John Deere 6602 Combine

JOHN DEERE

TECHNICAL MANUAL

John Deere 6602
Combine

TM1080 (01FEB79) English

TM1080 (01FEB79)

LITHO IN U.S.A. (REVISED)
ENGLISH

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TM1080 01FEB79

6602 COMBINE

TECHNICAL MANUAL
TM-1080 (Mar-78)

CONTENTS

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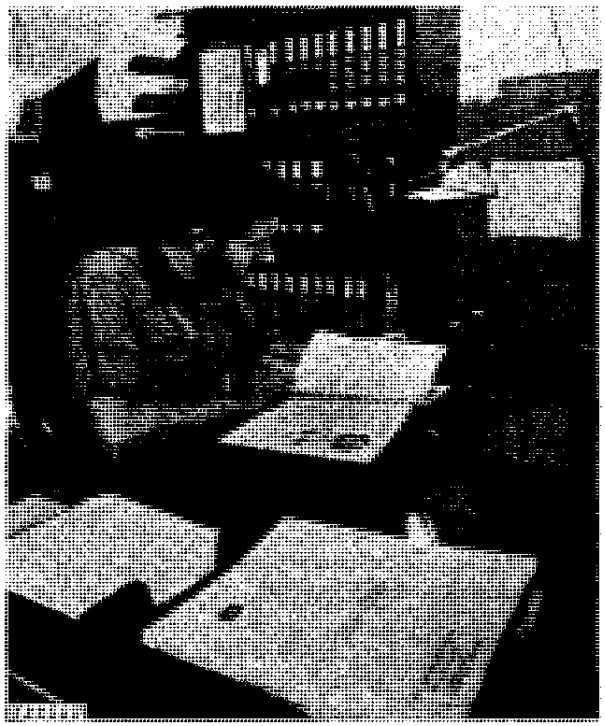
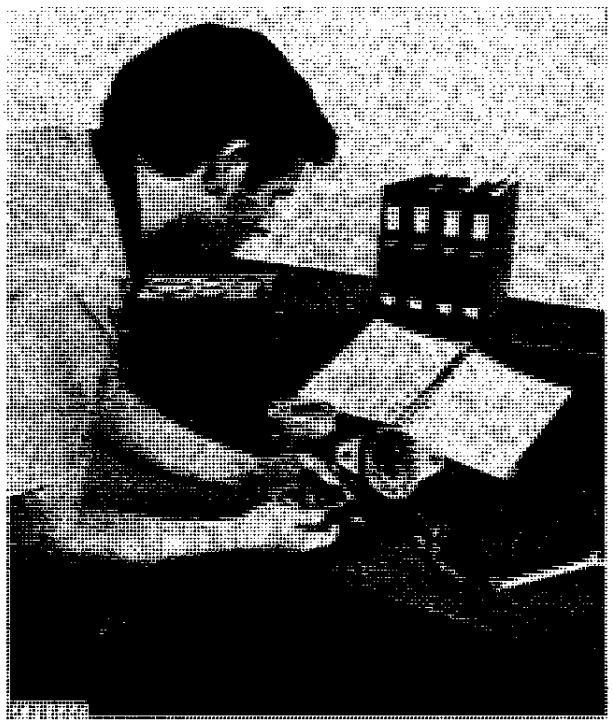
INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

This technical manual is part of a twin concept of service:

- **FOS Manuals—for reference**
- **Technical Manuals—for actual service**

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover *basic* theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new service people and for reference by experienced technicians.

Technical Manuals are concise service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by an experienced technician.

When a technician should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

This technical manual was planned and written for you—an experienced technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.

⚠ This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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Thanks very much for your reading,

Want to get more information,

Please click here, Then get the complete manual

NOTE:

If there is no response to click on the link above, please download the PDF document first, and then click on it.

Have any questions please write to me:
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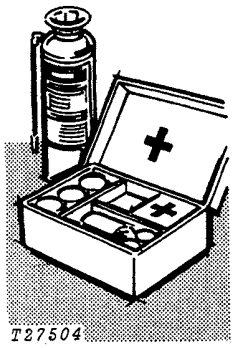
SAFETY AND YOU

T27999

INTRODUCTION

This safety alert symbol identifies important safety messages in this manual and on the combine. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



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Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located—know how to use them.

BLOCKING THE COMBINE

CAUTION

Whenever any components of the Automatic Leveling System are to be disconnected or removed for service or replacement, it is very important that the combine be securely blocked so it will not tilt and cause serious personal injury or damage to the combine.

Place blocks on each end of the axle beam inside the front axle support frame. Also, place wedges between each of the rear axle spindles and rear axle.

Always service the 6602 Combine on level ground unless otherwise specified in this manual.

Before checking, adjusting, or servicing the automatic leveling system, be certain the separator is absolutely perpendicular with the front axle balance beam. This may be checked with the carpenter's level, with the combine setting on a level surface and the tires equally inflated.

After leveling the separator and before checking, adjusting or servicing the remainder of the combine, be certain to: (1) block the front and rear wheels, (2) lower the cutting platform all the way to the ground and, (3) shut off the engine.

