

4640 and 4840 Tractors

TECHNICAL MANUAL
4640 and 4840
Tractors

4640 AND 4840 TRACTORS TECHNICAL MANUAL TM-1183 (OCT-85)

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Group 00 SPECIFICATIONS AND SPECIAL TOOLS GENERAL TRACTOR SPECIFICATIONS

4640

4840

| | | |
|---|---|---|
| HORSEPOWER (Factory observed PTO horsepower at 2200 rpm) | 155 hp (116 kW) | 180 hp (134 kW) |
| ENGINE: | | |
| Type | 6-cylinder, in-line, valve-in-head, diesel, turbocharged, intercooled | 6-cylinder, in-line, valve-in-head, diesel, turbocharged, intercooled |
| Slow idle speed | 800 rpm | 800 rpm |
| Working speed range | 1500 to 2200 rpm | 1500 to 2200 rpm |
| Bore and stroke | 4.56 x 4.75 in. (116 x 121 mm) | 4.56 x 4.75 in. (116 x 121 mm) |
| Displacement | 466 cu. in. (7.6 L) | 466 cu. in. (7.6 L) |
| Compression ratio | 14.9 to 1 | 14.9 to 1 |
| Firing order | 1-5-3-6-2-4 | 1-5-3-6-2-4 |
| Valve clearance | | |
| Intake | 0.018 in. (0.46 mm) | 0.018 in. (0.46 mm) |
| Exhaust | 0.028 in. (0.71 mm) | 0.028 in. (0.71 mm) |
| Injection pump timing | TDC | TDC |
| Lubrication system | force-feed, pressurized with full-flow filter | force-feed, pressurized with full-flow filter |

| | 4640 | 4840 |
|---|---|--|
| FUEL SYSTEM: | | |
| Type | direct injection | direct injection |
| Injection pump type | in-line | in-line |
| Air cleaner | dry type with safety element | dry type with safety element |
| COOLING SYSTEM: | | |
| Type | dual-pressure with centrifugal pump | dual-pressure with centrifugal pump |
| Temperature control | dual heavy duty thermostats | dual heavy duty thermostats |
| CAPACITIES | | |
| Fuel tank | 83 U.S. gal. (314 L) | 103 U.S. gal. (390 L) |
| Cooling system | 38 U.S. qt. (36 L) | 40 U.S. qt. (38 L) |
| Crankcase (with filter change) | 20 U.S. qt. (19 L) | 20 U.S. qt. (19 L) |
| Transmission-hydraulic system (Drain and fill) | | |
| Power Shift Transmission | 16.5 U.S. gal. (62.5 L) | 16.5 U.S. gal. (62.5 L) |
| QUAD-RANGE Transmission | 22.5 U.S. gal. (85.2 L) | |
| Add for Power Front-wheel Drive | 4.0 U.S. gal. (15.1 L) | 4.0 U.S. gal. (15.1 L) |
| Transmission-hydraulic system (Dry, production fill) | | |
| Power Shift Transmission | 20.8 U.S. gal. (78.8 L) | 20.8 U.S. gal. (78.8 L) |
| QUAD-RANGE Transmission | 26.0 U.S. gal. (98.4 L) | |
| Add for Power Front-wheel Drive | 5.0 U.S. gal. (18.9 L) | 5.0 U.S. gal. (18.9 L) |
| POWER SHIFT TRANSMISSION: | | |
| Type | planetary gears, hydraulically actuated wet disk clutches and brakes | planetary gears, hydraulically actuated wet disk clutches and brakes |
| Gear selections | 8 forward and 4 reverse | 8 forward and 4 reverse |
| Shifting | hydraulic, on-the-go and under load | hydraulic, on-the-go and under load |
| QUAD-RANGE TRANSMISSION | | |
| Type | 2-speed, power-shifted planetary and 8-speed synchronized | |
| Gear selections | 16 forward and 6 reverse | |
| Perma-Clutch | hydraulically-operated, multiple-disk wet clutch | |
| POWER TAKE-OFF: | | |
| Type | fully independent | fully independent |
| Speed (2200 engine rpm) | 1000 rpm | 1000 rpm |
| Size | 1-3/4 in. (45 mm) | 1-3/4 in. (45 mm) |
| Clutch | hydraulically-operated, multiple-disk wet clutch | hydraulically-operated, multiple-disk wet clutch |
| POWER FRONT-WHEEL DRIVE: | | |
| Type | hydraulic motor with planetary gear reduction, constant torque and variable speed | |
| Controls | solenoid-operated valves, synchronized with transmission controls | |
| HYDRAULIC SYSTEM: | | |
| Type | closed-center, constant-pressure | closed-center, constant-pressure |
| Standby pressure | 2250 psi (155 bar) (15 500 kPa) | 2250 psi (155 bar) (15 500 kPa) |
| BRAKES: | | |
| Type | hydraulically-operated wet disk | hydraulically-operated wet disk |

