Group 00
SPECIFICATIONS AND SPECIAL TOOLS

SPECIFICATIONS

Serial Numbers

The engine serial number is stamped into the plate located on the lower front right-hand side of the cylinder block

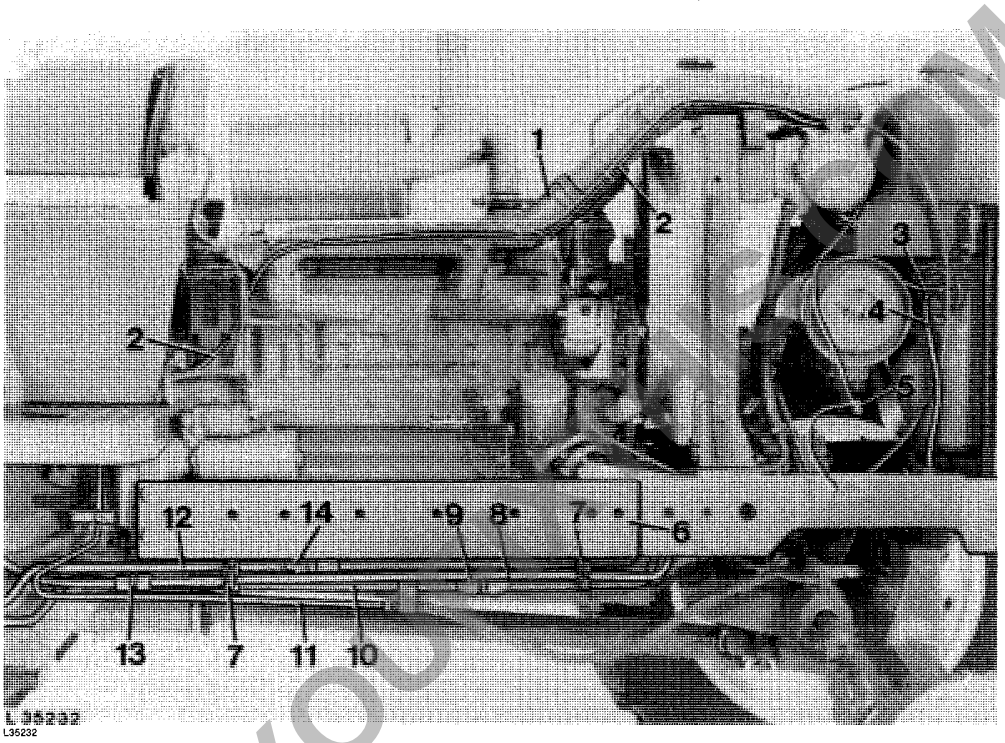
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Group 20
TRACTOR SEPARATION

SEPARATING BETWEEN ENGINE AND TRACTOR FRONT END



1—Air Intake Line
2—Leak-Off and Vent Line
3—Cable of Fuel Gauge Sending Unit
4—Fuel Inlet Line
5—Connector
6—Side Frame
7—Spacer Clamps
8—Hydraulic Pump Pressure Line
9—Connection
10—Oil Cooler Return Line
11—Hydrostatic Steering Pressure Line
12—Hydraulic Pump Inlet Line
13—Connection
14—Connection

Fig. 1 - Separating Between Tractor Front End and Engine Right-Hand Side

CAUTION: Do not lubricate or adjust tractor while engine is running unless recommended.

When servicing mechanical front-wheel drive equipped tractor with rear wheels supported off ground and engine running, always support front wheels in a similar manner. Loss of electrical power or transmission-hydraulic system pressure will engage front driving wheels, pulling rear wheels off support if front wheels are not raised.

Under these conditions, note that the front drive wheels can engage even with switch in disengaged position.

IMPORTANT: After having serviced, cleaned or repaired you tractor, always reinstall any safety guards or shields removed before operating.

