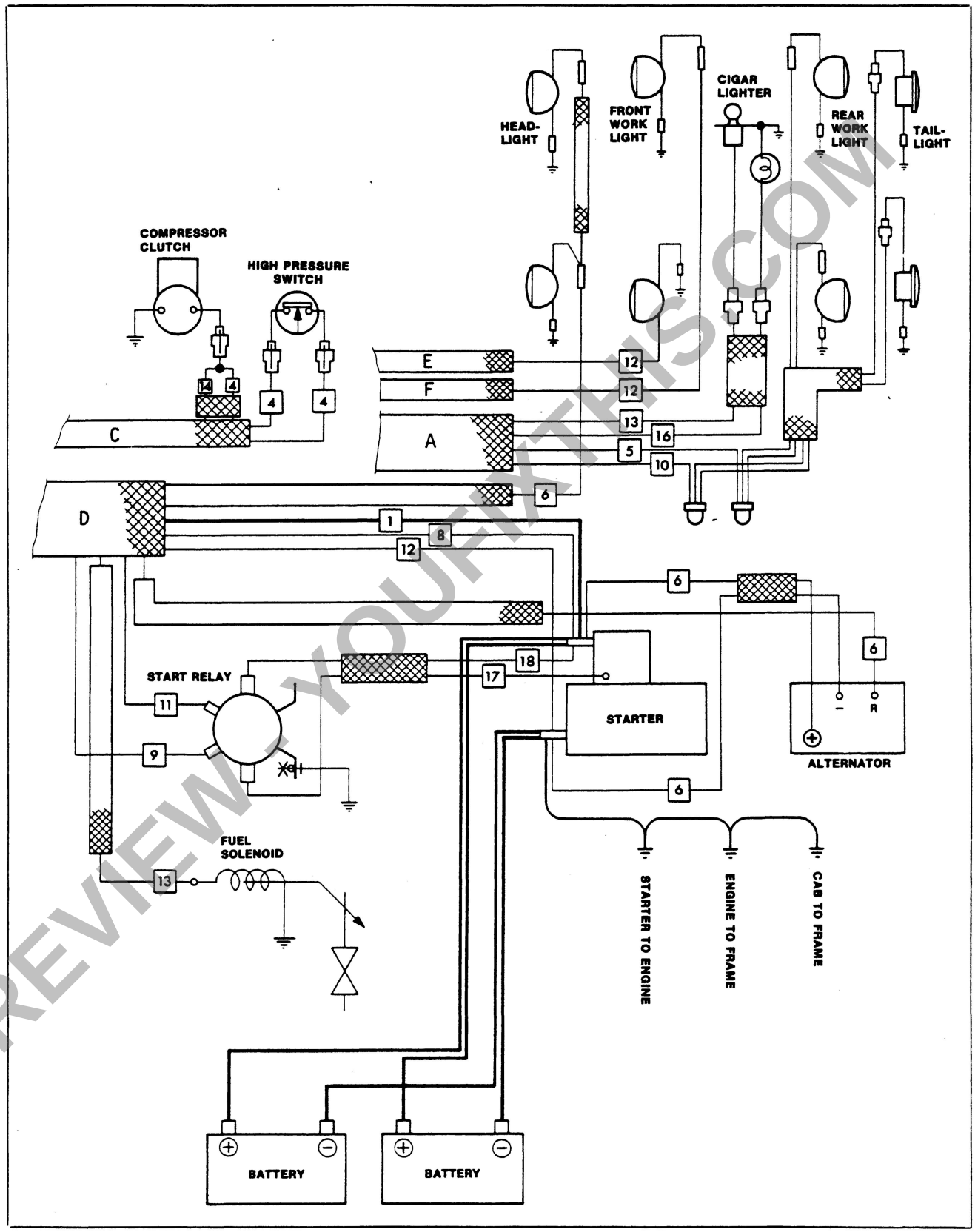


FIGURE 6-22 (Sheet 1 of 3): Wiring Diagram - Engine Compartment, Battery Compartment and Rear Cab

