <li>(iv) Hoist, brakes and clutches</li> <li>(v) Hooks</li> <li>(vi) Bolting arrangements</li> </ul>	<p>DO through PAC firm. Spares CG supply. Yard to submit load test report.</p>
HA 1071	<p>Change Hydraulic oil. Oil CG supply</p>	
HA 1072	<p>Overhaul the electric motor, clutches and hydraulic system. Prove the hydraulic system for 240 bar operating pressure. Change hydraulic hoses which are leaking and damaged. 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, <b>Spares CG supply, Material Yard supply.</b></p>	<p>Do through PAC firm. Yard to provide load test certificate. Spares CG supply.</p>



<b>TOWING EQUIPMENT</b>		
HA 1073	Conduct load test of towing hook and fitments as per CGHQ policy letter and load test certificate to be provided.	DO. Yard to provide load test certificate.
<b>ANCHOR CAPSTAN (TEN HORN WINCHES 17.5 U2/12 KN)</b>		
HA 1074	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 provide. <b>Spare/ Oil CG supply. Material Yard supply.</b>	Do. Oil and spares CG supply. Material yard supply. Yard to provide load test certificate.
<b>MOORING CAPSTAN (TEN HORN WINCHES) ELECTRICAL CAPSTAN- 15 KW</b>		
HA 1075	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. Load test certificate to be provide. <b>Spare/ Oil CG supply. Material yard supply.</b>	Do. Oil and spares CG supply. Material yard supply. Yard to provide load test certificate.
<b>STRUCTURAL FITTING – DOORS, HATCHES &amp; MANHOLES</b>		
HA 1076	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. Renew all rubber beadings. Undertake Chalk test. Yard to provide test certificate. Rubber Material EPDM for external and Neoprene for internal doors and hatches. Material yard supply. Repair/renewal of metallic coaming if any against AWRP.
<b>STRUCTURAL FITTING – SIDE SCUTTLES, DEADLIGHTS, SQUARE PORTS AND SLIDING WINDOWS</b>		
HA 1077	Renew rubber seating of all scuttles and dead light. Renew the rubber seating of toughened glasses and hose test be conducted. Scuttles -05 nos, dead lights -16 nos.	Do. Renew all rubber beadings. Undertake Chalk test. Yard to provide test certificate. Rubber Material EPDM. Material Yard supply.
<b>BRIDGE / OBSERVATION WINDOWS</b>		
HA 1078	Renew all seals of view glass in bulkhead and conduct hose test.	Delete.

<b>BOLLARDS, FAIRLEADS, STAG HORN</b> HA 1079	<b>Non destructive test (DP Test) AND LOAD TEST</b> 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. Yard to provide DP test certificate.
<b>MAST (APPROX AREA 400 SQM)</b> HA 1080	Carry out visual inspection of entire mast. Scrap, clean the mast to bare metal at defective areas. Touch up scheme be applied at 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) (iii) Sigma cover 380 (Grey) (iv) Sigmadur 550 (White) (iv) Sigmadur 550 (White)	Delete covered in HA-1029.
<b>GENERAL SERVICES</b>		
HA 1081	<b>Accommodation:</b> During the uninhabitable period, accommodation is to be provided for following crew as per the scale of accommodation indicated below:-  (i) <u>Officer.</u> A/C cabin accommodation for 05 officer with following amenities:- (aa) One single occupancy room with A/C. (ab) 02 double occupancy rooms with A/C. (ac) Attached toilet with bathroom. (ad) Basic room curtain, table, chairs and TV. (ae) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets. (af) Dining space and cooking area. (ag) One single occupancy room with A/C for isolation purpose in view of COVID-19	DO.

(ii) Subordinate Officer. Cabin accommodation for 10 SOs with following facilities:

- (aa) 05 nos. double bedrooms with A/C.
- (ab) Attached toilet & bathroom.
- (ac) Basic room table, chairs, curtain and TV.
- (ad) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets.
- (ae) Common dining space with TV.
- (af) One single occupancy room with A/C for isolation purpose in view of COVID-19

(iii) Enrolled Personnel. Dormitory type accommodation with curtains for 22 Enrolled Personnel to be provided. The scale of accommodation is as follows: -

- (aa) 22 in nos. single bed/cots. Rooms to have Air cooler circulator.
- (ab) Each single bed/cot to be provided with mattress, bed sheet, pillow cover.
- (ac) Six W/C and Six bathrooms.
- (ad) Dormitory room to have basic upholstery like teapoy, TV, curtains and easy chairs and wardrobe for keeping uniforms and day to days items.
- (ae) Dining space and Cooking area.
- (af) Basic linen viz. mattress, bed sheets, pillow, pillow covers, blankets to be provided.
- (ag) One room with 03 beds for isolation purpose in view of COVID-19.

170

HA 1082	Fire main supply of 04 bar pressure at the rate 40 TPH to be supplied to ship invariably for full duration of refit. Refitting yard is to provide 02 qualified fire sentry each, wherever hot work is in progress. SS is also to provide their own fire sentry as required. If yard do not have facility for round the clock fire main pressure, yard to make arrangement for fire tender to be stand-by all the times.	DO.
HA 1083	Garbage clearances and disposal facility to be provided for the entire duration of refit.	DO.
HA 1084	Shore supply power connection (415V, 50 Hz, 3 Phase) for consumption power up to <b>500 units per day</b> and connecting / disconnecting cable as and when required with feeder breaker capacity of not less than 150KW. Payment will be made on pro rata basis as per actual power consumption. Ships staff to maintain a logbook for actual power consumption. Shore supply 415V, 50 Hz, 3 Phase to be provided for the duration of refit with provision of KWH meter for measurement of electricity units.	DO.
HA 1085	Crane facility (Cap- 10T) is to be provided as and when required. Yard to cater for <b>70 hours</b> operation during the entire refit period. However, payment will be made at actuals. Ship staff to maintain a record/logbook on this aspect.	DO.
HA 1086	Supply of fresh water to be catered for <b>06 tons per day including 250 ltrs</b> of drinking water per day. However, payment will be made at actuals and SS to keep record of water received during refit.	DO.
HA 1087	All OEM/PAC and refitting firms 'Hull', 'Engineering' and 'Electrical' reps are to embark ship for pre and post refit trials sailing till satisfactory performance/acceptance of the machinery by the ship.	DO.
HA 1088	Preparation of keel blocks and certificate of suitability is to be issued by the refitting firm. Keel blocks are to be offered to overseeing authority for inspection, prior docking of the ship.	DO.
HA 1089	Keel blocks are to be arranged as per latest approved docking plan, and ship is to be dry-docked in both versions.	DO.
HA 1090	Tug for docking, undocking, berthing and un-berthing are to be provided as and when required from pre- routine trials till refit completion.	DO.
HA 1091	Pilot is to be provided while entering and leaving dock and harbour.	DO.
HA 1092	Shipyard is to provide 02 nos mobile phones with unlimited calling in India and one unlimited data connection for voice communication and E-mail respectively during entire refit duration. Yard's office fax facility will be used for fax in/out by the ship/overseeing team.	DO.