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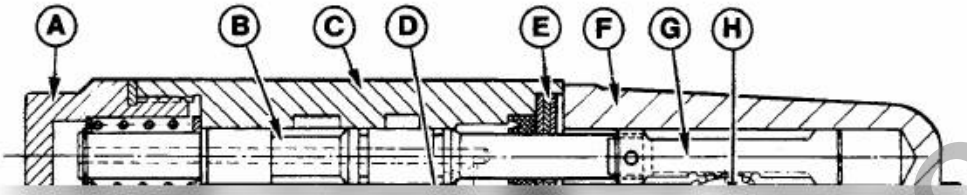
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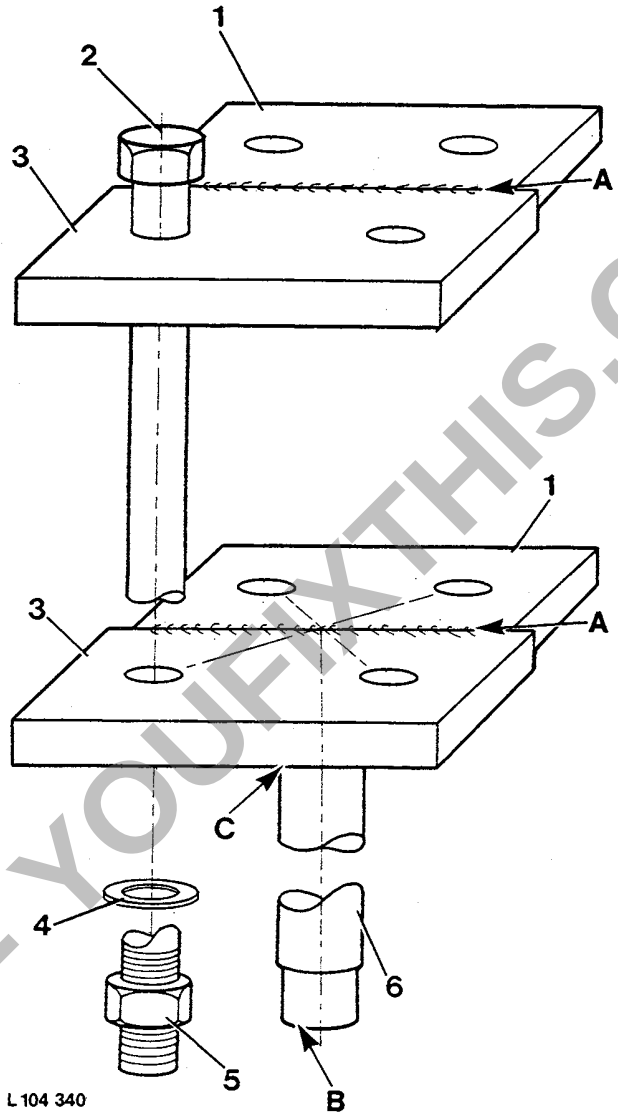
OPERATION



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L104340

1. Weld both retaining plates together (A).
2. Adapter lug diameter to fit bore of trolly jack (B).
3. Weld round steel in center of both plates (C).

1—Retaining plate T25671 (2 used)
2—Cap screw L34163 (2 used)
3—Retaining plate T32429 (2 used)
4—Washer 24 H1402 (2 used)
5—Hex. nut 14H858 (2 used)
6—Round steel 50 x 250 mm (1.97 x 9.84 in.)

Fig. 4—Holding Device (Self-Manufacture) For Removal of Final Drive Assemblies

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STANDARD TORQUES

RECOMMENDED TORQUES IN N:m, AND FT-LBS FOR UNC AND UNF CAP SCREWS						
Head Marking (identifying strength)			or 10.9*			or 12.9**

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Group 05
GENERAL INFORMATION, DIAGNOSING MALFUNCTIONS

General Information

NOTE: For details regarding the fuel system, (see CTM-4, 3179, 4239, and 6359 Engines).

Air Intake System

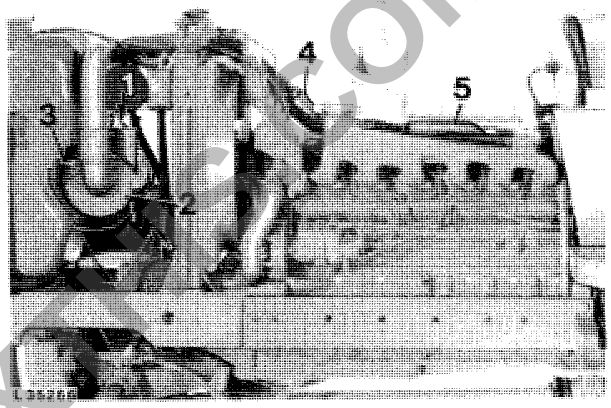
The air intake system consists of the dry-type air cleaner with safety element and the air intake manifold (see Fig. 1).

The filter element fins collect coarse dust particles which are stored in the dust unloading valve.

The filter element and safety element now filter the air being sucked into the engine.

The filtered intake air now flows through intake pipe (4) and intake manifold (5) to the engine.

A restriction indicator switch (3), (located in the air intake pipe) in conjunction with an air cleaner indicator light, shows when air intake is restricted and the air cleaner element requires cleaning.



