



**V.O.CHIDAMBARANAR PORT
AUTHORITY**

(IMS - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 & ISPS COMPLIANT PORT)

**MINISTRY OF PORTS, SHIPPING AND WATERWAYS
GOVERNMENT OF INDIA
MEE DEPARTMENT**

Administrative Office, Harbour Estate, Tuticorin-628 004.
Website: www.vocport.gov.in



No: MEE-SE2MN-MT TUTI-AUG-2024

Dt: 21.10.2024

CORRIGENDUM - 2

**Name of Work: "Manning, Operation & Maintenance of VOCPA owned Harbour Tug
M.T. Tuticorin for two years at VOC Port – Reg.**

Tender Ref no: MEE-SE2MN-MT TUTI-AUG-2024

Tender ID: 2024_VOCPT_208640_1

Sl. No	Reference	Existing clause	To be read as
1.	<u>SECTION V</u> Principal Particulars and List of Machineries of MT Tuticorin Tentative information on Electrical Equipment's available on M.T. Tuticorin	Principal Particulars and List of Machineries of MT Tuticorin Tentative information on Electrical Equipment's available on M.T. Tuticorin Page No: 66-76	Enclosed vide Annexure 1 to this corrigendum.
	<u>Section VI 6.13(e)</u> Protection and indemnity insurance	Nil	The contractor shall take Protection and indemnity insurance for crew as per the Guidelines of DG Shipping, at their cost.

The above changes are applicable to all corresponding clauses of the document wherever incorporated.

Sd/-

CHIEF MECHANICAL ENGINEER

PRINCIPAL PARTICULARS & LIST OF MACHINARIES OF TUG TUTICORIN

Name of the Vessel	:	M.T. TUTICORIN
Type of Vessel	:	VSP Tractor Tug
Official No.	:	3171/AUKH (M.S Act - Class XII) (Converted to RSV, Type - I)
IR No.	:	25880
IMO No	:	9381598
Classification	:	SUL TUG, IY
Year Built	:	2006
Bollard Pull Capacity	:	45 BP
Name of the Builder	:	Tebma Ship Yard Ltd, Chennai. (Yard No 106)
LOA	:	32 m
Breadth(mld)	:	10.65 m
Depth(mld)	:	4.738 m
Draft(max)	:	5.10 m
Draft (FL)	:	3.17 m
Frame Spacing	:	500 mm
GRT	:	425 T
Lightship Weight	:	530 T

Main Engine

Make	Wartsila
Model	6L26A2
Type	Inline
Power	1880Kw@1000
Engine Sl.No	26828 and 26829

Turbo Charger

Make	ABB Turbo System Ltd.,
Type	TPS 57 D01
Maximum effieciency	718 1/s
Maximum efficiency B	682 1/s
Maximum temperature	650 ^o C
Maximum temperature B	620 ^o C

Propulsion

Make	Voith Schneider Propeller
Type	GR 28 G II/210
Sl.No	3818CW and 3819CCW
Rating	1850Kw @ 984.

Auxiliary Engine

Make Cummins India Ltd, Pune
Model NT495MG
Type Inline
Power [173Kw@1500](#) rpm
Sl.No 25306490 and 25306491

Particulars of Alternators

Make Crompton Greaves Ltd
Frame G2R 250 MA
Rating 125 KVA
Sl.No G2R125.0/43 EFAG 6341 and G2R125.0/43 EFAG 6342

Harbour Diesel Generator

Make Kirloskar Oil Engines Ltd
Model 4R 1040T
Power 105Kw @ 1500 rpm

Particulars of HDG Alternator

Make Crompton Greaves Ltd
Frame G2R 200 SD
Rating 40KVA
Sl.No GIR63.0/43 EFAG 6337.

External Fire Fighting System

Make CounterFire Limited.
Pump size 350 x 250 – 600
Gear Box Type 2FGEC – 280, Front End Gear.
Sl.No 91679.

