

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

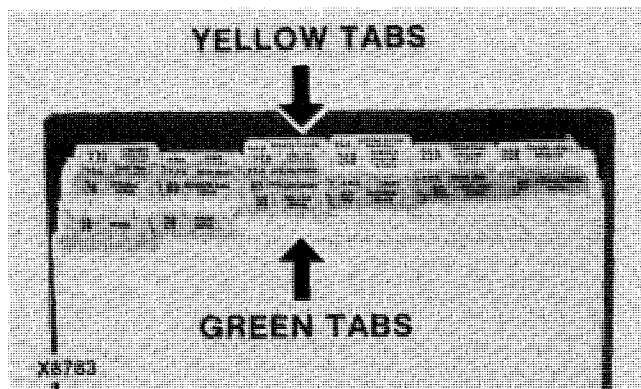
- Group 00 - Specifications and Special Tools
- Group 05 - General Information, Diagnosis, and
Tests
- Group 10 - Mechanical System
- Group 15 - Electrical System
- Group 20 - Hydraulic System
- Group 25 - General Information, Diagnosis, and
Tests - DIAL-A-MATIC™
- Group 30 - Mechanical System - DIAL-A-MATIC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

TECHNICAL MANUAL TABS

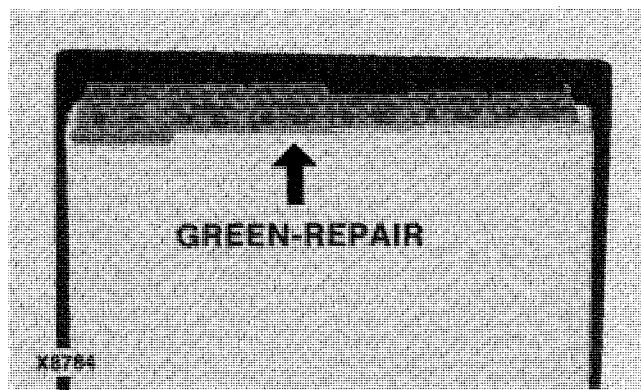


INTRODUCTION

To fully utilize this technical manual, you must understand how it is organized.

Only two tab colors are used—green and yellow. Each color represents a different type of information.

Spend a minute reading this now and save many minutes of searching later.



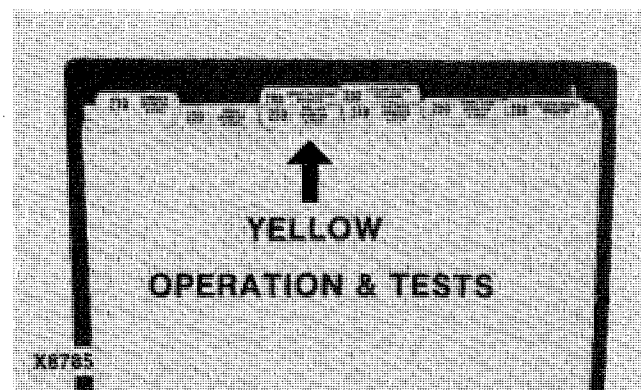
GREEN TAB SECTIONS

The green tab sections are repair sections that tell how to repair the components of the various systems.

Repair of a component includes:

- Removal from machine (when necessary)
- Disassembly
- Inspection
- Replacement of parts
- Assembly
- Adjustment
- Installation on machine (when necessary)

The numbers used for the repair (green tab) sections are part of an overall service publication numbering system. The numbers identify the same sections in the parts catalog, flat rate manual, service information bulletins, and service training courses.



YELLOW TAB SECTIONS

Each yellow tab section contains information on:

- System Operation
- System Tests

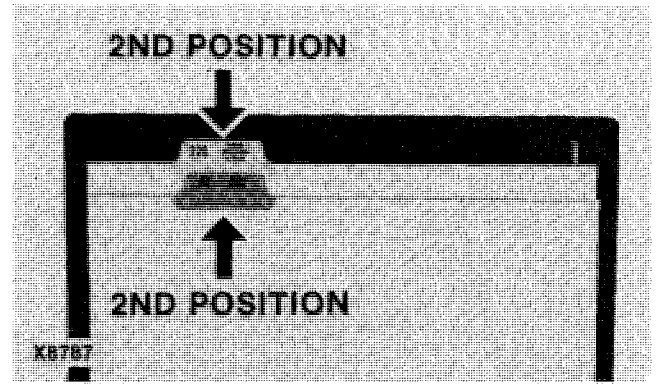
System operation explains how the system and its components work.