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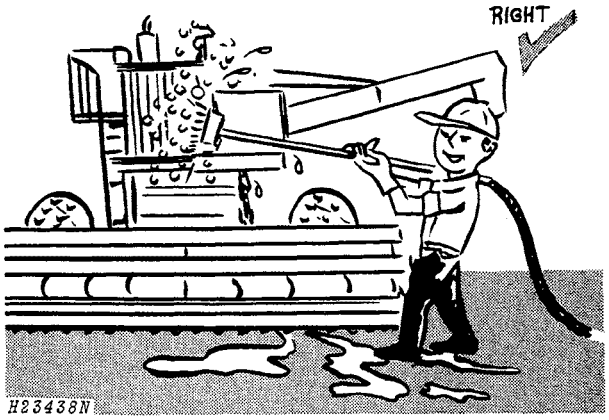
CLEANING THE COMBINE



Always stop the engine before cleaning the combine.

Keep the operator's platform clean. Do not use it as a storage area.

Keep the radiator and engine closure screens free of foreign matter. Avoid a possible fire hazard.

Keep all equipment free of dirt and oil. In freezing weather, beware of snow and ice on ladder steps and operator's platform.

SERVICE AREA

Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

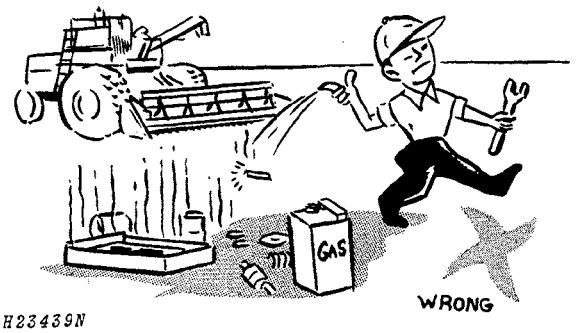
Make sure the service area is adequately vented.

Periodically check the shop exhaust system for leakage. Engine exhaust gas is dangerous.

Be sure all electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

AVOID FIRE HAZARDS



Don't smoke while refueling or handling highly flammable material.

Engine should be shut off when refueling.

Use care in refueling if the engine is hot.

Don't use open pans of gasoline or diesel fuel for cleaning parts. Good commercial, nonflammable solvents are preferred.

Provide adequate ventilation when charging batteries.

Don't check battery charge by placing metal objects across the posts.

Don't allow sparks or open flame near batteries.

Don't smoke near battery.

Never check fuel, battery electrolyte or coolant levels with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

Never use a open flame as a light anywhere on or around the equipment.

When preparing engine for storage, remember that inhibitor is volatile and therefore dangerous. Seal and tape openings after adding the inhibitor. Keep container tightly closed when not in use.

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FLUIDS UNDER PRESSURE

Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

Don't forget the hydraulic system or diesel fuel injection system may be pressurized! To relieve pressure, follow the technical manual.

When checking hydraulic pressure, be sure to use the correct test gauge for the pressure in the particular system.

PERSONAL SAFETY

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Always avoid loose clothing or any accessory—flopping cuffs, dangling neckties and scarves—that can catch in moving parts and put you out of work.

Always wear your safety glasses while on the job.

Keep transmission and brake control units properly adjusted at all times. Before making adjustments, stop engine.

Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

Don't attempt to check belt tension while the engine is running.

Don't adjust the fuel system while the machine is in motion.

Before repairing the electrical system, or performing a major overhaul, make sure the batteries are disconnected.

Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, ALWAYS USE TWO MEN—one, the operator, at the controls, the other checking where the operator can see him. Also, put the transmission in neutral, set the brake, and apply any safety locks provided. KEEP HANDS AWAY FROM MOVING PARTS.

Use extreme caution in removing radiator caps, drain plugs, grease fittings, or hydraulic pressure caps.

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Section 10
GENERAL

CONTENTS OF THIS SECTION

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Group 5
GENERAL SPECIFICATIONS

DESCRIPTION

The 6602 Self-Propelled Combine has a 44-inch (1 118 mm) wide separator. It is powered by either a 362 gasoline engine, a 404 diesel or turbocharged diesel engine, or a 466 turbocharged diesel engine.

It is equipped with hydraulic disk brakes and a 4-speed, collar shaft, constant-mesh transmission.

"Right-hand" and "left-hand" sides are determined by facing in the direction the combine will travel when in use.

SERIAL NUMBERS

Serial Number Unit	Location
Combine	Rear left-hand upright
Engine	Right-hand side of cylinder block or above starter on later engines.
Feeder House (early combines)	Right-hand side sheet
Cutting Platform	Right-hand side sheet

SPECIFICATIONS

ENGINES

Gasoline

362 GH-02 (-111600)

Diesel

404 DH-02 (-1500)
404 DH-03 (1501 -163500)
404 TH-02 (163501-311300)
466 TH-01 (353601-)

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

Cubic inch displacement and brake horsepower

Gasoline	362 (5932 cm³)	121 (90 kw)
Diesel	404 (6620 cm³)	121 (90 kw)
	404 (Turbocharged (6620 cm³)	135 (100 kw)
	466 (7640 cm³)	145 (108 kw)

Bore and stroke, inches (mm)

	Bore	Stroke
362	4.25 (108 mm)	4.25 (108 mm)
404	4.25 (108 mm)	4.75 (121 mm)
466	4.56 (116 mm)	4.75 (121 mm)

