

Information and Instructions

This shop manual contains several sections each covering a specific group of wheel type tractors. The Tab Index on the preceding page can be used to locate the section pertaining to each group of tractors. Each section contains the necessary specifications and the brief but terse procedural data needed by a mechanic when repairing a tractor on which he has had no previous actual experience.

Within each section, the material is arranged in a systematic order beginning with an index which is followed immediately by a Table of Condensed Service Specifications. These specifications include dimensions, fits, clearances and timing instructions. Next in order of arrangement is the procedures paragraphs.

In the procedures paragraphs, the order of presentation starts with the front axle system and steering and proceeding toward the rear axle. The last paragraphs are devoted to the power take-off and power lift systems. Interspersed where needed are additional tabular specifications pertaining to wear limits, torquing, etc.

HOW TO USE THE INDEX

Suppose you want to know the procedure for R&R (remove and reinstall) of the engine camshaft. Your first step is to look in the index under the main heading of ENGINE until you find the entry "Camshaft." Now read to the right where under the column covering the tractor you are repairing, you will find a number which indicates the beginning paragraph pertaining to the camshaft. To locate this wanted paragraph in the manual, turn the pages until the running index appearing on the top outside corner of each page contains the number you are seeking. In this paragraph you will find the information concerning the removal of the camshaft.

SHOP MANUAL

JOHN DEERE

SERIES

| | | |
|---------------------------------------|--------------------|------|
| 3010 | 4010 | 5010 |
| 3020 (Before | 4020 (Before | 5020 |
| Serial No. 123000) | Serial No. 201000) | |
| (General Purpose, Hi-Crop & Standard) | | |

Tractor serial number located on rear of transmission case
 Engine serial number located on front right side of engine block

INDEX (By Starting Paragraph)

| Series | 3000 | 4000 | 5000 | Series | 3000 | 4000 | 5000 |
|---------------------------------------|---------|-------|-------|---|------|------|------|
| BELT PULLEY | 113 | 113 | .... | ENGINE (CONT'D) | | | |
| BEVEL RING GEAR AND PINION | 98 | 98 | 98 | Flywheel | 39 | 39 | 39 |
| BRAKES | | | | Ignition timing | 77 | 77 | .... |
| Adjustment | 106 | 106 | 106 | Injection timing | 64A | 64A | 65A |
| Bleeding | 107 | 107 | 107 | Main bearings | 34 | 35 | 35 |
| Control valve | 108 | 108 | 108 | Oil cooler | 44 | 44 | 44 |
| Overhaul | 109 | 109 | 109 | Oil pan | 40 | 40 | 40 |
| CARBURETOR (Gasoline) ——— | 46, 46A | ..... | ..... | Oil pressure | 43 | 43 | 43 |
| CARBURETOR (LP-Gas) | 49 | 49 | ..... | Oil pump | 41 | 41 | 41 |
| CLUTCH (Engine) | | | | Pistons and rings.... | 31 | 31 | 31 |
| Linkage adjustment .. | 80 | 80 | 81 | Piston pins | 32 | 32 | 32 |
| R&R and overhaul.... | 83 | 83 | 84 | Piston and rod removal | 30 | 30 | 30 |
| CLUTCH (Power Take-Off) | | | | Rear oil seal..... | 38 | 38 | 38 |
| Linkage adjustment .. | 80A | 80A | 112G | Remove and reinstall. | 14 | 14 | 14A |
| R&R and overhaul .. | 83 | 83 | 112D | Rocker arms | 20 | 20 | 20 |
| COOLING SYSTEM | | | | Timing gear cover... | 22 | 22 | 22 |
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| Radiator | 71 | 71 | 71 | Valve adjustment | 17A | 17A | 17A |
| Thermostat and manifold | 74 | 75 | 75 | Valves and seats.... | 17 | 17 | 17 |
| DIESEL SYSTEM | | | | Valve guides and springs | 19 | 19 | 19 |
| Bleeding | 54 | 54 | 54 | Valve rotators | 18 | 18 | 18 |
| Filters and lines.... | 53 | 53 | 53 | Valve timing | 24 | 24 | 24 |
| Injection pump | 64 | 64 | 65 | Ventilator pump | 45 | 45 | 45 |
| Injector nozzles | 56 | 56 | 56 | FINAL DRIVE — (Except "Hi-Crop") | | | |
| Trouble shooting | 55 | 55 | 55 | Remove and reinstall. | 102 | 102 | 102 |
| DIFFERENTIAL | | | | Overhaul | 103 | 103 | 103 |
| Overhaul | 97A | 97A | 97 | FINAL DRIVE ("Hi-Crop") | | | |
| Remove and reinstall | 96 | 96 | 96 | Remove and reinstal. | 104 | 104 | .... |
| Differential lock | 99 | 99 | 99 | Overhaul | 105 | 105 | .... |
| ENGINE | | | | FRONT SYSTEM | | | |
| Cam followers | 21 | 21 | 21 | Axle and support.... | 5 | 5 | 6 |
| Camshaft and bearings | 29 | 29 | 29 | Pedestal | 1 | 1 | .... |
| Connecting rods and bearings | 33 | 33 | 33 | Radius rod | 7 | 7 | .... |
| Crankshaft | 34 | 35 | 35 | "Roll-O-Matic" | 4 | 4 | .... |
| Cylinder head | 15 | 15 | 15 | Spindles and bushings | 5A | 5A | 6A |
| Cylinder sleeves | 31 | 31 | 31 | GOVERNOR (Non-Diesel) | | | |
| Engine balancer | 36 | .... | .... | Adjust | 68 | 68 | .... |
| | | | | Overhaul | 70 | 70 | .... |
| | | | | Remove and reinstall. | 69 | 69 | .... |
| | | | | HYDRAULIC SYSTEM | | | |
| | | | | Accumulator ..... | .... | .... | 109A |
| | | | | Brakes | 106 | 106 | 106 |

