

FORD TRACTORS



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SHOP MANUAL

MODELS:

1100 • 1110 • 1200 • 1210

1300 • 1310 • 1500 • 1510

1700 • 1710 • 1900 • 1910 • 2110

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SHOP MANUAL FORD

Models 1100-1110-1200-1210-1300-1310
1500-1510-1700-1710-1900-1910-2110

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

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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. equivalent of 0.28 mm is 0.011 inch.

CONDENSED SERVICE DATA

	1100	1110	1200	1210
GENERAL				
Engine Make	Shibura			
Engine Model	LEK752C2	LEK757C	LEK802D	S723
Number of Cylinders	2	2	2	3
Bore	75 mm (2.95 in.)	75 mm (2.95 in.)	80 mm (3.15 in.)	72 mm (2.83 in.)
Stroke	80 mm (3.15 in.)	80 mm (3.15 in.)	80 mm (3.15 in.)	72 mm (2.83 in.)
Displacement	706 cc (43.1 cu. in.)	706 cc (43.1 cu. in.)	804 cc (49.1 cu. in.)	879 cc (53.6 cu. in.)
Compression Ratio	23:1	23:1	23:1	24:1
TUNE-UP				
Firing Order	2-1	2-1	2-1	1-2-3
Valve Clearance—Cold				
Intake	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Exhaust	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Valve Face Angle	45°			
Valve Seat Angle	45°			
Injection Timing, Static-BTDC	23°-24°	20°-21°	23°-24°	24°
Injector Opening Pressure	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)

Axle end play should not exceed 0.20 mm (0.008 inch). If end play is excessive, renew thrust washers (23) and/or add shims (24) as required.

When renewing spindle bushings (15), the top bushing should be pressed into bore until bushing is 4.7 mm (3/16 inch) below top surface of axle on models equipped with an "O" ring (17-Figs. 1 and 2) at top of spindle (11). On models equipped with a lip type seal (12-Figs. 3, 4, 5 and 6) at top of spindle, top bushing should be pressed into bore until top of bushing is 7 mm (9/32 inch) below top surface of axle. Install seal with lip facing upward.

Front wheel bearings should be removed, cleaned, inspected, renewed if damaged and packed with a good quality No. 2 EP lithium base grease after each 600 hours of operation. Tighten wheel bearing retaining nut (2) until slight drag is noticed while rotating wheel hub, then loosen nut to first castellation and install cotter pin.

FRONT AXLE (FOUR WHEEL DRIVE)

2. The front axle of four wheel drive models includes the differential assembly, axle housings, drive shafts, universal joints and final drives. Refer to appropriate paragraphs 3 through 12 for service to components.

Tie rod length should be adjusted to provide front wheel toe-in of 0-5 mm (0-3/16 inch) on all models.

Models 1100-1200-1300-1500-1700-1900 So Equipped

3. **REMOVE AND REINSTALL.** To remove the complete front drive axle assembly, first raise front of tractor and

Fig. 3—Exploded view of fixed tread front axle (16) used on 1300 and 1500 models. Axle center member (28) and extensions (29) are used on 1300, 1310, 1500 and 1510 adjustable axle models.

1. Cover
2. Castellated nut
3. Outer bearing
6. Inner bearing
7. Seal
8. Spacer
9. Hub
11. Spindle
12. Seal
13. Bearing washer
14. Needle thrust bearing
15. Bushings
16. Fixed tread axle
17. "O" ring
18. Shims
19. Steering arm
23. Washers
24. Shim
26. Bushing
28. Axle center member
29. Axle extension
30. Pivot casting
31. "O" ring
32. Gasket
33. Washer
34. Snap ring

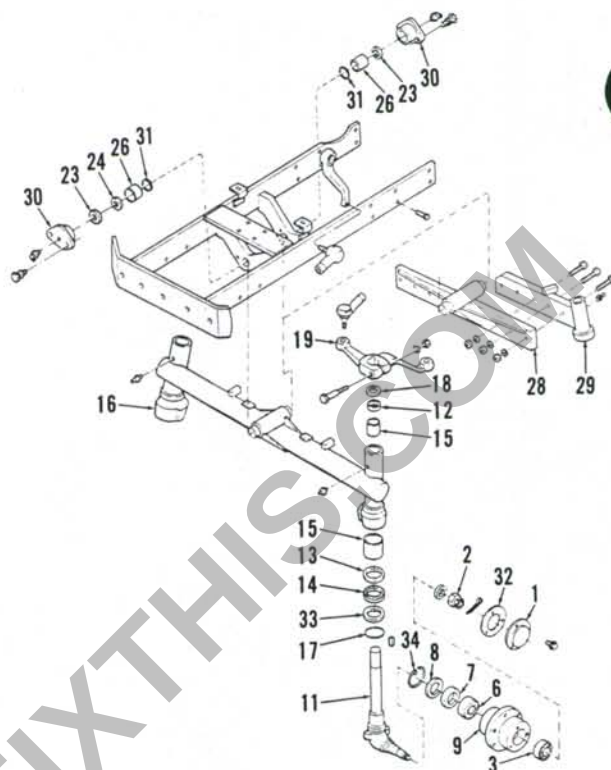


Fig. 4—Exploded view of adjustable front axle used on 1700, 1710, 1900 and 1910 models with two wheel drive. Refer to Fig. 3 for legend except for the following:

35. Spacer
36. Spacer
37. Retainer

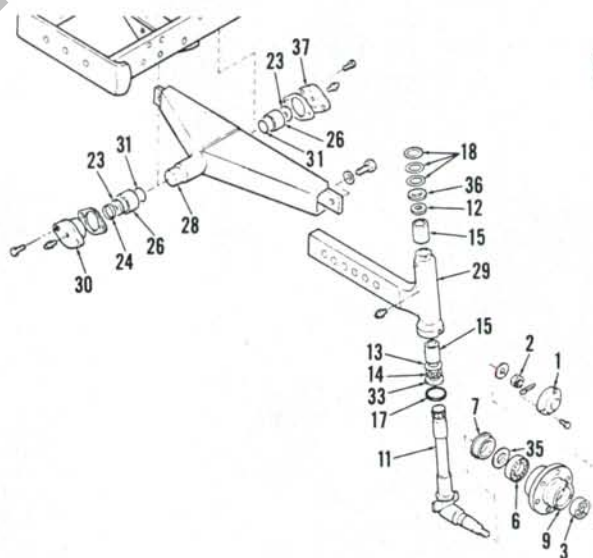


Fig. 2—Exploded view of adjustable tread width front axle available on 1100, 1110, 1200 and 1210 models. Refer to Fig. 1 for legend except for the following:

28. Axle center member
29. Axle extensions

place a support behind the axle. Detach drag link from steering arm. Place front wheel drive control lever in "disengaged" position. Loosen clamps that attach drive shaft cover at the rear. Support axle to prevent tipping, then remove cap screws attaching axle pivot brackets to front support. Carefully lower axle until it can be moved forward out of drive shaft splines.

