

SHOP MANUAL

FORD

MODELS

1120—1220—1320—1520—1720—1920—2120

The tractor model number, serial number and engine number are stamped on an identification plate located on left side of transmission housing.

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175. Refer to appropriate Fig. 263 through 266 for tractor wiring diagrams. Refer to paragraphs 76

through 85 for service procedures covering electrical system components.

WIRING DIAGRAMS

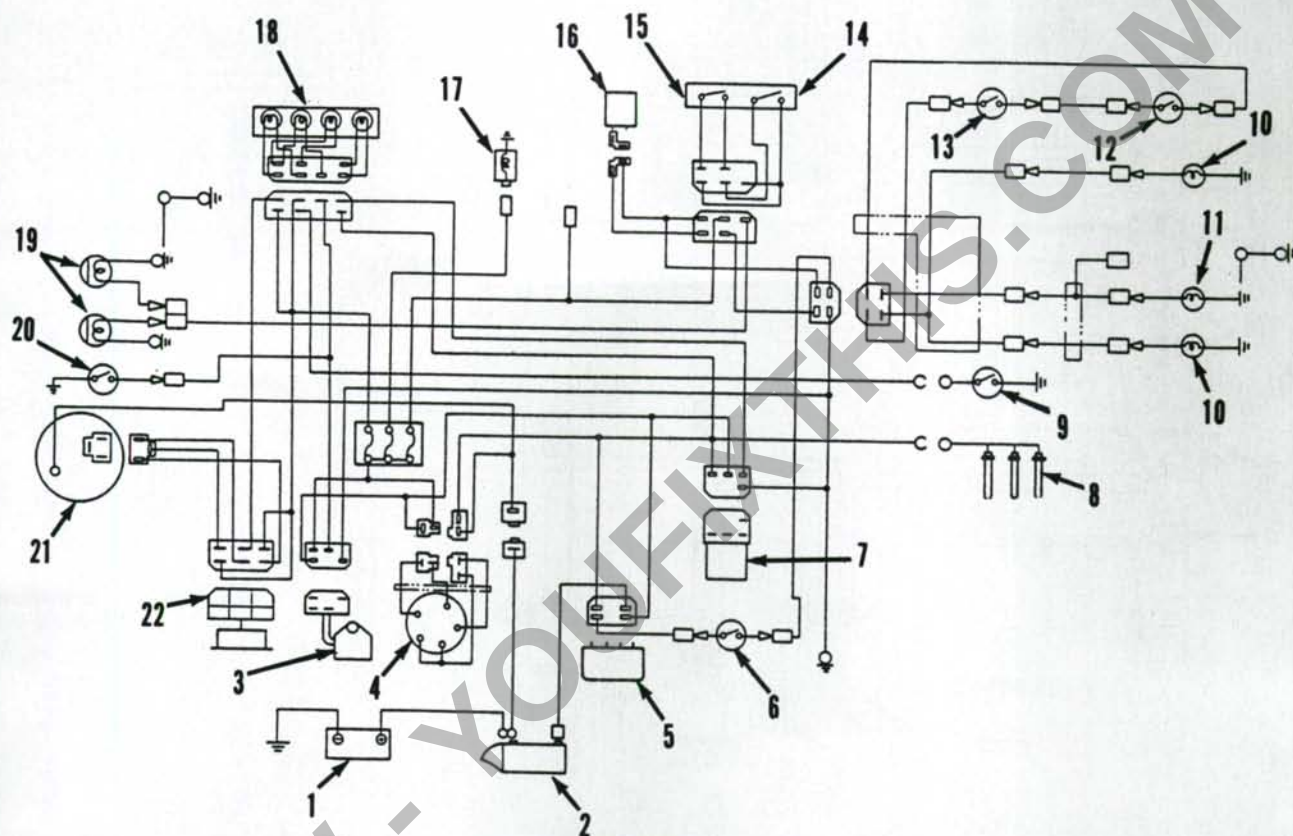


Fig. 263—Wiring diagram typical of Models 1120 and 1220.

1. Battery
2. Starter motor
3. Fuse box
4. Key switch
5. Relay
6. Safety start switch (clutch)
7. Glow plug timer
8. Glow plugs
9. Coolant switch
10. Hazard warning light
11. Tail light
12. Safety switch (mid pto)
13. Safety switch (rear pto)
14. Light switch
15. Hazard switch
16. Flasher unit
17. Fuel shut-off solenoid
18. Instrument panel lights
19. Headlights
20. Oil pressure switch
21. Alternator
22. Regulator

connected directly to engine clutch disc. The input shaft is splined to the hydrostatic pump, and extends out the rear of hydrostatic unit to drive the pto shaft. The output shaft is splined to hydrostatic motor and drives the two speed (Models 1120 and 1220) or three speed (Models 1320 and 1520) range transmission.

Refer to Fig. 155 for schematic drawing of hydrostatic transmission. When hydrostatic pump swash plate is in neutral (vertical) position, there is no pumping action of pump pistons and no flow of oil from pump (9) to motor (14). Oil flows from charge pump (3) through oil cooler (5) and oil filter (6) to feed valves (7 and 11) and neutral valves (8 and 10). The charge pump relief valve (12) maintains 420-560 kPa (61-81 psi) pressure in the circuit to provide lubrication for pump and motor cylinder blocks.

When pump swash plate is tilted to forward drive position, oil is discharged from piston pump (9) through "A" circuit. Pump pressure closes feed valve (7) and neutral valve (8) return to sump passages. All oil flow from piston pump then flows to the motor causing it to rotate. Oil discharged from the motor in passage "B" returns to the pump to complete the cycle. Any oil lost during the cycle due to leakage causes a drop in pressure in suction passage "B." Feed valve (11) then opens and make-up oil is provided by the charge pump through the feed valve. A high pressure relief valve (13) limits the discharge pressure of piston pump to protect the system from excessive pressure.

When pump swash plate is tilted in the opposite direction for reverse, oil flow from piston pump to

motor is reversed and passage "B" becomes the pressure passage and passage "A" is the suction passage.

LUBRICATION

All Models So Equipped

97. The hydrostatic unit utilizes fluid contained in a common reservoir consisting of transmission and differential housing. The fluid should be drained and refilled with new Ford 134 lubricant or equivalent fluid every 300 hours of operation. Capacity is approximately 16 liters (16.9 U.S. quarts) on Models 1120 and 1220 or 22 liters (23.25 U.S. quarts) on Models 1320 and 1520.