INDEX (Cont'd)

| Series | 3000 | 4000 | 5000 |
|----------------------------------|-----------|------|------|
| HYDRAULIC SYSTEM (CONT'D) | | | |
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| Lift | 125 | 125 | 125 |
| Operation | 114 | 114 | 114 |
| Pump | 121 | 121 | 121 |
| Remote cylinder | 140 | 140 | 140 |
| Remote valves | 133 | 133 | 133 |
| Steering system | 8 | 8 | 8 |
| Testing system | 116 | 116 | 116 |
| Transmission pump .. | 89A, 93E | | 89C |
| OILING SYSTEM | | | |
| Cooler | 44 | 44 | 44 |
| Pump | 41 | 41 | 41 |
| Pressure adjust | 43 | 43 | 43 |
| Ventilator pump | 45 | 45 | 45 |
| POWER TAKE-OFF | | | |
| Adjust clutch | 80A | 80A | 81 |
| Clutch overhaul | 83 | 83 | 112D |
| Drive gears | 112, 112B | | 112D |
| Operation | 110, 110A | | 110B |
| REAR AXLE | 102, 104 | | 102 |

| Series | 3000 | 4000 | 5000 |
|------------------------------------|------|------|------|
| STEERING SYSTEM | | | |
| Bleeding | 9 | 9 | 9 |
| Control unit | 10 | 10 | 10 |
| Operation | 8 | 8 | 8 |
| TRANSMISSION (Syncro Range) | | | |
| Bevel pinion shaft.... | 90D | 90D | 90D |
| Countershaft | 90 | 90 | 90 |
| Control quadrant | 88A | 88A | 88A |
| Drive shaft | 90A | 90A | 90A |
| Inspection | 88 | 88 | 88 |
| Pump | 89A | 89A | 89C |
| Synchronizer clutches. | 90B | 90B | 90B |
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| Adjustment | 92 | 92 | |
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| Operation | 91 | 91 | |
| Overhaul | 94 | 94 | |
| Park pawl | 95 | 95 | |
| Reduction gears | 95C | 95C | |
| Remove & reinstall ... | 92E | 92E | |
| Tow disconnect | 95B | 95B | .... |
| Trouble shooting | 92C | 92C | .... |

