

4400 and 4420 Combines



JOHN DEERE

TECHNICAL MANUAL 4400 and 4420 Combines

TM1237 (01Jun84) English

John Deere Harvester Works
TM1237 (01Jun84)

LITHO IN U.S.A.
ENGLISH



4400 AND 4420 COMBINES

TECHNICAL MANUAL
TM-1237 (Jun-84)

CONTENTS

SECTION 10 - GENERAL

SECTION 20 - 219 AND 329 DIESEL ENGINE REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Cylinder Head, Valves and Camshaft
- Group 10 - Block Liners, Pistons, and Rods
- Group 15 - Crankshaft, Main Bearings, and Flywheel
- Group 20 - Lubrication System
- Group 25 - Cooling System

SECTION 22 - 359 DIESEL ENGINE REPAIR

- Group 00 - Contents
- Group 05 - Cylinder Head, Valve, Timing Gear Train and Camshaft
- Group 10 - Cylinder Block, Liners, Pistons and Rods
- Group 15 - Crankshaft, Main Bearing and Flywheel
- Group 20 - Lubrication System
- Group 25 - Cooling System

SECTION 25 - GASOLINE ENGINE REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Cylinder Head, Valves and Camshaft
- Group 10 - Block Liners, Pistons, and Rods
- Group 15 - Crankshaft, Main Bearings, and Flywheel
- Group 20 - Lubrication System
- Group 25 - Cooling System
- Group 30 - Governor and Speed Control Linkage

SECTION 30 - FUEL AND AIR REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Air Intake System
- Group 10 - 219 and 329 Diesel Fuel System
- Group 12 - 359 Diesel Fuel System
- Group 15 - Control Linkage

SECTION 40 - ELECTRICAL REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Harness Replacement
- Group 10 - Charging Circuit Repair
- Group 15 - Starting Circuit Repair
- Group 20 - Ignition System Repair
- Group 25 - Lights and Accessory Circuits

SECTION 50 - POWER TRAIN REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Clutch
- Group 10 - Transmission
- Group 15 - Differential
- Group 20 - Final Drive
- Group 25 - Final Drive

SECTION 60 - STEERING/BRAKES REPAIR

- Group 00 - Specifications
- Group 05 - Power Steering
- Group 10 - Brakes

SECTION 70 - HYDRAULIC REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Reservoir
- Group 10 - Hydraulic Pumps
- Group 15 - Hydraulic Valves
- Group 20 - Hydraulic Cylinders
- Group 25 - Hydraulic Motors
- Group 30 - Accumulator

SECTION 80 - SEPARATOR SHELL REPAIR

- Group 00 - Specifications
- Group 05 - Rear Hood
- Group 10 - Cylinder Rear Cover
- Group 15 - Separator Uprights

SECTION 90 - OPERATOR STATION REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Air Conditioning System
- Group 10 - Pressurizer System
- Group 15 - Heating System
- Group 20 - Personal Posture Seat
- Group 25 - Cab Roof

SECTION 100 - HEADER REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - 200 Series Cutting Platforms
- Group 10 - Quik-Tatch Cutting Platforms
- Group 15 - 40 Series Corn Heads
- Group 20 - Row-Crop Heads

Copyright 1984 DEERE AND COMPANY
Moline, Illinois All rights reserved
Previous Editions

Copyright © 1980 Deere and Company
Copyright © 1981 Deere and Company

2 Contents

SECTION 110 - FEEDER HOUSE REPAIR

- Group 00 - Specifications
- Group 05 - Feeder Conveyor Chain
- Group 10 - Feeder Conveyor Drum
- Group 15 - Variable Speed Feeder House Drives
- Group 20 - Feeder House Lower Shaft
- Group 25 - Feeder House Upper Shaft

SECTION 120 - SEPARATOR REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Cylinder, Concave, and Beater
- Group 10 - Cylinder Drives
- Group 15 - Straw Walkers and Crankshafts
- Group 20 - Straw Chopper and Straw Spreader
- Group 25 - Shoe Supply Augers, Cleaning Fan, and Shoe Frame
- Group 30 - Tailings Elevator and Augers
- Group 35 - Lower Auger, Clean Grain Elevator, and Grain Tank Loading Auger