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

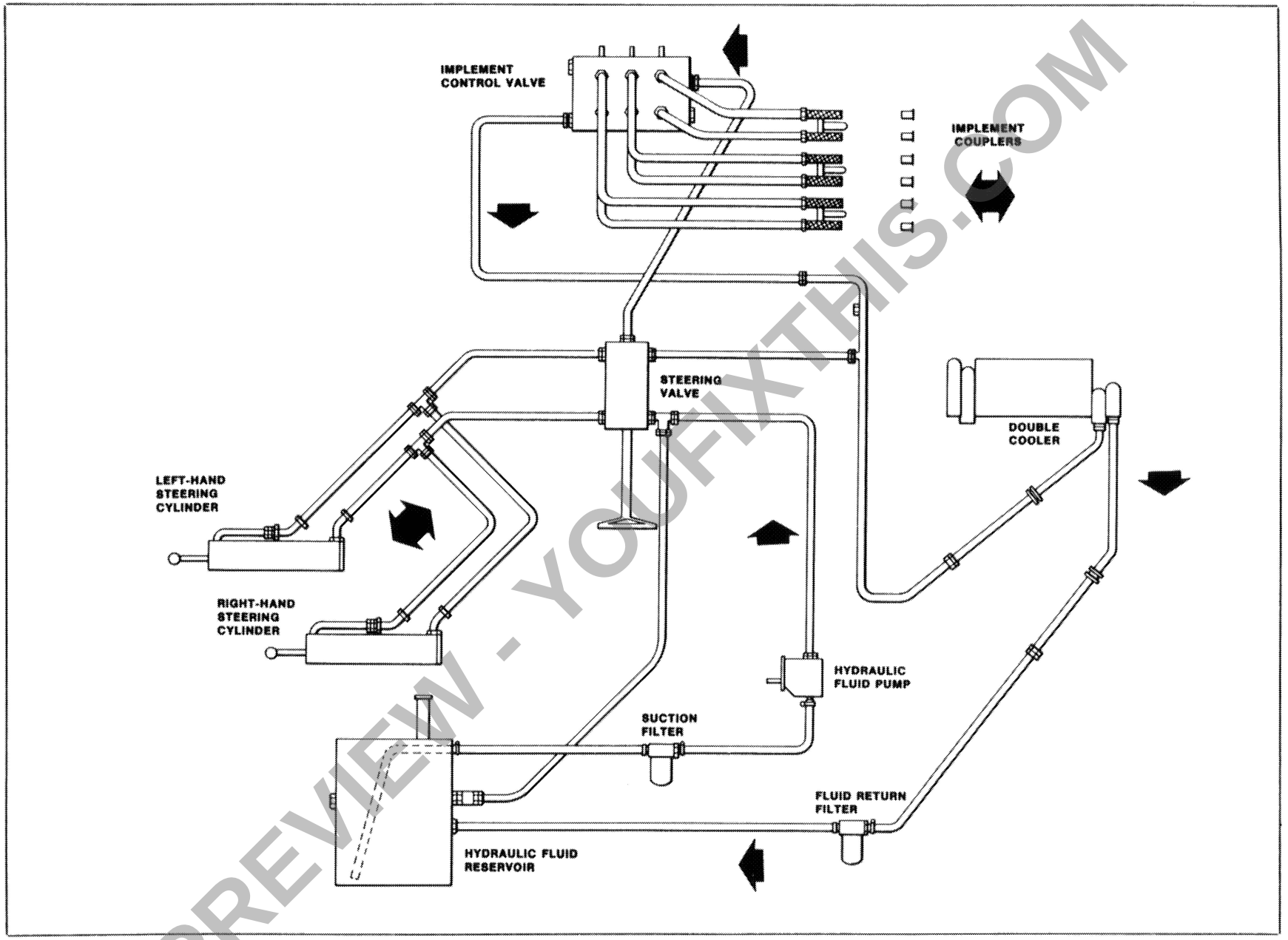


FIGURE 5-2: Hydraulic Circuit Diagram

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

1. Engine System - Section 2
2. Drive Train - Section 3
3. Controls and Ancillary Systems - Section 4
4. Hydraulic system - Section 5
5. Electrical System - Section 6
6. Environmental Systems - Section 7
7. Structures - Section 8

Each of the above sections generally is divided into five parts:

1. Introduction
2. Description and Operation
3. Troubleshooting
4. Maintenance
5. Repair and Overhaul

9.2 TROUBLESHOOTING GUIDE

Table 1-9 troubleshoots simple problems and remedies concerning the engines. Further information is in Section 2 - Engines and/or Cummins Maintenance and Operation Manual.

TABLE 1-9: Engine (Section 2)

TROUBLE	PROBABLE CAUSE	REMEDY	REFERENCE
Difficult to start or will not start	No fuel in tank.	Fill tanks with proper fuel.	
	Improper fuel	Drain wrong fuel and refill.	
	Dirty or watery fuel.	Drain tanks, bleed system and fill with clean fuel.	Cummins Operation and Maintenance Manual.
	Air in fuel system.	Bleed fuel system.	
	Improper timing.	Check injector pump by skilled serviceman.	
	Dirty injector nozzles.	Clean and repair by skilled serviceman.	
Start, but runs improperly.	Dirty or watery fuel, clogged filters, air in fuel system.	Check fuel, replace filters and bleed fuel system.	Cummins Operation and Maintenance Manual.
Lack of power.	Dirty air cleaner	Clean air cleaner.	
	Clogged fuel filters.	Replace filters.	
	Improper fuel.	Use recommended cetane number.	
	Vent in fuel tank plugged.	Clean fuel tank cap. Replace if necessary.	
	Low engine operating temperature.	Replace thermostat.	Section 2.
	Incorrect injector timing.	Check injector pump by skilled serviceman.	Cummins Operation and Maintenance Manual.
	Incorrect valve clearance.	Correct to proper valve clearance.	Cummins Operation and Maintenance Manual.
	Valves leaking in engine head.	Adjust and repair if necessary.	Cummins Operation and Maintenance Manual.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

6 Engine Removal and Installation

6.1 MODEL 900 AND 950 ENGINE

General

This procedure details removing the V-903 engine while disturbing the other structures as little as possible. The method is useful in engine exchange where other ancillary equipment does not require replacement. In a major overhaul of the tractor, however, other systems may require removal in addition to the engine. In these cases, it facilitates the procedure if ancillary equipment is removed first and stripped as closely as possible. (e.g. by-pass oil filter should be removed with its hoses; hydraulics disconnected at pump; radiator hoses separated at engine block, etc.)

The following procedure is based on the assumption that it will be carried out in an equipped shop with level floor and gantry crane with at least a 3000 lb. capacity and with a lifting height of 10 feet minimum. This does not preclude the performance of the job in the field where adequate, safe lifting can be provided (Hoisting device must be on wheels).

Special Tools

Gantry Crane, 3000 pound capacity
Engine stand or platform
Caps or plugs for hoses and ports
Coolant container (11 Imp. gal.)
Chain tackle for lifting engine

WARNING



BEFORE ANY PROCEDURE BEGINS, MAKE SURE TRACTOR WHEELS ARE CHOCKED, PARK BRAKE SET, ENGINE IS COLD

Preparation

To prepare engine for removal, proceed as follows: (Ref. Figure 2-32)

1. Disconnect battery cables from battery terminals and secure them well out of the way to prevent accidental electrical contact.
2. Remove battery cables from starter terminals. Disconnect frame ground cables and start relay wire. Label and tape these cables to frame.
3. Release clamps (16) on rubber elbow and hump hose of air intake tube (18). Remove tube complete with rubber sections (Ref. Figure 2-32; Detail A). Disconnect aspirator hose (17) (Model 950) and release it from tie to intake tube. Cover intake openings.
4. Release clamps (1) on exhaust pipe(s), Detail A, and remove. Cover turbocharger exhaust opening (Model 950). Disconnect aspirator hose from muffler.
5. Drain the cooling system, refer to para 5.7 Remove fan guards if present.
6. Pry off vent hoses (2) at engine and radiator connections. Disconnect make up hose (11) and heater hoses (9, 10) at engine connections. Cap or plug all ports and hoses. Disconnect hose hangers (8) from engine.
7. Remove the two capscrews (12) in coolant inlet connection of engine and let it hang with radiator hose.
8. Disengage throttle control rod (23) from bellcrank and engine throttle bracket, Detail C.
9. Remove coolant temperature (5), cold start (15), and oil pressure (7) capillaries from engine block and draw them free of hangers under hood. Disconnect tachometer cable (24) at fuel pump. Disconnect charge relay wire (4) from alternator and fuel shut-off valve solenoid wire (25) from fuel pump.
10. Remove the seven flange screws anchoring top of engine hood to front hood and rear hood support.
11. Release air conditioner hose from its hanger under hood. DO NOT DISCONNECT any air conditioner hoses.
12. Raise hood straight up together with surge tank assembly, pulling over-flow hose out of its hangers.
13. Inspect to assure that hood is free of all attachments and lift it off to a safe place.
14. Disconnect radiator hoses from top of radiator. Slacken V-belt (6) to air conditioner compressor and disconnect electric clutch lead (3).
15. Dismount air conditioner compressor and carefully tie it on tractor frame, left side, Detail D. Tie back hoses to avoid damage.
16. Drain engine oil (this step may be omitted if plugs and caps are used in next step.)
17. Disconnect hoses of by-pass oil filter at engine adaptors (13) using a cap or plug to stop oil flow from crankcase connector and a cap at engine oil outlet.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Maximum allowable height - (Clearance for Bridges, Overpasses, etc.) - with 20.8 x 38 Single Tires, and with antenna vertical and adjusted to 30 in. height:

Models 700, 750, 800, 825: 156 in.
Models 850, 900, 950: 156-3/4 in.

Turning Radius:
236 in. with 18.4 x 38 Dual tires
239 in. with 20.8 Dual tires
216 in. with 24.5 x 32 Single tires
222 in. with 30.5 x 32 Single tires
Nominal - 203.5 in. measured to center line of 72 in. tread.

