Tele: 248306

सम्मिश्र जांच दल/ Composite Trials Team
द्वारा नेवी कार्यालय/ C/o Navy Office
मुख्यालय/ Headquarter
अन्डमान एवं निकोबार कमान/
Andaman & Nicobar Command
पोर्ट ब्लेयर/ Port Blair - 744 102

CTT/300/03/16/TECH

05 Jul 23

प्रधान सेनापति/ The Commander-in-Chief
{(कृते कमान तकनीकी अधिकारी (समुद्री)/ for CTO(Marine)}
मुख्यालय/ Headquarters
अन्डमान एवं निकोबार कमान/ Andaman and Nicobar Command
द्वारा नौसेना कार्यालय/ c/o Navy Office
पोर्ट ब्लेयर ७४४ १०२/ Port Blair 744 102

PERFORMANCE TRIALS OF PROPULSION – *IN* LCU L-58

1. Refer to HQANC letter ANC/42002/EG/16/1 dated 30 Jun 23.

2. **Background**. Full power trial, safety device checks, performance, vibration and attenuations checks of Both Main Engines were undertaken on 30 Jun 23. Detailed report placed at **Enclosure.**

3. **Observations**. Salient observations are as follows: -

   (a) Air leakage from starting solenoid valve of PME.

   (b) Sea water leakage from vent line of BME.

   (c) Port stern tube Lub oil temperature indication not working.

   (d) Port gear box standby pump auto cut in / cut off not working.

   (e) Mounts of BME not cleaned.

   (f) Bilge hygiene **UNSAT.**

4. **Recommendation** Following recommended: -

   (a) Liquidation of defects/ observations mentioned at para 3.

   (b) Approval may be accorded for normal exploitation of Both Main Engines up to 100% in ahead & astern mode post liquidation of observations by SS.

(एस सी विलियम/ S C William) 05/07
कमांडर/ Commander
प्रभारी अधिकारी/ Officer-in-Charge

Encl: - As Above

Copy to: -

The Naval Component Commander
{for SSO(Tech)}
Headquarters Naval Component
c/o Navy Office
Port Blair – 744 102

The Commanding Officer
IN LCU L-58
c/o Navy Office
Port Blair-744102

Enclosure to CTT (PBR) letter CTT/300/03/13 dated 05 Jul 23

FULL POWER TRIAL OF BME – *IN* LCU L-58

1. Trial Inspectors :
   (a) Ajit Singh, ERA III
   (b) Patro Ashok, ERA IV
   (c) Ambesh, LME
   (d) Bharat, LME

2. Date and Time :
   (a) 30 Jun 23 (0900 - 1400)

3. Equipment used for SDCs :
   (a) Temp Calibrator.
   (b) Pressure Calibrator.
   (c) SPM T-30.
   (d) Temperature Gun.

4. **Safety Device Checks**.

Ser.	Description	Unit	Design Value	LOP	Remarks
(a)	High Coolant Water temp Alarm	°C	101	101	SAT
(b)	High Coolant Water temp Slow Down	°C	103	103	
(c)	High Coolant Water temp Trip	°C	106	106	
(d)	High Lub Oil temp Slow Down	°C	101	101	
(e)	High Charge Air temp Alarm	°C	75	75	
(f)	High Charge Air temp Slow Down	°C	85	84	
(g)	Low Coolant Water Pressure Alarm (at 1200 RPM)	Bar	1.6	1.7	
(h)	Low Coolant Water Pressure Alarm (at 1800 RPM)	Bar	4.2	4.2	
(j)	High Coolant Water temp Alarm (at 650 RPM)	°C	101	101	
(k)	High Coolant Water temp Slow Down (at 650 RPM)	°C	103	103	
(l)	High Coolant Water temp Trip (at 650 RPM)	°C	106	106	
(m)	Low Lub Oil Pressure Alarm (at 1200 RPM)	Bar	3.7	3.7	
(n)	Low Lub Oil Pressure Trip (at 1200 RPM)	Bar	3.4	3.4	

