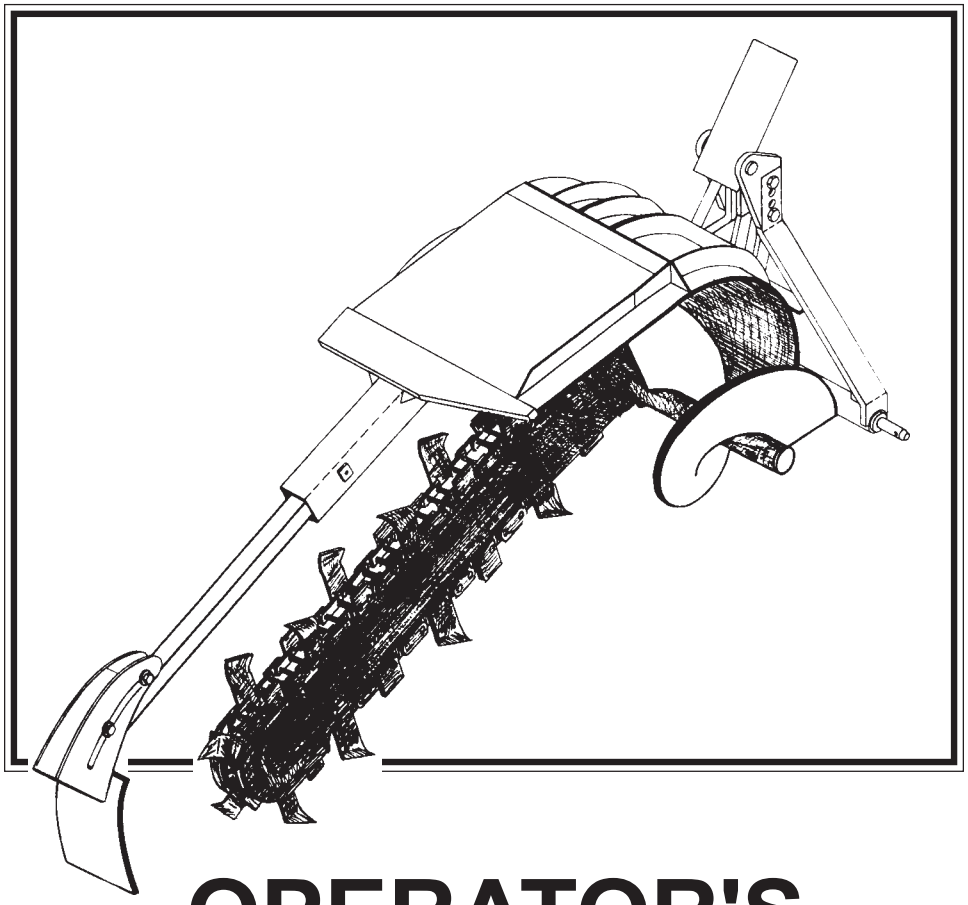
BRADCO®

OM521
REV. 3

612 TRENCHER

3-POINT HITCH CAT. 1

6175 9-20-04-4



OPERATOR'S MANUAL

75421

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TO THE OWNER

GENERAL COMMENTS

Congratulations on the purchase of your new trencher! Your trencher was carefully designed and manufactured to give you many years of dependable service. Your trencher will require some minor maintenance (such as cleaning and lubricating) to keep it in top working condition. Be sure to observe all safety precautions and maintenance procedures as described in this manual.

ABOUT THIS MANUAL

This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with it's contents. **Remember, never let anyone operate this trencher without reading the "Safety Precautions" and "Operating Instructions" sections of this manual. (See Sections B and G respectively.)**

Unless noted otherwise, "right-hand" and "left-hand" sides are determined from the position of the operator sitting in the tractor seat facing forward.

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

SERVICE

When servicing your trencher, remember to use only manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering, record the model and serial number of your trencher in the space provided on this page. This information may be obtained from the trencher identification plate located on the left hand side of the 3-point hitch mounting frame.

MODEL _____ DATE PURCHASED _____

SERIAL NO. _____

MOUNTED ON _____

Your parts dealer needs this information to insure that you receive the correct parts for your specific trencher.

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SAFETY PRECAUTIONS

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

THIS SYMBOL MEANS:

ATTENTION!

BECOME ALERT!

YOUR SAFETY IS INVOLVED!

SIGNAL WORDS: Note the use of signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, **typically for machine components which, for functional purposes, cannot be guarded.**

WARNING: Indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury, and **includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.**

CAUTION: 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.**

SAFETY PRECAUTIONS

TRENCHERS

GENERAL INFORMATION

This section is composed of various warnings and safety tips. **Read and learn all the information in this section before you attempt to use your trencher.** Also read your vehicle owner's manual before using your equipment. This knowledge will help you operate your unit safely. **Do not take this information lightly, it is presented for your own benefit and for the benefit of others working around you.**

The "Safety Alert Symbol" , as previously described, will be used throughout this manual. It will appear with one of the words **DANGER, WARNING**, or **CAUTION** above it, and a safety message pertaining to the specific topic being covered. Take the time to read these messages as you come across them.

TO THE OPERATOR

The primary responsibility for safety with the equipment falls to the operator. It is the skill, care, common sense, and good judgment of the operator that will determine how efficiently and safely the job is performed. Know your equipment before you start. Know its capabilities, dimensions, and how to operate all the controls. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact.

BEFORE YOU START

1. **Wear the right clothing and gear for the job. Protective equipment such as hard hat, steel toed shoes, leather gloves, or safety glasses may be in order. They can protect you from needless injury.**

2. **Do not wear loose clothing, or things such as rings and watches around the equipment. They could get caught in moving parts, and lead to serious injury or death.**

3. **Know your equipment inside and out. Know how to operate all controls, and know emergency shutdown procedures. Make sure all safety devices are in place and working.**

4. **Keep all step plates, grab bars, pedals, and controls free of dirt, grease, and oil. Keep equipment clean to help avoid injury from a fall when getting on or off equipment.**

SAFETY PRECAUTIONS

TRENCHERS

5. **Do not use the trencher or crumber bar as a step, or grab the digging chain when climbing on or off the trencher. Damage to the equipment or personal injury could result.**

6. **Know your work area before you begin. Observe any potential hazard areas such as soft ground, drop-offs, rocks and other obstacles.**

7. **Know where all utility lines are. Observe overhead electrical and phone lines. Be sure equipment will safely clear them. Know the location of underground cables, wires, gas and water lines, tanks, etc. Contact with electrical lines could cause electrocution. Hitting a gas line or underground tank could cause an explosion.**

8. **Be alert to others in the work area. Be sure others know when and where you will be working. Make sure no one is underneath or behind equipment.**

9. **Never try to board equipment while it's moving.**

10. **Always use your seatbelt and safety ROPS (Roll-Over-Protective Structure) that are on the equipment. They could save your life in the event of a mishap.**

11. **Never take passengers on your equiment. There is no safe place for riders.**

12. **Test all controls before you start. This includes safety equipment and devices.**

DURING TRENCHER OPERATION

1. **Be alert to what is going on around you. Watch for others who may not be watching out for themselves.**

2. **Never operate equipment while under the influence of alcohol, or prescription drugs which could inhibit physical and or mental capacity.**

3. **Stop the trencher and shut off the engine if anyone approaches the equipment while it's in motion. They may not be familiar with the equipment and get in the way of moving parts.**

4. **Be alert to changes in the work area. Changes in weather and soil conditions could turn a safe work site into a hazardous area.**

SAFETY PRECAUTIONS

TRENCHERS

5. **Keep equipment away from the trencher after it has been dug. The weight of the unit could cause a cave-in.**

6. **Never drop a boom with a rapidly moving digging chain on the ground. The force of the trencher may cause the vehicle to move suddenly and unexpectedly. Have the chain moving slowly, and lower the boom carefully when starting a new cut.**

7. **Use caution when digging on a slope. The natural vibration of the trencher will make the unit creep sideways downhill. Try to dig with the trencher in a level position.**

8. **Never try to make sharp turns while trenching. The trencher boom could become wedged in the trench and damaged.**

9. **Never attempt to free a stuck chain with the unit running. If the trencher does become jammed, stop the unit and visually inspect the situation.**

10. **Check the trencher frequently for loose hardware and fittings. The natural vibration of the unit will cause fasteners to loosen during operation.**

TRANSPORTING THE TRENCHER

1. **Follow all federal, state, and local regulations when transporting the unit on public roads.**

2. **Use a SMV (Slow Moving Vehicle) sign on the vehicle when transporting. This will help alert others to your presence.**

3. **Be sure all lights and turn signals are in working order. Use them as required.**

4. **When parking, park the unit on hard level ground and lower the trencher boom. Block the wheels, and set the parking brake. Shut off the engine.**

5. **Follow factory recommended shut down procedures for equipment.**

6. **Stop the trencher and vehicle before dismounting.**

SAFETY PRECAUTIONS

TRENCHERS

MAINTAINING THE TRENCHER

1. **Replace all safety shields and guards when performing maintenance. Do not operate the trencher with protective equipment removed.**

2. **Lower the trenching boom, and shut off the engine before working on the unit. Never perform maintenance on a trencher while it is running.**

3. **Make sure all operating and residual pressures are relieved before working on a hydraulic system. Shut engine off, and operate all the controls to relieve any pressure.**

4. **Use only manufacturer recommended replacement parts. Other parts may be substandard in fit and quality.**

5. **Do not set any relief valve higher than recommended by the manufacturer. Relief valves should be checked and adjusted only by a trained service technician. Do not remove or block a relief valve.**

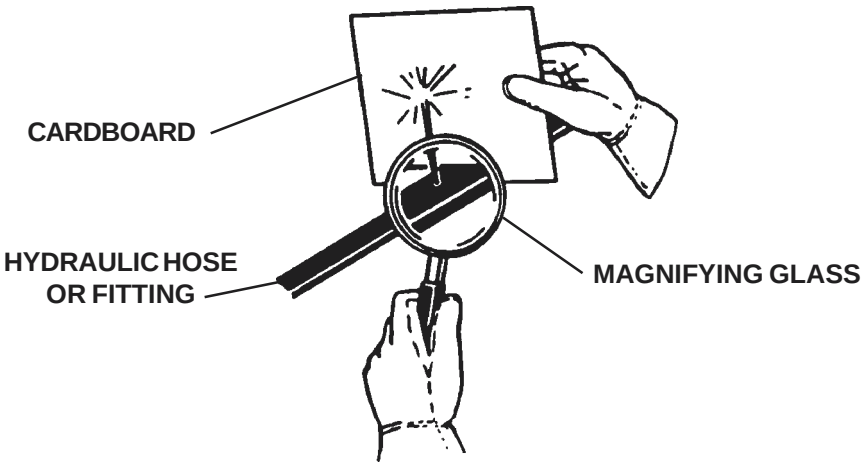
6. **Observe proper maintenance schedules. Proper maintenance can help prevent a hazardous condition.**

7. **Always wear safety goggles or glasses when working on equipment.**

WARNING! Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.

Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.



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INTERNATIONAL SYMBOLS

As a guide to the operation of your equipment, various international symbols have been utilized on the instruments and controls. The symbols are shown below with an indication of their meaning.


Engine speed


Hours recorded


Engine water temperature


Lights


Horn


Engine oil pressure


Hazard warning


Axle connect


Axle disconnect


Continuously variable


Increase

Decrease

Diesel fuel


Creeper range


High range


Low range


Alternator charge


Power take-off (on)


Power take-off (off)


"Tortoise," slow or minimum setting


"Hare," fast or maximum setting


Caution


Control lever operating direction


Rock shaft (raised)


Rock shaft (lowered)


Remote cylinder (extended)


Remote cylinder (retracted)


Remote cylinder (FLOAT)


Differential lock


Read operators manual

Neutral


Forward


Reverse

PREOPERATION

612 TRENCHER

GENERAL INFORMATION

The 612 trencher mounts directly to the 3-point hitch system on your tractor the same as any other 3-point hitch attachment. However, your tractor will require a trencher hydraulic kit to adapt it's hydraulic system for trencher use. A diagram of the trencher hydraulic kit for your tractor is shown in Section "E". Use this diagrame to install the kit on the tractor before you attempt to install the trencher itself.

HYDRAULICS

The hydraulic kit is furnished complete for proper hook up on the tractor model specified with your order. These kits are "tractor specific" - ***Do Not Expect Them To Be Interchangeable.***

PREPARING THE TRACTOR

Bradco 612 trenchers are used on 3-point hitch (Category 1) hydrostatic tractors. Remote hydraulics between 4 and 7 GPM flow and a minimum working pressure of 1800/2250 PSI, 540 RPM, and rear PTO drive are also required.

A front counterweight (such as a loader or dozer blade) may be necessary to proper transportation and operation of the tractor and trencher. A minimum of 20% of the gross vehicle weight must be on the tractor's front axle. (See "Weight and Balance" in Section "L".)

When mounting a 612 trencher on a Kubota 2150, 8200, or 9200 tractor without loader, order the following hydraulic parts from Kubota parts department: (3) 54203-3615 Bolts; (6) 6711-37180 Gaskets; (3) 70726-63612 Tubes.

When mounting on a John Deere 855 and 955 the tractor must be equipped with an optional auxiliary hydraulic system.

OPTIONS

Eventually you may wish to dig a trencher of a depth or width other than what your unit was originally equipped to dig. The trencher can be fitted with optional booms, digging chains, sprockets, and crumber assemblies to allow you to dig a variety of different sized trenches. The chart on the following page will give you an idea of the different trench depths and widths a properly equipped unit is capable of digging. For more detailed information on trencher options see Sections "I" & "J" of this manual.

PREOPERATION

612 TRENCHER

TRENCH DEPTHS *	TRENCH WIDTHS				
30" Depth	4.25"	6.00"	8.00"	10.00"	12.00"
36" Depth	4.25"	6.00"	8.00"	10.00"	-------
48" Depth	4.25"	6.00"	8.00"	-------	-------
60" Depth	4.25"	6.00"	-------	-------	-------

***** Trencher depths are given with the digging boom at an optimum 65° digging angle and the auger touching the ground. Trenches of various depths can be made by varying the digging angle and raising the trencher up higher. These methods are less efficient however.

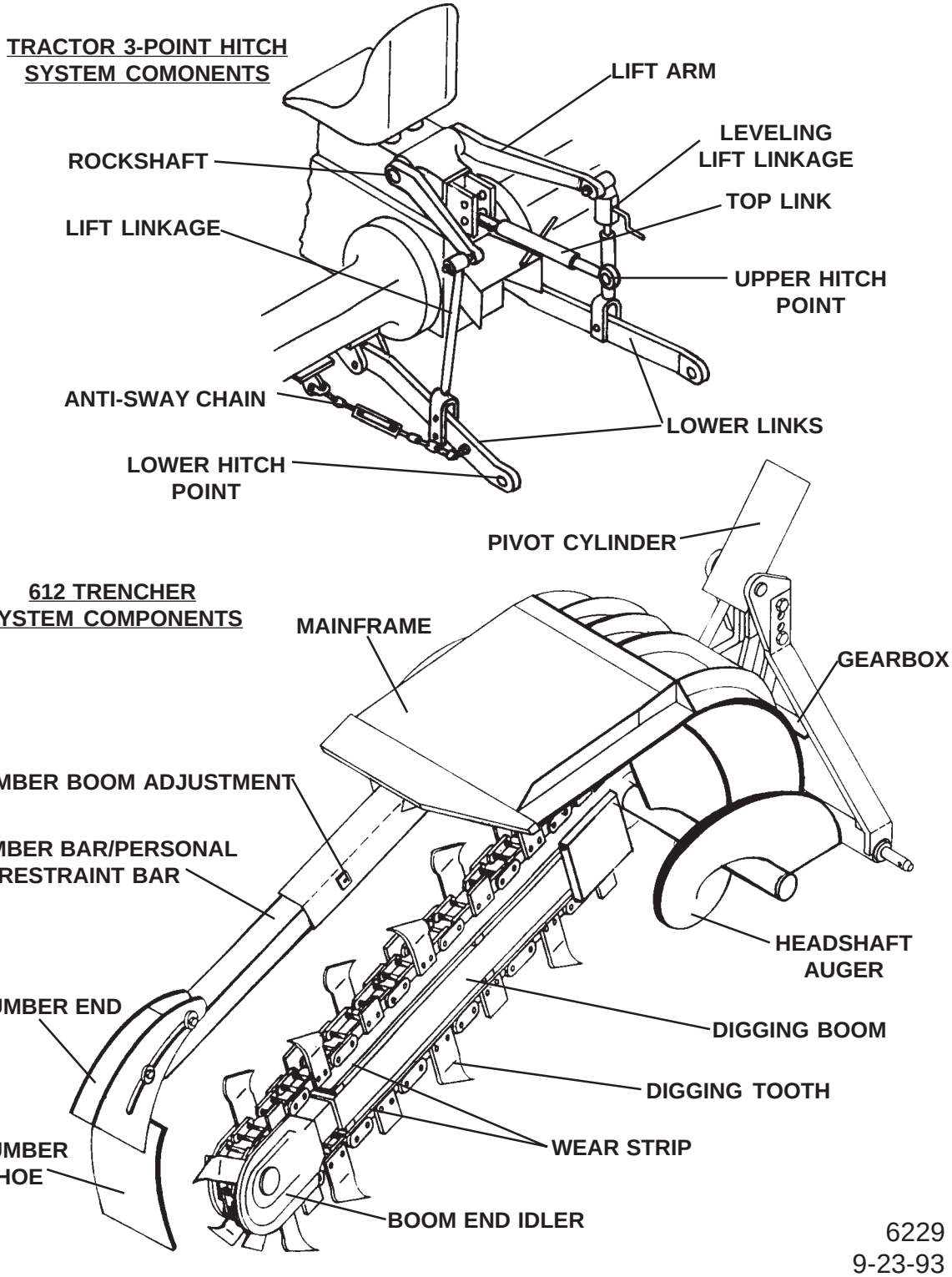
NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the trenchers as may be necessary without notification.

PREOPERATION

612 TRENCHER
MAJOR COMPONENT NOMENCLATURE

GENERAL INFORMATION

The purpose of this page is to acquaint you with the 3-point hitch system, the trencher, and the names of the various components. This knowledge will be helpful when reading through this manual or when ordering service parts.



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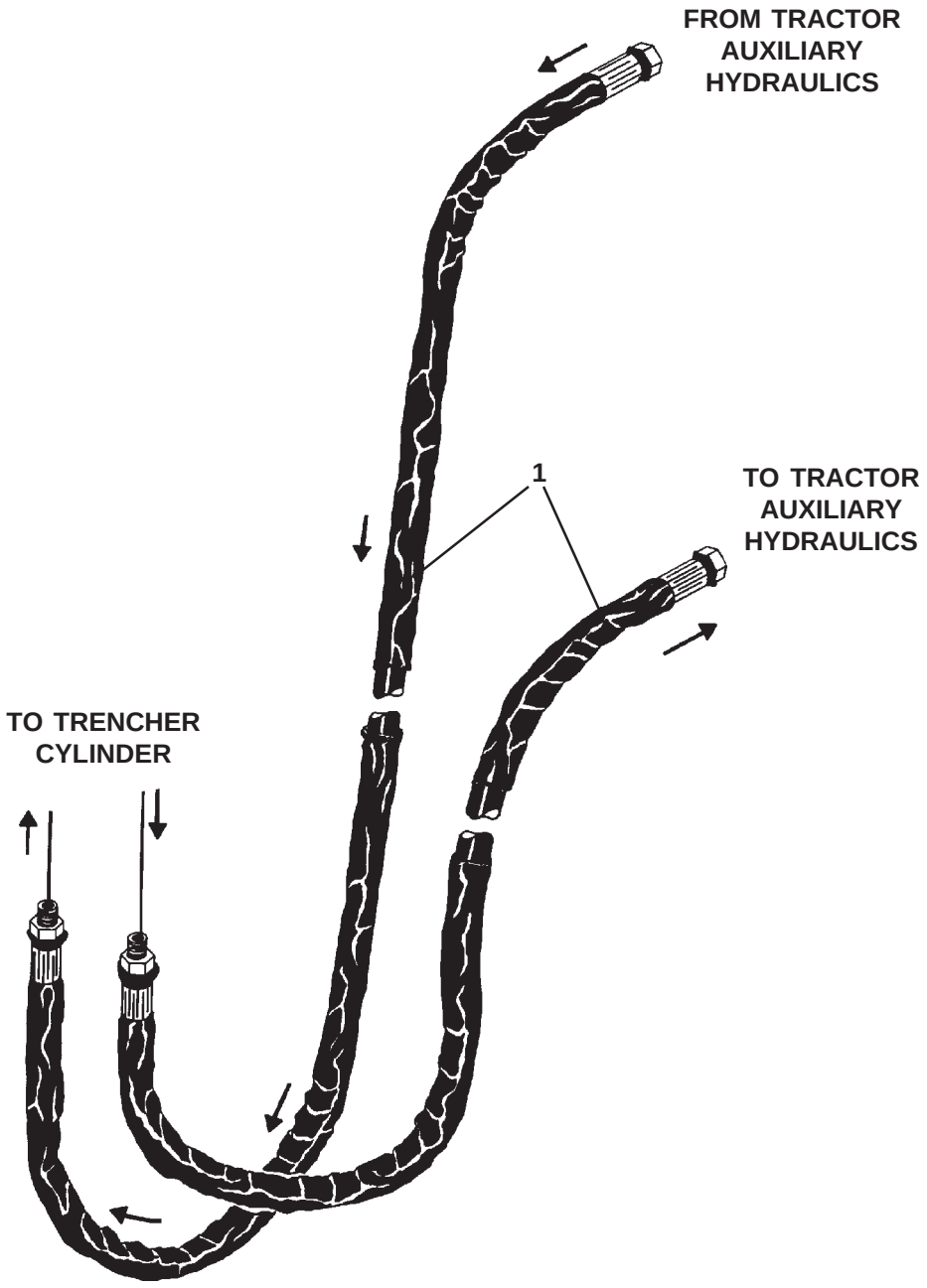
MOUNTING KIT INSTALLATION

CASE IH 1140



MOUNTING KIT INSTALLATION

CASE IH 1140

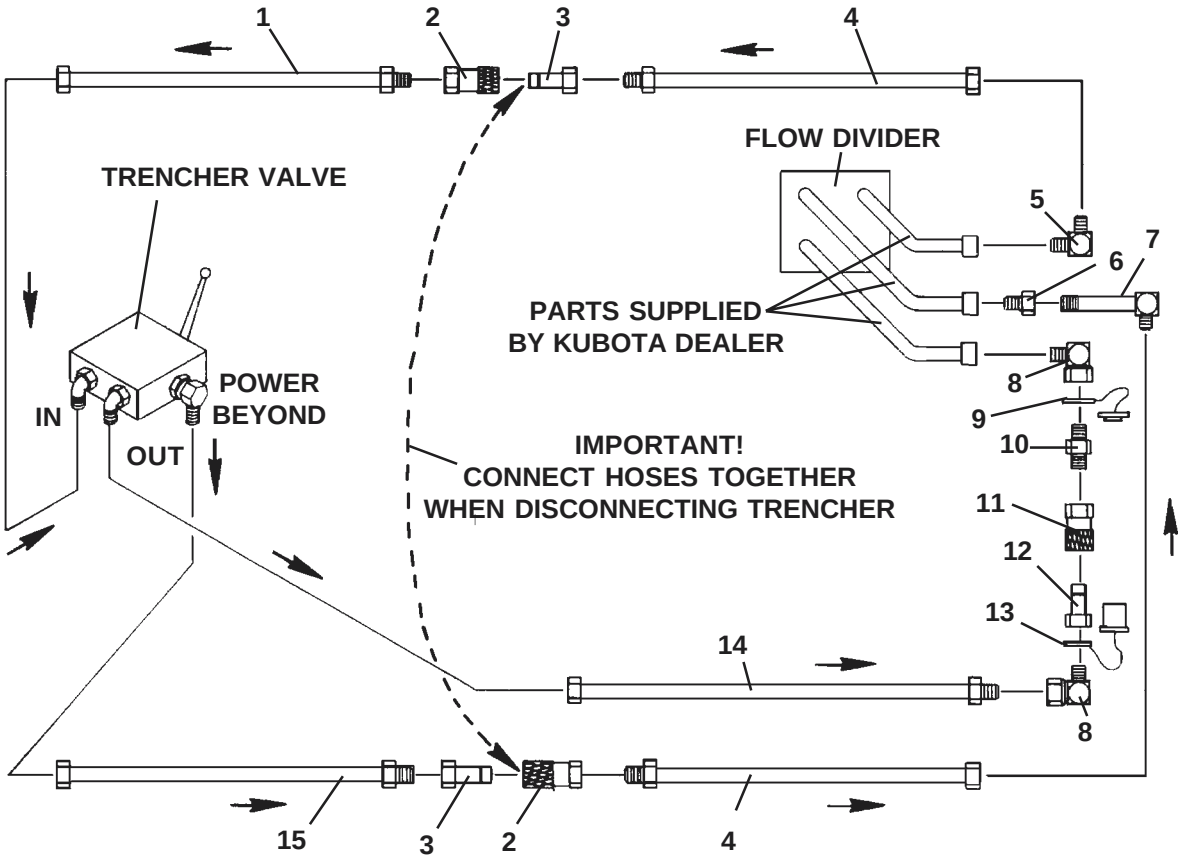
NO	REQ'D	PART NO.	DESCRIPTION
1	2	35871	Hose Assembly .38" X 50" (SAE 100R2-2Wire) 6FJX-6MP-HS

NOTE: Tractor must be equipped with auxiliary hydraulics.

IMPORTANT: The arrows used on this diagram show the direction of hydraulic flow through the hydraulic system. This fow pattern must be maintained for proper operation of the trencher. Improper hose routing could result in possible damage to the trencher or vehicle.

MOUNTING KIT INSTALLATION

KUBOTA 2150 Without Loader
KUBOTA 8200/9200 Without Loader
HYDRAULIC ASSEMBLY #60359



NOTE: Arrows indicate flow direction.

When replacing hoses, always use original equipment parts or equal. Never change to a lower grade hose than specified. Hose lengths are important to hose routing and clearance requirements. Keep hoses away from operating personnel.

MOUNTING KIT INSTALLATION

KUBOTA 2150 Without Loader
KUBOTA 8200/9200 Without Loader
HYDRAULIC ASSEMBLY #60359

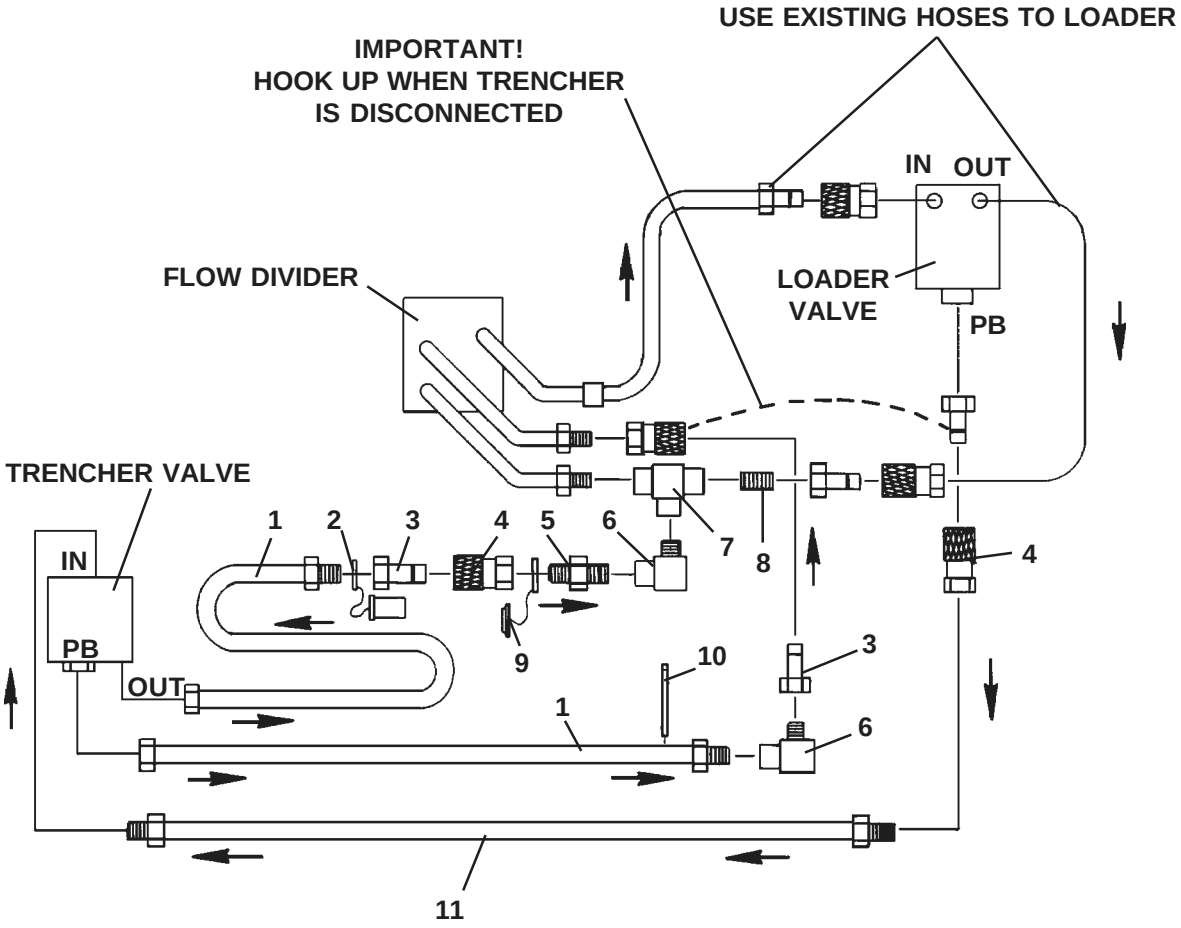
NO	REQ'D	PART NO.	DESCRIPTION
1	1	35845	Hose Assembly .25" x 45" (SAE 100R1-1Wire) 6FJX-4MP-HS
2	2	61464	Female Coupler
3	2	61465	Male Coupler
4	2	35547	Hose Assembly .25" x 52" (SAE 100R1-1Wire) 6FJX-4MP-HS
5	1	3002	90° Elbow
6	1	3089	Bushing
7	1	3088	90° Adapter - Long
8	2	3320	90° Street Elbow
9	1	61538	Dust Plug
10	1	3197	Nipple
11	1	60355	Female Coupler
12	1	60356	Male Coupler
13	1	61537	Dust Cap
14	1	35430	Hose Assembly .25" x 88" (SAE 100R1-1Wire) 6FJX-6MP-HS
15	1	3633	Hose Assembly .25" x 26" (SAE 100R1-1Wire) 6FJX-4MP-HS

The following parts must be obtained from your Kubota dealer

REQ'D	PART NO.	DESCRIPTION
3	54203-36150	Banjo Bolt
6	67111-37180	Gasket
3	70726-63612	Hydraulic Tube

MOUNTING KIT INSTALLATION

KUBOTA 2150 With 350A Loader
KUBOTA 8200/9200 With 350 Loader
HYDRAULIC ASSEMBLY #62059



MOUNTING KIT INSTALLATION

KUBOTA 2150 With 350A Loader
KUBOTA 8200/9200 With 350 Loader
HYDRAULIC ASSEMBLY #62059

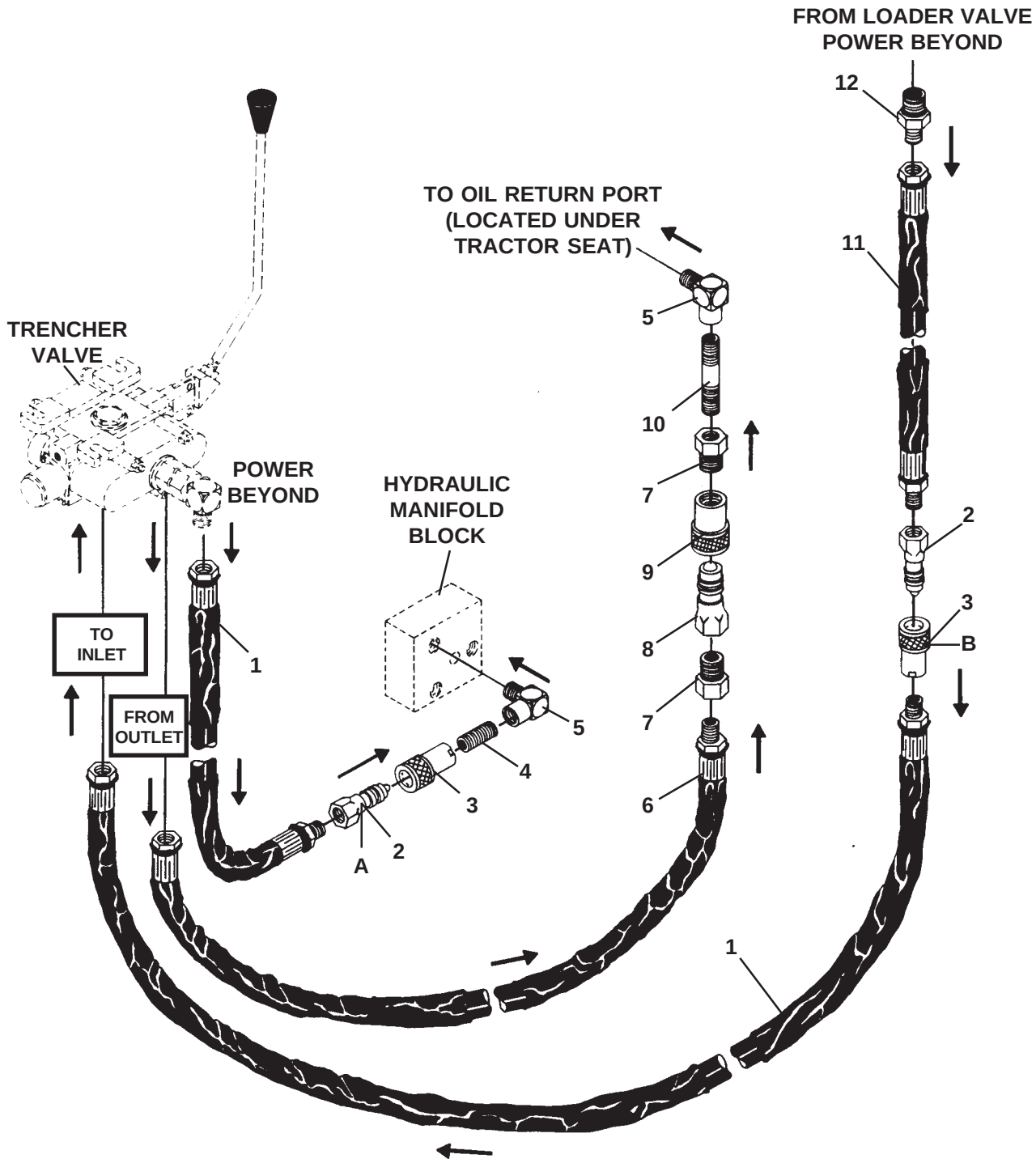
NO	REQ'D	PART NO.	DESCRIPTION
1	2	3880	Hose Assembly .25" x 104" (SAE 100R1-1Wire) 6FJX-6MP-HS
2	1	61537	Dust Cap
3	2	60356	Male Coupler
4	2	60355	Female Coupler
5	1	3197	Nipple
6	2	3320	90° Street Elbow
7	1	3135	Tee
8	1	3178	Close Nipple
9	1	61538	Dust Plug
10	6	7104	Hose Tie
11	2	35547	Hose Assembly .25" x 118" (SAE 100R1-1Wire) 6FJX-6MP-HS

NOTE: Arrows indicate flow direction.

When replacing hoses, always use original equipment parts or equal. Never change to a lower grade hose than specified. Hose lengths are important to hose routing and clearance requirements. Keep hoses away from operating personnel.

MOUNTING KIT INSTALLATION

FORD 1320 & 1520 With 7108 LOADER
HYDRAULIC ASSEMBLY #68590



ASSEMBLY SHOWN WITH HIDROVER VALVE.

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MOUNTING KIT INSTALLATION

FORD 1320 & 1520 With 7108 LOADER
HYDRAULIC ASSEMBLY #68590

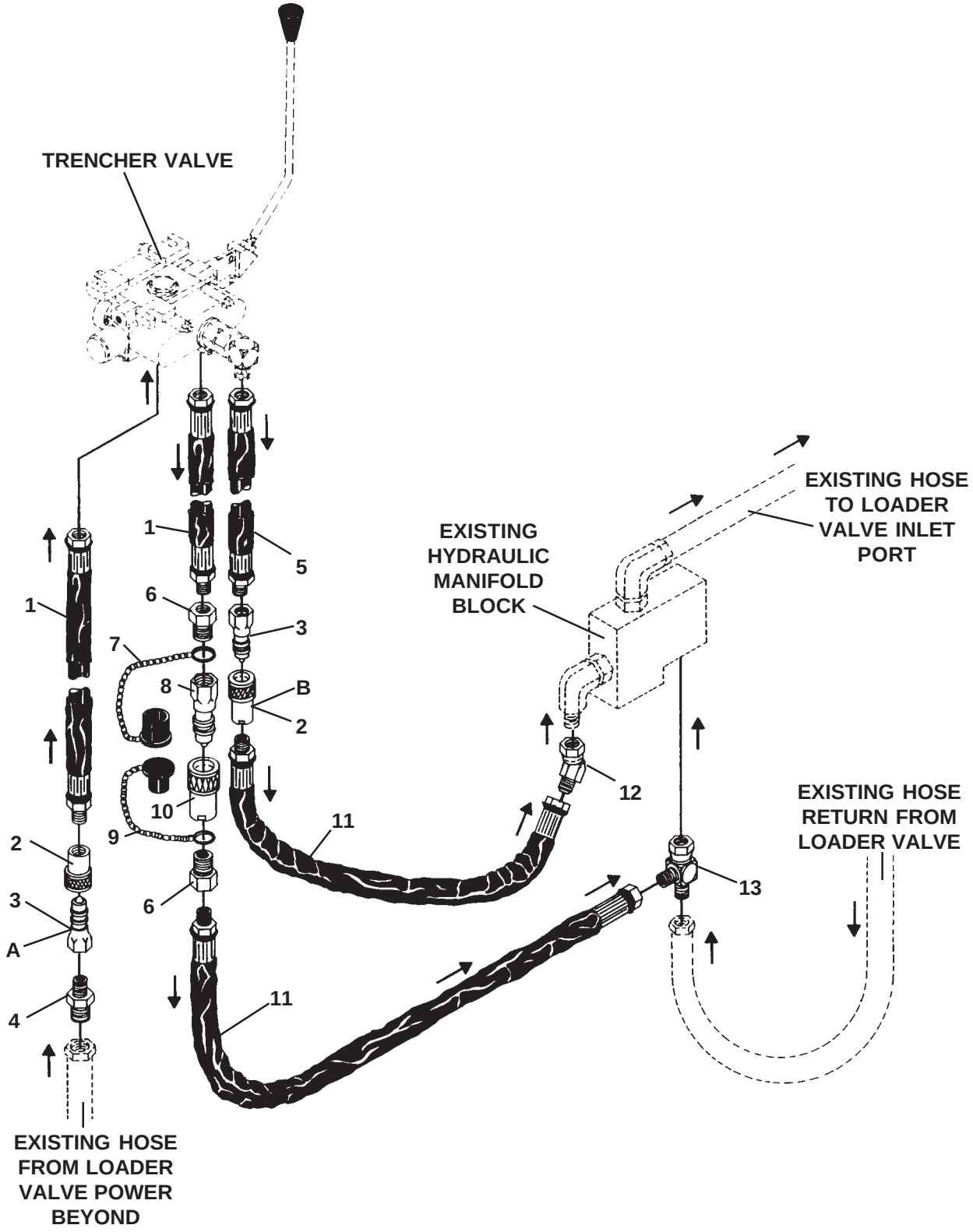
NO	REQ'D	PART NO.	DESCRIPTION
1	2	37324	Hose Assembly .25" X 84" (SAE 100R2-2Wire) 6FJX-6MP-HS
2	2	60356	Male Coupler .38"
3	2	60355	Female Coupler .38"
4	1	3178	Nipple 6MP X CL-XH
5	2	3320	90° Street Elbow 6MP-6FP
6	1	35871	Hose Assembly .38" X 50" (SAE 100R2-2Wire) 6FJX-6MP-HS
7	2	3007	Bushing 8MP-6FP
8	1	51339	Male Coupler .50"
9	1	51338	Female Coupler .50"
10	1	3130	Nipple 6MP X 4"-XH
11	1	35817	Hose Assembly .38" X 20" (SAE 100R2-2Wire) 6FJX-6MP-HS
12	1	3269	Straight Adaptor 6MJ-8MBo

IMPORTANT: The arrows used on this diagram show the direction of hydraulic flow through the hydraulic system. This fow pattern must be maintained for proper operation of the trencher. Improper hose routing could result in possible damage to the trencher or vehicle.