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| ELECTRICAL SYSTEM: | | |
| Type | 12-volt, negative ground | 12-volt, negative ground |
| Batteries | two, 6-volt, 5D group, 800 amps cold cranking, 376 minutes reserve capacity | two, 6-volt, 5D group, 800 amps cold cranking, 376 minutes reserve capacity |
| Alternator | 72-amp with Sound-Gard Body, 61-amp without | 72-amp |
| TIRES AND TREADS | | |
| | see page 10-05-6 in this section | see page 10-05-6 in this section |
| DIMENSIONS: | | |
| Wheelbase | 118.5 in. (3010 mm) | 118.5 in. (3010 mm) |
| Overall length | 171.1 in. (4350 mm) | 176.2 in. (4500 mm) |
| Height to muffler cover* | 129.3 in. (3283 mm) | 129.3 in. (3283 mm) |
| Height to top of Sound-Gard Body* | 118.3 in. (3005 mm) | 118.3 in. (3005 mm) |
| Overall width (regular axle) | 96 in. (2440 mm) | 96 in. (2440 mm) |
| Width at fender | 82 in. (2082 mm) | 82 in. (2082 mm) |
| Width at roof | 54.4 in. (1382 mm) | 54.4 in. (1382 mm) |
| Turning radius | 161 in. (4100 mm) | 161 in. (4100 mm) |
| SHIPPING WEIGHT** | | |
| | 14,350 lbs. (6510 kg) | 14,900 lbs. (6760 kg) |

*Tractor equipped with 20.8-38 R1 rear tires and 11.00-16 front tires.

**Equipped for average field service, without fuel and ballast. Add approximately 1000 lbs. (450 kg) if equipped with power front-wheel drive.

GROUND SPEEDS

Approximate ground speeds are given in the following charts. Speeds are shown in miles per hour, with kilometers per hour in parentheses.

Speeds are for a Tractor with 18.4-38 tires.

POWER SHIFT TRANSMISSION GROUND SPEEDS

| Gear | 1500 Engine RPM | 2200 Engine RPM |
|----------|-----------------|-----------------|
| 1st | 1.2 (1.9) | 1.7 (2.8) |
| 2nd | 1.7 (2.7) | 2.5 (4.0) |
| 3rd | 2.6 (4.2) | 3.9 (6.2) |
| 4th | 3.4 (5.5) | 5.0 (8.1) |
| 5th | 4.5 (7.3) | 6.6 (10.6) |
| 6th | 5.9 (9.5) | 8.6 (13.9) |
| 7th | 7.5 (12.1) | 11.0 (17.7) |
| 8th | 12.9 (20.7) | 18.8 (30.3) |
| 1st rev. | 1.5 (2.4) | 2.2 (3.6) |
| 2nd rev. | 2.2 (3.5) | 3.2 (5.1) |
| 3rd rev. | 3.4 (5.5) | 5.0 (8.0) |
| 4th rev. | 4.4 (7.1) | 6.5 (10.4) |