All models are equipped with a hydraulic system oil filter and a hydrostatic system oil filter. On Models 1120 and 1220, both filters are located on right side of transmission housing. On Models 1320 and 1520, hydraulic system filter is located on right side of transmission housing and hydrostatic system filter is mounted on left side of engine side rail. Both filters should be renewed every 300 hours of operation.

TROUBLE-SHOOTING

All Models So Equipped

98. The following are some symptoms which may occur during operation of the hydrostatic transmission and their possible causes.

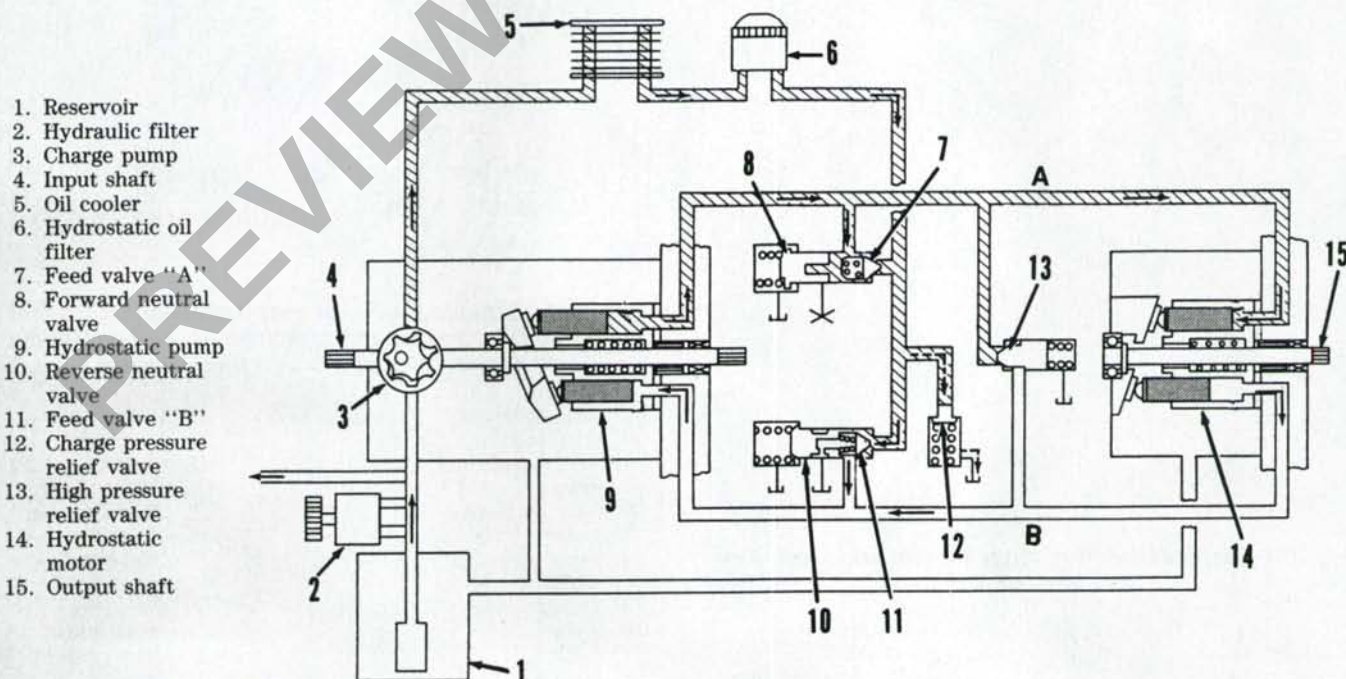


Fig. 155—Schematic drawing showing hydrostatic transmission oil flow in forward position.

FRONT SYSTEM (Two Wheel Drive)

AXLE ASSEMBLY

Models 1120-1220

1. REMOVE AND REINSTALL. Models 1120 and 1220 may be equipped with either fixed tread width type axle or adjustable tread width axle.

To remove front axle assembly, support tractor behind the axle and remove front wheels. On models equipped with mechanical steering, disconnect steering drag link from steering arm. On models equipped

with power steering, disconnect hoses from steering cylinder and plug all openings. On all models, remove nut (22—Fig. 1 or 2) from axle pivot shaft (24). Drive pivot shaft out of front axle and axle support, then lower axle assembly from tractor.

Inspect thrust washers (26), pivot bushings (27), pivot shaft (24) and axle main member (28) for excessive wear or damage. Clearance between pivot shaft and bushings should be 0.02-0.15 mm (0.001-0.006 inch) and wear limit is 0.3 mm (0.012 inch). Maximum allowable axle end play in support housing is 0.5 mm (0.020 inch).

To reinstall axle assembly, reverse the removal procedure. Install shims (25) as necessary to obtain desired axle end play of 0.3 mm (0.012 inch).

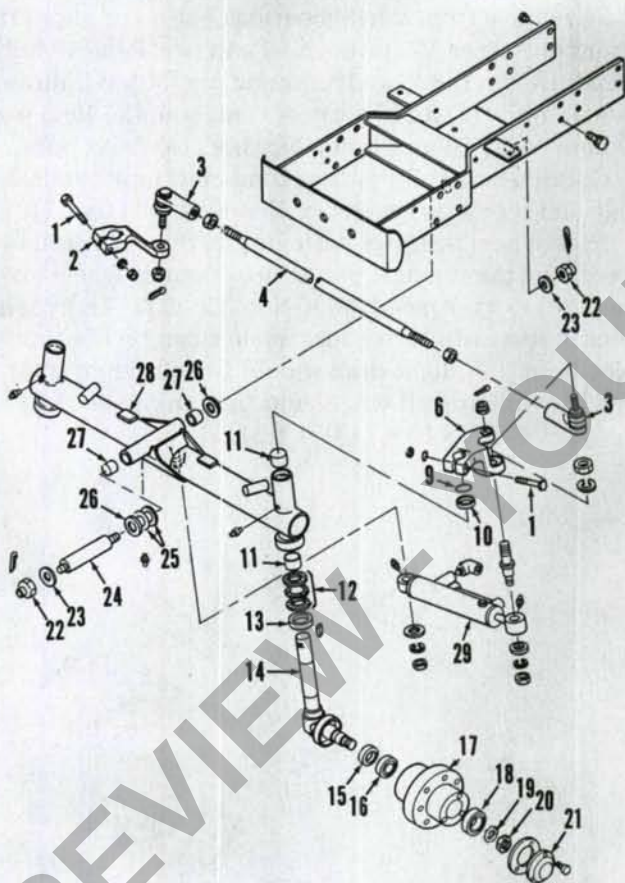


Fig. 1—Exploded view of fixed tread width front axle assembly used on Models 1120 and 1220 equipped with power steering.

