

दूरभाष: २३०६/ Tele: 2306

सम्मिश्र जांच दल/ Composite Trials Team  
द्वारा नौसेना कार्यालय/ c/o Navy Office  
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अन्डमान एवं निकोबार कमान/  
Andaman & Nicobar Command  
पोर्ट ब्लेयर ७४४ १०२/ Port Blair 744 102

CTT/300/04/04/TECH

15 नवम्बर २३/Nov 23

कोमोडोर अधीक्षक/ The Commodore Superintendent  
{कृते उप महाप्रबंधक (मरम्मत)/ for DGM (Refit)}  
नौसेना पोत मरम्मत यार्ड/ Naval Ship Repair Yard  
द्वारा नौसेना कार्यालय/ c/o Navy Office  
पोर्ट ब्लेयर ७४४ १०२/ Port Blair 744 102

### **HIGH VIBRATION ON PORT DA - INS KARMUK**

1. **Background.** High vibration on alternator side of PDA was reported post completion of 24k (Major overhaul). Towards identifying the cause of defect, CTT(Pbr) undertook vibration and spectrum analysis on 14 Nov 23. The DA was loaded up to 25% and spectrum placed at **Enclosure.**

2. **Observations.**

- (a) **Vibration of Alternator driven end & free end above promulgated limits at 25% load.**
- (b) Rubber beading of fresh water and lub oil cooler not fitted.
- (c) Non-uniform bolts used for alternator bearing hub.
- (d) Jacking and aligning bolt found rusted.
- (e) Fresh water cooler not secured.
- (f) Plastic conduit used for instrumentation cable securing.
- (g) Oversized bolts used in various places.
- (h) Fresh water over flow line not connected to bilge.
- (j) Greasing lines not connected in alternator NDE
- (k) Greasing cups not available in sea water pump.
- (l) Both breather line not connected with breather.

3. **Vibration Data: -**

Ser.	Measuring Points	At 25% (87 kW) load			Remarks
		V	A	H	
(a)	Engine free end	8.17	6.61	6.54	Sat
(b)	Engine drive end	7.60	5.46	7.16	Sat
(c)	Alternator drive end	18.20	8.91	<b>28.82</b>	<b>UNSAT</b>
(d)	Alternator free end	<b>33.16</b>	4.81	<b>39.54</b>	<b>UNSAT</b>

**Note: -**

Allowable Range :  $\leq 16$  mm/s

4. **Spectrum Analysis.** Narrow band/ Spectrum analysis of PDA was carried out at 25% load. The FFT spectrum indicates a prominent 1x peak on alternator free end (Horizontal & Vertical directions) and low amplitude in axial direction with a **maximum amplitude of 38.62 mm/s at AFE(H)**. Further, no side bands/ harmonics were observed, indicating the possible presence of **dynamic unbalance of rotor**.

