DIRECTORATE GENERAL BORDER ROADS

REPAIR INSTRUCTION

NO-6

ALTITUDE DERATION ADJUSMENT—INTERNATIONAL TD-20 AND TD-25 CRAWLER TRACTOR

GENERAL

1. This instruction lay down the procedure for the altitude duration adjustment of the Crawler Tractors IH TD-20 AND TD-25 and will be followed by all Field and Base Workshop.

ALTITUDE DERATION

2. A given quantity of fuel must be mixed with specific amount oxygen to burn completely and efficiently. An engine which burn fuel efficiently at a low altitude will run with the heavy exhaust smoke at altitudes above 4000 ft because there is less oxygen in the atmosphere and combustion is incomplete and the fuel and oxygen mixture is too rich in fuel. In order to bring the fuel to oxygen ration within the efficient range, the amount of fuel injected must be decreased. This is called “Altitude Deration”.

3. Generally, most engines will not require deration below 4000 ft altitude. However, since there are many power ratings for engines of the same series, as well as various speeds, all engines do not require duration at the same altitude. The need for duration will be indicated by a heavy exhaust smoke while operating the engine under load at the intended altitude of operation.

ALTITUDE DERATION ADJUSTMENT

4. The following points should be adopted:-

   a) For altitude deration adjustment (above 4000 ft) the fuel injection pump is adjusted by decreasing the fuel delivery to the injectors until the exhaust is as clear as possible.

   b) Turn the fuel rack adjusting nut counterclockwise 1/3 turn at a time until the exhaust is as clear as possible for rated speed and loads.

   c) Relock the rack adjusting nut after each adjustment.

RACK ADJUSTMENT OF PUMP MOUNTED ON THE ENGINE

5. The under mentioned points must be followed:-

   a) Remove all fuel injections pipes.

   b) Cover the nozzle openings and the ends of the injections pipes.

c) Install one delivery test fixture to the first three discharged fittings and another to the second three fittings.

d) Connect each nozzle to a hand-operated hydraulic pump with a 1000 psi gauge testing proper pressure range. The minimum valve opening pressure is 700 psi.

e) Place the engine speed control lever in full load position.

f) Start the engine, but do not switch to diesel cycle.

g) Collect the fuel in glass containers for ½ minutes.

h) Close the throttle and stop the engine.

i) Pour the collected fuel into a calibrated vessel. If the variation is more than 5 cc between the front and rear plungers, the rack must be adjusted.

j) Remove the hexagonal plug from the rear of the pump housing.

k) Loosen the rack equalizer lock nut.

l) To decrease the No 1 plunger delivery and increase the No 2 plunger delivery, turn the rack adjusting rod counterclockwise.

m) Tighten the rack equalizer nut.

n) Repeat the above steps until the delivery is equal.

o) Loosen the SHUT-OFF locknut.

p) Place the throttle in the SHUT-OFF position.

q) Start the engine.

r) Turn the rack adjusting rod counter clockwise until the fuel delivery just stops.

s) Turn the rack adjusting rod counter clockwise and additional 1 ½ turns.

t) Tighten the SHUT-OFF locknut.

u) Install the pump housing cover in rivers of the numerical sequence.