3. Circuit Diagrams

Chapter Overview

This chapter contains diagrams for the following Compact Track Loader systems.

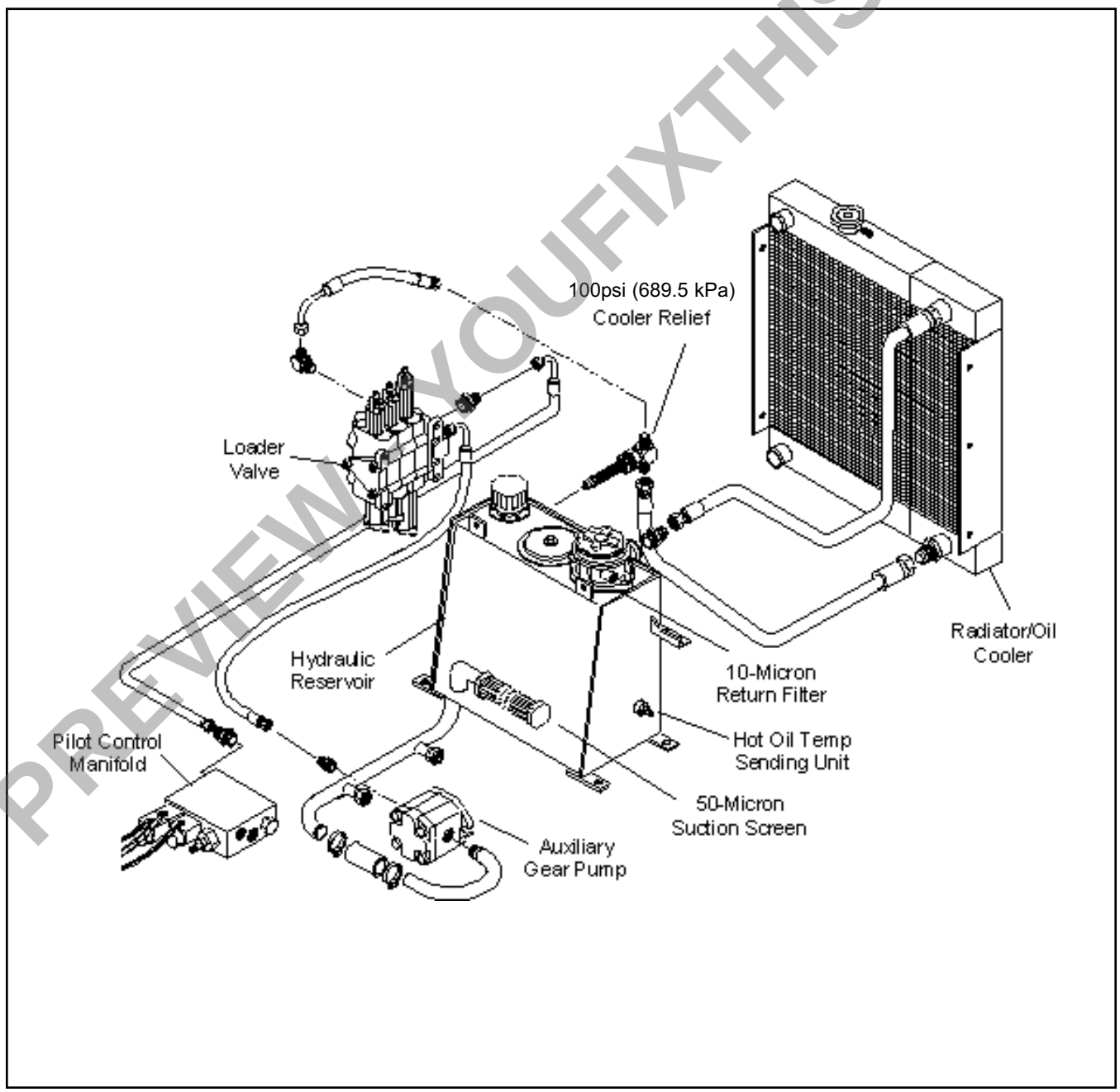
- Filtering and cooling system
- Auxiliary circuit system
- Drive loop system

Filtering and Cooling System

The filtering and cooling system (Figure 3-1) contains the following major components.

- Hydraulic reservoir
- Radiator/oil cooler
- Loader valve
- Auxiliary gear pump
- Pilot control manifold

Figure 3-1 PT-30 Filtering and Cooling System



PREVIEW YOUFIXTHIS.COM

Download full manual at youfixthis.com



Figure 5-2

2. Carefully lower the light bar with the wire harness attached.



Figure 5-3

3. View of light bar interior components. Interior components are now accessible for servicing.

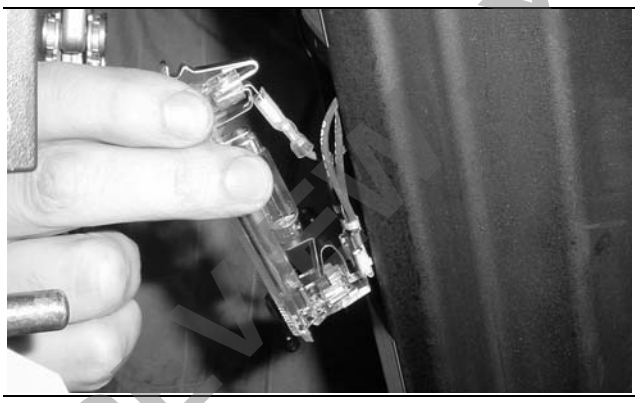


Figure 5-4

4. View of dome light. If removal is required, simply insert a lever (blade-type screw driver) at opposite end of switch in pry-pocket, and gently pry the light assembly out of the light bar.