Compression ratio

Gasoline ..... 7.5 to 1
Diesel ..... 16.8 to 1 (404 D)
15.5 to 1 (404 T)
14.9 to 1 (466)

Firing Order 1-5-3-6-2-4

Valve clearance

	intake	exhaust
Gasoline (hot or cold)	0.015 in. (0.381 mm)	0.028 in. (0.711 mm)

Diesel (hot or cold)
0.018 in. (0.457 mm) 0.028 in. (0.711 mm)

Engine speeds (Normal slow idle) (Fast idle with separator engaged)

Gasoline	800 rpm	2650 rpm
Diesel	1200 rpm	2650 rpm
Diesel (Turbo)	1200 rpm	2350 rpm

Injection pump timing ..... TDC
Distributor timing ..... 2000 rpm 20° mark
Distributor point gap ..... 0.016 in. (0.406 mm)
Distributor cam dwell ..... 31° to 34°
Spark plug gap ..... 0.025 in. (0.635 mm)

ELECTRICAL SYSTEM:

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

TRANSMISSION: (Hydrostatic):

Type: Automotive spur gear with four forward speeds. Transmission is equipped with a safety start switch.

FINAL DRIVE: (Pinion and ring gear.)

STEERING: (Full power hydrostatic steering.)

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BRAKES:

Type: Drive wheel brakes are 6-1/2 inch (165 mm), hydraulically actuated, double disk type, located on rear portion of final drive. They are individually controlled by separate pedals.

Parking brakes are 6-1/2 inch (165 mm), mechanically actuated, double disk type, located on either side of transmission. They are controled by a lever on the operator's platform.

HYDRAULIC SYSTEM:

Type: Open-center, constant-flow system. Includes power steering, platform lift, reel drive, reel lift, and unloading auger swing.

Pump ..... Cessna gear-type

Relief pressure (± 100 psi [6.8 bar])
(-163500) .....2000 psi (136 bar)
(163501-) .....2250 psi (153 bar)

Flow rates (fast idle)
Main system
(-163500) .... 9.60 gpm at 2300 rpm
(163501-) .... 9.25 gpm at 2300 rpm

Steering System
(-1500) .....2.95 gpm (19 m³s)
(1501-163500) .....4.60 gpm (29 m³s)
(163501-) .....4.40 gpm (28 m³s)

CAPACITIES:
Cooling System .....32 U.S. Qts. (30 l)
(Add 1-1/2 qts. (1.4 l) for heater)

Engine Crankcase
Gasoline .....15 U.S. Qts. (14 l)
Diesel (-1500) ...15 U.S. Qts. (14 l)
Diesel (1501-163500) ...17 U.S. Qts. (16 l)
Diesel (Turbo)
(163501-) .....17 U.S. Qts. (16 l)

Fuel Tank .....79 U.S. Gals. (299 l)

Transmission ..... 11 U.S. Qts. (10.5 l)

Final Drives ..... 11 U.S. Pts. each (5.2 l)

Hydraulic System (including lines and components) .....17-1/2 Qts. (17 l)

Hydraulic Brake Master Cylinder .. 1 U.S. Pt. (0.47 l)

Hydrostatic Drive and Leveling System (including lines and components). 38 U.S. Qts. (36 l)

DIMENSIONS (with 24.5-32 tires):

Length (including cutting platform) ..... 26 ft. 3 in. (8001 mm)
Height (over grain tank) .. 9 ft. 11-1/2 in. (3035 mm)
Width (R.H. tire to L.H. tire) ..... 13 ft. 11 in. (4242 mm)
Wheel base ..... 13 ft. 1-1/2 in. (4001 mm)

GROUND SPEED IN MPH (km/h)

	Tire		1st Gear		2nd Gear		3rd Gear		4th Gear	
Size	**Type**	**Ply Rating**	**Forward**	**Reverse**	**Forward**	**Reverse**	**Forward**	**Reverse**	**Forward**	**Reverse**
24.5-32	Low Profile	12	1.5 (2.4)	1.0 (1.6)	3.5 (5.6)	2.3 (3.7)	6.4 (10.2)	4.2 (6.8)	14.8 (23.8)	9.8 (15.8)
30.5-32	Low Profile	12	1.6 (2.6)	1.0 (1.6)	3.6 (5.8)	2.4 (3.7)	6.6 (10.6)	4.3 (6.9)	15.1 (24.3)	9.9 (15.9)

