

# SHOP MANUAL

# CASE/INTERNATIONAL

## MODELS 235, 235H, 245, 255, 265 & 275

The tractor model number and product identification (serial) number is on a plate located on the right side of the front frame rail. The engine serial number is stamped into the injection pump mounting pad on right side of engine. Serial number of the ROPS (Roll Over Protective Structure) is located on right side of structure. On some models, the transmission serial number is stamped into the right of case.

## INDEX (By Starting Paragraph)

|  | Models |      |     |     |     |     |
|--|--------|------|-----|-----|-----|-----|
|  | 235    | 235H | 245 | 255 | 265 | 275 |
| <b>BRAKES</b>                            |        |      |     |     |     |     |
| Adjustment.....                          | 194    | 194  | 194 | 194 | 194 | 194 |
| Operation.....                           | 193    | 193  | 193 | 193 | 193 | 193 |
| R&R and Overhaul.....                    | 195    | 195  | 195 | 195 | 196 | 197 |
| <b>CLUTCH</b>                            |        |      |     |     |     |     |
| Clutch Linkage                           |        |      |     |     |     |     |
| All Models Without Live Pto.....         | 112    | 112  | 112 | 112 | 112 | 112 |
| Models With Live Pto.....                | 113    | 113  | 113 | 113 | 113 | 113 |
| Clutch Split.....                        | 115    | 115  | 116 | 116 | 115 | 117 |
| Cover, Pressure Plate and Disc.....      | 118    | 118  | 118 | 118 | 118 | 118 |
| <b>COOLING SYSTEM</b>                    |        |      |     |     |     |     |
| Belt.....                                | 105    | 105  | 105 | 105 | 105 | 105 |
| Radiator.....                            | 103    | 103  | 103 | 103 | 103 | 103 |
| Thermostat.....                          | 104    | 104  | 104 | 104 | 104 | 104 |
| Water Pump.....                          | 106    | 106  | 106 | 106 | 106 | 106 |
| <b>DIESEL FUEL SYSTEM</b>                |        |      |     |     |     |     |
| Fuel Filter and Lines.....               | 89     | 89   | 89  | 89  | 89  | 89  |
| Fuel Shut-Off Solenoid.....              | 102    | 102  | 102 | 102 | 102 | 102 |
| Glow Plugs.....                          | 101    | 101  | 101 | 101 | 101 | 101 |
| Governor and Injection Pump Camshaft.... | 94     | 94   | 94  | 94  | 94  | 94  |
| Injection Pump.....                      | 91     | 91   | 91  | 91  | 91  | 91  |
| Injector Nozzles.....                    | 96     | 96   | 96  | 96  | 96  | 96  |
| <b>DIFFERENTIAL</b> .....                | 186    | 186  | 186 | 186 | 186 | 186 |
| <b>ELECTRICAL SYSTEM</b>                 |        |      |     |     |     |     |
| Alternator and Regulator.....            | 107    | 107  | 107 | 107 | 107 | 107 |
| Circuit Description.....                 | 110    | 110  | 110 | 110 | 110 | 110 |
| Safety Switches.....                     | 109    | 109  | 109 | 109 | 109 | 109 |
| Starting Motor.....                      | 108    | 108  | 108 | 108 | 108 | 108 |

# INDEX (CONT.)

|   | Models |      |     |     |     |     |
|---|--------|------|-----|-----|-----|-----|
|   | 235    | 235H | 245 | 255 | 265 | 275 |
| <b>ENGINE</b>   |        |      |     |     |     |     |
| Cam Followers . . . . .   | 74     | 74   | 74  | 74  | 74  | 74  |
| Camshaft . . . . .  | 78     | 78   | 78  | 78  | 78  | 78  |
| Connecting Rods and Bearings . . . . .                          | 81     | 81   | 81  | 81  | 81  | 81  |
| Crankshaft and Main Bearings . . . . .                          | 82     | 82   | 82  | 82  | 82  | 82  |
| Crankshaft Seals . . . . .                                      | 83     | 83   | 83  | 83  | 83  | 83  |
| Cylinder Head . . . . .   | 69     | 69   | 69  | 69  | 69  | 69  |
| Flywheel . . . . .  | 85     | 85   | 85  | 85  | 85  | 85  |
| Maintenance . . . . .   | 64     | 64   | 64  | 64  | 64  | 64  |
| Oil Pan . . . . .   | 87     | 87   | 87  | 87  | 87  | 87  |
| Oil Pump . . . . .  | 86     | 86   | 86  | 86  | 86  | 86  |
| Pistons, Cylinder Block and Rings . . . . .                     | 80     | 80   | 80  | 80  | 80  | 80  |
| R&R Engine Assembly . . . . .                                   | 68     | 68   | 68  | 68  | 68  | 68  |
| Rocker Arms and Push Rods . . . . .                             | 73     | 73   | 73  | 73  | 73  | 73  |
| Rod and Piston Units . . . . .                                  | 79     | 79   | 79  | 79  | 79  | 79  |
| Timing Gears . . . . .  | 75     | 75   | 75  | 75  | 75  | 75  |
| Timing Gear Cover . . . . .                                     | 77     | 77   | 77  | 77  | 77  | 77  |
| Valve Clearance . . . . .                                       | 70     | 70   | 70  | 70  | 70  | 70  |
| Valve Springs . . . . .   | 72     | 72   | 72  | 72  | 72  | 72  |
| Valves, Guides and Seats . . . . .                              | 71     | 71   | 71  | 71  | 71  | 71  |
| <b>FINAL DRIVE</b> . . . . .                                    | 187    | 187  | 187 | 187 | 189 | 191 |
| <b>FRONT AXLE SYSTEM (TWO-WHEEL DRIVE)</b>                      |        |      |     |     |     |     |
| Axle Main Member . . . . .                                      | 9      | 9    | 10  | 10  | 11  | 12  |
| Spindles and Bushings . . . . .                                 | 5      | 5    | 6   | 6   | 7   | 8   |
| Steering Bellcrank . . . . .                                    | ...    | ...  | ... | ... | ... | 15  |
| Tie Rod and Toe-In . . . . .                                    | 2      | 2    | 4   | 2   | 3   | 4   |
| Tires, Wheels and Bearings . . . . .                            | 1      | 1    | 1   | 1   | 1   | 1   |
| Tread Adjustment and Drag Link<br>Non-Adjustable Axle . . . . . | 13     | 13   | 14  | 14  | 14  | 14  |
| <b>FRONT-WHEEL-DRIVE SYSTEM</b> . . . . .                       | 16     | 16   | 25  | 25  | ... | 34  |
| Axle and Steering Linkage . . . . .                             | 18     | 18   | 27  | 27  | ... | 36  |
| Differential . . . . .  | 23     | 23   | 32  | 32  | ... | 41  |
| Differential Bevel Pinion . . . . .                             | 22     | 22   | 31  | 31  | ... | 40  |
| Front Drive Spindles and Inner Axles . . . . .                  | 21     | 21   | 30  | 30  | ... | 39  |
| Front Final Drives and Wheel Axles . . . . .                    | 20     | 20   | 29  | 29  | ... | 38  |
| Front Wheel Drive . . . . .                                     | 24     | 24   | 33  | 33  | ... | 42  |
| Maintenance . . . . .   | 17     | 17   | 26  | 26  | ... | 35  |
| <b>HYDRAULIC LIFT SYSTEM</b>                                    |        |      |     |     |     |     |
| Auxiliary Valve . . . . .                                       | 216    | 216  | 216 | 216 | 216 | 216 |
| Fluid and Filters . . . . .                                     | 202    | 202  | 202 | 202 | 202 | 202 |
| Hydraulic Pump . . . . .  | 212    | 212  | 212 | 212 | 212 | 212 |
| Lift Cover . . . . .  | 214    | 214  | 214 | 214 | 214 | 214 |
| Troubleshooting . . . . .                                       | 203    | 203  | 203 | 203 | 203 | 203 |
| Tests and Adjustments . . . . .                                 | 204    | 204  | 205 | 205 | 209 | 211 |
| <b>MANUAL STEERING SYSTEM</b> . . . . .                         | 44     | 44   | 44  | 44  | 47  | 50  |
| <b>POWER STEERING SYSTEM</b> . . . . .                          | ...    | ...  | 54  | 54  | 57  | 60  |