4.3 TIRE SIZE AND TRACTOR WIDTH

Tractor width (Outside of tires):	Inner tires - 91.5 in. Outer tires - 137.5 in.
20.8 x 38 Dual tires Between tread centers:	Inner tires - 72 in. Outer tires - 112 in.
(Outside of tires):	Inner tires - 93 in. Outer tires - 143.5 in.
24.5 x 32 Dual tires Between tread centers:	72 in.
Tractor Width (Outside of tires):	97.5 in.
24.5 x 32 Single tires Between tread centers:	72 in.
Tractor width (Outside of tires):	97.5 in.
30.5 x 32 Single tires Between tread centers:	79.12 in.
Tractor width (Outside of tires):	109 in.

4.4 TIRE INFLATION

For proper tire inflation, follow the recommendations listed (Ref. Table 1-1).

IMPORTANT

Outside tires (duals) should have 2 psi less pressure than the inside tires.

4.5 WEIGHTS

Table 1-2 lists the weights of Series 2 tractors in shipping weight, maximum operating and recommended range.

4.6 ENGINES

Model 700

Cummins V-555-C210 V8 diesel

Maximum brake horsepower - 210 @ 2850 rpm (per SAE Standard J816a)

Maximum torque - 425 lb ft @ 1800 rpm

Full load governed speed - 2850 rpm

Full throttle no load speed - 3100 to 3135 rpm

Idle speed - 1000 rpm

Bore - 4.625 in.

Stroke - 4.125 in.

Displacement - 555 cu. in.

Compression ratio - 17.0:1

Lubrication system - 26 U.S. qts., 21.7 Imp. qts. Full flow oil filter with by-pass oil conditioner, filter and oil to water cooler

30° angular capability oil pan

Mounts - VERSATILE design, fully rubber mounted.

TABLE 1-1: Tire Inflation Chart

TIRE SIZE	PLY RATING	LITTLE OR NO BALLAST	MAX BALLAST OR HEAVY LOAD
18.4 x 38 *	6	16 psi	16 psi
20.8 x 38 *	8	16 psi	20 psi
24.5 x 32	10	18 psi	20 psi
30.5 x 32	10	16 psi	16 psi

* When used as duals, minimum tire pressure is 12 psi. Use ballast on duals only.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

NOTES

1. PLANETARIES AND DIFFERENTIALS
   To check a planetary hub, the drain plug on the hub is to be at the four o'clock or eight o'clock position. Remove filler plug and check fluid level. The axle differential level plugs are located on the input shaft side of the differential housings. When changing differential and planetary oil, flush before installing new oil.
2. CLUTCH SHAFT SUPPORT BEARING LUBRICATION
   Apply four strokes of grease gun to the shaft support bearing; and two strokes to the release bearing.

NOTE

Too frequent greasing could rupture the bearing seal and allow lubricant to enter the clutch assembly or dirt to enter housing.

3. DRIVE LINE STEADY BEARING
   The bearing is located in the swing frame between the transmission and rear differential. It is to be greased with three grease gun strokes of multi-purpose grease. The grease fitting is in the bearing housing and can be reached from under the rear frame section.
4. THREE POINT HITCH (OPTIONAL)
   The three point hitch requires regular service. Oil metal-to-metal parts of the hitch regularly and to grease the lube points. Annually, or every 400 hours, the draft arm pins (at the tractor frame) must be removed, cleaned and greased.

7 Belts and Filters

7.1 GENERAL

Refer to Tables 1-7 and 1-8 for correct replacement belts and filters. Refer to Figures 1-2, 1-3, 1-4, and 1-5 for location of filters on the tractors.

7.2 BELTS - REPLACEMENT

Table 1-7 lists the belts used on all the Series 2 tractors. Purchase and replace belts as sets to ensure proper matching and avoid overloading the new belt.

7.3 FILTERS

Table 1-8 lists the filters used on the Series 2 Tractors. Check serial number of your tractor when replacing the return hydraulic filters.

TABLE 1-7 Belt Replacement

MODEL 700	PART NUMBER
Alternator (2 per set)	17623
Compressor (2 per set)	20974
Fan and water pump (3 per set)	17622
MODEL 750, 800, 825, 850	
Alternator (2 per set)	31885
Compressor	22925
Fan belt (2 per set)	23265
Water pump (2 per set)	23266
MODEL 900, 950	
Alternator (2 per set)	19508
Compressor	20472
Fan and water pump (3 per set)	19507

8 Storage

8.1 GENERAL

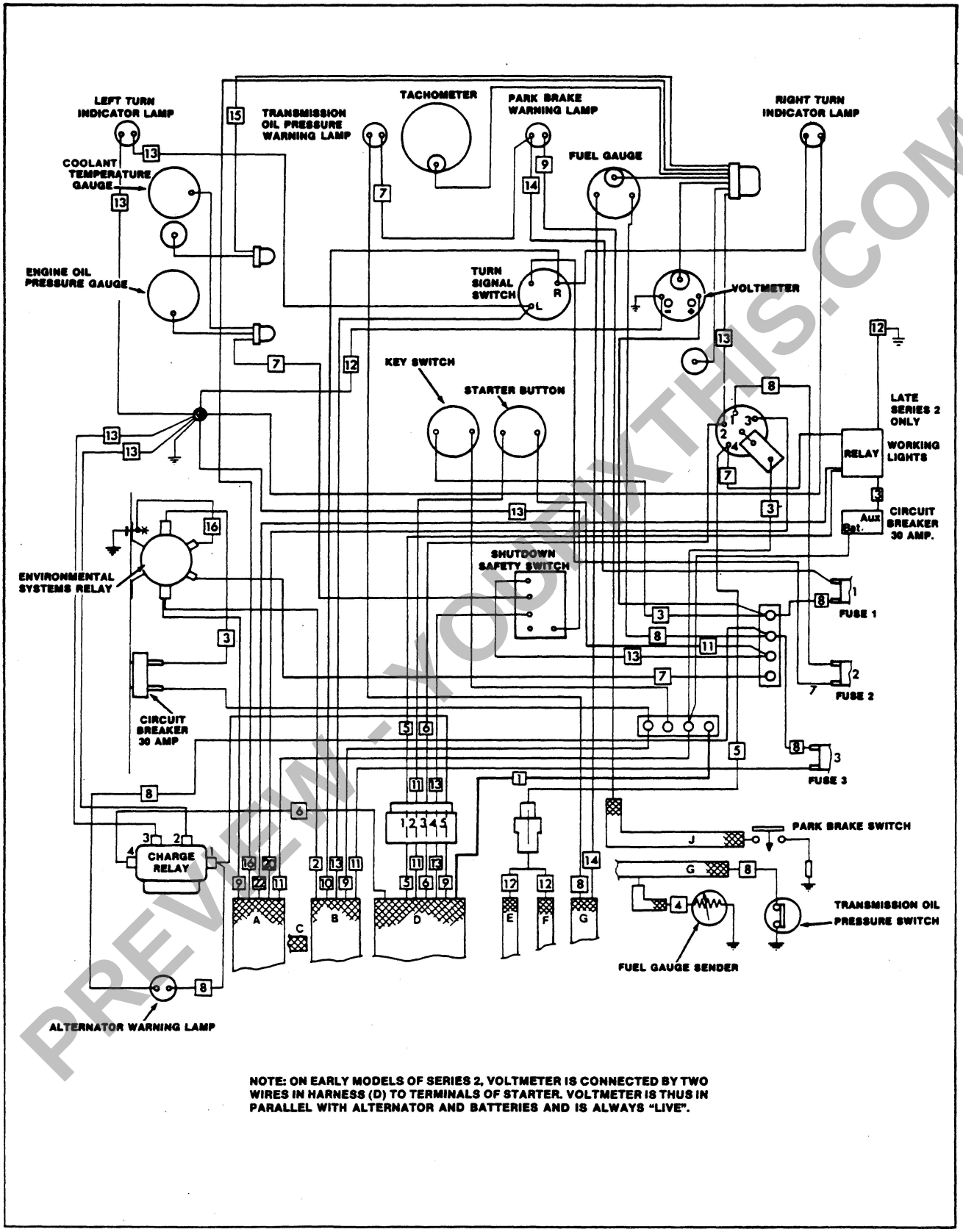
When your tractor is not going to be used for several months, it must be prepared for storage to prevent damage to components. Prepare a kit for the long period of storage. Include plastic bags and tape to seal off openings; paint for scratched and chipped surfaces; grease and rust preventative; cleaning cloths and various fluids to refill all systems to proper level.