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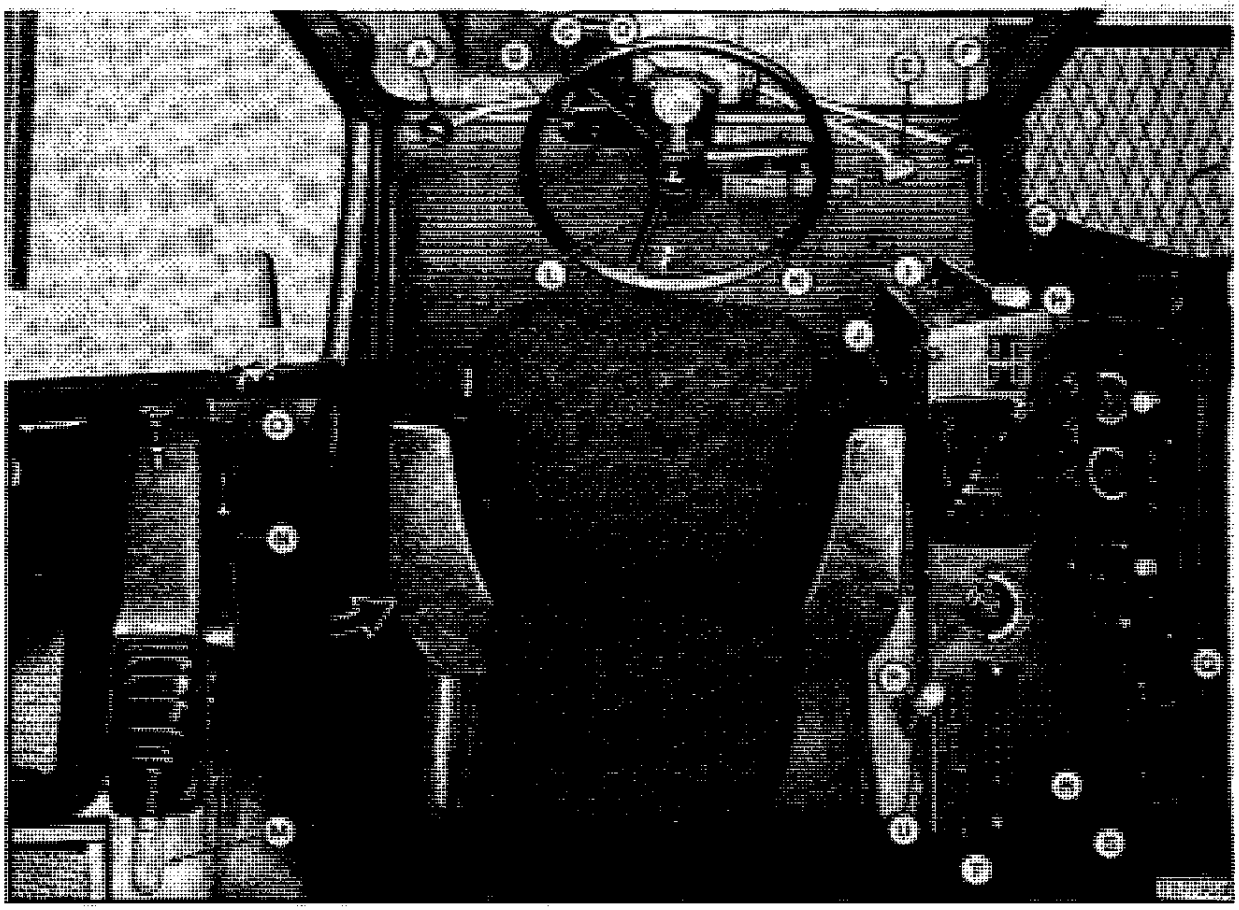
Group 10
PREDELIVERY, DELIVERY SERVICE, AND AFTER-SALE INSPECTION

COMBINE PREDELIVERY

CONTROLS AND INSTRUMENTS



A—Hydraulic Lift Reel
B—Directional Turn Signals
C—Steering Wheel
D—Low Shaft Speed Monitor (Optional)
E—Hydrostatic Drive Speed Range Control
F—Platform Lift Control
G—Separator Control
H—Gearshift
I —Throttle
J—Concave Opening Control
K—Brake Pedals
L—Steering Column Pedal
M—Parking Brake
N—Grain Tank Unloading Auger Lever
O—Unloading Auger Hydraulic Swing Control
P—Hydrostatic Drive Reel Control
Q—Cigarette Lighter
R—Ash Tray
S—Fuel Shut-Off
T—Low Shaft Speed Monitor (Optional)
U—Cylinder Speed Control

Fig. 1-Combine Controls

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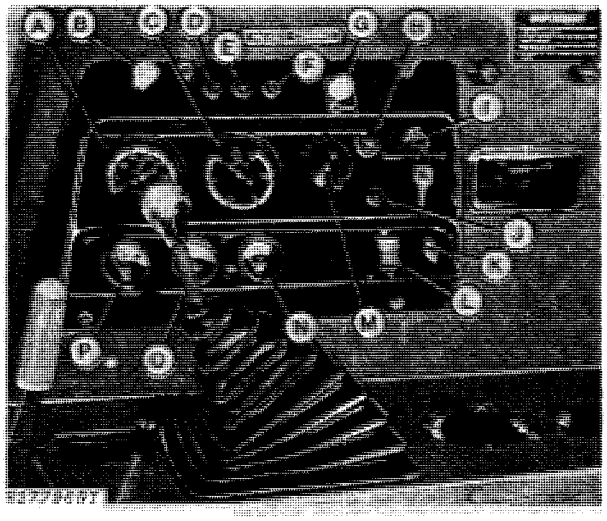
CONTROLS AND INSTRUMENTS—Continued



A—Engine Tach-Hour Meter
B—Header Electromagnetic Clutch Switch (Optional)
C—Cylinder Speed Tachometer
D—Parking Brake Indicator Light
E—Alternator Indicator Light
F—Transmission Oil Pressure Indicator Light
G—Cold Weather Starting Aid Button
H—Horn Button
I —Ignition Switch
J —Leveling Limit Warning Light
K—Leveling Control Cut-Out Switch
L—Manual Leveling Control Switch
M—Light Switch
N—Coolant Temperature Gauge
O—Engine Oil Pressure Gauge
P—Fuel Gauge

Fig. 2-Console Controls and Instruments

A. Manual Leveling Control Switch
B Leveling Limit Warning Light
C. Leveling Control Cut-Out Switch

Fig. 3-Leveling Control Switch, Cut-Out Switch, and Warning Light

IMPORTANT: Limit switches are not set at factory. See page 10-10-10 for correct adjustment procedure.

