COMBINE

OPERATOR MANUAL

FENDT™
9460R CE
Combine

OPERATION

General Information

FIG. 5: When parking, park the machine on a solid level surface and lower the header to the ground. Put all controls in neutral and apply the parking brake. Stop the engine and take the key with you.

WARNING: Do not leave the machine unattended with the header raised. Lower the header fully before leaving the machine. A sudden loss of hydraulic pressure can cause the header to drop without warning.

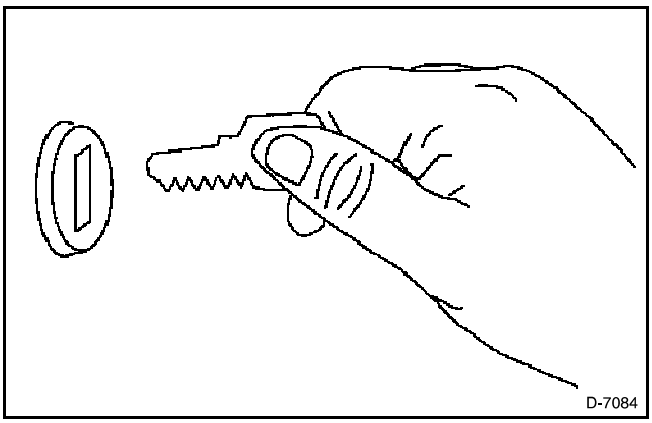

FIG. 5

Make sure the machine is in the proper operating condition according to the Operator Manual.

Always operate the machine with the control console turned on.

Do not dismount from moving machinery.

Stay off slopes too steep for operation.

Be aware of the size of the machine and have enough space available to allow for operation.

FIG. 6: Use extra care and reduce speed when operating on hillsides or near ditches or embankments especially with a full grain tank to avoid rollover. Travel speed must be such that complete control and machine stability is maintained at all times. Shift to a lower gear before descending a steep hill.

Regulate ground speed to field conditions, and maintain control at all times.

Do not dismount from moving machinery.

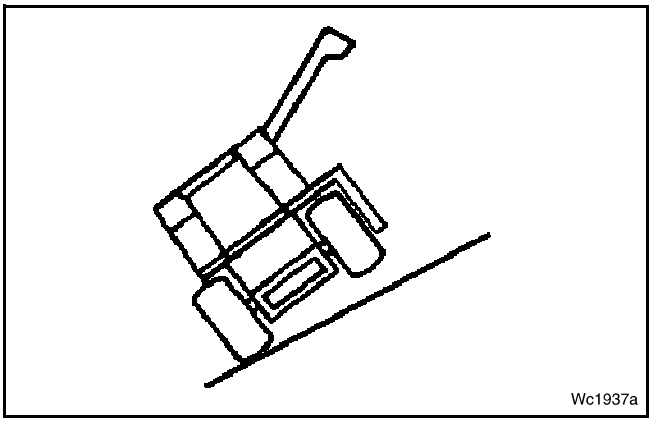

FIG. 6

FIG. 7: Avoid contact with electrical power lines. Always put the grain tank unloader tube in the transport position and lower radio aerial before moving combine near electrical wires. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

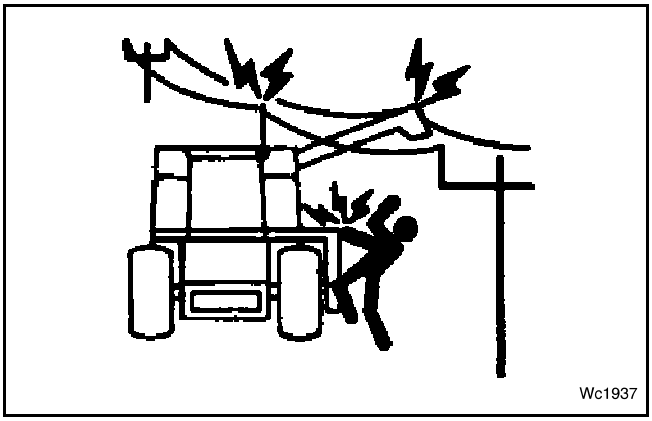

FIG. 7

Battery Safety

FIG. 34: Electrical storage batteries give off highly flammable hydrogen gas. Keep lighted smoking materials, open flames, and electrical sparks away from the battery.

Do not lay tools or other conductive materials on a battery.

Be careful when connecting booster cables to the machine. Electrical component damage or battery explosion can result if booster cables are not installed correctly. See Jump Starting in the Maintenance section for more information.

Battery posts, terminals and other battery parts contain lead and lead compounds. Wash hands carefully after handling a battery.

FIG. 35: Fluid in the electrical storage batteries contains sulfuric acid. Avoid all contact of fluid with eyes, skin, or clothing. Wash your hands after handling the battery.

If skin contact occurs, flush immediately with large amounts of water.

If eye contact occurs, flush with water for 15 minutes and seek medical attention immediately.

If swallowed, drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.

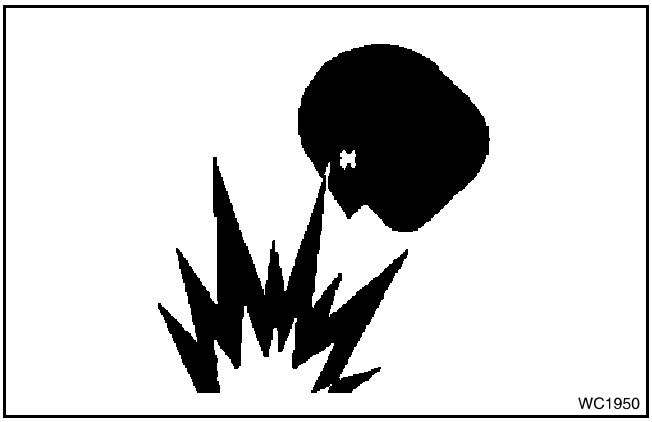

FIG. 34

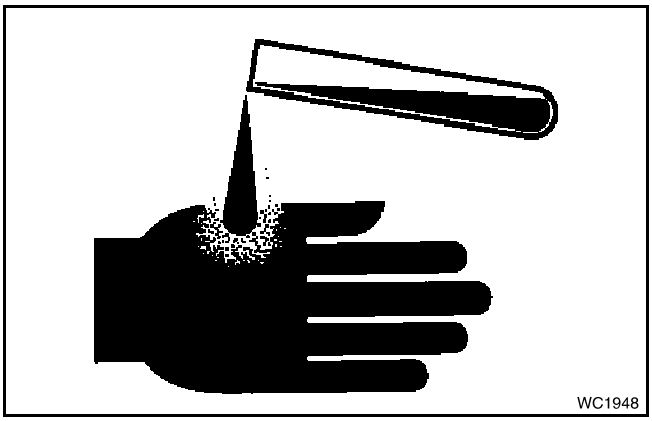

FIG. 35

Safety Signs

Item	Description	Quantity
1	Slow Moving Vehicle Emblem (in required countries)	1
2	Warning - Operator Manual	1
3	Warning - Hydraulic Fluid Pressure	1
4	Danger - Rotating Belt	6
5	Warning - Wheel Chock	2
6	Danger - Cylinder Stop	4
7	Warning - Header	2
8	Danger - Auger Entanglement	2
9	Warning - Rotating Parts, Shearing	3
10	Warning - Rotating Parts, Entanglement	2
11	Warning - Flying Object	3
12	Danger - Explosion	3
13	Warning - Belt Entanglement	7
14	Warning - Falling Hazard	5
15	Emergency Exit	1
16	Warning - Rotating Parts	3
17	Amber Reflector	7
18	Red Reflector	2
19	Warning - Seat Belt	1
20	Warning - Remove Key	1
21	Warning - High Pressure Steam	1
22	Warning - Shearing Hazard	2
23	Warning - Sound Horn	1
24	Warning - Engine Fan	2
25	Warning - Hot	2
26	Danger - Close Shield	5
27	Warning - Electrical Lines	1
28	Warning Reflector (in required countries)	6
29	Attention - Steering (in Germany only)	1
30	Ground Speed Decal - 20 KPH (in Germany only)	3
	Ground Speed Decal - 25 KPH (in France only)	3

Information Signs

Item	Description	Quantity
31	Battery Switch	1
32	Rotor Gear Shift	1
33	Accumulator Valve	1
34	Hydraulic Reservoir Fill Level	1
35	Shear Bolt	2
36	Radiator Fill Level	1
37	Chopper Drive	1
38	Grain Tank Loading Auger Position	1
39	Lift Point	4
40	Tie Down Point	4
41	Fan Speed Decal	1
42	Ignition Switch Decal	1
43	Wheel Bolt Torque Decal	4

FIG. 94: Battery Switch (31)

When the battery switch handle is aligned with the on positions (1), battery power is disconnected from the combine.

When the battery switch handle is aligned with the off positions (2), battery power is available to the combine.

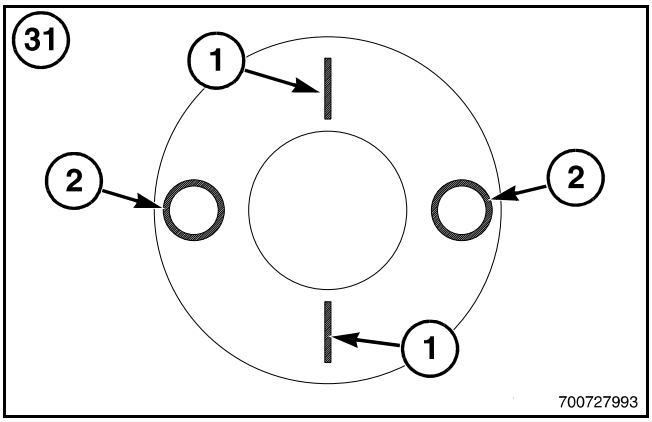

FIG. 94

FIG. 95: Rotor Gear Shift (32)

When the lever is in the Low [1] position (1), the gearbox is in the low speed position.

When the lever is in the Mid [2] position (2), the gearbox is in mid speed position.

When the lever is in the High [3] position (3), the gearbox is in the high speed position.

When the lever is in between any two of the three engaged positions (4), the gearbox is in neutral.

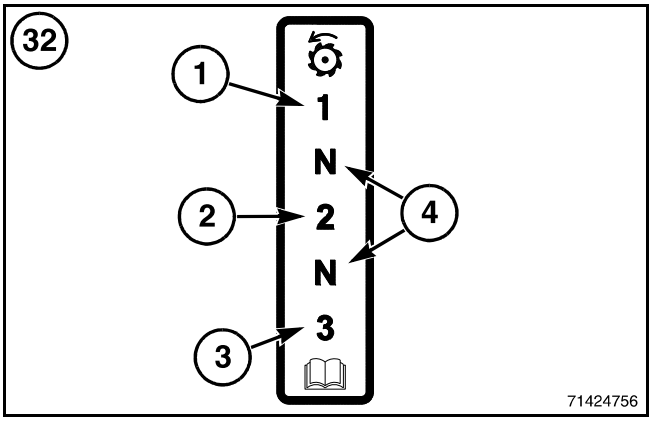

FIG. 95

INTENDED USE

This machine is designed solely for use in customary agricultural operations.

Do not use this machine for any application or purpose other than those described in this manual. The manufacturer accepts no liability for damage or injury resulting from misuse of this machine.

Compliance with the conditions of operation, service and repair as specified by the manufacturer constitute essential elements for the intended use of this machine.

This machine should be operated, serviced and repaired only by qualified persons familiar with its characteristics and familiar with the relevant safety rules and procedures.

All generally recognized safety regulations and road traffic regulations must be obeyed at all times.

Any unauthorized modifications performed on this machine will relieve the manufacturer of all liability for any resulting damage or injury.

OPERATOR CAB

IMPORTANT: Operating the combine with the cab door and right-hand cab window closed is recommended.

Cab Interior Lamp

FIG. 10: The cab interior lamp (1) is located over the operator seat in the cab roof. The cab interior lamp also includes an on/off switch (2) and can be turned on at any time.

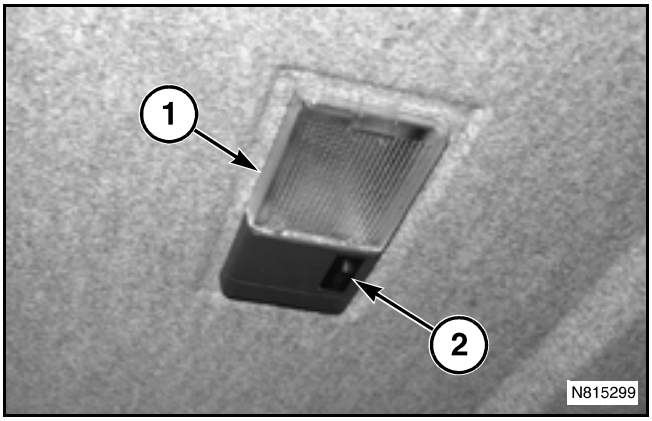

FIG. 10

Storage

Storage Compartments

FIG. 11: For operator convenience, two holders (1) are provided for miscellaneous items.

A storage compartment (2) for the operator manual, located behind the control console, is provided for operator convenience.

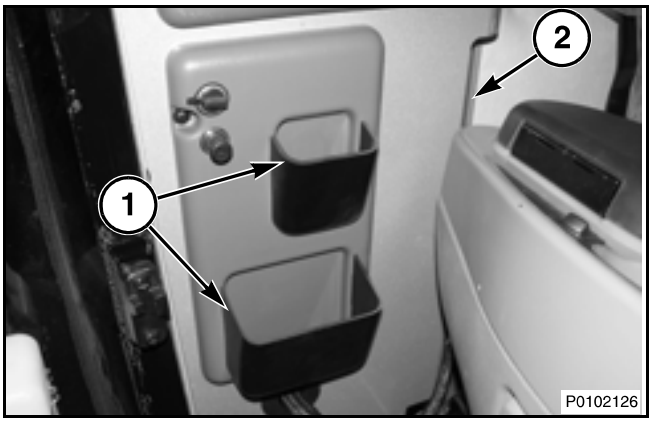

FIG. 11

Instructor Seat

FIG. 12: Additional storage is located below the instructor seat.

To gain access to storage below the instructor seat, fold the seat back down and lift on the rear portion of the seat bottom (1).

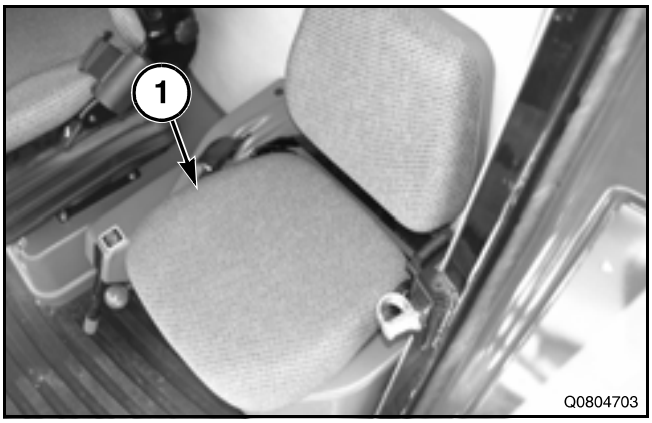

FIG. 12

Brake Pedals

FIG. 43: The brake pedals (1) must be pressed at the same time to stop or slow the combine. Engage left-hand or right-hand pedal separately to help in turning the combine when sharp turns are required or when fields are muddy.

Left-hand pedal engages left-hand front wheel brake and right-hand pedal engages right-hand front wheel brake.

Lock the left-hand and right-hand pedals together when traveling on public roads. To lock the brake pedals together, move the pedal lock (2) on the left-hand pedal to engage the right-hand pedal.

CAUTION: Avoid sudden stops that can result in the combine rear wheels lifting off the ground.

