SAFETY SIGNS

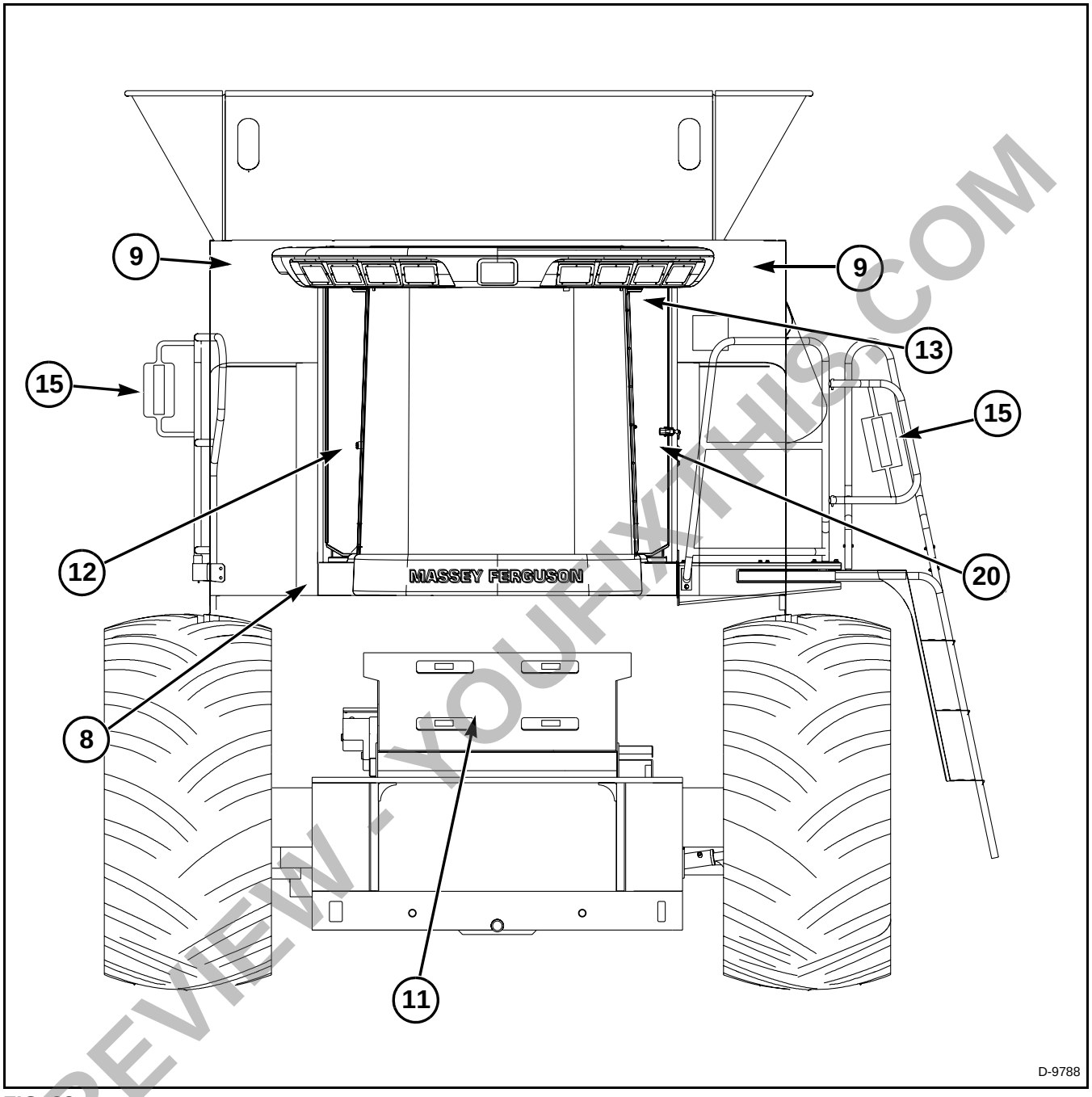


FIG. 28

FIG. 28: Safety sign locations, Front View.

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Brakes

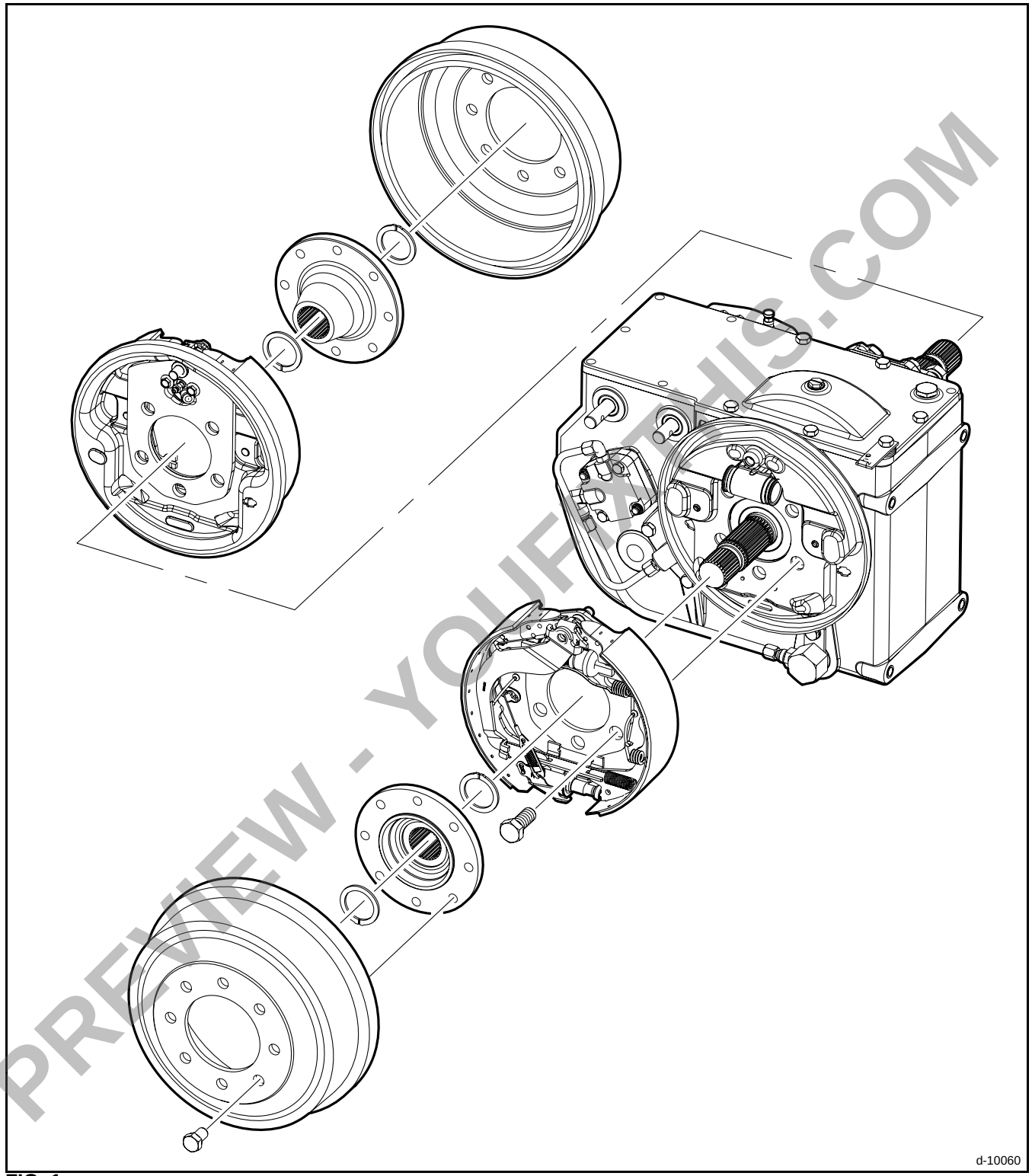


FIG. 1

FIG. 1: Drum Brakes

Service	Drum, hydraulic
Drum Diameter	304.67 to 304.93 mm (11.99 to 12.01 in)
Location	Transmission output shaft
Parking	Mechanical drum and shoe on transmission

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FIG. 2: Loosen the hardware (1) retaining the main countershaft belt guide (2). Slide the guide away from the combine to allow clearance for belt removal from the pto sheave.

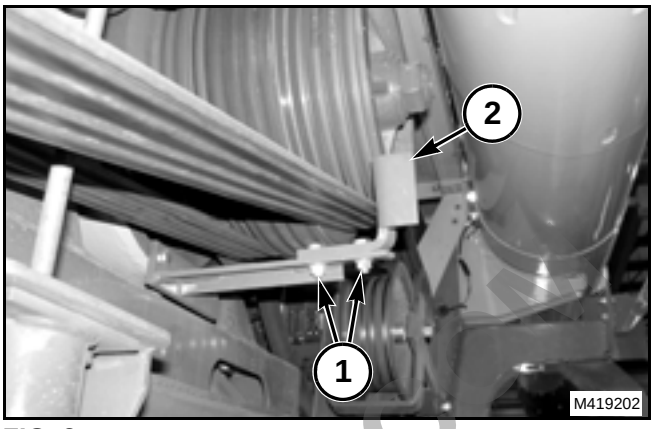


FIG. 2

FIG. 3: Loosen the tension on the main countershaft drive belt (1) by loosening adjusting nut (2) on the tensioner assembly.

Remove the main countershaft drive belt from the pto sheave (3).

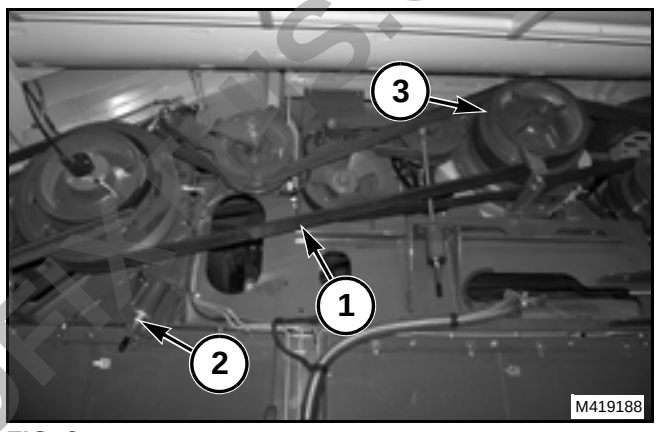


FIG. 3

FIG. 4: Loosen the tension on the hydrostatic pump drive belt (1) by loosening adjusting nut (2) on the tensioner assembly.

Remove the hydrostatic pump drive belt from the pto sheave (3).