Light Bar Installation



Figure 5-5

1. Carefully position the light bar, without pinching the wiring harness against the cab roof.



Figure 5-6

2. Secure the light bar to the cab roof with the two capscrews

Ignition Switch Removal and Installation

The tools required for ignition switch removal and installation are listed in Table 5-2. Use manufacturer-recommended tools whenever possible.

Table 5-2

Required Tools
Combination Wrench

Ignition Switch Removal

1. Lower the light bar. Refer to *Chapter 5. Light Bar Removal* procedure.

Download full manual at youfixthis.com

2. Technical Specifications & Service Tools

PT-30 Specifications

Engine
- Model: Perkins 403-D15
- Displacement: 1.5 liter
- Gross horsepower: 33.7 hp (25.1 kW)
- Peak Torque: 64.39 lb-ft. (87 Nm)
- Idle rpm: 1175 (low idle), 2800 (high idle)
- Average water /thermostat temperature: 190°F, 87.8°C

Transmission
- Model: A10VG18 tandem (Rexroth)

Drive Pumps
- Displacement: 1.098 in3/rev (18 cc/rev)
- Relief pressure: 3800 psi (26,200 kPa)
- Flow: 13 gpm (11.4lpm) @ 2800 rpm (per pump)

Charge Pumps (2)
- Displacement: .33 in3/rev (5.4 cc/rev) x2
- Relief pressure: 360 +/- 20 psi (24.82 bar)
- Flow: 3 gpm (11.4 lpm combined) @1175 rpm
- Flow: 8.1 gpm (30.7 lpm combined) @2800 rpm

Drive Motors
- Model: Rexroth Sauer Danfoss
- Displacement: 19.215 in3/rev (314.9 cc/rev)

Pilot Controls (Joysticks)
- Model: Rexroth 4TH6

Auxiliary Pump
- Make: Rexroth
- Type: Gear
- Displacement: 0.87 in3/rev (14.3 cc/rev)
- Max Flow: 10 gpm (37.9 lpm) @ 2800 rpm
- Relief pressure: 3000 psi (20,684 kPa)
- Cooling/filtering: Oil is filtered and cooled at all times. In auxiliary mode, the oil is filtered after the attachment to protect the machine if the attachment motor fails or contaminants are introduced from the quick couplers.

Lift Arm Control Valve
- Make: Husco
- Relief Pressure: 3000 psi (20,684 kPa)
- Pilot pressure required to move spools: 180-220psi (1241-1517 kPa)

Oil Cooler
- Operating pressure: 250 psi (1724 kPa)
- Bypass relief pressure: 80 psi (551.6 kPa)
- Hot oil sending unit: 225°F (107.2°C)
- Avg. oil operating temp. 50-60°F (10-16°C) above ambient. (extreme application 80°F , 27°C above ambient.)

Critical Torque Specs
- Transmission Mounting Bolts
  - 80 ft-lb (108 Nm). w/Blue Loctite
- Drive Sprocket Drive Teeth Bolts
  - 62 ft-lb (84 Nm). -Dry
- Bogie Wheel Retaining Nuts
  - 110 ft-lb (149 Nm). - Dry
- Drive Sprocket Retaining Bolt (Serial # 00101-05000)
  - 60 ft-lb (81 Nm). w/Blue Loctite
- Drive Sprocket Retaining Castle Nut (Serial # 05001-Current)
  - 270 ft-lb (366 Nm)

Service Tools

Listed below are common service tools which are identified and utilized in the service procedures described in this manual. Use tools recommended by Terex whenever possible to reduce risk of injury and or machine damage during service.

- Heavy Duty Hydraulic Jack (5-ton rating)
- Test Gauge Kit (P/N: 0402-935)
- Long Pry Bar(s)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

16. Maintenance

Chapter Overview

This chapter contains maintenance requirements and procedures for the following Compact Track Loader components.

- Engine oil
- Hydraulic fluid and filter
- Fuel filter
- Track tension
- Lift arm bushings
- Air cleaner
- Fuse box
- Grease fittings
- Lift Arm Brace

Maintenance Schedule

Maintenance schedule is listed in Table 16-1.

Table 16-1

Item	Frequency	Lubricant	Capacity
Hydraulic Fluid	1000 hrs	**Mobile DTE10 Excel Series**	8 gal/30 l
Hydraulic Filter	250 hrs		
Engine Oil	250 hrs	**HD Diesel Engine Oil**, or equivalent	4 qt/3.79 l
Engine Filter	250 hrs		
Fuel Filter	500 hrs		
Primary Air Filter	Check daily, clean and reuse as needed up to 5 times; change at least once per year		
Secondary Air Filter	Every 3 cleanings of primary filter		
Grease Fittings	10 hrs	**Lithium Grease**	
Track Tension	As needed		

NOTICE

When replacing engine coolant, use **Terex Long Life 50/50 Antifreeze/Coolant** or equivalent antifreeze with the proper SCA (Supplemental Cooling Additive)

Lift Arm Brace

The lift arm brace is intended to keep service personnel safe when it is necessary to work on a machine with the lift arms in the raised position. It is not safe to rely on the hydraulic system to hold the lift arms in the raised position just as it is not safe to crawl under a machine support only by one jack. The lift arm brace is used support the weight of the lift arms much mechanical supports bear the vehicle weights.

