



OPERATOR'S AND PARTS MANUAL

ATP84 & ATP96 DOZER BLADE



PALADIN
LIGHT CONSTRUCTION GROUP



The Power of Combined Excellence

UNIVERSAL SKID STEER APPLICATIONS



SERIAL NUMBER: _____

MODEL NUMBER: _____

Manual Number: OM610
Part Number: 75510
Rev. 3

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TO THE OWNER

GENERAL COMMENTS

Congratulations on the purchase of your new blade! Your blade was carefully designed and manufactured to give you years of dependable service. Your blade 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 its contents. **Remember, never let anyone operate this blade without reading the "Safety Precautions" and "Operating Instructions" sections of this manual. (See Sections B and G respectively.)**

Unless noted otherwise, right and left sides are determined from the position of the skid-steer operator sitting in the 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 blade 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 blade in the space provided on this page. This information may be obtained from the blade identification plate located on the right side of the blade.

MODEL _____
SERIAL NUMBER _____
DATE PURCHASED _____

The parts department needs this information to insure that you receive the correct parts for your specific blade.

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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

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 blade.** Also read your skid-steer 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 described in Section A and at the beginning of Section B) will be used throughout this manual. It will appear with the word **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. Make sure that the equipment is operated only by responsible individuals with the proper instruction. It is the skill, care, common sense, and good judgement 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.

BEFORE YOU START

1. **Read the entire skid-steer and blade operator's manuals** before ever attempting to use the skid-steer. This knowledge is necessary for safe operation.
2. **Follow all safety decals.** Keep them clean and replace them if they become worn and hard to read.
3. **Know your equipment inside and out.** Know how to operate all controls, and know emergency shut down procedures.
4. **Keep all stepping surfaces, pedals, and controls free from dirt, grease and oil.** Keep equipment clean to help avoid injury from a fall when getting on or off equipment.
5. **Use handholds and step plates when getting on/off the skid-steer.** Failure to do so could cause a fall.

SAFETY PRECAUTIONS

6. **Be alert to others in the work area.** Be sure others know when and where you will be working. Make sure no one is behind equipment.
7. **Never take passengers on your equipment.** There is no safe place for a passenger.
8. **Never try to board equipment while it is moving.**
9. **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.
10. **Turn off skid-steer before performing maintenance.** If lift arms must be left raised for maintenance or any other reason, use a positive lift arm lock to secure the arms in place. Serious damage or personal injury could result from lift arms accidentally lowering.
11. **Reduce speed when driving over rough terrain,** on a slope, or turning, to avoid overturning the skid-steer.
12. **Test all controls before you begin.**
13. **Do not smoke when refueling the skid-steer.** Allow room in the gas tank for expansion. Wipe up any spilt fuel. Secure cap tightly when done.

WORKING WITH THE BLADE

1. **Never operate the blade by standing on or beside the machine.** Operate only from the skid-steer seat.
2. **Do not lift or carry people on the blade,** they could fall and be crushed.
3. **Check your work area and know where all utility lines are.** Avoid hitting underground electrical wires, cables, pipes, fence posts, gas lines, uneven sidewalk edges, large rocks, etc.
4. **Never operate equipment while under the influence** of alcohol, or prescription drugs which could inhibit physical and/or mental capacity.
5. **Use for blade only for its designed purpose.** Do not use it to pull objects, as a battering ram, or attach ropes or chains to the unit.

SAFETY PRECAUTIONS

6. Never work under a raised blade.
7. Do not push loads or objects in excess of skid-steer/blade capacity.
8. Always lower the loader arms and blade to the ground, shut off the engine and apply the parking brake before getting off the unit.

TRANSPORTING THE BLADE

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 unit to warn others of your slower traveling speed.
3. Be sure all lights and turn signals are in working order. Use them as required.
4. Do not drive close to ditches, excavations, etc., cave in could result.
5. Carry blade low when transporting to lower its center of gravity.
6. Allow for added length of blade when transporting so as not to catch unit of obstacles.
7. Skid-Steer may feel front end heavy with the added weight of the blade. Stability and handling may be affected.

MAINTENANCE

1. Never work on equipment while it is running. Set brake and lower blade before performing repairs.
2. Never make hydraulic repairs while the system is under pressure, or the cylinders are under load. Injury or death could result.
3. Observe proper maintenance schedules and repairs to keep the unit in safe working order.
4. Always wear safety goggles or glasses when working on equipment.
5. Use a drift and hammer when pressing out pins to prevent the pin from shattering.

SAFETY PRECAUTIONS

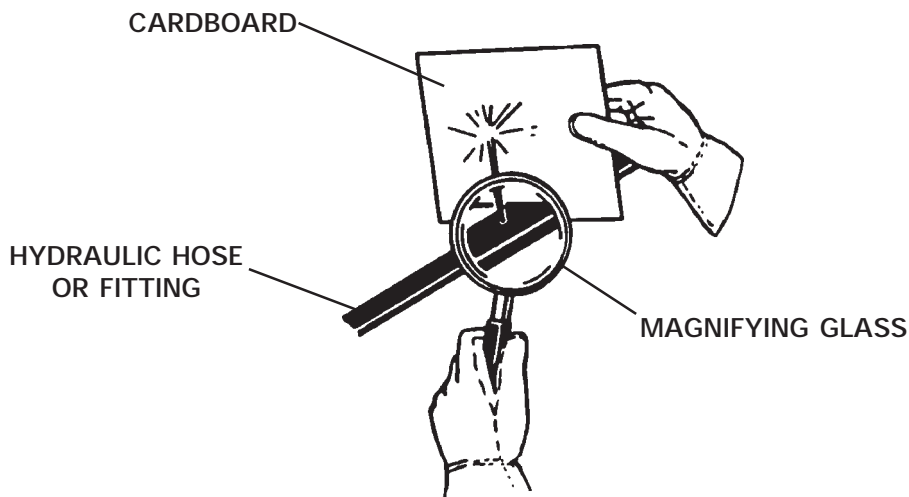
6. Use only manufacturer recommended replacement parts. Other parts may be substandard in fit and quality.

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		Alternator charge
	Hours recorded		Power take-off (on)
	Engine water temperature		Power take-off (off)
	Lights		"Tortoise," slow or minimum setting
	Horn		"Hare," fast or maximum setting
	Engine oil pressure		Caution
	Hazard warning		Control lever operating direction
	Axle connect		Rock shaft (raised)
	Axle disconnect		Rock shaft (lowered)
	Continuously variable		Remote cylinder (extended)
	Increase		Remote cylinder (retracted)
	Decrease		Remote cylinder (FLOAT)
	Diesel fuel		Differential lock
	Creeper range		Read operators manual
	High range		Neutral
	Low range		Forward
			Reverse

PREOPERATION

DOZER BLADES

GENERAL INFORMATION

The BRADCO dozer blades were designed to be easy to use and maintain. They are operated by the skid-steers auxiliary hydraulics and auxiliary electrical circuit (if so equipped). The dozers mount to the toolbar / quick attach mechanism for easy mounting.

Unless noted otherwise, right and left are determined from the position of the skid-steer operator sitting in the operator's seat facing forward.

Remember to read the "Safety Precautions" and "Operating Instructions" sections of this manual BEFORE you attempt to install or use the blade.

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 blades as may be necessary without notification.

SKID-STEER

The dozer angle and tilt mechanisms are powered by three hydraulic cylinders. Your skid-steer must have an auxiliary hydraulic system to run the blade. There is an optional control box assembly for the secondary controls, if your skid-steer is not equipped with an auxiliary electrical outlet.

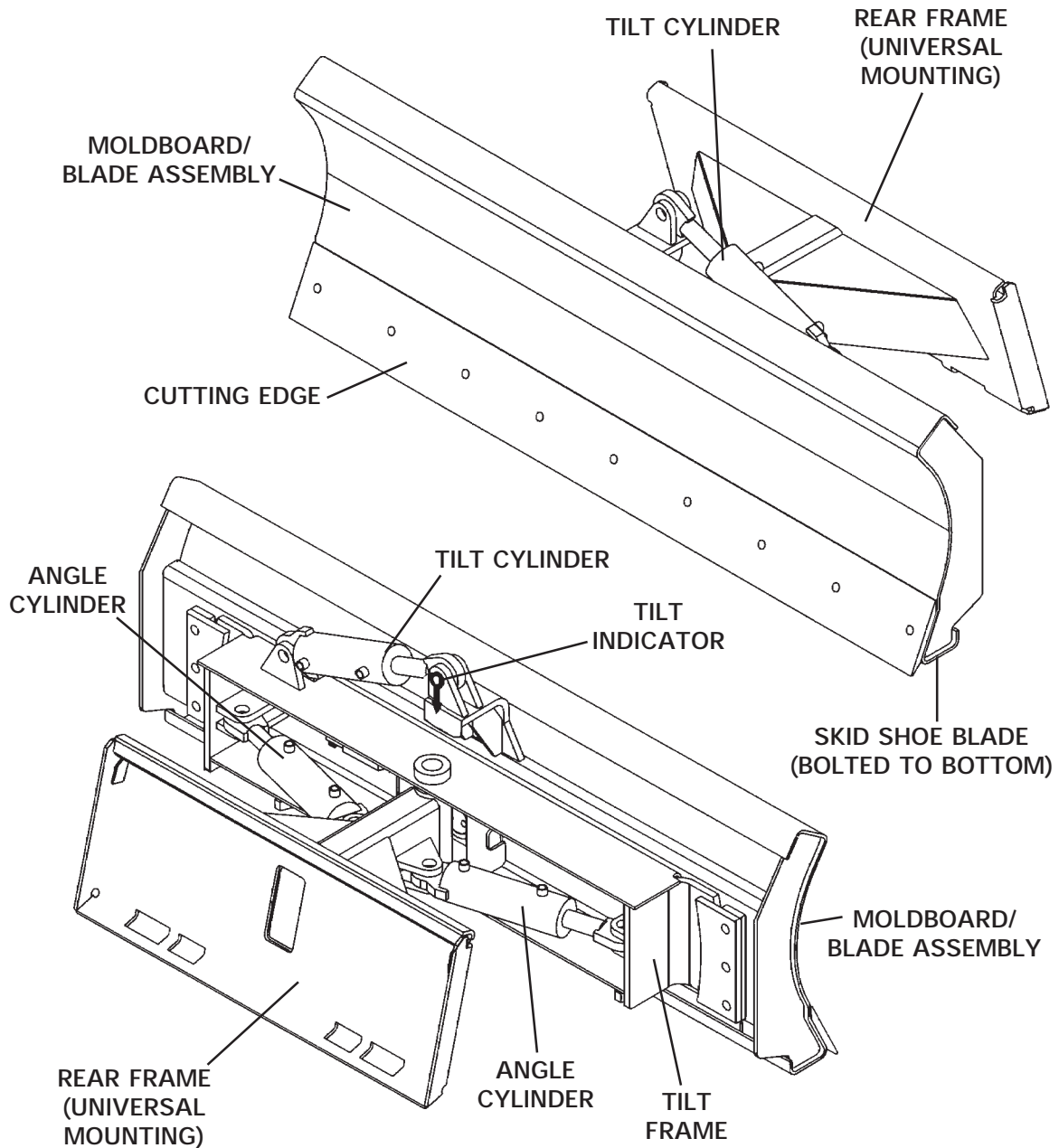
You will need a pair of hydraulic couplers to complete the hydraulic hook-up. These couplers must fit a #8MP end and connect to your skid-steer auxiliary hydraulic system couplers. These couplers are available through your dealer.