8.2 PREPARATION OF TRACTOR FOR STORAGE

After warming the engine, proceed as follows:

1. Drain the crankcase.
2. Install new engine oil filters.
3. Fill the crankcase with new oil.
4. Drain and flush the cooling system, refill it with a correct mixture of water and glycol base antifreeze.
5. Drain oil from axle housing. Refill with recommended lubricant (Ref. Table 1-5).
6. Drain oil from hydraulic circuit reservoir. Refill with recommended fluid. (Ref. Table 1-5).
7. Drain oil from transmission circuit. Refill with recommended lubricant (Ref. Table 1-5). Run engine to circulate coolant.
8. Operate transmission, hydraulic system, steering and brakes to distribute oil to all components.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com



NOTE: ON EARLY MODELS OF SERIES 2, VOLTMETER IS CONNECTED BY TWO WIRES IN HARNESS (D) TO TERMINALS OF STARTER. VOLTMETER IS THUS IN PARALLEL WITH ALTERNATOR AND BATTERIES AND IS ALWAYS "LIVE".

FIGURE 6-22 (Sheet 2 of 3): Wiring Diagram - Instrument Console

Download full manual at youfixthis.com

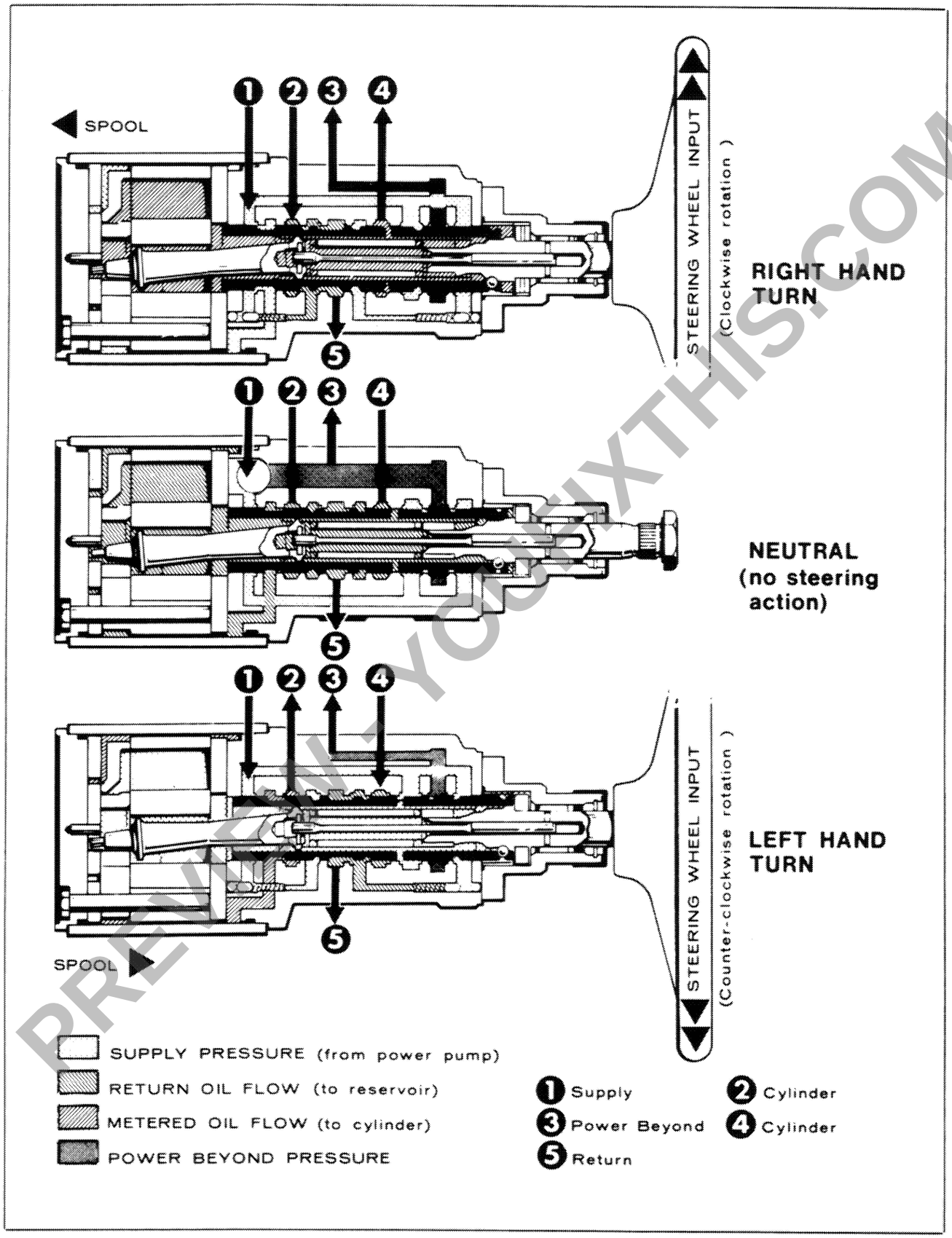


FIGURE 5-3: Steering Valve - Hyd. Fluid Flow Diagram

Download full manual at youfixthis.com

TABLE 1-9: Engine (Section 2) Continued

TROUBLE	PROBABLE CAUSE	REMEDY	REFERENCE
Overheating	Defective radiator cap.	Replace radiator cap.	
	Radiator plugged with debris and dirt.	Clean radiator core.	
	Defective thermostat.	Replace thermostat.	Section 2.
	Loose or broken fan belt.	Tighten or replace belt.	
	Overloading engine.	Downshift into lower gear. Reduce engine load.	
	Low oil level or improper viscosity in engine.	Replace to proper oil level. Change oil to proper viscosity.	
	Low coolant level.	Check for leaks, radiator cap, hoses.	
	Scale build-up in cooling system.	Remove scales using cooling system cleaner.	
Uses too much fuel.	Overloaded engine.	Downshift into lower gear. Reduce engine load.	
	Improper fuel.	Use recommended diesel fuel.	
	Dirty air cleaner.	Clean air cleaner.	
	Engine not at proper operating temperature.	Check thermostat	Section 2.
	Incorrect valve clearance.	Correct to proper valve clearance.	Cummins Operation and Maintenance Manual.
	Improper timing.	Check injector pump by skilled serviceman.	
Uses too much oil or low oil pressure.	Oil is improper viscosity and weight.	Change to the recommended oils.	
	Restriction in air intake system.	Clean air intake system.	Section 2.
	External oil leaks on engine.	Stop external leakage.	Section 2 and Cummins Operation and Maintenance Manual.
	Worn valve guides and/or seals.	Replace.	Cummins Operation and Maintenance Manual.
	Worn rings and/or pistons.	Overhaul and replace.	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

18. Plug hose ends securely and hang them on by-pass filter assembly.
19. Disconnect fuel suction hose (22) at fuel pump, Detail C, and return hose (26) at junction of engine lines with return hose. Plug and retract hoses to filter assembly.
20. Remove hydraulic pump from engine without disconnecting hoses. Tie unit away from engine.
21. Disassemble universal joint (21) at clutch-housing, Detail B.

NOTE

Remove retainer screws of bearing cups and drive out cups using hammer and punch on U-joint cross. Do not pry flanges of cups.

22. Disassemble clutch linkage at clevis (19). Remove brake cable clamp (20) from clutch housing.

Removal

1. Remove mounting bolts in the two rear engine mounts (12). (Ref. Figure 2-33).
2. Attach hoist to engine lift points, using a chain or boom adjusted for this purpose.
3. Relieve weight of engine from front engine mount and withdraw front mounting bolt (1).
4. Gently move engine backward until fan clears shroud.
5. Raise engine until clutch housing approaches steering valve (do not bump).
6. Guide engine so that clutch housing moves to the left of steering valve and front of engine to right of fan shroud.