To install the lift arm brace:

1. Park the machine on level ground in a safe area for performing service work.
2. Remove any attachments that may be fastened to the quick attach.
3. Have an assistant remove the retaining pins that secure the lift arm brace and remove it from the machine.
4. Make sure bystanders are clear of the lift arms, and then raise them to the upper limit.
5. Have an assistant install the brace around the cylinder shaft as shown and reinstall the pins to secure it to the cylinder as shown in Figure 16-1.
6. Lower the lift arms slowly until the come to rest on the brace.
7. It is now safe to shut the engine off and exit the machine.

To remove the lift arm brace:

⚠ Do not work on or near the machine with the lift arms in the raised position unless the lift arm brace has been correctly installed.

1. Start the machine and raise the lift arms until they are clear of the brace.
2. Once clear, have an assistant remove the brace for the cylinder and stow it on the machine with the pins.
3. Once the brace has been stowed and the assistant is clear of the lift arms, lower the arms to the ground and shut the engine off to complete the procedure.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Troubleshooting

This section identifies selected problems and suggests probable causes.

Problem 1

Machine will not crank over.

Probable cause

1. Auxiliary hydraulic switch activated.
2. Weak or dead battery.
3. Battery cables loose or corroded.
4. Ignition fuse blown.
5. Main starter fuse blown.
6. Starter relay malfunctioning.
7. Bad ignition switch.
8. Bad starter.
9. Poor wire connections at key, relay, or starter.

Problem 2

Machine cranks but will not start.

Probable cause

1. Injection pump fuse blown.
2. Main power fuse B blown.
3. Main power relay B not activating.
4. Poor wire connection at injection pump or fuse.
5. Glow plugs not heating. (Will see black smoke.)
   a) Main glow plug fuse blown.
   b) Glow plug relay not activating.
   c) Poor wire connections at ignition switch, relay, or glow plug strip.
   d) Failed glow plugs.
   e) Bad ignition switch.

Problem 3

Machine starts but hydraulics will not operate.

Probable cause

1. Lap bar must be in down position, operator must be seated in seat, and front door (if installed) must be closed.
2. Safety fuse blown.
3. Faulty operator presence switch.
   a) Test continuity through seat, lap bar, and door switch. Adjust or replace as necessary. Lap bar and door switch are magnetic switches and should be adjusted to approximately 1/16 inch (.16 cm) away from steel pickup bracket.
4. Poor ground (check ground wires on bottom left rear side of hydraulic reservoir).
5. Safety relay is not activating.
6. Faulty safety solenoid or safety solenoid spool.
7. Poor wire connections on fuse, relay, or safety solenoid.
8. Low charge pressure.

Problem 4

Loader operates but tracks will not move.

Probable cause

1. Leak in feed line to pilot control.
2. Pilot control malfunctioning.

Problem 5

Tracks operate but loader will not operate.

Probable cause

1. Auxiliary direction switch activated sending oil over relief.
2. Check to see if auxiliary flow works. (If auxiliary flow works, skip to number 5).
3. Main auxiliary relief malfunction.
4. Auxiliary pump bad.
5. Leak in feed line to loader control pilot.
6. Loader control pilot malfunctioning.

Problem 6

Auxiliary flow does not work. Loader works.

Probable cause

1. Auxiliary hydraulic fuse blown.
2. Faulty ground wire.
   a) Clean ground connections on left rear side of hydraulic tank.
3. Auxiliary hydraulic direction switch failure.
4. Poor wire connections at fuse, direction switch, or pin connector P17.
5. Auxiliary hydraulic pilot generation spool stuck.
6. Bad or not fully connected Quick-Coupler

Problem 7

Auxiliary hydraulic part-time thumb switch operates but full-time flow direction switch will not operate.