PREOPERATION

DOZER BLADES

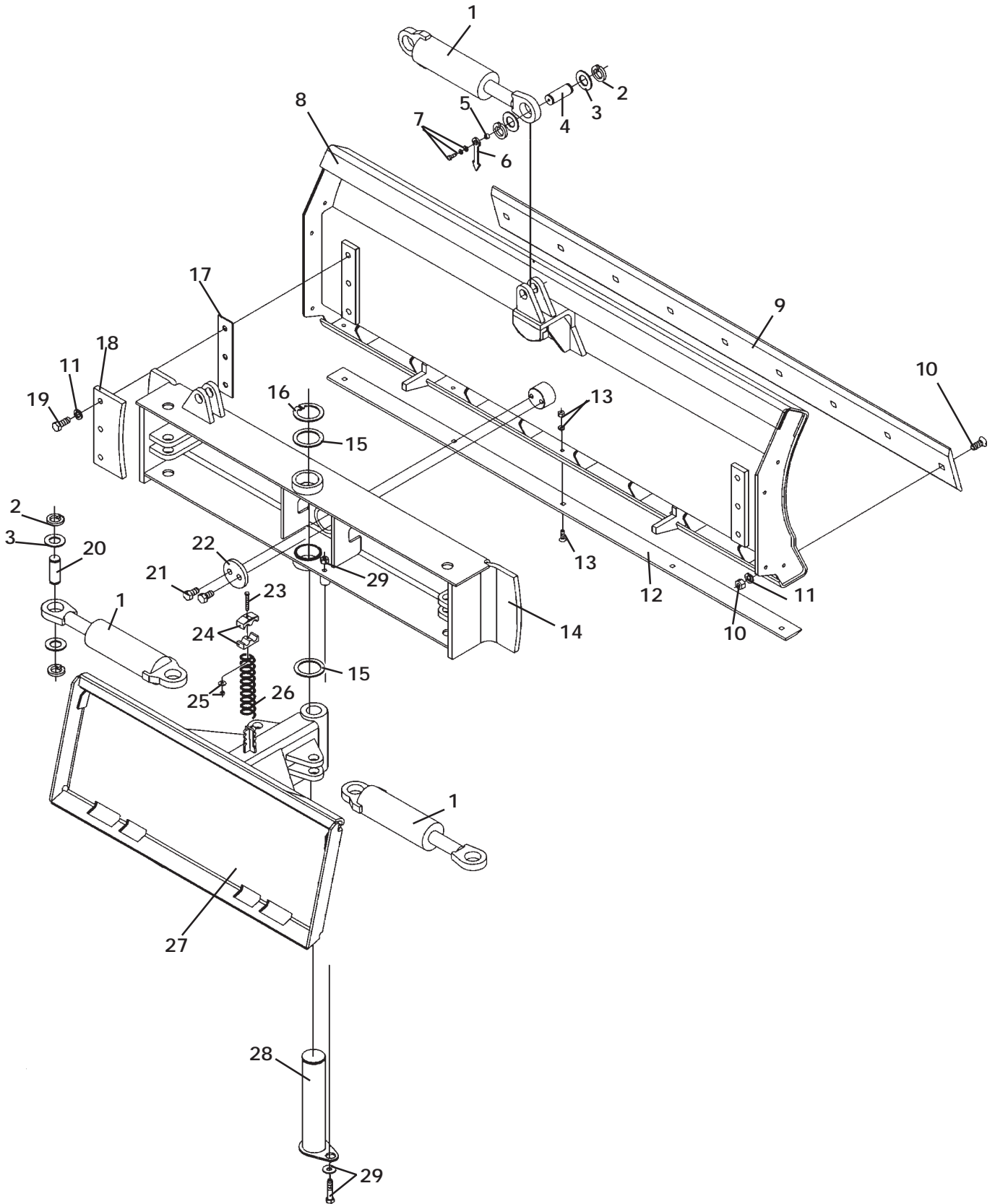
GENERAL INFORMATION

Throughout this manual, reference is made to various blade components. The purpose of this page is to acquaint you with the various names of these components. This knowledge will be helpful when reading through this manual or when ordering service parts.



DOZER BLADE ASSEMBLY

7' DOZER BLADE ASSEMBLY #88861



DOZER BLADE ASSEMBLY

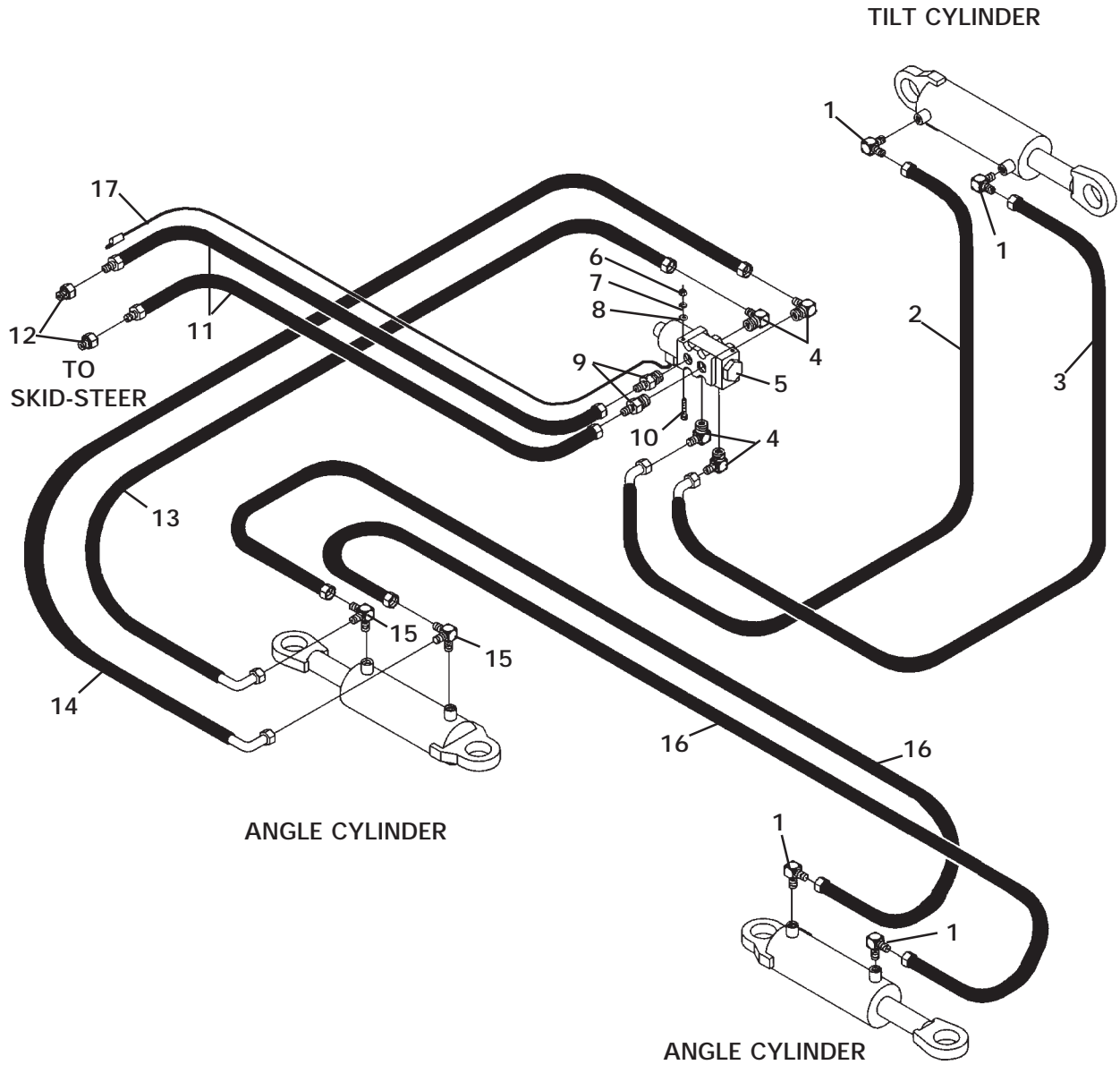
7' DOZER BLADE ASSEMBLY #88861

<u>NO</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	3	89001	Cylinder Assembly
	4	6616	Grease Zerk
	2	53031	90° Grease Zerk (Tilt Cylinder)
2	12	1650	Snap Ring
3	12	64724	Thrust Washer
4	1	89860	Pin
5	1	81807	Spacer Tube
6	1	89859	Arrow Indicator
7	1	1043	.38" UNC X 1.00" Hex Capscrew
	1	1503	.38" Lock Washer
	1	1525	.38" Flat Washer
8	1	88862	Moldboard
9	1	88997	Blade Cutter Edge
10	9	1937	.75" UNC X 2.50" Plow Bolt
	9	1231	.75" UNC Hex Nut
11	15	1507	.75" Lock Washer
12	1	88999	Bottom Skid Blade
13	5	1712	.50" UNC X 1.00" Plow Bolt
	5	1505	.50" Lock Washer
	5	1228	.50" UNC Hex Nut
14	1	88875	Tilt Frame
	1	89436	Replacement Bushing
	1	6616	Grease Zerk
15	1	89007	Washer &
	1	31936	Washer
16	1	1665	Snap Ring
17	2	88998	Shim
18	2	88995	Guide Plate
19	6	1139	.75" UNC X 2.00" Hex Capscrew
20	5	89006	Pin
21	2	1548	.75" UNC X 1.25" Nylock Capscrew
22	1	88996	Cap Plate
23	1	1096	.50" UNC X 3.00" Hex Capscrew
24	1	81358	Double Hose Clamp
25	1	1525	.38" Flat Washer
	1	1790	.50" Serrated Flange Lock Nut
26	1	22288	Spring
27	1	88986	Rear Frame
	2	89436	Replacement Bushing
	2	6616	Grease Zerk
28	1	88992	Pivot Pin
29	1	1839	.62" UNC Deformed Oval Lock Nut
	1	1517	.62" Flat Washer
	1	1120	.62" UNC X 3.00" Hex Capscrew

DOZER BLADE ASSEMBLY

7' DOZER BLADE ASSEMBLY #88861

(HYDRAULIC HOOK-UP FOR ANGLE DEFAULT)



DOZER BLADE ASSEMBLY

7' DOZER BLADE ASSEMBLY #88861

(HYDRAULIC HOOK-UP FOR ANGLE DEFAULT)

<u>NO</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	4	3434	90° Elbow 6MBo-6MJ
2	1	37772	Hose .25" x 35.25" 6FJX-6FJX 45°
3	1	37771	Hose .25" x 28.75" 6FJX-6FJX 45°
4	4	30143	90° Adapter 10MBo-6MJ
5	1	2243	Diverter Valve
	1	85386	DIN Connector
6	2	1225	.31" UNC Hex Nut
7	2	1502	.31" Lock Washer
8	2	1513	.31" Flat Washer
9	2	3362	Straight Adapter 10MBo-6MJ
10	2	1032	.31" UNC X 3.50" Hex Capscrew
11	2	37324	Hose .25" x 84" 6FJX-6MP
12	2	3007	Straight Adapter 8MP-6FP
13	1	37773	Hose .25" x 36" 6FJX-6FJX 90°
14	1	37774	Hose .25" x 28.62" 6FJX-6FJX 90°
15	2	30164	Lateral Tee Fitting 6MBo-6MJ-6MJ
16	2	37750	Hose .25" x 66" 6FJX-6FJX
17	1	89289	Wire & Plug Assembly