Ser.	Description	Unit	Design Value	LOP	Remarks
(p)	Low Lub Oil Pressure Alarm (at 1800 RPM)	Bar	4.7	4.7	
(q)	Low Lub Oil Pressure Trip (at 1800 RPM)	Bar	4.4	4.4	
(r)	Low Fuel Pressure Alarm (at 650 RPM)	Bar	3.9	3.9	
(s)	High Exhaust temp Alarm for A & B Bank (at 650 RPM)	°C	651	650	
(t)	Very High Exhaust temp Alarm for A & B Bank (at 650 RPM)	°C	680	650	
(u)	Low Crankcase Pressure Alarm (at 1200 RPM)	Bar	25	25	
(v)	Low Crankcase Pressure Trip (at 1200 RPM)	Bar	40	40	
(w)	Low Crankcase Pressure Alarm (at 1800 RPM)	Bar	30	30	
(x)	Low Crankcase Pressure Trip (at 1800 RPM)	Bar	50	50	
(y)	Low Sea Water Pressure Alarm (at 1200 RPM)	Bar	1.2	1.2	
(z)	Low Sea Water Pressure Alarm (at 1800 RPM)	Bar	3.2	3.2	
(aa)	Over-speed Trip	RPM	2070	2070	

5. **General Data**.

SHIP - *IN* LCU L-58	
DISPLACEMENT – 748 TONS	**AFT DRAFT** – 2.4
	FWD DRAFT – 1.5
	SEA STATE – 2-3
SHIPS MODE – 10 AH (WITH TWIN ENGINE)	**SPEED BY LOG** – 17.7 KNOTS
	SPEED BY GPS - 15.5 KNOTS
SHIPS MODE – 6.6 AS (WITH TWIN ENGINE)	**SPEED BY LOG** – 5.7 KNOTS
	SPEED BY GPS – 4.8 KNOTS

6. **PORT MAIN ENGINE**

(a) **PARAMETER SHEET OF SEA TRIAL MCR**

SER	DESCRIPTION		UNIT	AHEAD				ASTERN
(i)	LOADING		%	25	50	75	100	65
(ii)	PCL POSITION			2.4	3.6	8.2	10	6.6
(iii)	ERPM		RPM	689	844	1525	1787	1280
(iv)	SHAFT RPM		RPM	149	180	331	387	291
(v)	SHAFT TORQUE		kNM	16	20	37	45	30
(vi)	SHAFT POWER		kW	264	399	1315	1886	920
(vii)	INJECTION QTY		%	30	39	65	100	59
(viii)	ENGINE OIL PRESSURE		Bar	2.9	3.8	6.0	6.2	5.7
(ix)	COOLANT PRESSURE		Bar	0.7	1.1	3.3	4.6	2.4
(x)	CHARGE AIR PRESSURE		Bar	1.1	1.1	2.2	3.0	1.9
(xi)	RAW WATER PRESSURE		Bar	0.6	0.8	2.5	3.4	1.8
(xii)	FUEL PRESSURE		Bar	6.9	7.2	8.1	8.4	7.8
(xiii)	LUB OIL TEMP		°C	75.9	76.8	84.6	89.5	78.8
(xiv)	COOLANT TEMP		°C	76.0	77.4	83.9	87.2	79.8
(xv)	CHARGE AIR TEMP		°C	64.4	65	62.9	59.4	64.7
(xvi)	PRESSURE CRANKCASE		mbar	-3.0	-5.2	-16	-12.9	-20.3
(xvii)	EXHAUST MEAN A/B		°C	217	288	532	554	457
(xviii)	EXHAUST TEMP	A1 CYL.	°C	333	300	521	542	470
		A2 CYL.	°C	221	292	533	551	462
		A3 CYL.	°C	245	322	534	553	476
		A4 CYL.	°C	230	307	533	565	451
		A5 CYL.	°C	218	276	528	546	452
		A6 CYL.	°C	218	295	535	552	438
		A7 CYL.	°C	219	279	547	560	468
		A8 CYL.	°C	214	269	559	580	469
		B1 CYL.	°C	206	288	516	551	466
		B2 CYL.	°C	214	296	527	545	449
		B3 CYL.	°C	219	291	528	537	469
		B4 CYL.	°C	215	279	530	549	464
		B5 CYL.	°C	221	283	529	559	462
		B6 CYL.	°C	223	276	548	548	467
		B7 CYL.	°C	205	284	525	578	465
		B8 CYL.	°C	213	274	528	549	437
(xix)	ETC1 SPEED		RPM	10	14	36	44	34
(xx)	ETC2 SPEED		RPM	0	0	41	50	0
(xxi)	G/BOX L.O. PRESSURE		Bar	1.8	1.0	1.7	1.8	1.3
(xxii)	GB CONTROL OIL PRESS		kg/cm^2	19.3	20	20.4	21	19.8
(xxiii)	STERNTUBE LUB OIL TEMP		°C	NW	NW	NW	NW	NW
(xxiv)	STARTING AIR PRESSURE / AIR BOTTLES PRESSURE		Bar	26.5	27.9	29.4	30	30.2