Probable cause

1. Auxiliary direction switch faulty.
2. Poor wire connections at mode switch or direction switch.

PREVIEW - YOUFIXTHIS.COM

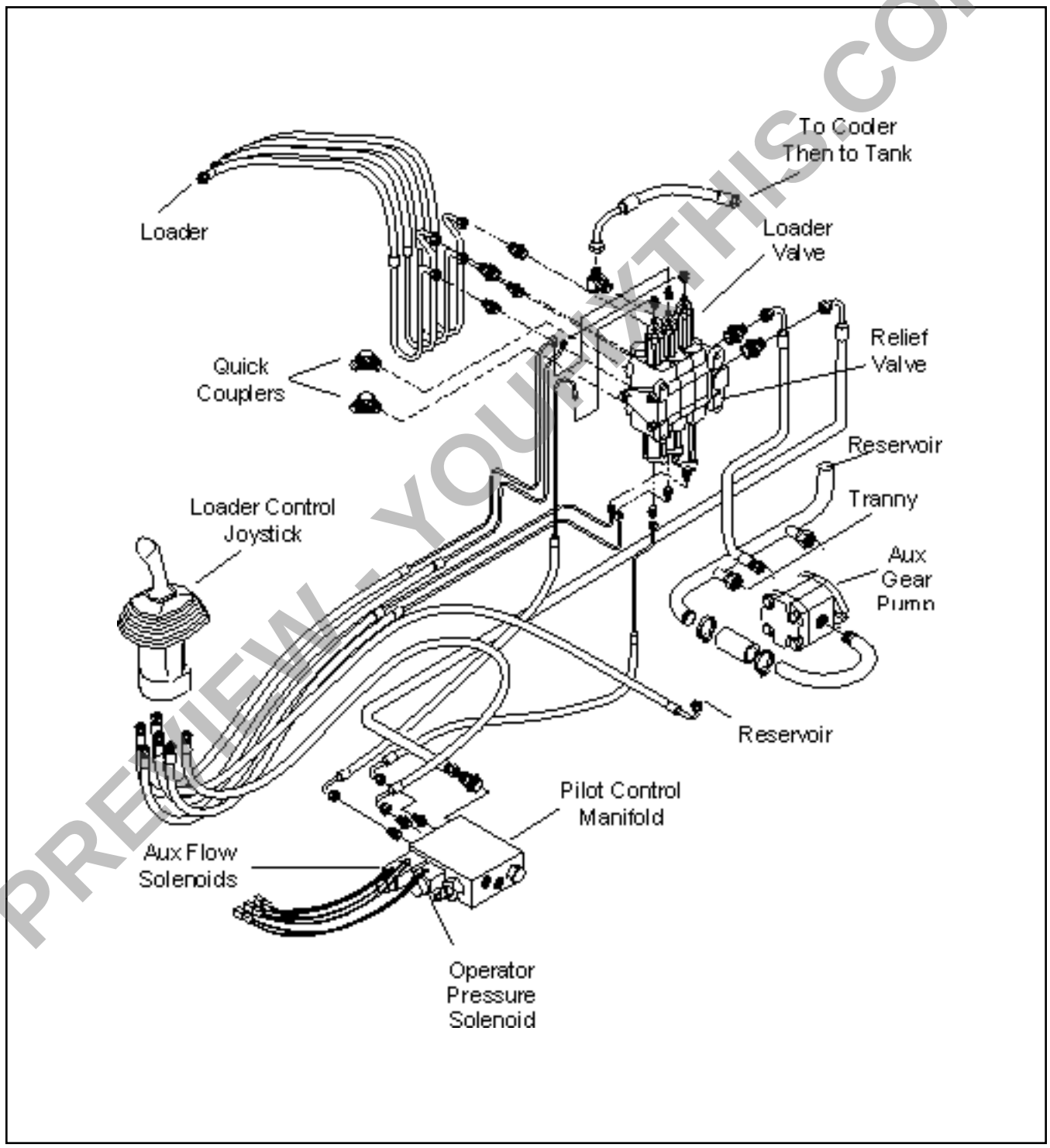
Download full manual at youfixthis.com

Auxiliary Circuit System

The auxiliary circuit system (Figure 3-2) contains the following major components.

- Loader valve
- Pilot control manifold
- Auxiliary gear pump
- Loader control joystick