L35266

1—Air Intake
2—Air Cleaner
3—Restriction Indicator Switch
4—Air Intake Pipe
5—Air Intake Manifold

Fig. 1—Air Intake System

Diagnosing Malfunctions

NOTE: For details regarding the diagnosis of malfunctions in fuel and air intake system, (See CTM-4, 3179, 4239, and 6359 Engines).

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Group 26 - Selective Control Valve (Spool Type) and Quick Coupler
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SECTION 80 - ENGINE
Group 00 - Specifications
Group 05 - Front Axle
Group 10 - Front and Rear Wheels

SECTION 90 - OPERATOR'S STATION
Group 00 - Specifications and Special Tools
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Group 10 - Cab Ventilation and Heating
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Group 25 - ROLL-GARD Protective Structure

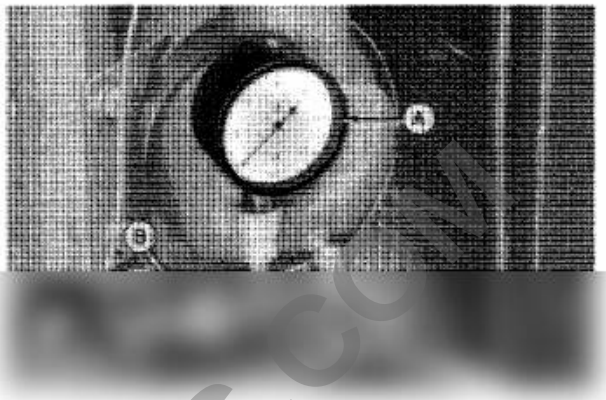
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Air Cleaner Secondary (Safety) Element

1. This filter element must be changed annually, when clogged or damaged and with every third service of air cleaner primary element.

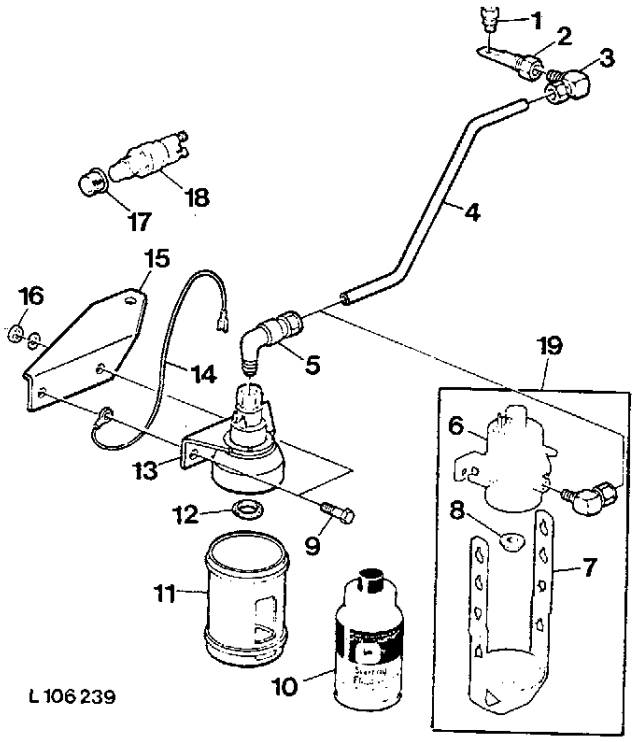
2. Should it become necessary to clean primary filter element more often than usual, this is a sign that the secondary (safety) filter must be replaced.



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1—Spray Nozzle
2—Nozzle Holder
3—Elbow
4—Pressure Line
5—Elbow
6—Solenoid
7—Bracket
8—Seal Ring
9—Cap Screw (2 used)
10—Pressure Can with Spray Fluid
11—Protective Cup
12—Seal Ring
13—Solenoid
14—Wire
15—Link
16—Hex. nut (2 used)
17—Rubber Cap
18—Push Button Switch
19—On Earlier Tractor Series

Fig. 2—Ether Starting Fluid Aid (Electrically Operated), Exploded View

Removal

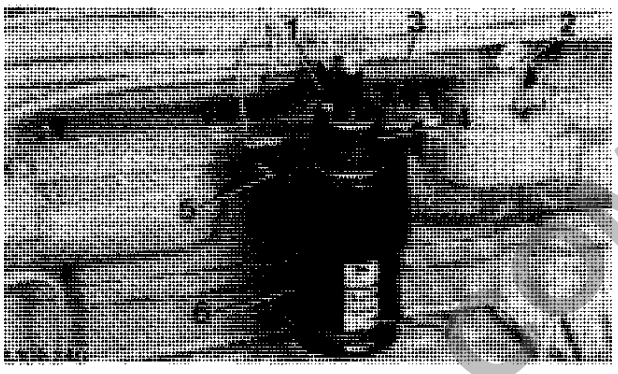
Hand Operated Starting Fluid Aid

Remove all parts as shown in Fig. 1.