- | | |
|--------------------|-----------------------------|
| 1. Clamp bolt | 18. Bearing |
| 2. Steering arm | 19. Lockwasher |
| 3. Tie rod end | 20. Nut |
| 4. Tie rod | 21. Hub cap |
| 6. Steering arm | 22. Nuts |
| 9. "O" ring | 23. Washers |
| 10. Spacer | 24. Pivot shaft |
| 11. Bushings | 25. Shims |
| 12. Thrust bearing | 26. Thrust washers |
| 13. Seal | 27. Bushings |
| 14. Spindle | 28. Axle main member |
| 15. Seal | 29. Power steering cylinder |
| 16. Bearing | |
| 17. Wheel hub | |

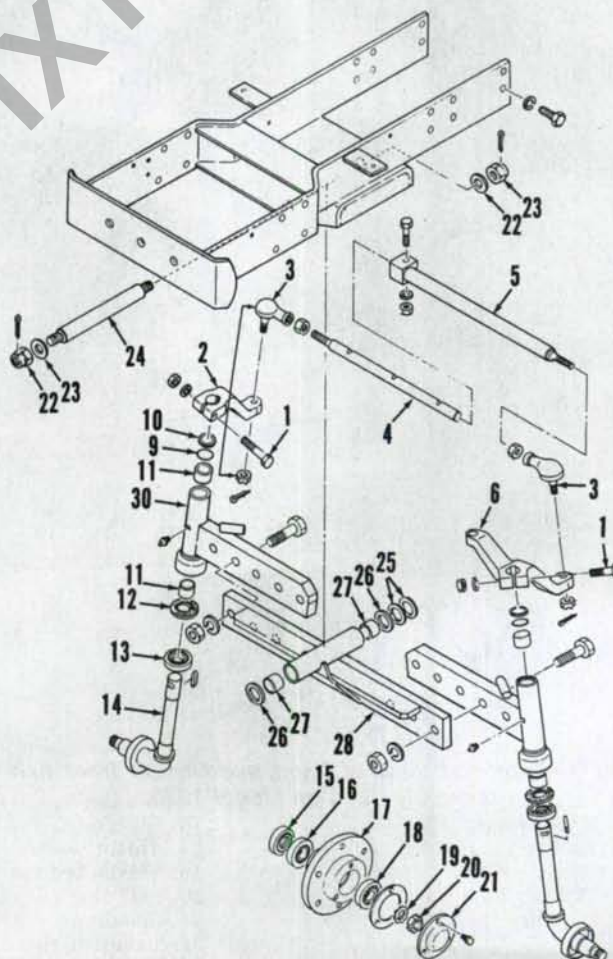


Fig. 2—Exploded view of adjustable tread width front axle assembly used on Models 1120 and 1220 equipped with mechanical steering. Refer to Fig. 1 for legend except for the following:

- | |
|--------------------|
| 4. Tie rod link |
| 5. Tie rod tube |
| 30. Axle extension |

CONDENSED SERVICE DATA (CONT.)

	1120	Models 1220	1320
SIZES—CLEARANCES (Cont.)			
Main Bearing Radial			
Clearance	0.039-0.106 mm (0.0015-0.004 in.)		0.044-0.116 mm (0.0017-0.0045 in.)
Crankshaft End Play	0.05-0.30 mm (0.002-0.011 in.)		0.10-0.40 mm (0.004-0.016 in.)
Crankpin Diameter	38.964-38.975 mm (1.5340-1.5344 in.)		43.964-43.975 mm (1.730-1.731 in.)
Rod Bearing Radial			
Clearance	0.035-0.083 mm (0.001-0.003 in.)		0.035-0.083 mm (0.001-0.003 in.)
Connecting Rod Side			
Clearance	0.10-0.30 mm (0.004-0.012 in.)		0.10-0.30 mm (0.004-0.012 in.)
Piston-to-Cylinder			
Bore Clearance	0.0575-0.0875 mm (0.0022-0.0034 in.)	0.0425-0.0765 mm (0.0016-0.0030 in.)	0.088-0.106 mm (0.0034-0.0041 in.)
SPECIAL TORQUES			
Connecting Rod			
Caps	24-27 N·m (17-20 ft.-lbs.)		49-54 N·m (36-40 ft.-lbs.)
Crankshaft Main			
Bearing Holders	25-29 N·m (18-22 ft.-lbs.)		49-54 N·m (36-40 ft.-lbs.)
Main Bearing Holder			
Retaining Bolts	25-29 N·m (18-22 ft.-lbs.)		49-54 N·m (36-40 ft.-lbs.)
Crankshaft Pulley			
Retaining Nut	48-58 N·m (36-43 ft.-lbs.)		275-333 N·m (203-245 ft.-lbs.)
Flywheel Bolts	59-69 N·m (44-50 ft.-lbs.)		59-69 N·m (44-50 ft.-lbs.)
Cylinder Head Bolts	44-49 N·m (33-36 ft.-lbs.)		88-93 N·m (65-68 ft.-lbs.)
CAPACITIES			
Cooling System	3.5 liters (3.7 U.S. qts.)		Note 1
Crankcase with Filter			
Change	3.3 liters (3.5 U.S. qts.)		4.5 liters (4.8 U.S. qts.)
Fuel Tank	18 liters (4.8 U.S. gals.)		27 liters (7.1 U.S. gals.)
Rear Axle and Transmission	16 liters (16.9 U.S. qts.)		22 liters (23.3 U.S. qts.)
Power Steering		1.8 liters (1.9 U.S. qts.)	
Front Wheel Drive Axle	1.8 liters (1.9 U.S. qts.)		2.8 liters (3 U.S. qts.)