Figure 3-2 PT-30 Auxiliary Circuit System



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

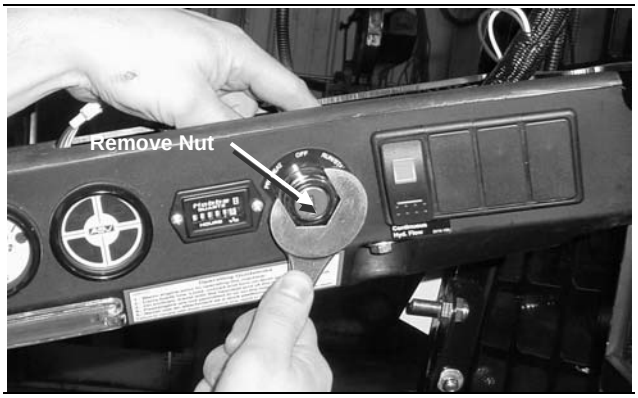


Figure 5-7

2. Remove the nut that secures the ignition switch to the dash panel.

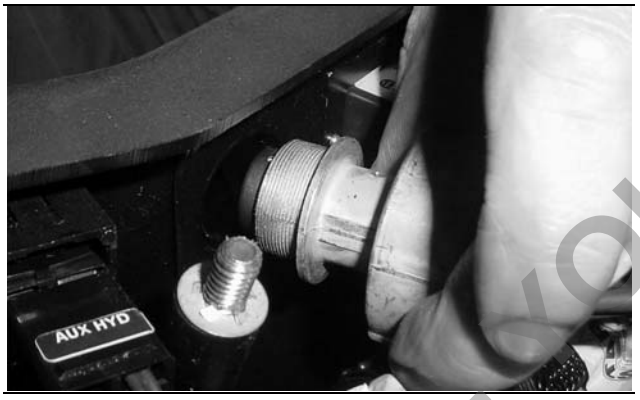


Figure 5-8

3. Pull the ignition switch out from the rear of the dash panel.



Figure 5-9

4. Unplug the ignition switch connector.

Ignition Switch Installation

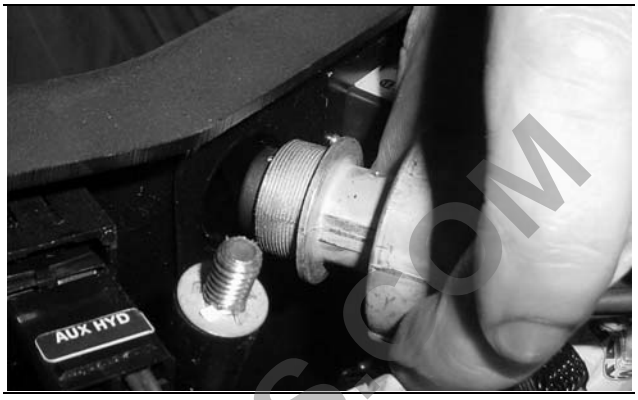


Figure 5-10

1. Insert the ignition switch from the rear of the dash panel.

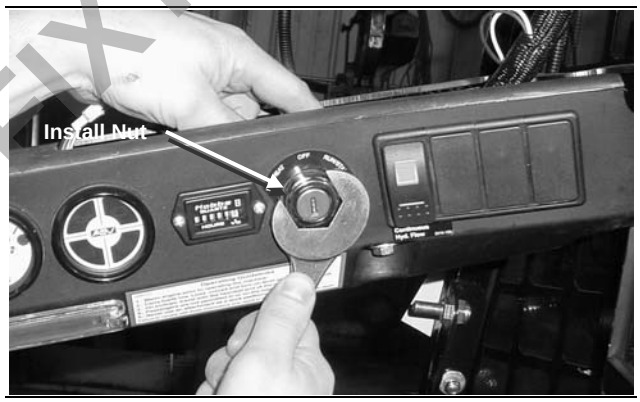


Figure 5-11

2. Install the nut that secures the ignition switch to the dash panel.



Figure 5-12

3. Plug in the ignition switch connector.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

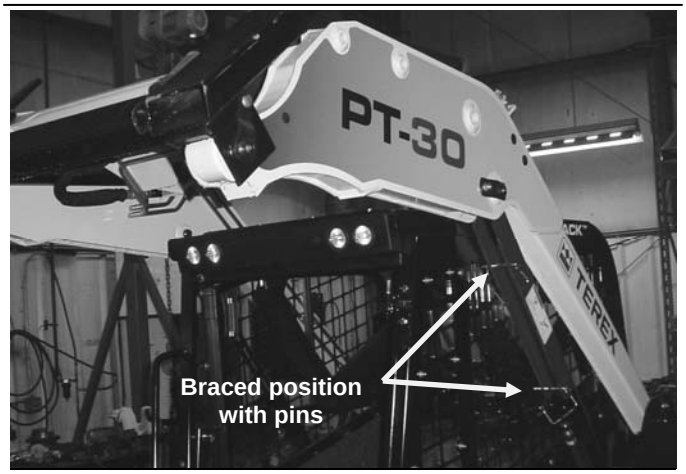


Figure 16-1

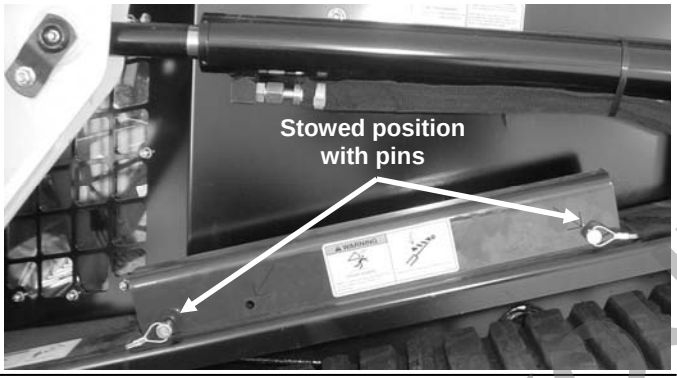


Figure 16-2

Engine Oil

Regular oil changes are necessary to maintain a strong running engine. A normal oil change interval of 250 hours or every six months is recommended. This recommendation has been made to help ensure proper lubrication during operation and to prolong engine life under typical operating conditions. Oil Change Procedures

1. Run the engine for a few minutes to warm the engine oil.

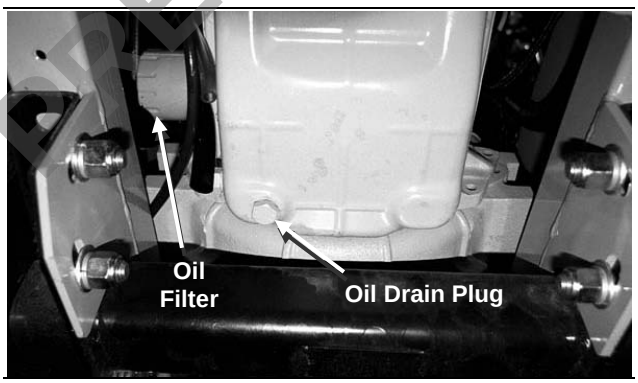


Figure 16-3

2. Remove drain plug from bottom of the engine.
3. Drain oil into suitable container.
4. Remove engine oil filter, making sure the gasket is also removed.
5. Apply a light coat of fresh oil to the new filter gasket, then install new filter.
6. Tighten filter to specifications on filter label or box.
7. Refill the engine to capacity with engine oil, as specified.