Electrically Operated Ether Starting Fluid Aid

1. On earlier tractor series, remove pressure can (10, Fig. 2) from bracket (7) and disconnect and remove bracket.

2. On late tractor series, unscrew protective cup out of solenoid and remove pressure can (10).



L10624 0

1—Connector
2—Nozzle Holder
3—Pressure Line
4—Solenoid
5—Cap Screw (2 used)
6—Protective Cup
7—Pressure Can with Spray Fluid

Fig. 3—Ether Starting Fluid Aid, Installed

3. Pull off both connectors (1) from top of solenoid.

4. Disconnect pressure line (3) from solenoid.

5. Remove both cap screws (5) and lift off solenoid (4).

Repair

1. Check all parts for serviceability.

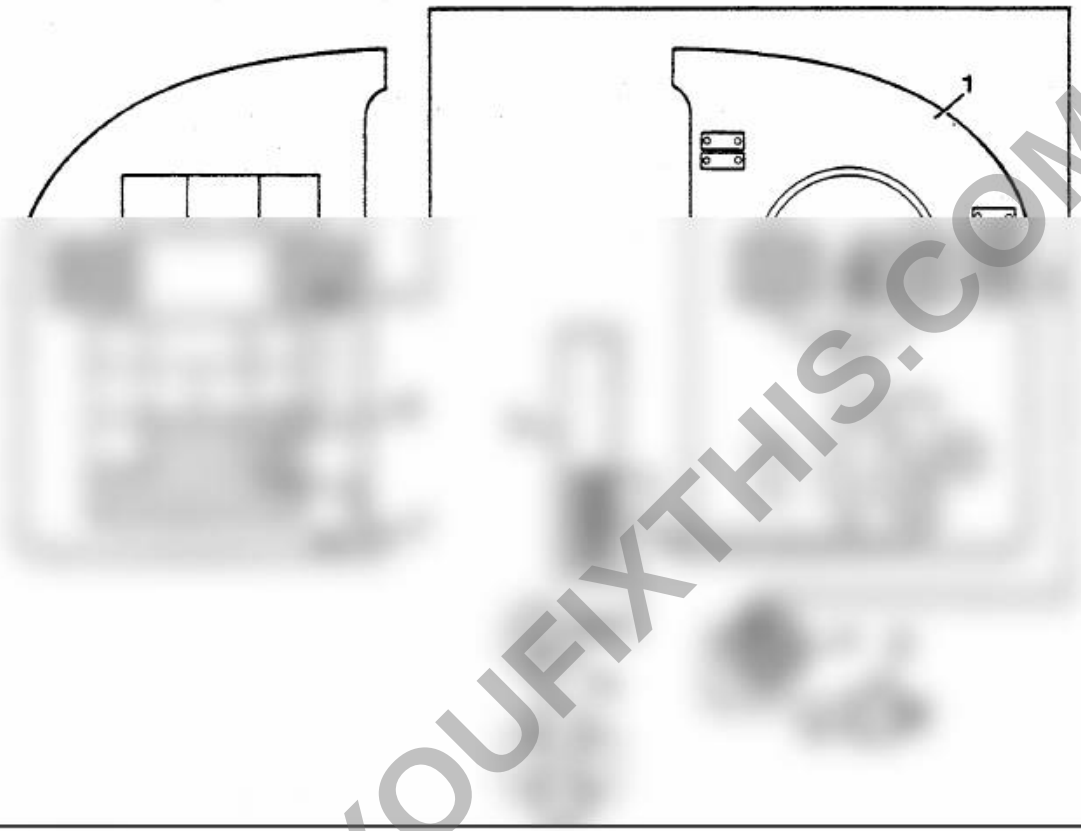
2. When cleaning the spray nozzle (1, Figs. 1 and 2), make sure that the bore is not enlarged or damaged.

3. *On tractors with electrically operated ether starting fluid aid*, replace solenoid (6 or 13, Fig. 2) and push button switch (18), if necessary.