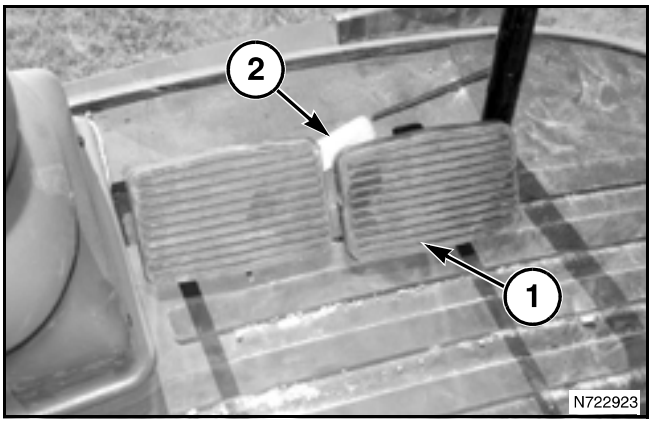

FIG. 43

Ignition Switch

FIG. 44: The ignition switch (1) is a key type switch with ACC, OFF, ON and spring-loaded START positions.

With the ignition switch in the OFF position, electrical power is available to the cigarette lighter, auxiliary power receptacle, service lamps, headlamps, work lamps, flasher or hazard lamps, cab interior lamps, turn signal and horn switch.

When rotated back to ACC, power is available to the same components as when the ignition switch is in the OFF position. Power is also available to the radio, cab blower (fan), windshield wiper and optional global positioning system.

When turned to ON position, power is available to the same components as when the ignition switch is in the ACC position. Power is also available to the main monitor and gauges, header and thresher clutches (if seat switch is closed), rear wheel drive switch, and fuel injection pump shutoff solenoid.

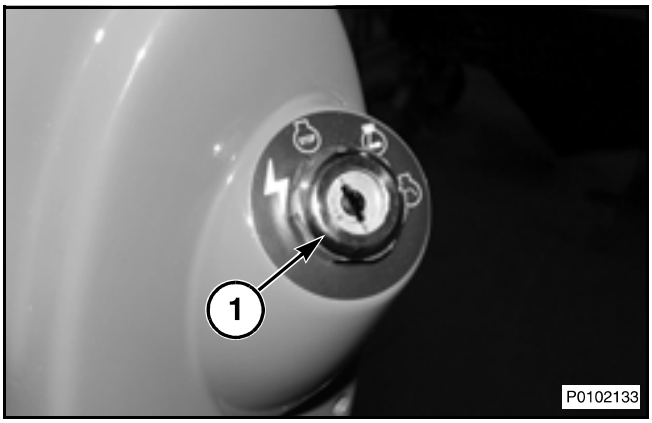

FIG. 44

Turn Signal Switch and Horn

FIG. 45: Moving the turn signal lever (1) to the rear to indicate a left-hand turn or forward to indicate a right-hand turn.

NOTE: The turn signal lever must be moved back to the center position to cancel turn signal.

The horn sounds when turn signal lever is pressed and stops when released.

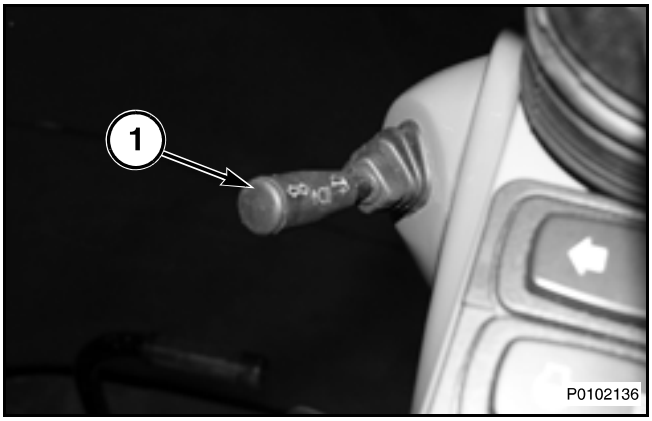

FIG. 45

Cab Filters

NOTE: For instructions on servicing the cab filters, see the Lubrication and Maintenance section.

Cab Filter - Primary

FIG. 74: A pleated paper filter (1) located next to the right-hand side of the cab filters the incoming air for heater or air conditioner.

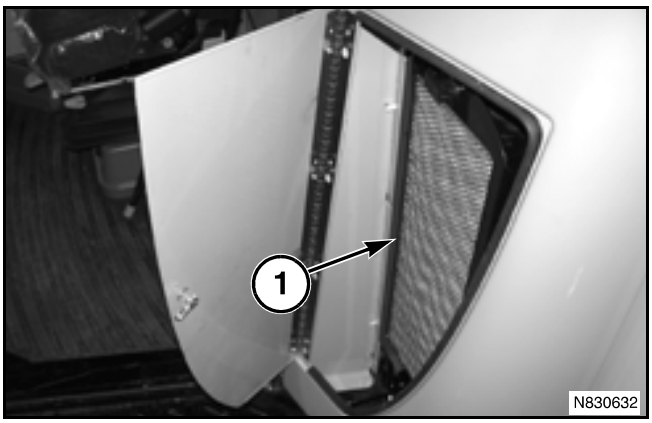

FIG. 74

Cab Filter - Secondary

FIG. 75: An additional filter (1) is located in front of the evaporator under the left-hand side of the cab.

NOTE: The filter will differ in appearance depending on the year of combine.

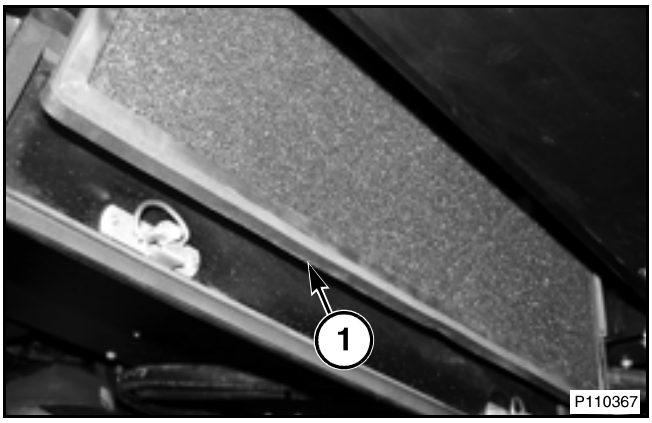

FIG. 75

Recirculation Filter

FIG. 76: Cab air is recirculated through a filter assembly (1) located at the base of the right-hand side of the operator seat.

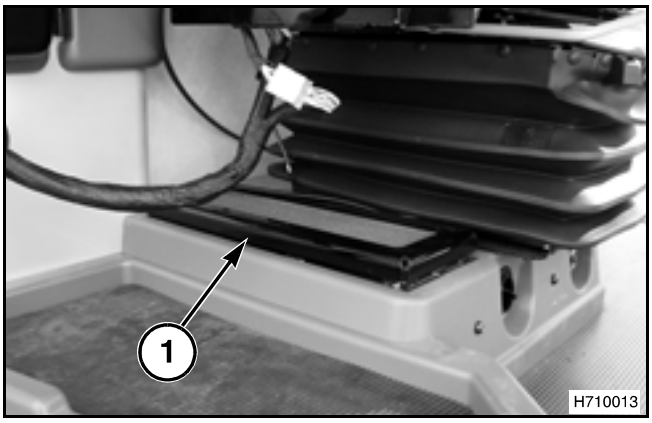

FIG. 76

FIG. 97: The background color of the GPS button (1) will turn yellow if there is no differential correction, or red if less than four satellites are viewed.

The GPS bar graph (2) indicates communication from the receiver, Differential GPS signal and the number of satellites. The same GPS status bar graph is displayed in Task Controller screens.

- Yellow bars indicate GPS signal but no differential correction.
- Green bars indicate both GPS signal and differential correction.
- More colored bars indicate better satellite coverage.

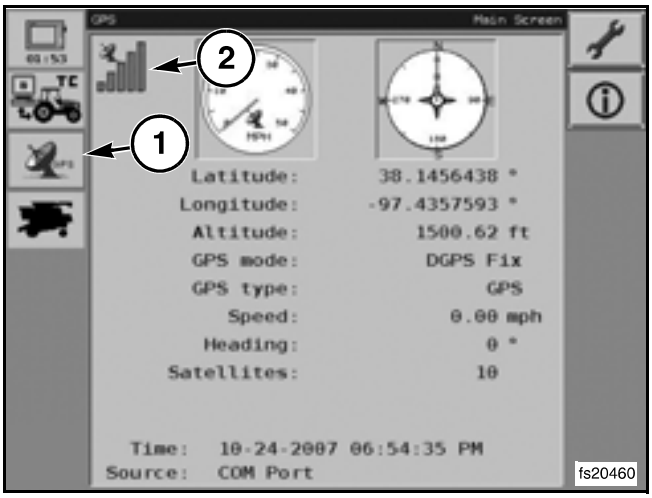

FIG. 97

FIG. 98: Select Setup (1) in the GPS Main Screen, by using either the touch screen, <<1 soft key, or the scroll wheel, to go to the GPS Setup Screen.

Select Information (2) on the GPS Main Screen, by using either the touch screen, <<2 soft key, or the scroll wheel, to show GPS information.

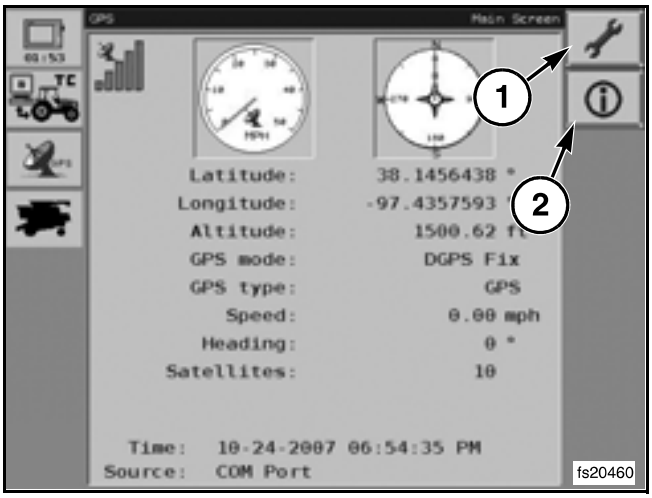

FIG. 98

FIG. 99: On the GPS Setup Screen, make the changes only as necessary. Change settings to match the output settings of the GPS receiver.

If using a GPS receiver other than the standard 1 Hz receiver, see the Operator Manual for the receiver to input the correct settings.

If the settings are changed, select the checkmark (1), using either the touch screen, <<1 soft key, or the scroll wheel, to save the settings.

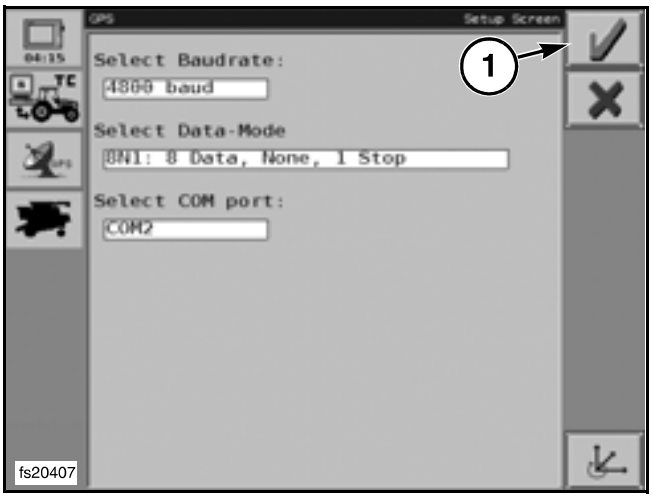

FIG. 99

FIG. 119: Function values can be displayed as digital or analog. To toggle between digital and analog, press the icon (1) to the left of the function name.

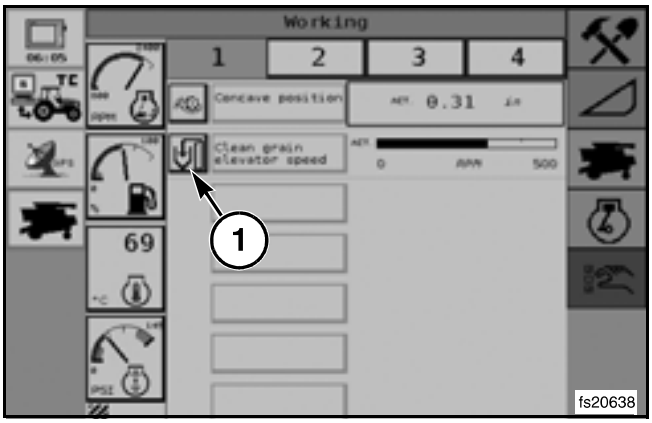

FIG. 119

FIG. 120: Press any button (1) with a blue box to link to the related menu where the corresponding target value can be changed.

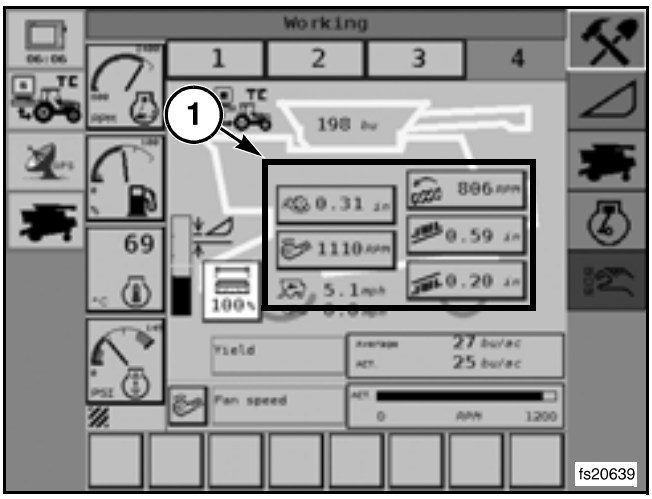

FIG. 120

FIG. 121: Page four is the combine working screen where the operator can only select two functions (1). The screen displays the silhouette of the combine along with some of the important functions of the combine.

Press any button (2) at the center of the screen to change the target value.

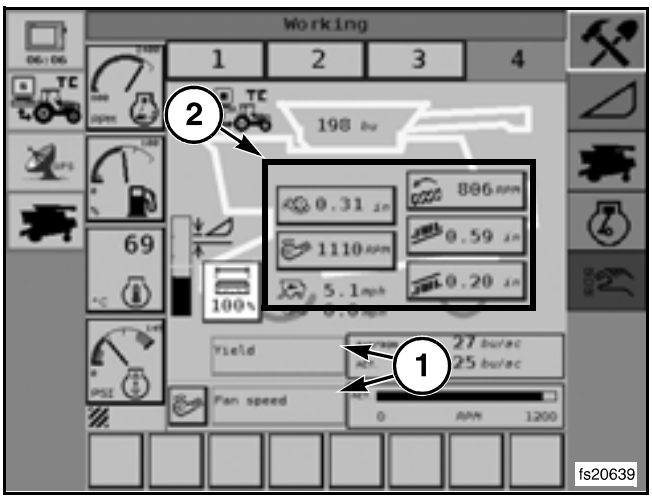

FIG. 121

Temperature/Moisture

FIG. 149: Press the icon (1) to access the Temperature/Moisture page.

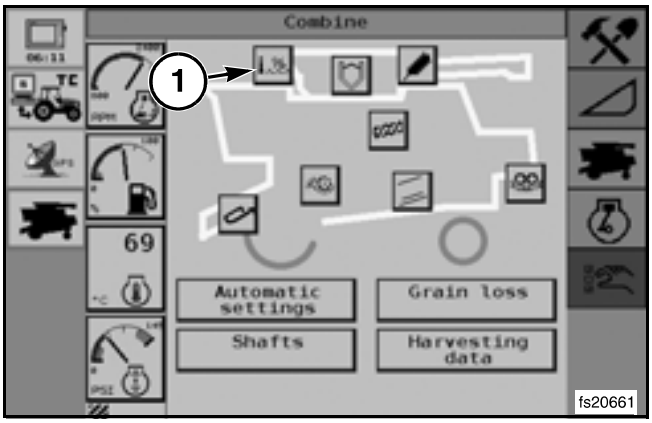

FIG. 149

FIG. 150: The Temperature/Moisture page allows the operator to adjust the moisture and temperature offsets, the moisture alarm, and the moisture dry yield reference.