Engine Oil Specifications

Due to the variations in the quality and performance of commercially available oils, **Terex Heavy Duty Diesel Engine Oil – 10W30** is recommended. If Terex lubricants are not available, use a substitute meeting the following qualifications:

- API CH-4 multi-grade engine oil

Hydraulic Fluid and Filter

The hydraulic fluid should be changed every 500 service hours, and the hydraulic filter should be changed every 250 hours. Hydrostatic components require extremely clean oil for long service life.

Hydraulic Fluid and Filter Change Procedures

⚠ Hot oil can cause personal injury. Make sure the oil is cool before removing any components or lines.

Allow the machine to cool thoroughly and relax all hydraulic circuits before performing this procedure.

NOTICE

Extreme care must be taken when changing the hydraulic fluid. Before starting the procedure, make sure the machine is in a clean working environment. Precautions should be taken to prevent any debris from entering the hydrostatic system.

⚠ Collect and contain liquids in a suitable container. Dispose of all liquids according to local regulations and mandates.

Download full manual at youfixthis.com

Problem 8

Auxiliary hydraulic full-time direction switch operates but part-time thumb switch will not operate.

Probable cause

1. Auxiliary hydraulic thumb switch malfunction.
2. Poor wire connections at direction switch, thumb switch, or pin connector P17.

Problem 9

Auxiliary hydraulics will only flow one way.

Probable cause

1. Auxiliary hydraulic relay 1 or 2 failure.
2. Auxiliary hydraulic pilot generation coil faulty.
3. Auxiliary hydraulic pilot generation spool faulty.
4. Poor wire connections at relay, pilot generation solenoid, pin connector P16 or P21.
5. Loader valve malfunction.

Problem 10

No power to numerous auxiliary functions or accessories in ON or RUN position.

Probable cause

1. Main power relay A or B fuse blown.
2. Main relay A or B faulty.
3. Ignition switch malfunction.
4. Poor wire connections at ignition switch, fuse, or relay.

Problem 11

Battery will not charge and/or battery goes dead.

Probable cause

1. Alternator fuse blown.
2. Alternator diode defective or inserted backwards.
3. Poor wire connections at battery, alternator, diode, or fuse.
4. Excessive draw in off position.
   a) Fuel gauge and hour meter should draw only 0.01 amps in off position.
5. Bad battery.
6. Bad alternator.

Problem 12

Loader control will not lock in float position.

Probable cause

1. Float magnet fuse blown.
2. Poor wire connections at fuse, float detent magnet, or pin connector P18.
3. Faulty float detent magnet.

Problem 13

Loader will not float; labors engine and has down pressure when detented into float.

Probable cause

1. Engine RPM too low.
   a) Float must be operated at a minimum of half throttle.
2. Low charge pressure.
3. Pilot control malfunction.
4. Loader valve malfunction.

Problem 14

Hot oil light illuminates; hydraulic system operating hot.

Probable cause

1. Auxiliary hydraulic switch activated sending oil over relief.
2. Low oil level.
3. Debris plugging oil cooler limiting airflow.
4. Broken fan blades.
5. Loose fan belt.
6. Improper attachment.
   a) Attachment must be rated at a minimum of 10 gallons per minute (37.8 lpm) and 3000 psi (20,680 kPa).
   b) Attachment hose size must be a minimum of 3/8 inch (.95 cm).
7. Faulty hot oil sending unit.
   a) Hot oil light should illuminate at 225°F (107.2 °C).
8. Faulty quick coupler.
9. Cooler bypass relief.
   a) Cooler bypass relief should open at 100 psi (689.5 kPa).

Problem 15

Track makes popping noise.

Probable cause

1. Track too loose. (Refer to track adjustment section.)
2. Worn or stuck drive teeth. Outer roller should pivot as lug comes into sprocket.
3. Loose or worn sprocket.
4. Worn track lugs.