System tests tell how to test the system and diagnose the problem.

TAB POSITIONS

Each green tab and its corresponding yellow tab have the same tab position. This is to help you quickly locate the related information.

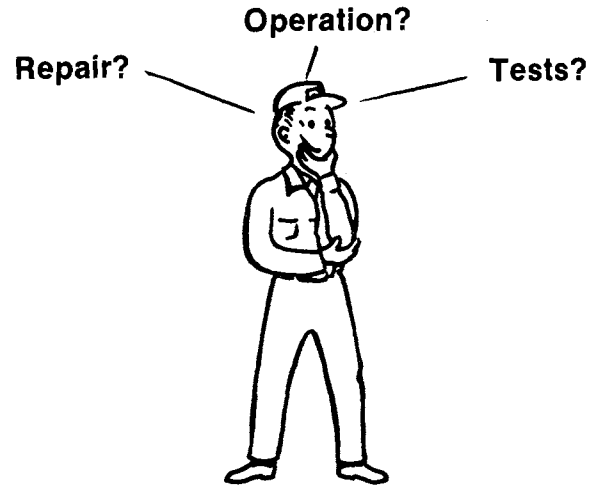
COLOR	POSITION	SEC. NO.	DESCRIPTION
Green	2nd	20	Engine Repair
Yellow	2nd	220	Engine Operation and Tests



HOW TO USE

Use the following three-step procedure to locate the desired information.

1. Determine the type of information you need. Is it repair, operation, or tests?
2. Go to the appropriate section tab:
 Green for Repair
 Yellow for Operation or Tests

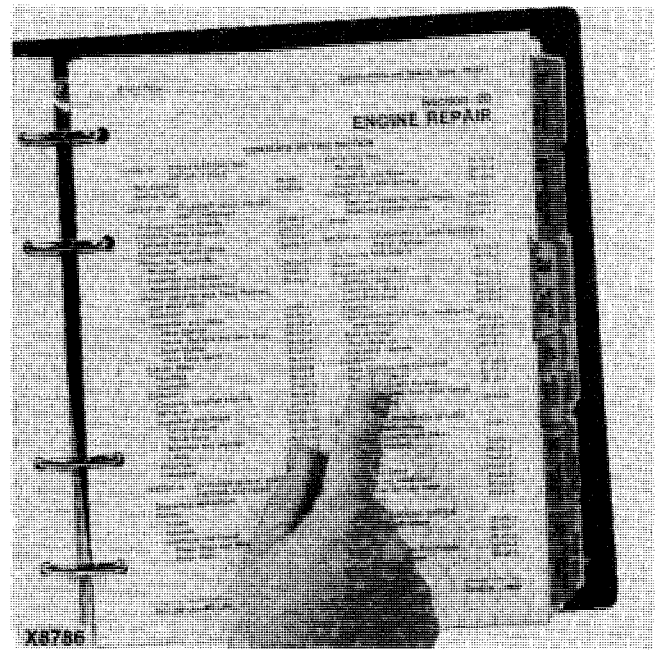


X8788

TYPE OF INFORMATION?

X8786

3. Use the table of contents on the first page of the section to locate the information.



X8786

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.