4. Check pressure line (4, Figs. 1 and 2) for damage or restriction.

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Group 05
DESCRIPTION, DIAGNOSING MALFUNCTIONS AND TESTS

DESCRIPTION

The tractor is equipped with a 12-volt battery system.

The two 12-volt batteries connected in parallel are located under the right- and left-hand operator's platform steps.

The negative pole of each battery is grounded with a ground strap connected to each battery box.

The positive pole of the left-hand battery is connected to the positive pole of the right-hand battery by means of the battery cable to the starting motor.

Charging circuit is equipped with a 14-volt alternator with attached regulator and starting circuit with a 12-volt starting motor with solenoid.

The tractor may be equipped with a 33 amp or 55 amp alternator.

On tractors without SOUND-GARD body

All control instruments are in the instrument cluster, located in center of dash panel.

On tractors with SOUND-GARD body

The majority of instruments are located on left-hand side of dash panel.

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HOW TO READ A DIAGRAM

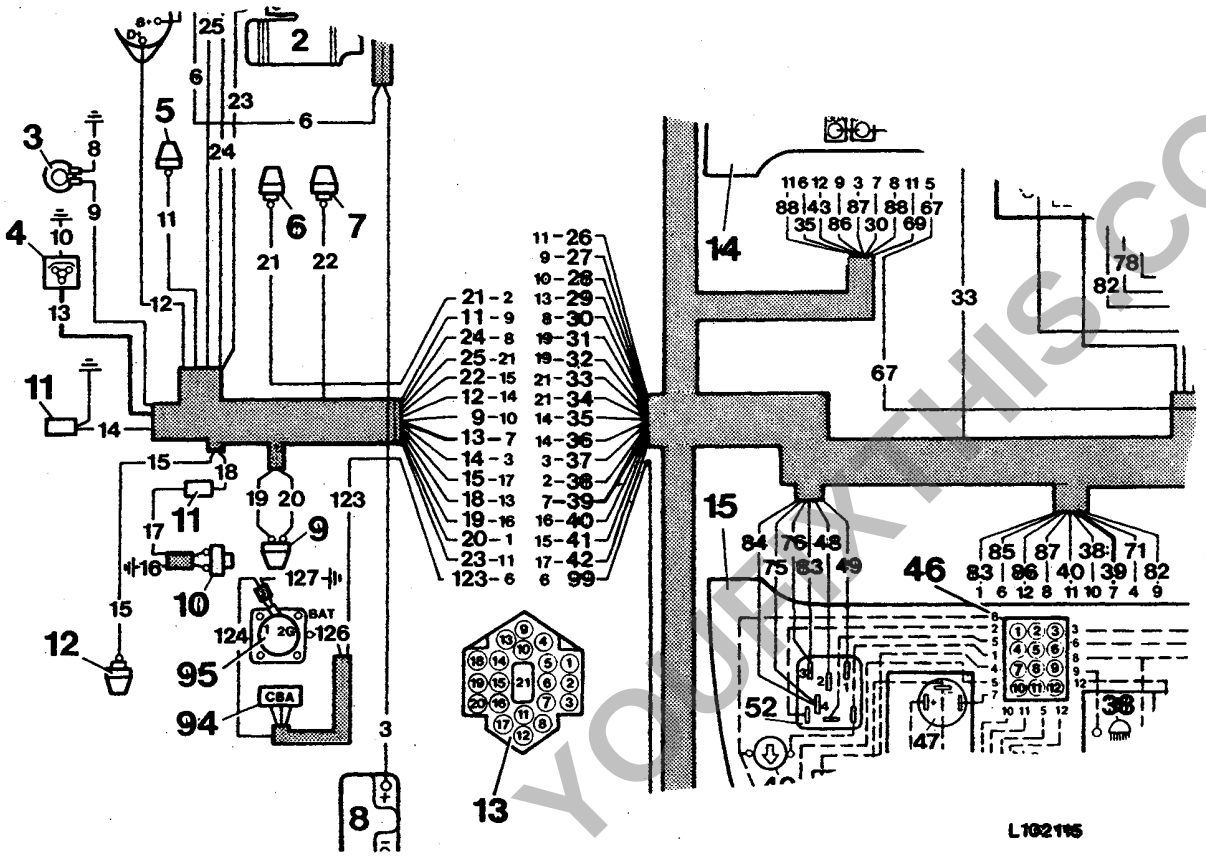


Fig. 2 - Explanation of Cable Routing

Wiring diagrams are generally shown with components in their basic position (without current).

The following illustration shows how to easily follow cable routing in wiring diagram.