HA 1093	Refitting yard to extend fax/ e-mail facility to COA/ Refit Overseeing Team and SS as and when required basis.	DO.
HA 1094	<p><b>Transport:</b> The refitting yard is to provide transport for refit duration as follows for 100 Km/day or 12 hrs/day which ever is exhausted earlier (The transport usage commences and terminates at the gangway):-</p> <p>(i) Two mini buses (12-14 seater) for ship  (ii) One car for ship.  (iii) One car for COA/CGRPS.  (iv) One mini truck to be provided twice a week or as and when required for store collection to the nearest railway station etc.</p>	DO.
HA 1095	Provide temporary lights to ensure illumination at appropriate level.	DO.
HA 1096	Compressed air supply as and when required.	DO.
HA 1097	Berthing and un-berthing at wet basin including basin hire charges are to be catered for.	DO.
HA 1098	A/C system is to be kept operational for maximum duration of the refit and alternate seawater cooling lines are to be provided whenever feasible to keep system operational.	DO.
HA 1099	Proper alongside berthing facility (not alongside pontoon/ floating dock, etc.) and yard services for ship are to be provided for the entire period of refit. The refitting firm is to ensure that there is no unnecessary shifting of ship during the ship's refit. In event of berthing and yard services provided by ICG, the cost of the same would be deducted at actuals.	DO.
HA 1100	Appropriate refit office with necessary furniture, A/c and locking facility for COA and crew separately, size 15x15 ft each.	DO.
HA 1101	Adequate storage space to be provided to IBs during major hull repair work. Approx store room size 15 X 15 ft.	DO.
HA 1102	Shore galley facilities including gas burners, gas cylinder, dinning arrangement, one no. water purifier with cooler, garbage disposal facility near galley, storage space for dry and fresh ration, utensil washing, vessel provision storage, dining area and fridge. Cost of cooking gas to be provided when the ship's galley become non-operational.	DO.
HA 1103	At the time of de-ratting/ de-cockroaching, alternate necessary arrangement for the galley should be provided by the refitting firm.	DO.

HA 1104	The refitting firm to arrange Gas free Certificate for all Fuel/ Lube oil tanks prior commencing hot work. For this purpose provision of blowers with hoses and visit of Inspector of Explosive are to be catered for.	DO.
HA 1105	The ship is to carry out de-fueling prior coming in dry-dock. The refitting firm is to provide suitable containers/space for storing residual fuel. The Ship to collect fuel prior departing from the yard.	DO.
HA 1106	Sufficient ventilation to be provided when ship's AC becomes non-ops.	DO.
HA 1107	Yard to provide facilities for DP testing/load testing of Capstan/ towing hook/ Davits etc.	DO.
HA 1108	Yard to provide staging /scaffolding for jobs on ship's sides / water-jets in the dry dock.	DO.

**MAIN DEFECT LIST: ENGINEERING**  
**ICGS MEERA BEHN: SHORT REFIT (SR-6)**

SL NO	DEFECT DESCRIPTION	CGRHO(NW) REMARKS
<b>UNDERWATER PACKAGE: DRY DOCK ROUTINES 02 YEARLY / REFIT PROPULSION SHAFTS/WATER JETS,            MAKE: KAMEWA, SWEDEN, MODEL: 71 S II, QTY: 03 NOS</b>		
EA 3001	Carry out in-situ inspect of impellers, guide vane chamber.	Do 02 Yearly routines on water jets against DL Sls EA-3001 to EA-3020 through PAC firm M/s Kongsberg. Spares CG supply.
EA 3002	Carry out in-situ inspect of shaft, shaft seal and shaft coupling.	
EA 3003	Carry out in-situ inspection of bulk head seals (05Nos)	
EA 3004	Carry Out grease renewal of support bearing.	
EA 3005	Carry out inspection of shaft & flange bolts.	
EA 3006	Carry out in-situ inspection of split cone ring.	
EA 3007	Carry out readjust (inspection) of shaft seals if required.	
EA 3008	Carryout functional test of the counter balance valve of steering and reversing system.	
EA 3009	Carryout functional test on PTO pumps. Readjust if required.	
EA 3010	Carry out functional test on electric motor driven lub oil pump. Readjust pressure if required	
EA 3011	Carryout functional test on Hydraulic oil tank with valve manifold. Readjust pressure if required.	
EA 3012	Replace the high and low pressure filters	
EA 3013	Replace the cylinder seals	
EA 3014	Replace the hydraulic hoses.	
EA 3015	Replace the steering and reversing feedback cables. Spares CG supply.	
EA 3016	Replace the hanging anodes.	