Note 1: Model 1320 cooling system capacity is 4 liters (4.2 U.S. qts.) with gear transmission and 5 liters (5.3 U.S. qts.) with hydrostatic transmission.

tom of the oil reservoir. Recommended oil is Ford 134 hydraulic fluid. Capacity is approximately 1.8 liters (1.9 U.S. quarts) for all models.

To bleed air from steering system, start engine and run at about 1500 rpm. Turn steering wheel from lock to lock until steering feels smooth. This will purge air from system.

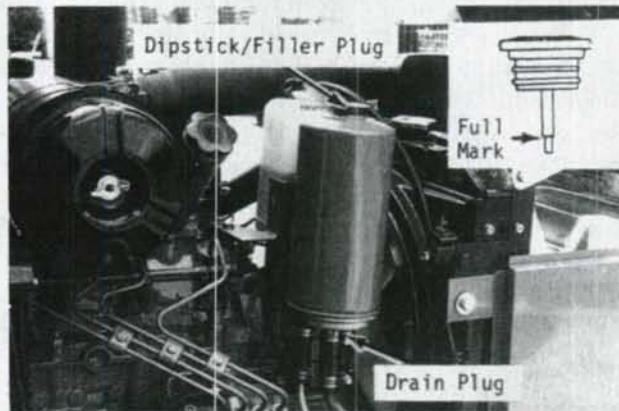


Fig. 31—Power steering reservoir and hydraulic pump are located on front of the engine.

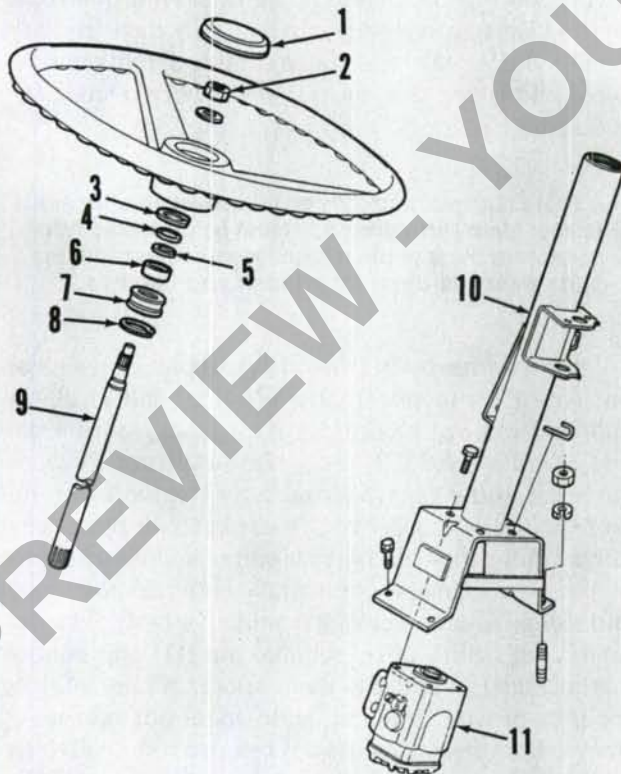


Fig. 32—Exploded view of steering column used on models with power steering.

- | | |
|--------------|----------------------------------|
| 1. Cap | 7. Rubber seal |
| 2. Nut | 8. Snap ring |
| 3. Snap ring | 9. Steering shaft |
| 4. Spacer | 10. Steering column |
| 5. Snap ring | 11. Power steering control valve |
| 6. Bearing | |

TROUBLE-SHOOTING

All Models So Equipped

20. The following table lists some of the troubles which may occur in the operation of power steering system and their possible causes.

1. Hard or no steering movement.
 - a. Low oil level.
 - b. Excessive load on front wheels.
 - c. Steering pressure relief valve faulty.
 - d. Faulty steering control valve unit.
 - e. Hydraulic pump defective.
2. Steering wheel turns on its own or will not return to neutral.
 - a. Steering control valve spool binding.
3. Steering cylinder will not follow steering wheel rotation.
 - a. Air in steering system.
 - b. Steering cylinder piston seal faulty.
 - c. Steering control valve improperly assembled, resulting in valve mistiming.
4. Steering wheel "kicks back."
 - a. Hydraulic pipes improperly connected to steering control valve.
 - b. Steering control valve improperly assembled, resulting in valve mistiming.

TESTING

All Models

21. The steering pressure relief valve (1—Fig. 33) is located in the steering control valve body. Relief valve is not adjustable and is not available separately. If relief valve is faulty, steering control valve must be renewed.

To check steering relief pressure, disconnect one of the hydraulic lines to steering cylinder and connect 0-20000 kPa (0-3000 psi) pressure gage to the line using a "Tee" fitting. Start engine and operate at 1500 rpm. Turn and hold steering wheel against lock position and observe pressure gage reading. Specified relief pressure is 11755 kPa (1705 psi) for Model 2120 and 9790-10480 kPa (1420-1520 psi) for all other models. If pressure is low, it indicates that either the relief valve, hydraulic pump or steering cylinder is faulty.

To check steering cylinder for leakage past the piston seal, disconnect hydraulic line from end of cylinder opposite the test gage and plug the cylinder port. Repeat steering relief valve pressure test. If pressure is now within specified limits, steering cylinder is faulty.

To check hydraulic pump output, connect a suitable hydraulic flow meter to pressure outlet of pump.

DUAL DIMENSIONS

This service manual provides specifications in both the Metric (SI) and U.S. Customary systems of measurement. The first specification is given in the measuring system used during manufacture, while the second specification (given in parenthesis) is the converted measurement. For instance, a specification of "0.28 mm (0.011 inch)" would indicate that the equipment was manufactured using the metric system of measurement and the U.S. Customary equivalent of 0.28 mm is 0.011 inch.