QUAD-RANGE TRANSMISSION GROUND SPEEDS

| Range | Speed | 1500 Engine RPM | 2200 Engine RPM |
|-------|-------|-----------------|-----------------|
| A | 1 | 1.4 (2.2) | 2.0 (3.2) |
| | 2 | 1.7 (2.8) | 2.5 (4.0) |
| | 3 | 2.4 (3.9) | 3.5 (5.7) |
| | 4 | 3.1 (5.0) | 4.5 (7.3) |
| | 1R | 2.5 (4.1) | 3.7 (6.0) |
| | 2R | 3.2 (5.2) | 4.7 (7.6) |
| B | 1 | 3.0 (4.8) | 4.4 (7.1) |
| | 2 | 3.8 (6.1) | 5.6 (9.0) |
| | 3 | 5.4 (8.7) | 8.0 (12.8) |
| | 4 | 6.9 (11.1) | 10.1 (16.3) |
| | 1R | 5.7 (9.1) | 8.3 (13.4) |
| | 2R | 7.2 (11.6) | 10.6 (17.0) |
| C | 1 | 3.5 (5.7) | 5.2 (8.3) |
| | 2 | 4.5 (7.2) | 6.6 (10.6) |
| | 3 | 6.4 (10.3) | 9.4 (15.1) |
| | 4 | 8.1 (13.1) | 11.9 (19.1) |
| | 1R | 6.6 (10.7) | 9.8 (15.7) |
| | 2R | 8.5 (13.6) | 12.4 (20.0) |
| D | 1 | 5.7 (9.2) | 8.4 (13.5) |
| | 2 | 7.3 (11.7) | 10.7 (17.2) |
| | 3 | 10.3 (16.6) | 15.2 (24.4) |
| | 4 | 13.1 (21.1) | 19.3 (31.0) |

(Specifications and design subject to change without notice.)

PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

| Item | Specification |
|--------------------------------|-----------------------------|
| Toe-in | 1/8 to 3/8 inch (3 to 9 mm) |
| Injection pump timing | TDC |
| Engine speeds | |
| Slow idle | 780 to 820 rpm |
| Fast idle | 2325 to 2425 rpm |
| Rated speed at full load | 2200 rpm |

| Torque | ft-lbs | N·m | kgm |
|---|--------|-----|-----|
| Sound-Gard Body or Four-Post Roll-Gard mounting bolts | 150 | 200 | 20 |
| Front axle-to-knee bolts | 445 | 600 | 60 |
| Front wheel-to-hub bolts | 100 | 135 | 14 |
| Special bolts on rear hubs | 300 | 410 | 41 |
| Steel wheel-to-hub bolts | 240 | 325 | 33 |
| Rimclamp-to-wheel bolts | 170 | 230 | 23 |
| Rockshaft lift arm retaining bolts | 300 | 410 | 41 |
| Other nuts and cap screws: | | | |

TORQUE CHART

| Bolt Diameter | Plain Head* | | | Three Radial Dashes* | | | Six Radial Dashes* | | |
|---------------------|-------------|-----|------|-------------------------|-----|-----|-----------------------|------|-----|
| | ft-lbs | N·m | kgm | ft-lbs | N·m | kgm | ft-lbs | N·m | kgm |
| 1/4 in. (6.35 mm) | 6 | 8 | 0.8 | 10 | 14 | 1.4 | 14 | 19 | 1.9 |
| 5/16 in. (7.93 mm) | 13 | 18 | 1.8 | 20 | 27 | 2.7 | 30 | 41 | 4.1 |
| 3/8 in. (9.53 mm) | 23 | 31 | 3.1 | 35 | 47 | 4.7 | 50 | 70 | 7.0 |
| 7/16 in. (11.11 mm) | 35 | 47 | 4.7 | 55 | 75 | 7.5 | 80 | 110 | 11 |
| 1/2 in. (12.70 mm) | 55 | 75 | 7.5 | 85 | 115 | 12 | 120 | 160 | 16 |
| 9/16 in. (14.29 mm) | 75 | 100 | 10 | 130 | 175 | 18 | 175 | 240 | 24 |
| 5/8 in. (15.88 mm) | 105 | 140 | 14 | 170 | 230 | 23 | 240 | 325 | 33 |
| 3/4 in. (19.05 mm) | 185 | 250 | 25 | 300 | 410 | 41 | 425 | 575 | 58 |
| 7/8 in. (22.23 mm) | 160 | 220 | 22** | 445 | 600 | 60 | 685 | 930 | 93 |
| 1 in. (25.40 mm) | 250 | 340 | 34** | 670 | 900 | 90 | 1030 | 1400 | 140 |

*The types of bolts and cap screws are identified by head markings as follows:

Plain Head: regular machine bolts and cap screws.

3-Dash Head: tempered steel high-strength bolts and cap screws.

6-Dash Head: tempered steel extra high-strength bolts and cap screws.

**Machine bolts and cap screws 7/8-inch and larger are sometimes formed hot rather than cold, which accounts for the lower torque.