## INDEX (CONT.)

|  | <b>Models</b> |             |            |            |            |            |
|--|---------------|-------------|------------|------------|------------|------------|
|  | <b>235</b>    | <b>235H</b> | <b>245</b> | <b>255</b> | <b>265</b> | <b>275</b> |
| <b>POWER TAKE-OFF</b> .....                          | 199           | 199         | 200        | 200        | 200        | 199        |
| <b>TRANSMISSION (235H HYDROSTATIC)</b>               |               |             |            |            |            |            |
| Hydrostatic Unit .....                               | ...           | 181         | ...        | ...        | ...        | ...        |
| Lubrication .....                                    | ...           | 175         | ...        | ...        | ...        | ...        |
| Overhaul .....                                       | ...           | 182         | ...        | ...        | ...        | ...        |
| Range Transmission .....                             | ...           | 183         | ...        | ...        | ...        | ...        |
| Tests and Adjustments .....                          | ...           | 177         | ...        | ...        | ...        | ...        |
| Troubleshooting .....                                | ...           | 176         | ...        | ...        | ...        | ...        |
| <b>TRANSMISSION (235 SLIDING GEAR)</b>               |               |             |            |            |            |            |
| Inspection .....                                     | 120           | ...         | ...        | ...        | ...        | ...        |
| Lubrication .....                                    | 121           | ...         | ...        | ...        | ...        | ...        |
| Overhaul .....                                       | 123           | ...         | ...        | ...        | ...        | ...        |
| Remove and Reinstall .....                           | 122           | ...         | ...        | ...        | ...        | ...        |
| <b>TRANSMISSION (245, 255 AND 265 CONSTANT MESH)</b> |               |             |            |            |            |            |
| Inspection .....                                     | ...           | ...         | 133        | 133        | 133        | ...        |
| Lubrication .....                                    | ...           | ...         | 134        | 134        | 134        | ...        |
| Overhaul .....                                       | ...           | ...         | 136        | 136        | 136        | ...        |
| Remove and Reinstall .....                           | ...           | ...         | 135        | 135        | 135        | ...        |
| <b>TRANSMISSION (245, 255 AND 265 SYNCHROMESH)</b>   |               |             |            |            |            |            |
| Inspection .....                                     | ...           | ...         | 144        | 144        | 144        | ...        |
| Lubrication .....                                    | ...           | ...         | 145        | 145        | 145        | ...        |
| Overhaul .....                                       | ...           | ...         | 147        | 147        | 147        | ...        |
| Range Transmission .....                             | ...           | ...         | 155        | 155        | 155        | ...        |
| Remove and Reinstall .....                           | ...           | ...         | 146        | 146        | 146        | ...        |
| <b>TRANSMISSION (275 MODEL)</b>                      |               |             |            |            |            |            |
| Hydraulic Clutch .....                               | ...           | ...         | ...        | ...        | ...        | 171        |
| Inspection .....                                     | ...           | ...         | ...        | ...        | ...        | 161        |
| Lubrication .....                                    | ...           | ...         | ...        | ...        | ...        | 162        |
| Overhaul .....                                       | ...           | ...         | ...        | ...        | ...        | 166        |
| Remove and Reinstall .....                           | ...           | ...         | ...        | ...        | ...        | 163        |

## DUAL DIMENSIONS

This service manual provides specifications in both U.S. Customary and Metric (SI) systems of measurement. The first specification is given in the measuring system perceived by us to be the preferred system when servicing a particular component, while the second specification (given in parenthesis) is the converted measurement. For instance, a specification of 0.011 inch (0.28 mm) would indicate that we feel the preferred measurement in this instance is the U.S. Customary system of measurement and the Metric equivalent of 0.011 inch is 0.28 mm.

**<https://www.ebooklibonline.com>**

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

**<https://www.ebooklibonline.com>**

# CONDENSED SERVICE DATA

|                             | Models                               |                          |                           |                                      |                           |
|-----------------------------|--------------------------------------|--------------------------|---------------------------|--------------------------------------|---------------------------|
|                             | 235, 235H                            | 245                      | 255                       | 265                                  | 275                       |
| <b>GENERAL</b>              |                                      |                          |                           |                                      |                           |
| Engine Make .....           | Mitsubishi                           |                          |                           |                                      |                           |
| Engine Model .....          | K3B                                  | K3D                      | K3E                       | K3H                                  | K3M                       |
| Number of Cylinders .....   | 3                                    |                          |                           |                                      |                           |
| Bore .....                  | 68 mm<br>(2.677 in.)                 | 73 mm<br>(2.874 in.)     | 76 mm<br>(2.992 in.)      | 78 mm<br>(3.071 in.)                 | 84 mm<br>(3.307 in.)      |
| Stroke .....                | 78 mm<br>(3.071 in.)                 |                          |                           | 90 mm<br>(3.543 in.)                 |                           |
| Displacement .....          | 849 cc<br>(51.81 cu.in.)             | 979 cc<br>(59.74 cu.in.) | 1061 cc<br>(64.75 cu.in.) | 1290 cc<br>(78.72 cu.in.)            | 1496 cc<br>(91.29 cu.in.) |
| Compression Ratio .....     | 23:1                                 |                          |                           |                                      |                           |
| <b>TUNE-UP</b>              |                                      |                          |                           |                                      |                           |
| Firing Order .....          | 1-3-2                                |                          |                           |                                      |                           |
| Valve Clearance, Cold —     |                                      |                          |                           |                                      |                           |
| Inlet .....                 | 0.25 mm<br>(0.010 in.)               |                          |                           |                                      |                           |
| Exhaust .....               | 0.25 mm<br>(0.010 in.)               |                          |                           |                                      |                           |
| Valve Face and Seat Angle — |                                      |                          |                           |                                      |                           |
| Inlet .....                 | 45°                                  |                          |                           |                                      |                           |
| Exhaust .....               | 45°                                  |                          |                           |                                      |                           |
| Injector —                  |                                      |                          |                           |                                      |                           |
| Opening Pressure .....      | 10,789-12,749 kPa<br>(1565-1849 psi) |                          |                           | 14,714-16,672 kPa<br>(2134-2418 psi) |                           |
| Engine Low Idle .....       | 900-950                              |                          |                           |                                      |                           |
| Engine High Idle .....      | 2825-2900                            |                          |                           |                                      | 2825-2880                 |
| Engine Rated Speed .....    | 2700                                 | 2700                     | 2800                      | 2700                                 | 2700                      |
| Battery —                   |                                      |                          |                           |                                      |                           |
| Voltage .....               | 12                                   |                          |                           |                                      |                           |
| Ground .....                | Negative                             |                          |                           |                                      |                           |
| Transmission —              |                                      |                          |                           |                                      |                           |
| Types Available .....       | *                                    | †                        | †                         | †                                    | ‡                         |
| Speeds —                    |                                      |                          |                           |                                      |                           |
| Sliding gear .....          | 6F - 2R                              | .....                    |                           |                                      | .....                     |
| Hydrostatic .....           | Variable × 2                         | .....                    |                           |                                      | .....                     |
| Constant mesh .....         | ....                                 | 9F - 3R                  |                           |                                      | ....                      |
| Synchronesh .....           | 9F - 3R                              |                          |                           |                                      |                           |
| <b>SIZES</b>                |                                      |                          |                           |                                      |                           |
| Crankshaft Main Journal     |                                      |                          |                           |                                      |                           |
| Diameter .....              | 52 mm<br>(2.0472 in.)                |                          |                           | 57 mm<br>(2.44 in.)                  |                           |
| Crankshaft Crankpin         |                                      |                          |                           |                                      |                           |
| Diameter .....              | 42 mm<br>(1.6535 in.)                |                          |                           | 48 mm<br>(1.890 in.)                 |                           |
| Piston Pin Diameter .....   | 19 mm<br>(0.905 in.)                 |                          |                           | 23 mm<br>(0.905 in.)                 |                           |
| Valve Stem Diameter .....   | 6.6 mm<br>(0.2598 in.)               |                          |                           | 8.0 mm<br>(0.3150 in.)               |                           |