NOTE: This hydraulic kit comes complete with quick couplers for easy hook up. When the trencher is removed, be sure to connect male coupler "A" to female coupler "B" to complete the trencher hydraulic circuit. For the tractor/loader hydraulic circuit, connect the male coupler of the loader valve "power beyond" port hose to the coupler on the hydraulic manifold block. Install a dust cap and plug on the remaining couplers to keep all systems free of dust and contaminants.

MOUNTING KIT INSTALLATION

DEUTZ ALLIS 5220 With 436 LOADER &
MASSEY FERGUSON 1020 With 1014 LOADER
HYDRAULIC ASSEMBLY #69586



ASSEMBLY SHOWN WITH HIDROVER VALVE

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MOUNTING KIT INSTALLATION

DEUTZ ALLIS 5220 With 436 LOADER &
MASSEY FERGUSON 1020 With 1014 LOADER
HYDRAULIC ASSEMBLY #69586

NO	REQ'D	PART NO.	DESCRIPTION
1	2	37066	Hose Assembly .25" X 37" (SAE 100R2-2Wire) 6FJX-6MP-HS
2	2	60355	Female Coupler .38"
3	2	60356	Male Coupler .38"
4	1	3138	Straight Adaptor 6MP-8MJIC
5	1	37064	Hose Assembly .25" X 16" (SAE 100R2-2Wire) 6FJX-6MP-HS
6	2	3007	Bushing 8MP-6FP
7	1	51753	.50" Dust Cap
8	1	51339	Male Coupler .50"
9	1	51754	.50" Dust Plug
10	1	51338	Female Coupler .50"
11	2	37065	Hose Assembly .25" X 27" (SAE 100R2-2Wire) 6FJX-6MP-HS
12	1	3469	45° Adaptor 6MJIC-6FJX
13	1	3346	Tee 6MJIC-6MJIC-6FJX

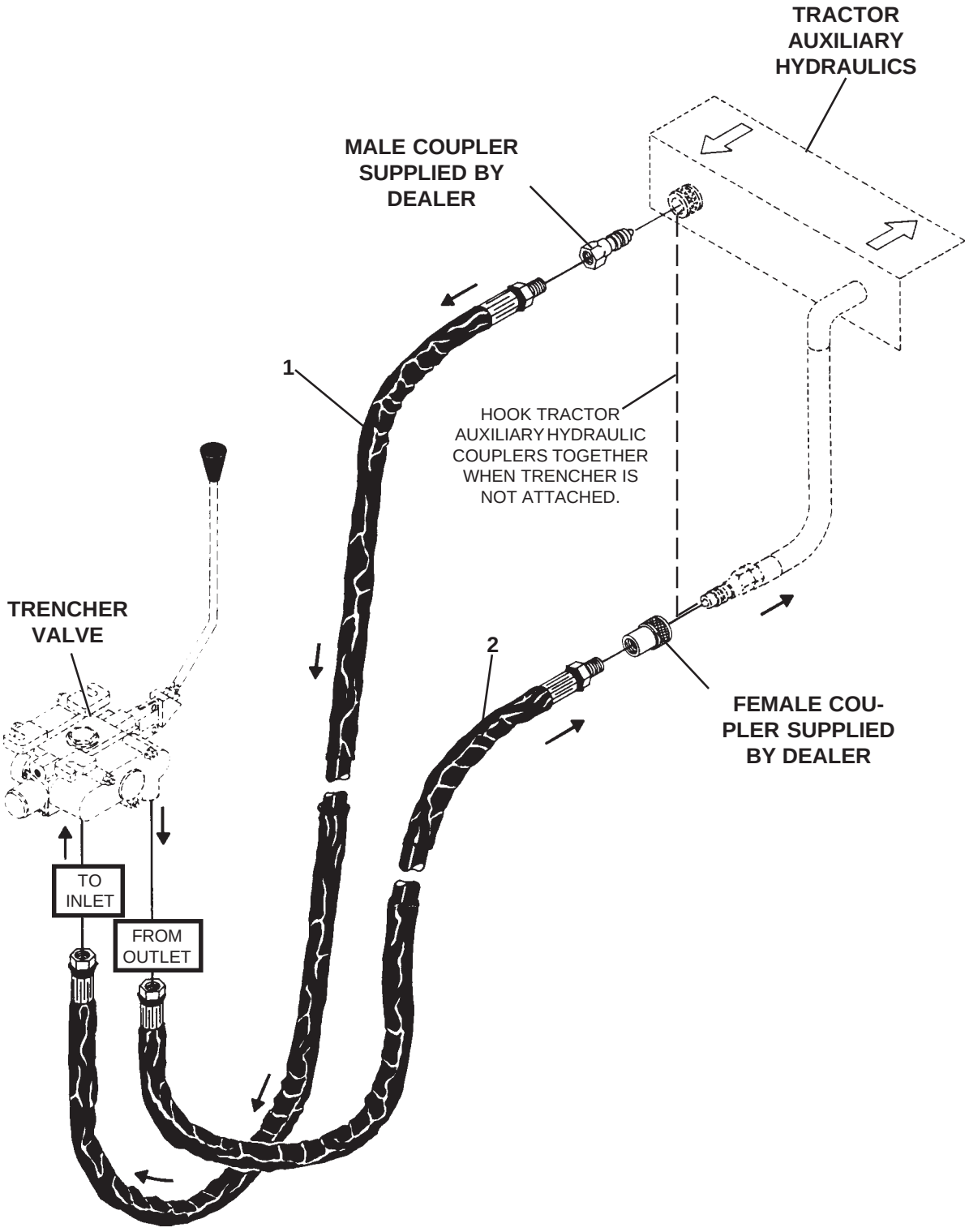
IMPORTANT: The arrows used on this diagram show the direction of hydraulic flow through the hydraulic system. This fow pattern must be maintained for proper operation of the trencher. Improper hose routing could result in possible damage to the trencher or vehicle.

NOTE: Hydraulic manifold bolts onto tratctor between differential casting and a hydraulic port cover. This hydraulic port is located on the left side of the tractor under the edge of the rear fender mounting by the 3-point lift arm.

This hydraulic kit comes complete with quick couplers for easy hook up. When the trencher is removed, be sure to connect male coupler "A" to female coupler "B" to complete the tractor/loader hydraulic circuit. For the trencher valve hoses, connect the male coupler of the "power beyond" port hose to the coupler on the "in" port hose. Install the dust cap and plug on the remaining couplers to keep all systems free of dust and contaminants.

MOUNTING KIT INSTALLATION

JOHN DEERE 855 SERIAL NO. 820001 - UP
HYDRAULIC ASSEMBLY #69603



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MOUNTING KIT INSTALLATION

JOHN DEERE 855 SERIAL NO. 820001 - UP
HYDRAULIC ASSEMBLY #69603

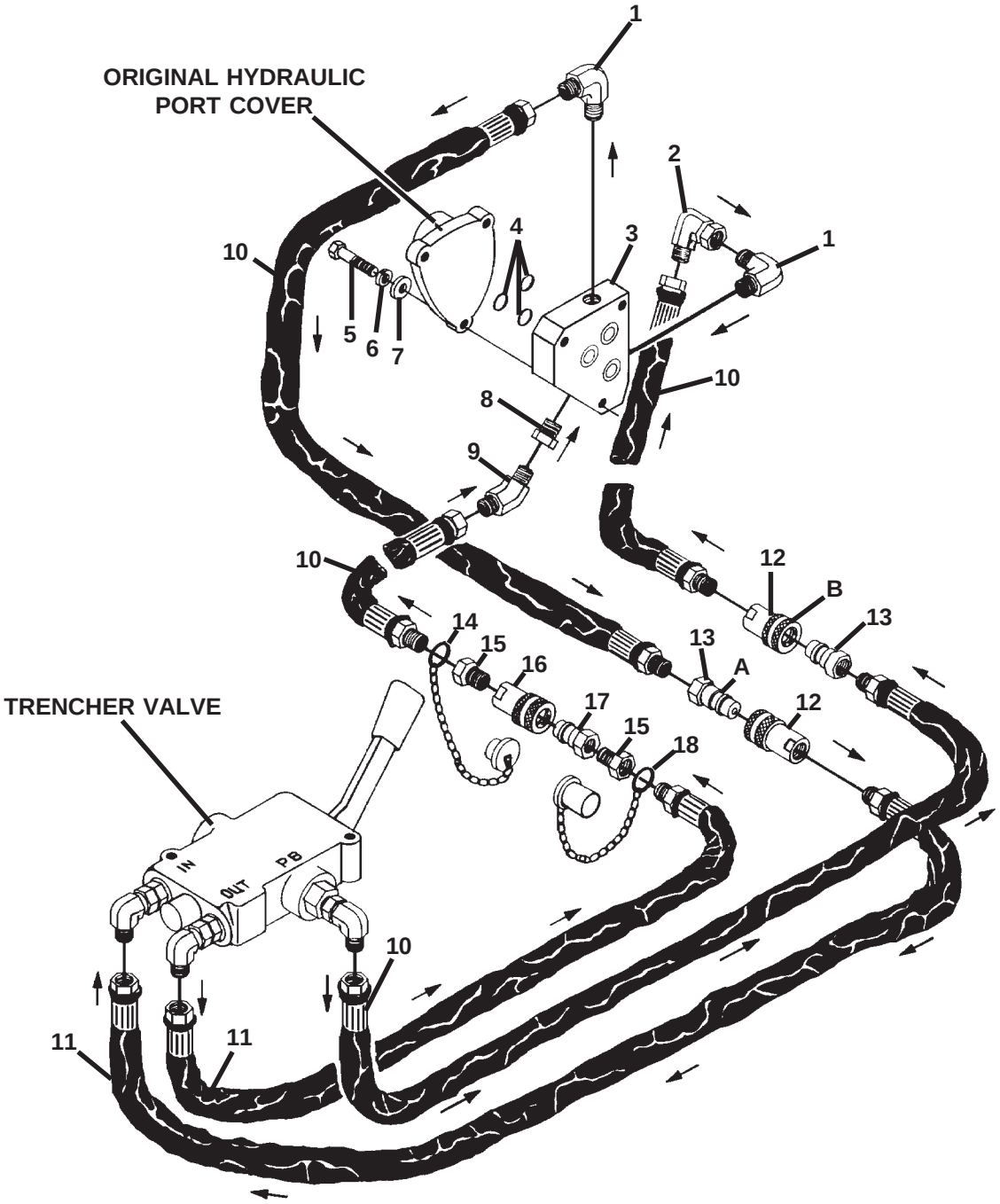
NO	REQ'D	PART NO.	DESCRIPTION
1	1	35871	Hose Assembly .38" X 50" (SAE 100R2-2Wire) 6MP-6FJX-HS
2	1	37072	Hose Assembly .38" X 27" (SAE 100R2-2Wire) 6MP-6FJX-HS

IMPORTANT: The arrows used on this diagram show the direction of hydraulic flow through the hydraulic system. This fow pattern must be maintained for proper operation of the trencher. Improper hose routing could result in possible damage to the trencher or vehicle.

NOTE: When the trencher is removed, be sure to connect the male and female couplers (supplied by dealer) together, also hook tractor auxiliary hydraulic couplers together to keep both tractor and trencher hydraulic circuits free of dust and contaminants.

MOUNTING KIT INSTALLATION

DEUTZ ALLIS 5220 Without Loader
MASSEY FERGUSON 1020 Without Loader
HYDRAULIC ASSEMBLY #72569



IMPORTANT: The arrows used on this diagram show the direction of hydraulic flow through the hydraulic kit. This flow pattern must be maintained for proper operation of the trencher. Improper hose routing could result in possible damage to the trencher or tractor.

MOUNTING KIT INSTALLATION

DEUTZ ALLIS 5220 Without Loader
MASSEY FERGUSON 1020 Without Loader
HYDRAULIC ASSEMBLY #72569

NO	REQ'D	PART NO.	DESCRIPTION
1	2	3002	90° Elbow 6MP-6MJ
2	1	3430	90° Adapter 6MJ-6FJX
3	1	52203	Hydraulic Manifold
4	3	45003	O-Ring
5	3	2612	M8 x 80mm Hex Capscrew DIN 931
6	3	2531	8mm Lock Washer
7	3	2511	8mm Flat Washer
8	1	3089	Bushing 6MP-4FP
9	1	3120	45° Adapter 4MP-6MJ
10	4	37065	Hose Assembly .25" x 27" 6MP-6FJX-HS
11	2	37066	Hose Assembly .25" x 37" 6MP-6FJX-HS
12	2	60355	Female Coupler
13	2	60356	Male Coupler
14	1	51754	Dust Plug
15	2	3007	Bushing 8MP-6FP
16	1	51338	Female Coupler
17	1	51339	Male Coupler
18	1	51753	Dust Cap

NOTE: Hydraulic manifold bolts onto tractor between differential casting and a hydraulic port cover. This hydraulic port is located on the left side of the tractor under the edge of the rear fender mounting by the 3-point lift arm.

This hydraulic kit comes complete with quick couplers for easy hook up. When the trencher is removed, be sure to connect male coupler "A" to female coupler "B" to complete the tractor hydraulic circuit. For the trencher valve hoses, connect the male coupler of the "power beyond" port hose to the female coupler on the "in" port hose. Install the dust cap and plug on the remaining couplers to keep all systems free of dust and contaminants.

MOUNTING KIT INSTALLATION

612 TRENCHER

GENERAL INFORMATION

The 612 trencher mounts directly to the 3-point hitch system on your tractor. However, a trencher hydraulic kit is required to provide power to your trencher. Diagrams and parts lists are located at the beginning of this section. Study the hydraulic diagram for the hydraulic kit you have received, and major component nomenclature (Section "D") to familiarize yourself with the names of the various components. This knowledge will assist you in understanding these instructions and also the Trencher Installation Instructions "Section "F".

The hydraulic kit is furnished complete for proper hook up on the tractor model specified with your order. These kits are "tractor specific" and are not interchangeable.

HYDRAULIC SYSTEM INSTALLATION

Install hydraulic hoses, fittings, and couplers needed to obtain power to the trencher as shown in the hydraulic kit diagram at the beginning of this section.

IMPORTANT: The arrows used on the hydraulic kit diagrams show the direction of hydraulic flow through the hydraulic system. This flow pattern must be maintained for proper operation of the trencher. Improper hose routing could result in possible damage to the trencher or tractor.

After installation is complete, couple power beyond and pressure hoses together while making sure all other hose ends are capped or plugged, Start the tractor.

Check the hydraulic system for leaks.

Check 3-point hitch for correct operation.

NOTE: Return hose will not be hooked up at this time. 3-point operation indicates the connections have been properly completed.

WARNING! Escaping fluid under pressure can have sufficient force to penetrate the skin causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.

Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.

TRENCHER INSTALLATION

612 TRENCHER

GENERAL INFORMATION

The following instructions will help you to mount the trencher onto your tractor. The trencher uses the 3-point hitch system for ease of installation, therefore if you have ever installed 3-point hitch equipment before, installing the trencher should prove no problem.

You must install the appropriate "Trencher Hydraulic Kit" prior to installing the trencher. If you have not installed the hydraulic kit, turn to Section "E" and do so now. Remember to read all safety warnings, decals, and operating instructions before operating the tractor or trencher.

IMPORTANT: A front counterweight may be necessary for proper transportation and operation of the tractor and trencher. A minimum of 20% of the gross vehicle weight must be on the tractor's front axle. (Refer to the information on Weight and Balance at the end of this section.)

MOUNTING INSTRUCTIONS

1. If you have not done so already, remove the steel shipping banding from around the trencher and skid.

2. Install the PTO drive assembly to the trencher by installing the key #5661 in the input shaft #59960 of the trencher gear box and sliding the clutch end of the PTO drive assembly onto the shaft.

3. Secure drive assembly to input shaft with set screw #1575, capscrew #1044, lock washer #1503 and PTO keeper #62089.

4. Following the proper start up and backing procedures as noted in your tractor operator's manual, back the tractor up to the rear of the trencher and skid.

5. Adjust the tractor's 3-point hitch system to accept the trencher. Continue backing the tractor up to the trencher and then attach the trencher by positioning the lower links onto the trencher's hitch pins. Secure with klik pins #57496.

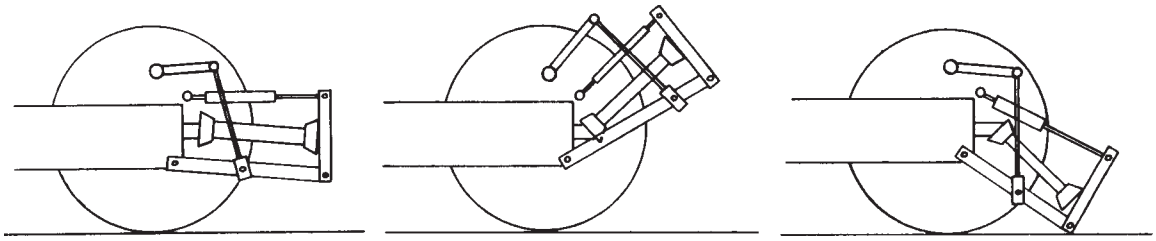
NOTE: Since the trencher is fairly heavy, we recommend you position the lift links of the lower links in the position offering the greatest lift capabilities. If there is more than one hole in the lower link, position the lift link in the rear most hole.

TRENCHER INSTALLATION

612 TRENCHER

6. Position the top link of the tractor in place between the ears of the gear box assembly's top linkage. Use the mounting hole in the linkage that will allow **ALL THREE 3-POINT LINKS TO RUN PARALLEL**. Secure the top link using the capscrew #1151 and nut #1534 provided. See Figure #1

FIGURE #1



Okay for digging.	Okay for transport. Too much bend for PTO operation.	Too low. Too much bend for PTO operation.

7. Adjust the lower link anti-sway chains and center the trencher.

8. Complete the hydraulic plumbing by connecting the hydraulic couplers together as shown on your "Trencher Hydraulic Kit" diagram.

NOTE: In most cases a single spool valve operates the trencher pivot cylinder and thus the trencher boom lift. If your tractor is so equipped refer to your tractor operator's manual to ensure correct plumbing between the valve and the tractor's external auxiliary hydraulic service.

WARNING! **Escaping fluid under pressure can have sufficient force to penetrate the skin causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.**

Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.

TRENCHER INSTALLATION

612 TRENCHER

NOTE:

When connecting trencher to tractor, route the hydraulic hoses as far away as possible from the operator. Also use care to route away from sharp corners and from dragging on the ground.

When disconnecting trencher from tractor either plug, cap or connect hose ends to keep system free from contaminants. (Refer to your "Trencher Hydraulic Kit" diagram in Section "E".)

9. With the hydraulics hooked up, raise the trencher and remove the skid.

10. Lower the trencher to the ground. Disconnect the top link from the tractor and tilt the trencher away from the tractor. (It may also be necessary to raise the trencher into the extreme UP position to gain sufficient clearance to connect PTO drive assembly to tractor.)

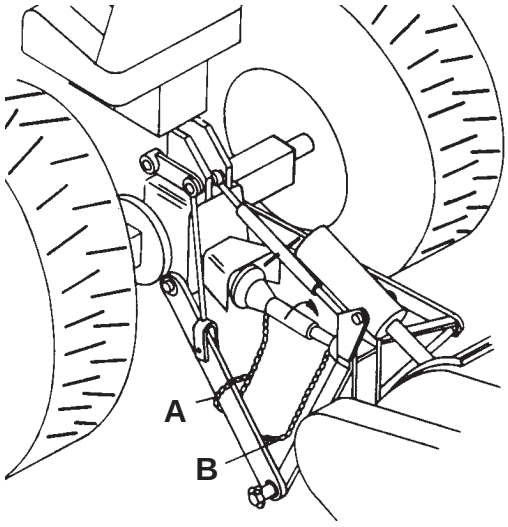
11. Turn the tractor engine off and set the parking brake.

NOTE: To protect PTO shaft and operator, the up travel must be limited to keep at least 3" of the two halves of the PTO shaft together. To assist the operator in maintaining this limitation measure in 3" from the telescopic tube on the trencher half of the PTO shield and make a permanent mark around the diameter.

12. Connect the PTO drive assembly to the tractor.

13. Attach PTO shield and safety chains as shown in Figure #2.

FIGURE #2



CAUTION! **Always install PTO drive guard safety chains before operating trencher.**

Safety chains are used to hold the PTO drive guard from spinning. There are two chains to hold both halves of the PTO drive.

To mount chains:

A. Wrap chain around left 3-point hitch arm and clip it back to it leaving some slack for free movement when raising and lowering trencher.

B. It may be necessary if the chain is too short to clip the chain to a loop on the side of the 3-point arm. Care should be taken not to have too much loop in the chain so it does not wrap around the PTO drive when it is rotating.

14. Adjust 3-point lever upper stop to limit the travel to a point where trencher will clear the ground sufficient for transport and still keep at least 3" of shaft telescoped together.

15. Start the tractor and raise the trencher boom UP. Operate the 3-point hitch lifts to determine if its capacity is sufficient and all points work properly. Observe hydraulic hoses for correct routing as 3-point moves up and down. Adjust tractor (see tractor operator's manual) to limit rate of drop of 3-point to a safe speed.

16. Complete the "Pre-Delivery Checklist" located in Section "R".

17. Trencher installation is now complete. Again you are reminded to read all safety warnings, decals, and operating instructions before operating the trencher.

WEIGHT AND BALANCE

After you have completed the mounting procedures, a very important item to complete before releasing for use is weight distribution for steering control. Tractor front attachments such as a loader or blade may be sufficient, however, you must know. Industry recommended practice states that 20% of the gross vehicle weight should remain on the front axle during transport conditions.

To perform this check, weigh the entire machine with attachments, both front and rear in transport position. Record results. Next weigh each axle separately and record results.

Example A:	**GVW**	**2650**	**lbs**
	Front	**600**	**lbs**
	Rear	**2050**	**lbs**

2650 X 20% = **530 lbs - recommended front axle weight**

You have 600 lbs which exceeds the 530 necessary to meet industry recommended practice.

Example B:	**GVW**	**3275**	**lbs**
	Front	**595**	**lbs**
	Rear	**2860**	**lbs**

3275 X 20% = **655 lbs - recommended front axle weight**

You have 595 which is 60 lbs less than the recommended 655 lbs. You will need to add 75 lbs to the front axle to attain the industry recommended practice weight distribution.

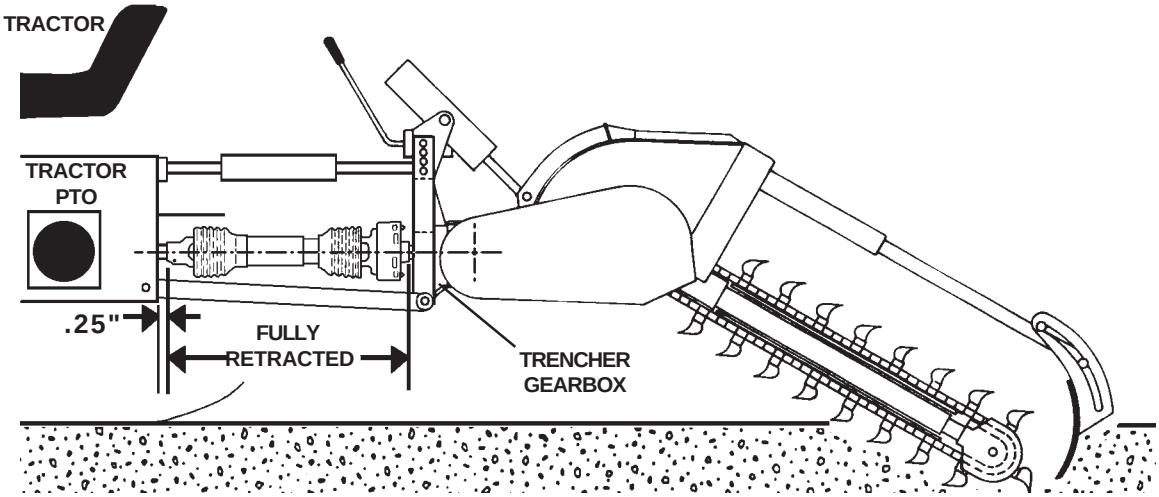
This is calculated as follows:
Old GVW = 3275 lbs New GVW add 75 lbs = 3350
3350 X 20% = 670 lbs - recommended front axle weight
You may use weights or tire ballast to accomplish you goal.

TRENCHER INSTALLATION

612 TRENCHER

POWER (PTO) SHAFT ADJUSTMENT

The power (PTO) shaft assembly may need to be shortened to fit up to your tractor correctly. The shaft assembly is shortest when the trencher is engaged into the ground and the shaft is straight inline with the trencher gearbox.



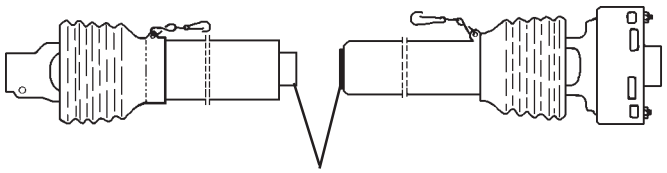
There should be a minimum of .25" of free travel before the shaft is fully retracted. To check:

a. Lower the trencher until the shaft is parallel to the ground and is straight inline with the trencher gearbox.
b. Detach the shaft at the tractor and pull back to see if there is a minimum of .25" free travel.

If there is not at least .25" of free travel the shaft must be shortened.

CAUTION **FAILURE TO HAVE THE REQUIRED DISTANCE OF CLEARANCE WILL DAMAGE THE POWER TAKE OFF (PTO) OF YOUR TRACTOR.**

TO SHORTEN THE POWER SHAFT:



CUT EQUAL AMOUNTS OFF OF EACH SHAFT HALF TO ACQUIRE A MINIMUM OF .25" OF FREE TRAVEL WHEN THE SHAFT IS FULLY RETRACTED.

OPERATING INSTRUCTIONS

CONTROLS
612 TRENCHER

GENERAL INFORMATION

Simplicity of operation is one of the key features of the 612 trencher. There is only one control on the trencher itself, and just a few adjustments to check. It is important however to be familiar with, and know the controls and adjustments on both the trencher and the tractor. Such knowledge is crucial for safe, efficient operation of equipment. Take the time to learn how they operate now.

THE TRACTOR

Your trencher mount to the 3-point hitch system of the tractor. Due to this arrangement, thorough knowledge of the tractor and hitch controls is necessary for trencher operation. Read your tractor owner's manual for information regarding tractor operation before attempting to use the trencher.

RAISING / LOWERING THE TRENCHER

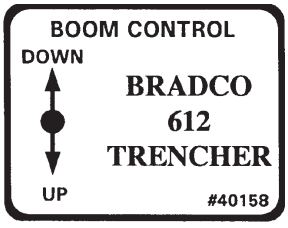
Raise / lower the trencher unit by raising / lowering the tractor 3-point hitch arms through their appropriate tractor controls.

CAUTION! **Become aware of any overhead power or telephone lines, tree limbs, etc. that the raised trencher could come into contact with. Contact with electrical lines could cause electrocution and death.**

TILTING THE TRENCHER

Tilt the trencher unit up or down by operating the control valve located on the trencher gear box linkage. Pushing the lever to the "down" position (away from the operator) will tilt the boom toward the ground. Pulling the lever to the "up" position (toward the operator) will tilt the boom up. See Figure #1

FIGURE #1



CONTROL VALVE DECAL

STARTING AND STOPPING THE TRENCHER

Power to the trencher is supplied by the tractor's PTO. Power is transferred from the PTO shaft, through the trencher's PTO drive shaft, through the trencher's PTO drive shaft and gear box, and finally to the trencher's auger, drive sprocket, and digging chain. Start the digging chain by engaging the tractor PTO. Stop the digging chain by disengaging the tractor PTO.

OPERATING INSTRUCTIONS

CONTROLS
612 TRENCHER

TRENCHER SPEED CONTROL

Again it may be noted that power to the trencher is supplied by the tractor PTO. To increase trencher speed, increase the tractor PTO shaft speed. To decrease trencher speed, decrease PTO speed.

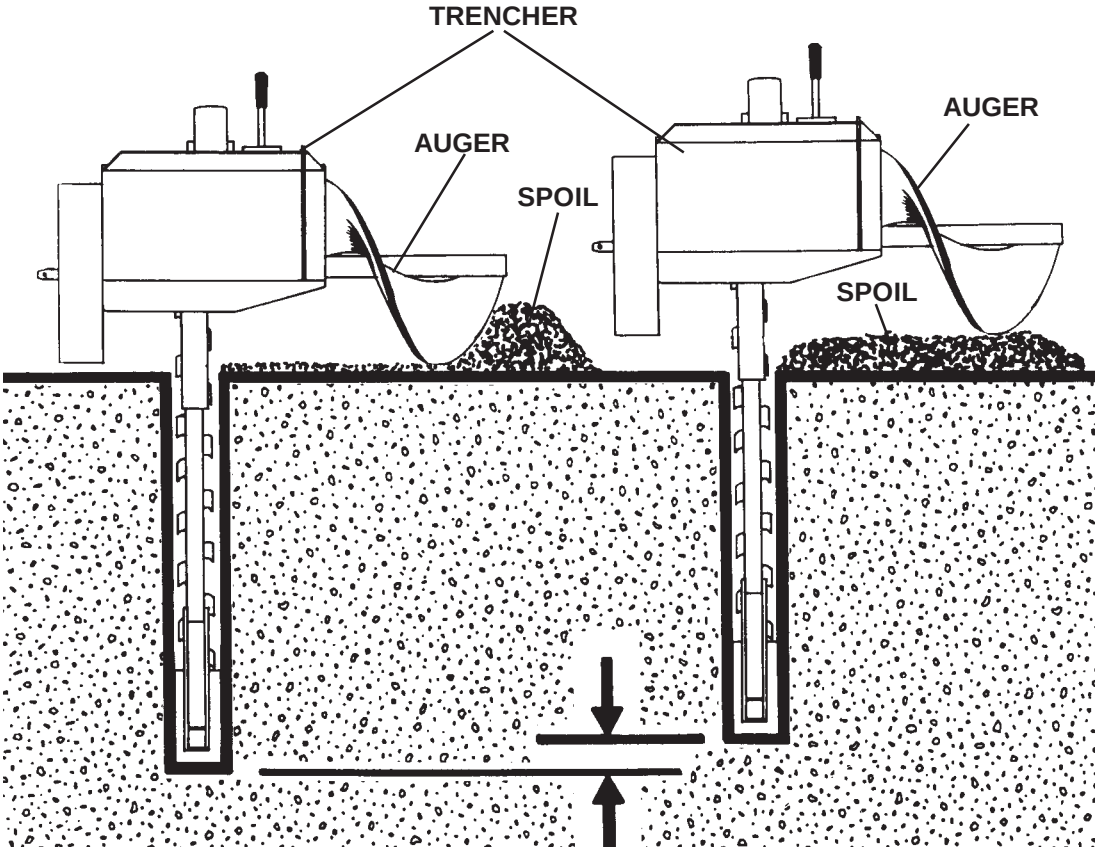
AUGER HEIGHT

The auger is fixed to the trencher mainframe and has no separate adjustment. To raise the auger, raise the trencher as previously described. This will raise the auger and thus leave the dirt or spoil closer to the trench.

Lowering the trencher will cause the auger to lower, moving the spoil away from the trench. The auger should NOT be lowered to the extent that the auger itself starts to dig in the ground. This will greatly reduce efficiency.

It should be noted that raising or lowering the trencher to change the auger height will also change the trencher depth. You will need to compensate for this by changing the tilt of the trencher down or up accordingly. See Figure #2

FIGURE #2



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OPERATING INSTRUCTIONS

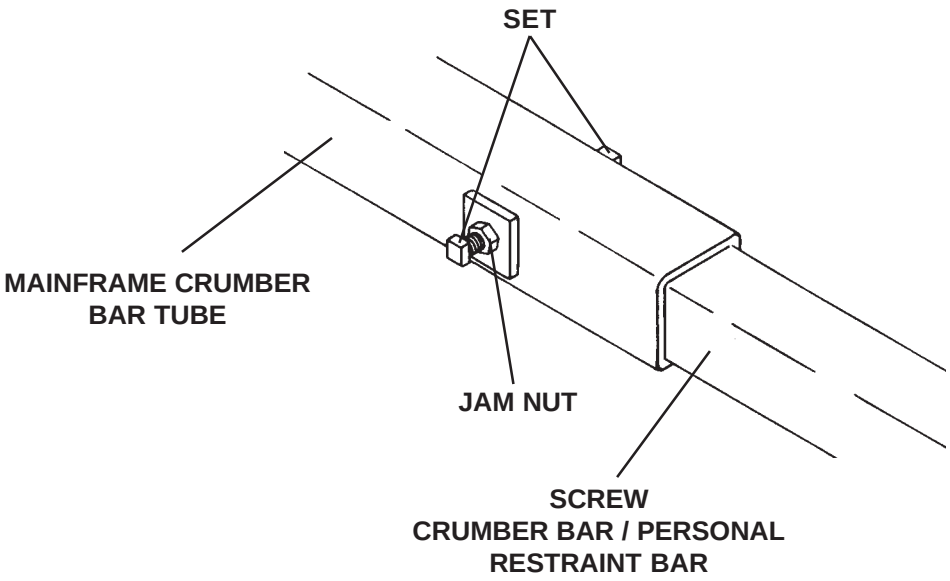
CONTROLS
612 TRENCHER

CRUMBER SHOE / BAR ADJUSTMENT

The purpose of the crumber shoe is to keep any loose dirt in the trencher close enough to the digging chain so that the digging teeth can grab it and remove it. This will give you a cleaner finished trench. Your trencher has an adjustable crumber bar / restraint bar that can be lengthened or shortened to bring the crumber shoe closer to or farther away from the digging chain.

To adjust the crumber bar length, loosen the two jam nuts found at the end of the mainframe crumber bar tube. With the jam nuts loose, loosen the set screws on the tube. Slide the bar in or out to achieve the desired spacing (we suggest a distance of about 4" between crumber shoe and digging teeth for best overall results). Tighten the set screws and jam nuts when finished. See Figure #3

FIGURE #3



CHAIN TENSION ADJUSTMENT

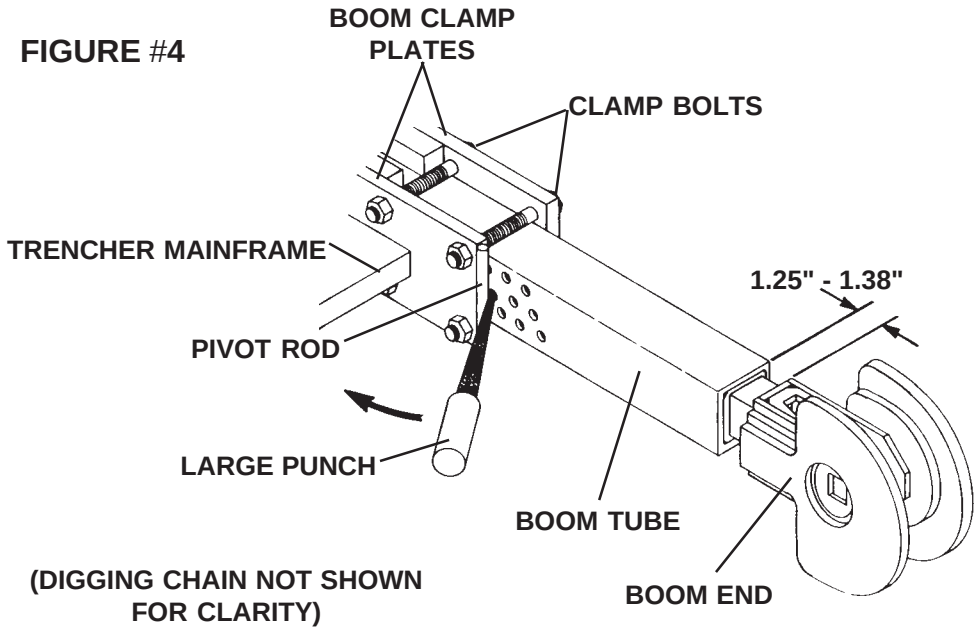
Chain tension is maintained by a large spring located inside the boom and adjusted by moving the boom in or out of the boom clamp plates located at the trencher end of the boom.

On the shorter booms (30" & 36") loosen the four clamp plate bolts. Tighten the chain by using a prying action over the pivot rod, located on the boom clamp plate, and through the holes in the side of the boom with a large punch, until the boom end is approximately 1.25" - 1.38" from the boom tube. Tighten the four clamp plate bolts to secure boom in place. Torque to 80 ft. lbs. See Figure #4

OPERATING INSTRUCTIONS

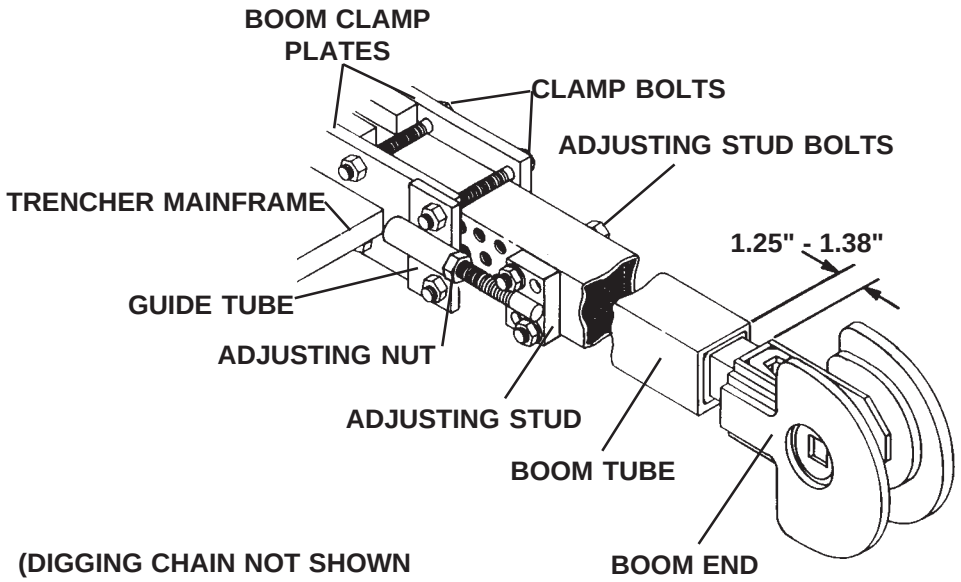
CONTROLS
612 TRENCHER

FIGURE #4



For the longer booms (48" & 60") a chain tightener kit is included in the boom assemblies. To tighten chain loosen the four clamp plate bolts. Turn the adjusting nut clockwise until proper tension is obtained, the boom end should be approximately 1.25" - 1.38" from the boom tube. Tighten the four clamp plate bolts to secure boom in place. Torque to 80 ft. lbs. See Figure #5

FIGURE #5



OPERATING INSTRUCTIONS

CONTROLS
612 TRENCHER

If the adjusting stud is too short to obtain proper chain tension tighten the four clamp plate bolts. Remove the two adjusting stub bolts which hold the adjusting stud in place. Reposition the adjusting stud to a position closer to the guide tube. Reinstall the adjusting stud bolts and then repeat the original procedure until proper tension is obtained.

If chain runs off in rocky ground or large roots, tighten further. Chain tension is important to monitor since excessive tension will cause high wear rates on the chain and sprockets and less than enough tension will cause run off problems.

