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DIRECTORATE GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTIONS NO. 206

OPERATION AND MAINTENANCE OF TURBO CHARGERS (THESE
INSTRUCTIONS ARE TO BE READ IN
CONJUNCTION WITH GMI 187)

INTRUDUCTION

The performance and efficiency of all diesel engines especially in HA area is directly proportionate to the quantity of air supplied to the combustion chamber and hence the turbo chargers are incorporated with the combustion system to boost at the air intake. Since all most all the turbo chargers are operated at high speed RPM and most of them are driven with the help of exhaust gases, the need of proper care and maintenance of turbo chargers is utmost necessary to achieve the optimum efficiency of the eqpt.

AIM

To lay down general handling, maintenance and cleaning producer to achieve optimum performance from diesel engine fitted with turbo chargers.

ACTION BY

- (a) User Units: - To carry out operation, maintenance and cleaning as laid down.
- (b) Field Wksp :- To check the correct functioning, serviceability and maintenance during its repair and inspection.

DETAILS

Details of recommendation operation and maintenance procedure, cause of turbo charger failure and how it can be prevented have been tabulated in appendix-‘A’ to this instruction.

CONCLUSION

Hence proper care and maintenance of the turbo chargers will improve its performance which will ultimately increase the efficiency and performance of the engine in each terrain.

Please ask receipt

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1. “Why Turbo Charger fails”

99% failures are due to one or more of the following reasons:-

- (a) The ingress of foreign objects i.e. dusts into the turbine and compressor housing.
- (b) Dirt in engine oil.
- (c) Lack of oil (low oil level in sump or lub oil filter clogged).
- (d) Instant loading of engine or engine running at high RPM immediately on starting of engine and stopping the engine instantly

2. How to prevent failures

Following instructions if followed rigidly will not only prevent premature failure of Turbo charger but also result in achieving the same life as that of a normal naturally aspirated engine :-

(a) Operation Recommendations :-

- (i) When the engine is started full load should not be put on right away. It is recommended that after the engine has been left to idle for short time, it is then warmed up at medium speeds and with a medium load.
- (ii) After the engine has been operating at full load for a longer period of time it is recommended a short idling time (say to minutes) before switching off, in order to avoid heat accumulation.

(b) Maintenance Recommendations :-

- i) Engine oil has to be changed regularly in accordance with the manufacturer's instructions.
- ii) Maintenance work has to be carried out regularly on the oil filter and air filter systems in accordance with the engine Manufacturer's instructions.
- iii) Checks have to be made on the oil air and exhaust piping, as well as, on all other connections and seal, to ensure that they are still tight and no damage has occurred.
- iv) When carrying out maintenance work on the engine (e.g. adjusting valve), in most cases the piping leading from or the turbo charger must be removed . close the piping openings on the turbo charger. Before fitting, clean the piping carefully.
- (v) When fitting the turbo charger to the engine, fill the bearing housing with clean oil and before fitting make absolutely sure that all piping connected to the turbo charger is cleaned carefully.