Inspect axle pivot bushings (13 and 36-Figs. 7, 8 and 9) for wear or damage. Renew bushings if clearance

- | | |
|--------------------------|--------------------------|
| 1. "O" ring | 36. Bushing |
| 2. Holder | 37. Carrier bracket |
| 3. Boot | 38. Plug |
| 4. Drive shaft housing | 39. Gasket |
| 5. Snap rings | 40. Seal |
| 6. Universal joint | 41. Shaft |
| 7. Drive shaft | 42. Pin |
| 8. "O" ring | 43. Housing |
| 9. Coupling | 44. Thrust bearing assy. |
| 10. Pin (6 x 32 mm) | 45. King pin bearing |
| 11. Seal | 46. Bushing |
| 12. Rear carrier bracket | 47. Pin |
| 13. Bushing | 48. Universal joint |
| 14. "O" ring | 49. Stop bolt |
| 15. Nut | 50. Pin & steering arm |
| 16. Washer | 51. Seal |
| 17. Pinion bearing | 52. Bearing |
| 18. Snap rings | 53. Outer pinion |
| 19. Shims | 54. Bearing |
| 20. Snap ring | 55. Snap ring |
| 21. Pinion gear | 56. Fill plug |
| 22. Ring gear | 57. Housing |
| 23. Differential carrier | 58. Bearing |
| 24. Thrust washer | 59. Gear |
| 25. Spider gear | 60. Snap ring |
| 26. Spider shaft | 61. Bearing |
| 27. Pin (5 x 40 mm) | 62. Seal |
| 28. Side gear | 63. Outer cover |
| 29. Thrust washer | 64. Wheel axle |
| 30. Carrier cover | 65. Plate |
| 31. Carrier bearings | 66. Seal |
| 32. Shim | 67. Felt |
| 33. Shim | 68. Plate |
| 34. Center housing | 69. Support assy. |
| 35. "O" ring | |

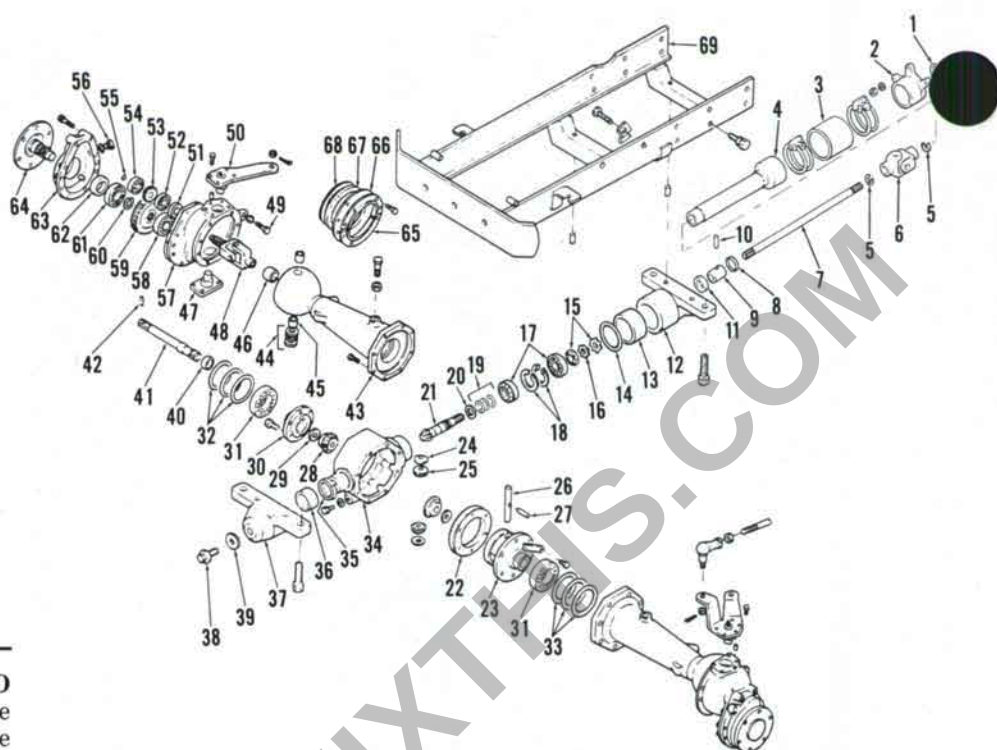


Fig. 7—Exploded view of front wheel drive axle used on 1100 and 1200 models.

5. BEVEL DRIVE GEARS AND DIFFERENTIAL. To disassemble front axle center section, first remove both outer drive assemblies as outlined in paragraph 4. Remove front axle assembly as outlined in paragraph 3. Drain oil from axle center housing.

The differential and ring gear (22 through 30—Figs. 7, 8 and 9) can be removed after unbolting and separating axle shaft housings from center housing (34). Bevel pinion (21) can be removed after removing nuts (15) from shaft.

Retain all shims for use in reassembly. Shims (19) are used to adjust mesh of bevel pinion and ring gear. Shims (32 and 33) are used to adjust differential carrier bearing preload and bevel gear backlash.

To disassemble differential unit, unbolt and remove cover (30) from carrier (23). Remove retaining pin (27), then slide pinion shaft (26) out of carrier. Remove pinion gears (25), side gears (28) and thrust washers (24 and 29).

Backlash between differential pinion gears (25) and side gears (28) should be 0.10-0.15 mm (0.004-0.006 inch) with a wear limit of 0.50 mm (0.020 inch) for 1100, 1200, 1300 and 1500 models. Backlash between pinion gears and side

- | | |
|--------------------------|-------------------------------|
| 1. "O" rings | 39. Gasket |
| 2. Holder | 40. Seal |
| 4. Drive shaft housing | 41. Shaft |
| 5. Snap ring | 43. Housing |
| 6. Coupling | 44. Thrust bearing |
| 7. Drive shaft | 45. Bushings |
| 8. "O" ring | 46. Bearing (25 x 25 mm) |
| 9. Coupling | 47. Pin |
| 11. Seal | 48. Universal joint |
| 12. Rear carrier bracket | 50. Pin & steering arm |
| 13. Bushing | 51. Seal |
| 14. "O" ring | 52. Bearing |
| 15. Nuts | 53. Outer pinion & shaft |
| 16. Washer | 54. Bearing |
| 17. Pinion bearings | 55. Snap rings |
| 18. Snap rings | 56. Fill plug |
| 19. Shims | 57. Housing |
| 20. Washer | 58. Bearing |
| 21. Pinion gear | 59. Gear |
| 22. Ring gear | 61. Bearing |
| 23. Differential carrier | 62. Seal |
| 24. Thrust washers | 63. Outer cover |
| 25. Spider gears | 64. Wheel axle |
| 26. Spider shaft | 65. Plate |
| 27. Pin | 66. Seal |
| 28. Side gear | 67. Felt |
| 29. Thrust washer | 68. Plate |
| 30. Carrier cover | 69. Support assy. |
| 31. Carrier bearings | 70. Shims |
| 32. Shim | 71. Nut & washer |
| 33. Shim | 72. Adapter plates |
| 34. Center housing | 73. Oil seal |
| 35. "O" ring | 74. Front wheel drive housing |
| 36. Bushing | |
| 37. Carrier bracket | |
| 38. Plug | |