The following values affect the actual moisture calculation:

- crop type - selected in the automatic settings menu
- moisture offset
- crop temperature - which is a calculated value.

The Moisture reading is the moisture of the crop harvested.

The moisture offset is the difference between the combine results and that of a reliable reference moisture tester. If the actual Moisture reading (1) is different from the reading of reference moisture tester, increase or decrease the Moisture offset (2). For example, if the combine is reading 0.8 higher than the tester, decrease the Moisture offset by 0.8.

Toggle the moisture alarm on and off by selecting the OFF/ON box (3)

When Generate moisture alarm is ON, the operator will be alerted if the desired moisture of the crop exceeds the predetermined amount.

Moisture dry yield reference is used to calculate the dry grain which is displayed on the harvesting data screen. Moisture dry yield reference gives an estimate of what crop yield will be at a certain moisture. If entering a new Moisture dry yield reference, that value is a reference only and does not take into account any shrinkage.

To increase or decrease the Moisture offset, Moisture alarm value, Moisture dry yield reference, or Crop temperature offset use the increase or decrease arrows on either side of the value.

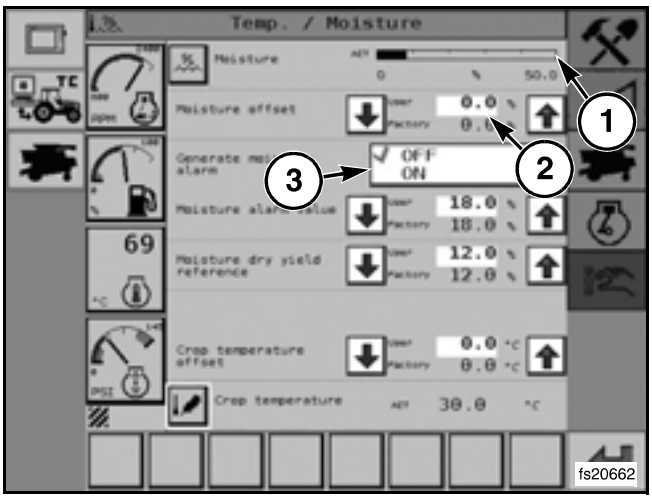

FIG. 150

FIG. 175: After accepting, press the box (1) and enter the desired Configuration name. The Configuration name has a limit of twelve characters.

Press the box (2) and select the desired crop from the list. The crop list contains 21 different types of crops.

Press the checkmark (3) using the touch screen, <<1 soft key, or scroll wheel to return to the Automatic settings page.

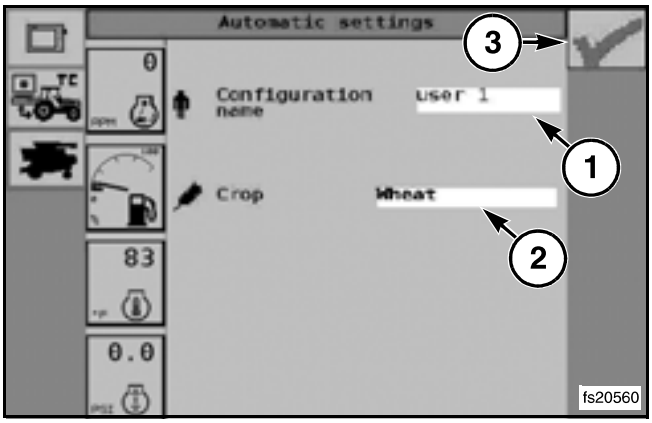

FIG. 175

FIG. 176: Select the text box (1) of the component setting to be changed. Enter the desired component setting using the number pad on the screen.

After changing any of the component settings the new settings are automatically saved to the configuration name.

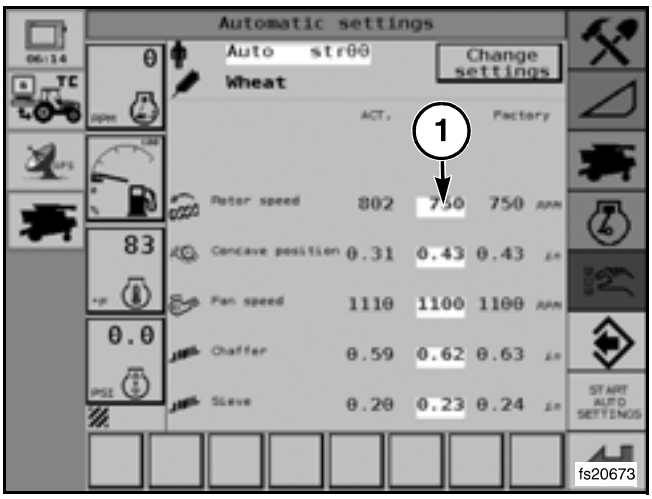

FIG. 176

FIG. 177: To set the combine to the displayed settings, press the START AUTO SETTINGS button (1) on the touch screen, <<7 soft key, or scroll wheel.

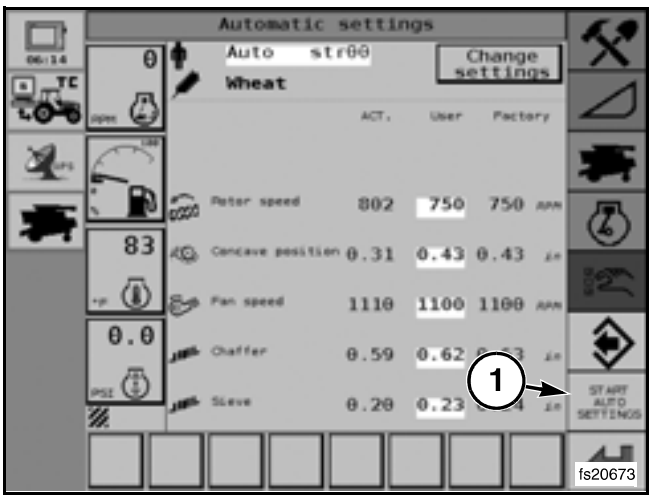

FIG. 177

Maintenance

FIG. 201: Press the Maintenance box (1) to access the Maintenance page.

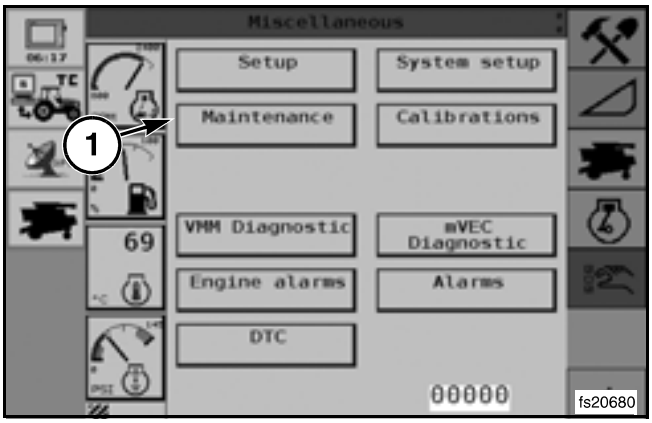

FIG. 201

FIG. 202: The maintenance page contains the five maintenance counters for the combine:

- 10 hours
- 50 hours
- 100 hours
- 250 hours
- 500 hours

To access one of the maintenance counters, press the desired box.

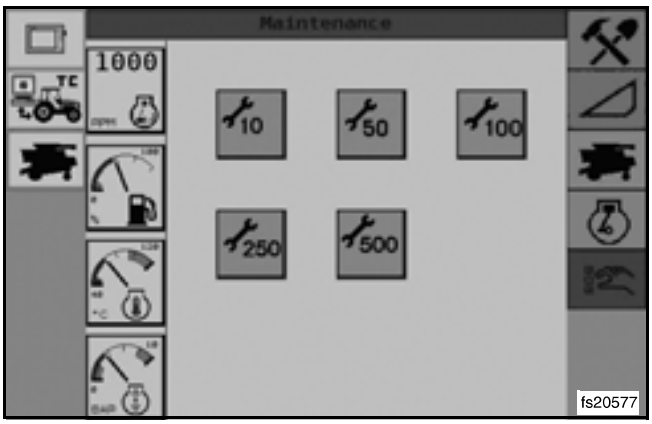

FIG. 202

FIG. 203: The counter (1) for selection is displayed in the top, right-hand corner of the screen.

In the middle of the screen the maintenance due is listed.

To reset the counter, press the counter reset button (2) on the touch screen, >>7 soft key, or use the scroll wheel.

NOTE: When a counter is reset, all counters below the cleared counter will be reset.

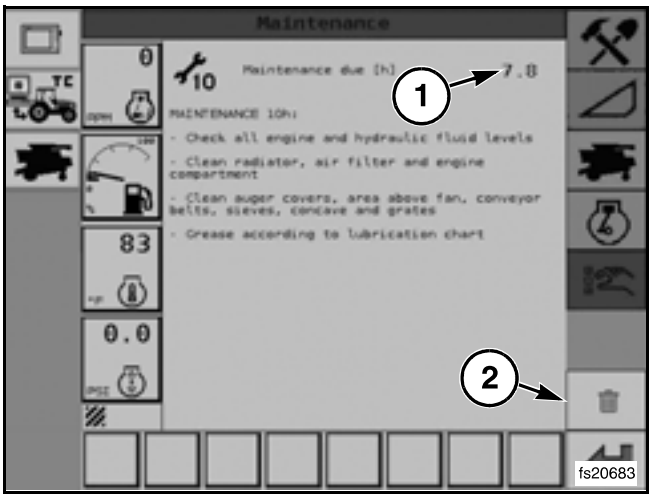

FIG. 203

FIG. 228: Analog IN - Analog IN section displays each of the inputs as voltage with two decimal points.

FIG. 228

FIG. 229: Frequency IN - Frequency IN page displays each of the inputs as RPM.

FIG. 229

FIG. 230: Outputs - Outputs page displays each of the outputs as ON, OFF, or FAULT.

If the output is activated the given output will be displayed as ON.

If the output is inactive the given output will be displayed as OFF.

If the system sees there is a problem in the circuit, FAULT will be displayed.

FIG. 230

4th Message and Alarm Area

Symbol	Displayed Alarm Text	Description	Class
	Critical hydraulic oil temperature! Turn off the engine!	The hydraulic oil temperature alarm will be displayed when the hydraulic oil temperature is higher than 105 degrees C (221 degrees F).	1
	LOW CLEAN GRAIN ELEVATOR SPEED! Clean grain elevator speed is lower than 90% of the calibrated speed!	The low clean grain elevator speed alarm will be displayed when the actual clean grain elevator speed is lower than 90 percent of the calibrated clean grain elevator speed.	2
	LOW TAILINGS RETURN SPEED! Tailings speed is lower than 90% of the calibrated speed!	The low return elevator speed alarm will be displayed when the return elevator speed is below 90 percent of the calibrated return elevator speed.	2
	The VMM 3 is going offline!	The VMM 3 offline alarm will be displayed if no information is received from VMM 3.	2
	mVEC 1 RELAY FAULT!	The mVEC 1 relay fault alarm will be displayed if a problem with the relays is detected.	2
	mVEC 2 RELAY FAULT!	The mVEC 2 relay fault alarm will be displayed if a problem with the relays is detected.	2
	mVEC 3 RELAY FAULT!	The mVEC 3 relay fault alarm will be displayed if a problem with the relays is detected.	2
	mVEC 4 RELAY FAULT!	The mVEC 4 relay fault alarm will be displayed if a problem with the relays is detected.	2

Cleaning Fan Speed Switch

FIG. 255: The cleaning fan speed switch (1) is located underneath the console arm rest. The fan speed switch is used to adjust the cleaning fan speed.

To increase the cleaning fan speed, press the top section of the cleaning fan speed switch.

To decrease the cleaning fan speed, press the bottom section of the cleaning fan speed switch.

The cleaning fan speed is displayed on the work screen of the C2000 console.

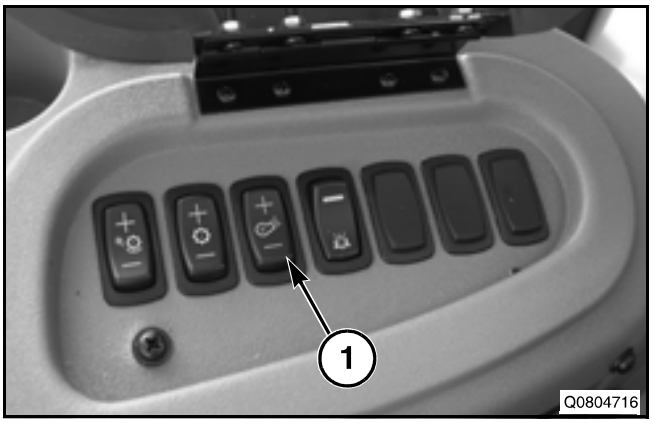

FIG. 255

Transport Switch

FIG. 256: The transport switch (1) is used when the combine is driven over the road.

When the transport mode is activated the work screen in the C2000 console will display the ground speed and engine RPM.

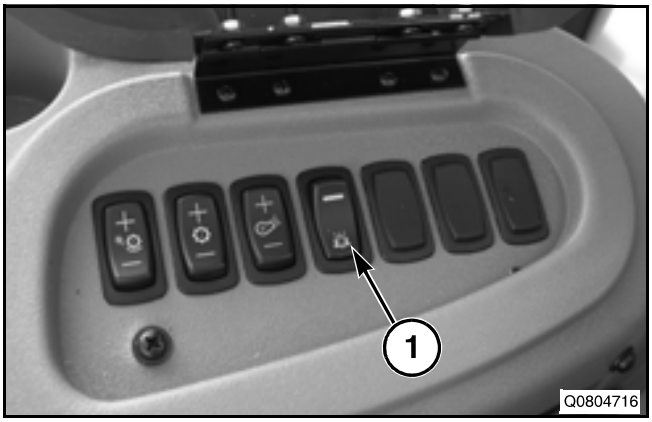

FIG. 256

Vertical Knife Switches

FIG. 257: If the combine is equipped with the vertical knife option, the left-hand (1) and right-hand (2) vertical knife switches are located in the right-hand control console.

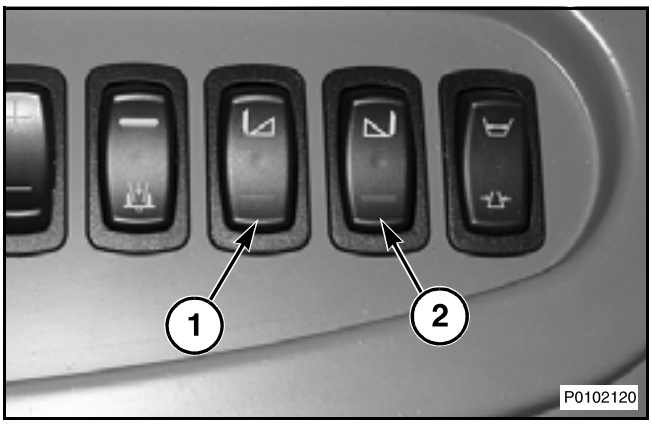

FIG. 257

Powerfold Grain Tank Extension Switch

FIG. 258: If the combine is equipped with powerfold grain tank extensions, the operation switch will be located in the right-hand control console.

To open the grain tank extensions, press the top section (1) of the grain tank extension switch.

To close the grain tank extensions, press the bottom section (2) of the grain tank extension switch.

IMPORTANT: The grain tank must be empty before the grain tank extensions can be closed.