Telescopic Monitor Mast

Manufacturer Fischcon Trading and Engineering BV
Manufacturer Project No. F-20050053
Contract Purchase Order P24705-02-05
Equipment Description 2* Monitor Mast.
Web id www.fischcon.com
e-mail fischcon@fischcon.com

Air Compressor

Make Elgi Equipments Ltd,
Model HP 07 300
Type Two stage, two cylinder, single mounting, splash lubricated, and air cooled.
Working Pr 30 Kg/cm²
Speed 700 rpm
Free air delivery 19.56M³/hr @ 30 Kg/cm²
Sl.Nos 23498 and 23547 (2 Nos)

Air Drier: Make: Summits, Model: SRD-20 HP, Capacity: 20 CFM, Operating Pr: 20 kgf/cm.sq

Bilge and GS pump

Pump type Centrifugal, Horizontal, self-priming Monobloc pump.
Liquid pumped Sea water
Suction dia 3"
Del.dia 2"
Specific gravity 1.028
Capacity 30m³/hr
Total head 36m
Power 4.72kw
Speed 2 pole
Direction of rotation clockwise when viewed from drive end.
Hydrostatic test pressure 7.5kg/cm²
Impeller diameter 168mm
Seal size 32mm RAB (M/s. Flow serve / Equip)

Motor details

Make	M/s.Kirloskar Electric Company
Type of Motor	Squirrel Cage induction Motor. Foot cum flange mounted TEFC
Power	7.5kw / 10 HP
Rating	Continious
Speed	2900 FL rpm
Voltage	415 V
Frequency	50 Hz
Phase	3 Phase
Protection	IP 55

Sewage Treatment Plant**Discharge method**

Make	IL SEUNG CO., LTD
Type	ISS – 15
Capacity	900 Lit/day
Sewage bod Volume	13.5 g/man.day
Biochemical oxygen demand (BOD ₅)	Max.50 PPM
Suspended solid (SS)	Max.50 PPM
Coliform	Max.200 mpn per 100ml

Treatment Tank

Main materials	Mild steel, steel pipe, stainless steel pipe, pvc
Inside surface	Tar – epoxy coating.

External Dimension

Width	1003mm
Length	1160mm
Height	1480mm

Discharge pump and Motor

Capacity	8 Cu.m/hr
Total Head	20m
Output	1.5kw

Aeration Blower

Capacity	90 Cu.m/hr
Discharge Pressure	1.3 kg/cm ²
Output	0.55kw
Paint color	7.5 BG 7/2 munsell no.
Net weight with std. equipment	470 kg
Power Source	AC 415V 50HZ 3 Phase

Oily Water Separator

Type	Gravity coalescer, vaccum fully-automatic, single vertical cylindrical
pressure/vaccum vessel.	
Operational data Influent	Oily water mixture composed of fresh and/or sea water contaminated with non-emulsified fuel, lubricants, and other petroleum products with specific gravity 0.83-0.98.
Effluent (primary)	Water with oil content less than 15 PPM
Effluent (secondary)	Waste oil
Hlding capcity	34 gallons (129 Lit)
Water and Oil Temperature range	40deg.F to 122deg.F
Ambient Temperature	40deg.F to 122deg.F
Discharge Head (Max)	80 Ft Vertical
Suction Lift (Max)	25 Ft Vertical
Operating vaccum (nominal)	0-5 inches HG
Vessel Pressure (Max)	30 PSI
Electric power input	All std.voltages.

