CENTRAL HYDRAULICS®

TRENCHER

Model 93167

ASSEMBLY AND OPERATING INSTRUCTIONS

Due to continuing improvements, actual product may differ slightly from the product described herein.

Distributed Exclusively by
HARBOR FREIGHT TOOLS®

3491 Mission Oaks Blvd., Camarillo, CA 93011
Visit our Web site at http://www.harborfreight.com

For technical questions and replacement parts, please call 1-800-444-3353.

Contents

SPECIFICATIONS

Ripping Force	4,400 lbs. at the bucket
Digging Depth	7 feet maximum
Digging Reach	8 feet maximum
Hydraulic Rams	2 up and down, 1 right and left, 1 bucket movement
Hydraulic Pump	Single Stage; 2.7 GPM
Pump Stage	Single
Ram Diameter	1-1/4"
Hydraulic Oil Capacity	2.4 to 3.57 gallons
Operation Controls	4-arm control valves
Seat	32-1/2 (H) inches from floor
Frame Size	81-1/2" (L) x 37" (W); Main Beam: 4" (W) x 5-3/4" (H)
Wheel Base	58-3/4 inches
Wheel Load Capacity	780 lbs. each
Wheel Size	4.8-4.0-12
Bucket Load Capacity	1.24 cu. ft.
Bucket Size	12" (W) x 20" (L) (outside); 11-1/2" (W) x 12-1/4" (D) (inside)
Hose Ratings	20,000 PSI burst pressure; 10,000 PSI working pressure
Overall Towing Dimensions	12' L x 5' 7" W x 5' 6" H
Engine	9 HP Robin Subaru®: EX27 with overhead cam - 4000 RPM (max.); 3600 (continuous) - One cylinder, 4 cycle engine, 265-cc - Gas tank: 1.59 gallon; Fuel: unleaded gas - Oil capacity and type: 33.8 Fl. oz.; At 32~86°F: F-SAE 10W-30; 20W, 30W - Starter: Recoil
Towing Restrictions	This Trencher is not approved by the Dept. of Transportation for towing on public roads. Check local laws for further restrictions on use.
Weight	1056 lbs.

Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

SAFETY WARNINGS AND PRECAUTIONS

WARNING: When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this tool!

1. **Keep work area clean**. Cluttered areas invite injuries.
2. **Observe work area conditions**. Keep work area well lighted and erect barricades or use other means to prevent unauthorized personnel from entering the vicinity.
3. **Keep children away**. Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords.
4. **Store idle equipment**. When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
5. **Use the right tool for the job**. Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
6. **Dress properly**. Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically nonconductive clothes and nonskid footwear are recommended when working. Wear restrictive hair covering to contain long hair.
7. **Always wear ANSI approved safety goggles, heavy work gloves, a hardhat, and steel-toed heavy work boots when setting up or using this product.**
8. **Do not overreach**. Keep proper footing and balance at all times. Do not reach over or across running machines.
9. **Maintain tools with care**. Follow instructions for lubricating and changing accessories. Inspect tool hydraulic hoses periodically and, if damaged, have them repaired by an authorized technician. The handles must be kept clean, dry, and free from oil and grease at all times.
10. **Remove adjusting keys and wrenches**. Check that keys and adjusting wrenches are removed from machine work surface before operating.
11. **Avoid unintentional starting**. Be sure the switch is in the Off position when not in use.
12. **Stay alert**. Watch what you are doing, use common sense. Do not operate any tool when you are tired.
13. **Check for damaged parts**. Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician.
14. **Replacement parts and accessories**. When servicing, use only identical replacement parts. Use of any other parts will void the warranty. Only use accessories intended for

use with this tool. Approved accessories are available from Harbor Freight Tools.

15. **Do not operate tool if under the influence of alcohol or drugs**. Read warning labels if taking prescription medicine to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.

16. **Maintenance**. For your safety, service and maintenance should be performed regularly by a qualified technician.

Product Specific Safety Precautions

1.  This unit can exert thousands of pounds of force and, if used improperly, can cause broken bones, dismemberment, or DEATH.

2. **Avoid Fires**. Flames or sparks near engine fuel can cause fire or explosion. Do not spill fuel. If fuel is spilled, clean it up and do not start engine until fumes are gone. Do not smoke while fueling or if near fuel or fumes. Stop engine before fueling. Do not fuel a hot engine. Stop engine and let it cool off before checking or adding fuel.

3. **Engine exhaust gases can kill**. Vent exhaust outside if used indoors, or use outside. Use away from any building air intakes. **Avoid carbon monoxide poisoning from Engine exhaust**. Read Warning on page 12.

4. **Moving parts can cause injury**. Keep hands, hair, loose clothing, and tools away from moving parts such as fans, belts, hydraulic rams, boom or boom extension, and bucket assembly.

5.  **Avoid injury from hydraulic fluid**. Hydraulic fluid under pressure can cause burns, cuts, and other injuries if released due to a break in the hydraulic hose lines, or loose fittings. If a break occurs, immediately turn Engine off. Inspect the lines carefully for leakage; pinpoint leaks could result in hydraulic fluid being injected into the skin, resulting in SERIOUS PERSONAL INJURY.
NEVER CHECK FOR A LEAK USING YOUR HANDS.

6. **Use the Trencher on a proper surface**. Locate on a flat, level, and solid surface that is capable of supporting the weight of the Trencher, plus the load.

7. **Avoid accidents while towing Trencher**. Maximum speed while towing is 30 MPH.

8. **Avoid damage to engine**. Check oil level before each use. Add oil if necessary. Refer to the engine service manual provided with this product.

9. **Contact your local utility companies before beginning any project.** Buried utility lines may not be marked and, if struck, may cause SEVERE PERSONAL INJURY or DEATH.

10. **People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to, or failure of the pacemaker. In addition, people with pacemakers should adhere to the following:

    - Caution is necessary when near the magneto or spark plug cables of a running engine.