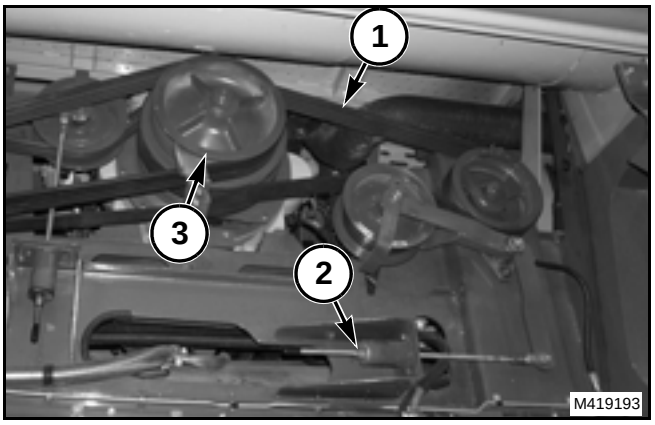


FIG. 4

FIG. 5: Loosen the tension on the propel pump drive belt (1) by loosening adjusting nut (2) on the tensioner assembly.

Remove the propel pump drive belt from the pto sheave (3).

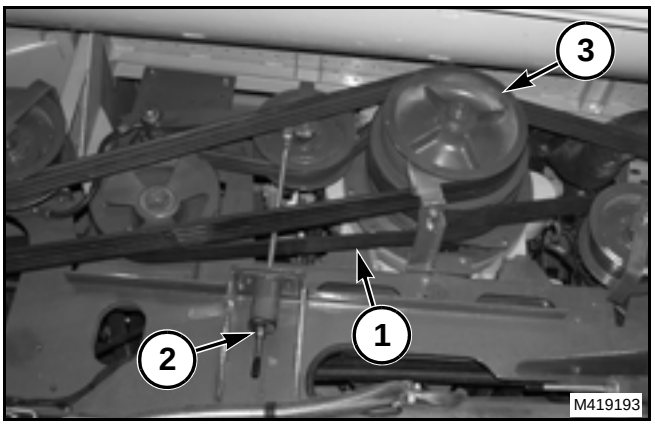


FIG. 5

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CLEAN GRAIN SYSTEM

GENERAL INFORMATION

Operation

FIG. 1: Two auger assemblies are locateed in the bottom of the cleaning shoe:

- The front auger trough (1) collects the clean grain that has passed through the adjustable sieve (lower cleaning screen).
- The rear auger trough (2) collects the unthreshed material that has been passed over the rear of the adjustable sieve (lower cleaning screen) and in addition to the material that has fallen through the rear section of the chaffer (upper cleaning screen).

NOTE: You should be completely familiar with the operator's manual for safety, operation, service, adjustments, and settings of the machine prior to making a service call.

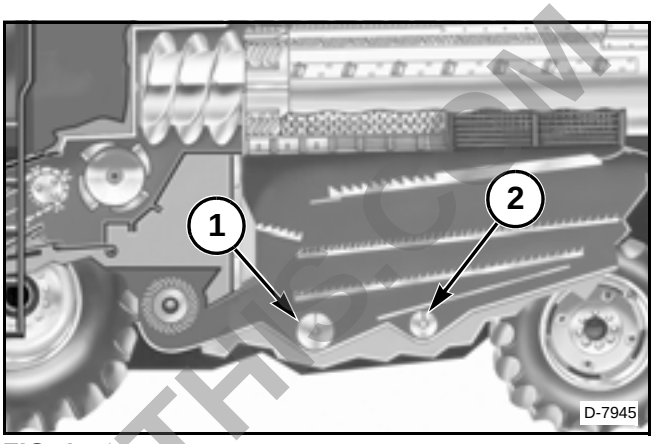


FIG. 1

FIG. 2: The clean grain that has fallen into the front auger trough is conveyed to the boot (1) of the clean grain elevator.

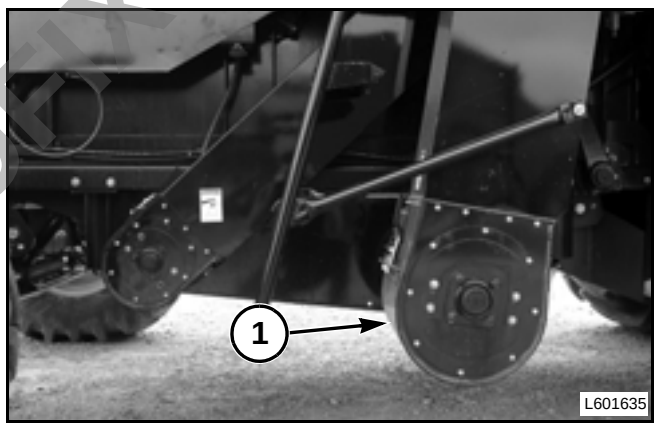


FIG. 2

FIG. 3: The clean grain elevator conveys the clean grain from the front auger to the clean grain elevator head (1) located in the grain bin. The clean grain is then conveyed from the clean grain elevator head to the center of the grain tank by the grain bin loader (2) to fill the grain bin.

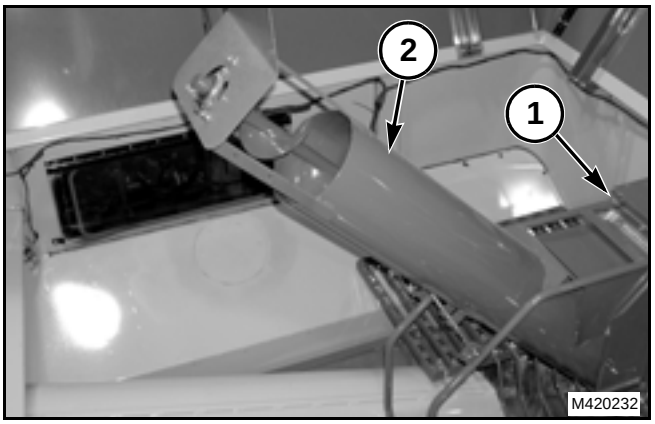


FIG. 3

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FIGS. 3–4: The secondary drive belt (1) operates between the jackshaft and the rotor shaft of the straw chopper. The secondary drive belt is also tensioned by a spring and chain combination (2) located between the idler arm and an anchor pin along the rear of the idler support.

The straw chopper can be operated in two speed ranges by reversing the secondary drive sheave and the secondary driven sheave.

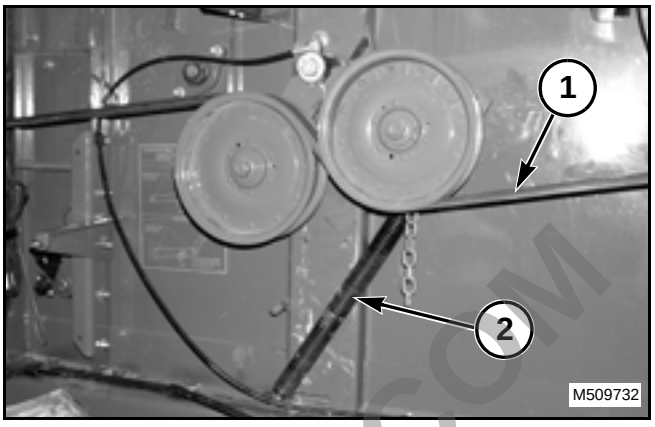


FIG. 3

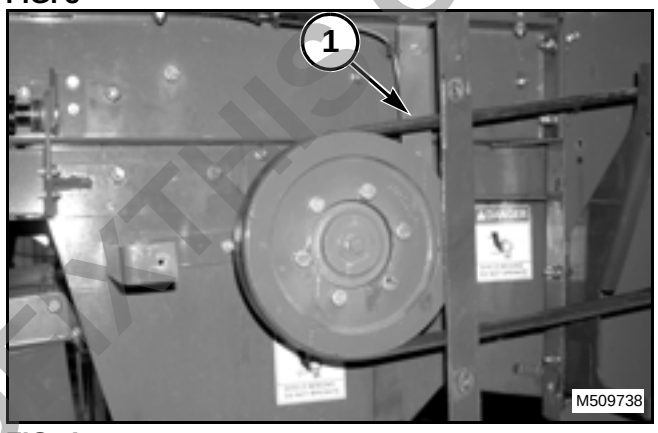


FIG. 4

ADJUSTMENTS

Spread Width

FIG. 5: The width of spread can be adjusted by tilting the spreader board (1) and by adjusting the deflectors (2).

The spreader board can be adjusted up or down by shortening or lengthening the spreader board straps (3).

The tips of the deflectors can be adjusted in or out from center by loosening the rear fastener attaching the deflector at the slot in the spreader board.

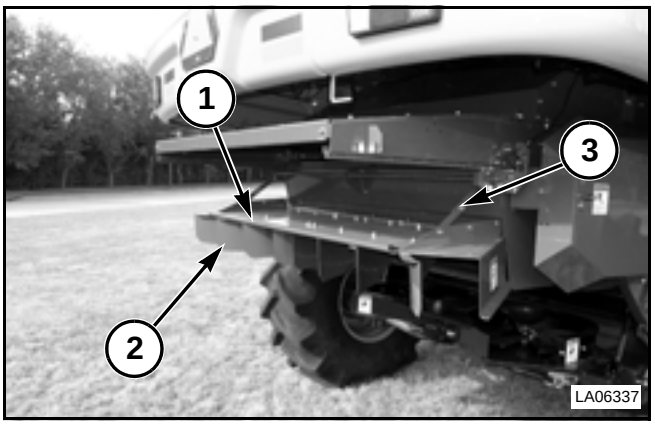


FIG. 5

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POWER REAR AXLE

GENERAL INFORMATION

FIG. 1: The power rear axle is simply an extension of the combines hydrostatic propulsion drive system.

The switch (1) is a three position rocker switch; O-Off, H-High, L-Low.

NOTE: Removal, installation, and service of the combines hydrostatic propulsion system can be found in the Hydraulics division.

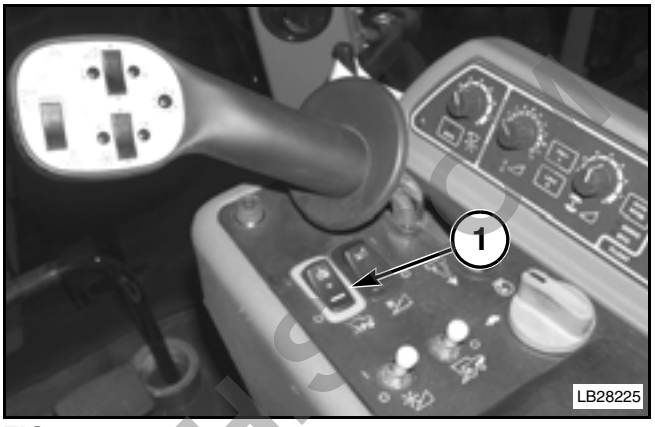


FIG. 1

FIG. 2: The powered steering axle with adjustable tread width is optional equipment.

The rear axle wheel tread is set to 304.8 cm (120 in) for field operation. The tread width can be adjusted from 304.8 to 365.8 cm (120 to 144 in) with 18.4 X 26 R1/R2 steering tires.