CONDENSED SERVICE DATA

	1120	Models 1220	1320
GENERAL			
Engine Make	Shibaura		
Engine Model	S723	S753	J823
Number of Cylinders	3		
Bore	72 mm (2.83 in.)	75 mm (2.95 in.)	82 mm (3.22 in.)
Stroke	72 mm (2.83 in.)	72 mm (2.83 in.)	80 mm (3.15 in.)
Displacement	879 cc (53.6 cu. in.)	954 cc (58.2 cu. in.)	1267 cc (77.3 cu. in.)
Compression Ratio	23:1	23:1	22:1
Electrical System			
Alternator	12 Volts, 35 Amps		
Regulator	Mechanical	Mechanical	Solid State
Battery Ground Polarity	Negative		
TUNE-UP			
Firing Order	1-2-3		
Valve Clearance—Cold			
Intake	0.20 mm (0.008 in.)		
Exhaust	0.20 mm (0.008 in.)		
Valve Face Angle	45°		
Valve Seat Angle	45°		
Injection Timing—			
Static, BTDC	23°-24°	23°-24°	20°-21°
Timing Mark Location	Crankshaft Pulley		
Injector Opening Pressure	11760 kPa (1705 psi)		
Governed Speeds—Engine Rpm			
Low Idle	800-900		
High Idle (No-Load)	2650-2700		
Rated (Full Load)	2500		
Rated Power at Pto	9.3 kW (12.5 hp)	10.8 kW (14.5 hp)	12.7 kW (17.0 hp)
SIZES—CLEARANCES			
Crankshaft Main Journal			
Diameter	45.964-45.975 mm (1.8096-1.810 in.)		57.957-57.97 mm (2.281-2.282 in.)

Models 1320-1520-1720-1920-2120

2. REMOVE AND REINSTALL. Model 1320 is equipped with a fixed tread width front axle. An adjustable tread width front axle is standard equipment on Models 1520, 1720, 1920 and 2120.

To remove front axle assembly, support tractor behind the axle and remove front wheels. Disconnect hoses from power steering cylinder and plug all openings. Unbolt and remove axle pivot front bearing retainer (1—Fig. 3, 4 or 5). Remove retaining cap screws from rear bearing support (6), then move axle rearward from front bearing support and lower axle from tractor.

Inspect thrust washers (3), pivot bushings (4) and axle main member (10) for excessive wear or damage. Renew seals (5) if necessary. Clearance between

axle pivot shafts and bushings should be 0.02-0.15 mm (0.001-0.006 inch) and wear limit is 0.30 mm (0.012 inch). Front axle end play in bearing supports should not exceed 0.20 mm (0.008 inch).

To reinstall axle assembly, reverse the removal procedure. Install shims (2) as necessary to obtain desired axle end play.

FRONT WHEEL BEARINGS

Models 1120-1220

3. REMOVE AND REINSTALL. It is recommended that front wheel bearings be removed, cleaned and repacked with grease after every 600 hours of operation.

To remove front wheel bearings, raise and support front of tractor. Remove wheel and tire. Remove hub cap (21—Fig. 1 or 2) and retaining nut (20). Withdraw wheel hub (17) and bearings from spindle. Remove wheel seal (15) and inner bearing (16) from hub.

Check bearings for pitting, roughness or other damage and renew as necessary. Renew wheel seals (15).

Pack wheel bearings with grease, then reinstall by reversing the removal procedure. Tighten wheel hub nut (20) to a torque of 30-35 N·m (22-26 ft.-lbs.), then loosen nut until tab of lockwasher can be bent into slot in nut. A slight drag should be felt when rotating the hub. Install wheel and tighten lug bolts to a torque of 58-73 N·m (43-54 ft.-lbs.).

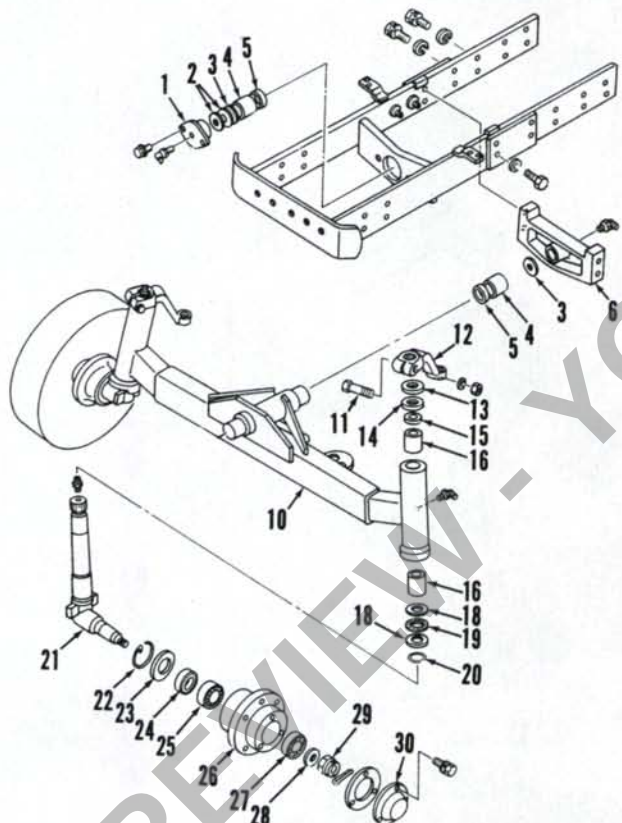


Fig. 3—Exploded view of fixed tread width front axle assembly used on Model 1320.

- | | |
|---------------------------|--------------------|
| 1. Pivot bearing retainer | 16. Bushings |
| 2. Shims | 18. Thrust washers |
| 3. Thrust washers | 19. Needle bearing |
| 4. Bushings | 20. "O" ring |
| 5. Seal | 21. Spindle |
| 6. Axle rear support | 22. Retaining ring |
| 10. Axle main member | 23. Washer |
| 11. Clamp bolt | 24. Seal |
| 12. Steering arm | 25. Bearing |
| 13. Shim | 26. Wheel hub |
| 14. Spacer | 27. Bearing |
| 15. Seal | 28. Washer |
| | 29. Nut |
| | 30. Hub cap |

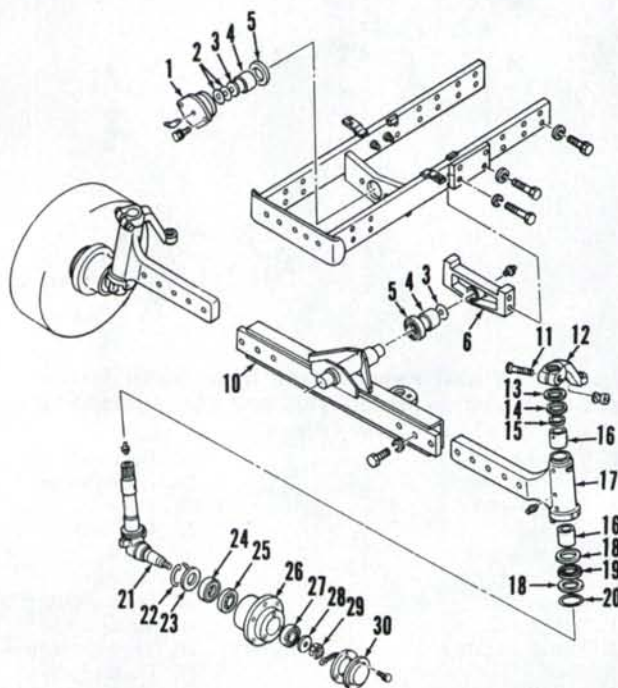


Fig. 4—Exploded view of adjustable tread width front axle assembly used on Model 1520. Refer to Fig. 3 for legend except for axle extension (17).

ance is 0.10-0.15 mm (0.004-0.006 inch). Renew rotors if clearance exceeds 0.25 mm (0.008 inch).