5. **Recommendations.**

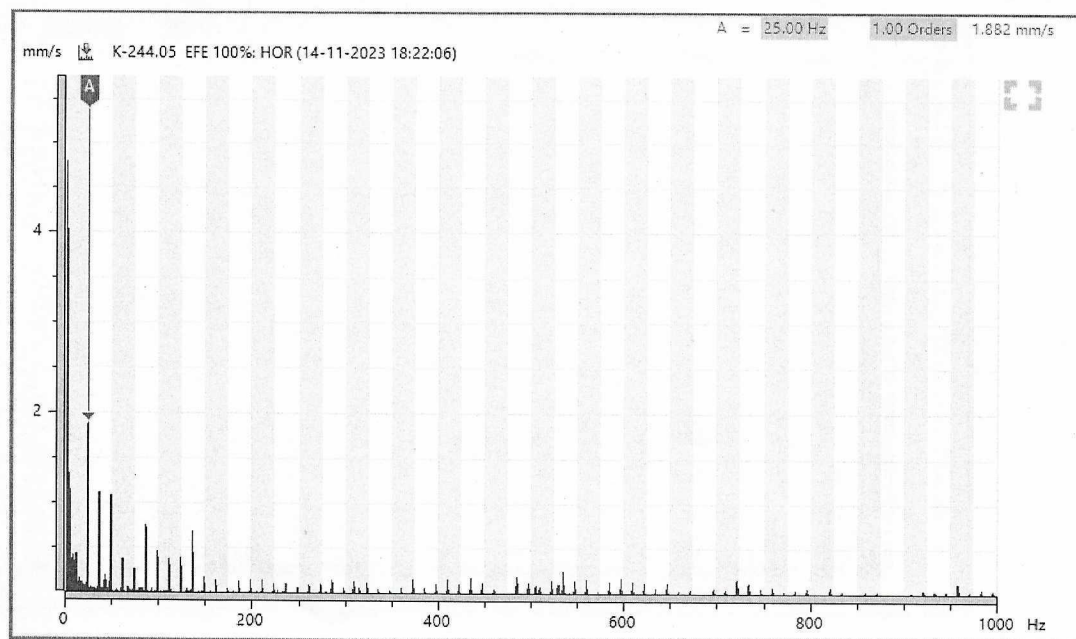
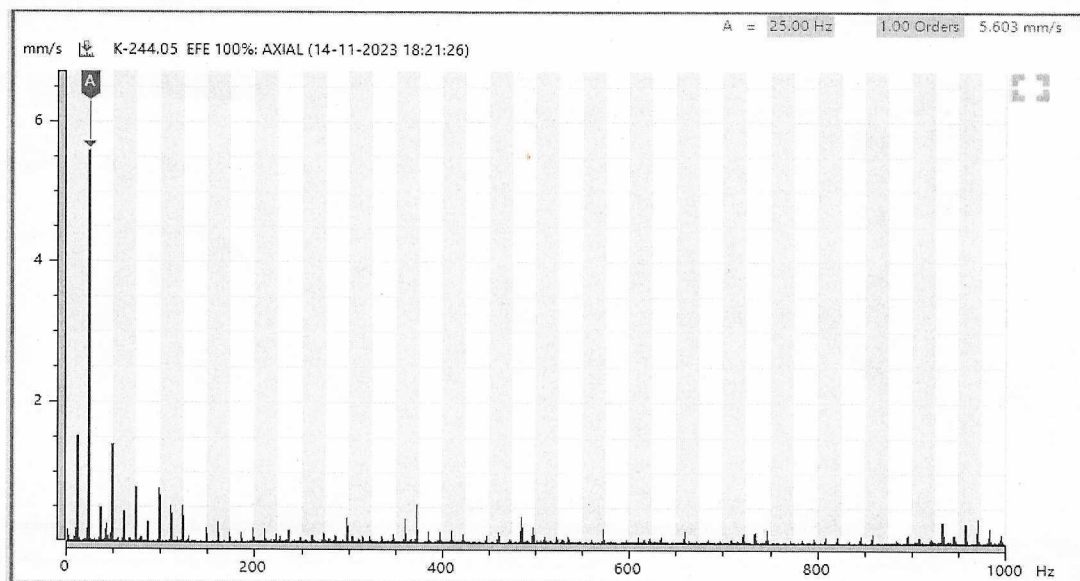
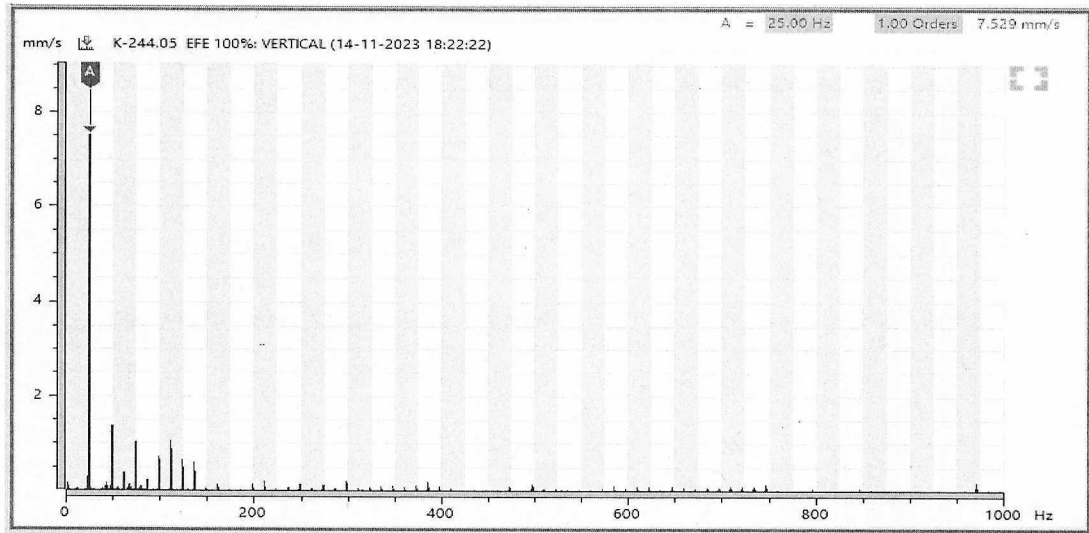
- Dynamic balancing of Rotor.
- Replacement of all bolts in bearing hub as per specification.
- Provisioning of greasing pipes on **Alternator NDE for all DAs**.
- Replacement of alternator cooler rubber beading.
- Replacement of all rusted bolts in alternator and engine foundation.
- Details of mounts viz. date of manufacture, deflection readings etc to be forwarded to CTT(Pbr).
- Loosening of all jacking and aligning bolts as per laid down procedures.