Manual Leveling Control Switch

If the leveling mechanism should fail to function or if the operator desires to tilt the separator while on level ground, the leveling mechanism can be controlled by a manual control switch (A) located on the instrument panel. This switch will return to neutral position when released.

IMPORTANT: Do not run engine for any length of time with combine in tilted position on level ground because oil will not be fed properly to bearings and other moving parts in the engine unless engine is at full rpm.

Leveling Control Cut-Out Switch

By operating this switch, the leveling mechanism can be disengaged if so desired for various purposes such as transporting.

Leveling Limit Warning Light

CAUTION: The leveling limit warning light (B) will flash on and off when the separator has reached the leveling limit. Beyond this point, the separator will start to lean and the operator should only proceed with the utmost caution.

PRESTARTING CHECKS (Before Unloading Combine)

1. Check the shipment for any shortage, loss, or damage. If any is noted, make the proper notations on the freight bill and immediately notify the carrier.

Fig. 1-Exhaust Opening

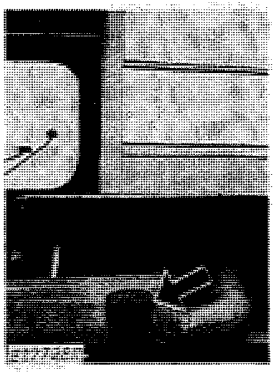


Fig. 2-Air Intake

2. Remove tape from exhaust opening and air intake (Figs. 1 and 2). Check to be certain air cleaner filter element is installed and all connections, particularly between the air filter and the engine, are tight.

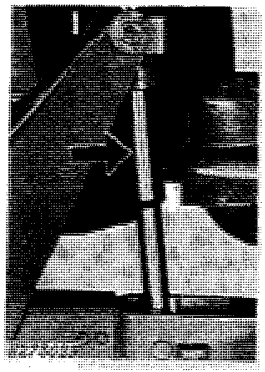


Fig. 3-Leveling Cylinder (Both Sides)

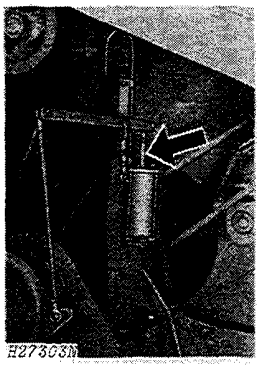


Fig. 4-Fluid Reservoir

3. Remove protective paper from leveling cylinders and tape from fluid reservoir (Figs. 3 and 4). Remove plastic wrapping from platform lift cylinders.

4. Check all steering wheel bolts to be certain they are tight - 120 ft-lbs (160 Nm) torque.

5. Make certain oil in crankcase, transmission, final drives, hydraulic reservoir, hydrostatic reservoir, and leveling system reservoir is at proper level.

6. Make certain radiator is filled to proper level. If necessary, add coolant slowly until level is 1-inch (25 mm) below filler neck.

7. Inspect leveling system for function and leaks and remove protective cover from leveling switches. Be certain that leveling control cut-out switch is in the "off" position.

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INSTALLING SHIPPING WHEELS

⚠ CAUTION: When unloading the combine and shipping bundles from the freight car, use a substantial unloading dock. When using a ramp, set the freight car wheel brakes and also block the wheels of the freight car.

The 6602 Combine is shipped from the factory on car blocking. It may be necessary to install shipping wheels before the combine can be unloaded.

⚠ CAUTION: Be certain the front axle is properly supported high enough to install shipping wheels.