The steering system uses a drag link (tie rod) assembly located in front of the axle. The steering cylinders are two double acting 63.5 mm (2.50 in) bore X 342.9 mm (13.5 in) stroke cylinders located at the rear of the axle.

NOTE: Removal, installation, and service for the cylinder can be found in the Hydraulics division, Steering Cylinders section.



FIG. 2

FIG. 3: Steering is controlled through a power steering control unit (1) located under the cab.

Hydraulic fluid is directed to the steering cylinders through this unit to control the combine steering.

NOTE: Specifications, removal, installation, and service for the steering control unit can be found in the Hydraulics division, Power Steering Control Unit section.

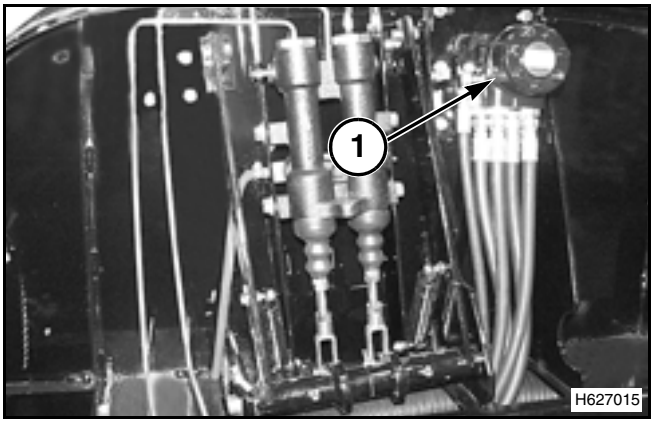


FIG. 3

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BEATER

The beater accelerates the crop into the rotor inlet area and feeds the full circumference of the rotor. The beater also serves to direct rocks and other foreign material into the stone trap.

DRIVE BELT

FIG. 1: The beater is driven by a 4HB section banded drive belt (1) that is tensioned by a spring loaded idler.

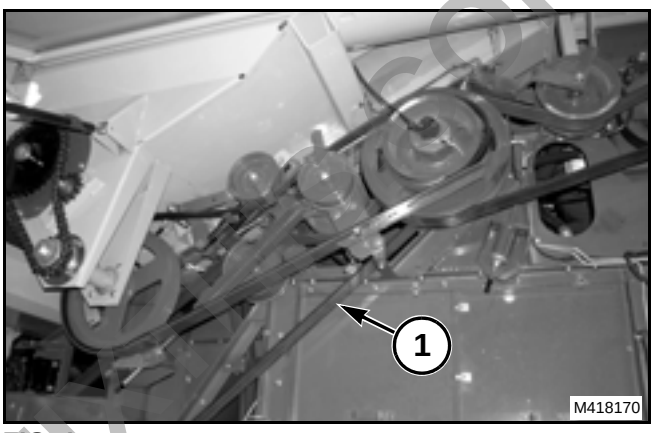


FIG. 1

Removal

FIG. 2: Remove the lower left shield (1) located behind the left-hand drive tire.

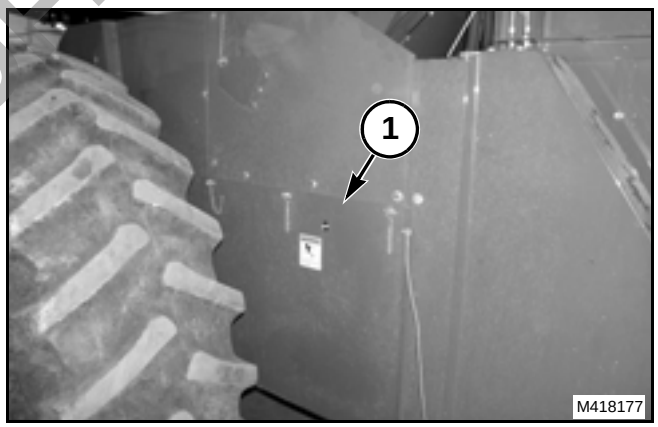


FIG. 2

FIG. 3: Release tension on shoe pitman drive belt by loosening the tension nut (1).

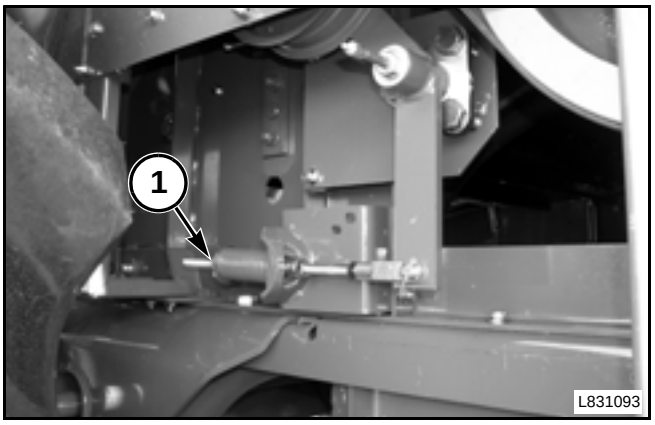


FIG. 3

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Drum Brakes

FIG. 5: Drum brakes employ two brake shoes mounted on a stationary backing plate. These shoes are positioned inside a circular drum, which rotates with the differential output (axle) shaft. The shoes are held in place by springs. When the brakes are applied, this allows the shoes to slide toward the drums while keeping the linings and drums in alignment. The shoes are actuated by a wheel cylinder, which is mounted at the top of the backing plate. When the brakes are applied, hydraulic pressure forces the actuating links of the wheel cylinders outward. Since these links bear directly against the top of the brake shoes, the tops of the shoes are forced against the inner side of the drum. As the top of the brake shoes are forced against the drum, the entire assembly rotates slightly. This action, known as servo action, forces the bottom of the two shoes to contact the drum. When the pressure within the wheel cylinder is relaxed, return springs pull the shoes back away from the drum.

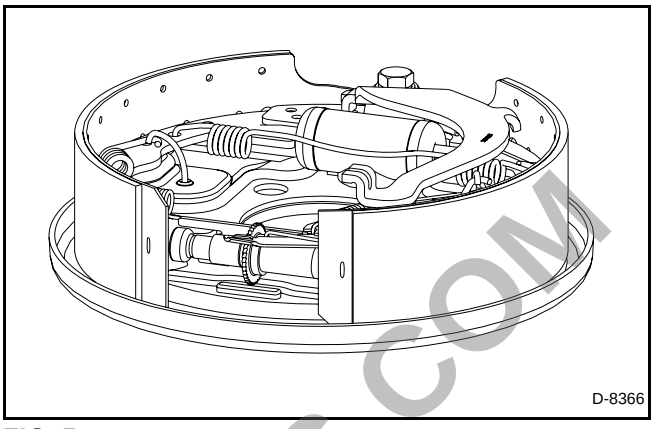


FIG. 5

FIG. 6: The drum brakes are designed to self-adjust themselves during application when the combine is moving forward. This motion causes both shoes to rotate very slightly with the drum. The slight rotation of the shoes causes the adjusting lever (1) to rock. The rocking of the adjusting lever (1) rotates the adjusting screw (2).

This on-board adjustment system reduces the need for maintenance adjustment. The on-board adjustment keeps both the brake function and pedal feel satisfactory.

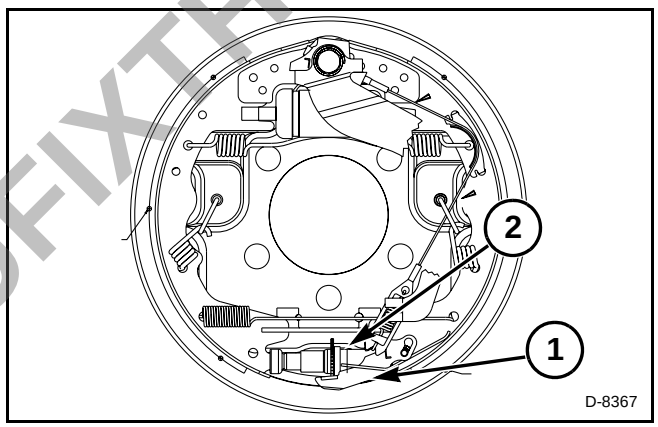


FIG. 6

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HYDRAULIC RESERVOIR

GENERAL INFORMATION - HYDRAULIC RESERVOIR

FIG. 1: The hydraulic reservoir is located at the front right-hand corner of the engine compartment. All of the combine hydraulic systems share this common reservoir. The hydraulic reservoir supplies hydraulic-transmission fluid for the main hydraulic pump mounted to the rear of the hydrostatic propulsion system pump, the charge system for the hydrostatic propulsion system and the hydrostatic rotor drive system and the charge system for the hydrostatic rotor drive system.

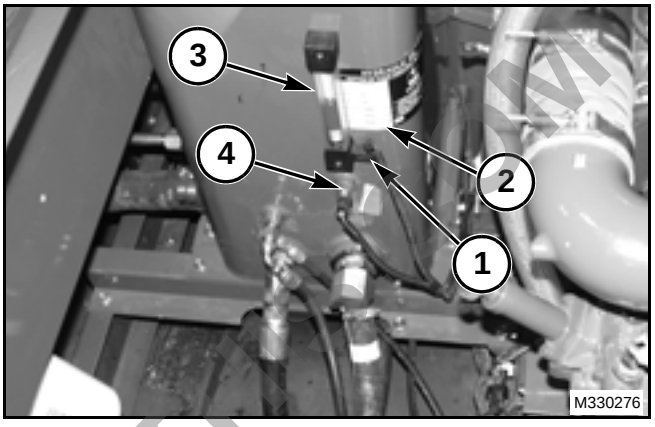


FIG. 1

Hydraulic Fluid Level - On the side of the reservoir there is a sight tube (3), a hydraulic-transmission fluid level indicator decal (2), and an oil level switch (1). The oil level switch activates a red LED on the electronic instrument panel in the cab with an audible Class 2 alarm. The fluid level should be checked when the fluid is cold (at ambient temperature) and with the header lift and the reel lift hydraulic cylinders retracted (header and reel completely lowered). At normal operating temperatures, the fluid level will be approximately 19 mm (3/4 in) higher than the fluid level is at ambient temperatures.

The temperature sensor (4) for the hydraulic-transmission fluid is located on the left side of the hydraulic reservoir that works in conjunction with the electronic instrument panel in the cab. The current hydraulic-transmission fluid temperature is displayed. If the temperature is less than 21 degrees C (70 degrees F), the LCD displays the message LOW. If the fluid temperature is 121 degrees C (250 degrees F) or higher, an audible Class 1 alarm will sound five times every ten seconds, a red LED will flash continuously, and the LCD shows the message HYD TEMP.HOT as long as the condition exists.

FIG. 2: There are two separate outlet ports from the reservoir:

1. The outlet port (1) located in the lower left side of the reservoir supplies hydraulic-transmission fluid to the main hydraulic pump. The outlet port is equipped with a pleated screen made from stainless steel wire cloth. The screen prevents contaminates from entering the hydraulic pump and related systems.
2. The outlet port (2) located in the lower front side of the reservoir supplies hydraulic-transmission fluid to the hydrostatic charge pump suction line filters (3) that are mounted in the front of the engine compartment. The charge pump for the propulsion system and the two charge pumps for the rotor drive system uses these common filters. This outlet port does not have a strainer screen.