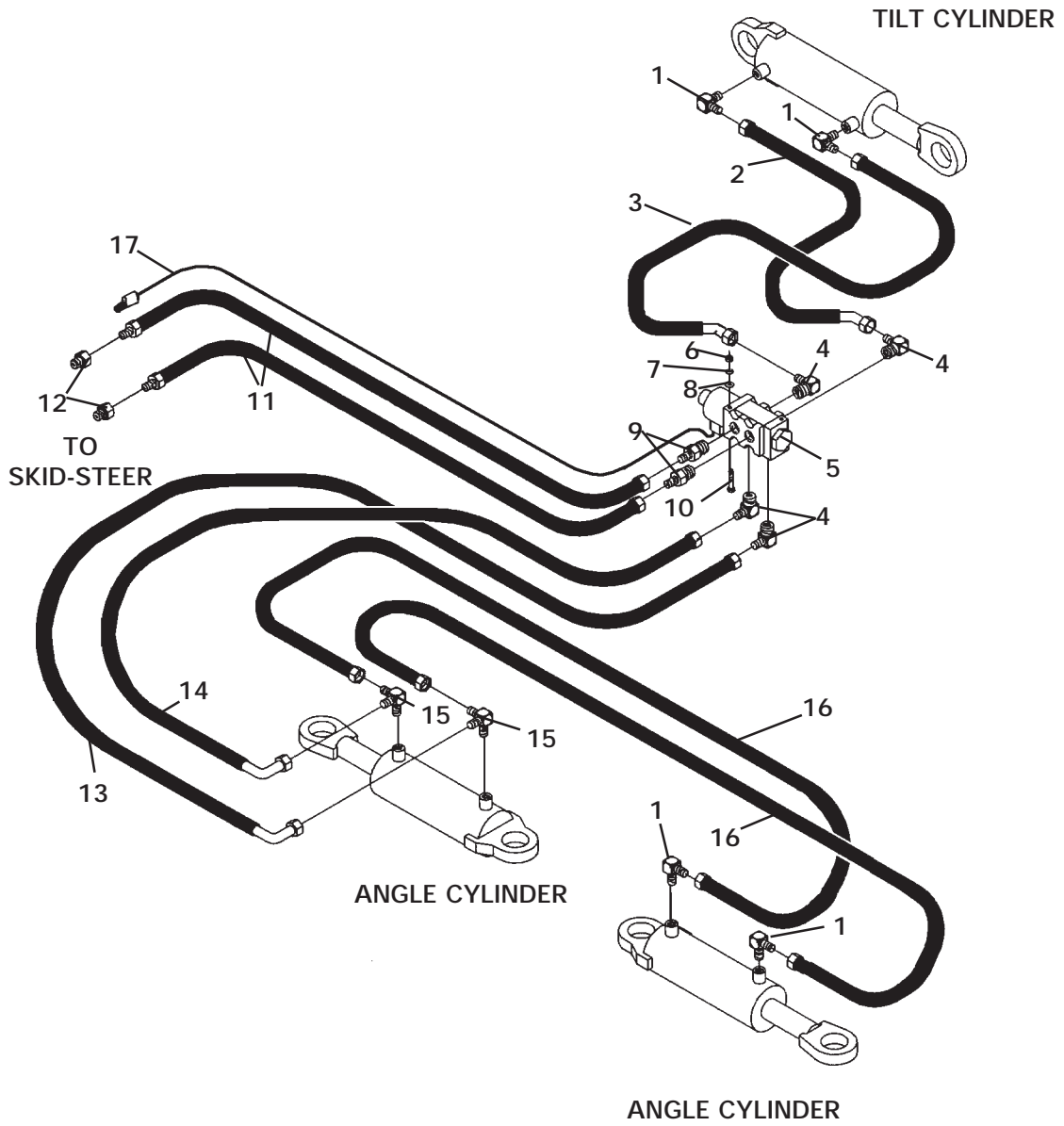
Not Shown:

1	84924	Male Coupler
1	84925	Female Coupler

DOZER BLADE ASSEMBLY

7' DOZER BLADE ASSEMBLY #88861

(HYDRAULIC HOOK-UP FOR TILT DEFAULT)



DOZER BLADE ASSEMBLY

7' DOZER BLADE ASSEMBLY #88861

(HYDRAULIC HOOK-UP FOR TILT DEFAULT)

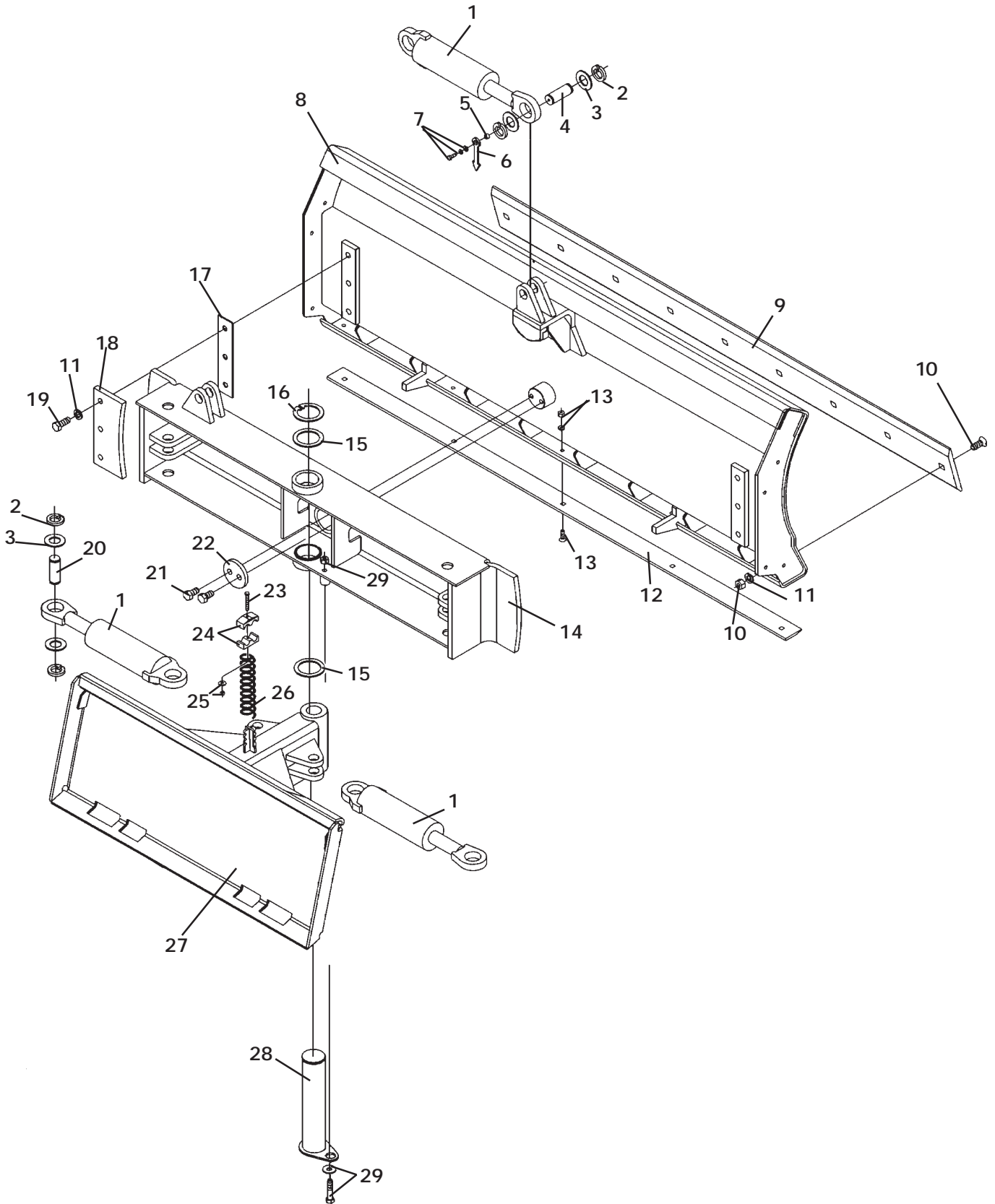
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3	1	37771	Hose .25" x 28.75" 6FJX-6FJX 45°
4	4	30143	90° Adapter 10MBo-6MJ
5	1	2243	Diverter Valve
	1	85386	DIN Connector
6	2	1225	.31" UNC Hex Nut
7	2	1502	.31" Lock Washer
8	2	1513	.31" Flat Washer
9	2	3362	Straight Adapter 10MBo-6MJ
10	2	1032	.31" UNC X 3.50" Hex Capscrew
11	2	37324	Hose .25" x 84" 6FJX-6MP
12	2	3007	Straight Adapter 8MP-6FP
13	1	37773	Hose .25" x 36" 6FJX-6FJX 90°
14	1	37774	Hose .25" x 28.62" 6FJX-6FJX 90°
15	2	30164	Lateral Tee Fitting 6MBo-6MJ-6MJ
16	2	37750	Hose .25" x 66" 6FJX-6FJX
17	1	89289	Wire & Plug Assembly

Not Shown:

1	84924	Male Coupler
1	84925	Female Coupler

DOZER BLADE ASSEMBLY

8' DOZER BLADE ASSEMBLY #89681



DOZER BLADE ASSEMBLY

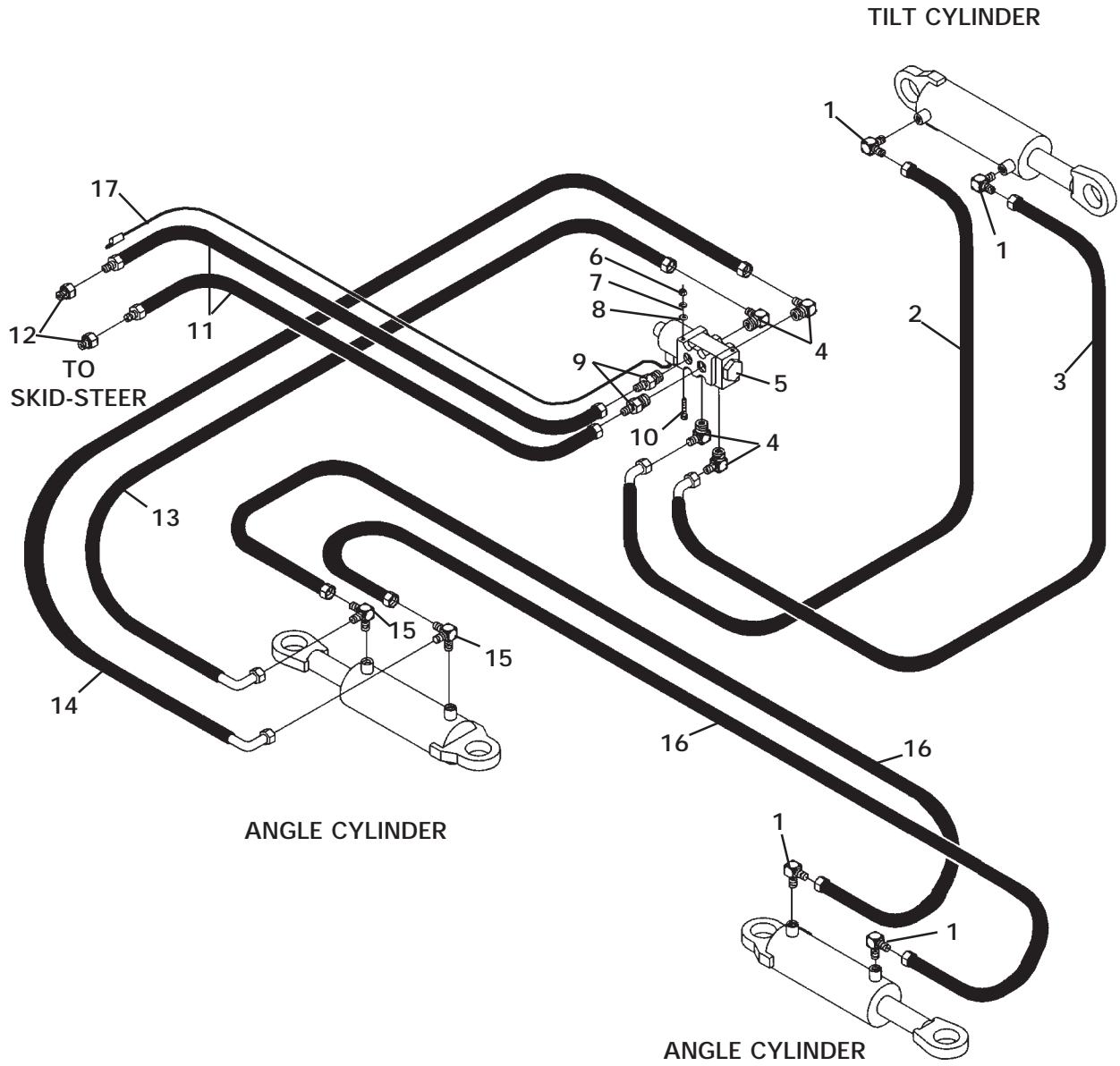
8' DOZER BLADE ASSEMBLY #89681

<u>NO</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	3	89001	Cylinder Assembly
	5	6616	Grease Zerk
	1	53031	90° Grease Zerk (Tilt Cylinder)
2	12	1650	Snap Ring
3	12	64724	Thrust Washer
4	1	89860	Pin
5	1	81807	Spacer Tube
6	1	89859	Arrow Indicator
7	1	1043	.38" UNC X 1.00" Hex Capscrew
	1	1503	.38" Lock Washer
	1	1525	.38" Flat Washer
8	1	89682	Moldboard
9	1	89687	Blade Cutter Edge
10	11	1937	.75" UNC X 2.50" Plow Bolt
	11	1231	.75" UNC Hex Nut
11	17	1507	.75" Lock Washer
12	1	89686	Bottom Skid Blade
13	7	1712	.50" UNC X 1.00" Plow Bolt
	7	1505	.50" Lock Washer
	7	1228	.50" UNC Hex Nut
14	1	88875	Tilt Frame
	1	89436	Replacement Bushing
	1	6616	Grease Zerk
15	1	89007	Washer &
	1	31936	Washer
16	1	1665	Snap Ring
17	2	88998	Shim
18	2	88995	Guide Plate
19	6	1139	.75" UNC X 2.00" Hex Capscrew
20	5	89006	Pin
21	2	1548	.75" UNC X 1.25" Nylock Capscrew
22	1	88996	Cap Plate
23	1	1096	.50" UNC X 3.00" Hex Capscrew
24	1	81358	Double Hose Clamp
25	1	1525	.38" Flat Washer
	1	1790	.50" Serrated Flange Lock Nut
26	1	22288	Spring
27	1	88986	Rear Frame
	2	89436	Replacement Bushing
	2	6616	Grease Zerk
28	1	88992	Pivot Pin
29	1	1839	.62" UNC Deformed Oval Lock Nut
	1	1517	.62" Flat Washer
	1	1120	.62" UNC X 3.00" Hex Capscrew

