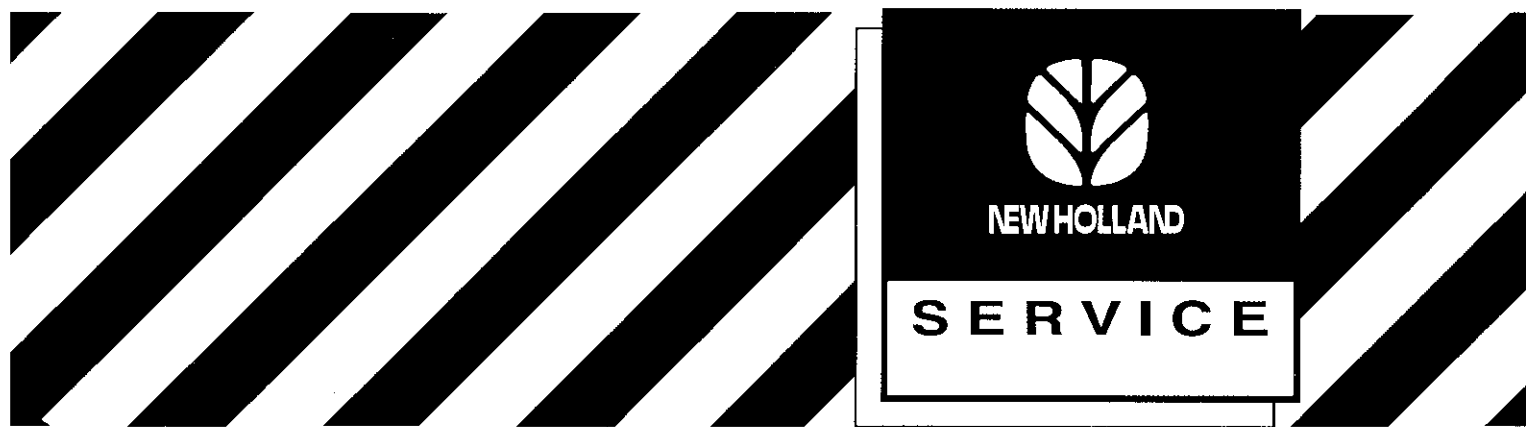


NEW HOLLAND 1431

REPAIR MANUAL





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SECTION 0 - SAFETY

SECTION 0 - SAFETY

PRECAUTIONARY STATEMENTS PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION", "WARNING", and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.



CAUTION: THE WORD "CAUTION" IS USED WHERE A SAFE BEHAVIORAL PRACTICE ACCORDING TO OPERATING AND MAINTENANCE INSTRUCTIONS AND COMMON SAFETY PRACTICES WILL PROTECT THE OPERATOR AND OTHERS FROM ACCIDENT INVOLVEMENT.



WARNING: THE WORD "WARNING" DENOTES A POTENTIAL OR HIDDEN HAZARD WHICH HAS A POTENTIAL FOR SERIOUS INJURY. IT IS USED TO WARN OPERATORS AND OTHERS TO EXERCISE EVERY APPROPRIATE MEANS TO AVOID A SURPRISE INVOLVEMENT WITH MACHINERY.



DANGER: THE WORD "DANGER" DENOTES A FORBIDDEN PRACTICE IN CONNECTION WITH m A SERIOUS HAZARD.

FAILURE TO FOLLOW THE "CAUTION", "WARNING", AND "DANGER" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

MACHINE SAFETY

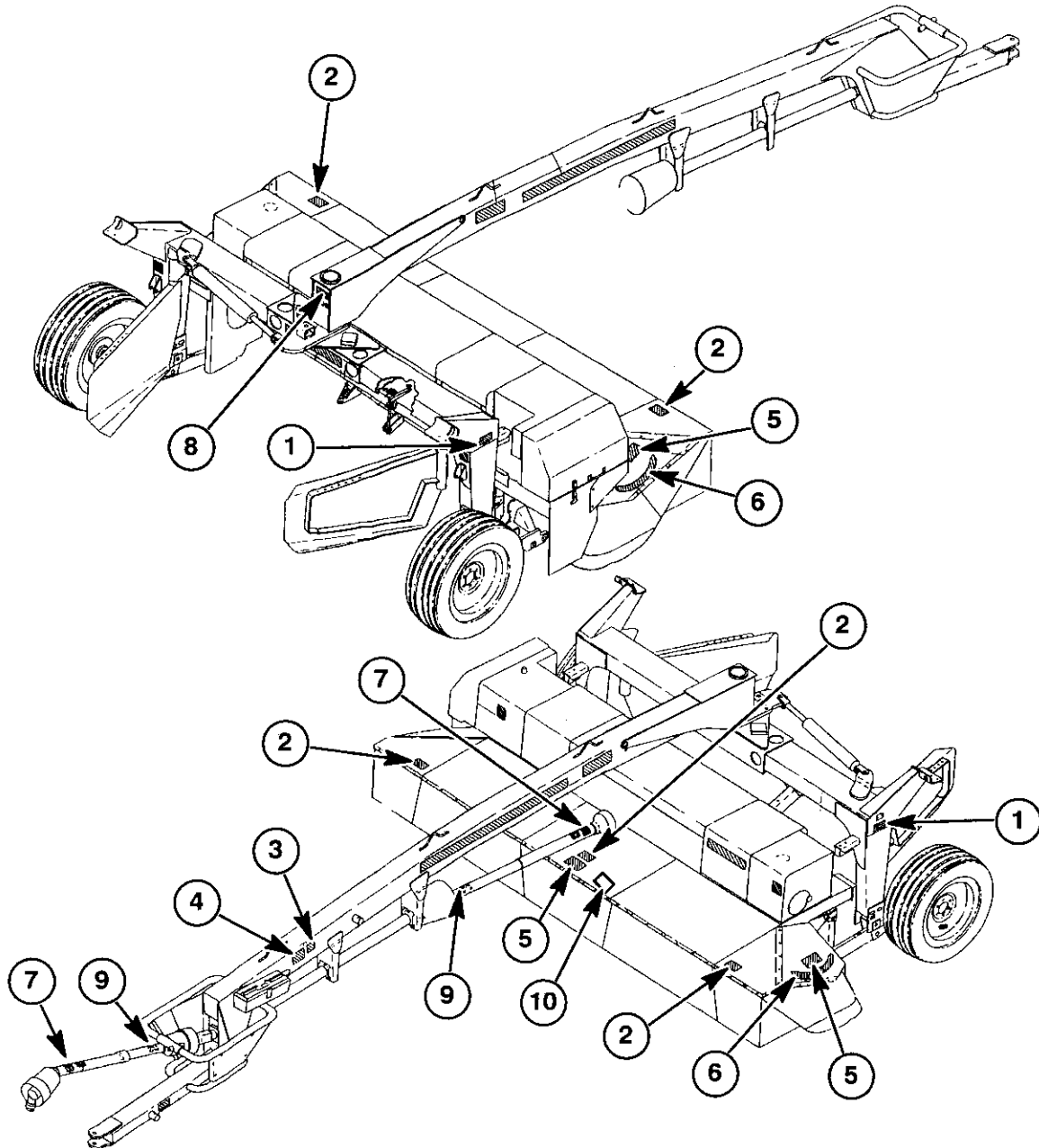
Additional precautionary statements ("ATTENTION" and "IMPORTANT") are followed by specific instructions. These statements are intended for machine safety.

