Service and Maintenance Manual

Model
80HX
80HX+6
80HXER

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ANSI

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Engine - Ford LRG-423

Oil Capacity - 5 quarts (4.7 L).

Low RPM 1000

Mid RPM 1800

High RPM 3000

Horsepower - 66.

Engine - Ford LRG-425

Oil Capacity - 4.5 quarts (4.25 L).

Low RPM 1000

Mid RPM 1800

High RPM 3000

Horsepower - 75

Drive System

Pneumatic Tires - 15 x 19.5 NHS, 12 ply rating, 65 PSI. (4.5 Bar).

Foam-Filled Tires - 15 x 22.5 or 385/65R22.5

Air Pressure:

Firestone Tires - 95 PSI (6.5 Bar)
Goodyear Tires - 65 PSI (4.5 Bar)
Denman Tires - 70 PSI (4.8 Bar).

Drive Motor Displacement Machines Built Prior to Jan. 1992

Cessna - 5.04 in.3/rev. (4WD Same)

Vickers - 2.5/.98 in.3/rev.
(4WD Same)

2 Speed Cessna - 2.48/1.103/rev.

Gear Reducer - Vickers Drive Motors only - 3.6:1.

Drive Motor Displacement Machines Built from Jan. 1992 to Present

Rexroth - 2.8 in.3/rev.
(4WD Same)

Drive Hub Ratios

2WD with Racine proportional valves built prior to February 1988 - 42.5:1.

2WD with Racine proportional valves built February 1988 to present - 43:1.

2WD with Racine or Vickers proportional valves built prior to October 1989 - 30.04:1.

2WD/2WS with fixed or oscillating front axle built May 1988 to present - 24:1.

2WD/4WS with oscillating front axle built May 1988 to present - 24:1.

4WD built May 1988 to present - 24:1.

2WD/4WS with fixed front axle/Vickers proportional valves - 73:1.

4WD with Vickers Proportional valves - 30.04:1.

Steer System

Toe-in, adjust for 1/4 in. (6.35 mm) overall.

Swing System

Swing Motor - Displacement - 4.5 cu. in/Rev.

Swing Hub - Ratio - 69.50:1.

Swing Brake - Automatic spring applied, hydraulically released disc brakes.

Hydraulic Pump

Deutz and Wisconsin engines with Single Speed Drive Motors (with Racine Valves).

First Section to Proportional Valve-Drive, Lift, Swing - 24 GPM (91 LPM).

Second Section to High Drive - 24 GPM (91 LPM).

Third Section to Bang-Bang Valve Level, Telescope, Steer, Rotate - 9.5 GPM (36 LPM).

Clockwise Rotation.

Wisconsin Engines with 2 Speed Drive Motors and Deutz Engines with Single Speed Drive Motors (with Racine Valves).

First Section to Proportional Valve-Drive, Lift, Swing - 19 GPM (72 LPM).

Second Section to High Drive - 19 GPM (72 LPM).

Third Section to Bang-Bang Valve Level, Telescope, Steer, Rotate - 9.5 GPM (36 LPM).

Clockwise Rotation.

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Table 6-6.Electrical System - Troubleshooting

TROUBLE	PROBABLE CAUSE	REMEDY
PLATFORM CONTROLS.		
No power to platform controls.		
	15 Amp self-reset circuit breaker open.	Check footswitch to ensure that both switches are making contact when pedal is depressed. Repair or replace footswitch as necessary.
	Contact block in footswitch malfunctioning.	Repair, replace or adjust contact block as required.
	Faulty power circuit wiring.	Check wiring continuity. Refer to proper wiring diagram.
	Select switch in wrong position.	Place select switch to correct position.
ENGINE STARTER SYSTEM.		
Starter will not crank.		
	Discharged battery or loose battery terminals.	Check and charge battery or replace battery as necessary. Clean and secure battery terminals.
	Starter relay faulty or faulty relay connections.	Using a test meter, check relay coil terminals for presence of electrical power and for energization of relay coil. Also check relay terminals for correct switching of contacts. Replace relay as necessary.
	Malfunctioning starter solenoid or motor.	Replace solenoid or motor in accordance with applicable manufacturer's manual.
	Malfunctioning ignition switch.	Using a test meter, check ignition switch for correct switching of contacts. Replace switch as necessary.
	Faulty ignition and/or starter circuit wiring.	Check wiring continuity. See proper wiring diagram.
	Faulty start lockout system.	See correct wiring diagram.
	Faulty start switch.	Replace switch.
Engine continues to crank.		
	Faulty ignition and/or starter circuit wiring.	Check wiring continuity. See proper wiring diagram.
	Malfunctioning starter solenoid or motor.	Replace solenoid or motor in accordance with applicable manufacturer's manual.
	Faulty start switch.	Replace switch.