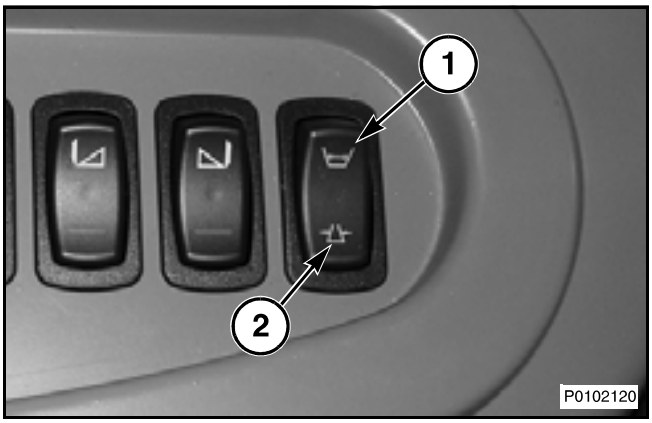

FIG. 258

Automatic Header Tilt Control (AHTC)

FIG. 281: Adjusting Automatic Header Tilt Control: The AHTC is adjusted in the Header Control Menu in the C2000 terminal. Refer to the Header Main Menu in this section for more information.

The Tilt page provides the following adjustments:

(1) Autotilt sensitivity: The rate at which the header reacts to changes in the readings from the drag rod or cutterbar sensors. Adjust the Autotilt sensitivity if the header bounces or twitches when adjusting to the ground contour.

(2) Autolevel sensitivity: The rate at which the header levels when raised high enough the sensors are no longer contacting the ground or above the cut-off level. Adjust the Autolevel sensitivity if, when leveling, the header jumps or twitches.

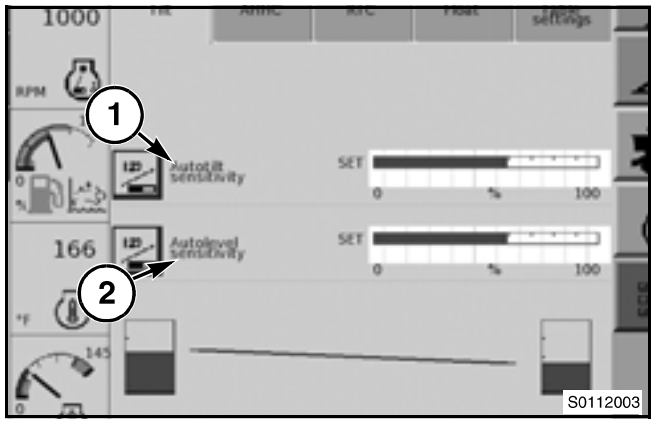

FIG. 281

FIGS. 282–283: Activating Automatic Header Tilt Control: The AHTC is activated by the tilt control switch (1) located on the right-hand control console. To select the AHTC mode, press the top section of the tilt control switch to activate the automatic header tilt control.

The AHTC icon (2) will appear in the third message box indicating that the AHTC is active.

Operating Automatic Header Tilt Control: When the header is dropped to the ground the header will automatically adjust the tilt to the ground contour.

When in the AHTC mode is activated and the header is raised enough for the sensors to lose contact with the ground for longer than two seconds the header will automatically level. When the sensors make contact with the ground again, the AHTC will begin adjusting the header to the ground contour.

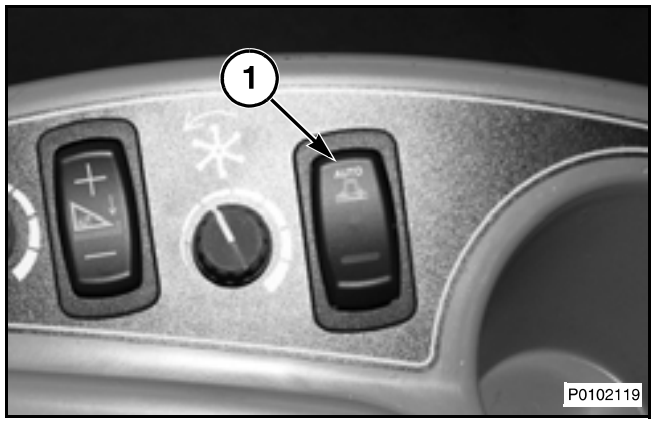

FIG. 282

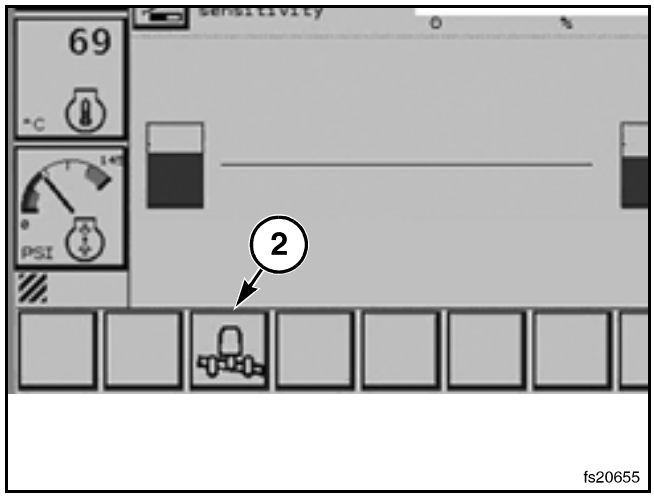

FIG. 283

FUEL TANK FILLER

FIG. 305: Fuel tank filler (1) is located on the operator platform on the left-hand side of the grain tank.

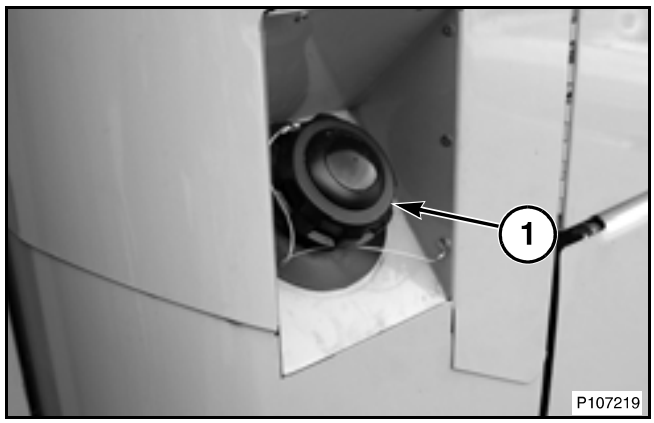

FIG. 305

TRAILER HITCH

IMPORTANT: Only connect the combine to approved trailers. Consult your local law enforcement agency for local regulations regarding weight and size of objects being towed.

FIG. 306: The combine is equipped with a trailer hitch (1) and trailer light harness connector (2) on the rear axle. The hitch will automatically latch to the tongue of the trailer. To set the hitch to automatically latch, pull the latch lever (3) to the upright position. The hitch is now set and ready to connect to the trailer.

WARNING: Do not use your hand to press the automatic hitch trigger. The hitch pin is spring loaded and can cause serious injury. Only set the automatic hitch just prior to connecting to the trailer.

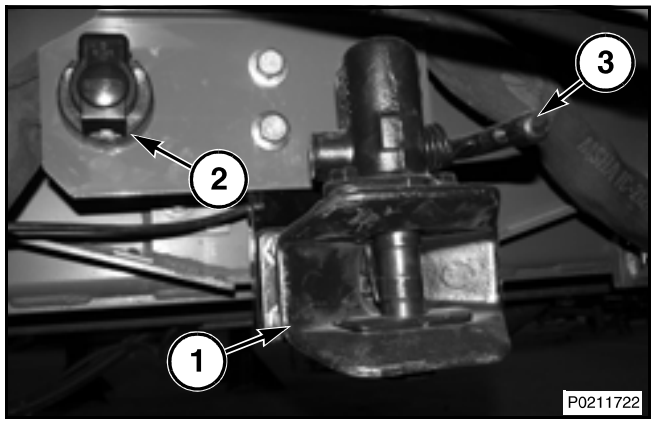

FIG. 306

FIG. 307: To connect to the trailer after setting the hitch, align the tongue of the trailer to the hitch. Slowly back the combine until the tongue of the trailer contacts the trigger (1) inside the hitch and the hitch pin is released. Connect the trailer light harness to the connector, located to the left-hand side of the trailer hitch.

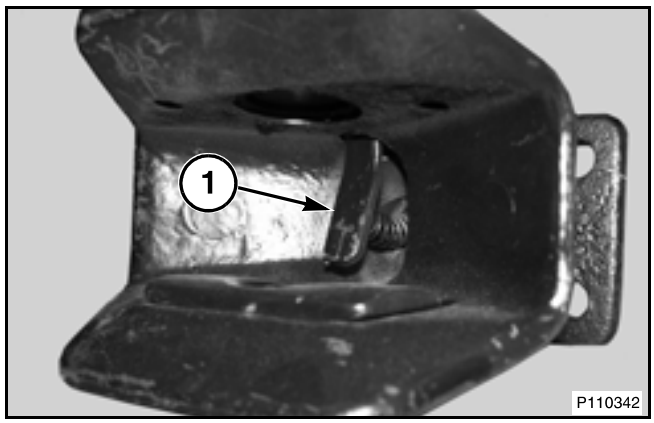

FIG. 307

Rotor Discharge Deflector

FIG. 330: the rotor discharge deflector (1), in the rotor exhaust housing, is adjusted to even out flow of material to the straw spreader or straw chopper.

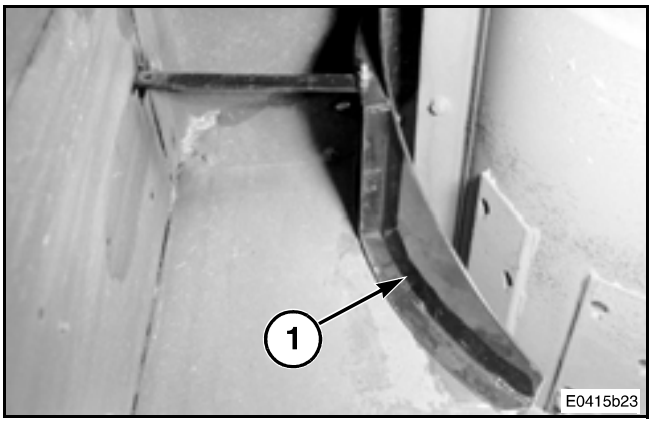

FIG. 330

FIG. 331: The rotor discharge deflector strap (1) extends through the left-hand side of the exhaust housing, above the batteries.

The rotor discharge deflector strap can be adjusted to five deflector positions by removing the capscrew (2) and moving the strap to a new hole location.

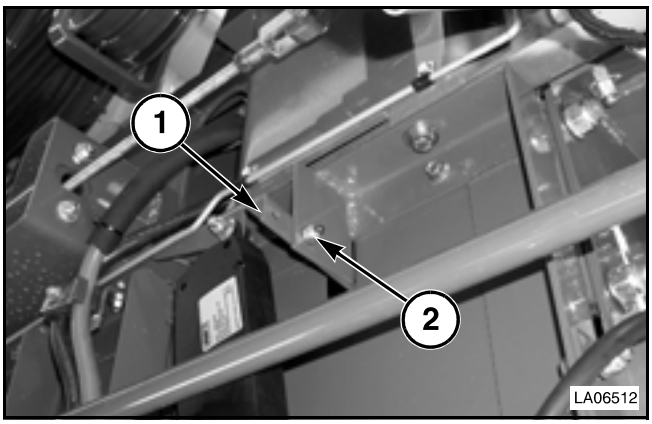

FIG. 331

CLEANING (SHAKER) SHOE

FIG. 362: The cleaning shoe consists of an adjustable chaffer (upper cleaning screen) (1) and an adjustable sieve (lower cleaning screen) (2).

NOTE: The cleaning shoe is not designed to operate on steep hillsides. Harvesting on steep hillsides can cause the downhill side of the cleaning shoe to overload and increase grain loss.

The shaking action of the cleaning shoe, the air blast from the cleaning fan, the size of the openings in the chaffer screen and cleaning sieve, work relative to each other to separate chaff from the grain and produce a clean grain tank sample.

When adjusting the cleaning system, consider the following points:

- Make sure complete threshing is accomplished by rotor and concave. Cleaning system cannot correct a threshing problem.
- Cleaning fan speed, chaffer screen and cleaning sieve openings are very important to produce a clean grain tank sample.
- Begin with recommended initial settings listed in this section of the manual. After a short period of operation, check sample in grain tank and make adjustments as necessary to suit crop being harvested.
- Adjust one component at a time and check results. Making several adjustments at one time can be confusing and counter productive.

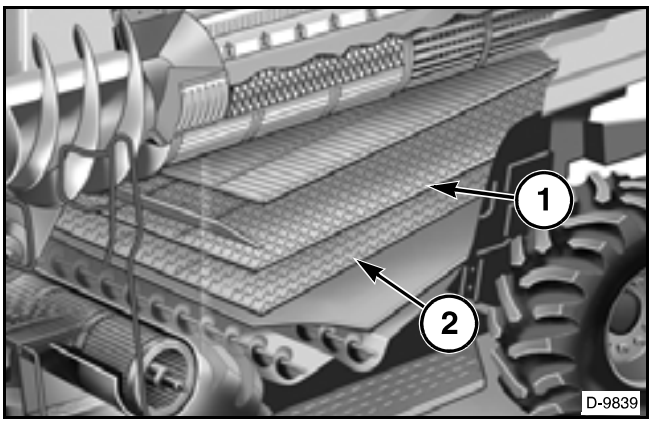

FIG. 362

FIG. 384: The clean grain elevator is driven from the left-hand side of the cleaning shoe pitman shaft by a drive belt (1).

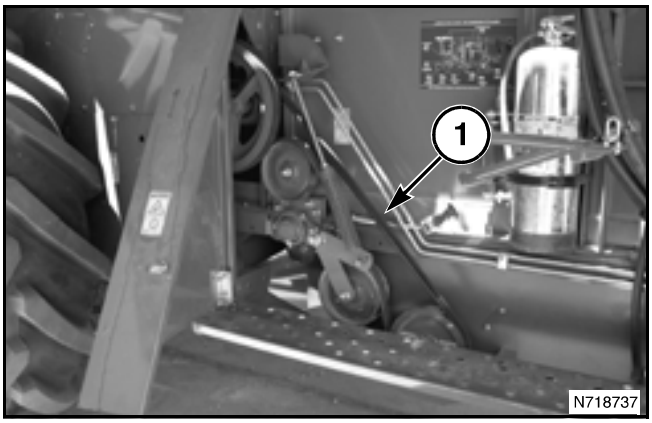

FIG. 384

FIG. 385: The clean grain elevator is equipped a with roller chain and paddle conveyor. Chain tension must be checked periodically.

If the clean grain elevator chain is too loose, the chain can ride up on the sprockets and cause premature wear. In crops such as peas and beans, a loose grain elevator chain can promote crop crackage because the grain can be pinched between the loose chain and the lower sprocket. If the clean grain elevator chain is too tight, the chain will stretch prematurely and cause unnecessary wear to the chain, sprockets, and related components.

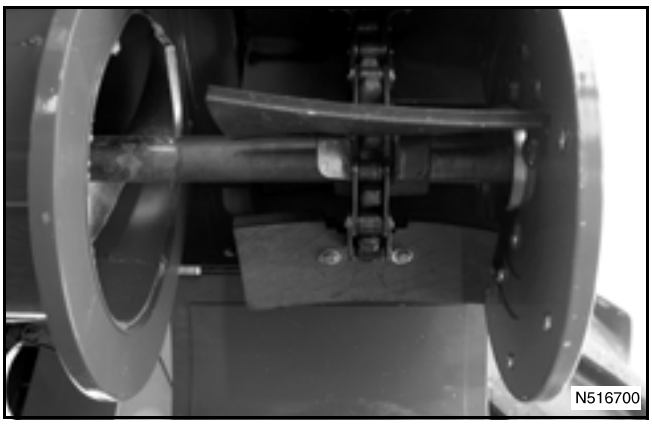

FIG. 385

FIG. 386: The clean grain elevator head is equipped with an inspection door (1) which can be opened to inspect the elevator chain.

WARNING: Stop the engine, set the parking brake, remove ignition key, and take the key with you before opening access doors. Keep fingers, hands and other objects out of openings when engine is running.