Dimension and Weight Data

Vessel diameter	406 mm
Length	785 mm
Width	560 mm
Height	1220 mm
Dry weight	144 kg
Wet weight	276 kg

Oil Content Detector

Range	0 – 30 ppm
Accuracy	IMO MEPC 60 (33) (+/- 5 PPM)
Concentration Indication	2 x 7 segment LED
Alarm operating points	1 – 15 PPM (Adjustable)
Alarm 1 operating delay	0 – 20 sec (adjustable)
Alarm 2 operating delay	10 – 240 sec (adjustable)
Alarm contact rating	8A @ 240V (Inductive)
Alarm relay mode	De-energised in Alarm state
Zero oil/ fault indication	Alphanumeric code
Output signal	0 – 20mA, 4-20mA (820 ohms min.load) 0 – 5V & 1 – 5V DC (50 K.ohms min.load)
Projected life (Electronics)	Greater than 50,000 hrs
Ambient Temperature	+34 deg F to 130deg.F (+1deg.cent to +55deg.cent)
Humidity	90% RH Max @ 131deg.F
Sample Temperature	34deg.F to 104deg.F
Sample flow	0.13 to 0.50 gallons/Minute (0.5 to 2 lit/Minute)
Sample Pressure	0.145 to 145 PSI (0.1 to 10 Bar)
Clean water requirement	As for sample
Weight	5 pounds
size	140 x 242 x 73mm
Supply voltage	Two models available 230V and 115V AC
Supply variations	± 10% of Nom.voltage
Supply Frequency	50/60 Hz
Consumption	10VA Max. Alarm
Degree of Protection	NEMA 4 (IP 55)

Lub Oil Purifier

Make	Alfa-Laval
Type	MAB 103B-24
Product Number	881145-09-01
Purpose	Continuous Purification of lubricating oil form solid particles and water.
Hydraulic capacity	Maximum 1.4 Cu.m/h
Process capacity	Maximum oil flow at the maximum permissible oil density 991 kg/Cu.m.
Max.density of sediments	5000 kg/Cu.m
Max.density of feed	991 kg/Cu.m
Feed temperature	Minimum 0 deg.cent and Maximum +100 deg.cent
Ambient Temperature	Minimum +5 deg.cent and Maximum +55 deg.cent
Motor	4 pole 0.75 kW std.motor, 50 to 60 Hz, 3 Phase direct on-line start.
Power consumption	idling 0.4 Kw, running 0.6 Kw, max.power consumption 0.6 kW.
<u>Speed</u>	

Gear Ratio		
Max.speed of rotation, rpm	50 Hz	60 Hz
Motor shaft speed	1500	1800
Revolution counter speed	71-75	85-90
Bowl speed	8570	8600

Starting time	3 minutes
Stopping time	Running down with brake applied min.2 minutes maximum 2.5 minutes. Without brake 6 minutes (average)
Max.running time without flow	empty bowl 480 minutes filled bowl 480 minutes.

Windlass

Make	VARCO MARINE INDUSTRIES CO, CHENNAI.
Rated pull of windlass	2057 Tons
Mean Hoisting speed	10m/min
Chain size	22mm dia Gr 2 Anchor chain
Power required	7.5 HP dual speed
Electric supply and frequency	415V, 3 Phase, 50 Hz
Speed of Windlass at each step	I step – 10m/min II step – 20 m/min
Centre distance between gypsy wheels	1100 mm

Centre distance between warping barrels 1740 mm
 Pitch circle dia of Gypsy wheel 299 mm
 Grade of Oil Servo mesh SP68 / SAE 120
 Quantity of Oil 70 lit.

Capstan

Make VARCO MARINE INDUSTRIES CO, CHENNAI.
 Rated pull of Capstan 5 Ton at 5m/min and 2.5 Ton at 10m/min.
 Power Required 10 HP
 Electric Supply and Frequency 415V, 3 Phase, 50 Hz.
 Speed of capstan at each step I step – 6 mts, II step – 12 mts.
 Pitch circle dia of capstan 360 mm
 Grade of Oil Servo mesh SP 68
 Quantity of Oil 60 lit

Towing Hook

Manufacturing by Nautilus Engineering & Construction Company, Mangalore.
 Type Disc type quick releasing towing hook of 50 M Ton safe working load.
 Sl.Nos 336 and 337. (2 Nos)
 Drg.No NECC/TH/PN 267-7. Appd.by IRS.