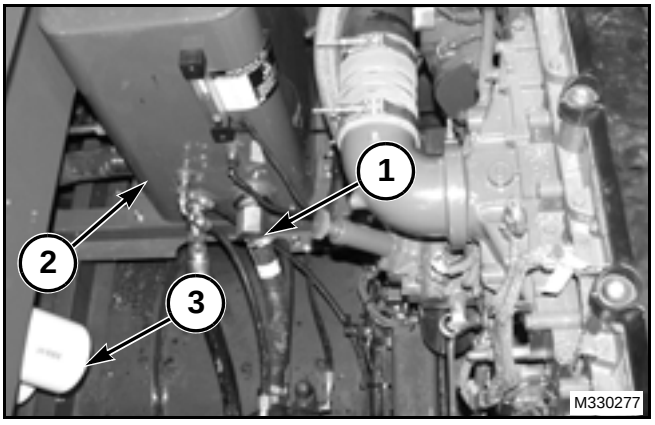


FIG. 2

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FUSE AND RELAY IDENTIFICATION

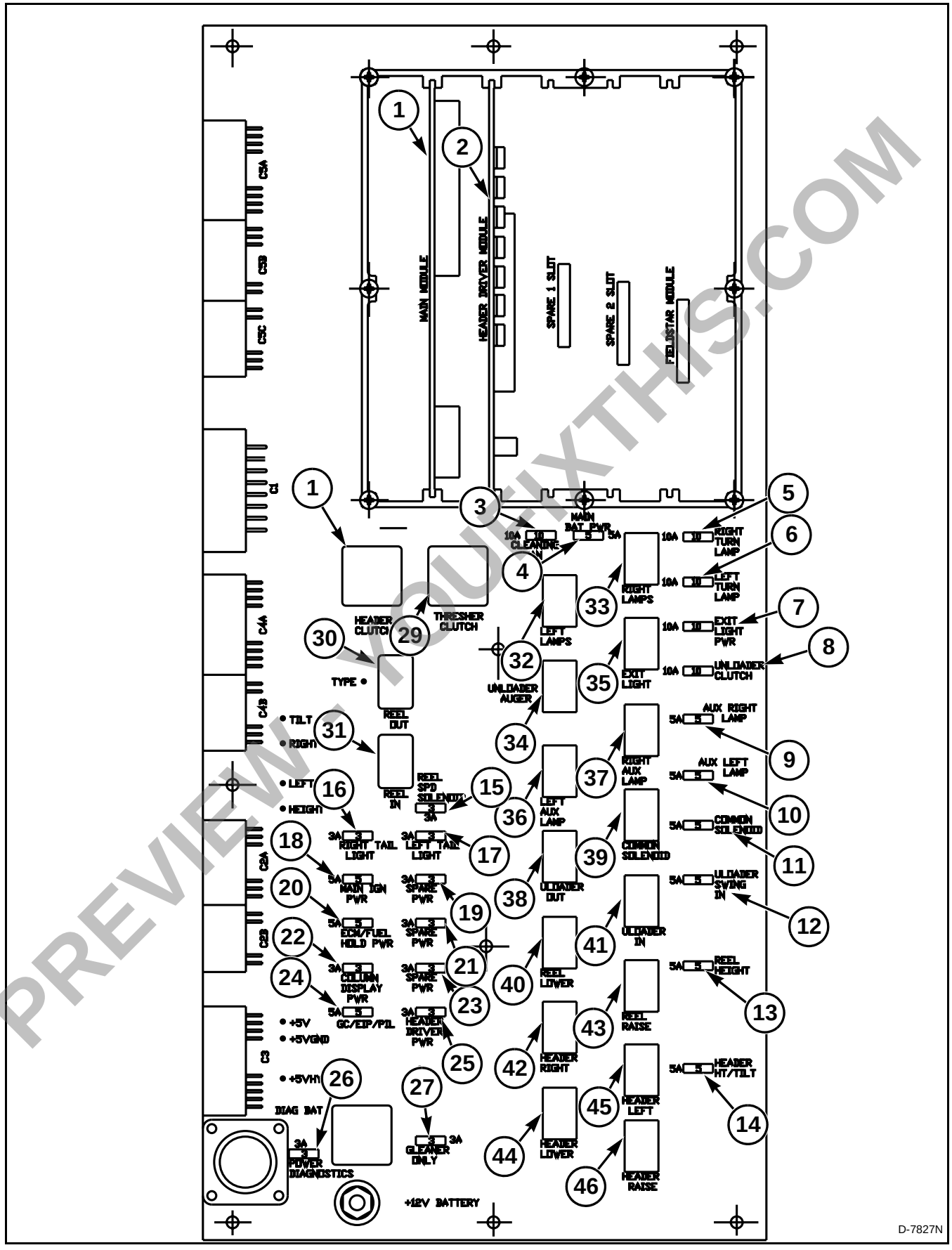


FIG. 2

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Front References

References to left-hand, right-hand, front, and rear throughout this manual, are made when sitting in the operator's seat facing direction of forward travel.

ELECTRICAL SYSTEM

Batteries

FIG. 2: Battery connections.

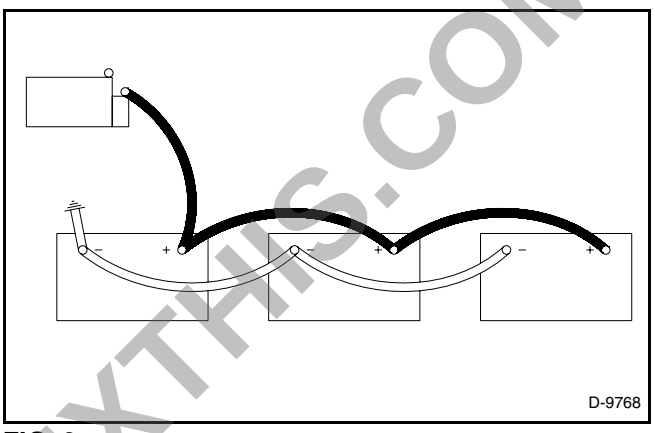


FIG. 2

IMPORTANT: The combines operate on a 12-volt system with a negative ground. Disconnect negative battery cables before servicing electrical system components unless specified otherwise in this manual.

Three batteries are connected in parallel, with the negative (-) terminals to ground and the positive (+) terminals to starter cable.

IMPORTANT: Never connect batteries in series under any circumstance, that is, negative to positive. This produces a combined voltage in excess of 12-volts and will damage electrical components.

CAUTION: Do not run engine with batteries disconnected (even with lights on) as this builds very high system voltage that can be extremely dangerous.

NOTE: Electrical component damage can result if booster cables are not installed correctly. Refer to Electrical Section to completely familiarize yourself with batteries and starting engine with booster battery.

Cleaning

Never apply full nozzle pressure directly at electrical components and connectors.

IMPORTANT: Pressure from fluid could result in circuit or component failure caused by the following:

- Corroded pins.
- Moisture in or on the connector/component.
- Missing or damaged connector/component seals.

FIG. 3: Use only commonly approved connector pin and socket cleaners.



FIG. 3

WARNING: Use only in a well ventilated area. Read and follow instructions on container for proper use.

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INSTRUMENTS AND CONTROLS

GENERAL

FIG. 1: There are several gauges located in the cab. The electronic instrument panel (EIP) (1) is located in the center of the overhead dash. The heating ventilation and air conditioning (HVAC) control panel (2) is located to the left-hand side of the overhead dash. The radio (if equipped) is located to the right-hand side of the overhead dash. The cluster gauges (3) are located in the top of the right-hand B pillar. The engine tachometer (4) is located in the center of the right-hand B pillar.

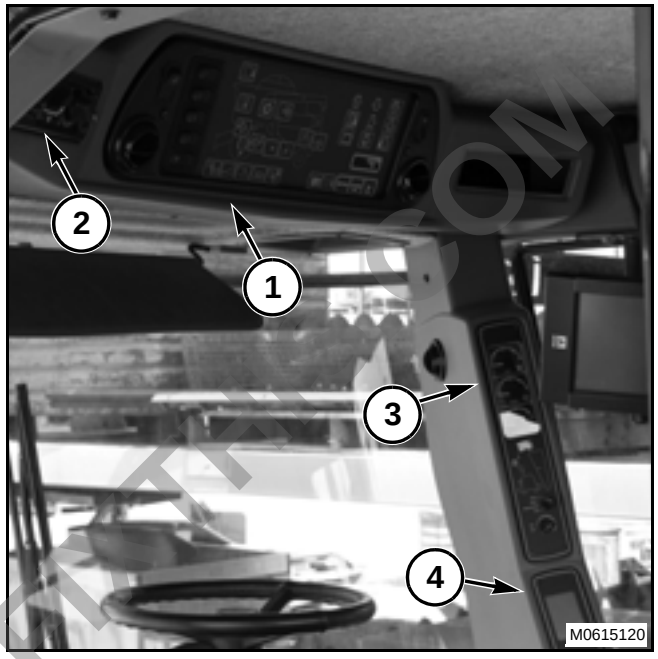


FIG. 1

FIG. 2: Before servicing the instruments and controls. Lower the header until the header is fully supported by the ground.

Remove the starter key.

Engage the parking brake.

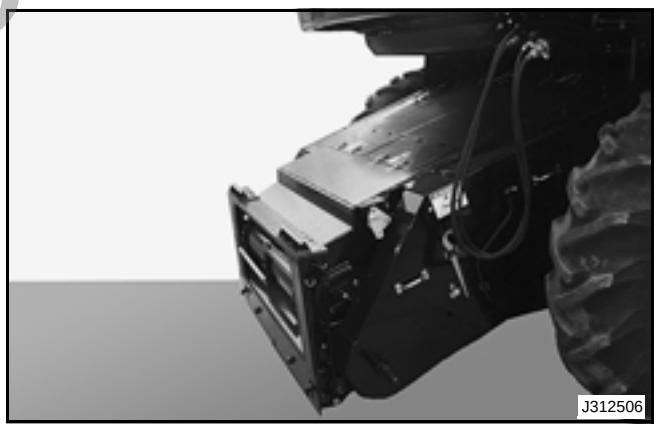


FIG. 2

FIG. 3: Disconnect the batteries from the electrical system by turning the battery disconnect switch (1) located on the left side of the combine to the off position.