# CONDENSED SERVICE DATA (CONT.)

|  | 235, 235H           | 245                | Models<br>255          | 265                | 275 |
|--|---------------------|--------------------|------------------------|--------------------|-----|
| <b>CLEARANCES</b>  |                     |                    |                        |                    |     |
| Main Bearing, Diametral<br>Clearance, Maximum .....                |                     |                    | 0.1 mm<br>(0.004 in.)  |                    |     |
| Rod Bearing Diametral<br>Clearance, Maximum .....                  |                     |                    | 0.15 mm<br>(0.006 in.) |                    |     |
| Camshaft Bearing, Diametral<br>Clearance, Maximum —<br>Front ..... |                     |                    | 0.15 mm<br>(0.006 in.) |                    |     |
| Crankshaft End Play,<br>Maximum .....                              |                     |                    | 0.1 mm<br>(0.004 in.)  |                    |     |
| <b>CAPACITIES</b>  |                     |                    |                        |                    |     |
| Cooling System .....   | 6 L<br>(6.34 qt.)   | 5.3 L<br>(5.6 qt.) | 5.8 L<br>(6.1 qt.)     | 6 L<br>(6.34 qt.)  |     |
| Crankcase<br>With Filter .....                                     | 3.5 L<br>(3.70 qt.) | 4.5 L<br>(4.8 qt.) | 4.7 L<br>(5.0 qt.)     |                    |     |
| Transmission —<br>Constant Mesh .....                              | ....                | 20 L<br>(5.3 gal.) | 46 L<br>(12.2 gal.)    | ....               |     |
| Sliding Gear .....   | 12 L<br>(3.17 gal.) | ....               | ....                   | ....               |     |
| Synchronized .....   | ....                | 25 L<br>(6.6 gal.) | 46 L<br>(12.2 gal.)    | #                  |     |
| Hydrostatic .....  | 14 L<br>(3.70 gal.) | ....               | ....                   | ....               |     |
| Front Drive Axle .....   | 2.5 L<br>(2.6 qt.)  | 3.5 L<br>(3.7 qt.) | ....                   | 7.3 L<br>(7.7 qt.) |     |

\* Model 235 is equipped with a sliding gear transmission and 235H model is equipped with a hydrostatic transmission. Both the sliding gear transmission and the variable speed (F/R) hydrostatic transmission are coupled to a two speed, range transmission.

† Models 245, 255 and 265 may be equipped with either a constant mesh transmission or a synchromesh transmission. Both constant mesh and synchromesh transmissions are coupled to a three speed range transmission, which provide 9 forward and 3 reverse speeds. The constant mesh transmission is used without live pto; the synchromesh transmission is used with live pto.

‡ Model 275 tractors are equipped with a three forward and 1 reverse speed synchromesh transmission coupled to a three speed range transmission, which provides 9 forward and 3 reverse speeds.

# On 275 models, capacity of the gear transmission is 6.5 L (1.7 gal.), capacity of the range transmission is 19 L (5.0 gal.), and capacity of the rear axle gear case is 3 L (0.8 gal.) for each side.

# FRONT AXLE SYSTEM (TWO-WHEEL DRIVE)

## TIRES, WHEELS AND BEARINGS

### All Two-Wheel-Drive Models

1. The front wheel bearings should be removed, cleaned, inspected and renewed or repacked with grease every 1000 hours of operation. To remove front wheel hub and bearings, raise and support the front axle, unbolt and remove the tire and wheel assembly, then remove cap (1—Fig. 1 or Fig. 2). On 235 and 235H models, straighten locking washer (3—Fig. 1), then remove nut (2) and lockwasher. On all except 235 and 235H models, remove cotter pin, castellated nut (2—Fig. 2), and washer (3). On all models, use a suitable puller to remove the hub assembly from spindle axle shaft. Seal (8—Fig. 1 or Fig. 2) and inner bearing (6) will remain on spindle. Pack wheel bearings liberally with a suitable wheel bearing grease, such as Case IH 251 HEP.

Reassemble by reversing disassembly procedure. On 235 and 235H models, install new locking washer (3—Fig. 1) and tighten nut (2) to 39-58 N·m (28-43 ft.-lbs.) torque, loosen nut until the rolling torque of wheel hub (5) is 0.6-0.8 N·m (6-7 in.-lbs.), then lock

position of nut with tab of locking washer (3) and install cap (1). Tighten bolts retaining front wheel to hub to 118-132 N·m (87-98 ft.-lbs.) torque.

On all except 235 and 235H models, tighten castellated nut (2—Fig. 2) to 39-58 N·m (28-43 ft.-lbs.) torque, loosen nut until the rolling torque of wheel hub (5) is 0.6-0.8 N·m (6-7 in.-lbs.), then lock position of nut with cotter pin and install cap (1). Tighten bolts retaining front wheel to hub to 83-93 N·m (61-69 ft.-lbs.) torque.

Rear wheel to axle hub bolts and rear axle stud nuts for 235 and 235H models should be tightened to 118-132 N·m (87-98 ft.-lbs.) torque. On 245, 255 and 275 models, the rear wheel to axle hub bolts should be tightened to 118-132 N·m (87-98 ft.-lbs.) torque and nuts securing rear wheel rim to wheel disc should be tightened to 152-172 N·m (112-127 ft.-lbs.) torque. Rear wheel disc to axle hub and rear wheel rim to wheel disc nuts should be tightened to 152-172 N·m (112-127 ft.-lbs.) torque for 265 models.

On all models, lug bolt torque for all wheels should be checked after the first 10 hours of operation following installation and every 100 hours thereafter.

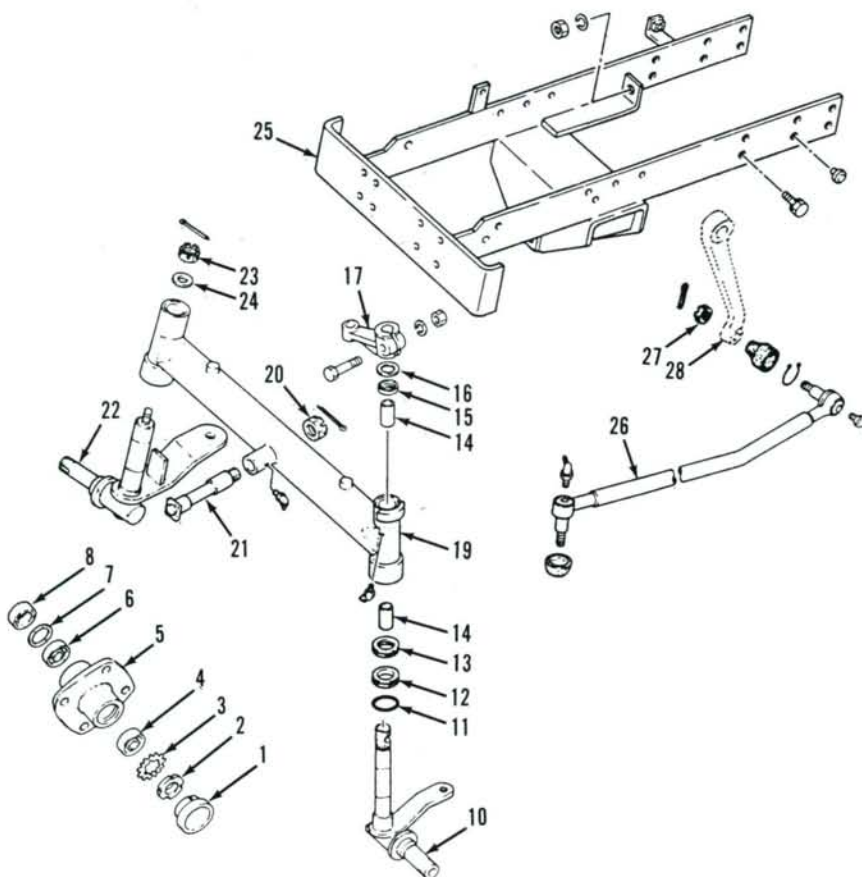


Fig. 1—Exploded view of front axle used on 235 models. Drag link (26) attaches to arm (17) and tie rod connects arms attached to the spindles (10 & 22).