DOZER BLADE ASSEMBLY

8' DOZER BLADE ASSEMBLY #89681

(HYDRAULIC HOOK-UP FOR ANGLE DEFAULT)



DOZER BLADE ASSEMBLY

8' DOZER BLADE ASSEMBLY #89681

(HYDRAULIC HOOK-UP FOR ANGLE DEFAULT)

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4	4	30143	90° Adapter 10MBo-6MJ
5	1	2243	Diverter Valve
	1	85386	DIN Connector
6	2	1225	.31" UNC Hex Nut
7	2	1502	.31" Lock Washer
8	2	1513	.31" Flat Washer
9	2	3362	Straight Adapter 10MBo-6MJ
10	2	1032	.31" UNC X 3.50" Hex Capscrew
11	2	37324	Hose .25" x 84" 6FJX-6MP
12	2	3007	Straight Adapter 8MP-6FP
13	1	37773	Hose .25" x 36" 6FJX-6FJX 90°
14	1	37774	Hose .25" x 28.62" 6FJX-6FJX 90°
15	2	30164	Lateral Tee Fitting 6MBo-6MJ-6MJ
16	2	37750	Hose .25" x 66" 6FJX-6FJX
17	1	89289	Wire & Plug Assembly

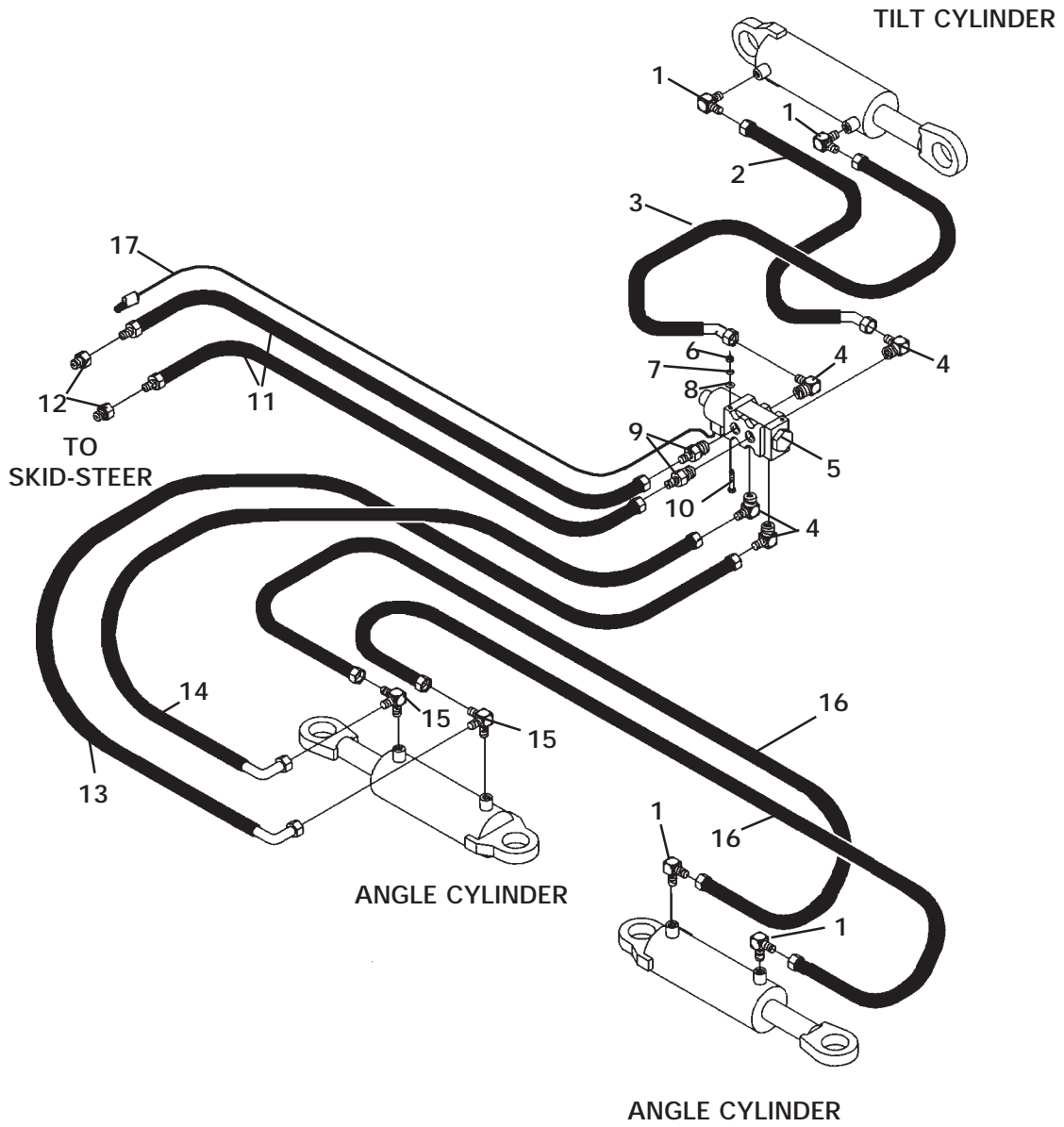
Not Shown:

1	84924	Male Coupler
1	84925	Female Coupler

DOZER BLADE ASSEMBLY

8' DOZER BLADE ASSEMBLY #89681

(HYDRAULIC HOOK-UP FOR TILT DEFAULT)



DOZER BLADE ASSEMBLY

8' DOZER BLADE ASSEMBLY #89681

(HYDRAULIC HOOK-UP FOR TILT DEFAULT)

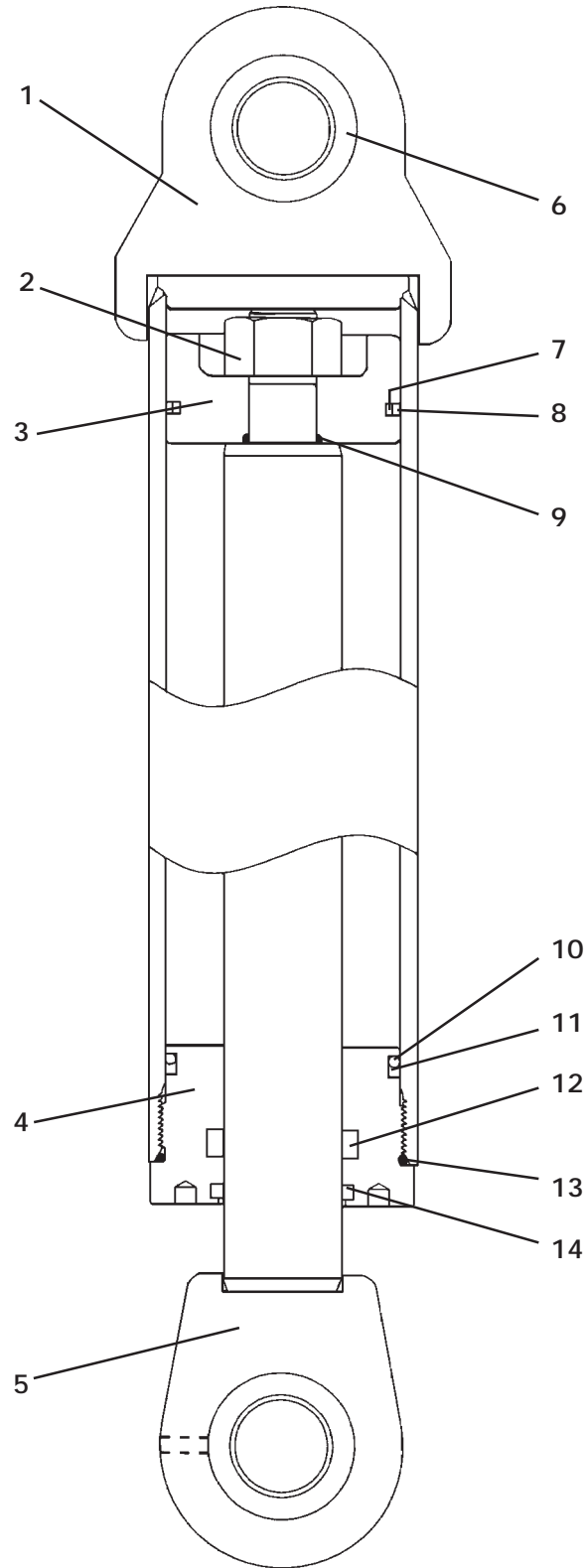
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15	2	30164	Lateral Tee Fitting 6MBo-6MJ-6MJ
16	2	37750	Hose .25" x 66" 6FJX-6FJX
17	1	89289	Wire & Plug Assembly

Not Shown:

1	84924	Male Coupler
1	84925	Female Coupler

CYLINDER ASSEMBLY

ASSEMBLY #89001



CYLINDER ASSEMBLY

ASSEMBLY #89001

<u>NO</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	89002	Cylinder Tube
2	1	1483	Nut
3	1	82817	Piston
4	1	77451	Cylinder Gland
5	1	89004	Cylinder Rod
6	2	6615	Self-Aligning Bushing
7	1	45245*	O'Ring
8	1	45244*	Piston Ring
9	1	4641*	O'Ring
10	1	45242*	O'Ring
11	1	45243*	Back-Up Washer
12	1	45119*	Poly-Pak Seal
13	1	45412*	O'Ring
14	1	45370*	Rod Wiper

NOTE: Seal Kit #45415 includes all parts marked with an asterisk (*). Parts are not sold separately.

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BLADE INSTALLATION

GENERAL INFORMATION

The following instructions will help you to mount your blade onto your skid-steer loader. The blade uses the skid-steer's quick-attach system for ease of installation. Therefore, if you know how to attach the skid-steer bucket, attaching the blade should prove no problem.

Remember to read all safety warnings, decals and operating instructions before operating the skid-steer or blade.

MOUNTING INSTRUCTIONS

1. Remove the steel shipping banding from around the blade and skid.
2. Remove any attachments from the front of the skid-steer loader.
3. Set the quick-attach locks on the skid-steer toolbar to the unlocked position. Lower the loader arms and tilt the toolbar down low enough to pass under the top lip of the rear frame of the blade.
4. Following all standard safety practices, start the skid-steer and slowly drive it in back of the blade. Position the skid-steer so that the top of the toolbar is in under the lip of the hitch on the rear frame.
5. Tilt the toolbar back to hook the blade onto the toolbar. It may be necessary to lift the loader arms slightly.
6. Set the quick-attach locks to the locked position to secure the blade onto the skid-steer. It may be necessary to raise, lower or tilt the toolbar to properly align so the locking mechanism can be activated.
7. With the auxiliary hydraulic system turned off, route the hydraulic hoses over the rear frame and toolbar and connect them to their proper auxiliary couplers on the skid-steer.
8. Connect the wire assembly from the hydro-electric valve on the blade to the optional control box or to skid-steer's auxiliary electrical outlet (if so equipped).
9. Complete the predelivery checklist located in the back of this manual (Section R). Blade installation is now complete.

OPERATING INSTRUCTIONS

CONTROLS

GENERAL INFORMATION

Simplicity of operation is one of the key features of the BRADCO dozer blades. There are just a few controls and adjustments to make that affect the blade. It is important however, to be familiar with, and know the controls and adjustments on both the blade and skid-steer. Such knowledge is crucial for safe efficient operation of equipment. Take the time to learn how they operate now.

THE SKID-STEER

The blade mounts to the toolbar/quick-attach mechanism of your skid-steer loader. Due to this arrangement, thorough knowledge of the skid-steer controls is necessary for blade operation. Read your skid-steer operator's manual for information regarding skid-steer operation before attempting to use the blade.

