

DIRECTORATE GENERAL BORDER ROADS

GENERAL REPAIR INSTRUCTION NO. 147
ON
DERATING OF FIP FITTED ON SHAKTMAN
VEHICLE ON HIGH ALTITUDE

1. Introduction

1.1. This instruction laye down the procedure for the altitude duration adjustment or FIP fitted on shaktiman vehicle and will be followed by all Field Workshops and Base workshops.

1.2. It has been observed that units are not adopting devating procedure of FIP fitted on shaktiman veh, as a result the performance of the engine gets adversely affecter.

2. Procedure of derating and re-setting

2.1. Fuel injection equipment of Shaktiman engine is normally set for operation between mean sea level and upto an altitude of 2500 m above sea level. This setting is not suitable for operation beyond 2500 m altitude and needs to be changed to suit the lower density of atmospheric air at higher altitudes, if the setting is not changed, the incomplete combustion due to inadequate exygen would lead to deterioration of engine lubrioting oil and affect the to deterioration of engine lubricating oil and affect the engine life, i.e. premature failure of engine. Therefore, it is essential to re-rate FIP fuel delivery/setting to offset lower atmospheric air density. The procedure for derating setting of fuel injection eqpt is given below :

2.2. The stop screw in the fuel injection pump is originally set by the manufacturers for operation on diesel fuel. A cover plate is fitted on the look nut of the stop screw and is sealed over the holding down counter sunk screw. Break the seal, open the holding down screw and remove the cover plate.

2.3. Mark the original adjustment, so that the same adjustment can be re-stored, when the vehicle is again operated in plain with altitude below 2500 m (8200 ft). This can be achieved by measuring the distance from the end of the stop screw to the face of the governor housing body. This reading will be recorded in veh log book.

2.4. Loosen the lock nut and unscrew the stop screw. The number of turns in unscrewing the stop screw for various altitudes are as under :

<u>Altitude</u>	<u>No of turns of stop Screw to be unscrewed</u>
2.4.1 2500-3000 meters (8200-9840ft)	$\frac{3}{4}$ turns

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	<u>Altitude</u>	<u>No of turns of stop Screw to be unscrewed</u>
2.4.2.	5000-3500 meters (98400-11480 ft)	1 ¼ turns
2.4.3.	3500-4000 meters (11480-13120 ft)	1 ½ turns
2.4.4.	4000-4500 meters (13120-14760 ft)	2 turns
2.4.5.	Over 4500 meters (14760 ft)	2 ½ turns

<u>Stop screw adjusted</u>		
_____ (a) _____	to _____ (a) _____	Meters
_____ (b) _____	to _____ (b) _____	ft
_____ *	to _____ *	

- * - Insert of name of route here
- (a) - Insert the range of altitude in meters
- (b) - Insert the range of altitude in ft.

Note :

- 1) The pitch of threads on the stop screw is 1 mm. Thus the distance as measured above will increase by 1 mm after each completed turn of the stop screw.
- ii) The adjustment should correspond to the highest altitude of the particular route.
- iii) Whenever alteration in the adjustment of top screw is made to suit the new altitude/route this stencil must be amended accordingly.
- iv) After necessary adjustment fix the lock nut. Fit the cover plate with holding down screw and seal the screw.

3. Concluding Remarks

3.1. The derating will be done by authorised trained personnel of the Field Workshop and remarks endorsed in the log book as well as stencilled. Adjustment will be made when the vehicle is doing duties in plains.

4. Please ack receipt.

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