Tentative information on Electrical Equipments available on M.T. Tuticorin

Sl. No	Name of Equipment	Details of Equipment	Qty	Place of Equipment
1	VHF Unit		2 No's	WHEEL HOUSE
2	Wiper Control Panel		1No.	WHEEL HOUSE
3	Wiper Motor	SPEICH - TPCJB, Volt - 220, N - 299	4 No's	WHEEL HOUSE
4	CVS Motor	Watt - 60, RPM - 1800, Amps - 0.3 to 1.5, Volt - 220, Class - F ,Type - φ 300 Make - JUNG A Marine Equipment Mfg. Co. Ltd.	4 No's	WHEEL HOUSE
5	Bajaj Grace Fan		2 No's	WHEEL HOUSE
6	VHF Power Supply Unit		2 No's	WHEEL HOUSE
7	UPS & Converter Control Panel		1 No.	WHEEL HOUSE
8	Navigation Lighting Control Panel		1 No.	WHEEL HOUSE
9	Fire Detection alarm Panel	Fire detection system controller - 1No., Fire alarm sounder - 3No's, Fire alarm bells (Sounder with rotating light for engine room) - 1 No., Smoke detector - 8No's, Heat detectors - 8 No's, Manual call points with test key - 5 No's, End of line (EOL) resistors, protection glasses, built in battery, installation, etc - 1 Set.	1 Set	WHEEL HOUSE
10	M/E Alarm printer Panel		1 No.	WHEEL HOUSE
11	Lighting DB	230V, 50Hz, 3Ph	1 No.	WHEEL HOUSE
12	Navigation DB	24V DC	1 No.	WHEEL HOUSE
13	Starter Panel	Fire Fighting System	1 No.	Deck (inside)
14	Control Panel	Fire Fighting System	1 No.	Wheel house
15	Hydraulic Power Pack	Fire Fighting System	1 No.	Deck (outside)
16	Hydraulic Pump	7.5 KW, Class - F, 50 Hz, 3 Ph. - Fire Fighting System	2 No's	Deck (outside)
17	3 Ph. Motor in Monitor	Fire Fighting System: for slewing and Up/Down Operation of Monitor	8 No's	Monitors
18	Cylindrical Connector Set	Fire Fighting System	2No's	Monitors
19	Intercom Set	(Push to talk system)	1 No.	WHEEL HOUSE