RAISING / LOWERING THE BLADE

Raise / lower the blade unit by raising / lowering the skid-steer loader arms through their appropriate skid-steer controls.

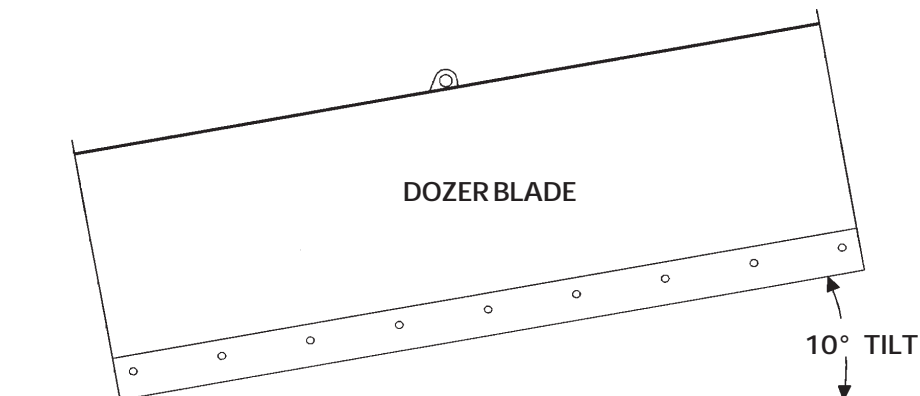
WARNING! Be aware of any overhead power or telephone lines, tree limbs, etc., that the raised blade / loader arms could come into contact with. Take notice of any water or gas shut offs, stumps, sidewalk edges etc., that the lowered blade could come into contact with. Contact with electrical lines could cause electrocution and death.



TILTING THE BLADE

The dozer blade is tilted hydraulically by one tilt cylinder connected to the blade and the tilt frame. The blade can be tilted 10° each way from horizontal (left or right) and this can be measured by the tilt indicator arrow located on the back of the blade. See Figure #1

FIGURE #1



OPERATING INSTRUCTIONS

CONTROLS

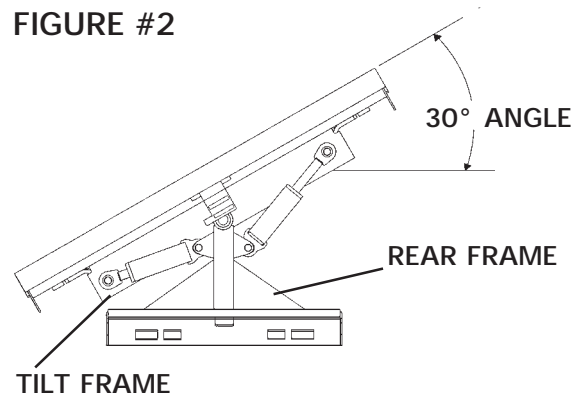
The tilt cylinder is activated by the auxiliary hydraulic system controls. See your skid steer owner's manual for location and proper operation of auxiliary hydraulic system controls and operate accordingly to tilt the blade left or right when the hydraulic system on your blade is routed in such a way that TILT is your default. If tilt is not the default on your blade HOLD down the toggle switch on the control box for secondary auxiliary controls and operate in the same manner.

ANGLING THE BLADE

The dozer blade is angled hydraulically by two angle cylinders connected to the blade and the tilt frame and rear frame. It can be angled 30° left or right. See Figure #2

The angle cylinders are activated by the auxiliary hydraulic system controls. See your skid steer owner's manual for location and proper operation of auxiliary hydraulic system controls and operate accordingly to angle the blade left or right when the hydraulic system on your blade is routed in such a way that ANGLE is your default. If angle is not the default on your blade HOLD down the toggle switch on the control box for secondary auxiliary controls and operate in the same manner.

FIGURE #2



IMPORTANT: IF AFTER OPERATING YOUR DOZER YOU PREFER TO CHANGE THE DEFAULT OPERATION OF YOUR BLADE, REFER TO THE HYDRAULIC PARTS DIAGRAMS IN SECTION E OF THIS MANUAL. STUDY THE DIAGRAMS AND SWITCH THE EXISTING HOSES AROUND TO THE CORRECT LOCATION FOR THE DESIRED DEFAULT.

CAUTION! Drive slowly and with caution when operating the blade. The force of the impact if the blade hits an immovable object could cause damage to the blade & skid-steer, and injury to the operator.



BLADE FLOAT

For some conditions (such as plowing snow) you may want the blade in float position. This is done by engaging the skid-steer loader arms into float position. This allows the blade to follow the contour of the surface without digging in. See your skid-steer operators manual for float position control instructions.

OPERATING INSTRUCTIONS

OPERATING TECHNIQUES

GENERAL INFORMATION

The design of your blade 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 of this manual before you begin. (See Section B)

CAUTION! Operate the blade only when seated at the skid-steer controls.



Do not operate the skid-steer without proper ROPS (Roll-Over-Protective-Structure), seatbelt, 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 blade while the skid steer is running.

Take the time to become familiar with the blade and its controls. Learn how to operate the blade before you actually start the job. Time spent familiarizing yourself with the controls now will pay off with a safer, more efficient operation later.

Prior to starting the job, take the time to check for and mark any hidden obstructions such as sidewalk edges, water and gas shut offs, etc. Hitting such obstructions when operating the blade at higher speeds could cause damage to the obstruction, blade, and skid-steer not to mention injuring the operator. If you think there may be any hidden obstructions, operate at a low speed.

Take notice of the ground conditions and operate accordingly. Be aware of soft ground or rocky conditions. Drive slow when traveling on slopes, hilly ground, or when turning.

Additional requirements may be necessary for proper traction in snow or soft ground. See you skid-steer dealer for possible tire track options.

The blade is designed for pushing snow and grading material. In the case of pushing snow the best results are usually obtained by angling the blade to the left or right. For grading you will find the best results are usually obtained with the blade tilted perpendicular to the skid-steer frame.

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 SYMBOLS

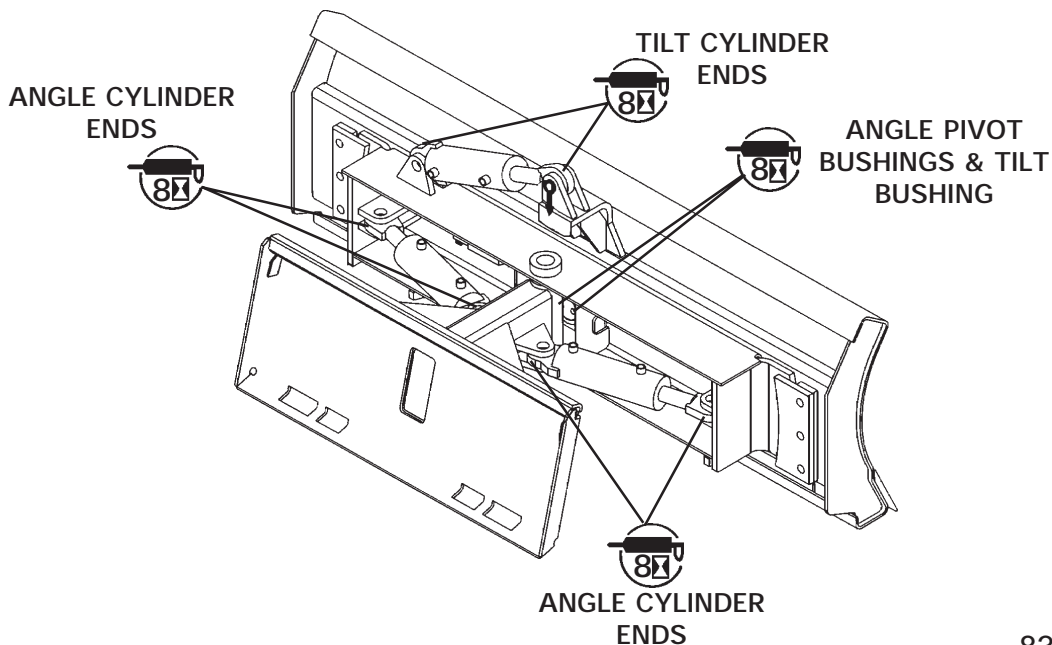
The following symbol is used on the lubrication diagram. It is reproduced here with its meaning for your convenience.



Lubricate daily or every 8 hours of operation, whichever comes first, with SAE Multi-Purpose Lubricant or an equivalent SAE Multi-Purpose type grease.

CAUTION! Shut off vehicle engine before lubricating equipment.

The following diagram is provided to help you locate all the points on your blade that need lubricating. Be sure to follow the lubrication intervals as noted by the symbols on this page. Always replace any missing grease fittings as soon as possible. [There are nine grease fittings on the Pow-R-Dozer. Two on each cylinder, two on the angle pivot bushings (rear frame) and one on the tilt pivot bushing (tilt frame).]



MAINTENANCE

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.

EVERY 8 HOURS OF OPERATION

Grease all swivel points thoroughly. The ram and base end of all cylinders, angle pivot bushings and the tilt bushing. Excessive wear and even mechanical damage to pins and cylinders can result from inadequate lubrication. Use a multi-purpose grease. Refer to Section H.

EVERY 40 HOURS OF OPERATION

Physically check all pins, nuts, etc., for signs of wear or loose fit. Tighten as required, replacing where necessary. (Bolts and pins may vibrate loose during operation.) Clean equipment of all dirt and excessive grease. This will assist you in making visual inspection and help avoid overlooking worn or damaged components.

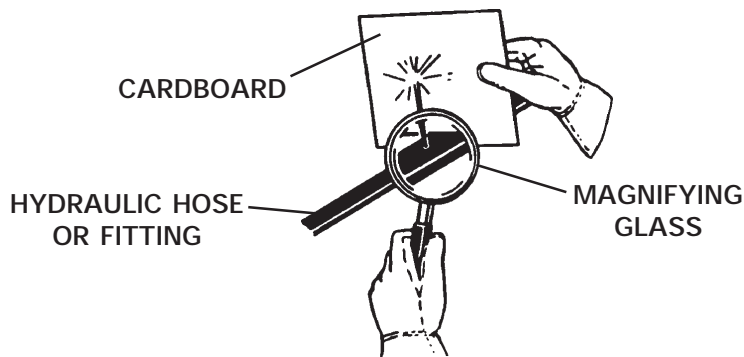
Check the hydraulic lines and cylinders for signs of leaking.

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 or her to research immediately to determine proper treatment.



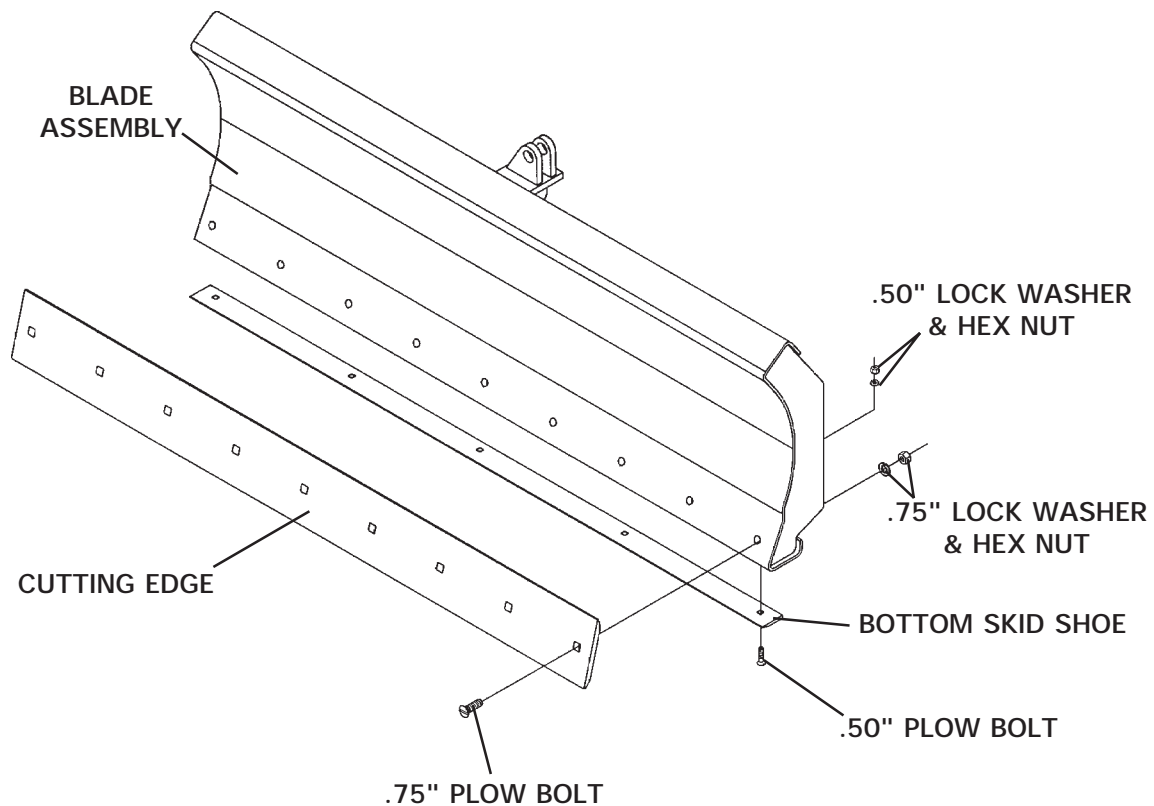
You may want to consider periodical waxing of the front surface of the blade and moldboard. Waxing will help keep snow and ice from building up on the blade during winter use.