CONDENSED SERVICE DATA

| GENERAL | 3010 | 3020 | 4010 | 4020 | 5010 | 5020 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Engine Make | Own | Own | Own | Own | Own | Own |
| No. of Cylinders | 4 | 4 | 6 | 6 | 6 | 6 |
| Bore, Inches | | | | | | |
| Diesel | 4 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | 4 $\frac{1}{8}$ | 4 $\frac{3}{8}$ | 4 $\frac{3}{8}$ |
| Non-Diesel | 4 | 4 $\frac{1}{4}$ | 4 | 4 $\frac{1}{4}$ | ..... | ..... |
| Stroke, Inches | | | | | | |
| Diesel | 4 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 4 $\frac{3}{4}$ | 5 | 5 |
| Non-Diesel | 4 | 4 | 4 | 4 | ..... | ..... |
| Displacement, Cu. In. | | | | | | |
| Diesel | 254 | 270 | 380 | 405 | 531 | 531 |
| Non-Diesel | 201 | 227 | 302 | 341 | ..... | ..... |
| Compression Ratio | | | | | | |
| Diesel | 16.5:1 | 16.4:1 | 16.5:1 | 16.4:1 | 16.1:1 | 16.5:1 |
| Gasoline | 7.5:1 | 7.5:1 | 7.5:1 | 7.5:1 | ..... | ..... |
| LP-Gas | 9.0:1 | 9.0:1 | 9.0:1 | 9.0:1 | ..... | ..... |
| Pistons Removed From? | Above | Above | Above | Above | Above | Above |
| Cylinder Sleeves | Wet | Wet | Wet | Wet | Wet | Wet |
| Forward Speeds | 8 | 8 | 8 | 8 | 8 | 8 |
| TUNE-UP | | | | | | |
| Firing Order | 1-3-4-2 | 1-3-4-2 | 1-5-3-6-2-4 | | | |
| Compression Pressure @ | | | | | | |
| Cranking Speed (psi) | | | | | | |
| Diesel | 450-475 | 450-475 | 450-475 | 450-475 | 450-475 | 450-475 |
| Gasoline | 160 | 160 | 160 | 160 | ..... | ..... |
| LP-Gas | 170 | 170 | 170 | 170 | ..... | ..... |
| Valve Tappet Gap (Intake) | | | | | | |
| Diesel | 0.018H | 0.018H | 0.018H | 0.018H | 0.015H | 0.018 |
| Non-Diesel | 0.015H | 0.015H | 0.015H | 0.015H | ..... | ..... |
| Valve Tappet Gap (Exhaust) | | | | | | |
| Diesel | 0.018H | 0.018H | 0.018H | 0.018H | 0.022H | 0.028 |
| Non-Diesel | 0.028H | 0.028H | 0.028H | 0.028H | ..... | ..... |
| Ignition Distributor | | | | | | |
| Make | D-R | D-R | D-R | D-R | ..... | ..... |
| Model | 1112577 | See Text | 1112581 | See Text | ..... | ..... |
| Breaker Contact Gap | 0.022 | 0.022 | 0.022 | See Text | ..... | ..... |
| Ignition Timing | | | | | | |
| Retard (Gasoline) | 5° ATC | 5° ATC | 5° ATC | 5° ATC | ..... | ..... |
| Advanced (Gasoline) | 20° BTC | 20° BTC | 20° BTC | 20° BTC | ..... | ..... |
| Retard (LP-Gas) | TDC | TDC | TDC | TDC | ..... | ..... |
| Advanced (LP-Gas) | 25° BTC | 25° BTC | 25° BTC | 25° BTC | ..... | ..... |
| Timing Location | Flywheel | Flywheel | Flywheel | Flywheel | ..... | ..... |
| Spark Plug Size | 18 mm | 18 mm | 18 mm | 18 mm | ..... | ..... |
| Spark Plug Electrode Gap | | | | | | |
| Gasoline | 0.025 | 0.025 | 0.025 | 0.025 | ..... | ..... |
| LP-Gas | 0.015 | 0.015 | 0.015 | 0.015 | ..... | ..... |

SHOP MANUAL

JOHN DEERE

| | SERIES | |
|---------------------------------------|---|----------------------|
| 3020 (Serial No. 123000 and After) | 4000 4020 (Serial No. 201000 and After) | 4320 4520 4620 |

Tractor serial number located on rear of transmission case. Engine serial number located on front right side of engine block.

INDEX (By Starting Paragraph)

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|---|--|---|

SHOP MANUAL

JOHN DEERE

SERIES 6030

Tractor serial number located on rear of transmission case. Engine serial number located on front right side of engine block.

INDEX (By Starting Paragraph)

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|--|---|

CONDENSED SERVICE DATA

| | |
|---------------------------------|-------------------------------|
| GENERAL | |
| Engine Make | Own |
| No. of Cylinders | 6 |
| Bore, Inches | 4 ³ / ₄ |
| Stroke, Inches | 5 |
| Displacement, Cu. In. | 531 |
| Compression Ratio | 15.4:1 |
| Induction | *NA. & Turbocharged |
| Cylinder sleeves | Wet |
| Forward Speeds | 8 |
| TUNE-UP | |
| Firing Order | 1-5-3-6-2-4 |
| Compression Pressure | |
| Cranking Speed | 325-395 |
| Valve Tappet Gap | |
| Intake | 0.018 |
| Exhaust | 0.028 |
| Injection Pump Timing | 27° BTDC |
| Injector Opening Pressure | 3100 psi |
| Engine Rated Speeds | |
| Slow Idle | 800 rpm |
| Working Range | 1500-2100 rpm |
| Maximum Transport Speed | 2300 rpm |

| | |
|--|-------------------|
| TUNE-UP Cont. | |
| Horsepower @ 2100 rpm | |
| PTO *(N.A.) | 145 |
| PTO (Turbo) | 175 |
| SIZES—CAPACITIES— | |
| CLEARANCES | |
| Cooling System (Quarts) | *N.A.33-Turbo. 40 |
| Crankcase Oil (Quarts with filter) | *N.A.20-Turbo. 26 |
| Transmission & Hydraulic System | |
| (Gallons) (Refill) | 16 |
| Fuel Tank (Gallons) | *N.A.68-Turbo. 73 |
| Crankshaft Journal Diameter | 3.748-3.749 |
| Crankpin Diameter | 3.498-3.499 |
| Piston Pin Diameter | 1.8739-1.8745 |
| Crankshaft End Play | 0.004-0.010 |
| Main Bearing Clearance | 0.0019-0.0049 |
| Connecting Rod Bearing Clearance | 0.0024-0.0054 |
| TIGHTENING TORQUES—Ft.-Lbs. | |
| Cylinder Head | 175-185 |
| Main Bearings | 205-215 |
| Connecting Rods | 155-165 |

*Naturally aspirated