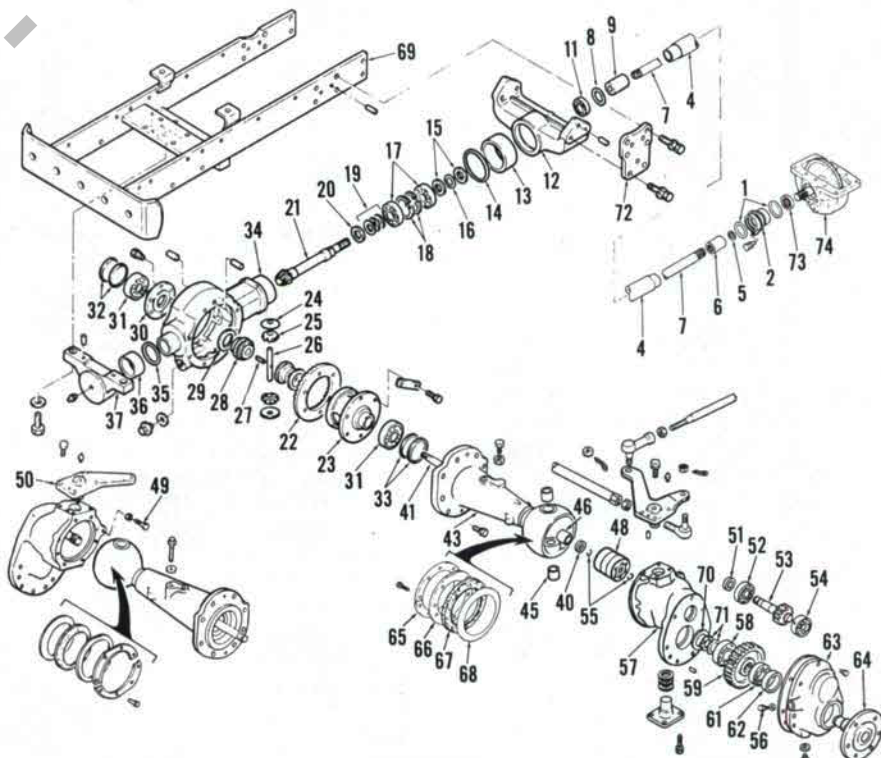


Fig. 8—Exploded view of front wheel drive axle assembly used on 1300 models.

WIRING DIAGRAMS

195. Refer to appropriate Fig. 300 through Fig. 311 for tractor wiring diagram. Refer to paragraphs 90 through 98 for service procedures covering electrical system components.

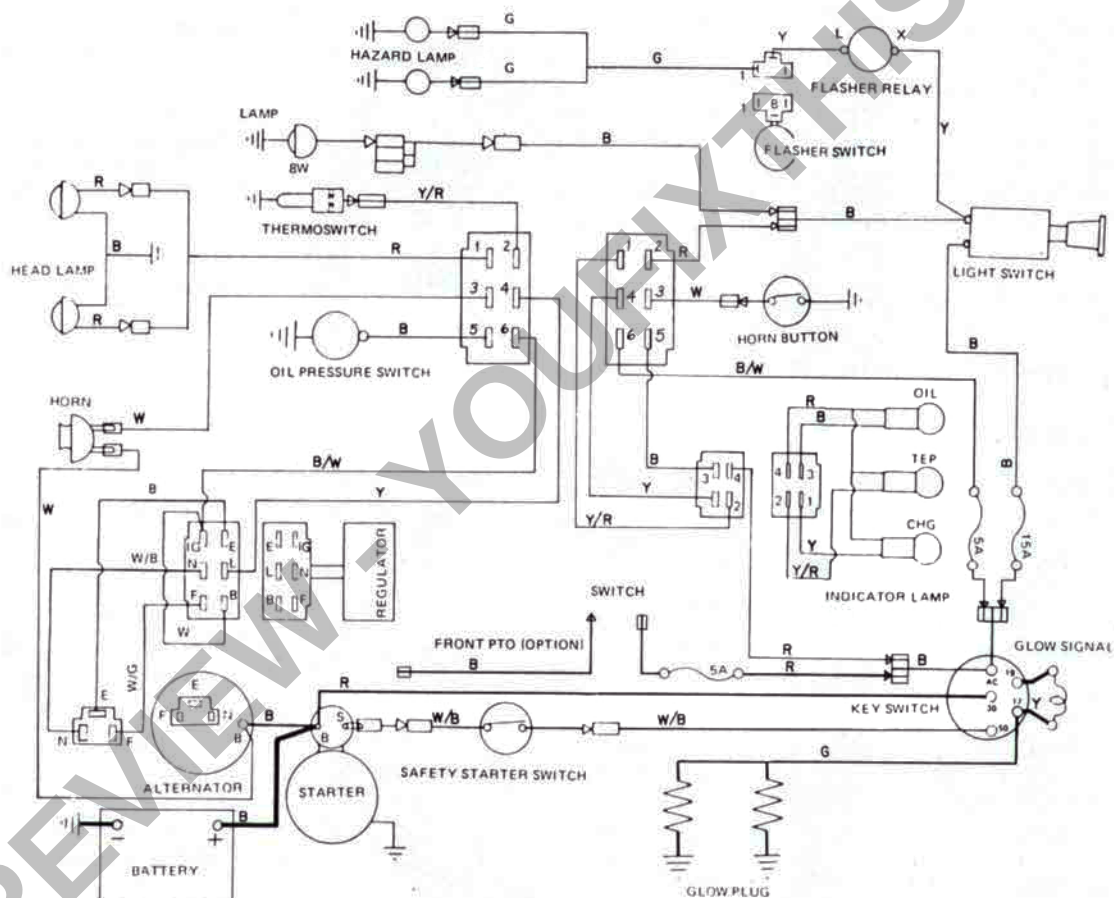


Fig. 300—Wiring diagram typical of 1100 and 1200 models. Wire color code is as follows:

B. Black
G. Green
L. Blue

R. Red
W. White
Y. Yellow

B/W. Black/white stripe
W/B. White/black stripe
Y/R. Yellow/red stripe

(1500) - 2 CYL COMPACT TRACTOR (1/79-12/82) > (06A02) - CYLINDER BLOCK, 1500

Diag #	Part #	Name	Description	Qty
	SBA110006030	SHORT ENGINE	Short Block, 1500, Start Year: 01-JAN-79	1
		No Longer Serviced	No Longer Serviced	1
		Engine Assemblies Include: Cylinder Block Assy., Crankshaft Assy., Camshaft Assy. & Piston & Rod Assy.	Engine Assemblies Include: Cylinder Block Assy., Crankshaft Assy., Camshaft Assy. & Piston & Rod Assy.	1
	SBA110006040	SHORT ENGINE	Short Block, 1700, Start Year: 01-JAN-79	1
		Engine Assemblies Include: Cylinder Block Assy., Crankshaft Assy., Camshaft Assy. & Piston & Rod Assy.	Engine Assemblies Include: Cylinder Block Assy., Crankshaft Assy., Camshaft Assy. & Piston & Rod Assy.	1
1		Bare Block Assy., 1500, Start Year: 01-JAN-79	Bare Block Assy., 1500, Start Year: 01-JAN-79	1
1	SBA110106056	BLOCK	Bare Block Assy., 1700 Includes: Ref. 2 thru 5, Start Year: 01-JAN-79	1
2	SBA198466010	PLUG	8.4mm, Start Year: 01-JAN-79	3
3	SBA064100045	PLUG	, Start Year: 01-JAN-79	3
4	SBA064100055	PLUG	55mm Dia, Start Year: 01-JAN-79	1
5	SBA198516050	BEARING	Front, Main, Standard, Start Year: 01-JAN-79	1
5	SBA198516460	BUSHING	Bearing, Front, Main, .25mm or .010", Start Year: 01-JAN-79	1
		NHNA Only	NHNA Only	1
5	SBA198516470	BEARING	Front, Main, 0.50mm or 0.20", Start Year: 01-JAN-79	1
		NHNA Only	NHNA Only	1
6	SBA030501025	BALL STUD,M10 x 25 L	DOWEL, , Pin M10 x 25 L, Start Year: 01-JAN-79	2
7	SBA030500625	DOWEL	Pin, M6 x 25, Start Year: 01-JAN-79	2
8	SBA030300410	PIN	M4 x 10, Start Year: 01-JAN-79	1
9	SBA052300500	O-RING	, Start Year: 01-JAN-79	1
10	SBA198736052	TUBE	Drain, Start Year: 01-JAN-79	1
11	SBA198416010	GAUGE	, Start Year: 01-JAN-79	1
12	SBA185246011	SENDER UNIT	Sender, Oil, Start Year: 01-JAN-79	1
13	SBA111136020	STUD	Bolt, Start Year: 01-JAN-79	5
14	SBA111136090	STUD	Bolt, Start Year: 01-JAN-79	1
15	SBA199376010	NUT	, Start Year: 01-JAN-79	6
16	SBA199236260	RING	Collar, Start Year: 01-JAN-79	1
17	SBA110706090	ENGINE OIL PAN	Pan Assy., 1500, Start Year: 01-JAN-79	1
17	SBA110706020	PAN	Assy., W/2WD, 1700, Start Year: 01-JAN-79	1