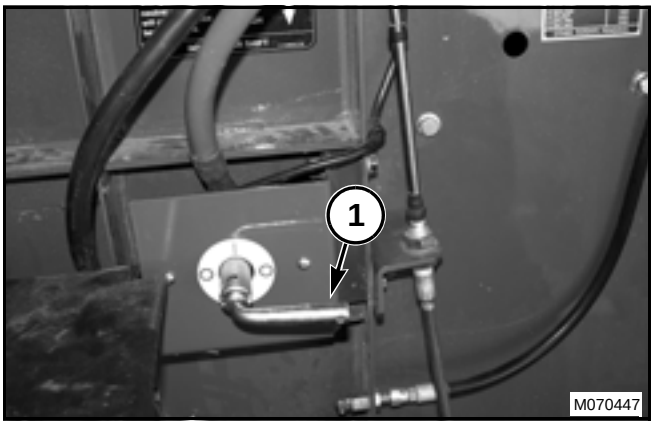


FIG. 3

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GENERAL INFORMATION

SAFETY ALERT SYMBOL

FIG. 1: This is the safety alert symbol. This symbol stands for ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! Look for this symbol, both in this manual and on safety decals on the combine. This symbol will direct you to information that includes your personal safety and the personal safety of others.



FIG. 1

SIGNAL WORDS

FIG. 2: The words **DANGER, WARNING, or CAUTION** are used with the safety alert symbol. Learn to know these safety alert symbols, and follow the given recommendations, precautions, and safe procedures.



FIG. 2

DANGER: Indicates an immediate hazardous situation that, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.

WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in DEATH OR SERIOUS INJURY.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, can result in a MINOR INJURY.

Replace any **DANGER, WARNING, CAUTION,** or instruction decal that can not be read or is missing. The location and part number of these decals is shown later in this section of the manual.

IMPORTANT: The word IMPORTANT is used to show special instructions or procedures which, if not followed can result in damage to, or destruction of the machine, process, or the surroundings.

NOTE: The word NOTE is used to indicate points of special interest for more efficient and easier repair or operation.

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Lateral Tilt Valve

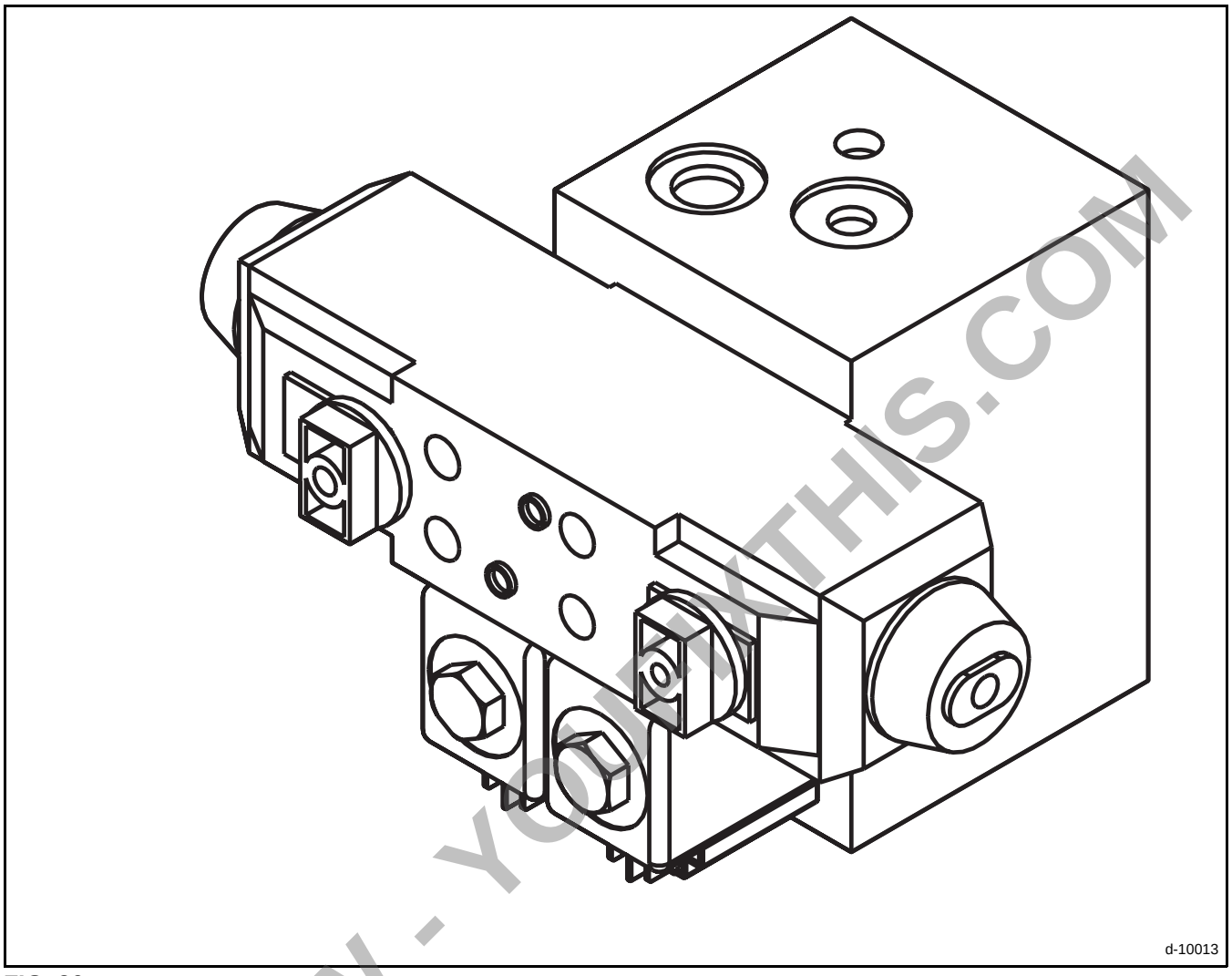


FIG. 30

FIG. 30: Lateral Tilt Valve

Make.....Eaton

Model ..... MCD - 8695

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HEADER FIXED SPEED COUNTERSHAFT DRIVE BELT

Removal

FIG. 186: Place the feeder housing on the ground or fully extend the header lift cylinders. Position the header lift cylinder stop (1) so that the stop fully contacts and surrounds three sides of the lift cylinder rod. Lower the feeder house until the header lift cylinder stop contacts the end of the cylinder.

DANGER: NEVER permit anyone to get under any part of the feeder housing, or between the raised feeder housing and the combine to work, unless the header lift cylinder stop is engaged, the engine is stopped, the parking brakes are set, the transmission is in neutral, and the start key is removed.

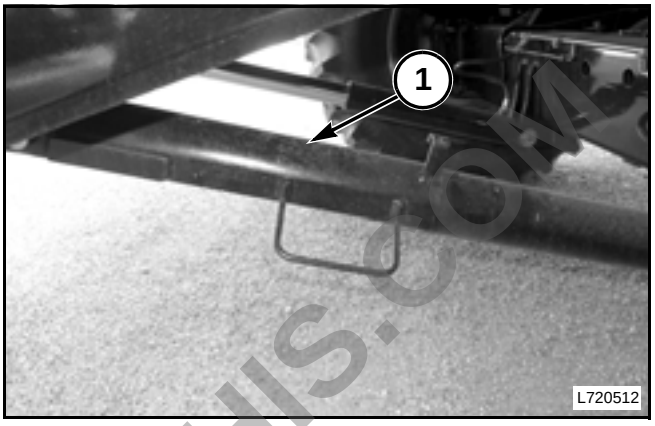


FIG. 186

FIG. 187: Properly position the combine before beginning.

WARNING: Before working around or under the combine:

Place the combine on a flat, hard, level surface.

Place the transmission in neutral.

Set the parking brake.

Shut off the engine and remove the start key.

Place a block in front of and a block behind the front drive tires.



FIG. 187

FIG. 188: Release the two klik pins. Remove the klik pin from each shield lock pin.

Using the handles, swing the bottom of the shield outward, lift and remove the right-hand shield. Lower the shield until the cable tether supports the shield.



FIG. 188

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FIG. 577: Connect the conveyor chain using the connector link. Install the retaining clip with the open end of the retaining clip trailing the direction of travel. Use the procedure described above to adjust the conveyor chain tension.

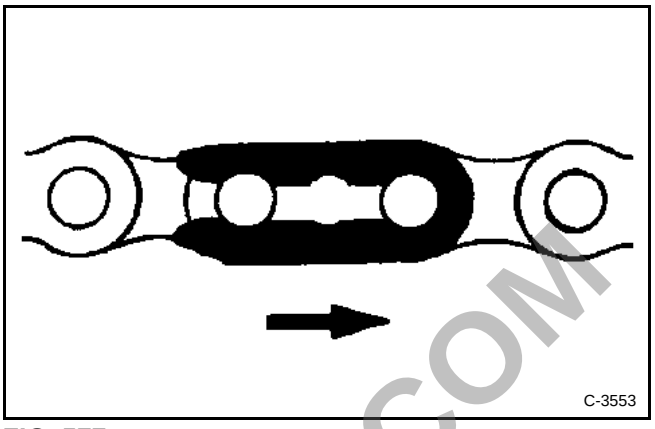


FIG. 577

FIGS. 578–579: On the left-hand side of the combine, tighten the two hex nuts securing the sensor bracket (6). Loosen the two hex nuts (3) and adjust the inductive sensor (4). Adjust the magnetic speed pickup to a gap of 0.13 to 1.52 mm (0.005 to 0.060 in) from the sensing collar (5). Tighten the two hex nuts positioning the inductive sensor.

Place a spacer onto each bolt at 10:00 o'clock and at 2:00 o'clock. Install the sensor shield (2) and then the two hex nuts (1) securing the sensor shield. Tighten the hex nuts securely.

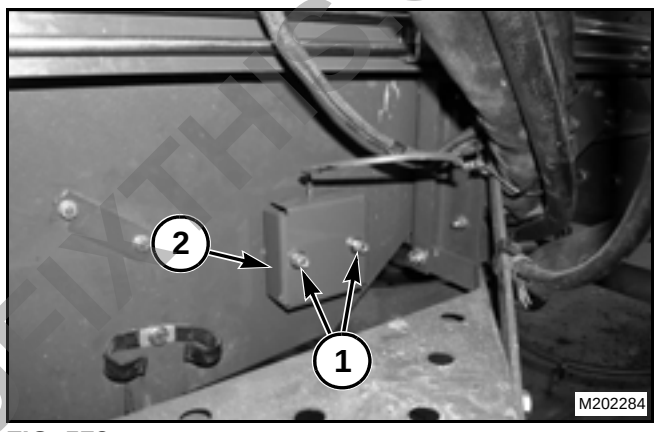


FIG. 578

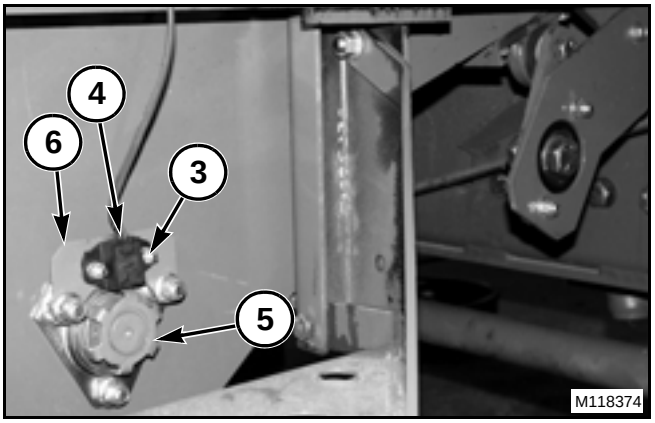


FIG. 579

FIG. 580: Tension the belt by installing the tension spring (1) over the spacer on the idler arm assembly (2) and then onto the spring anchor pin in the spring anchor (3). Be sure that the hook at the end of the tension spring is seated in the groove of the spring anchor pin.