(b) **PARAMETER READINGS OF HEAT EXCHANGERS / COOLERS BY NON CONTACT TEMPERATURE GUN**

SER	DESCRIPTION	UNIT	AHEAD				ASTERN
(i)	LOADING	%	25	50	75	100	65
(ii)	ERPM	RPM	689	906	1528	1794	1279
(iii)	SRPM	RPM	149	196	332	389	291
(iv)	L.O. TEMP. ENGINE INLET	°C	76	77	84	87.8	78
(v)	L.O. TEMP. ENGINE OUTLET	°C	70	69	80	88	80
(vi)	F.W. TEMP. ENGINE INLET	°C	65	63	62	87	79
(vii)	F.W. TEMP. ENGINE OUTLET	°C	70	69	71	85	81
(viii)	FW INLET TEMP TO L.O. COOLER	°C	68	73	81	87	82
(ix)	FW OUTLET TEMP. FROM L.O. COOLER	°C	71	74	83	88	83
(x)	SW INLET TEMP. TO INTER COOLER	°C	31	28	29	35	30
(xi)	SW OULET TEMP. FROM INTERCOLER	°C	34.5	34	41	48	35
(xii)	GB L.O. INLET TEMP. TO COOLER	°C	47	46	55	64	62
(xiii)	GB L.O. OUTLET TEMP. FROM COOLER	°C	39	39	42	46	58
(xiv)	STERNTUBE LUB OIL TEMP	°C	NW	NW	NW	NW	NW
(xv)	FWD SEAL TEMP	°C	40	35	51	53.2	50
(xvi)	ERPM BY STROBOSCOPE	RPM	687	847	1528	1798	1280
(xvii)	SRPM BY STROBOSCOPE	RPM	150	184	332	389	292
(xviii)	GB LUB OIL PR AFTER PP	kg/cm2	0.8	1.0	1.7	1.8	1.6
(xix)	CLUTCH OIL PR AH/AS	kg/cm2	23.2	24.1	25.1	25.2	25
(xx)	COLLECTIVE EXH TEMP	°C	216	288	530	554	551