20

EA 3017	Replace the anodes below shaft protection tube, on ship transom and shaft seal anodes.																																					
EA 3018	Carry out functional test on control system. Readjust, if required.																																					
EA 3019	Carry out functional test of alarms switches and pressure gauges.																																					
EA 3020	Calibration of levers, feedback units & indicators adjustment. (MTU control rep required for calibration)																																					
<b>GEAR BOXES (ZF 7550): 2 YEARLY/ A3 ROUTINES ( QTY-03)</b>																																						
EA 3021	Clean oil cooler & carry out pressure testing.	Do. Through PAC firm, Spares CG Supply.																																				
EA 3022	Check safety device including gear box earth connection																																					
<b>UNDERWATER AND OVERBOARD VALVES</b>																																						
EA 3023	Following sea chest valves to be removed, overhauled, pressure tested up to 05 kg/cm <sup>2</sup> , to be painted and fitted back. (Paint yard supply.)	Do. Material yard supply. Renewal of valve, if any against AWRF.																																				
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EA 3024	Following over board valves to be removed, overhauled, pressure tested up to 05 kg/cm <sup>2</sup> , to be painted and fitted back. (Paint yard supply.)	Do. Material yard supply. Renewal of valve, if any against AWRF.																																				
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EA 3025	Remove, overhaul, applied paints & pressure test up to 10 bar of sea chest weed cleaning SDNR valves, Qty-11 Nos. (Paints yard supply.)	Do. Material yard supply. Renewal of valve, if any against AWRF.																																				



**6000 HRLY ROUTINES ON BOTH DIESEL ALTERNATOR (MAKE -CUMMINS MODEL -6 CTA 8.3 MG) QTY - 02  
CAPACITY -120 KW**

EA 3026	Check engine for any leaks and correct, if noticed	Do 6000 Hrly on Port & Stbd DA against DL Sls EA-3026 to EA-3051 through PAC firm/ authorized dealer of M/s Cummins. Spares CG Supply. Material yard supply. All in way jobs included.
EA 3027	Check belts as in position and replace if necessary	
EA 3028	Check fuel and lub oil filter	
EA 3029	Check air intake piping for any damages/loose fasteners	
EA 3030	Check vacuum indicator and clean/replace air filter based on its condition	
EA 3031	Replace valve cover gaskets	
EA 3032	Check all wiring connection	
EA 3033	Dismantle cylinder heads and recondition with all valves, guides, springs and related parts	
EA 3034	Check vibration damper	
EA 3035	Check and record engine crankshaft and turbocharger end plays	
EA 3036	Check engine alternator alignment and correct, if required	
EA 3037	Overhaul sea water pump	
EA 3038	Check engine blow bye. Take corrective action. If required	
EA 3039	Replace all rubber hoses of fuel, coolant, lub oil and air system	
EA 3040	Replace all clamps of hoses	
EA 3041	Drain coolant, flush cooling system and refill new coolant	
EA 3042	Overhaul turbocharger	
EA 3043	Calibrate fuel injector pump(FIP) and injectors	
EA 3044	Clean heat exchanger and pressure test	
EA 3045	Check all engine mounted safeties for functionality and calibrate gauges. Replace if required	
EA 3046	Check fuel tubing. Replace ferules and rubber gaskets	
EA 3047	Replace thermostat along with their seal	
EA 3048	Overhaul fresh water pump, if required	
EA 3049	Check the condition of engine mounts, renew if required	
EA 3050	Vent fuel line and injector, supply line	
EA 3051	Start DG and check all gauges for functionality on completion	

**REVERSE OSMOSIS PLANT (MAKE: ROCHEM MUMBAI, MODEL: RO 0510 DT 02-S, CAPACITY: 5 TPD, QTY: 01 NO.)ROUTINE: REFIT**

EA 3052	Service HP pump's suction & discharge valves.	DO for DL Sls EA-3052 to EA-3057. Spares CG supply. Material yard supply.
EA 3053	Replace seal kit of HP pump.	
EA 3054	Replace mechanical seals of PK-30 pump.	
EA 3055	Calibrate torque wrench	

4

EA 3056	Replace all low pressure hoses.																					
EA 3057	Inspection and replace pulsation damper																					
<b>STP/VACUUM PLANT (MAKE: HAMWORTHY KSE LTD. MODEL: ST2A, QTY: 01 NOS.), ROUTINE: REFIT</b>																						
EA 3058	Drain and clean the compartments of the unit. Inspect the Compartment thoroughly paying particular attention to the condition of the coating.																					
EA 3059	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.																					
EA 3060	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.																					
EA 3061	Overhaul compressor (Make: Hamworthy, Model: DLT 15 6147, Qty: 01) including motor [motor capacity: 0.55 KW] and renew the spares as required.																					
EA 3062	Replace air diffuser elements. (Qty: 12 in nos. Mat: SS)																					
EA 3063	Renew all sewage discharge valve (Qty: 07 in nos.)																					
EA 3064	Overhaul flush control mechanism. (Qty: 07 in nos. FCM Patten No – 6558400115)																					
EA 3065	Renew all push button mechanism. (Qty - 07 nos Mechanism Pattern No – 655840015).																					
EA 3066	Renew all check valves and proved. Spares yard supply. (Qty – 07 nos)																					
EA 3067	Renew all vacuum tubes in the system. (Dia 10 mm, total length- 15 m).																					
EA 3068	Sewage discharge pipe lines (65 mm-38 mtrs, 50 mm-31 mtrs,) in the system are to be chemically cleaned, pressure tested & to be painted prior fitment with new gaskets. (Paint yard supply)																					
EA 3069	Remove 02 in No Ejectors clean and inspect and refit in the system.																					
EA 3070	Remove, overhaul the following system valves, pressure test, and to be painted prior fitment. Test pressure 5 Kg/cm. (Paint yard supply.)																					
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EA 3071	Overhaul 04 no. non return valve fitted in sewage discharge line. Pressure test of valve to be carried out upto 1.5 times of working pressure. Valves to be painted prior fitment (Paint yard supply.)																					

Do for DL Sls EA-3058 to EA-3072 through PAC firm. Spares CG Supply.