The spring to tension the drive belt is not adjustable. The drive is designed to provide the proper belt tension throughout the service life of the drive belt.

WARNING: Install all of the shields and guards before operating the combine.

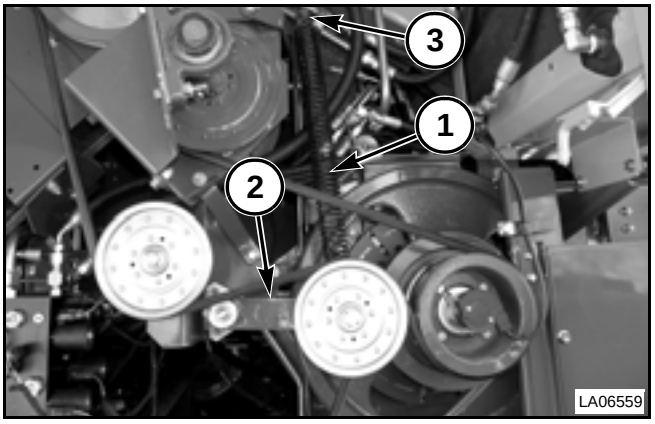


FIG. 580

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FIG. 118: The drive idlers (1) are tensioned by a spring and chain combination (2). A spring length (A) of 363 to 387 mm (14.25 to 15.25 in) from the inside of one eye to the inside of the other eye must be maintained to be sure the discharge drive functions properly. Select the proper number of active chain links to obtain the spring length (A).

NOTE: Be sure that the chain S-hook is seated in the groove of the spring anchor pin on the idler arm. The bottom eye of the spring must be seated in the groove of the spring anchor pin attached to the separator frame.

NOTE: Secure the chain link to the end of the spring with a wrap tie.

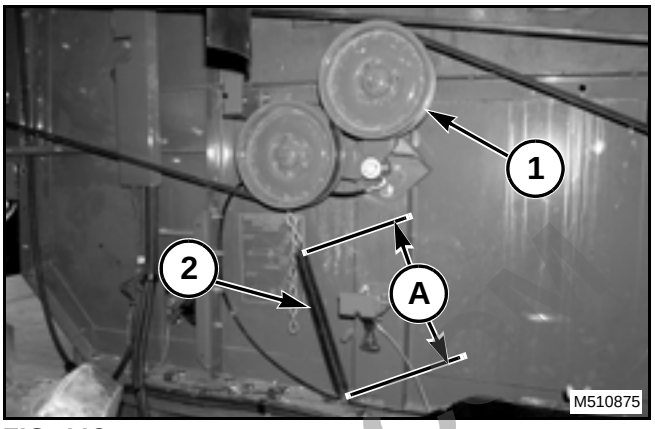


FIG. 118

FIG. 119: After the spring is adjusted, rotate the idler stop (1) until the idler stop just touches the arm (2) of the idler arm assembly. Tighten the two hex head cap screws (3) to lock the idler stop.

WARNING: Install all of the shields and guards before operating the combine.

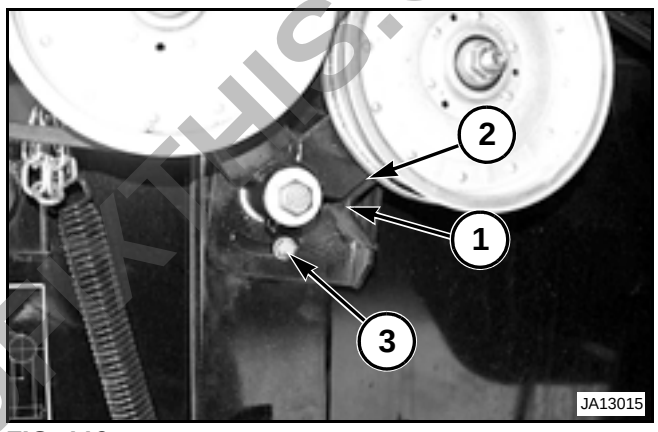


FIG. 119

Drive Speeds

FIG. 120: The straw spreader can be operated in two speed ranges by repositioning the drive belt from one driven sheave to an alternate driven sheave on the spreader cross shaft.

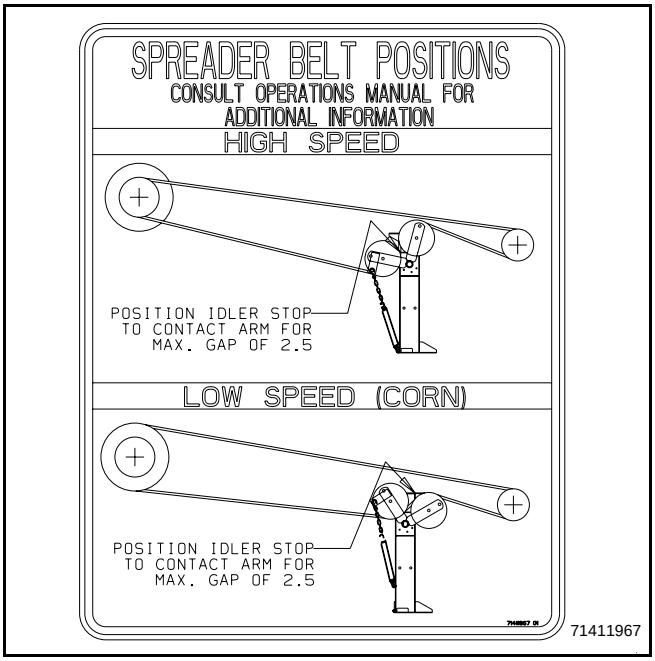


FIG. 120

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Adjusting Rear Axle Wheel Tread (Width)

FIG. 227: The rear wheel tread (width) is measured from center-to-center of the rear tires at ground level.

The axle tread width can be adjusted in 152.4 mm (6 in) increments from 290 to 365 cm (114 to 144 in) with 480/80R X 30 R1W/R2 steering tires.

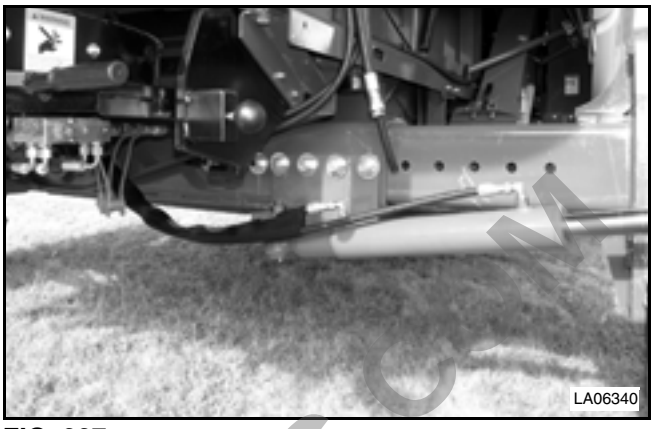


FIG. 227

Tread Adjustments			
Number of holes Showing per side	**Tire Size 480/80R-30**	**Tire Size 23.1 X 26**	**Tire Size 28L X 26**
1	290 cm (144 in)	290 cm (114 in)	302 cm (119 in)
2	305 cm (120 in)	305 cm (120 in)	317 cm (125 in)
3	320 cm (126 in)*	320 cm (126 in)	332 cm (131 in)
4	335 cm (132 in)**	335 cm (132 in)*	348 cm (137 in)*
5	350 cm (138 in)	350 cm (138 in)**	363 cm (143 in)**
6	365 cm (144 in)	365 cm (144 in)	378 cm (149 in)

*Indicates the minimum tread for this tire size. The steering radius at this tread will be large.
**Indicates the minimum tread for the indicated tire where the maximum steering angle (minimum steering radius) may be obtained.

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FIG. 483: Remove the capscrew (1) and nut retaining the cleaning shoe front support bearings to the shaker shaft arms (on both sides).

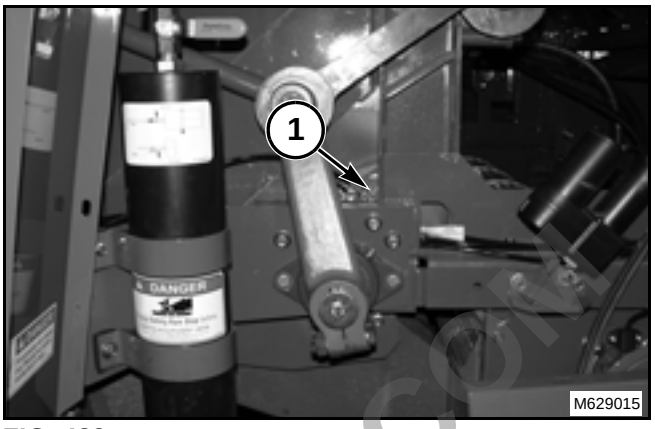


FIG. 483

FIG. 484: Remove the capscrew (1), external tooth lock washer and nut retaining the lower separator front support bearing to the shaker shaft arms (on both sides).

Pull the cleaning shoe frame and the lower separator pan frame as far rearward as possible.

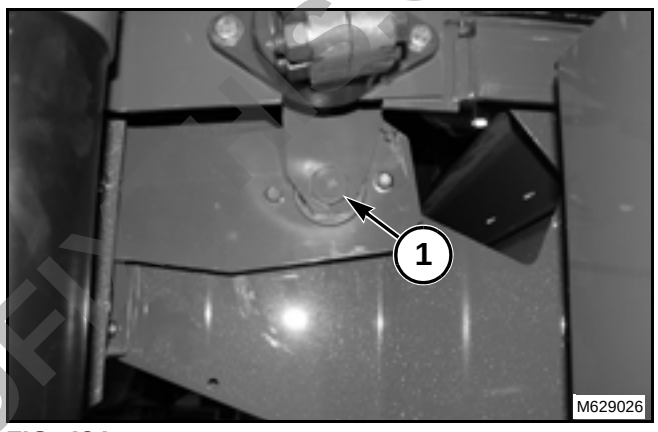


FIG. 484

FIG. 485: Remove the shaker shaft right-hand lock collar (1) and remove the right-hand shaker shaft bearing mounting hardware (2). Remove the right-hand bearing (3).