7. Raise engine until oil pan clears frame, taking care not to damage fan.
8. Move engine to the right over tractor frame, then lower it to an engine stand or platform.

Installation

To install engine use a hoist of 3000 lb. capacity and proceed as follows:

1. Hook up engine to hoist for level lifting (Ref. Figure 2-33).
2. Check tractor frame to assure it is ready for engine mounting.
3. Raise engine and transport it to right side of tractor. Guide clutch housing over to left side of steering valve and lower until clutch is able to move under steering valve. (Keep a clearance between fan and radiator assembly).
4. Lower engine until front engine support (2) aligns with mounting brackets (5) on tractor frame.

WARNING



DO NOT PUT FINGERS BETWEEN ANY PART OF THE FRAME AND MOUNTING BRACKETS. USE A TOOL TO POSITION ISOLATOR PADS AND WASHERS.

5. Insert front mounting bolt (1) and secure with flat washers (3) and locknut (4).
6. Place rear isolator pads (13) on frame under mounting bracket (6) and lower engine onto them. Insert mounting bolts (12) from bottom and add isolator (10), sleeves (9), pad (11), washer (8) and locknut (7) from the top.
7. Tighten all mounting bolts to 260 ft lb.
8. Connect driveline by assembling universal joint (21). Secure with capscrews and tab washers (Ref. Figure 2-32).
9. Attach park brake cable clamp (20) to clutch housing.
10. Connect clutch clevis (19) to clutch lever, using clevis pin and new cotter pin.
11. Install throttle rod (23) and connect tachometer cable (24), fuel solenoid wire (25), and charge relay alternator wire (4).
12. Connect fuel supply hose (22) to filters and fuel return hose (26) to engine return line.
13. Connect cold start (15), oil pressure gauge (7), and coolant temperature (5) capillaries to their respective engine ports.
14. Mount hydraulic pump and torque bolts to 50 ft lb (65 N-m). Use new gasket when necessary.
15. Mount air conditioner compressor on its engine bracket and tighten drive belt. Connect air conditioner electric clutch lead (3).
16. Connect top and bottom radiator hoses, using new gasket for engine connector of bottom hose (12). Tighten hose clamps and capscrews at inlet connection.
17. Connect air intake tube to engine and air

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

TABLE 1-2: Operating Weights

	700	750	800 825	850	900	950
Maximum Operating Weight (lbs.)	28,000	28,000	28,000	28,000	29,000	32,500
Recommended Range of Operating Weights (lbs.)	22,500 to 25,000	23,000 25,000	24,000 26,000	26,000 27,500	27,000 28,500	29,300 31,000
Shipping Weight with 20.8 x 38 Tires (lbs.)	16,920	18,020	18,100	18,380	17,920	18,045

For detailed recommendations of operating weights, consult Specifications Section of Operator's Manual for each Model.

Model 750

Cummins N-855-C220 (in-line six cylinder) diesel

Maximum brake horsepower - 220 @ 2100 rpm (per SAE Standard J-816a)

Maximum torque - 644 lb ft @ 1500 rpm

Compression ratio - 15.8:1

Model 800

Cummins N-855-C235 (in-line six cylinder)

Maximum brake horsepower - 235 @ 2100 rpm (per SAE Standard J-816a)

Maximum torque - 660 lb ft @ 1500 rpm

Compression ratio - 15.8:1

Model 825

Cummins NT-855-C250 (in-line six cylinder)

Maximum brake horsepower - 250 @ 2100 rpm (per SAE Standard J-816a)

Maximum torque 750 lb ft @ 1500 rpm

Compression ratio - 15.8:1

Model 850

Cummins NT-855-C280 (in-line six cylinder)

Maximum brake horsepower - 280 @ 2100 rpm (per SAE Standard J-816a)

Maximum torque - 806 lb ft @ 1500 rpm

Compression ratio - 14.0:1

Common Specifications for 855 Engine (Models 750, 800, 825, 850 Tractors)

Full load governed speed - 2100 rpm

Full throttle no load speed - 2250 rpm to 2300 rpm

Idle speed - 1000 rpm

Bore - 5.50 in.

Stroke - 6.00 in.

Displacement - 855 cu. in.