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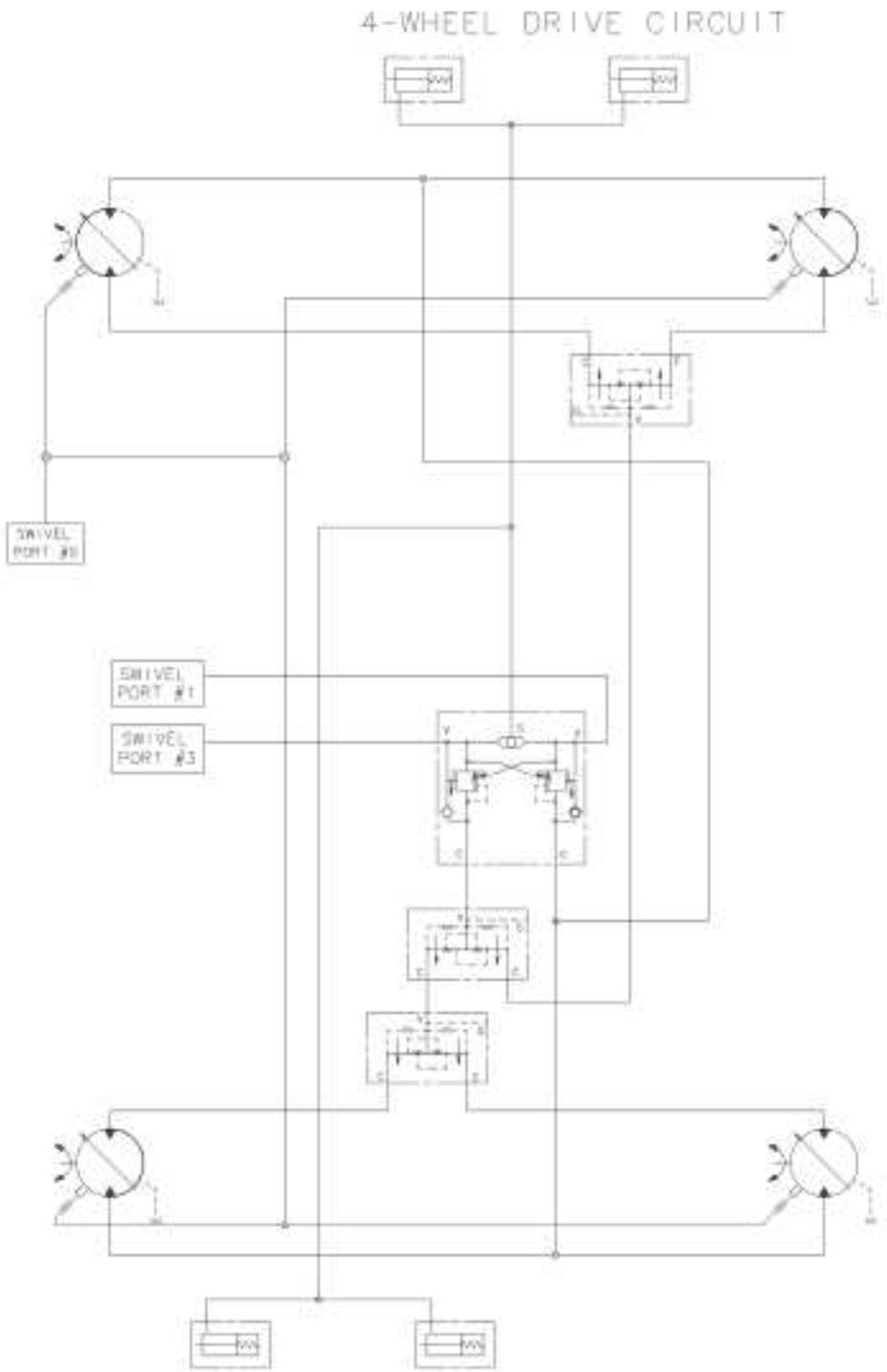


Figure 6-21. Hydraulic Schematic (Sheet 3 of 6)

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3.10 COLD WEATHER STARTING DIFFICULTY

Machines equipped with carbureted Ford LRG-425 engines in weather conditions of 15 to 20° F (-9.5 to -6.5 C) or colder may encounter difficulty in starting.