CAUTION! **Never work on, or make adjustments to any part of the trencher while the unit is running. You could get caught in the digging teeth and be severely injured or killed.**

It is common for your trencher to need it's digging chain tightened after the first 10 to 20 minutes of operation as the chain and sprocket seat themselves.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

GENERAL INFORMATION

The design of your trencher makes it relatively simple to use. With the help of the information in this section and a little practice you should become proficient in it's operation in no time. Observe the following points to obtain the best results with the least amount of wear on the machine. Read the "Safety Precautions" Section "B" before you begin.

CAUTION! Operate the trencher only when seated at the tractor controls.

Do Not operate the tractor without proper ROPS (Roll-Over-Protective-Structure), seat belt, and hard hat.

Pay attention to the job at hand. Be alert to the possibilities of others in the work area.

Never let anyone work around, or perform maintenance on the trencher while it is running.

BEFORE YOU START TRENCHING

Before any excavating is started, it is always a good idea to plan out the job first. Various things need to be considered and taken into account prior to the actual trenching. The operator should inspect the job site and take notice of any potential hazards in the area. He should have a complete understanding of the tasks he is expected to perform. Figure out what will be done with the spoil (excavated soil), will it be used to backfill or be trucked out? What are the soil conditions like? Will you have to work around others? Etc.

WARNING! Check the prospective trenching area for hidden utility lines before operating the trencher. Contacting a utility line with the trencher could cause electrocution or possible explosion resulting in death. Call all utility companies and have them plot out all their lines first. If you damage a utility line, shut off the equipment at once and contact the affected utility immediately.

Once you have become familiar with the job site and understand the job requirements it is time to set up for the actual trenching. Check the soil type (hard, soft, rocky, etc.) and the trenching requirements (how deep, wide, etc.). Install the proper digging chain, boom, crumber boom and shoe for the job at hand. (Information on chain, boom, crumber boom and shoe may be found in Section "I" and "J".)

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

Mark off the area to be trenched out. This can be done with powdered line, chalk, or a guide string and stakes. Block off the area from others if possible.

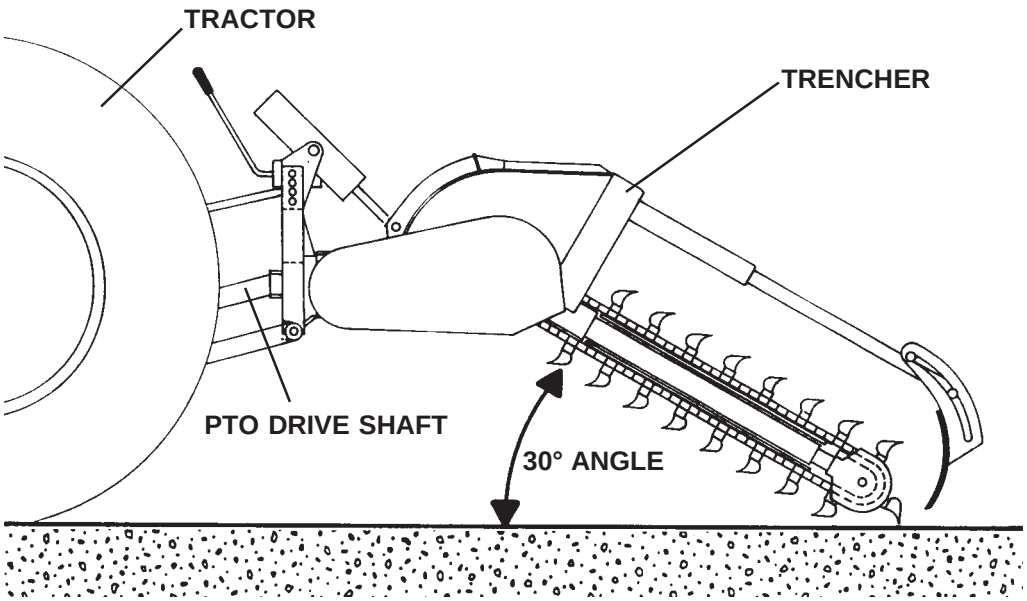
STARTING THE TRENCH

Position the tractor with the trencher boom directly over the center of the trench layout. It will take about 4' of trenching before the trencher will be able to operate at the desired level, so plan for this and position the trencher about 4' behind where you want the actual trench to start. Apply the tractor foot brake. This will prevent the tractor from being pulled backward when the digging teeth contact the ground.

NOTE: The tractor is driven forward when trenching. You cannot trench driving the tractor in reverse.

Raise the trencher with the 3-point hitch arms and tilt the trencher down at a 30° angle. See Figure #6. Position the unit so that the digging teeth are just above ground level. The PTO drive shaft should be approximately level.

FIGURE #6



Set the tractor engine speed at half throttle. Engage the tractor PTO to 540 RPM to start the digging chain in motion.

CAUTION! When lowering a moving digging chain to the ground the force of the teeth grabbing the ground will try to pull the tractor suddenly backwards. BE PREPARED. Have the brake on the tractor set to help counteract the force.

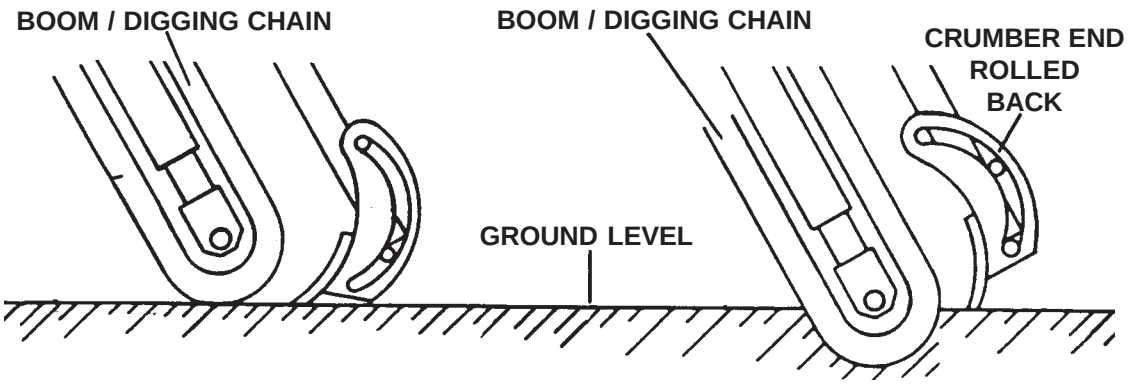
OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

Slowly lower the digging chain into the ground to start the trench. Do this by lowering the trencher with the 3-point hitch arms. To begin trenching, always lower the 3-point hitch first, followed by the trencher boom using the trencher controls. A combination of the 3-point hitch and trencher boom position will give the desired trench depth and spoil placement. Operate the PTO driveline at the correct boom approach angle. Greater angles may cause premature component failure. Continue lowering the unit until the crumber end rolls all the way back on the crumber bar. See Figure #7.

IMPORTANT: After the crumber end has rolled all the way back, do not lower the trencher any farther without engaging the tractor forward drive. Failure to do so could result in bending of the crumber bar, which is NOT covered by the warranty.

FIGURE #7



Once the crumber end has "bottomed out", engage the tractor's forward drive and begin slowly creeping the tractor forward while continuing to lower the trencher boom to the desired depth. When nearing the required depth, stop lowering and tilt the trencher to a 60° - 65° angle. A 60° - 65° angle works best for general trenching.

WARNING! Be alert to what is happening around you. Look ahead before moving the tractor to trench. Be aware of any person or thing in the path of the tractor. Observe any terrain changes such as drop-offs or soft ground.

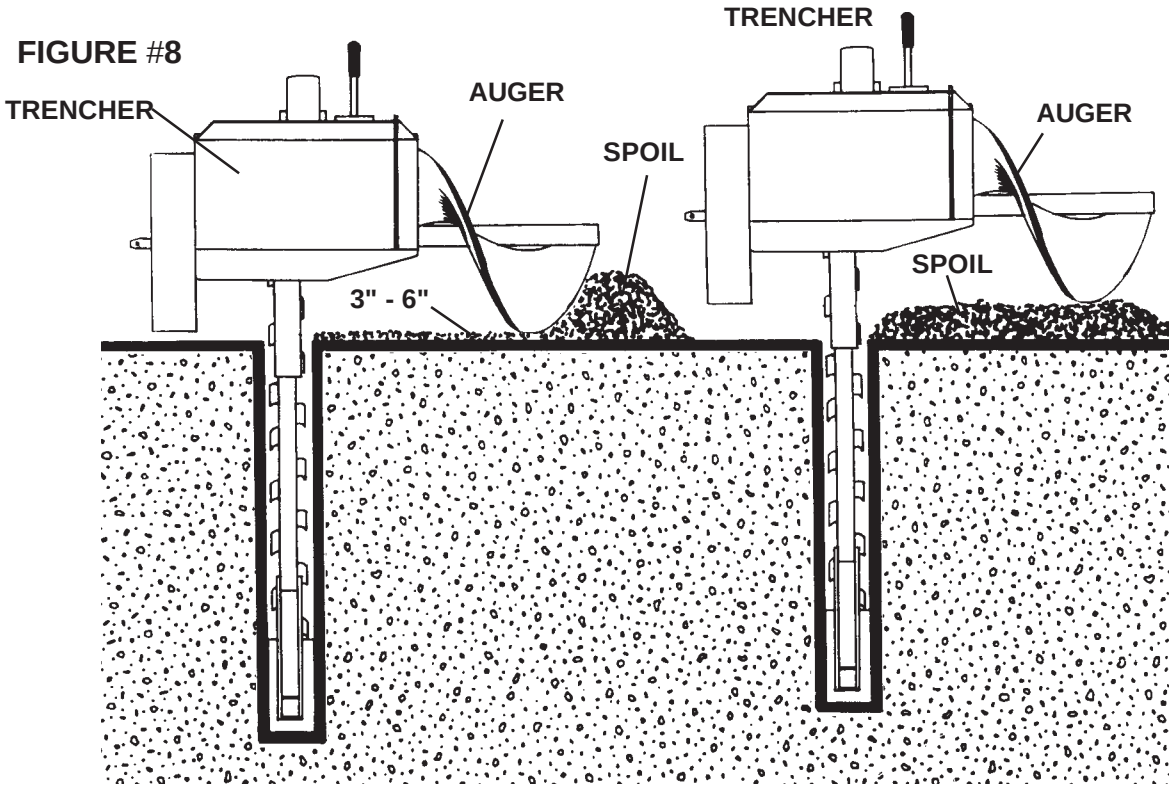
When trenching, remember to keep in mind the spoil placement. Position the trencher so that the auger floats at ground level to move spoil away from the trench.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

Raise the trencher so that the auger rides above ground level to leave the spoil beside the trench. The high the auger the closer to the trench the spoil will be placed. See Figure #8.

FIGURE #8



You may find that it generally takes less power to run the digging chain if the auger auger runs 3" - 6" (inches) off the ground, and thus increasing the potential footage of trench produced per hour. The higher you want the auger, the more vertical you will have to tilt the trencher to achieve the same trench depth.

With the desired trench depth reached, advance the tractor throttle to the desired engine RPM. Continue creeping the tractor forward.

STALLING THE TRENCHER

If the trencher stalls while digging, move the tractor backwards slightly to free the trencher.

TURNING WHILE TRENCHING

Gradual turns can be made while trenching. However the tightness of the turn is directly proportional to the angle and length of the boom. In other words, the greater the angle of the trencher boom to the ground level, the sharper the turn that can be trenched, See Figures #9 and #10.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

Also the shorter the boom length the sharper the possible turn. Remember, the greater the increase in boom angle the higher the unit will have to be raised out of the trench to keep a unified trench depth. Shallow boom angles will severely limit turning ability.

IMPORTANT: Turning to tightly while trenching will cause the trencher to jam in the trench and stall. Turning to tightly can also cause the trencher boom to bend. Take it easy when turning. Proceed slowly with caution.

FIGURE #9

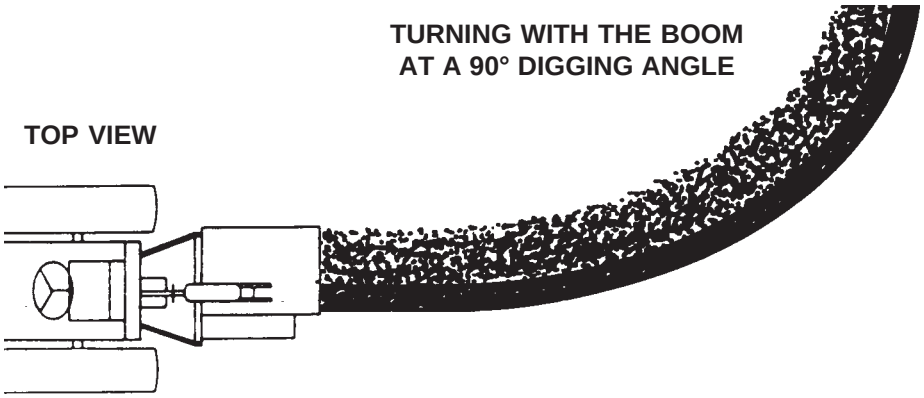
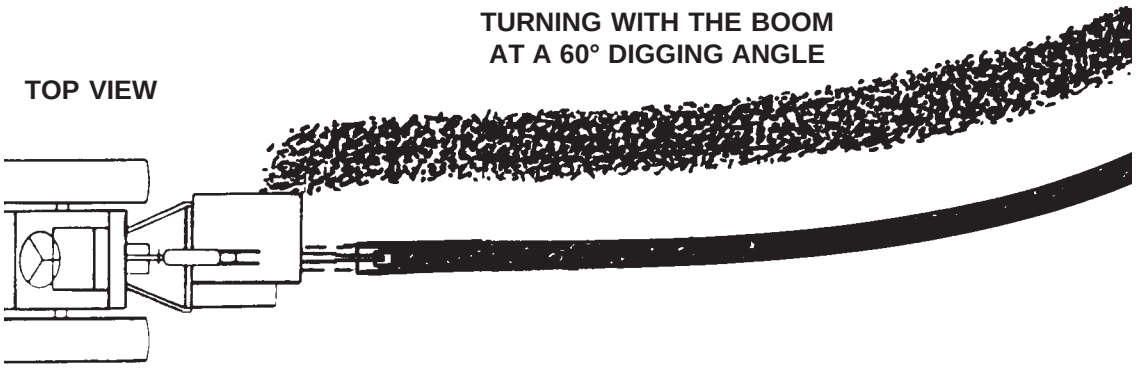


FIGURE #10



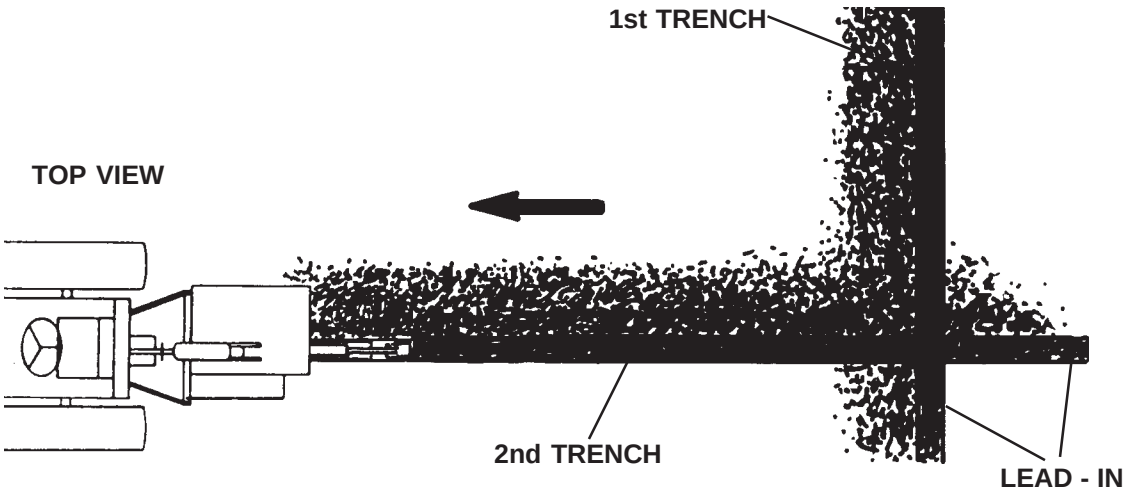
MAKING SHARP TURNS

To make sharp turns and 90° angle you will have to dig two trenches. Dig the first trench as you normally would. Then reposition the unit and dig the second trench at the appropriate angle. Be sure to take into account the extra lead-in space needed for the trencher to get down to the desired trench depth. See Figure #11.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

FIGURE #11



RECOMMENDED DIGGING ANGLES

A 90° digging angle is recommended for use in rock and frost conditions, and when trenching sharp corners. The 90° angle reduces excessive side pressure on the boom and digging chain when trenching corners.

A 60° - 65° digging angle is recommended for normal trenching. At this angle there will be less carryover, and a cleaner trench bottom than can be maintained at a 90° angle.

TRENCHING WITHOUT THE CRUMBER BAR / PERSONAL RESTRAINT BAR

WARNING! The crumber bar / personal restraint bar and crumber assembly are there for a reason, YOUR SAFETY! There are a few instances however, where removal may be necessary. In these cases operate with extreme caution. Reinstall the crumber bar / personal restraint bar and crumber assembly as soon as possible.

You can use your trencher to dig under obstacles such as sidewalks. To do so, remove the crumber bar / personal restraint bar and crumber assembly and start your trench as before within a foot of the sidewalk. With the crumber bar / personal restraint bar removed you can start the trench vertically without any lead-in space.

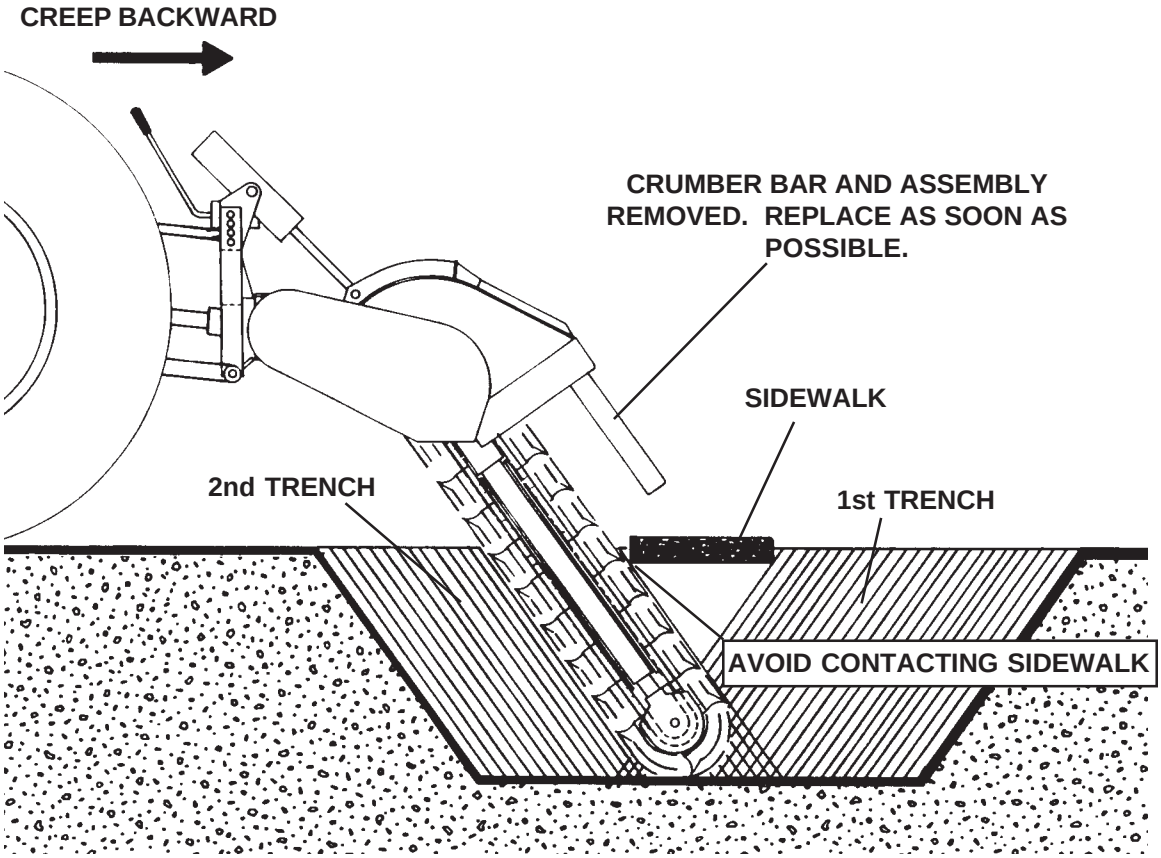
When the desired depth has been reached, tilt the trencher at 60° angle while digging, then creep the tractor backward and trench under the side walk. Be careful not to contact the edge of the sidewalk with the digging teeth.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

After you have gone as far as you can without contacting the sidewalk, drive the tractor forward to clear the sidewalk and remove the trencher from the trench. Line up the unit on the other side of the walk and continue to trench as described above until the two trenches are connected. See Figure #12.

FIGURE #12



Reinstall the crumber bar / personal restraint bar and crumber assembly immediately. Some spoil will be left in the trench since the crumber was removed during the operation.

ENDING THE TRENCH

When you have dug your trench, remember that the trencher boom is at an angle, and that you must continue trenching until the end of the boom has dug past the proposed end of the trench. Once the end of the trench has been dug, keep the trencher running and lift the unit clear of the trench. When the trencher has cleared the trench, disengage the PTO to stop the trencher. Drive the tractor away from the trench.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES
3-POINT HITCH TRENCHERS

TRANSPORTING THE TRENCHER

When transporting the trencher, remember to keep the trencher as low to the ground as is practical. The lower the trencher rides, the more stable the tractor will be. You do not want the trencher so low that the digging teeth touch ground in rough terrain. Shut off the trencher before moving it away from the trench. Never transport the trencher around the job site or anywhere else while the digging chain is moving.

TRENCHER PERFORMANCE

Trencher performance is related to how well it's maintained, digging tooth wear, and type and size of digging chain, crumber boom and shoe used. For information on chain, boom, and crumber options see Section "I" and "J". If problems arise see "Trouble Shooting" Section "N".

LUBRICATION

GENERAL INFORMATION

Economical and efficient operation of any machine is dependent upon regular and proper lubrication of all moving parts with a quality lubricant. Neglect leads to reduced efficiency, heavy draft, wear, breakdown, and needless replacement parts.

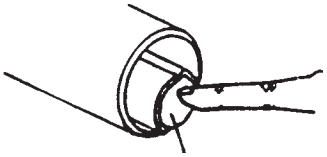
All parts provided with grease fittings should be lubricated as indicated. If any grease fittings are missing, replace them immediately. Clean all fittings thoroughly before using grease gun.

IMPORTANT: Avoid excessive greasing. Dirt collects on exposed grease and greatly increases wear. After greasing, wipe off excessive grease from fittings.

LUBRICATION

Lubricate grease zerks at mainframe / gear box pivot and also at end of lift cylinder, every (8) eight hours.

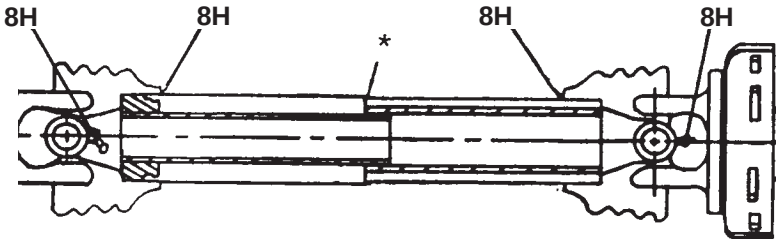
Grease PTO Drive before putting trencher into operation and at specified intervals thereafter.



GREASE INSIDE OF OUTER TELESCOPING TUBE (EVERY 20 HOURS)

Frequency of Lubrication:

(Swing joint sideways for greasing.)



*** When used in winter the outer tube must be greased to prevent it freezing solid!**

EVERY 40 HOURS OF OPERATION

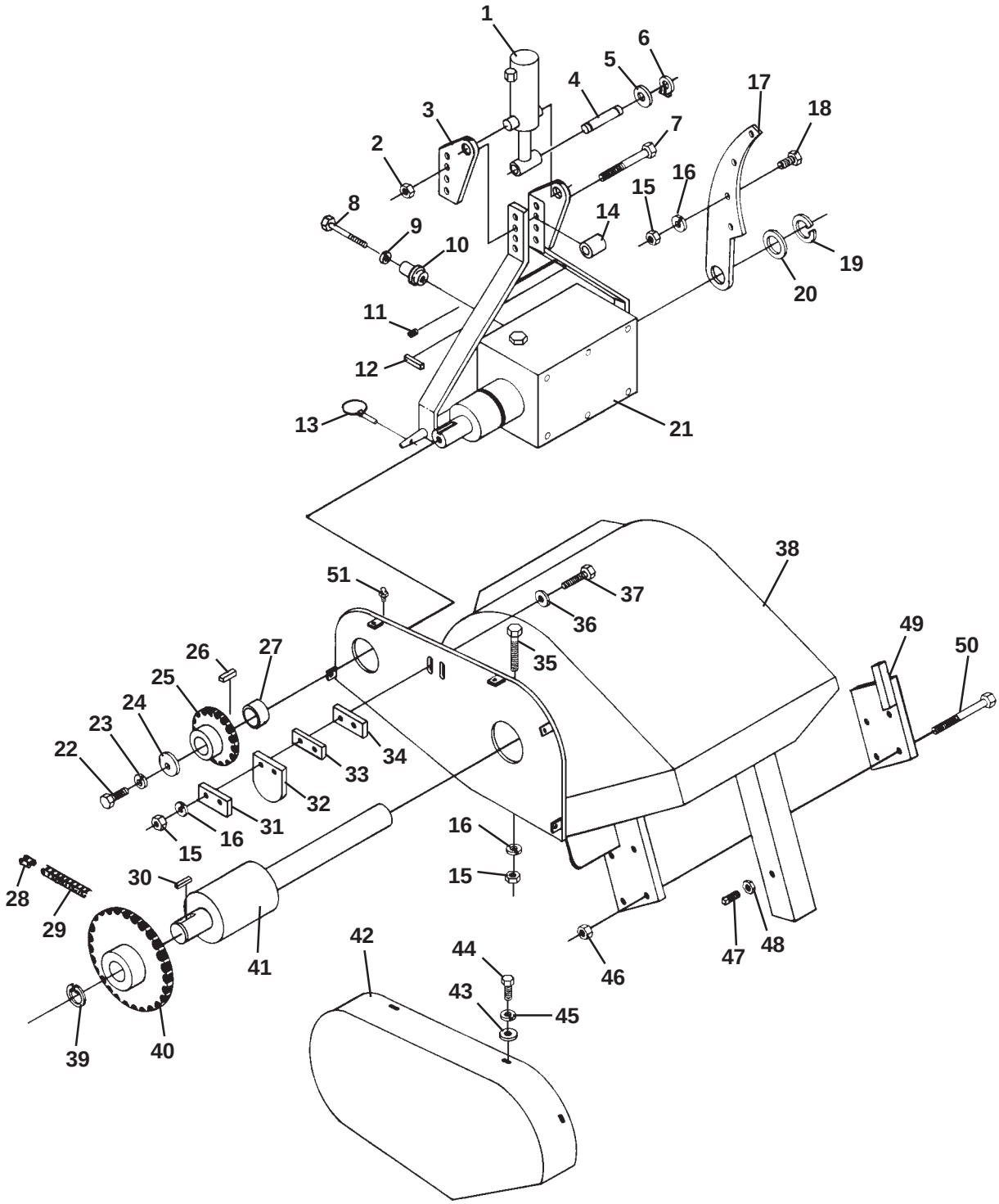
The oil level in the gear box should be checked once a week. Proper level of lubricant in the gear box is approx. 3.50" (about 6 pints). Fill as necessary with #90 transmission oil.

The previously mentioned areas are the only ones that require lubrication. No lubrication is needed on any other part of the trencher. Boom assemblies do not require any lubricating. **DO NOT** lubricate the digging chain. Lubricating the chain will only cause dirt to collect on the chain resulting in increased chain wear.

TRENCHER ASSEMBLY

ASSEMBLY #60969

DIAGRAM 1 OF 2



TRENCHER ASSEMBLY

ASSEMBLY #60969

LIST 1 OF 2

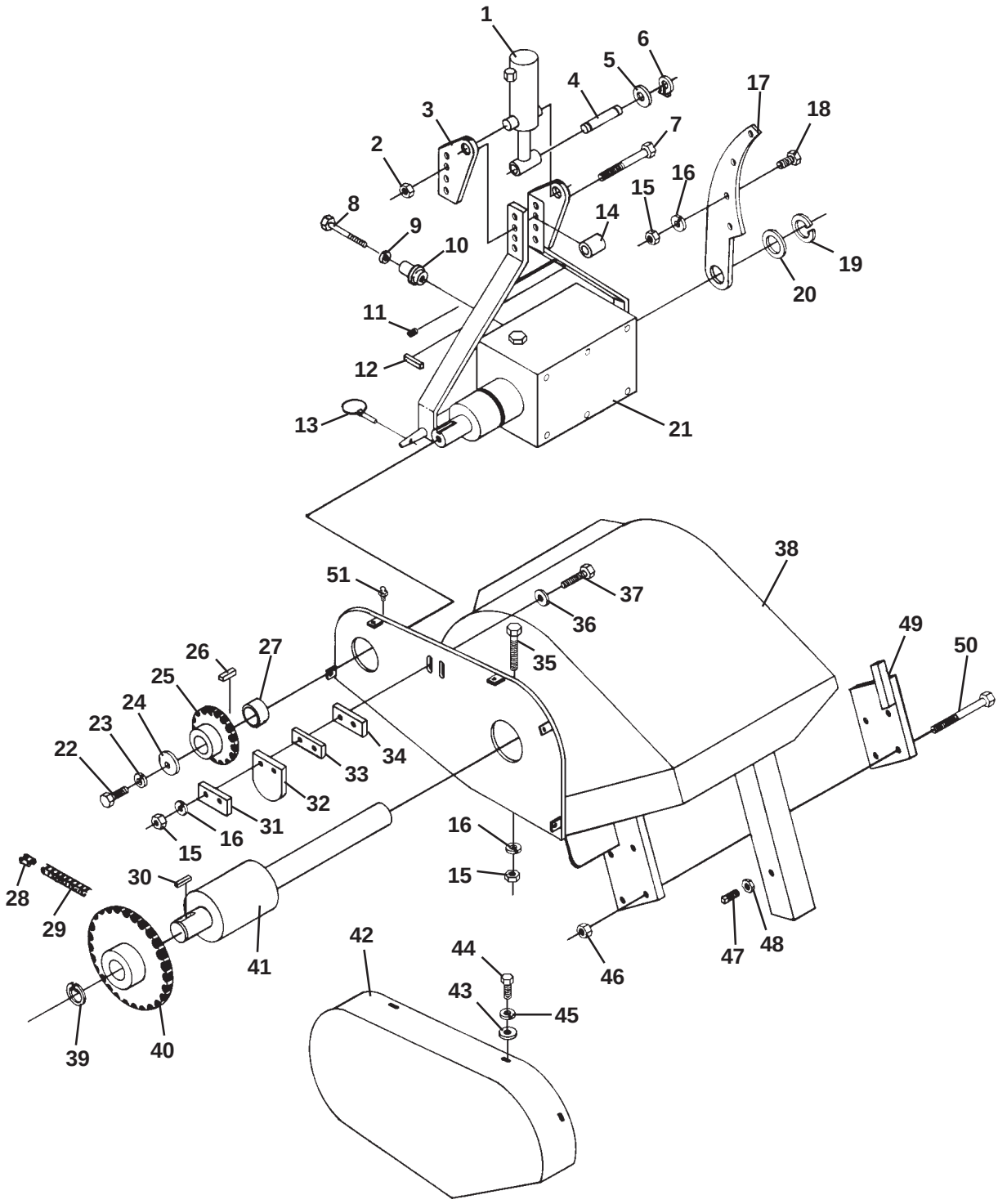
NO	REQ'D	PART NO.	DESCRIPTION
1	1	60964	Lift Cylinder
2	2	1534	.75" UNC Nylock Nut
3	1	59943	Cylinder Mounting Ear
4	1	57457	Pin
5	2	57462	Thrust Washer
6	2	6612	Snap Ring
7	2	1151	.75" UNC X 6.00" Hex Capscrew
8	1	1054*	.38" UNC X 3.75" Hex Capscrew
9	1	1503	.38" Lock Washer
10	1	82784*	PTO Retainer
11	1	1575	.38" Set Screw
12	1	5661	Key .31" X 1.38"
13	2	57496	Hitch Pin
14	1	60544	Pipe Spacer
15	9	1228	.50" UNC Hex Nut
16	9	1505	.50" Lock Washer
17	1	60005	Mounting Plate
18	4	1089	.50" UNC X 1.25" Hex Capscrew
19	1	1765	Retaining Ring
20	1	6623	Thrust Washer
21	1	59994	Gear Box
22	1	1113	.62" UNC X 1.25" Hex Capscrew
23	1	1506	.62" Lock Washer
24	1	1517	.62" Flat Washer
25	1	59998	Sprocket
26	1	5662	Key .38" x 1.38"
27	1	59950	Spacer Tube
28	1	53298	Connecting Link
29	1	53297	Chain No. 80
30	1	53743	Key .50" x 1.50"

* PTO retainer #82784 and #1054 capscrew replaced PTO keeper #62089 and #1044 capscrew on 2-8-95.

TRENCHER ASSEMBLY

ASSEMBLY #60969

DIAGRAM 2 OF 2



TRENCHER ASSEMBLY

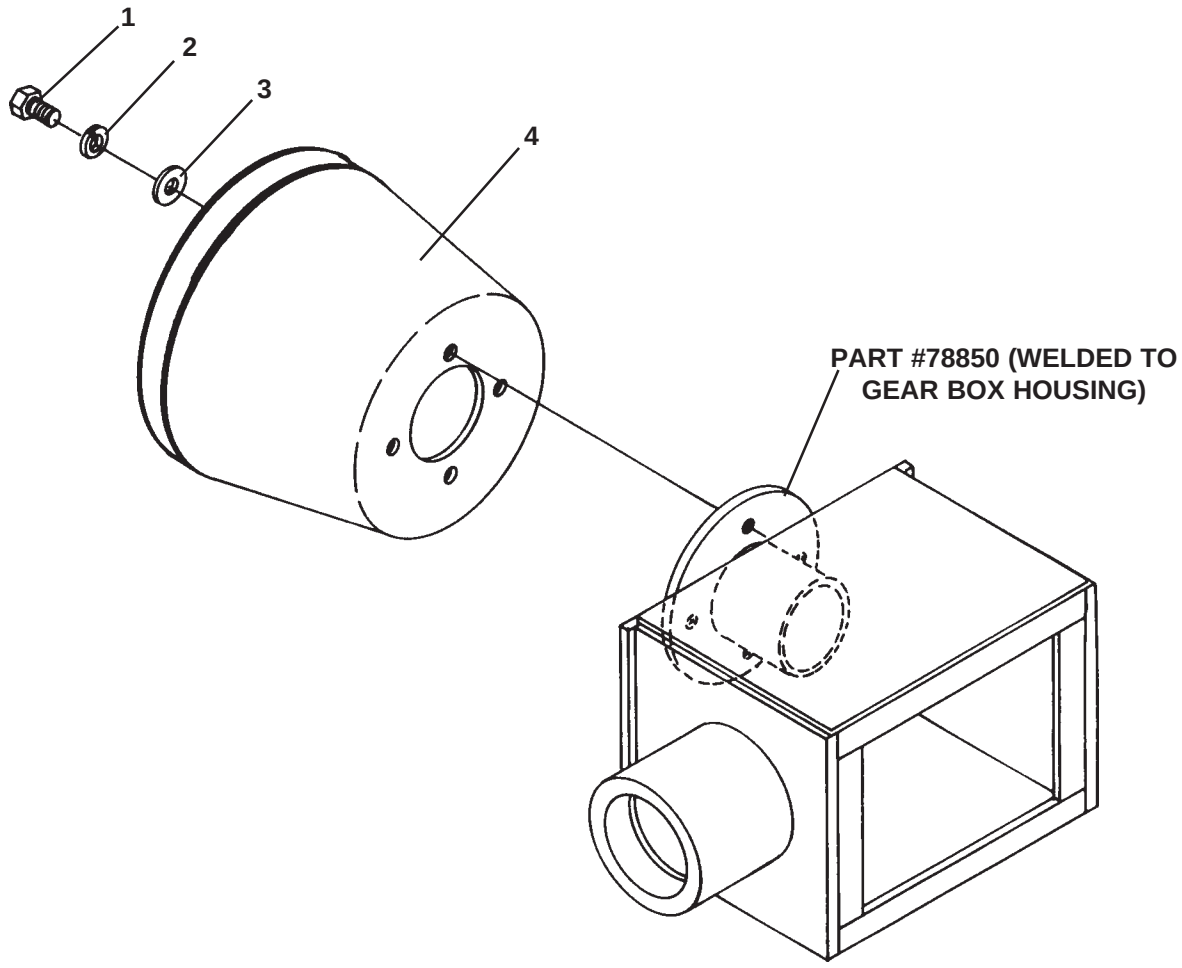
ASSEMBLY #60969

NO	REQ'D	PART NO.	DESCRIPTION
31	1	8564	Plate
32	1	58784	Chain Tightener Plate
33	1	53442	Spacer
34	1	59982	Spacer Plate
35	3	1096	.50" UNC X 3.00" Hex Capscrew
36	2	1516	.50" Flat Washer
37	2	1094	.50" UNC X 2.50" Hex Capscrew
38	1	60953	Inner Boom
39	1	1682	Snap Ring
40	1	59999	Sprocket
41	1	60001	Headshaft Assembly
42	1	61353	Chain Guard
43	5	1513	.31" Flat Washer
44	5	1021	.31" UNC X .75" Hex Capscrew
45	5	1502	.31" Lock Washer
46	4	1542	.50" UNC Nylock Nut
47	2	1769	.50" UNC X 1.00" Set Screw
48	2	1242	.50" UNC Jam Nut
49	1	53279	Boom Clamp
50	4	1984	.50" UNC X 5.50" Hex Capscrew - Grade 8
51	1	6616	Grease Zerk