ATTENTION: The word "ATTENTION" is used to warn the operator of potential machine damage if a certain procedure is not followed.

IMPORTANT: The word "IMPORTANT" is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.

SAFETY DECALS

The following safety decals have been placed on your machine in the areas indicated. They are intended for your personal safety and for those working with you. Please take this manual and walk around your machine to note the content and location of these warning signs. Review these warning signs and the operating instructions detailed in this manual with your machine operators.



1

! DANGER !

HEADER MAY FALL RAPIDLY IF HYDRAULIC LIFT SYSTEM SHOULD FAIL.
ALWAYS ENGAGE LIFT CYLINDER LOCKOUTS WHEN WORKING AROUND RAISED HEADER.
FAILURE TO USE LOCKOUTS MAY RESULT IN SERIOUS INJURY OR DEATH.

4

! CAUTION

BEFORE OPERATING THIS MACHINE, READ THE OPERATOR'S MANUAL AND ALL SAFETY INSTRUCTIONS. IF YOU DO NOT HAVE A MANUAL CONTACT YOUR FORD NEW HOLLAND DEALER OR PHONE THE CONSUMER SERVICES DEPARTMENT, FORD NEW HOLLAND INC. NEW HOLLAND, PENNSYLVANIA AT (717) 355-1545.

1. MAKE CERTAIN EVERYONE IS CLEAR OF MACHINE BEFORE STARTING ENGINE OR OPERATION.
2. DISENGAGE DRIVES INCLUDING PTO, STOP ENGINE, WAIT FOR ALL MOVEMENT TO STOP BEFORE LEAVING OPERATOR'S POSITION.
3. KEEP ALL SHIELDS IN PLACE, KEEP HANDS, FEET, CLOTHING AND HAIR AWAY FROM MOVING PARTS.
4. KEEP RIDERS OFF THE MACHINE.
5. NEVER ADJUST, LUBRICATE, CLEAN OR UNPLUG MACHINE WITH THE ENGINE RUNNING. SEE OPERATOR'S MANUAL FOR ALL ADJUSTMENT AND LUBRICATION PROCEDURES.
6. USE SLOW-MOVING VEHICLE IDENTIFICATION EMBLEM ON ALL EQUIPMENT. USE FLASHING WARNING LIGHTS ON TRACTORS AND SELF-PROPELLED EQUIPMENT WHEN OPERATING ON HIGHWAYS, EXCEPT WHEN PROHIBITED BY LAW.

2

! WARNING

DO NOT USE THIS SHIELD AS A STEP OR PLATFORM.

SHIELD MAY BEND OR FEET MAY SLIP CAUSING SERIOUS INJURY.

5

! WARNING

STAND CLEAR!

ROTATING CUTTERS UNDER THIS COVER MAY CONTINUE TO ROTATE FOR SEVERAL MINUTES AFTER POWER IS SHUT OFF.

SHUT OFF TRACTOR AND DISENGAGE PTO BEFORE LEAVING TRACTOR. THEN LOOK AND LISTEN FOR EVIDENCE OF ROTATION BEFORE LIFTING COVER.

FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY.

3

! WARNING

- MACHINE CAN THROW STONES AND OTHER DEBRIS TOWARD OPERATOR OR BYSTANDERS.
- A TRACTOR WITH AN ENCLOSED CAB IS RECOMMENDED. ADJUST MACHINE TO REDUCE HITTING OBJECTS. KEEP ALL SHIELDS AND COVERS IN PLACE AND IN GOOD WORKING ORDER. KEEP BYSTANDERS AWAY FROM MACHINE WHILE IN OPERATION.
- FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY.

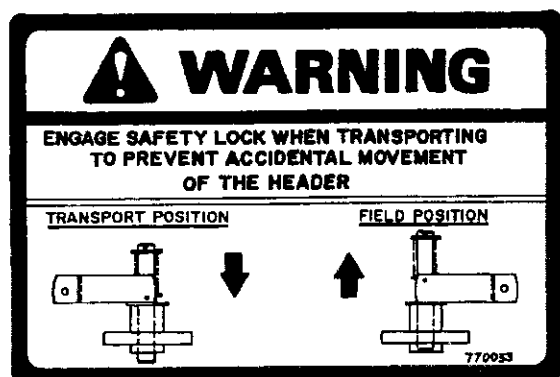
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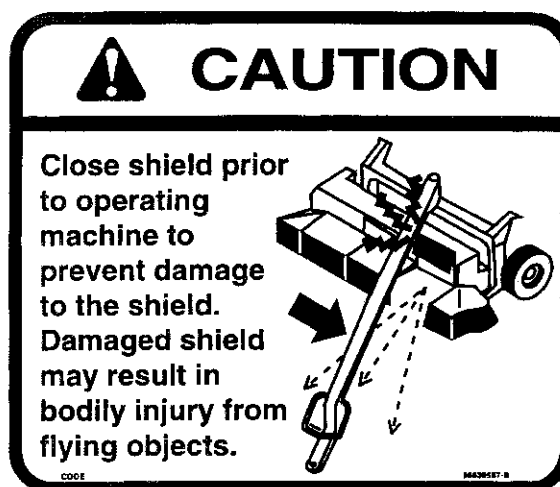
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9



10



SECTION 1

GENERAL INFORMATION

On New Holland equipment, left and right are determined by standing behind the unit, looking in the direction of travel.

SERIAL NUMBER

The serial number plate, 1, for the Model 1431 mower-conditioner is located on the left side of the trail frame.

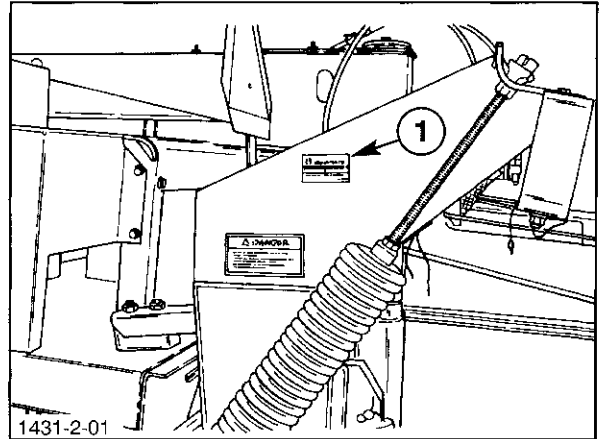


Figure 1-1

TOOLBOX

A convenient toolbox, 1, is provided, for storage of tools, a grease gun, and spare cutter bar parts. Use a hairpin cotter to keep the toolbox lid closed.

The toolbox can be removed from the unit by opening the lid, and removing the hairpin cotter clipped inside. Tip the toolbox up off of the support bracket. When reinstalling the toolbox, position the lip on the back over the top of the bracket, and tip the toolbox down over the clip. Reinstall the hairpin cotter to retain the toolbox.

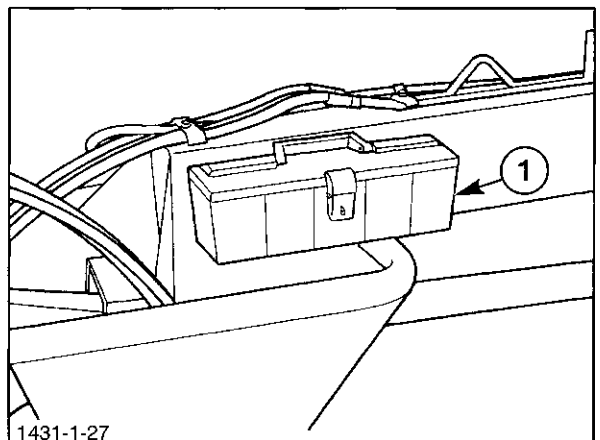


Figure 1-2

SHIELDING

NOTE: Unhook the cutter bar shield skirt spring snaps, 1, at skirt overlaps before either of the front shields are raised. Be sure to reattach them after before reusing the machine.

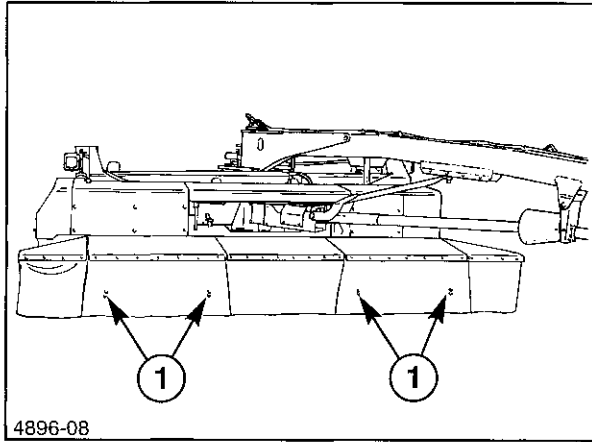


Figure 1-3

The front shields are automatically held in place by a lever, 1. Move the lever sideways to release and lower the front shields.



CAUTION: CLOSE SHIELD PRIOR TO OPERATING MACHINE TO PREVENT DAMAGE TO THE SHIELD. DAMAGED SHIELD MAY RESULT IN BODILY INJURY FROM FLYING OBJECTS.

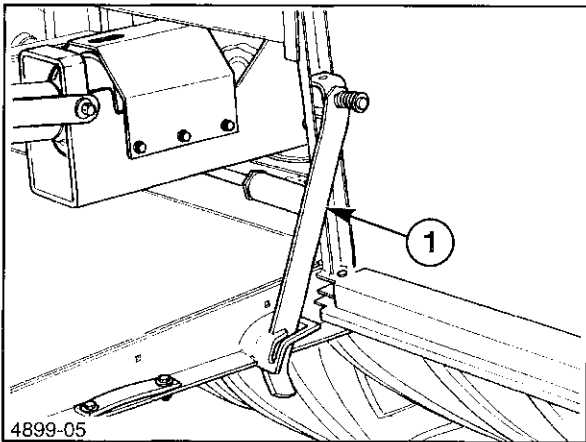


Figure 1-4

The right side shield can be lifted up by releasing a rubber strap, 1, and pivoting the shield upwards.

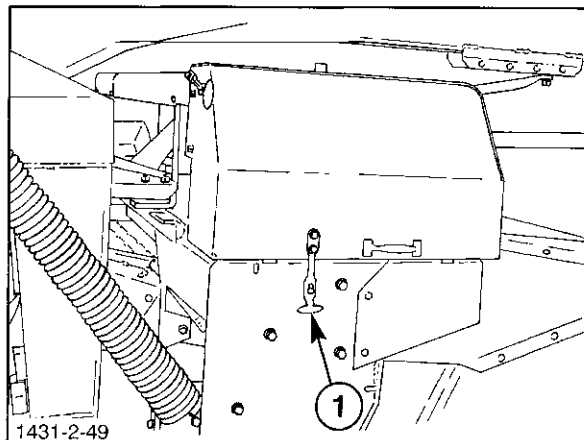


Figure 1-5

The shield can be held open with a rubber strap, 2, to prevent the wind from blowing the shield closed. To close the shield, release the rubber strap, 2, swing shut, and rehook the rubber strap, 1.

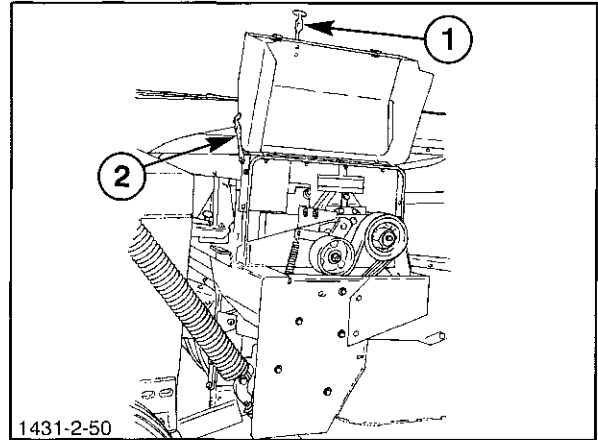


Figure 1-6

TRACTOR REQUIREMENTS

1. 1000 RPM PTO.
2. 90 HP (67 kw) minimum PTO HP.
3. ASAE standard hitch and PTO dimensions conforming to category 2 or 3 specifications. (See Figure 1-7).

NOTE: For tractors with a stepped, or a bent drawbar, the bend must be positioned to meet ASAE hitch and PTO specifications. PTO separation or bottoming out could occur if these specifications are not followed.

4. Two remote hydraulic circuits with a minimum of 1500 PSI (104 bar) and maximum of 2800 PSI (193 bar). One of the circuits must be a two-way circuit for the tongue swing cylinder.
5. Adequate ballast, wheel spacing, and tire inflation to stabilize the tractor on hillsides.



CAUTION: A TRACTOR WITH AN ENCLOSED CAB IS RECOMMENDED WHEN OPERATING A ROTARY DISC CUTTING MACHINE.

TRACTOR DRAWBAR DIMENSIONS

The Model 1431 mower-conditioner requires that the drawbar be adjusted to provide a distance of 24" (609 mm) from the end of the tractor PTO shaft to the center of the hitch point on the tongue of the Model 1431; the same distance is necessary whether using an 1-3/8" 1000 RPM PTO or 1-3/4" 1000 RPM PTO. This dimension may be obtained in two ways:

Option 1

Adjust the tractor drawbar to a distance of 16" (406 mm), dimension A, from the end of the tractor PTO shaft to the center of the drawbar hole, and install the drawbar extension, 1, that comes with the Model 1431 mower-conditioner. The drawbar extension increases drawbar length by 8" (203 mm) to provide the 24" (609 mm) length required.

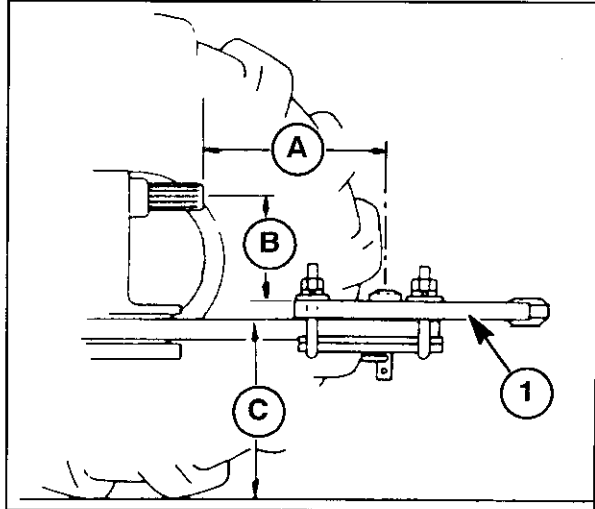


Figure 1-7

Option 2

Some newer tractors may be equipped with drawbars that can be adjusted to a distance of 24" (609 mm), dimension A, from the end of the tractor PTO shaft to the center of the drawbar hole. In this case, the Model 1431 tongue may be connected directly to the tractor drawbar.

NOTE: Using a tractor with an incorrect PTO-to-hitch dimension can damage the front PTO and/or the tractor PTO drive line.

Ideally the top of the tractor drawbar should be 8" - 12" (203 mm - 305 mm), dimension B, Figure 1-7 or Figure 1-8, below the tractor PTO shaft. A drawbar positioned too low or high will affect the driveline angle, and may cause the PTO drive shaft to bottom out or pull apart in some conditions. Locate the drawbar directly below the PTO shaft. Clamp the drawbar so it cannot be moved from side to side.

The drawbar height above the ground, dimension C, Figure 1-7 or Figure 1-8, should be 13" - 20" (330 mm - 508 mm) for tractors up to 125 HP, and 15" - 22" (381 mm - 559 mm) for tractors from 125 HP to 160 HP.

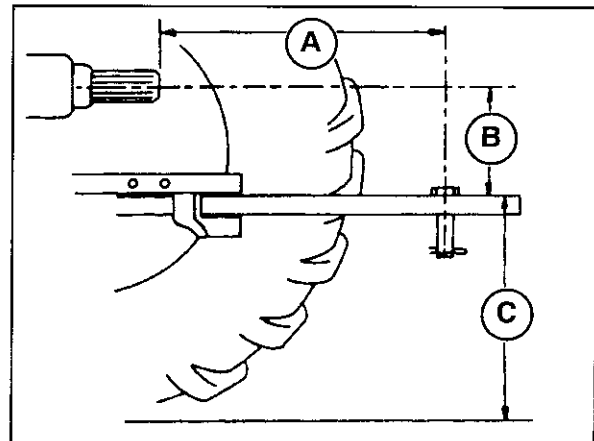


Figure 1-8

IMPORTANT: If the tractor has a 3-point hitch, raise the lower links, 1, as high as possible, lower as low as possible, or remove them, to prevent them from hitting the tongue and PTO shaft when turning.

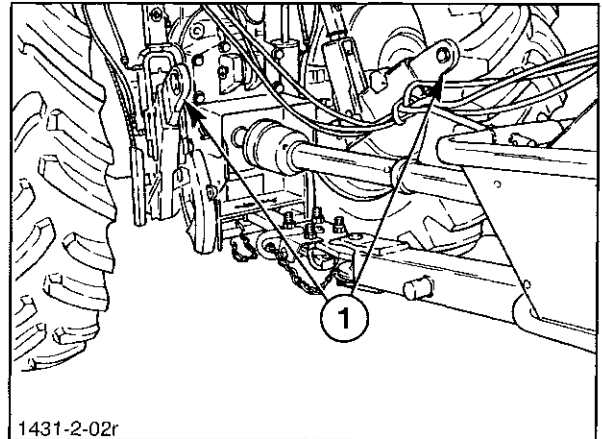


Figure 1-9

After adjusting the drawbar length to the required 24" (609 mm) length, A, it is necessary to measure the distance from the rear of the tractor tires to the center of the hitch point, B. If this distance measures 14" (356 mm) or greater, bumper extensions must be installed to limit the tractor turn angle.

IMPORTANT: The primary PTO 80° CV joint may be damaged if bumper extensions are not installed on the Model 1431 for tractors with drawbars extending 14" (356 mm) or greater behind the tires.

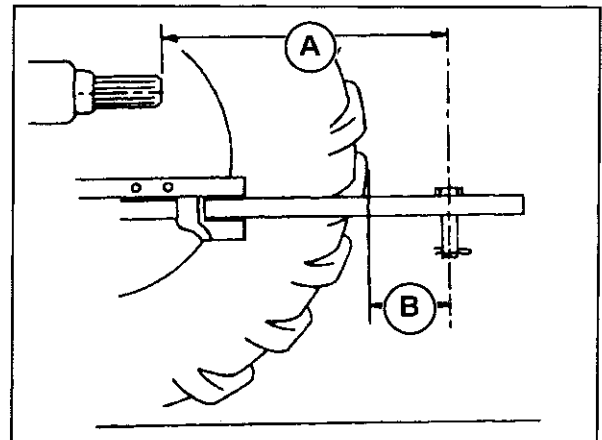
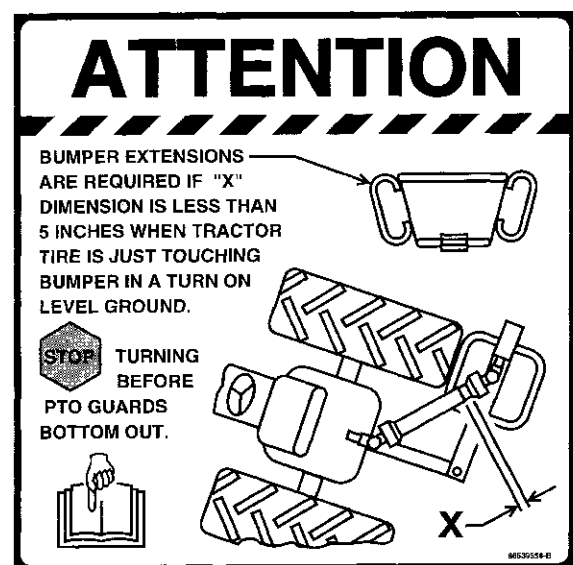


Figure 1-10

When the Model 1431 mower-conditioner is hooked to the tractor for the first time, the need for bumper extensions should be checked again. Turn the tractor in one direction until the tractor tire just contacts the tire bumper. Measure the distance, X, between the end of the outer guard and the location on the inner guard bell where the outer guard would contact when the PTO is fully collapsed. If this distance is less than 5" (127 mm), bumper extensions must be installed.

NOTE: Watch the PTO guards while turning the tractor. Stop turning the tractor if the guards will bottom out to prevent damage to the PTO shaft.



1431-dec2

Figure 1-11

BUMPER EXTENSIONS

Bumper extensions, 1, are required to limit the turn angle between the tractor and the 1431 pivot tongue disc mower-conditioner on tractors where the drawbar extends more than 14" (356 mm) behind the rear tractor tires (when set at 24" (609 mm) from end of tractor PTO shaft), to prevent bottoming out the primary PTO 80° CV joint causing failure.

Install the bumper extensions by positioning them with the angled end, 2, forward, and centered on the existing bumper frame. Secure the bumper extensions using the 5/8" x 1-1/4" bolts, washers and nuts supplied; torque the hardware to 140 ft. lbs.

After installation, attach the tractor to the unit, and turn the tractor sharply until the rear tractor tire is close to the bumper extension. If the tractor tire will contact the forward edge, 3, of the bumper extension, reposition the bumper extensions to the forward position to prevent possible damage to the tractor tires.

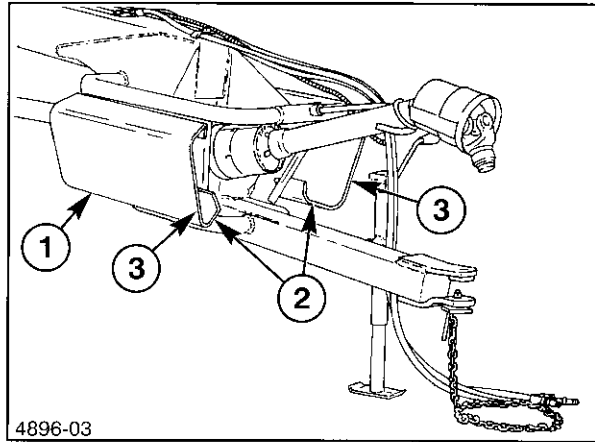


Figure 1-12

ATTACHING THE MOWER-CONDITIONER TO THE TRACTOR

IMPORTANT: Attach the drawbar extension solidly to the tractor drawbar, and clamp the drawbar securely to limit side to side movement. Pivoting the tongue will put heavy sideloads on the tractor drawbar.

ATTENTION: The drawbar **MUST BE** positioned to 24" (609 mm) to allow for sharp turns and to prevent damage to the primary PTO shaft. Extend the drawbar or install the drawbar extension to obtain this dimension.

NOTE: Measure from the top of the drawbar to the center of the PTO shaft. Install the extension on the top or bottom of the drawbar as required so that the drawbar extension is 8" - 12" (203 mm - 305 mm) from the PTO shaft centerline.

Install the drawbar extension, 1, and clamp, 2, on the drawbar. Install the drilled pin, 3, down through the FRONT hole in the extension and the rear hole in the drawbar. Install hairpin cotter, as close as possible to the bottom of the drawbar. Tighten the 5/8" nuts, 4, evenly to 140 ft. lbs. (189 N·m).

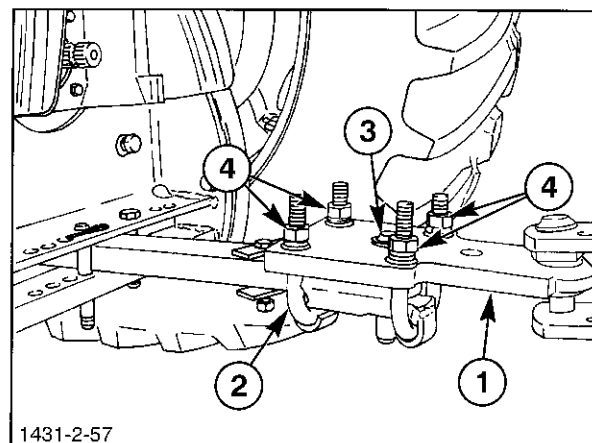


Figure 1-13

NOTE: Lubricate and be sure the ball is free to turn in the hitch extension.

NOTE: If the extension is on the bottom of the drawbar, shorten the clamp bolts to clear the windrow.

IMPORTANT: Do not install the drilled pin, 3, Figure 1-13, in the rear 1" hole in the drawbar extension.

Attach the mower-conditioner to the tractor drawbar extension using the supplied hitch pin as shown, 1.

Attach the PTO by pulling back on the slide collar, 2, and slide the PTO forward on the tractor shaft until the pins engage in the tractor PTO shaft groove. The collar will slide forward automatically locking the PTO shaft onto the tractor shaft.

NOTE: The yoke where the collar slides must be free of paint and rust and must be kept lubricated with oil for the collar to slide freely.

NOTE: The tractor end of the primary PTO shaft has a CV joint which is heavy. Be careful when handling it, dropping it could cause personal injury to yourself and damage the CV joint.

Check to make sure the PTO is locked on the tractor shaft. To remove, pull back on the collar to unlock the pins and remove the PTO.

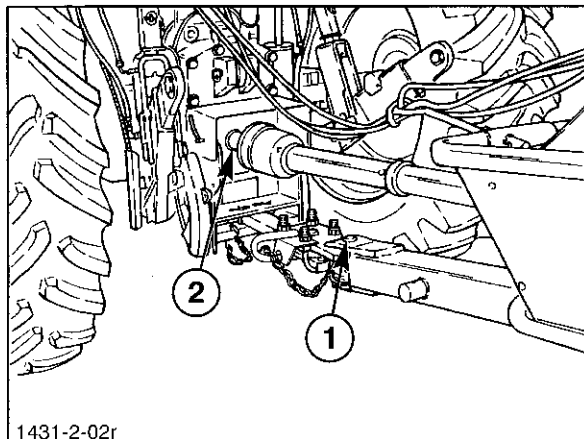


Figure 1-14

JACK ASSEMBLY

After attaching the mower-conditioner to the tractor, retract the jack by turning the hand crank counterclockwise. Pull the pin and remove the jack. Store the jack, 1, on the side of the tongue. Secure the jack with the pin.

NOTE: To prevent the jack from unwinding during use, loop the chain around the handle before inserting the pin.

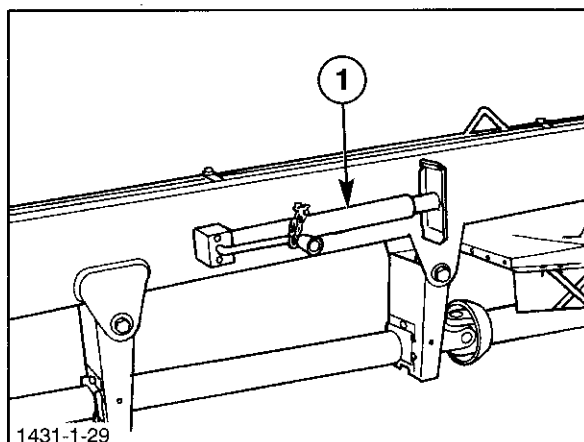


Figure 1-15

HYDRAULIC CYLINDERS



WARNING: FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE THE SKIN, CAUSING SERIOUS PERSONAL INJURY. ALWAYS PROTECT THE SKIN AND EYES FROM ESCAPING FLUID UNDER PRESSURE.

BEFORE DISCONNECTING LINES OR FITTINGS, BE SURE TO RELEASE ALL PRESSURE BY OPERATING THE TRACTOR CONTROL VALVES. BEFORE APPLYING PRESSURE TO THE SYSTEM, BE SURE ALL CONNECTIONS ARE TIGHT AND THAT HOSES AND CONNECTIONS ARE NOT DAMAGED.

IF INJURED BY ESCAPING FLUID, OBTAIN MEDICAL ASSISTANCE AT ONCE. SERIOUS INFECTION OR REACTION CAN DEVELOP IF MEDICAL TREATMENT IS NOT ADMINISTERED IMMEDIATELY.

CONNECTING HYDRAULIC HOSES TO THE TRACTOR

1. Be sure the hydraulic couplers on the hoses match the tractor couplings. If not install the correct couplers.



CAUTION: IF HOSE ENDS MUST BE CHANGED, BE SURE TO BLEED OFF ANY RESIDUAL PRESSURE SLOWLY.

2. Attach both swing cylinder hoses, 1, to the remote outlets of one tractor control valve.

NOTE: If this valve is adjustable, set it for slow hydraulic flow.

3. Attach the single lift cylinder hose, 2, to a remote outlet from the second control valve. Connect the hose so the machine will raise when the hydraulic valve is pulled back in the opposite direction of the float position.

NOTE: Check the tractor operators manual for instructions on which outlet should be used for single acting cylinders.

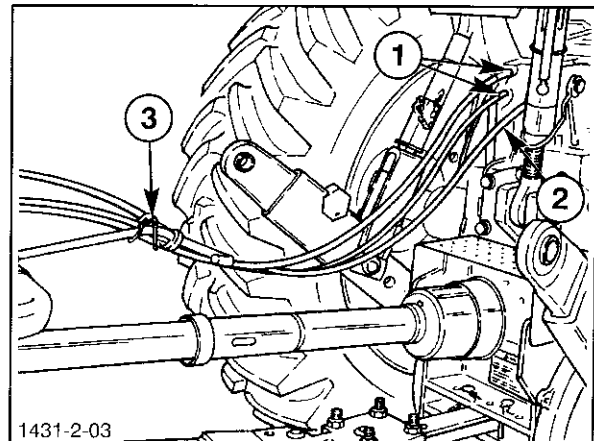


Figure 1-16

ATTENTION: Tractor hydraulic relief valve pressure must not exceed 2800 PSI (193 bar), or the machine may be damaged. It will require a minimum of 1500 PSI (104 bar) to operate the lift cylinders.

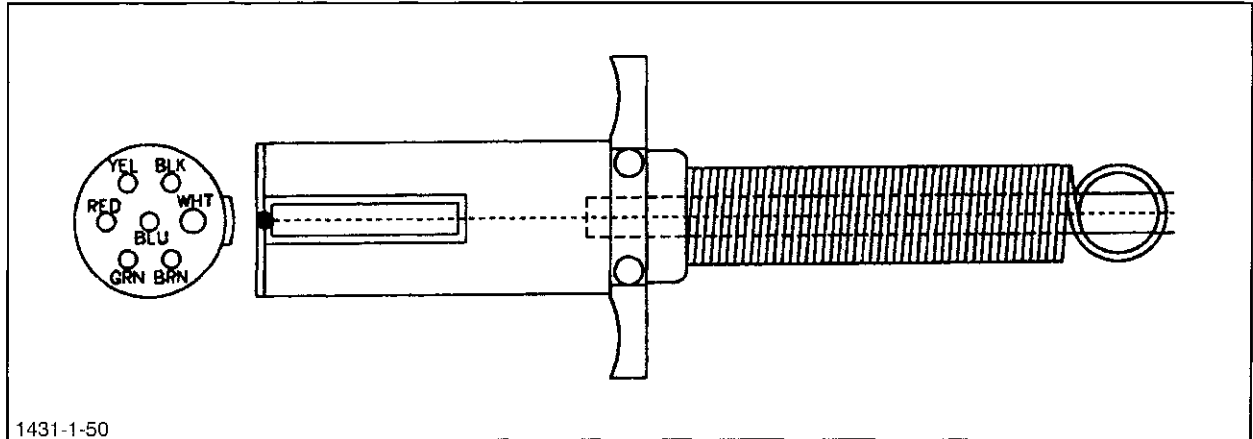


Figure 1-17

4. Attach the wiring harness connector for the flashing amber lights to the tractor trailing light connector; the lights wire harness uses a 7 pin trailer connector which conforms to SAE J560.
5. Ensure the cutter bar shields, 1, are lowered before moving the unit to prevent damage to the shields. Disengage the tongue transport lock, 2, maneuver the tractor through both hard left and right turns, shifting the tongue both full left and full right and raising and lowering the header. Check to be sure the hoses and wire harness do not get pinched or hung up on frame components. Secure excess hose and wire harness using the rubber bungee strap, 3, Figure 1-16, so it is protected.



CAUTION: BEFORE SHIFTING THE TONGUE, BE SURE THE MACHINE WILL CLEAR ANY OBSTRUCTIONS. BE SURE BYSTANDERS ARE CLEAR OF THE MACHINE WHEN SHIFTING THE TONGUE. AIR IN THE SYSTEM OR HIGH HYDRAULIC FLOW RATE CAN CAUSE ERRATIC OPERATION.

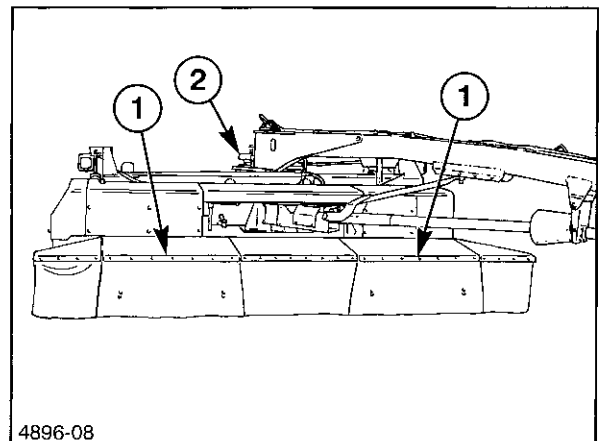


Figure 1-18

BLEEDING AIR FROM THE LIFT CYLINDERS

If the lift cylinders do not lift the frame evenly or if one side lifts higher than the other, rephase the cylinders by lowering the mower-conditioner and hold the tractor valve in the lower position for 10 to 15 seconds or by raising the mower-conditioner and hold the tractor valve for 10 to 15 seconds. If the cylinders do not extend far enough to release the transport stops, there may be air in the hydraulic system that must be purged.

Loosen the hose swivel fitting, 1, at the upper end of the slave cylinder.

NOTE: Use a shop rag or other shielding means for protection from seeping oil at loosened fittings.

With the tractor engine at a low idle, actuate the tractor hydraulic lever and extend the master lift cylinder until oil flow from the loosened fitting is free of air. Then tighten the fitting.

***IMPORTANT:** If the cylinders do not extend far enough to release the transport stops, air remains in the hydraulic system and must be purged. If the transport stop on the master cylinder side does not release, excessive oil may be in the slave cylinder circuit. Bleed this oil until both stop blocks are engaged on their respective transport stops.*

Raise and lower the header several times until all air is purged from the system. Repeat the previous steps if necessary.

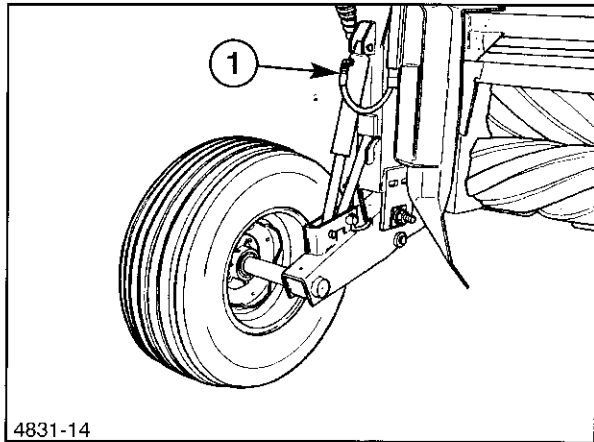


Figure 1-19

TONGUE SHIFT TRANSPORT LOCK

To disengage the tongue transport lock, rotate the transport lock bracket up and over (one half turn) so that the transport lock pin is spring loaded upwards. Shift the machine slightly so that the transport lock pin disengages from the trailframe.

The tractor hydraulics can now be used to pivot the machine into the field position.

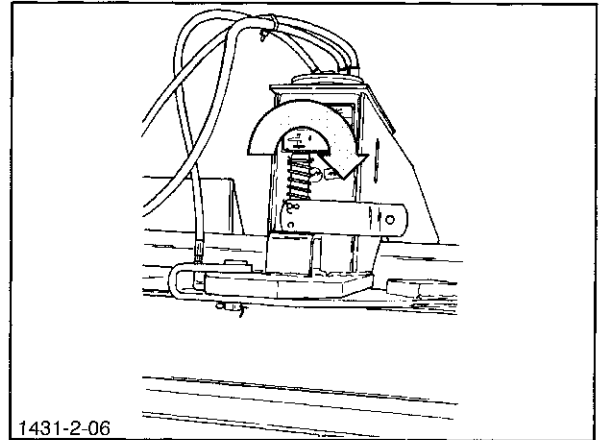


Figure 1-20

To engage the tongue transport lock, rotate the transport lock bracket up and over (one half turn) so that the transport lock pin is spring loaded downwards. Shift the machine into the transport (center) position so that the transport lock pin engages in the trailframe.

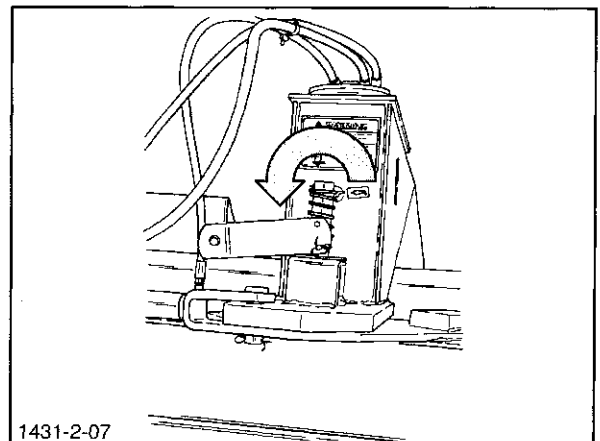


Figure 1-21

HEADER LIFT TRANSPORT STOPS



DANGER: ALWAYS ENGAGE THE TRANSPORT STOPS WHEN WORKING AROUND A RAISED HEADER OR WHEN TRANSPORTING THE MACHINE ON A PUBLIC ROAD.

To engage the transport stops, pivot both right and left lock levers, 1, forward. If the machine was raised first the lock rods, 2, should move forward under the stop blocks, 3. If the machine was not raised first simply raise the unit with the tractor hydraulics and the locks will engage. Lower the header onto the stops.

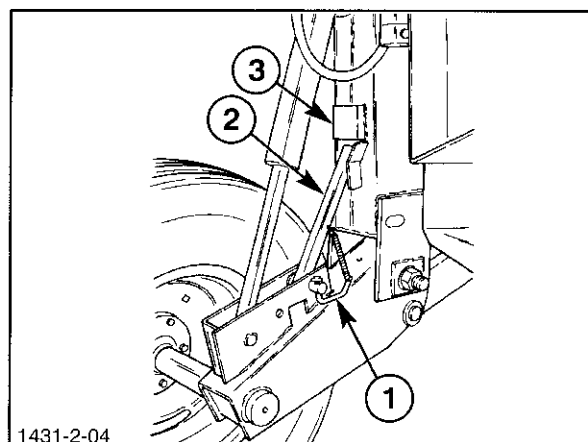


Figure 1-22

To disengage the header lift locks, pivot both left and right lock levers, 1, rearward. If the machine was raised first the lock rods, 2, should move rearward. If the machine was not raised first simply raise the unit with the tractor hydraulics and the locks will release.

NOTE: If the cylinders do not extend far enough to release the transport stops, there may be air in the hydraulic system that must be purged. Refer to "Bleeding Air From The Lift Cylinders" in this section.

ATTENTION: Always engage or disengage both header lift locks at a time. Lowering the unit with one stop engaged could cause damage to the unit.

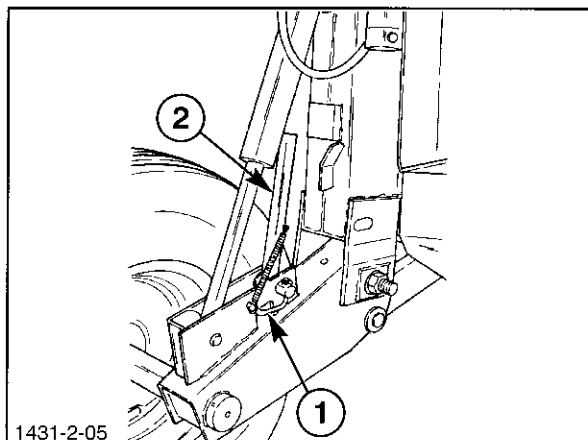


Figure 1-23

TRANSPORTING THE MOWER-CONDITIONER

SAFETY CHAIN

The optional safety chain, 1, should be used when towing the mower-conditioner on a public road. The safety chain is intended to keep the machine under control in the event of loss or failure of the hitch pin.

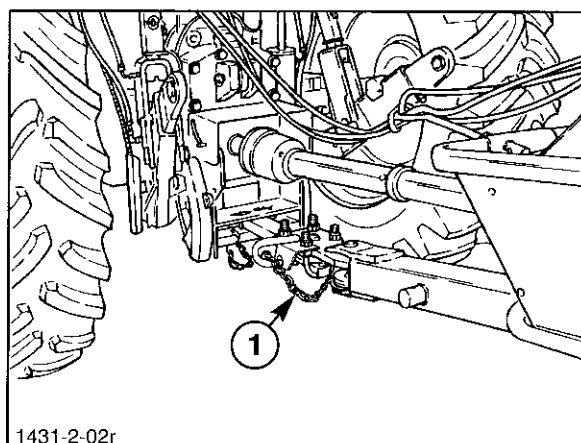


Figure 1-24