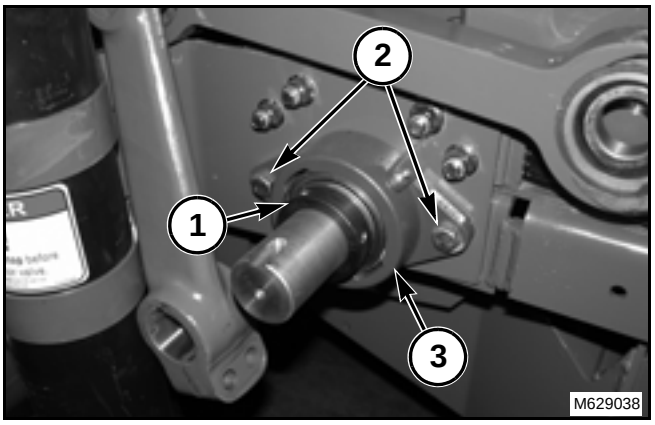


FIG. 485

FIG. 486: Remove the shaker shaft left-hand support bearing lock collar (1). Remove the shaker shaft left-hand support bearing mounting hardware (2) and remove the bearing.

Remove the shaker shaft.

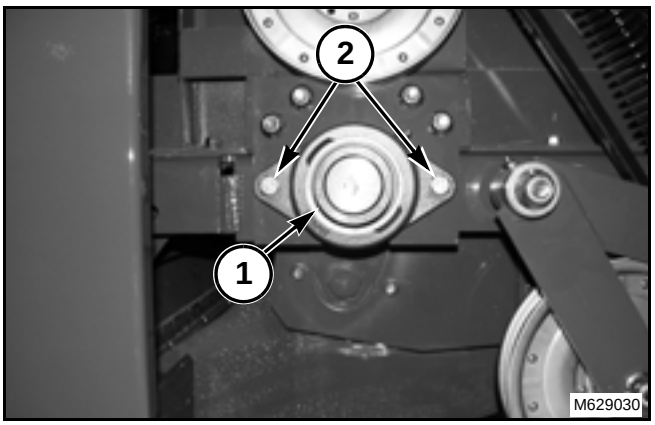


FIG. 486

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MAIN PINION SHAFT

Removal

FIG. 283: The transmission differential and input shaft must be removed to remove the main pinion shaft.

Remove the differential assembly following the procedures called out in Differential…Removal section.

Remove the transmission input shaft following the procedures called out in Input Shaft…removal section).

NOTE: The range box rail and fork were not removed during the transmission input shaft removal. These components now have to be removed to remove the main pinion shaft (refer to Shift Rails, Forks And Top Cover section).

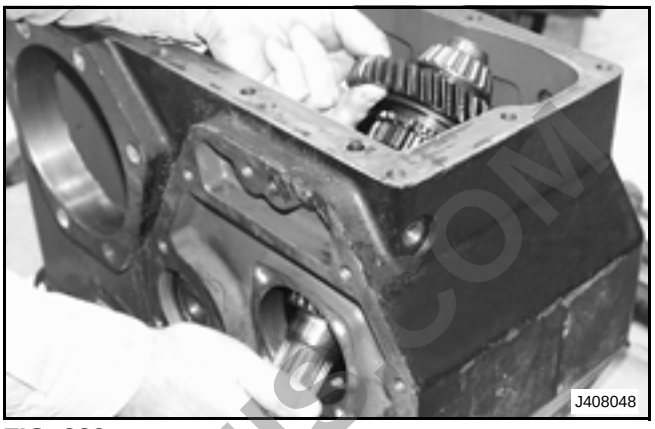


FIG. 283

FIG. 284: Remove the four M12-1.75 X 30mm capscrews (1) securing the main shaft bearing carrier (2) to the right-hand side of transmission case.

NOTE: These capscrews have been locked at the factory with high the strength permanent thread locker. Heat may be required to remove the capscrews.

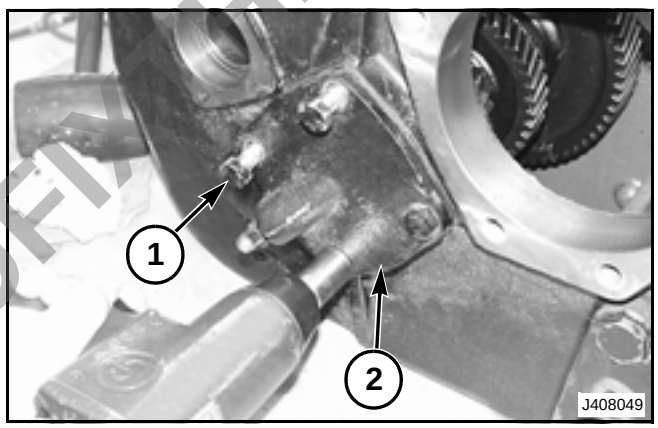


FIG. 284

FIG. 285: Remove the main shaft bearing carrier (1) from the transmission. Remove all of the shims (2) from the carrier.

NOTE: Bundle the shims using a tag with a wire to use during assembly as an initial shim setting.

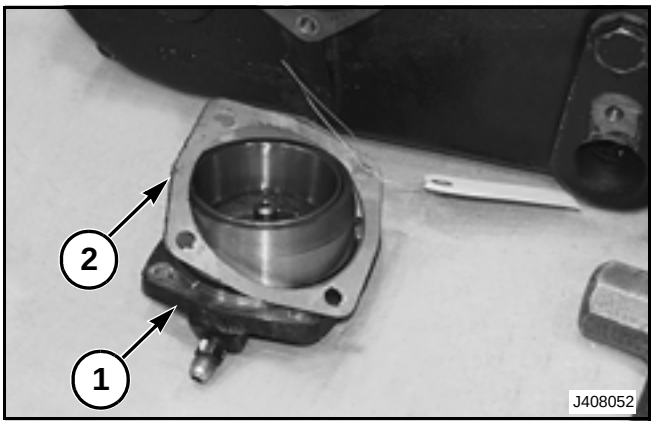


FIG. 285

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ACCUMULATOR ASSEMBLY

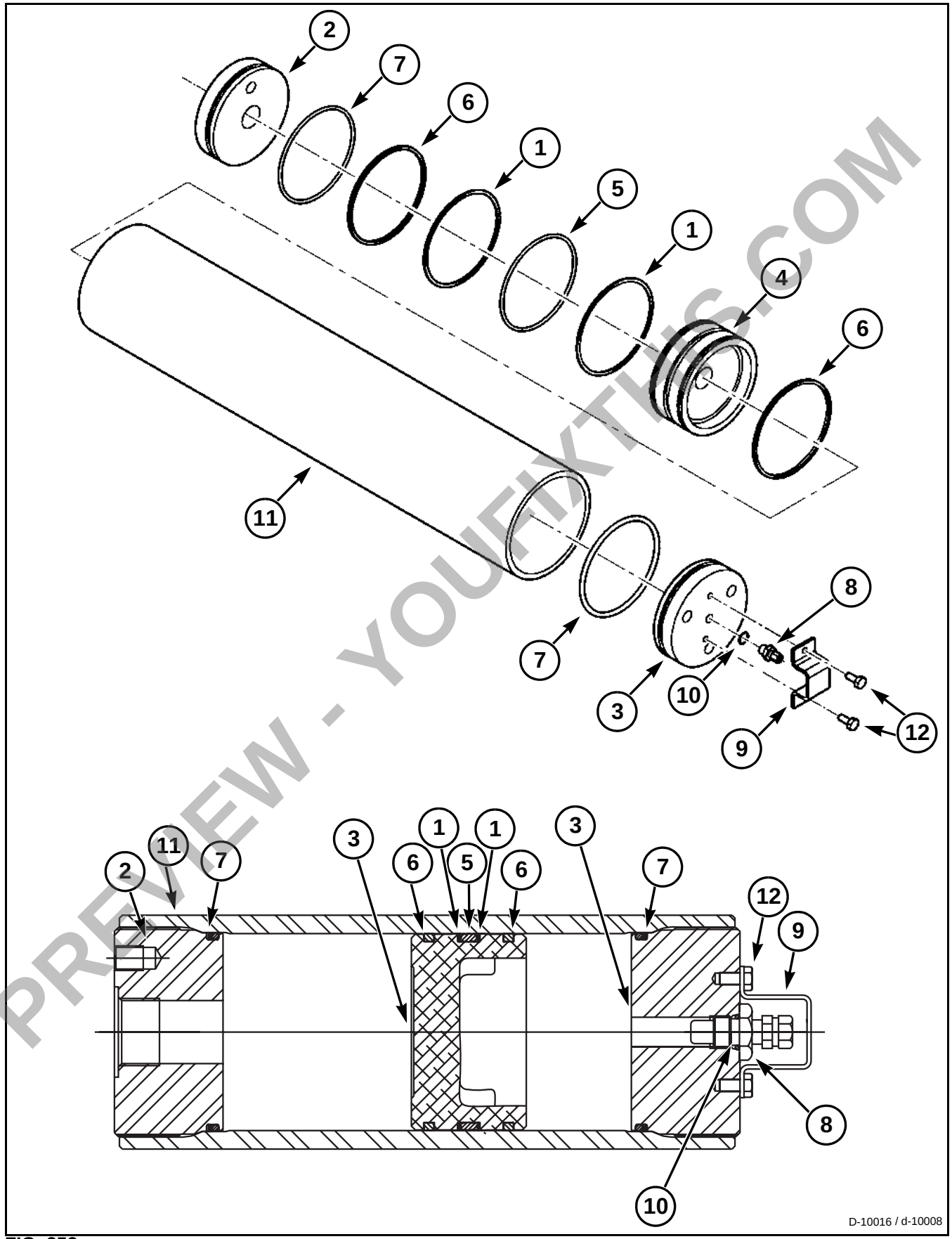


FIG. 252

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TROUBLESHOOTING

Problem #1: Noisy Pump Caused By Cavitation.

Possible Cause	Correction
Oil too heavy.	Drain hydraulic reservoir and refill to correct operating level with Hydraulic Transmission Fluid.
Suction line strainer screen in hydraulic reservoir plugged.	Clean or replace hydraulic reservoir suction line strainer screen.
Suction line plugged/pinched.	Clean and/or re-route hydraulic pump suction line to eliminate pinched condition.

Problem #2: Noisy Pump Caused by Aeration.

Possible Cause	Correction
Oil supply low.	Fill hydraulic reservoir to correct operating level with Hydraulic Transmission Fluid.
Air leakage into suction line.	Tighten suction line fittings.
Foaming oil.	Drain hydraulic reservoir and refill to the correct operating level with Hydraulic Transmission Fluid.