Cable (13) goes from fuel gauge sending unit (4) to plug (13) terminal (7), from plug (13) terminal (7), cable (39) leads to plug (46) terminal (7).

IMPORTANT: Due to space limitations, some plugs shown in Fig. 3 do not include a wiring-terminal code. See Fig. 4 on the back of the fold-out page for this information.

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MECHANICAL CLUTCH OPERATING LINKAGE

General Information

When depressing the clutch pedal (1, Fig. 4), motion is transmitted through clutch rod (8/10), clutch fork shaft (13) and clutch fork (12) to the throw-out bearing (15). The latter will be pressed against the diaphragm

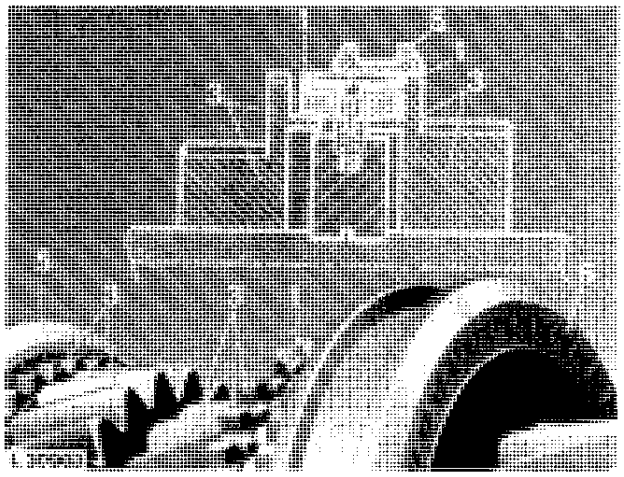
2. Remove clutch fork (12, Fig. 15) from shaft (13). If equipped remove connector (22) from shaft (13) and pull out shaft from the side. Remove spring (18).

3. On earlier tractor series, unhook clutch fork (12) from spring (17) of throw-out bearing (15).

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1—Synchronizer Ring
2—Ball Pin (3 used)
3—Drive Gear
4—Shift Collar Sleeve
5—Shift Collar
6—Spring (3 used)
7—Thrust Block (3 used)
8—Transmission Drive Shaft

Fig. 7 - Gear Engaged

Should two teeth be opposite each other, tapered teeth of gear to be engaged will turn far enough so that teeth can engage in opposite gap.