EA 3072	Vacuum breaker unit (02 nos. flap valve and valve seat fitted in system to maintain vacuum in sewage discharge line) to be overhauled.																									
<b>HP AIR COMPRESSOR MAKE --ELGI HP 10 300ROUTINE: REFIT</b>																										
EA 3073	Remove cylinder head and inspect valve plates. Renew worn out valve plates	Do for DL SIs EA-3073 to EA-3080. Spares CG supply. Material yard supply.																								
EA 3074	Dismantle oil water separator and inspect NRV stiffness and valve seat.																									
EA 3075	Clean and pressure test inter cooler and after cooler																									
EA 3076	Overhaul auto drain valve.																									
EA 3077	Overhaul and reset pressure relief valves.																									
EB 3078	Renew all safety valves in system.																									
EA 3079	Overhaul un-loader mechanism.																									
EA 3080	Renewed 04 in nos V-belt and air filter. Spares yard supply.																									
<b>A/C PLANT MAKE-BOCK (SEMI HARMATIC) ROUTINE: REFIT</b>																										
EA 3081	Check and replace all valve stems glands in refrigerant line.	Do for DL SIs EA-3081 to EA-3087. Spares CG Supply. Material yard supply.																								
EA 3082	Check all controls, carry out functional test replace as required																									
EA 3083	Remove all old packing from pump glands for SW water systems and pack new packing in the gland.																									
EA 3084	Clean condenser, inspect condenser, inspect for corrosion and fouling and pressure test on completion to one and half times of working pressure for 24 hours. Replace condenser cover gasket/O-ring and apply paint. (Paint yard supply)																									
EA 3085	Overhaul all isolating valves on cooling water (sea water) system and pressure test up to 1.5 times of working pressure.																									
EA 3086	Carry out pressure test, vacuum test & leak test of complete plant.																									
EA 3087	Recharge the system and undertake trials of plant including functional checks all safeties and cut outs.																									
EB 3088	Following valves to be overhauled, pressure tested and refitted, valves to be painted prior fitment. (Paint Yard supply)	Do. Material yard supply.																								
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A

EB 3089	02 in no oil separator of fwd and aft a/c compressor not separating oil properly suspect separator partially checked. To be renewed as per sample .Job involves cutting of oil separator and brazing of new separator(Spares CG Supply)	Do. Spares including oil separator CG Supply. Material yard supply.
<b><u>OILY BILGE WATER SEPARATOR: (MODEL: IR, 0.15 TPH, MAKE: SUYASH ENTERPRISES) QTY-01</u></b>		
EA 3090	Switch on the heater before carrying out cleaning of separator body	Do for DL SIs EA-3090 to EA-3094.
EA 3091	Drain oil and water fully from the separator body before opening the body. Clean separator body internally and coat with coal tar epoxy.	Spares CG Supply. Material yard supply.
EA 3092	Remove and check to ensure the filter is in working condition. Replace if necessary.	
EA 3093	Check pumps bearing, impeller, seals and seating rings. Replace if necessary.	
EA 3094	Check and ensure the proper operation of fine separating unit, air vent valve and safety valve. Replace if necessary.	
<b><u>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</u></b>		
EA 3095	Overhaul the pump and renew all defective parts. Check the alignment of the pump with motor. Realign and vibration mounting to be changed. On completion of overhauling, pump to be proved for its rated output. Mechanical seal, coupling pad, fasteners, gaskets, Spare yard supply)	Do. Spares CG Supply. Material yard supply.
EA 3096	Chemically clean hydrophore tank & pressure test. Test pressure: 10 bar. Tank to be painted. Capacity: 200 Ltrs. (Paint yard supply)	Do. Material yard supply.
<b><u>FUEL OIL TRANSFER PUMP (MAKE: M/S TUSHACO PUMP LTD, MODEL: R-25 EG-F, CAPACITY: 06 M3/HOUR QTY: 02 NOS.) ROUTINE: REFIT</u></b>		
EA 3097	Dismantle the pump, inspect all sub components and renew all defective parts. Check alignment of the pump with motor. On completion of overhauling, pump to be proved for rated output. Mechanical seal, coupling pad, fasteners, gaskets, etc yard supply.	Do. Spares CG Supply. Material yard supply.
<b><u>FIRE &amp; GS AND BILGE &amp; GS PUMPS (MAKE: SPX FLOW TECHNOLOGIES PVT LTD, ERSTWHILE JOHNSON PUMPS) MODEL: CV 50 - 200 B3 M2 TL, CAPACITY: 40 TPH, QUANTITY: 02 NOS. ROUTINE: REFIT</u></b>		
EA 3098	Overhaul the pumps, inspect all sub components and renew all defective components. Check alignment of pump shaft with motor. On completion of overhauling, pump to be proved for rated output. (Mechanical seal, coupling pad, fasteners, gaskets, etc yard supply)	Do. Spares CG Supply. Material yard supply.
EB 3099	De-aeration tank's flexible hose to be renewed as per sample(Dia: 10 mm, L: 01 mtrs. Qty: 03 nos)	Do. Spares and Material yard supply.

<b>SHOWER AND BILGE PUMP (MAKE: M/S ROTO PUMP LTD, MODEL: RDAA-491 R7 CDI) CAPACITY: 1.5 M3/HOUR</b>		
<b>QUANTITY: 02 NOS, ROUTINE: REFIT</b>		
EA 3100	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. Spares CG Supply. Material yard supply.
EA 3101	Overhaul pressure relief valve (32 mm-02 Nos)	Do. Material yard supply.
EA 3102	Overhaul and apply paint on system valves. {(50 mm-03 Nos) (Paint yard supply)}	Do. Material yard supply.
EB 3103	Remove system pipe lines, clean using chemical pipe lines to be painted. (Dia-50 mm, Length-30 mtrs). (Paint yard supply)	Do. Material yard supply. All in way jobs included.
EB 3104	Excessive sludge formation observed in pipe line carrying dirty water from tank to both shower and bilges pump. To be removed, chemically cleaned, pressure tested and apply paint prior fitment. Dia: 50 mm, Length: 06 mtrs, Dia: 32 mm, Length: 14 mtrs. Test pressure: 05 bar. (Paint yard supply)	Do. Material yard supply. All in way jobs included.
<b>FM-200 FIRE EXTINGUISHING SYSTEM, (PORT &amp; STBD), QTY: 02 NOS, MAKE: KIDDIE FENNER, USA ROUTINE: REFIT</b>		
EA 3105	Check Nitrogen cylinder weight. Recharge if loss in weight more than 10%	Do Hydrostatic pressure test through PAC/authorized firm. Yard to cater for recovery of gases. On completion of pressure testing, FM-200 and nitrogen cylinders to be refilled. Deficient gas to be recharged. Yard to cater for 20% loss of gas. Certificate to be provided.
EA 3106	Check FM-200 cylinder weight and pressures. Recharge if loss in weight by 10%	
EA 3107	Blow out distribution piping and apply paint. (Paint yard supply)	
EA 3108	Test pneumatic detection system.	
<b>FUEL OIL PURIFIER: (MAKE ALFA LAVAL MODEL: MMP X 404 SGP-11) QTY-01 ROUTINE: REFIT</b>		
EA 3109	Overhaul feed pump assembly inspect all sub components and renew parts on inspection.	Do. Through PAC/ authorised firm. Spares CG supply.
EA 3110	Complete overhaul of separator including functional checks of solenoids and system to be proved for satisfactory operation.	
<b>SHIP'S SIREN, MODEL: KA-200, QTY: 01 NO, MAKE: KRIST ENGG, GHAZIABAD, ROUTINE: REFIT</b>		
EA 3111	Overhaul the unit including electrical fitting, renew metallic air filter and prove the unit for operation.	Do. Spare CG supply. Material yard supply.