CUTTING EDGE AND SKID SHOE REPLACEMENT

The cutting edge and skid shoe are subject to wear due to their vary nature. Replacement cutting edges and skid shoes are available from your dealer. Replacement is a simple bolt on procedure. See Figure #1

NOTE: The cutting edge on the dozer blade is a reversible cutting edge and when wear is determined the cutting edge can be removed, flipped end for end and rebolted onto the blade assembly. When both edges are worn replacement is required.

FIGURE #1



MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

GENERAL INFORMATION

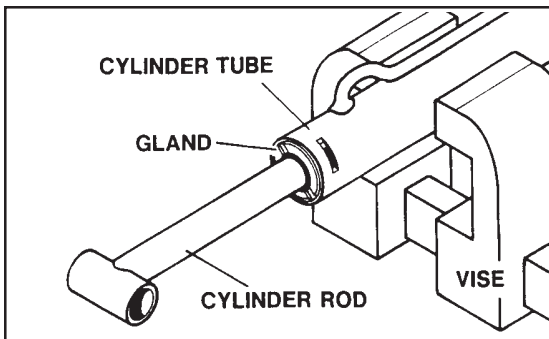
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic 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

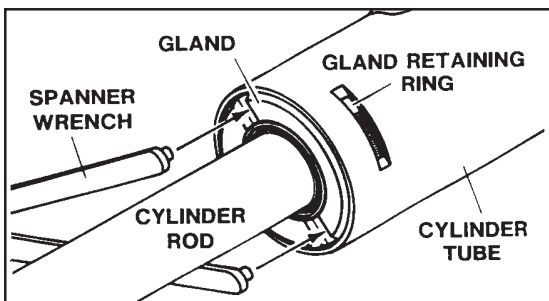
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

RETAINING RING TYPE GLAND

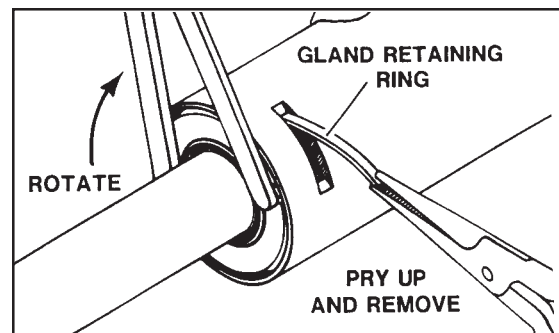
1. Mount the cylinder tube securely in a vise. **CAUTION:** Do not clamp too tight and distort the tube.



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

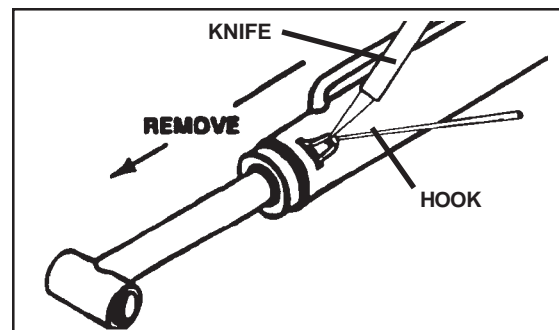


Pry up the end of the gland retaining ring with a pointed tool. Rotate the



gland with a spanner wrench while removing the retaining ring.

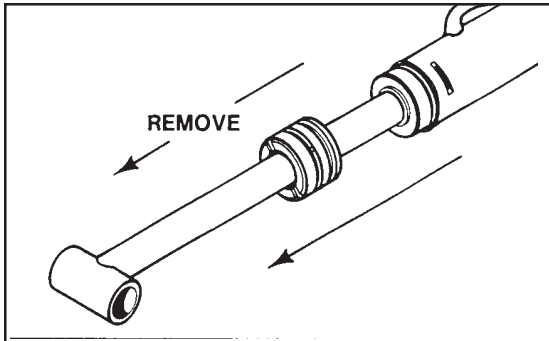
NOTE: On cylinders with gland retaining rings, the gland and piston seal(s) can be pulled out and cut as they appear in the milled slot during disassembly. After cutting, pull them on out through the milled slot.



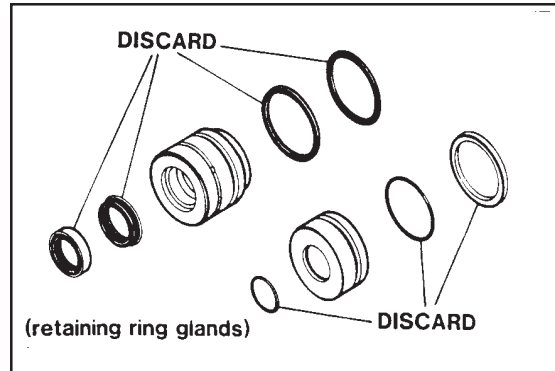
MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

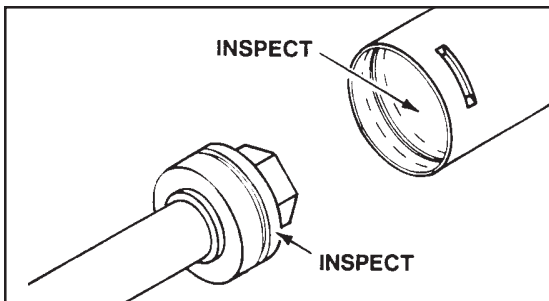
3. Pull the cylinder rod from the cylinder tube.



6. Remove and discard all old seals.

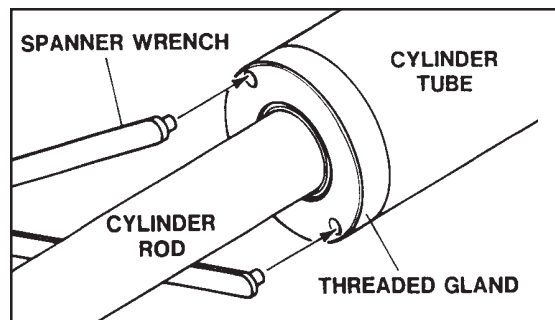


4. Inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston and cylinder tube must be replaced.

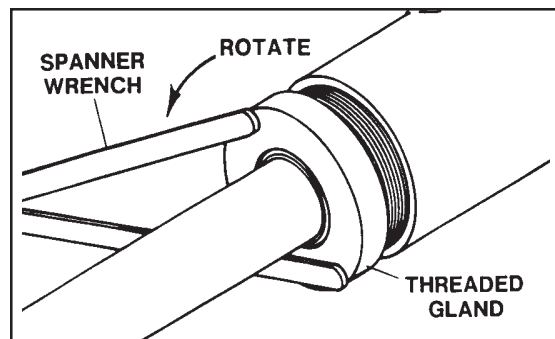
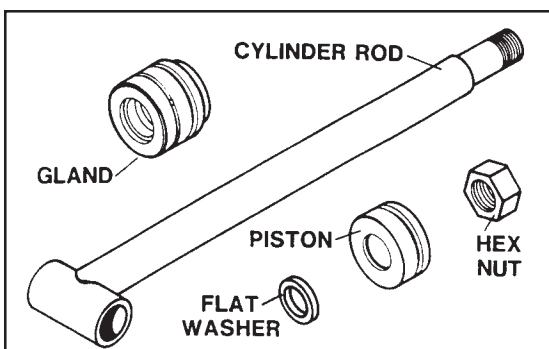


THREADED TYPE GLAND

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



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.

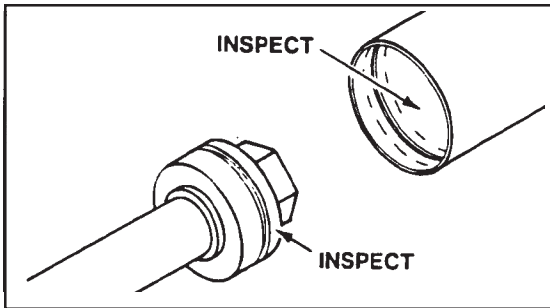


2. Pull the cylinder rod from the cylinder tube same as shown with the retaining ring type gland.

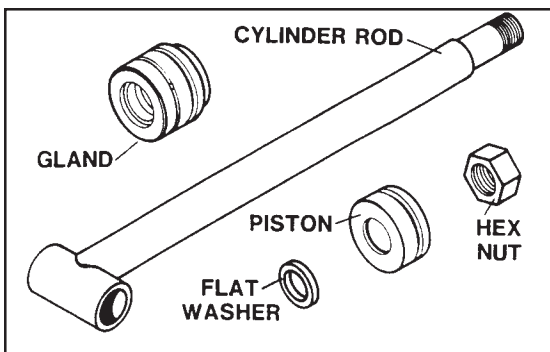
MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

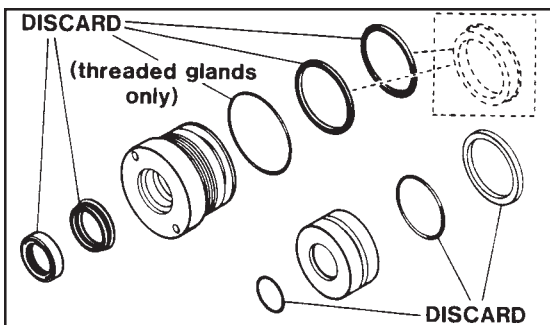
3. Inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston and cylinder tube must be replaced.



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.



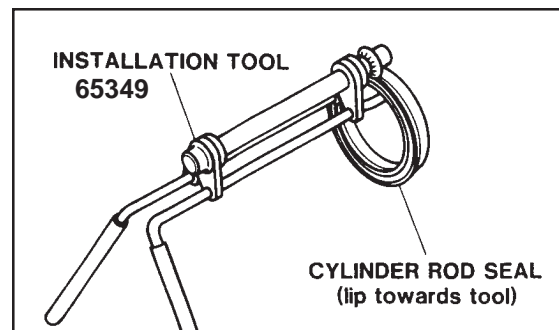
ASSEMBLY PROCEDURE

GENERAL

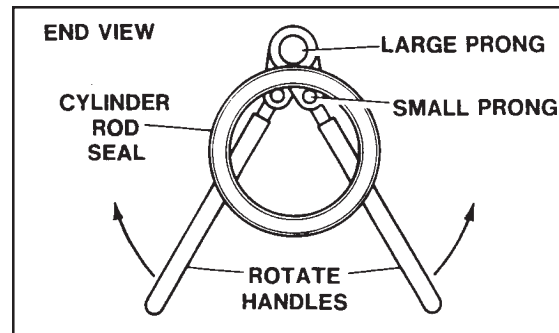
IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure.

1. Install the cylinder rod seal in the gland first. Be careful 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.

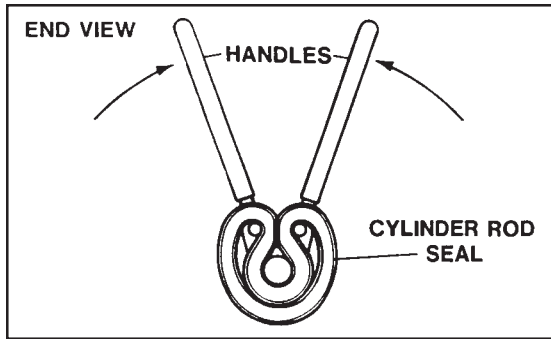


Rotate the handles on the tool around to wrap the seal around the end of the tool.