Diagnosing Malfunctions

EXCESSIVE GEAR CLASH WHEN SHIFTING

Worn synchronizer

Synchronizer splines damaged

Engine clutch not disengaging completely

EXCESSIVE TRANSMISSION NOISE

Transmission shaft bearing damaged

Transmission part worn or damaged

Taper roller bearings incorrectly adjusted

Transmission oil low, check oil level

TRANSMISSION JUMPING OUT OF GEAR

Shifter shaft detents worn

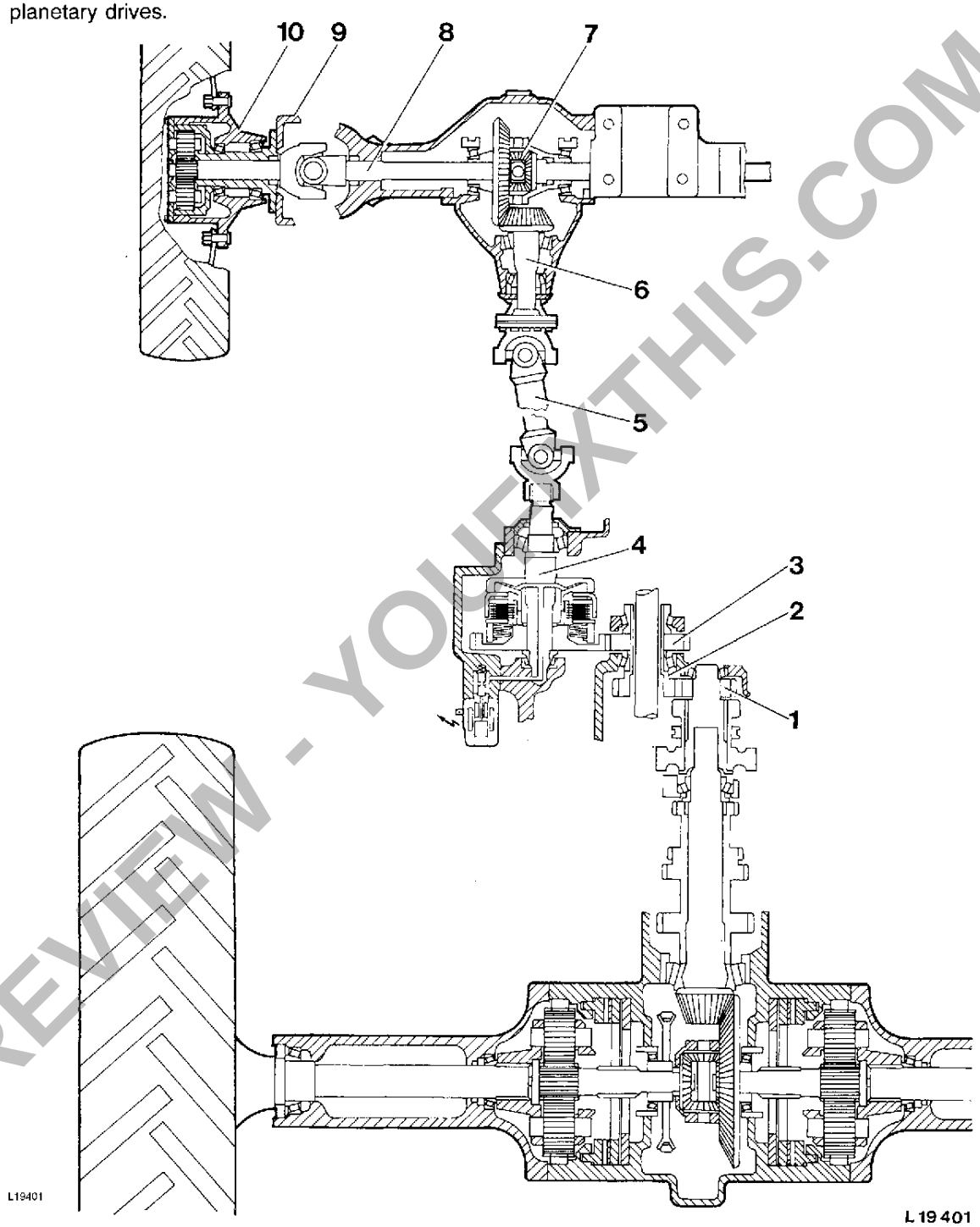
Gear shaft "wanders" in transmission case

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The differential splits up the torque to the right and left-hand drive shafts (8). The shafts being splined to the sun gear which in turn engages in the wheel hub planetary drives.

The planetary drive reduces speed of shafts and at the same time increases torque to the tractor front wheels.



L19401

1—Drive Gear
2—Intermediate Shaft with Gear
3—Intermediate Gear
4—Disk Clutch Assy.
5—Universal Jointed Shaft
6—Front Axle Differential Drive Shaft
7—Front Axle Differential
8—Drive Shaft (2 used)
9—Axle Knuckle
10—Wheel Hub with Planetary Drive (2 used)

Fig. 2 - Tractor with Mechanical Front Wheel Drive, Power Flow

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ADJUSTING RING GEAR BACKLASH AND ROLLING DRAG TORQUE

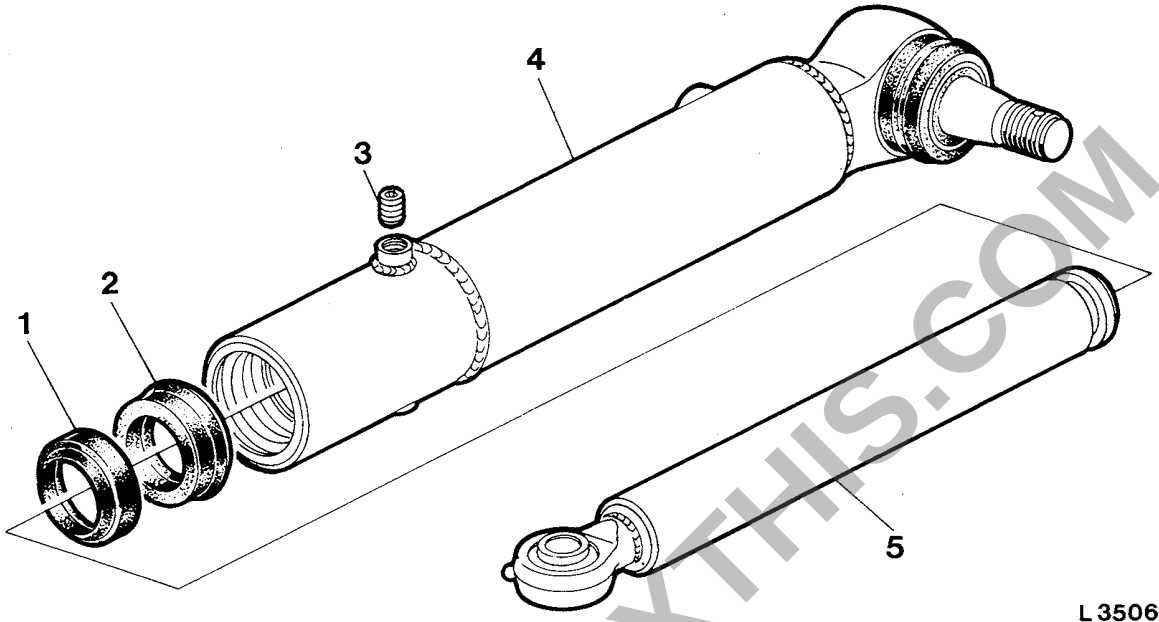
Install a spacer of 1 mm (0.04 in.) thickness in long axle housing.



