

CTT/300/03/10/TECH

26 अक्टूबर २३/ Oct 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

DEHMI OF DA NO. 3 (350 KW) - /N LCU L-52

1. Refer to following: -

- (a) HQANC Fax ANC/42002/EG/10/3 dated 04 Oct 23.
- (b) /N LCU L-52 letter 318/3/2 dated 18 Sep 23.

2. **Background.** DEHMI including SDCs, performance, vibration, attenuation and SPM checks of DA no. 3 of /N LCU L-52 was undertaken on 23 Oct 23. DA was loaded upto max permissible load 70% (245 kW) on load bank and sustained for a duration of two hours.

3. **Performance Parameters.** A detailed report is placed at **Enclosure I**. The salient parameters are as follows: -

<u>Ser</u>	<u>Parameter</u>	<u>Range</u>	<u>Actual Values</u>	<u>Remarks</u>
(a)	Lub Oil Pressure	1.2 – 5.0	3.7	SAT
(b)	Lub Oil Temperature	80 – 116	87	
(c)	Fresh Water Temperature	75 – 94	82	
(d)	Exhaust Temperature	575°C	570°C	

4. **Vibration Analysis.** Vibration trials of DA No.3 were undertaken at 60% and 70% of rated load. Vibration found to be within permissible limits.

5. **Observations.**

- (a) High exhaust temperature alarm beyond 70% (245 kW) of rated load.
- (b) Lub oil filling line cap not secured.
- (c) Ammeter gauge in LOP non ops.
- (d) Two durittes and clamps in sea water system deteriorated.

- (e) Valve wheel not placed in exhaust drain valve.
- (f) Portable extinguisher not available in designated place.
- (g) **IPMS panel shutting down frequently.**
- (h) **Parameter readings not available in IPMS panel.**
- (i) SPM of alternator Drive End and Free End in **Yellow zone.**

6. **Recommendations.**

- (a) Liquidation of defects / observations mentioned at para 5.
- (b) The DA load be cleared for independent operation only upto 70% (245 kW) of rated load till liquidation of defect mentioned at para 5(a).



(एस सी विलियम/ SC William)
कमांडर/ Commander
प्रभारी अधिकारी/ Officer-in-Charge

Encl : - As above

Copy to : -

नौसेना खण्ड सेनापति/ The Naval Component Commander
{कृते वरिष्ठ कर्मचारी अधिकारी (यांत्रिकी)/ for SSO(Tech)}
मुख्यालय नौसेना खण्ड/ Headquarters Naval Component
द्वारा नौसेना कार्यालय/ c/o Navy Office
पोर्ट ब्लेयर ७४४१०२/ Port Blair 744 102

कमान अधिकारी/ The Commanding Officer
आई एन एल सी यू एल-५२/ IN LCU L-52
द्वारा नौसेना कार्यालय/ c/o Navy Office
पोर्ट ब्लेयर ७४४ १०२/ Port Blair 744 102

DEHMI OF DA NO.3 (350 kW) - IN LCU L-52

1. Trial Inspector : (a) Patro Ashok, ERA-IV
(b) Bharat, LME
2. Date and Time : 23 Oct 23 (1515 - 1815 hrs)
3. Equipment used for trials : (a) SPM T-30
(b) Temperature Gun
(c) Digital Camera
4. Details of trials are as follows:-

(a) **Safety Device Checks.**

<u>Ser</u>	<u>Description</u>	<u>Unit</u>	<u>Design Value</u>	<u>DA No.3</u>
(i)	Low LO Pr Alarm	Kg/cm ²	1.3	1.2
(ii)	Low LO Pr Trip	Kg/cm ²	0.8	0.8
(iii)	High FW temp Alarm	°C	93+2	92
(iv)	High FW temp Trip	°C	97+2	97
(v)	High LO temp Alarm	°C	120	121
(vi)	Over speed Trip	RPM	1650	1650
(vii)	Crash stop Local	-	Ops/ Non-ops	Ops
(viii)	Crash stop Remote	-	Ops/ Non-ops	Ops
(ix)	Exhaust temperture Alarm	°C	575	578 ⁰ C