- |                       |                      |
|-----------------------|----------------------|
| 1. Cap                | 15. Seal             |
| 2. Nut                | 16. Washer           |
| 3. Tab washer         | 17. Steering arm     |
| 4. Outer ball bearing | 19. Axle main member |
| 5. Wheel hub          | 20. Nut              |
| 6. Inner ball bearing | 21. Axle pivot       |
| 7. Spacer             | 22. Right spindle    |
| 8. Seal               | 23. Nut              |
| 10. Left spindle      | 24. Washer           |
| 11. "O" ring          | 25. Front frame      |
| 12. Spacer            | 26. Drag link        |
| 13. Thrust bearing    | 27. Nut              |
| 14. Bushings          | 28. Steering arm     |

Some wheels can be reversed to change tread width on some tractor models, but certain wheels should only be installed one way and should not be reversed. Check with wheel or tractor manufacturer if proper installation method is not known. Refer to the following specifications for recommended inflation pressures. Actual air pressure should be adjusted to conform to the load on the tire and ground condition.

**Two-Wheel Drive 235 and 235H**

Front —

- Tire size . . . . . 18 × 7.00-8-4 ply
- Tread type . . . . . PD (G2)
- Max. Inflation Pressure . . . . . 200 kPa (28 psi)
- Rim size . . . . . 5.50-8
- Tire size . . . . . 4.00-9-4 ply
- Tread type . . . . . F2
- Max. Inflation Pressure . . . . . 320 kPa (46 psi)
- Rim size . . . . . 3.00D-9DT
- Tire size . . . . . 4.50-10-4 ply
- Tread type . . . . . FSR
- Max. Inflation Pressure . . . . . 300 kPa (42 psi)
- Rim size . . . . . 3.00D-10
- Tire size . . . . . 5.00-10-4 ply
- Tread type . . . . . FSR
- Max. Inflation Pressure . . . . . 280 kPa (40 psi)
- Rim size . . . . . 3.00D-10
- Tire size . . . . . 20 × 8.00-10-4 ply
- Tread type . . . . . PD (G2)

- Max. Inflation Pressure . . . . . 160 kPa (24 psi)
- Rim size . . . . . 6.00I-10

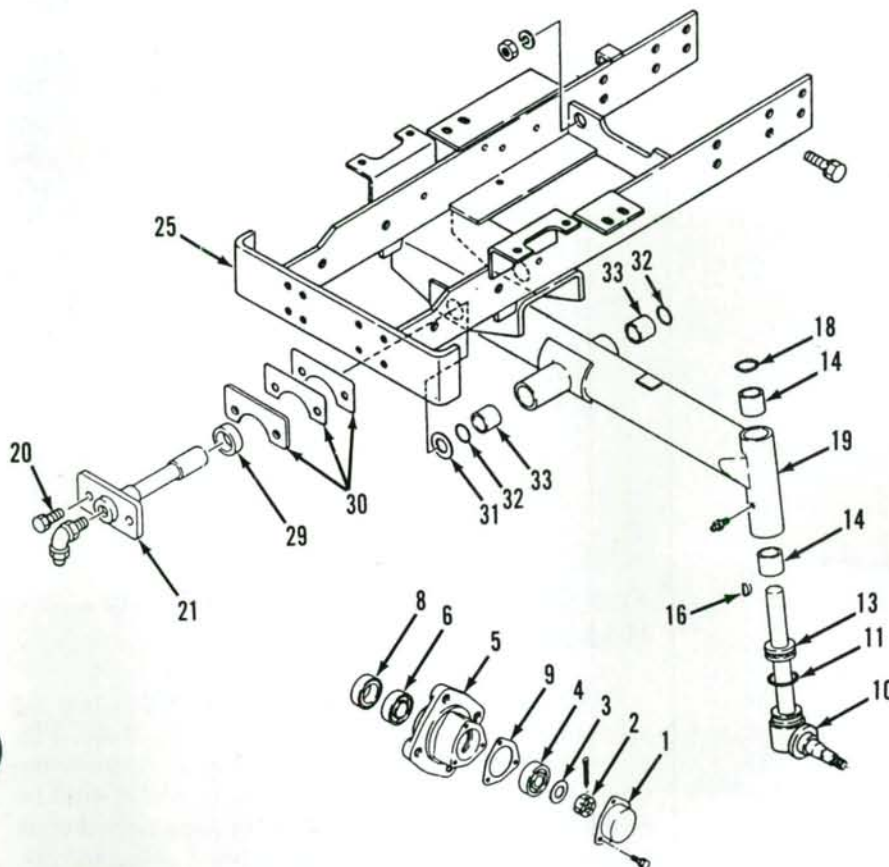
Rear —

- Tire size . . . . . 8-16-4 ply
- Tread type . . . . . FSLH
- Max. Inflation Pressure . . . . . 100 kPa (14 psi)
- Rim size . . . . . W6-16
- Tire size . . . . . 8-18-4 ply
- Tread type . . . . . FSLH
- Max. Inflation Pressure . . . . . 83-159 kPa (12-23 psi)
- Rim size . . . . . W6-18
- Tire size . . . . . 9.5-18-4 ply
- Tread type . . . . . FD
- Max. Inflation Pressure . . . . . 83-138 kPa (12-20 psi)
- Rim size . . . . . W8-18

**Two-Wheel Drive 245 and 255**

Front —

- Tire size . . . . . 20 × 8.00-10-4 ply
- Tread type . . . . . PD
- Max. Inflation Pressure . . . . . 165 kPa (24 psi)
- Rim size . . . . . 6.00I × 10DT
- Tire size . . . . . 24 × 8.50-14-4 ply
- Tread type . . . . . PD1
- Max. Inflation Pressure . . . . . 165 kPa (24 psi)
- Rim size . . . . . 7JA-14
- Tire size . . . . . 4.00-15-4 ply
- Tread type . . . . . F2
- Max. Inflation Pressure . . . . . 360 kPa (52 psi)



**Fig. 2—Exploded view of front axle typical of some 245 and 255 models. Refer to Fig. 3 for models with adjustable tread axle. Upper steering arms, drag link and related parts for non-adjustable axle are similar to those shown in Fig. 3.**

- |                       |                       |
|-----------------------|-----------------------|
| 1. Cap                | 16. Woodruff key      |
| 2. Nut                | 18. "O" ring (25 mm)  |
| 3. Washer             | 19. Axle main member  |
| 4. Outer ball bearing | 20. Screws            |
| 5. Wheel hub          | 21. Axle pivot        |
| 6. Inner ball bearing | 25. Front frame       |
| 8. Seal               | 29. Collar            |
| 9. Gasket             | 30. Shims             |
| 10. Left spindle      | 31. Washer            |
| 11. "O" ring (38 mm)  | 32. "O" rings (25 mm) |
| 13. Thrust bearing    | 33. Bushings          |
| 14. Bushings          |                       |

## Paragraph 2

## CASE/INTERNATIONAL

|                         |                        |
|-------------------------|------------------------|
| Rim size                | 3.00D × 15             |
| Tire size               | 5.00-15-4 ply          |
| Tread type              | F2                     |
| Max. Inflation Pressure | 300 kPa (44 psi)       |
| Rim size                | 3.00D × 15             |
| Tire size               | 5.90-15-4 ply          |
| Tread type              | FI2                    |
| Max. Inflation Pressure | 245 kPa (36 psi)       |
| Rim size                | 4.00E-15               |
| Rear —                  |                        |
| Tire size               | 13.6-16-4 ply          |
| Tread type              | PD1                    |
| Max. Inflation Pressure | 75-100 kPa (11-14 psi) |
| Rim size                | W12 × 16               |
| Tire size               | 9.5-24-4 ply           |
| Tread type              | R1                     |
| Max. Inflation Pressure | 85-135 kPa (12-20 psi) |
| Rim size                | W7 × 24                |
| Tire size               | 11.2-24-4 ply          |
| Tread type              | R1                     |
| Max. Inflation Pressure | 85-125 kPa (12-18 psi) |
| Rim size                | W9-24                  |