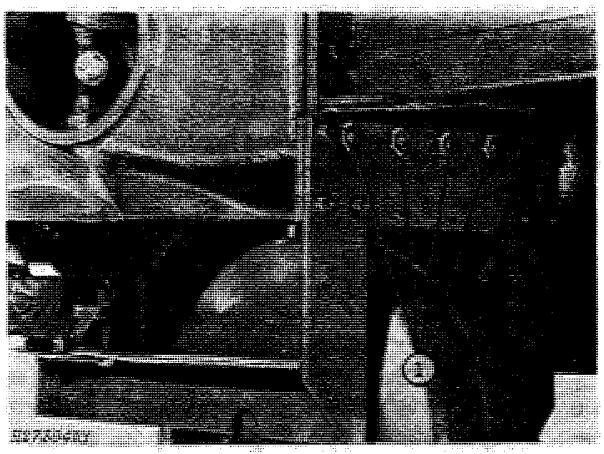

Fig. 1-Attaching Shipping Wheel

1. Attach shipping wheel to the four 1/2-inch cap screws with special nuts (Fig. 1).

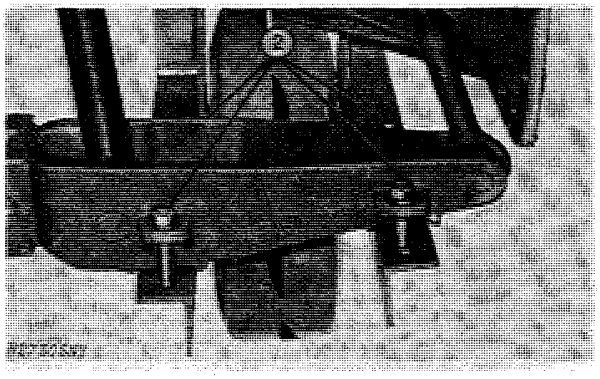

Fig. 2-Attaching Shipping Wheel Brace

2. Attach shipping wheel brace to axle beam with two 3/4 x 5-1/2-inch cap screws, two 3/4 x 4-inch cap screws, lock washers, and nuts (Fig. 2).

⚠ CAUTION: Shipping wheels are to be used only to unload the combine from the freight car. Combine may be towed on shipping wheels for a short distance to move it to the set-up area. Steps must be taken for restraining the combine during unloading because brakes have not yet been completely assembled.

INSTALLING DRIVE WHEELS AND DRIVE ASSEMBLIES

Refer to page 10-10-15 ENGINE OPERATING PROCEDURE, before attempting to start engine.

IMPORTANT: Be certain the transmission is in neutral and the parking brake lever is released before tilting combine.

The combine is shipped with the batteries "wet" or activated. Therefore, the alternator has been connected at the factory. Connect battery ground straps.

CAUTION: Do not engage separator control (10-10-1, Key (G)).

4. Adjust propelling drive belts to proper tension.

Removal of shipping wheels and installation of drive wheel and final drive assemblies will depend on unloading dock facilities and nearness of these facilities to the set-up area.

CAUTION: Do not attempt to tow combine on the shipping wheels for long distances. Do not attempt to level combine with the shipping wheels installed. Be certain the shipping wheels are removed before the combine is put into operation.

After removing shipping wheels in reverse order of procedure shown on 10-10-3, proceed as follows.

CAUTION: Be certain the front axle is properly supported high enough to install drive wheel and final drive assemblies. Use a lifting device capable of supporting 2,000 pounds (907 kg) for lifting drive wheel and final drive assemblies into place.

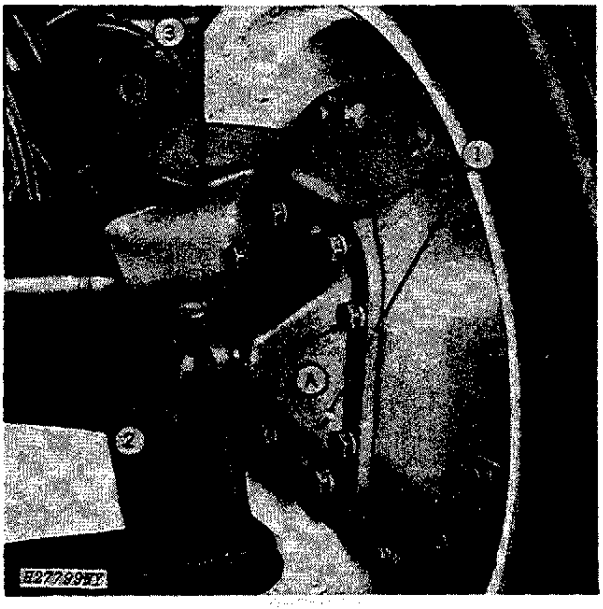

Fig. 1-Attaching Final Drive

1. Insert dowels between support and final drive (Fig. 1). Be certain breather plug is positioned on top and at the rear of each final drive.
2. Attach final drive to support with six 3/4 x 2-inch cap screws and two 3/4 x 3-inch cap screws (Fig. 1). Tighten all cap screws to 300 ft-lbs (400 Nm) torque. Tilt combine when installing (last) cap screw (A) on both sides.
3. Attach telescoping drive shaft to final drive (Fig. 1).

IMPORTANT: Cap screws must be tightened to 55 ft-lbs (75 Nm) torque. Be certain that the two U-joints are properly timed. Do not time right-hand side drive shaft to left-hand side drive shaft.

4. Reduce tire shipping air pressure to proper operating pressure shown below.

Tire Size	Ply Rating	Air Pressure (Psi)	Air Pressure (Bar)
24.5-32	12	22	(1.50 bar)
30.5-32	12	20	(1.40 bar)
13.9-24	6	18	(1.20 bar)

Check all drive wheel bolts to be certain they are tight (170 ft-lbs [230 Nm] torque).