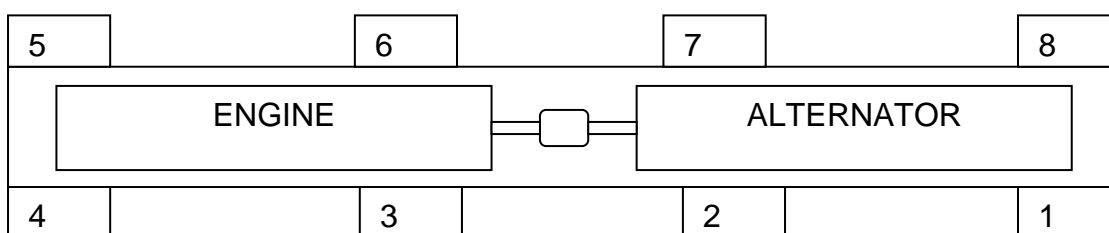
(b) **Performance Parameters at 60% and 70% Load.**

<u>Ser</u>	<u>Description</u>	<u>Unit</u>	<u>Design values</u>	<u>Parameters recorded at (60% and 70% rated load)</u>	
				<u>150 kW</u>	<u>245 kW</u>
(i)	RPM	RPM	1500	1486	1491
(ii)	Lub Oil Pressure	Kg/cm ²	2.5-6.0	3.8	3.7
(iii)	Sea Water Pressure	Kg/cm ²	0.1-0.4	0.7	0.7
(iv)	Lub Oil Temperature	°C	80-120	82	87
(v)	Fresh water Temperature	°C	75-97	79	82
(vi)	Exhaust Temperature	°C	575	476	570

(c) **Vibration Trials.** Vibration trials of DA was undertaken at load 150 kW (60% of rated load) and 245 kW (70% of rated load), overall vibration found within permissible limit. Details are as follows:-

<u>Ser</u>	<u>Description</u>	<u>350 KW DA No.3</u>						<u>Remarks</u> <u>(Limit 16 mm/sec)</u>
		<u>At 60 % load</u> <u>(150 kW)</u>			<u>At 70 % load</u> <u>(245 kW)</u>			
		<u>V</u>	<u>A</u>	<u>H</u>	<u>V</u>	<u>A</u>	<u>H</u>	
(i)	Engine FE	7.7	12.6	8.2	7.6	11.2	9.8	SAT
(ii)	Engine DE	9.8	12.7	12.0	9.6	13.0	12.8	
(iii)	Alternator DE	8.8	9.4	13.1	9.2	10.5	13.6	
(iv)	Alternator FE	10.5	8.3	9.1	9.8	8.0	11.6	

(d) **Attenuation checks.**



Position	DA No.3							
	150 kW (60 % load)							
	1	2	3	4	5	6	7	8
Top	10.1	8.0	8.1	13.9	10.8	12.9	12.4	9.4
Bottom	2.4	0.9	2.4	3.3	1.7	0.9	1.2	0.8
Atten.(%)	76	88	70	76	84	93	90	91
Remarks	SAT							

Position	DA No.3							
	245 kW (70 % load)							
	1	2	3	4	5	6	7	8
Top	10.5	12.5	14.5	8.9	14.6	13.0	14.2	15.4
Bottom	2.9	2.8	2.6	0.5	1.8	2.4	2.9	3.1
Atten.(%)	72	77	82	93	87	81	79	80
Remarks	SAT							

Note: - Attenuation lesser than 70% indicates overloaded/over tightened mounts. All SV mounts to be loosened and torque tightened as per OEM specified values.