<b>LUB OIL SYSTEM:</b>																																											
EA 3112	Following valves in Lub oil system to be overhauled, pressure tested up to 7.5 Kg/cm <sup>2</sup> , painted and fitted back. (Paint yard supply)	Do 25% valves only. Renewal if any against AWRF.																																									
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EB 3113	06 in nos Lub oil & fuel RU tanks gauge glass with 12 in nos self-closing valve not working properly. Valve to be renewed.	Do. Material yard supply. All in way jobs included.																																									
<b>AIR SYSTEM</b>																																											
EA 3114	02 in nos air bottles (capacity 500 ltrs) to be chemically cleaned and pressure tested upto 45 bar. Bottles to be painted from outside. (Paint yard supply)	Do for DL SIs EA-3114 to EA-3118. Material yard supply. All in way jobs included.																																									
EA 3115	02 in nos air bottle head valves assembly to be overhauled pressure tested and all defective parts to be renewed.																																										
EA 3116	30/5 bar air reducer to be overhauled and diaphragm to be renewed.																																										
EA 3117	7/0.5 bar air reducer to be overhauled and diaphragm to be renewed																																										
EA 3118	02 in nos. moisture cum air filter to be overhauled.																																										
EA 3119	Remove, chemically clean pressure test and apply paint on Air system pipelines, defective pipes to be repaired. Gaskets to be renewed.	Do 25% pipes only. Renewal if any against AWRF.																																									
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EA 3120	Overhaul, apply paint and refit following valves/cocks in the Air system. Renew damaged spares. (Paint yard supply)	Do 25% valves only. Renewal if any against AWRF.																																									
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**FUEL AND OIL SYSTEM PIPE LINES AND VALVES**

EA 3121	Remove, chemically clean pressure test and apply paint on fuel oil filling, transfer and service system pipelines, defective pipes to be repaired. Gaskets to be renewed. (Paint yard supply)	Do 25% pipes only. Renewal if any against AWRP.																																												
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EA 3122	Remove, overhaul, apply paint and refit following valves in fuel & oil filling, transfer and service system as mentioned below. (Paint yard supply)	Do 25% valves only. Renewal if any against AWRP.																																												
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EB 3123	06 in nos quick shut off valves with remote operating mechanism and wire not working properly. Valve to be overhauled and proved with mechanism.	Do. Material yard supply. All in way jobs included.																																												

**SEA WATER SYSTEM PIPE LINE AND VALVES**

EA 3124	Remove, chemically clean, pressure test and apply paint on sea water system pipelines, defective pipes to be repaired. Gaskets to be renewed. (Paint yard supply)	Do 25% pipes only. Renewal if any against AWRF.																												
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EA 3125	Remove overhaul, apply paint and refit following valves in the Main engines and D/A's system as mentioned below. {(Test pressure: 7.5 Kg/sq. cm) (Paint yard supply)}	Do 25% valves only. Renewal if any against AWRF.																								
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**AUXILIARY SEA WATER COOLING SYSTEM**

EA 3126	Remove, chemically clean, pressure test and apply paint on auxiliary sea water system pipelines, defective pipes to be repaired. Gaskets to be renewed. (Paint yard supply)	Do 25% pipes only. Renewal if any against AWRF.																
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15 mm	45 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>															

EA 3127	Remove overhaul, apply paint and refit following valves in the auxiliary cooling system as mentioned below. {(Test pressure: 7.5 Kg/sq. cm) (Paint yard supply)}	Do 25% valves only. Renewal if any against AWRF.												
	<table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>65 MM</td> <td>SDNR angle valve system</td> <td>05 nos.</td> </tr> <tr> <td>50 MM</td> <td>SDSL</td> <td>01 no</td> </tr> <tr> <td>15 MM</td> <td>SDSL</td> <td>02 no</td> </tr> </tbody> </table>	SIZE	TYPE	Qty	65 MM	SDNR angle valve system	05 nos.	50 MM	SDSL	01 no	15 MM	SDSL	02 no	
SIZE	TYPE	Qty												
65 MM	SDNR angle valve system	05 nos.												
50 MM	SDSL	01 no												
15 MM	SDSL	02 no												



	10 MM	Drain cock	01 no	
	65 MM	SDNR	01 no	
	32 MM	SDNR angle valve	02	
	25 MM	SDNR angle valve	01	
	20 MM	SDSL St Valve	01	
	25 MM	SDSL St Valve	01	

EA 3128	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)				Do. Material yard supply. All in way jobs included.
	SIZE	QTY			
	150 mm	03			
	50 MM	03			
	65mm	01			
	80 mm	02			
	32mm	02			

**BILGE AND FIRE MAIN SYSTEM PIPE LINES AND VALVES**

EA 3129	Remove, chemically clean, pressure test & apply paint on Bilge and Fire Main system pipelines. Defective pipes to be repaired. Gaskets to be renewed. (Paint yard supply)				Do 25% pipes only. Renewal if any against AWRF.
	SIZE	LENGTH	MATERIAL	TEST PRESSURE	
	65 mm	60 Mtrs	MS	7.5 Kg/cm <sup>2</sup>	
	50 mm	104 Mtrs	MS	7.5 Kg/cm <sup>2</sup>	
	40 mm	42 Mtrs	MS	7.5 Kg/cm <sup>2</sup>	
	20 mm	45 Mtrs	MS	7.5 Kg/cm <sup>2</sup>	
	15 mm	10 Mtrs	MS	7.5 Kg/cm <sup>2</sup>	
	80 mm	15 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>	
	65 mm	93 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>	
	50 mm	07 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>	
	40 mm	15 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>	
	10 mm	12 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>	