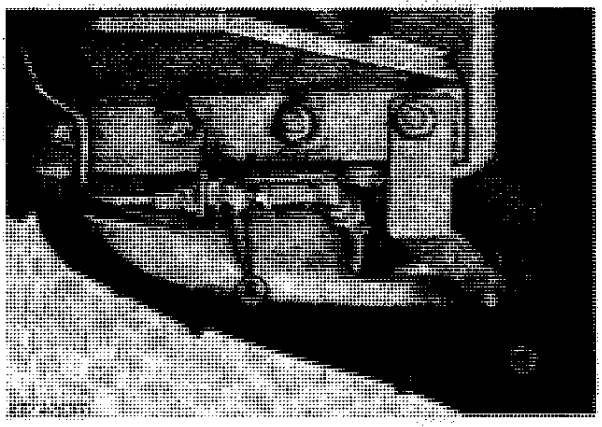

Fig. 2-Connecting Brake Line and Hose (Right-Hand Side Illustrated)

5. Remove cap screw from clamp, slip clamp over brake hose, and secure clamp to bracket with cap screw, lock washer, and nut (Fig. 2).
6. Connect brake line and brake hose together with coupling (Fig. 2).
7. Perform steps 1 through 6 on the opposite side of the combine.
8. Make certain that the combine brakes are working and the parking brake lever is released before attempting to move combine. Refer to the combine operator's manual for complete information regarding checking and adjusting the brake system. Bleeding the brakes is not necessary.

ASSEMBLY

Installing Precleaner

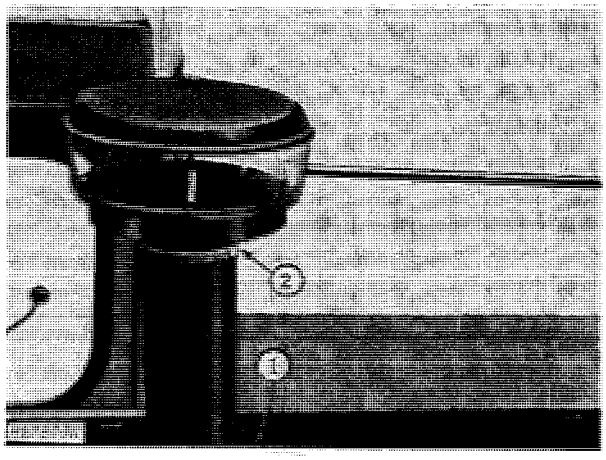

Fig. 1-Attaching Precleaner

1. Attach precleaner tube to air cleaner cannister (Fig. 1).
2. Attach precleaner to airstack (Fig. 1).

Installing Catwalk and Ladder

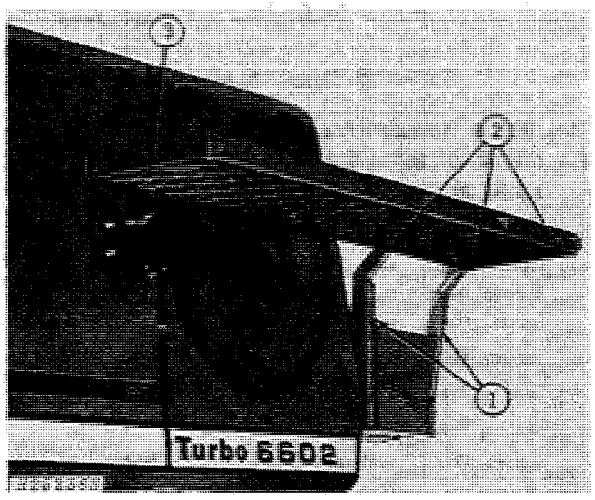

Fig. 2-Installing Catwalk

1. Attach front and rear support angles, with two 3/8 x 1-inch self-locking cap screws and lock nuts (Fig. 2).

2. Set catwalk on support angles and secure with three 3/8 x 1-inch self-locking cap screws and lock nuts (Fig. 2).

3. Secure support bracket on combine to side of catwalk with two 5/16 x 3/4-inch self-locking cap screws (Fig. 2).

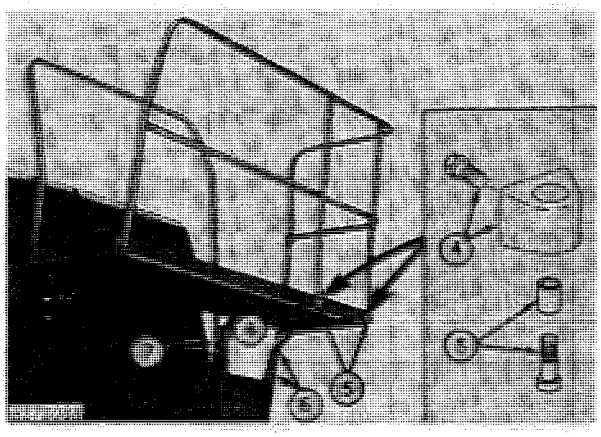

Fig. 3-Installing Handrail Assembly

4. Secure pivots to catwalk with one 3/8 x 3/4-inch self-locking screw in each pivot (Fig. 3).

5. Place catwalk handrail assembly on catwalk. Insert spacers in pivots and secure with 3/8 x 2-inch socket head cap screws (Fig. 3).