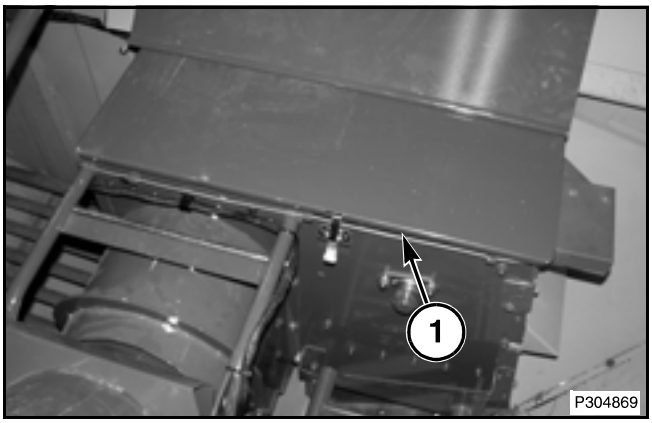

FIG. 386

Moving Straw Chopper to Operating Position

FIG. 415: Move the chopper forward using the switch (1) on the right-hand side of the combine, below the secondary drive jackshaft.

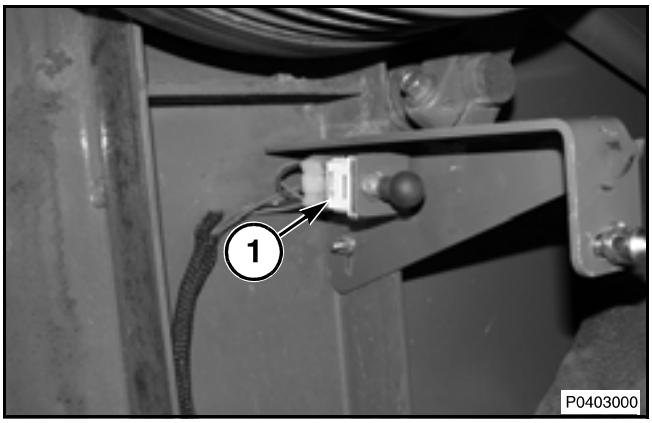

FIG. 415

FIG. 416: Install the straw chopper secondary drive belt (1).

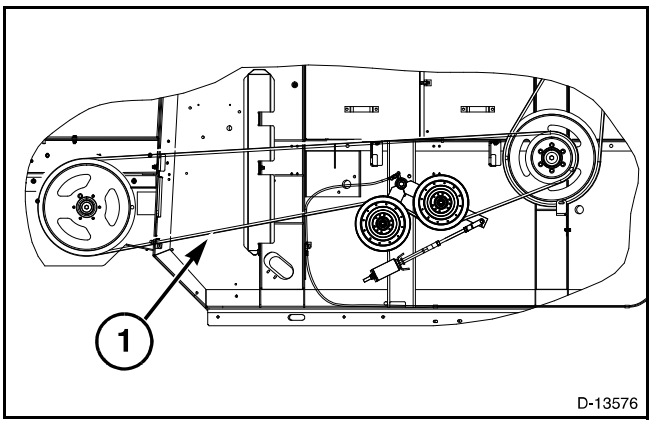

FIG. 416

FIG. 417: Inside the cab turn the straw chopper alarm on in the miscellaneous screen of the C2000 terminal.

To activate the speed monitor press the white box (1) next to Speed Monitor OFF.

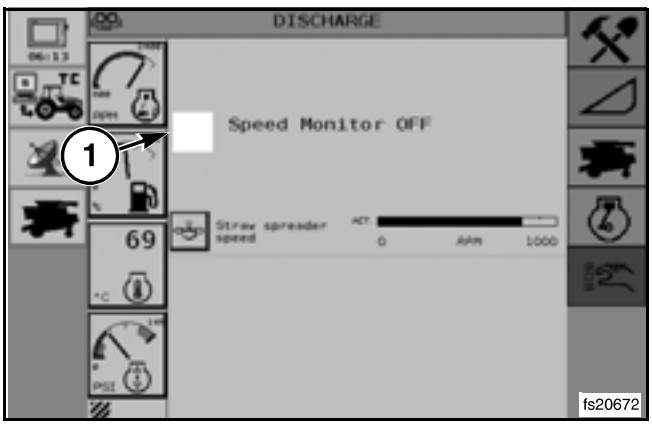

FIG. 417

Hydraulic Accumulator

FIG. 442: To provide smooth performance and shock protection, nitrogen charged hydraulic accumulator (1) is connected into header lift system. Accumulator is a bladder type, with compressed gas on one side and oil from the header lift system on the other. Hydraulic oil flows, in and out of the accumulator, against the pre-charge pressure of the compressed nitrogen gas.

IMPORTANT: Before using, accumulator pre-charge must be adjusted to approximately 75% of the header support pressure.

NOTE: All accumulators are precharged with dry nitrogen gas, at the factory, to 4.82 mPa (700 psi).

DANGER: Do not use compressed air or oxygen in the accumulator. Use only dry nitrogen. Possible explosion or damage can occur as a result of a high pressure air/oil mixture.

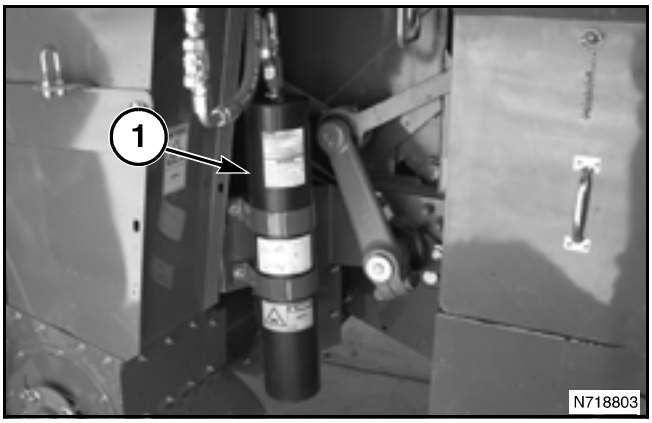

FIG. 442

FIG. 443: The accumulator valve (1) is provided to restrict (feather) or completely eliminate the action of the accumulator when the accumulator is not required. Turning the handle clockwise closes the accumulator valve and isolates the accumulator from the system.

NOTE: When desired to feather the accumulator to reduce accumulator action, the accumulator valve can be partially closed.

WARNING: Keep all personnel clear of the header before opening the accumulator valve, especially if the header is in the raised position. Fully close the accumulator valve and lower the reel and header completely before loosening or disconnecting any part of the hydraulic system.

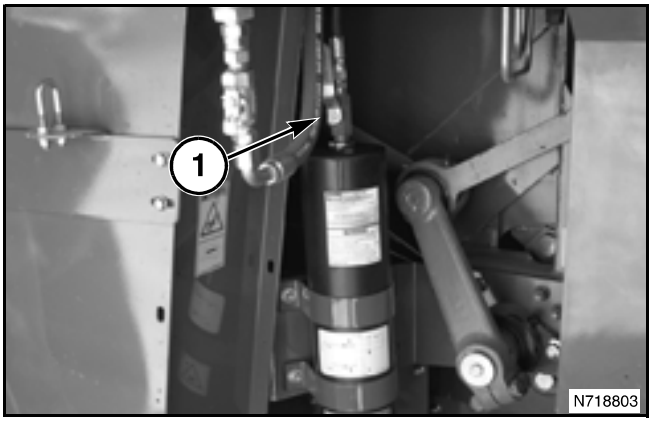

FIG. 443

Main Control Valve

FIG. 444: The main hydraulic control valve (1) is located on right-hand side of the combine just forward of the clean grain elevator housing. The valves are electrically controlled.

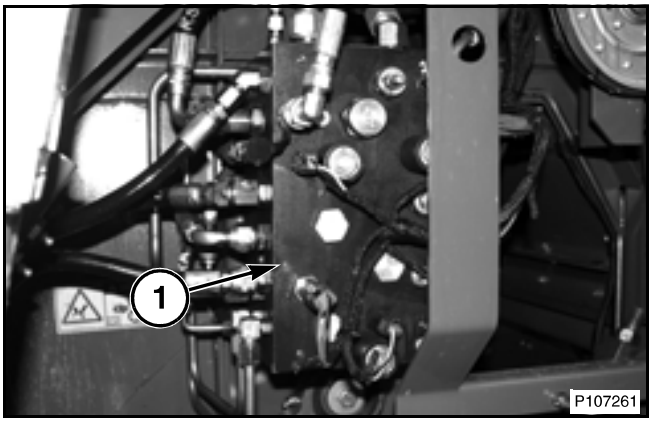

FIG. 444

	Proso or Hog Millet	Radish Seed	Canola/ Rapeseed	Rice	Rye	Safflower	Sesame
Rotor RPM	440 to 525	700	480 to 655	525 to 790	525 to 700	305 to 440	350 to 525
Rotor Knives*	1	1	1	1 or 2	1	1	1
Preferred concave Rod Spacing	10 mm (13/32 in) or 16 mm (5/8 in)	10 mm (13/32 in) or 16 mm (5/8 in)	10 mm (13/32 in) or 16 mm (5/8 in)	16 mm (5/8 in)	10 mm (13/32 in) or 16 mm (5/8 in)	10 mm (13/32 in) or 16 mm (5/8 in)	10 mm (13/32 in)
Concave Setting	9 to 13 mm (3/8 to 1/2 in)	3 to 6 mm (1/8 to 1/4 in)	13 to 19 mm (1/2 to 3/4 in)	0 to 13 mm (0 to 1/2 in)	13 to 19 mm (1/2 to 3/4 in)	25 to 32 mm (1 to 1-1/4 in)	9 to 19 mm (3/8 to 3/4 in)
Concave Overlap	Perforated	Blank	Blank	Perforated	Blank	Blank or Perforated	Blank
Concave Blanks Hard Thresh		**					
Separator Deflectors	Adjust for even distribution on shoe. Initial Setting - Max position.						
Fan Speed RPM***	600 to 760	480 to 600	680 to 800	680 to 880	640 to 800	600 to 760	480 to 600
Std Grain Chaffer Opening 29 mm (1-1/8 in) Spacing, 22 mm (7/8 in) Vane	9 to 13 mm (3/8 to 1/2 in)	6 to 11 mm (1/4 to 7/16 in)	16 to 19 mm (5/8 to 3/4 in)	13 to 16 mm (1/2 to 5/8 in)	13 to 19 mm (1/2 to 3/4 in)	13 to 16 mm (1/2 to 5/8 in)	9 to 13 mm (3/8 to 1/2 in)
Std Rice Chaffer Opening 41 mm (1-5/8 in) Spacing, 22 mm (7/8 in) Vane				9 to 13 mm (3/8 to 1/2 in)	9 to 13 mm (3/8 to 1/2 in)	8 to 13 mm (5/16 to 1/2 in)	
Std Corn/Soybean Chaffer Opening 41 mm (1-5/8 in) Spacing, 32 mm (1-1/4 in) Vane				9 to 13 mm (3/8 to 1/2 in)	9 to 13 mm (3/8 to 1/2 in)	6 to 9 mm (1/4 to 3/8 in)	
Std Grain and Rice Sieve Opening 29 mm (1-1/8 in) Spacing, 11 mm (7/16 in) Vane	3 mm (1/8 in)	3 mm (1/8 in)	6 mm (1/4 in)	9 mm (3/8 in)	8 mm (5/16 in)	6 mm (1/4 in)	3 mm (1/8 in)
Std Corn/Soybean Sieve Opening 29 mm (1-1/8 in) Spacing, 22 mm (7/8 in) Vane							

*NOTE: * - Double sets of rotor knives (42) are optional*

*** - Install as few concave blanks as possible starting at the front and only as required.*

**** - A slow speed fan kit is available for light weight grains.*

Corn Header

Problem	Possible Cause	Correction
Loss of ears from the head	Gathering snouts set too low and gathering chains too far from ground when snouts ride on surface	When picking down corn or low hanging ears, raise front tip of snouts just enough to run with skids close to the ground.
	Gathering chain speed too fast or too slow	Obtain the correct gathering chain speed.
	Ground speed too fast or too slow	Operate at a speed to meet field and ground conditions. Excessive speed can cause stalks to whip and ears to fall off. Operate at a speed where gathering chains guide the stalks into the rolls.
	Not picking planter rows	Pick rows as the rows were planted so stalks go straight into row units.
	Row units not matched to rows	Adjust corn head row spacing to match row spacing of corn.
	Ears pitched out over gathering chains	Use rubber ear savers.
Ear shelling at stalk rolls	Snapping plates set too wide for ear size	Reduce snapping plate opening.
Corn stalks pulling out of ground	Snapping plates set too close	Spread snapping plates so stalks enter freely.
	Ground speed too fast	Slow ground speed or increase header speed.
Plugging	Gathering chain speed too slow	Slow ground speed to meet crop conditions or increase snapping roll speed.
	Stalks breaking in snapping rolls or snapping plates	Increase snapping plate opening. Check snapping roll timing so snapping roll flutes do not break stalks.
	Trash winds around snapping rolls	Set knives closer to snapping rolls.
	Loose gathering chains	Adjust gathering chain tension
	Not picking planter rows	Pick rows as the rows were planted. Following the rows, reduce plugging and eliminate loss or ears.
	Ground speed too fast, causing too much material to go into corn head	Slow down. Operate at a speed to meet the yield and ground conditions. Faster speeds will cause plugging.
	Material not flowing smoothly in cross auger trough	Check for obstructions in cross auger through and for roughness.
	Corn stalks plugging in row divider throat opening	Spread snapping plates until stalks feed through rolls more freely.
	Damaged or worn snapping roll flutes	Replace flutes or rolls.
Ear loss front of gathering unit	Rubber ear savers not installed	Install rubber ear savers.

NOTE: Refer to corn head operator manual for additional information.

COMBINE DRIVES - LEFT-HAND SIDE

Pivot Shaft Drive Belt

FIG. 7: The top feeder shaft is belt driven from the bottom feeder shaft (1) and is located on left-hand side of feeder housing.

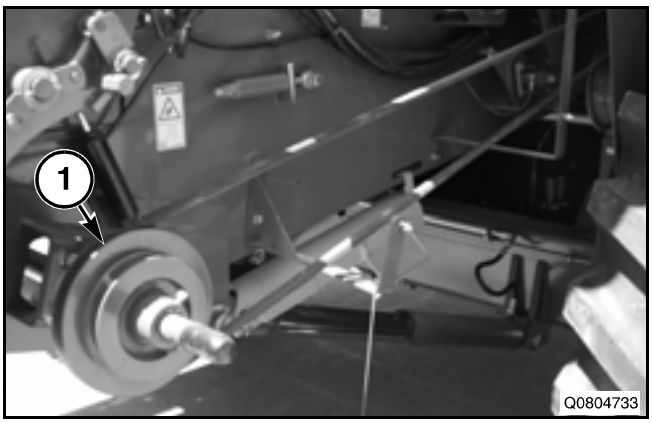

FIG. 7

FIG. 8: To adjust the belt tension, adjust the idler drawbolt (1) to align the end of the spring with the end of the spring indicator (2).

NOTE: Loosening the jam nut (3) on bottom of pipe may be necessary to adjust spring.

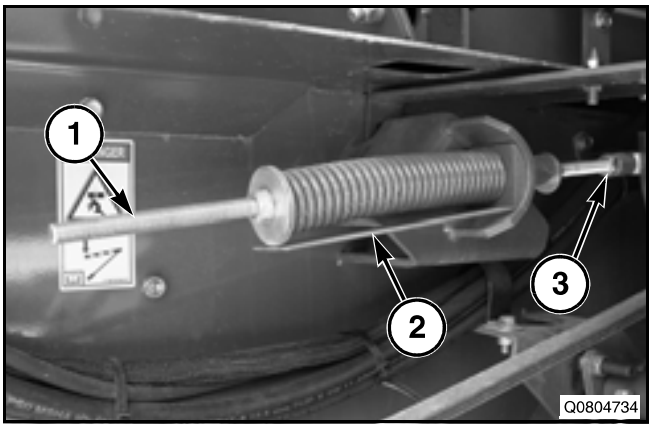

FIG. 8

Feeder Reverser

FIG. 9: The feeder reverser is on the left-hand side of the combine at the rear of the feeder house.

