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मुख्यालय/ Headquarter
अन्डमान एवं निकोबार कमान/
Andaman & Nicobar Command
पोर्ट ब्लेयर/ Port Blair - 744 102

CTT/300/04/04/TECH

20 Feb 23

The Commander-in-Chief
{for CTO (Marine)}
Headquarters
Andaman & Nicobar Command
Port Blair - 744 102

RUNNING HOUR EXTENSION ON BOTH MAIN ENGINES – INS KARMUK

1. Refer to HQANC fax ANC/42001/EG/6/1 dated 07 Feb 23.

2. **Background**. RH extension trial of BME onboard INS Karmuk were carried out on 16 Feb 23 from 0945-1445h by CTT(Pbr). BME were exploited upto 9.2 AH (940 ERPM) in ahead mode. Performance, vibration trials and attenuation checks were undertaken during the trials. Details of the same are placed at **Enclosure**.

3. **Performance trials.** BME were exploited upto 9.2 AH (940 ERPM). Operating parameters of BME were found within limits. BME were exploited at 10AH (1000 ERPM) for a duration of five min and all parameters found within limit.

4. **Vibration trials**. Vibration trials of BME were undertaken at 80% load. Vibration of Port Main Engine EFE Axial and Stbd Main Engine EFE Horizontal found beyond permissible limits.

5. **Observations:-**

(a) **Port Main Engine**:-

(i) Sluggish operation of port combinatory lever.

(ii) Sea water leakage from mechanical seal of gear driven pump of PGB.

(iii) Turbocharger RPM indication non-ops.

(iv) Control air reducer malfunctioning.

(v) Exhaust leakage from A1 cylinder.

(vi) Port OD box control oil pressure guage in MCR non-ops.

(vii) Minor fuel leakage observed from B8 & B9 cylinders.

(viii) Engine running with emergency cooling(from firemain system) at higher RPM.

(ix) Fuel leakage from overspeed slide valve.

(x) False indication of following in MCR panel:-

(aa) Low Gear box sea water pump pressure.

(ab) Very low propeller oil pressure.

(ac) Low sea water pressure.

(ad) Exhaust gas temp failure.

(ae) Low level in crankcase.

(af) Line control fauilure.

(b) **Stbd Main engine:-**

(i) Minor lub oil leakage observed from B2,B3 & B4 cylinders.

(ii) Minor fuel leakage observed from B2 & B8 cylinders.

(iii) Lub oil leakage from Moatti filter.

(iv) Exhuast leakage from B bank Engine free end.

(v) Temp of SGB bearing no 5 close to alarm valve at ERPM 920.

(vi) Lub oil pressure buildup time in MCR panel delay by 50 sec compared to PME.

(vii) False indication of following in MCR panel :-

(aa) Exhaust gas temp failure.

(ab) Low gear box sea water pressure.

(ac) Line control failure.

6. **Recommendations**. Following recommended:-

(a) Liquidation of defects/ observations mentioned at Para 5 ibid.

(b) It is recommended that 5% running hour extension may be accorded on Both Main Engines for normal exploitation with close monitoring of all parameters.

(एस सी विलियम/ S C William)
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

, ne Commanding Officer
INS Karmuk
c/o Navy Office
Port Blair-744102

Enclosure to CTT (PBR) letter
CTT/300/04/04 dated Feb 23

BOTH MAIN ENGINES – INS KARMUK

1. Trial Inspectors : (a) Sonu Yadav, ERA-3
   (b) Aman Kumar, LME
   (c) Ambesh Kumar,LME

2. Date and Time : 16 Feb 23 (0945 -1445 Hrs.)

3. Equipment used for Trials : (a) SPM T-30
   (b) Temperature Gun.

4. **Performance Trials**: -

PARAMETER	UNIT	SME	PME
ENGINE SPEED	RPM	940	940
PROPELLER SPEED	RPM	270	278
PROPELLER PITCH	DEG	+25	+25
FW TEMP.	DEG C	73	72
LO TEMP.	DEG C	62	72
AIR COOLER FW TEMP.	DEG C	60	52
START AIR PRESSURE	BAR	19	22
FUEL PRESSURE	BAR	2.1	1.6
FW PRESSURE	BAR	3.9	3.8
SW PRESSURE	BAR	0.9	0.5
SUPER CHARGING AIR PR.	BAR	1.4	1.5
LO PRESSURE	BAR	7.1	6.8
REMOTE SPEED CONTROL AIR PR	BAR	2.8	2.4
CONTROL AIR PR.	BAR	7.0	7.0
ENGINE ROOM TEMP.	DEG C	43	43
T/C RPM A BANK(X10)	RPM	1966	NW
T/C RPM B BANK(X10)	RPM	1951	NW

LOCAL PARAMETRS ON MAIN ENGINE IN M.E.R.

