

DIRECTORATE GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION No:213
ON
PRESERVATION OF OVERHAUL /NEW ENGINE

INTRODUCTIONS

1. Engine assys stored for long periods are subject to adverse effects of corrosion. Unless properly preserve engine may develop serious problems and even become have been laid down in GMI 41. However, in actual practice, there is little compliance of the instruction due to lack of awareness. Case of premature failure of engines due to long storage period have come to notice of this HQ. The need to implement the preservation procedure by keeping not of validity of preservation period, carry out fresh preservation in case of expiry has been felt. Normally all new engines need to be preserved for 6 month to 01 year. The following instructions have been compiled from guide lines of manufacturers on engine preservation:-

AIM

2. AIM of this instruction is to guide the Fd Wksp/Base Wksp Store Division to preserve the overhauled and new engines to achieve maximum life and to keep the engine in good serviceable conditions.

ACTION BY BASE WKSPS

(a) Preservation of all overhauled engine assys to be carried out before handing over to Store Divisions as per instruction given in this GMI.

ACTION BY STORE DIVISIONS

The following process described in this GMI must be followed:-

(a) All new engines received from manufacturers shall have preservation tags indicating date upto which preservation carried out. Similar tags must be placed on overhauled engines. In case of engine assys being issued after storage for more than 6 month the engines should be got checked/motored in Base Workshops.

(b) Engine should be issued to Projects on FIFO basis.

(c) All Class 'B' engines overhauled by base Workshop will be preserved by Base Wksp and preservation tags fixed on engines indicating date upto which preservation is valid.

(d) Store Divisions & Base Wksp/Field Wksp to keep track of preserved engine assys and make all efforts to utilize the engine before expiry of preservation period.....P/2

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(e) If the engine which has been preserved for 6 month could not be issued to Fd Wksp within that period then stores Division will place a work order to Base Wksp for draining out all the preservative oil and filling up new preservative oil as per laid down procedure.

(f) Engine cases and cradles should be used for assy transportation.

ACTION BY FIELD WKSP

Field Workshop will make all efforts to utilise engines drawn from store Divisions within preservation period. Where this is not possible, close watch on the expiry of preservation must be made. At the end of expiry period, preservation procedure must be carried out by filling up with new preservative oil as laid down. Record of such preservation must be kept and noted in preservation tag on engine.

Dated :26 Mar2001.

Sd/xxx
(US Misra)
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Engine Preservation

1. Following preservatives and preservation procedure be adopted when engine is to be kept idle (out of use) for prolonged period.

2. Recommended Preservatives

Brand

Indian Oil Corporation

Grade

Servo Preserve 30

3. Procedure

(a) Run the engine at fast idle with no load and operate until the engine is thoroughly warm. Shut off the engine

(b) After stopping the engine, drain all lub oil from sump and refill with servo preserve 30 oil.

© Run the engine on 'No' load for 3 minutes. During this time, the preservative oil will be circulated through the lub oil system of engine. After that stop the engine.

(d) Disconnect diesel fuel supply to fuel pump inlet. Prepare a solution diesel + Preservative oil (5:1 ratio) in a separate tank and connect fuel line from this tank directly to fuel inlet ensuring gravity feed.

(e) Now start the engine, operate the engine 5 to 10 minutes on No load till you observe preservative oil coming out from injectors return line. Stop the engine.

(f) Install the fuel supply tube to the fuel filter and put a cap on all other fuel tubes. Drain the preservative oil from the oil sump and oil filter. Install the drain plug. New oil may be added or sump may remain empty until engine is ready for use.

(g) Drain and flush the cooling system, using a water soluble rust inhibitor (ICC servo RP 125 or equivalent).

(h) Preserve the cyl head housing and the exhaust manifold through intake and exhaust parts by spraying preservative oil.

(i) Remove the rocker housing covers and spray preservative oil on the rocker levers, valve spring, valve stems, valve guides and push rods. Install the rocker housing cover.

(j) Spray preservative oil into the intake port of the air compressor and all exposed metal surfaces that are not painted.

(k) Cover engine with polythene bag and seal all openings hose with heavy paper and tape to prevent entrance of dirt and moisture.

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(m) The first step is to put a tag specifying the validity and expiry date of preservation for each engine. This tag can read as under:-

NEW ENGINE

Engine Serial:

Date of shipment from Factory

Date of receipt by consignee

Preservation expires on:

OVERHAULED ENGINE

Date of overhaul :

Preservation expires on:

- (n) store the engine in a dry area of even temperature
- (i) Loosen V belt tension
- (ii) Do not rotate crankshaft after above mentioned operations.
- (iii) Keep battery, if any in dry condition.
- (iv) Periodically inspect the engine for rust or corrosion and take corrective action if any.

HOW TO RE-USE THE PRESERVED ENGINE

- (a) Clean off all accumulated dirt from exterior of engine.
- (b) Remove the paper and the tape from all openings. Remove the warning tag.
- © Flush the fuel system with clean diesel fuel to remove preservative oil.
- (d) Rotate the water pump to make sure it hasn't rusted in place.
- (e) Rotate the crankshaft two complete revolutions to make sure the piston rings are free and no foreign objects are in the engine.
- (f) Remove the rust preventing coating from those unpainted machined surfaces which are interfacing surfaces for the driven equipment. This can be done using thinner.

- (g) Fill recommended grade of lub oil in the oil sump up to top mark of the dip stick.
- (h) Adjust the 'V' belt tension.
- (i) Reconnect a fully charged battery to recommended voltage and ampere hour capacity ensuring correct polarity connection.
- (j) Fill the cooling system with a mixture of 50% water and 50% ethylene-glycol type anti freeze in winter season. Adjust the valve clearance.
- (k) Tighten all cap screw, plugs and fittings as necessary.

Note:- If preserved engine could not be used within the specified period of 6-12 month then re-preservation of engine is required to be carried out.