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

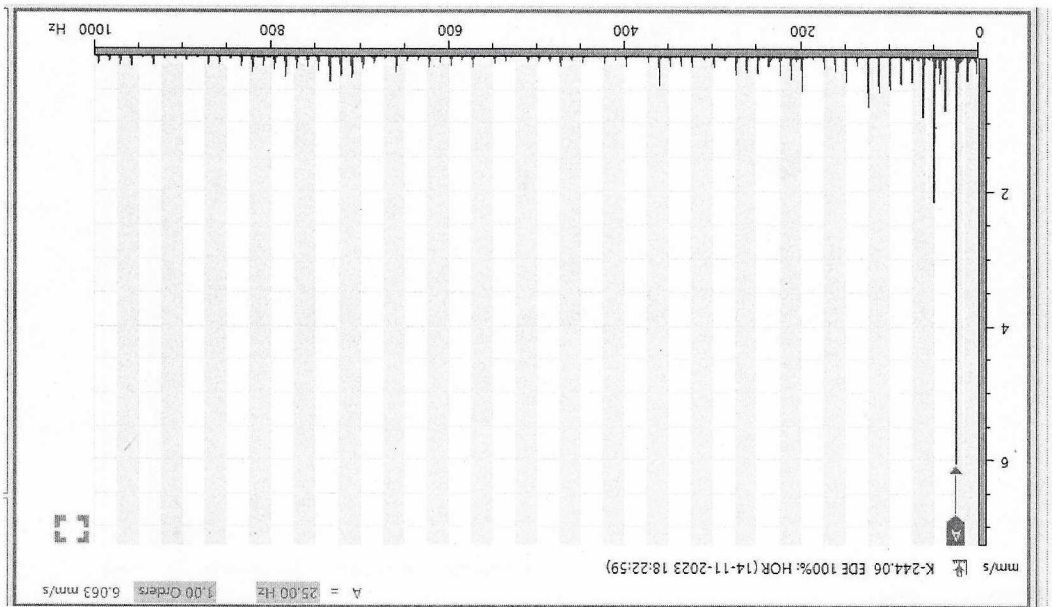
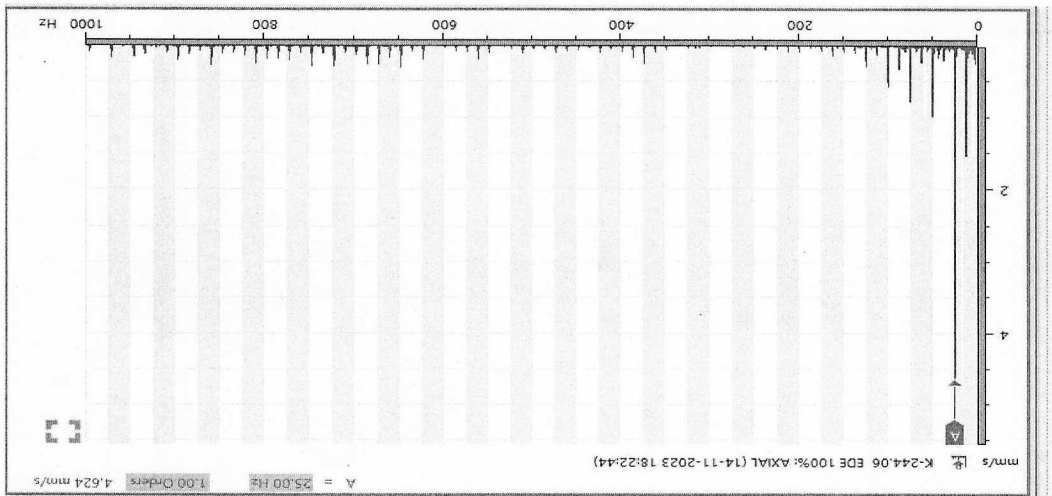
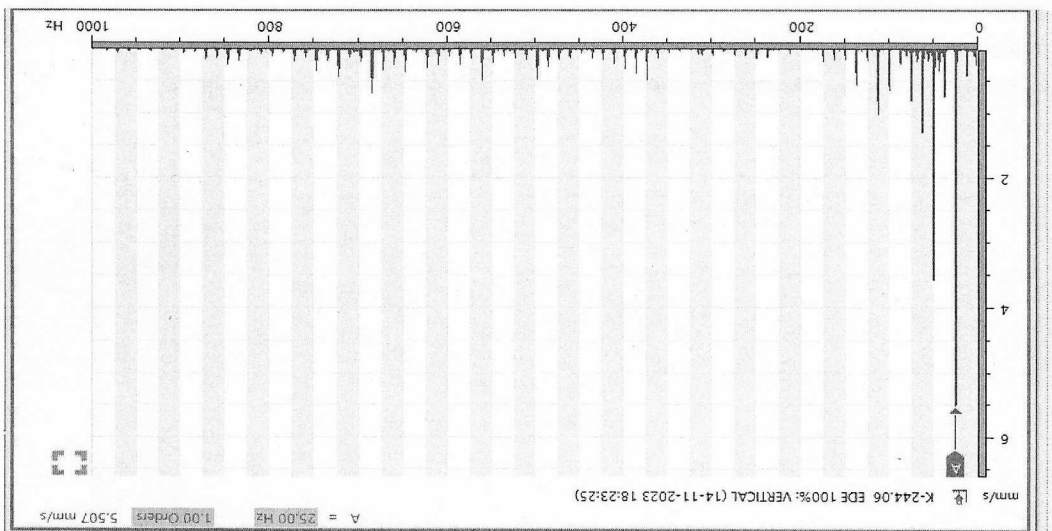
**Encl: -** As above