CONDENSED SERVICE DATA (CONT.)

TUNE-UP (CONT.)

	1100	1110	1200	1210
Governed Speeds – Engine Rpm				
Low Idle	750-850	750-850	750-850	750-850
High Idle (No Load)	2750-2800	2750-2800	2850-2900	2850-2900
Rated (Full Load)	2600	2600	2700	2700
Power Rating at Pto				
Shaft	8.2 kW (11 hp)	8.6 kW (11.5 hp)	10 kW (13.5 hp)	10 kW (13.5 hp)
Battery				
Volts	12			
Ground Polarity	Negative			

CAPACITIES

Cooling System	3.0 L (3.2 U.S. qt.)	2.5 L (2.6 U.S. qt.)	4.0 L (4.2 U.S. qt.)	2.3 L (2.5 U.S. qt.)
Crankcase*	3.3 L (3.5 U.S. qt.)	3.3 L (3.5 U.S. qt.)	4.0 L (4.2 U.S. qt.)	3.3 L (3.5 U.S. qt.)
Fuel Tank	14 L (3.7 U.S. gal.)	18 L (4.8 U.S. gal.)	14 L (3.7 U.S. gal.)	18 L (4.8 U.S. gal.)
Standard Transmission & Rear Axle	18.9 L (20 U.S. qt.)	17 L (18 U.S. qt.)	18.9 L (20 U.S. qt.)	17 L (18 U.S. qt.)
Hydrostatic Transmission & Rear Axle		15.5 L (16.4 U.S. qt.)		15.5 L (16.4 U.S. qt.)
Front Axle Differential Case	1.5 L (1.6 U.S. qt.)	1.5 L (1.6 U.S. qt.)	1.5 L (1.6 U.S. qt.)	1.5 L (1.6 U.S. qt.)
Front Axle Reduction Case (Each)	0.2 L (0.21 U.S. qt.)	0.2 L (0.21 U.S. qt.)	0.2 L (0.21 U.S. qt.)	0.2 L (0.21 U.S. qt.)

*With filter change.

SPECIAL TORQUES

Connecting Rod Caps	24-27 N·m (18-20 ft.-lbs.)	24-27 N·m (18-20 ft.-lbs.)	24-27 N·m (18-20 ft.-lbs.)	29-34 N·m (22-25 ft.-lbs.)
Main Bearing Holders			71-81 N·m (52-60 ft.-lbs.)	25-29 N·m (18-25 ft.-lbs.)
Crankshaft Rear Plate	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)		
Flywheel	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	56-69 N·m (43-51 ft.-lbs.)
Cylinder Head	146-152 N·m (108-112 ft.-lbs.)	128 N·m (94 ft.-lbs.)	150-155 N·m (110-114 ft.-lbs.)	48 N·m (35 ft.-lbs.)

Paragraph 45 (Cont.)

FORD

Crankpin Journal Diameter	
Standard	59.95-59.97 mm (2.3602-2.3610 in.)
Crankpin Bearing Clearance	
Desired	0.040-0.104 mm (0.0016-0.0040 in.)
Wear Limit	0.20 mm (0.008 in.)
Taper and Out-of-Round, All Journals	
Wear Limit	0.05 mm (0.002 in.)
End Play	
Desired	0.10-0.45 mm (0.004-0.018 in.)
Wear Limit	0.70 mm (0.028 in.)

When renewing front and rear main bearings, be sure that oil hole in bearing is aligned with oil hole in cylinder block and rear cover as shown in Fig. 86 through 89. Notch (3) in bearings should be located on top. Press bearings into cylinder block or rear cover to proper depth using a suitable driver. Check bearing inside diameter after installation to make sure that bearing was not deformed and that journal to bearing clearance is within specifications. On three and four cylinder models, center main bearing clearance should be checked using Plastigage.

The cylinder block of early 1100 and 1300 models uses one pin to hold front thrust washer in position while late production 1100 and 1300 models use two pins. The early cylinder blocks can be modified to accommodate two pins if desired. To modify early cylinder block, drill two 4 mm (5/32 inch) diameter holes as indicated in Fig. 90. Do not attempt to use existing hole (B), but drill two new holes on 45° angle as indicated at (A) in the drawing. Holes (A) should be 42 mm (1.653 inches) from center of bearing bore as indicated at (D). The spring pins (P—Fig. 91) should be installed 1 mm (0.040 inch) below thrust surface of washer (11).

On all two cylinder models, install thrust washer in front of block. Lubricate main journals, then slide crankshaft into front main bearing. Install rear cover with main bearing, thrust washer and new oil seal. Tighten cover retaining cap screws to 46-54 N·m (35-40 ft.-lbs.) torque. Be sure that crankshaft is free to turn without binding. Measure crankshaft end play using a dial indicator. If end play exceeds 0.70 mm (0.028 inch), renew thrust washers.

On all three cylinder and four cylinder models, lubricate and assemble center main bearings, thrust washers and bearing holders on crankshaft. Be sure that chamfered side (5—Fig. 92, 93, 94 or 95) of bearing holders (1) face toward front of crankshaft. Note that second (from

Fig. 86—View showing correct installation of front main bearing on 1210 and 1310 models. Be sure that oil holes in bearing and cylinder block are aligned.

1. Oil hole
2. Front main bearing
4. Front face of block
7. Flush

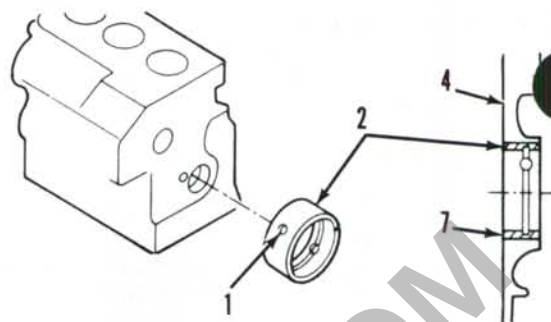


Fig. 87—View showing correct installation of front and rear main bearings on 1510 models. Notch (3) in bearings goes to the top.