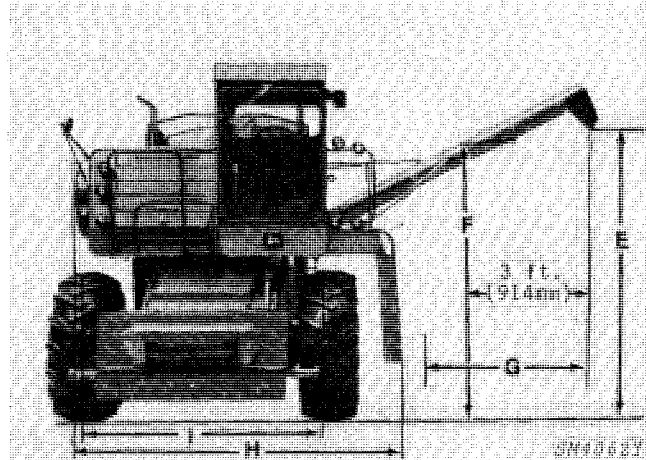
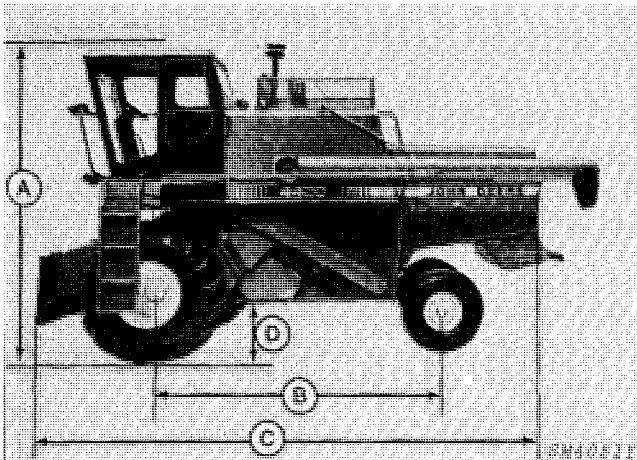
Weight (less header) (4470 kg) 9,854 lbs.

**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.

DIMENSIONS



Dimensions are with combine equipped with standard equipment tires.

- | | |
|---|---|
| <p>A. Height..... (3 582 mm)
(11 ft. 9 in.)</p> <p>B. Wheelbase (3 277 mm)
10 ft. 9 in.</p> <p>C. Length
With Auger In The Rear Position:**†
Separator Only (6 655 mm)
21 ft. 10 in.</p> <p>With Auger In The Out Position:**
Separator Only (6 147 mm)
20 ft. 2 in.</p> <p>D. Ground Clearance* 432 mm
17 in.</p> <p>E. Unloading Auger Discharge
Height* (2 895 mm)
9 ft. 6 in.</p> | <p>F. Unloading Auger Clearance Height* . (2 768 mm)
9 ft. 1 in.</p> <p>G. Unloading Auger Reach..... (1 702 mm)
5 ft. 7 in.</p> <p>Header Size Used With Measurement .. (6 096 mm)
20 ft.</p> <p>H. Width (3 048 mm)
10 ft.</p> <p>I. Wheel Tread - For Drive Wheel or Steering Wheel
Tread Widths Refer to "Combine Wheel Spacing".</p> |
|---|---|

**Add (127 mm) 5 in. for long-length feeder house.
†Add (304 mm) 12 in. for a straw chopper and (889 mm) 2 ft. 11 in. for a straw spreader

*With standard tires 18.4-26 (R-1)
Add for optional tires:
18.4-26 (R-2) (25.4 mm) 1.0 in.
23.1-26 (R-1) (50.8 mm) 2.0 in.
23.1-26 (R-2) (101.2 mm) 4.0 in.

Group 05

DIAGNOSING AND TESTING PROCEDURES

To prevent unnecessary loss of time and money, use the following seven steps for a quick and accurate method of locating troubles:

1. Know The Unit

In other words, "Do your Homework". Study the Operator's Manual and this manual to know how the individual components work and what their function is in the overall system.

Keep up with the latest service information. Read and then file in a handy place. Record the Service Information Bulletin numbers on the pages provided in the front of this manual. Information received today may have the cause and remedy of a problem being encountered.

2. Consult The Operator

Ask the operator how the combine was performing when it started to fail. Find out what was unusual about it.

Also find out if any "do-it-yourself" service was performed. (You may find the trouble somewhere else, but you should know if any corrective measures have already been taken.)

Ask how the combine is used and how often it is serviced. Many problems are caused by poor maintenance or abuse.

3. Operate The Combine

If the combine is operable, operate it yourself. Don't rely completely on the operator's story - check it yourself.

Are gauges reading normal? If not, maybe the component being monitored is not functioning correctly or the gauge is faulty.

How's the performance? Is the action perhaps too fast or too slow, erratic, or none at all?

Do the controls feel solid or "spongy"? Do they seem to be "sticking"?

Do you smell or see any signs of smoke?

Do you hear any unusual sounds? Where?

4. Inspect The Combine

Get off the combine and make a visual check. Use your eyes, ears, and nose to spot any signs of trouble.

Look closely at the components. Inspect for cracked welds, loose hardware, damaged linkages, worn or broken lines, etc.