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Cab Console Harness

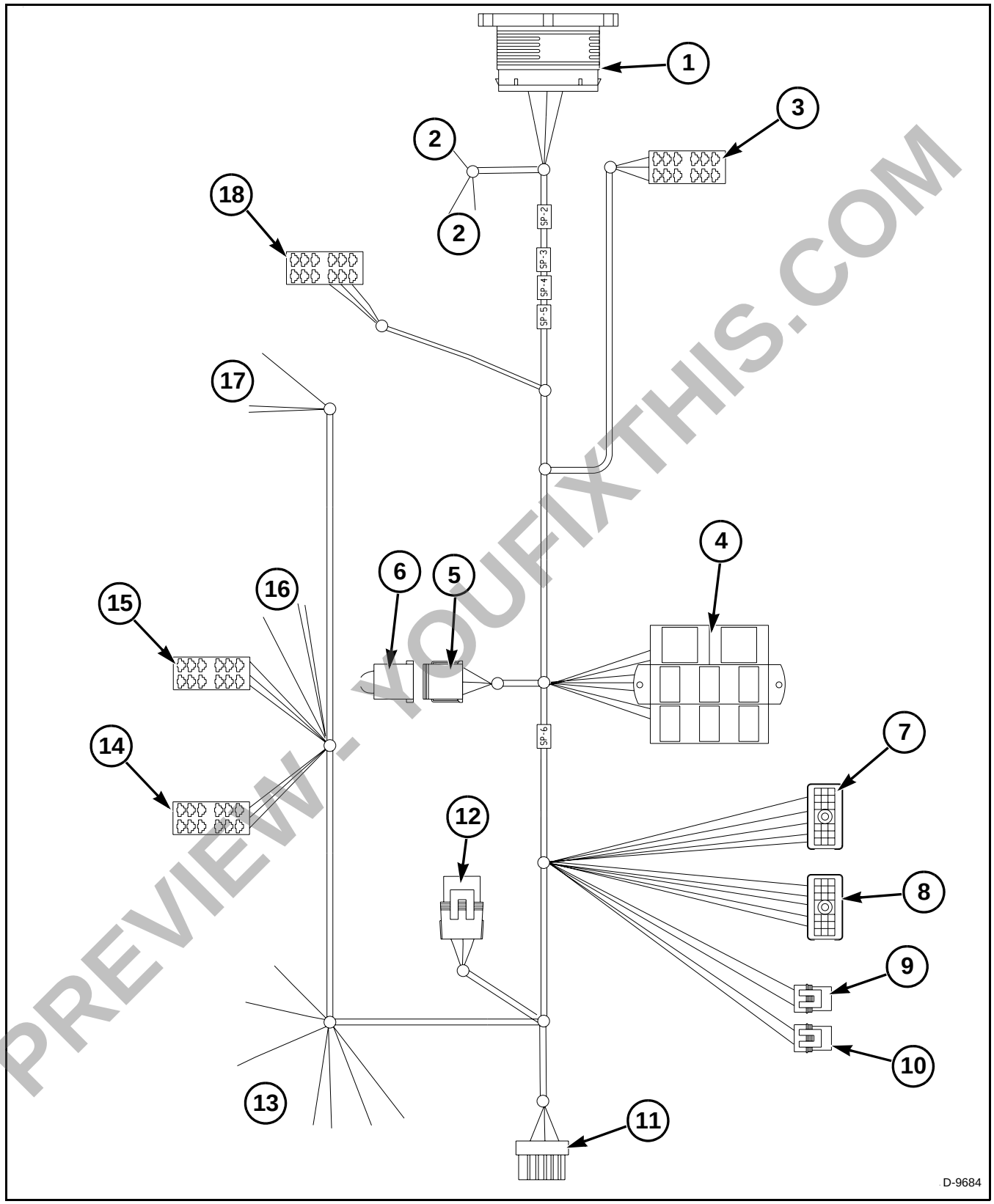


FIG. 130

FIG. 130: Cab Console Harness.

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FIG. 173: Pressing CLEAR button while the options value is displayed will abort any changes to the options value, resetting to the previous value.

Pressing CLEAR button when an option label is displayed will take the user to the previous option item.

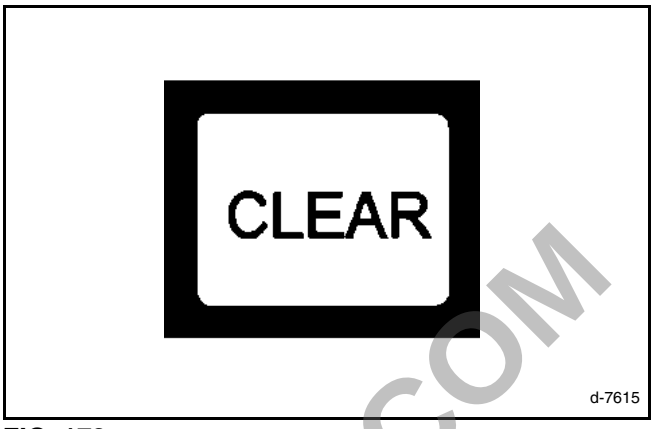


FIG. 173

SETUP 2 MENU

Software Version Numbers

FIG. 174: The LCD will show the current software versions for the CAN based controllers that are detected.

This option does not have a value that can be changed.

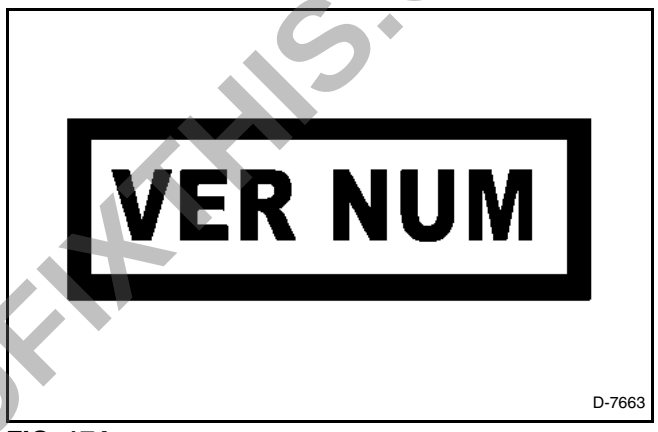


FIG. 174

FIG. 175: Pressing AREA, DIST button can be used to scroll through the list of version numbers for each of the CAN based controllers.

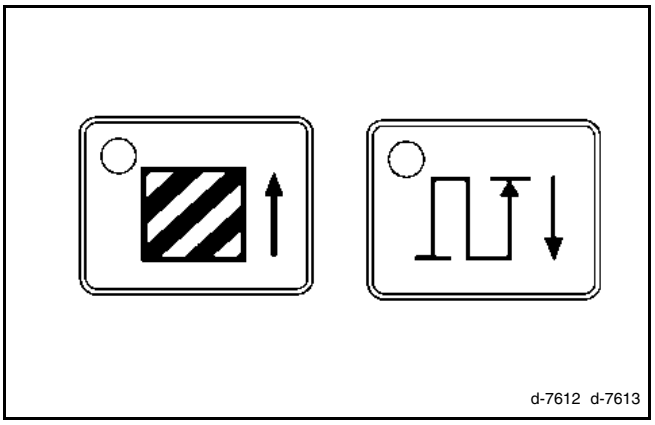


FIG. 175

Model Of Combine

FIG. 176: This will identify the correct parameters to be used for the model of combine selected.

The AREA and DIST keys can be used to scroll through the list of model numbers.

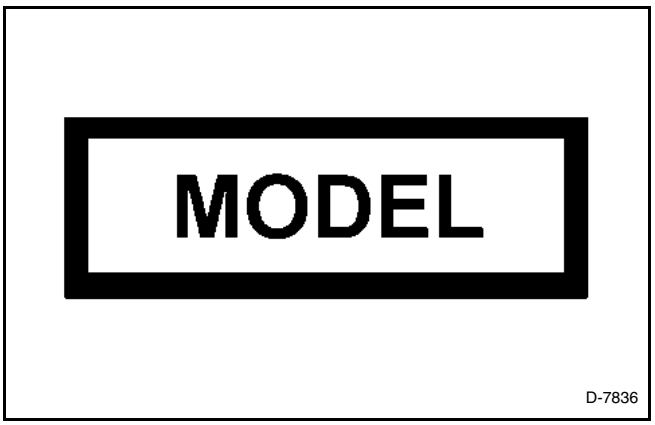


FIG. 176

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Steering Column Adjustment

FIG. 61: The steering column can be moved forward or backward as desired by pressing the lock pedal (1) moving the column to the desired position and releasing the pedal. The steering wheel can also telescope up or down on the shaft by pressing the lock pedal, then lowering or raising the steering wheel to the desired position and releasing the pedal.

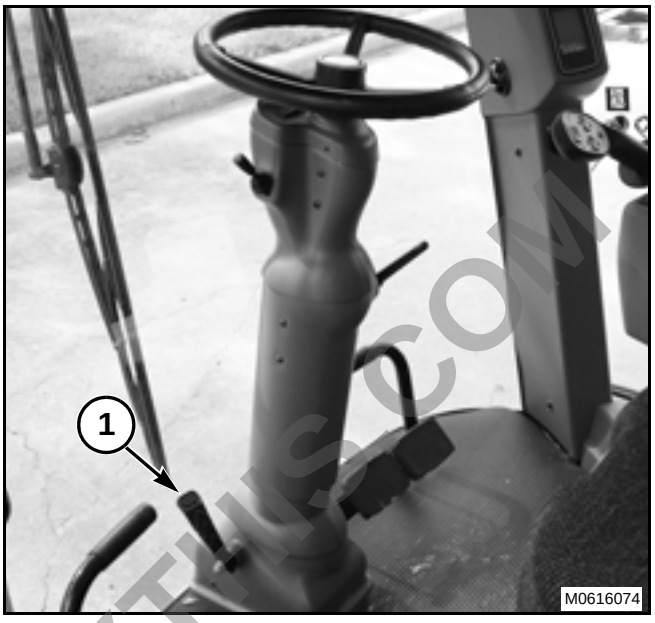


FIG. 61

FIG. 62: In addition, the steering wheel can tilt forward or backward on the upper column pivot by moving the steering column lock (1) counterclockwise. Turn the steering wheel lock clockwise to lock the steering wheel in the desired position.

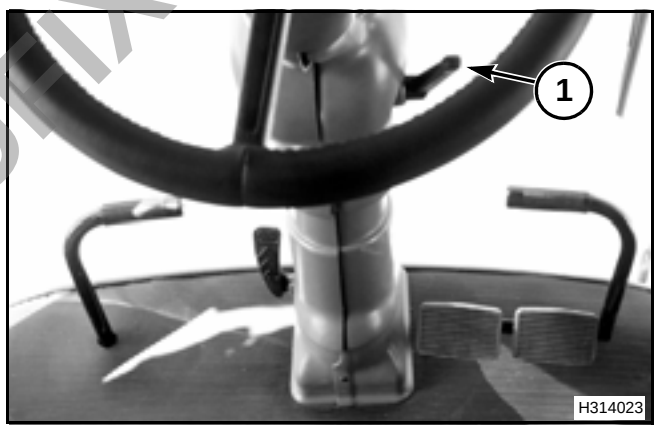


FIG. 62

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