MAIN ENGINE FUEL RACK	mm	25	25.5
M/E FW OUTLET TEMP.	DEG C	76	68
M/E FW INLET TEMP.	DEG C	70	64
CHARGE AIR COOLER FW INLET TEMP	DEG C	56	51
CHARGE AIR COOLER FW OUTLET TEMP	DEG C	54	54
SW TEMP OUTLET FROM LO COOLER	DEG C	36	37
M/E ENGINE LO INLET TEMP	DEG C	64	59
M/E ENGINE LO OUTLET TEMP	DEG C	71	64
FUEL OIL PR. AFTER DUPLEX FILTER	DEG C	2.2	1.5
SW TEMP BEFORE FW COOLER	DEG C	36	35
SW TEMP AFTERE FW COOLER	DEG C	42	39
FW TEMP BEFORE FW COOLER	DEG C	76	60
FW TEMP AFTER FW COOLER	DEG C	56	44
START AIR PR.	DEG C	19	22

GEAR BOX SUPERVISION PANEL IN M.E.R.

OIL PR. AFTER PUMP	BAR	2.8	2.6
OIL PR. BEFORE FILTER	BAR	2.0	2.6
OIL PR. AT GEAR INLET	BAR	2.0	2.2
SW PR. COOLER INLET	BAR	0.4	0.5
OIL PR. AT CLUTCH INLET	BAR	28	27
OIL PR GEAR DRIVEN HP PUMP	BAR	20	31
OIL TEMP. AT GEAR INLET	DEG C	50	51
MAIL THRUST BRG TEMP. FWD No.8	DEG C	60	65
MAIN THRUST BRG TEMP. AFT No. 9	DEG C	60	61

LOCAL PARAMETER ON GEAR BOX IN MER

GEAR BOX LO TEMP BEFORE LO COOLER		DEG C	63	62
GEAR BOX LO TEMP BEFORE LO COOLER		DEG C	56	52
SW TEMP. BEFORE LO COOLER		DEG C	32	32
SW TEMP. AFTER LO COOLER		DEG C	35	35
GEAR BOX BRG TEMP	BRG No. 1	DEG C	85	85
	BRG No. 2	DEG C	83	89
	BRG No. 3	DEG C	82	81
	BRG No. 4	DEG C	82	84
	BRG No. 5	DEG C	84	83
	BRG No. 6	DEG C	83	81
	BRG No. 7	DEG C	82	77
	BRG No. 10	DEG C	82	82
SW PR ON PUMP		BAR	0.6	0.7

CPP OIL SYSTEM LOCAL GAUGES (MER)

CPP BUILT IN PUMP SUCT. PR.	BAR	-0.35	-0.35
CPP BUILT IN PUMP DISCH. PR.	BAR	68	72
CPP BULIT IN PUMP LO DIFF PR. ACROSS FILTER	BAR	67	73
OIL PR. AT DISCH. MANIFOLD ON REDUCING PANEL.	BAR	70	76
CPP OIL PR. AT CONTROL UNIT ON REDUCING PANEL	BAR	19	19