Adjust the feeder reverser chain (1) so there is 5.0 to 10.0 mm (0.196 to 0.394 in) slack at the tightest point at the center of the front strand

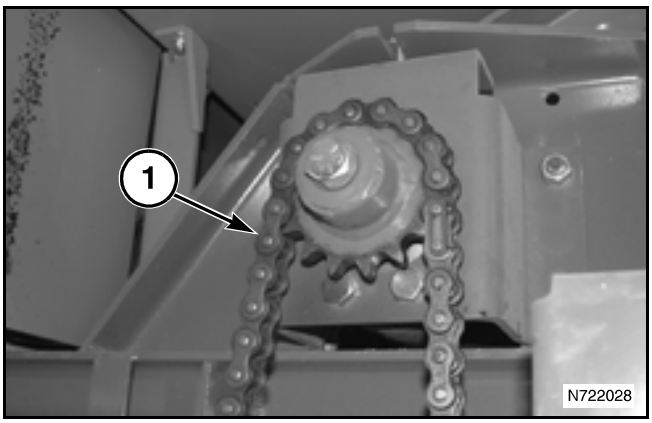

FIG. 9

Grain Tank Angled Auger Drive

FIG. 37: The grain tank angled auger drive chain is adjusted by moving the idler (1). The drive chain must have 5.1 to 7.6 mm (0.200 to 0.300 in) slack at the tightest point at the center of the longest span. Do not over tighten chain. Over tightening can cause excessive wear to the chain and sprockets.

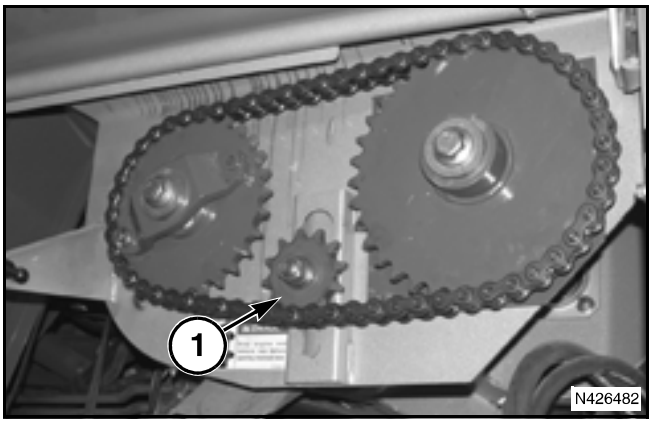

FIG. 37

Grain Tank Filling Auger Drive Chain

FIG. 38: The grain tank filling auger is chain driven from the top shaft of the clean grain elevator. An idler sprocket (1) is used to adjust the drive chain tension. The lower strand must have 12 to 19 mm (0.48 to 0.75 in) slack at the center of the longest span.

NOTE: The grain tank filling auger drive chain must be adjusted each time the conveyor chain tension is adjusted if the position of the top shaft has changed.

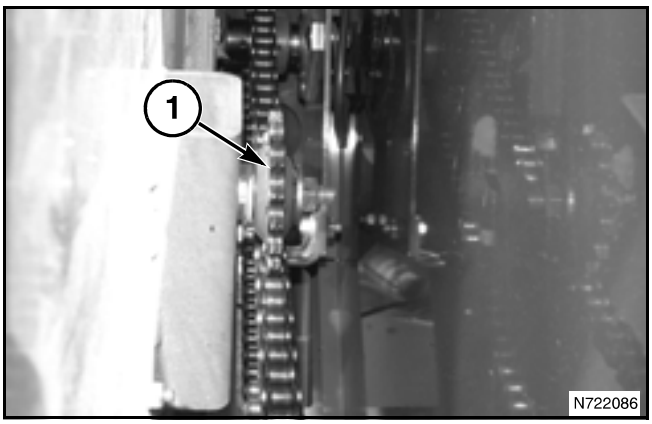

FIG. 38

Straw Chopper Primary Drive

FIG. 39: The primary (jackshaft) drive idler (1) is tensioned by a spring and chain combination (2). A spring length (A) of 484 to 508 mm (19.06 to 20 in) from the inside eye to the inside eye must be maintained.

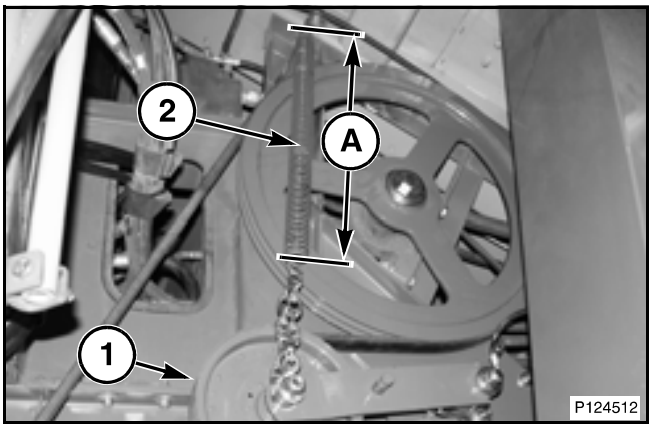

FIG. 39

FIG. 40: After the spring is properly tensioned, adjust the idler stop bolt (1) until the stop bolt just contacts the idler arm. Tighten the lock nut (2).

The idler stop bolt must be adjusted to properly maintain belt tension when there is a drive reversal. This occurs during rapid engine deceleration or drive disengagement when the chopper attempts to drive the machine.

Belt Replacement

Loosen the idler stop bolt, pull down on the idler and remove the belt from the drive sheave. Remove the secondary drive belt. Remove the primary drive belt from the jackshaft sheave. Reverse the procedure to install the belt.

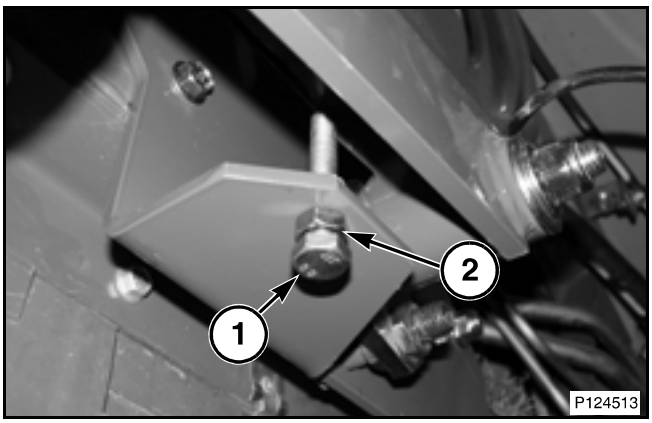

FIG. 40

FIG. 67: Unloader Sensor (1)

The unloader sensor is a switch used to ensure the swing unloader is completely closed before operating.

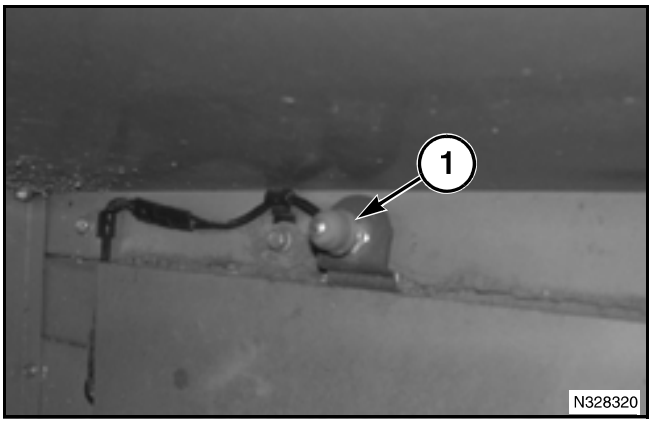

FIG. 67

FIG. 68: Adjust the switch stop (1) so that when the swing auger is fully extended the switch is depressed 1.52 to 2.28 mm (0.060 to 0.090 inch). The unloader switch must not bottom out.

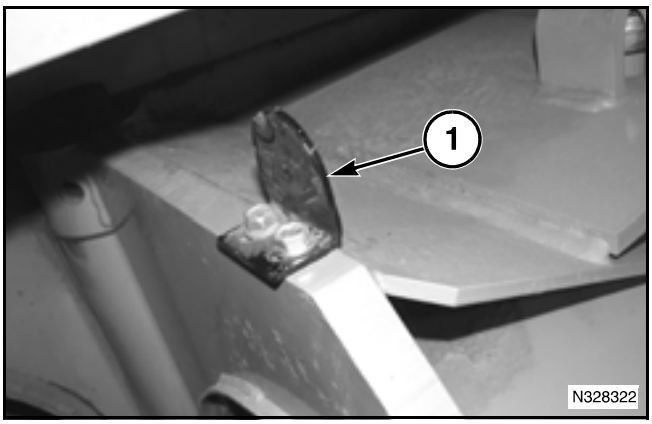

FIG. 68

DIESEL FUELS

Always use clean fuel and clean fuel handling equipment. Storage tanks must be shaded and have a water drain to remove condensation and dirt particles. Never use the last gallons or liters from the tank to fuel the combine. To reduce contamination, do not handle fuel in open containers.

Fuel Specifications

Use grade Number 2 diesel fuel as defined in ASTM D 975, when temperatures are above the freezing point. Use of other fuels will result in reduced engine performance and higher fuel consumption. Number 1 diesel can be used when temperatures are consistently below 32 degrees F (0 degrees C).

Do not use fuels that contain more than 0.5% (by weight) sulfur. High sulfur content can result in excessive corrosion in the injection equipment and combustion system.

The Cetane number of a diesel fuel is a rating similar to the octane numbers used to rate the combustion in gasoline. Never use a fuel with a cetane number below 40. When operating at higher altitudes, a higher cetane fuel is recommended.

Fuel Conditioners

Good quality fuels usually contain sufficient additives to adequately clean and protect your combine engine. Fuel conditioners, when used according to directions, can help to stabilize fuels when stored for extended periods of time. Fuel conditioners also help to remove moisture from the fuel as well as varnish, and gum deposits from the injection equipment. When added to the fuel in extremely cold weather, fuel conditioners will help prevent fuel from gelling and separation of wax particles, which can result in filter plugging and difficult starting.

Fueling the Combine

Fuel is highly flammable and extreme care must be taken when fueling the combine.

- Always stop engine when refueling the combine.
- Do not smoke or have an open flame near the fuel.

Clean any surfaces where fuel may have spilled to prevent chaff build up and potential fire hazards.

WHEEL HARDWARE TORQUE

After operating for one hour, check the torque on all wheel hardware. Again at ten hours of operation, check to make sure the wheel hardware has held the correct torque specification. After the first ten hours, check the wheel hardware every 100 hours of operation.

See the Specifications section for the correct wheel hardware torque.

LUBRICANTS

Use quality oils and greases and be sure to use the proper lubricant for the job. Refer to specific lubrication requirements in this section.

SERVICE PROCEDURES

Keep lubricants in clean, covered containers. Clean funnels, measures and other handling equipment before and after use. Clean fittings, plug openings, and other lubrication points before servicing. Inspect and clean plugs and other detachable fittings before installing.

SERVICE PERIODS

Frequency requirements, listed in Lubrication and Maintenance charts, are based on normal operating conditions. If combine is being operated under extreme weather or dust conditions, lubricate more often. Change engine oil filter every oil change regardless of how short time interval has been between oil changes.

NOTE: Monitor the engine hour meter to be sure that all maintenance intervals are met.

WARNING: Lower the header or feeder to the ground or raise and engage the header lift cylinder stop. Stop the engine, set the parking brake, remove the ignition key, and take the ignition key with you before performing any lubrication or maintenance function.

FIG. 10: Front left side grease bank.

Unloader Drive Idler (9) - (50 hours).

One grease fitting.

Front Beater Drive Idler (10) - (50 hours).

One grease fitting.

Auger Pivot Tube (11) (50 hours).

One grease fitting.

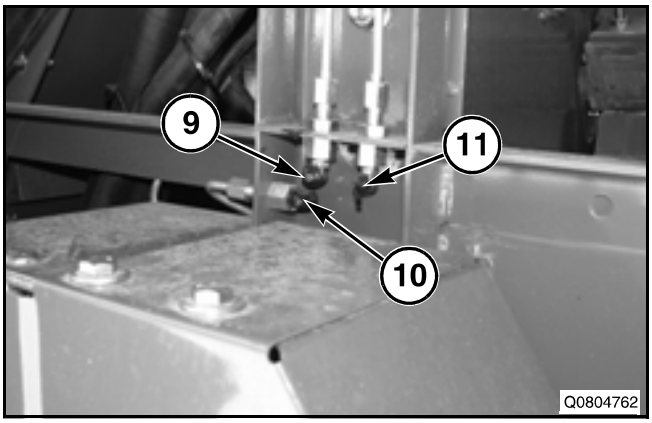

FIG. 10

FIG. 11: Rear left side grease bank.

Main Countershaft Drive Idler (12) - (50 hours).

One grease fitting.

Propulsion Pump Drive Idler (13) - (50 hours).

One grease fitting.

Rotor/Propulsion Pump Drive Idler (14) - (50 hours).

One grease fitting.

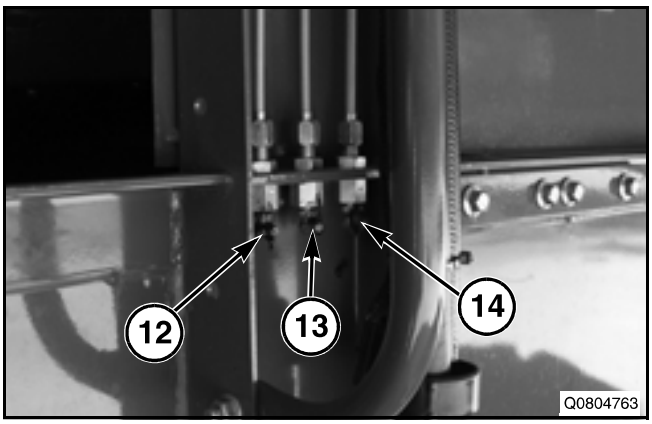

FIG. 11

FIG. 12: Left-hand side of combine next to the battery tray.

Rotor Coupler (15) - (50 hours).

One grease fitting.

Axle Pivot (16) - (50 hours).

One grease fitting.

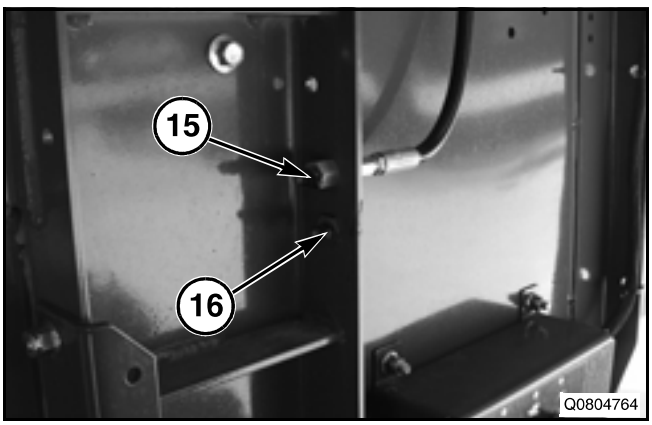

FIG. 12

FIG. 39: To adjust the times, rotate either of the rotary switches (1) until the notch in the switch is over the desired time. The recommended settings for the auto lube system is two minutes of on time every 6 hours. Use the following tables to adjust the times.

After the desired intervals are set, install the sealing plug in the pump housing.