### Two-Wheel Drive 265

|                         |                        |
|-------------------------|------------------------|
| Front —                 |                        |
| Tire size               | 24 × 8.50-14-4 ply     |
| Tread type              | PD1                    |
| Max. Inflation Pressure | 165 kPa (24 psi)       |
| Rim size                | 7JA-14                 |
| Tire size               | 5.50-16-4 ply          |
| Tread type              | F2                     |
| Max. Inflation Pressure | 275 kPa (40 psi)       |
| Rim size                | 4.00E-16               |
| Rear —                  |                        |
| Tire size               | 355/80D20-4 ply        |
| Tread type              | PD1                    |
| Max. Inflation Pressure | 70-100 kPa (10-14 psi) |
| Rim size                | W11-20                 |
| Tire size               | 12.4-24-4 ply          |
| Tread type              | R1                     |
| Max. Inflation Pressure | 85-110 kPa (12-16 psi) |
| Rim size                | W10-24                 |
| Tire size               | 11.2-28-4 ply          |
| Tread type              | R1                     |
| Max. Inflation Pressure | 85-125 kPa (12-18 psi) |
| Rim size                | W10-28                 |
| Tire size               | 11.2-36-4 ply          |
| Tread type              | R1                     |
| Max. Inflation Pressure | 85-125 kPa (12-18 psi) |
| Rim size                | W10-36                 |

### Two-Wheel Drive 275

|                         |                    |
|-------------------------|--------------------|
| Front —                 |                    |
| Tire size               | 24 × 8.50-14-4 ply |
| Tread type              | PD1                |
| Max. Inflation Pressure | 165 kPa (24 psi)   |
| Rim size                | 7JA × 14           |
| Tire size               | 5.00-15-4 ply      |

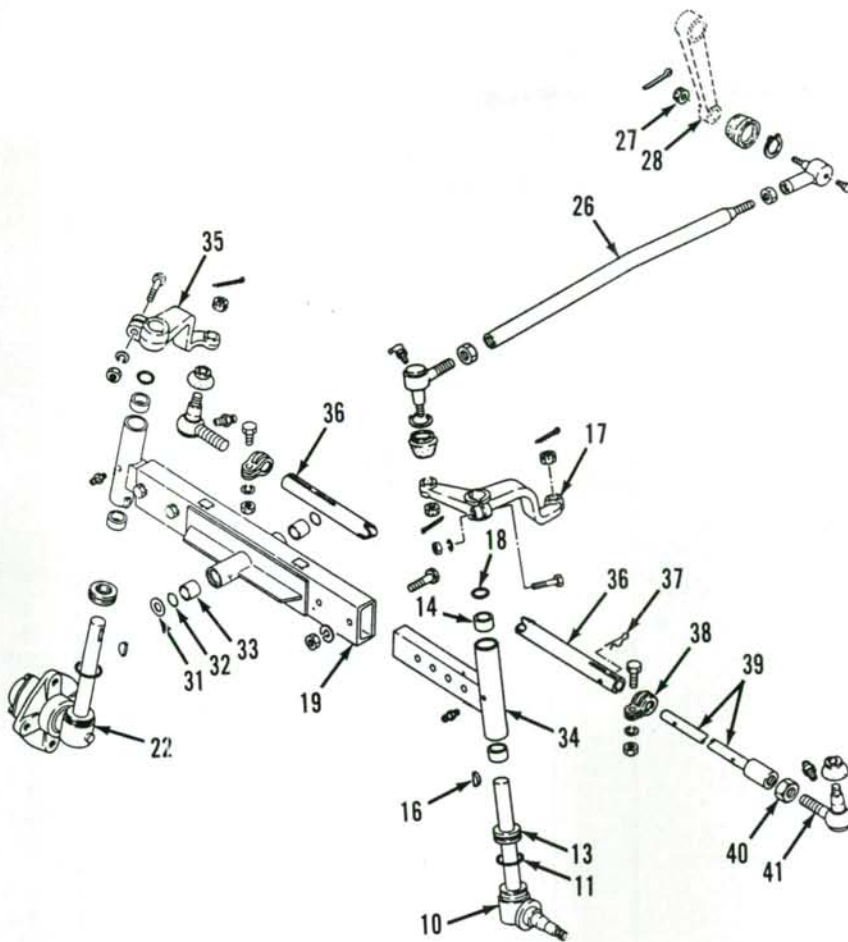
|                         |                    |
|-------------------------|--------------------|
| Tread type              | AG                 |
| Max. Inflation Pressure | 255 kPa (37 psi)   |
| Rim size                | 3.00D × 15         |
| Tire size               | 5.90-15-4 ply      |
| Tread type              | ES                 |
| Max. Inflation Pressure | 215 kPa (31 psi)   |
| Rim size                | 4.00E × 15DC       |
| Tire size               | 212/80D15-4 ply    |
| Tread type              | PD1                |
| Max. Inflation Pressure | 165 kPa (24 psi)   |
| Rim size                | 7JA × 15           |
| Tire size               | 27 × 8.50-15-4 ply |
| Tread type              | G2                 |
| Max. Inflation Pressure | 205 kPa (30 psi)   |
| Rim size                | 7JA × 15           |
| Tire size               | 5.50-16-4 ply      |
| Tread type              | F2                 |
| Max. Inflation Pressure | 275 kPa (40 psi)   |
| Rim size                | 4.00E × 16         |
| Tire size               | 6.00-16-4 ply      |
| Tread type              | F2                 |
| Max. Inflation Pressure | 250 kPa (36 psi)   |
| Rim size                | 4.00 × 16          |

|                         |                        |
|-------------------------|------------------------|
| Rear —                  |                        |
| Tire size               | 18.4-16.1-4 ply        |
| Tread type              | G2                     |
| Max. Inflation Pressure | 85 kPa (12 psi)        |
| Rim size                | 16 LB × 16.1           |
| Tire size               | 355/80D20-4 ply        |
| Tread type              | PD1                    |
| Max. Inflation Pressure | 70-95 kPa (10-14 psi)  |
| Rim size                | W11 × 20               |
| Tire size               | 11.2/10-24-4 ply       |
| Tread type              | ES                     |
| Max. Inflation Pressure | 115 kPa (17 psi)       |
| Rim size                | W9 × 24                |
| Tire size               | 12.4-24-4 ply          |
| Tread type              | R1                     |
| Max. Inflation Pressure | 85-110 kPa (12-16 psi) |
| Rim size                | W10 × 24               |
| Tire size               | 13.6-24-4 ply          |
| Tread type              | R1                     |
| Max. Inflation Pressure | 95 kPa (14 psi)        |
| Rim size                | W11 × 24               |

## TIE ROD AND TOE-IN

### Two Wheel Drive 235, 235H, 245 And 255 Models

2. A single tie rod connects left and right steering arms of spindles (10 and 22—Fig. 1, Fig. 2 and Fig. 3) for 235, 235H, 245 and 255 models. Automotive type ends are not adjustable for wear and should be renewed if worn. Tighten nuts attaching tie rod ends to steering arms to 59-88 N·m (43-65 ft.-lbs.) torque.



**Fig. 3—Exploded view of adjustable axle used on some 245 and 255 models.**

- |                      |                        |
|----------------------|------------------------|
| 10. Left spindle     | 31. Washer             |
| 11. "O" ring         | 32. "O" ring           |
| 13. Thrust bearing   | 33. Bushing            |
| 14. Bushing          | 34. Axle extension     |
| 17. Steering arm     | 35. Right steering arm |
| 18. "O" ring         | 36. Tie rod outer tube |
| 19. Axle main member | 37. Pin                |
| 22. Right spindle    | 38. Clamp              |
| 26. Drag link        | 39. Inner tie rod      |
| 27. Nut              | 40. Locknut            |
| 28. Steering arm     | 41. Rod end            |

Rod ends threaded into tie rod are used to adjust the distance between ends and establish front wheel toe-in. Recommended toe-in is 4-8 mm ( $\frac{3}{16}$ - $\frac{5}{16}$  in.) and should be measured between wheel rims on centerline of axle, parallel to ground. Rotate wheels and re-measure to be sure that wheels are not bent, giving incorrect reading. Tighten rod end jam nut (40—Fig. 3) to 59-88 N.m (43-65 ft.-lbs.) torque after toe-in is correctly set. Bolt for clamps (38) should be tightened to 25-29 N.m (18-22 ft.-lbs.) torque. Holes in tie rod tubes, pins (37) and clamps (38) are used to adjust length of tie rods when changing width of adjustable axle as outlined in paragraph 14.