1. Oil hole
2. Front main bearing
3. Notch

4. Front face of block
5. Rear main bearing

6. Rear cover
7. Flush

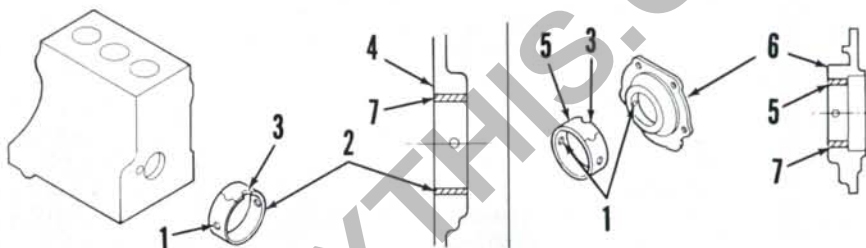


Fig. 88—View showing correct installation of front and rear main bearings on 1710 models. Notch (3) in bearings goes to the top.

- A. 1.0 mm (0.040 in.)
1. Oil hole
2. Front main bearing
3. Notch

4. Front face of block
5. Rear main bearing

6. Rear cover
7. Flush

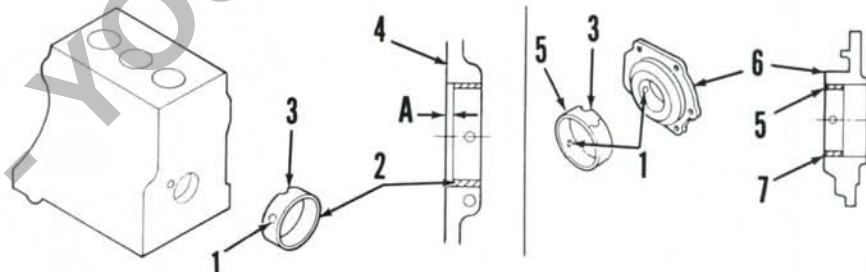
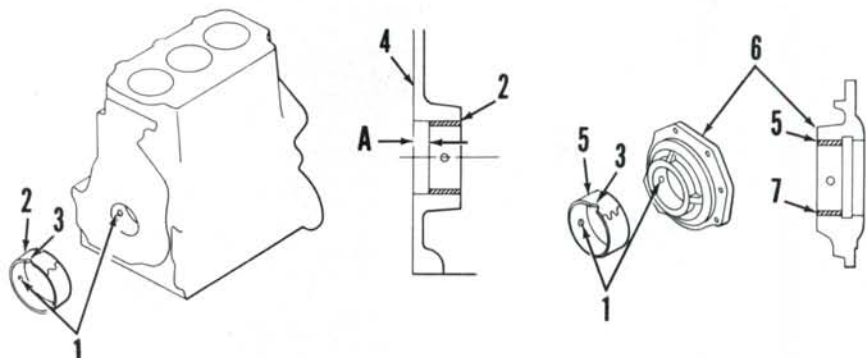


Fig. 89—View showing correct installation of front and rear main bearings on 1910 and 2110 models. Notch (3) in bearings goes to the top.

- A. 12.0 mm (0.472 in.)
1. Oil holes
2. Front main bearing
3. Notch

4. Front face of block
5. Rear main bearing

6. Rear cover
7. Flush



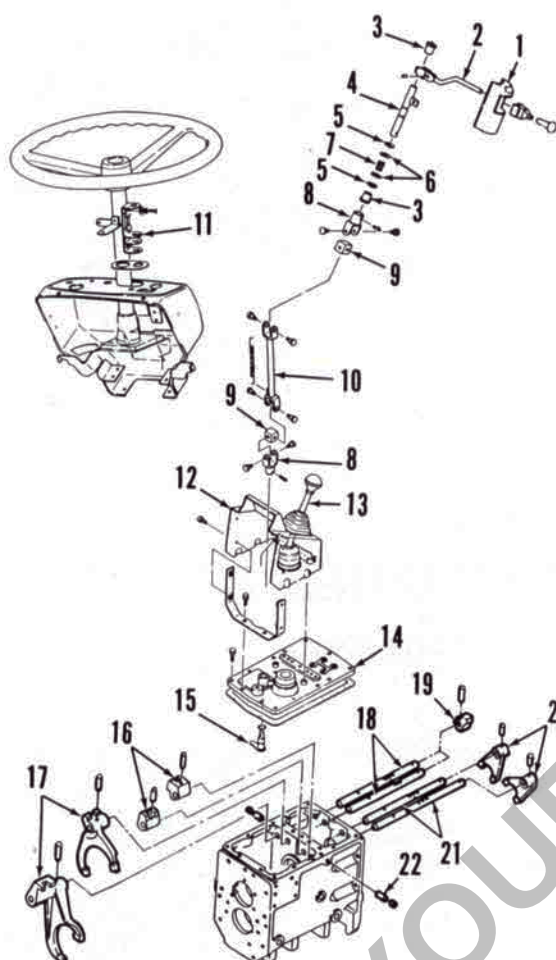


Fig. 215—Exploded view of shift linkage used on 1310, 1510, 1710, 1910 and 2110 models equipped with synchromesh transmission.

1. Cover
2. Shift lever (main transmission)
3. Bushings
4. Shifter rod (upper)
5. Snap rings
6. Washers
7. Spring
8. U-joint
9. Block
10. Shifter rod (lower)
11. Support bracket
12. Console cover
13. Shift lever (range)
14. Shift cover
15. Shifter arm
16. Bosses
17. Main gear shift forks
18. Main gear shift rails
19. Magnet (2 used)
20. Range gear shift forks
21. Range gear shift rails
22. Interlock pin

be removed after transmission mainshaft is removed. Slide range shift rails (21) rearward from housing while removing shift bosses (16) and forks (20).

Remove cap screws from rear bearing retainer (31—Fig. 216), then withdraw range mainshaft (30) with bearing (29) rearward from housing. Remove range sliding gears (26 and 27).

Remove snap ring (41) retaining range countershaft rear bearing (42). Slide countershaft (43) and rear bearing rearward from housing while removing counter gears (48, 46 and 45) and spacer (47) out top of housing.

Remove input shaft retainer and housing (32). Withdraw pto input shaft (2) and pto driven gear (61) and shaft (62) from front of housing.

Remove snap ring (23) retaining mainshaft rear bearing, then withdraw mainshaft (24) and bearing (22) rearward from housing. Remove synchronizer assembly, constant mesh gears (18 and 20) and spacer (19) through top opening as shaft is withdrawn. Be careful not to lose steel ball (16), if used, that retains coupling (15) to mainshaft.

Remove rear bearing (49) and snap ring (50) from housing bore, then tap

main countershaft (59) rearward. Remove gears (58, 56 and 54), spacer (57), coupling (55), synchronizer assembly and thrust washer (51) as countershaft is withdrawn from housing. Be careful not to lose steel balls (16) if used.

Move transmission input shaft (8) and bearing rearward and upward through top opening of transmission housing.

To remove reverse idler assembly, remove retaining bolt (37) and drive roll pins out of idler shaft (36). Slide shaft out rear of housing as thrust washers (38), idler gear (40) and bearings (39) are removed through top opening.