SECTION 130 - GRAIN TANK UNLOADING SYSTEM REPAIR

- Group 00 - Specifications
- Group 05 - Grain Tank Auxiliary Unloading Augers and Drive
- Group 10 - Grain Tank Inner and Outer Unloading Augers

SECTION 140 - MAJOR DRIVES REPAIR

- Group 00 - Specifications
- Group 05 - Engine Powershaft
- Group 10 - Primary Countershaft
- Group 15 - Secondary Countershaft

SECTION 160 - AUTOMATIC HEADER HEIGHT CONTROL REPAIR

- Group 00 - Specifications and Special Tools
- Group 05 - Repair of Components

SECTION 220 - ENGINE OPERATION AND TESTS

- Group 00 - Specifications and Special Tools
- Group 05 - System Operation
- Group 10 - System Tests and Diagnosis

SECTION 230 - FUEL/AIR OPERATION AND TESTS

- Group 00 - Specifications and Special Tools
- Group 05 - Air Intake System
- Group 10 - Diesel Fuel System
- Group 15 - Control Linkage

SECTION 240 - ELECTRICAL OPERATION AND TESTS

- Group 00 - Specifications and Special Tools
- Group 05 - General Information and Diagrams
- Group 10 - Charging Circuit Diagnosis
- Group 15 - Starting Circuit Diagnosis
- Group 20 - Lights, Instruments, and Accessory Circuits Diagnosis

SECTION 250 - POWER TRAIN OPERATION AND TESTS

- Group 00 - Specifications and Special Tools
- Group 05 - Clutch Diagnosis
- Group 10 - Transmission Diagnosis
- Group 15 - Final Drive Diagnosis

SECTION 260 - STEERING/BRAKES OPERATION AND TESTS

- Group 00 - Specifications
- Group 05 - Power Steering
- Group 10 - Brakes

SECTION 270 - HYDRAULIC OPERATION AND TESTS

- Group 00 - Specifications and Special Tools
- Group 01 - Hydraulic System Operation
- Group 05 - Hydraulic System Tests
- Group 10 - Reservoir
- Group 15 - Hydraulic Pumps
- Group 20 - Hydraulic Valves
- Group 25 - Hydraulic Cylinders
- Group 30 - Hydraulic Motors
- Group 35 - Accumulator

SECTION 290 - OPERATOR STATION OPERATION AND TESTS

- Group 00 - Specifications and Special Tools
- Group 05 - Air Conditioning Operation and Tests
- Group 10 - Pressurizer System
- Group 15 - Heating System

SECTION 360 - AUTOMATIC HEADER HEIGHT
CONTROL OPERATION AND
TESTS

- Group 00 - Specifications and Special Tools
- Group 05 - General Information, Diagnosis, and
Tests
- Group 10 - Mechanical System
- Group 15 - Electrical System
- Group 20 - Hydraulic System
- Group 25 - General Information, Diagnosis, and
Tests - DIAL-A-MATIC™
- Group 30 - Mechanical System - DIAL-A-MATIC
- Group 35 - Electrical System - DIAL-A-MATIC
- Group 40 - Hydraulic System - DIAL-A-MATIC

Throughout this manual dimensions are shown as follows: (1.75 mm) .069". The measurement in parentheses was converted from the design dimension.

All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

The specifications given in this manual are intended for service only. They do not include normal factory manufacturing tolerances.

Section 10 GENERAL

CONTENTS OF THIS SECTION

	Page
GROUP 00 - GENERAL SPECIFICATIONS	
Serial Numbers	00-1
Specifications	00-2
Ground Speeds	00-3
Dimensions	00-4
GROUP 05 - DIAGNOSING AND TESTING PROCEDURES	05-1
GROUP 10 - TUNE-UP AND ADJUSTMENT	
General Information	10-1
Preliminary Engine Testing	10-1
Engine Tune-Up	10-1
Adjustments	10-3
Torque Chart	10-3
Care and Maintenance of Belts and Chains .	10-4

Group 00 GENERAL SPECIFICATIONS

SERIAL NUMBERS

Serial Number Unit	Location	Serial Number Unit	Location
Separator (-550000)	Rear left hand upright	Cutting Platform and	
(550001-)	Near right hand side of tool box	Pickup Platform	Left-hand side of main frame
Engine	Right-hand side of engine block	Corn Head	Lower right-hand side on bulk-head frame
Feeder House (Early 4400 Combines)	Right-hand side sheet	Row-Crop Head.	Left-hand side end sheet of main frame

SPECIFICATIONS

Engines:

4400	Gasoline	Diesel
(292-9BS)	(-694)	(HC-219-D)
(292-1CL)	(695-3300)	(- 3300)*
(292-1DO)	(3301-6500)	(219-DH-02)
(292-EBL)	(6501-9500)	(3301- 6500)*
(292-EJD)	(9501-101300)	(329-DH-02)
(292-4TA)	(101301-151500)	(6501-250500)
(292-5TA)	(151501-201250)	(329-DH-03)
		(250501-353000)

*219 Diesel engine used on 4400 Export Combine only.