7. **STBD MAIN ENGINE**

(a) **PARAMETER SHEET OF SEA TRIAL MCR**

SER	DESCRIPTION		UNIT	AHEAD				ASTERN
(xxv)	LOADING		%	25	50	75	100	65
(xxvi)	PCL POSITION							
(xxvii)	ERPM		RPM	687	844	1530	1782	1240
(xxviii)	SHAFT RPM		RPM	149	183	333	386	1285
(xxix)	SHAFT TORQUE		kNM	16.3	20.1	57.1	44.7	278
(xxx)	SHAFT POWER		kW	262	398	1324	1886	30.8
(xxxi)	INJECTION QTY		%	28	38	67	100	937
(xxxii)	ENGINE OIL PRESSURE		Bar	2.9	3.8	6.0	6.1	65
(xxxiii)	COOLANT PRESSURE		Bar	0.8	1.1	3.3	4.5	5.8
(xxxiv)	CHARGE AIR PRESSURE		Bar	1.8	1.1	2.2	3.0	2.4
(xxxv)	RAW WATER PRESSURE		Bar	0.5	0.8	2.5	3.4	1.9
(xxxvi)	FUEL PRESSURE		Bar	6.8	7.1	8.0	8.0	1.8
(xxxvii)	LUB OIL TEMP		°C	76.1	772	85.6	90.4	7.6
(xxxviii)	COOLANT TEMP		°C	76.1	779	84.9	87.4	79.3
(xxxix)	CHARGE AIR TEMP		°C	63	63.9	62.7	58.2	80.3
(xl)	PRESSURE CRANKCASE		mbar	-5.2	-8.0	-18	-13.5	-18.4
(xli)	EXHAUST MEAN A/B		°C	223	297	540	551	64.4
(xlii)	EXHAUST TEMP	A1 CYL.	°C	248	326	525	543	481.2
		A2 CYL.	°C	216	284	531	532	499
		A3 CYL.	°C	227	304	552	568	489
		A4 CYL.	°C	230	299	556	574	496
		A5 CYL.	°C	225	294	554	564	471
		A6 CYL.	°C	224	293	540	558	497
		A7 CYL.	°C	213	281	549	552	500
		A8 CYL.	°C	214	288	558	551	470
		B1 CYL.	°C	250	333	547	547	511
		B2 CYL.	°C	215	294	518	548	490
		B3 CYL.	°C	236	312	553	539	490
		B4 CYL.	°C	216	284	538	571	511
		B5 CYL.	°C	231	299	530	530	490
		B6 CYL.	°C	218	293	529	571	490
		B7 CYL.	°C	211	282	544	530	459
		B8 CYL.	°C	213	282	519	539	489
(xliii)	ETC1 SPEED		RPM	10	14	35.1	44.6	36.1
(xliv)	ETC2 SPEED		RPM	0	0	39.1	50.1	0
(xlv)	G/BOX L.O. PRESSURE		Bar	0.8	1.1	2.2	2.4	1.8
(xlvi)	GB CONTROL OIL PRESS		kg/cm^2	19.4	19.4	20.5	20.9	19.9
(xlvii)	STERNTUBE LUB OIL TEMP		°C	32.1	33.1	38.7	48	46.5
(xlviii)	STARTING AIR PRESSURE / AIR BOTTLES PRESSURE		Bar	26.6	25.7	27	27.5	27.8

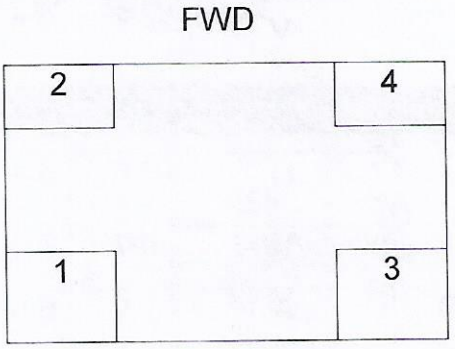
(b) **PARAMETER READINGS OF HEAT EXCHANGERS / COOLERS BY NON CONTACT TEMPERATURE GUN**