The idler shaft (4—Fig. 69) and oil port block (10) assembly is a press fit in bore of cylinder block. If renewal is required, special tool No. 11097 or other suitable puller tool and a slide hammer may be used to remove oil port block from cylinder block. Special installing tool No. 11063 is available for proper installation of port block. The port block is correctly installed when installing tool bottoms against engine block.

Reinstall thrust washer and idler gear, aligning timing marks on crankshaft gear and camshaft gear with timing marks on idler gear (T—Fig. 70). Assemble oil pump inner rotor, cover, shim, spring, collar and "E" clip on idler shaft. Reinstall timing gear case, making sure that dowel pin in case engages hole in oil pump cover (Fig. 64).

36. CAMSHAFT GEAR AND GOVERNOR. The camshaft gear (6—Fig. 70) is a press fit on camshaft. To remove camshaft gear and governor weight assembly, it is recommended that camshaft be removed from the engine as outlined in paragraph 40. With-

draw governor slider (7) from end of camshaft. Use a suitable press or puller to remove camshaft gear with governor weights from camshaft. Remove key, spacers (3 and 5) and tachometer drive gear (4) from camshaft if necessary.

Inspect camshaft gear teeth and governor weights for excessive wear or damage and renew as necessary.

To reinstall, reverse the removal procedure making sure that timing marks on crankshaft gear, idler gear and camshaft gear are aligned (T—Fig. 70).

Model 2120

37. IDLER GEAR, CAMSHAFT GEAR AND INJECTION PUMP GEAR. To remove timing gears, first remove timing gear case as outlined in paragraph 34. Remove idler gear retaining cap screws and withdraw

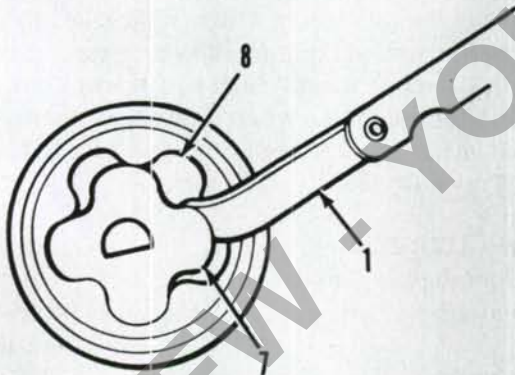


Fig. 68—Use a feeler gage (1) to check clearance between oil pump inner rotor (7) and outer rotor (8).

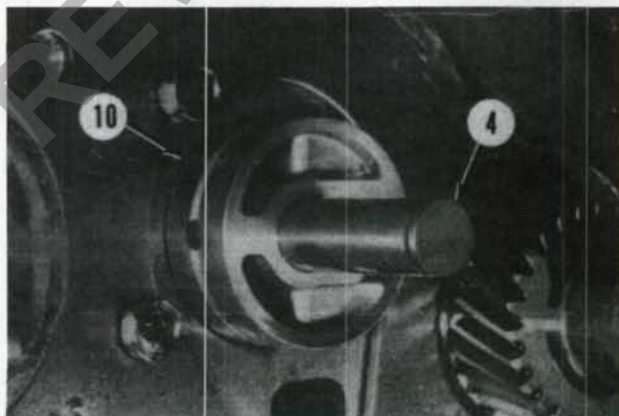


Fig. 69—Idler gear shaft (4) and oil port block (10) assembly is a press fit in cylinder block.

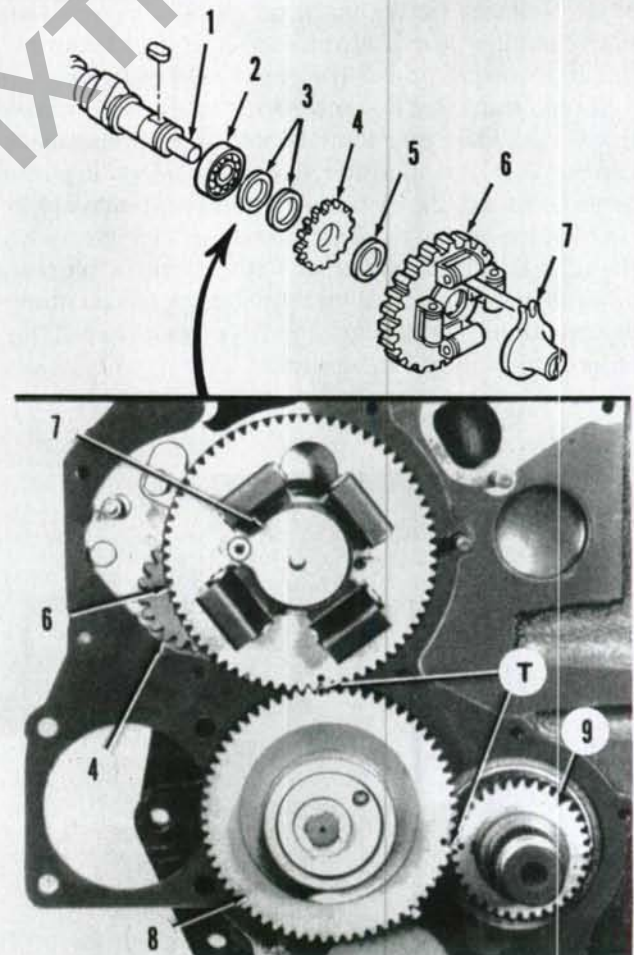


Fig. 70—View of timing gears used on Models 1120, 1220, 1320, 1520, 1720 and 1920. When installing gears, align timing marks (T) as shown to obtain correct valve timing.