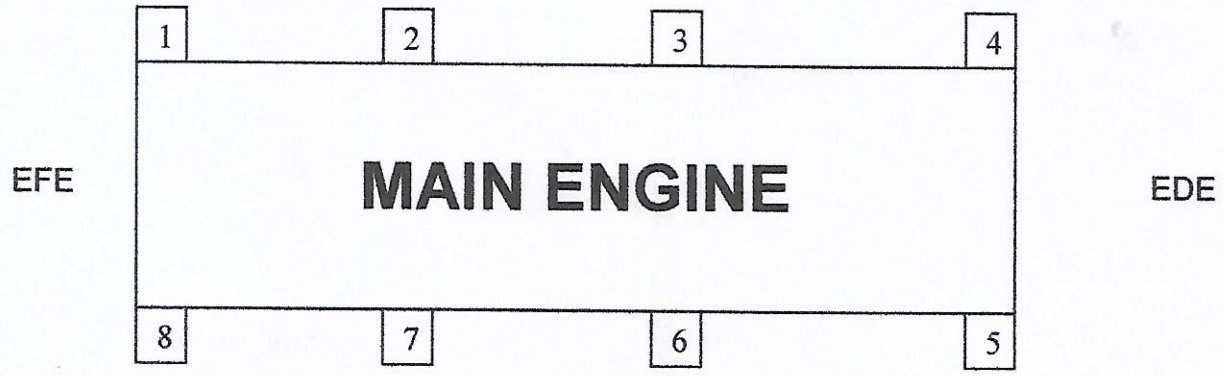
M.E EXHAUST TEMP IN SCC

		UNIT	SME	PME
EXHAUST TEMP. BANK 'A'	CYLINDER No. A1	DEG C	499	502
	CYLINDER No. A2	DEG C	575	537
	CYLINDER No. A3	DEG C	528	537
	CYLINDER No. A4	DEG C	537	560
	CYLINDER No. A5	DEG C	568	513
	CYLINDER No. A6	DEG C	496	501
	CYLINDER No. A7	DEG C	527	532
	CYLINDER No. A8	DEG C	521	497
	CYLINDER No. A9	DEG C	557	503
EXHAUST TEMP. BANK 'B'	CYLINDER No. B1	DEG C	487	514
	CYLINDER No. B2	DEG C	537	551
	CYLINDER No. B3	DEG C	545	578
	CYLINDER No. B4	DEG C	487	578
	CYLINDER No. B5	DEG C	524	585
	CYLINDER No. B6	DEG C	486	584
	CYLINDER No. B7	DEG C	490	583
	CYLINDER No. B8	DEG C	463	537
	CYLINDER No. B9	DEG C	491	517
'A' BANK	T/C INLET EXH TEMP	DEG C	548	563
	T/C INLET EXH TEMP	DEG C	418	433
'B' BANK	T/C INLET EXH TEMP	DEG C	566	543
	T/C OUTLET EXH TEMP	DEG C	407	415
AVERAGE CYL TEMP.		DEG C	517	537

5. **Vibration Trials**:-

Ser	Description		PME	SME	Remarks
(a)	Engine F/E	H	8.9	**17.6**	**UNSAT**
		V	6.4	10.0	
		A	**20.6**	16.1	**UNSAT**
(b)	Engine D/E	H	9.3	7.8	
		V	7.7	6.2	
		A	3.8	4.1	
(c)	Gear box Input	H	7.5	11.2	
		V	10.5	2.9	
		A	3.6	4.1	
(d)	Gear box output	H	2.5	2.0	
		V	2.0	1.9	
		A	2.7	1.9	
(e)	Gear box Top	V	5.0	2.9	
(f)	Plummer Block	H	2.7	2.6	
		V	2.5	2.1	
		A	3.7	3.3	
(g)	OD Box	H	3.7	4.6	
		V	2.4	1.4	
		A	3.1	3.5	
(h)	Stern Tube	H	4.6	0.9	
		V	2.5	1.2	
		A	1.1	4.0	
(j)	TC A BANK	H	10.4	9.4	
		V	12.6	10.1	
		A	15.7	11.4	
(k) .	TC B BANK	H	9.4	7.7	
		V	10.0	11.1	
		A	9.2	7.4	

6. **Attenuation checks**:-



MOUNTS	PME				SME			
	UP	DOWN	ATTN %	Remarks	UP	DOWN	ATTN %	Remarks
1	11.0	1.0	90	Sat	12.1	1.6	87	Sat
2	11.5	1.1	90		9.7	1.0	89	
3	9.0	1.0	89		12.5	1.2	90	
4	9.8	1.2	88		12.1	1.4	88	
5	10.2	1.5	85		9.7	1.0	89	
6	9.0	1.3	85		10.9	1.2	89	
7	9.2	1.2	87		11.9	1.2	89	
8	12.9	1.4	89		11.6	0.9	92	