4420	Gasoline	Diesel
		(329-DH-03)
		(470001-615521)
		(359-DH-01)
		(611939-)

Type..... 4-stroke cycle,
4 or 6 cylinder-in-line, valve-in-head

Cubic inch displacement and brake horsepower

Gasoline

292-9BS	(4785 cm ³)	292 cu. in.	(68.63 kW)	92 hp
292-1CL	(4785 cm ³)	292 cu. in.	(68.63 kW)	92 hp
292-1DO	(4785 cm ³)	292 cu. in.	(68.63 kW)	92 hp
292-EBL	(4785 cm ³)	292 cu. in.	(70.87 kW)	95 hp
292-EJD	(4785 cm ³)	292 cu. in.	(70.87 kW)	95 hp
292-4TA	(4785 cm ³)	292 cu. in.	(70.87 kW)	95 hp
292-5TA	(4785 cm ³)	292 cu. in.	(70.87 kW)	95 hp

Diesel

219M53HC	(4785 cm ³)	219 cu. in.	(52 kW)	70 hp
219DH-02	(4785 cm ³)	219 cu. in.	(52 kW)	70 hp
329DH-02	(5391 cm ³)	329 cu. in.	(70.87 kW)	95 hp
329DH-03	(5391 cm ³)	329 cu. in.	(74.5 kW)	100 hp
359DH-01	(5883 cm ³)	359 cu. in.	(74.5 kW)	100 hp

Bore and stroke, inches

	Bore	Stroke
219	(102.11 mm) 4.02	(110 mm) 4.33
292	(78.5 mm) 3.88	(105 mm) 4.12
329	(102.11 mm) 4.03	(110 mm) 4.33
359	(106.5 mm) 4.19	(110 mm) 4.33

Compression ratio:

292	8.0 to 1
219, 329	16.3 to 1
359	17.4 to 1

Firing Order 292, 329, 359 1-5-3-6-2-4
219..... 1-3-4-2

Valve Clearance:

	(hot or cold)
Gasoline	Intake Exhaust
292 hydraulic lifters	1 turn down from zero lash
Diesel	(hot or cold)
219, 329, 359	(0.356 mm) 0.014 in. (0.457 mm) 0.018 in.

Engine speeds: (normal slow idle) (Fast idle with separator engaged)

Gasoline . 292	550 rpm	2625 rpm
Diesel 329	1200 rpm	2625 rpm

Injection pump timing TDC
Distributor timing 550 rpm 4° Mark
Distributor point gap (0.406 mm) 0.016 in.
Distributor cam dwell 31° to 34°
Spark plug gap (0.889 mm) 0.035 in.
Spark plug size (-F 9BS)
(Gasket Seat) 14 mm
Spark plug size (F ICL-)
(Tapered Seat) 14 mm

Cooling System:

Type Single pressure with centrifugal pump (0.5 bar) (7 psi) - closed system without air conditioning. Surge tank equipped with air conditioning.

Fuel System:

Type Direct Injection Distributor
Air Cleaner Dry Type with Precleaner

Electrical System:

Battery voltage 12 volts
Battery specific gravity at full charge (corrected at (27°C) 80°F 1.260 (±0.010)
Battery terminal grounded Negative
Alternator regulation Voltage regulator

Clutch:

Type: (254 mm) 10-inch 4400 (-250500), (279 mm) 11-inch 4400 (250501-) and 4420. Dry disk-type mechanically actuated by foot pedal.

Transmission:

Type: Automotive spur gear with four forward and one reverse speed. Transmission is equipped with safety start switch.

Final Drive:

Type: Pinion and ring gear
Ratios 10 to 82, 13 to 89

Steering:

Type: Full power hydrostatic steering

Brakes:

Type: (152 mm) 9-inch hydraulically actuated disk-type. Individual brakes controlled by separate pedals.