TRENCHER ASSEMBLY

ASSEMBLY #60969

SERIAL #6GH394 AND UP



TRENCHER ASSEMBLY

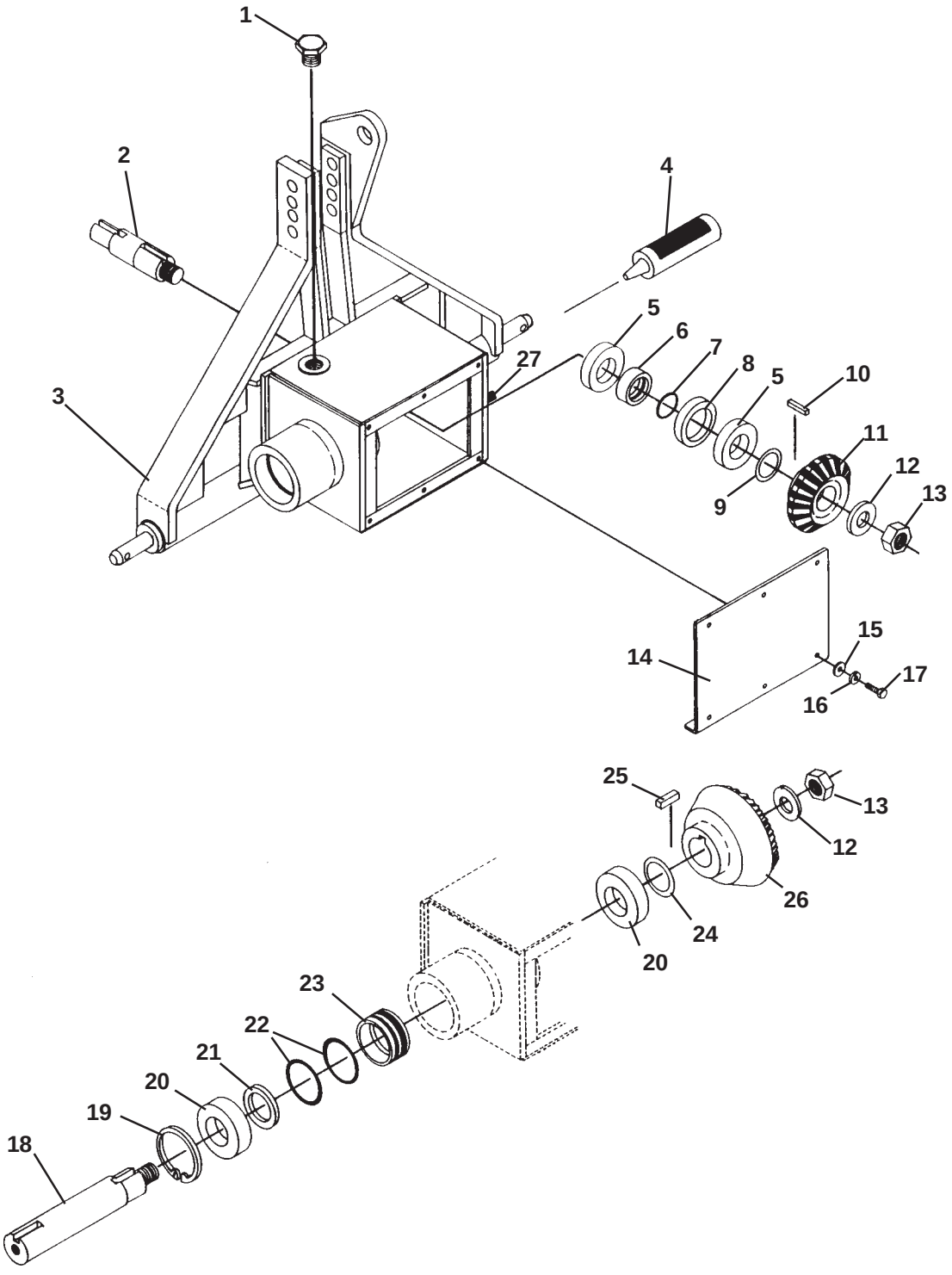
ASSEMBLY #60969

SERIAL #6GH394 AND UP

NO	REQ'D	PART NO.	DESCRIPTION
1	4	1021	.31" UNC X .75" Hex Capscrew
2	4	1502	.31" Lock Washer
3	4	1513	.31" Flat Washer
4	1	78852	Trencher PTO Guard

TRENCHER ASSEMBLY

GEAR BOX
ASSEMBLY #59994



6206
9-15-93

TRENCHER ASSEMBLY

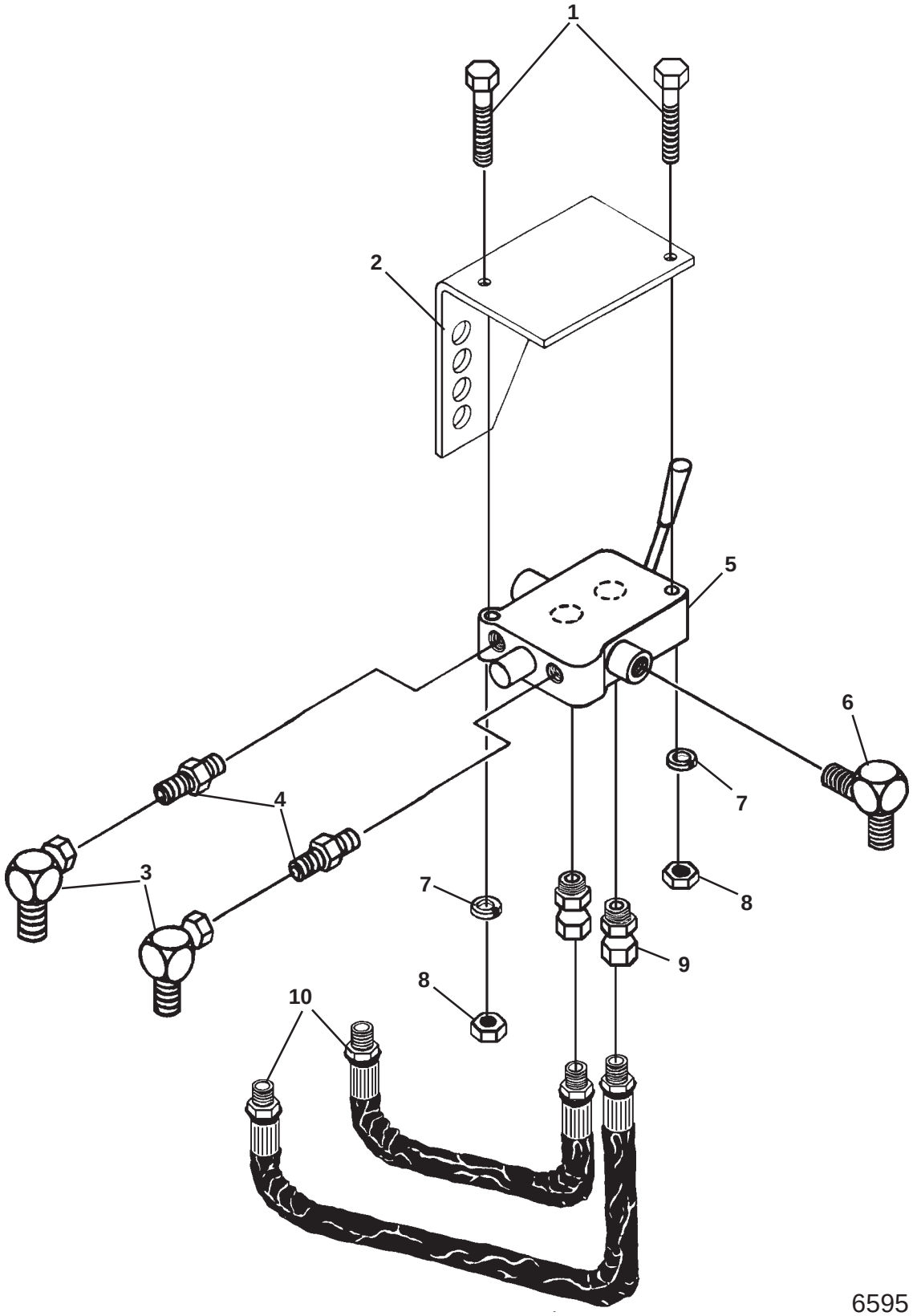
GEAR BOX
ASSEMBLY #59994

NO	REQ'D	PART NO.	DESCRIPTION
1	1	7781	Vented Plug
2	1	59960	Input Shaft
3	1	59997	Gear Box Housing
4	1	8857	Sealer
5	2	59995	Bearing
6	1	62072	Spacer Tube
7	1	45203	O'Ring
8	1	45205	Seal
9	Varies	5334	Shim .002
	Varies	5335	Shim .005
	Varies	5336	Shim .010
10	1	5661	Key .31" sq. X 1.38"
11	1	5311	Input Gear
12	2	8627	1.00" Washer
13	2	1483	1.00" Hex Nut
14	1	59955	Gear Box Cover
15	6	1513	.31" Flat Washer
16	6	1502	.31" Lock Washer
17	6	1021	.31" UNC X .75" Hex Capscrew
18	1	59947	Output Shaft
19	1	1734	Snap Ring
20	2	59996	Bearing
21	1	45206	Seal
22	2	45204	O'Ring
23	1	62071	Seal Adapter Ring
24	Varies	7296	Shim .002
	Varies	7297	Shim .005
	Varies	7298	Shim .010
25	1	5662	Key .38" sq. X 1.38"
26	1	5319	Output Gear
27	1	3189	Oil Check Plug

VALVE ASSEMBLY

ASSEMBLY #2108

EFFECTIVE 1-1-95



6595
3-7-95

VALVE ASSEMBLY

ASSEMBLY #2108

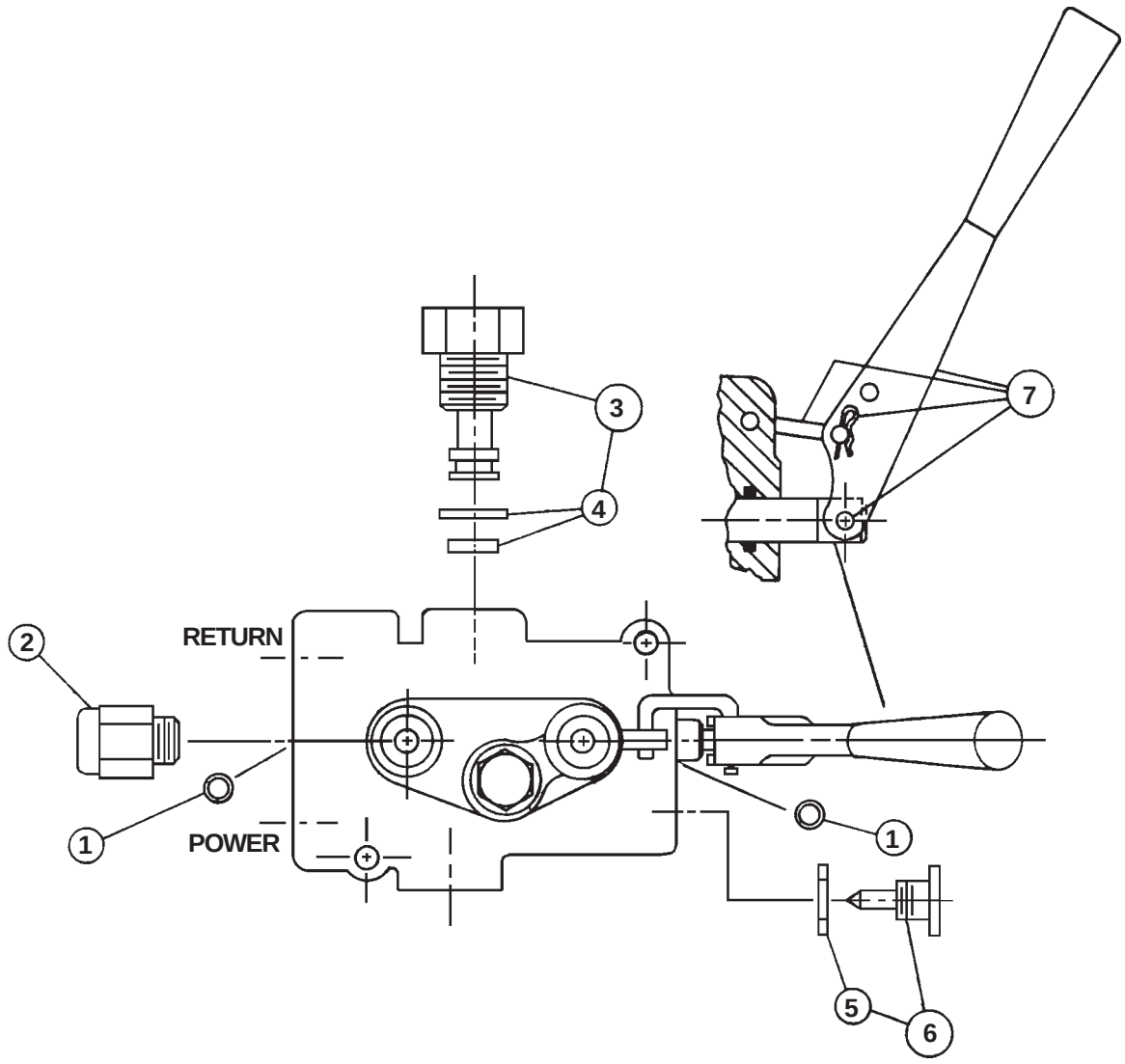
EFFECTIVE 1-1-95

NO	REQ'D	PART NO.	DESCRIPTION
1	2	1007	.25" UNC X 2.00" Hex Capscrew
2	1	82660	Valve Mounting Plate
3	2	3430	90° Street Elbow
4	2	3457	Straight Adapter
5	1	62090	1-Spool Metro Valve
6	1	3434*	90° O'Ring Adapter
7	2	1501	.25" Lock Washer
8	2	1224	.25" UNC Hex Nut
9	2	3363	O'Ring Adapter
10	2	37174	Hose Assembly .25" X 26" (SAE 100R2-2Wire) 6MP-6MP-HS

*** NOTE: Part #3434 (90° O'Ring Adapter) is not required with John Deere applications.**

TRENCHER ASSEMBLY

CONTROL VALVE
ASSEMBLY #62090



6684
11-9-95

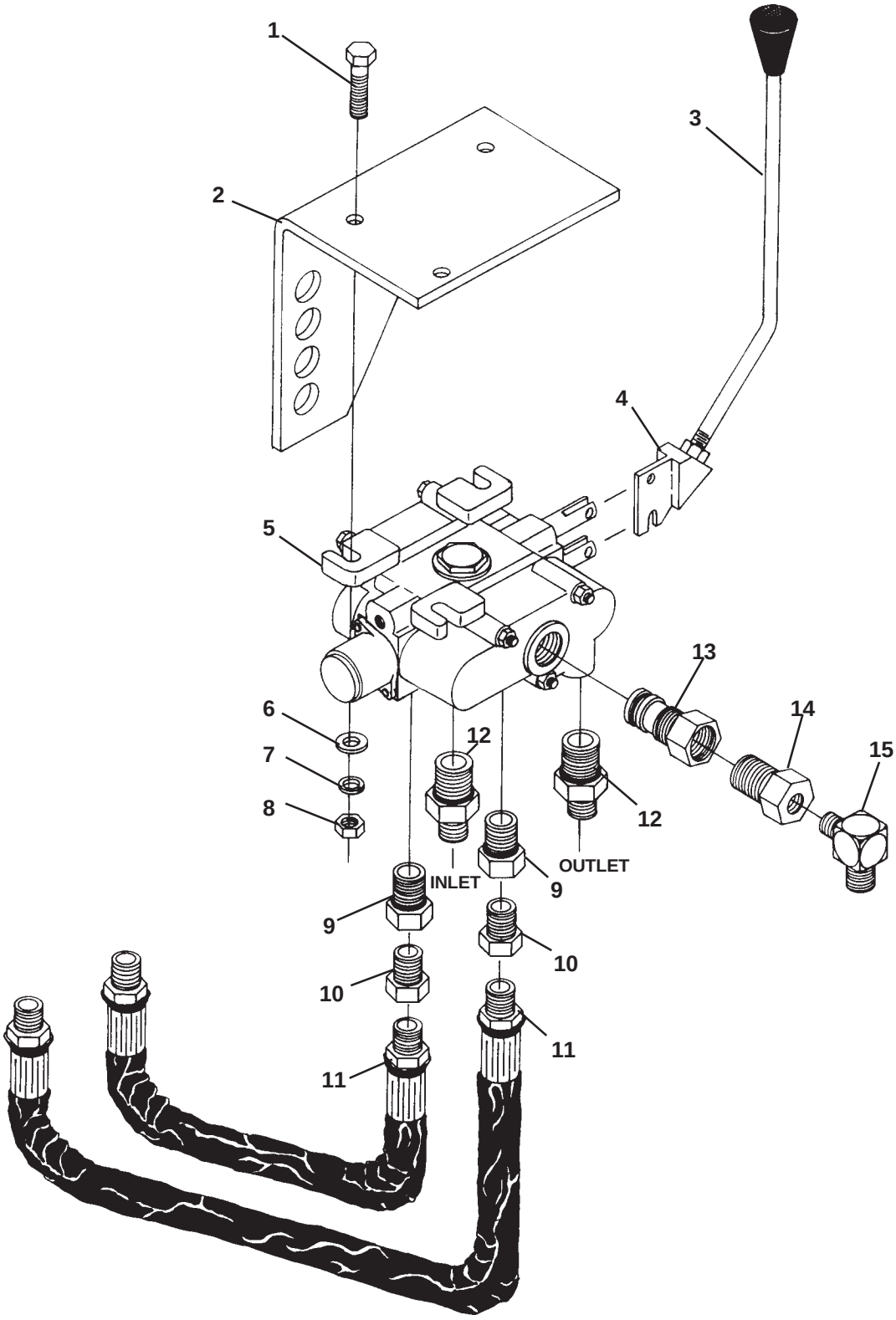
TRENCHER ASSEMBLY

CONTROL VALVE
ASSEMBLY #62090

NO	REQ'D	PART NO.	DESCRIPTION
1	1	45235	Spool Seal Kit
2	1	45230	Spring Center Cover Assembly
3	1	45231	Power Beyond Plug Assembly
4	1	45236	Seal Kit
5	1	45232	Seal
6	1	45234	Plug Assembly
7	1	45233	Handle Assembly

VALVE ASSEMBLY

ASSEMBLY #2180



6186
8-30-93

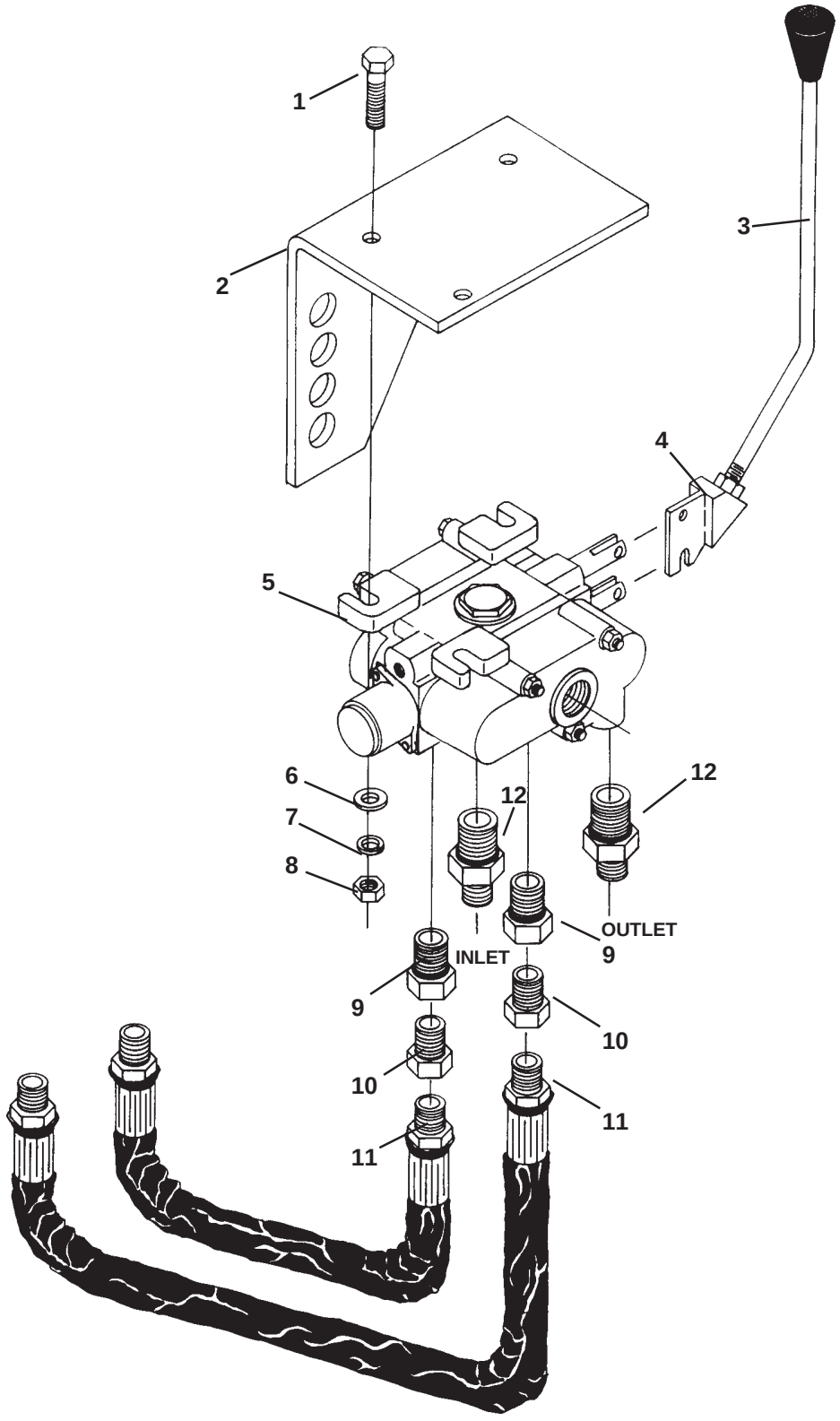
VALVE ASSEMBLY

ASSEMBLY #2180

NO	REQ'D	PART NO.	DESCRIPTION
1	3	1023	.31" UNC X 1.25" Hex Capscrew
2	1	62087	Valve Mouting Plate
3	1	67801	Handle
4	1	45317	Lever Support Kit
5	1	61887	1-Spool Hidrover Valve
6	3	1524	.31" SAE Flat Washer
7	3	1502	.31" Lock Washer
8	3	1225	.31" UNC Hex Nut
9	2	3331	Straight Reducer 8MBo-6FP
10	2	3363	Straight Adaptor 6MP-6FP
11	2	37174	Hose Assembly .25" x 26" (SAE 100R2-2Wire) 6MP-6MP-HS
12	2	3362	Straight Adaptor 10MBo-6MJ
13	1	45320	Power Beyond Sleeve
14	1	3336	Straight Adaptor 10MBo-4FP
15	1	3001	90° Elbow 6MJ-4MP

VALVE ASSEMBLY

JOHN DEERE 855 SERIAL NO. 820001 - UP
ASSEMBLY #2187



6188
8-30-93

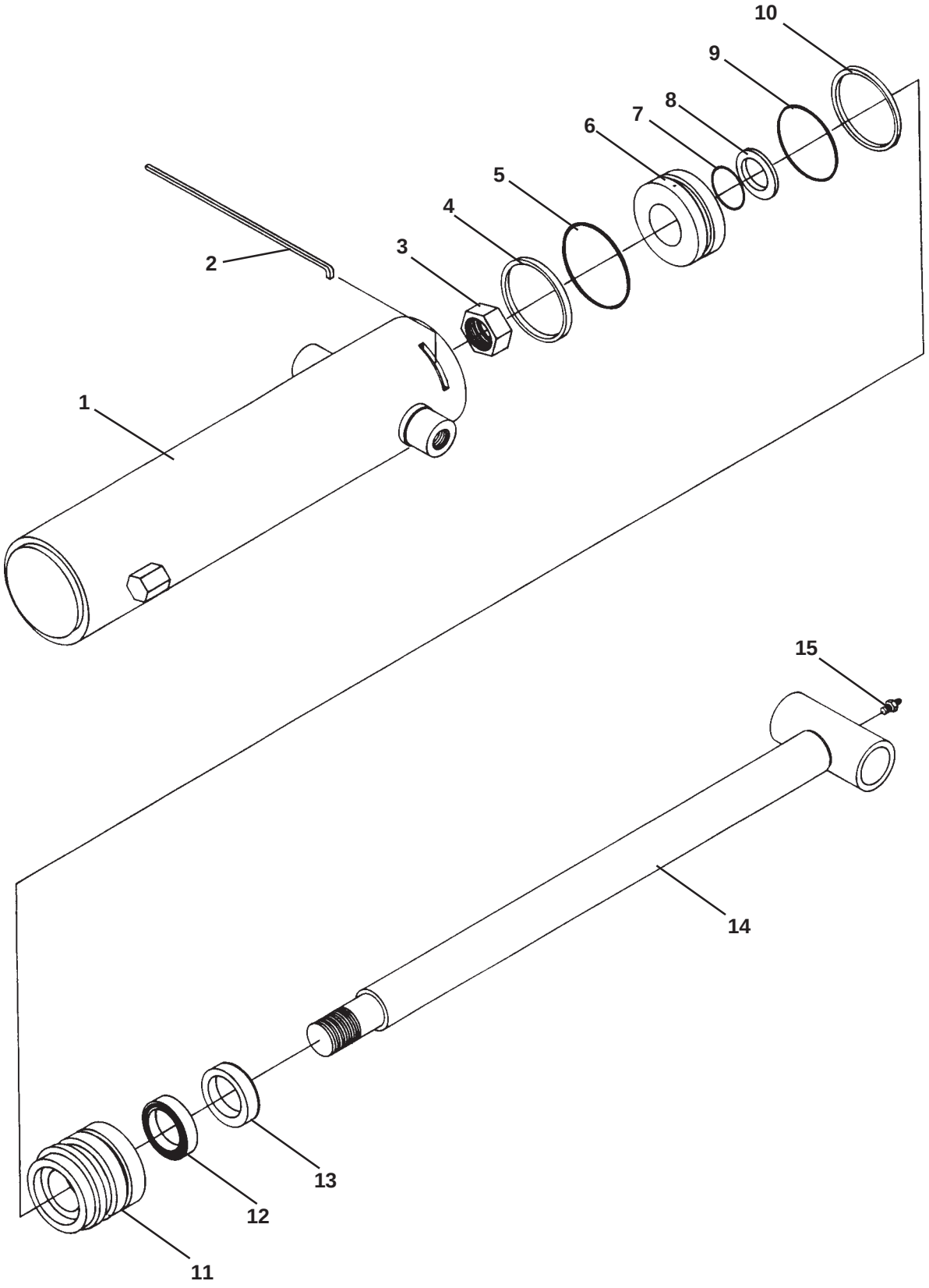
VALVE ASSEMBLY

JOHN DEERE 855 SERIAL NO. 820001 - UP
ASSEMBLY #2187

NO	REQ'D	PART NO.	DESCRIPTION
1	3	1023	.31" UNC X 1.25" Hex Capscrew
2	1	62087	Valve Mouting Plate
3	1	67801	Handle
4	1	45317	Lever Support Kit
5	1	61887	1-Spool Hidrover Valve
6	3	1524	.31" SAE Flat Washer
7	3	1502	.31" Lock Washer
8	3	1225	.31" UNC Hex Nut
9	2	3331	Straight Reducer 8MBo-6FP
10	2	3363	Straight Adaptor 6MP-6FP
11	2	37174	Hose Assembly .25" x 26" (SAE 100R2-2Wire) 6MP-6MP-HS
12	2	3362	Straight Adaptor 10MBo-6MJ

CYLINDER ASSEMBLY

ASSEMBLY #60964



6190
8-31-93

CYLINDER ASSEMBLY

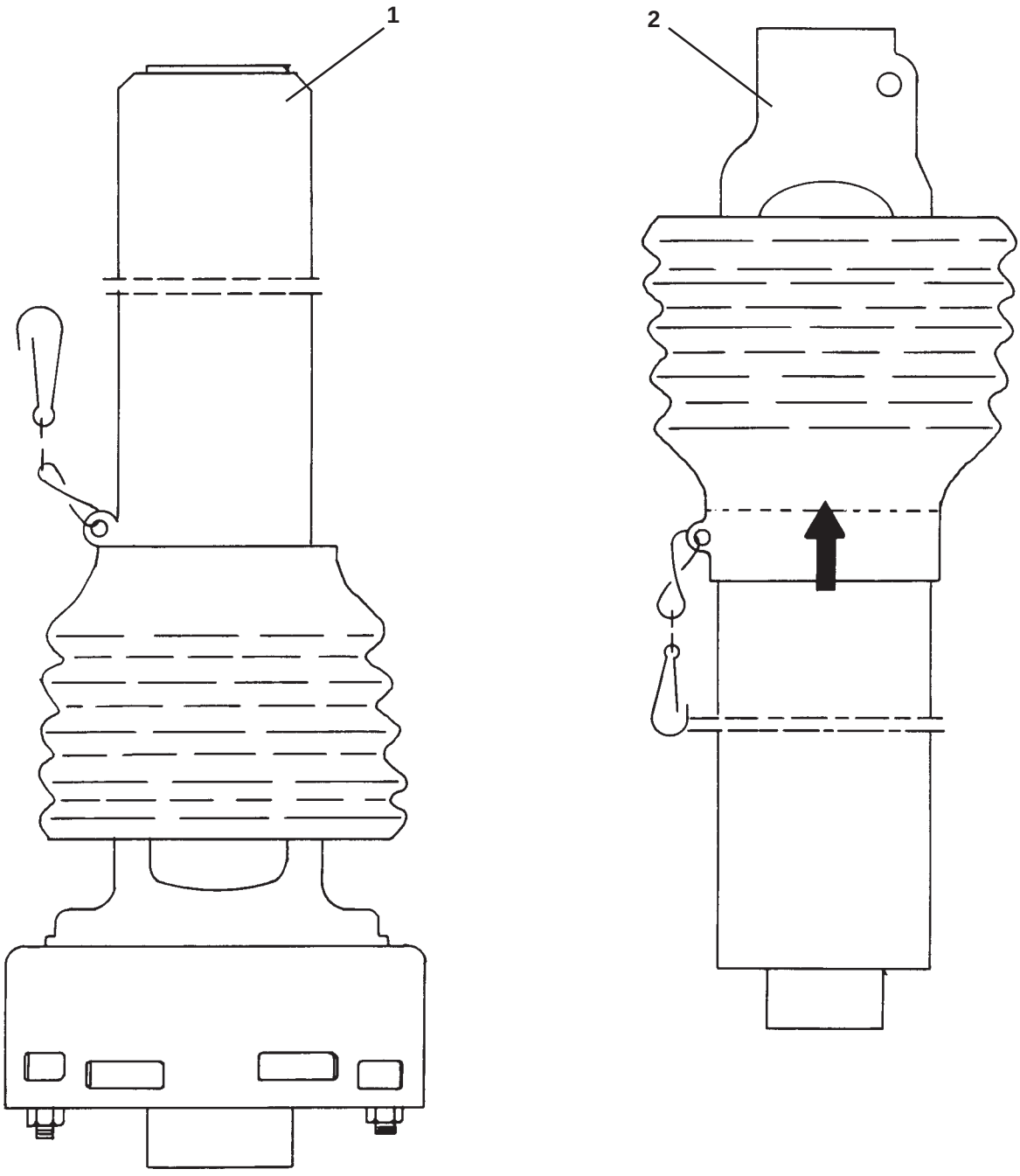
ASSEMBLY #60964

NO	REQ'D	PART NO.	DESCRIPTION
1	1	60965	Cylinder Tube
2	1	7165*	Gland Retainer Rod/Ring
3	1	1483	Hex Nut
4	1	4644*	Teflon Piston Ring
5	1	4645*	O'Ring
6	1	50252	Piston
7	1	4641*	O'Ring
8	1	5421	Spacer Washer
9	1	4509*	O'Ring
10	1	4510*	Back-Up Washer
11	1	62770	Cylinder Gland
12	1	45219*	Cylinder Rod Seal
13	1	4974*	Rod Wiper
14	1	60967	Cylinder Rod
15	1	6616	Grease Zerk

NOTE: Seal Kit #45258 includes all parts marked with an asterisk (*). Parts are not sold separately.

TRENCHER ASSEMBLY

PTO DRIVE ASSEMBLY #69217



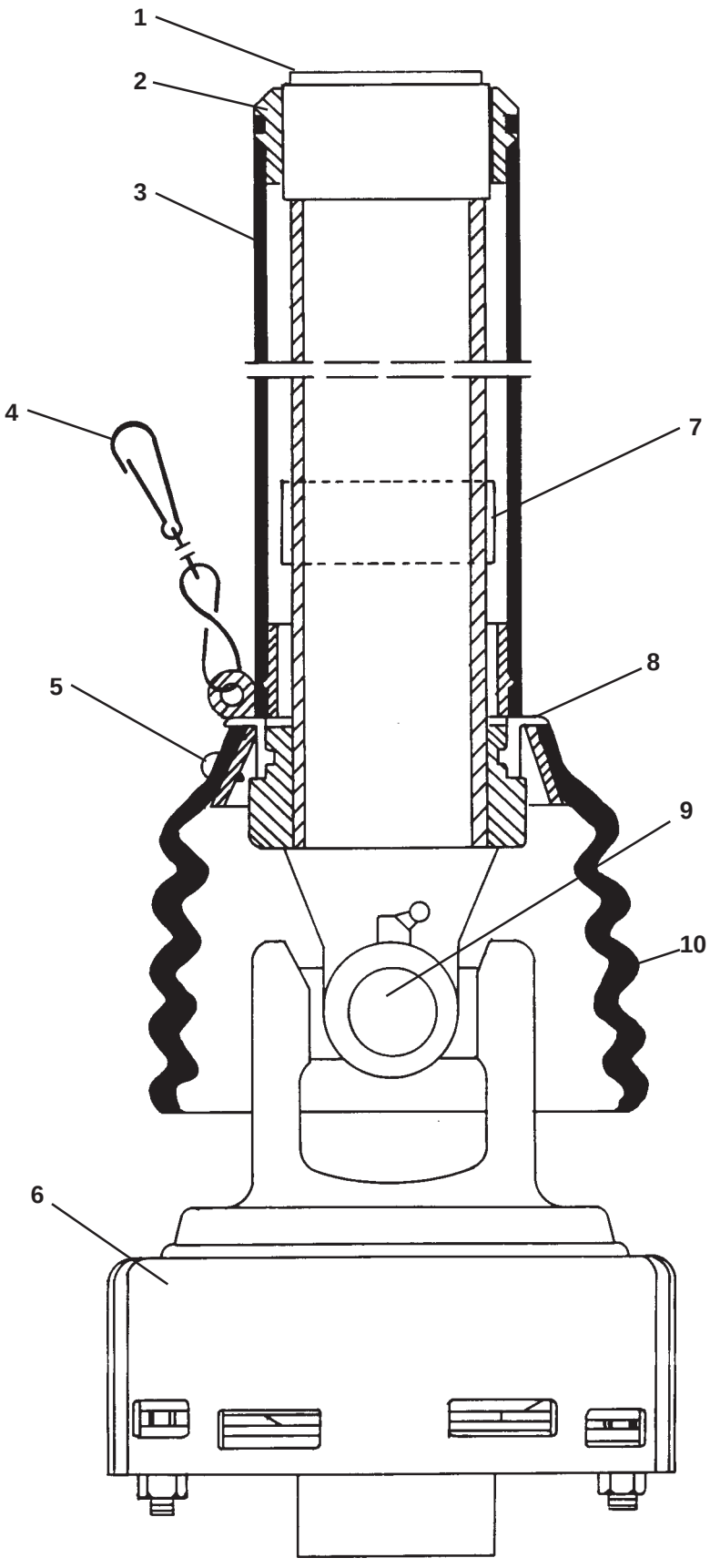
TRENCHER ASSEMBLY

PTO DRIVE ASSEMBLY #69217

NO	REQ'D	PART NO.	DESCRIPTION
1	1	70170	PTO Drive - Trencher Half Assembly
2	1	70169	PRO Drive - Tractor Half Assembly

TRENCHER ASSEMBLY

PTO DRIVE - TRENCHER HALF
ASSEMBLY #70170



6212
9-16-93

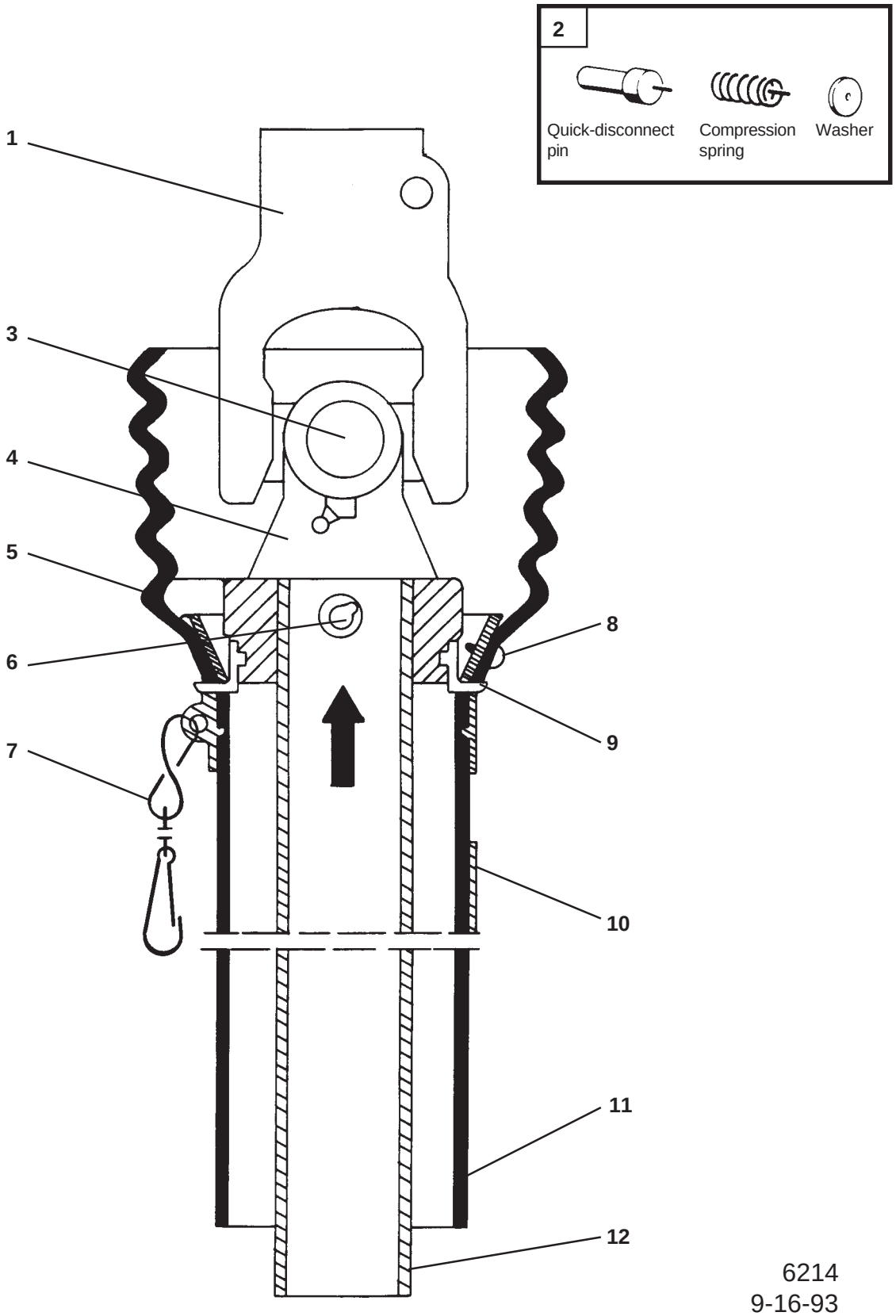
TRENCHER ASSEMBLY

PTO DRIVE - TRENCHER HALF
ASSEMBLY #70170

NO	REQ'D	PART NO.	DESCRIPTION
1	1	61684	Sleeve Profile
2	1	61690	Support Bearing
3	1	61689	Inner Shield Tube
4	1	61679	Safety Chain
5	1	62732	Screw
6	1	77368	Friction Clutch Assembly
7	1	4285	Decal
8	1	61687	Bearing Ring
9	1	61680	Cross & Bearing Kit
10	1	61686	Shield Cone

TRENCHER ASSEMBLY

PTO DRIVE - TRACTOR HALF
ASSEMBLY #70169



6214
9-16-93

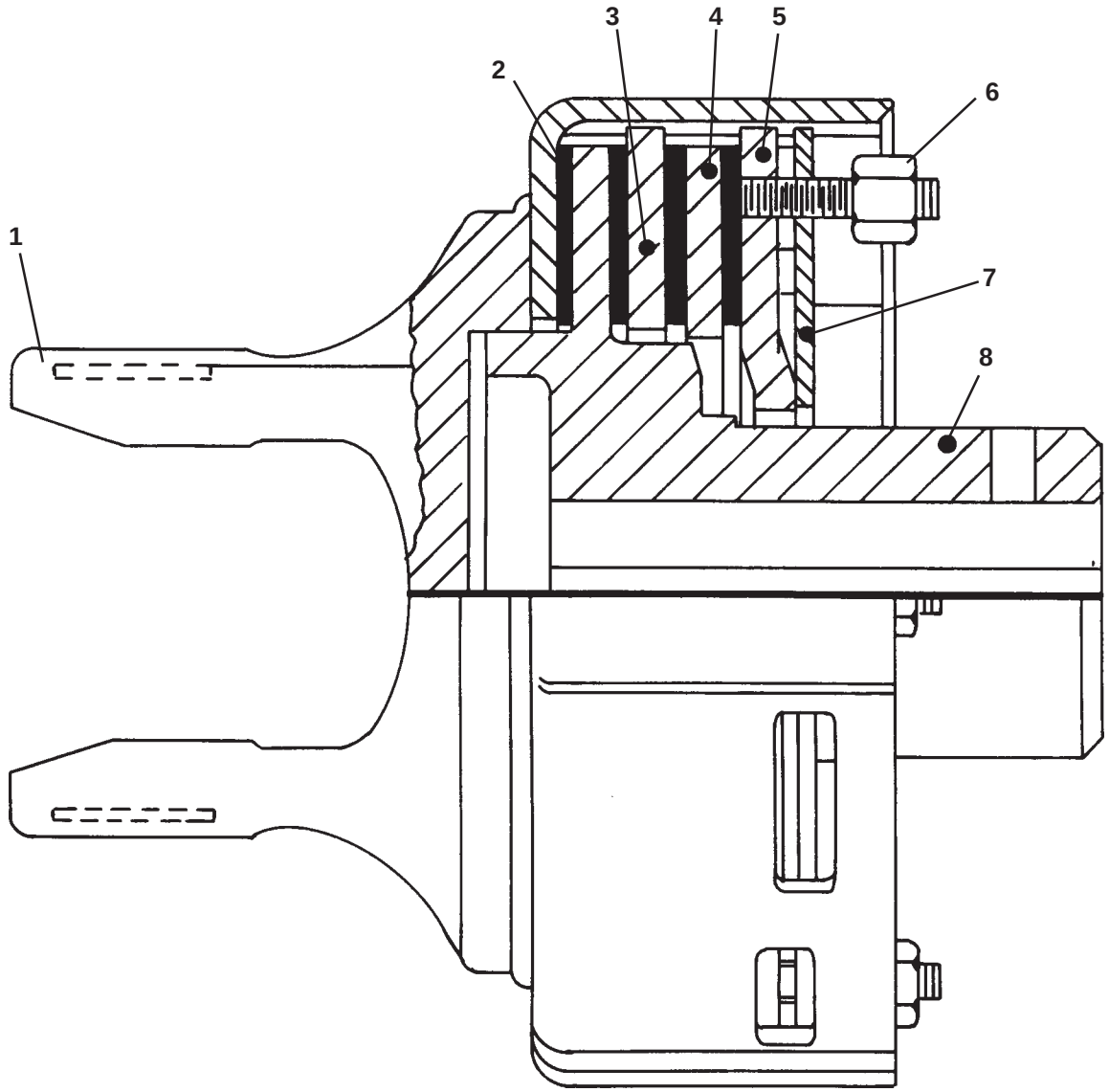
TRENCHER ASSEMBLY

PTO DRIVE - TRACTOR HALF
ASSEMBLY #70169

NO	REQ'D	PART NO.	DESCRIPTION
1	1	69196	Yoke
2	--	81179	Replacement Q.D. Pin Kit
3	1	61680	Cross & Bearing Kit
4	1	61681	Inboard Yoke
5	1	61686	Shield Cone
6	1	61682	Spring Pin
7	1	61679	Safety Chain
8	1	62732	Screw
9	1	61687	Bearing Ring
10	1	4586	Decal
11	1	61688	Outer Shield Tube
12	1	61683	Inner Profile

TRENCHER ASSEMBLY

PTO DRIVE - FRICTION CLUTCH
ASSEMBLY #77368



TRENCHER ASSEMBLY

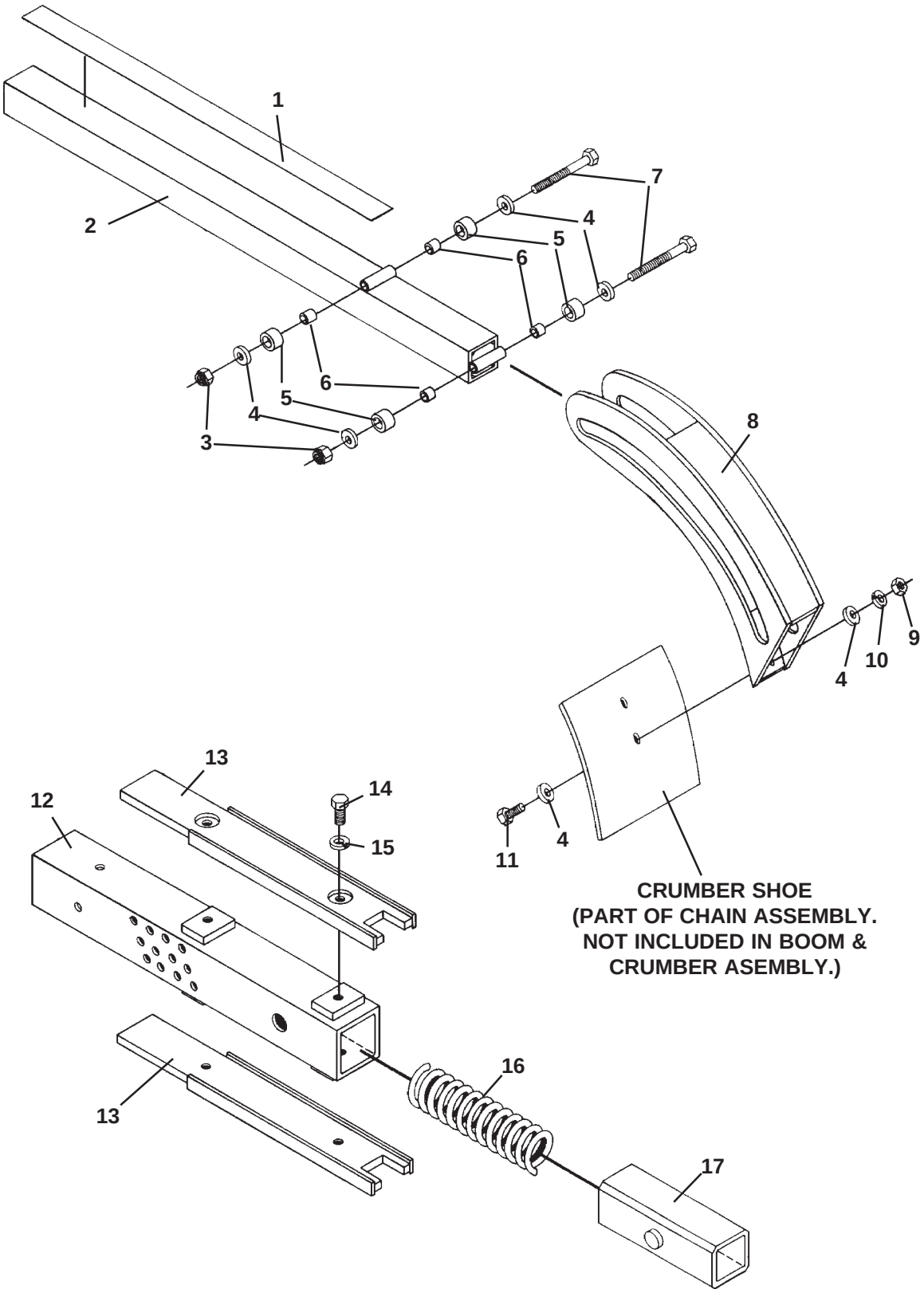
PTO DRIVE - FRICTION CLUTCH
ASSEMBLY #77368

NO	REQ'D	PART NO.	DESCRIPTION
1	1	61667	Clutch Housing
2	4	61651	Friction Disk
3	1	61664	Drive Plate
4	1	61665	Drive Plate
5	1	62736	Thrust Plate
6	4	2696	Hex Nut
7	1	61553*	Belleville Spring (Dot Color - Red)
		61654*	Belleville Spring (Dot Color - White)
		79439*	Belleville Spring (Dot Color - Green)
8	1	69195	Hub

*** When replacing Belleville Spring, replace with same dot color as existing one.**

TRENCHER ASSEMBLY

30" BOOM AND CRUMBER
ASSEMBLY #52992



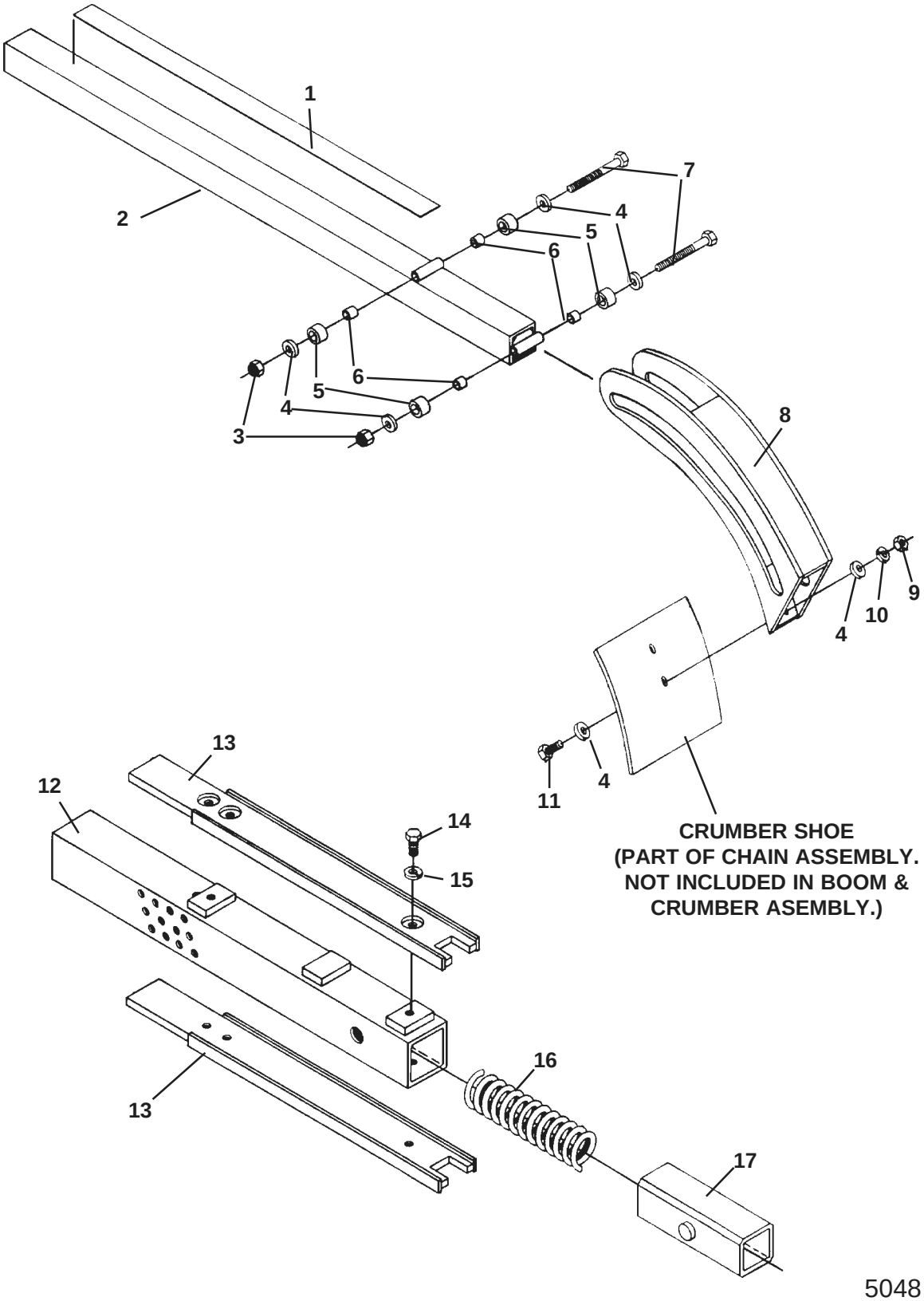
TRENCHER ASSEMBLY

30" BOOM AND CRUMBER
ASSEMBLY #52992

NO	REQ'D	PART NO.	DESCRIPTION
1	2	40161	Decal - Stand Clear
2	1	53070	30" Crumber Bar / Restraint Bar
3	2	1536	.38" UNC Nylock Nut
4	8	1514	.38" Flat Washer
5	4	53038	Crumber Roller
6	4	53039	Crumber Roller Bushing
7	2	1054	.38" UNC X 3.75" Hex Capscrew
8	1	53087	Crumber End
9	2	1226	.38" UNC Hex Nut
10	2	1503	.38" Lock Washer
11	2	1044	.38" UNC X 1.25" Hex Capscrew
12	1	53009	30" Boom
13	2	53115	30" Wear Strip
14	4	1087	.50" UNC X .75" Hex Capscrew
15	4	1505	.50" Lock Washer
16	1	53188	Spring
17	1	53138	Boom Bushing

TRENCHER ASSEMBLY

36" BOOM AND CRUMBER
ASSEMBLY #52993



5048
7-22-02-2

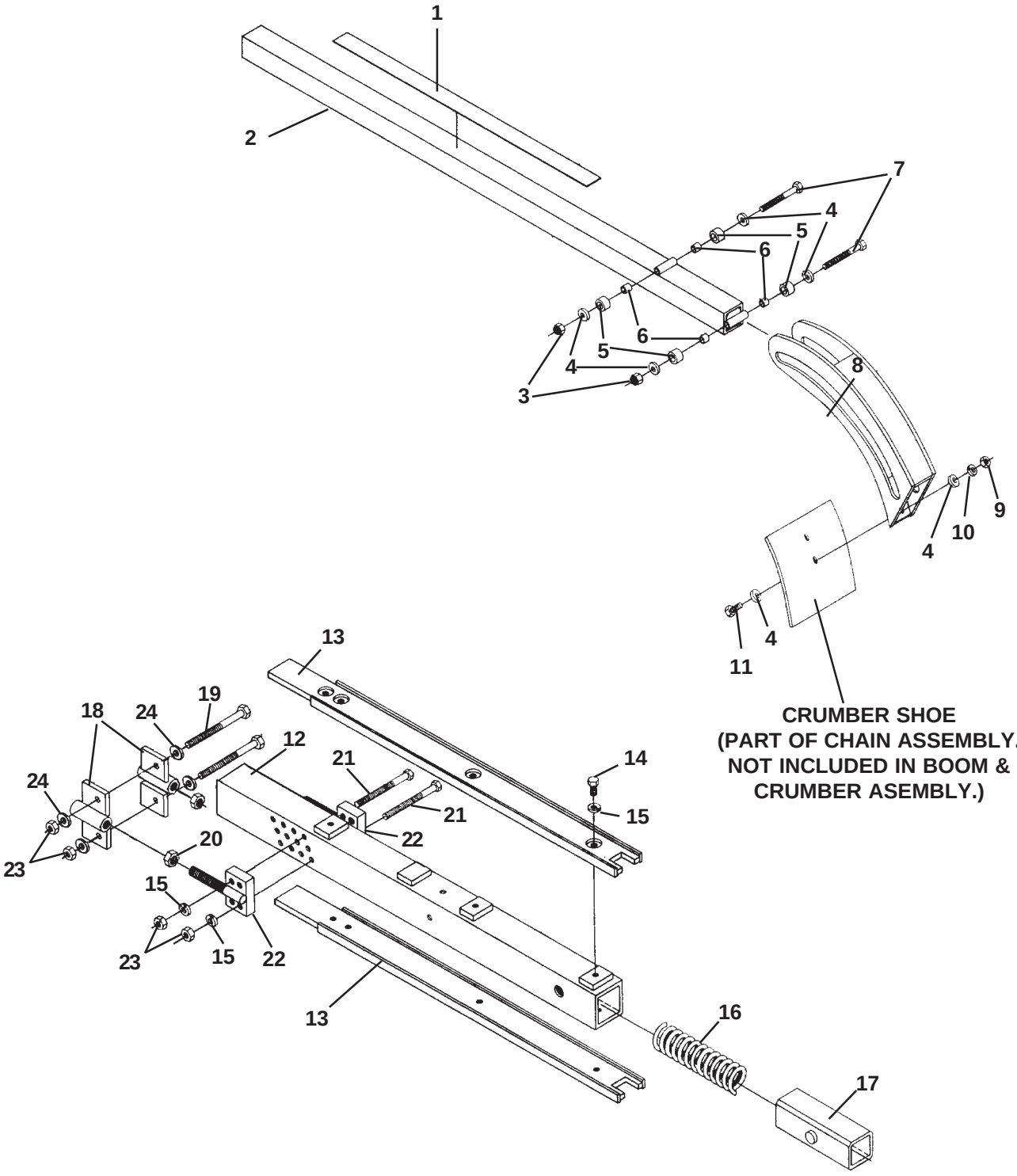
TRENCHER ASSEMBLY

36" BOOM AND CRUMBER
ASSEMBLY #52993

NO	REQ'D	PART NO.	DESCRIPTION
1	2	40161	Decal - Stand Clear
2	1	53069	36" Crumber Bar / Restraint Bar
3	2	1536	.38" UNC Nylock Nut
4	8	1514	.38" Flat Washer
5	4	53038	Crumber Roller
6	4	53039	Crumber Roller Bushing
7	2	1054	.38" UNC X 3.75" Hex Capscrew
8	1	53087	Crumber End
9	2	1226	.38" UNC Hex Nut
10	2	1503	.38" Lock Washer
11	2	1044	.38" UNC X 1.25" Hex Capscrew
12	1	53010	36" Boom
13	2	53116	36" Wear Strip
14	4	1087	.50" UNC X .75" Hex Capscrew
15	4	1505	.50" Lock Washer
16	1	53188	Spring
17	1	53138	Boom Bushing

TRENCHER ASSEMBLY

48" BOOM AND CRUMBER
ASSEMBLY #69832



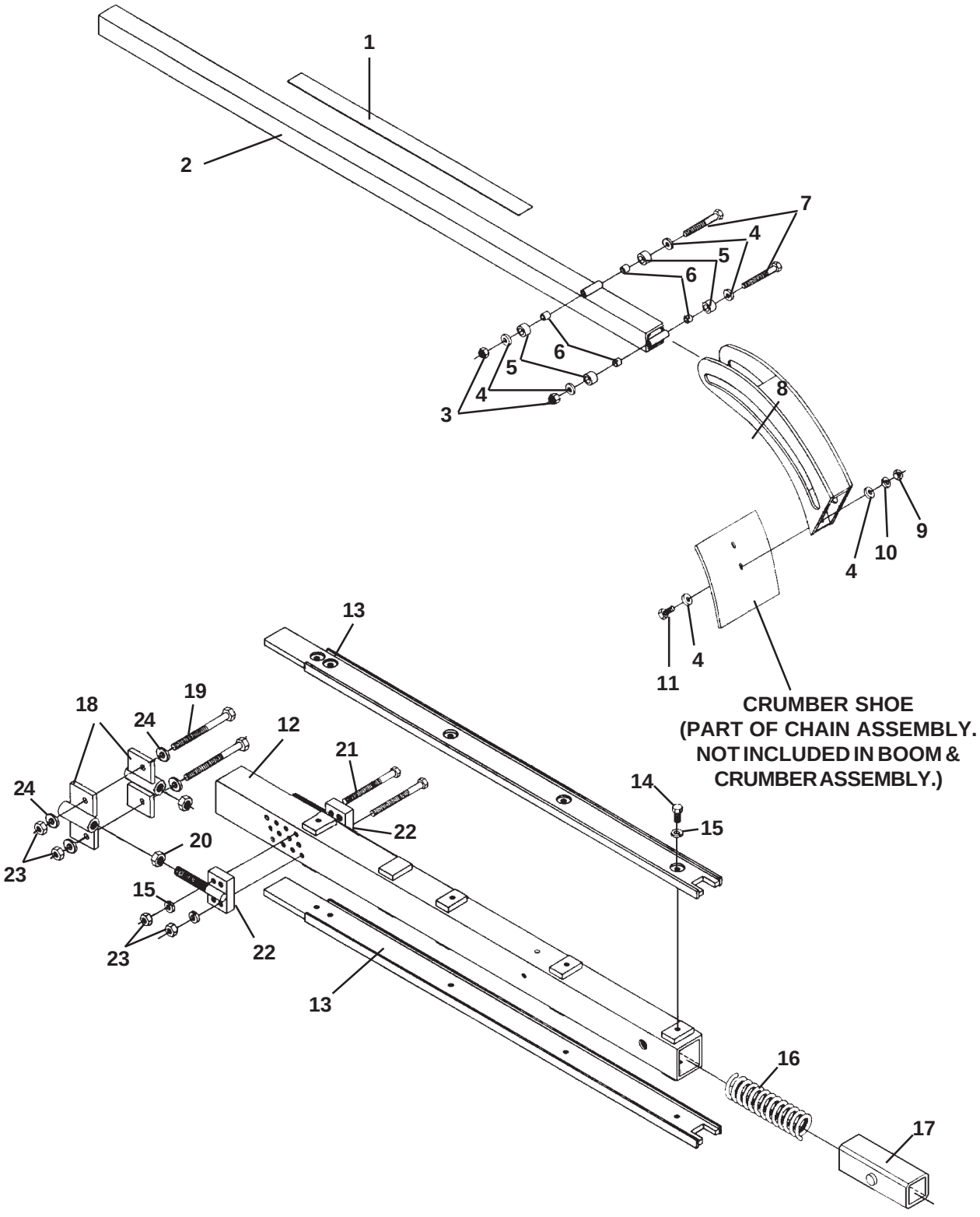
TRENCHER ASSEMBLY

48" BOOM AND CRUMBER
ASSEMBLY #69832

NO	REQ'D	PART NO.	DESCRIPTION
1	2	40161	Decal - Stand Clear
2	1	53068	48" Crumber Bar / Restraint Bar
3	2	1536	.38" UNC Nylock Nut
4	8	1514	.38" Flat Washer
5	4	53038	Crumber Roller
6	4	53039	Crumber Roller Bushing
7	2	1054	.38" UNC X 3.75" Hex Capscrew
8	1	53087	Crumber End
9	2	1226	.38" UNC Hex Nut
10	2	1503	.38" Lock Washer
11	2	1044	.38" UNC X 1.25" Hex Capscrew
12	1	53011	48" Boom
13	2	53117	48" Wear Strip
14	6	1087	.50" UNC X .75" Hex Capscrew
15	8	1505	.50" Lock Washer
16	1	53188	Spring
17	1	53138	Boom Bushing
18	2	56417	Guide Tube
19	2	1981	.50" UNC X 6.50" Hex Capscrew GR 8
20	2	1231	.75" UNC Hex Nut
21	2	1980	.50" UNC X 6.00" Hex Capscrew GR 8
22	2	56416	Adjusting Stud
23	4	1228	.50" UNC Hex Nut
24	4	1646	.50" Flat Hard Washer

TRENCHER ASSEMBLY

60" BOOM AND CRUMBER
ASSEMBLY #69833



5052
9-16-04-3

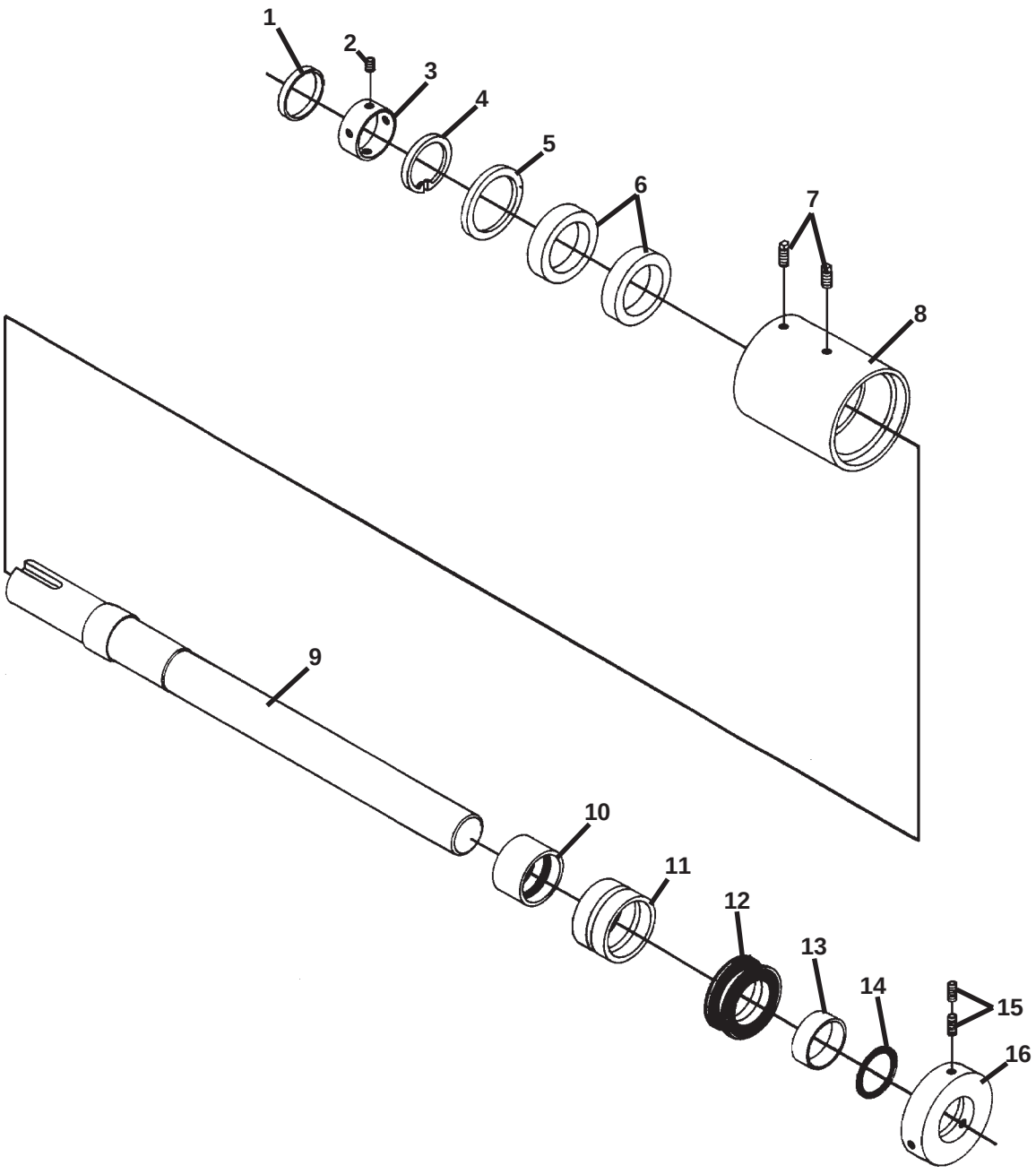
TRENCHER ASSEMBLY

60" BOOM AND CRUMBER
ASSEMBLY #69833

NO	REQ'D	PART NO.	DESCRIPTION
1	2	40161	Decal - Stand Clear
2	1	53067	48" Crumber Bar / Restraint Bar
3	2	1536	.38" UNC Nylock Nut
4	8	1514	.38" Flat Washer
5	4	53038	Crumber Roller
6	4	53039	Crumber Roller Bushing
7	2	1054	.38" UNC X 3.75" Hex Capscrew
8	1	53087	Crumber End
9	2	1226	.38" UNC Hex Nut
10	2	1503	.38" Lock Washer
11	2	1044	.38" UNC X 1.25" Hex Capscrew
12	1	53012	60" Boom
13	2	53118	60" Wear Strip
14	8	1087	.50" UNC X .75" Hex Capscrew
15	10	1505	.50" Lock Washer
16	1	53188	Spring
17	1	53138	Boom Bushing
18	2	56417	Guide Tube
19	2	1981	.50" UNC X 6.50" Hex Capscrew GR 8
20	2	1231	.75" UNC Hex Nut
21	2	1980	.50" UNC X 6.00" Hex Capscrew GR 8
22	2	56416	Adjusting Stud
23	4	1228	.50" UNC Hex Nut
24	4	1646	.50" Flat Hard Washer

TRENCHER ASSEMBLY

HEADSHAFT CARTRIDGE
ASSEMBLY #60001



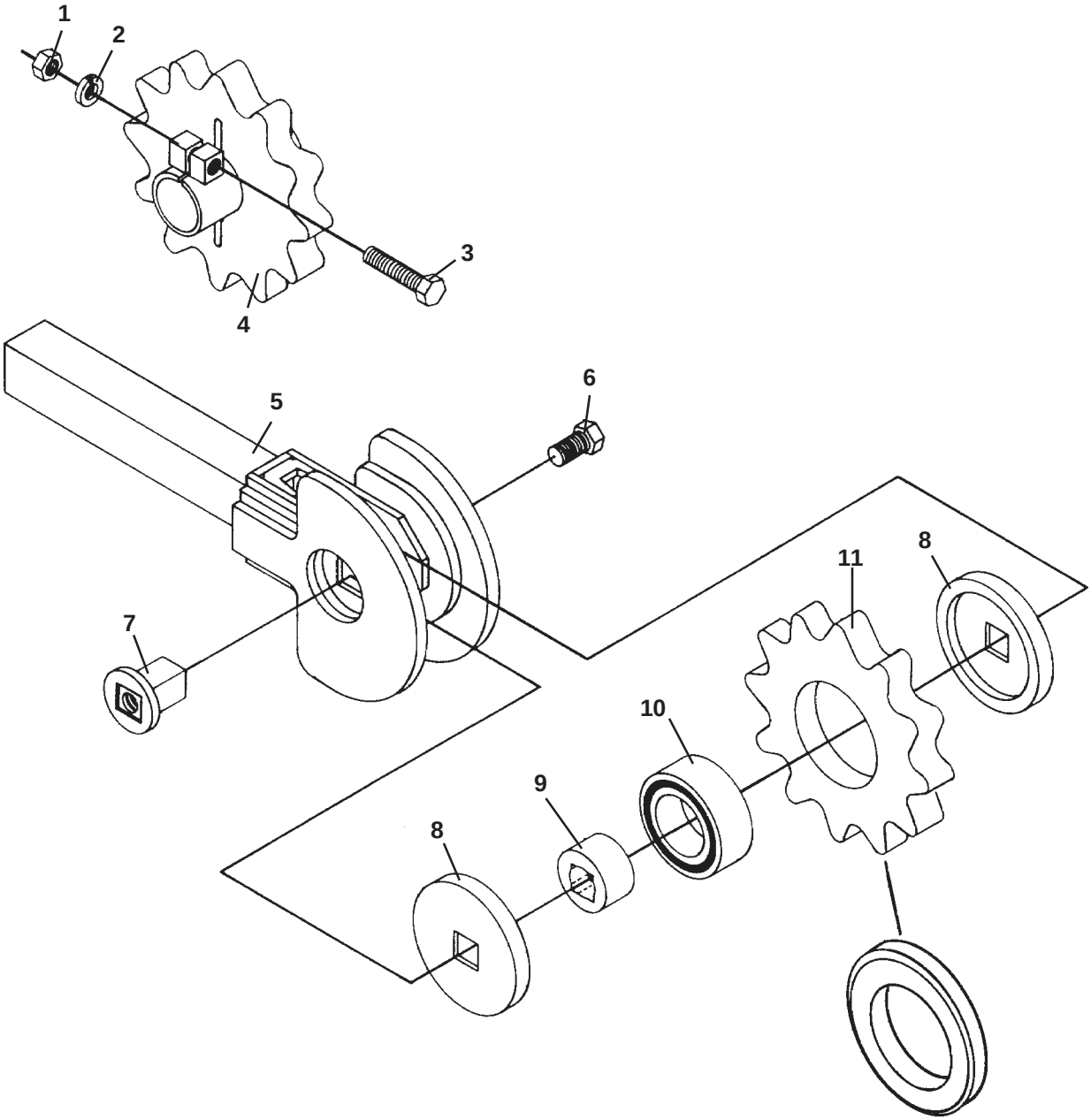
TRENCHER ASSEMBLY

HEADSHAFT CARTRIDGE
ASSEMBLY #60001

NO	REQ'D	PART NO.	DESCRIPTION
1	1	45185	Seal
2	4	1730	Set Screw
3	1	58997	Locking Collar
4	1	1681	Snap Ring
5	VARIES	51737	Metal Shim (2.88" x 3.50" x .002" Thick)
	VARIES	51738	Metal Shim (2.88" x 3.50" x .005" Thick)
	VARIES	51739	Metal Shim (2.88" x 3.50" x .010" Thick)
6	2	51718	Bearing
7	2	3226	Pipe Plug
8	1	59961	Headshaft Housing
9	1	59946	Headshaft
10	1	50484	Inner Race
11	1	50483	Bearing
12	1	45087	Seal
13	1	60404	Spacer Tube
14	1	45085	O-Ring
15	6	1575	Set Screw
16	1	53220	Cap

TRENCHER ASSEMBLY

2.00" PITCH SPROCKET & BOOM END SET
ASSEMBLY #69768



TRENCHER ASSEMBLY

2.00" PITCH SPROCKET & BOOM END SET
ASSEMBLY #69768

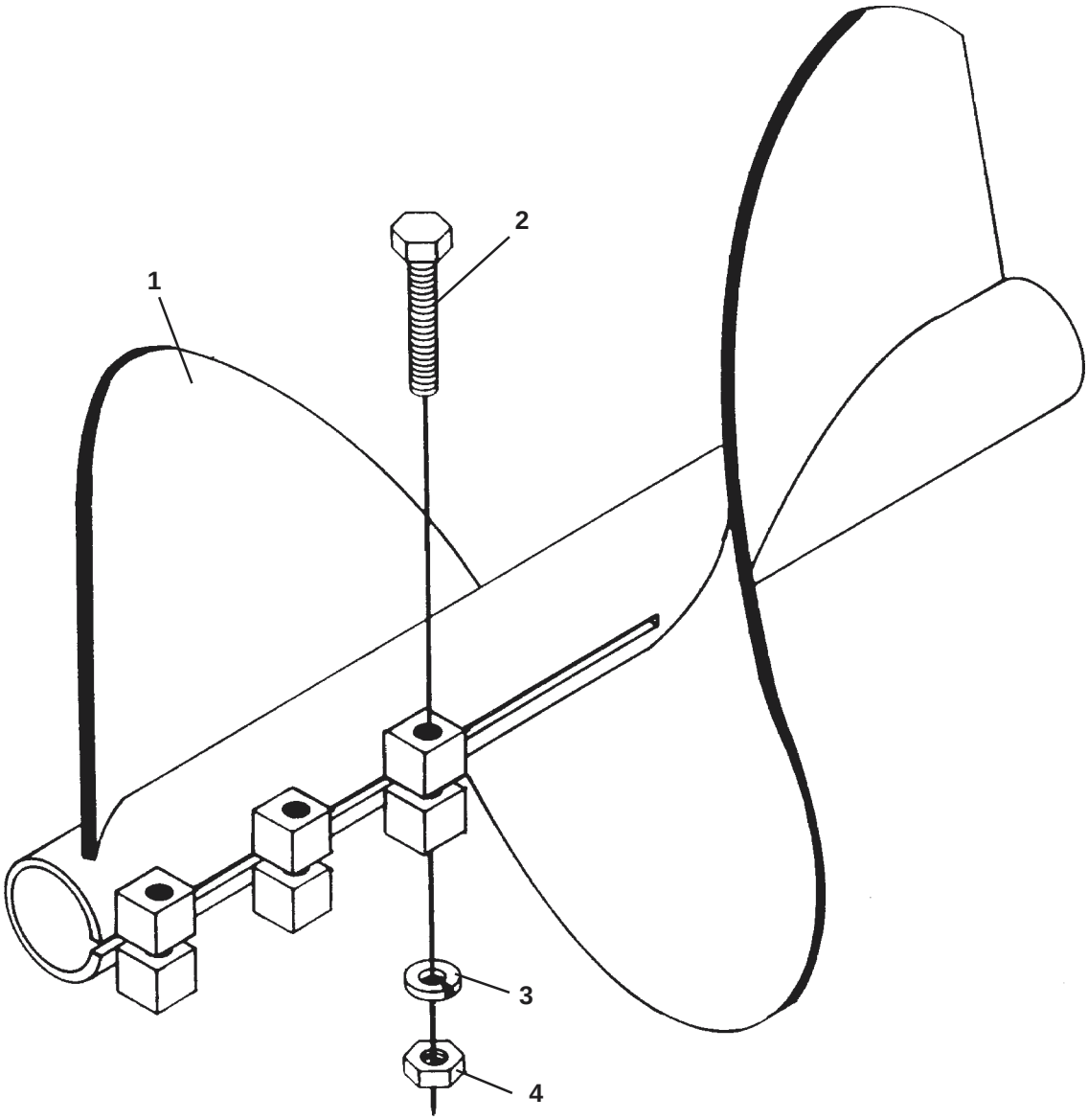
NO	REQ'D	PART NO.	DESCRIPTION
1	2	1230	.62" UNC Hex Nut
2	2	1506	.62" Lock Washer
3	2	1118	.62" UNC X 2.50" Hex Capscrew
4	1	53975	12 Tooth Drive Sprocket - 2.00" Pitch
5	1	80032	Boom End
6	1	1548	.75" UNC X 1.25" Nylock Capscrew
7	1	53132	1.12" Square Pin
8	2	54067	Idler Spacer
9	1	53988	Idler Bearing Hub
10	1	8085	Idler Bearing
11	1	79106 (1)	Idler Wheel

NOTES:

(1) Idler Wheel #79103 replaces Idler Wheel #62718. Effective 6/19/92.

TRENCHER ASSEMBLY

20" AUGER
ASSEMBLY #59000



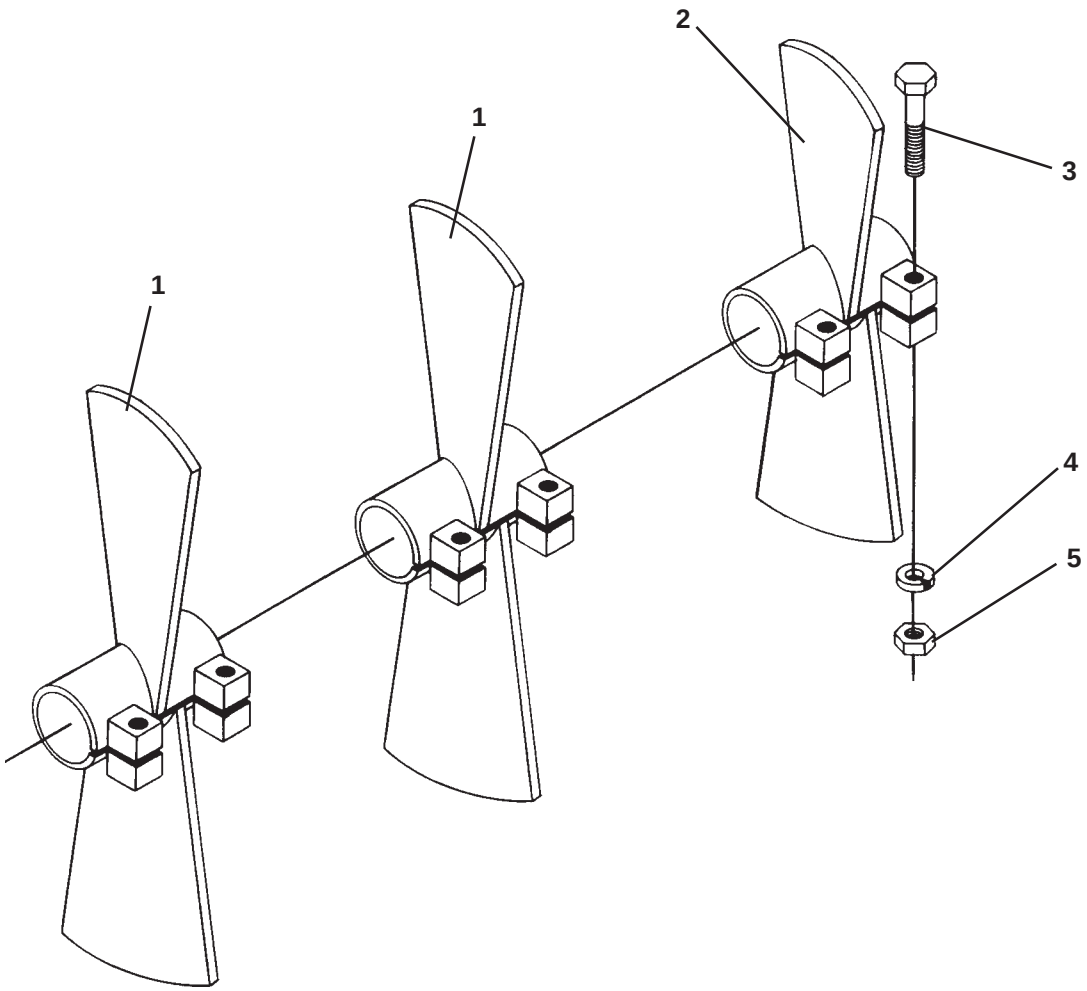
TRENCHER ASSEMBLY

20" AUGER
ASSEMBLY #59000

NO	REQ'D	PART NO.	DESCRIPTION
1	1	59001	Auger
2	3	1095	.50" UNC X 2.75" Hex Capscrew
3	3	1505	.50" Lock Washer
4	3	1228	.50" UNC Hex Nut

TRENCHER ASSEMBLY

SPOIL AUGER - PADDLE
ASSEMBLY #52923



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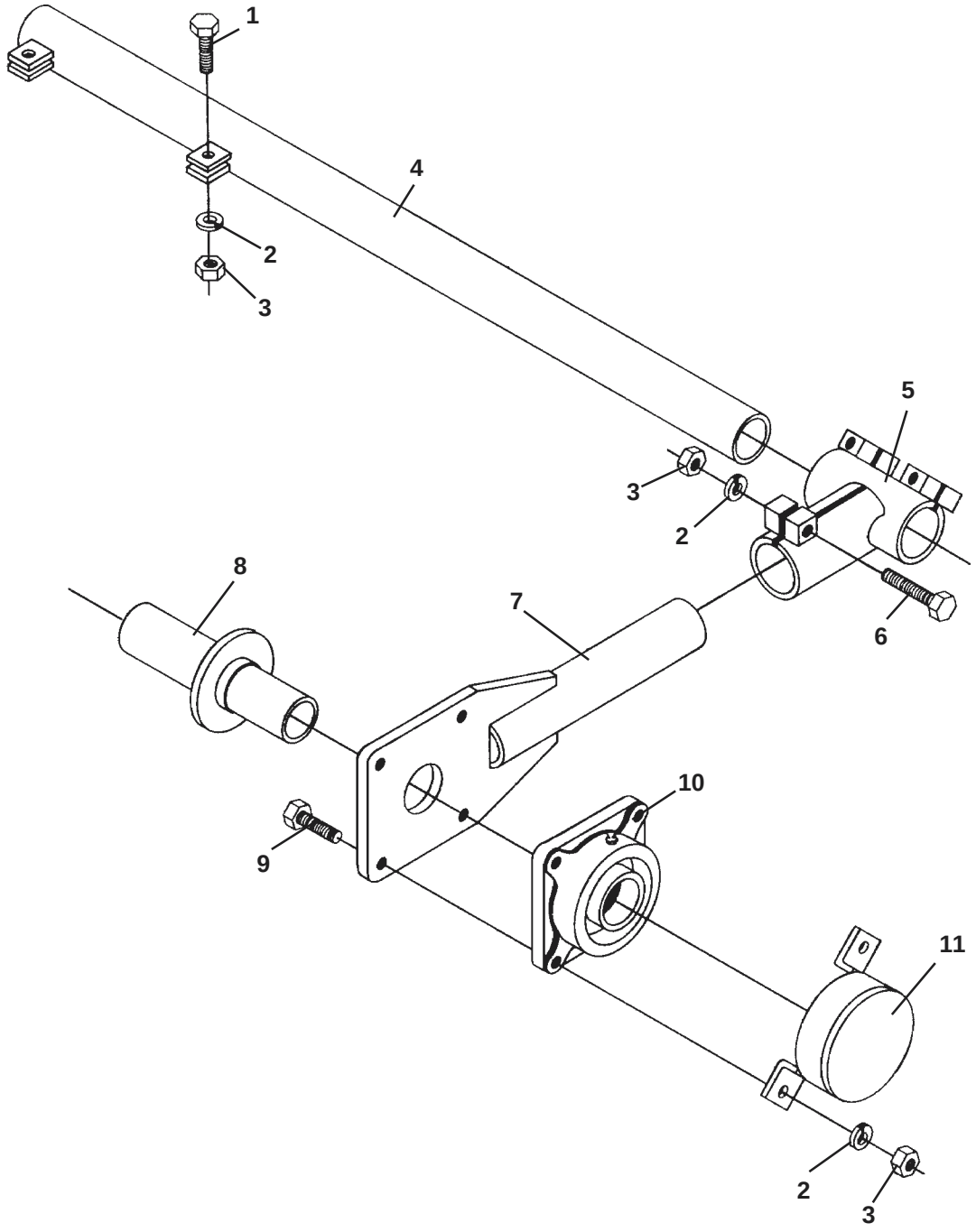
TRENCHER ASSEMBLY

SPOIL AUGER - PADDLE
ASSEMBLY #52923

NO	REQ'D	PART NO.	DESCRIPTION
1	2	53108	18" Auger
2	1	53109	14" Auger
3	6	1094	.50" UNC X 2.50" Hex Capscrew
4	6	1505	.50" Lock Washer
5	6	1228	.50" UNC Hex Nut

TRENCHER ASSEMBLY

OUTBOARD BEARING KIT
ASSEMBLY #63388



TRENCHER ASSEMBLY

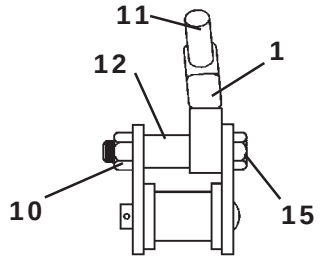
OUTBOARD BEARING KIT
ASSEMBLY #63388

NO	REQ'D	PART NO.	DESCRIPTION
1	2	1090	.50" UNC X 1.50" Hex Capscrew
2	9	1505	.50" Lock Washer
3	9	1228	.50" UNC Hex Nut
4	1	63649	Extension Tube
5	1	62408	Tee Clamp
6	3	1094	.50" UNC X 2.50" Hex Capscrew
7	1	62403	Arm
8	1	62406	Shaft
9	4	1092	.50" UNC X 2.00" Hex Capscrew
10	1	62308	Bearing
11	1	62415	Bearing Cap

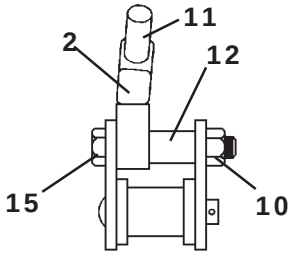
COMBINATION ROCK AND FROST CHAIN

2.00" PITCH - TOOTH EVERY STATION
SERVICE PARTS

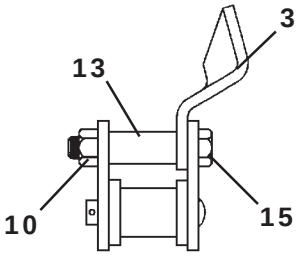
STATION #1



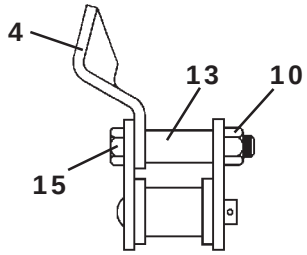
STATION #2



STATION #3



STATION #4



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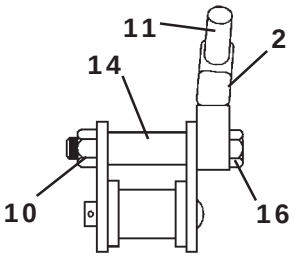

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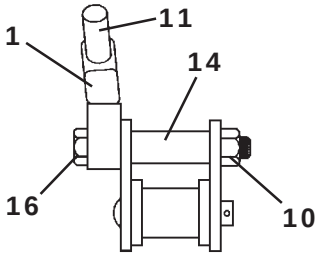

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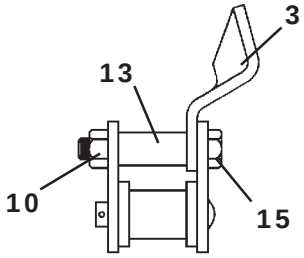
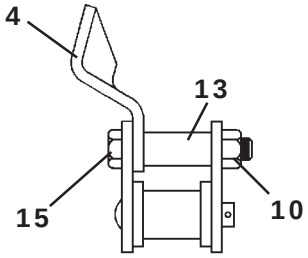
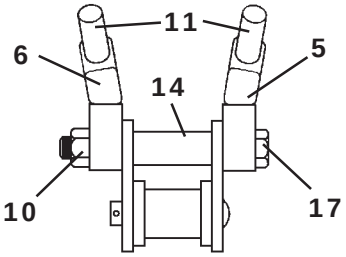


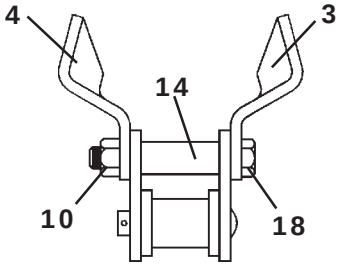
STATION #8



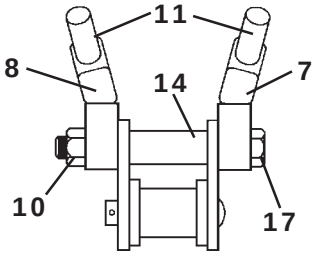
STATION #9



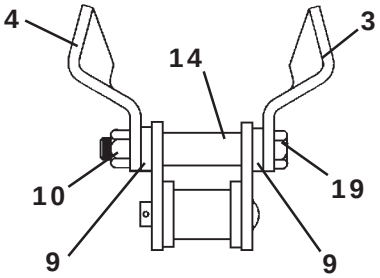
STATION #10



STATION #11



STATION #12



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COMBINATION ROCK AND FROST CHAIN

2.00" PITCH - TOOTH EVERY STATION
SERVICE PARTS

NO	PART NO.	DESCRIPTION
1	83802	Carbide Bit Holder - 4" Right
2	83801	Carbide Bit Holder - 4" Left
3	54432	Cup Cutter - Right
4	54431	Cup Cutter - Left
5	83804	Carbide Bit Holder - 5" Right (1) Weld Spot on Top for Identifying Purposes
6	83803	Carbide Bit Holder - 5" Left (1) Weld Spot on Top for Identifying Purposes
7	83806	Carbide Bit Holder - 6" Right (2) Weld Spots on Top for Identifying Purposes
8	83805	Carbide Bit Holder - 6" Left (2) Weld Spots on Top for Identifying Purposes
9	83800	Spacer - 6" Cut
10	1692	.50" UNF Hex Nut
11	51547	Carbide Bit
12	83798	Tube Spacer (Inside Mount Carbide Bit Holder)
13	54628	Tube Spacer (Inside Mount Cup Cutter)
14	54440	Tube Spacer (Outside Cup or Carbide Bit Holder)
15	1347	.50" UNF X 3.25" Hex Capscrew
16	1349	.50" UNF X 3.75" Hex Capscrew
17	1351	.50" UNF X 4.50" Hex Capscrew
18	1348	.50" UNF X 3.50" Hex Capscrew
19	1350	.50" UNF X 4.00" Hex Capscrew

NOTE: There are weld spots located on the top of the 5" and 6" Carbide Bit Holders to assist in parts identification. One weld spot on the 5" Holders and two weld spots on the 6" Holders.

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN ASSEMBLIES

GENERAL INFORMATION

This page contains a listing of all of the 2.00" pitch digging chain assemblies offered for your trencher. Each chain assembly comes with all necessary teeth and spacers already installed. Just thread the chain onto the trencher and fasten the two ends together with the pin and keeper pin included in the assembly. A crumber shoe of the appropriate width is also included in the chain assembly.

Before you order a new chain, be sure to check for compatibility with corresponding components. You may need to order more than just a chain assembly. You must use a digging boom of the same digging depth as the chain. The crumber bar must also be of the same digging depth. The digging sprocket must also be of the same pitch as the chain. All of these components must match for the trencher to function properly.

Bare 2.00" pitch digging chain (without teeth, spacers, or hardware) can be ordered in any desired length under the part number 79018. Just use this number and then specify the length desired in pitches (example, 52 pitches of chain would be needed for a 36" boom).

2.00" PITCH DIGGING CHAIN ASSEMBLIES

Complete chain assemblies. Includes chain with all teeth and spacers attached. Also includes appropriate width crumber shoe.

CHAIN ASSEMBLIES WITH A TOOTH EVERY STATION

DESCRIPTION (boom used X trench width)	LENGTH OF CHAIN (in 2.00" pitches)	TENSILE STRENGTH	PART NO.
For 30" Boom 6" Wide	48 Pitch	50,000#	80044
For 30" Boom 8" Wide	46 Pitch	50,000#	80045
For 30" Boom 10" Wide	46 Pitch	50,000#	80046
For 30" Boom 12" Wide	46 Pitch	50,000#	80047
For 36" Boom 6" Wide	52 Pitch	50,000#	80048
For 36" Boom 8" Wide	52 Pitch	50,000#	80049
For 36" Boom 10" Wide	52 Pitch	50,000#	80050
For 48" Boom 6" Wide	66 Pitch	50,000#	80051
For 48" Boom 8" Wide	66 Pitch	50,000#	80052
For 60" Boom 6" Wide	80 Pitch	50,000#	80053

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN ASSEMBLIES

2.00" PITCH DIGGING CHAIN ASSEMBLIES				
Complete chain assemblies. Includes chain with all teeth and spacers attached. Also includes appropriate width crumber shoe.				
CHAIN ASSEMBLIES WITH A TOOTH EVERY OTHER STATION				
DESCRIPTION (boom used X trench width)		LENGTH OF CHAIN (in 2.00" pitches)	TENSILE STRENGTH	PART NO.
For 30" Boom	6" Wide	46 Pitch	50,000#	80034
For 30" Boom	8" Wide	46 Pitch	50,000#	80035
For 30" Boom	10" Wide	46 Pitch	50,000#	80036
For 30" Boom	12" Wide	46 Pitch	50,000#	80037
For 36" Boom	6" Wide	52 Pitch	50,000#	80038
For 36" Boom	8" Wide	52 Pitch	50,000#	80039
For 36" Boom	10" Wide	52 Pitch	50,000#	80040
For 48" Boom	6" Wide	66 Pitch	50,000#	80041
For 48" Boom	8" Wide	66 Pitch	50,000#	80042
For 60" Boom	6" Wide	80 Pitch	50,000#	80043

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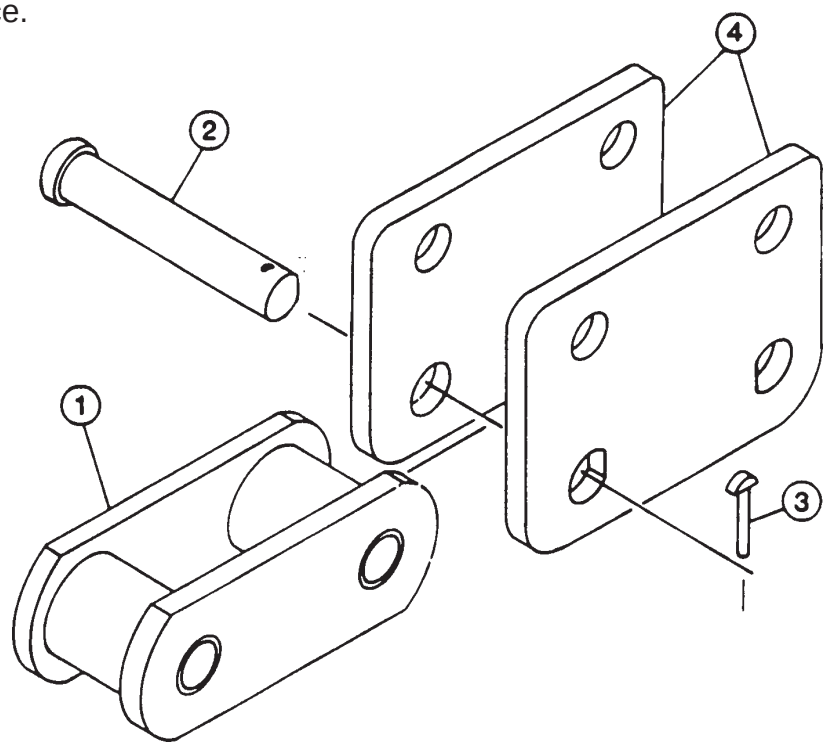
DIGGING CHAIN OPTIONS

2.00" PITCH CHAIN REPLACEMENT PARTS

GENERAL INFORMATION

You can purchase individual chain links and pins for your trencher. These can be used to repair a damaged chain, or lengthen and modify an existing chain. Below is a diagram of the chain's basic components with their descriptions and corresponding part numbers. Use these numbers when ordering. You can also order a complete bare chain (without teeth and spacers) in any length desired. The chain is ordered under part number 79018 for 2.00" Pitch. Just specify the length you want in pitches. (See "2.00" PITCH DIGGING CHAIN ASSEMBLIES" chart located in this section.)

When pinning links of chain together, first tap the pin through the connector link with the perfectly round holes and then on through the inner link. Place the second connector link in position, you will note that the end of the pin has one side flattened. Rotate the pin until its flat side lines up with the corresponding flat side of the connector link hole and tap the pin on through. Place the chain keeper pin into the hole at the end of the main pin and tap down tight. Finally, bend the end of the keeper pin over to secure it in place.



NO.	REQ'D	PART NO.	DESCRIPTION
1	Varies	54757	Inner Link
2	Varies	54731	Pin
3	Varies	54732	Chain Keeper Pin
4	Varies	54730	Connector Link includes (2) Pins #54731 and (2) Chain Keeper Pins #54732

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING TOOTH STATION SEQUENCE

GENERAL INFORMATION

Every second link on a digging chain is a special link called a digging station. These digging station links are designed so that digging teeth can be bolted onto them in a variety of configurations. It is the number and the make up of these different digging stations that make each chain unique.

The following tables show the number of digging stations there are in each available 2.00" pitch digging chain. The digging tooth make up of each digging station is given in code. The key to the code is located at the below. Thus these charts will tell you what kind of digging tooth arrangement is at each digging station on each digging chain assembly. The actual parts break down on each digging tooth arrangement is shown on the "Digging Tooth Station Break Down" diagrams located in this section following the charts.

DIGGING TOOTH STATION KEY

CR - CENTER CUTTER, RIGHT	**6R - 6" RIGHT STATION**	**8R - 8" RIGHT STATION**
CL - CENTER CUTTER, LEFT	**6L - 6" LEFT STATION**	**8L - 8" LEFT STATION**
10 - 10" STATION	**12 - 12" STATION**	**B - BLANK STATION**

TOOTH EVERY STATION

30" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6"	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L	6R	6L	CR	6L	6R	6L	6R	6L	6R	CL	6R
8"	CR	6L	6R	8L	8R	6L	6R	8L	8R	CL	6R	6L	8R	8L	6R	6L	8R	8L	CR	6L	6R	8L	8R
10"	CR	6L	6R	8L	8R	10	6L	6R	8L	8R	10	CL	6R	6L	8R	8L	10	6R	6L	8R	8L	10	6R
12"	CR	6L	6R	8L	8R	10	12	6L	6R	8L	8R	10	12	CL	6R	6L	8R	8L	10	12	6R	6L	8R

36" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
6"	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L	6R	6L	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L
8"	CR	6L	6R	8L	8R	6L	6R	8L	8R	CL	6R	6L	8R	8L	6R	6L	8R	8L	CR	6L	6R	8L	8R	6L	6R	6L
10"	CR	6L	6R	8L	8R	10	6L	6R	8L	8R	10	CL	6R	6L	8R	8L	10	6R	6L	8R	8L	10	CR	6L	6R	8L

48" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
6"	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L	6R	6L	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L	6R	6L	CR	6L	6R	6L	6R
8"	CR	6L	6R	8L	8R	6L	6R	8L	8R	CL	6R	6L	8R	8L	6R	6L	8R	8L	CR	6L	6R	8L	8R	6L	6R	8L	8R	CL	6R	6L	8R	8L	6R

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING TOOTH STATION SEQUENCE

TOOTH EVERY STATION

60" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6"	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L	6R	6L	CR	6L	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L	6R	6L	CR	6L

	31	32	33	34	35	36	37	38	39	40
6"	6R	6L	6R	6L	6R	CL	6R	6L	6R	6L

TOOTH EVERY OTHER STATION

30" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6"	CR	B	6L	B	6R	B	6L	B	6R	B	6L	B	6R	B	CL	B	6R	B	6L	B	6R	B	6L
8"	CR	B	6L	B	6R	B	8L	B	8R	B	6L	B	6R	B	8L	B	8R	B	CL	B	6R	B	6L
10"	CR	B	6L	B	6R	B	8L	B	8R	B	10	B	6L	B	6R	B	8L	B	8R	B	10	B	6L
12"	CR	B	6L	B	6R	B	8L	B	8R	B	10	B	12	B	6L	B	8R	B	8L	B	10	B	12

36" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
6"	CR	B	6L	B	6R	B	6L	B	6R	B	6L	B	6R	B	CL	B	6R	B	6L	B	6R	B	6L	B	6R	B
8"	CR	B	6L	B	6R	B	8L	B	8R	B	6L	B	6R	B	8L	B	8R	B	CL	B	6R	B	6L	B	8R	B
10"	CR	B	6L	B	6R	B	8L	B	8R	B	10	B	CL	B	6L	B	6R	B	8L	B	8R	B	10	B	6L	B

48" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
6"	CR	B	6L	B	6R	B	6L	B	6R	B	6L	B	6R	B	CL	B	6L	B	6R	B	6L	B	6R	B	CL	B	6R	B	6L	B	6R	B	6L
8"	CR	B	6L	B	6R	B	8L	B	8R	B	6L	B	6R	B	8L	B	8R	B	CL	B	6L	B	6R	B	8L	B	8R	B	6L	B	6R	B	8L

60" BOOM
DIGGING TOOTH STATIONS

TRENCH WIDTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6"	CR	B	6L	B	6R	B	6L	B	6R	B	6L	B	6R	B	CL	B	6R	B	6L	B	6R	B	6L	B	6R	B	6L	B	CR	B

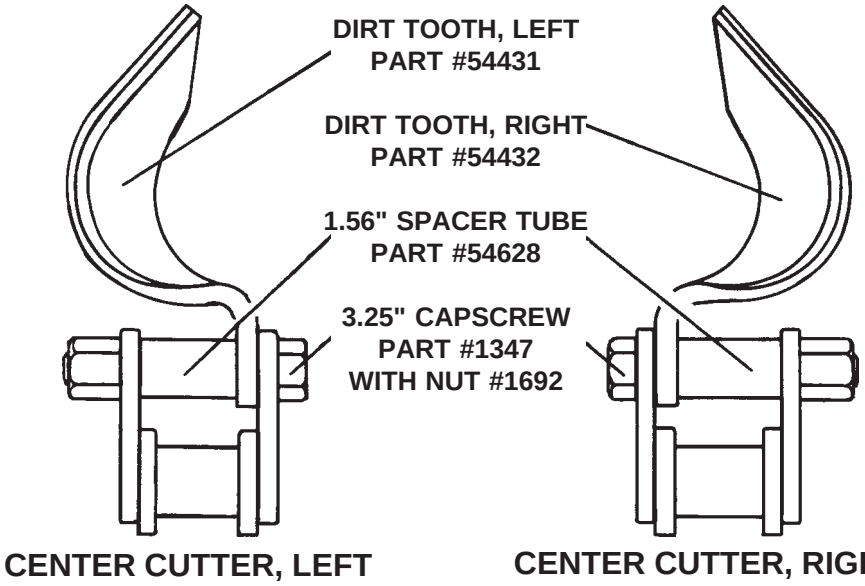
	31	32	33	34	35	36	37	38	39	40
6"	6L	B	6R	B	6L	B	6R	B	6L	B

DIGGING CHAIN OPTIONS

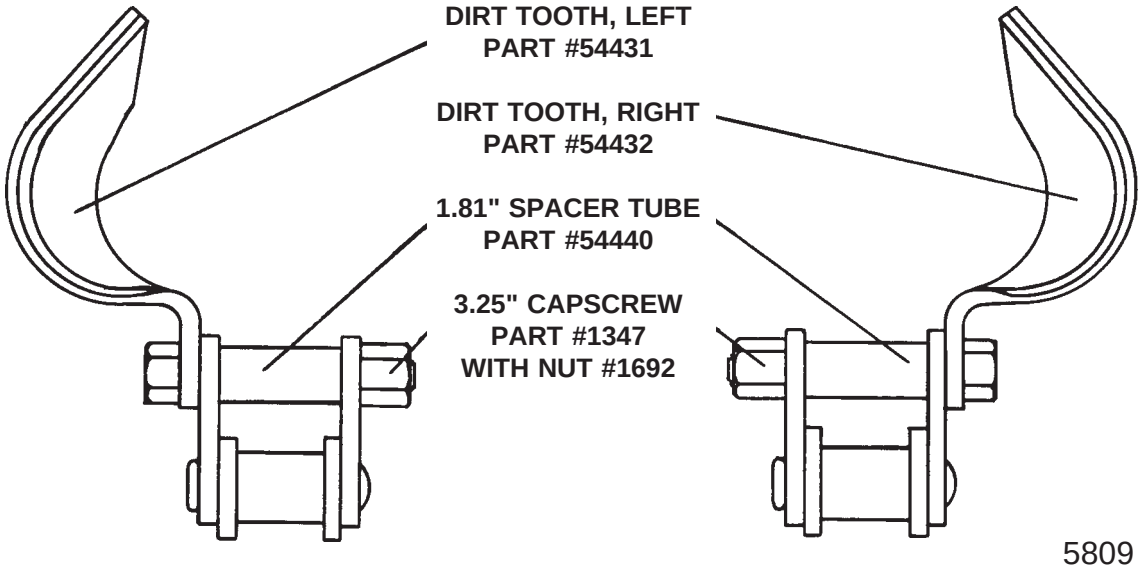
2.00" PITCH DIGGING TOOTH STATION BREAK DOWN

GENERAL INFORMATION

The following diagrams are the complete parts break downs of all the different digging tooth arrangements used on the digging stations for 2.00" pitch chains. The diagrams are frontal views according to the digging chain direction of travel. All 2.00" pitch chains are made up of a combination of some or all of these various digging tooth arrangements. See the "2.00" Pitch Digging Tooth Station Sequence Charts" (located earlier in this section) to find out how the arrangements are used for the various digging chains.



CENTER CUTTER, LEFT **CENTER CUTTER, RIGHT**



6" LEFT STATION **6" RIGHT STATION**

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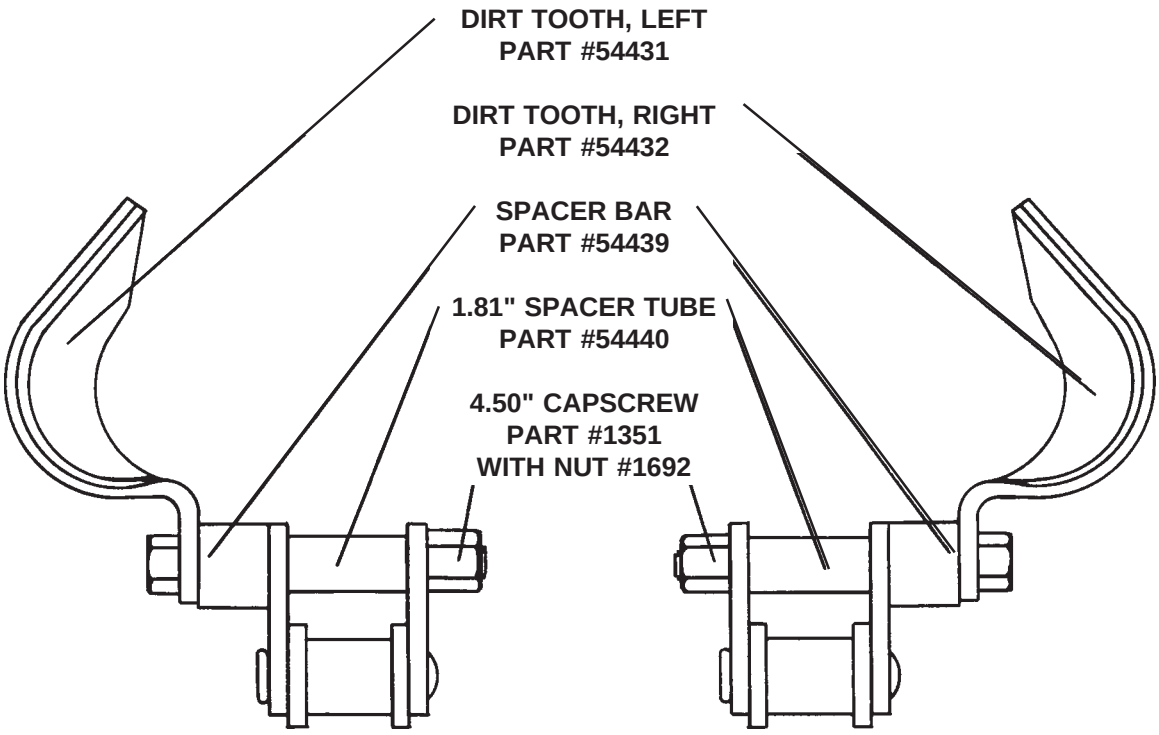
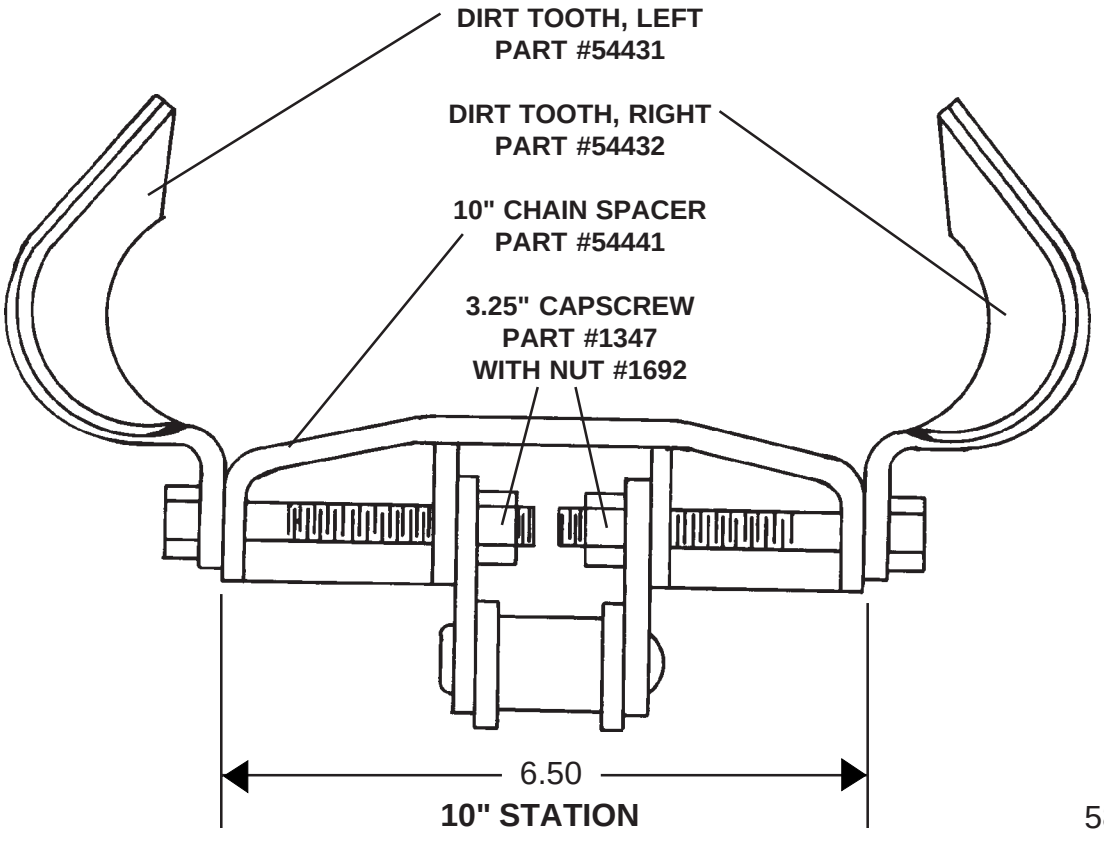
J

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING TOOTH STATION BREAK DOWN



8" LEFT STATION **8" RIGHT STATION**



10" STATION

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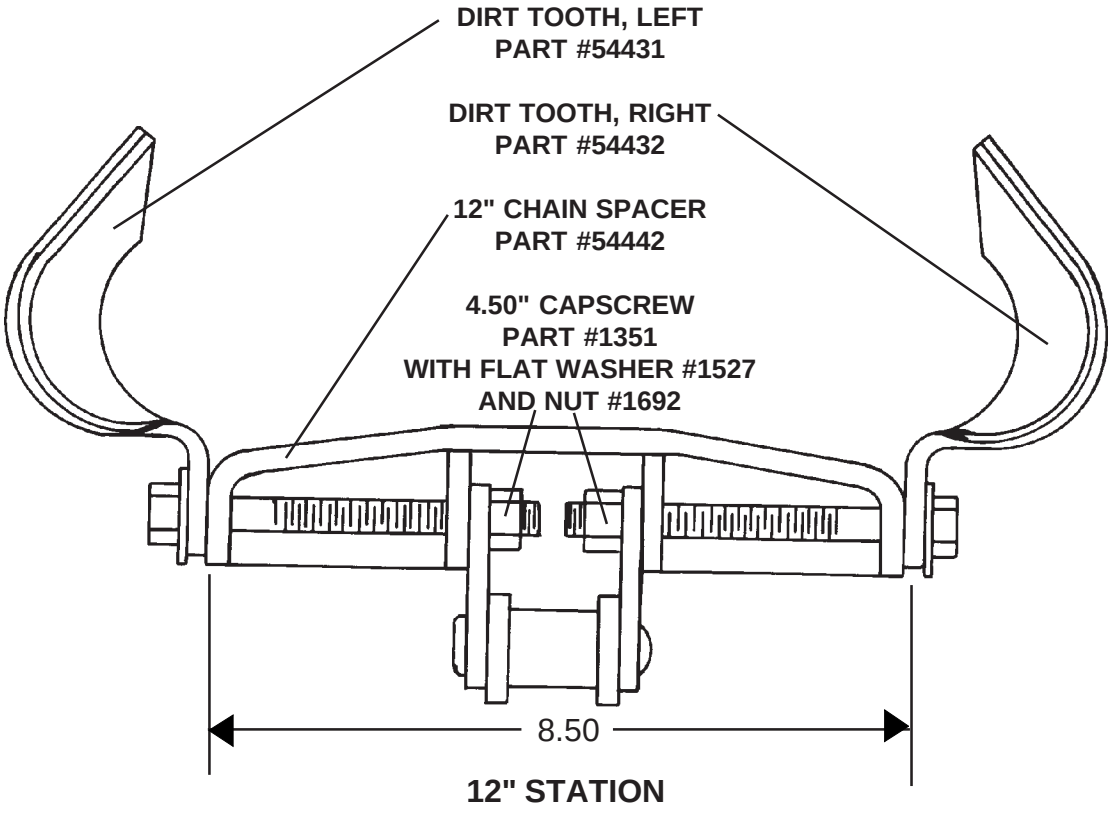
DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING TOOTH STATION BREAK DOWN



12" STATION

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

GENERAL INFORMATION

Digging chains can be modified to dig trenches in a variety of widths. By modifying an existing chain, it can be used to dig the width you want and thus save going the expense of a whole new digging chain assembly. This can be a considerable cost savings, however it is more work than just installing a new digging chain assembly.

The information given below is a complete listing of all the possible chain width conversions for 2.00" pitch chain for your trencher. Included in the listing is a break down of all the parts (including part numbers and quantities) needed to make the conversion. Simply install the new parts (and rearrange the old parts) so that the finished chain construction follows that described in the “Digging Tooth Station Sequence” chart and the “Digging Tooth Station Break Down” diagrams for 2.00" pitch chain (located elsewhere in this section).

It should be noted that this information only applies to modifying chains of the same length and pitch. All components must be of the same pitch. You cannot intermix components of different pitch.

CHAIN CONVERSIONS FOR 30" BOOMS - TOOTH EVERY STATION

1) FROM 6" WIDE TO 8" WIDE

REQ’D	PART NO.	DESCRIPTION
20	1351	.50"UNF X 4.50" Capscrew
2	54440	Spacer Tube
10	54439	8" Spacer
1	53055	8" Crumber Shoe

2) FROM 8" WIDE TO 6" WIDE

REQ’D	PART NO.	DESCRIPTION
20	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
1	53054	6" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

3) FROM 6" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1692	.50" UNF High Hex Nut
16	1351	.50"UNF X 4.50" Capscrew
2	54431	Left Tooth
2	54432	Right Tooth
4	54441	10" Chain Spacer
1	53058	10" Crumber Shoe
8	54439	8" Spacer

4) FROM 10" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1347	.50"UNF X 3.25" Capscrew
4	54628	Spacer Tube
4	54440	Spacer Tube
1	53054	6" Crumber Shoe

5) FROM 6" WIDE TO 12" WIDE

REQ'D	PART NO.	DESCRIPTION
12	1692	.50" UNF High Hex Nut
26	1351	.50"UNF X 4.50" Capscrew
12	1527	.50" SAE Flat Washer
3	54431	Left Tooth
3	54432	Right Tooth
3	54441	10" Chain Spacer
3	54442	12" Chain Spacer
1	53059	12" Crumber Shoe
7	54439	8" Spacer

6) FROM 12" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
14	1347	.50"UNF X 3.25" Capscrew
4	54628	Spacer Tube
8	54440	Spacer Tube
1	53054	6" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

7) FROM 8" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1692	.50" UNF High Hex Nut
12	1347	.50"UNF X 3.25" Capscrew
2	54431	Left Tooth
2	54432	Right Tooth
4	54441	10" Chain Spacer
1	53058	10" Crumber Shoe

8) FROM 10" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1351	.50"UNF X 4.50" Capscrew
2	54628	Spacer Tube
6	54440	Spacer Tube
2	54439	8" Spacer
1	53055	8" Crumber Shoe

9) FROM 8" WIDE TO 12" WIDE

REQ'D	PART NO.	DESCRIPTION
12	1692	.50" UNF High Hex Nut
6	1347	.50"UNF X 3.25" Capscrew
6	1351	.50"UNF X 4.50" Capscrew
12	1527	.50" SAE Flat Washer
3	54431	Left Tooth
3	54432	Right Tooth
3	54441	10" Chain Spacer
3	54442	12" Chain Spacer
1	53059	12" Crumber Shoe

10) FROM 12" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
2	54628	Spacer Tube
10	54440	Spacer Tube
3	54439	8" Spacer
1	53055	8" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

11) FROM 10" WIDE TO 12" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1692	.50" UNF High Hex Nut
10	1351	.50"UNF X 4.50" Capscrew
12	1527	.50" SAE Flat Washer
1	54431	Left Tooth
1	54432	Right Tooth
3	54442	12" Chain Spacer
1	53059	12" Crumber Shoe

12) FROM 12" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
6	1347	.50"UNF X 3.25" Capscrew
4	54440	Spacer Tube
1	54441	10" Chain Spacer
1	53058	10" Crumber Shoe

CHAIN CONVERSIONS FOR 36" BOOMS - TOOTH EVERY STATION

1) FROM 6" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
20	1351	.50"UNF X 4.50" Capscrew
2	54440	Spacer Tube
10	54439	8" Spacer
1	53055	8" Crumber Shoe

2) FROM 8" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
20	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
1	53054	6" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

3) FROM 6" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1692	.50" UNF High Hex Nut
18	1351	.50"UNF X 4.50" Capscrew
2	54431	Left Tooth
2	54432	Right Tooth
4	54441	10" Chain Spacer
1	53058	10" Crumber Shoe
9	54439	8" Spacer

4) FROM 10" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
10	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
6	54440	Spacer Tube
1	53054	6" Crumber Shoe

5) FROM 8" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1692	.50" UNF High Hex Nut
10	1347	.50"UNF X 3.25" Capscrew
2	54431	Left Tooth
2	54432	Right Tooth
4	54441	10" Chain Spacer
1	53058	10" Crumber Shoe

6) FROM 10" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
2	1351	.50"UNF X 4.50" Capscrew
8	54440	Spacer Tube
1	54439	8" Spacer
1	53055	8" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

CHAIN CONVERSIONS FOR 48" BOOMS - TOOTH EVERY STATION

1) FROM 6" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
28	1351	.50"UNF X 4.50" Capscrew
2	54440	Spacer Tube
14	54439	8" Spacer
1	53055	8" Crumber Shoe

2) FROM 8" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
28	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
1	53054	6" Crumber Shoe

CHAIN CONVERSIONS FOR 30" BOOMS - TOOTH EVERY OTHER STATION

1) FROM 6" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1351	.50"UNF X 4.50" Capscrew
4	54439	8" Spacer
1	53055	8" Crumber Shoe

2) FROM 8" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1347	.50"UNF X 3.25" Capscrew
1	53054	6" Crumber Shoe

3) FROM 6" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1692	.50" UNF High Hex Nut
8	1351	.50"UNF X 4.50" Capscrew
1	54431	Left Tooth
1	54432	Right Tooth
2	54441	10" Chain Spacer
1	53058	10" Crumber Shoe
4	54439	8" Spacer

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

4) FROM 10" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
2	54440	Spacer Tube
1	53054	6" Crumber Shoe

5) FROM 6" WIDE TO 12" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1692	.50" UNF High Hex Nut
16	1351	.50"UNF X 4.50" Capscrew
8	1527	.50" SAE Flat Washer
2	54431	Left Tooth
2	54432	Right Tooth
2	54441	10" Chain Spacer
2	54442	12" Chain Spacer
1	53059	12" Crumber Shoe
4	54439	8" Spacer

6) FROM 12" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
6	54440	Spacer Tube
1	53054	6" Crumber Shoe

7) FROM 8" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1692	.50" UNF High Hex Nut
4	1347	.50"UNF X 3.25" Capscrew
1	54431	Left Tooth
1	54432	Right Tooth
2	54441	10" Chain Spacer
1	53058	10" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

8) FROM 10" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
2	54628	Spacer Tube
2	54440	Spacer Tube
1	53055	8" Crumber Shoe

9) FROM 8" WIDE TO 12" WIDE

REQ'D	PART NO.	DESCRIPTION
8	1692	.50" UNF High Hex Nut
8	1351	.50"UNF X 4.50" Capscrew
8	1527	.50" SAE Flat Washer
2	54431	Left Tooth
2	54432	Right Tooth
2	54441	10" Chain Spacer
2	54442	12" Chain Spacer
1	53059	12" Crumber Shoe

10) FROM 12" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
2	54628	Spacer Tube
6	54440	Spacer Tube
1	53055	8" Crumber Shoe

11) FROM 10" WIDE TO 12" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1692	.50" UNF High Hex Nut
8	1351	.50"UNF X 4.50" Capscrew
8	1527	.50" SAE Flat Washer
1	54431	Left Tooth
1	54432	Right Tooth
2	54442	12" Chain Spacer
1	53059	12" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

12) FROM 12" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1347	.50"UNF X 3.25" Capscrew
4	54440	Spacer Tube
1	53058	10" Crumber Shoe

CHAIN CONVERSIONS FOR 36" BOOMS - TOOTH EVERY OTHER STATION

1) FROM 6" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
10	1351	.50"UNF X 4.50" Capscrew
5	54439	8" Spacer
1	53055	8" Crumber Shoe

2) FROM 8" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
10	1347	.50"UNF X 3.25" Capscrew
1	53054	6" Crumber Shoe

3) FROM 6" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1692	.50" UNF High Hex Nut
8	1351	.50"UNF X 4.50" Capscrew
1	54431	Left Tooth
2	54441	10" Chain Spacer
1	53058	10" Crumber Shoe
4	54439	8" Spacer

4) FROM 10" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1347	.50"UNF X 3.25" Capscrew
4	54440	Spacer Tube
1	53054	6" Crumber Shoe

DIGGING CHAIN OPTIONS

2.00" PITCH DIGGING CHAIN WIDTH CONVERSIONS

5) FROM 8" WIDE TO 10" WIDE

REQ'D	PART NO.	DESCRIPTION
4	1692	.50" UNF High Hex Nut
6	1347	.50"UNF X 3.25" Capscrew
2	54431	Left Tooth
2	54441	10" Chain Spacer
1	53058	10" Crumber Shoe

6) FROM 10" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
2	1351	.50"UNF X 4.50" Capscrew
4	54440	Spacer Tube
1	54439	8" Spacer
1	53055	8" Crumber Shoe

CHAIN CONVERSIONS FOR 48" BOOMS - TOOTH EVERY OTHER STATION

1) FROM 6" WIDE TO 8" WIDE

REQ'D	PART NO.	DESCRIPTION
14	1351	.50"UNF X 4.50" Capscrew
2	54440	Spacer Tube
7	54439	8" Spacer
1	53055	8" Crumber Shoe

2) FROM 8" WIDE TO 6" WIDE

REQ'D	PART NO.	DESCRIPTION
14	1347	.50"UNF X 3.25" Capscrew
2	54628	Spacer Tube
1	53054	6" Crumber Shoe

GENERAL INFORMATION

Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to an absolute minimum. However, it is very important that these maintenance functions be performed as described below.

CAUTION! **Always choose level and hard ground to park the tractor on and set the brake so that the tractor cannot roll. Never perform maintenance on the trencher when the tractor engine is running.**

The main part of the maintenance procedure is proper lubrication. This information is covered in detail in Section "H". Be sure to follow the recommended lubrication time intervals. This is crucial to your trencher's longevity.

Trenchers are subject to extreme vibration due to their very nature. Be sure to check the trencher and its mounting daily for loose bolts and hardware. Tighten according to the bolt torque specification charts found in Section "O".

THE HYDRAULIC SYSTEM

WARNING! **Escaping fluid under pressure can have sufficient force to penetrate the skin causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.**

Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.

The most common cause of premature wear and malfunctioning of hydraulic system components is the ingress of contaminants, incorrect pressure and pump cavitation.

Observe a high standard of cleanliness when doing valve or cylinder maintenance. During maintenance cover or plug ends of disconnected hydraulic lines to prevent contaminants from entering. Use clean oil and a clean container when adding oil for hydraulic purposes. Use the tractor manufacturer's recommended hydraulic oil.

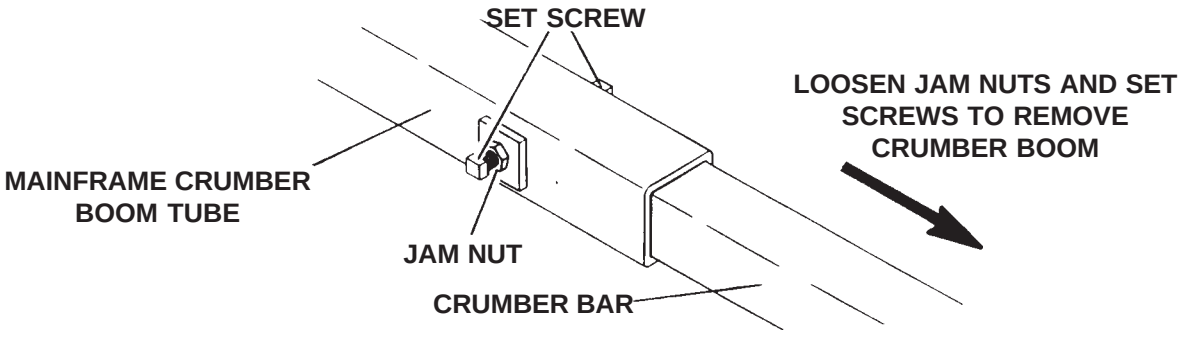
Refer to your hydraulic hose circuit if in doubt about the correct connection.

DIGGING CHAIN REMOVAL

1. To remove digging chain, position trencher boom in transport position and install jack stands under trencher mainframe to achieve ground clearance and to support trencher.

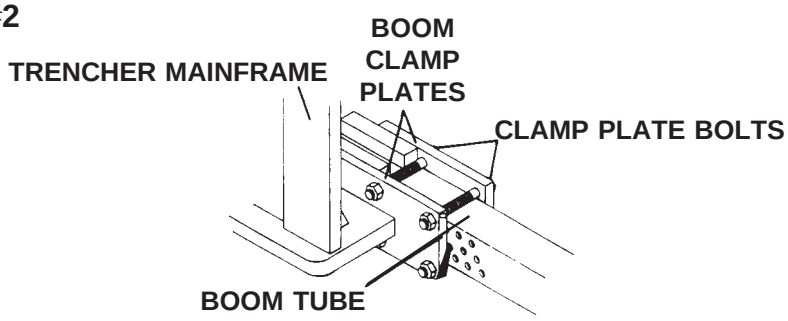
2. Remove crumber assembly by loosening two jam nuts and set screws. Pull the crumber bar / personal restraint bar out of its support tube. See Figure #1

FIGURE #1



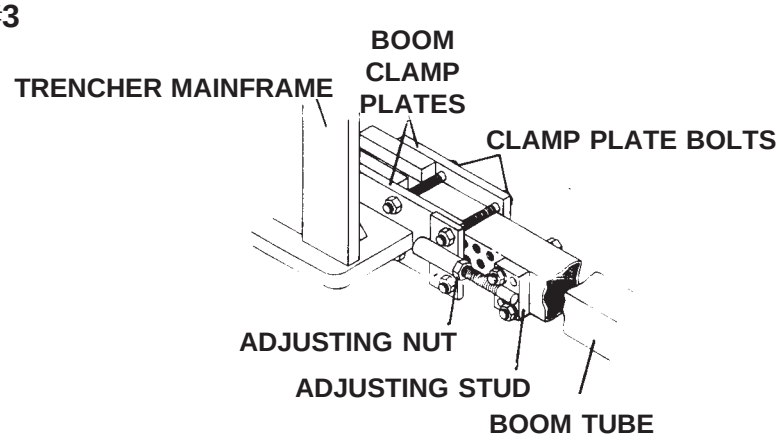
3. Relieve the chain tension. See Figures #2 and #3

FIGURE #2



LOOSEN THE FOUR CLAMP PLATE BOLTS (THIS ALLOWS THE BOOM TUBE TO SLIDE LOOSENING THE DIGGING CHAIN.)

FIGURE #3

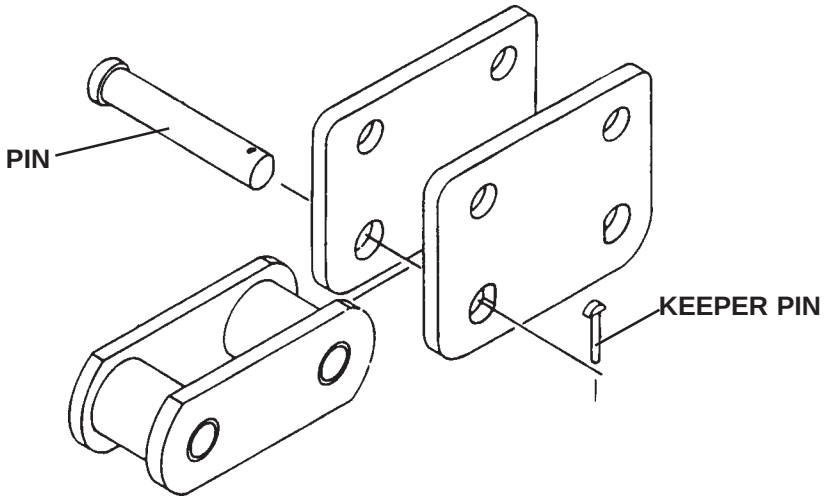


LOOSEN THE FOUR CLAMP PLATE BOLTS AND TURN ADJUSTING NUT COUNTER CLOCKWISE UNTIL TENSION IS RELEASED

CAUTION! **Once the digging chain has been removed the boom and boom end idler are free to come off. Be careful that these components do not fall off and possibly injure you or a bystander.**

4. Remove one of the chain pins by straightening the chain keeper pin and removing it with a pliers. The pin can now be pulled or driven out. See Figure #4

FIGURE #4



5. Carefully remove the digging chain from the boom end idler and drive sprocket.

REVERSE THE PROCEDURE TO REINSTALL THE DIGGING CHAIN.

HEADSHAFT DRIVE SPROCKET REMOVAL

1. To remove the headshaft drive sprocket, first remove the digging chain and boom.

2. Remove the spiral auger by removing the three clamp bolts and slide the auger off the headshaft. (Use a wedge or screwdriver to spread the clamp for easy installation or removal.)

3. Remove the headshaft drive sprocket by removing the two clamp bolts and sliding the sprocket off the headshaft. (Use a wedge or screwdriver to spread the clamp for easy installation or removal.)

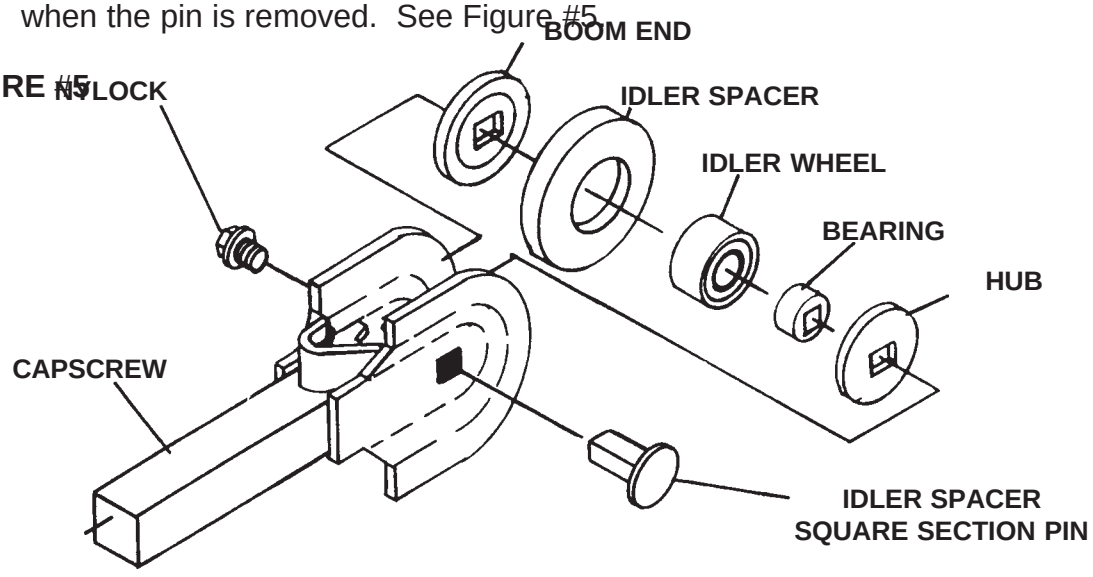
REVERSE THE PROCEDURE TO REINSTALL THE HEADSHAFT DRIVE SPROCKET.

BOOM END IDLER BEARING REMOVAL

1. To remove the boom end idler bearing first remove the digging chain as previously described in this section.

2. Remove the nylock capscrew and the square section pin from the boom end. The idler spacers and wheel will separate from the chain guides when the pin is removed. See Figure #5.

FIGURE #5



3. Press out the idler bearing from the idler wheel.

4. Press out the idler hub.

5. Check idler spacer, idler wheel, and bearing for wear and replace as necessary.

REVERSE THE PROCEDURE TO REINSTALL THE END IDLER.

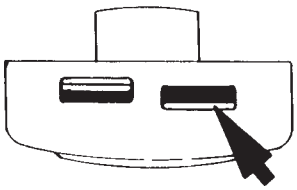
FRICTION CLUTCH - PTO DRIVE ASSEMBLY

The 612 trencher friction clutches are belleville spring loaded, factory set units which do not require readjustment over the life of the friction discs. After each long period of inactivity the clutch must be slipped in order to avoid high torque settings caused by the friction plates sticking. The clutch can be purposely slipped by tightening the four nuts against the plate springs and then turning the clutch rapidly. Back off the nut upon completion and the design torque is automatically restored.

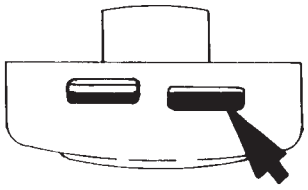
CAUTION! Any overheating caused by too long or too frequent operation of the clutch must be avoided, since this can damage the friction discs and clutch parts.

The condition of the friction discs can be determined without disassembling the clutch. See Figure #6

FIGURE #6



Condition when new.

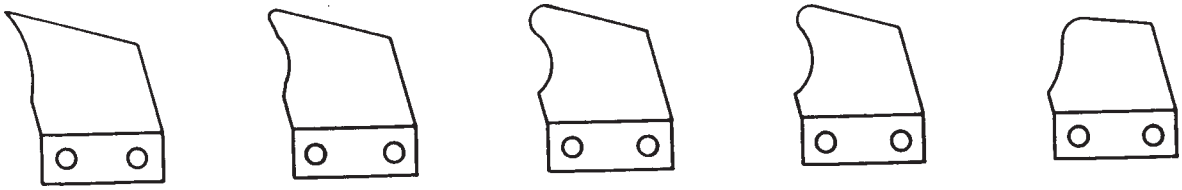


If the thrust plate edges are no longer visible, new friction discs are needed.

DIGGING TOOTH REPLACEMENT

Sharp teeth are important to good performance. When teeth wear out, production will drop sharply, increasing wear and tear on other components. Trenching chain costs per foot of trencher will increase dramatically.

Cup teeth wear on the tip and side bulge in varying amounts. Wear patterns change with different digging conditions. The following patterns and captions are approximate and should be used as a guide to help you determine your own best cost / benefit tooth replacement time. Normal replacement should be made between 30% and 60% reduction in performance. Replacement is a simple bolt-on procedure.



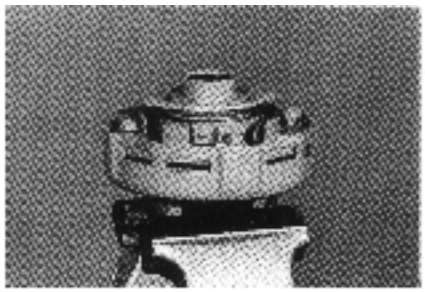
New | **20% Reduced Performance** | **50% Reduced Performance** | **70% Reduced Performance** | **Beyond Use**

After the first 8 hours of operation and then at 100 hour intervals the trencher drive chain should be checked for proper tension adjustment. Chain is properly adjusted when the long side of chain can be moved by hand ½" either way from centerline of chain. Improper adjustment will cause excessive wear on drive chain and drive sprockets.

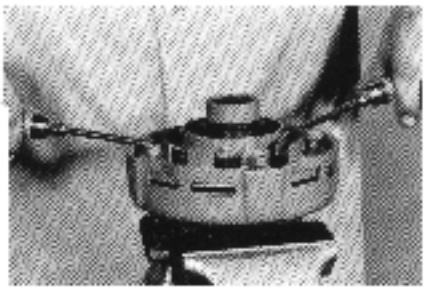
MAINTENANCE

FRICTION CLUTCH

DISASSEMBLY

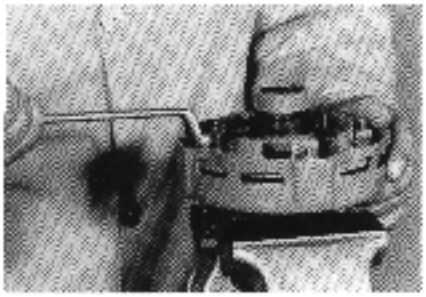


See disassembly instructions for quick disconnect lock, ball type, on Form #4-QD.

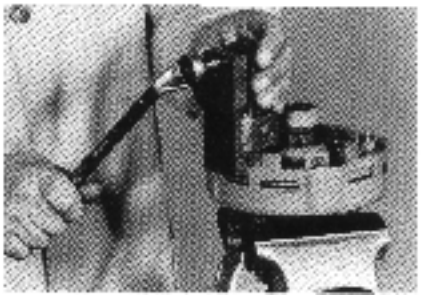


If the clutch has a warning device, remove the sleeve with the leaf springs by prying it up with two screw drivers as illustrated.

BRADCO units not equipped with warning device.



Tighten the four hex nuts (12) uniformly until the clutch pack and hub are loose.

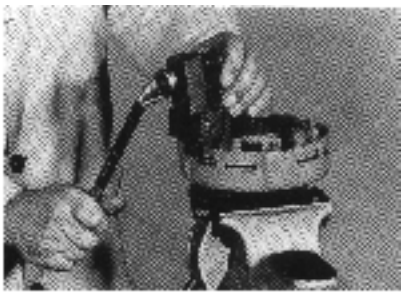


Use special tool SW18 to bend all four retaining lugs back on the edge of the clutch housing.

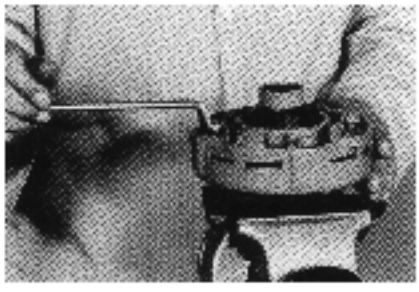
Remove the thrust plate with Belleville spring(s) and lug ring (if used) to get at the friction disks, drive plates and hub for inspection and service. (Note: K92 two plate does not use drive plates #8 & #9)

ASSEMBLY

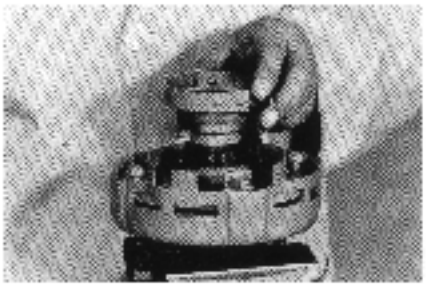
Place hub and friction disks into the clutch housing. Note that items #8 & #9 are only used in the four plate clutch. Next, compress the Belleville spring(s) and the lug ring (if used) to the pressure plate by tightening the four hex nuts and placing them into the clutch housing as illustrated.



Use special tool SW18 to bend the retaining lugs inward over the Belleville spring edges to secure the spring(s) when you back the four hex nuts off. (Note: Wide lugs for one (1) Belleville spring, narrow lugs for two (2) Belleville springs.)



With the lugs in place loosen the four hex nuts completely to the end of the threaded studs. (Replace the sleeve with the leaf springs for the warning device if used.)

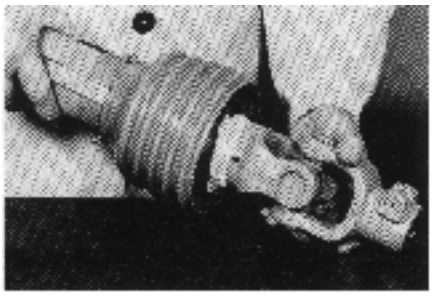


Replace the quick-disconnect or clamp bolt assembly, if so equipped.

MAINTENANCE

SAFETY SHIELD

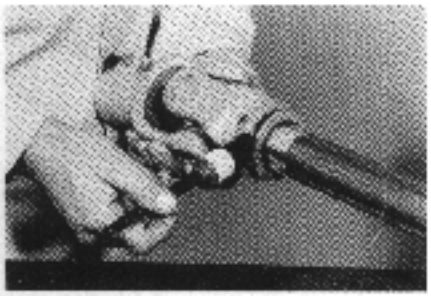
DISASSEMBLY



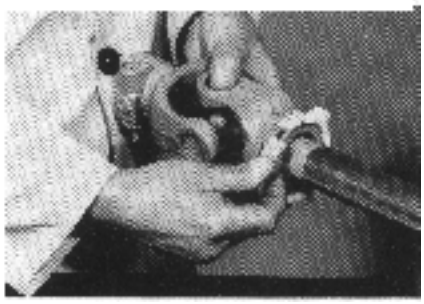
Use special tool SW21 to release bearing locking tabs and remove the shield from P.T.O. drive shaft half.

Or, clamp the P.T.O. yoke in the vise as shown to create pressure on the locking tabs and use a flat bladed screw driver to release one tab at a time to remove shield.

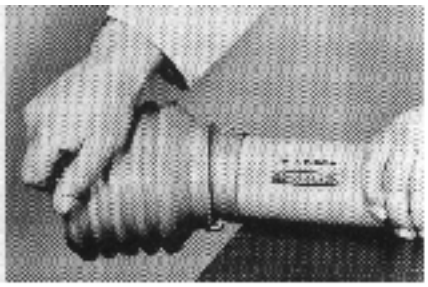
ASSEMBLY



Grease the shield bearing groove on the yoke and the telescoping tube before assembly.

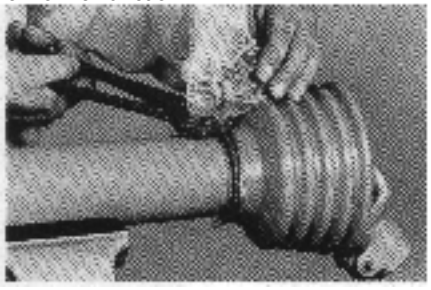


Place bearing ring in groove with the locking tabs nearest the telescoping tube side.

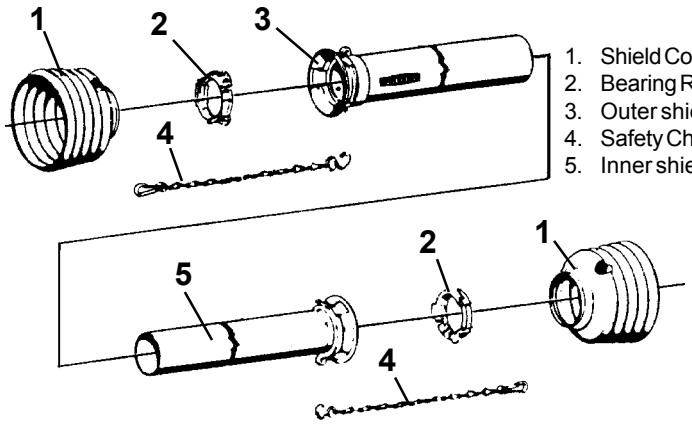


To remove the old shield cone, cut the cone near the bearing cap being careful not to damage the cap. Heat the new shield cone by placing the contact portion in water heated to approximately 180° F. until it is very flexible. Then, pull it over the tube and on to the bearing cap. As it cools, the cone will return to its natural size and become secure for normal function.

To mount the shield on to the half shaft, place it over the telescoping member, align the locking tabs on the bearing in the appropriate channels of the bearing cap and push the shield into place or apply light blows until all three locking tabs are visible in the openings.



Attach safety chain.

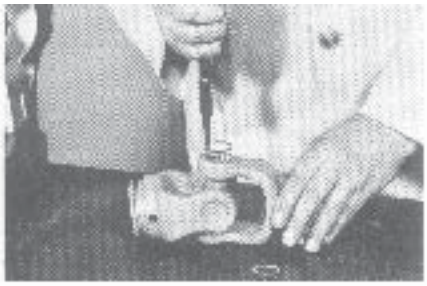


1. Shield Cone
2. Bearing Ring
3. Outer shield tube with bearing cap
4. Safety Chain
5. Inner shield tube with bearing cap

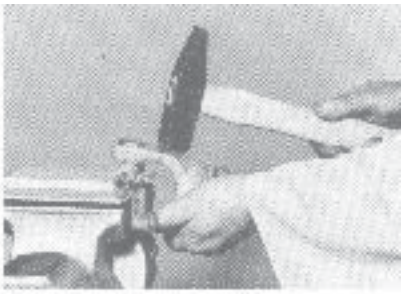
MAINTENANCE

U-JOINT

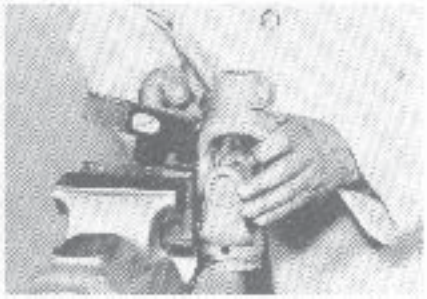
DISASSEMBLY



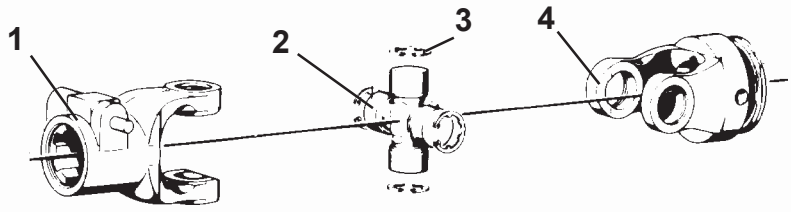
Remove retaining rings (3).



Place joint in the vise as illustrated (do not clamp tight) and with light hammer blows, drive up the bearing bushing.

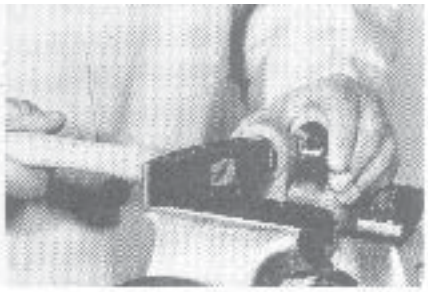


Use special tool SW23 or SW27 to clamp the bearing bushing in the vise. Using either light hammer blows or by twisting the yoke, remove the bearing bushing.



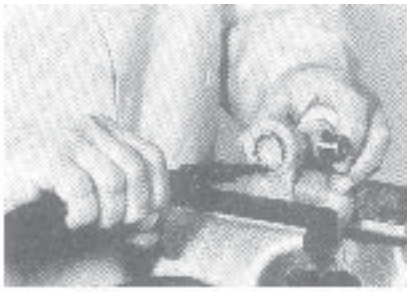
1. Quick-disconnect yoke coupling
2. Cross and bearing kit coupling
3. Retaining ring
4. Inboard yoke

ASSEMBLY

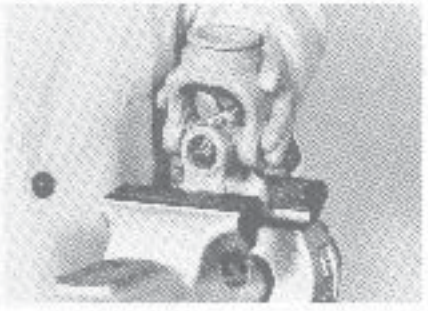


Clamp the yoke in the vise as illustrated. Remove the bearing bushing from the cross kit and place the cross into one of the yokes. Begin mounting the bearings by extending the cross journal out through the bearing bore. Place a bearing on it and holding the cross with one hand to position the bearing, tap with light hammer blows until you notice resistance. Do the same for the opposite bearing.

Using a flat surfaced drift punch or special tool SW28 drive the bearing in until the annular groove is visible.



Replace the retaining ring, make sure it is properly seated.



When installing the second yoke and bearings, make sure the grease zerk is positioned on the proper side for easy access when lubricating. Replace the bearings as described previously using the cross journal to help guide the bearings into the bore.

Relieve the stress from the bearings and yoke by applying several sharp hammer blows to the yoke ears.

Grease the joint. Note that all four bearings are properly purged and rotate to make sure the U-joint will move freely.

MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

GENERAL INFORMATION

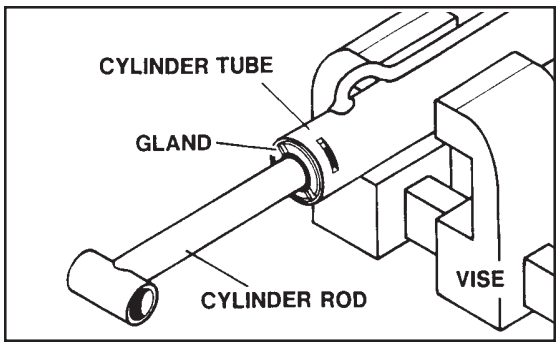
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic cylinders. Always protect the active part of the cylinder rod (the chrome section). Nicks or scratches on the surface of the rod could result in cylinder failure. Clean all parts thoroughly with a cleaning solvent before reassembly.

DISASSEMBLY PROCEDURE

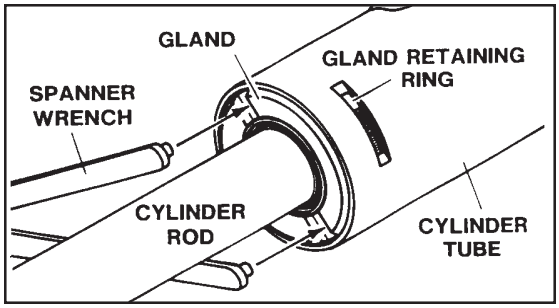
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

RETAINING RING TYPE GLAND

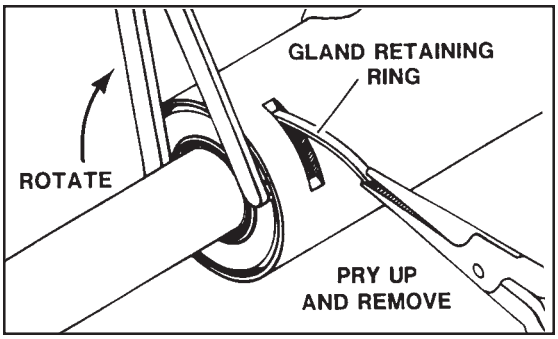
1. Mount the cylinder tube securely in a vise. **CAUTION:** Do not clamp too tight and distort the tube.



2. Rotate the gland with a spanner wrench (available from your dealer) until the gland retaining ring appears in the milled slot.

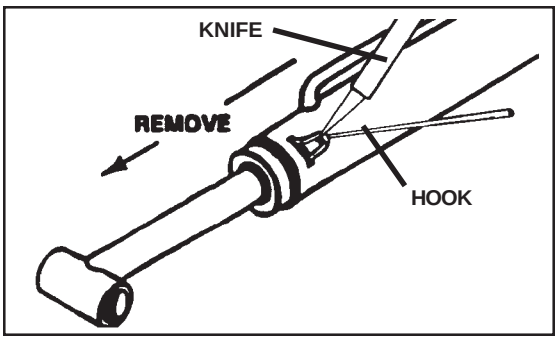


Pry up the end of the gland retaining ring with a pointed tool. Rotate the

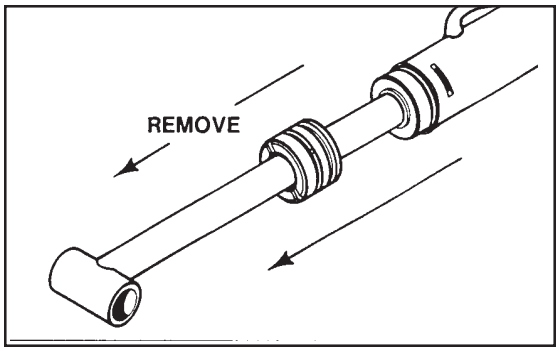


gland with a spanner wrench while removing the retaining ring.

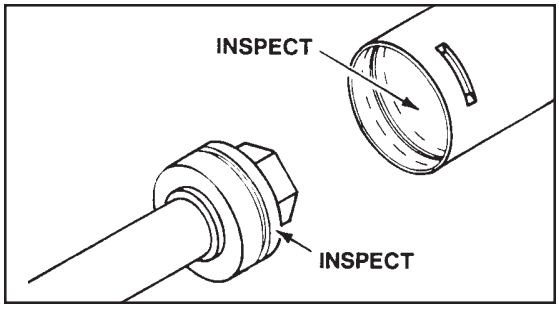
NOTE: On cylinders with gland retaining rings, the gland and piston seal(s) can be pulled out and cut as they appear in the milled slot during disassembly. After cutting, pull them on out through the milled slot.



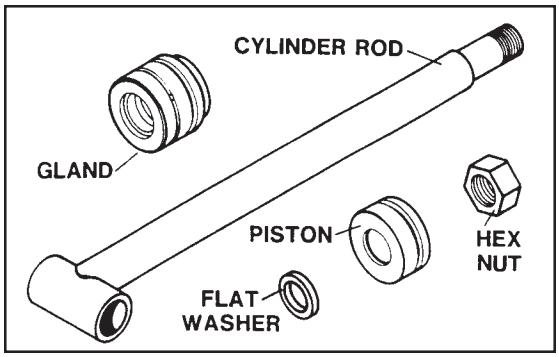
3. Pull the cylinder rod from the cylinder tube.



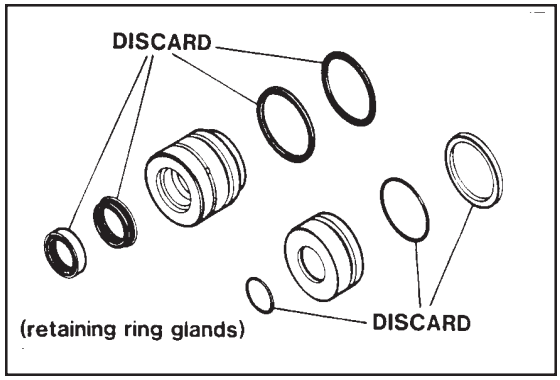
4. Inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston and cylinder tube must be replaced.



5. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.

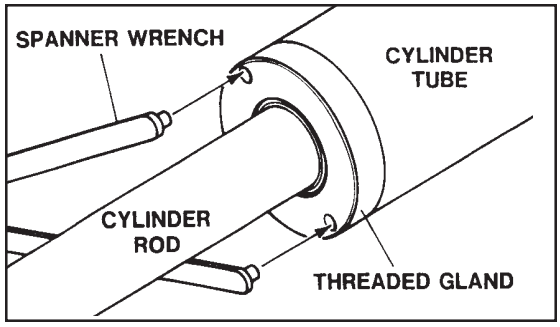


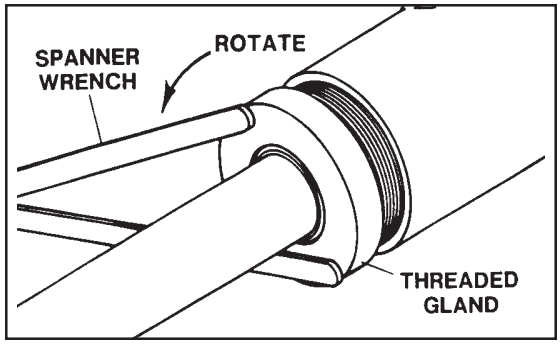
6. Remove and discard all old seals.



THREADED TYPE GLAND

1. Rotate the gland with a spanner wrench counter-clockwise until the gland is free of the cylinder tube.

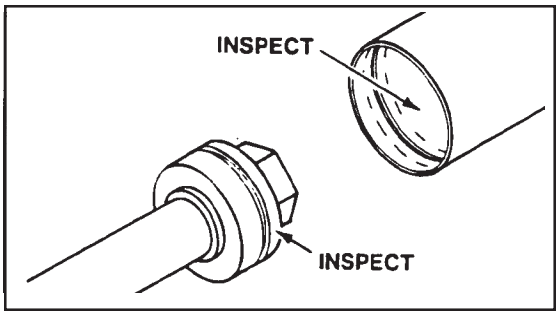




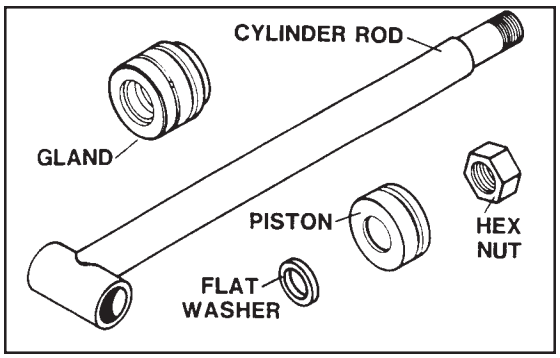
2. Pull the cylinder rod from the cylinder tube same as shown with the retaining ring type gland.

CYLINDER SEAL REPLACE

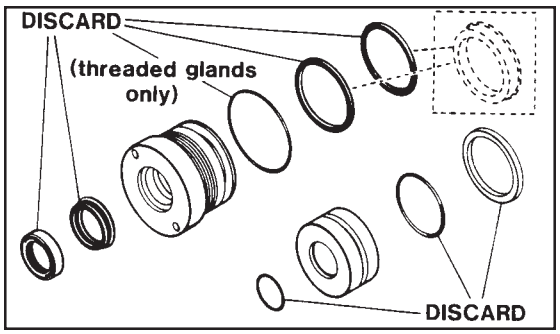
3. Inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston and cylinder tube must be replaced.



4. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.



5. Remove and discard all the old seals.

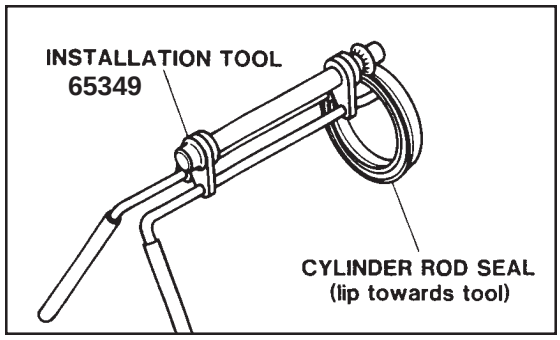


ASSEMBLY PROCEDURE

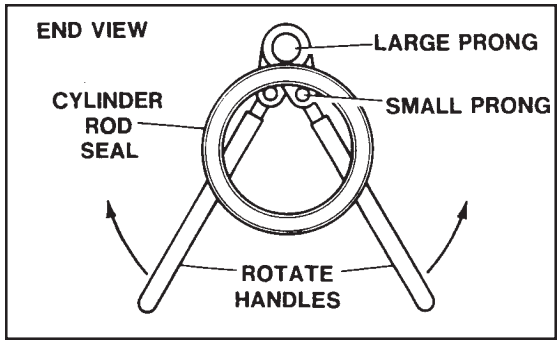
GENERAL

IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure.

1. Install the cylinder rod seal in the gland first. Be carefull not to damage the seal in the process as it is somewhat difficult to install.
A special installation tool is available to help with installing the seal. Simply fit the end of the tool over the seal so that the large prong of the tool is on the outside of the seal, and the two smaller prongs on the inside. The lip of the seal should be facing towards the tool.

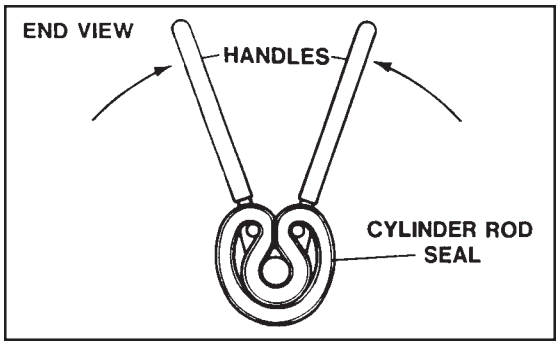


Rotate the handles on the tool around to wrap the seal around the end of the tool.

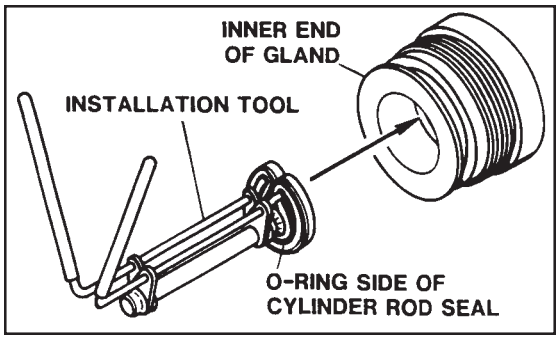


MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE



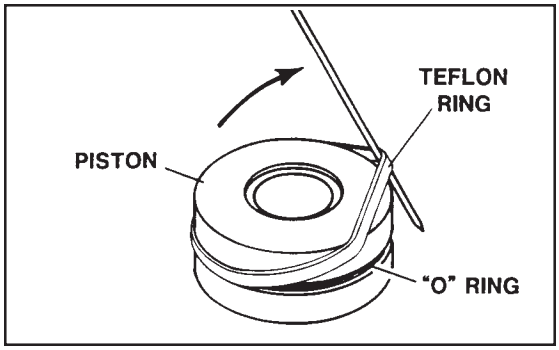
Now insert the seal into the gland from the inner end. Position the seal in it's groove, and release and remove the tool. Press the seal into its seat the rest of the way by hand.



NOTE: Threaded gland is shown above for reference.

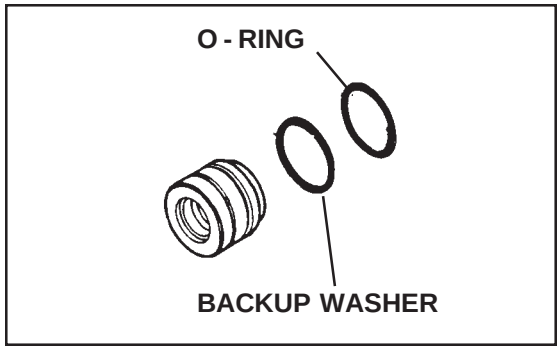
2. Install the new piston ring, rod wiper, O-rings, and backup washers, if applicable, on the piston.

Be careful not to damage the seals. Caution must be used when installing the piston ring. The ring must be stretched carefully over the piston with a smooth, round, pointed tool.

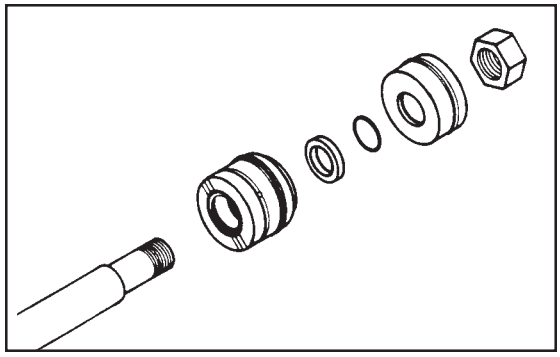


RETAINING RING TYPE GLAND

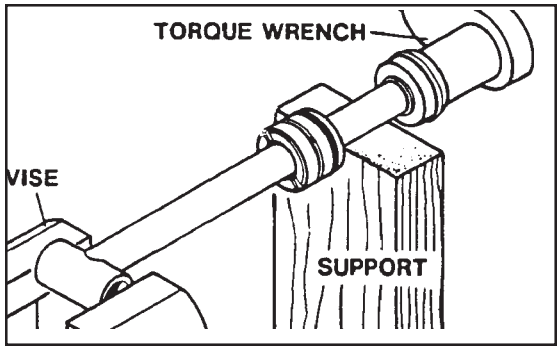
1. After installing the internal gland seal, install the external O-ring and backup washer.



2. Slide the gland onto the cylinder rod being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small O-ring, piston, and hex nut onto the end of the cylinder rod.

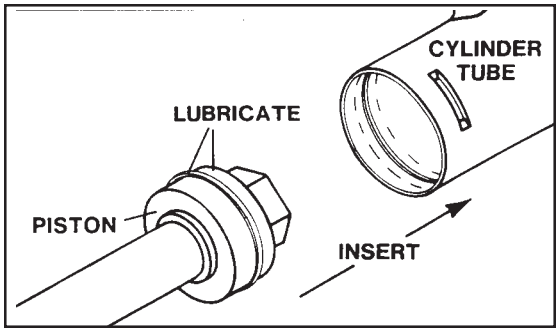


3. Secure the cylinder rod (mounting end) in a vise, with a support at its center. Torque the nut to the amount



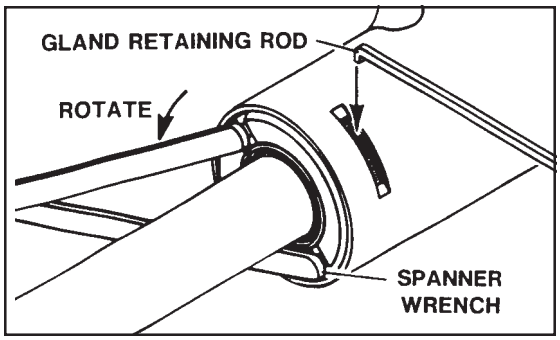
shown on the chart for the thread diameter of the cylinder rod.(see chart) **IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.**

4. Apply a lubricant (such as Lubriplate #105) to the piston and teflon ring. Insert the cylinder rod assembly into the cylinder tube.

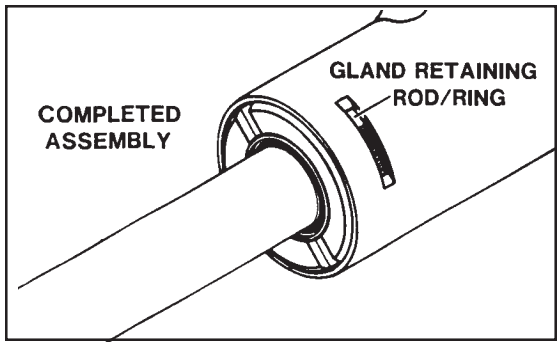


IMPORTANT: Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.

5. Rotate the gland with a spanner wrench until the hole (drilled into the retaining slot of the gland) appears in the milled slot of the cylinder tube. Insert the hooked end of the gland retaining rod into the hole.



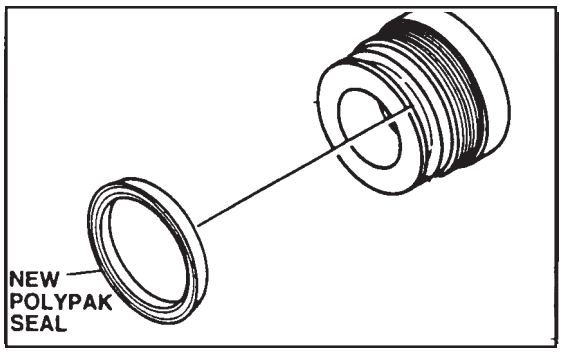
Rotate the gland until the gland retaining rod forms a ring between the gland and the cylinder tube.
When complete, the bent end of the gland retainer ring should be hidden (not turned so it is exposed in the slot) to prevent it from popping out.



THREADED TYPE GLAND

1. After installing the rod seal inside the gland as shown in the general instructions, install the external seal.

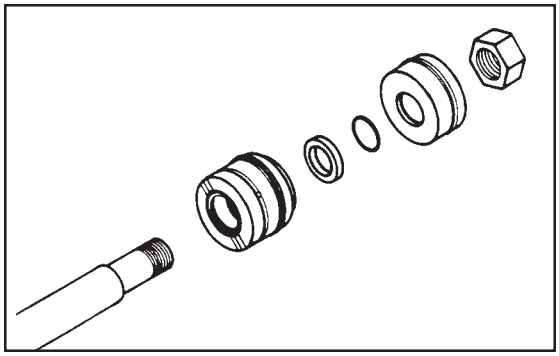
NOTE: Threaded glands may have been equipped with a separate O-ring and backup washer system or a polypak (all-in-one) type seal. Current seal kits contain a polypak (all-in-one) type seal to replace the discarded seal types on all threaded glands.



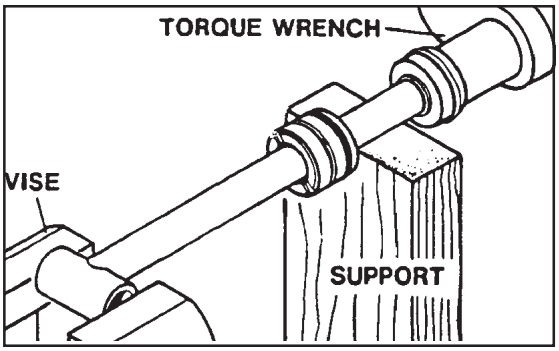
MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

2. Slide the gland onto the cylinder rod being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small O-ring, piston, and hex nut onto the end of the cylinder rod.



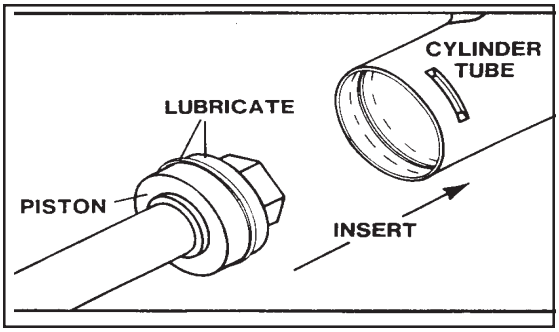
3. Secure the cylinder rod (mounting end) in a vise, with a support at it's center. Torque the nut to the amount shown for the thread diameter of the cylinder rod (see chart).



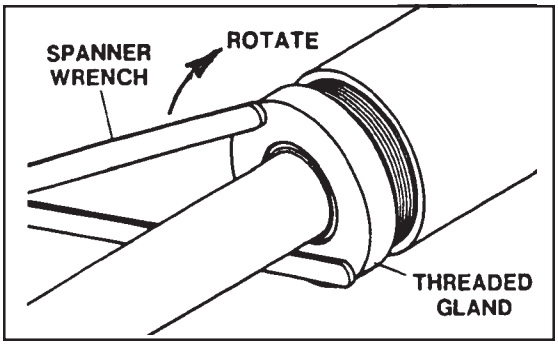
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

4. Apply a lubricant (such as Lubriplate #105) to the piston and teflon ring. Insert the cylinder rod assembly into the cylinder tube.

IMPORTANT: Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.



5. Use a spanner wrench to rotate the gland clockwise into the cylinder. Continue to rotate the gland with the spanner wrench until it is tight.



NOTE: Seal kits will service all backhoe cylinders of similar bore size and rod diameter.

<u>WARNING!</u> Cylinders serviced in the field are to be tested for leakage prior to the hoe being placed in work. Failure to test rebuilt cylinders could result in damage to the cylinder and/or backhoe, cause severe personal injury, or even death.

MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

TORQUE SPECIFICATION CHART

Use the following torque values when tightening the nuts on the cylinder rod threads.

Thread Diameter	POUNDS - FEET	
	Minimum	Maximum
7/8 "	150	200
* 1 "	230	325
1-1/8 "	350	480
1-1/4 "	490	670
1-3/8 "	670	900

*** 1" Thread Diameter WITH 1.25" Rod Diameter ..... Min. 230 ft. lbs. ..... Max. 250 ft. lbs.**

TRENCHER STORAGE

612 TRENCHER

GENERAL INFORMATION

The following storage procedures will help you to keep your trencher in top condition. They will also help you get off to a good start the next time your trencher is needed. We therefor strongly recommend that you take the extra time to follow these procedures whenever your trencher will not be used for an extended period of time.

PREPARATION FOR STORAGE

1. Clean the trencher exterior thoroughly, removing all mud, dirt, and grease.
2. Tighten all loose bolts, nuts, and set screws.
3. Touch up unpainted and exposed areas with paint to prevent rust.
4. Coat the digging chain with a thin covering of oil. Operate chain for a short period to work the oil into the pins.
5. Check gear box oil level and conditions. If contaminated, drain and refill.
6. Store the trencher in a dry and protected place. Leaving the trencher outside, exposed to the elements will materially shorten its life.
7. Inspect trencher for visible signs of wear, breakage or damage. Order any parts required and make necessary repairs to avoid delays when starting next season.
8. Replace operating decals if damaged or in unreadable condition.

REMOVING FROM STORAGE

1. Remove all protective coverings.
2. Check hydraulic hoses for deterioration and if necessary, replace.
3. Check gear box oil level.
4. Tighten all loose bolts, nuts, and set screws.
5. During cold weather, operate the trencher slowly for a short time before placing the unit under full load.

TROUBLE SHOOTING

612 TRENCHER

GENERAL INFORMATION

Your trencher was designed to be as simple and trouble free as possible. The purpose of this section is to help you in the event that a problem does develop. While we cannot possibly cover every problem that might occur, you will find that those that are most common are covered here.

PROBLEM: 3-POINT WILL NOT RAISE OR LOWER

POSSIBLE CAUSE AND REMEDY:

1. **Incorrect tractor hydraulic oil level.** Check tractor hydraulic oil level and maintain proper level.

2. **Quick coupler not completely engaged.** Check to see that all couplers are matched pairs and engaged correctly.

3. **Quick coupler or hose restriction.** Check for dirt, rust, or other contaminates and repair or replace as needed.

4. **Incorrect hose routing.** See operator's manual for correct hose routing.

5. **Lift arms not parallel.** (This is critical only on small tractors with limited lift capacity.) Adjust top link length and position all three links as parallel as possible.

6. **Incorrect PTO drive installation.** Check PTO for proper length and installation. (See Mounting Kit Installation)

7. **Insufficient pump pressure.** Check tractor pump pressure and adjust or repair as required.

PROBLEM: HYDRAULIC OIL OVERHEATING

POSSIBLE CAUSE AND REMEDY:

1. **Tractor relief valve set too low.** See tractor operator's manual and/or dealer for proper relief valve service and adjustment. Adjust relief valve to proper PSI.

2. **Quick coupler or hose restriction.** Check for dirt, rust, or other contaminates and repair or replace as needed.

3. **Relief valve stuck open.** Have relief valve serviced and checked by an authorized dealer.

4. **3-point control in extreme "UP" position.** (Applies only on some tractor models.) Lower 3-point control lever until system discontinues going over relief.

5. **Creeping in other than low range in transmission.** (Hydrostatic transmissions only.) Trench only in low range of transmission.

PROBLEM: PTO SHAFT DOES NOT TURN

POSSIBLE CAUSE AND REMEDY:

1. **PTO shaft not properly installed.** Check shaft for proper installation.

2. **Slip clutch or tractor clutch slipping.** Check chain for dirt build up and/or rocks in chain. Turn chain to remove all foreign material.

3. **PTO in tractor not properly engaged.** Engage PTO properly or repair tractor.

PROBLEM: HEADSHAFT AND AUGER TURNS - DIGGING CHAIN DOES NOT

POSSIBLE CAUSE AND REMEDY:

1. **Digging chain sprocket slipping on headshaft.** Check sprocket and tighten bolts or replace as necessary.

PROBLEM: PTO TURNS - DIGGING CHAIN \ AUGERS DO NOT TURN

POSSIBLE CAUSE AND REMEDY:

1. **Digging chain bound up.** Check chain for dirt build up and/or rocks in chain. Remove foreign material.

2. **PTO clutch slipping.** Remove clutch and inspect. (Look for discolored paint of clutch housing.) Repair or replace as necessary.

3. **Key sheared at trencher end of PTO shaft.** Remove shaft and replace key.

4. **Broken chain or sprocket slipping inside of chain cover.** Remove cover and check chain and sprocket. Repair or replace as necessary.

5. **Sheared key or broken gear in gear box.** Remove gear box cover and inspect. Repair or replace as necessary.

PROBLEM: GEARBOX LEAKING OIL

POSSIBLE CAUSE AND REMEDY:

1. **Oil level too high.** Drain and fill to proper level.

2. **Plugged or wrong vent plug.** Clean or replace with correct vent plug.

3. **Seals worn or defective.** Inspect seal, bearing and housing. Replace as required.

PROBLEM: POOR TRENCH PRODUCTION

POSSIBLE CAUSE AND REMEDY:

1. **Digging teeth worn or missing.** See maintenance - Section L in this manual. Inspect teeth and replace as needed. (Excessively worn teeth can cut a trench that is too narrow for boom end to slide through.)

2. **Augers running on ground.** Raise headshaft to keep auger off ground.

3. **Incorrect tooth style or spacing for digging conditions.** Consult manual for correct tooth style and spacing. Left/right must be balanced to within one tooth difference.

4. **Turning too short of radius with tractor.** Make wider turns or remove trencher from the ditch and reposition. See "Operating Instructions" section of this manual.

5. **Trenching on uneven terrain.** Level trench path before trenching.

6. **Digging chain too tight.** Adjust to proper tension. Digging chain should be tight enough to remain on sprockets while turning under load. There should be some sag in the chain. If too tight, loosen chain by the adjusting nut(s) on the boom.

7. **Trenching uphill.** Trench downhill whenever possible.

8. **Incorrect boom angle for trenching conditions.** Trench at recommended angle. Refer to "Operating Instructions" section of this manual.

9. **Trencher not setting level.** Adjust leveling lift linkage.

BOLT TORQUE

BOLT TORQUE SPECIFICATIONS

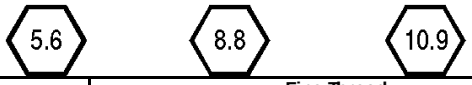
GENERAL TORQUE SPECIFICATION TABLE

Use the following torques when special torques are not given. These values apply to fasteners as received from suppliers, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads. Remember to always use grade five or better when replacing bolts.

SAE Grade No.		2				5				8*			
Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary													
		TORQUE				TORQUE				TORQUE			
Bolt Size		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters	
Inches	Millimeters	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.35	5	6	6.8	8.13	9	11	12.2	14.9	12	15	16.3	30.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42	47.5	57.0	45	54	61.0	73.2
7/16	11.11	30	25	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8	22.23	160	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5
1-1/8	25.58	-	-	-	-	800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1-1/4	31.75	-	-	-	-	1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1-3/8	34.93	-	-	-	-	1460	1680	1979.8	2278.1	2380	2720	3227.3	3688.3
1-1/2	38.10	-	-	-	-	1940	2200	2630.6	2983.2	3160	3560	4285.0	4827.4

* Thick Nuts must be used with Grade 8 bolts

METRIC BOLT TORQUE SPECIFICATIONS

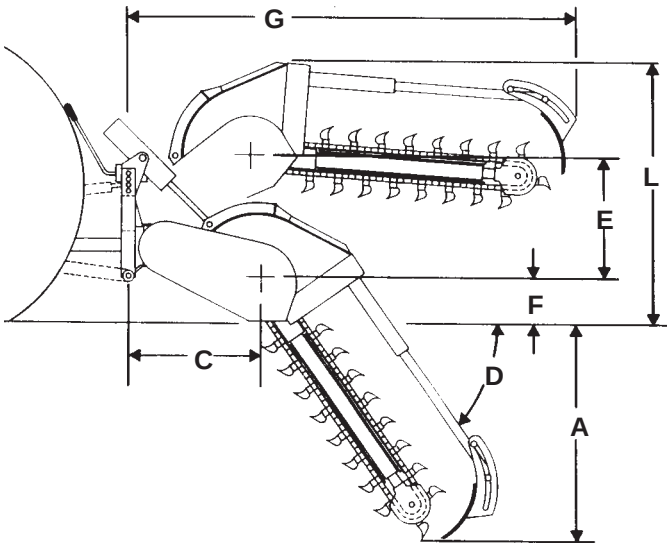


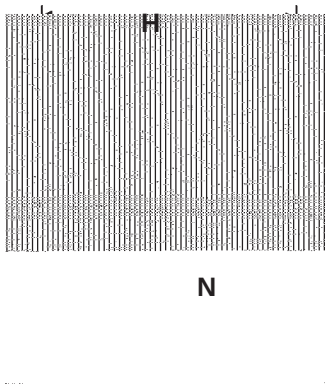
Size of Screw	Grade No.	Coarse Thread			Fine Thread		
		Ptich (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-
	8.8		5.8-9.4	7.9-12.7		-	-
	10.9		7.2-10	9.8-13.6		-	-
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23
	8.8		17-22	23-29.8		19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
M10	5.6	1.5	20-25	27.1-33.9	1.25	20-29	27.1-39.3
	8.8		34-40	46.1-54.2		35-47	47.4-63.7
	10.9		38-46	51.5-62.3		40-52	54.2-70.5
M12	5.6	1.75	28-34	37.9-46.1	1.25	31-41	42-55.6
	8.8		51-59	69.1-79.9		56-68	75.9-92.1
	10.9		57-66	77.2-89.4		62-75	84-101.6
M14	5.6	2.0	49-56	66.4-75.9	1.5	52-64	70.5-86.7
	8.8		81-93	109.8-126		90-106	122-143.6
	10.9		96-109	130.1-147.7		107-124	145-168
M16	5.6	2.0	67-77	90.8-104.3	1.5	69-83	93.5-112.5
	8.8		116-130	157.2-176.2		120-138	162.6-187
	10.9		129-145	174.8-196.5		140-158	189.7-214.1
M18	5.6	2.0	88-100	119.2-136	1.5	100-117	136-158.5
	8.8		150-168	203.3-227.6		177-199	239.8-269.6
	10.9		175-194	237.1-262.9		202-231	273.7-313
M20	5.6	2.5	108-130	146.3-176.2	1.5	132-150	178.9-203.3
	8.8		186-205	252-277.8		206-242	279.1-327.9
	10.9		213-249	288.6-337.4		246-289	333.3-391.6

SPECIFICATIONS

612 TRENCHER

TRENCHER DIMENSIONS





SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE AND WITHOUT LIABILITY THEREFORE. WHENEVER APPLICABLE SPECIFICATIONS ARE IN ACCORDANCE WITH SAE STANDARDS.

STANDARD FEATURES

- v 3-Point hitch mounting system (Category #1)
- v Dual pitch convenience
- v Remote valve for dual pivot control (power beyond capability)
- v Heavy duty gear box
- v Heavy duty headshaft and bearings protected with "CAT" duo cone seal
- v Heavy duty roller chain and hardened sprockets
- v Drive line protected with slip clutch
- v 43,000# 2.00" pitch trenching chain and sprockets
- v Ribbon type discharge auger
- v 6.00" - 12.00" digging widths available
- v High profile, high strength trenching teeth with hard surfacing
- v Crumber assembly matched to boom and trench size
- v Chain guides to prevent trenching chain run-off

	DESCRIPTION	SPEC.
A.	Trench Depth w/Auger Touching Ground At a 60° Digging Angle	
	30" Boom	30.00"
	36" Boom	36.00"
	48" Boom	48.00"
	60" Boom	60.00"
B.	Trench Width	
	All Boom Lengths	6.00"
	30", 36", 48" Boom Lengths	8.00"
	30", 36" Boom Lengths	10.00"
	30" Boom Length	12.00"
C.	Distance from 3-Point to Headshaft	24.25"
D.	Recommended Trenching Angle	60°- 65°
E.	Total Headshaft Movement	Varies
F.	Headshaft Height (w/Auger Touching Ground)	10.00"
G.	Trencher Length (From 3-Point to End of Crumber Shoe - Transport Position)	69.00"
H.	Trencher Width	43.00"
L.	Transport Height	Varies
N.	Centerline of Trench to Outside of Auger	27.00"

3-Point Mounting ..... Category 1
Chain Speed @ 540 RPM ..... 308 FPM
Weight w/36" Boom and 6" Chain ..... 850 lbs. (385 kgs)

NOTES:

1. Specifications may vary between tractor models.
2. Trench depths given are as calculated on drawings. Actual depths during operation will vary due to tractor model, tire size, ground conditions and carryover.
3. Trench depths and widths shown are maximum recommended for general service and use. ATI Incorporated makes no claim or warranty that you will be able to operate satisfactorily at these depths and widths or that you cannot exceed these recommendations in your application.

SPECIFICATIONS

NOISE EMISSIONS DATA

MACHINE TYPE ..... TRENCHER ATTACHMENT
BRADCO MODEL NO 612
METHOD OF DRIVE ..... POWER TAKE OFF
POWER SOURCE ..... 14.2 kW (19HP) COMPACT TRACTOR
RATED SPEED DURING TEST ..... 2600 RPM
MOUNTING CONDITIONS DURING TEST ..... 3 POINT HITCH TO RUBBER TIRED TRACTOR

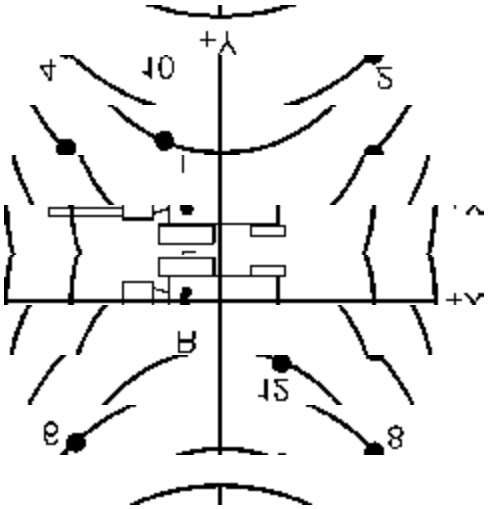
INSTRUMENT LOCATION (10M HEMISPHERE)

POSITION	X	Y	Z
2	7.1m	7.1m	1.5m
4	-7.1m	7.1m	1.5m
6	-7.1m	-7.1m	1.5m
8	7.1m	-7.1m	1.5m

OPERATOR'S EAR POSITION COORDINATES (SEE NOTE)

RH	100mm	-250mm	760mm
LH	100mm	250mm	760mm

NOTE: X COORDINATE IS FORWARD FROM SEAT BACK
Y COORDINATE IS FROM CENTER AXIS OF SEAT
Z COORDINATE IS FROM LOADED SEAT CUSHION



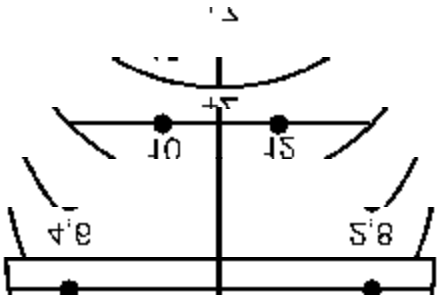
MICROPHONE POSITIONS ON 10m HEMISPHERE CENTERED ON MACHINE (NOT TO SCALE)

MEASURED EMISSION SOUND PRESSURE AT OPERATOR'S EAR (including power unit)

LOCATION	LpA (dBA)
RH	88.7
LH	89.0
ARITHMETIC MEAN VALUE	88.8

CALCULATED EMISSION SOUND PRESSURE AT OPERATOR'S EAR (excluding power unit)

LOCATION	LpA (dBA)
RH	80.7
LH	79.8
ARITHMETIC MEAN VALUE	80.3



MEASURED SOUND POWER @ 10m HEMISPHERICAL SURFACE (including power unit)

READING	LWA (dBA)
1	103.8
2	103.5
3	103.8
ARITHMETIC MEAN VALUE	103.8

CALCULATED SOUND POWER @ 10m HEMISPHERICAL SURFACE (excluding power unit)

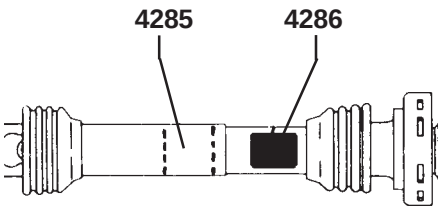
READING	LWA (dBA)
1	93.6
2	93.4
3	95.1
ARITHMETIC MEAN VALUE	94.4

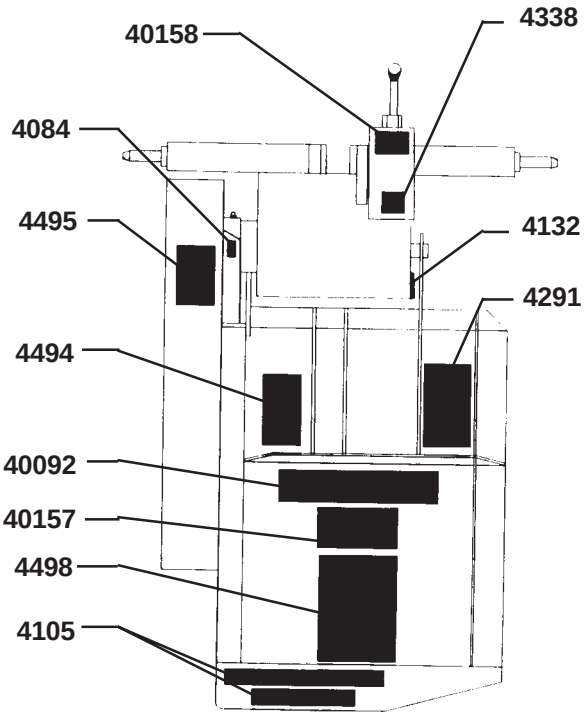
MEASUREMENTS CONFORM WITH SAE STANDARD NO J1805 (EQUIVALENT TO ISO 6393) EXCEPT UPPER POINTS ON HEMISPHERE WERE NOT INCLUDED.

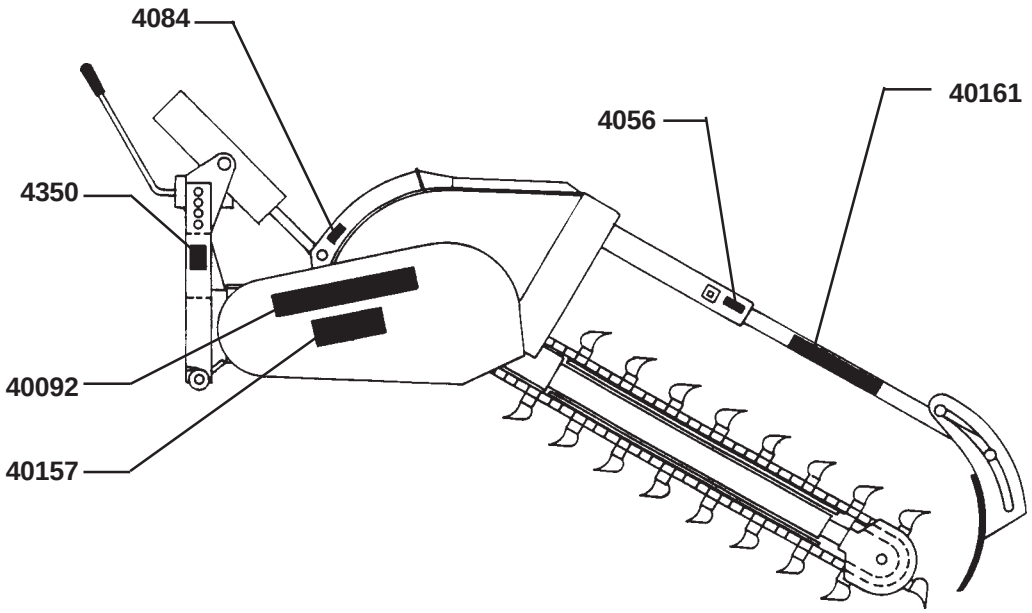
DECALS

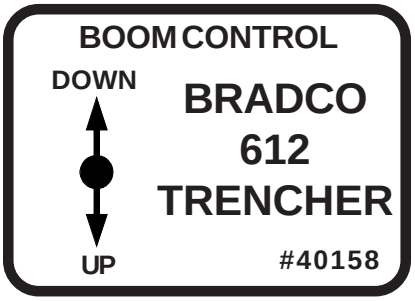
DECAL PLACEMENT
612 TRENCHER

The diagrams on this page show the location of all the decals used on the 612 trencher. The decals are identified by their part numbers, with reductions of the actual decals located on the following pages. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the trencher. They contain information you need to know for both safety and trencher longevity.









BOOM CONTROL
PART #40158

BRADCO

BRADCO LOGO
PART #40092

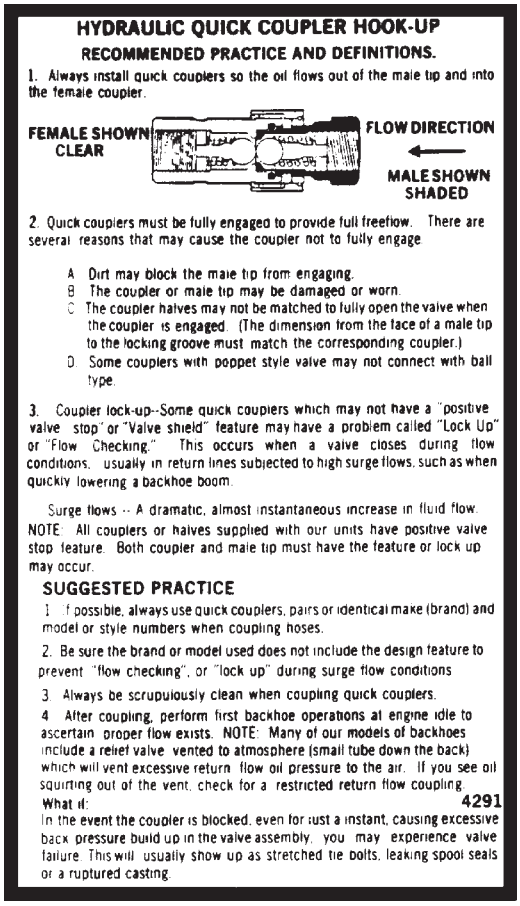
612

MODEL NUMBER DECAL
PART #40157

DANGER! ROTATING DRIVELINE
PART #4286
(LOCATED ON PTO)

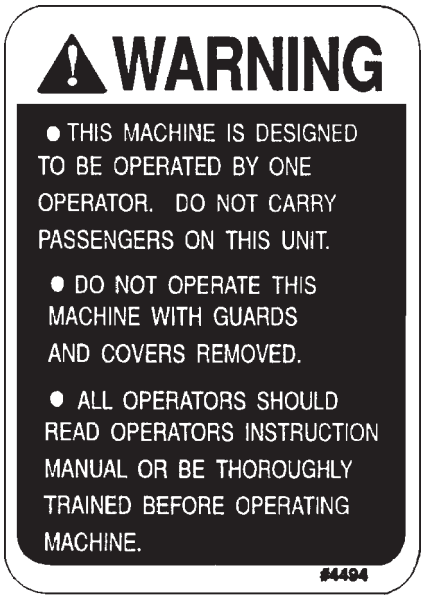
DANGER! SHIELD MISSING
PART #4285
(LOCATED ON INSIDE PTO SHAFT)

DECALS



QUICK COUPLER HOOK-UP
PART #4291

WARNING
PART #4495



OPERATOR'S WARNING
PART #4494

SERIAL NUMBER TAG
PART #4350

TOOTH SET-UP WARNING
PART #4056

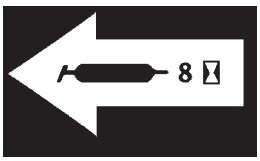
DANGER STAND CLEAR
PART #4105

CHECK OIL LEVEL
PART #4132

DANGER STAND CLEAR
PART #4498

MADE IN USA
PART #4338

STAND CLEAR
PART #40161



GREASE 8 HOURS
PART #4084

PREDELIVERY CHECKLIST

GENERAL INFORMATION

The following is a list of areas that should be inspected by the dealer prior to delivery of the trencher to the customer. The customer should check the list and make sure that the dealer has completed the inspection. Completion of this checklist will help insure that the customer receives the trencher in complete working order, ready to install.

PREDELIVERY CHECKLIST - CHECK AND ADJUST AS NECESSARY

1. _____ Check the hydraulic system for correct hydraulic fluid level.

2. _____ Check and lubricate trencher, gear box, and PTO shaft if necessary. See "Lubrication" section.

3. _____ Visually inspect the trencher for bent, loose, cracked, damaged or missing parts. Check for any other irregularities.

4. _____ Remove paint from finished (chrome) surfaces of cylinders and valve spools.

5. _____ Trencher control levers operate in accordance with the control lever decals.

6. _____ Run cylinders through their full cycle to purge any air from the system.

7. _____ Check all hydraulic connections for leaks and all hoses for proper positioning to reduce chafing and binding.

8. _____ Check the trencher's digging chain adjustment.

9. _____ Check trencher attachment bolts for tightness. Retighten after the first eight working hours, and after every forty working hour intervals thereafter. See "Bolt Torque" section.

10. _____ Make sure decals are not damaged or missing and are in their correct location. See "Decals" section.

11. _____ Complete and return the manufacturers "Warranty Validation Form" and sign your dealership predelivery checklist.

12. _____ Operator to read the Trencher Safety Manual(s) provided, before operating trencher.

LIMITED ONE YEAR WARRANTY

610 & 612 TRENCHER

2472 7-88-2

All new unused American Trencher Model 610 and 612 Trenchers are warranted to be free from defects in material or workmanship which may cause failure under normal usage and service when used for the purpose intended. This use is defined as any trenching service using standard options available and recommended in the current ATI/Bradco price list. See Below.

In the event of failure within 12 months of initial retail sale, lease or rental date (excluding ground engaging parts such as sprockets, digging chain, bearings, teeth, and slip clutch components), if after examination, American Trencher determines failure was due to defective material and/or workmanship, parts will be repaired or replaced by American Trencher. American Trencher may request defective part or parts be returned prepaid to them at Delhi, Iowa, or to a location specified by American Trencher.

Any claims under this Warranty must be made within fifteen (15) days after the buyer learns of the facts upon which such claim is based. All claims not made in writing and received by American Trencher within the time period specified above shall be deemed waived.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED AND THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL AMERICAN TRENCHER BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES.

AMERICAN TRENCHER'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES TO BUYER, RESULTING FROM ANY CAUSE WHATSOEVER, INCLUDING AMERICAN TRENCHER'S NEGLIGENCE, IRRESPECTIVE OF WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCTS WITH RESPECT TO WHICH LOSSES OR DAMAGES ARE CLAIMED, OR, AT THE ELECTION OF AMERICAN TRENCHER, THE REPAIR OR REPLACEMENT OF DEFECTIVE OR DAMAGED PRODUCTS.