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1—Wiper Seal
2—Packing Seal
3—Locking Screw
4—Cylinder Barrel
5—Piston Rod

Fig. 53 - Single Acting Steering Cylinder

DISASSEMBLY

1. Thoroughly clean exterior of cylinder assembly and carefully clamp piston rod end in a vice.

2. Using a screwdriver, force end of snap ring out of groove as shown in Fig. 54. Turn piston rod to fully remove snap ring from groove.

3. Pull piston rod (5, Fig. 53) out of cylinder barrel (4).

4. Remove packing seal (2) and wiper seal (1).

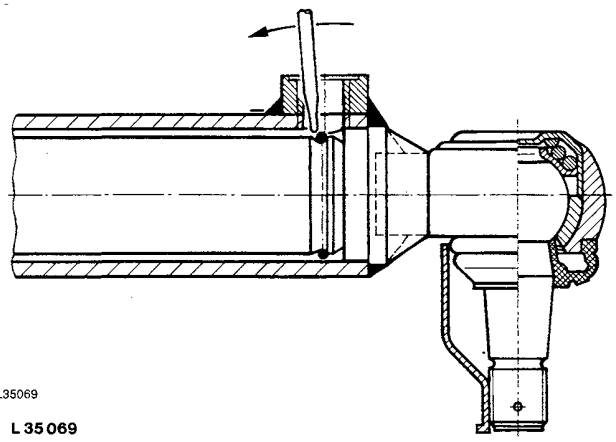


Fig. 54 - Removal of Snap Ring

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15. Measure oil from five-gallon bucket into container of known volume. Record volume and return oil to transmission case.

NOTE: Volume in quarts for fifteen seconds will equal flow rate in gallons per minute (gpm).

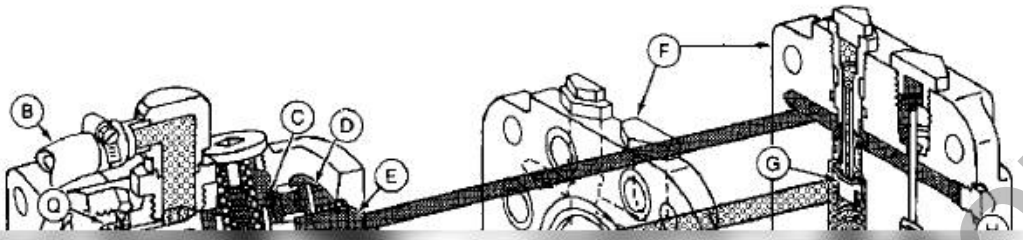
16. Set meter selector switch for HIGH SCALE. Repeat

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Main Hydraulic Pump



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SELECTIVE CONTROL VALVE AND COUPLER SPECIFICATIONS

Item	Measurement	Part Dimension
Retaining Spring	Compression	19 mm at 140 to 170 N (0.75 in. at 32 to 39 lb)
Bleed Valve Spring	Compression	5 mm at 8 to 10 N (0.20 in. at 1.8 to 2.2 lbs)

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3. Open valve on R-12 container and pressurize compressor to can pressure, or 400 kPa (4 bar; 60 psi) minimum.

4. Check for leakage from shaft seal and compressor end plate. If there is end plate leakage, replace compressor. If there is shaft seal leakage, replace shaft seal assembly.

1. Mount the compressor (A, Fig. 7) vertically in a D-01006 AA bench holding fixture (B).

2. Remove the three dust cover attaching screws.

3. Pull off dust cover (C).



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2950 TRACTOR TECHNICAL MANUAL TM-4407 (Apr-86)

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