Sl. No	Name of Equipment	Details of Equipment	Qty	Place of Equipment
20	VSP Intercom set	(Magnetic telephone set Type)	1 No.	WHEEL HOUSE
21	Electric Horn		1 No.	WHEEL HOUSE
22	Horn Speaker	Make : AHUJA	2 No's	Wheel house (Top)
23	Air Whistle		1No.	Wheel house (Top)
24	Motor with starter panel for exhaust / supply for gally, wheel house	Motor and control panel - 5No's		Wheel house passage
25	Control panel	For Main engine safety indication panel (in two steering tables)	2 No's	Steering table (Wheel House)
26	Control panel	(in two steering tables) for auxiliary circuits/ Equipments	2 No's	Steering table (Wheel House)
27	GPS	Global positioning system	1 No.	Wheel House
28	RADAR		1 No.	Wheel House
29	Echo sounder		1 No.	Wheel House
30	Gyro compass unit		1 No.	Wheel House
31	Battery	6V - for signaling.	1No.	Wheel house
32	Search Light	230V, 1000W	2No's	Wheel house (Top)
33	Battery	1.2 V, Model KPH 195P	76 No's	Deck
34	DAVIT - Power Master Crane	AC Sq. Cage Ind. Motor, 7.5 HP, 1440 RPM, 50 Hz, DE BRG. - 6208Z, Class - F, Volt - 415, Sl.No.1 - 8747P		Deck
35	supply fan	Crew Accommodation, Kirloskar, IS12615	1 No.	Deck
36	Gang Bell		1No.	Deck
37	CAPSTAN	Motor & Control Panel	1No	Deck
38	WindLass	Motor & Control Panel	1 No.	Deck
39	Hook Release		1No.	Deck
40	Lighting DB2	230V, 50Hz, 3Ph	1No.	Deck (inside)
41	Power DB5	230V, 50Hz, 3Ph	1 No	Deck (inside)
42	Gang Bell		1 No	Deck (inside)
43	Emergency Swtich board	24V DC (Control Panel)	1No.	Deck (inside)
44	Engine room Supply fan1	15 HP Motor	1No.	Deck (inside)
45	Engine room Supply fan1	15 HP Motor	1No.	Deck (inside)
46	Emergency Lighting DB	LP1, 24VDC	1 No.	II Deck
47	Lighting	DB 6	1 No.	II Deck
48	Main Switch board	415V, 50Hz, 3Ph with breakers Make: Switch N Control gears Pvt. Ltd.	1No.	Engine room
49	M/E Alarm Panel		1 No.	Engine room
50	Transformer1	15 KVA, Py. : 415V +- 2.5%, Duty: Cont., Sl.No. 1159/8/2670, Freq - 50 Hz, Class : H, Sy : 230V, Make: Switch N Control gears Pvt. Ltd. Δ - Δ	1 No.	Engine room
51	Transformer2	15 KVA, Py. : 415V +- 2.5%, Duty: Cont., Sl.No. 1159/8/2675, Freq - 50 Hz, Class : H, Sy : 230V, Make: Switch N Control gears Pvt. Ltd. Δ - Δ	1 No.	Engine room
52	DG1 with Control Panel/AV Panel (Generator set)	125 KVA, 415V, 50Hz, 3Ph.Conn: Star, Amp. Temp : 45 C, Excitation : 50 V, IP - 23, Control/AV Panel: Tripping / Alarm / indication for L.O Pressure, L.O Temp, V.L.L.O Pressure, High water Temp, etc.	1No.	Engine room

