

Hydraulic Log Loader/Turner Option

Safety, Operation, Maintenance & Parts Manual

HCA-A-35	rev. A1.00 - A1.00
HLA-A	rev. A1.00 - A3.02
HLT-A	rev. A1.00



Safety is our #1 concern! Read and understand all safety information and instructions before operating, setting up or maintaining this machine.

August 2012

Form #1797

California Proposition 65 Warning



WARNING: Breathing gas/diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to **www.P65warnings.ca.gov**.



WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection.

For more information go to **www.P65Warnings.ca.gov/wood**.

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SECTION 1 INSTALLATION PROCEDURE

1.1 Overview

The hydraulic log loader and log turner are available as an option for manual LT35 sawmills. The option includes the three main components:

- **HCA-A-35 Hydraulic Control:** Dual-function hydraulic control pump/valve operates both the optional loader and turner.
- **HLA-A Hydraulic Log Loader:** Can be installed on all LT35 model sawmills.
- **HLT-A Hydraulic Log Turner:** Can be installed on all LT35 model sawmills.

1.2 Preparing The Sawmill For Installation

1.2.1 HLA-A Hydraulic Log Loader Option

1. Stop operation and lock out the sawmill.
2. Make sure the sawmill is setup firmly on level ground and all the outriggers/legs secure the sawmill frame.
3. Remove the loading ramps from the sawmill bed, if equipped.

PORTABLE SAWMILLS ONLY:

4. Raise the sawmill bed with the outriggers so that the tires are off the ground to allow relocation of the trailer axle for hydraulic loading arm kit installation.
5. Remove the four bolts securing the trailer axle to the sawmill bed. Move the trailer axle approximately 3" toward the front end of the mill.
6. Install the two provided axle mount plates between the trailer axle and the sawmill bed as shown. Use the four provided 1/2-13 hex head bolts, washers and nuts to secure the axle mount plate to the sawmill bed. **NOTE:** Make sure to install the bolts with the orientation and positions shown to allow sufficient clearance.

See Figure 1-1.

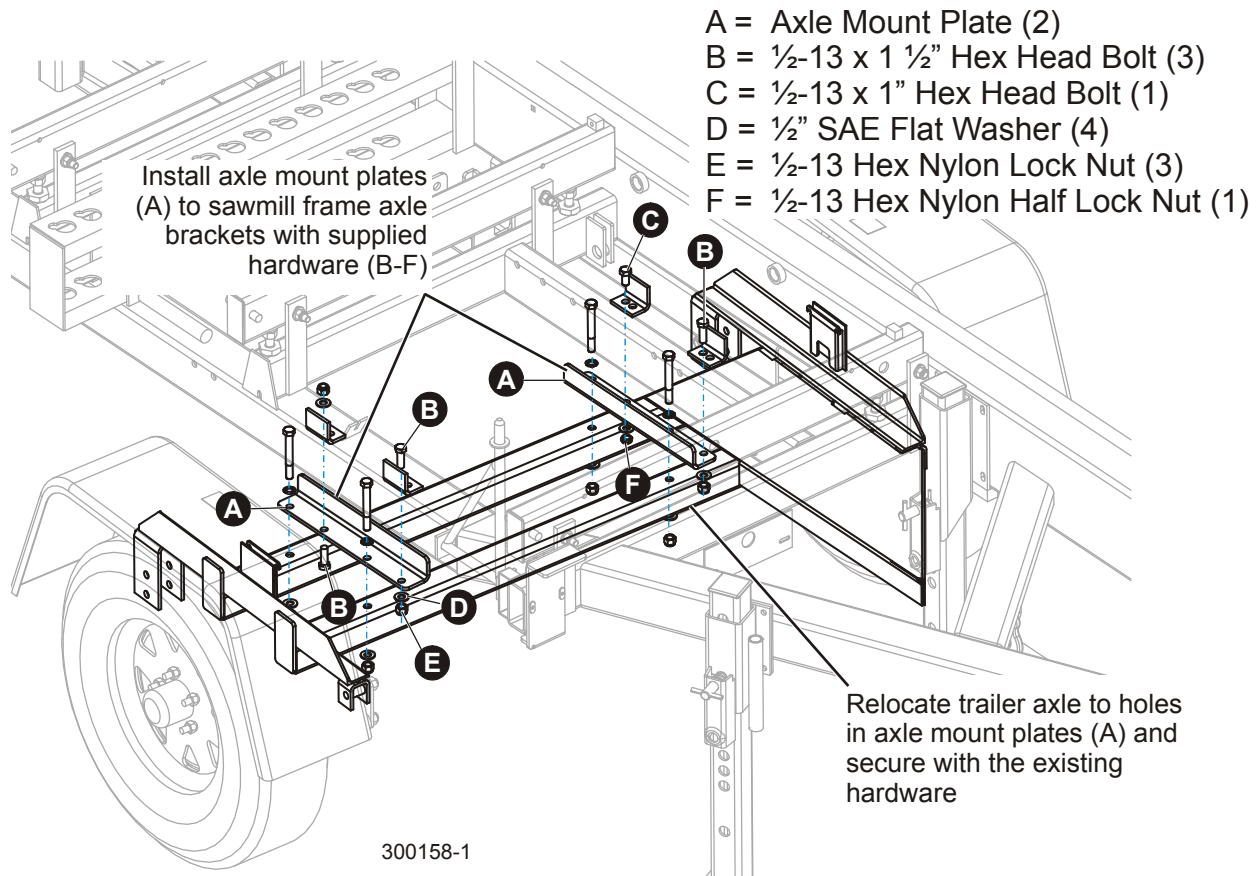


FIG. 1-1 HLA REV. A3.00+

7. Replace the four bolts, washers and lock nuts to secure the trailer axle to the axle mount plates.

1.2.2 HLT-A Hydraulic Log Turner Option

Disassemble the front and rear manual side supports from the sawmill bed:

1. Remove the 1/4" clamping bolt, flat washers and lock nut from each side support.
2. Remove the 1/2" bolt, washer and lock nut securing the side support pivot pin securing each side support to the bed frame.
3. Remove the pivot pin and lift the side support from the sawmill bed. Retain the pivot pins and all hardware to install the hydraulic side supports later.

See Figure 1-2.

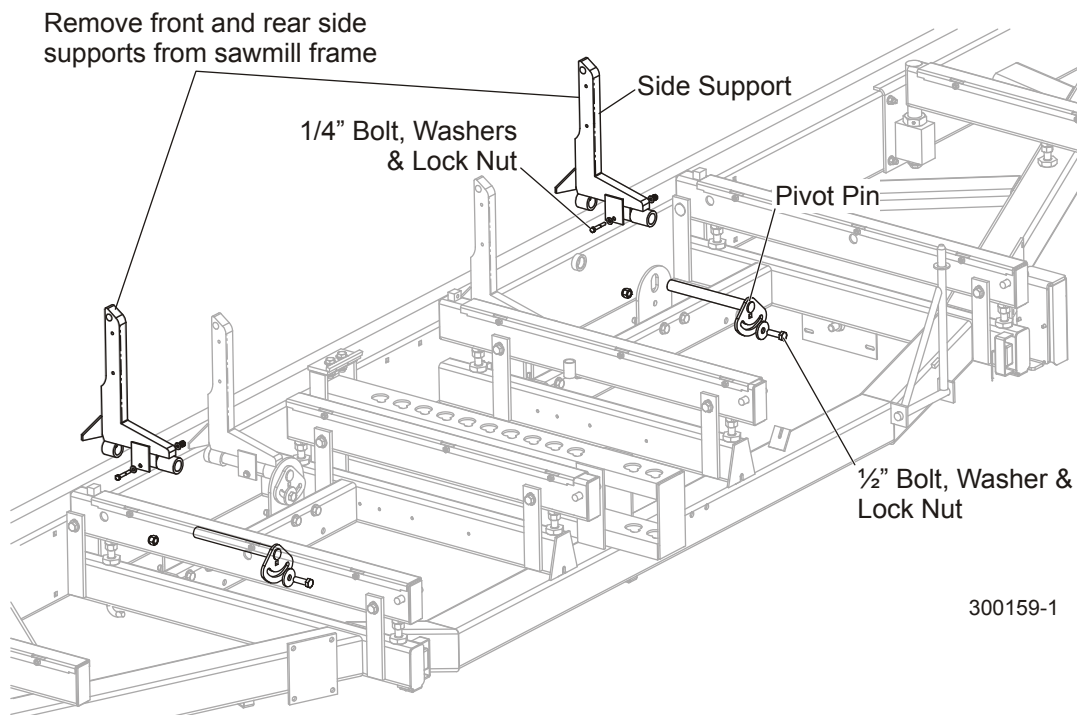


FIG. 1-2

1.3 Installation

1.3.1 HCA-A-35 Hydraulic Control Box

1. Remove the cover and hydraulic pump from the provided pump box assembly. Remove two nuts and washers securing the front outrigger/leg to the sawmill frame. Place the hydraulic box against the sawmill main tube as shown.

See Figure 1-3.

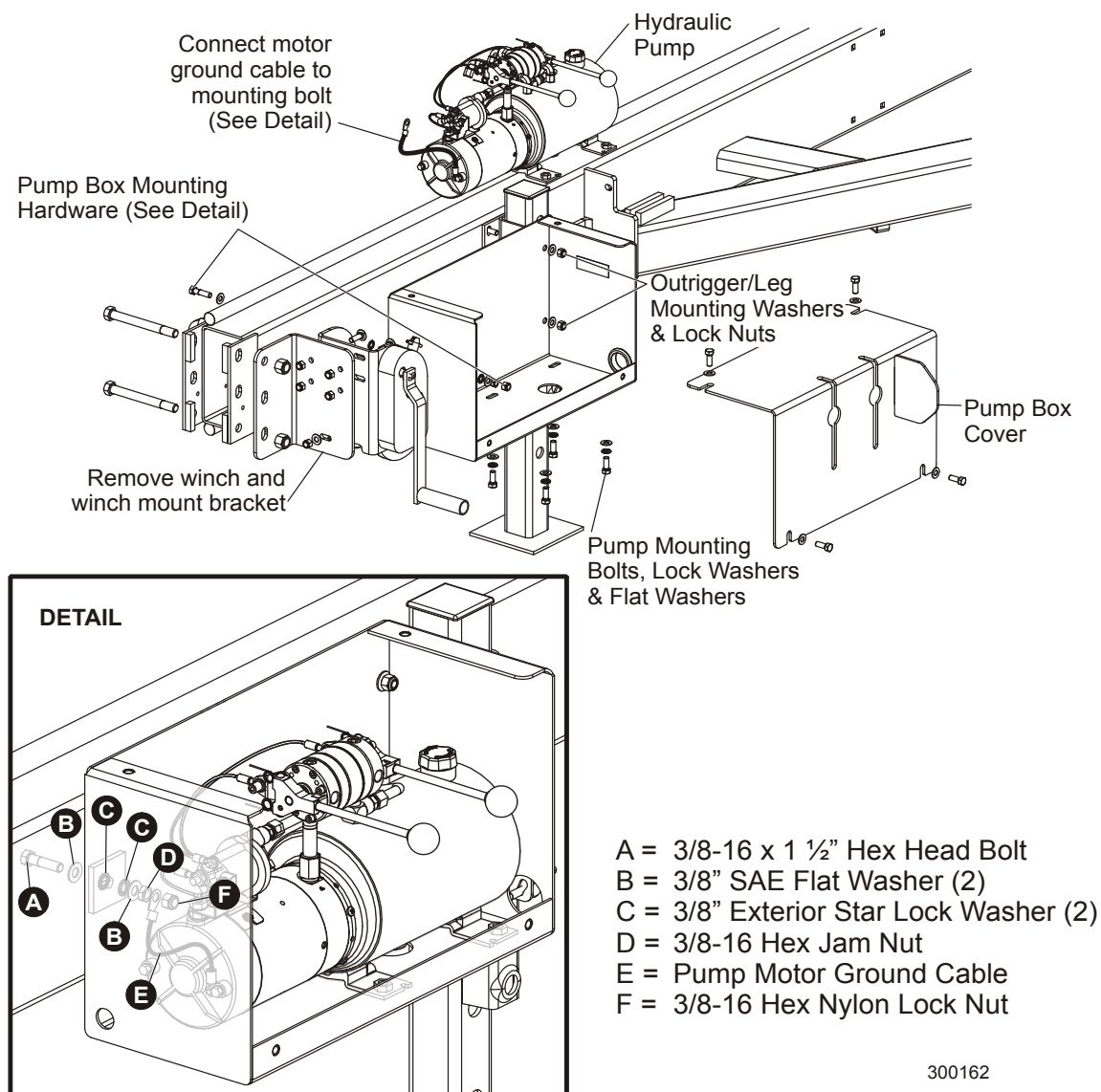


FIG. 1-3

2. Replace the two nuts and washers to the front outrigger/leg to secure the hydraulic box to the sawmill frame (do not tighten).
3. Use the single front hole in the back wall of the hydraulic box as a guide to drill a 3/8" hole in the main sawmill tube (one wall only). **NOTE:** Make sure that wires inside the main tube are not affected by drilling.
4. Use the provided 3/8-16 x 1 1/2" hex head bolt, two 3/8" external star lock washers, two 3/8" flat washers and a 3/8-16 jam nut to secure the hydraulic box to the main tube. Place one star lock washer between the pump box and sawmill frame tube. Insert the bolt through a flat washer, through the mounting hole in the frame tube and pump box and secure inside the box with a second star lock washer, flat washer and 3/8-16 hex jam nut. Replace the hydraulic pump in the hydraulic box using the existing bolts (leave bolts loose). Attach the motor ground cable to the 3/8-16 x 1 1/2" bolt and secure with the provided 3/8-16 lock nut. Tighten the two outrigger mounting washers and lock nuts at the rear of the pump box.
5. Temporarily install the box cover and check the operation of the pump handles to insure they can be moved through their full range of motion. If necessary, adjust the pump forward or back to allow proper operation of the handles. Remove the box cover and tighten the pump mounting bolts.
6. Remove the winch and the winch mount bracket from the sawmill.
7. Remove the pump reservoir cap and fill the reservoir with the hydraulic fluid provided. Fill the reservoir to 3/4" of the top. **NOTE:** The decal specifying the hydraulic fluid level is provided as a reminder for future service. In this application, the pump is NOT shipped with the fluid installed. Install the fluid before attempting to operate the pump.
8. Reinstall the pump reservoir cap. Leave the pump box cover off until hydraulic components are installed later.

9. Install the contact strip to the main tube with the cable toward the front of the mill. Secure one end of the strip to the main tube with the provided 1/4" x 1/2" self-tapping screws.

See Figure 1-4.

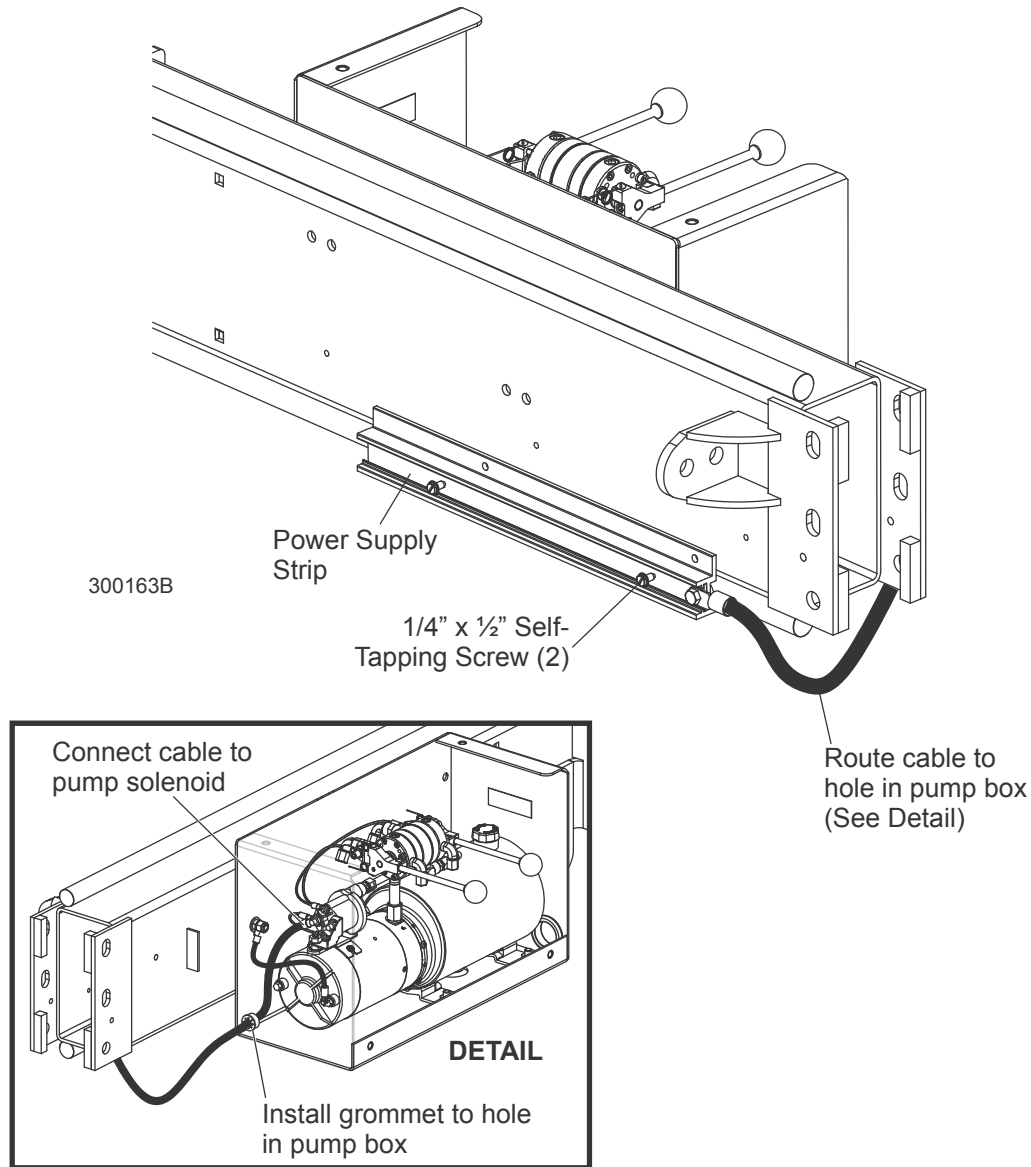


FIG. 1-4

10. Route the cable under the main tube and in the side of the hydraulic box, securing the wire grommet to the hole in the pump box. Connect the contact strip cable to the solenoid terminal as shown.
11. Remove the battery box cover and disconnect the negative wire from the battery. Note all connections before removing so you can replace the wires correctly.



WARNING! Disconnect the negative battery terminal cable before performing any service to the 12-volt electrical system. Failure to do so may cause injury or electrical system damage.

12. Replace the existing plastic wire grommet with the provided 5/8" rubber grommet in the right side of the battery box.
13. Remove the hole plugs to assemble the contact mount plate and the negative contact assembly to the battery box as shown. **NOTE:** Loosen the battery hold down plate and move the battery to install the hex head bolts, if necessary. Make sure the negative contact springs are firmly compressed and solid contact is made with the bottom main tube rail.

See Figure 1-5.

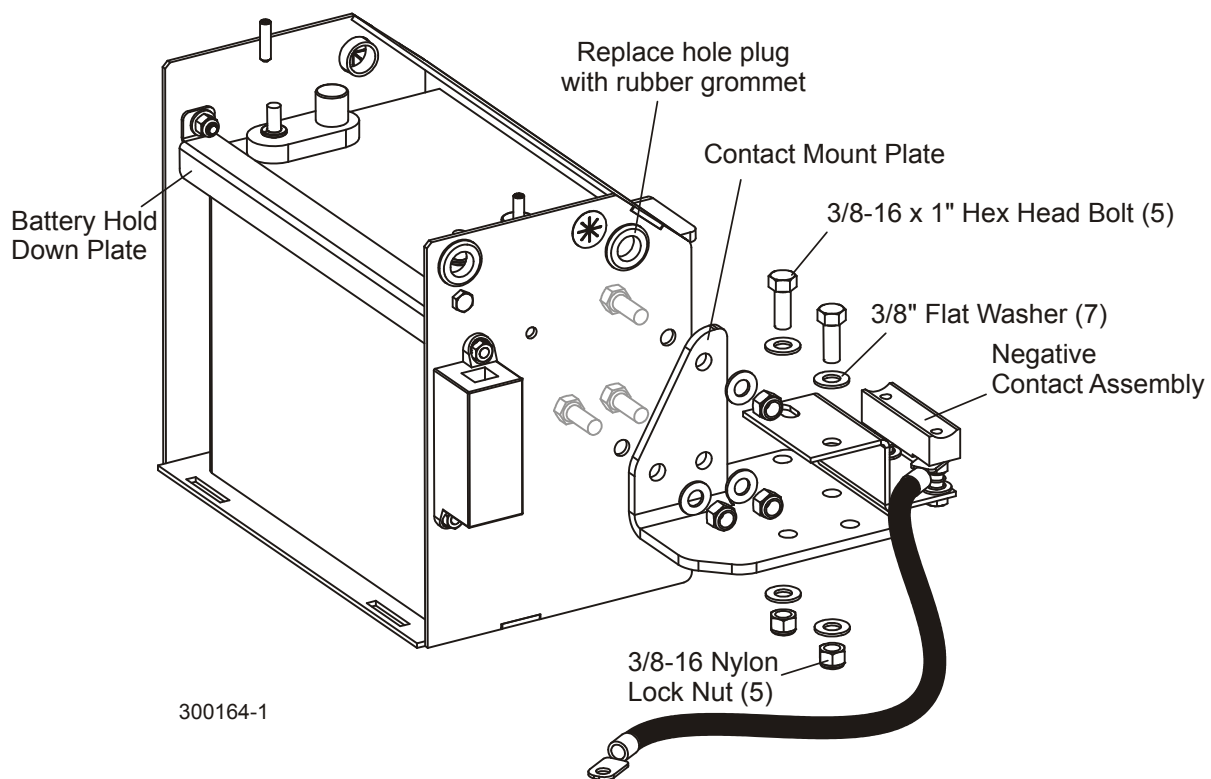


FIG. 1-5

NOTE: It may be necessary to remove paint from the bottom of the main tube rail for the first seven feet at the front end of the sawmill to ensure contact with the negative contact assembly.

14. Route the negative contact cable through the rubber grommet in the right side of the battery box and connect to the negative battery terminal.
15. Install the positive contact assembly and the positive contact spacer plate to the contact mount plate with the provided bolts and nylon lock nuts as shown. Push the contact assembly away from the main tube of the mill and lightly tighten the bolts. This assembly will be adjusted later after assembly is complete.

See Figure 1-6.

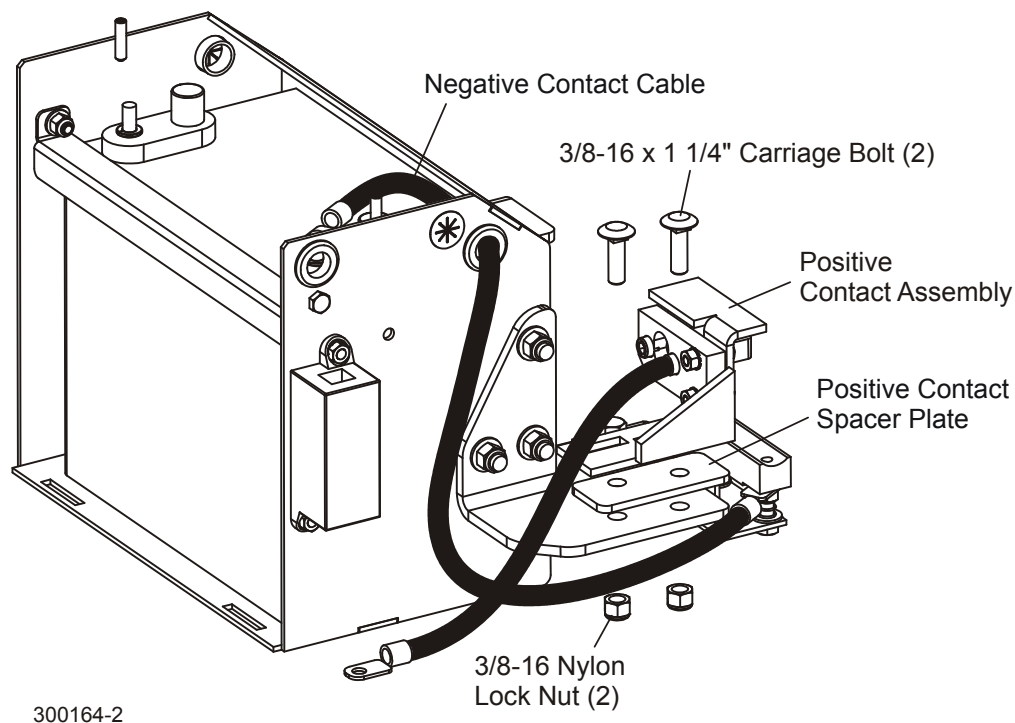


FIG. 1-6

16. Install the provided 225 amp mega fuse with the fuseholder to the battery box. Install the extra 225 amp mega fuse to the battery box cover with the longer bolts and spacers provided.

See Figure 1-7.

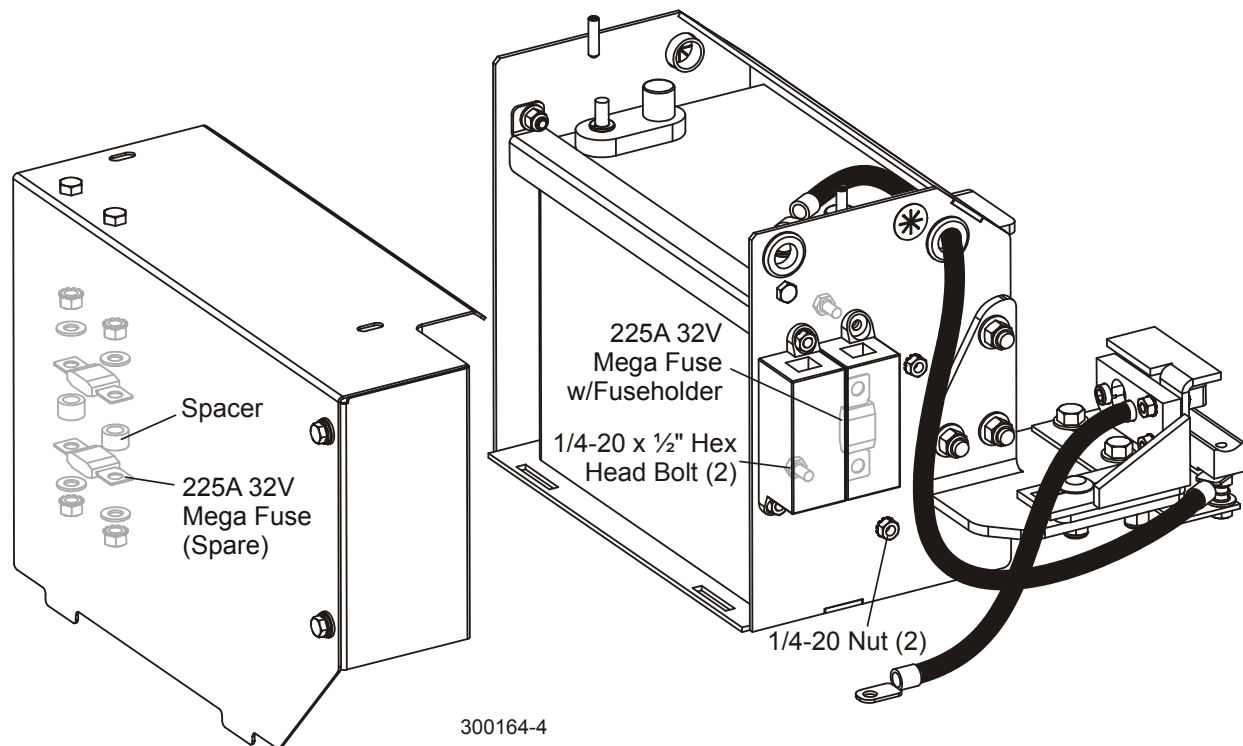


FIG. 1-7

17. Connect all the existing and provided cables as described below.

See Figure 1-8. Open the fuseholder covers to access the mega fuses. Remove the nuts holding the mega fuses to the fuseholders. Connect the positive contact cable to the bottom terminal of the 225 amp mega fuse. Disconnect the existing positive battery cable from the top terminal of the 150 amp mega fuse. Install the provided red fuse jumper wire to the top terminals of the 150 amp and 225 amp mega fuses. Reinstall the existing positive battery cable to the top terminal of the 225 amp mega fuse. Close the fuseholder covers to secure the mega fuses.

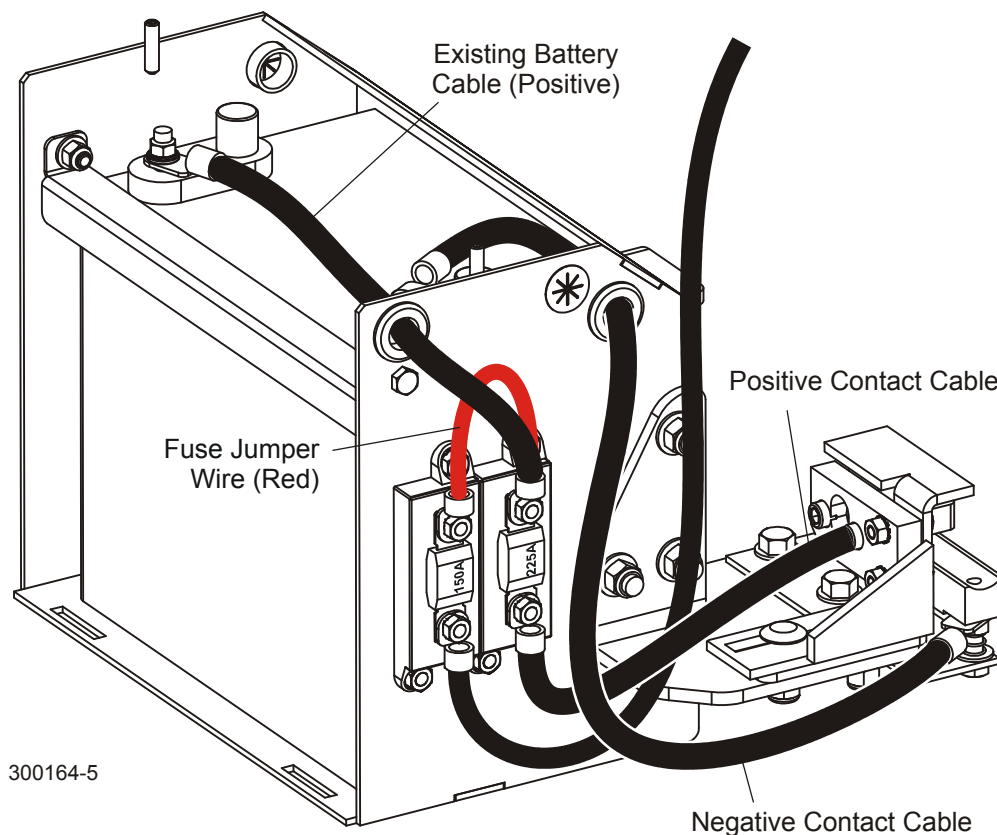


FIG. 1-8

18. Use the provided tie wraps to secure the contact cables to the existing cables.

19. Manually push the cutting head toward the front of the mill until the positive contact assembly is in position on the contact strip.
20. Using the slotted holes in the positive contact mount, slide the assembly forward until the springs are firmly compressed and solid contact is made with the strip. Tighten the mounting bolts.
21. Reconnect all other wires to the battery as they were and replace the battery box and the fuse box covers.

See Figure 1-9. Place the hydraulic contact caution decal (P12960) on the side of the fuse box housing.



300164-3

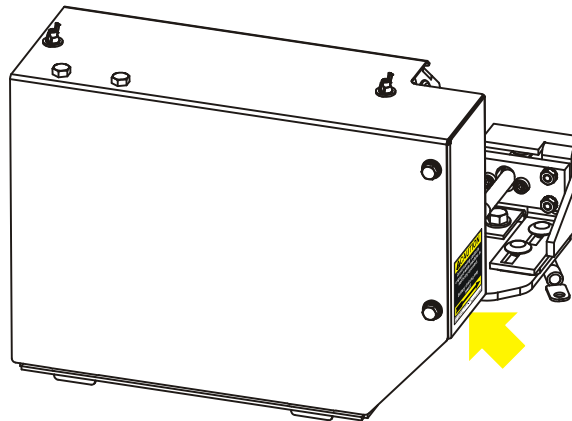


FIG. 1-9

22. The hydraulic control should now function whenever the positive contact is touching the contact strip. If the pump does not operate, check all connections and grounds thoroughly.

1.3.2 HLA-A Hydraulic Log Loader Option

1. Assemble the loading arm to the two foot pad/cylinder assemblies and mounting bracket assemblies as shown. Secure the top of the cylinders to the loading arm with a short pivot pin, two 1" flat washers and cotter pins. Insert a long pivot pin through each mounting bracket, foot pad then the loading arm and secure with a 1/4" bolt and lock nut.

See Figure 1-10.

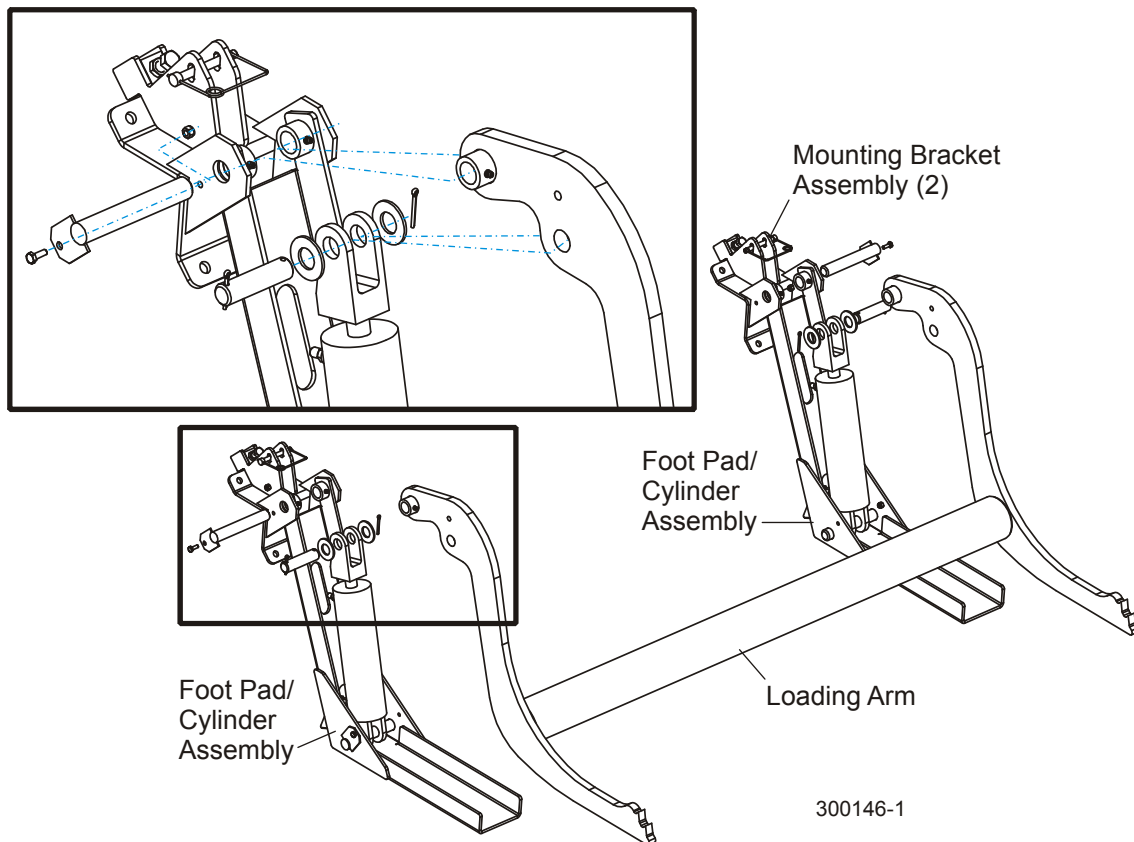


FIG. 1-10

2. Position the hydraulic loading arm assembly next to the right side of the sawmill bed.

3. Use the two provided loading arm mount plates to install the loading arm to the sawmill bed. Install the provided 1/2-13 x 2" hex head bolts and 1/2-13 hex nuts into the top holes of the mounting plates. Raise the log loading arm up past the center of balance and adjust both rest bolts to meet the arm. Tighten the lock nuts securing the mount plates. Install the bolts and lock nuts into the bottom holes of the mounting plate and tighten.

NOTE: Move the loading arm assembly as far forward as possible before securing it to the frame tube to avoid its foot channels to interfere with the saw head when raised.

See Figure 1-11.

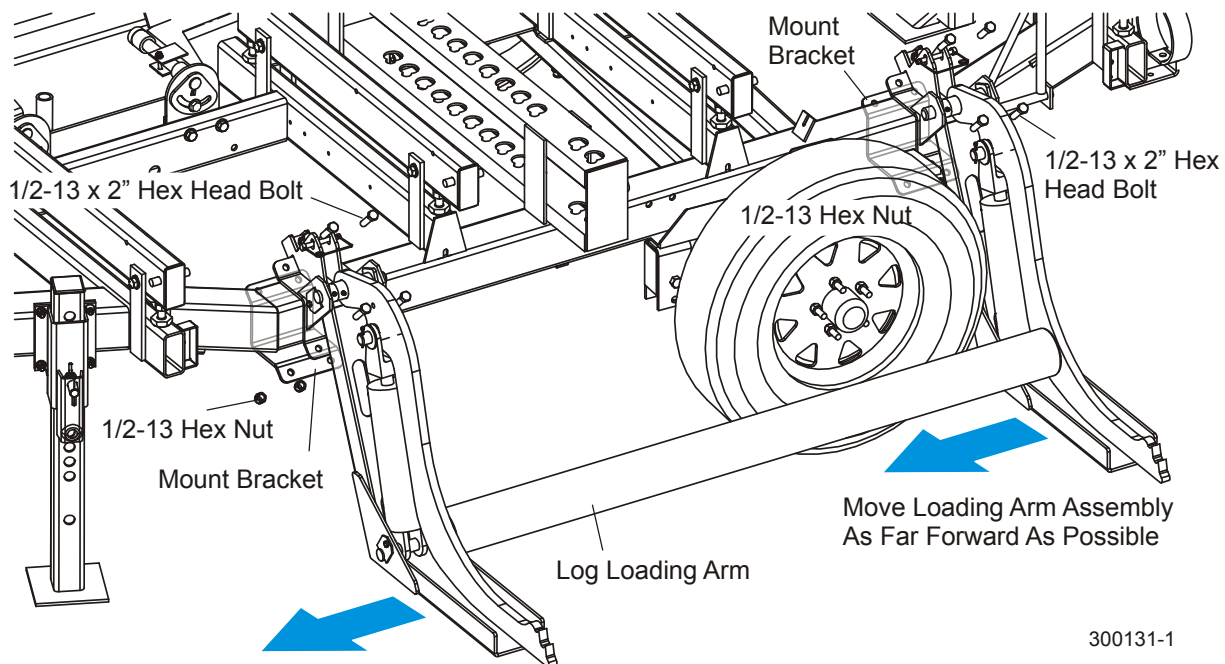
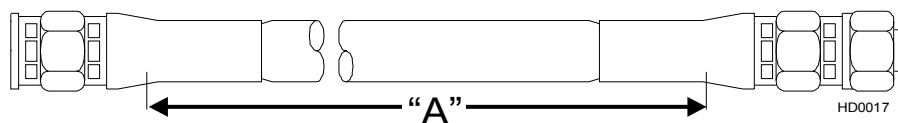


FIG. 1-11

See Figure 1-12. There are six hydraulic hoses included in the log loading arm kit.



COLOR	ID	LENGTH "A"	DESCRIPTION	PART #	QTY.
Green	H1	62"	LOADING ARM BRANCH TOP	018020	2
Yellow	H2	64"	LOADING ARM BRANCH BASE	018021	2
Blue	H3	164"	LOADING ARM TOP	P12548	1
Red	H4	164"	LOADING ARM BOTTOM	P12548	1

To install the hydraulic hoses to the sawmill, perform the following steps:

4. Install the two provided 62" hoses (H1) between the top fittings on the loading arm hydraulic cylinders and one of the provided 'T' fitting assemblies.

See Figure 1-13. The hydraulic layout diagram is shown.

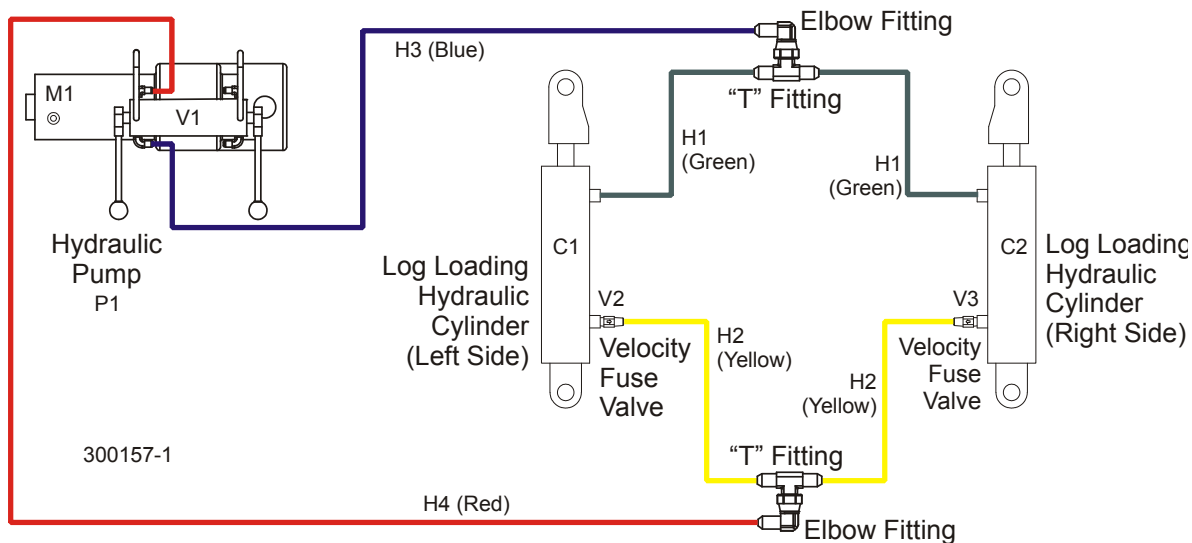


FIG. 1-13

5. Install the two provided 64" hydraulic hoses (H2) between the base fittings on the loading arm hydraulic cylinders and the remaining 'T' fitting assembly.
6. Connect the two provided long hoses (H3 and H4) to each of the 'T' fitting assemblies. Route the two long hoses to the side of the hydraulic box through the four hydraulic hose retaining plates located under the frame tube. In the hydraulic box, route the hose underneath the pump and connect to the hydraulic pump fittings on the top of the pump (remove fitting caps if supplied). Be sure that as the hoses vibrate during use, there is no chance of them coming in contact with the pump motor power terminal.



DANGER! Failure to route the hydraulic hoses as described could lead to hose wear exposing the steel braids. If the exposed braids contact the pump motor power terminal post, sparks may cause a fire or cause an electrical short.

7. Secure the hydraulic hoses to the sawmill frame.



CAUTION! Make sure there is enough slack in the hydraulic hoses attached to the loading arm cylinders. Failure to do may result in damage to the hoses and hydraulic cylinder fittings after raising the loading arm all the way up.

8. Move the hydraulic control lever up and down to eliminate air in the hoses. Check the reservoir fluid level again and refill to 3/4" from the top, if necessary. Install the hydraulic box cover and secure with the provided bolts and washers or proceed to hydraulic log turner installation instructions.

1.3.3 HLT-A Hydraulic Log Turner Option

1. Use the previously removed side support mount pivot pins and hardware to install the provided hydraulically-operated side supports to the sawmill bed frame.
2. Install the rod ends to the ends of the side support connecting rod as shown. Install a 1/2-20 hex jam nut on the rod end at the large end of the connecting rod. Assemble the connecting rod to the side supports with the provided 1/2-13 x 2 1/4" hex head bolt, flat washers and lock nuts.

See Figure 1-14.

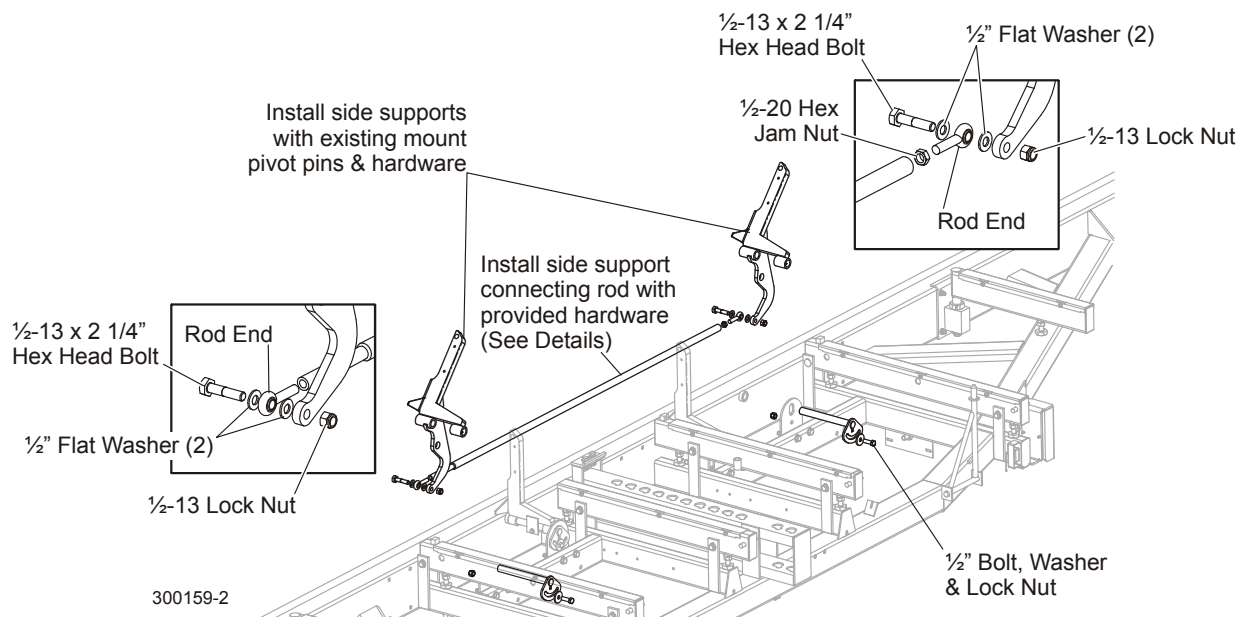


FIG. 1-14

3. Install the hydraulic turner arm assembly to the sawmill bed main tube using provided 3/8-16 x 5" carriage head bolts, 3/8-16 x 5" hex head bolts, flat washers and lock nuts. Secure the outboard end of the arm to the sawmill bed with the 1/2-13 x 5 1/2" hex head bolts, flat washers and lock nuts

See Figure 1-15.

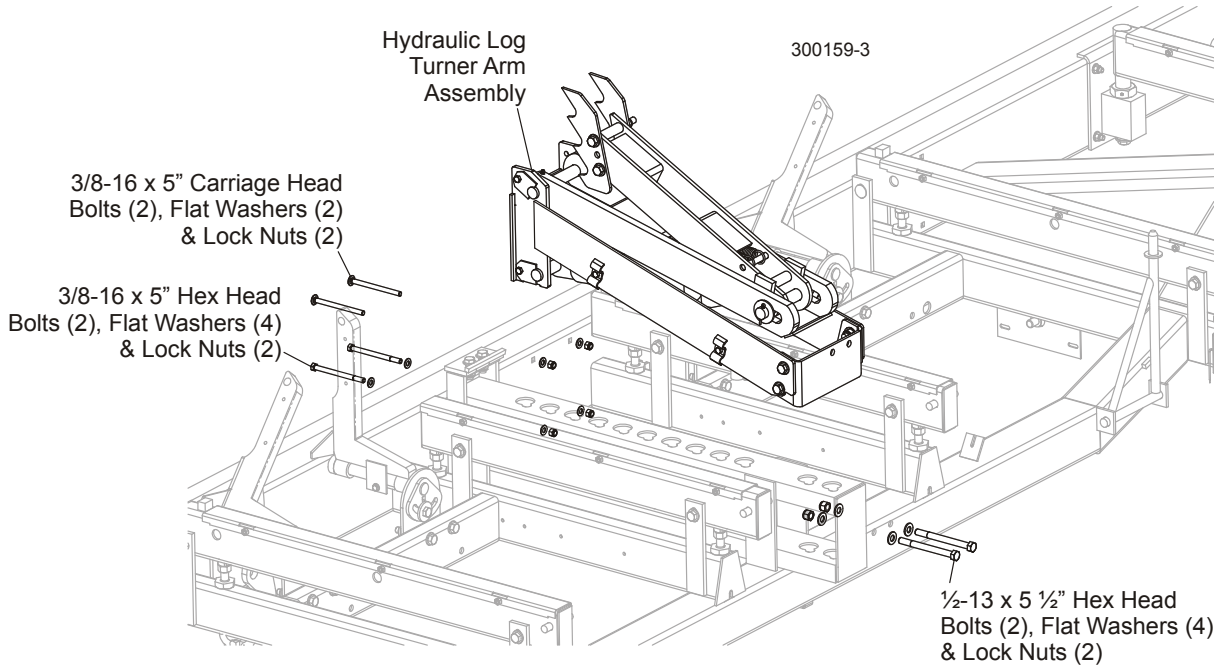


FIG. 1-15

4. Install the provided 2" x 6" hydraulic cylinder assembly to the bracket located on the back side of the bed rail to the right of the turner arm. Secure with a 1" x 3 7/8" pin, two 1" flat washers and two 3/16" x 1 1/2" cotter pins. Move the rear hydraulic side support until the mounting hole aligns with the cylinder mount holes and secure with 1" x 3 7/8" pin, two 1" flat washers and two 3/16" x 1 1/2" cotter pins.

See Figure 1-16.

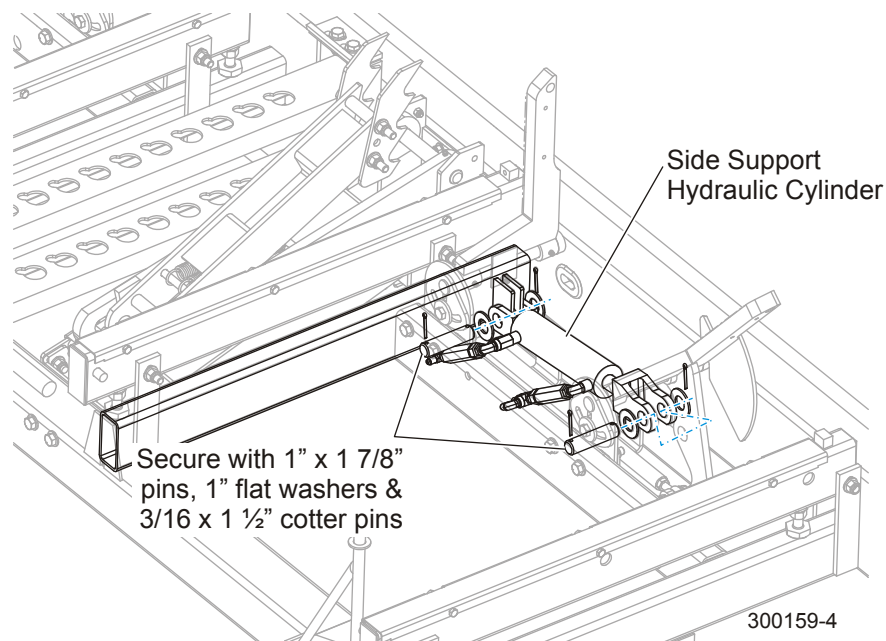
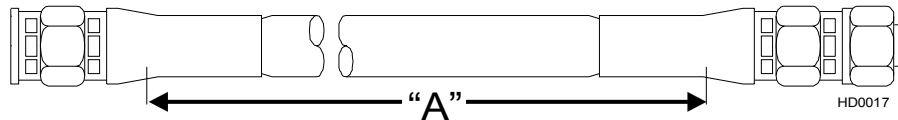


FIG. 1-16

See Figure 1-17. There are four hydraulic hoses included in the log turner kit.



COLOR	ID	LENGTH "A"	DESCRIPTION	PART #	QTY.
Plain	H5	27"	LOG TURNER BASE	P12535	1
Orange	H6	18"	LOG TURNER TOP	015704	1
Plain	H7	220"	SIDE SUPPORT TOP		1
Pink	H8	226"	SIDE SUPPORT BASE		1

To install the hydraulic hoses to the sawmill, perform the following steps:

5. Install the 27" hose (H5) between the bottom side support sequence valve and the fitting at the bottom log turner cylinder.

See Figure 1-18. The hydraulic layout diagram is shown.

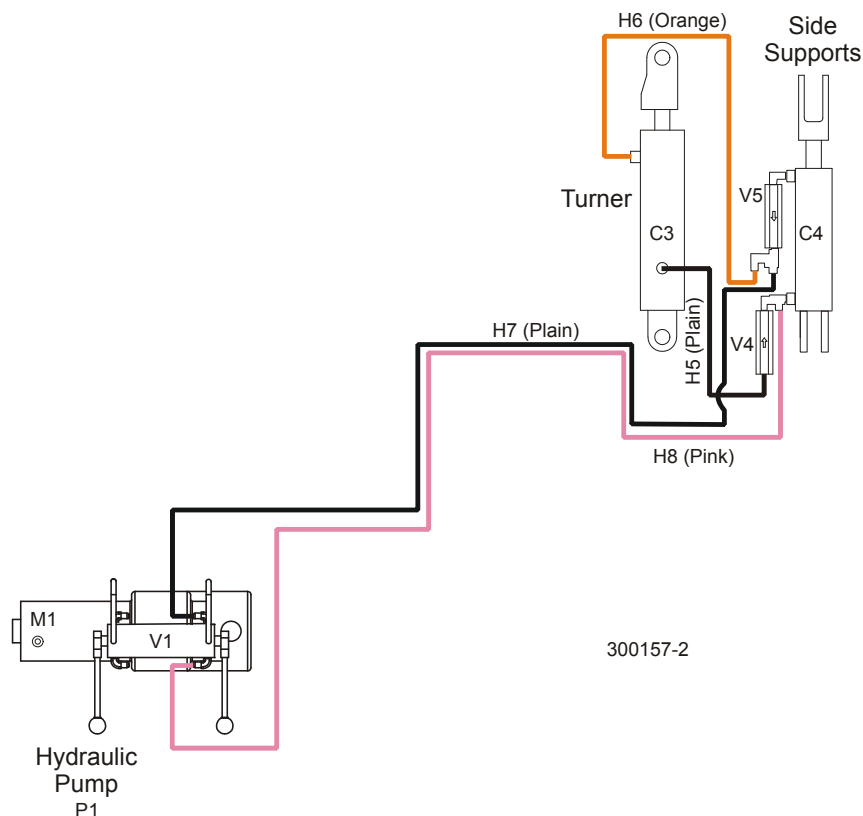


FIG. 1-18

6. Install the 18" hose (H6) between the top side support sequence valve and the fitting at the top of the log turner cylinder.
7. Connect the two provided long hoses (H7 and H8) to each of the remaining side support sequence valve fittings. Route the two long hoses to the side of the hydraulic box through the four hydraulic hose retaining plates located along the turner arm. In the hydraulic box, route the hose underneath the pump and connect to the hydraulic pump fittings on the top of the pump (remove fitting caps if supplied). Be sure that as the hoses vibrate during use, there is no chance of them coming in contact with the pump motor power terminal.



DANGER! Failure to route the hydraulic hoses as described could lead to hose wear exposing the steel braids. If the exposed braids contact the pump motor power terminal post, sparks may cause a fire or cause an electrical short.

8. Secure the long hydraulic hoses to the sawmill bed frame with the 6" tie wraps provided.
9. Move the hydraulic control lever up and down to eliminate air in the hoses. Check the reservoir fluid level again and refill to 3/4" from the top, if necessary. Install the hydraulic box cover and secure with the provided bolts and washers.
10. If the sawmill is equipped with a trailer option, place the provided caution decal (P11809) to the trailer hitch tube.

SECTION 2 OPERATION

2.1 Hydraulic Log Loader/Turner

The hydraulic control levers become operational when the contacts at the bottom of the carriage touch the power strip on the frame tube. The hydraulic control lever will only work when the cutting head is close enough to the front end of the mill to touch the power strip.

See Figure 2-1. The dual-function hydraulic control allows the operator to load and turn logs on the sawmill by operating the control levers.

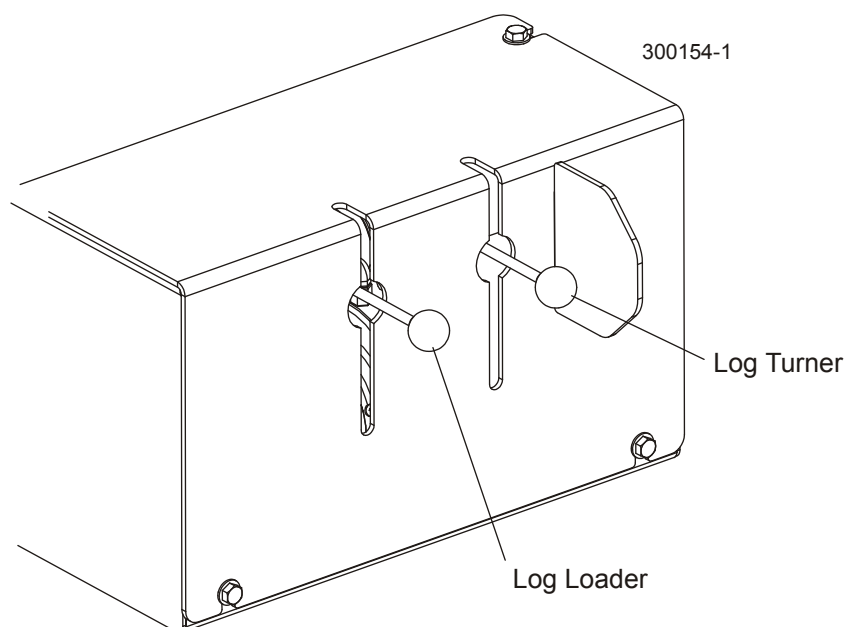


FIG. 2-1

Use the hydraulic control lever to get the mill ready to load a log.



DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.



CAUTION! Always make sure the engine is running before operating the hydraulic controls. Operating the controls without the engine running will result in power drainage from the battery. Holding the hydraulic switches halfway up or down also will cause excessive drainage from the battery.

1. Remove the clamp from the sawmill bed so it will not get in the way of logs being loaded onto the bed.
2. Remove the two retaining pins holding the log loader in the towing position.

See Figure 2-2.

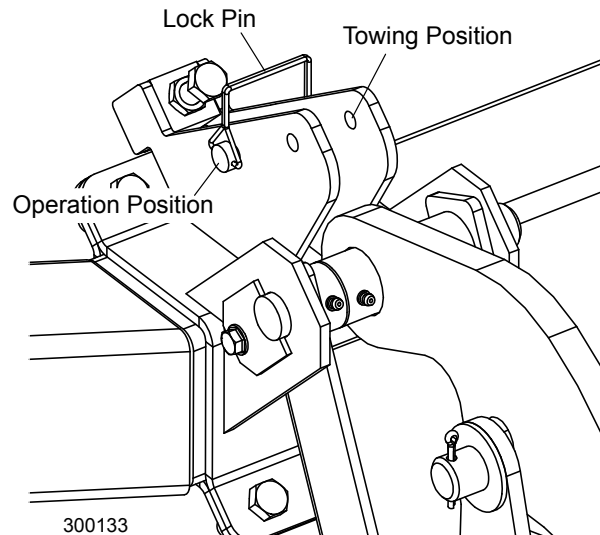


FIG. 2-2

3. If the sawmill is equipped with the optional hydraulic log turner, remove the travel plate. Lift the turner arm and pull the plate from underneath the turner arm elbow.

See Figure 2-3.

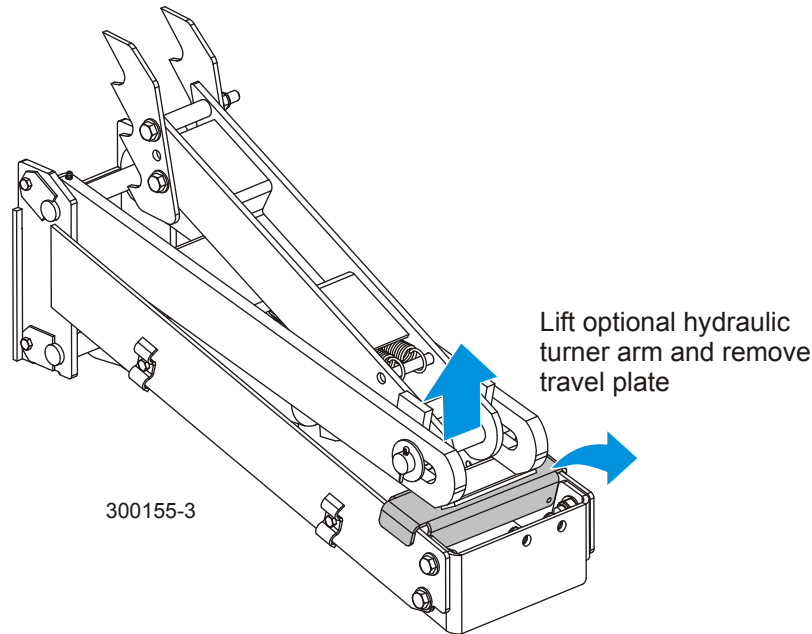


FIG. 2-3

4. Lower the turner lever to completely lower the turner arm. Notice that after the turner arm is all the way down, the side support braces will begin to lower. Release the turner lever after the turner arm is lowered, but before the side supports begin to lower. This stops the log being loaded from damaging the turner and/or falling off the side of the sawmill.
5. When raising the turner lever, the side supports rise first. After reaching a fully vertical position, the turner arm will engage and start to rise.
6. Manually lower the log loader so it rests on the ground.



CAUTION! Be careful when manually lowering the log loader. Do not drop the loader onto the ground or perform any action which might break the velocity fuse valves on the loader cylinders. These valves control hydraulic flow and are necessary to prevent the loading arm from collapsing during use.

7. Place the retaining pins in the operation position holes.
8. The front and rear toe boards should be below bed level. Once a tapered log has been loaded, the front or rear end of the log may be lifted to parallel the heart of the log to the path of the blade.

To Load Logs

1. Move the saw carriage to the front end of the frame.



CAUTION! Before loading a log, be sure the cutting head is moved far enough forward so the log does not hit it. Failure to do so may result in machine damage.



CAUTION! Be sure the log clamp, pivot rails, turning arm and toe boards are adjusted out of the path of the log before loading a log onto the bed. Failure to do so may result in machine damage or cause misalignment.

2. Raise the side supports on the sawmill bed to prevent the log from falling off the side of the bed.
3. Roll the log onto the loader so that it is approximately centered with the sawmill bed. The log turner will operate much easier if the log is centered on the sawmill bed.



DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

4. Raise the loader lever to raise the log onto the sawmill bed. Simply let the loader rise until the log rolls onto the mill bed.
5. Lower the loading arm. Leave the loading arm about halfway up while squaring the log. This will stop the log from rolling off the side of the mill.



WARNING! Always leave loading arm halfway up while log is on sawmill bed. Failure to do so may result in serious injury or death.

WARNING! The optional hydraulic log loader is operational whenever the saw carriage and contact strip are engaged, even with the key switch off. To avoid unintentional use of the loader, do not leave the sawmill unattended with the hydraulic power contacts engaged. Doing so may result in serious injury or death.

NOTE: Logs also may be loaded onto the mill with a tractor or other equipment specifically designed for that purpose.

To Turn Logs

1. Raise the turner lever to engage the log turner arm. Let the arm rise until it touches the log and starts to turn it.
2. Spin the log against the side supports until it is turned the way you want it for the first cut.
3. To turn the log more, clamp the log against the side supports and lower the turner arm below the log.
4. Raise the turner arm to get a new bite on the log.
5. Disengage the clamp and continue turning the log.
6. Repeat steps 3 through 5 until the log is turned as desired.

2.2 Preparing the Sawmill for Towing

To get your sawmill ready for towing after the log loading arm kit is installed, refer to Preparing the Sawmill for Towing Section in Owner's Manual.

Move the saw carriage to the front end of the sawmill to make sure that the positive contact assembly contacts the contact power strip to make the hydraulic system operational.

1. If the sawmill is equipped with the optional hydraulic log turner, use the hydraulic control to raise the turner arm as high as it will go. Lift the turner arm up and place the travel plate under the turner to secure the arm above the sawmill bed.



CAUTION! Move the optional hydraulic turner to provide maximum ground clearance before towing. Failure to do so may result in damage to the sawmill.

2. Remove the loading arm lock pins from the operation position holes. Use the hydraulic control to raise the log loading arm as high as it will go.



CAUTION! Make sure there is enough slack in the hydraulic hoses attached to the loading arm cylinders. Failure to do so may result in damage to the hoses and hydraulic cylinder fittings after raising the loading arm all the way up.

See Figure 2-4.

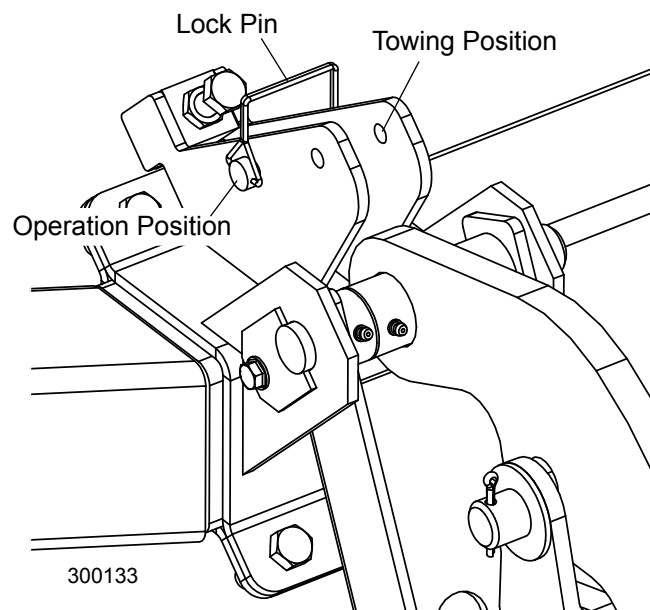


FIG. 2-4

3. Manually lift the loading arm to its towing position. Place the lock pin in the towing position holes to secure the loading arm during transportation. Push the loader lever down to bring the loading arm channels up to the loader.

See Owner's Manual to complete the towing preparation procedure.

2.3 Hydraulic System Maintenance



WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. Failure to do so may result in injury and/or electrical system damage.

1. Check the hydraulic fluid level every fifty hours of operation. Add fluid as necessary. The level in the hydraulic pump should be 3/4" (19mm) from the top with all cylinders collapsed.

If humidity is a problem or the mill is used outside in humid weather, drain and replace two quarts (.95 liters) of fluid every six months. This will drain any accumulated water and help prevent pump failure due to water ingestion. It also will prevent excessive fluid wear and allow the fluid to maintain its hot end performance. If humidity is not a problem, drain and replace one gallon (3.8 liters) of fluid every year to prevent fluid wear.

See Figure 2-5. If you are operating in temperatures -20° to 100° F (-29° to 38° C), use an all-weather hydraulic fluid such as Exxon Unavis HVI 26. For alternate fluids and/or other temperature ranges, refer to the chart below. Operating above the recommended temperature range of a fluid could result in excessive pump wear. Operating below the recommended temperature range could result in reduced hydraulic cylinder speed. To change fluid types, replace one gallon of the current fluid with one gallon of the alternate fluid.

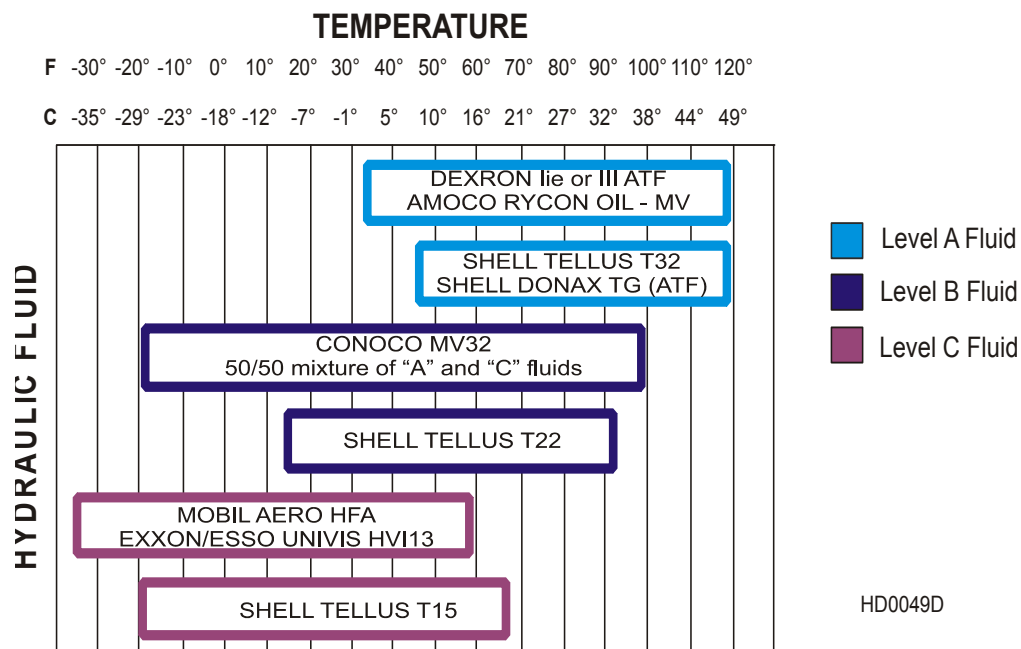


FIG. 2-5

2. Inspect the hydraulic pump motor brushes every 750 hours of operation. Remove brush dust and replace the brushes if they worn to a length of 1/4" or shorter.

750



CAUTION! Do not operate the hydraulic system if the pump motor brushes are worn shorter than 1/4". Damage to the pump motor may result.

3. Periodically check all hydraulic lines and fitting as needed. Replace as necessary.
4. Lubricate the log turner (if equipped) with a NLGI No. 2 grade lithium grease every fifty hours of operation. Lubricate the turner pivot pins with WD-40 or a dry lube.
5. Grease the optional loading arm with a NLGI No. 2 grade lithium grease every fifty hours of operation.

50

50

2.4 Troubleshooting



WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. Failure to do so may result in injury and/or electrical system damage.



WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

PROBLEM	CAUSE	SOLUTION
You Can Actuate Any Hydraulic Handle, But Get No Response From The Pump.	Carriage not positioned properly to provide power to the pump	Make sure carriage contact bracket is adjusted far enough forward for battery positive contact to touch 6ft. strip on main tube. Check contact and strip for tarnish or loose wires. Clean as necessary
	Poor ground connection	Check ground connection between pump and saw frame and between battery negative contact and lower rail. Check contact and rail for tarnish or loose wires. Clean as necessary
	Blown fuse	Replace
	Low or dead battery	Test battery amperage capability (such as low battery charge, low alternator output, defective voltage regulator, bad battery cell, battery age deterioration, etc.). Replace or recharge as necessary

PROBLEM	CAUSE	SOLUTION
	Poor cable connection	Check cable connection and make sure that battery terminals are in good condition (not corroded)
	Defective solenoid (may be indicated by solenoid clicking) See Monarch manual for troubleshooting solenoid	After checking all other possibilities for low voltage to solenoid, check solenoid. Tapping on solenoid may fix temporarily. Replace solenoid if necessary. NOTE: The solenoid is not a standard automotive type. Order from Wood-Mizer only
	Defective pump motor	Remove motor from pump and inspect. Repair or replace as necessary
No Response From The Pump By Actuating Handle	Electric contact spring inside of non-working valve corroded, broken, or dislocated	Check contact spring. Relocate or replace as necessary
	Set screw holding handle to valve shaft is loose	Tighten set screw so that valve shaft turns when handle is actuated
Pump Motor Runs With Little Or No Response From The Cylinders	Low battery	Test battery. Recharge or replace as necessary
	Low fluid level	Check fluid level. Add an all-season hydraulic fluid such as Amoco Rycon Oil MV or Mobil Multipurpose ATF (automatic transmission fluid) until level is 4 - 4 1/2" from bottom of reservoir with all cylinders retracted
	Pressure relief valve moved from proper setting	Adjust pressure relief valve.
	Low air temperature causing fluid to thicken	Allow fluid to warm up. Synthetic fluids are available that allow for hydraulic operation in cold weather conditions (Univis HVI 13)
Pump Motor Runs Continuously When Power Contact Is Made	Solenoid is stuck closed	Tapping the solenoid may solve this problem temporarily. Replace solenoid
	Valve handle spring is deformed or broken, causing the handle to not return to the neutral position	Replace handle spring
	Contact spring is dislocated and lying across contacts	Replace contact spring
Fluid Leaks From Around Cylinder Piston Ram	Worn seals	Replace seals in cylinder. Check piston ram for abrasive weld that may be causing premature seal failure

PROBLEM	CAUSE	SOLUTION
Fluid Leak Around Pump Box	Loose seal or fitting	Wipe pump off completely to locate cause of leak. You may have to unbolt the pump to wipe behind it. NOTE: Movement of the sawmill can cause fluid to slosh up into the foam filter in the reservoir cap, and subsequently spray out, giving the appearance that fluid is leaking from the pump
Pump runs but makes “growling” sound and hydraulic functions are slow, jerky or don’t work at all.	Low fluid level	Check fluid level and add fluid as necessary. Check for leaks in the system at the control box fittings, hoses and cylinders
One of the log loader cylinders does not move when lowering the loader causing the foot of other to raise completely before loader will start down.	Damaged cylinder shaft	Replace the cylinder that is not moving

SECTION 3 HYDRAULIC INFORMATION

3.1 Schematic

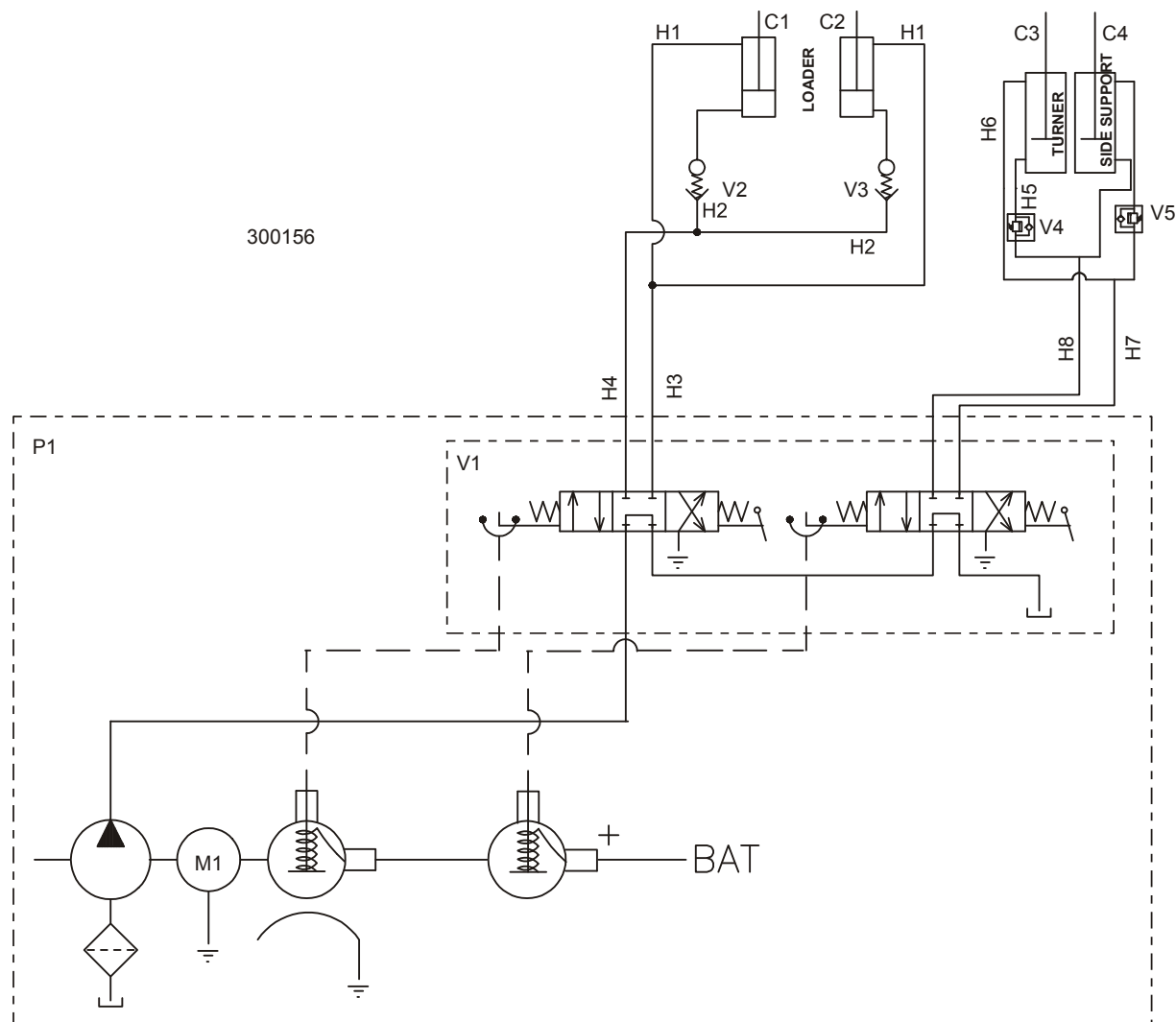


FIG. 3-1 HYDRAULIC LOG LOADER/TURNER

3.2 Hydraulic Layout Diagram

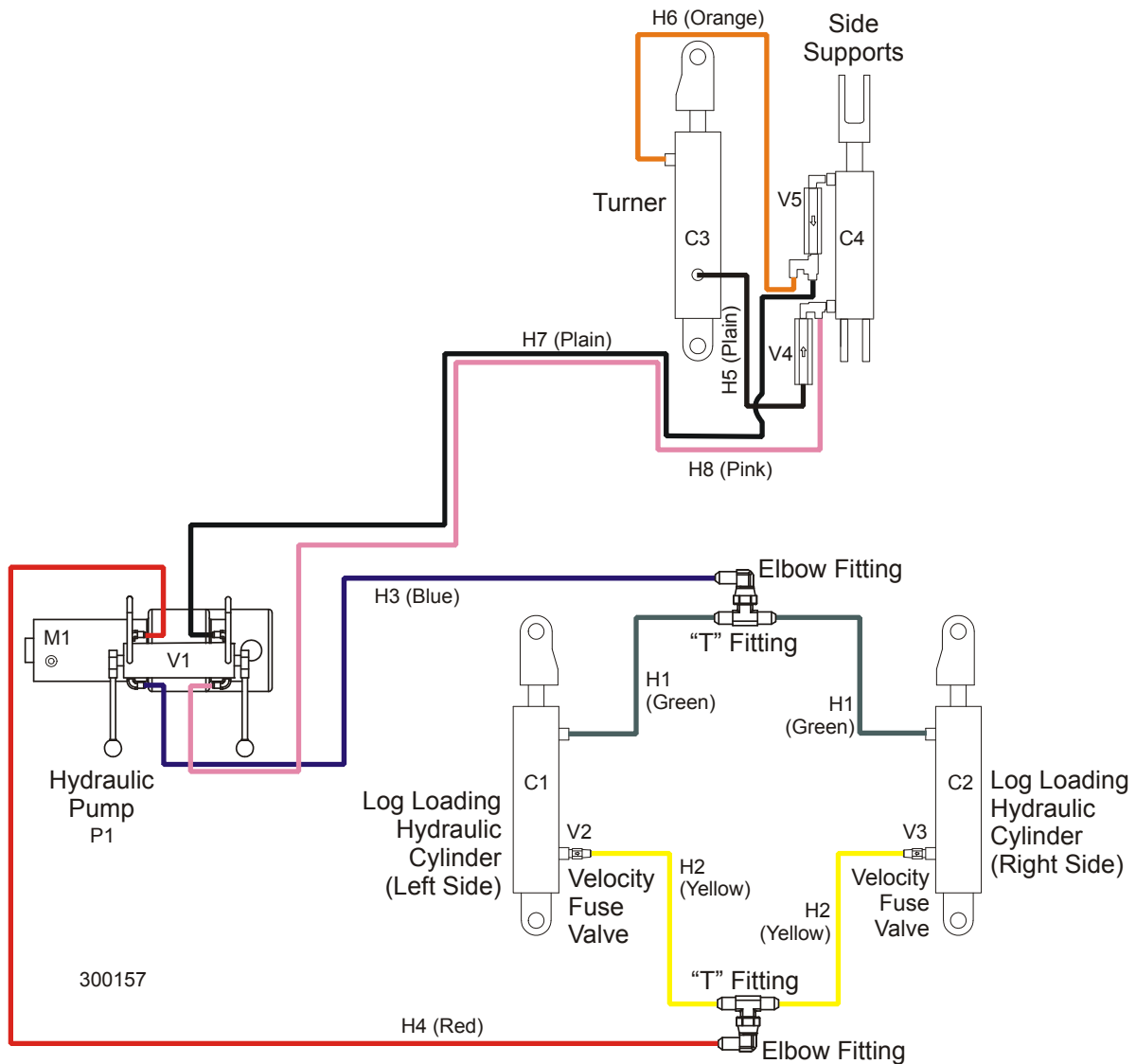


FIG. 3-1 HYDRAULIC LOADER/TURNER LAYOUT DIAGRAM

3.3 Hydraulic Components

ID	Mfg. Part No.	Manufacturer	Wood-Mizer Part.#	Description
C1, C2	P12847	J-D Hydraulic	P12847	Hyd. Cylinder, 3" Bore X 8" Stroke
C3	P12846	J-D Hydraulic	P12846	Hyd. Cylinder, 2 1/2" Bore X 8" Stroke
C4	P12845	J-D Hydraulic	P12845	Hyd. Cylinder, 2" Bore X 6" Stroke
M1	08058-I	Monarch Hyd.	052807	Motor, Iksra Hydraulic Pump
P1	M-500 4W/4W	Monarch Hyd.	025713	Hydraulic Pump, With Motor
V1	19760	Monarch Hyd.		Valve, 4-Way Hydraulic
V2, V3	28000-502-5	Vonberg	015750	Valve, Hydraulic 5GPM Velocity Fuse

TABLE 3-1

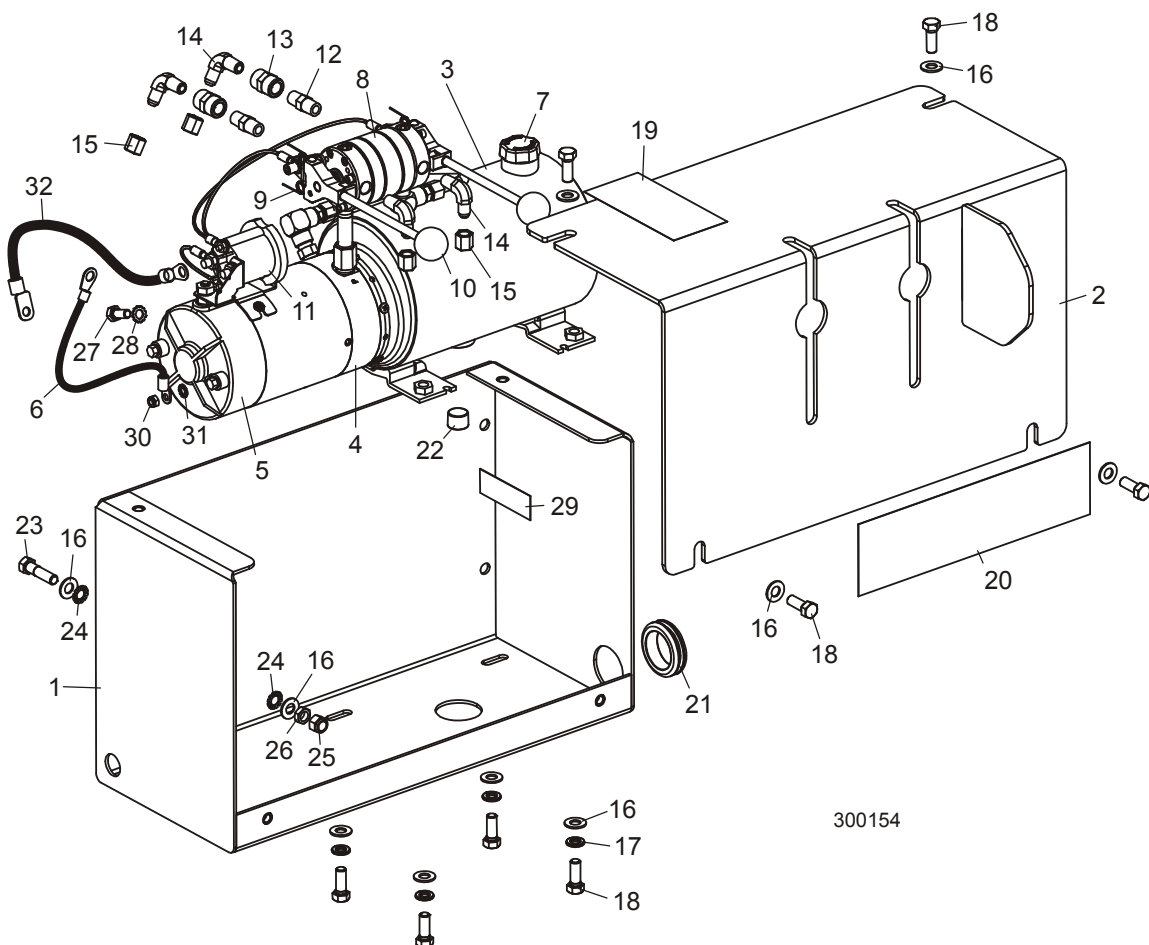
3.4 Hydraulic Hoses

ID	Color Code	LENGTH "A"	Application	Wood-Mizer Part No.
H1	Green	62"	1/4" Loading Arm Branch Top	079000-62
H2	Yellow	64"	1/4" Loading Arm Branch Base	079000-64
H3	Blue	148"	1/4" Loading Arm Top	079000-148
H4	Red	158"	1/4" Loading Arm Bottom	079000-158
H5	Plain	27"	1/4" Log Turner Base	079000-27
H6	Orange	18"	1/4" Log Turner Top	079000-18
H7	Plain	220"	1/4" Side Support Top	079000-220
H8	Pink	206"	1/4" Side Support Base	079000-206

TABLE 3-2

SECTION 4 REPLACEMENT PARTS

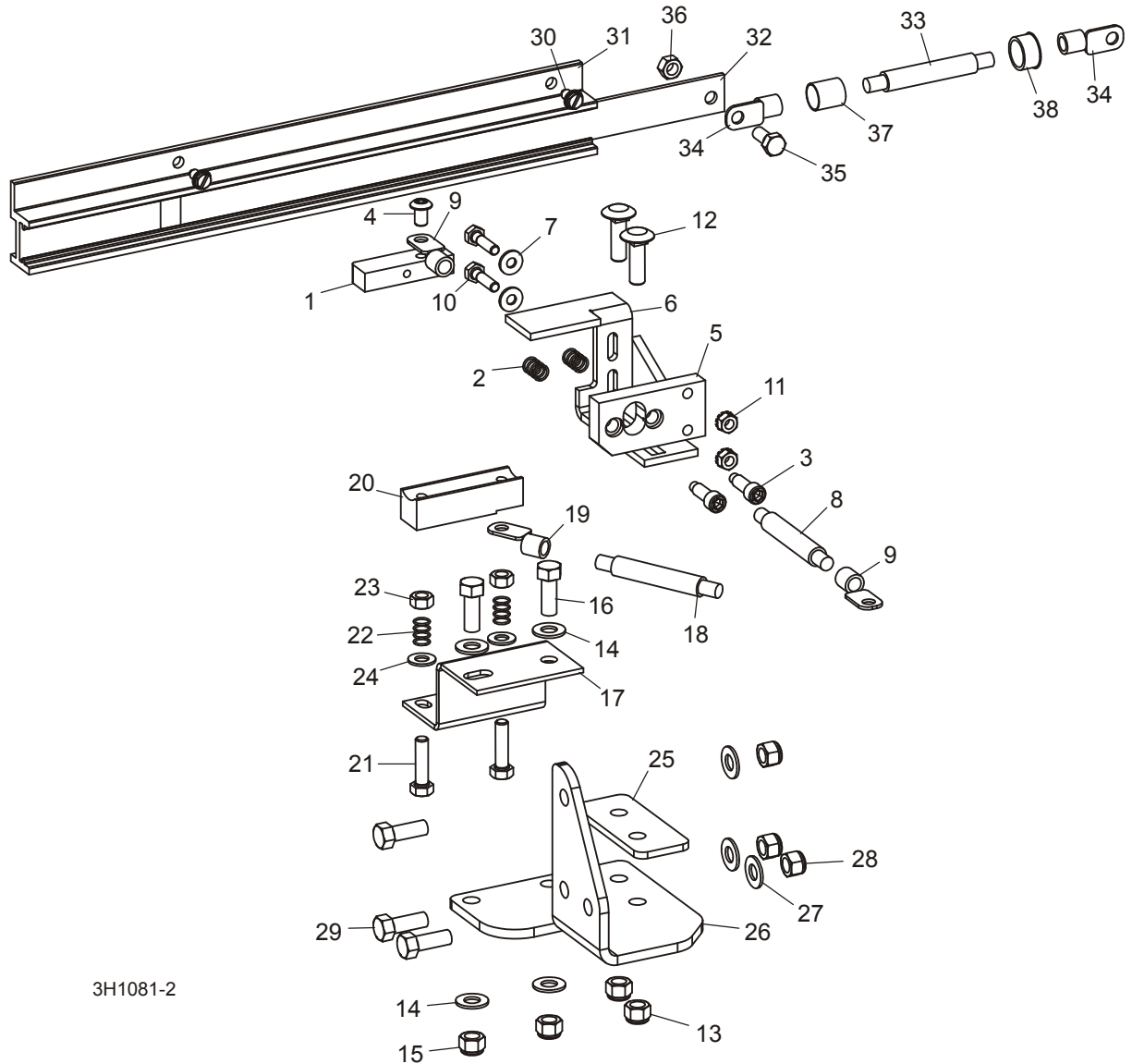
4.1 Control Box



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	BOX ASSEMBLY, HYDRAULIC DUAL FUNCTION CONTROL	025717	1	
1	Box Weldment, Hydraulic Dual Function Control	025716	1	
2	Cover Weldment, Hydraulic Dual Function Control	025714	1	
3	Pump/Valve Assembly, Hydraulic Dual Function #M-500 4W/4W	025713	1	
4	Pump, Hydraulic Replacement Monarch Model #12171-250	061110	1	
	Motor Kit, Hydraulic Replacement	052807	1	
5	Motor, 12 VDC Hydraulic Pump #08714 (Iskra)	038683	1	◆
	Brush Kit, 4-Valve Hydraulic Pump Motor #08658-I (Iskra)	038682	1	
	Bearing, Base Motor #02318	P12513	1	
6	Wire Assembly, Motor Brush Ground	052806	1	
7	Cap, Hydraulic Pump Vented Fill #01143	P09596	1	
8	Valve Assembly, 4-Way Monarch #19760	061111	2	

9	Spring, Hydraulic Pump Valve Contact #00015	025818	4	
10	Handle Assembly, Hydraulic Pump Valve #00172	P09594	2	
	Spring, Hydraulic Pump Valve Handle #00018	P09753	2	
11	Solenoid, 12 VDC Motor Starter #17744	061112	1	
12	Fitting, 1/4" NPT Hex Nipple	P05389	2	
13	Fitting, 1/4" NPT Coupling	P03420	2	
14	Fitting, 1/4" NPT x 1/4" JIC Male Elbow	P09142	4	
15	Fitting, 1/4" JIC Cap	016815	4	
16	Washer, 3/8" SAE Flat	F05011-3	10	
17	Washer, 3/8" Split Lock	F05011-4	4	
18	Bolt, 3/8-16 X 1" Hex Head Grade 5	F05007-87	8	
19	Decal, Keep Away Hydraulic Warning	P12961	1	
20	Decal, Hydraulic Logo	036720	1	
21	Grommet, 1 1/2" x 3/16"	043405	1	
22	Fitting, 1/2" NPT Plug	P26258	1	
23	Bolt, 3/8-16 x 1 1/2" Hex Head Grade 5	F05007-78	1	
24	Washer, 3/8" External Star Lock	F05011-36	2	
25	Nut, 3/8-16 Hex Nylon Lock	F05010-10	1	
26	Nut, 3/8-16 Hex Jam	F05010-29	1	
27	Bolt, 5/16-18 x 3/4" Hex Head	F05006-5	1	
28	Washer, 5/16" External Star Lock	F05011-33	1	
29	Decal, Hydraulic Fluid	S12825	1	
30	Nut, M6-1.0 Hex Nylon Lock	F05010-200	1	
31	Washer, 1/4" Exterior Star Lock	F05011-37	1	
32	Cable Assembly, 10" Pump To Solenoid		1	
	FLUID, 1-QUART DEXRON III HYDRAULIC	P12742	4	
	FLUID, 1-GALLON CONOCO MV32	006397	1	
	FLUID, 1-GALLON EXXON UNIVIS HVI 13 HYDRAULIC	P12822	1	

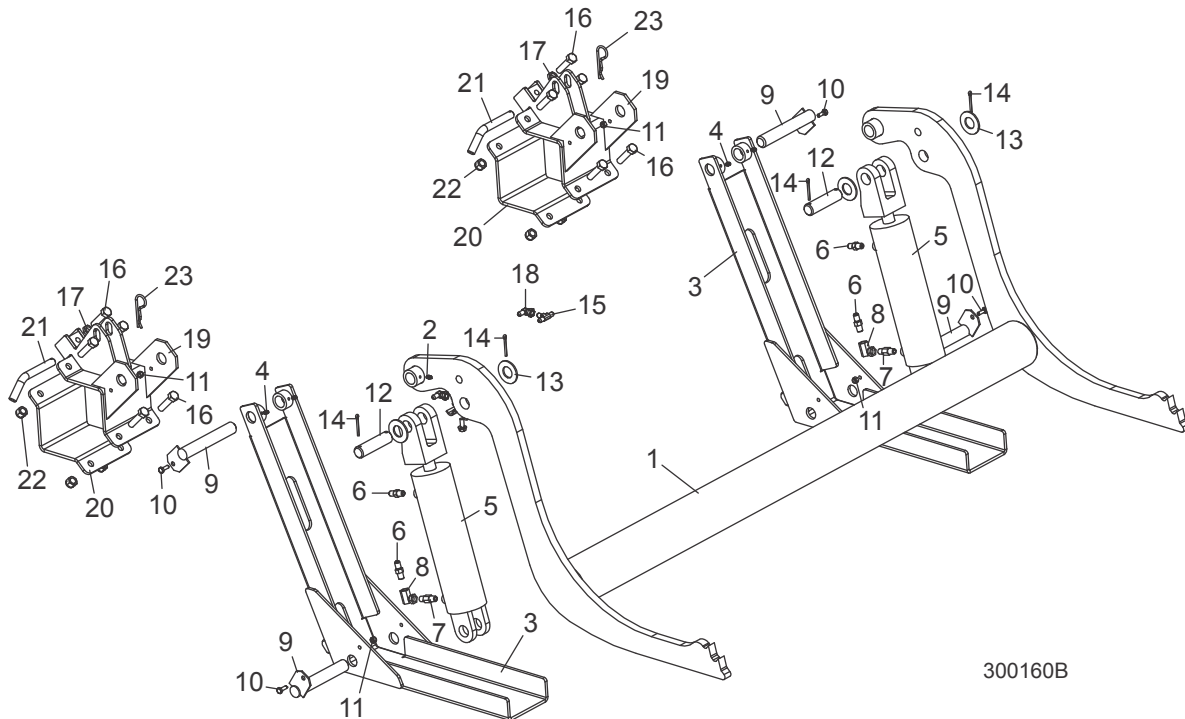
4.2 Hydraulic Power Supply Strip



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	CONTACT ASSEMBLY, LT35 HYDRAULIC POWER SUPPLY (POSITIVE)	010103	1	
	Contact Kit, 97+ Hydraulic Power Supply Positive	007716	1	
1	Contact, Hydraulic Power Supply (Positive)	015253	1	◆
2	Spring, Positive Contact	P10077	2	
3	Bolt, 5/16" x 3/4" Shoulder (1/4-20 Thread) Stainless	F05006-143	2	
4	Bolt, 5/16-18 x 1/2" Socket Button Head	F05006-20	1	
5	Insulator, Positive Contact	S10072	1	
6	Bracket, Positive Contact Mounting	015324	1	

7	Washer, 1/4" SAE Flat	F05011-11	2	
8	Cable, #1 Weld	R01971	1 Ft	◆
9	Terminal, 5/16" Ring #2 Gauge	F05092-16	2	
10	Bolt, 1/4-20 x 1" Hex Head Grade 2	F05005-38	2	
11	Nut, 1/4-20 Hex Self-Locking	F05010-9	2	
12	Bolt, 3/8-16 x 1 1/4" Carriage Head	F05007-11	2	
13	Nut, 3/8-16 Hex Nylon Lock	F05010-10	2	
	CONTACT ASSEMBLY, LT35 HYDRAULIC POWER SUPPLY (GROUND)	065081	1	
14	Washer, 3/8" SAE Flat	F05011-3	4	
15	Nut, 3/8-16 Hex Nylon Lock	F05010-10	2	
16	Bolt, 3/8-16 x 4" Square Head	F05007-7	2	
17	Bracket, Ground Contact Mounting	016792	1	
18	Cable, #1 Weld	R01971	1 Ft	◆
19	Terminal, 5/16" Ring #2 Gauge	F05092-16	1	
	Contact Kit, Hydraulic Ground 1997+	007717	1	
20	Contact, Hydraulic Power Supply (Ground)	015264	1	◆
21	Bolt, 5/16-18 x 1 1/4" Hex Head Full Thread Grade 5	F05006-93	2	
22	Spring, Ground Contact	P10077	2	
23	Nut, 5/16-18 Hex	F05010-17	2	
24	Washer, 5/16" SAE Flat	F05011-17	2	
25	PLATE, LT35 POSITIVE CONTACT SPACER	025964	1	
26	PLATE, LT35 CONTACT MOUNT	059636	1	
27	WASHER, 3/8" SAE FLAT	F05011-3	3	
28	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	3	
29	BOLT, 3/8-16 X 4" SQUARE HEAD	F05007-7	3	
	STRIP ASSEMBLY, LT35 CONTACT	065046	1	
30	Bolt, 1/4-20 x 1/2" Self Tap HH	F05015-1	2	
31	Housing, LT35 Contact Strip	065044	1	
32	Strip, 1/8" x 1" x 15-13/16" Contact	065045	1	
33	Cable, 1AWG SO Welding	R01971	1	
34	Terminal, 5/16" 1-2Ga Ring NI Loose	F05092-16	2	
35	Screw, 5/16-18 x 3/4" Black Nylon HHC	F05006-45	1	
36	Nut, 5/16-18 Black Nylon Hex	F05010-86	1	
37	Tubing, 5/8" Heat Shrink	R01950-5	1	
38	Grommet, 5/8" Wire	P04137	1	

4.3 Hydraulic Log Loader

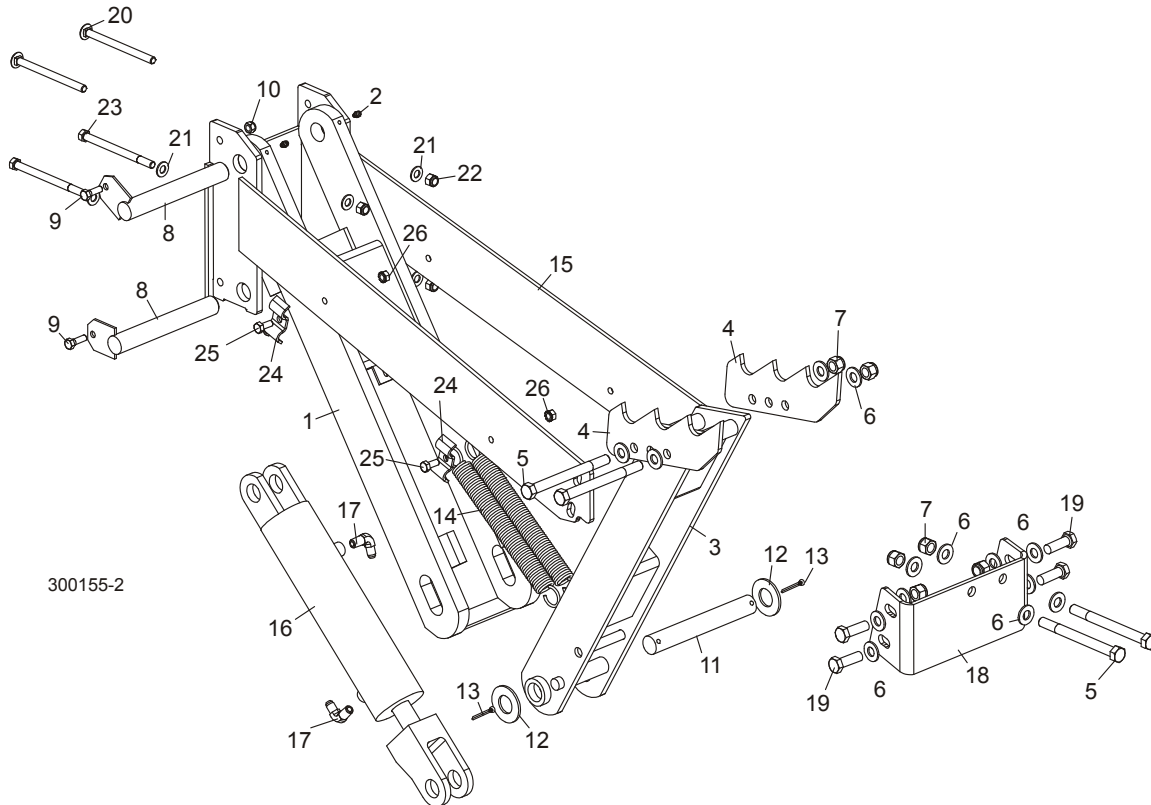


REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	ARM, HYDRAULIC LOG LOADING	110372	1	
2	Fitting, 3/16" Grease	P04107	2	
3	CHANNEL, HYDRAULIC LOG LOADING FOOT	W09444	2	
4	Fitting, 3/16" Grease	P04107	4	
	CYLINDER ASSEMBLY, HYDRAULIC LOG LOADING ARM	A09284	2	◆
5	Cylinder, 8" X 3" Hydraulic	P12847	1	
	Seal Kit, 8" x 3" Hydraulic Cylinder	P12956	1	
6	Fitting, C5205x4x4 Male Connector	P09143	2	
7	Fitting, 0455x4x4 90° Swivel Elbow	P12199	1	
	Fitting Kit, 1/4NPT 5.0GPM Velocity Fuse	015832	1	
8	Fitting, 1/4NPT 5.0GPM Velocity Fuse	015750	2	◆
	Instruction Sheet, Velocity Fuse Replacement	015832-255	1	
9	PIN, LOADING ARM MOUNT	W09446	4	
10	BOLT, 1/4-20 X 3/4" HEX HEAD FULL THREAD	F05005-1	4	
11	NUT, 1/4-20 HEX LOCK	F05010-69	4	
12	PIN, LOADING ARM CYLINDER MOUNT	S09251	2	
13	WASHER, 1" SAE FLAT	F05011-28	4	
14	PIN, 3/16" X 1 1/2" COTTER	F05012-23	4	
15	FITTING, C5705X5X4 UNION 'T'	P09145	2	

16	BOLT, 1/2-13 X 2" HEX HEAD FULL THREAD GRADE 5	F05008-116	10	
17	NUT, 1/2-13 JAM	F05010-31	2	
18	FITTING, 1/4" JIC X 1/4" JIC ELBOW	036715	2	
19	MOUNT WELDMENT, LOADER ARM	048270	2	
20	PLATE WELDMENT, LOADER ARM MOUNT	036737	2	
21	PIN, BENT PULL, 5/8X3 W/HAIRPIN	X200-987 ¹	2	
22	NUT, 1/2-13 HEX NYLON LOCK	F05010-8	8	
23	PIN, #210 HITCH	F05012-62	2	

¹ Replaced 038472 3/8x3 Wire Lock Pin Assembly to fit a larger pin hole size (Rev. A3.01).

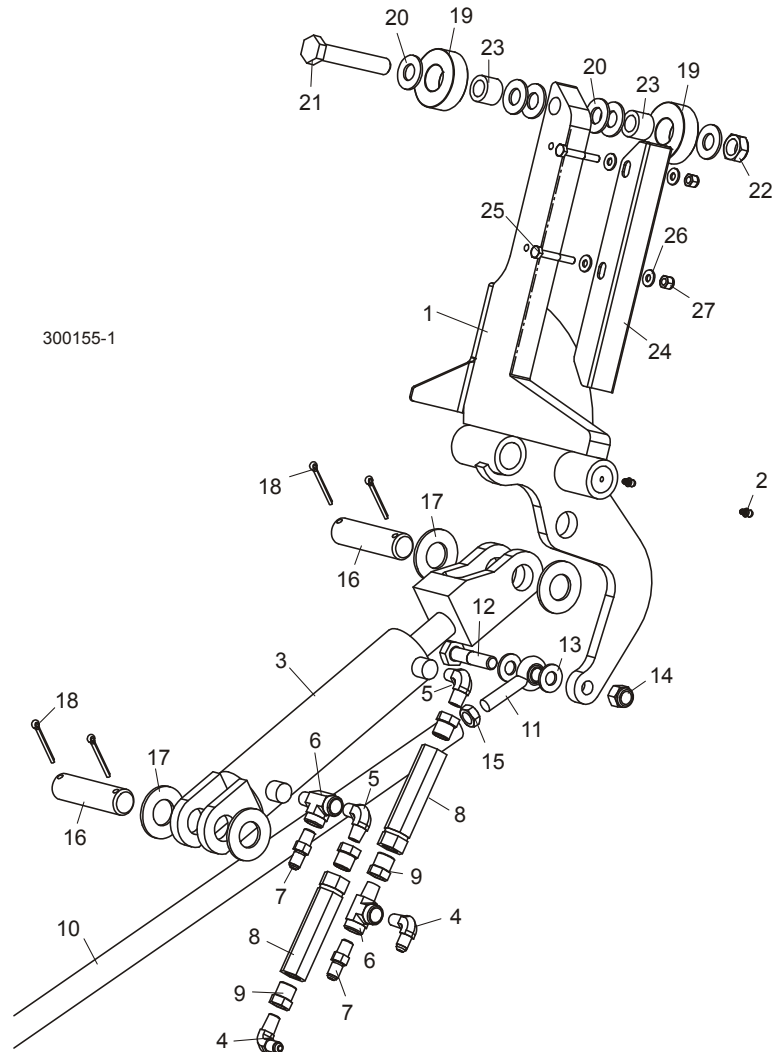
4.4 Hydraulic Log Turner



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	ARM ASSEMBLY, MANUAL MILL HYDRAULIC TURNER	007069	1	◆
1	Arm, Hydraulic Log Turner Link	015231	1	
2	Fitting, 3/16" Grease	P04107	2	
3	Arm, Hydraulic Log Turner Painted	015233	1	
4	Claw, Hydraulic Log Turner	014675	2	
5	Bolt, 1/2-13 X 5 1/2" Hex Head Grade 5	F05008-28	4	
6	Washer, 1/2" SAE Flat	F05011-2	16	
7	Nut, 1/2-13 Hex Nylon Lock	F05010-8	8	
8	Pin, Log Turner Mount	015085	2	
9	Bolt, 5/16-18 X 1" Hex Head Grade 2	F05006-1	2	
10	Nut, 5/16-18 Hex Nylon Lock	F05010-58	2	
11	Pin, Log Turner Pivot	S09246	1	
12	Washer, 1" SAE Flat	F05011-28	2	
13	Pin, 3/16" X 1 1/2" Cotter	F05012-23	2	
14	Spring, Hydraulic Log Turner	015718	2	
15	Mount Weldment, Manual Mill Hydraulic Log Turner	006999	1	
	Cylinder Assembly, Hydraulic Log Turner	A09286	1	

16	Cylinder, 8" X 2 1/2" Hydraulic	P12846	1	◆
	Seal Kit, 8" x 2 1/2" Hydraulic Cylinder	P12955	1	
17	Fitting, 1/4" NPT x 1/4" JIC 90° Male Elbow	P09142	2	
18	Plate, Manual Mill Hydraulic Log Turner Mount	007048	1	
19	Bolt, 1/2-13 x 1 1/2" Hex Head Grade 5	F05008-33	4	
20	Bolt, 3/8-16 x 5" Carriage Head	F05007-113	2	
21	Washer, 3/8" SAE Flat	F05011-3	6	
22	Nut, 3/8-16 Hex Nylon Lock	F05010-10	4	
23	Bolt, 3/8-16 x 5" Hex Head	F05007-5	2	
24	Plate, 1/4" Hose Clamp	S09245	2	
25	Bolt, 5/16-18 x 3/4" Hex Head Grade 5	F05006-102	2	
26	Nut, 5/16-18 Hex Self-Locking	F05010-20	2	

4.5 Hydraulic Side Supports

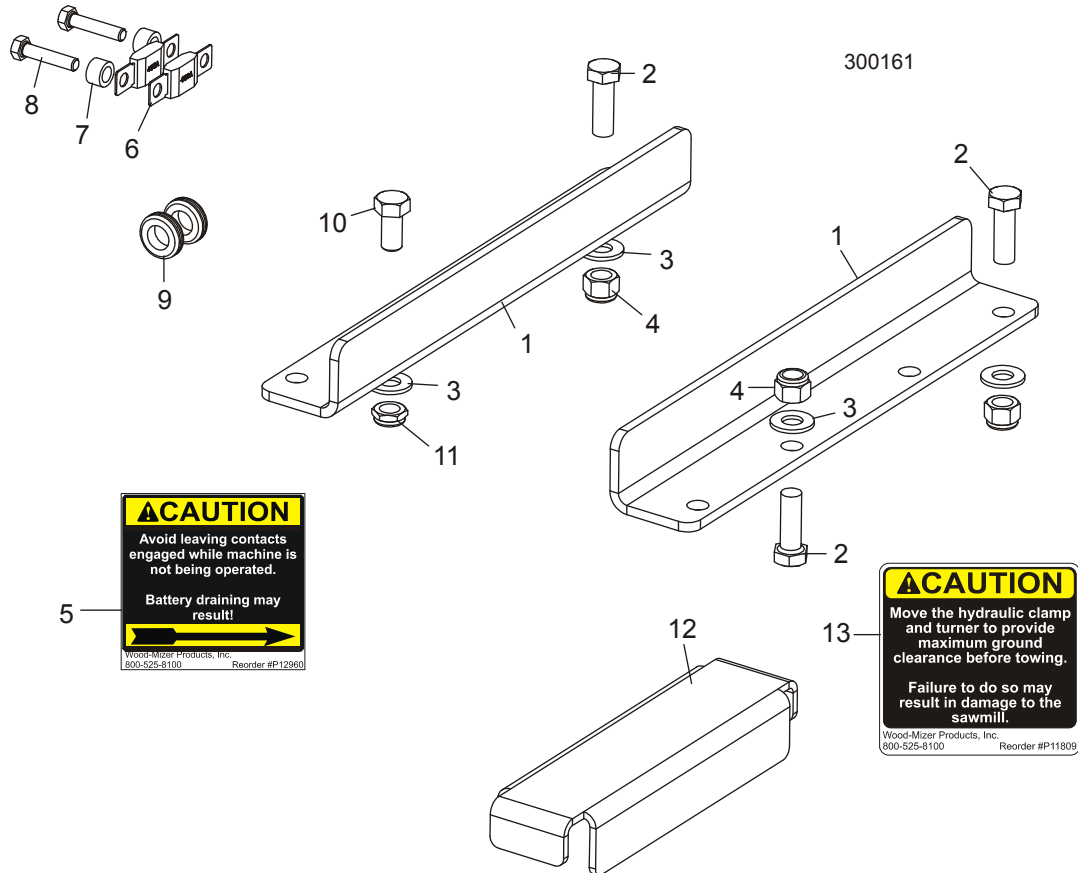


REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	SUPPORT, HYDRAULIC LOG SIDE	W12339	2	
2	Fitting, 3/16" Straight Grease	P04107	2	
	CYLINDER ASSEMBLY, HYDRAULIC LOG SIDE SUPPORT	A09283	1	
3	Cylinder, 6" X 2" Hydraulic	P12845	1	
	Seal Kit, 6" x 2" Hydraulic Cylinder	P12954	1	
4	Fitting, 1/4" NPT x 1/4" JIC 90° Male Elbow	P09142	2	
5	Fitting, 1/4" NPT 90° Male Elbow	P09140	2	
6	Fitting, 1/4" NPT x 1/4" JIC Male Run 'T'	P09141	2	
7	Fitting, 1/4" NPT x 1/4" JIC Male Connector	P09143	2	
8	Valve, Hydraulic Sequence	015484	2	
9	Fitting, 3/8" NPT - 1/4" NPT Reducer	015490	4	

10	ROD, HYDRAULIC SIDE SUPPORT LINK	015026	1	
11	END, 1/2" ROD	P09137	2	
12	BOLT, 1/2-13 X 2 1/4" HEX HEAD GRADE 5	F05008-10	2	
13	WASHER, 1/2" SAE FLAT	F05011-2	4	
14	NUT, 1/2-13 HEX NYLON LOCK	F05010-8	2	
15	NUT, 1/2-20 HEX JAM	F05010-16	1	
16	PIN, CYLINDER MOUNT	S09251	2	
17	WASHER, 1" SAE FLAT	F05011-28	4	
18	PIN, 3/16" X 1 1/2" COTTER	F05012-23	4	
	ROLLER KIT, SIDE SUPPORT (OPTIONAL)	016562	2	
19	Roller, Side Support	016561	2	
20	Washer, 5/8" SAE Flat	F05011-5 ¹	6	
21	Bolt, 5/8-11 x 3 3/4" Hex Head Grade 5	F05009-118	1	
22	Nut, 5/8-11 Hex Nylon Lock Jam	F05010-96	1	
23	Bushing, Bronze 5/8" x 1" x 3/4"	016560	2	
	Bolt, 1/2-13 x 3 1/2" Carriage Head	F05008-94	1	
	Instruction Sheet, Side Support Roller	016562-526	1	
	GUARD KIT, STAINLESS STEEL SIDE SUPPORT (OPTIONAL)	016798	1	
24	Guard, Stainless Steel Side Support	016722	4	
25	Bolt, 1/4-20 x 1 3/4" Hex Head	F05005-4	8	
26	Washer, 1/4" SAE Flat	F05011-11	16	
	Washer, 5/8" SAE Flat	F05011-5 ¹	4	
27	Nut, 1/4-20 Hex Nylon Lock	F05010-69	8	
	Instruction Sheet, Stainless Steel Side Support Guard Retro	016798-1005	1	

¹ Additional 5/8" SAE Flat Washer F05011-5 may be required on each side of side support to provide clearance for optional stainless steel side support guards. Extra washers are included in the stainless steel guard retrofit kit (016798).

4.6 Miscellaneous



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	PLATE, AXLE MOUNT	048269	2	
2	BOLT, 1/2-13 X 1 1/2" HEX HEAD GRADE 5	F05008-33	3	
3	WASHER, 1/2" SAE FLAT	F05011-2	4	
4	NUT, 1/2" HEX NYLON LOCK	F05010-8	3	
5	DECAL, HYDRAULIC CONTACT CAUTION	P12960	1	
6	FUSE, 225A 32V MEGA	053339	2	
7	SPACER, .39" X .625" X .39"	055323	2	
8	BOLT, 5/16-18 X 1 1/2" HEX HEAD FULL THREAD	F05006-2	2	
9	GROMMET, 5/8" ID RUBBER	P11764	2	
10	BOLT, 1/2-13 X 1" HEX HEAD GRADE 8	F05008-128	1	
11	NUT, 1/2-13 HEX NYLON HALF NUT	F05010-127	1	
12	PLATE, HLT TRAVEL	025745	1	
13	DECAL, BEFORE TOWING CAUTION	P11809	1	

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