Lubrication system - 41 U.S. qts., 34.6 Imp. qts. Full flow oil filter with by-pass oil conditioner filter and oil to water cooler

30° angularity capability oil pan

Mounts - VERSATILE design, fully isolated

Model 900

Cummins V-903-C-295 V8 diesel

Maximum brake horsepower - 295 @ 2400 rpm (per SAE Standard J-816a)

Maximum torque - 706 lb ft @ 1800 rpm

Compression ratio - 16.5:1

Model 950

Cummins VT-903 V8 diesel Turbocharged

Maximum brake horsepower - 348 @ 2400 rpm (per SAE Standard J-816a)

Maximum torque - 848 lb ft @ 1800 rpm

Compression ratio - 15.5:1

Common Specifications for V-8 engine (Models 900 and 950 Tractors)

Full load governed speed - 2400 rpm

Full throttle no load speed - 2550 rpm to 2640 rpm

Idle speed - 1000 rpm

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

TABLE 1-8: Filters - Series 2 Tractors

	700	750	800	825	850	900	950
AIR CLEANER ELEMENT - INNER	17444	17444	17444	17444	30927	17444	30927
AIR CLEANER ELEMENT - OUTER	15803	22930	22930	22930	30924	22930	30924
CAB PRESSURIZER ELEMENT - INNER	30988	30988	30988	30988	30988	30988	30988
CAB PRESSURIZER ELEMENT - OUTER	30986	30986	30986	30986	30986	30986	30986
CORROSION ELEMENT	25881	25881	25881	25881	25881	25881	25881
ENGINE BY-PASS OIL FILTER	711T106	19567	19567	19567	19567	19567	19567
ENGINE CRANKCASE OIL FILTER	31133	31133	31133	31133	31133	31133	31133
FUEL FILTER	608T118	608T118	608T118	608T118	608T118	608T118	608T118
HYDRAULIC FILTER STEERING SIDE (RETURN) UP TO SERIAL NUMBER 26344	76011800	76090300	76032330		76051580	76071100	
HYDRAULIC FILTER STEERING SIDE (RETURN) FROM SERIAL NUMBER 36169	76011861	76090301	76032331	77150001	76051581	76071101	77110301
HYDRAULIC FILTER IMPLEMENT SIDE (SUCTION)	15799	15799	15799	15799	15799	15799	15799
TRANSMISSION FILTER	SW2854	SW2854	SW2854	SW2854	SW2854	SW2854	SW2854

9. Relieve tension of drive belts; e.g. alternator, air conditioner, compressor.
10. Remove both batteries, charge them fully. Store in a cool, dry place. Keep batteries fully charged. Bring them to a full charge monthly.
11. Clean tractor entirely of all dirt, grease and other foreign matter. Touch up all painted surfaces which are scratched or chipped.
12. Jack up tractor and block up axles to remove weight from tires. Cover tires if they are exposed to heat and sunlight.
13. Coat all exposed hydraulic cylinder shafts with grease or rust preventative.
14. Using plastic bags or tape, seal the following tractor openings: air cleaner inlet, exhaust muffler, fuel tank breather tube and cap, radiator inlet hose, and air conditioning air intake screens.
15. Store tractor in dry, protected place. If tractor is to be stored outside, cover with a waterproof canvas or protective material to protect components.

8.3 PREPARATION OF ENGINE FOR STORAGE

Before storing the tractor, start the engine and run it until coolant temperature is up to at least 160° F (70° C). (Shielding the radiator may be necessary to achieve this temperature under no load). Shutting the engine down while the temperature is up, helps to prevent condensation from forming during storage.

8.4 STORING BATTERIES

NOTE

Every 30 days the battery is in storage, charge to a full charge state.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

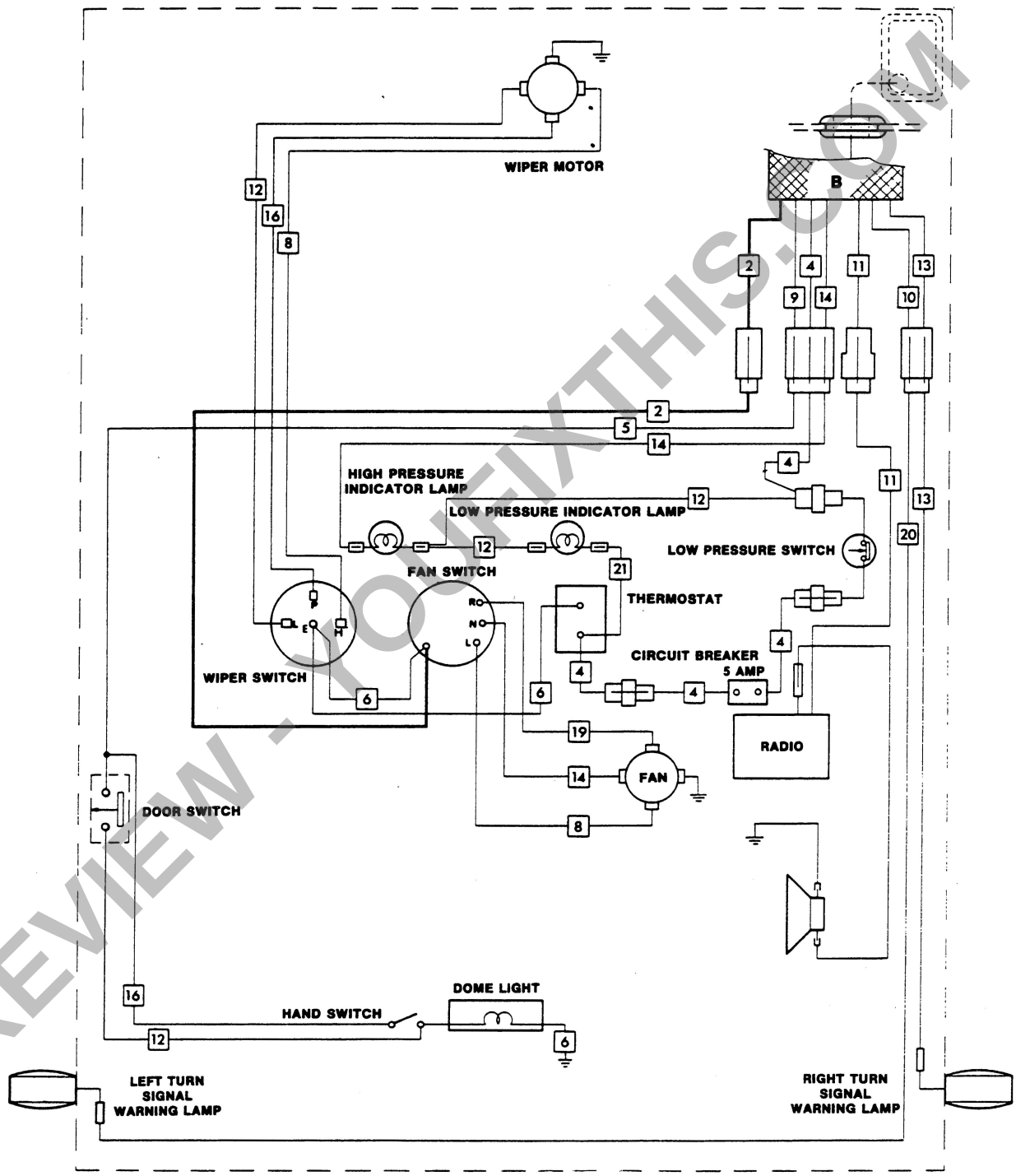


FIGURE 6-22 (Sheet 3 of 3): Wiring Diagram - Cab Roof

Download full manual at youfixthis.com

TABLE 1-9: Engine (Section 2) Continued

TROUBLE	PROBABLE CAUSE	REMEDY	REFERENCE
White smoke from engine.	Low engine temperature.	Warm up engine to normal temperatures before operating under load.	
	Improper fuel.	Change to recommended diesel fuel.	refer to para 5.2
	Defective thermostat.	Replace thermostat.	Section 2.
	Incorrect timing of engine.	Injectors and/or pump require service.	Cummins Operation and Maintenance Manual.
Gray or black smoke from engine.	Overloading engine.	Downshift into lower gear. Reduce engine load.	
	Dirty air cleaner.	Clean and/or replace filter.	
	Improper fuel.	Change to recommended diesel fuel.	Refer to para 5.2.
	Defective muffler.	Replace.	Section 2.
	Improper timing and/or faulty injection system.	Determine cause and repair.	Cummins Operation and Maintenance Manual.