Rod ends (41) threaded into left side tie rod are used to change distance between ends and make fine adjustments to the front wheel toe-in. Tie rod end threaded into outer tube has left hand thread, permitting adjustment by turning tubes after loosening the rod end locknuts. Recommended toe-in is 4-8 mm ( $\frac{3}{16}$ - $\frac{5}{16}$  in.) and should be measured between wheel rims on centerline of axle, parallel to ground. Rotate wheels and re-measure to be sure that wheels are not bent, giving incorrect reading. Tighten rod end jam nuts (40) to 59-88 N.m (43-65 ft.-lbs.) torque after toe-in is correctly set.

### Two Wheel Drive 265 Model

3. On 265 models, one tie rod connects left steering arm (17—Fig. 4) to steering arm (28) and a second tie rod connects right steering arm (35). Automotive type ends are not adjustable for wear and should be renewed if worn. Holes for clamp bolts (37) in tie rods are used to adjust length of tie rods when changing adjustable axle width. It is important that both tie rods be adjusted to the same width and that width corresponds to the axle width. Refer to paragraph 14 when changing axle width.

### Two Wheel Drive 275 Model

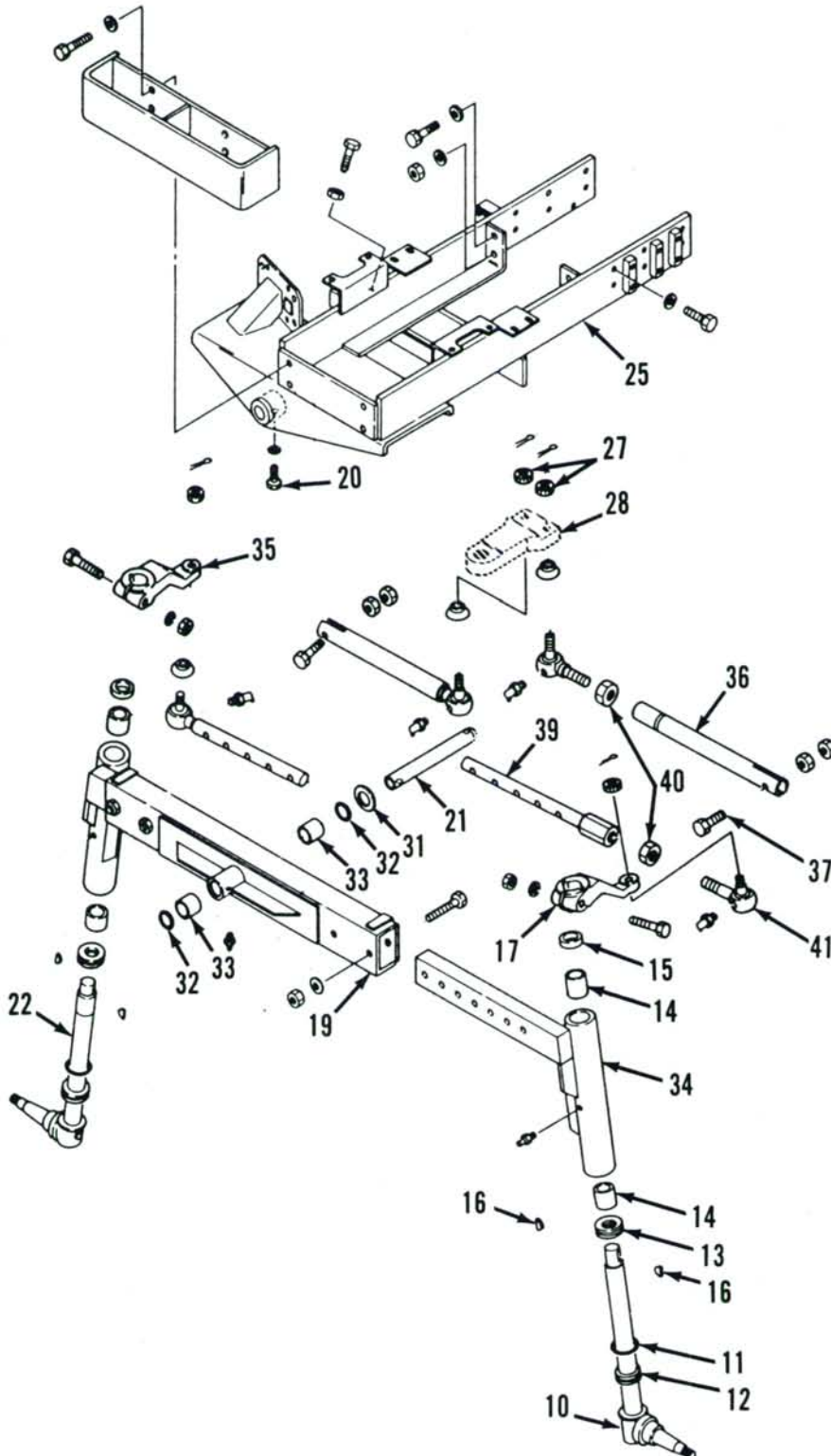
4. On 275 models, one tie rod connects left steering arm and spindle (10—Fig. 5) to the bellcrank (47—Fig. 6) and a second tie rod connects right steering arm. Automotive type ends are not adjustable for wear and should be renewed if worn. Rod ends (41) threaded into right side tie rod are used to adjust the distance between ends and establish front wheel toe-in. Tie rod end threaded into outer tube has left hand thread. Recommended toe-in is 4-8 mm ( $\frac{3}{16}$ - $\frac{5}{16}$  in.) and should be measured between wheel rims on centerline of axle, parallel to ground. Rotate wheels and re-measure to be sure that wheels are not bent, giving

incorrect reading. Tighten rod end jam nut (40) to 59-88 N·m (43-65 ft.-lbs.) torque after toe-in is correctly set. Holes for clamp bolts (37) in tie rod are used to adjust length of tie rods when changing adjustable axle width. Clamp bolts (37) should be tightened to 29-34 N·m (22-25 ft.-lbs.) torque.

**SPINDLES AND BUSHINGS**

**Two Wheel Drive 235 Model**

5. To remove spindle (10—Fig. 1) from left side, first raise and support axle on left side, then remove wheel



**Fig. 4—Exploded view of adjustable axle used on 265 models. Axle is offset to right side of engine centerline.**

- |                                |                        |
|--------------------------------|------------------------|
| 10. Left spindle               | 25. Front frame        |
| 11. "O" ring                   | 27. Nut                |
| 12. Spacer                     | 28. Steering arm       |
| 13. Thrust bearing             | 31. Washer             |
| 14. Bushings                   | 32. "O" rings (29 mm)  |
| 15. Seal                       | 33. Bushings           |
| 16. Woodruff keys              | 34. Axle extension     |
| 17. Left steering arm          | 35. Right steering arm |
| 19. Axle main member           | 36. Tie rod outer tube |
| 20. Pivot pin                  | 37. Tie rod clamp bolt |
| 21. Axle pivot retaining screw | 39. Inner tie rod      |
| 22. Right spindle              | 40. Locknut            |
|                                | 41. Rod end            |

Fig. 5—Exploded view of adjustable axle used on 275 models.