EA 3130	Remove overhaul, apply paint and refit Bilge and Fire Main system valves as mentioned below. {(Test pressure: 7.5 Kg/sq. cm) (Paint yard supply)}				Do 25% valves only. Renewal if any against AWRF.
	SIZE	TYPE	QTY		
	125 MM	SDSL angle Vv	01		
	80 MM	SDSL angle Vv	02		

	65	SDNR angle Vv	04	
	20	SDNR Vv	01	
	65	Foot Vv	01	
	65	SDNR/SDSL	13	
	50	SDNR/SDSL	17	
	40	SDSL	04	
	20	SDNR	04	
	06	SDSL	01	
	65	Fire hydrant	07	
	50	Foot Vv	06	
	18	SDSL	01	
<b>FRESH WATER SYSTEM PIPE LINES AND VALVES</b>				
EA 3131	Remove, chemically clean pressure test& apply paint on Fresh water system pipelines. Defective pipes to be repaired. Gaskets to be renewed. (Paint yard supply)			
	SIZE	LENGTH	MATERIAL	TEST PRESSURE
	20 mm	15 Mtrs	Seamless Copper	7.5 Kg/cm <sup>2</sup>
	20 mm	05 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>
	25 mm	05 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>
	32 mm	02 Mtrs	90/10 CU-NI	7.5 Kg/cm <sup>2</sup>
EA 3132	Remove overhaul, apply paint and refit following valves in the Fresh water system as mentioned below. {(Test pressure: 7.5 Kg/sq. cm) (Paint yard supply)}			
	SIZE	TYPE	QTY	
	32 MM	SDSL	01 no.	
	20 MM	SDSL	01 nos.	
	25 MM	SDSL	02 nos.	
EB 3133	Check guard plate of Fwd and Aft engine misaligned. Plate to be renewed along with securing frame. (Area: 150 Sqm, Plate Mat: Aluminum, Frame Mat: MS)			
EB 3134	04 in no. bilge suction strainers of engine rooms corroded and perished. To be renewed as per sample. Mat- Brass, Dia- 50mm			

Do 25% pipes only. Renewal if any against AWRF.

Do for 02 valves only. Renewal if any against AWRF.

Do. Material yard supply. All in way jobs included.

Do. Material yard supply. All in way jobs included.



**MAIN DEFECT LIST: ELECTRICAL**  
**IGGS MEERA BEHN: SHORT REFIT (SR-6)**

DL NO.	DEFECT DESCRIPTION	CGRHQ(NW) REMARKS
<b>MAIN SWITCH BOARD, QTY:01 MAKE: MARINE ELECTRICALS, GOA</b>		
LA 5001	Calibration of circuit breakers for over load and under voltage protection. Carry out insulation resistance test of breakers and associated controls (minimum acceptable value 1 mega ohm).	DO. Only calibration. Yard to provide calibration certificate. Spares CG supply.
LA 5002	Parallel operation checks to be carried out. If required Load Balancing Relay to be calibrated. Parallel operation to be proved in Manual/ Semi auto/ dark Lamp mode. Synchronize section to be proved.	
LA 5003	All MSB meters are to be calibrated. Defective meters to be renewed. <b>Note: Calibration certificate (NABL certificate) to be provided.</b>	
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 Megger.	Do. Material yard supply.
LA 5005	All the changeover switches / breakers are to be renewed if required. Check the complete MSB wiring condition and to be renewed wherever necessary.	Do overhauling. Material yard supply.
LA 5006	Three in nos supply breakers (TP, 250 A, motor mechanism 220 V Make: Siemens) 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.	DO. Only calibration. Yard to provide calibration certificate. Renewal of defective meters if any against CG supply.
LA 5007	Following meters to be calibrated. Calibration certificate (NABL certificate) to be provided. <b>(a) 415 Volt Section</b> (i) Volt meter -04 Nos (ii) Ammeter -04 Nos (iii) KW meter -03 Nos (iv) Power factor meter -03 Nos	DO. Only calibration. Yard to provide calibration certificate. Renewal of defective meters if any against CG supply.



	(v) Frequency meter -04 No (vi) Double frequency meter -01 No (vii) Double volt meter -01 No (viii) Synchroscope -01 No <b>(b) 230 Volt Section</b> (i) Volt meter -01 No (ii) Ammeter - 01 No	
<b>ICCP: QTY-01 MAKE: CATHODIC CONTROLS, BANGALORE MODEL:25 A, 230 V          OEM/PAC: CATHODIC CONTROLS COMPANY PVT. LTD, BANGALORE LOCATION: MCR</b>		
LA 5008	Inspect the anodes and the reference cells (Two Nos. each) for mechanical damage. Replace if required.	Delete. Under AIAMC
LA 5009	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 5010	Measure and improve the insulation to 01 Mega ohms between hull and anode after drying up for 04 nos. junction boxes.	
LA 5011	Check all the circuit and thoroughly inspect the wiring / unit / sub-unit, renew them wherever necessary	
LA 5012	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 5013	Check the condition of underwater hull.	
LA 5014	All control panel meters are to be calibrated.	
<b>GYRO COMPASS, QTY: 01 NO, MAKE: RAYTHEON, GERMANY MODEL – STD 20 WITH TMC          LOCATION: BRIDGE, ROUTINE: REFIT, PAC FIRM: M/S ELCOMTE INTEGRATED SYSTEM PVT LTD, MUMBAI</b>		
LA 5015	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. (By PAC firm)	Do for DL Sls LA-5015 and La-5016 through PAC firm. Spares CG supply. Material yard supply.
LA 5016	Ensure repeaters are aligned with main Gyro and Gyro feed is available to RADAR, ECDIS and other connected equipment. Check the TMC mode and auto pilot mode and prove. (By PAC firm)	