9.3 TROUBLESHOOTING DRIVE TRAIN

Table 1-10 troubleshoots simple problems and remedies of the drive train. Refer to Section 3 - Drive Train for further service information.

TABLE 1-10 Drive Train

TROUBLE	PROBABLE CAUSE	REMEDY	REFERENCE
		Clutch	
Clutch squeaks	Dry clutch cross shaft and/or release shaft bearing.	Lubricate cross shaft and/or release shaft bearing.	Section 3.
Clutch slips	Operator riding the clutch pedal.	Avoid riding the clutch clutch pedal.	
	Too little clutch pedal free play.	Adjust clutch pedal free travel.	Section 4.
	Worn clutch.	Replace.	Section 3.
Clutch grabs, chatters, rattles, and/or vibration.	Any of these indicate service, repair, adjustment of clutch.	Service clutch. Repair or adjust.	Section 3.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

4 Maintenance

4.1 GENERAL

The following procedures detail the information required to perform the functions stated in the paragraph titles. The procedures should be performed in the same sequence of steps as presented.

The maintenance procedures (prefixed with 4) are pertinent only to removal and installation of a system/component or adjustment to the clutch. They do not contain information regarding repair or overhaul; refer to the appropriate paragraph under Repair or Overhaul.

4.2 REMOVAL AND INSTALLATION OF CLUTCH

General

Removal of the complete clutch assembly is required to inspect any of the clutch internal components for wear, including the drive and driven plates. It is also required for inspection/replacement of the clutch pilot bearing or intermediate plate drive pins.

Special Tools and Equipment

Torque wrench, 1 to 100 ft lb
Two 3/4 in. thick wood blocks

Preparation

Park the tractor on a clear level surface.

– CAUTION ————————————————



STOP THE ENGINE. SET PARK BRAKE. CHOCK THE FRONT AND REAR OF AT LEAST TWO WHEELS.

————————————————————

The clutch housing is accessible from under the tractor.

Removal

Refer to Figure 3-17 and proceed as follows:

1. For all models EXCEPT 950: Remove nuts and lockwashers and tap U-bolts out of yoke (15) at front of input driveline. Tape, or otherwise secure bearings on cross. Withdraw the cross

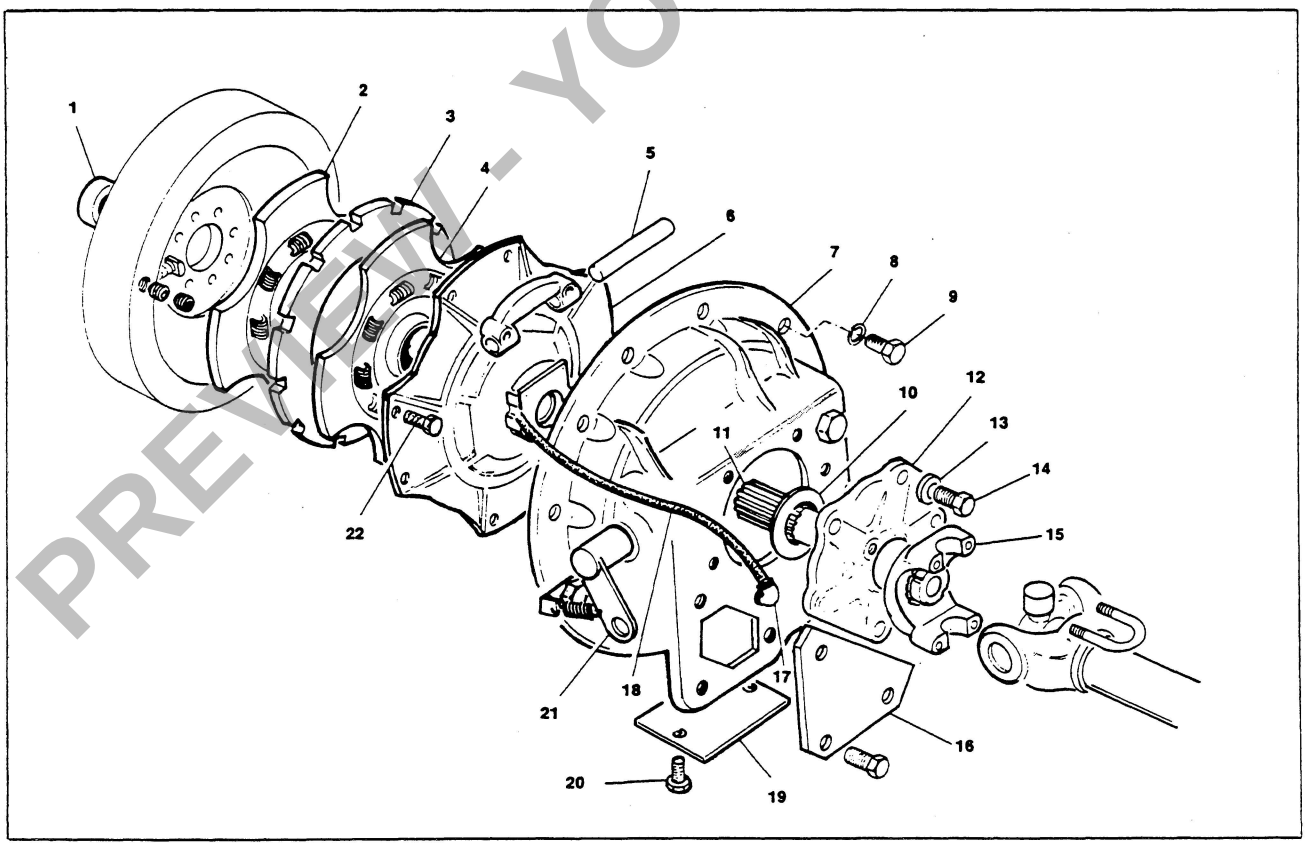


FIGURE 3-17: Clutch Assembly

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

TABLE 1-3: Speeds in Miles per Hour

MODEL	700 2850 rpm				750, 800, 825 2100 rpm				850 2100 rpm				900 & 950 2400 rpm			
Range	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Low Gear	2.6	3.1	3.5	4.1	2.6	3.0	3.5	4.1	2.6	3.0	3.5	4.1	2.5	3.0	3.3	4.0
Second Gear	4.7	5.6	6.3	7.5	4.7	5.5	6.3	7.3	4.7	5.5	6.3	7.3	4.5	5.4	6.0	7.2
High Gear	9.1	10.8	12.2	14.5	9.2	10.7	12.3	14.3	9.2	10.7	12.3	14.3	8.8	10.5	11.7	14.1
Reverse	3.4	4.0	4.5	5.3	3.4	3.9	4.5	5.2	3.4	3.9	4.5	5.2	3.3	3.9	4.3	5.2

NOTE: All speeds are with 24.5 x 32 tires (31.5 in. loaded radius tires).