Inspect all parts for excessive wear or damage. Check synchronizer cone wear by measuring clearance (S—Fig. 217) between teeth of synchronizer ring (1) and gear (2). Renew parts as necessary if clearance is less than 0.5 mm (0.020 inch). Renew synchronizer ring and/or gear if teeth are worn or broken. Clearance (C—Fig. 218) between shifter forks (3) and grooves of synchronizer collars (4) and range sliding gears should be 0.10-0.30 mm (0.004-0.012 inch) with a wear limit of 1.0 mm (0.039 inch).

To reassemble transmission, reverse the removal procedure while noting the following special instructions.

When installing reverse idler assembly, be sure that hub side of idler gear (40—Fig. 216) faces rearward. Position grooved face of thrust washers (38) toward idler gear.

Install transmission input shaft (8) with bearing (6). Insert main countershaft (59) from the rear while assembling thrust washer (51), synchronizer assembly, gears (56 and 58) and spacer (57) onto shaft.

NOTE: Make sure steel balls (16), if used, that retain synchronizer collars (51 and 55) in a fixed position on countershaft are in place during assembly.

Install snap ring (50) to retain countershaft rear bearing, then use a dial indicator to measure countershaft end play. Maximum allowable end play is 0.20 mm (0.008 inch). Install shims (64), if necessary, in front of countershaft front bearing (60) to obtain desired end play.

Position lower shifter fork in groove of lower synchronizer sliding collar. Insert transmission mainshaft (24) from the rear while installing gears (18 and 20), spacer (19) and synchronizer assembly. Install snap-ring (23) retaining

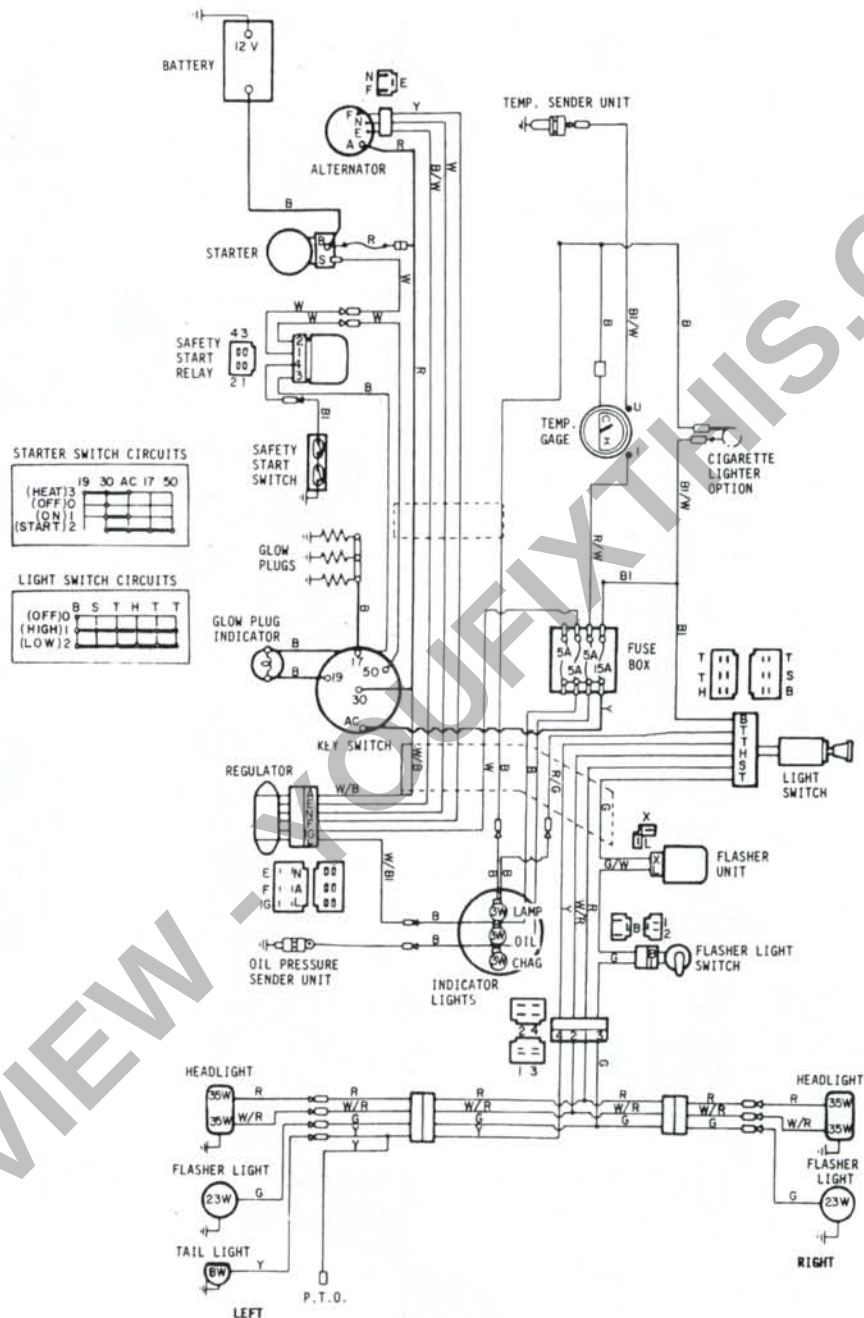


Fig. 306—Wiring diagram typical of early production (prior to July 1985) 1710 models. Wire color code is as follows:

B. Black
BL. Blue
G. Green
R. Red
W. White

Y. Yellow
B/W. Black/white
stripe
BL/W. Blue/white stripe

G/W. Green/white
stripe
R/G. Red/green stripe
R/W. Red/white stripe

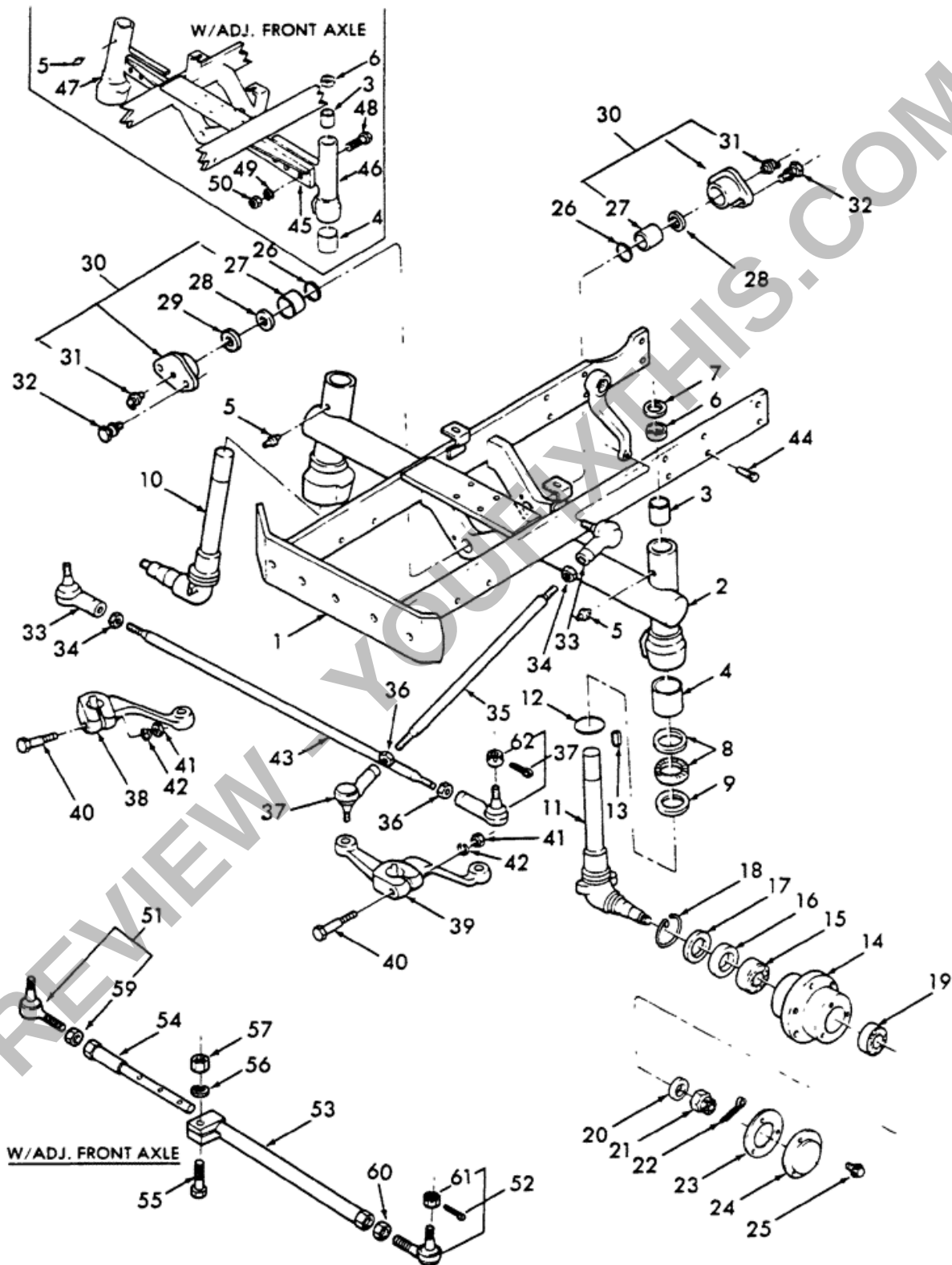
W/B. White/black
stripe
W/BL. White/blue stripe
W/R. White/red stripe

Diag #	Part #	Name	Description	Qty
29	82012717	HOSE CLAMP,11 x 17mm	CLAMP, HOSE, 11 x 17mm, Start Year: 01-JAN-79	4
30	SBA398110670	RUBBER WEATHERSTRIP	Cushion, Years: 01-JAN-79-28-FEB-79	1
8	SBA360200200	BAND	, Start Year: 01-NOV-80	1
12A	SBA360500470	CLAMP	Holder, L/Power Steering, Start Year: 01-NOV-80	1
12B	SBA360500490	CLAMP	Holder, W/Power Steering, 1700, Start Year: 01-NOV-80	1
31	86508574	BOLT,Hex, M10 x 120mm, CI 8.8	W/Power Steering, 1700 Hex, M10 x 120, 8.8, Start Year: 01-NOV-80	2

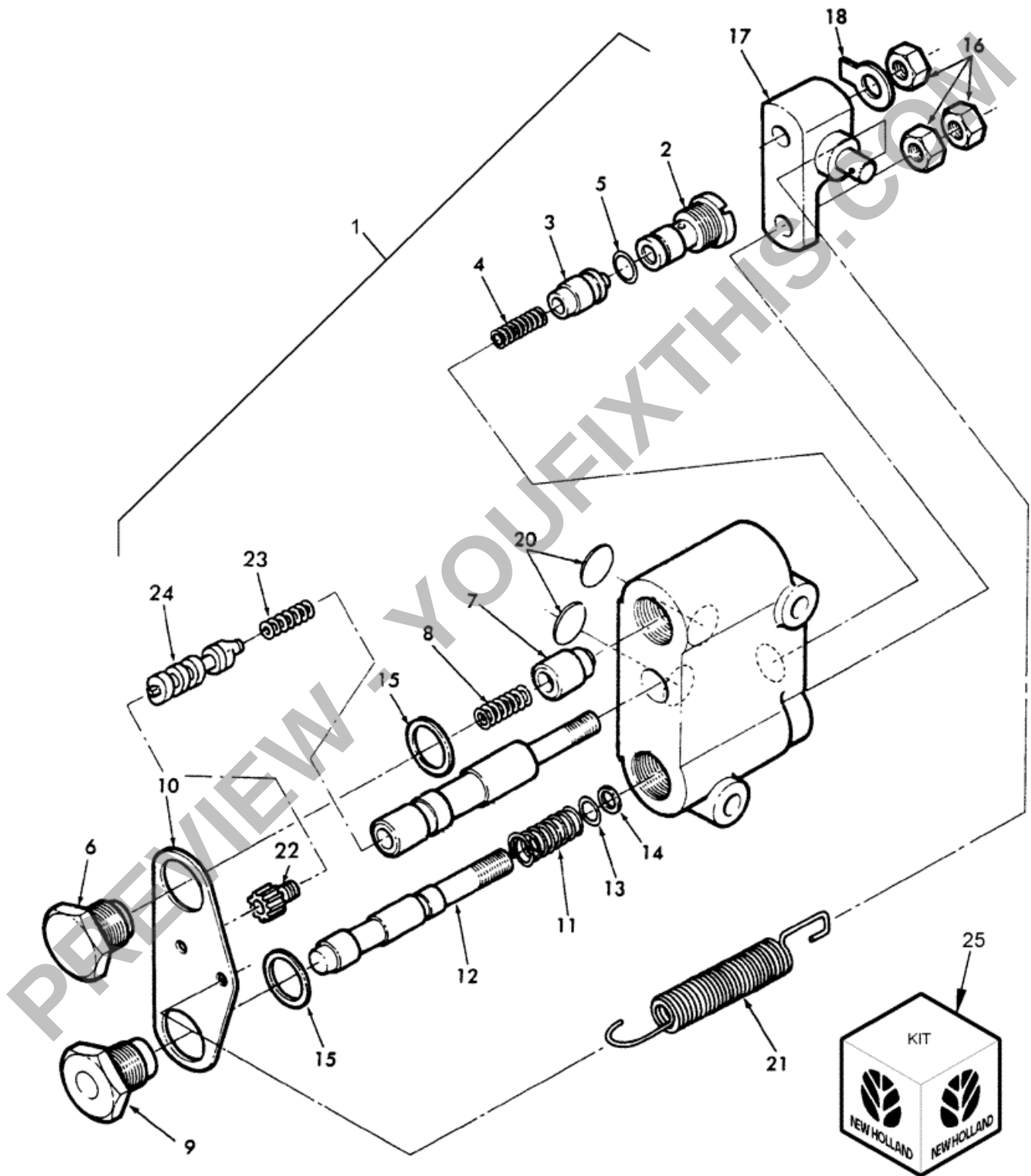
(1500) - 2 CYL COMPACT TRACTOR (1/79-12/82) > (07E04) - DOUBLE CLUTCH