- | | |
|--------------------------|--|
| 1. Camshaft | 6. Camshaft gear & governor weight assy. |
| 2. Bearing | 7. Governor slider |
| 3. Spacers | 8. Idler gear |
| 4. Tachometer drive gear | 9. Crankshaft gear |
| 5. Spacer | |

clutch housing as outlined in paragraph 87. Loosen clutch mounting cap screws evenly to reduce chances of distorting pressure plate. The pressure plate is serviced as an assembly and should not be disassembled.

Check pressure plate for cracks, scoring or distortion. Inspect pressure plate release levers for wear or damage. Renew pressure plate assembly if any damage is evident. Check clutch disc for signs of overheating, distortion, loose linings, loose or broken cushioning springs or worn clutch hub splines. Disc should be renewed if depth from top of clutch lining to top of rivets is less than 0.3 mm (0.012 inch).

IMPORTANT: Friction surface of a new pressure plate is coated with a protective film which must be removed using a suitable solvent prior to installation.

When installing clutch, longer side of clutch disc hub should face away from flywheel. Use a suitable pilot tool to align clutch disc while attaching clutch to flywheel. Tighten retaining cap screws evenly to torque of 23-28 N·m (17-21 ft.-lbs.). Release lever height above surface of flywheel should be 54 mm (2.13 inches) on Models 1320 and 1520 or 55 mm (2.17 inches) on Model 2120. Release lever height is not adjustable on other models.

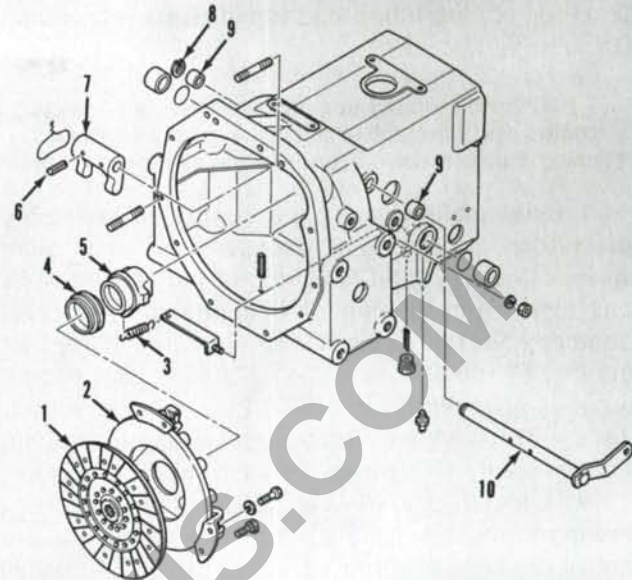


Fig. 137—Exploded view of typical single plate clutch assembly and clutch release bearing.

- | | |
|------------------------|-----------------|
| 1. Clutch disc | 6. Pin |
| 2. Pressure plate | 7. Fork |
| 4. Release bearing | 8. Snap ring |
| 5. Release bearing hub | 9. Bushings |
| | 10. Cross shaft |

DUAL PLATE CLUTCH

All Models So Equipped

89. R&R AND OVERHAUL. The dual plate clutch assembly can be removed from flywheel after separating engine from clutch housing as outlined in paragraph 87. Loosen clutch mounting cap screws evenly to prevent distortion of pressure plate assembly.

To disassemble clutch used on Models 1320 and 1520, use a press or other suitable means to compress clutch diaphragm springs and relieve tension on release lever links (12—Fig. 138). Then remove pins retaining release levers (11) to outer cover (8) and swing release levers and links out of the way. Release spring tension and separate clutch components.

To disassemble clutch used on Models 1720, 1920 and 2120, loosen pto clutch adjusting bolts (9—Fig. 139) evenly until bolts are free of bottom pressure plate (2). Remove pins retaining release levers (11) to outer cover (8) and separate clutch components.

Inspect pressure plates (2 and 6) for scoring, cracks or signs of overheating. Pressure plates may be resurfaced to remove minor imperfections. Check clutch discs for signs of overheating, distortion, loose linings, loose or broken cushioning springs or worn clutch hub splines. Discs should be renewed if depth

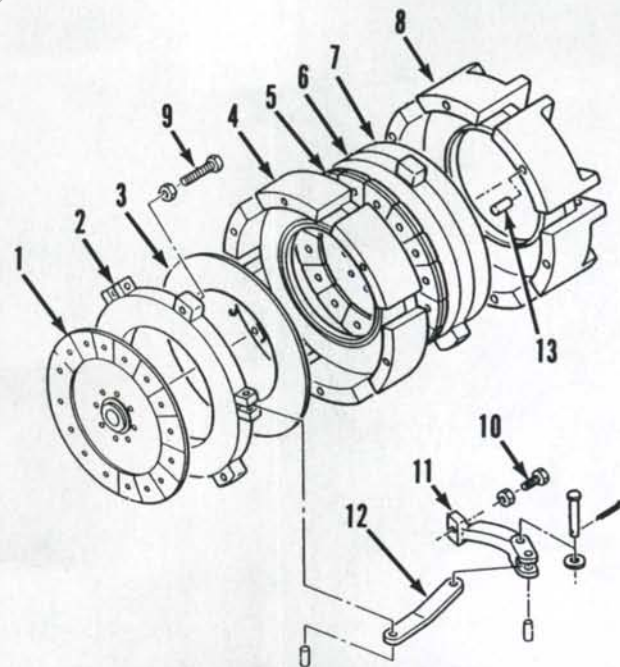


Fig. 138—Exploded view of dual plate clutch assembly available on Models 1320 and 1520.

- | | |
|---------------------------------------|---|
| 1. Transmission clutch disc | 8. Clutch outer cover |
| 2. Transmission clutch pressure plate | 9. Pto clutch adjusting bolt |
| 3. Diaphragm spring | 10. Release lever height adjusting bolt |
| 4. Clutch inner cover | 11. Clutch release lever |
| 5. Pto clutch disc | 12. Link |
| 6. Pto pressure plate | 13. Dowel pin |
| 7. Diaphragm spring | |

all free play. Measure depth "A" of bearing counterbore in adapter housing (38), and measure distance "B" that clutch shaft front bearing protrudes from front surface of shuttle housing. Subtract measurement "B" from measurement "A." The difference between the two measurements is amount of shims (36) required to provide specified zero preload and zero free play of clutch shaft bearings. Install correct thickness shims and the adapter housing.