Sl. No	Name of Equipment	Details of Equipment	Qty	Place of Equipment
53	DG2 with Control panel/AV Panel (Generator set)	125 KVA, 415V, 50Hz, 3Ph.Conn: Star, Amp. Temp: 45 C, Excitation: 50 V, M/C No. G2R125-0143, IP - 23, Control/AV Panel:Tripping / Alarm / indication for L.O Pressure, L.O Temp, V.L.L.O Pressure, High water Temp, etc.	1No.	Engine room
54	DG3 with Control panel/A.V.Panel (Generator set)	63 KVA, 415V, 50Hz, 3Ph.Conn: Star, Amp. Temp: 40 C, Excitation: 35 V, M/C No. G/R163/43, Duty - S1, Control/AV Panel: Tripping / Alarm / indication for L.O Pressure, L.O Temp, V.L.L.O Pressure, High water Temp, etc.	1No.	Engine room
55	Lube Oil Purification Unit Control Panel	M/c No. : HOM240D3 Make :Crompton Greaves, 0.75KW/1 HP, 415V, 1410 RPM, 50Hz +- 5%, IP: 55, Duty: S1, 3Ph ind. Motor.	1 No.	Engine room
56	G.S.Pump with Control Panel	7.5 KW, Amps: 13.5, Class F, 415V, 2900 RPM, 50Hz, IP: 55, Duty: S1, 3Ph ind. Motor. Brg. 6208 & 6308, Connection: Δ, Make: Kirloaskar, Sl.No. - U35CAA14 - 22	1No.	Engine room
57	Bilge Pump with Control Panel	7.5 KW, Amps: 13.5, Class F, 415V, 2900 RPM, 50Hz, IP: 55, Duty: S1, 3Ph ind. Motor. Brg. 6208 & 6308, Connection : Δ, Make : Kirloaskar, Sl.No.-U35CAA14 - 20	1No.	Engine room
58	ED Compressor1 with Control panel	Control Panel, Motor: Bigilie Ltd, No. K5535044, 7.5 HP, Amb. Temp. - 45C, 376 - 456V, Amps- 10.4, PF - 0.8, RPM - 1445, Sq. Cage ind. Motor	1No.	Engine room
59	ED Compressor2 with control panel	Control Panel, Motor: Bigilie Ltd, No. K5610566, 7.5 HP, Amb. Temp. - 45C, 376 - 456V, Amps- 10.4, PF - 0.8, RPM - 1445, Sq. Cage ind. Motor	1No.	Engine room
60	Towing Hook Panel	24 VDC, Operation - Electro pneumatic control	1 No.	Engine room
61	L.O Primary Pump panel	3HP Motors - 2 No's	1 No.	Engine room
62	Air Drier Unit	Refrigeration mechanism	1 No.	Engine room
63	Fresh water Pump	for EXP. Tank, 1.0 HP with Control panel	1 No.	Engine room
64	Fresh water Pump with group control panel	Sl.No. A5RR201265, Volt - 415, RPM - 1420, KW - 1.5, IP - 55, Duty - S1 Amp. Temp. - 50, Make : Kirloskar Sl.No. A5RR201257, Volt - 415, RPM - 1420, KW - 1.5, IP - 55, Duty - S1 Amp. Temp. - 50, Make : Kirloskar Volt - 415, RPM - 1420, KW - 0.75, IP - 55, Duty - S1 Amp. Temp. - 50, Make: Grompton Greaves.	2 No's	Engine room
65	Grinding machine	0.5 HP Motor	1 No.	Engine room
66	VSP cooling pump with control Panel	Control Panel, Motor: Grompton Greaves, No. NADJ44SC, 20 HP, 415V, Amps - 27, RPM - 1460, 3 Ph. Sq. Cage ind. Motor, Class - F, Frame - ND106L	1 No.	Engine room
67	Stand By STP pump	M/c No. NDA 2J/EEGN047, 0.5KW/1 HP, Amps - 1.65, RPM - 2820	1 No.	Engine room
68	Sewage Treatment Control panel		1 No.	Engine room
69	Motor	Motor1 : 0.4 - 0.5 KW, 50 Hz Motor Motor2: Volt - 415, Amps - 2.3, Class B, RPM - 2900, Sl.No. 50209452, 2HP Model : ISP1500E		Engine room
70	Start/Stop System for Main Engine Control panel	Make : ABB	2No's	Engine room
71	Oil Bilge Separator	No. A6J17FK52B, Volt - 415, Class F, RPM - 1725/1425, 50/60 Hz	1No.	Engine room