Diag #	Part #	Name	Description	Qty
1	SBA320040110	CLUTCH	Pressure Plate Assy., Double Clutch Includes: Ref. 2 thru 21, Start Year: 01-JAN-79	1
2	SBA320400061	DISC	Assy., PTO, Start Year: 01-JAN-79	1
2	SBA320400061R	REMAN-CLUTCH PLATE	1500, 1700, 1900, Start Year: 01-JAN-79	1
2	SBA320400061C	CORE-CLUTCH PLATE	Return Number, Start Year: 01-JAN-79	1
3	NSS	NOT SERVICED SEPARATELY	Cover, Clutch, Start Year: 01-JAN-79	1
4	NSS	NOT SERVICED SEPARATELY	Plate, Pressure, Start Year: 01-JAN-79	1
5	NSS	NOT SERVICED SEPARATELY	Plate, Pressure, Start Year: 01-JAN-79	1
6	NSS	NOT SERVICED SEPARATELY	Spring, Diaphragm, Start Year: 01-JAN-79	2
7	SBA320460450	PIN	Knock, Start Year: 01-JAN-79	4
8	NSS	NOT SERVICED SEPARATELY	Bolt, Start Year: 01-JAN-79	3
9	SBA021010010	NUT,M10 x 1.25	, Start Year: 01-JAN-79	3
10	NSS	NOT SERVICED SEPARATELY	Cover, Clutch, Start Year: 01-JAN-79	1
11	NSS	NOT SERVICED SEPARATELY	Rod, Release, Start Year: 01-JAN-79	3
12	SBA320460440	PIN	, Start Year: 01-JAN-79	3
13	SBA320460490	PIN	, Start Year: 01-JAN-79	3
14	SBA320460470	PIN	, Start Year: 01-JAN-79	3
15	SBA026100014	WASHER	, Start Year: 01-JAN-79	3
16	SBA030102016	COTTER PIN	Pin, Split, Start Year: 01-JAN-79	3
17	SBA320460460	WASHER	Lockwasher, Start Year: 01-JAN-79	3
18	SBA320461080	BOLT	Adjust, Start Year: 01-JAN-79	3
19	SBA320460640	NUT	, Start Year: 01-JAN-79	3
20	NSS	NOT SERVICED SEPARATELY	Bushing, Start Year: 01-JAN-79	12
21	NSS	NOT SERVICED SEPARATELY	Lever, Release, Start Year: 01-JAN-79	3

(1500) - 2 CYL COMPACT TRACTOR (1/79-12/82) > (03A02) - AXLE, FRONT, 2WD, 1300



(1500) - 2 CYL COMPACT TRACTOR (1/79-12/82) > (05C02) - HYDRAULIC CONTROL VALVE, W/POSITION CONTROL. 1100, 1200, 1300, 1500, 1700, 1900



(1500) - 2 CYL COMPACT TRACTOR (1/79-12/82) > (01C01) - TIRE CHAINS

**ART
NOT
AVAILABLE**

(1500) - 2 CYL COMPACT TRACTOR (1/79-12/82) > (17D07) - ENGINE HEATER KIT, (NH-NA)

Diag #	Part #	Name	Description	Qty
1	E0NN8B152AA	KIT	Engine Heater, 1100, 1200, 1300, Includes: Cord E0NN8N048AA, Start Year: 01-JAN-79	1
1	E0NN8B152BA	KIT	Engine Heater, 1500, 1700, Includes: Cord E0NN8N048AA, Years: 01-JAN-79-31-JAN-82	1
1	E2NN8B152AA	SPARE PART	Kit, Engine Heater, 1500, 1700, Includes: Cord E0NN8N048AA, Start Year: 01-FEB-82	1
		No Longer Serviced	No Longer Serviced	1
1	86575174	KIT	Engine Heater, 1900, Includes: Cord E0NN8N048AA, Start Year: 01-JAN-79	1
	86539137	ELECTRIC CABLE	Cord, Engine Heater	1

- Shut off the tractor engine.
 - Wait until the PTO shaft stops turning.
2. With the PTO disengaged, start the engine. In the case of mounted equipment, raise and lower the equipment to make sure proper clearances exist.
 3. With the transmission in neutral, depress the clutch pedal completely, then engage the PTO by moving the PTO control lever, Figure 16, up or rearward.
- NOTE:** Failure to move the PTO lever through its full range may result in damage to the PTO.
4. Check the PTO-driven equipment for proper operation by gradually releasing the clutch pedal and increasing engine rpm.
 5. After determining that the equipment is operating properly, depress the clutch pedal and shift to the desired operating gear. Release the pedal gradually to start the PTO and tractor in motion.
 6. Control the PTO speed with the throttle, never exceeding 2422 rpm. If the tractor movement is too fast for the PTO load, stop the tractor and shift to a lower gear.
 7. Disengage the PTO with the PTO control lever when making sharp turns with pull-type equipment and with mounted equipment in the fully raised position.
 8. Disconnect the PTO-driven shaft at the tractor PTO shaft before traveling on highways or for any great distance.
 9. Reinstall the PTO shaft cap when the PTO-driven equipment is disconnected from the tractor or when the PTO is not being used.

TOWING THE TRACTOR

To tow your tractor, place the transmission gear-shift levers in neutral. Do not exceed 12 mph (20 kph). Do not tow your tractor to start it.

If the tractor is to be moved any great distance, use a solid tow bar and pull the tractor at a speed not to exceed 12 mph (20 kph).



CAUTION: For safety reasons, towing the tractor on the highway is not recommended. Also, for safety reasons, never attempt to start the engine by towing.

OPERATING THE DIFFERENTIAL LOCK

The differential lock is engaged by depressing the pedal located on the right side of the rear-axle center housing, Figure 19. Depressing the pedal locks both final drive pinion gear shafts together, preventing one wheel from rotating independently of the other. The lock should be used to obtain additional traction from the opposite wheel whenever one wheel begins to slip in wet or loose soil.

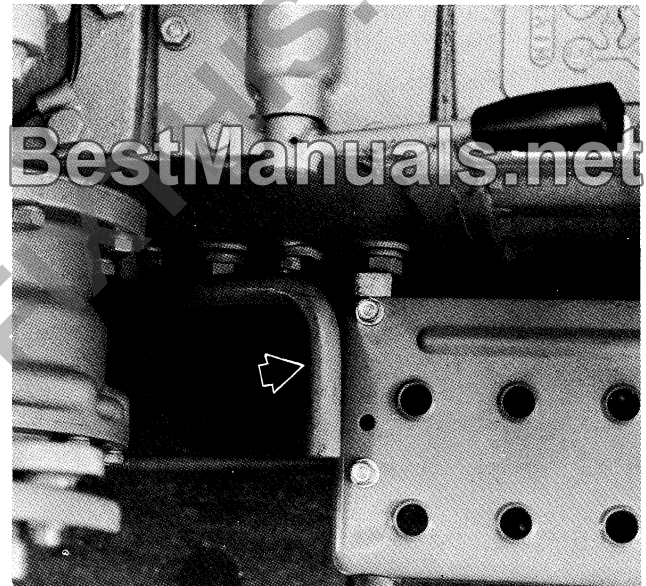


Figure 19 — Differential Lock Pedal

Do not engage the differential lock when driving the tractor on the highway or when ground speed is above 5 mph (8 kph).



CAUTION: Do not engage the differential lock when turning the tractor. If the lock is engaged when turning, a loss of steering control will result.

To operate the differential lock, depress and hold down the pedal until the lock is positively engaged. It is best to engage the differential lock while the wheels are turning slowly to minimize shock loads to the drive line. If a wheel spins at high speed, as on ice, reduce engine speed to idle before engaging the lock, or damage may occur. The differential lock is released by releasing the pedal.

NOTE: In some instances the lock may remain engaged after the pedal is released. This may occur if one rear wheel tends to turn at a faster speed than

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