123. MAIN TRANSMISSION. Remove transmission assembly from tractor as outlined in paragraph 121. Remove shuttle clutch housing, shuttle clutch assembly and transmission input shaft from front of transmission as outlined in paragraph 122.

Remove shift detent pin (5—Fig. 200), spring (6) and ball (7) from top of transmission housing. Drive roll pin out of first-second (upper) shift fork (2), then slide shift rail (1) out front of housing and remove shift fork. Drive roll pin out of third-fourth (lower) shift fork (4). Turn shift rail (3) 90 degrees, then slide rail out front of housing and remove shift fork, interlock pin (8), ball (7) and spring (6).

Remove snap ring (23—Fig. 201) from rear of transmission housing. Drive transmission countershaft (20) rearward from housing while removing synchronizer assemblies, gears and spacer collar (3 through 19) from front of shaft. Place matching marks on synchronizer sleeve and hub (9) prior to disassembling synchronizer units.

Pull lower countershaft (26) forward and remove shaft with gear set (25) from the housing. Remove

snap ring (38) from rear of housing. Disengage snap ring (32) from its groove and move it forward on rear mainshaft (37). Pull mainshaft rearward from housing while removing thrust washer (28), sliding gear (31), snap ring (32) and sliding gear (33) from shaft.

Remove shift rail lock bolt (15—Fig. 200), rotate range gear shift rail (12) 90 degrees and slide rail out rear of housing. Be careful not to lose detent ball (11) when shift rail is removed. Remove retainer plate (16)

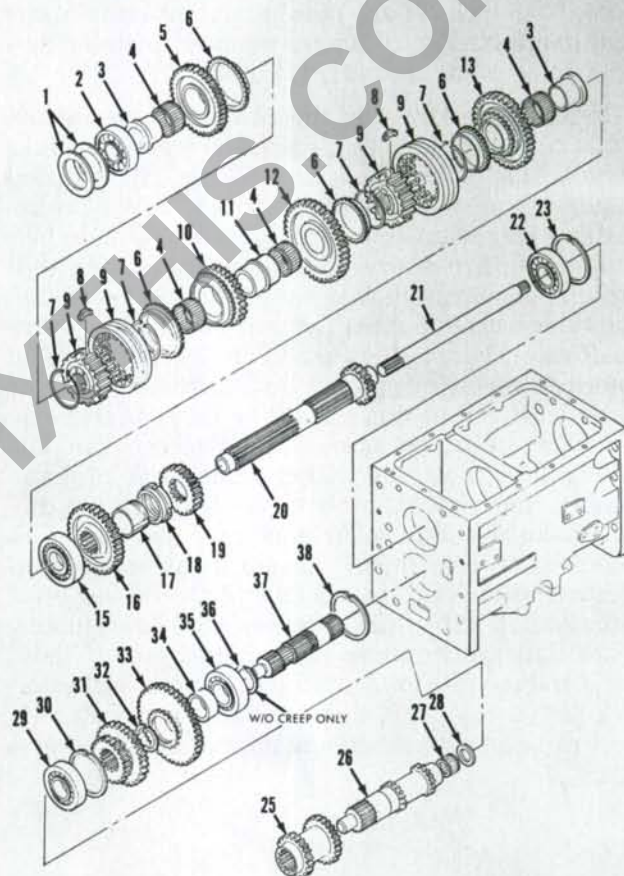


Fig. 201—Exploded view of main and range transmission gears and shafts used on Model 2120 equipped with hydraulic shift shuttle transmission.

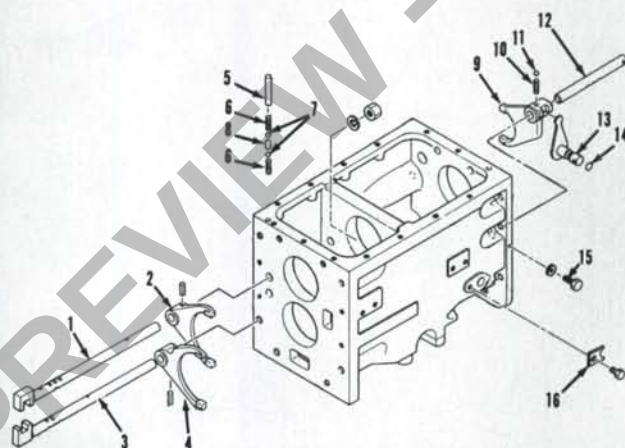


Fig. 200—Exploded view of main and range transmission shift forks and rails used on Model 2120 equipped with hydraulic shift shuttle transmission.

- | | |
|------------------------|---------------------|
| 1. Shift rail | 8. Interlock pin |
| 2. Shift fork, 1st-2nd | 9. Range shift fork |
| 3. Shift rail | 10. Spring |
| 4. Shift fork, 3rd-4th | 11. Detent ball |
| 5. Detent pin | 12. Shift rail |
| 6. Springs | 13. Shift arm |
| 7. Detent balls | 14. "O" ring |
| | 15. Retaining screw |
| | 16. Retaining plate |

- | | |
|-----------------------------------|-------------------------------------|
| 1. Shims | 21. Pto input shaft |
| 2. Bearing | 22. Bearing |
| 3. Collar | 23. Snap ring |
| 4. Needle bearing | 25. Counter gear, 3rd-4th |
| 5. Gear, 3rd | 26. Countershaft & gears, 1st-2nd |
| 6. Synchronizer ring | 27. Needle bearing |
| 7. Spring | 28. Thrust washer |
| 8. Key | 29. Bearing |
| 9. Synchronizer sleeve & hub | 30. Snap ring |
| 10. Gear, 4th | 31. Range sliding gear, high-middle |
| 11. Collar | 32. Snap ring |
| 12. Gear, 1st | 33. Range sliding gear, low |
| 13. Gear, 2nd | 34. Spacer |
| 14. Bearing | 35. Bearing |
| 15. Range gear, high | 36. Snap ring |
| 16. Adjustable collar | 37. Rear mainshaft |
| 17. Nut | 38. Snap ring |
| 18. Range gear, middle | |
| 19. Countershaft & low range gear | |

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