**MAIN GENERATOR, QTY: 03 NOS ( 2 KW -- 01 NO, 120 KW-02 NOS) MAK STAMFORD, UK,**

**MODEL: 20/3817003LOCATION: FER/AER**

LA 5017	Check steady state of generators.	DO. Through authorised firm.
LA 5018	Inspect the winding, improve insulation. Replace all components showing deterioration/wear.	Genuineness certified bearings to be renewed as per sample. Carry out load trials on ship's load. Bearings and material yard supply. Spares CG supply.
LA 5019	Overhaul the full generator assembly including AVR, battery circuit & self starting motor and space heater.	
LA 5020	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.	
LA 5021	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.	
LB 5022	Following cables showing low insulation due to ageing effect. To be renewed as per sample. (i) 03 DA's control panel cable with end connectors. (ii) Cables of all 03 DA's sensors, transmitter, actuator, dynamo, starting motor and magnetic switch with harness to be renewed.	
<b>ENGINE CONTROL/MCS/RCS/WJ-5 Type : II MAKE: MTU, GERMANY (JOBS TO BE UNDERTAKEN BY OEM/PAC</b>		
LA 5023	Following safety trips and alarms along with sensors of all three main engines to be <b>calibrated/simulated by PAC/OEM firm only.</b> (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 DL Sis LA-5023 to LA-5025 through PAC firm. Spares CG Supply. Material yard supply.
LA 5024	Exhaust gas monitoring system to be checked and proved for proper operation	
LA 5025	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	

LA 5026	Main Engine control UPS (2 Nos) to be overhauled. Ammeter, Voltmeter to be calibrated. System to be proved in float & boost mode.	DO through PAC firm. Spares CG Supply.
LA-5027	All Tank sensors (06 Fuel tank, 01 Water tank) to be calibrated and proved for satisfactory operation.	DO through PAC firm. Spares CG Supply.
LA 5028	Water jet buckets to be calibrated with RCS/MCS and system to be proved for satisfactory operation.	DO through PAC firm. Spares CG Supply.
LA 5029	Performance of the LAN bus in MCS-5 to be checked. If found any PIM malfunctioning/defective to be replaced.	DO through PAC firm. Spares CG Supply.
<b><u>RADAR (QTY- 01 NO) MAKE: RAYTHEON, GERMANY MODEL: PATH FINDER MK 2 LOCATION: BRIDGE</u></b>		
<b><u>PAC FIRM: M/S ELCOME INTEGRATED SYSTEM PVT LTD, MUMBAI</u></b>		
LA 5030	Measure VSWR, noise figure as per the procedure given in the maintenance manual (Raytheon)	Delete. Under AIAMC
LA 5031	Check the power output of MTR unit. It should be approx. 25 KW. ) Noise figure should be below approx 12 DB.	
LA 5032	Remove the filter used in the modulator unit, inverter unit & display unit. Clean the filter and mesh.	
LA 5033	Change the oil in the antenna base	
LA 5034	Every 2 years or 5000 hours of operation the antenna base should be subject to a general overhaul & lubrication.	
LA 5035	During overhaul all bearing & oil seal rings should be replaced	
LA 5036	Examine bearing & general condition of the MTR unit motor.	
<b><u>EM LOG, QTY: 01 NO, MAKE: SAGEM MODEL LH 92 OEM: SAGEM MODEL LH 92, LOCATION: BRIDGE</u></b>		
<b><u>PAC FIRM: M/S TECHNO COMP SERVICES PVT. LTD, MUMBAI</u></b>		
LA 5037	Overhaul the complete system and full performance check is to be carried out.	DO for DL Sls LA-5037 to LA-5040 through PAC firm. Spares CG Supply. Material yard supply.
LA 5038	Clean the exterior of electronic cabinet and repeater. Open the cabinet and clean it with vacuum cleaner and check the tightness of all connections.	
LA 5039	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	
LA 5040	Check the performance of equipment and accuracy of readings before Dry Dock as part of pre refit trials.	

**ECHO SOUNDER: QTY-01 MAI RAYTHEON, GERMANY, MODEL: SK PER GDS 101  
 OEM/PAC:M/S ELCOME INTEGRATED SYSTEMS LTD, MUMBAI, LOCATION: BRIDGE**

LA 5041	Check performance of equipment and accuracy of readings before dry-docking. (By PAC firm)		DO for DL SIs LA-5037 to LA-5040 through PAC firm. Spares CG Supply.
LA 5042	The transducer should be cleaned using a plastic scraper or scrubbing brush. Check transducer casing for water tightness and cables for insulation. (By PAC firm)		Material yard supply.
LA 5043	Echo sounder to be calibrated by simulation/known depth readings through PAC firm. Calibration chart and certificate to be submitted for onboard reference. (By PAC firm)		

**MOTORS AND CONTROL PANEL**

LA 5044	Following Motors and control panels to be overhauled. Material yard supply Overhauling of motors includes following a) Checking insulation of winding renew if Low insulation. b) Varnishing of motor winding and 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 and seals e) Balancing 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. Overhauling of control panel includes following 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.		DO. Spares and Material yard supply.
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**(Note: Material Yard s ply)**

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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
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 motor	1.1 KW	01



**LIGHTING TRANSFORMER 415V/7 2V 1 PH 10 KVA, QTY 04 NOS (MAKE STATIC TRANSFORMER, INDORE)  
LOCATION: AER**

LA 5045	<b>04 Nos.</b> 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 resistance paint.	Do. Material yard supply.
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**MB/SRE SYSTEM**

LA 5046	Overhaul the complete system. Following Checks to be carried out. Replace aged/ deteriorated components/wiring. (i) Performance of the 05 Mic Junction boxes (ii) Performance of the speakers with controls (iii) Functional checks of MB/SRE relays, Zone control, PoT control devices.	Delete.
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**SHORE CONNECTION BOX AND ENERGY METER, QTY: 01 NO, MAKE: MARINE ELECTRICALS, GOA  
LOCATION: O' DECK**

LA 5047	Shore supply box at quarter deck to be overhauled.	Do. Material yard supply.
LA 5048	Calibration of volt meter (0-500V), Ammeter (0-150A) and energy meter to be carried out.	