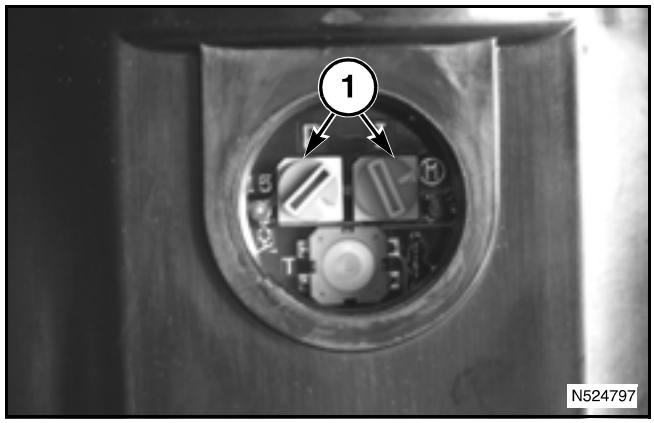

FIG. 39

Auto Lube Interval Settings Table

Off Time Rotary Switch Setting	Interval Between Lube Cycles	On Time Rotary Switch Setting	Pump will run for:
0	will not run	0	will not run
1	1 hour	1	2 minutes
2	2 hours	2*	4 minutes
3	3 hours	3	6 minutes
4	4 hours	4	8 minutes
5	5 hours	5	10 minutes
6*	6 hours	6	12 minutes
7	7 hours	7	14 minutes
8	8 hours	8	16 minutes
9	9 hours	9	18 minutes
A	10 hours	A	20 minutes
B	11 hours	B	22 minutes
C	12 hours	C	24 minutes
D	13 hours	D	26 minutes
E	14 hours	E	28 minutes
F	15 hours	F	30 minutes

* Recommended Setting

FIG. 62: To replace the primary fuel filter follow the following procedure:

1. Close the fuel supply valve (1) to the rear of the filter assembly.
2. Remove the filter canister and water separator (2) from the filter head (3). Properly dispose of the contents of the filter.
3. Remove and keep the water separator bowl from the filter canister assembly. Discard the filter canister.
4. Remove the O-ring from the water separator bowl and clean the bowl, the O-ring, and the separator bowl mounting base. Inspect the O-ring for damage or deterioration. Replace the O-ring if necessary.
5. Install the O-ring in the water separator bowl and lubricate with clean diesel fuel.
6. Install the water separator bowl on the new filter canister and tighten by hand.

IMPORTANT: Do not tighten the water separator bowl with any kind of tool.

7. Lubricate the seal on the new fuel filter canister with clean diesel fuel. The fuel filter canister can be filled with fuel at this time. Install the new fuel filter canister on the filter head. Tighten the fuel filter canister by hand.

NOTE: The primary fuel filter and water separator can be prefilled with fuel to avoid rough running or stalling of the engine. Do not prefill the secondary fuel filter prior to installation.

8. Open the fuel supply valve to the rear of the filter assembly.

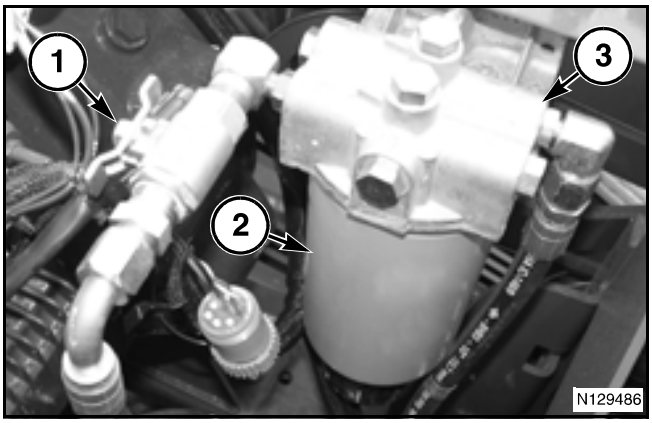

FIG. 62

Cab Filters

The air conditioning system has three filters that must to be checked every 50 hours or weekly.

NOTE: Severe conditions will require cleaning more frequently.

When installing the recirculation filter, note airflow direction indicated on filter frame.

Cab Filter - Primary

FIG. 79: The primary air filter (1) is located on the left-hand cab platform behind the access door (2). To open the door, turn the knob and pull.

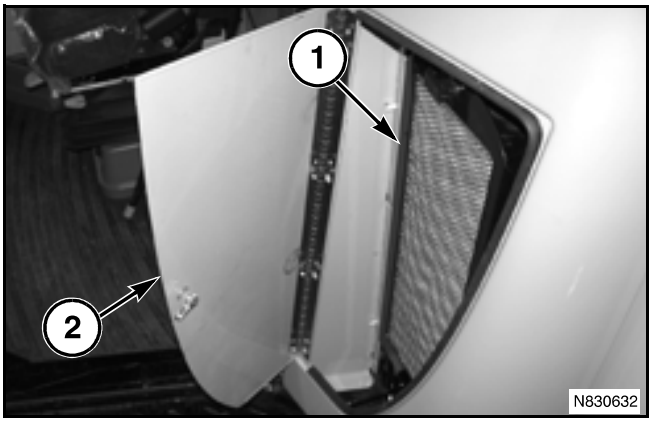

FIG. 79

FIG. 80: Remove the primary air filter (1) by releasing the clamp (2) and pulling the top of the filter out.

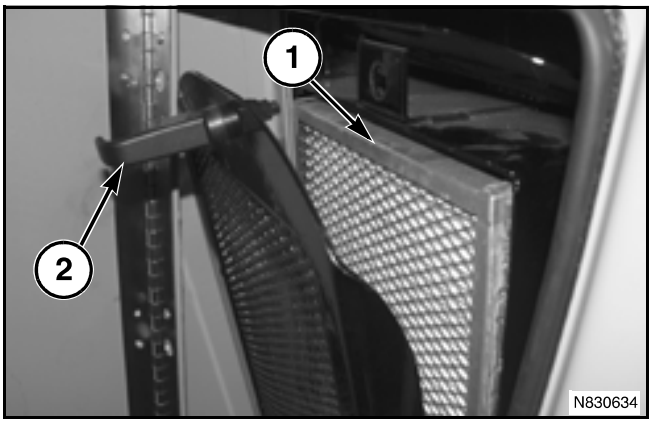

FIG. 80

Cab Filter - Secondary

FIG. 81: The secondary air filter (1) is located under the cab floor in the pressurizer housing. Remove the secondary air filter by turning the knobs on the filter cover (2) counter-clockwise and opening the cover. Pull the secondary air filter down and out of the pressurizer.

NOTE: The filter will differ in appearance depending on the year of combine.

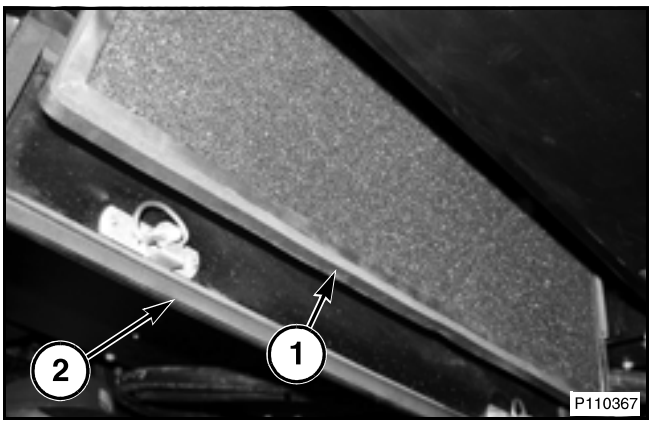

FIG. 81

Fuse Location and Amperage

FIG. 99: Early Production:

Location	Fuse Description	Amp
A/1	Air Conditioning Control	7.5
B/1	Cab Blower	25
C/1	Right, Inner Field Lights	20
D/1	Right, Outer Field Lights	20
A/2	C2000 console	5
B/2	Seat Compressor	15
A/3	Radio	5
B/3	Wiper/Washer	30
D/3	Lighter	10
A/4	Grain Tank Sensors	3
C/4	Diagnostic Power	3
A/5	Handle Seat Interlock	3
C/5	Speed Sensor Power	3
D/5	VMM 5	20
A/6	VMM Logic	10
B/6	Power Mirror	10
C/6	Clutch Switch	3
A/7	RWA	10
B/7	Radio/C2000 console/HVAC Memory	10
C/7	Unloader Lamp	7.5
D/7	VMM 2	20
A/8	Switch Power Lower Work Lamps/Auto-Guide® Battery Power	25
B/8	Horn	15
C/8	Headlamps	10
D/8	VMM 1	20
A/9	Inner Field Lamps	30
B/9	Dome Light	10
C/9	Beacon	10
C/9	Flashers/Auto-Guide®	5
C/10	Ignition Switch	15
D/10	Powerfold Ladder	30
C/11	Power Plug 1	30
D/11	Left, Outer Field Lights	25
C/12	Instructor Seat Power	5
D/12	Power Plug 2	30

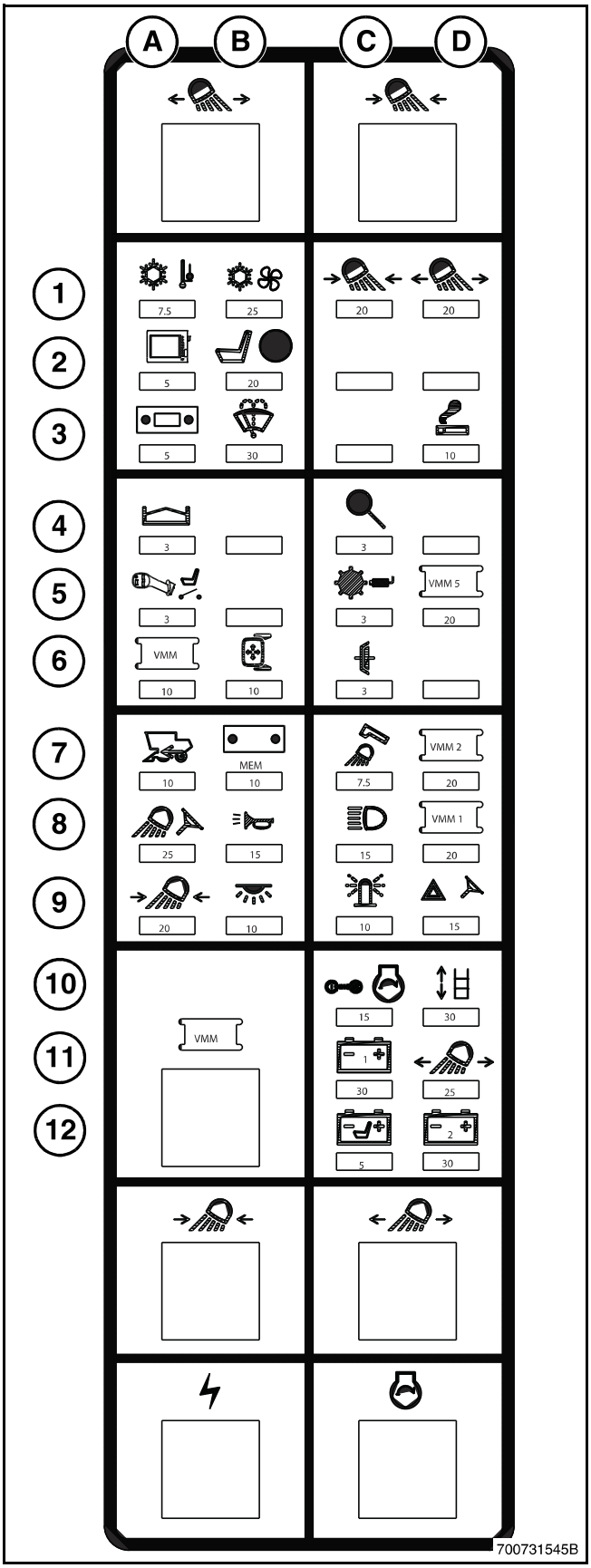

FIG. 99

Bleeding Brake System

Operating the brakes with a low fluid level in the reservoir allows air to enter the lines causing pedal action to become spongy. Bleed the brakes if this condition occurs.

NOTE: While completing the following procedures, the brake fluid level must be maintained in the master cylinder

FIG. 115: Open the bleed screw (1) on the left-hand side of the master cylinder while pushing both pedals down. Close the screw on the up stroke. Repeat this procedure for both brake pedals until a stream of brake fluid is released from the brake bleed screw that does not contain any air bubbles.

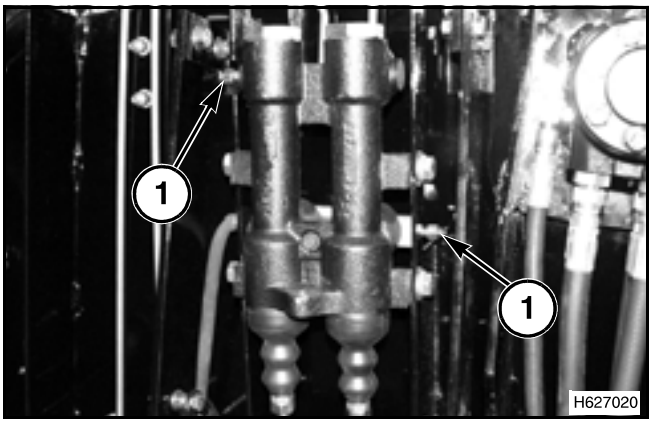

FIG. 115

FIG. 116: Lock the brake pedals together and rapidly pump the brake pedals several times. Then, hold the pedals in a depressed (down) position while a second person opens the bleed screw (1) on the left-hand wheel cylinder allowing fluid and air to escape. As soon as the pedals have reached the full down position, immediately close the bleed screw before allowing the brake pedals to return to the up position.

Repeat until a solid stream of brake fluid is released from the bleed screw that does not contain any air bubbles.

Repeat this procedure for right-hand brake caliper.

Brake pedal action must be firm, not spongy. Repeat above procedures if necessary.

Check and add brake fluid to reservoir.

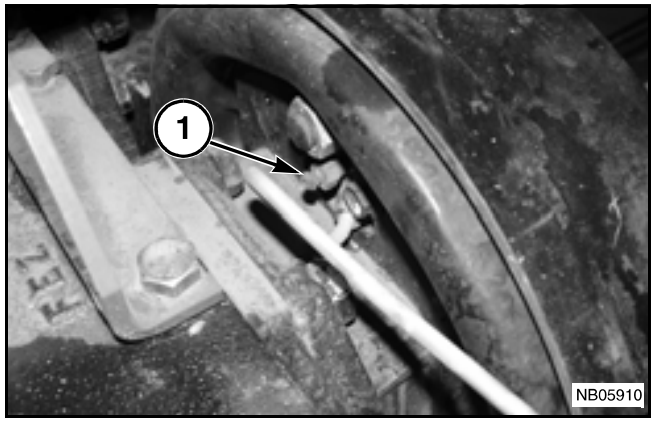

FIG. 116

WARNING: Incomplete bleeding and allowing air to remain in the system will lead to poor braking performance and possible loss of braking capability.

Hydrostatic Drives

The rotor pumps are mounted in tandem and are driven from the rear of the engine with a four band sectioned belt.

The rotor drive pump is variable displacement. An electrically operated valve destrokes the pump when the thresher clutch is disengaged. A pressure limiter protects the rotor drive system by destroking the pump at high pressures.

The rotor drive motor is fixed displacement. The output shaft of motor is connected directly to a 3-speed gearbox, which drives the rotor.

The rotor speed is controlled by a switch in the cab and an electric displacement controller on the pump.

A portion of the oil flows through the rotor drive pump, motor, and gearbox to cool and lubricate these components.

Charge pressure setting is 2309 to 2654 kPa (335 to 385 psi) above case pressure when the rotor pump is in neutral (destroked). When the rotor pump is in forward or reverse (in stroke), charge pressure is approximately 172 kPa (25 psi) less than above figures. Charge pressure is used for replenishing the closed loops, flushing and cooling the systems and shifting the variable swash plates in the pumps. Charge pressure settings at the motor are set approximately 137 kPa (20 psi) less than the pump.

Case (drain) pressure must not exceed 276 kPa (40 psi). The case return lines carry the pump and motor leakage and other return oil back to the cooler and reservoir.

The propulsion drive pump is driven by a three band belt from the rear of the engine. the pump provides oil under high pressure to rotate the propulsion drive motor. Pump and motor are interconnected by hydraulic hoses in a closed loop circuit.