- 10. Left spindle
- 11. "O" ring (42 mm)
- 13. Thrust bearing
- 14. Bushings
- 18. "O" ring (29 mm)
- 19. Axle main member
- 21. Axle pivot
- 22. Right spindle
- 23. Collar
- 24. Spring pin
- 25. Front frame
- 31. Washer
- 32. "O" rings (29 mm)
- 33. Bushings
- 34. Axle extension
- 42. Axle pivot brackets

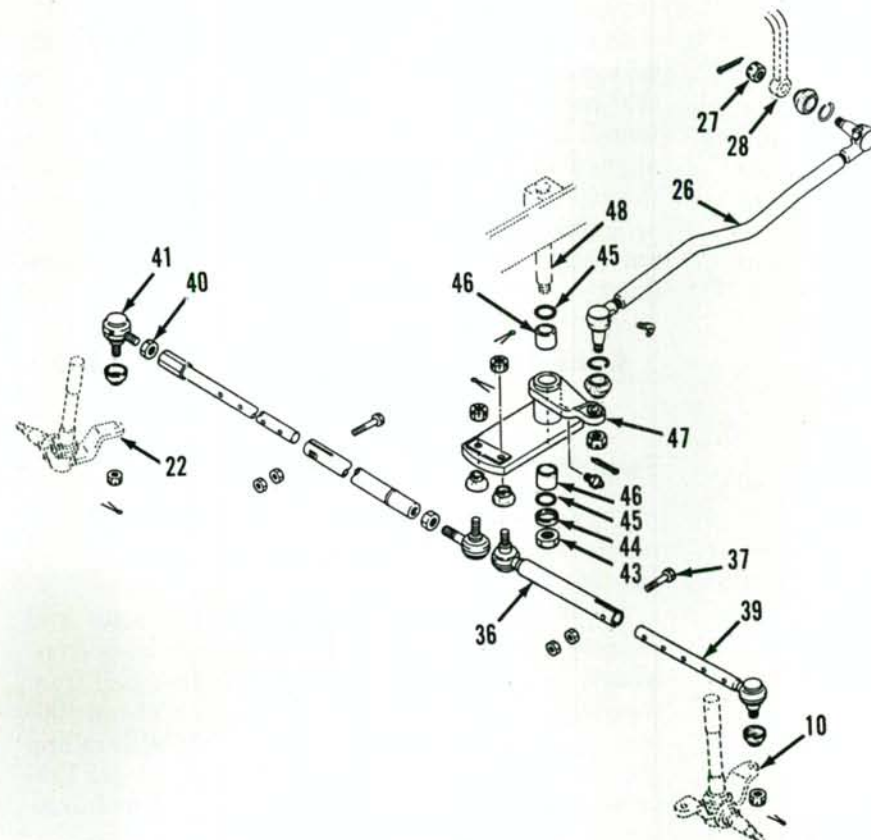
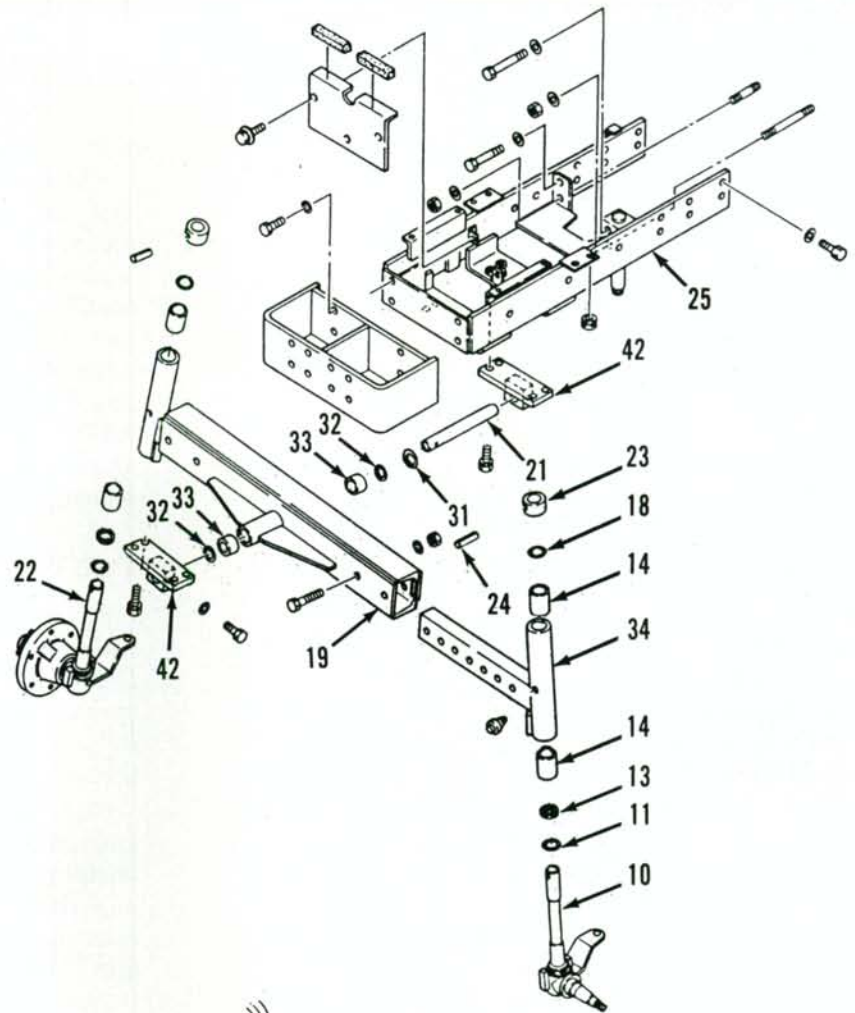


Fig. 6—Exploded view of steering linkage for 275 models. Shaft (48) is part of front frame (25—Fig. 5).

- 10. Left spindle
- 22. Right spindle
- 26. Drag link
- 27. Nut
- 28. Steering arm
- 36. Tie rod outer tube
- 37. Tie rod clamp bolt
- 39. Inner tie rod
- 40. Locknut
- 41. Rod end
- 43. Nut
- 44. Spacer (5 mm)
- 45. Sealing rings (30 mm)
- 46. Bushings
- 47. Bellcrank
- 48. Bellcrank shaft

and hub. Detach drag link (26) from upper steering arm (17) and tie rod from lower steering arm of spindle (10). Remove clamp bolt attaching upper steering arm (17), then pull steering arm from spindle. Remove washer (16) and seal (15) from top and withdraw spindle (10), thrust bearing (13) and spacer (12) from bottom.

To remove spindle (22) from right side, first raise and support axle on right side, then remove wheel and hub. Detach tie rod from lower steering arm of spindle (22), remove cotter pin and nut (23), then lower spindle from bearings.

Clean and inspect parts for wear or other damage and renew as necessary. Inside diameter of installed bushings (14) should be 25.040-25.073 mm (0.9858-0.9871 in.) and outside diameter of spindle should be 24.947-24.980 mm (0.9822-0.9835 in.).

Assemble by reversing removal procedure. Grease thrust bearing (13), coat "O" ring (11) with grease and coat bushing surface of spindle with oil before assembling. On left side, lubricate seal (15) and assemble seal, washer and upper steering arm (17). Install steering arm with hole for clamp bolt aligned with notch in spindle. Gap between steering arm and washer should be less than 0.5 mm (0.02 in.) and clamp bolt should be tightened to 21-29 N·m (15-21 ft.-lbs.) torque. Assemble spindle on right side using similar procedure. Tighten nut (23) to 44-53 N·m (33-40 ft.-lbs.) torque. Refer to paragraph 1 for assembling wheel hub and to paragraph 2 for toe-in adjustment.

### Two Wheel Drive 245 And 255 Models

6. To remove either spindle (10 or 22—Fig. 3), first raise and support axle, then remove wheel and hub. Detach tie rod from steering arm (17 or 35) and drag link (26) from left steering arm (17), if left spindle is being removed. Remove clamp bolt attaching steering arm to spindle, then pull steering arm from spindle. Remove seal (18) from top and withdraw spindle (10), thrust bearing (13) and "O" ring (11) from bottom.