**FIRE ALARM / GENERAL ALARM SYSTEM MAKE: ELNA, GERMANY PAC FIRM: M/S M/S ELCOME INTEGRATED SYSTEMS LTD, MUMBAI, LOCATION: BRIDGE, ROUTINE: REFIT**

LB 5049	Fire detection and general alarm Control Panel showing false alarms frequently due to processor malfunctioning. Processor/PCBs not available with OEM/PAC view system is obsolete. System along with 38 in nos Smoke Sensors and 01 in no heat detector to be renewed with new system.	DO. Spares CG Supply. Material yard supply.
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**AIR HORN, MAKE:-KRIST ENGINEERING BARODA, TYPE:-KA/5/KA200**

LA 5050	Overhaul the equipment. Replace defective/deteriorated components. <b>ELECTRIC SIREN ZETPON QTY:01 NO, MAKE: ZOLLNER (COMBINED SIGNAL AUTOMATION), MODEL: 400/310, LOCATION: BRIDGE</b>	DO. Material and Spares yard supply.
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LA 5051	Overhaul the equipment completely. Check all weather sealing gaskets.	DO. Material and Spares yard supply.
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LA 5052	Check the components showing ageing and sign of deterioration Replace deteriorated wiring.	
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<b>COOKING RANGE, QTY:01 SET, 10 KW 415 V, 3 Ph, 850 HZ) MAKE: KANTILAL CHUNILAL, SURAT, YEARLY ROUTINE</b>	
LA 5053	Remove hot plate and dip tray and clean them properly.
LA 5054	Remove both side screens and bottom cover of ovens. Clean inside thoroughly and ensure all elements are fixed properly in their places.
LA 5055	Clean and check properly thermostat bulb and Ensure that they are in order.
LA 5056	Change the heat resistance wire from control panel to cooking range.
LA 5057	Overhaul the control panel. Replace if any defect.
LA 5058	Check and record insulation resistance of complete range and control panel. Change the internal heat resistance wiring of cooking range.
<b>15 LTR WATER BOILER, QTY:01 NO, 415 V, 3 Ph, 50 HZ, 3.5 KW MAKE: KANTILAL CHUNILAL, SURAT</b>	
LA 5059	Dismantle the water boiler from its position after disconnecting water & electrical connection.
LA 5060	Renew the heating elements. Check the switches, fuses, dry cut out and reassemble them correctly as per drawing
<b>WATER JET SYSTEM MODEL: 3 X 71 S II, QTY: 03 NOS, MAKE: KAMEWA (JOBS TO BE UNDERTAKEN BY PAC FIRM M/S ROLLS ROYCE MARINE INDIA)</b>	
LA 5061	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.
LA 5062	Calibrate <b>03 Nos.</b> over load relays (4-6 Amps) pertaining to above motors by current injection test (CIT). Note:- Calibration certificate to be provided.
LA 5063	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.
LA 5064	03 in control panel to be overhauled and functional test to be carried out.
LA 5065	Overhaul 03 no. starter control panel including cleaning of 03 no. contactors and calibration of 03 no's thermal over load relay.
LA 5066	Carry out functional test of the control system and replace components if required.

DO for DL SIs LA-5053 to LA-5058.  
Spares CG supply.  
Material yard supply.

DO. Spares CG supply.  
Material yard supply.

DO through PAC Firm. Calibration certificate to be provided. Spares CG supply. Material yard supply. All in way jobs included.

<b>TRANSFORMER RECTIFIER (BATTERY CHARGER), MAKE:-WAVE ELECTRIC TICS PVT. LTD, KOCHI, 40 A 230/24V DC, Qty:-02 nos</b>		
LA 5067	Functional checks of all potentiometer (Voltage, Current), selector switches and meters to be carried out. Replace if required. Calibrate all meters. Calibration certificate to be provided.	DO. Spares CG supply. Material yard supply.
<b>SEARCH LIGHT (1000 W,230 V AC), QTY:01 MAKE: RAY ENTERPRISES, LOCATION: BRIDGE TOP</b>		
LA 5068	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. Material yard supply.
<b>FIRE SUPPRESSION CONTROL SYSTEM (FM 200) PAC FIRM: M/S SUPPER FIRE ENGG. MUMBAI</b>		
LA 5069	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( 01nos) (e) Visual indication Qty( 02nos) <b>(Note: Test to be carried out without discharging FM 200) By PAC firm</b>	Do for DL sis LA-5069 and La-5070 through PAC firm. Spares CG supply. Material yard supply.
LB 5070	While opening remote/local operating panel door of FM 200 nitrogen FOP, FOT and AC system not getting shutdown. To be proved.	
<b>NAVIGATIONAL LIGHT, MAKE – MARINE ELECTRICAL, LOCATION: BRIDGE</b>		
LA 5071	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.
<b>A/C CONTROL PANEL (MAKE: ELECTRONIC CONTROL CORPORATION, CALCUTTA) 415 V, 50 HZ, 3 PH)</b>		
LA 5072	Complete control panels to be overhauled. Panel to be cleaned by contactor cleaner and soft brushes. 18nos contactors (08 in nos 25 A, 04 in nos 16 A, 06 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.

<b>SHOWER &amp; BILGE PUMP MOTOR CONTROL PANEL - 02 Nos</b>	
LA 5073	Control panel to be overhauled. System to be proved in Auto/manual mode operation. Delete. Covered in LA-5044.
LB 5074	Port & Stbd dirty water tank high/low magnetic float switches (04 Nos) to be renewed view defective. In way job include removal and re-fitment of pipes & equipments (Spare CG supply) DO. Spare CG supply. Material yard supply.
<b>FRESH WATER HYDROPHORE CONTROL PANEL- 02 Nos,</b>	
LA 5075	One in no pressure switch (0-6 Kg / cm2) Make: Indfoss, to be calibrated. System to be proved for auto pressure cut-out/cut-in operation after calibration DO. Material yard supply.
<b>ELECTRO HYDRAULIC CRANE (2.2 KW, 415V , 3 Ph , 50 Hz) MAKE: NED-DECK, HOLLAND PAC: M/S VANSON ENGINEERING</b>	
LA 5076	Overhaul the motor (2.2 KW), starter panel and remote control unit. Calibrate over load relay by current injection test set. Starter panel beading to be replaced. Renew all deteriorated internal wiring. Crane to be proved for satisfactory operation. Delete. Covered in HA-1072.
<b>OILY WATER SEPARATOR MODEL: ILD-1(MAKE: SUYASH ENTERPRISES, PUNE)</b>	
LA 5077	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. DO. Material yard supply.