(e) **SPM Readings.**

Ser	Description	At 0% load Dbm/dbc	At 60% load Dbm/dbc	At 75% load Dbm/dbc
(i)	Alternater Driven End	15/07(green)	26/05(yellow)	28/11(yellow)
(ii)	Alternater Free End	17/08(green)	20/11(green)	26/17(yellow)

DIESEL ENGINE HEALTH MONITORING INSPECTION (DEHMI) DA NO.3 – IN LCU L-52

1. **Status of Documents and Engine Data.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Diesel Service Log Book	✓	
(b)	EMAPS/ Kalamazoo	✓	
(c)	Running Log Book	✓	
(d)	Engine Serial No.	25393387	
(e)	RH Since Installation	18643.40	

2. **External State of Engine.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Condition of durites/ compensators	SAT	
(b)	Condition of SV mounts & application of Necol Lacquer	SAT	
(c)	System Pipelines well supported and free of leaks	SAT	
(d)	Filter Drains clear	SAT	
(e)	Status of bilge platform in the immediate of vicinity of engine	SAT	

3. **Status of Air Intake.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Cleanliness of air intake filter	SAT	
(b)	Perforated sheet for corrosion and intactness of securing (where applicable)	SAT	
(c)	Cleanliness of air intake trunking	SAT	
(d)	Intake drain clear	SAT	
(e)	Air Intake restriction measuring instrument	SAT	
(f)	Status of Vacuum Indicators	OPS	
(g)	Status of durites/ compensators	SAT	

4. **Status of Exhaust System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Securing of exhaust trunking supports and load hangers	SAT	
(b)	Intactness of hot tagging	SAT	
(c)	Status of corrosion on exhaust funnel/flap/ball valve	SAT	
(d)	Condition of Exhaust drain pipeline	UNSAT	Valve wheel not placed
(e)	Intactness of exhaust trunking	SAT	
(f)	Exhaust back pressure measuring point accessible	NA	

5. **Starting Air System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Condition of durites/ braided hoses	NA	
(b)	Status of air starting valve	NA	
(c)	Working of auto/ manual drain valve of air compressor	NA	

6. **Fuel System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Condition of fuel filters	SAT	
(b)	Status of fuel centrifuge	OPS	
(c)	Fuel leakages	SAT	
(d)	Condition of wire-braided hoses	SAT	

7. **Lub Oil System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Outcome of last lub oil analysis		
	Basic	SAT	
	Advanced	SAT	
(b)	Status of lub oil Centrifuge	OPS	
(c)	Oil leakages	SAT	
(d)	Date of last cooler cleaning	21Aug 23	
(e)	Status of durites/ compensators	SAT	
(f)	Lub Oil Test Kit status	SAT	

8. **Coolant/ Fresh Water System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Outcome of last coolant analysis	SAT	
(b)	Condition of Gauge glass of expansion tank	SAT	
(c)	Status of Coolant system	SAT	
(d)	Date of last cooler cleaning	04Aug 23	
(e)	Coolant Test Kit status	SAT	

9. **Sea Water System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Status of sea water system	SAT with OBS	Two clamps corroded
(b)	Condition of durites/ compensator	SAT with OBS	Two duresettes deteriorated
(c)	Status of suction Strainer	SAT	
(d)	Status of Zinc plugs	SAT	

10. **Tappet Clearance Check.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Intake Valve (limit :0.2)	0.36	
(b)	Exhaust Valve (limit :0.5)	0.58	

11. **Instrumentation & Control Check.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Insulation of control system panels	SAT	
(b)	Status of calibration of all instrumentation	SAT	
(c)	Status of thermometer/ thermocouples/ pressure sensors	SAT	
(d)	Thermometer- Total Non-Ops	SAT	
(e)	Thermocouples - Total Non-ops	SAT	
(f)	Pressure gauge - Total Non-ops	SAT with OBS	01 non ops
(g)	Number of faulty Alarms/ Relays	SAT with OBS	Indications not available in IPMS
(h)	Blowby measurement tool/ provision	NA	

12. **Ventilation System.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Status of compartment Ventilation	SAT	
(b)	Average compartment Temperature at four corners/ Ambient air temperature	32°C	
(c)	Status of compartment/ bilge coolers	NA	
(d)	Date of last cooler cleaning		
	(i) Compartment cooler	NA	
	(ii) Bilge cooler	NA	

13. **Fire Fighting System.**

<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
Status of machinery compartment firefighting system	OPS	

14. **Performance Trials Details.**

<u>Ser</u>	<u>Check</u>	<u>DA No.3</u>	<u>Remarks</u>
(a)	Max load achieved during last Load trials	350kW	Mar 22
(b)	Date of last SDC	04Aug 23	By SS