During the inspection, make notes of all the trouble signs.

5. List The Possible Causes

With the information obtained during steps 1 through 4, make a list of the possible causes.

What were the signs you found while inspecting the combine? What is the most likely cause?

6. Reach Some Conclusions

Look over the list of possible causes and decide which are most likely and which are easiest to verify.

Review the "Diagnosing Malfunctions" section as a helpful guide.

Reach your decision on the probable causes and plan to check them first.

7. Test Your Conclusions

Before repairing components in the system, test your conclusions to see which are correct.

Some of the possible causes may be verified without further testing. Check these possibilities first.

Test will narrow the remaining list of possible causes and soon the actual cause(s) of trouble will be pin pointed.

With the cause(s) accurately located, it is now a simple matter to remove and repair the component(s) at fault.

Group 10 TUNE-UP AND ADJUSTMENT

GENERAL INFORMATION

Before tuning up a combine engine, determine whether a tune-up will restore operating efficiency. When there is doubt, the following preliminary tests will help determine if the engine can be tuned up. If

the condition is satisfactory, proceed with the tune-up. Choose from the following procedure only those necessary to restore the combine.

PRELIMINARY ENGINE TESTING

Operation	Specification	Section Reference
Compression Test (Minimum readings at cranking speed)		
Gasoline	292..... (896 kPa) 130 psi	
Diesel	219 and 329 (2 413 kPa) 350 psi	Section 220
	359..... (2 100 kPa) 300 psi	

The most important factor in compression readings is the difference between cylinders. This difference must be no more than (345 kPa) 50 psi in diesel engines or no more than (138 kPa) 20 psi in gasoline engines.

ENGINE TUNE-UP

Operation	Section Reference
Air Intake System	
Check system for leaks .....	.....
Exhaust System	
Check system for leaks. Check for restricted muffler or exhaust pipe .....	.....
Crankcase Vent	
Check for restrictions .....	.....
Cooling System	
Clean rotary screen, radiator core, and air conditioning condenser .....	.....
Clean and flush system and check thermostat.....	Section 20
Check radiator cap	Section 20
Inspect all hoses .....	.....

ENGINE TUNE-UP—Continued

Operation	Section Reference
Cylinder Head and Valves	
Torque cylinder head cap screws (in sequence)	Section 20
Set valve clearance	Section 20
Fuel System	
Check fuel tank for water and drain off if required	
Check fuel tank and lines for leaks or restrictions	
Check electric fuel pump pressure	Section 230
Clean sediment bowl and screen	
Service injection nozzles	Section 30
Bleed fuel system	
Check injection pump timing	Section 30
Replace fuel filter(s)	
Electrical System	
Clean and tighten battery cables and connections	
Check alternator belt tension	
Check alternator output	Section 240
Check neutral safety start switch operation	Section 240
Check starter draw	Section 240
Check battery voltage	Section 240
Inspect all wiring	

ADJUSTMENTS

Operation	Specification	Section-Group Reference
Brakes		
Adjust brake linkage		60-10
Inspect brake linings		60-10
Clutch		
Check smoothness of clutch		
Adjust clutch linkage	(25 mm) 1-inch pedal free travel	50-05
Power Steering		
Check smoothness of steering		
Hydraulic System		
Check each hydraulic function		
Inspect filter, oil lines, and hoses		
Tires		
Check tire inflation		
Tighten Accessible Bolts		See Torque Chart below

TORQUE CHART

Bolt Diameter	Plain Head*		Three Radial Dashes*		Six Radial Dashes*	
	N·m	ft-lbs	N·m	ft-lbs	N·m	ft-lbs
1/4 in. (6.35 mm)	8	6	14	10	19	14
5/16 in. (7.93 mm)	18	13	27	20	41	30
3/8 in. (9.53 mm)	31	23	47	35	70	50
7/16 in. (11.11 mm)	47	35	75	55	110	80
1/2 in. (12.70 mm)	75	55	115	85	160	120
9/16 in. (14.29 mm)	100	75	175	130	240	175
5/8 in. (15.88 mm)	140	105	230	170	325	240
3/4 in. (19.05 mm)	250	185	410	300	575	425
7/8 in. (22.23 mm)	220**	160	600	445	930	685
1 in. (25.40 mm)	340**	250	900	670	1400	1030

*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.



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