6. Secure handrail assembly with two 3/8 x 2-1/4-inch cap screws and self-locking nuts (Fig. 3).

7. Secure handrail assembly with two 3/8 x 2-1/4-inch cap screws and lock nuts (Fig. 3).

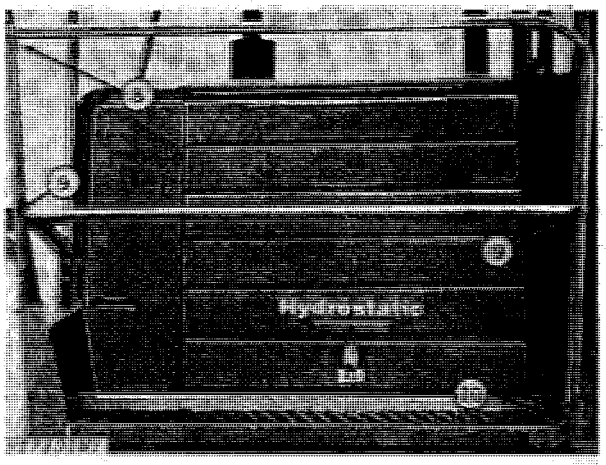

Fig. 4-Installing Front Handrails

8. Attach front handrail to right-hand handrail with one 3/8 x 2-inch round head bolt and nut (Fig. 4).

9. Install front lower handrail with two 3/8 x 2-inch cap screws (Fig. 4).

10. Fasten left-hand lower end of front handrail to front catwalk frame with two 3/8 x 2-inch cap screws and lock nuts (Fig. 4).

Litho in U.S.A.

Installing Catwalk and Ladder—Continued

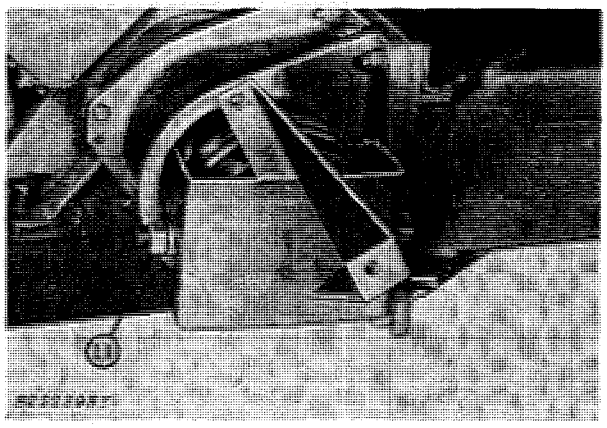

Fig. 5-Installing Ladder Support

11. Attach and secure ladder support with existing hardware (Fig. 5).

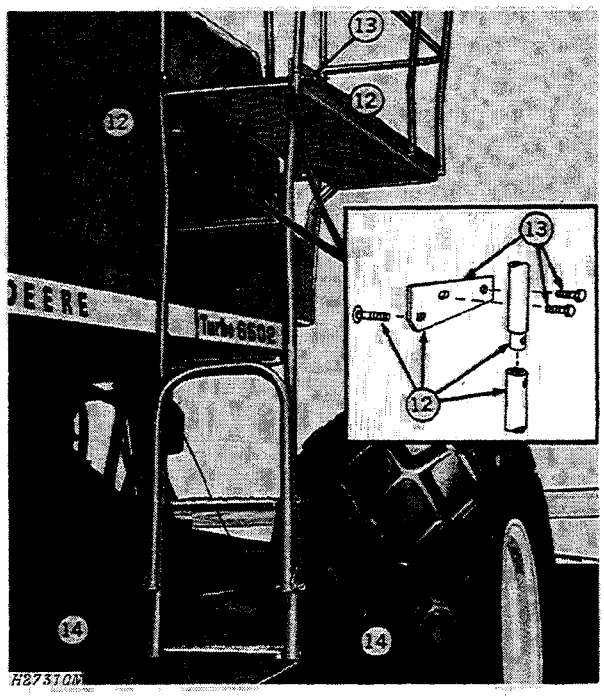

Fig. 6-Installing Ladder

12. Slide ladder rail into handrail and align bolt holes. Hold right-hand bracket behind rails and insert 3/8 x 1-3/4-inch plow bolt through bracket. Secure with hex nut (Fig. 6).

13. Attach bracket to catwalk with two 3/8 x 3/4-inch self-locking cap screws and lock nuts. Repeat steps 12 and 13 on left-hand side (Fig. 6).

14. Attach ladder to support, using two 3/8 x 1-inch cap screws (Fig. 6).

Cab Mirror and Lights

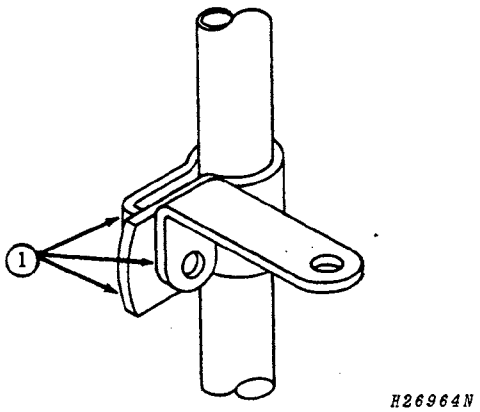

Fig. 7-Light Clamp and Mounting

1. Attach two clamp halves and a mounting bracket, for each of three lights, to handrail with a 1/2 x 1-1/2-inch cap screw, lock washer, and nut (Fig. 7). Do not tighten cap screw.