Spicer Glidecote telescoping action

Driveline carrier bearing on center swing frame

4.15 AXLES

VERSATILE design

Spiral bevel (and planetaries, on Models 850, 900, 950) differential with outboard planetary floating ring gear final drive.

Eaton differential - (Models 700, 750, 800, 825 - Series 17103. Models 850, 900, 950 - Series 23120)

Differential housing and axle tubes - Ductile iron

Oil Capacity -
Models 700, 750, 800, 825 - 38 U.S. qts., 31.6 Imp. qts.,
Models 850, 900, 950 - 40.4 U.S. qts., 34.0 Imp. qts.

Lubrication - SAE 90 MIL 2105 B gear oil

Axle seals - Unitized (combined neoprene seal and wear sleeve), prelubricated labyrinth-type guard.

Wheel mounting bolts - Twelve, 0.75 in. diameter

4.16 STEERING

Articulated frame - 42 degrees in each direction

Fully hydrostatic actuation

Two 3 in. I.D. x 16.5 in. stroke actuators mounted with 1.25 in. self-aligning ball bushings.

4.17 HYDRAULIC SYSTEM

Pump gear type. Flow: Model 700 - 25 U.S. gpm. Models 750, 800, 825, 850 - 23.5 U.S. gpm, Models 900, 950 - 26.9 U.S. gpm.

Drive - engine mounted gear driven

Relief valve - set at 2300 - 50 psi

Two-way spools which self-cancel at 2100 - 0 to 100 psi

One four-way spool with float position

Reservoir - vented, 74.5 U.S. qts., (62 Imp. qts.) capacity

Dipstick oil level check and low level sight glass

4.18 ELECTRICAL SYSTEM

12 volt - negative ground system

12 volt - 75 amp Delco-Remy alternator

Two 8D-900 amp 12 volt batteries, connected in parallel inside clean compartment

AWG 00 starting cables

Circuit breakers - automatic resetting type

Fuses - accessible and identified

Six 60 watt working lights (exceeds ASAE 279.6)

Two red tail lamps for highway (ASAE 279.6)

4.19 FRAME

Articulated frame 4-wheel drive

Oscillates to 15 degrees in both directions

Front frame - 3/8 in. formed side plates with 1/2 in. rear end plate. Reinforcement near axle mounting pads

Rear frame - 1/2 in. formed plate

4.20 DRAWBAR

Swinging clevis type - 1.75 in. x 5.0 in. steel with wear block, 1.5 in. hardened steel pin with locking lever.

Replaceable hardened bushings

Height - 18 in. to top of main member

4.21 CAB

VERSATILE design - independent module type with rollover protective structure (ASAE S336.1)

Fully isolated on rubber mounts

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

TABLE 1-6: Lubrication Points

LUBE POINT (Ref. Fig. 1-1)	DESCRIPTION	SERVICE POINTS	LUBRICANT
1	Check Engine Oil Level	1	Ref. Table 1-5
2	Drain Engine Oil	1	Ref. Table 1-5
3	Clutch Cross Shaft[2]	2	SAE Multi-Purpose Grease
4	Clutch Shaft Support[2] Bearing	1	SAE Multi-Purpose Grease
5	Upper Driveline U-joint	3	SAE Multi-Purpose Grease
6	Lower Driveline U-joint	8	SAE Multi-Purpose Grease
7	Driveline Steady Bearing[3]	1	SAE Multi-Purpose Grease
8	Check Transmission Oil		Ref. Table 1-5
9	Drain Transmisison Oil	1	Ref. Table 1-5
10	Check Differential Oil (front and rear diff.)	2	Ref. Table 1-5
11	Drain Differential Oil[2] (front and fear diff.)	2	Ref Table 1-5
12	Check Axle Planetary Gear Oil	4	Ref. Table 1-5
13	Drain Axle Planetary[2] Gear Oil	4	Ref. Table 1-5
14 *	Axle Seals ('76 Models only)	4	SAE Multi-Purpose Grease
15	Steering Cylinder Pivots	4	SAE Multi-Purpose Grease
16	Upper and Lower Main Frame Pivots	2	SAE Multi-Purpose Grease
17	Drag Link Pivot Bearings	4	Ref. Table 1-5
18	Main Frame Pivot	1	SAE Multi-Purpose Grease
19	Three-Point Hitch (Option)	10	SAE Multi-Purpose Grease
20	Three-Point Hitch (Option) (oil metal-to-metal parts)		SAE 30
21	Grease Three-Point Hitch Draft Arm Pins[4]	-	SAE Multi-Purpose Grease
22	Seat	9	SAE Multi-Purpose Grease
23	Door and Window Hinge Pins (oil metal-to-metal parts)	5	SAE 30

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTION 1: SERVICING
Table of Contents

1	**INTRODUCTION**	
2	**TOWING/TRANSPORTING**	
2.1	General	1-3
2.2	Towing	1-3
2.3	Transporting	1-3
3	**HOISTS AND JACKS**	
3.1	General	1-3
3.2	Jacks	1-4
3.3	Hoists	1-4
4	**SPECIFICATIONS AND CAPACITIES**	
4.1	General	1-4
4.2	Dimensions	1-4
4.3	Tire Size and Tractor Width	1-5
4.4	Tire Inflation	1-5
4.5	Weights	1-5
4.6	Engines	1-5
4.7	Cooling System	1-7
4.8	Air Cleaner	1-7
4.9	Exhaust System	1-7
4.10	Cold Start Aid	1-7
4.11	Clutch	1-7
4.12	Brakes	1-7
4.13	Transmission	1-7
4.14	Drivelines	1-7
4.15	Axles	1-8
4.16	Steering	1-8
4.17	Hydraulic System	1-8
4.18	Electrical System	1-8
4.19	Frames	1-8
4.20	Drawbar	1-8
4.21	Cab	1-8
4.22	Instrument Panel	1-9
4.23	Environmental Control Roof Unit	1-9
4.24	Radio	1-9
4.25	Options	1-9
5	**FUELS, FLUIDS AND LUBRICANTS**	
5.1	General	1-9
5.2	Fuel	1-9
5.3	Fluids	1-10

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 18 of 348 pages

The full manual includes:

- All 348 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Versatile 700, 750, 800, 825, 850, 900, 950 Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual