# TC21DA, TC24DA
# REPAIR MANUAL
# COMPLETE CONTENTS


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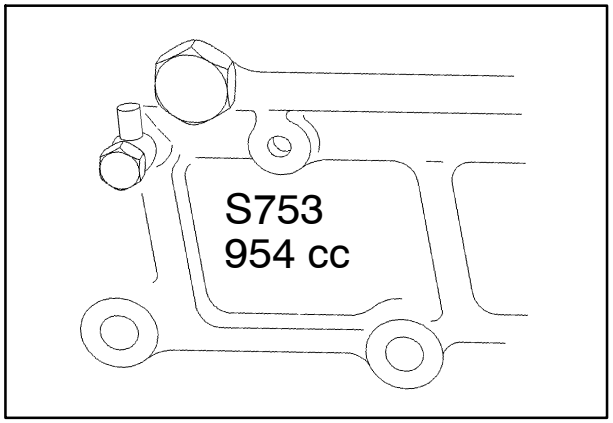
## DESCRIPTION AND OPERATION – GENERAL INFORMATION

This section describes the engine overhaul and repair procedures of the Models TC21DA and TC24DA tractors. Repair procedures are essentially the same for all models except as noted in the repair procedures.

The tractors are equipped with three-cylinder in-line engines. They are all four cycle, overhead valve, liquid cooled engines. The engines are identified by a code cast into the lower right side of the cylinder block, just behind the hydraulic pump. The identification numbers of the engines used is shown in the following chart.



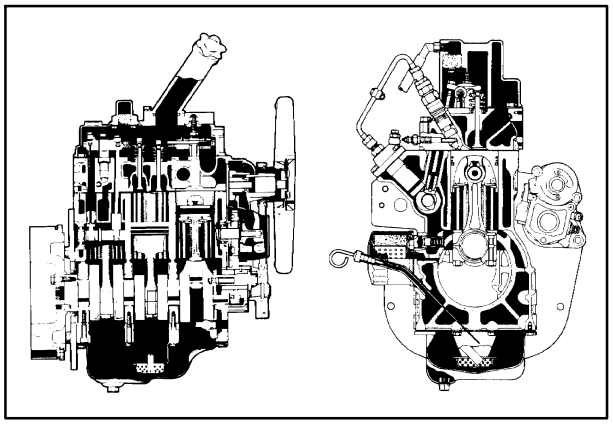

1

### IDENTIFICATION CHART

| Engine Identification | Tractor Model | Horsepower |
|---|---|---|
| S773 | TC21DA | 21.0 |
| S773L | TC24DA | 24.0 |

### CYLINDER HEAD AND VALVE TRAIN COMPONENTS

The cylinder head incorporates the valve assemblies, rocker arms, rocker shaft, push rods, lifters, and pre-combustion chambers. The air intake manifold is incorporated into the left hand side of the valve cover assembly. The exhaust manifold is bolted on the left-hand side of the cylinder head. The cylinder heads have integral valve guides. Standard size valves only are used. Figure 2 provides a cut-away front and side view of an engine.



2

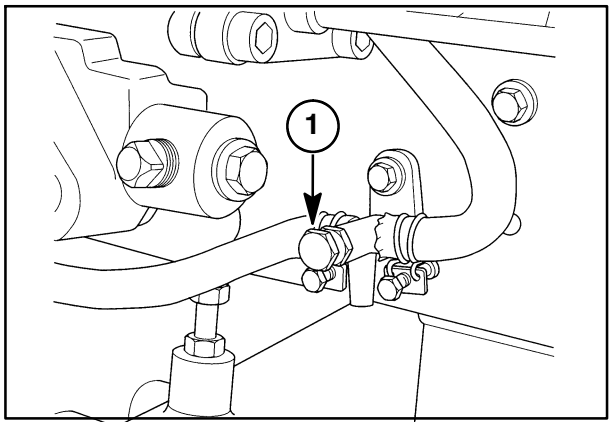
A pre-combustion chamber is located between the injector assembly and the combustion chamber of the cylinder and provides an area for initial ignition of the fuel for improved starting. A glow plug located in the head extends into the pre-combustion chamber and, when energized, pre-heats the fuel-air mixture for improved fuel ignition under cold weather conditions.

# OVERHAUL – ENGINE

## ENGINE PREPARATION

### Disassembly

1. Open the radiator drain, 1, and drain and remove the radiator assembly. See “Radiator Removal” discussed later in this section.

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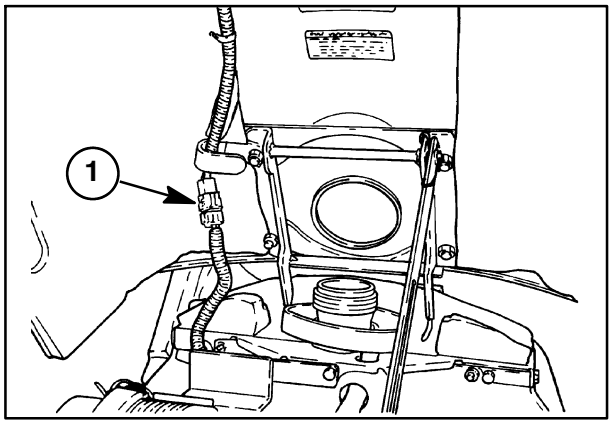
2. Disconnect the electrical connector, 1, for the head lamps.

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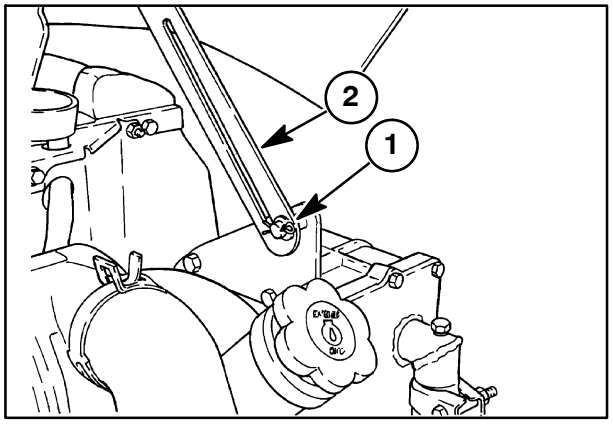
3. Remove the clip pin, 1, from the hood support, 2, and gradually lower the hood.

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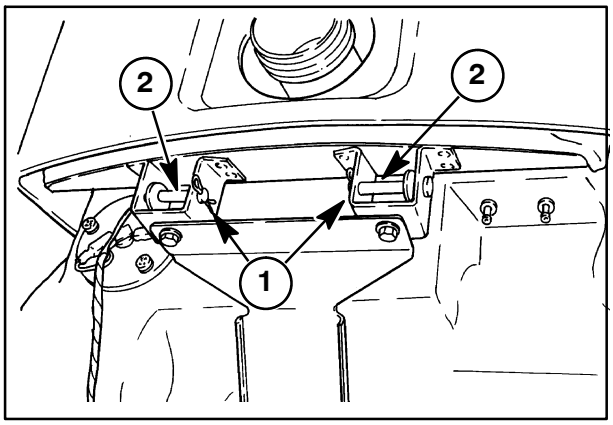
4. Pull the instrument panel out by hand and remove the clip pins, 1, from the hood hinge pins, 2. Then remove the hinge pins.
5. Raise the hood and remove from the tractor.

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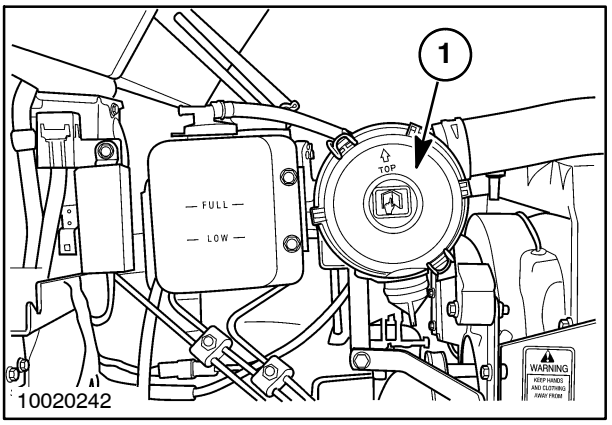
6. Remove the whole air cleaner assembly, 1, along with the air cleaner hoses.

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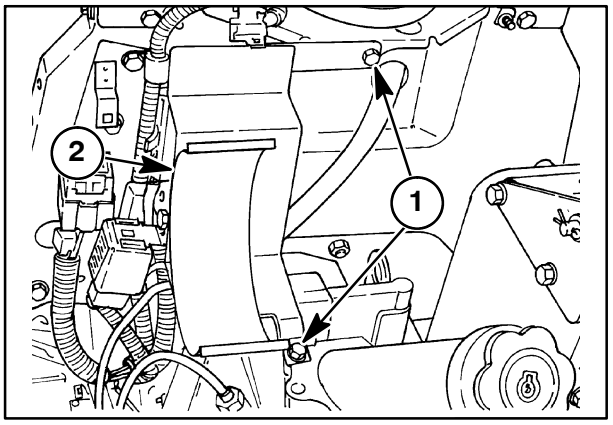
7. Remove the two capscrews, 1, and remove the air cleaner mounting bracket, 2.

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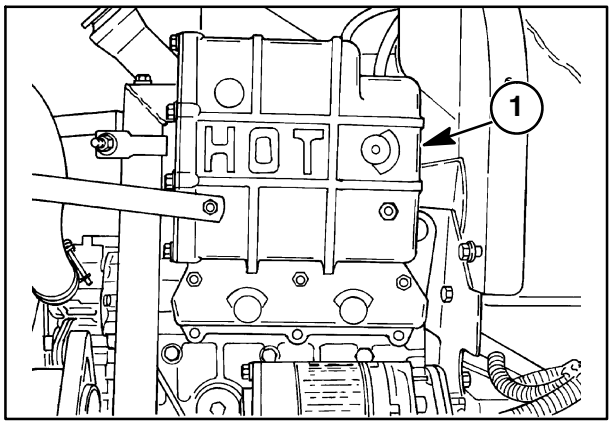
8. Remove the exhaust muffler and manifold assembly, 1.

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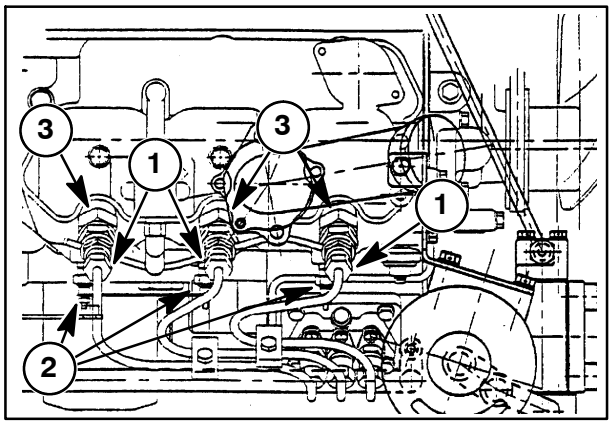
## FUEL INJECTOR AND GLOW PLUG

### Removal

1. Clean all dirt and oil from the injectors and surrounding areas.
2. Disconnect the fuel lines, 1, from the injectors and cap all openings.
3. Remove the three glow plugs, 2.
4. Disconnect the return line to the fuel tank from the number three injector.
5. Remove the injector assemblies, 3.

***NOTE:*** *Be sure to remove the injector sealing washer from the injector bore, if not removed with the injector.*

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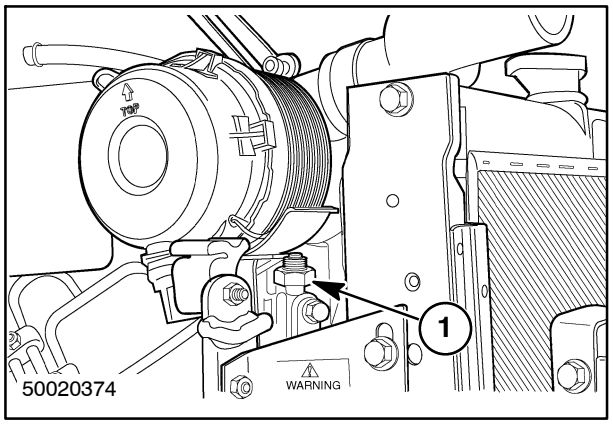
## OIL PRESSURE SWITCH

### Removal

1. Disconnect and remove the oil pressure switch, 1.

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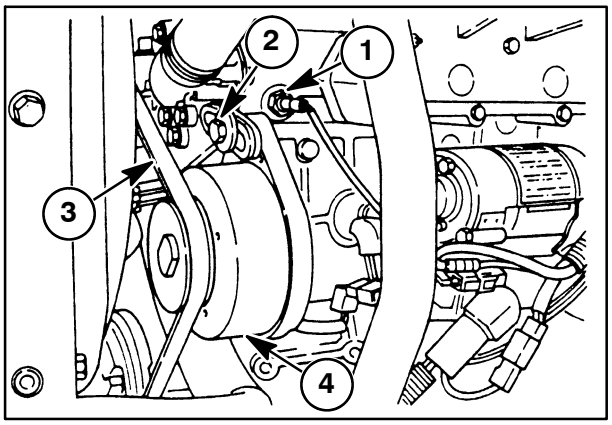
## TEMPERATURE SENDING SWITCH AND ALTERNATOR

### Removal

1. Remove the temperature sending switch, 1, from the front of the cylinder head.
2. Loosen the alternator mounting bolts, 2, and remove the V-belt, 3, from the drive pulley.
3. Disconnect the wires from the back of the alternator.
4. Remove the alternator mounting bolts and remove the alternator, 4.

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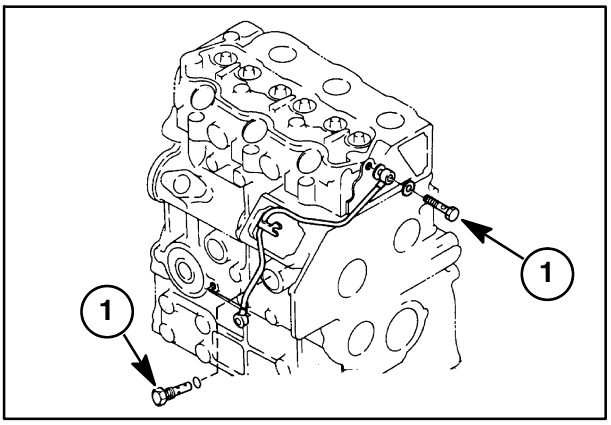
## FAN, WATER PUMP, AND EXTERNAL OIL TUBE

### Removal

1. Remove the fan and water pump assembly. See “Water Pump and Thermostat Removal” discussed later in this section.
2. Remove the external oil transfer tube banjo bolts, 1, from the front of the cylinder head and the side of the cylinder block and remove the external oil transfer tube.

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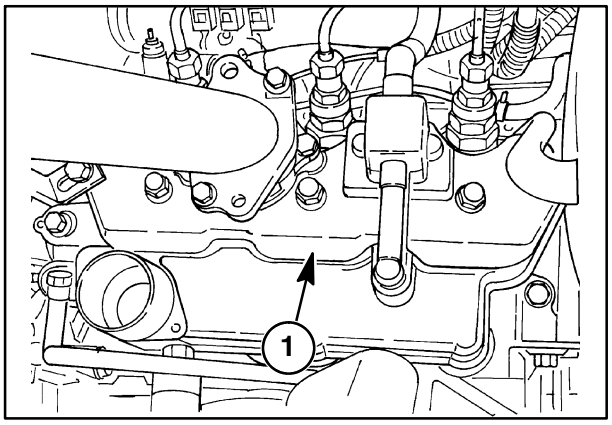
## VALVE COVER

### Removal

1. Remove the valve cover, 1, and gasket.

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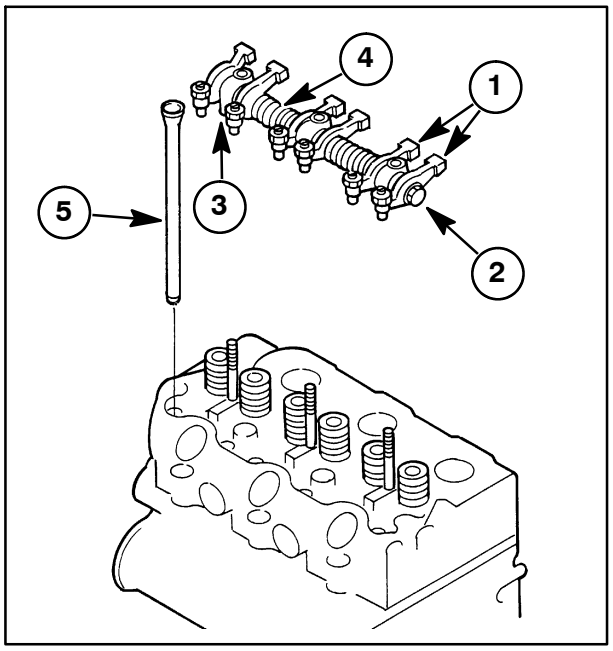
## ROCKER SHAFT AND PUSH ROD

### Removal

1. Remove the valve rocker arms, 1, shaft, 2, rocker arm supports, 3, and springs, 4, as an assembly
2. Remove the push rods, 5.

***NOTE:*** *Be sure to keep the valve components in separately marked containers for re-assembly in their original position.*

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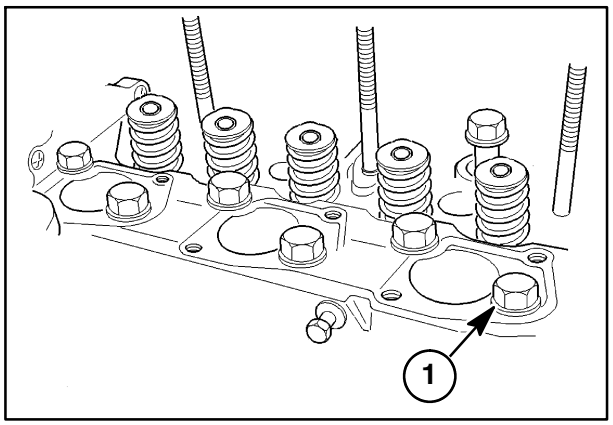
## CYLINDER HEAD

### Removal

1. To remove the cylinder head, remove the cylinder head bolts, 1, by alternately loosening a half turn at a time to prevent warping the head.

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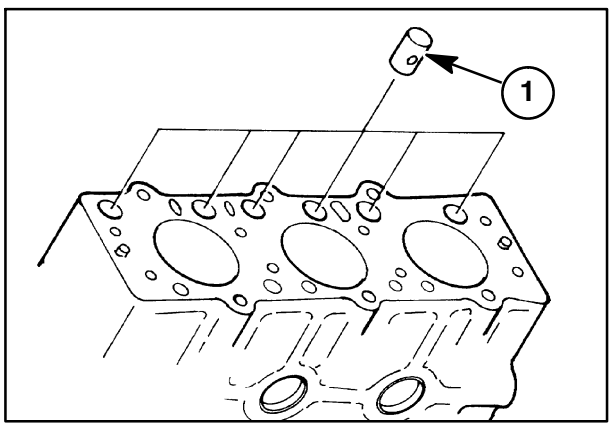
## VALVE TAPPET

### Removal

1. Remove the valve tappets, 1, from the machined bore in the cylinder block.

***NOTE:*** *Be sure to keep the valve components in separately marked containers for re-assembly in their original position.*

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