The output shaft of the motor is connected directly to the transmission gearbox.

The propulsion drive pump is a variable displacement type, which varies the amount of oil pumped to the motor to change the ground speed.

The propulsion drive motor is fixed displacement. The pump output determines the speed and direction of rotation of the driven motor. The pump output is controlled by a ground speed lever in the cab.

NOTE: Two additional fixed displacement wheel motors, and control valve, are installed in parallel with propulsion drive motor when optional power rear wheel drive is installed.

Charge pressure setting is 2689 to 2896 kPa (390 to 420 psi) above case pressure when the propulsion pump is in neutral (destroked). When the propulsion pump is in forward or reverse (in stroke), charge pressure is approximately 172 kPa (25 psi) less than above figures. Charge pressure is used for replenishing the closed loops, flushing and cooling the systems and shifting the variable swash plates in the pumps. Charge pressure settings at the motor are set approximately 137 kPa (20 psi) less than the pump.

Case (drain) pressure must not exceed 276 kPa (40 psi). The case return lines carry the pump and motor leakage and other return oil back to the cooler and reservoir.

If a hose fails, the loss of charge pressure will cause the hydrostatic pumps to destroke to neutral. Continued running of the engine after loss of hydraulic oil can cause damage to the charge pump and hydrostatic pumps. Turn off the engine at once when the monitor shows low oil level.

All high pressure hoses are specifically selected for the high pressures encountered in these systems 44.8 mPa (6500 psi) in the propulsion drive, 48.3 mPa (7000 psi) in the rotor drive). High pressure replacement hoses must always be purchased through your Dealer.

TIRES AND WHEELS

Tire Pressure

Tire pressures for both front and rear tires must be checked every 50 hours of operation or weekly. See the Specifications section for the correct tire pressure.

NOTE: The combine is shipped from the factory with tires over-inflated. Pressures must be checked and adjusted before operating the combine in the field.

NOTE: Combines can be shipped with special 16.9 x 34 shipping tires and wheels for clearance requirements. Do not install the header, or move the base combine on these shipping tires more than necessary to unload the combine from the truck.

After unloaded, replace the shipping tires and wheels with the operating tires and wheel ordered with the combine.

NOTE: The above combinations are based on correct tire loadings as listed in ASAE Standard S385-4.

Dual Tires

If Dual Tires are used, the following conditions must be met:

- Base tires must be mounted in 3.05 m (120 in) tread position. Dual tire tread must not exceed 4.57 m (180 in).
- Base tires must carry the correct operating pressure per the tire pressure chart in the Specifications section.

NOTE: A special ladder deck extension will be required if duals are installed.

Maintenance of Tires

To reduce amount of wear, and extend the life of the tires, the correct pressures must be maintained and checked at regular intervals.

When combine is going to be out of use for an extended period, or is being stored, block both sides of axles to take weight off tires.

If oils or solvents are spilled on a tire, clean immediately. Never park or stop the combine with tires standing in an area of wet oil.

If possible, park combine where tires will be shaded from direct sun. This is important if combine is parked for extended periods, or is being stored.

If mounting tubeless tires, make sure the flange and bead area of the tire and rim are free from dirt, rust or old rubber. The rim must be smooth and clean. Any areas of rust must be cleaned and painted with a rust inhibiting type paint.

WARNING: Failure to follow correct procedures when mounting a tire on a wheel or rim can cause tire to explode which can result in serious injury or death. Do not mount a tire unless you have the proper equipment and experience to complete the job. A qualified tire repair service dealer has the proper equipment.

Never exceed 241 kPa (35 psi) or the maximum inflation pressures specified by tire manufacturers for mounting tires. Inflation beyond this maximum pressure can break the bead, or even the rim, with dangerous explosive force. If both beads are not seated when maximum recommended pressure is reached, deflate, reposition tire, lubricate bead and inflate tire.

PROPULSION HYDROSTATIC PROBLEMS

The following chart anticipates some problems which can be experienced with the main hydraulic system and hydrostatic transmission.

These problems relate only to external functions of system and do not relate to problems which can occur internally within hydrostatic pump and motor. When external problems have been eliminated and the problem is thought to be in the pump or motor, consult your dealer.

IMPORTANT: Do not attempt to service pump and/or motor. This must be done through your dealer.

If trouble is experienced in extremely cold weather, allow fluid to warm up and check operation again.

PROPULSION HYDROSTATIC TRANSMISSION PROBLEMS

Problem	Possible Cause	Correction
Hard to select transmission gear at gearshift lever, or Will Not go into gear	Hydrostatic pump not in neutral though ground speed lever is in neutral position	Check and adjust control linkage. Move hydrostat lever slowly through neutral to forward and reverse to align transmission gears.
System Operates in One Direction	Faulty control linkage	Check linkage to make sure the linkage is not disconnected or binding.
	Internal problem in pump or motor	Contact dealer.
Neutral Difficult to Find	Faulty or loose control linkage	Disconnect control linkage at directional control arm. If system returns to neutral, linkage is out of adjustment. Adjust linkage.
Oil Temperature Too High - Overheating	Oil cooler core blocked with chaff, dust, etc.	Check core in front of radiator and clean if necessary.
	Oil level in reservoir low	Check level of fluid. Fill as necessary.
	Operating system too long (over 30 seconds) after transmission has stalled.	Refer to information under Operation.
	Internal problem in pump or motor	Contact dealer.

COMBINE

General

Class Size VIII
Threshing System ..... Rotary
Engine ..... Caterpillar C13 Diesel
Propulsion ..... Hydrostatic/4 speed transmission
Rotor Drive ..... Hydrostatic/3 speed Gearbox
Configurations ..... Grain, Corn/Soybean

Main Body

Width ..... 1.6 m (63.3 in)

Feeder

Type ..... Chain and Slat
Width ..... 1.42 m (55.86 in)
Conveyor ..... 4 heavy duty CA 557 roller chains and slats
Slats ..... Bolt on non-serrated standard
Conveyor Drive ..... Protected with torque limiting ratchet clutch

Front Beater

Type ..... Constant speed opposed helical blade
Diameter ..... 457 mm (18 in)
Width ..... 1.41 m (55.2 in)
Reverser ..... Mechanical hub

Stone Trap

Type ..... Stone trap sump
Control ..... Lever on right-hand side
Cover ..... Optional

Thresher-Separator

Type ..... Rotary, single axial rotor

Feeder Reverser

Type ..... Overriding clutch and bearing housing

Rotor

Type ..... Single, 4 function (intake, threshing, separating and discharge)
Length ..... 3.56 m (140 in)
Diameter ..... 800 mm (31.5 in)
Speed @ 2200 RPM (high idle)

- High Range (3.095:1) ..... 260 to 1041 RPM
- Mid Range (4.388:1) ..... 186 to 739 RPM
- Low Range (7.56:1) ..... 106 to 425 RPM

DIMENSIONS

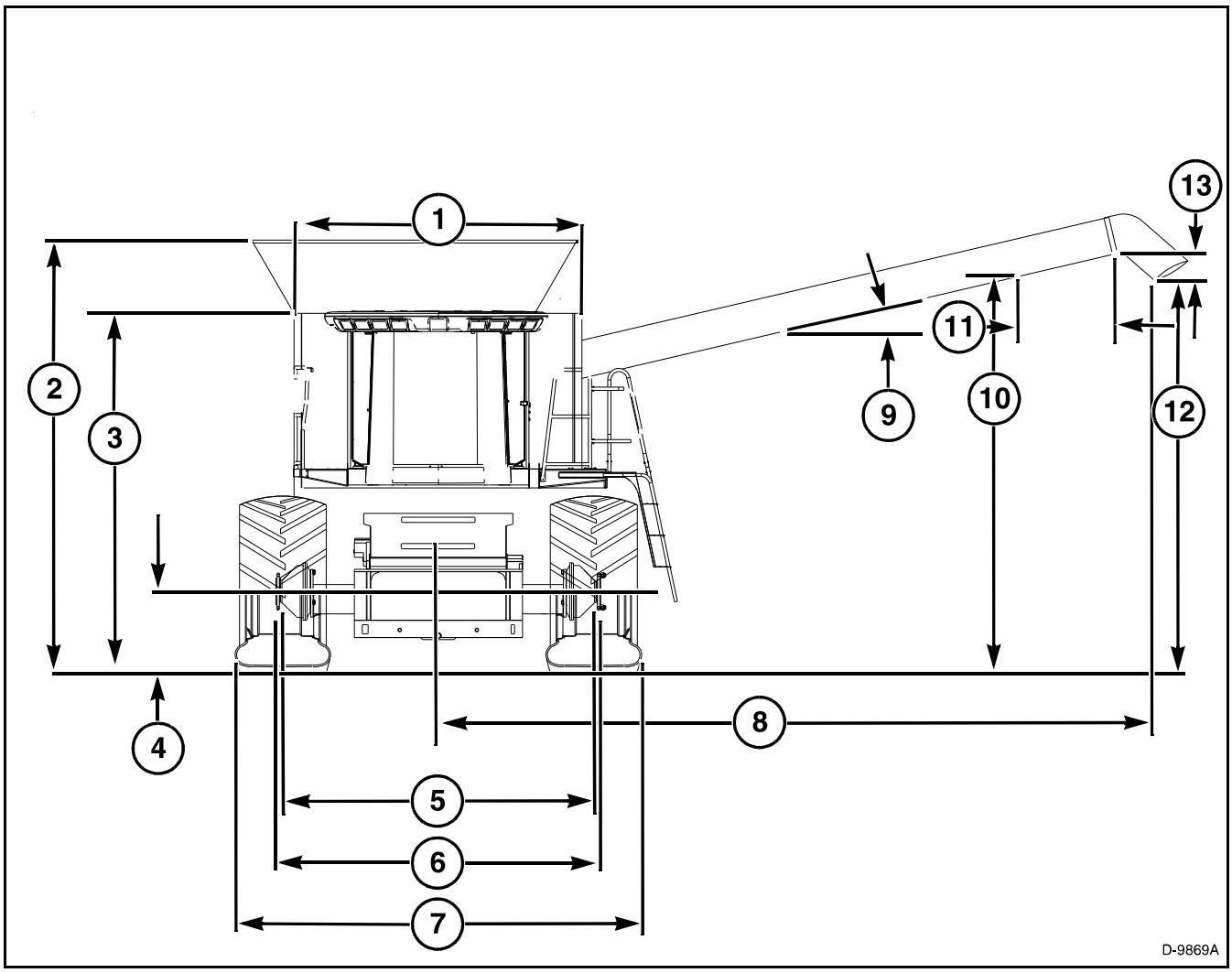

FIG. 1

FIG. 1: Front view with 900/60R32 tires.

1. 3.0 m (118 in)
2. 4.90 m (193.1 in)
3. 3.99 m (157.0 in) shipping height
4. 0.85 m (33.4 in) LR
5. 3.31 m (130.4 in)
6. 3.0 m (118.0 in)
7. 4.18 m (164.7 in)
8. 7.4 m (292.6 in)
9. 13.1 degrees
10. 4.23 m (166.6 in)
11. 1.0 m (39.4 in)
12. 4.18 m (164.7 in)
13. 0.284 m (11.2 in)

ACCESSORIES AND OPTIONS

Contents

FIG. 7: Install the cam follower bearings (1) to the threaded bars.

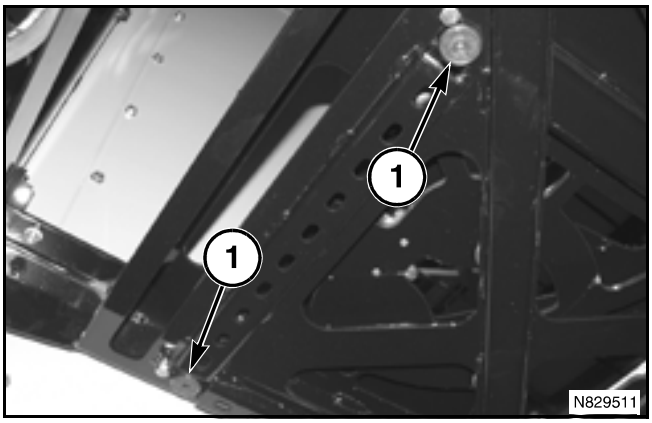

FIG. 7

FIG. 8: Swing the ladder assembly to the field position until the ladder latches the striker (1). Tighten the striker.

Swing the ladder assembly to the transport position until the ladder latches the striker (2). Tighten the striker.

NOTE: If the ladder fails to latch and will not reach the striker, then remove the striker and lengthen the mounting hole for the striker. Install the striker. Repeat until the ladder latches.

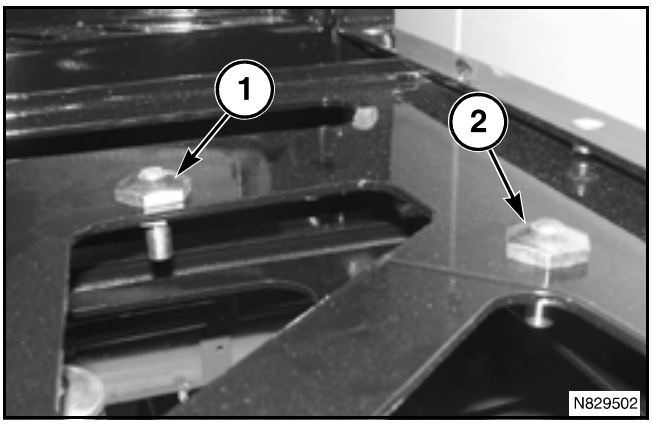

FIG. 8

FIG. 9: With the ladder (1) in the transport position, adjust the front two adjustment bolts (2) to reduce play in the ladder. Adjust the adjustment bolts until they touch the ladder, then back the bolts off 1/2 turn.

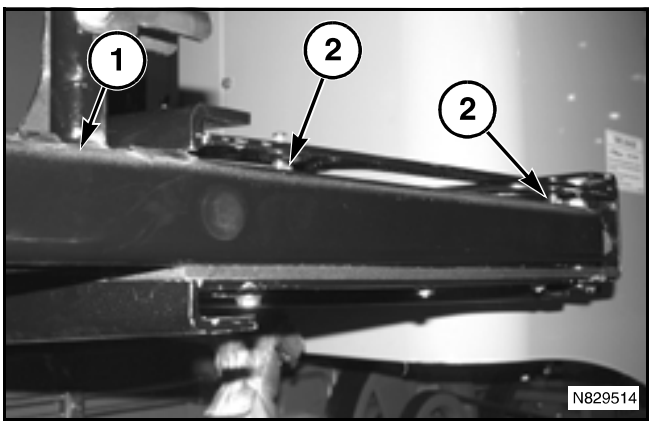

FIG. 9

FIG. 10: Swivel the ladder to the field position.

Adjust the two rear adjustment bolts (1) in the platform to reduce play in the ladder. Adjust the adjustment bolts until they touch the ladder, then back the bolts off 1/2 turn.

Adjust the rubber bumper in the rear of the platform to reduce play in the ladder.

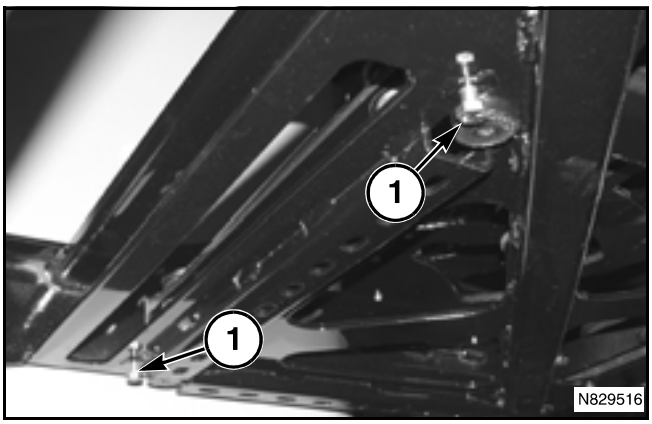

FIG. 10