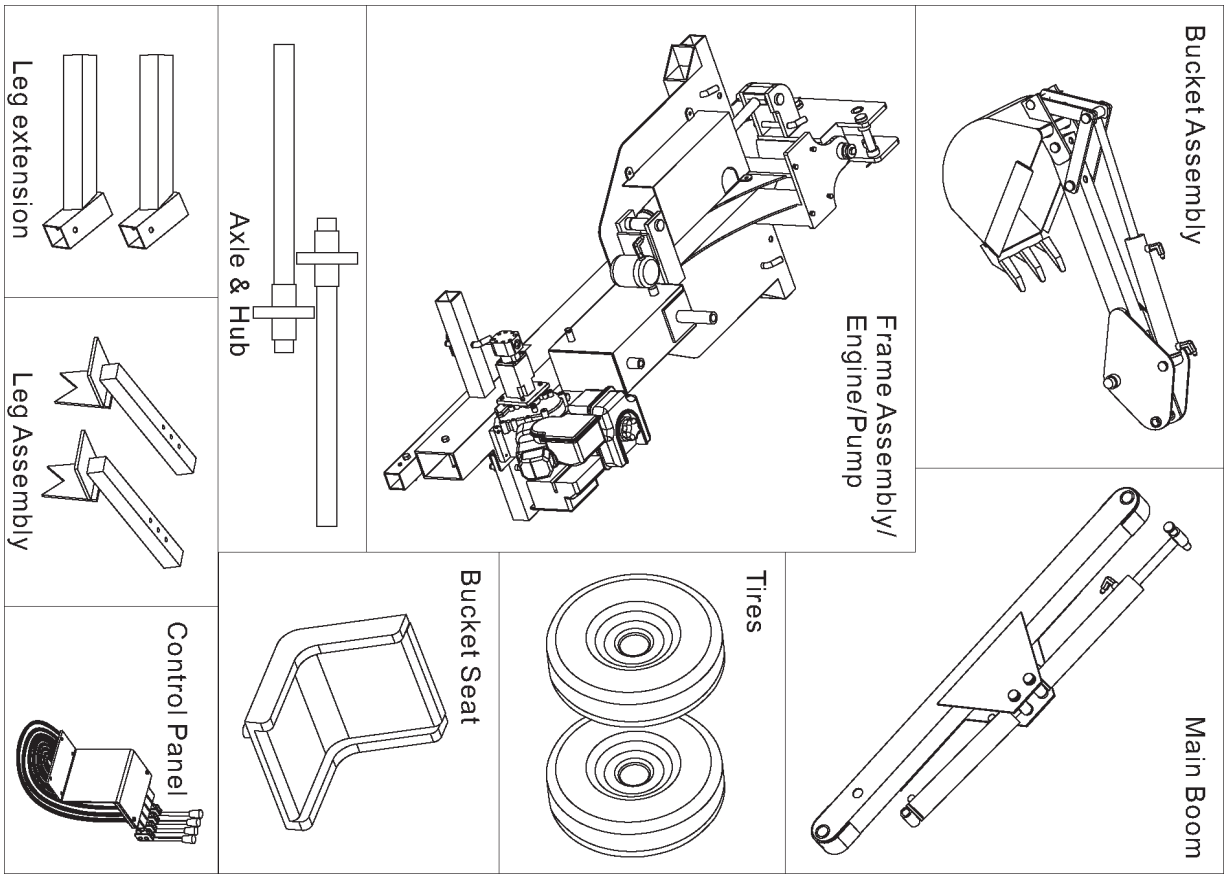
11. **Always use in full accord with OSHA guidelines and safe workplace practices.**
12. **Keep all personnel not trained for and directly involved in the use of this item well away from the work area. We recommend that only licensed drivers use this machine.**
13. **This unit is not designed for the demolition of buildings; a building may collapse on the machine during demolition, causing damage to the machine and severe injury to the operator.**
14. **Warning: This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, et seq.)**

Warning: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

CHECK LOCAL LAWS BEFORE USE.

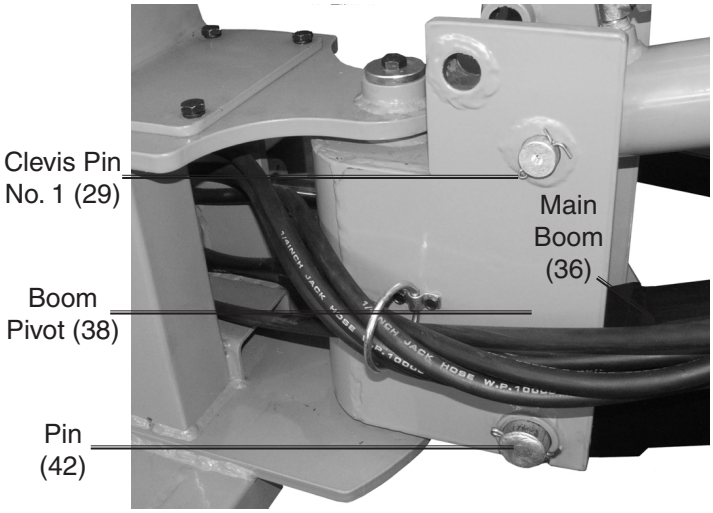
UNPACKING

When unpacking, check to make sure that all of the assemblies shown below are included. If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.



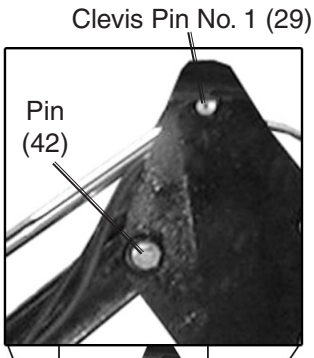
ASSEMBLY

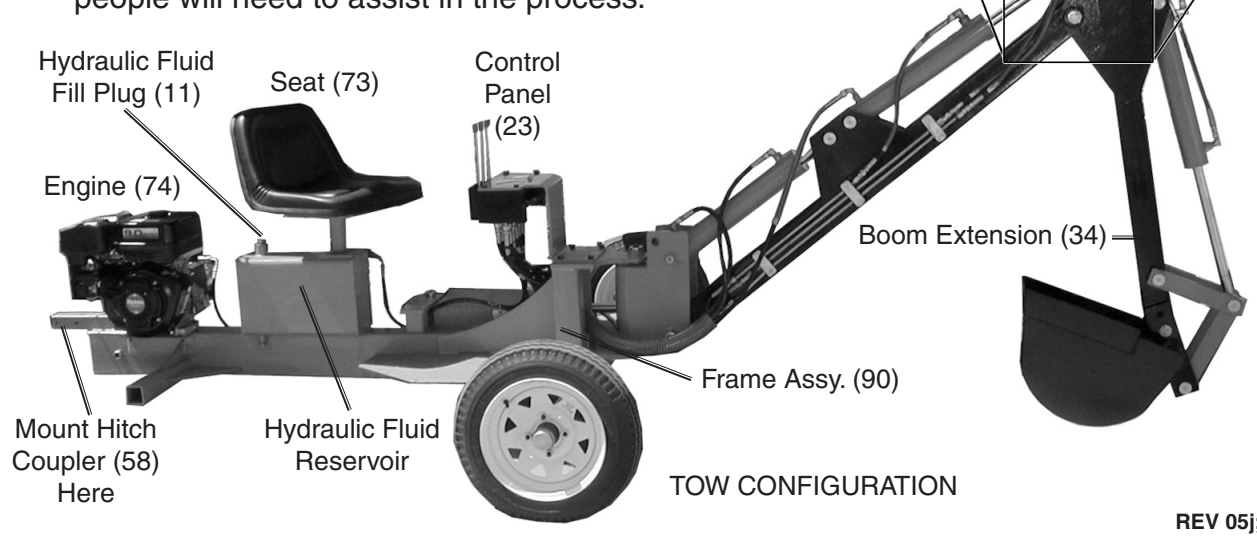
1. With the help of one or more assistants, use jacks (not included) to evenly raise the Frame Assembly (90) & support with jack stands (not supplied). Then mount both Axles and Hub Assembly (50) near the boom end of the frame, as shown at bottom. Secure with Lock Pins (20).
2. Place a Tire (52) over the four studs on each Hub. Secure the Tires to the Hubs, using four Lug Nuts (53) per Tire. Make sure that the lug nuts are snug and centered in the holes. Inflate the tires to 65 PSI.
3. Lower the Trencher and remove the jack stands. Block the tires while you tighten the Lug Nuts. **NOTE:** Make sure to tighten (torque) the Lug Nuts to at least 90 Ft.-Lbs.
4. Place the Seat (73) onto the tube at the top of the Hydraulic Fluid Reservoir. Attach the Control Support (3) to the Frame Assembly (90) using four Hex Bolts (72). See illustration at bottom of page.



NOTE: The Hydraulics of this unit are tested before shipment. There is hydraulic fluid present in many components. Assemble this unit in an area that will not be damaged by leaking hydraulic fluid and it is recommended that you wrap rags securely over the Hydraulic connectors on all the Cylinders (26) during assembly. Always wear splash-resistant ANSI approved safety goggles and other protective gear to prevent injury from leaking fluid.

5. Attach the Main Boom (36) to the Boom Pivot (38) using Pin (42) through the bottom hole and Clevis Pin No. 1 (29) through the upper hole. Secure both pins with Hair Pins (31); Pin (42) requires one Hair pin on each end. See photo below. Other people will need to assist in the process.

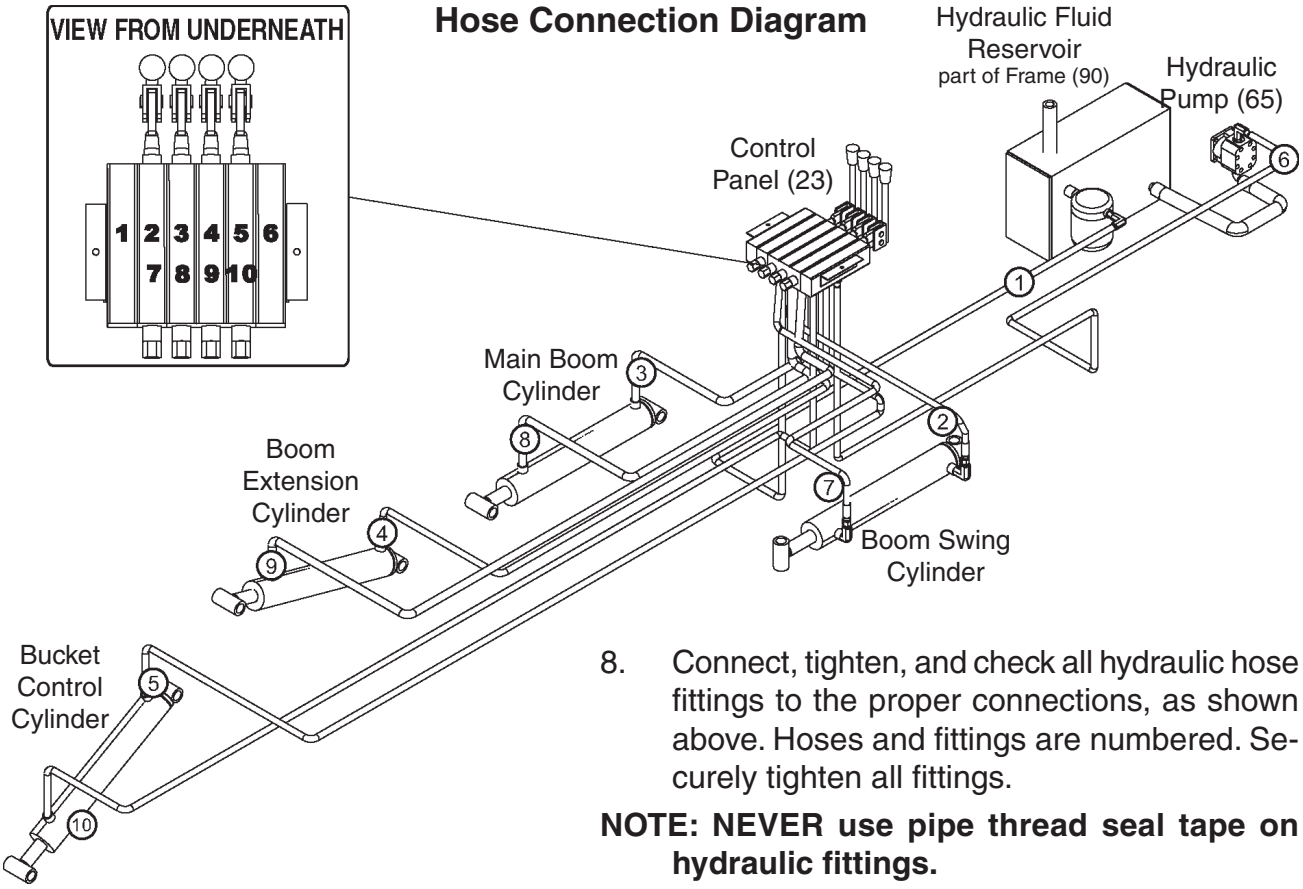




TOW CONFIGURATION

REV 05j; 07f

6. Mount the Boom Extension (34) to the Main Boom (36) using Pin (42), left, and Clevis Pin No. 1 (29), top (shown on inset to the right). Secure both pins with Cotter Keys.
7. Attach the towing Hitch Coupler (58) to the Frame Assembly (90) under the Engine (74) using Hex Bolts (75) and Hex Nuts (84). See illustration on previous page.



8. Connect, tighten, and check all hydraulic hose fittings to the proper connections, as shown above. Hoses and fittings are numbered. Securely tighten all fittings.

NOTE: NEVER use pipe thread seal tape on hydraulic fittings.

9. Open the Hydraulic Fluid Fill Plug (11). Fill the Hydraulic Fluid Reservoir with 3.5 gallons of high quality hydraulic fluid. Check that the Fluid level is between the lines on the attached Dipstick. Close the Hydraulic Fluid Fill Plug (11) securely.

Assembly instructions continued on next page.

10. **CAREFULLY REVIEW ALL ASSEMBLY COMPLETED DURING THE PREVIOUS STEPS. Most importantly:**
    - **Check that all Pins are properly in place and that Hair Pins are securing all the pins properly.**
    - **Check that all hydraulic connections are correct and fully tightened.**
    - **Check that the lug nuts are properly tightened.**

Purging Air From The Trencher

The steps that follow move the boom through its full range of travel and help to flush air from the hydraulics, helping to ensure better performance in the future.

11. Move the Trencher to a place with wide clearance and dirt that is free from all obstructions. **Contact your local utility companies to ensure that this test spot has no hidden utility lines.**

12. Set the trencher up in this spot and start the engine as described on the following pages.

    WARNING: The hydraulic system is now pressurized. Use caution when near the boom controls. Do not allow anyone to come near the boom or bucket. Nobody except the operator should be in the vicinity of the machine during use.

13. Carefully remove all Safety Locking Pins (15) and disengage the Safety Latch (41).

14. Press forward on the Boom Swing Lever until the Boom stops moving, then pull back on it until it moves fully in the other direction. Center the Boom.

15. Press forward on the Main Boom Lever until the Main Boom is fully raised. Then, press Forward on the Boom Extension Lever until the Boom is fully extended.

16. Press forward on the Bucket Lever until the bucket is fully extended. Then pull back on the lever to retract it fully.

17. Pull back on the Boom Extension Lever until the Boom Extension is pulled back all the way. Pull back on the Main Boom Lever until the Main Boom is lowered completely.

18. Adjust the boom back to its rest position and replace all locking devices, see below.

19. Shut off the Engine, check the Hydraulic Fluid level and refill as necessary.

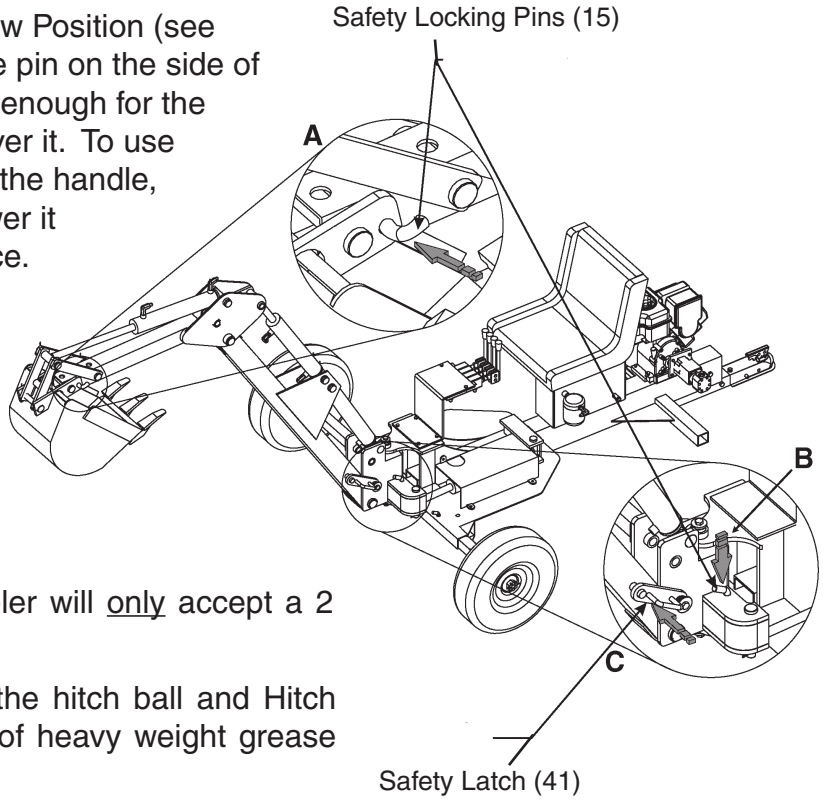
TRANSPORT

Locking the Boom in Place

1: a. Use the Bucket Lever to line the hole on the Bucket Assembly (32) up with the hole on the Boom Extension (34). Insert a Safety Locking Pin (15) and secure with a Hairpin Clip (31).

b. Use the Boom Swing Lever to line up the hole in the Boom Pivot (38) with the Hole in the Frame (90). Insert a Safety Locking Pin (15) and secure with a Hairpin Clip (51).

c. Put the Boom into the Shallow Position (see page 15) and raise it until the pin on the side of the Main Boom (36) is close enough for the Safety Latch (41) to swing over it. To use the Safety Latch, pull out on the handle, swing it over the pin, and lower it over the pin, locking it in place.



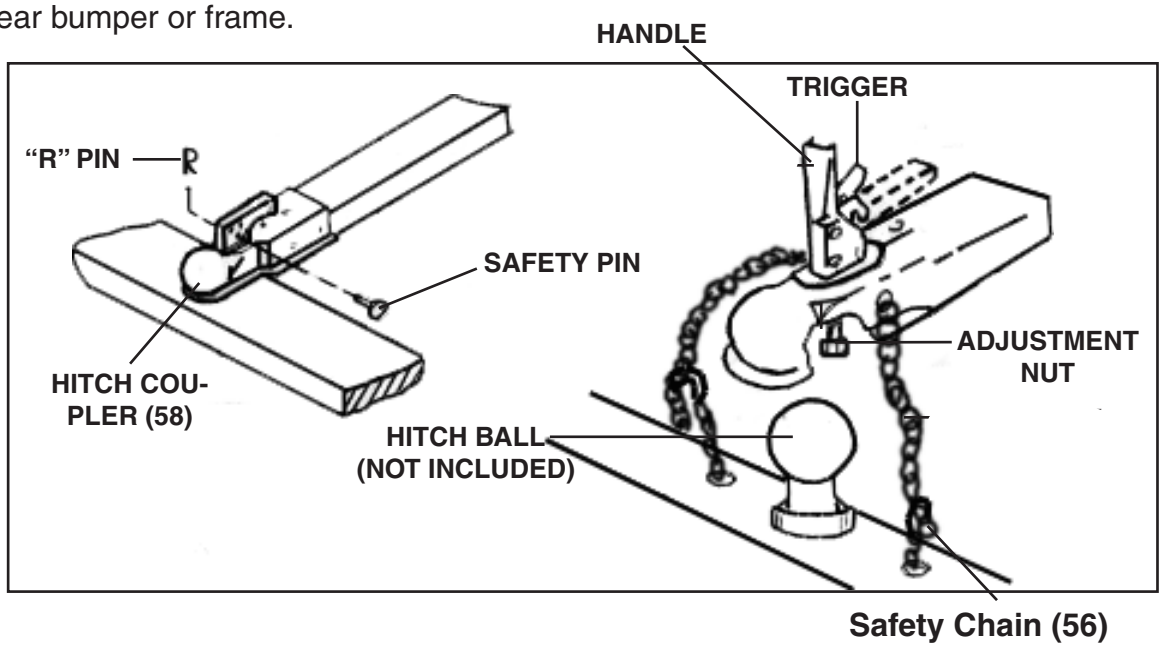
2. <u>When transporting the Trencher, make sure your hitch (not included) is compatible with the Hitch Coupler (58). Follow all of the safety warnings for towing in your vehicle's manual.</u>
WARNING: The Hitch Coupler will <u>only</u> accept a 2 inch hitch ball.

3. To reduce friction between the hitch ball and Hitch Coupler (58), apply a layer of heavy weight grease over the hitch ball.

4. **See illustration below.** Temporarily remove the "R" Pin and Safety Pin. Then, pull up on the Trigger and lift up on the Handle.

5. With assistance, place the Hitch Coupler (58) over the vehicle's hitch ball, pull the trigger, push down on the Handle, and release the Trigger, making sure it locks in the slot. Pull up and down on the Coupler to make sure the hitch ball is fitting snugly in the Coupler. There should be no play between the hitch ball and Coupler. If there is play, tighten the Adjustment Nut until no play is present. If the Adjustment Nut is too tight, the Handle will not lock. **WARNING! If the Hitch Coupler is not secured properly, the ball could come loose while the Trencher is in motion, possibly causing property damage or SERIOUS PERSONAL INJURY.**

6. Make sure to attach each side of the Safety Chain (56) equally to the towing vehicle's rear bumper or frame.



7. **CAUTION! Care must be taken when backing up the Trencher. Only back up the Trencher on a straight path.** If the Trencher is allowed to turn off the straight path while backing up, the Trencher could jackknife, cauing severe damage to the Trencher and to the towing vehicle.

SETUP

⚠**Warning: This engine-run Trencher must never be used indoors, in a house, or any other sealed structure without proper ventilation. Carbon monoxide is produced during operation and is deadly in a closed environment. Early signs of Carbon Monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs get fresh air immediately.**

Engine Preparation

1. Read and adhere to all Engine instructions and safety warnings in the Robin Subaru® Operating Manual.
2. Place the Trencher outdoors where it will be used. This should be on a flat surface and away from flammable materials.
3. Add 33.8 oz. (about two quarts) of oil to the Engine by removing the Dip Stick and adding through its hole.

   If the area temperature is above freezing, use F-SAE 10W-30 weight oil. If below freezing, use F-SAE 5W-30 weight oil. Use a siphon to avoid spilling the oil. Check the oil level with the Dip Stick. It should be up to the "Full" mark. Carefully screw the plastic Dip Stick back into the metal Engine crankcase to avoid stripping the plastic threads on the Dip Stick.

Caution: Running the engine without oil will permanently damage the engine and void its warranty.

⚠ WARNING: Risk of FIRE or EXPLOSION!

- **Do not fill the Gas Tank while engine is hot; allow engine to cool before filling.**
- **Never use a damaged fuel tank!**
- **Never overfill!**

4. Fill the Gas Tank (outdoors) with up to 1-1/2 gallons of unleaded gasoline. Do not top-off tank.
5. Remove the Oil Plug (89) from the Hydraulic Fluid Reservoir and verify that the reservoir is properly filled with high quality hydraulic oil. Replace the Oil Plug and securely tighten.

Attaching Leg Assembly

In order to use the Trencher, the Leg Assemblies must be installed next to the Main Boom (36), and the Wheels (78) and Axle and Hub Assembly (50) moved the rear of the Trencher.

1. On a flat earthen surface, start the engine and use the Boom Controls to first curl the bucket towards the boom without touching the ground and then to force the Bucket Assembly (32) down to the ground forcing the Frame Assembly (90) to rise. Lift the Tires just off the ground and stop. Refer to Starting the Engine and Boom Controls on the following pages.

2. **Make sure that the controls will not be touched or bumped and that the Trencher will remain motionless. NEVER PLACE ANY PART OF YOUR BODY UNDER THE TRENCHER, ESPECIALLY IF IT IS RAISED IN THIS FASHION.**

3. When the Tires (52) are off the ground, remove the Wheel (78) and Axle Assembly (50) to the operator's left, and replace with the Left Extension Leg (45) and Leg Assembly (24). Make sure that the Extension Leg is directed so that it turns toward the Bucket end of the Trencher. Secure with Lock Pin No. 1 (20). Repeat procedure for the right side. Raise Bucket Assembly again to lower onto Leg Assembly, and turn Engine off.

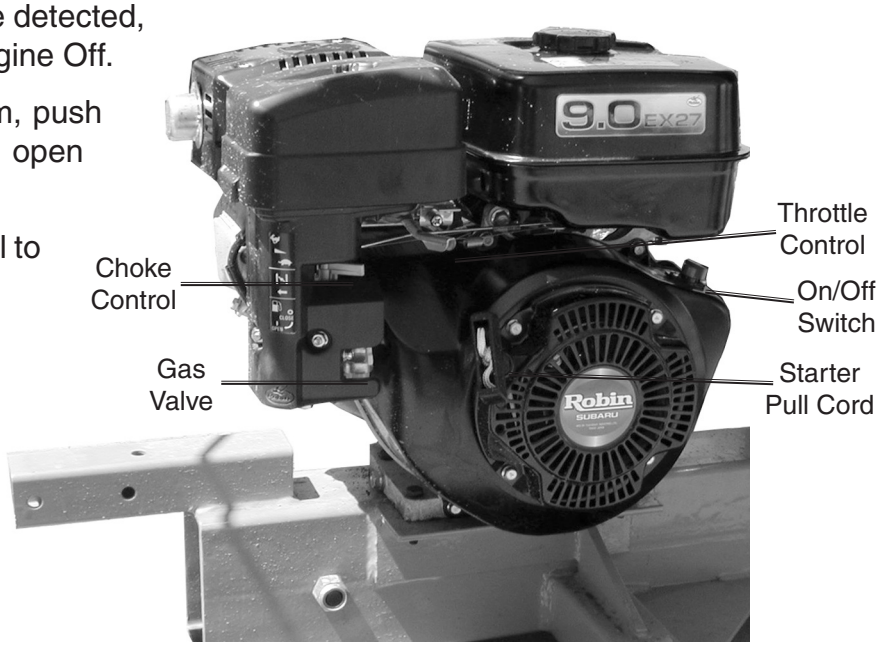
4. Using a jack (not included) and assistance, raise up the engine end of the trencher and disconnect from the towing hitch, if you have not already done so. Slide the Wheels (78) and Axle Assembly (50) into the engine end of the Frame (90). Secure each axle with Lock Pin No. 2 (82). The completed assembly should resemble the illustration below.

OPERATION

Starting the Engine

1. Check oil level by pulling out the Oil Dip Stick. Add oil if necessary. **Never run with low or no oil.**
2. Open the Gas Valve by pushing it down until it stops. See photo on the next page.
3. Turn the On/Off Switch to the On position.
4. If the Engine is cold, pull the Choke Control out. Otherwise, continue with the next step.
5. Slowly pull out on the Starter Pull Cord until it engages, then pull out fast.

   The Engine should start. Try again in a few minutes if it does not start immediately. Refer to the Robin Subaru® Operator's Manual under Troubleshooting if problems persist. Let the engine run for five minutes to warm up and build up pressure in the hydraulic lines. If any hydraulic leaks are detected, immediately turn the Engine Off.
6. After the Engine is warm, push in the Choke Control to open choke.
7. Push the Throttle Control to the left for full speed.
8. To turn off the Engine, turn the On/Off Switch to the Off position.

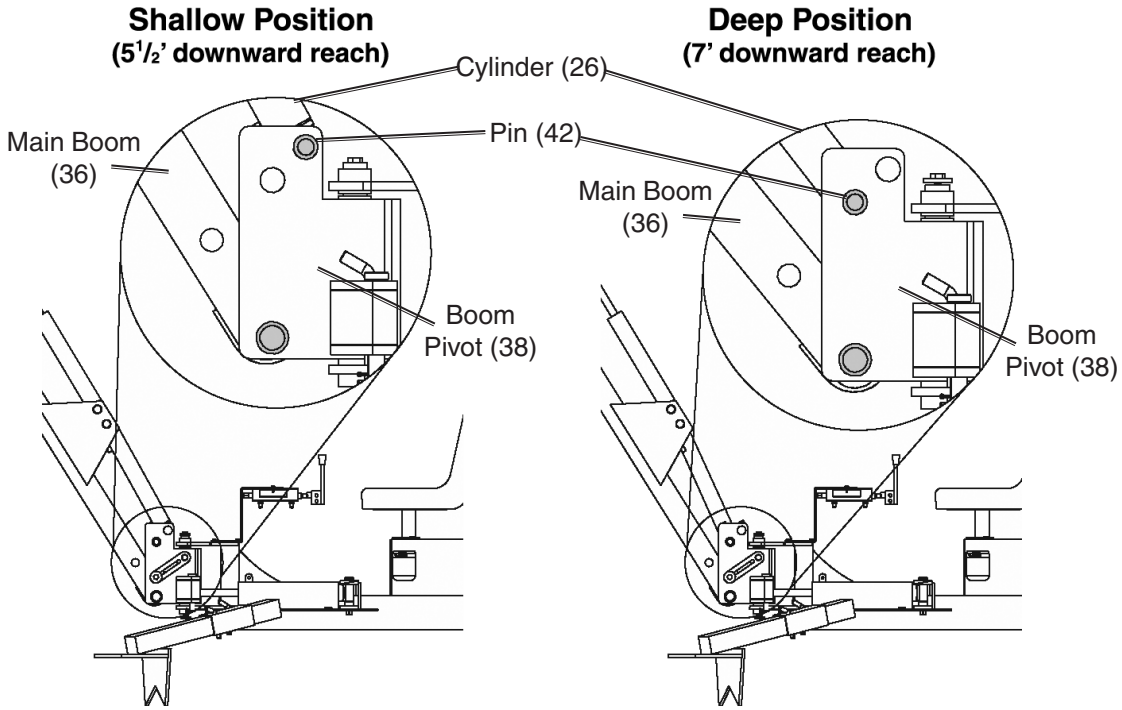


Warning: The hydraulic system is now pressurized. Do not move Boom Controls until ready to begin digging. Stay clear of Boom.

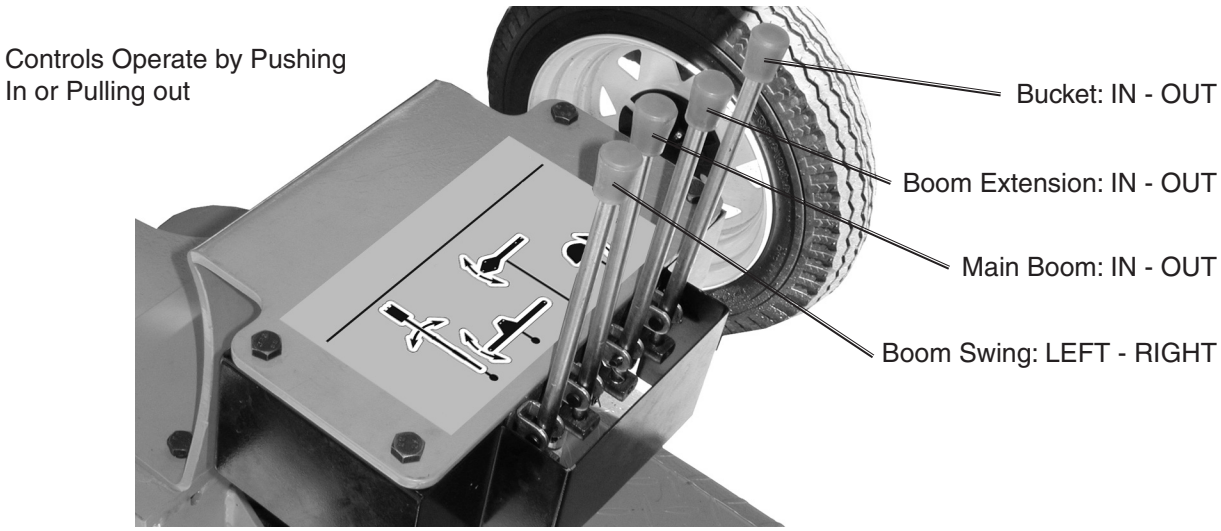
⚠**Warning: This engine-run Trencher must never be used indoors, in a house, or any other sealed structure without proper ventilation. Carbon monoxide is produced during operation and is deadly in a closed environment. Early signs of Carbon Monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs get fresh air immediately.**

Digging Depth Adjustment

1. This Trencher can be used with two arm positions. See the illustration below.
2. **While the end of the boom is being supported:** Remove the Pin (42), align the cylinder with the appropriate hole, insert the Pin (42), and secure it with the Hair Pin (51).



Boom Controls



Boom Operation

1. With the Engine running, sit in the operator Seat (73) and pull the Main Boom handle control backward to raise the Main Boom (36).
2. Pull back on the Boom Extension handle control to raise the Boom Extension (34).
3. Push forward on the Bucket handle control to open the Bucket Assy (32).

4. Push forward on the Main Boom handle to lower the Main Boom until the Bucket Assy. reaches the ground.
5. Pull back on the Bucket handle control until the Bucket scoops up the dirt.
6. Pull back on both the Main Boom and Boom Extension control handles to raise the load.
7. Press in, or pull out, the Boom Swing control handle to move the Bucket left or right. **Note:** The Boom's travel is 60 degrees left and 60 degrees right.
8. Press in on the Bucket control handle to dump the load.

Moving the Trencher

1. One method for moving the trencher around the work area is by using the Boom to push the Trencher across the ground.

WARNING: This technique can be difficult to control and should only be attempted by an experienced operator. The stability of the Trencher is totally dependent on the stability of the ground that the trencher is working on; if you choose to move the Trencher in this way, do so at your own risk.

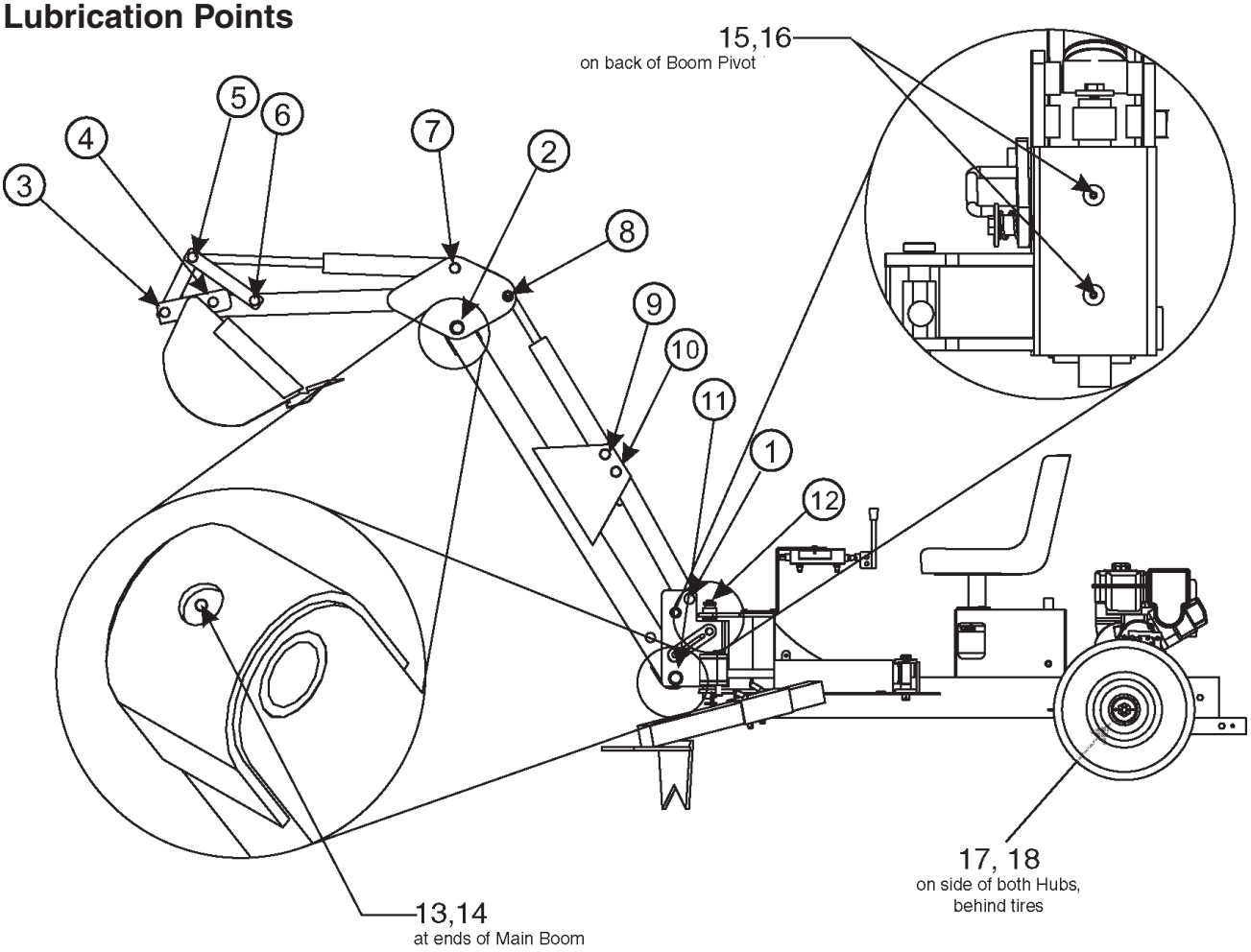
2. Swing the Bucket inward so that the front of the bucket, not the scoop, is facing downward. Press the Bucket down onto a solid piece of ground and press down hard enough to raise the front legs off the ground.
3. Carefully operate the controls to move the boom and slowly roll yourself in the desired direction. **Be certain that the Tires and the new resting places for the Legs all remain on solid, stable ground.**
4. After you have repositioned the Trencher, raise the Boom to place the Legs back into the ground. The procedure can be repeated to move farther.

MAINTENANCE

⚠ **WARNING! Before performing any inspection, maintenance, or cleaning procedures, disconnect the wire to the Spark Plug of the Engine, and release any remaining pressure in hydraulic lines by operating the Boom Controls until there is no movement.**

1. Before each use, inspect the general condition of the Trencher. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, damaged hydraulic hoses, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. Do not use damaged equipment.
2. Check Engine oil level before each use.
3. With engine off, periodically check hydraulic oil level. Fill when necessary.
4. For Engine maintenance and troubleshooting, refer to the Robin Subaru® Engine Operator's Manual.
5. After the Engine has cooled down, remove the remaining gasoline into a gasoline container before storing the unit.
6. After the first five hours of use, drain and replace the Engine oil. After that, replace the oil after every 25 hours of use.
7. Yearly, or more often if used on a regular basis, change the Hydraulic Fluid. To do so:
   a. Locate the Trencher on a level piece of ground to allow the Fluid to drain properly. Allow the trencher to cool off.
   b. Place an appropriate container underneath (that can hold at least 4 gallons) and remove the Oil Plug (89). Allow the fluid to drain.
   c. Replace and tighten the Oil Plug. Refill the Fluid to near the top line on the Dipstick (11), about 3.5 gallons.
   d. Purge air from the hydraulics: Follow steps 11 through 19, under ***Purging Air From the Trencher***, on page 9.
8. This item includes 4 seal kits for the Cylinders (26).
   These seal kits are intended for installation only by a qualified technician.
   Inexperienced replacement may result in damage to the seals and/or hydraulics, creating the possibility of a hazardous hydraulic failure.
9. Periodically, apply grease to all boom axis-movement points using a grease gun with a pin-type tip and zerk-type fitting.

Lubrication Points



10. Store in a clean and dry location.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

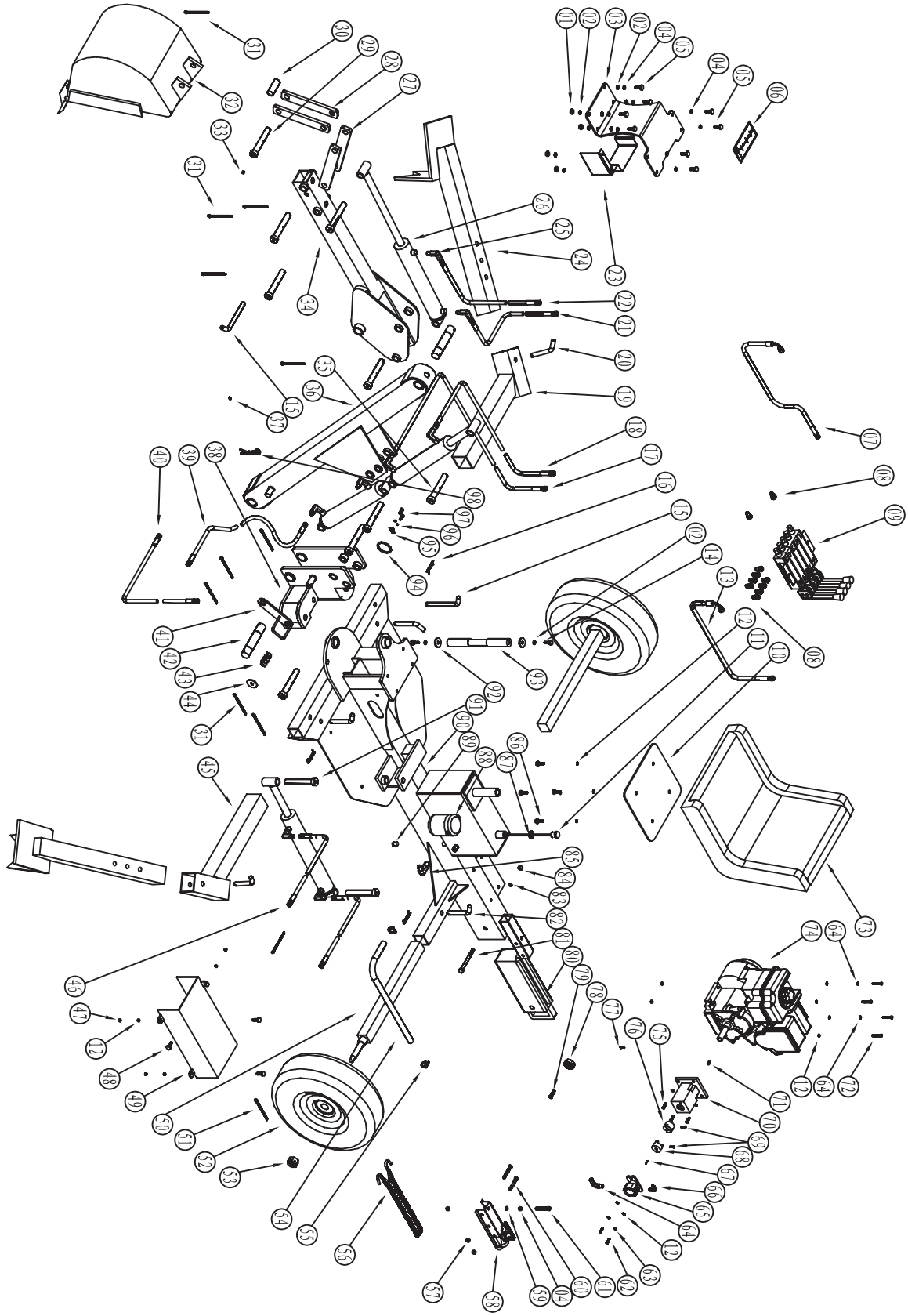
PARTS LIST

Part	Description	Q'ty	Part	Description	Q'ty	Part	Description	Q'ty
1	NUT 3/8"	4	34	BOOM EXTENSION	1	67	PUMP KEY	1
2	SPRING WASHER 3/8"	10	35	CLEVIS PIN NO.2	2	68	COUPING-PUMP SIDE	1
3	CONTROL SUPPORT	1	36	MAIN BOOM	1	69	HEX SCREW	2
4	WASHER 3/8"	9	37	LUBRICATION FITTING 1/4"	6	70	MOUNTING BRACK-ET-PUMP	1
5	HEX HD.BOLT 3/8"*1-1/8"	8	38	BOOM PIVOT	1	71	ENGINE KEY	1
6	SCUTCHEON	1	39	HOSE ASSEMBLY NO.8	1	72	HEX HD.BOLT 5/16"*1-3/4"	4
7	HOSE ASSEMBLY NO.6	1	40	HOSE ASSEMBLY NO.9	1	73	SEAT	1
8	HEX CONNECTOR	10	41	SAFETY LATCH	1	74	ENGINE	1
9	CONTROL VALVE	1	42	PIN	2	75	HEX HD.BOLT 5/16"	4
10	SEAT BOTTOM	1	43	SPRING	1	76	COUPING-ENGINE SIDE	1
11	FILL PLUG/ DIPSTICK	1	44	WASHER 15/16"	1	77	HAIR PIN CLIP	1
12	SPRING WASHER 5/16"	17	45	EXTENSION LEG(LEFT)	1	78	WHEEL	1
13	ENTER HOSE ASSEMBLY NO.2	1	46	HOSE ASSEMBLY NO.7	2	79	LOCK PIN	1
14	HEX BOLT 3/8"*1"	2	47	HEX NUT 5/16"	5	80	WEIGHT BLOCK	1
15	SAFETY LOCKING PIN	2	48	HEX HD.BOLT 5/16"*3/4	3	81	HEX HD.BOLT 5/8"*4-3/4"	1
16	SPRING HAIR PIN CLIP	8	49	COVER	1	82	LOCK PIN NO.2	2
17	HOSE ASSEMBLY NO.4	1	50	AXLE & HUB ASSEMBLY	2	83	WASHER 5/8"	1
18	HOSE ASSEMBLY NO.3	1	51	HAIR PIN CLIP 1/8"*1-3/4"	2	84	NUT 5/8"	1
19	EXTENSION LEG(RIGHT)	1	52	TIRE	2	85	90 ELBOW FITTING NO.2	1
20	LOCK PIN NO.1	4	53	LUG NUT	2	86	HEX HD.BOLT 5/16"*1-1/8"	4
21	HOSE ASSEMBLY NO.1	1	54	OUTLET HOSE	1	87	"O"RING SEAL	1
22	HOSE ASSEMBLY NO.5	1	55	HOSE CLAMP	2	88	OIL FILTER	1
23	CONTROL PANEL	1	56	SAFETY CHAIN	1	89	OIL PLUG R3/8"	1
24	LEG ASSEMBLY	2	57	HEX NUT 3/8"	3	90	FRAME ASSEMBLY	1
25	90 ELBOW FITTING NO.1	8	58	HITCH COUPLER	1	91	CLEVIS PIN NO.3	1
26	CYLINDER	4	59	NUT 1/2"	1	92	WASHER	2
27	CONNECTING ROD	2	60	HEX HD.BOLT 3/8"*2-3/4"	2	93	PIVOT PIN	1
28	CONNECTING ROD	2	61	HEX HD.BOLT 3/8"*3-1/2"	1	94	BUSHING	1
29	CLEVIS PIN NO.1	8	62	HEX HD.BOLT 5/16"*1"	2	95	SNAP RING	1
30	BUSHING	1	63	WASHER	6	96	SPRING WASHER 1/4"	2
31	HAIR PIN CLIP 3/16"*2-5/16"	15	64	90 ELBOW FITTING NO.4	1	97	HEX HD.BOLT 1/4"*1/2"	2
32	BUCKET ASSEMBLY	1	65	HYDRAULIC PUMP	1	98	SPRING HAIR PIN CLIP	1
33	LUBRICATION FITTING 5/16"	11	66	90 ELBOW FITTING NO.3	1			

NOTE: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

REV 05j; 06c; 07f

ASSEMBLY DIAGRAM



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