PREVIEW - YOUFIXTHIS.COM

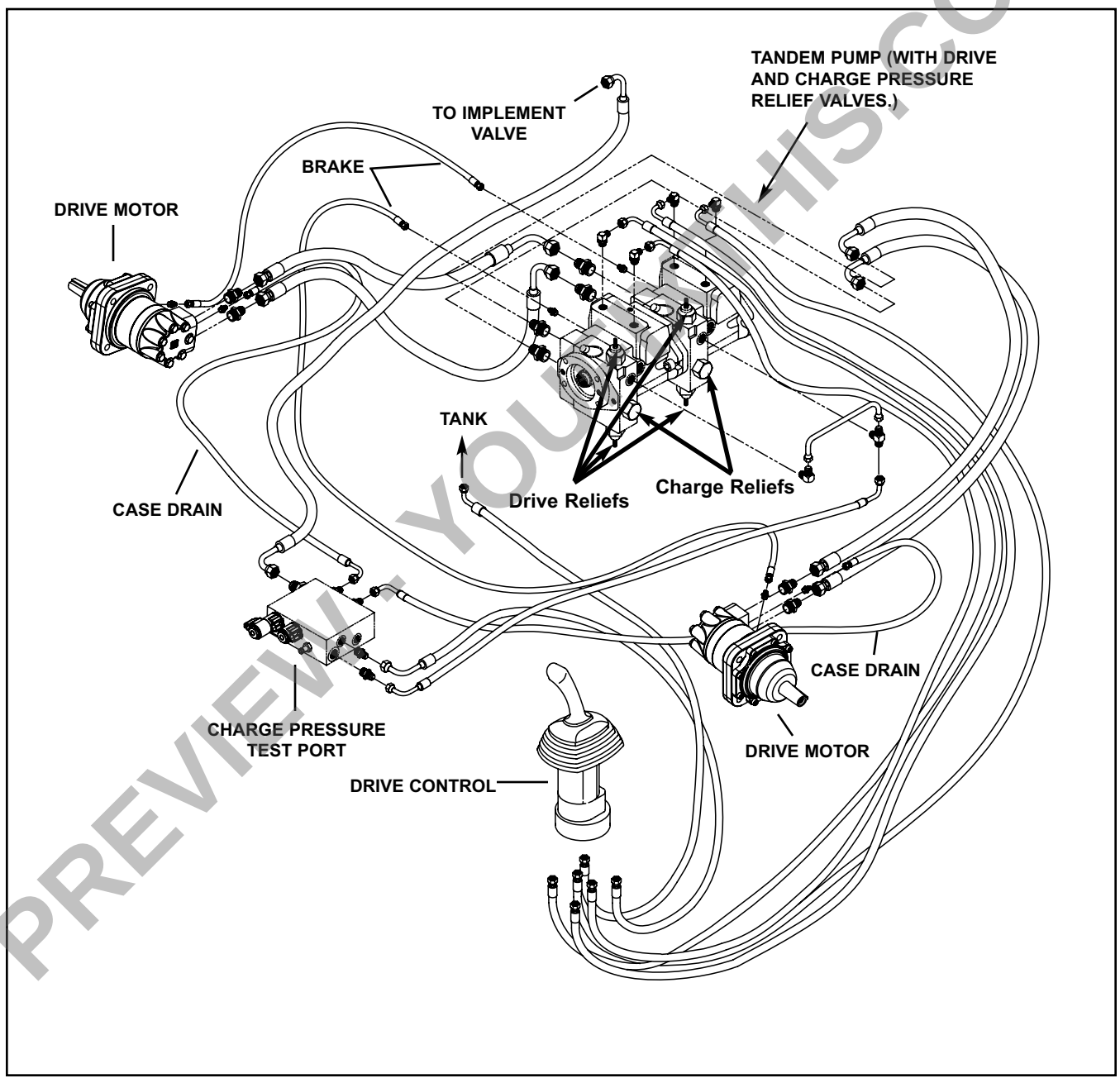
Download full manual at youfixthis.com

Drive Loop System

The drive loop system (Figure 3-3) contains the following major components.

- Tandem pump
- Drive motors
- Pilot control manifold
- Drive control joystick

Figure 3-3 PT-30 Drive Loop System



PREVIEW: YOUFIXTHIS.COM

Download full manual at youfixthis.com

Fuel Sending Unit Removal

1. Remove the seat. Refer to *Chapter 6. Seat Removal* procedure.
2. Pump fuel from the tank until there is no fuel remaining above the sending unit.

⚠ Collect and contain liquids in a suitable container. Dispose of all liquids according to local regulations and mandates.

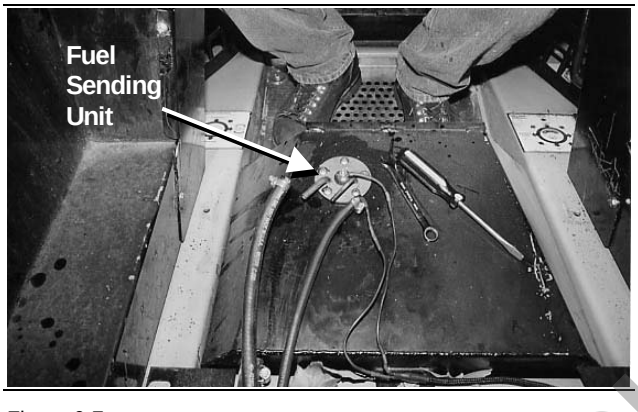


Figure 6-7

3. Remove the hoses and wires from the fuel sending unit, then remove the screws that fasten the unit to the tank. Mark the wires and hoses.

Note: If the fuel sending unit wires are crossed, the fuel gauge will not work. If the hoses are crossed, the engine will not run.



Figure 6-8

4. Remove the fuel sending unit. Be careful not to damage the float mechanism when pulling it through the opening in the fuel tank.