**INS KARMUK PORT DA EFE at 25% (load)**

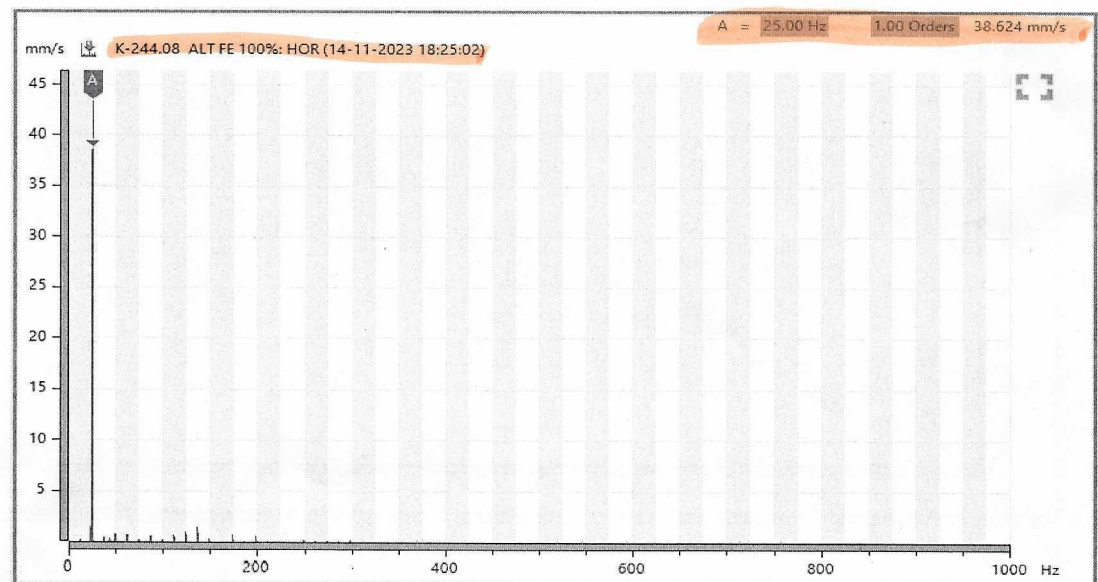
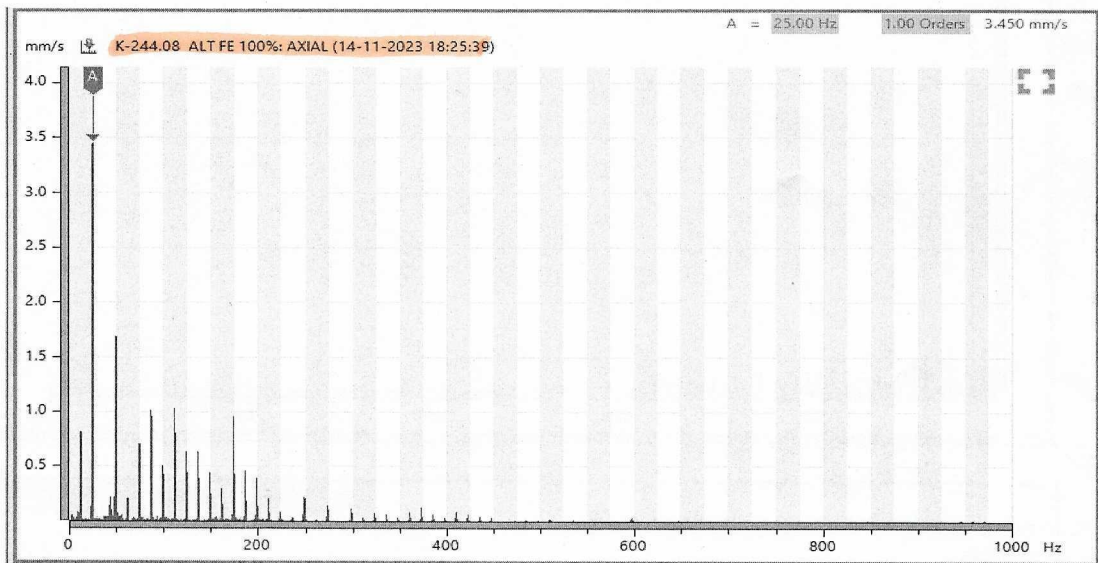
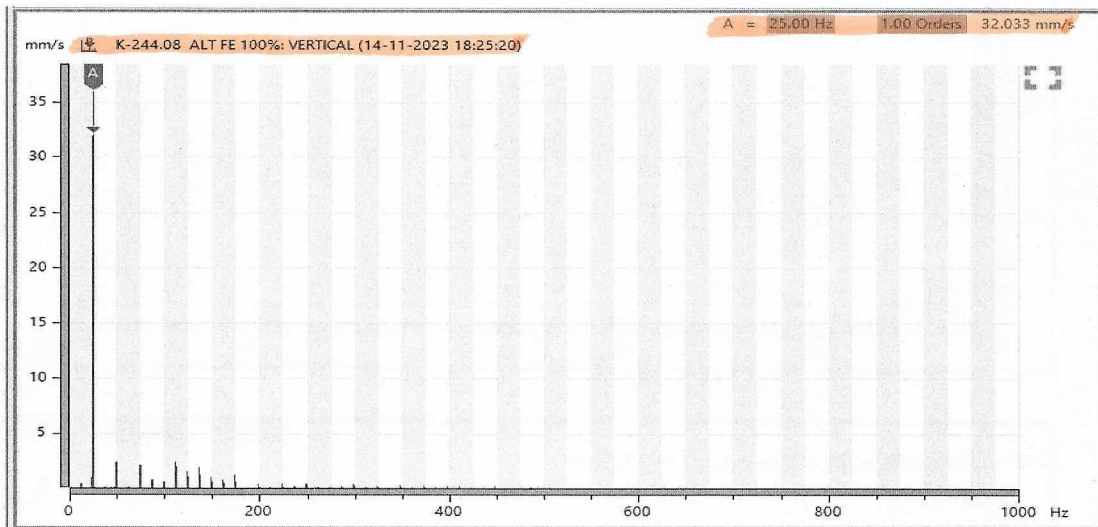




**INS KARMIK PORT DA EDE at 25% (load)**



# INS KARMUK PORT DA AFE at 25% (load)





# INS KARMUK PORT DA ADE at 25% (load)