SER	DESCRIPTION	UNIT	AHEAD				ASTERN
(xxi)	LOADING	%	25	50	75	100	65
(xxii)	ERPM	RPM	689	900	1533	1791	1240
(xxiii)	SRPM	RPM	149	195	85	387	278
(xxiv)	L.O. TEMP. ENGINE INLET	°C	76.2	77.8	81	87.2	85
(xxv)	L.O. TEMP. ENGINE OUTLET	°C	69.3	68	62.6	89	86
(xxvi)	F.W. TEMP. ENGINE INLET	°C	65	61	70	87.2	82
(xxvii)	F.W. TEMP. ENGINE OUTLET	°C	69	68	82	89	84
(xxviii)	FW INLET TEMP TO L.O. COOLER	°C	67	76	41	87.2	83
(xxix)	FW OUTLET TEMP. FROM L.O. COOLER	°C	31	30	29.5	85.8	85
(xxx)	SW INLET TEMP. TO INTER COOLER	°C	31	27	41	44	40
(xxxi)	SW OULET TEMP. FROM INTERCOLER	°C	35	33.5	47	50	45
(xxxii)	GB L.O. INLET TEMP. TO COOLER	°C	41	41	41	44	42
(xxxiii)	GB L.O. OUTLET TEMP. FROM COOLER	°C	36	37	38.8	50	46
(xxxiv)	STERNTUBE LUB OIL TEMP	°C	32.1	33.1	32.1	34	34
(xxxv)	FWD SEAL TEMP	°C	44	35	52.1	64.5	58
(xxxvi)	ERPM BY STROBOSCOPE	RPM	686	843	1531	1790	1239
(xxxvii)	SRPM BY STROBOSCOPE	RPM	148	184	333	398	278
(xxxviii)	GB LUB OIL PR AFTER PP	kg/cm2	0.8	1.1	2.2	2.4	2.2
(xxxix)	CLUTCH OIL PR AH/AS	kg/cm2	20.1	21	22.1	22.1	21.3
(xl)	COLLECTIVE EXH TEMP	°C	220	295	354	415	402

8. **VIBRATION READINGS OF BME, G/B AND SHAFTING.**

SER	MEASURING POINTS	DIRECTION	AT 75% LOAD		AT 100% LOAD		REMARKS
			PME	SME	PME	SME	
(i)	ENGINE FREE END	V	3.8	3.4	5.9	5.5	SAT
		A	4.5	4.7	6.8	4.9	
		H	3.6	3.4	5.4	9.1	
(ii)	ENGINE DRIVE END	V	6.7	7.5	7.5	10.9	
		A	7.9	6.5	8.7	11.8	
		H	6.8	6.8	9.4	11.9	
(iii)	GEAR BOX IN	V	3.5	2.5	8.6	3.5	
		A	4.3	3.1	3.3	4.8	
		H	2.2	3.0	4.2	3.7	
(iv)	GEAR BOX OUT	V	1.5	1.4	3.4	1.4	
		A	4.2	3.1	2.1	3.7	
		H	2.3	3.4	4.1	2.7	
(v)	GEAR BOX TOP	V	2.2	2.3	2.8	2..3	
(vi)	STERN TUBE 1	V	2.8	3.8	1.3	0.9	
		A	1.8	1.4	1.4	0.9	
		H	2.6	0.8	2.1	0.8	
(vii)	STERN TUBE 2	V	1.1	2.9	1.6	0.4	
		A	1.1	0.5	0.7	2.9	
		H	1.0	1.4	1.1		

9. **ATTENUATION OF BME AT 75% AND 100% LOAD**



SER	EQUIPMENT	LOAD	MOUNT	TOP	BOTTOM	ATTENUETION % (70-100)	REMARKS
(a)	PME	50%	MOUNT 1	11.4	2.0	82	SAT
			MOUNT 2	12.8	1.3	89	
			MOUNT 3	6.5	0.6	90	
			MOUNT 4	7.4	1.5	79	
(b)	SME		MOUNT 1	9.2	1.3	86	
			MOUNT 2	9.1	1.4	84	
			MOUNT 3	11.8	1.3	88	
			MOUNT 4	7.1	1.4	80	
(c)	PME	75%	MOUNT 1	16.4	2.9	79	
			MOUNT 2	14.7	1.7	88	
			MOUNT 3	10.2	1.8	82	
			MOUNT 4	11.9	2.1	82	
(d)	SME		MOUNT 1	12.0	3.3	72	
			MOUNT 2	14.3	1.9	86	
			MOUNT 3	11.8	2.4	79	
			MOUNT 4	10.6	1.7	83	