After 10 unsuccessful attempts of starting the engine follow the troubleshooting procedures below to locate the cause of the starting difficulty.

Most Cold weather starting issues fall into the following categories which will be addressed separately:

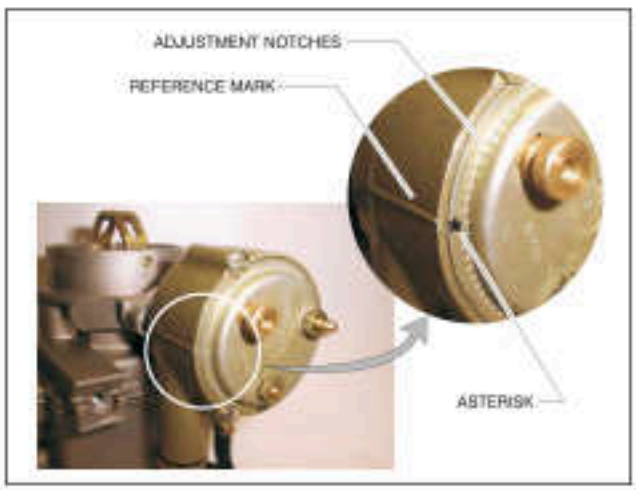
- Carburetor
- Ignition
- Fuel

1. **Engine Receiving Fuel** - After cranking the engine for a period of time, there may be white smoke noticed coming out of the exhaust tube. This is an indication that the engine is in a "flooded" condition. If the engine is flooded and will not start, follow the procedures under Checking the Carburetor. If after following those procedures the engine still does not start, continue with Checking the Ignition.
2. **Engine Not Receiving Fuel** - If after cranking the engine for a period of time, and there is no white smoke coming out of the exhaust tube, follow the procedures under Checking the Fuel.

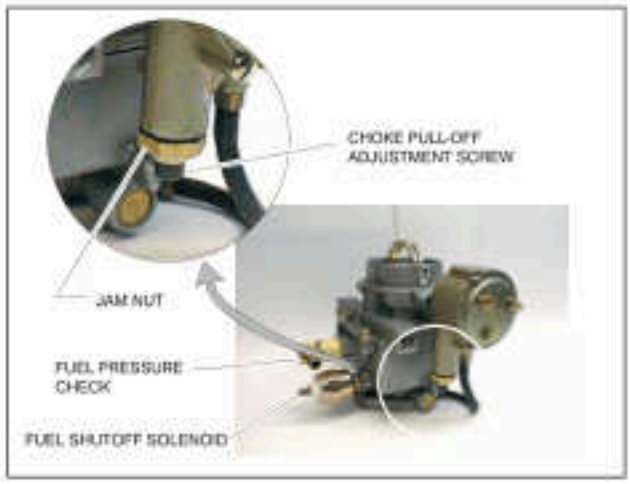
Checking the Carburetor

After cranking the engine for a period of time there may be white smoke noticed coming out of the exhaust tube. This is an indication the engine is receiving fuel and is in a "flooded" condition.

NOTE: *Make sure the choke is adjusted using the asterisk (*). There is also a zero (0) stamped on the choke. The zero (0) is used for assembly purposes and is not to be used as an adjustment reference.*



1. Check the choke for ambient temperature setting. The default ambient temperature setting is 70° F (21° C), which aligns the asterisk (*) on the choke face with the reference mark on the side of the choke housing. The choke should be set at one notch "clockwise" past the (*) asterisk for every 5 degrees below 70° F (one notch "clockwise" past the (*) asterisk for every 2.8 degrees below 21° C). This adjustment will "richen" the fuel mixture.
2. Check if the choke "butterfly" is stuck by manually opening and closing by hand.
3. Check the choke pull-off (butterfly stop) screw for proper adjustment as follows:



   a. Loosen jam nut
   b. Screw the adjustment screw all the way in, then back out 1/2 turn.
   c. Tighten jam nut.

Try to start the engine.

NOTE: *If EMS switch is pulled on for an extended period of time, i.e. 1 to 2 minutes, without attempting to start the engine, the choke will start to open due to electrical heating.*

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