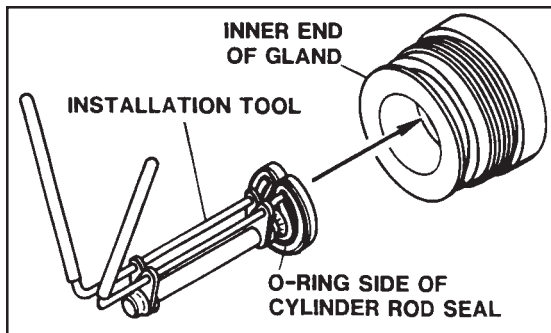


MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE



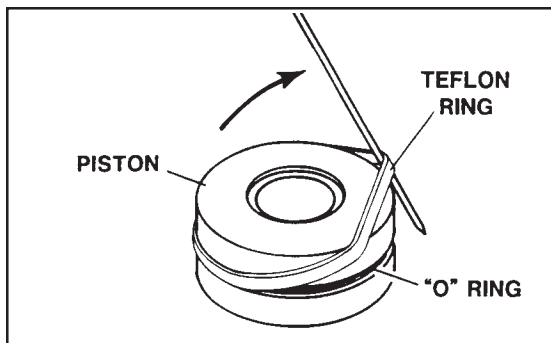
Now insert the seal into the gland from the inner end. Position the seal in its groove, and release and remove the tool. Press the seal into its seat the rest of the way by hand.



NOTE: Threaded gland is shown above for reference.

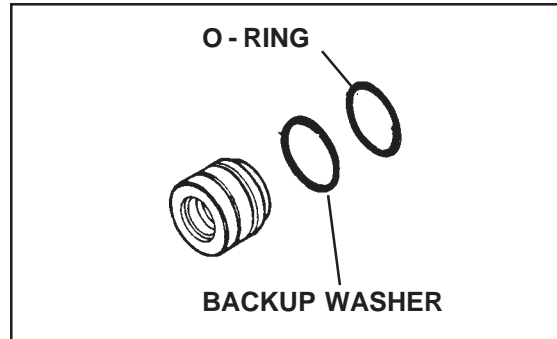
2. Install the new piston ring, rod wiper, O-rings, and backup washers, if applicable, on the piston.

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.

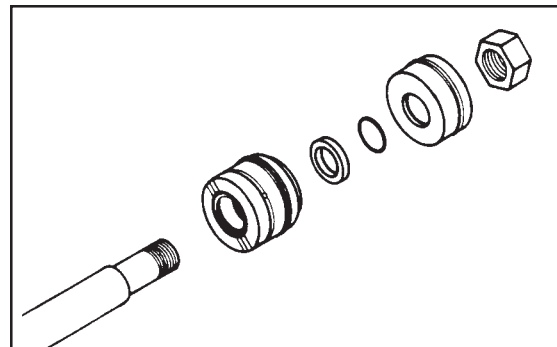


RETAINING RING TYPE GLAND

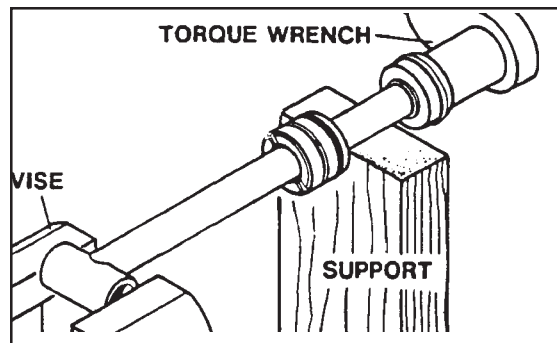
1. After installing the internal gland seal, install the external O-ring and backup washer.



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

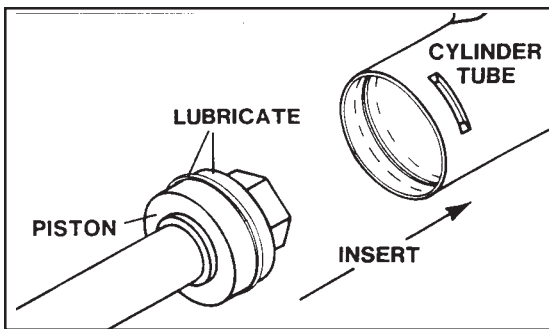


MAINTENANCE INSTRUCTIONS

CYLINDER SEAL REPLACE

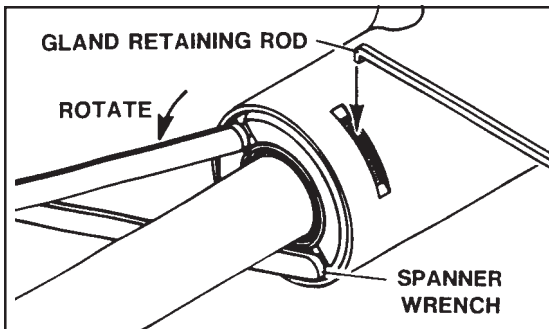
shown on the chart for the thread diameter of the cylinder rod.(see chart)
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

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



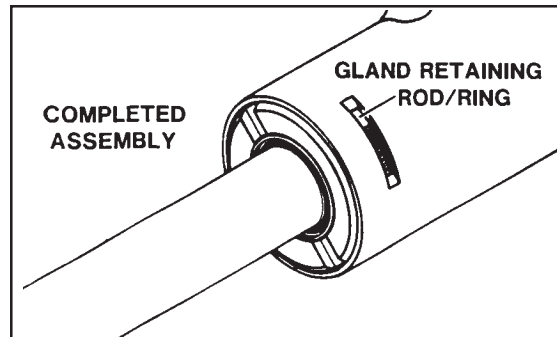
IMPORTANT: Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.

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.

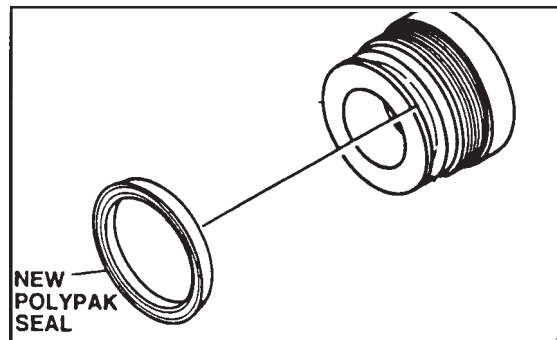
When complete, the bent end of the gland retainer ring should be hidden (not turned so it is exposed in the slot) to prevent it from popping out.



THREADED TYPE GLAND

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

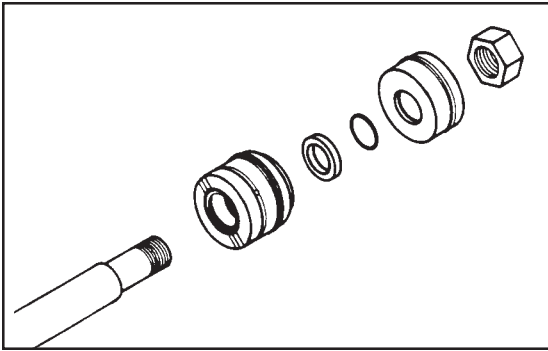
NOTE: Threaded glands may have been equipped with a separate O-ring and backup washer system or a polypak (all-in-one) type seal. Current seal kits contain a polypak (all-in-one) type seal to replace the discarded seal types on all threaded glands.



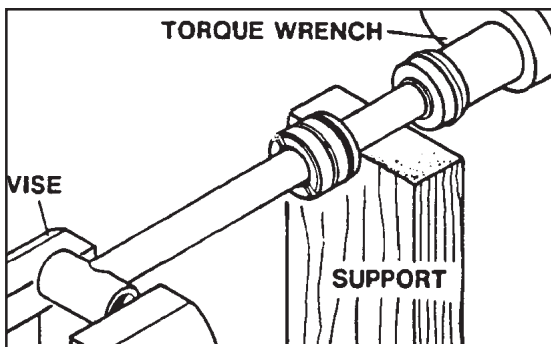
MAINTENANCE INSTRUCTIONS

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.



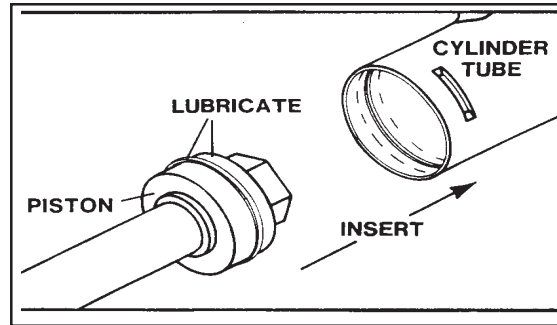
3. Secure the cylinder rod (mounting end) in a vise, with a support at its center. Torque the nut to the amount shown for the thread diameter of the cylinder rod (see chart).



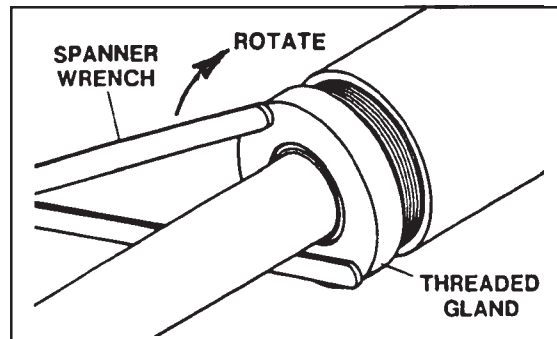
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

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.

WARNING! 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.

STORAGE

GENERAL INFORMATION

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

PREPARATION FOR STORAGE

1. Clean the blade exterior thoroughly, removing all mud, dirt, and grease.
2. Inspect blade for visible signs of wear, breakage or damage. Order any parts required and make the necessary repairs to avoid delays when starting next season.
3. Tighten all loose nuts and capscrews.
4. Grease all grease fittings. (See Section H)
5. Coat the exposed portions of the cylinder rods with grease.
6. Connect the hydraulic couplers together to protect the hydraulic system from contaminants.
7. Touch up all unpainted and exposed areas with paint to prevent rust.
8. Replace decals if damaged or in unreadable condition.
9. Store the blade in a dry and protected place. Leaving the blade outside will materially shorten its life.

NOTE: Waxing of the front surface of the blade and moldboard will help keep snow and ice from building on the blade during winter use.

REMOVING FROM STORAGE

1. Remove all protective coverings.
2. Check hydraulic hoses for deterioration and replace if necessary.

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TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Blade fails to tilt or angle.	Improper hose hook-up.	Check hydraulic diagram.
	Broken hydraulic line.	Check and Replace.
	Hydraulic couplers malfunctioning or non-compatible.	Replace.
Blade angling or tilting too slowly.	Cold oil.	Warm oil with engine at idle.
	Engine speed too slow.	Open throttle.
	Restriction in diverter valve.	Clean or Replace.
	Oil leaking past cylinder packings.	Replace cylinder packings.
Blade fails to maintain angle or tilt.	Broken or leaking hydraulic lines.	Replace broken hose and check for leaks.
	Oil leaking past cylinder packings.	Rplace cylinder packings.
	Internal leak in diverter valve.	Clean or Replace.
	Skid-steer relief too low.	Adjust relief as per skid-steer manufacturer's instructions.
Oil heating.	Poor operating technique causing excessive oil flow.	Learn smooth operating methods.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
External leaking.	Cylinder seals damaged.	Replace and Repair.
	Broken or loose hydraulic line.	Check for leaks and repair or replace.
Blade functions in default circuit only.	No electrical power to the blade diverter valve.	Check for proper connections in control box or auxiliary electrical circuit on the skid-steer.
Blade functions in default circuit only WITH power to the solenoid.	Blade diverter valve coil malfunctioning.	Repair or replace.
	Spool in valve sticking.	Clean or replace.