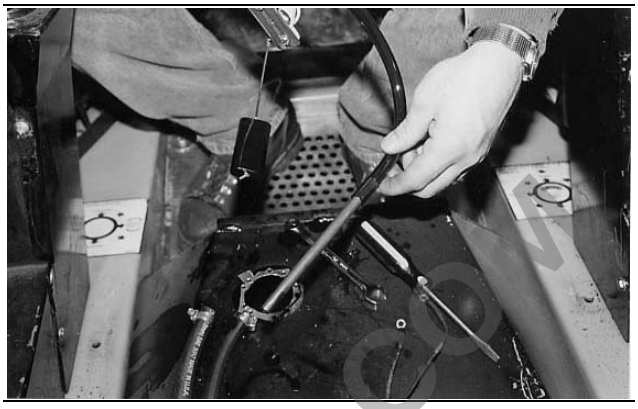


Figure 6-9

5. The fuel pickup line will also come out with the fuel sending unit.

Fuel Sending Unit Installation

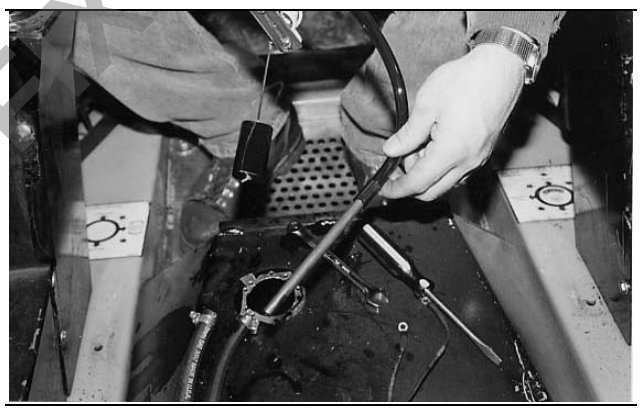


Figure 6-10

1. Insert the fuel pickup line into the fuel tank opening. The pickup line is attached to the fuel sending unit.

Note: The weight on the end of the fuel pickup line must rest on the bottom of the tank for proper operation.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

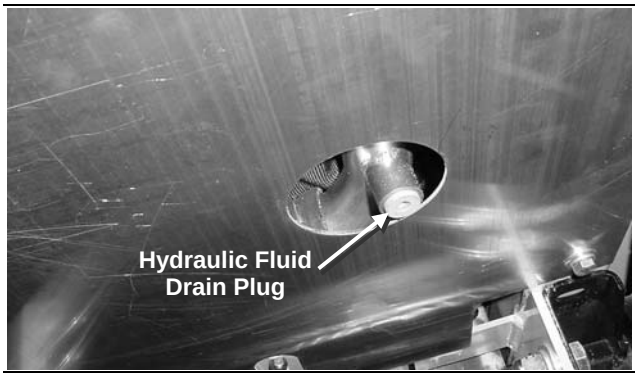


Figure 16-4

1. Locate and remove the hydraulic fluid drain plug and drain the fluid into a suitable container.

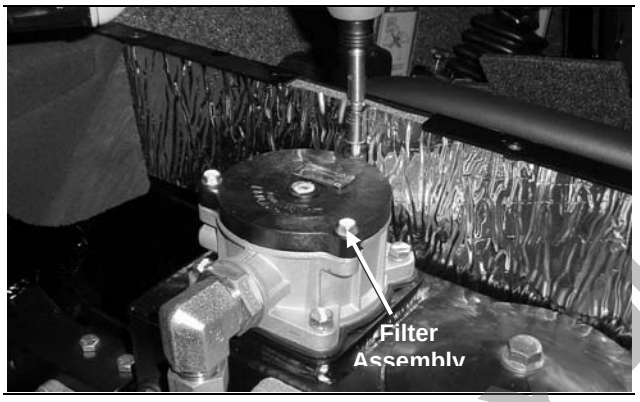


Figure 16-5

2. Clean the area around the filter assembly, which is located on the top of the hydraulic reservoir.

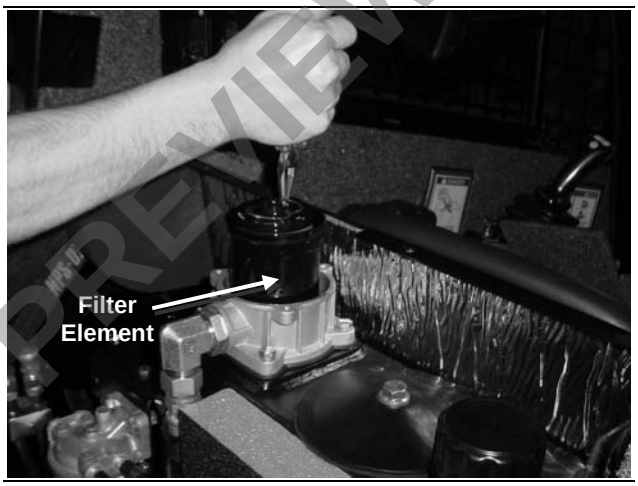


Figure 16-6

3. Remove the retaining bolts and cover, and then remove the cover to access the filter.
4. Remove the filter element and replace it. Install as found upon removal.
5. Fill with manufacturer-approved hydraulic fluid.

Fuel Filter

The fuel filter should be changed every 500 service hours, or as needed. A plugged fuel filter can cause loss of engine power, rough running, or no start.

⚠ Collect and contain liquids in a suitable container. Dispose of all liquids according to local regulations and mandates.

Fuel Filter Change Procedures



Figure 16-7

1. Clean the outside of the filter thoroughly.
2. Remove the retaining bolt (top of assembly) securing the filter to the head, then removes.
3. Pour diesel fuel into the new filter until it is full.
4. Install the new filter by reversing step 2.

Fuel Specifications

In North America, diesel fuel distilled from crude oil and identified as NO. 1-D or No. 2-D in “ASTM D975” generally meets the proper specifications.

Air Cleaner

The air cleaner is one of the most important maintenance items on the machine. A poorly maintained air cleaner can seriously shorten the life of the engine.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 12 of 116 pages

The full manual includes:

- All 116 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Terex PT-30 Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual