

CALIFORNIA

Proposition 65 Warning

WARNING: Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer and birth defects or other reproductive harm.

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.



ANY PICTURES CONTAINED WITHIN THIS OPERATOR'S MANUAL THAT DEPICT SITUATIONS WITH SHIELDS, GUARDS, RAILS, OR LIDS REMOVED ARE FOR DEMONSTRATION PURPOSES ONLY. HAGIE MANUFACTURING COMPANY STRONGLY URGES THE OPERATOR TO KEEP ALL SHIELDS AND SAFETY DEVICES IN PLACE AT ALL TIMES.

HAGIE

HAGIE 2101

SPRAYER/DETASSELER



OPERATOR'S MANUAL SUPPLEMENT FOR HAGIE MODEL 2101 SPRAYER/DETASSELER

HAGIE MANUFACTURING COMPANY

BOX 273 CLARION, IOWA 50525

(515) 532-2861

COVERS MACHINE SERIAL NUMBERS:U1460440001 thru U1460440200

01-04 493305

ABBREVIATIONS

A/C	AIR CONDITIONING	MPH	MILES PER HOUR
ADJ	ADJUST	MT	MOUNT
ADPTR	ADAPTER	MTH	MONTH
ALT	ALTERNATOR	MTR	MOTOR
AMP	AMPERE	NO	NUMBER
APPROX	APPROXIMATELY	OD	OUTSIDE DIAMETER
ASSY	ASSEMBLY	PLT	PLATE
AUX	AUXILIARY	PRESS	PRESSURE
BRKT	BRACKET	PRKNG	PARKING
BTRY	BATTERY	PSI	POUNDS PER SQUARE INCH
C	CELSIUS	QT	QUART
CCA	COLD CRANKING AMPS	RAD	RADIATOR
CTRL	CONTROL	REC	RECOMMENDED
CYL	CYLINDER	REQ	REQUIRED
DIAG	DIAGRAM	RPM	REVOLUTIONS PER MINUTE
DIM	DIMENSION	SAE	SOCIETY of AUTOMOTIVE ENGINEERS
DISPL	DISPLACEMENT	SEC	SECOND
EA	EACH	SERV	SERVICE
ELECT	ELECTRIC	SLCTR	SELECTOR
F	FAHRENHEIT	SMV	SLOW MOVING VEHICLE
FIG	FIGURE	SOLE	SOLENOID
FLO	FLOW	SPEC	SPECIFICATION
FRT	FRONT	STRG	STEERING
FT	FOOT OR FEET	SQ	SQUARE
GA	GAUGE	TACH	TACHOMETER
GAL	GALLON	TEMP	TEMPERATURE
HAL	HALOGEN	TERM	TERMINAL
HR	HOURLY	TRD	TREAD
HYD	HYDRAULIC	TT	TUBE-TYPE
HYDRO	HYDROSTATIC	TU	TUBELESS
ID	INSIDE DIAMETER	VAR	VARIABLE
IN	INCH	V	VOLT
INFO	INFORMATION	VLV	VALVE
Km/H	KILOMETERS PER HOUR	W	WEIGHT
LB	POUND	WD	WHEEL DRIVE
LS	LIGHT SENSOR	W/	WITH
MAINT	MAINTENANCE	W/O	WITHOUT
MIN	MINUTE	WHL	WHEEL
M/F	MAINFRAME	WK	WEEK
		WLD	WELDMENT

TO THE OWNER



A WORD FROM HAGIE MANUFACTURING COMPANY

Congratulations on your selection of a Hagie Model 2101 SPRAYER/DETASSELER. This operator's manual supplement is not intended to stand alone as an operating manual for the 2101 SPRAYER/DETASSELER, but is considered an additional support publication for your 2101 Operator's Manual to encompass the detasseling options. We recommend that you study your 2101 Operator's Manual along with this supplement and become acquainted with the adjustments and operating procedures before attempting to operate your new sprayer/detasseler. As with any piece of equipment, certain operating procedures, service, and maintenance are required to keep it in top running condition.

We have attempted herein to cover all of the adjustments required to fit varying conditions. However, there may be times when special care must be considered.

Hagie Manufacturing Company reserves the right to make changes in the design and material of any subsequent sprayer/detasseler without obligation to existing units.

We thank you for choosing a Hagie SPRAYER/DETASSELER and assure you of our continued interest in its satisfactory operation for you. If we might be of assistance to you, please call us. We are proud to have you as a customer.

CAUTION

READ OPERATOR'S MANUAL. BE ALERT. LEARN TO OPERATE THIS MACHINE SAFELY. OBSERVE ALL SAFETY PRACTICES. MACHINES CAN BE HAZARDOUS IN THE HANDS OF AN UNFAMILIAR, UNTRAINED, OR COMPLACENT OPERATOR. SHUT OFF ENGINE BEFORE SERVICING. WHEN MECHANISM BECOMES CLOGGED, SHUT OFF ENGINE BEFORE CLEANING. DON'T RISK INJURY OR DEATH.

TO THE OPERATOR

The following pages and illustrations will help you operate and service your new sprayer/detasseler. It is the responsibility of the user to read the Operator's Manual and comply with the safe correct operating procedures and lubricate and maintain the product according to the maintenance schedule.

The user is responsible for inspecting the machine and having parts repaired or replaced

when continued use of the product causes damage or excessive wear to other parts.

Keep this manual in a convenient place for easy reference when problems arise. This manual is considered a permanent fixture with this machine. In the event of resale, this manual should accompany the sprayer/detasseler. If you do not understand any part of the manual or require additional information or service, contact the Hagie Customer Support Department:

Hagie Manufacturing Company
Box 273, Clarion, IA 50525
(515) 532-2861

The following symbols, found throughout this manual, alert you to potentially dangerous conditions to the operator, service personnel, or the equipment.



This symbol indicates an immanently hazardous situation which, if not avoided, will result in death or serious injury.



This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or injury.



This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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I. SAFETY/DECALS

SAFETY PRECAUTIONS

Most accidents occur as the result of failure to follow simple and fundamental safety rules. For this reason, most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Many conditions cannot be completely safeguarded against without interfering with efficient operation and/or reasonable accessibility. Therefore, you must study your 2101 Operator's Manual along with this supplementary manual and

learn how to use the sprayer/detasseler controls for safe operation. Likewise, do not let anyone operate without instruction.

Do not make modifications such as weldments, add-ons, adaptations, or changes from the original design of the sprayer/detasseler. Such changes and/or modifications may become safety hazards to you and others and WILL VOID ALL WARRANTIES.



GENERAL OPERATION SAFETY

- If equipped with light sensing depth units, do not look directly into light beam. It emits a very low intensity microwave signal which may cause possible eye damage.
- Never allow walking personnel in the same field as a detasseler.

I. SAFETY/DECALS

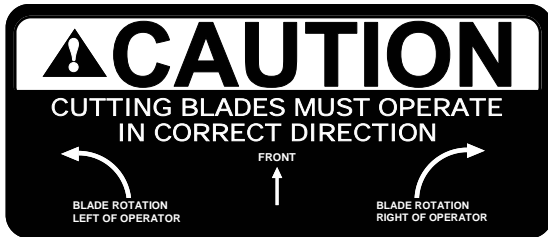
WARNING DECALS

Decals warning you of avoidable danger are located on various parts of the sprayer/detasseler. They are there for your personal safety and protection. DO NOT remove them. They will fracture upon attempted removal and therefore must be replaced.

Following are locations of important safety decals not shown in your 2101 Operator's Manual.

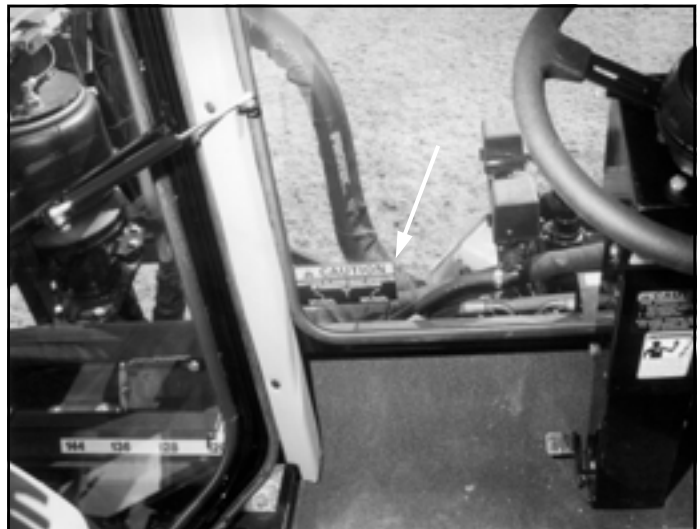
Replace them if they are torn or missing. All warning decals and other instructional Hagie decals or machine striping may be purchased through the Hagie Customer Support Department. To replace decals, be sure that the installation area is clean and dry; decide on exact position before you remove the backing paper.

DECAL LOCATION



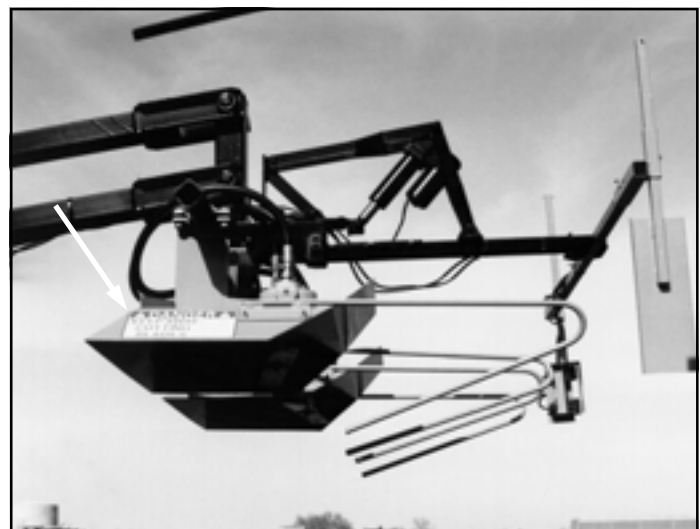
650303

Front window of cab.



650819

2 on each cutter housing.



DECALS CONTINUED 

I. SAFETY/DECALS



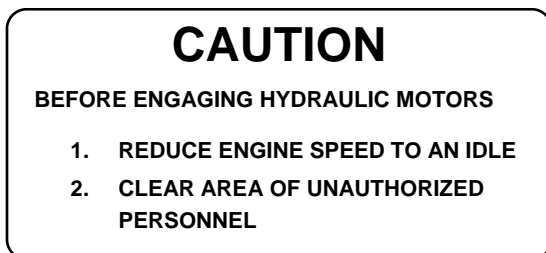
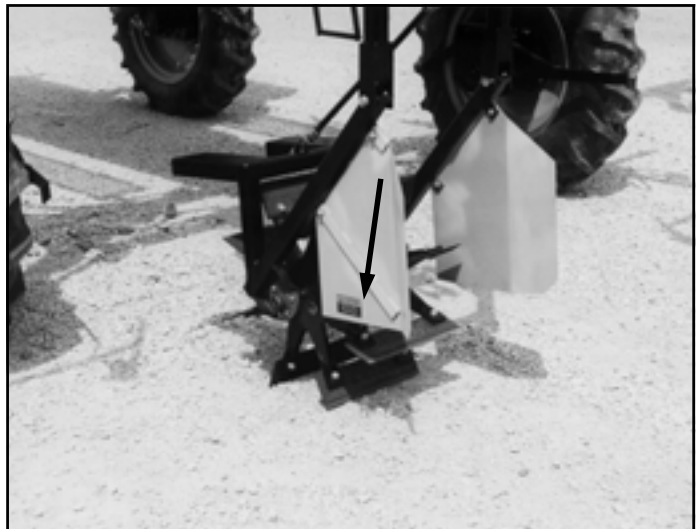
650820

Quad puller head.



650820

2 on each male corn chopper.



650955

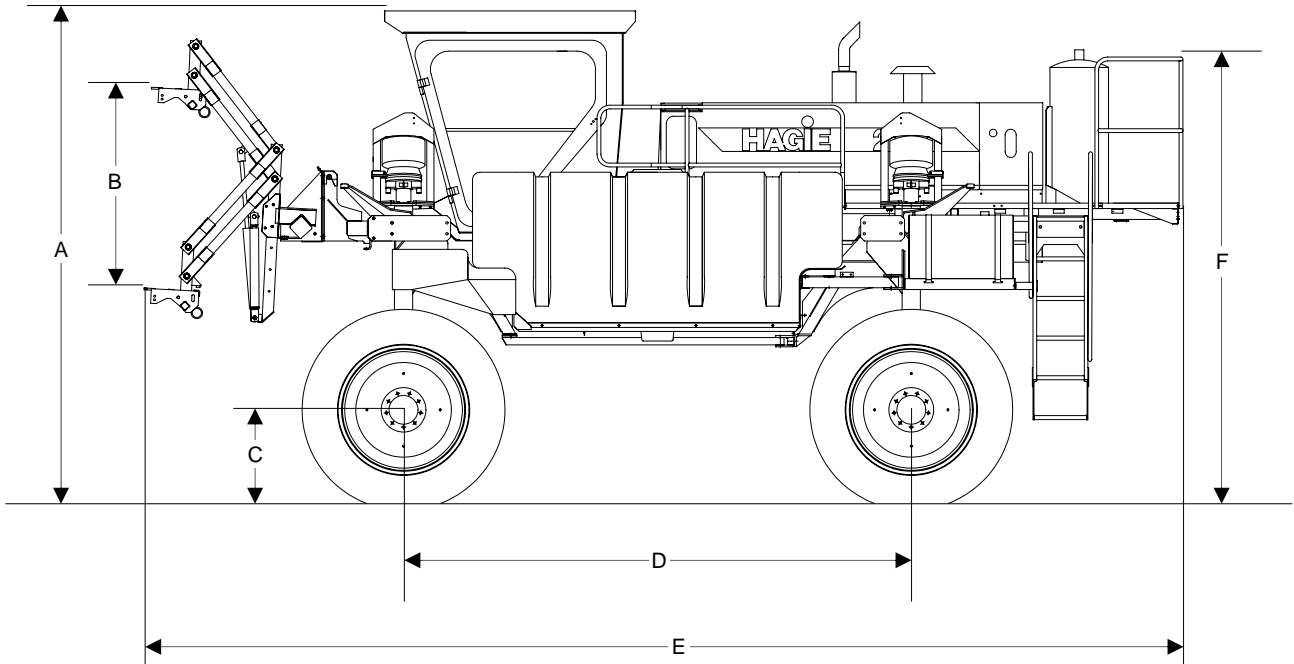
Above motor control box on right cab glass.



II. SPECIFICATIONS

DETASSELER OPTION DIMENSIONS

A. Overall tractor height	136"	D. Wheel base.....	139"
B. Lift arm range	53.0"	E. Combo length (w/o attachments).....	284"
C. Static loaded hub height.....	25.8"	F. Rear handrail height	124"



Detasseling equipment options Front mounted with Tasselrol®/LS System

Quad Puller

Number of rows available	4, 6, 8, 10, or 12
Drive.....	Hydraulic
Tire size	4.10/3.50 2 ply
Operating speed	Up to 400 RPM
Pulling height	Min. range – 34" to 87" Max. range – 52" to 105"
Weight per head assembly	86 lbs.

Cutter

Number of rows available.....	4, 6, 8, 10, or 12
Drive.....	Hydraulic
Blade size.....	18"
Operating speed.....	Up to 3600 RPM
Cutting height	Min. range – 32" to 85" Max. range – 50" to 103"
Weight per head assembly.....	62 lbs.

Male corn equipment options

Male corn cutter (1 blade).....	Hydraulically driven 18" blade
Male corn cutter (4 blade).....	Hydraulically driven 18" blades (includes left and right)
Male corn chopper (8 blade).....	Ground driven 15" blades or Ground driven 20" blades

III. PREPARING TO OPERATE

Converting Your Sprayer to a Detasseler

In shipment, some of the components may have been sent loose and need to be installed before operating. In order to ensure proper installation of the optional attachments, refer to your HAGIE 2101 SPRAYER/DETASSELER Parts Manual for

the correct option for outlining the installation, hydraulic schematic, and wiring diagram. Read and comply with the following instructions. Always make sure you have proper equipment and help when installing the attachments.

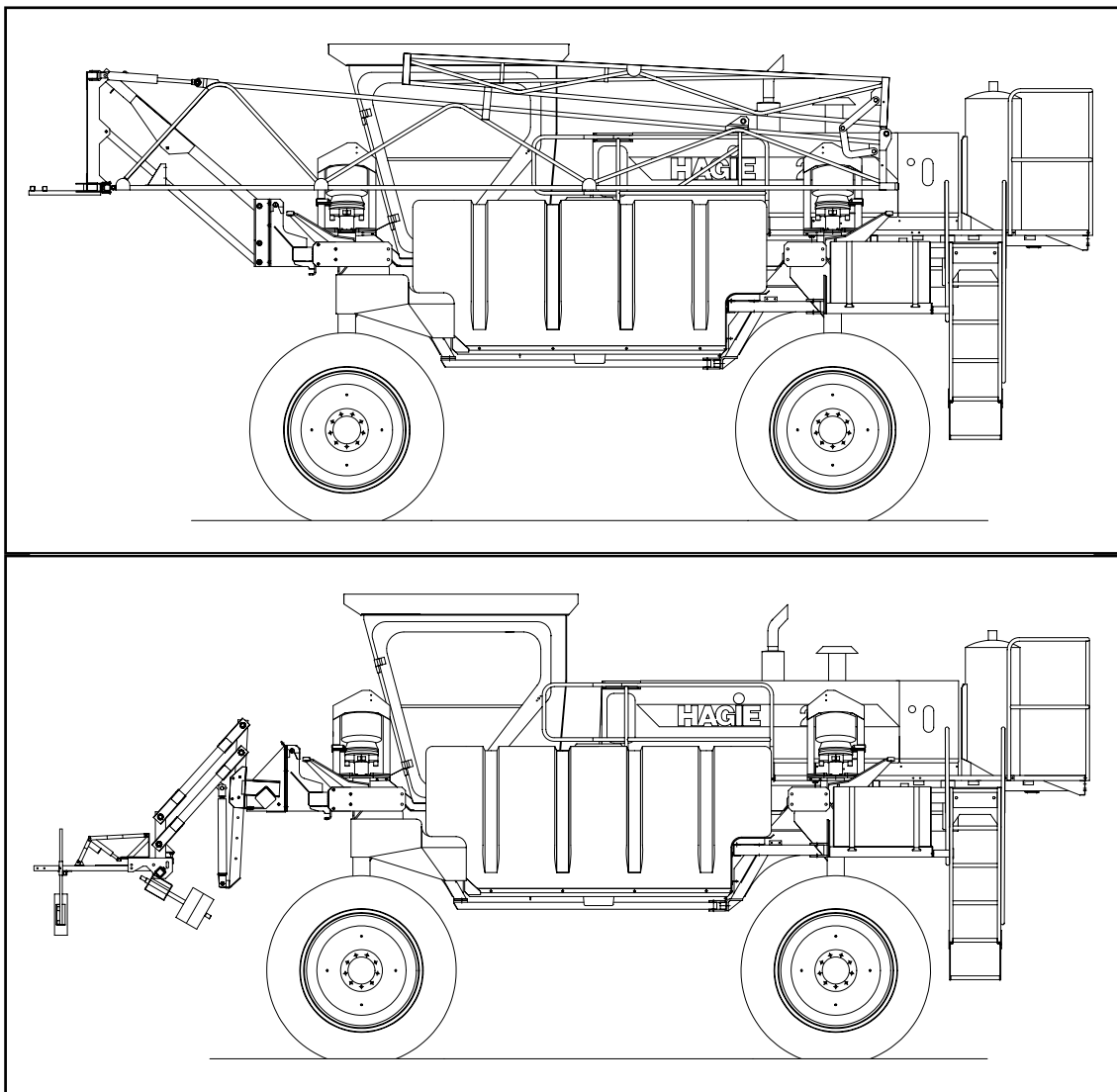


FIG 3.1

III. PREPARING TO OPERATE

REMOVING SPRAY BOOMS

Park the sprayer on level ground and set the parking brake. To prepare the booms for removal, lift the booms out of the boom cradle, leaving the extensions folded in. Fold them out enough to clear the solution tanks when lowered. Lower the booms onto heavy-duty stands, supporting them in at least

four places (fig. 3.2).

Disconnecting Attachments – All of the following items need to be disconnected before you remove the booms:

- Solution supply quick-couple (fig. 3.3, item 1).
- Foamer supply quick-couples (fig. 3.3, item 2).
- Boom indicator lights wire harness (fig. 3.3, item 1).
- Boom control stack valve wire harness (fig. 3.3, item 1).
- Raven control wire harness (fig. 3.3, item 1).
- Solution valve wire harness (fig. 3.3, item 1).
- Hydraulic quick-couplers on boom control stack valve (fig. 3.3, item 3).

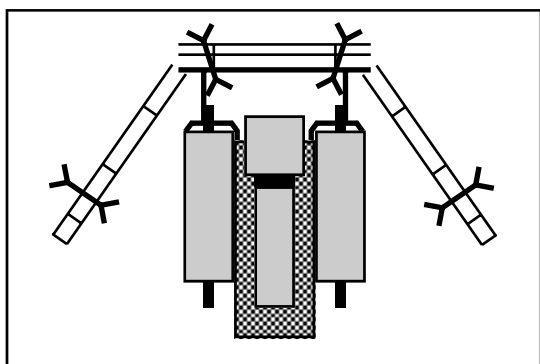


FIG 3.2

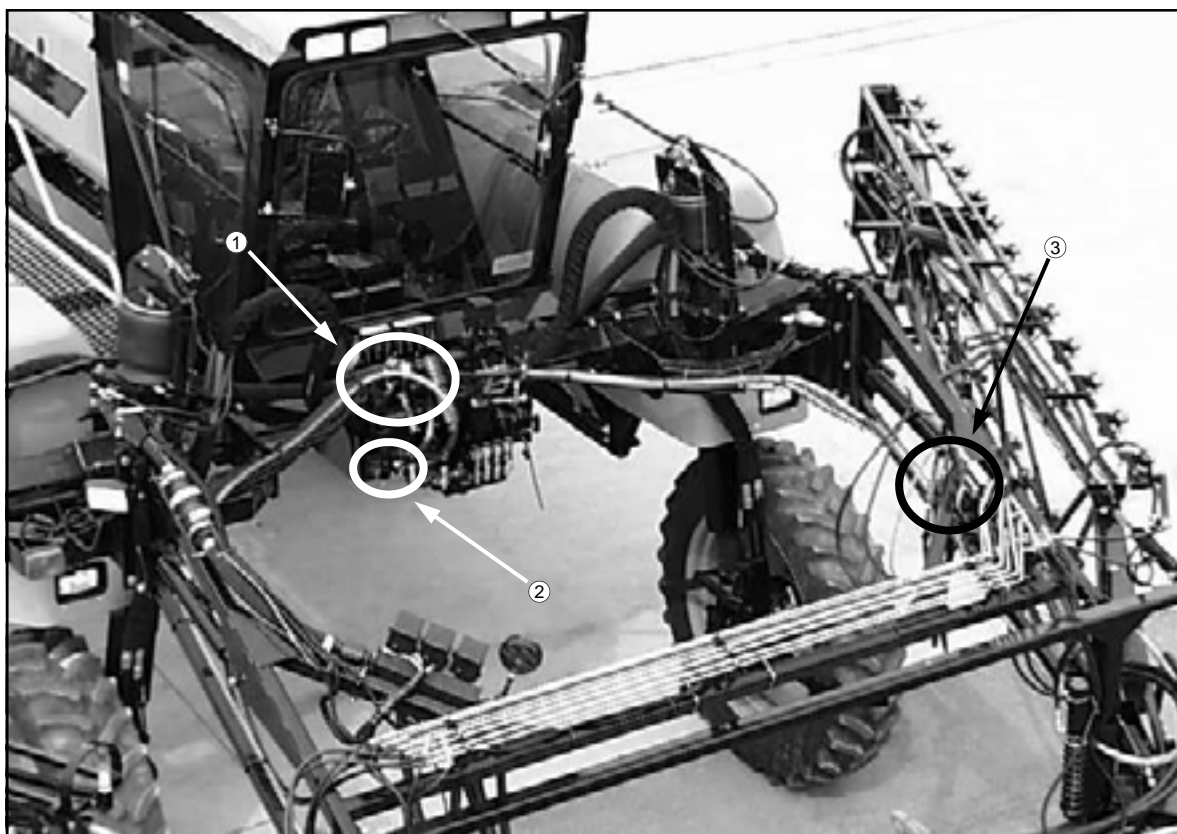


FIG 3.3

REMOVING BOOMS CONTINUED 

III. PREPARING TO OPERATE

▶ REMOVING BOOMS CONTINUED

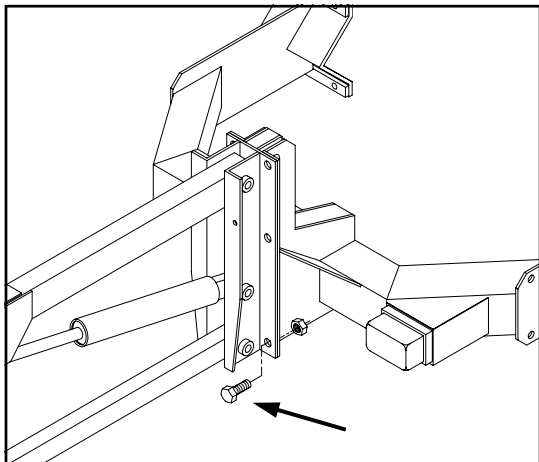


FIG 3.4

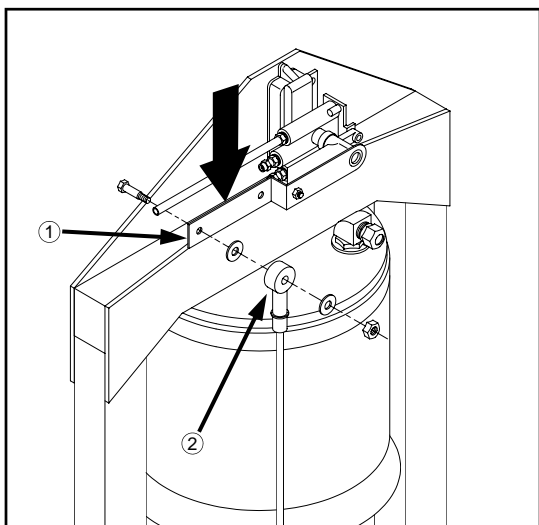


FIG 3.5

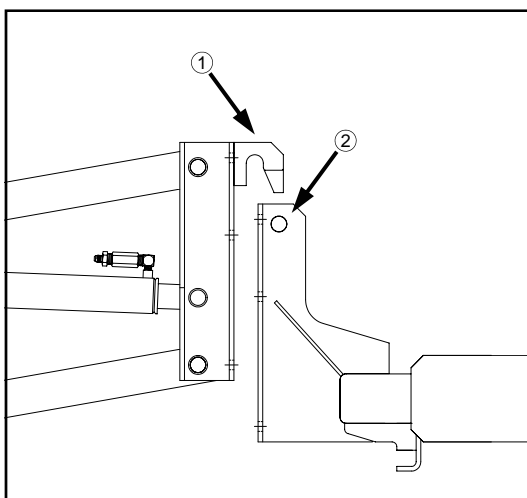


FIG 3.6

Disconnecting Booms

Each lift arm is secured in place with six (12 total) heavy duty bolts (fig. 3.4). Remove each bolt from the quick-attach mount. Remove the air control linkage (fig. 3.5, item 2) from the air valve control arm (fig. 3.5, item 1) on each front leg assembly. Push the air valve control arm down to release all the air out of the bag. When the air bag has lowered, the “mounting pin” (fig. 3.6, item 2) on each quick-attach mounting plate should drop clear of the “mounting hook” (fig. 3.6, item 1) on each lift arm. Once clear, back the machine away slowly (fig. 3.7).

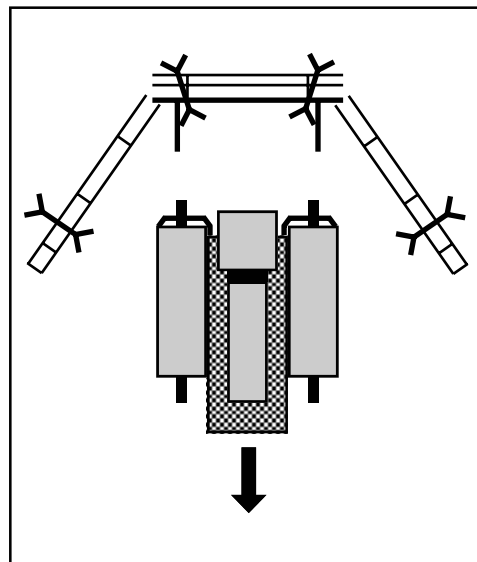


FIG 3.7

III. PREPARING TO OPERATE

ATTACHING DETASSELING EQUIPMENT

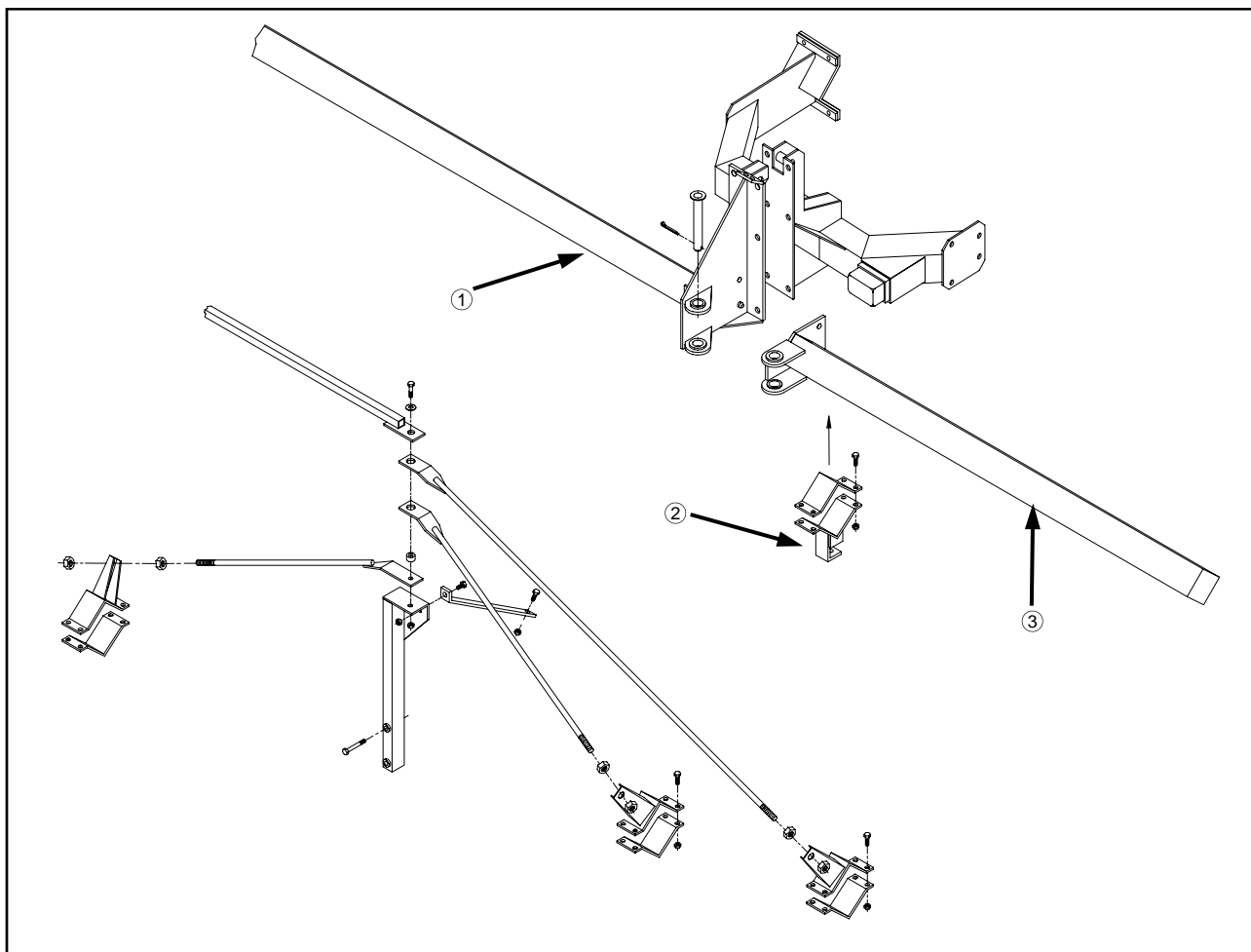


FIG 3.8

1. Attach the center tool bar (fig. 3.8, item 1) and bolt it in place according to 2101 SPRAYER/DETASSELER Parts Manual.
2. Attach left and right outriggers (fig. 3.8, item 3) with supplied hardware. Refer to 2101SPRAYER/DETASSELER Parts Manual.
3. Attach support rods if required.
4. Attach fold cylinder mounts (fig. 3.8, item 2) on outriggers.

ATTACHING EQUIPMENT CONTINUED 

III. PREPARING TO OPERATE

▶ ATTACHING EQUIPMENT CONTINUED

Attach Outrigger Fold Stack Valve – Attach the outrigger hydraulic fold stack valve (fig. 3.9, item 1) in the center of the tool bar with supplied mounting bracket and hardware. Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware and hydraulic schematic. Attach supplied wire harness to boom control stack valve wire harness connection (see page 9). Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct fold stack valve wiring schematic.

Attach Outrigger Fold Cylinders – Attach the outrigger fold cylinders (fig. 3.9, item 3) with supplied hardware according to 2101 SPRAYER/DETASSELER Parts Manual. Also refer to 2100 SPRAYER/DETASSELER Parts Manual for correct hydraulic schematic.

Attach Lift Arm Stack Valve – Attach the hydraulic lift arm stack valve (fig. 3.9, item 2) toward the left of the tool bar with supplied mounting bracket and hardware. Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware and hydraulic schematic. Attach supplied wire harness(es) to “jumper” panel (see page 22). Refer to 21001SPRAYER/DETASSELER Parts Manual for correct lift stack valve wiring schematic.

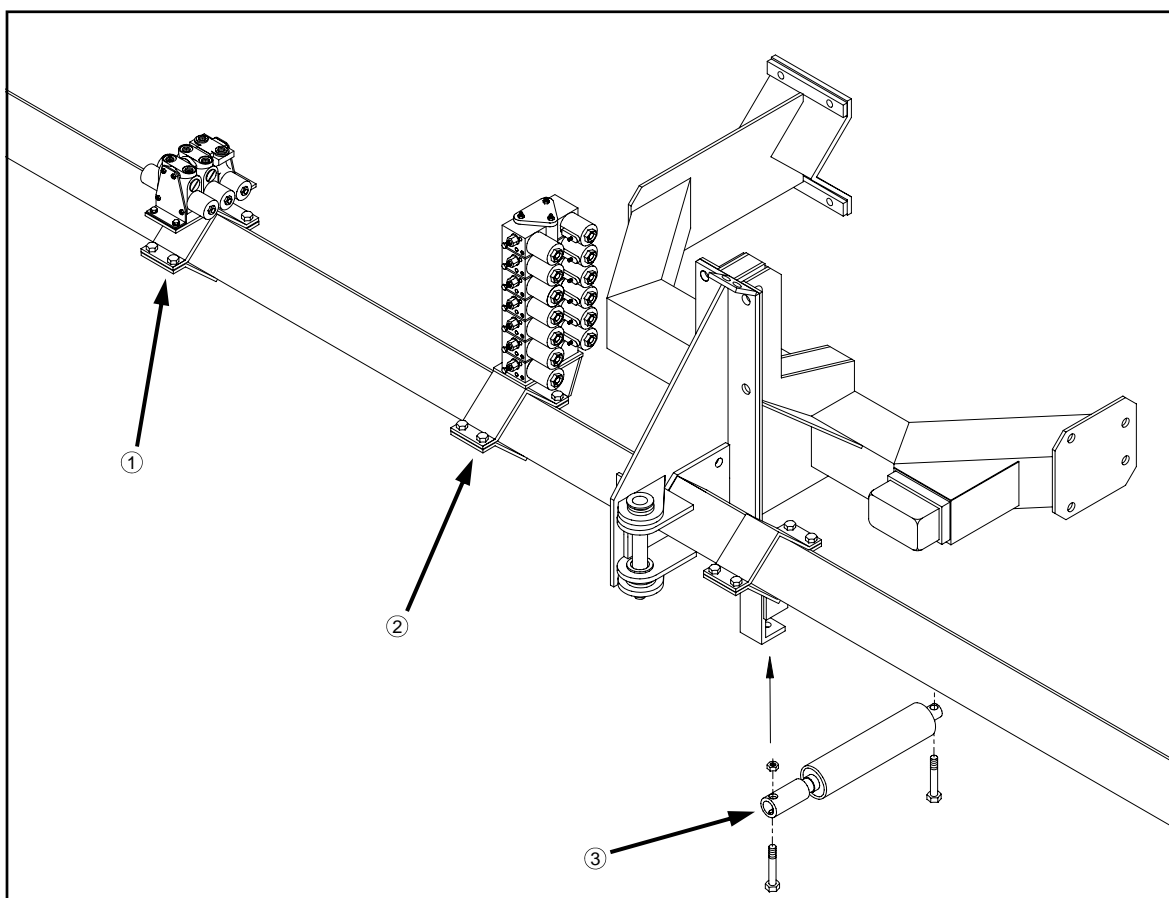


FIG 3.9

III. PREPARING TO OPERATE

Attaching Lift Assemblies

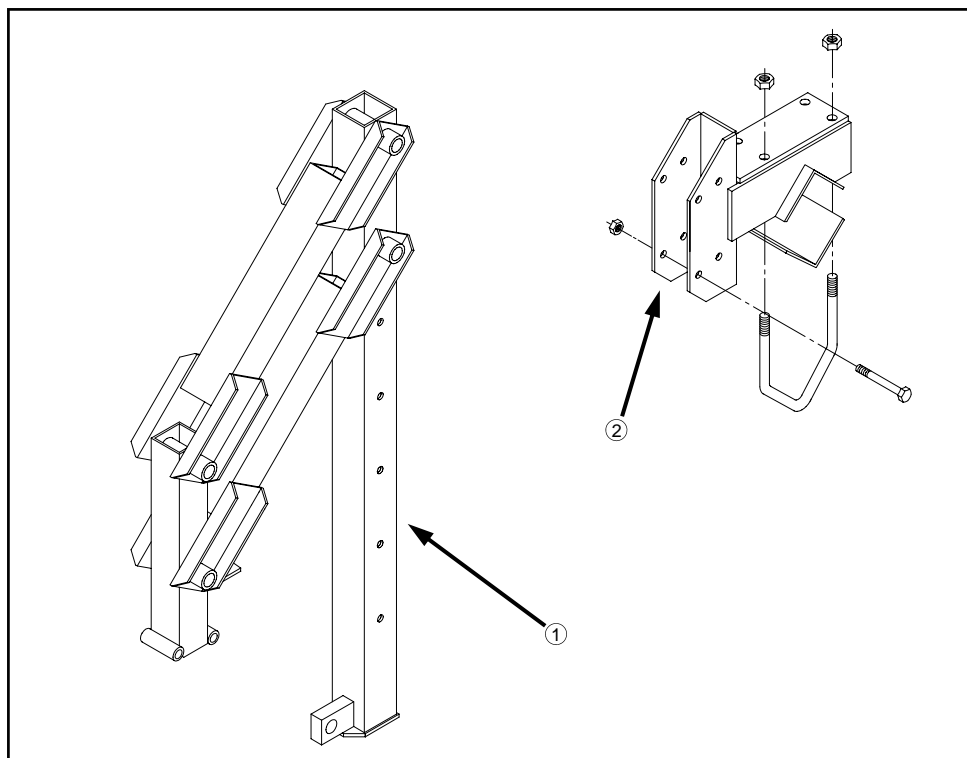


FIG 3.10

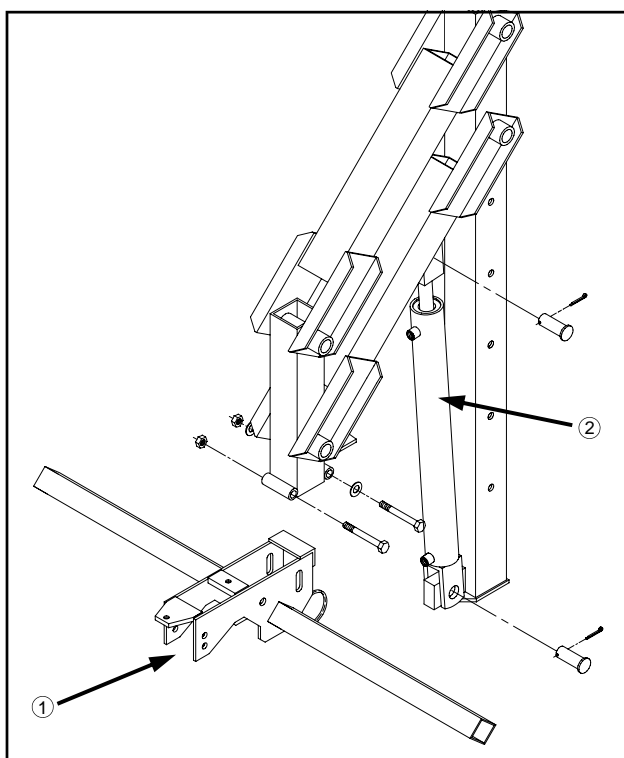


FIG 3.11

Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware when following these steps:

1. Attach the lift mounts (fig. 3.10, item 2) to the tool bar and outriggers at the appropriate spacings.
2. Attach the lift arms (fig. 3.10, item 1) to the lift mounts.
3. Attach the lift arm cylinders to the lift arm assemblies (fig. 3.11, item 2).
4. Attach the tool bar weldment to the lift arm assemblies (fig. 3.11, item 1).
5. Connect hydraulic hoses to lift cylinders. Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hydraulic schematics.

ATTACHING EQUIPMENT CONTINUED 

III. PREPARING TO OPERATE

▶ ATTACHING EQUIPMENT CONTINUED

Connecting Fold and Lift Hydraulics

Connect the hydraulic supply quick-couple to the filtered connection on the outrigger fold stack valve (fig. 3.12, item 3). With the supplied hardware (refer to 2101 SPRAYER/DETASSELER Parts Manual), connect the outrigger fold stack valve (fig.

3.12, item 2) to the lift arm stack valve filtered connection (fig. 3.12, item 1). Connect the hydraulic return quick-couple to the lift arm stack valve (fig. 3.12, item 4).

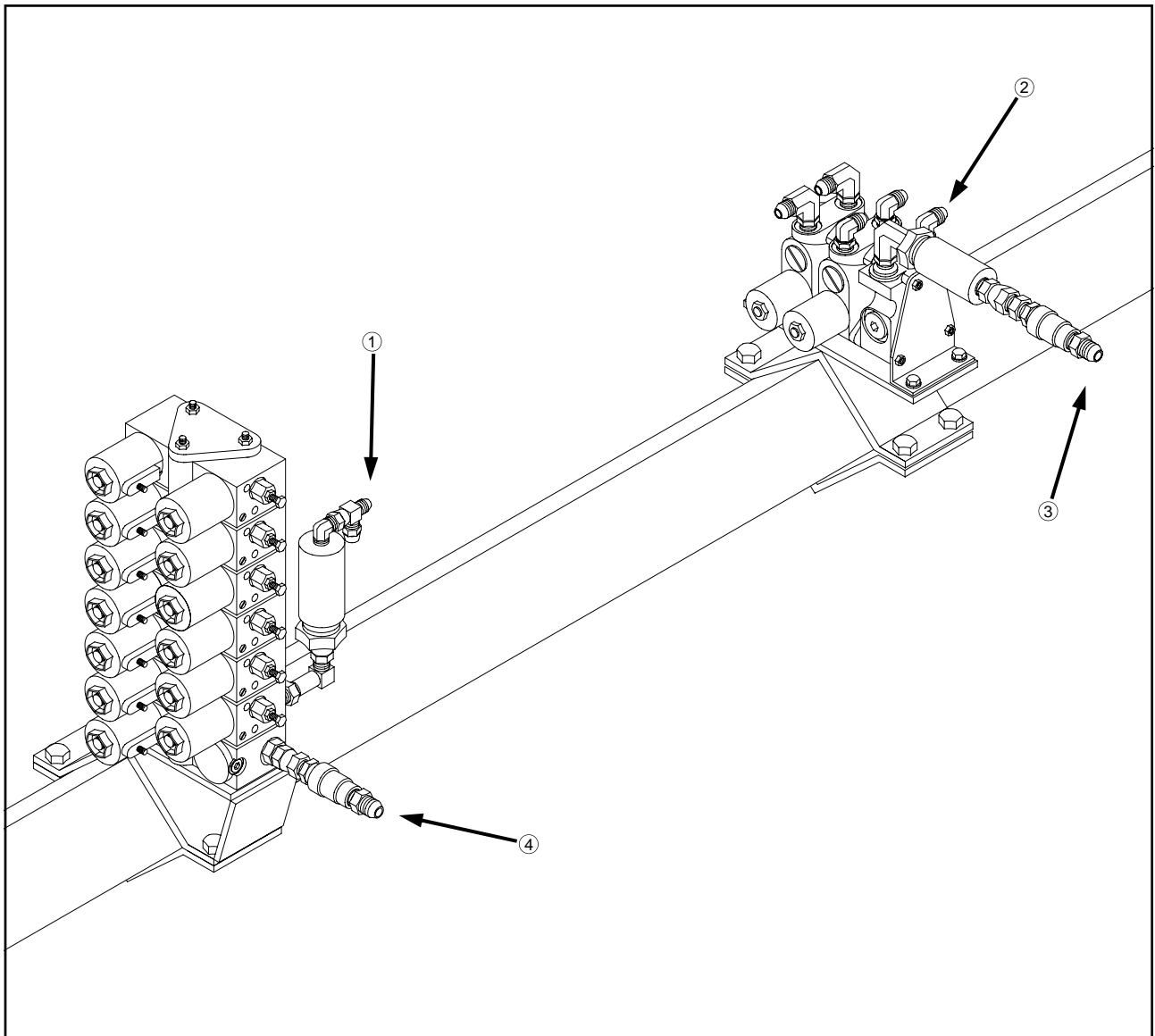


FIG 3.12

III. PREPARING TO OPERATE

ATTACHING QUAD PULLERS

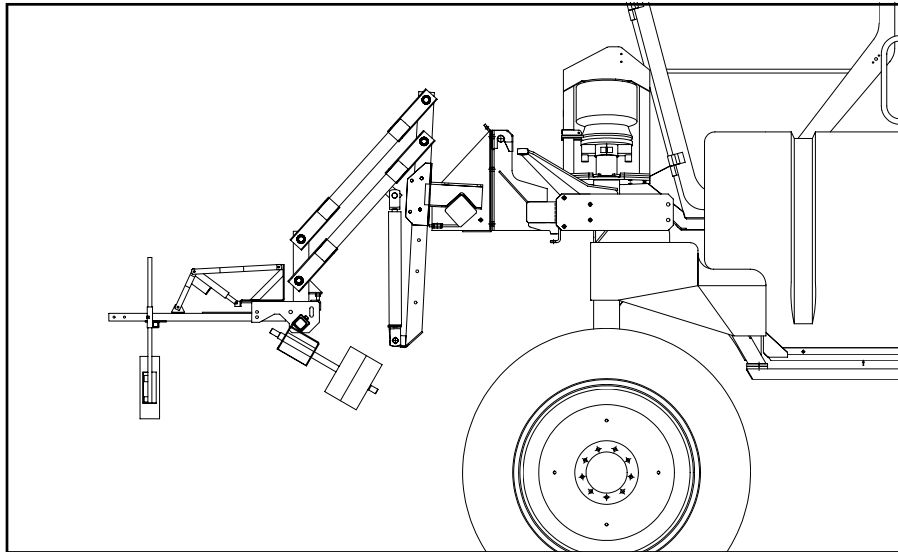


FIG 3.13

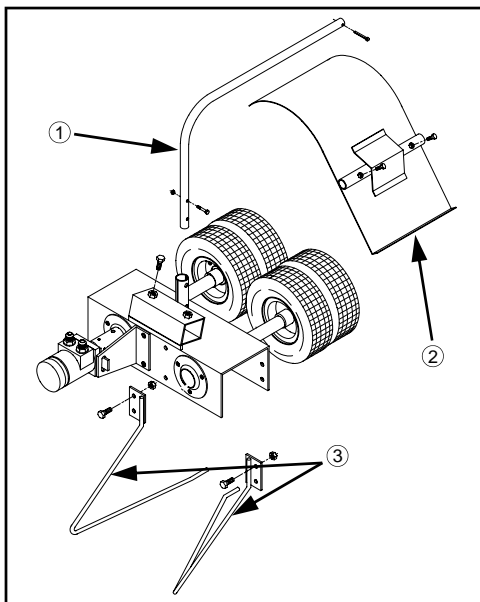


FIG 3.14

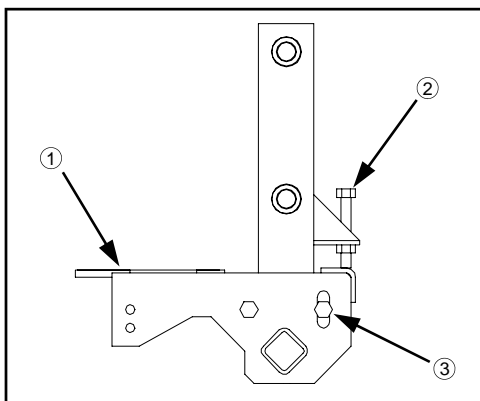


FIG 3.15

1. Attach the quad pullers to each lift arm tool bar (fig. 3.13).

NOTE:

Some quad pullers may come pre-assembled to the tool bar. In this case, you would attach them to the lift assembly.

2. Install the stalk guides to the quad puller head assembly (fig. 3.14, item 3).
3. Attach the deflector shield mount tube (fig. 3.14, item 1) and the deflector shields for right or left hand deflection (fig. 3.14, item 2).
4. Refer to page 16 for information about installing hydraulic hoses.
5. Normal operating angle of the quad puller is obtained when the tool bar mount surface is parallel to the ground (fig. 3.15, item 1). This angle can be varied by an adjusting bolt (fig. 3.15, item 2) and slot (fig. 3.15, item 3).
6. Adjust tire pressure to approximately 10 pounds.

NOTE:

Be sure all four tires have equal pressure. Check tire pressure daily.

III. PREPARING TO OPERATE

▶ ATTACHING QUAD PULLERS CONTINUED

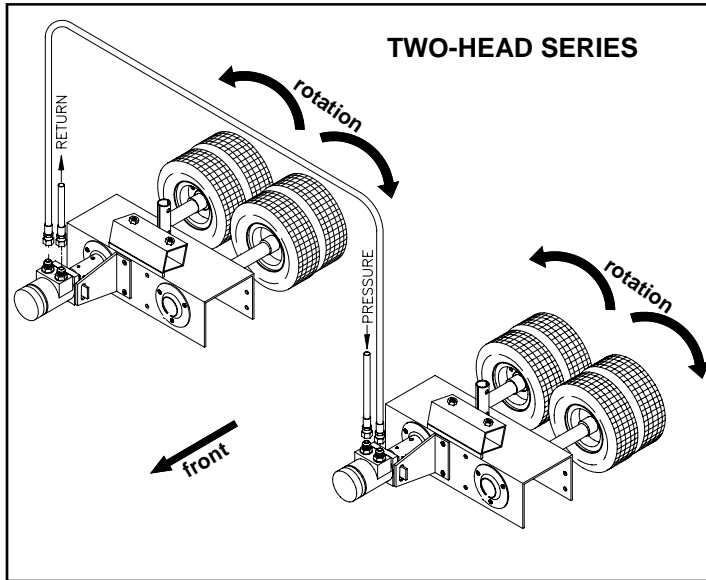


FIG 3.16

Quad Puller Hydraulic Assembly

Hydraulic hoses on Quad Puller heads should be hooked up so tires rotate according to figure 3.16 and figure 3.17. Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware, hose lengths, and hydraulic schematic.

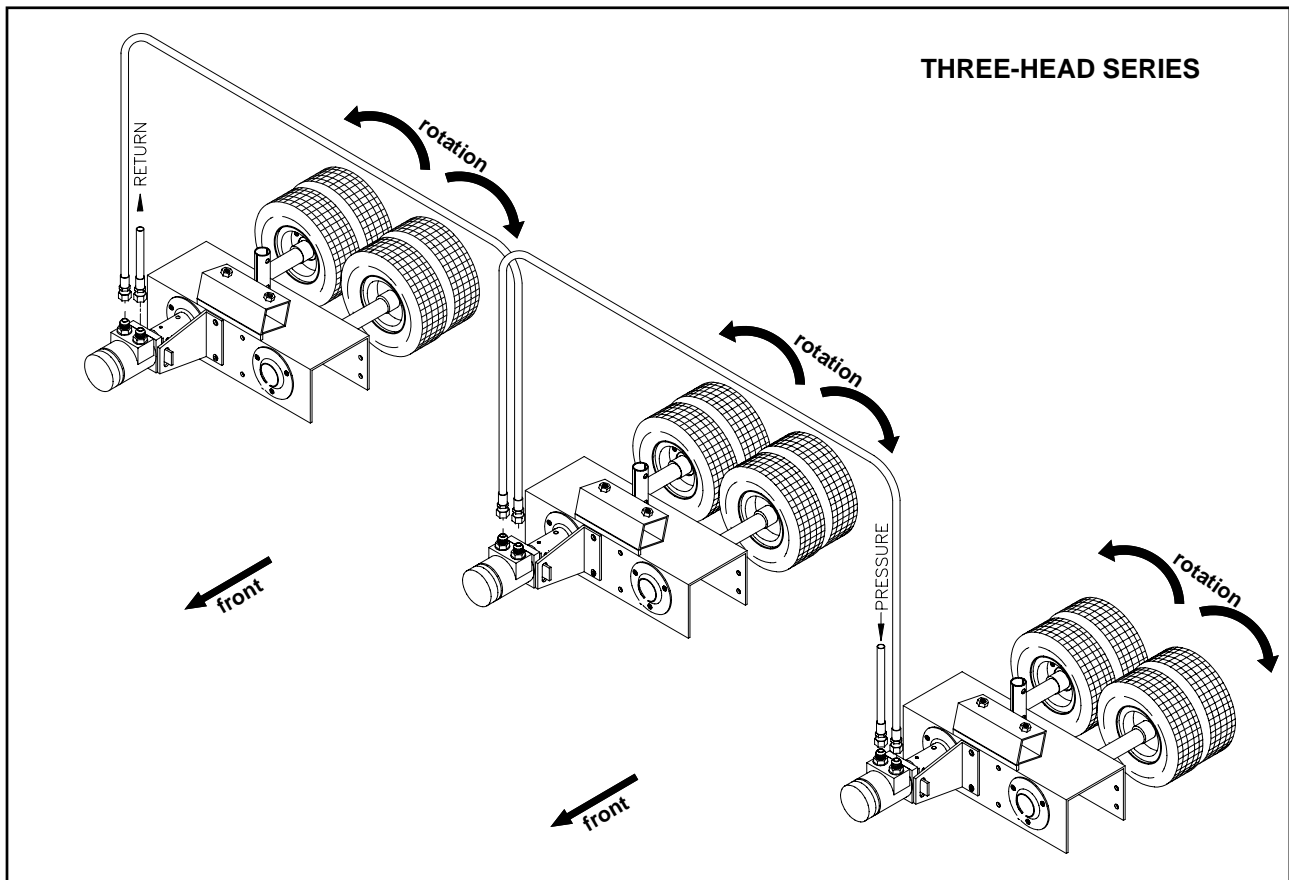


FIG 3.17

III. PREPARING TO OPERATE

ATTACHING CUTTER HEADS

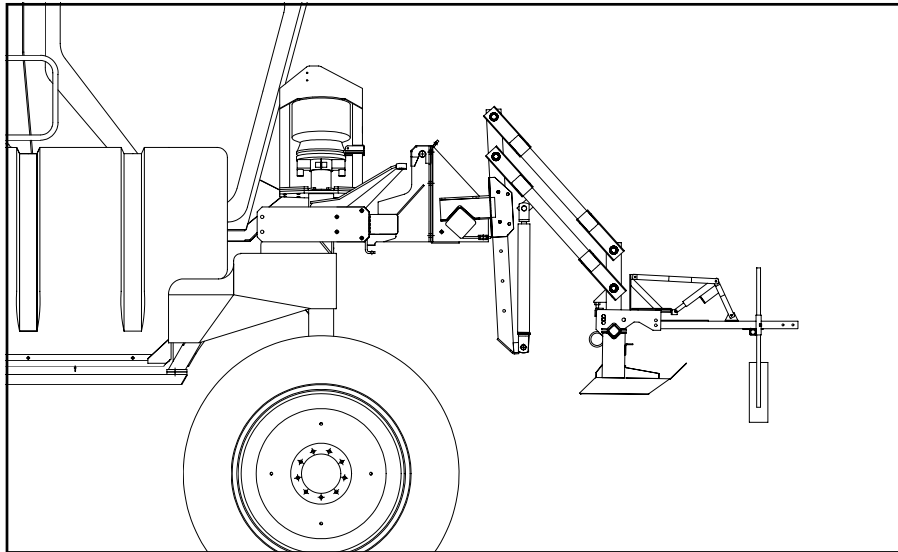


FIG 3.18

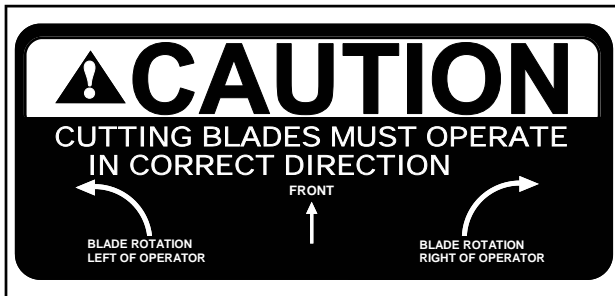


FIG 3.19

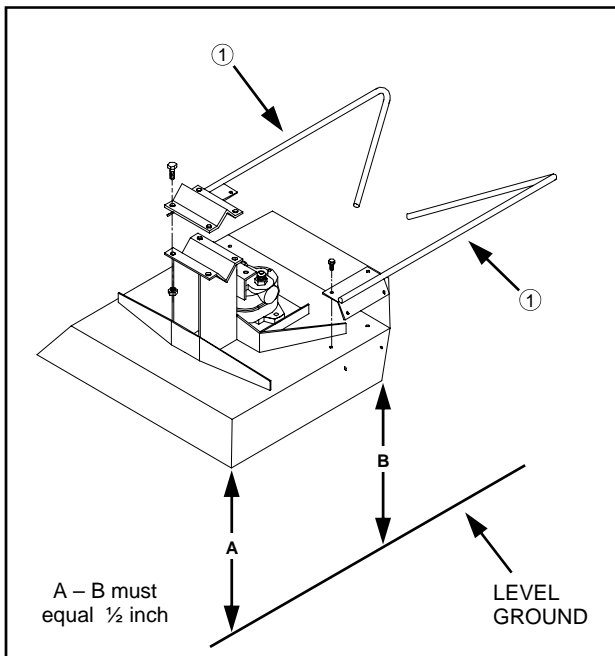


FIG 3.20

1. Attach the cutter head assembly to the tool bar (fig. 3.18).

NOTE:

Some cutters may come pre-assembled to the tool bar. In this case, you would attach the assembly to the lift assembly.

2. Install the stalk guides to the cutter head assembly (fig. 3.20, item 1).
3. Refer to pages 18-19 for information about installing hydraulic hoses.

CAUTION

Make sure the cutter blades operate in the correct direction (fig. 3.19).

4. Adjust the cutter heads using the adjusting bolts so the front of the cutter head is pointing downward approximately 1/2 inch (fig. 3.20).

ATTACHING CUTTERS CONTINUED 

III. PREPARING TO OPERATE

▶ ATTACHING CUTTERS CONTINUED

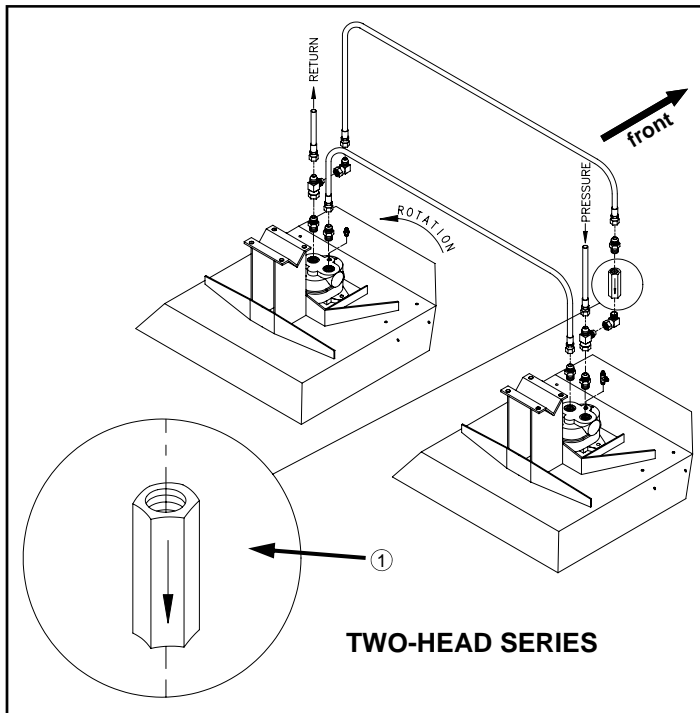


FIG 3.21

Blade Rotation Left of Operator

Hydraulic hoses on cutter heads should be hooked up so blades on heads mounted left of operator rotate according to figure 3.21 and figure 3.22 (counter-clockwise from above). Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware, hose lengths, and hydraulic schematic.

NOTE:

Care should be taken when installing check valve (fig. 3.21, item 1) on cutter motor so the flow arrow is oriented correctly (either two-head or three-head series).

IMPORTANT:

Case drain hoses must be installed correctly on cutter motors to prevent motor damage. Refer to parts manual.

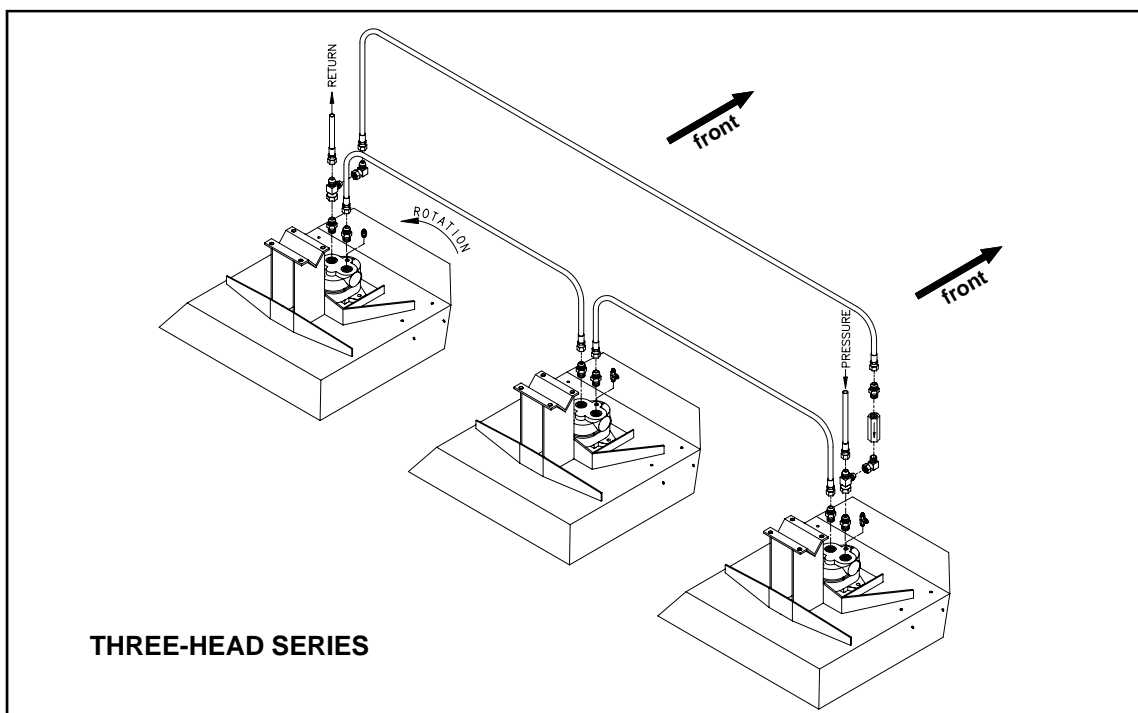


FIG 3.22

III. PREPARING TO OPERATE

Blade Rotation Right of Operator

Hydraulic hoses on cutter heads should be hooked up so blades on heads mounted right of operator rotate according to figure 3.23 and figure 3.24 (clockwise from above). Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware, hose lengths, and hydraulic schematic.

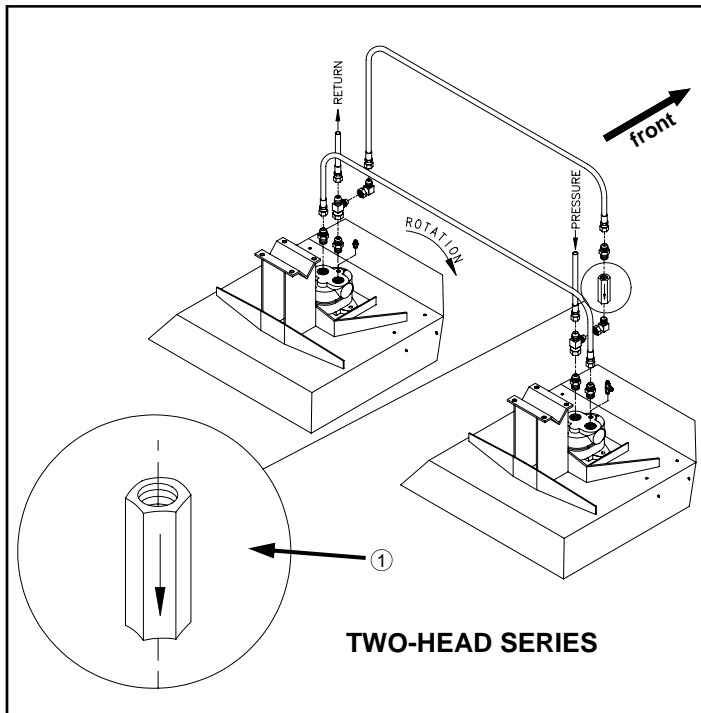


FIG 3.23

NOTE:

Care should be taken when installing check valve (fig. 3.23, item 1) on cutter motor so the flow arrow is oriented correctly (either two-head or three-head series).

IMPORTANT:

Case drain hoses must be installed correctly on cutter motors to prevent motor damage. Refer to parts manual.

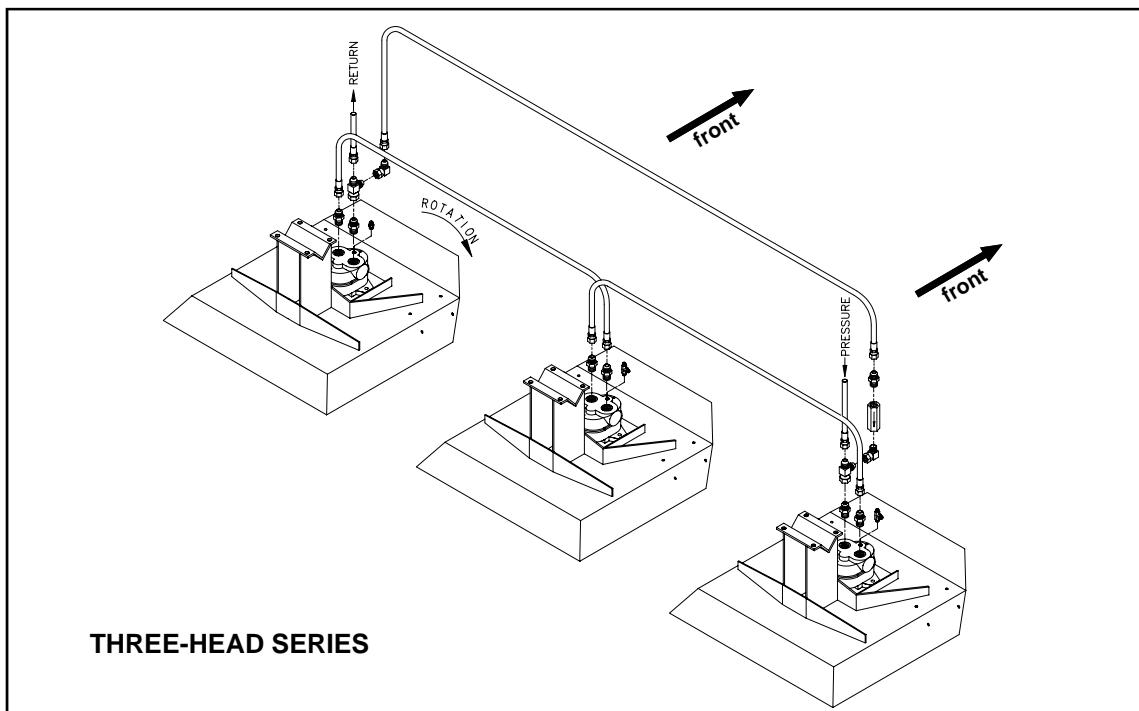


FIG 3.24

ATTACHING EQUIPMENT CONTINUED 

III. PREPARING TO OPERATE

▶ ATTACHING EQUIPMENT CONTINUED

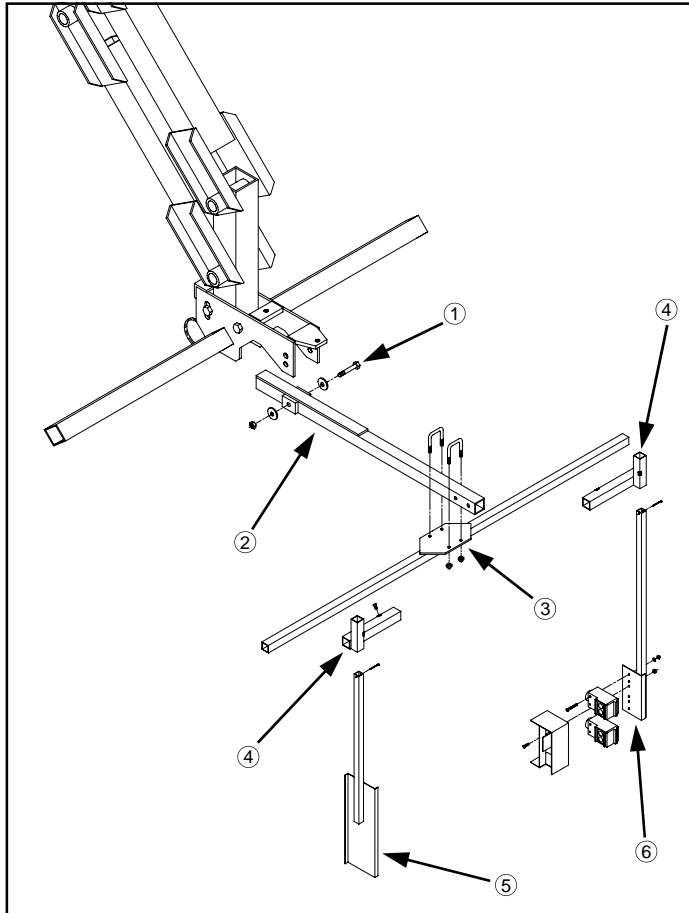


FIG 3.25

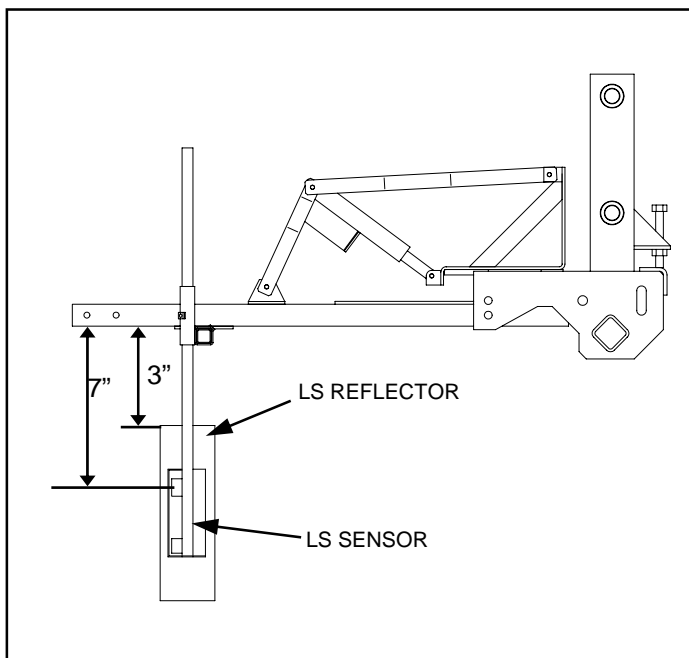


FIG 3.26

ATTACHING LS SYSTEM

1. Install Tasselrol[®]/LS sensor arm weldment with the two nylon washers in the bottom hole in the tool bar (fig. 3.25, item 2).
2. Install the Tasselrol[®]/LS cross tube weldment (fig. 3.25, item 3) to the sensor arm.
3. Install the left and right slide mount weldments (fig. 3.25, item 4) to the cross tube weldment.
4. Install the Tasselrol[®]/LS reflector mount (fig. 3.25, item 5) and sensor mount (fig. 3.25, item 6) to the slide mount weldments.
5. Install the cable assembly according to the wire diagram in your HAGIE 2101 SPRAYER/DETASSELER Parts Manual.
6. With a tape measure, set the center of the top Tasselrol[®] sensor to a depth of seven inches (fig. 3.26). Set the top edge of reflector to three inches (fig. 3.26).
7. Turn the ignition key switch to the "ON" position to check the sensor installation. DO NOT start the engine. See page 39 for more information about the LS sensor assembly.

III. PREPARING TO OPERATE

ATTACHING DEPTH COMMAND

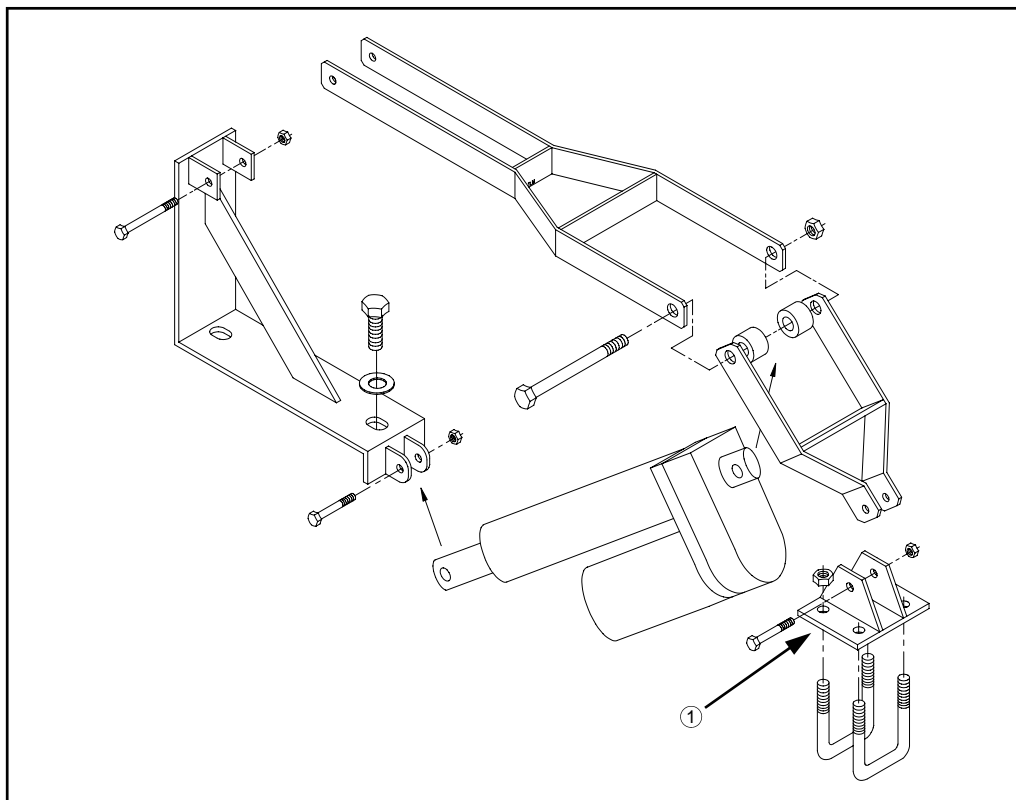


FIG 3.27

1. Attach the depth command actuator assembly (fig. 3.27) to the tool bar (fig. 3.28, item 2).
2. Attach the adjustable slide mount (fig. 3.27, item 1) to the sensor arm approximately 15 inches away from the sensor arm pivot (fig. 3.28, item 1). This should give you equal travel distance up and down of the actuator.

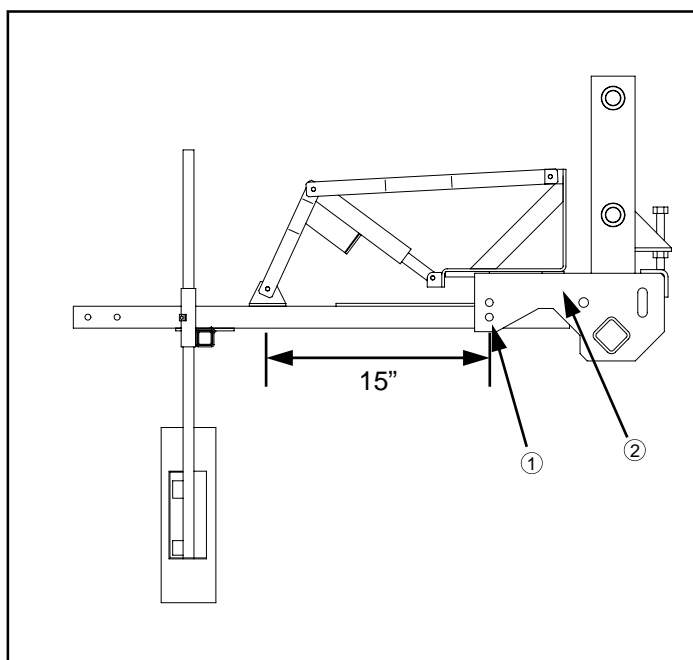


FIG 3.28

For operating information about the depth command option see page 40.

NOTE:

Over tightening of the sensor arm pivot mounting bolt (fig. 3.28, item 1) may cause the actuator to stall.

III. PREPARING TO OPERATE

▶ ATTACHING EQUIPMENT CONTINUED

Wiring Tasselrol®/LS and Depth Command

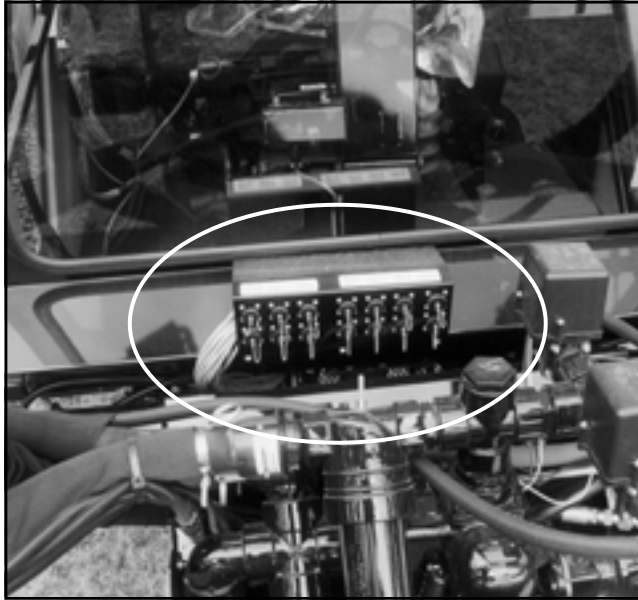


FIG 3.29

Attach Tasselrol® and Depth Command wires to the “jumper” ports located in front of the cab (fig. 3.29). Refer to 2101 SPRAYER/DETASSELER Parts Manual for proper wiring schematics.

All “jumper” ports not used (or when machine is converted to sprayer) should be “capped” (fig. 3.30, items 1 & 2) to protect connection points. LS and Depth Command ports use the small cap (fig. 3.30, item 1) and the lift arm stack valve harness ports use a slightly larger cap (fig. 3.30, item 2). Refer to 2101 SPRAYER/DETASSELER Parts Manual for correct hardware.

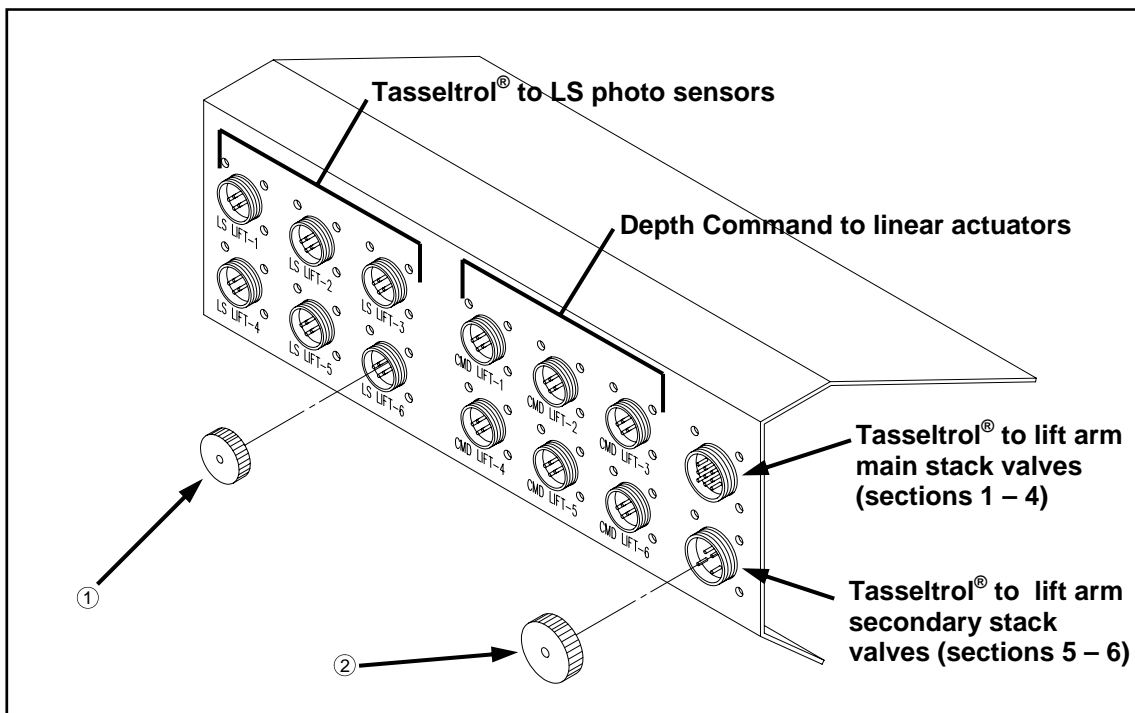


FIG 3.30

III. PREPARING TO OPERATE

ATTACHING MALE CORN CHOPPERS



FIG 3.31

1. Disconnect the hydraulic hoses from existing heads.
2. Disconnect and remove the head assemblies and, if equipped, the Tasselrol®/LS attachments from the tool bar.
3. Attach the male corn chopper to the tool bar.
4. Attach the lower stabilizer arm to the hoist column and male corn chopper (fig. 3.32, item 1).
5. Adjust the support rod so there is approximately two inches of travel on each end (fig. 3.32, item 2).
6. Add weights (fig. 3.32, item 3).

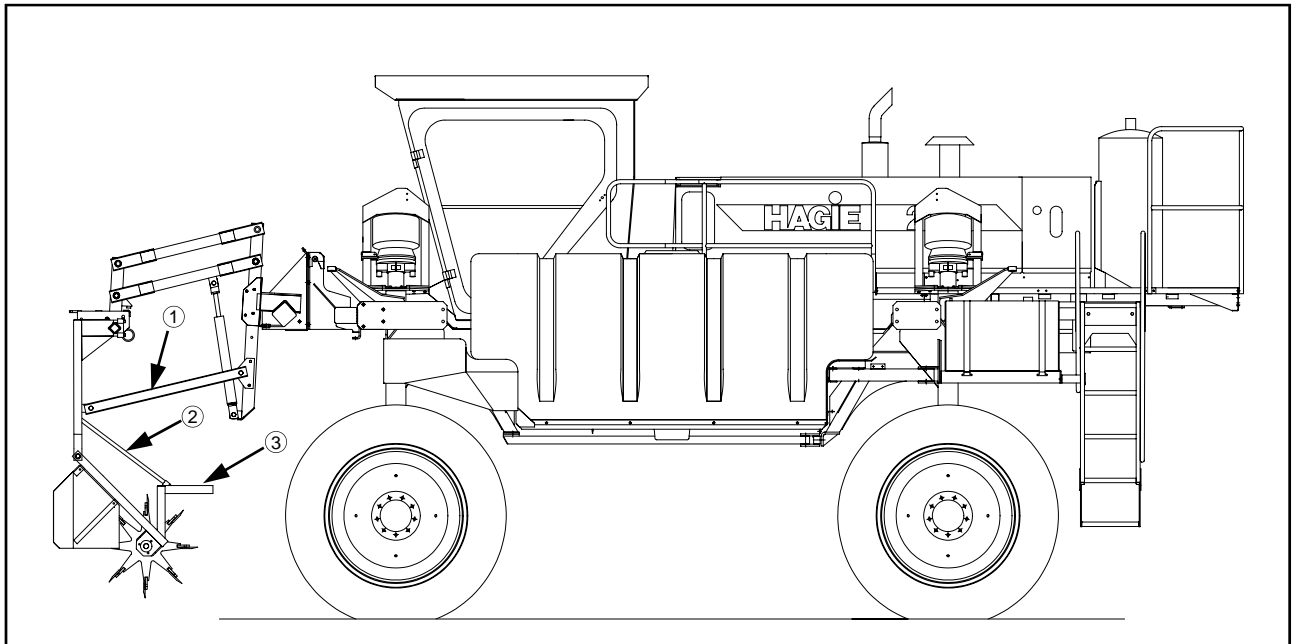


FIG 3.32

III. PREPARING TO OPERATE

ATTACHING MALE CORN CUTTERS



FIG 3.33

1. Disconnect hydraulic hoses from existing heads.
2. Remove tool bar weldments with heads.
3. Install male corn cutter adapter brackets (3.34, item 1).
4. Install male corn cutter drop tube assembly (3.34, item 2).
5. Connect hydraulic hose to the male corn cutter motor as shown in schematic in HAGIE 2101 SPRAYER/DETASSELER Parts Manual.

NOTE:

Mounting brackets, case drain assembly, or a hydraulic package may need to be ordered to attach male corn cutters. For further information, contact the Hagie Customer Support Department.

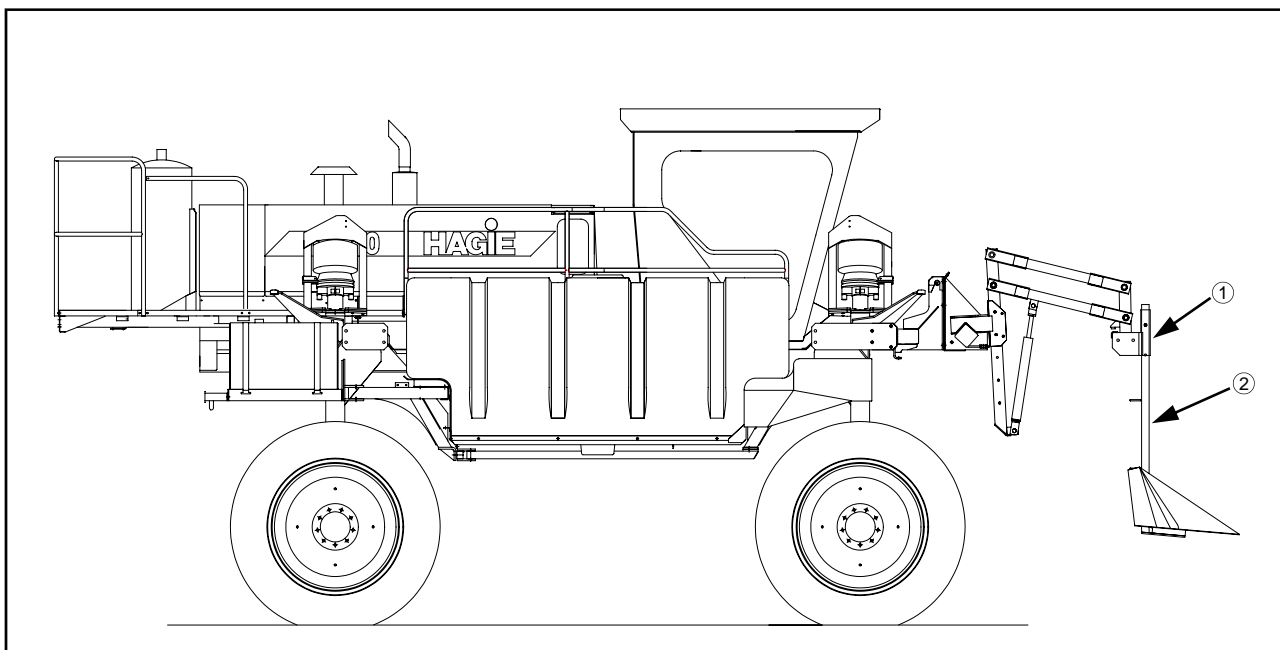


FIG 3.34

IV. OPERATING INFORMATION

HYDRAULIC SYSTEM

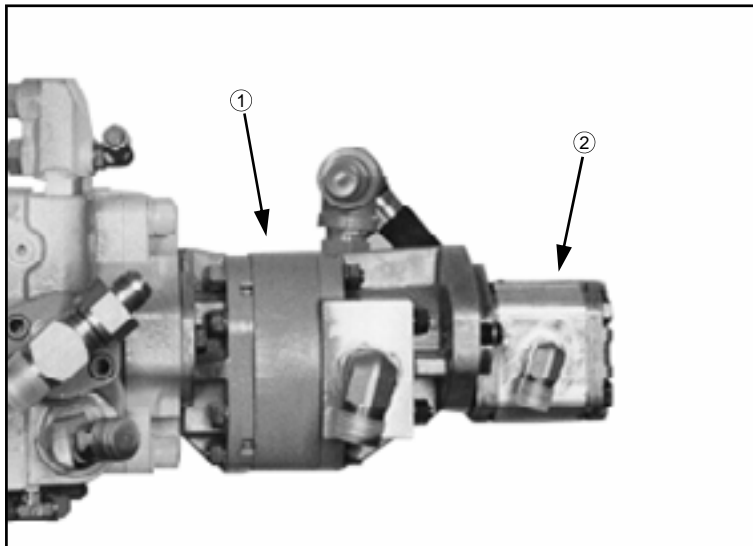


FIG 4.1

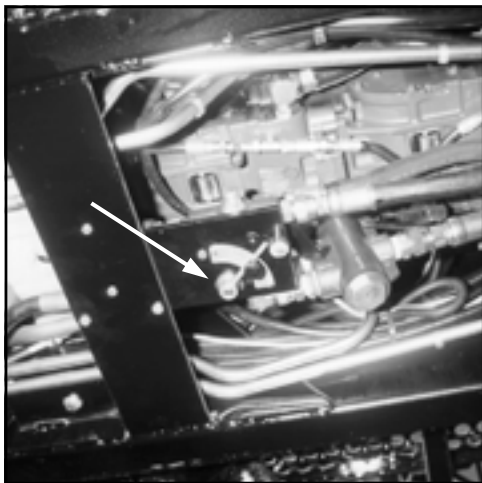


FIG 4.2

The front, larger gear pump (fig. 4.1, item 1) supplies only the cutter motors or Quad Puller motors. The rear, smaller gear pump (fig. 4.1, item 2) supplies power steering, the detasseling head lift cylinders, and the outrigger fold cylinders.

Locate the variable flow control valve that supplies the solution pump motor with hydraulic fluid (fig. 4.2). Adjust the setting so no fluid is sent to the solution pump. Remember to open it back up later when you begin spraying again.

NOTE:

Full operating speed of detasseling heads cannot be reached unless the variable flow control valve to the solution pump is adjusted.

CAUTION

DO NOT GO NEAR LEAKS. High pressure oil easily punctures skin causing injury, gangrene, or death. If injured, seek emergency medical help. Immediate surgery is required to remove oil. Do not use finger or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings.

HYDRAULIC SYSTEM CONTINUED 

IV. OPERATING INFORMATION

► HYDRAULIC SYSTEM CONTINUED

Electro-Hydraulic Valves

LIFT STACK VALVE – The electro-hydraulic valves which control the height of the detasseler head lift cylinders are equipped with adjustable raise and lower orifices controlled by independent coils (fig 4.3, item 1). Upon initial setup adjust the orifice screws (fig. 4.3, item 2) as follows, then see page 29 for more precise adjustment:

RAISE – Adjust bolt all the way in and then back it out 2½ turns.

LOWER – Adjust bolt all the way in and then back it out 4 turns.

NOTE:

Over adjustment of raise orifice can cause excessive working pressure.

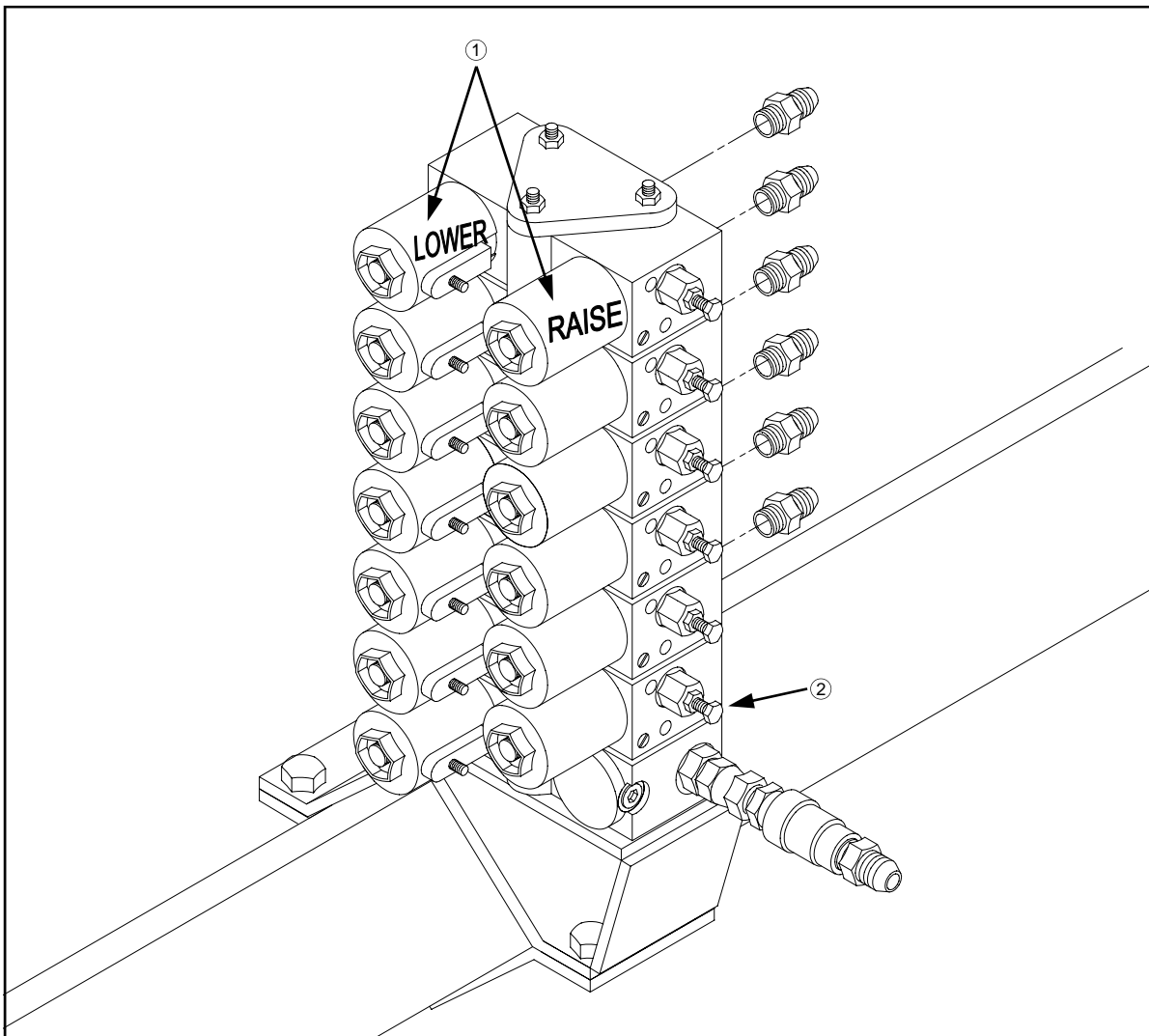


FIG 4.3

IV. OPERATING INFORMATION

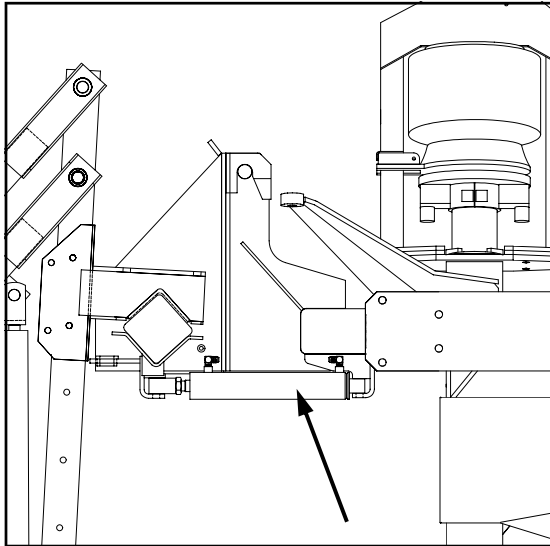


FIG. 4.4

Fold Cylinders

To fold either outrigger out or in toward each other, depress the “OUT” or “IN” of either “BOOM FOLD” switch (fig. 4.5). While depressed, these switches activate cylinders connecting either outrigger to the center tool bar (fig. 4.4).

NOTE:

When folding detasseling heads forward, take care to “stack” heads on outriggers so they will not collide (fig. 4.6).



FIG. 4.5

Fold or unfold the outriggers in an open area only. Make sure no one is in the outrigger's travel path.



FIG 4.6

HYDRAULIC SYSTEM CONTINUED



IV. OPERATING INFORMATION

▶ HYDRAULIC SYSTEM CONTINUED

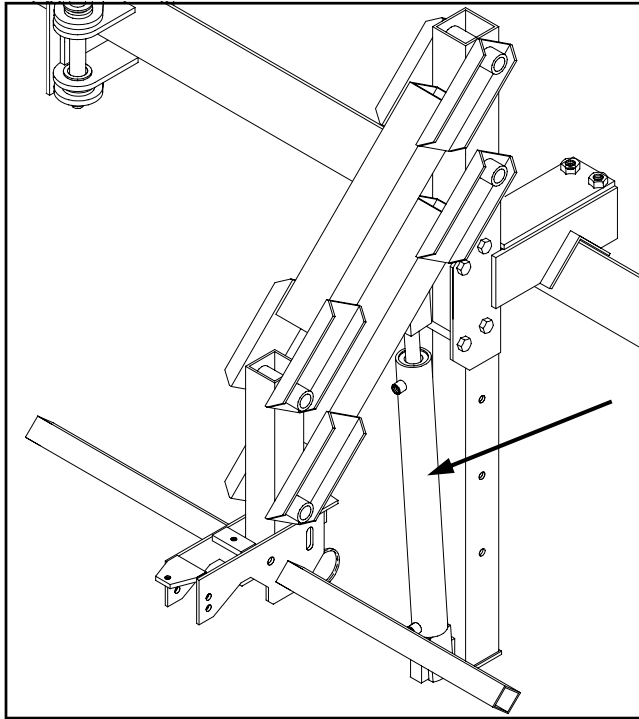


FIG 4.7

Lift Cylinders

To adjust the height of each detasseling head assembly, cylinders mounted on each lift unit (fig. 4.7) are connected to a hydraulic stack valve controlled by a steering column-mounted lift control (fig 4.8). The control is switchable from manual to automatic.

For information about operating or adjusting parameters in the Tasselrol®/LS automatic lift controls see pages 31-38.

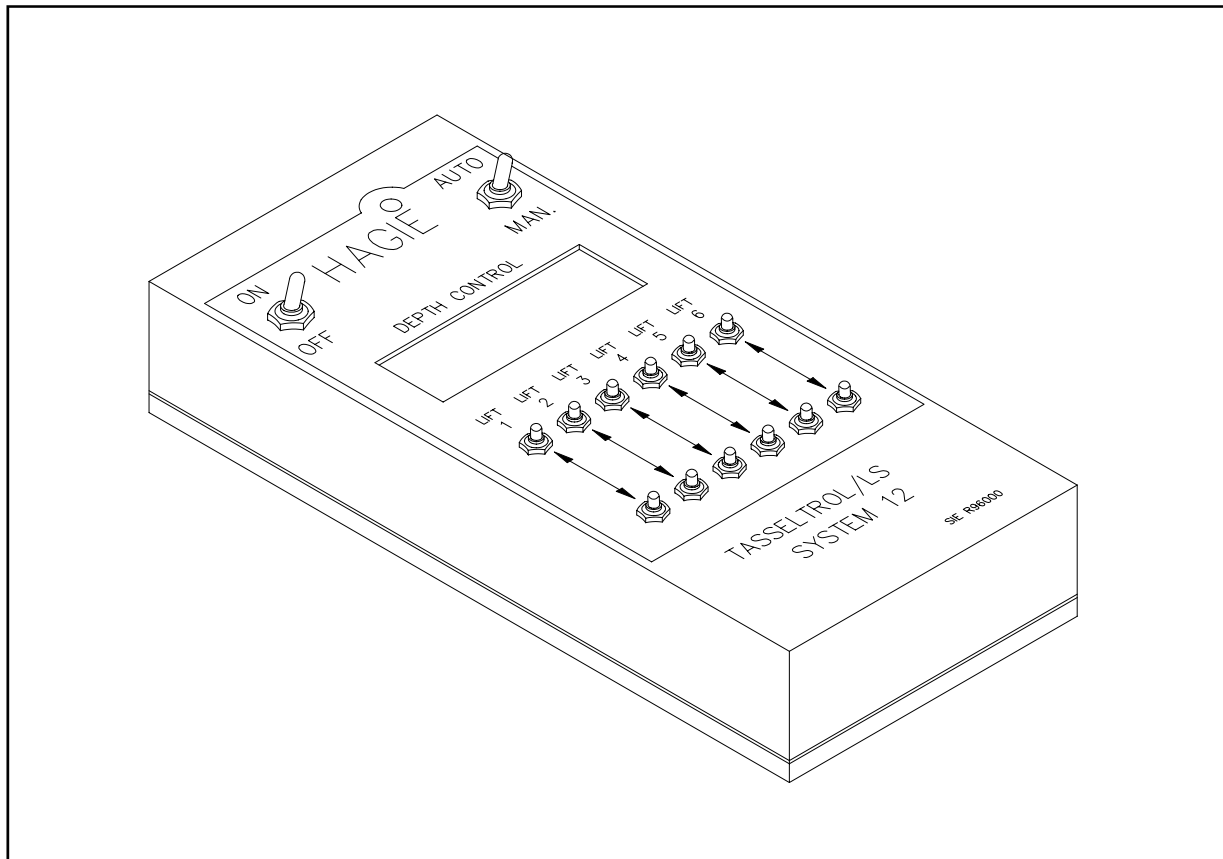


FIG 4.8

IV. OPERATING INFORMATION



FIG 4.9

NOTE:

Over adjustment of raise orifice can cause excessive working pressure.

Setting Each Lift Assembly

Install a 3000 PSI pressure gauge on the inlet of the electro-hydraulic valve (fig. 4.10, item 1). With the engine running at an idle, raise each unit one at a time with the Tasselrol® box while in “MANUAL” mode. Observe the pressure. Adjust each lift cylinder to 1000 PSI.

To increase the pressure of a given lift cylinder, turn the adjustable screw (fig. 4.10, item 2) on the raise orifice clockwise. To decrease the pressure of a given cylinder, turn the adjustable orifice screw counter-clockwise.

After each unit has been adjusted to 1000 PSI, test the settings by turning the Tasselrol® box to “AUTO” and activate the “ALL UP” switch (fig. 4.9) on the hydrostatic control handle (“ALL UP” dwell should be set at 20 seconds – see page 34). At this time all units should lift together.

Adjust each lower orifice as outlined on page 26.

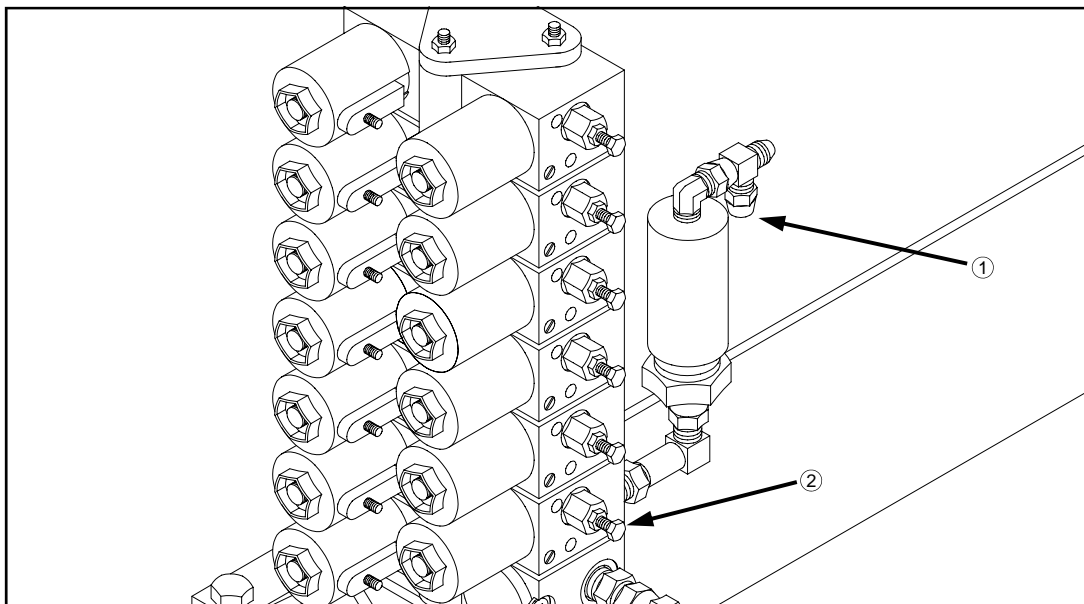


FIG 4.10

IV. OPERATING INFORMATION

▶ HYDRAULIC SYSTEM CONTINUED

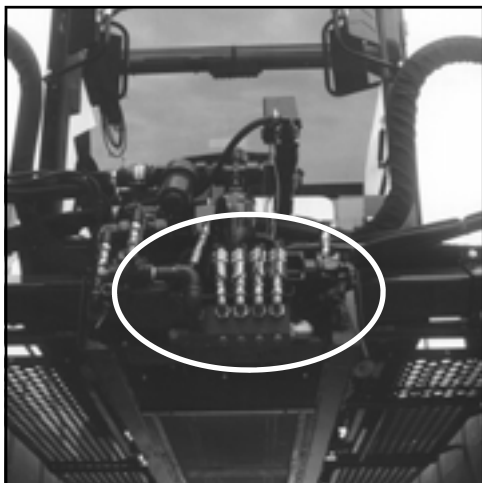


FIG 4.11



FIG 4.12

Detasseling Heads

The hydraulic motors on the detasseling heads (fig. 4.13) are turned on and off with a row of switches mounted on the control box to the right of the operator's seat (fig. 4.12). To open the solenoid on any of the motor control valves (fig. 4.11) which activate the motors, flip the corresponding switch(es) up. To shut any or all motors off, flip the corresponding switch(es) down.

Each motor control valve contains a .182 inch orifice disc that restricts hydraulic flow to the hydraulic motors so they don't overspeed and become damaged.

Activate hydraulic motors while engine speed is at an idle, then increase engine RPM to operating speed.

CAUTION

BEFORE ENGAGING HYDRAULIC MOTORS

1. REDUCE ENGINE SPEED TO AN IDLE
2. CLEAR AREA OF UNAUTHORIZED PERSONNEL

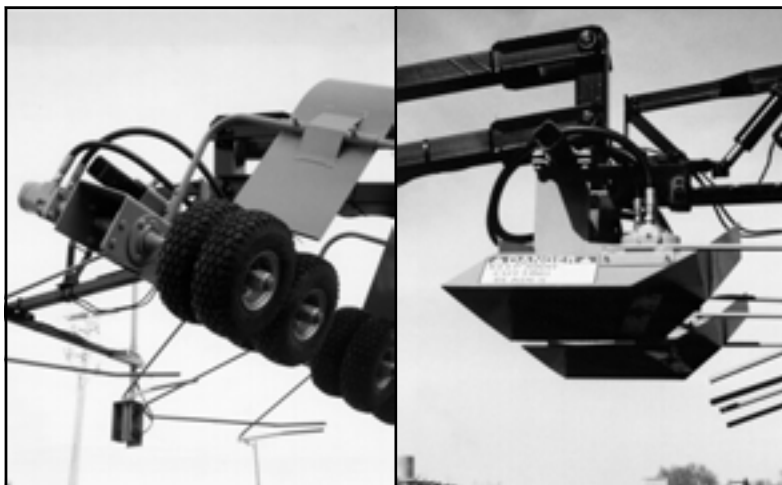


FIG 4.13

CAUTION

DO NOT operate the hydraulic motors on detasseling heads without .182 inch orifices in place under each solenoid coil.

IV. OPERATING INFORMATION

SETTING UP THE TASSELTROL®/LS SYSTEM



FIG 4.14

The control box (fig. 4.14) has three programmable parameters and each has four different value settings. Your programmable control box is factory preset with the following parameter defaults:

BOTTOM PARAMETER – B1 See page 37 to reprogram the bottom parameter.

RESPONSE PARAMETER – R2 See page 35 to reprogram the response parameter.

TOP PARAMETER – T3 See page 36 to reprogram the top parameter.

These parameters will always be displayed until the control box is reprogrammed. Once reprogrammed, the values for the parameters will appear in the window of the control box. The new parameters will maintain their value for approximately a two week period. If the unit is not used within this time frame, the parameters will automatically return to the normal settings.

To program the unit, first select the response parameter (page 35). If further adjustment is required for top and/or bottom parameters, see pages 36 and 37.

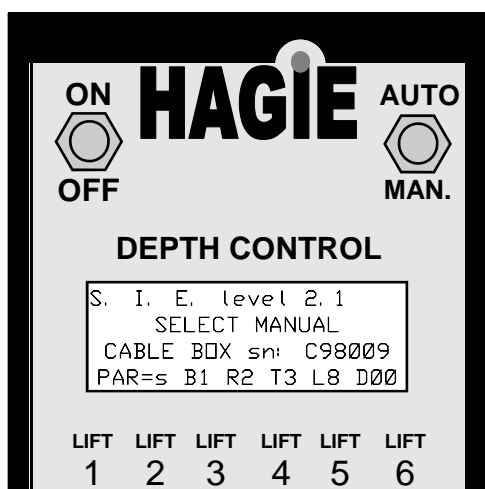


FIG 4.15

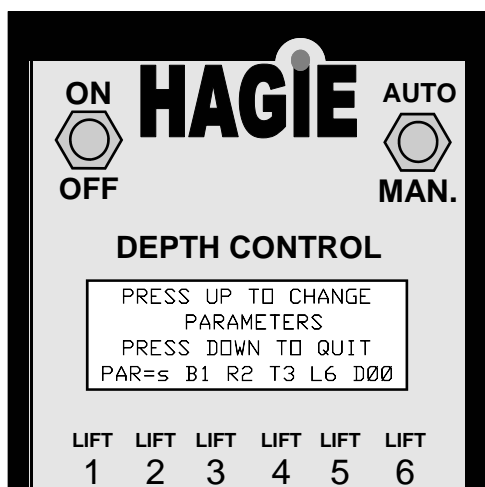


FIG 4.16

TASSELTROL® CONTINUED

IV. OPERATING INFORMATION

TASSELTROL® CONTINUED

OPERATING THE TASSELTROL®/LS CONTROL



FIG 4.17

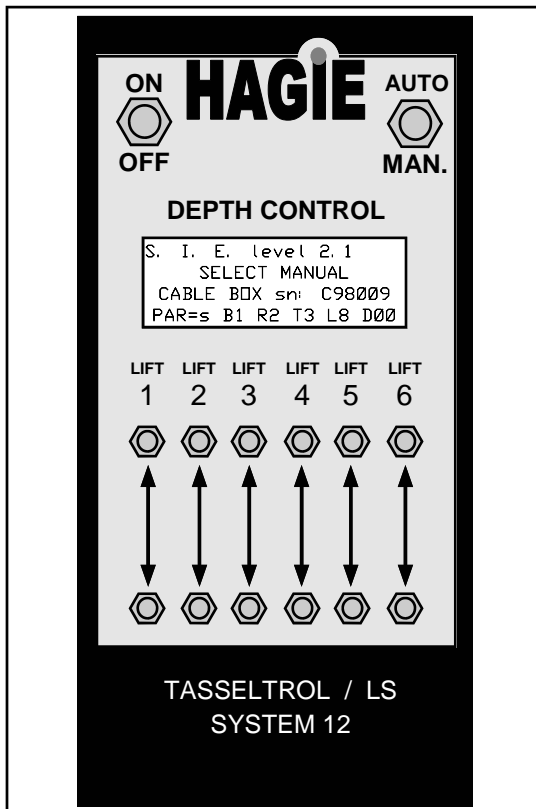


FIG 4.18

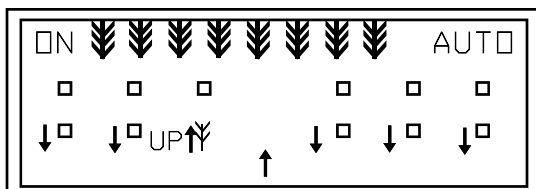


FIG 4.19

To use the control box with its normal parameter setting, use the following procedures. To adjust the given parameters, see pages 35-37.

1. From the operator's seat, turn the ignition to the "ON" position.
2. Turn the control box power switch to the "ON" position.
3. Turn the "AUTO/MANUAL" switch to "MANUAL." At this time the display will read "MANUAL" in addition to other information identifying the control box.
4. Press the individual row switches for up and down movement. An arrow in the display will indicate direction of each lift assembly. "P" indicates pressure - "UP" only.
5. If the "AUTO/MANUAL" switch is left in the "AUTO" position when the unit is first started, the display will tell you to select "MANUAL." After you have selected "MANUAL" switch back to the "AUTO" position.
6. To raise and hold one or more units during operation, press the desired "UP" switch, select "MANUAL" and back to "AUTO." This will hold the unit up in position. To re-activate the lift, switch to "MANUAL" and back to "AUTO."
7. To override the system, press the desired "UP" switch to raise the attachment. When the switch is released, the system will go back into the "AUTO" mode.
8. If the ignition is left on and the "AUTO/MANUAL" switch is left in the "AUTO" position, the down coils on the electro-hydraulic valve will lose power after 45 seconds. To re-activate, move the "AUTO/MANUAL" switch from "AUTO" to "MANUAL" and back to "AUTO."
9. The control box is set up with a feature so that if a unit loses contact during operation in the "AUTO" mode, the unit will automatically rise. If this should happen, switch to the "MANUAL" mode and determine the cause for malfunction.

IV. OPERATING INFORMATION



FIG 4.20

Short Corn Operation

When operating the LS system, always select “MANUAL” when first entering the field. Once you have maintained your operating speed and the cutting and/or pulling depth, select “AUTO.” When you come to an area where the corn is very short, such as a low spot in the field, you may want to switch to the “MANUAL” position until you reach taller corn.



FIG 4.21

Always switch to the “MANUAL” position before you reach the end rows (fig. 4.20). This will allow the cutter or puller heads to maintain their cutting or pulling height when re-entering the field (fig. 4.21), then you may switch back to “AUTO.”

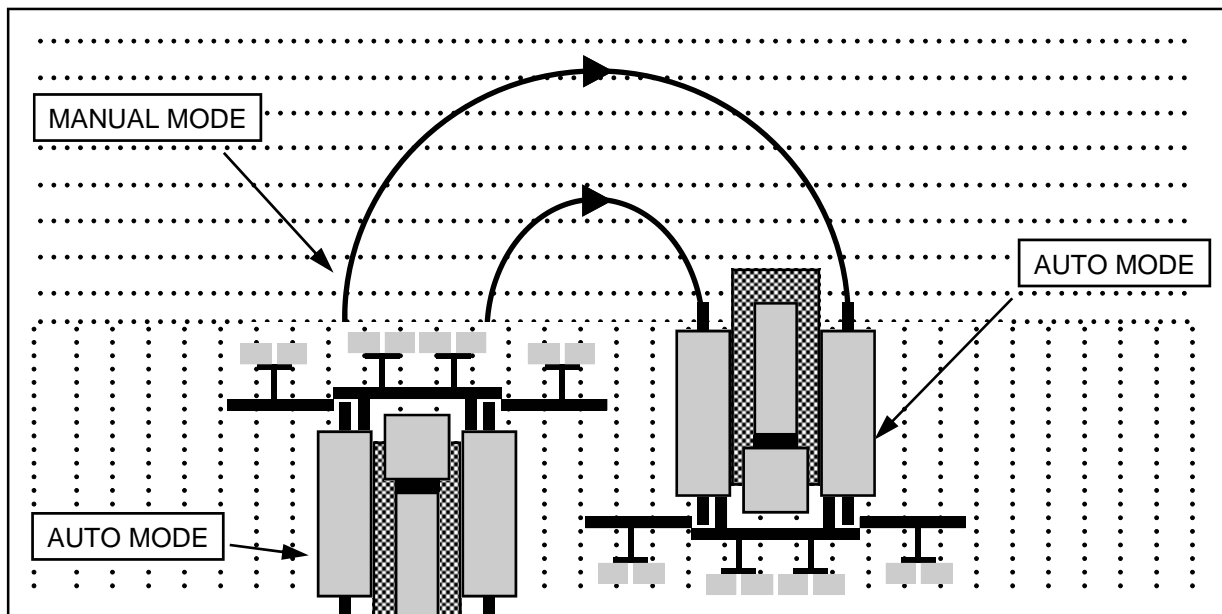


FIG 4.22

IV. OPERATING INFORMATION

▶ CAB OPERATION CONTINUED



FIG 4.23

“ALL UP” and “ALL HOLD” Function

This function can be used to raise or lower all row units at the same time. The switch to control this option is located on the hydrostat control handle (fig. 4.23). All the row units will move up when the switch is pressed upward and will lower when the switch pressed downward.

The parameters for dwell on the up move can be set to 0, 5, 10, 15, 20, or 25 seconds. The heads will move up in this amount of time without having to hold the switch up. All heads will hold this position when the parameter is reached. To resume automatic depth control, press the switch down.

To program the “ALL UP” and “ALL HOLD” function:

1. Put the “AUTO/MANUAL” switch to “AUTO.”
2. Put the “ON/OFF” switch to “ON.”
3. Press the “UP” button under “PAR.”
4. Press the “UP” button under “D” to set the dwell time.
5. After selecting one of the dwell time choices, press any of the down switches.
6. To escape the parameter mode, press down a second time to return to the original screen (to save this setting, switch the “AUTO/MANUAL” toggle to “MANUAL”).

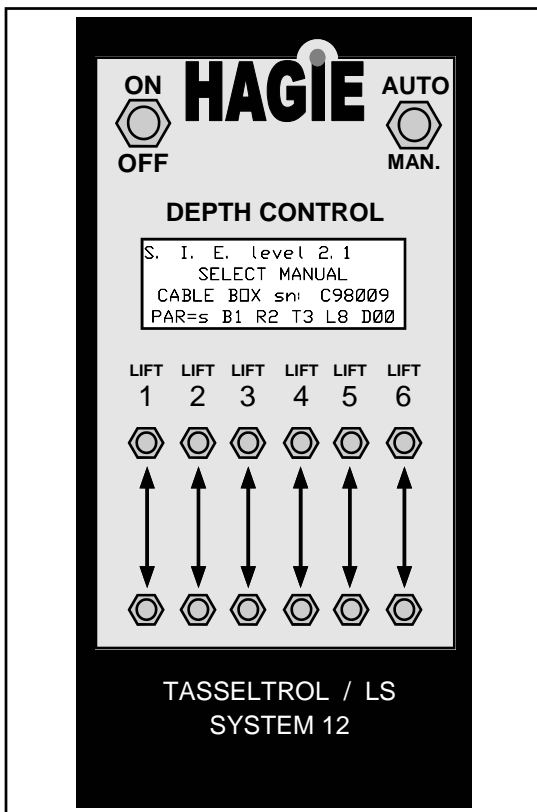


FIG 4.24

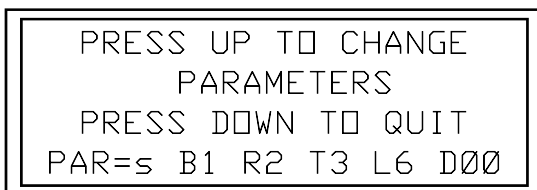


FIG 4.25

IV. OPERATING INFORMATION

TASSELTROL® RESPONSE PARAMETER

The response parameter is used to adjust the response time of both photocells. How quickly the down motion starts when no corn is detected by either the top or bottom cells, and how quickly the up motion is stopped when corn is no longer detected by the top cell, can be changed by selecting R1, R2, R3, or R4. More corrections will occur with R1 selected, and fewer corrections with R4 selected. The normal or default value for this parameter is R2, but can be set to any desired value.

Use the response parameter to adjust overall correction activity and to compensate for ground speed. If the pullers are moving too quickly and frequently, the response parameter can be increased toward R4. If the pullers are too slow to respond to changes in the corn depth, increase the parameters

toward R1. Generally this parameter can be left at R2.

To display the response parameter, select "AUTO" and turn the control box power on. Wait three seconds for the "SELECT MANUAL" message, press the "UP" button under "PAR". Now press the "UP" button under the "R" value.

The active value of the parameter is indicated by it blinking on and off, while the other three choices are displayed continuously.

To select a new value for the parameter, press the "UP" button under the desired choice.

After selecting one of the four choices, press any of the "DOWN" buttons to escape this parameter.

To save new values and escape the parameter mode, press "DOWN" a second time and switch "AUTO/MANUAL" toggle to "MANUAL."

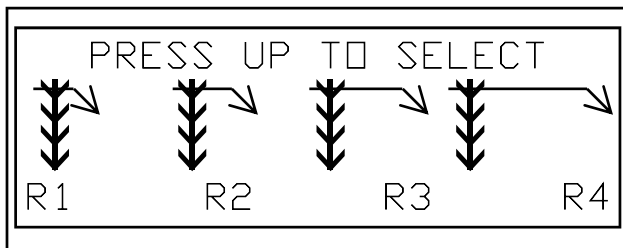
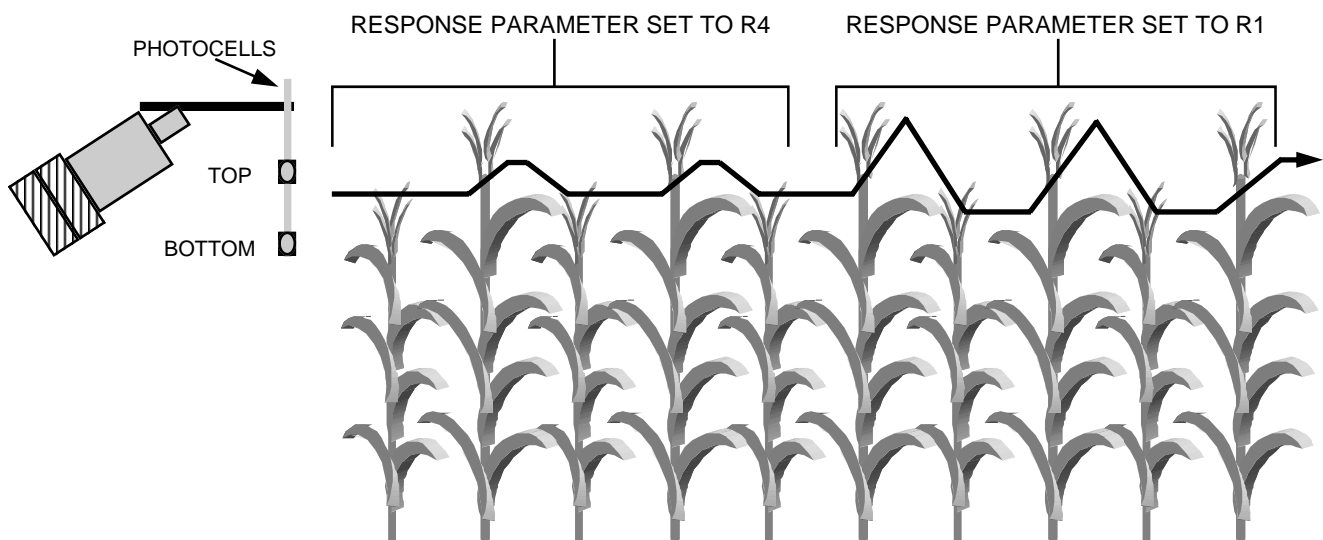


FIG 4.26

NOTE:
See page 39 for more information regarding the LS photolights.



IV. OPERATING INFORMATION

TASSELTROL® TOP PARAMETER

The top parameter is used to adjust the sensitivity of the top photocell. The top photocell starts the up motion when its lights path is blocked by corn. How much corn it has to see before starting the up move can be changed by selecting one of the four values T1, T2, T3, or T4. With T1 selected, more corn is required to start an up move. The normal or default value for this parameter is T3, but can be set to any desired value.

If the pullers move up too easily when a taller stalk of corn passes, increase the parameter toward T4. If the pullers stay deep too long when taller corn passes, decrease the parameter toward T1. Generally this parameter can be left at T3.

To display the top parameter, select "AUTO" and turn the control box power on. Wait three sec-

onds for the "SELECT MANUAL" message. Press the "UP" button under "PAR". Now press the "UP" button under the "T" value.

The active value of the parameter is indicated by it blinking on and off, while the other three choices are displayed continuously.

To select a new value for the parameter, press the "UP" button under the desired choice.

After selecting one of the four choices, press any of the "DOWN" buttons to escape this parameter.

To save new values and escape the parameter mode, press "DOWN" a second time and switch "AUTO/MANUAL" toggle to "MANUAL."

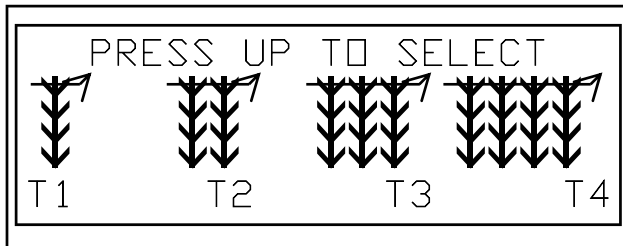
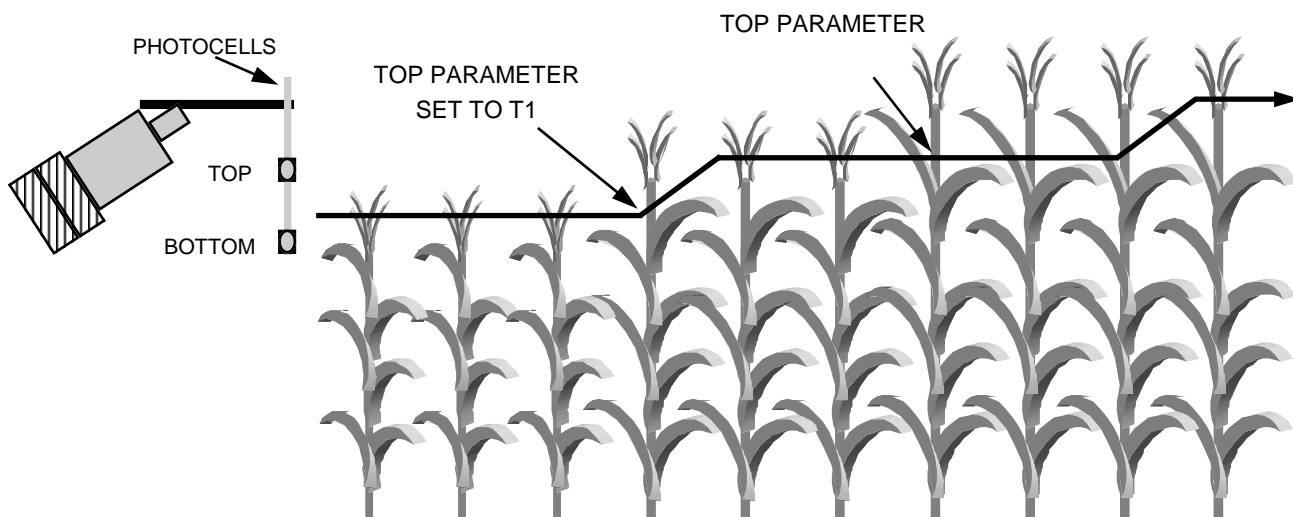


FIG 4.27

NOTE:
See page 39 for more information regarding the LS photolights.



IV. OPERATING INFORMATION

TASSELTROL[®] BOTTOM PARAMETER

The bottom parameter is used to adjust the sensitivity of the bottom photocell. The bottom photocell stops the down motion when its light is blocked by corn. How much corn it has to see before stopping the down move can be changed by selecting one of the four values B1, B2, B3, or B4. With B1 selected the down move will stop as soon as corn is detected. With B4 selected the down move will continue a little longer. The normal or default value for this parameter is B1, but can be set to any desired value.

If the pullers run too shallow after moving down into shorter corn, increase the parameter toward T4. If the pullers move too deep when going into shorter corn or oscillate between the top and bot-

tom photocells, decrease the parameter toward B1. Generally this parameter can be left at B1.

To display the bottom parameter, select "AUTO" and turn the control box power on. Wait three seconds for the "SELECT MANUAL" message. Press the "UP" button under "PAR". Now press the "UP" button under the "B" value.

The active value of the parameter is indicated by it blinking on and off, while the other three choices are displayed continuously.

To select a new value for the parameter, press the "UP" button under the desired choice.

After selecting one of the four choices, press any of the "DOWN" buttons to escape this parameter.

To save new values and escape the parameter mode, press "DOWN" a second time and switch "AUTO/MANUAL" toggle to "MANUAL."

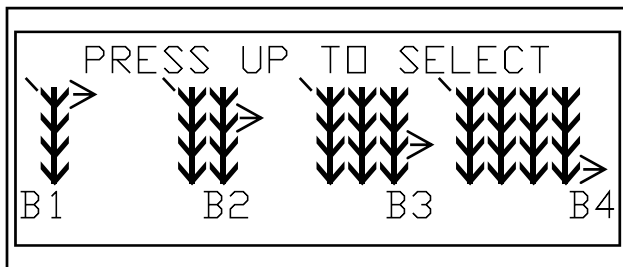
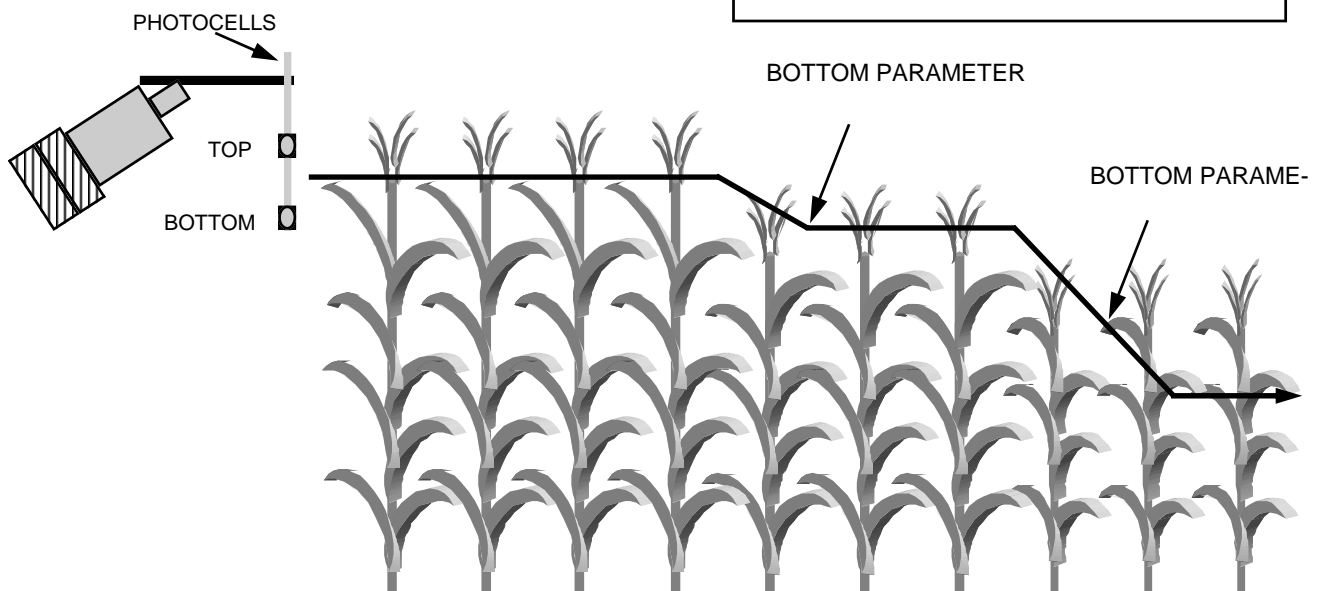


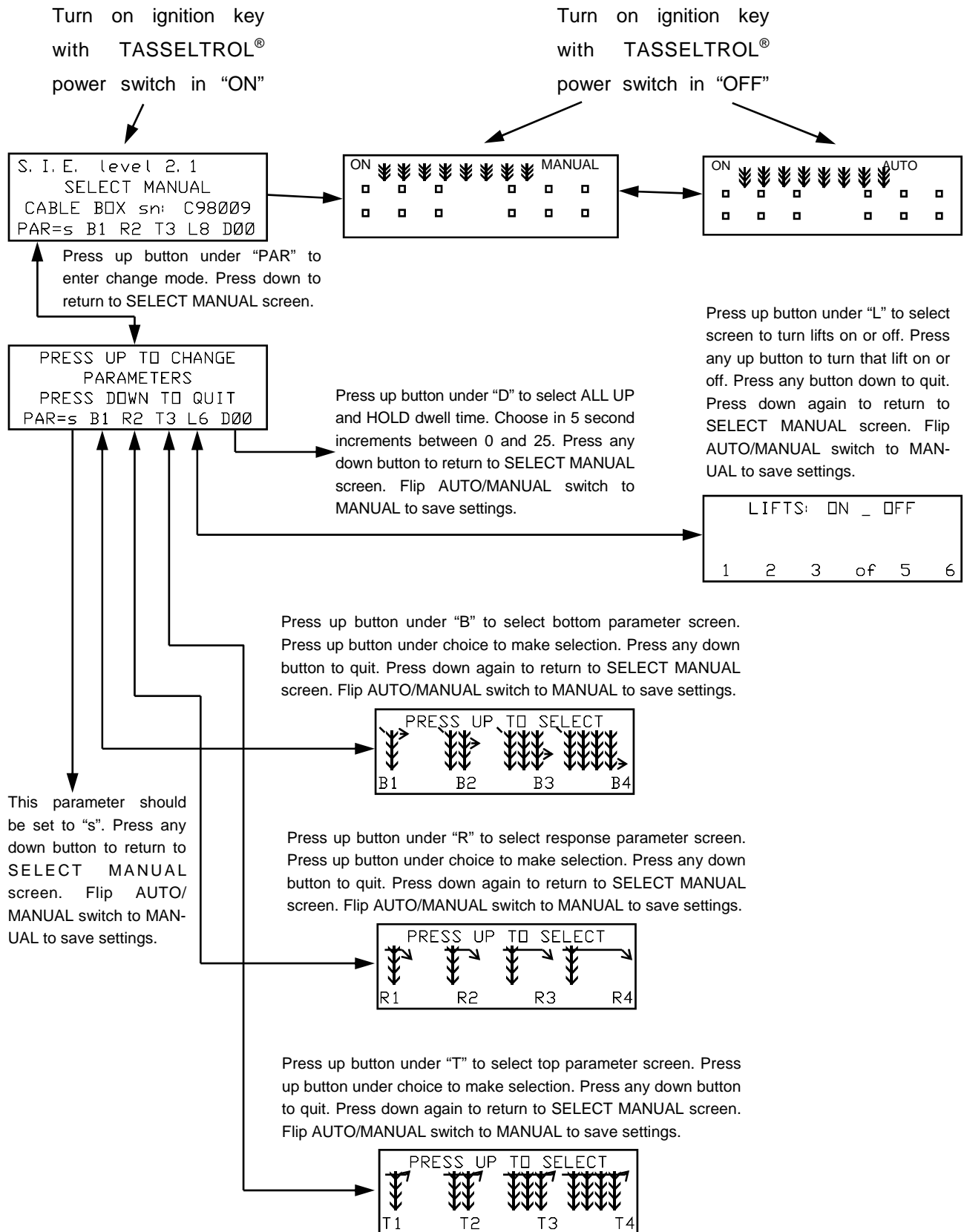
FIG 4.28

NOTE:
See page 39 for more information regarding the LS photolights.



IV. OPERATING INFORMATION

Six-Lift TASSELTROL® Display Screen Quick Reference Chart



IV. OPERATING INFORMATION

LS PHOTOLIGHT INDICATORS

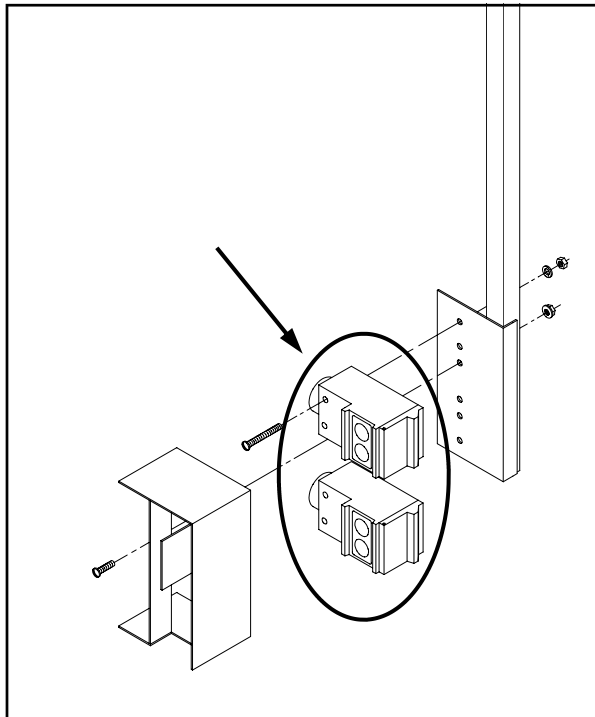


FIG 4.29

The upper and lower LS photolights (fig. 4.29) have L.E.D. lights (fig. 4.30) that indicate their operational status.

LT/DK SWITCH – Light/Dark switch on photolight (fig. 4.30, item 1) changes the activated condition of green L.E.D. (see below) from *ON* (“LT”) to *OFF* (“DK”). Switch does not affect the functional operation of the light, only how it is displayed. Switch should be set to “LT”.

SENSITIVITY ADJUSTMENT SCREW – Sensitivity adjustment screw (fig. 4.30, item 2) should always be set to maximum.

YELLOW L.E.D. – Yellow L.E.D. (fig. 4.30, item 3) indicates power on.

GREEN L.E.D. – Green L.E.D. (fig. 4.30, item 4) indicates output energized (sending a signal to Tassel-trol[®] box, opening the raise or lower stack valve).

RED L.E.D. – Red L.E.D. (fig. 4.30, item 5) indicates photolight is receiving reflected signal.

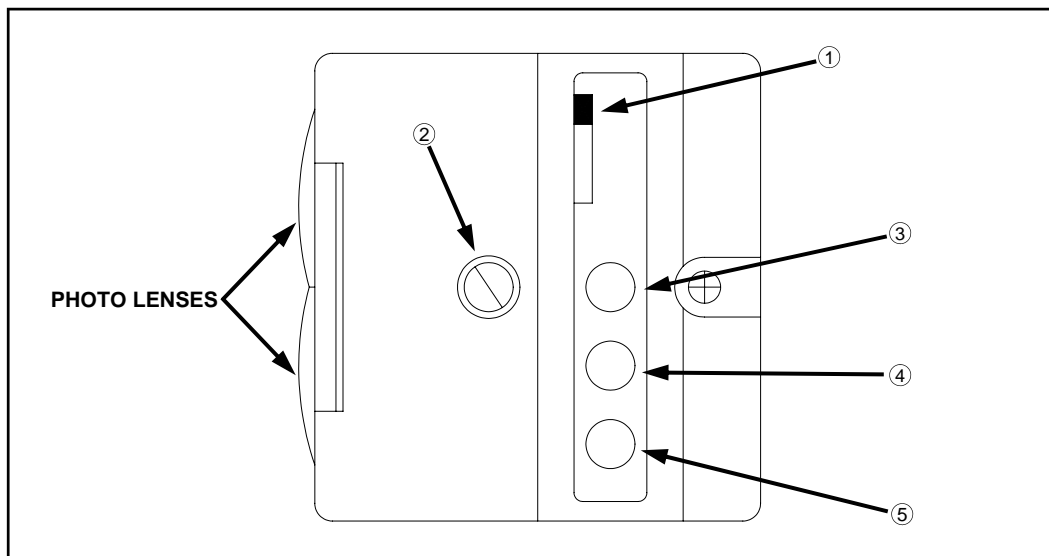


FIG 4.30

IV. OPERATING INFORMATION

DEPTH COMMAND

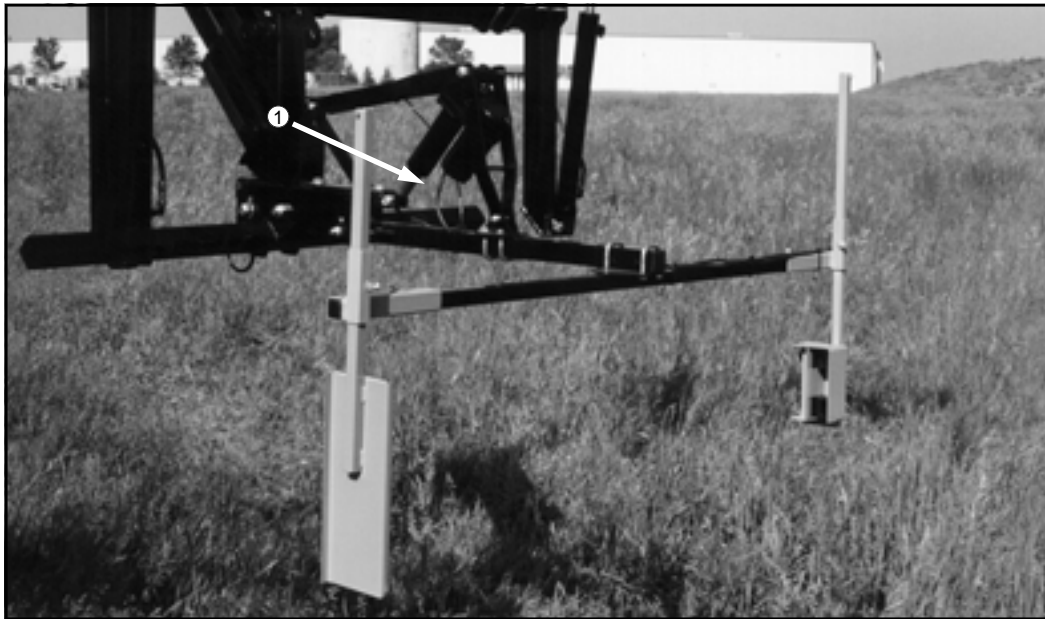


FIG 4.31



FIG 4.32

The Hagie 2101 SPRAYER/DETASSELER comes with adjustable DEPTH COMMAND (fig. 4.31). This allows the operator to adjust the depth of the LS system from the cab. The switches are located to the right of the operator's seat above the console (fig. 4.32).

To lower the cutting or pulling height, select the appropriate switch and push down. This will extend the actuator (fig. 4.31, item 1), raising the LS system, which in turn lowers the cutting or pulling height. To raise the cutting height, lower the actuator by pushing the appropriate switch up.

NOTE:

DO NOT operate more than two actuators at one single time. This may blow the fuse located on the switch panel (fig. 4.32). For more information on the DEPTH COMMAND fuse, see page 44.

V. SERVICE AND MAINTENANCE

FILTERS

Return Filter

Remove and install a new 10 Micron rated return filter (fig. 5.1) at the end of the first 50 hours of use; subsequently, replace the filter every 250 hours, or once a year, whichever comes first.

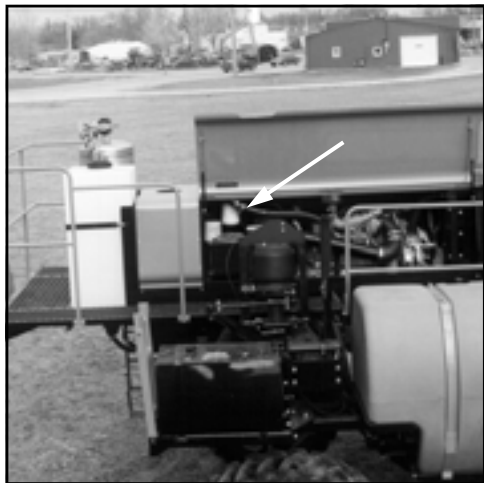


FIG 5.1

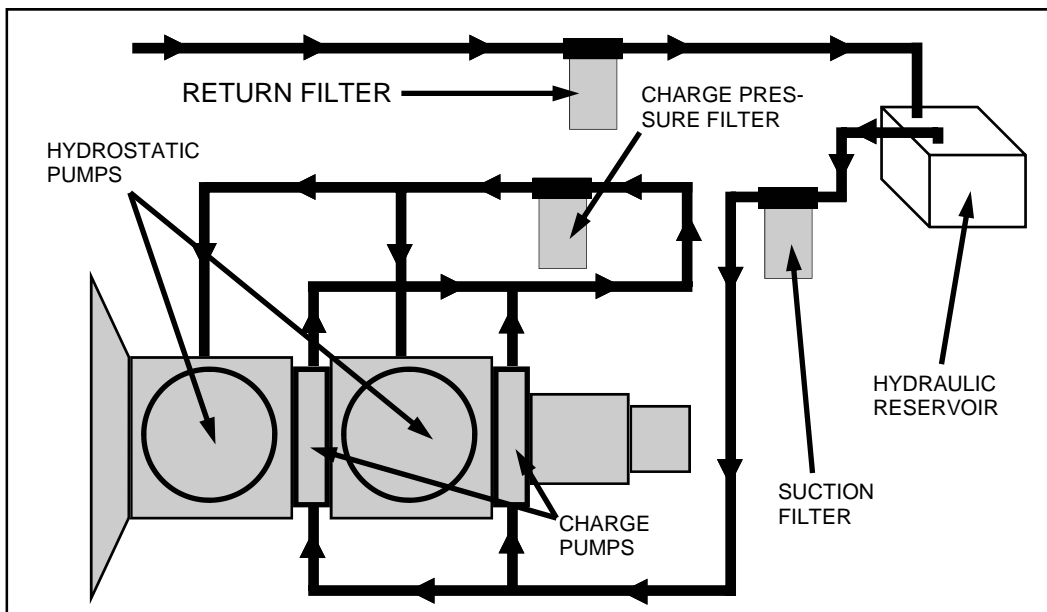


FIG 5.2

FILTERS CONTINUED 

V. SERVICE AND MAINTENANCE

▶ FILTERS CONTINUED

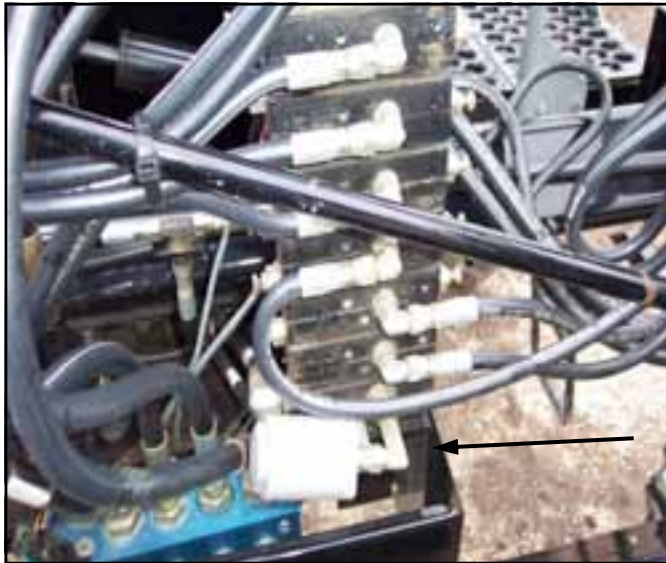


FIG 5.3

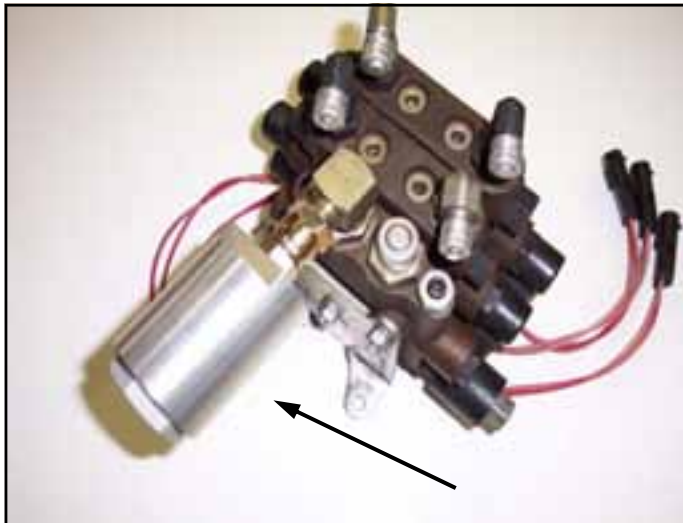


FIG 5.4



FIG 5.5

High Pressure In-line Filters

LIFT ARM STACK VALVE - The valves on the lift control stack valve are protected by a 90 Micron in-line sintered bronze filter (fig. 5.3). When the filter element is removed for cleaning, caution should be taken so the gasket is in the proper place when re-installing (fig. 5.5). Also, re-install filter paying attention to direction of flow so the end marked "OUT" is oriented correctly.

OUTRIGGER FOLD STACK VALVE - The valves on the outrigger fold stack valve are protected by a 90 Micron in-line sintered bronze filter (fig. 5.4). When the filter element is removed for cleaning, caution should be taken so the gasket is in the proper place when re-installing (fig. 5.5). Also, re-install filter paying attention to direction of flow so the end marked "OUT" is oriented correctly.

V. SERVICE AND MAINTENANCE

LUBRICATION

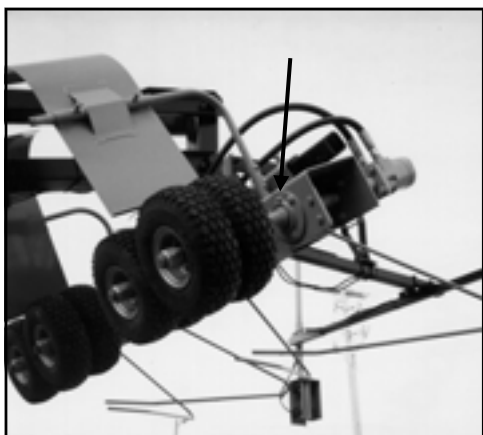


FIG 5.6

Quad Pullers

Each quad puller head has four bearings equipped with grease zerks (fig. 5.6). To ensure the longest life and best performance, grease each bearing twice a day: suggested times are morning and noon.

Male Row Choppers

Each male row chopper has two bearings equipped with grease zerks (fig. 5.7). Grease each bearing once a day.

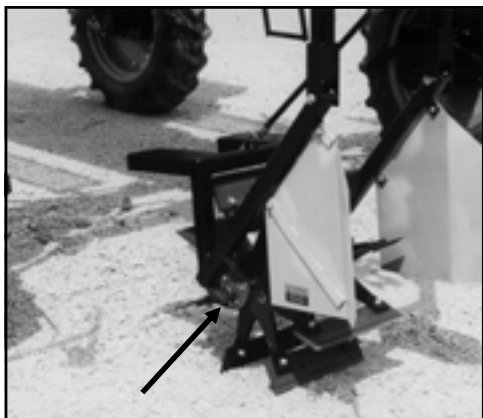


FIG 5.7

Four Blade Male Row Cutters

Grease both upper (fig. 5.8, item 1) and lower (fig. 5.8, item 2) shaft bearings 4 times a day. Suggested times are morning, mid-morning, noon, and mid-afternoon.

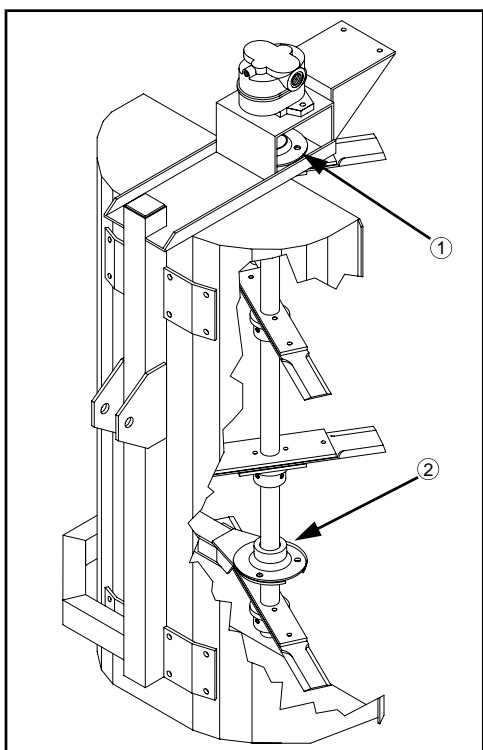


FIG 5.8

SERVICE CONTINUED 

V. SERVICE AND MAINTENANCE

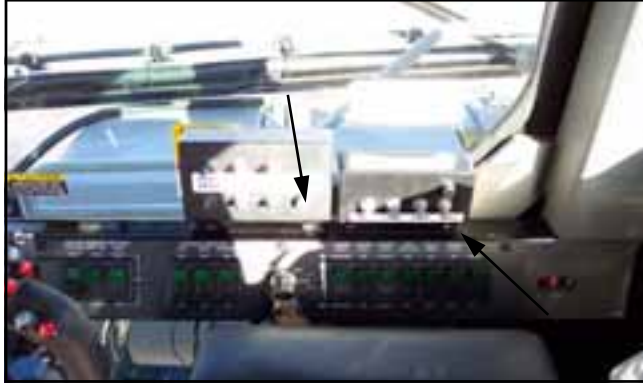


FIG. 5.9

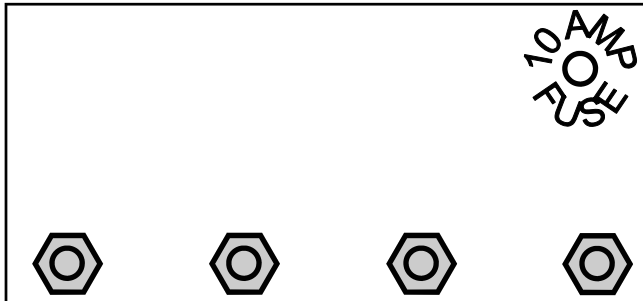


FIG 5.10

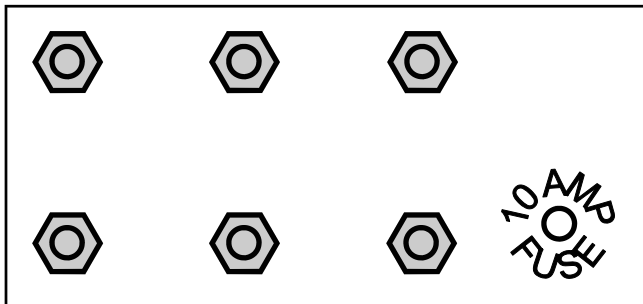


FIG 5.11

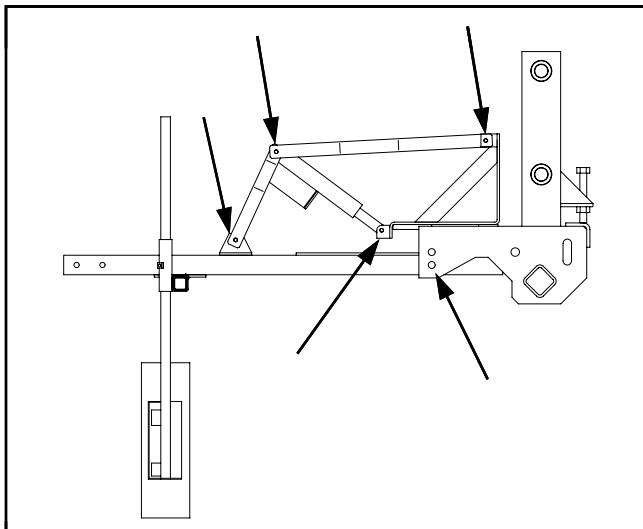


FIG 5.12

Electrical System

MOTOR CONTROL FUSE – The fuse for the motor control valves is located in the motor control switch box (fig. 5.9, item 2). If the motor control fuse blows, remove it by rotating the fuse cap counter-clockwise as you push in. Then pull the fuse straight out. Replace the blown fuse with the same amperage fuse only (fig. 5.10). If the fuse continues to blow, determine the cause and correct it.

DEPTH COMMAND FUSE – The fuse for the DEPTH COMMAND is located in the switch box (fig. 5.9, item 1). If the DEPTH COMMAND fuse blows, remove and replace it in the same manner as above. Replace the blown fuse with the same amperage fuse only (fig. 5.11).

Operating more than two actuators at one time may cause the fuse to blow (see page 40). A blown fuse may indicate that the LS/DEPTH COMMAND pivot bolts (fig. 5.12) are torqued too tight. If the fuse continues to blow, determine cause and correct it.

VI. TROUBLE SHOOTING

A. HYDRAULIC SYSTEM



CAUTION

DO NOT GO NEAR LEAKS. High pressure oil easily punctures skin causing injury, gangrene, or death. If injured, seek emergency medical help. Immediate surgery is required to remove oil. Do not use finger or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings.

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Lifting mechanism won't lift	Bad Cylinder Blown relief valve Relief valve set too low Lift arms frozen Faulty electro-hydraulic valve	Check cylinder; remove and rebuild or replace Remove, check; replace w/ new Reset to 2000 PSI Loosen mounting bolts; lubricate grease fittings if equipped See Tasselrol®/LS and/or Tasselrol trouble shooting guide
Cutter head blades, quad pullers, rollers, or tires won't turn	Oil level in reservoir low Oil not reaching pump Faulty hydraulic pump Faulty hydraulic motor or motors	Fill reservoir to proper level with approved oil Remove suction hose from pump, check for proper flow. Reinstall hose; all suction fittings Replace hydraulic pump Replace motor or motors
Hydraulic motor leaking	Seal failure Restricted case drain hose	Replace seal; turn heads on with low engine RPM Inspect or replace hose

VI. TROUBLE SHOOTING

B. TASSELTROL[®]/ LS SYSTEM – HYDRAULIC



CAUTION

DO NOT GO NEAR LEAKS. High pressure oil easily punctures skin causing injury, gangrene, or death. If injured, seek emergency medical help. Immediate surgery is required to remove oil. Do not use finger or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings.

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
No units will lift	Oil level in reservoir low Faulty valve Relief valve in electro-hydraulic valve set too low	Fill tank to proper level Repair or replace valve Reset to 2000 PSI
No units will lower	All lift arm pivots too tight	Lubricate and loosen pivot points
Only one unit will not lower	Faulty valve Lift arm pivot too tight	Replace valve Lubricate and loosen pivot point

VI. TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
All units lift slowly	<p>Hydraulic oil not at operating temperature</p> <p>Faulty valve</p> <p>Lift arm pivots too tight</p> <p>Plugged high pressure filter</p> <p>Raise orifice in valve adjusted incorrectly</p> <p>Relief valve in electro-hydraulic valve set too low</p>	<p>Allow time for oil to warm up</p> <p>Replace valve</p> <p>Lubricate and loosen pivot point</p> <p>Remove, clean, replace (see page 42)</p> <p>Re-adjust orifice</p> <p>Reset to 2000 PSI</p>
Only one unit lifts slowly	<p>Faulty valve</p> <p>Lift arm pivots too tight</p> <p>Raise orifice in valve adjusted incorrectly</p>	<p>Replace valve</p> <p>Lubricate and loosen pivot point</p> <p>Re-adjust orifice (see page 26)</p>
Only one unit will not hold position	<p>Oil leak between valve and cylinder</p> <p>Faulty valve</p> <p>Faulty lower poppet on stack valve</p>	<p>Repair leak or replace hose</p> <p>Replace valve</p> <p>Remove, clean, replace</p>
No units will hold position	Problem is not hydraulic	See Tasselrol® – elect. section

VI. TROUBLE SHOOTING

▶ TASSELTROL®/LS SYSTEM – HYDRAULIC CONTINUED

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Only one unit lowers slowly	Faulty valve Faulty lower poppet on stack valve Lower orifice incorrectly adjusted	Replace valve Remove, clean, replace Re-adjust orifice (see page 26)
All units lower slowly	Hydraulic oil not at operating temperature	Allow time for oil to warm up
In "Manual" mode, more than one unit lifts or lowers from one up/down switch	Faulty valve	Replace valve
In "Auto" mode, more than one unit raises from photo sensor	Faulty valve	Replace valve
In "Auto" mode, wrong unit raises from photo sensor	Cylinder hoses are connected to	Attach correct hose to proper cylinder

VI. TROUBLE SHOOTING

C. TASSELTRON[®]/LS SYSTEM – ELECTRICAL

NOTE:
Disconnect battery when servicing any part of electrical system to prevent system damage.

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
No units will lift	Faulty "AUTO/MANUAL" switch Blown fuse Faulty #1 valve, coil, or loose coil mounting nut Loose wire connections Faulty wire connections Faulty main wire assembly	Replace control box Find short in wire, repair and replace fuse Tighten nut or replace coil Find loose connections, tighten Replace or repair Replace or repair
Only one unit will not lift	In "MANUAL" mode: faulty "UP/DOWN" switch Light photo sensor assembly Faulty valve, coil, or loose coil mounting unit Loose wire connections Lights photo sensor not lined up with reflector Faulty row wire assembly Faulty sensor connector wire assembly	Replace control box Replace photo sensor Tighten nut or replace coil Find loose connections, tighten Line up sensor with reflector Replace or repair Replace or repair

VI. TROUBLE SHOOTING

▶ TASSELTRON[®]/LS SYSTEM – ELECTRICAL CONTINUED

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
No units will lower	<p>Faulty "AUTO/MANUAL" switch</p> <p>Blown fuse</p> <p>Loose wire connections</p> <p>In "AUTO" mode: LS valve assembly unplugged</p>	<p>Replace control box</p> <p>Find short in wire, repair and replace fuse</p> <p>Find loose connections, tighten</p> <p>Plug in wire assembly</p>
Only one unit will not lower	<p>Faulty "UP/DOWN" switch</p> <p>In "AUTO" mode: faulty light sensor assembly</p> <p>Loose wire connections</p> <p>Faulty valve coil or loose coil mounting unit</p> <p>Faulty sensor connector wire assembly</p> <p>In "AUTO" mode: light sensor not lined up with reflector</p> <p>Faulty row LS wire assembly</p>	<p>Replace control box</p> <p>Replace sensor</p> <p>Find loose connections, tighten</p> <p>Tighten nut or replace coil</p> <p>Replace or repair</p> <p>Line up sensor with reflector</p> <p>Replace or repair</p>
No units will hold position	<p>In "AUTO" mode: no crop moving under sensor assemblies</p>	<p>Drive forward or select "MANUAL" mode</p>
In "AUTO" mode, wrong unit raises from sensor assembly	<p>Row LS wire assembly plugged into wrong sensor connector</p>	<p>Plug correct wire assembly into proper row sensor connector assembly</p>

VI. TROUBLE SHOOTING

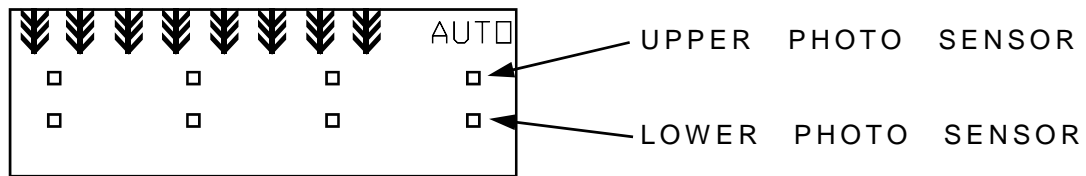
TASSELTROL® DISPLAY TROUBLESHOOTING

To gain further information on the status of the Tasselrol®/LS system before operation: while sitting in the operator's seat, turn the ignition key to the "ON" position (do not start the engine); turn the Tasselrol® box to the "ON" position; turn the "AUTO/MANUAL" switch to "MANUAL."

Make sure there is nothing physically blocking any upper or lower sensor's path to its reflector.

The display will show the status of the upper and lower photo sensor on each lift assembly. If the display shows a box ("□") in all upper and lower areas, the unit is ready for operation. If the display shows a corn stalk ("☿") in one or more areas, refer to pages 49-50 for further suggested remedies.

The LEFT-CENTER sensors are used as examples.



TASSELTROL® DISPLAY

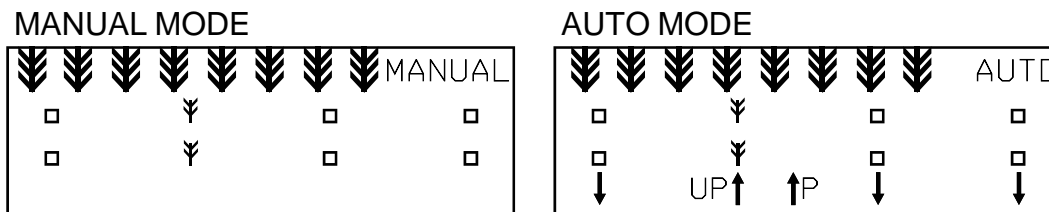
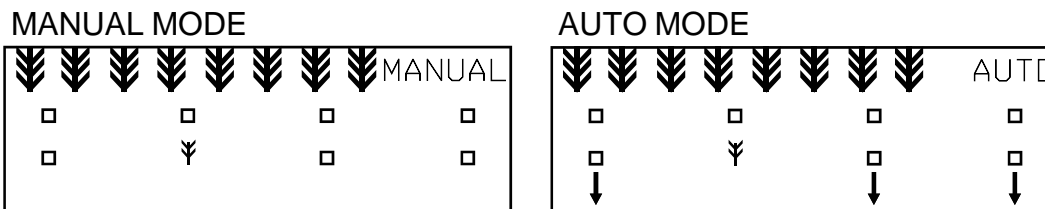


PHOTO SENSOR STATUS LIGHTS	POSSIBLE CAUSE
Lights at both photo sensors	Photo sensors not in line with reflector (See page 20)
No lights at either photo sensor	Faulty connector cable (See page 54, fig. 6.1, item 2) Faulty RED and/or BLACK wire in connector cable (See page 54, fig. 6.1, item 1)

VI. TROUBLE SHOOTING

▶ TASSELTROL®/LS SYSTEM – ELECTRICAL CONTINUED

TASSELTROL® DISPLAY

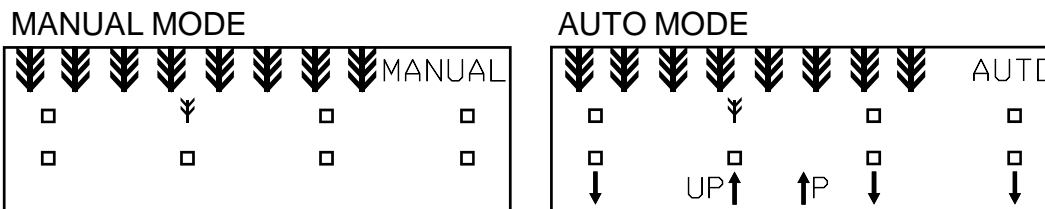


Unit does NOT rise automatically.

PHOTO SENSOR STATUS LIGHTS	POSSIBLE CAUSE
Lights at lower photo sensor	<p>Faulty GREEN wire in connector cable (See page 54, fig. 6.1, item 2)</p> <p>Photo sensor not in line with reflector (See page 20)</p> <p>Faulty BLUE wire in sensor assembly (See page 54, fig. 6.1, item 1)</p>
No lights at lower photo sensor	<p>Faulty RED and/or BLACK wire in connector cable (See page 54, fig. 6.1, item 2)</p>

VI. TROUBLE SHOOTING

TASSELTROL® DISPLAY



Unit rises automatically.

PHOTO SENSOR STATUS LIGHTS	POSSIBLE CAUSE
Lights at upper photo sensor	Faulty WHITE wire in sensor assembly (See page 54, fig. 6.1, item 1) Faulty BLUE wire in sensor assembly (See page 54, fig. 6.1, item 1)
No lights at upper photo sensor	Faulty RED and/or BLACK wire in connector cable (See page 54, fig. 6.1, item 2)

VI. TROUBLE SHOOTING

▶ TASSELTROL®/LS SYSTEM – ELECTRICAL CONTINUED

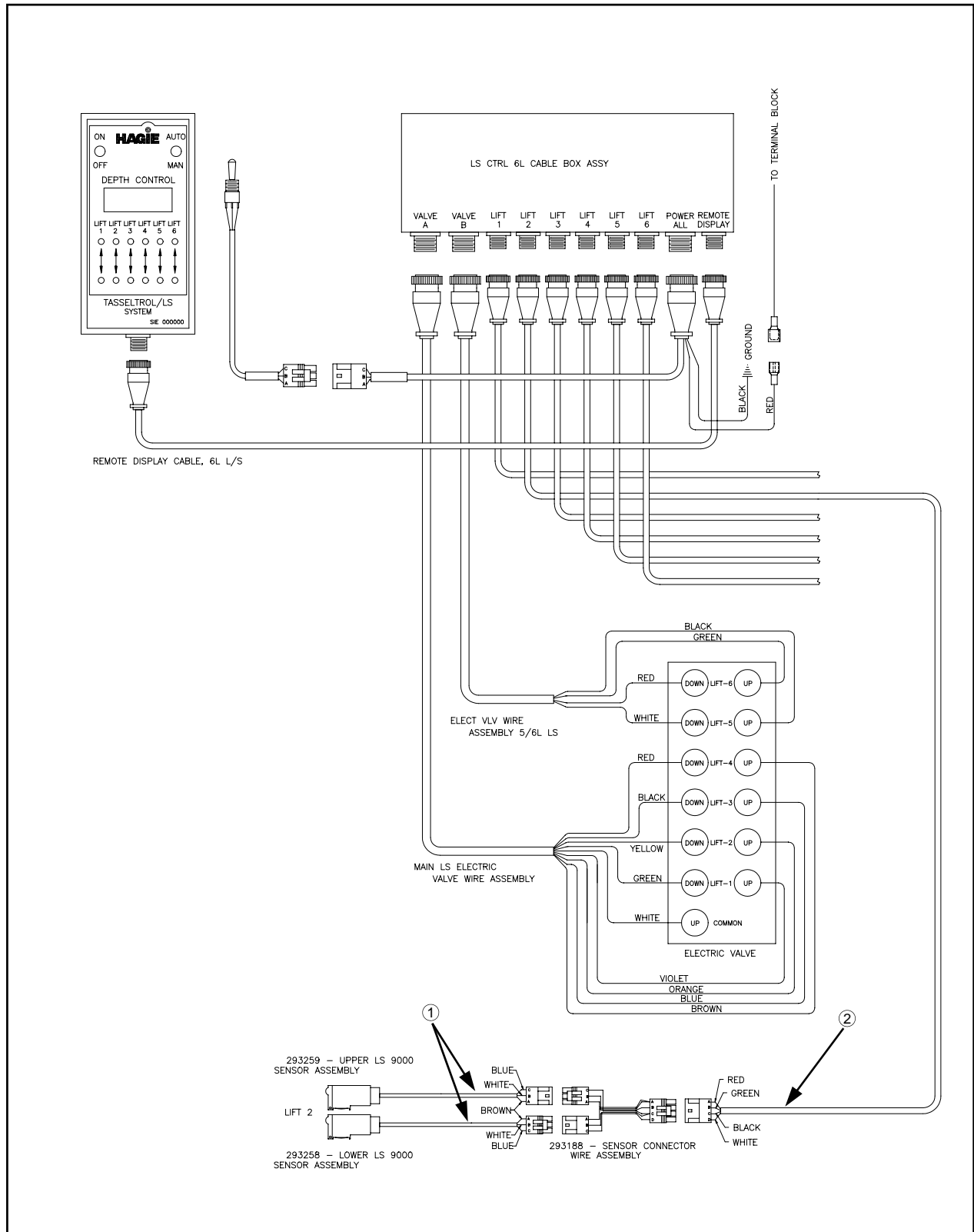


FIG 6.1

VII. LIMITED WARRANTY

1. The Warranty

- a. This warranty gives you specific legal rights. You may also have other rights which may vary from state to state.
- b. Hagie makes this warranty only to the original purchaser of its new equipment.
- c. The warranty period ends 12 months from the date of delivery of equipment to the original purchaser. When requesting warranty service, the original purchaser must present evidence of the date of delivery of the equipment.
- d. Parts or rebuilt assemblies furnished under the terms of this warranty are not warranted beyond the original warranty period.
- e. Exceptions to this warranty must be covered by separate warranty agreements.

2. Items not covered by Hagie Warranty

- a. Used equipment.
- b. Tires, tubes, engines, and batteries (under separate manufacturer's warranty).
- c. Depreciation or damage caused by normal wear, accident, improper maintenance, improper storage, or improper use.
- d. Service calls and transporting the equipment to and from the place where the warranty work is performed.

3. Unapproved service or modification

NOTE:

All obligations of Hagie Manufacturing Company under this warranty shall be terminated if:

- a. . . . service is performed by someone other than Hagie authorized personnel.
- or
- b. . . . the equipment is modified or altered without Hagie approval.

4. No commercial loss coverage

- a. Hagie shall not be liable for incidental or consequential damages or injuries (damage and repairs of equipment itself, loss of profits, rental or substitute equipment, loss of good will, etc.).
- b. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

5. Merger clause

- a. The entire warranty agreement is included in this writing.
- b. Any oral agreements that are made by the selling persons about the equipment are not warranties, and are not to be relied upon by the purchaser.

6. No representations or implied warranty

- a. The parties agree that the implied warranties of merchantability and fitness for a particular purpose and all other warranties expressed or implied, are excluded from this transaction and shall not apply to the equipment sold.

VII. LIMITED WARRANTY

NOTES

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