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		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

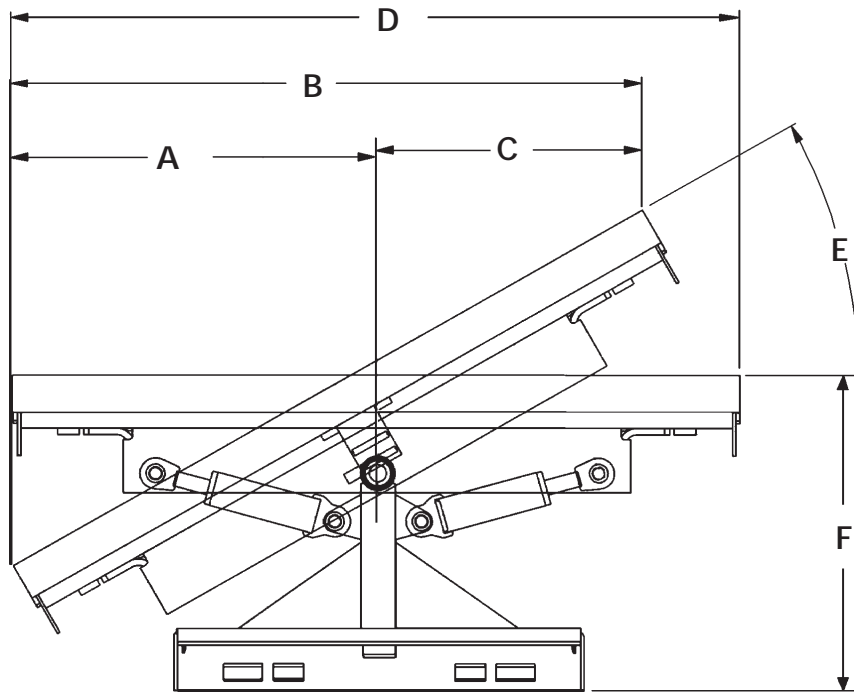
METRIC BOLT TORQUE SPECIFICATIONS

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

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SPECIFICATIONS

DOZER BLADES



SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE AND WITHOUT LIABILITY THEREFOR.

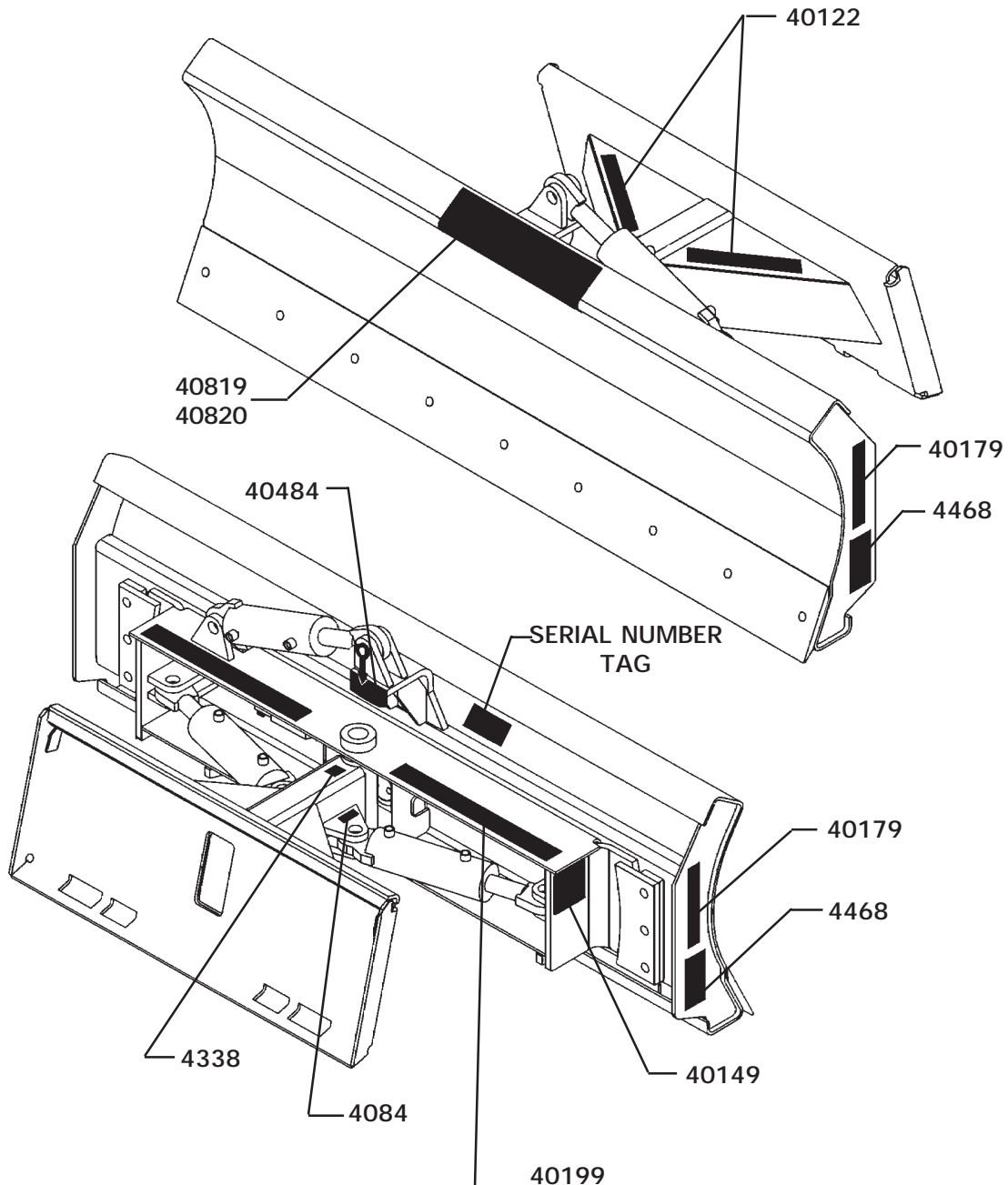
DESCRIPTION	ATP84	ATP96
A. Width From Centerline to Inside Edge @ 15° Angle	43.53"	49.31"
Width From Centerline to Inside Edge @ 30° Angle	42.19"	47.38"
B. Dozer Blade Width @ 15° Angle	81.13"	92.73"
Dozer Blade Width @ 30° Angle	73.13"	83.56"
C. Width From Centerline to Outside Edge @ 15° Angle	37.63"	43.41"
Width From Centerline to Outside Edge @ 30° Angle	30.94"	36.16"
D. Overall Width	84.00"	96.00"
E. Angle Left and Right	30°	30°
F. Overall Length	36.68"	36.68"
Overall Height	29.89"	29.89"
Approx. Weight	1365#	1460#
<u>CYLINDER SPECIFICATIONS</u>		
Bore	3.50"	3.50"
Stroke	8.00"	8.00"
Rod Diameter	1.75"	1.75"

DECALS

DECAL PLACEMENT

GENERAL INFORMATION

The diagrams on this page show the location of all the decals used on the Dozer Blade. 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 blade. They contain information you need to know for both safety and blade longevity.



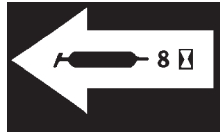
DECALS



DANGER! PINCH POINTS
PART #40149



MADE IN U.S.A.
PART #4338



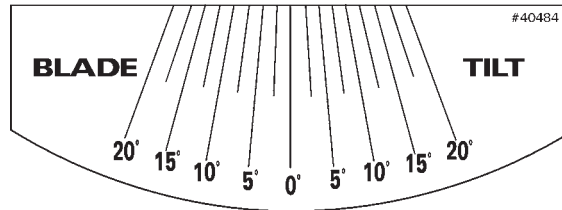
GREASE 8 HOURS
PART #4084



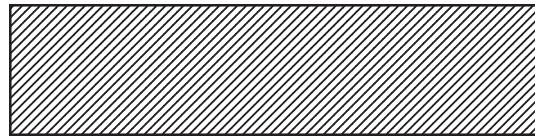
WARNING!
PART #4468

**B
R
A
D
C
O**

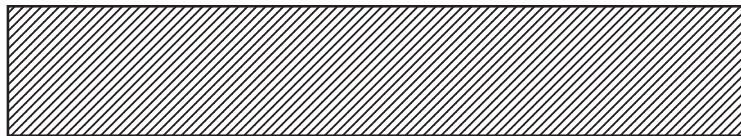
BRADCO LOGO
PART #40179



TILT INDICATOR DECAL
PART #40484



NON-SLIP SURFACE (2" X 11")
PART #40122



NON-SLIP SURFACE (2" X 15")
PART #40199

ATP84 ATP96

ATP84 MODEL NUMBER
PART #40819

ATP96 MODEL NUMBER
PART #40820

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PREDELIVERY CHECKLIST

GENERAL INFORMATION

The following is a list of areas that should be inspected by the dealer prior to delivery of the blade 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 blade in complete working order, ready to install.

PREDELIVERY CHECKLIST - CHECK AND ADJUST AS NECESSARY

1. _____ Visually inspect the blade for bent, loose, cracked, damaged or missing parts. Check for any other irregularities.
2. _____ Check and lubricate blade if necessary. See "Lubrication" Section H.
3. _____ Check blade bolts for tightness. Retighten after the first eight working hours, and after every forty working hour intervals thereafter. See "Bolt Torque", Section O.
4. _____ Remove paint from unfinished chrome surfaces of cylinders.
5. _____ Run cylinders through their full cycle to purge any air from the system.
6. _____ Check all hydraulic connections for leaks and all hoses for proper positioning to reduce chafing and binding.
7. _____ Make sure decals are not damaged or missing and are in their correct location. See "Decals" Section Q.
8. _____ Make sure customer has the necessary couplers to attach the blade hoses to the skid-steer auxiliary hydraulic couplers.
9. _____ Complete and return the manufacturer's "Warranty Validation Form" and sign your dealership predelivery checklist.

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Limited Warranty

Except for the Excluded Products as described below, all new products are warranted to be free from defects in material and/or workmanship during the Warranty Period, in accordance with and subject to the terms and conditions of this Limited Warranty.

1. Excluded Products. The following products are excluded from this Limited Warranty:

(a) Any cable, part that engages with the ground (i.e. sprockets), digging chain, bearing, teeth, tamping and/or demolition head, blade cutting edge, pilot bit, auger teeth and broom brush that either constitutes or is part of a product.

(b) Any product, merchandise or component that, in the opinion of Paladin Light Construction¹, has been (i) misused; (ii) modified in any unauthorized manner; (iii) altered; (iv) damaged; (v) involved in an accident; or (vi) repaired using parts not obtained through Paladin Light Construction.

2. Warranty Period. The Limited Warranty is provided only to those defects that occur during the Warranty Period, which is the period that begins on the first to occur of: (i) the date of initial purchase by an end-user, (ii) the date the product is first leased or rented, or (iii) the date that is six (6) months after the date of shipment by Paladin Light Construction as evidenced by the invoiced shipment date (the "Commencement Date") and ends on the date that is twenty-four (24) months after the Commencement Date.

3. Terms and Conditions of Limited Warranty. The following terms and conditions apply to the Limited Warranty hereby provided:

(a) Option to Repair or Replace. Paladin Light Construction shall have the option to repair or replace the product.

(b) Timely Repair and Notice. In order to obtain the Limited Warranty, (i) the product must be repaired within thirty (30) days from the date of failure, and (ii) a claim under the warranty must be submitted to Paladin Light Construction in writing within thirty (30) days from the date of repair.

(c) Return of Defective Part or Product. If requested by Paladin Light Construction, the alleged defective part or product shall be shipped to Paladin Light Construction at its manufacturing facility or other location specified by Paladin Light Construction, with freight PRE-PAID by the claimant, to allow Paladin Light Construction to inspect the part or product.

Claims that fail to comply with any of the above terms and conditions shall be denied.

LIMITATIONS AND EXCLUSIONS.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY BASED ON A COURSE OF DEALING OR USAGE OF TRADE.

IN NO EVENT SHALL PALADIN LIGHT CONSTRUCTION BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES.

IN NO EVENT SHALL PALADIN LIGHT CONSTRUCTION BE LIABLE FOR ANY LOSS OR CLAIM IN AN AMOUNT IN EXCESS OF THE PURCHASE PRICE, OR, AT THE OPTION OF PALADIN LIGHT CONSTRUCTION, THE REPAIR OR REPLACEMENT, OF THE PARTICULAR PRODUCT ON WHICH ANY CLAIM OF LOSS OR DAMAGE IS BASED. THIS LIMITATION OF LIABILITY APPLIES IRRESPECTIVE OF WHETHER THE CLAIM IS BASED ON BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHER CAUSE AND WHETHER THE ALLEGED DEFECT IS DISCOVERABLE OR LATENT.

¹Attachment Technologies Inc., a subsidiary of Paladin Brands Holding, Inc. (PBHI) is referred to herein as Paladin Light Construction.