Hydraulic System:

Type: Open-center, constant-flow system.
Pump: Cessna gear-type.
Relief pressure (143 bar) 2100 psi
Flow rates (at 2500 to 2650 rpm):
Main System (37 m³/s) 5.90 gpm
Steering System
(-201250) (17 m³/s 2.75 gpm
(201251-) (20 m³/s) 3.20 gpm

Capacities:

Cooling System: (Add [1.4 L] 1-1/2 Qts. for heater)
Gasoline - 292 (23.8 L) 25 U.S. Qts.
Diesel - 219 (21.9 L) 23 U.S. Qts.
329, 359 (26.6 L) 28 U.S. Qts.

Engine Crankcase: (Includes oil filter)

Gasoline - 292 (4.73 L) 6 U.S. Qts.
Diesel - 219 (6.6 L) 7 U.S. Qts.
329 (9.5 L) 10 U.S. Qts.
359 (11.5 L) 12 U.S. Qts.

Fuel Tank (170 L) 45 U.S. Gals.
Transmission (6.6 L) 14 U.S. Pts.

Final Drives:

Regular duty (3.8 L) 8 U.S. Pts. each
Heavy duty (4.9 L) 10 U.S. Pts. each
Hydraulic system (including lines and components) (16.2 L) 17 U.S. Qts.
Hydraulic brake master cylinder (0.47 L) 1 U.S. Pts.

Weight (less header) (4470 kg) 9,854 lbs.

**GROUND SPEED CONTROL RANGE IN (km/h) MPH
(13 to 89 RATIO)**

Size	Tire Type	Ply Rating	1st Gear (km/h) mph	2nd Gear (km/h) mph	3rd Gear (km/h) mph	4th Gear (km/h) mph	Reverse Gear (km/h) mph
16.9-26	Cleat (R-1)	8	(1.1 to 2.9) .7 to 1.8	(2.3 to 5.8) 1.4 to 3.6	(4.5 to 11.6) 2.8 to 7.2	(8.9 to 23.2) 5.5 to 14.4	(2.6 to 6.6) 1.6 to 4.1
18.4-26	Cleat (R-1)	6	(1.1 to 3.1) .7 to 1.9	(2.4 to 6.1) 1.5 to 3.8	(4.7 to 12.1) 2.9 to 7.5	(9.3 to 24.3) 5.8 to 15.1	(2.6 to 6.9) 1.6 to 4.3
18.4-26	Cleat (R-1)	10	(1.1 to 3.1) .7 to 1.9	(2.4 to 6.1) 1.5 to 3.8	(4.7 to 12.2) 2.9 to 7.6	(9.5 to 24.6) 5.9 to 15.3	(2.7 to 6.9) 1.7 to 4.3
18.4-26	Low Profile (R-3)	6	(1.1 to 3.1) .7 to 1.9	(2.3 to 6.0) 1.4 to 3.7	(4.7 to 11.9) 2.9 to 7.4	(9.2 to 24.0) 5.7 to 14.9	(2.6 to 6.8) 1.6 to 4.2
18.4-26	Cane & Rice (R-2)	8 and 10	(1.29 to 3.2) .8 to 2.0	(2.4 to 6.3) 1.5 to 3.9	(4.8 to 12.6) 3.0 to 7.8	(9.7 to 25.3) 6.0 to 15.7	(2.7 to 7.1) 1.7 to 4.4
23.1-26	Cleat (R-1)	8	(1.3 to 3.4) .8 to 2.1	(2.6 to 6.6) 1.6 to 4.1	(5.2 to 13.2) 3.2 to 8.2	(10.2 to 26.6) 6.3 to 16.5	(2.9 to 7.4) 1.8 to 4.6
23.1-26	Cane & Rice (R-2)	8	(1.3 to 3.5) .8 to 2.2	(2.7 to 6.9) 1.7 to 4.3	(5.3 to 14.0) 3.3 to 8.7	(10.8 to 28.0) 6.7 to 17.4	(3.1 to 7.9) 1.9 to 4.9

All information, illustrations, and specifications contained in this technical manual are based on the latest information available at time of publication. The right is reserved to make changes at any time without notice.

Please click here and go
back to our website.

BUY NOW

Then Instant Download the
Complete Manual.

Thank you very much!