Sl. No	Name of Equipment	Details of Equipment	Qty	Place of Equipment
		Make - Leeson Electric corporation		
72	Coffin world water systems with control panel		1 Set	Engine room
73	Battery Charger	0.5KW	1 No.	Engine room
74	Battery	for DG3 (12V,180A)	1 No.	Engine room
75	Battery	1.2 V	20 No's	Engine room
76	Lighting DB	3 & 4	1 + 1	Engine room
77	DG3 Control panel for start operation	For Start/Stop/ indication system	1No.	Engine room
78	SW DB with group starter panel	SWDB1: Motor: 3 Ph Ind. Motor, Sl.No. A5RR201233, 2HP, 1.5KW, 415V, 3.8A SWDB2: Motor: 3 Ph Ind. Motor, Sl.No. A5RR201230, 2HP, 1.5KW, 415V, 3.8A	2No's	Engine room
79	LT Pump with Control Panel	ABB Motors, 3 Ph Ind. Motor, Sl.No. 51513PO807/1, M3AA132, IP - 55, 50Hz, 7.5KW, 415V, 30A	1No.	Engine room
80	HT Pump with Control Panel	ABB Motors, 3 Ph Ind. Motor, Sl.No. 51513PO807/2, M3AA132, IP - 55, 50Hz, 7.5KW, 415V, 30A	1No.	Engine room
81	S/By SW Pump for M/E with control panel	15HP	1No.	Engine room
82	24V DC MCB Box		1No.	Engine room
83	F.O Purifier pump with Control Panel	1HP	1No.	Engine room
84	F.O Transfer pump with Control Panel	Motor1: 3 Ph Ind. Motor, Sl.No. 16325 Make: Grompton Greaves. Motor: No. DNDO24DJQ, Make : Grompton Greaves, RPM - 1410, 1HP.	2No's.	Engine room
85	Dirty Oil Pump with Control panel	2HP	1No.	Engine room
86	L.O Stand By Pump with Starter Panel	Motor: 3 Ph Ind. Motor, Sl.No. M2AA180L4, 22KW, 50Hz, 415V, Make: ABB, Protection Code - 4M18L04BB00207.	1No.	Engine room
87	Pre lube oil pump with control panel.	Motor1: Sl.No. M2AA100LA - 4, 1430-1720RPM, 2.2KW, 50Hz, 415V, Class - F, IP - 55. Motor2: Sl.No. SGA102001BS2, 1430-1720RPM, 2.2KW, 50Hz, 415V, Class - F, IP - 55.	2No's	Engine room
88	Turning gear Motor with control panel	1 HP	2No's	Engine room (Near Ply wheel of M/E)
89	Clutch Control Box	(Each set for each main engine) comprises of Limit switch, solenoids, Cabling, Control Panel, etc.	2 Set.	Engine room
90	Twin T/L fitting	20W+20W	30 No's	Engine room
91	F.O. S/by Pump for M/E	1 HP	1 No.	Engine room
92	Oil dispersion pump starter panel	Motor : Make - Grompton Greaves, No.410279A71	1 No.	Engine room
93	Battery charger	5KW, 415V, 3Ph for 24V DC Consumers	1No.	Engine room
94	Main Engine starting panel	Electro pneumatic system	1 No.	Engine room
95	VOITH JB(s)	Junction box	2 No's	Engine room
96	Electro hydraulic system	For pump operation with M/E	2 No's	Engine room

Sl. No	Name of Equipment	Details of Equipment	Qty	Place of Equipment
97	Navigation lighting	All lights (AC & DC)	1 set	Wheel House (Top)
98	Lighting system and electrical circuits	All lights (220V AC, 24V DC System) Bulbs with fittings in AC system: 1000W halogen, 400W MH, 60 W Bulk head, indication bulbs, etc, Cable Mtce. and all other works related to electrical system in the tug	1 Set	
99	Emergency Lights	24 V DC system	1 Set	
100	Engine tripping / safety system	For Main engine(2 No's) and auxiliary engine (3 No's)		Engine room

S.No	List of Safety Equipment	Qty
01	Life Raft Port	1 no
	HRU	1 no
02	Life Raft Stbd	1 no
	HRU	1 no
03	Motorized Davit	1 no
04	Rescue Boat	1 no
05	SCBA set	8 nos
06	Life Jacket Battery	22 nos
07	Rocket Parachutes	6 nos
08	Line Throwing Apparatus	4 nos
09	MOB Marker	2 nos
10	DCP Fire Extinguisher 9kg	8 nos
11	Water CO ₂ Fire Extinguisher 9 ltr	2 nos
12	AFFF Fire Extinguisher 9 ltr	3 nos
13	AFFF Fire Extinguisher 50 ltr	1 no
14	Spare Cartridges	13 nos
15	GMDSS Battery validity	3 nos
16	EPIRB Service due	1 no
	Battery	
	HRU	
17	SART I Service due	1 no
	Battery	
18	SART II Service due	1 no
	Battery	
19	Ship Station License validity	1 no