Clean and inspect parts for wear or other damage and renew as necessary. Assemble by reversing removal procedure. Grease thrust bearing (13), coat "O" ring (11) with grease and coat bushing surface of spindle with oil before assembling. Lower race of thrust bearing (13) has smaller inside diameter than upper race. Install lubricated seal (18), key (16) and steering arm (17 or 35). Gap between steering arm and axle should be less than 0.3 mm (0.012 in.). Refer to paragraph 1 for assembling wheel hub and to paragraph 2 for toe-in adjustment.

### Two Wheel Drive 265 Model

7. To remove either spindle (10 or 22—Fig. 4), first raise and support axle, then remove wheel and hub.

Detach tie rod from steering arm (17 or 35), remove clamp bolt attaching steering arm to spindle, then pull steering arm from spindle. Remove seal (15) from top and withdraw spindle (10 or 22), thrust bearing (13), "O" ring (11) and spacer (12) from bottom.

Clean and inspect parts for wear or other damage and renew as necessary. Assemble by reversing removal procedure. Press bushings (14) into bores until seated against shoulder. Grease thrust bearing (13), coat "O" ring (11) with grease and coat bushing surface of spindle with oil before assembling. Install lubricated seal (15), key (16) and steering arm (17 or 35). Gap between steering arm and axle should be 0.1-0.3 mm (0.004-0.012 in.). Refer to paragraph 1 for assembling wheel hub and to paragraph 3 for toe-in adjustment.

### Two Wheel Drive 275 Model

8. To remove either spindle (10 or 22—Fig. 5), first raise and support axle, then remove wheel and hub. Detach tie rod from spindle steering arm, then drive spring pin (24) from collar (23) and spindle. Remove collar and seal (18), then withdraw spindle (10 or 22), thrust bearing (13) and "O" ring (11) from bottom.

Clean and inspect parts for wear or other damage and renew as necessary. Standard diameter of spindle bushings (14) is 30.010-30.137 mm (1.1815-1.1865 in.). Bushing and/or spindle should be renewed if clearance between spindle and bushing exceeds 0.3 mm (0.012 in.). Assemble by reversing removal procedure. Grease thrust bearing (13), coat "O" ring (11) with grease and coat bushing surface of spindle with oil before assembling. Lower race of thrust bearing (13) has smaller inside diameter than upper race. Install lubricated seal (18) and collar (23) with holes aligned with hole in spindle, then drive spring pin through collar and spindle. Gap between collar and axle should be less than 0.3 mm (0.012 in.). Refer to paragraph 1 for assembling wheel hub and to paragraph 4 for toe-in adjustment.

### AXLE MAIN MEMBER, PIVOT PIN AND BUSHINGS

#### Two Wheel Drive 235 Model

9. The front axle pivots on a shaft (21—Fig. 1) which is retained in front frame (25) by castellated nut (20).

To remove the axle assembly, raise tractor and support under tractor frame. Remove both front wheels and disconnect steering drag link (26) from steering arm (17). Remove cotter pin and nut (20) from pivot shaft (21), then support axle with rolling floor jack under center of axle. Pull pivot pin (21) forward, lower axle assembly enough to clear frame, then roll axle forward from under tractor frame.



**Suggest:**

**If the above button click is invalid.**

**Please download this document**

**first, and then click the above link**

**to download the complete manual.**

**Thank you so much for reading**

Outside diameter of pin (21) should be 21.902-21.935 mm (0.862-0.864 in.) and hole in axle for pin should be 22.00-22.052 mm (0.866-0.8682 in.).

Reinstall by reversing removal procedure. Grease pivot shaft before installation. Tighten castellated nut (20) to 146.4-166.8 N.m (108-123 ft.-lbs.) torque, then back nut off  $\frac{1}{4}$ - $\frac{1}{3}$  turn until cotter pin can be installed. Axle should tip smoothly, but without end play. Tighten bolts retaining wheel to hub to 118-132 N.m (87-98 ft.-lbs.) torque.

### **Two Wheel Drive 245 And 255 Models**

**10.** The non-adjustable (Fig. 2) and adjustable (Fig. 3) front axles both pivot on a shaft (21—Fig. 2) which is retained in front frame (25) by screws (20). Shims (30) are used to adjust axle end play.

To remove the complete axle as an assembly, first remove any front mounted equipment and weights. Raise and block front of tractor in such a way that it will not interfere with the removal of axle. Remove wheels and support axle in the center with a rolling floor jack so that it can be lowered and moved away from tractor. Remove screws (20—Fig. 2) from pivot shaft (21), then carefully remove shims (30). Remove pivot shaft (21), carefully lower axle assembly enough to clear frame, then roll axle forward from under tractor frame.

Check axle pivot bushings (33—Fig. 2 and Fig. 3) and renew if necessary. Bushings are pressed into bore of axle and should be installed flush with bore. Reverse removal procedure when assembling, greasing pivot shaft before installation. Axle end play should be 0.1-0.3 mm (0.004-0.012 in.) and axle should tip smoothly. To measure and adjust end play, push the axle to the rear, then measure clearance between front of axle and plate on pivot pin with a feeler gauge. Shims (30) should be added to increase clearance. Make sure that screws (20) attaching pivot pin plate (21) are tight when measuring, but that axle does not bind. Refer to paragraphs 1 and 2 for additional torque values and assembly notes.

### **Two Wheel Drive 265 Model**

**11.** The front axle pivots on a shaft (21—Fig. 4) which is retained in front frame (25) by screw (20).

To remove the axle assembly, raise tractor and support under tractor frame. Remove both front wheels and disconnect tie rods from steering arms (17 and 35). Remove screw (20) and support axle with rolling floor jack under center. Pull pivot pin (21) forward, lower axle assembly enough to clear frame, then roll axle forward from under tractor frame.

If bushings (33) are renewed, press new bushings into bore until bushings are below flush just enough

for "O" rings (32) to fit between end of bushing and end of bore.

Reinstall by reversing removal procedure. Grease pivot shaft before installation. Axle end play should be 0.1-0.3 mm (0.004-0.012 in.) and axle should tip smoothly. To measure and adjust end play, push the axle to the rear, then measure clearance between front of axle and frame with a feeler gauge. Install thicker shim washer (31) to reduce clearance. Tighten bolts retaining wheel to hub to 83-93 N.m (61-69 ft.-lbs.) torque. Check lug bolt torque after 10 hours of operation following installation and every 100 hours thereafter.

### **Two Wheel Drive 275 Model**

**12.** The front axle pivots on a shaft (21—Fig. 5) which is retained in pivot brackets (42) attached to front frame (25).

To remove the axle assembly, raise tractor and support under tractor frame. Remove both front wheels and disconnect tie rods from steering arms. Unbolt axle extensions (34) from axle center section (19), then withdraw axle extensions and spindles. Support axle with rolling floor jack under center and unbolt both pivot brackets (42) from tractor front frame (25). Lower axle enough to clear frame, then roll axle forward from under tractor.

Clearance between pivot bushings (33) and pivot pin (21) should be 0.03-0.18 mm (0.0012-0.0071 in.). Install new bushings and pin if clearance exceeds 0.3 mm (0.012 in.). If bushings (33) are renewed, press new bushings into bore until bushings are below flush just enough for "O" rings (32) to fit between end of bushing and end of bore.

Reinstall by reversing removal procedure. Grease pivot shaft before installation. Axle end play should be 0.1-0.3 mm (0.004-0.012 in.) and axle should tip smoothly. To measure and adjust end play, push the axle to the rear, then measure clearance between front of axle and frame with a feeler gauge. Install thicker shim washer (31) to reduce clearance. Tighten bolts retaining pivot brackets (42) to frame to 54-64 N.m (40-47 ft.-lbs.) torque. Install axle extensions (34) and tighten bolts clamping center housing (19) to axle extensions (34) to 118-132 N.m (87-97 ft.-lbs.) torque. If loosened, tighten tie rod clamping bolts (37—Fig. 6) to 29-34 N.m (22-25 ft.-lbs.) torque. Tighten bolts retaining wheel to hub to 83-93 N.m (61-69 ft.-lbs.) torque. Check lug bolt torque after 10 hours of operation following installation and every 100 hours thereafter.

**<https://www.ebooklibonline.com>**

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

**<https://www.ebooklibonline.com>**