

GENERAL MAINTENANCE INSTRUCTION NO: 29

MAINTENANCE OF DIESEL FUEL AND AIR INTAKE SYSTEM-IH TRACTOR TD-20 (201) SERIES

Elaborate measure has been taken by the manufacture to insure that clean diesel fuel and clean air delivered to the combustion chambers of the engine. Strainers and filters are used through out system to remove dust and foreign matter from the fuel and air. A dry-type air cleaner with a removable dust jar is employed the filter is reusable after cleaning, a visual indicator signals when air filter service is needed. The fuel tank contains a filter strainer. Dual fuel filter and water traps are installed between the fuel tank and fuel injection pump. If the fuel pressure gage indicates low pressure follow the maintenance (Para 6-9) in sequence for remedial action.

AIR CLEANER SERVICE

Air cleaner filter indicator

- a) Failure by the operator to observe this instrument frequently can result in extensive damage to the tractor engine.
- b) Frequently inspect the rubber connections between the intake manifold, turbocharger and air cleaner for loose connection, deterioration, or damage. Tighten or replace defective connection. All gaskets must be in good condition and connection must be tight to prevent dust entering the engine.
- c) The air cleaner filter indicators are vacuum operated. As air flow decreases in the intake manifold due to accumulation of dust in the air cleaner filter, the red signal gradually rises in the indicators. When the red signal is fully exposed in the window it locks in this position. After servicing the air cleaner, reset the signal by pushing the reset button on the bottom of the filter indicators.

Note: - The indicators will not signal correctly if the filter element is punctured or not seated properly in the housing, or if the rubber connection from the air cleaners to the turbo-charge is not airtight.

Dust Jar and Air Cleaner cap.

- a) The dust jar and cap of the engine air cleaner should be cleaned every 10 Hrs of operation or

more often under extremely dusty condition. Never allow the dust level in the jar to build up past the top of the dust jar.

- b) Service the dust jar and air cleaner cap in the following.

Servicing air cleaner cap:

- i) Remove cap by twisting and pulling upward.
- ii) Remove oil, dust, or paint from the screen use compressed air, or wash in water with detergent to clean cap.

Servicing dust jar.

- i) Clean outer outward surface of jar and around retainer.
- ii) Swing bail outward and lower jar.
- iii) Empty jar and clean with water or wipe with clean cloth.
- iv) Inspect jar gasket for damage or air leaks, replace as necessary.

4. FILTER ELEMENT.

- a) The filter element must be replaced after ten cleaning, 500 hors or 6 months service, whichever comes first.

Removal

- b) Stop the engine.
- c) Wipe off accumulated dirt from the element removal end of the air cleaner body. Be careful not to dislodge dust from the dirty element into the clean air, or outlet side of the air cleaner.
- d) Loosen the lock nut and lock bar. Carefully slide out the element. Any dust dislodged into the clean air side must be removed before installing the element.

Cleaning by washing

- e) Flush the element in water, or water containing a small amount of non-suds detergent.

Note: - Warm water may be used, but never hotter than the hand can stand. Hot water will damage the element.

- f) Shake excess water from the element and allow to air dry.

Note: - A spare element is recommended to eliminate down time while the element is drying. If no spare element is available, the wet element, after excess water has been shaken off, may be installed in the air cleaner and the engine operated at fast idle for 10 minutes before operating in dust.

- g) An even fine pattern of light through the element when a light is held inside the element, indicate that the element is cleaned. If the element is damaged it must be replaced.

Cleaning by tapping

- h) Clean the element by tapping the side or the end of the element carefully against the palm of the hand. Do not tap against a hard surface as damaged to the element will result.
- i) Use compressed air cautiously to blow dirt out from the inside of the element.
- j) Clean the inside of the air cleaner body with clean water, or water with a small amount of non-suds detergent.

5. DIESEL FUEL TANK STRAINER SERVICE

Service the diesel fuel tank strainer in the following sequence:

- a) Remove cap and lift out strainer.
- b) Clean strainer with approved cleaning solvent.
- c) Inspect strainer and cap gasket for damage. Report damaged cap or strainer to organizational maintenance.

6. BLEEDING DIESEL FUEL SYSTEM

The diesel fuel system must be bled of air if the fuel filters have been drained, fuel pipes disconnected, the engine in operational has run out of fuel, or if a new engine is being started for the first time.

Bleed the diesel fuel system in the following sequence: -

- a) Make sure fuel tank shut-off valve is wide open.

- b) Open the water trap drain valve and the vent valve on top of auxiliary fuel filter. When the fuel flows free of air, close both valves.
- c) Operate engine on gasoline cycle, advance engine speed control slightly, open vent valve on final fuel filter. When the fuel flows free of air, close the valves.
- d) Open each injectors nozzle vent valve individually and close when the fuel filter flows free of air.
- e) Move the speed control lever to shut-off position. Stop the engine.

7. DIESEL FUEL WATER TRAP SERVICE

Check the water trap bowl every day or more frequently under severe conditions. If water is found, more frequent flushing of the water trap is indicated to obtain full service from the auxiliary fuel filter element. Also this condition will be reported to organizational maintenance for checking fuel storage facilities.

8. SERVICE THE WATER TRAP IN THE FOLLOWING SEQUENCE

To flash water trap.

- a) Be sure diesel fuel shut-off valve is open and all other vents remain closed.
- b) Open drain valve. When all water and sediment have been flushed from the glass bowl, close the valve.

To clean water trap

- c) close diesel fuel shut-off valve
- d) Loosen thump nut glass bowl and remove bail and bowl.
- e) Wash bowl in approved cleaning solvent.
- f) Inspect bowl and gasket for condition.
- g) Install bowl and gasket.
- h) Bleed the fuel system (para-6)

9. DIESEL FUEL FILTERS SERVICE

- a) The need for frequent venting of the final fuel filter indicates either air leakage into fuel lines or that the auxiliary filter has become clogged, restricting fuel flow to the engine.
- b) When the fuel oil pressure gauge registers 35 psi or less with engine operating either on gasoline or diesel cycle, it indicates that one or both fuel filter elements must be replaced, that the fuel system has an air leak. Misfiring of the engine or loss of power may begin to appear at this time.
- c) Before replacing filter element bleed the system and service the water traps (para-6, 7 and 8)
- d) If the gauge continues to register 35 PSI or less replace the auxiliary fuel filter.
- e) If the gauge continues to register less than 60-65 psi replace the final fuel filter.
- f) Service the diesel fuel filters in the following sequence: -
 - 1) Close diesel fuel tank shut-off valve under operator's seat.
 - 2) Open vent valve.
 - 3) Open filter drain cock and water trap drain valve.
 - 4) Remove stud and gasket.
 - 5) Remove case.
 - 6) Remove top plate and filter element. Discard element.
 - 7) Remove bottom plate and spring.
 - 8) Remove and clean water separator screen (auxiliary filter only) replace a damaged screen.
 - 9) Replace seal ring on filter base.
 - 10) Replace filter element.

11) Install case, gasket and stud.

12) Service remaining filter in similar manner.

13) Vent fuel system.

g) Bleed the fuel system (Para-6)
