

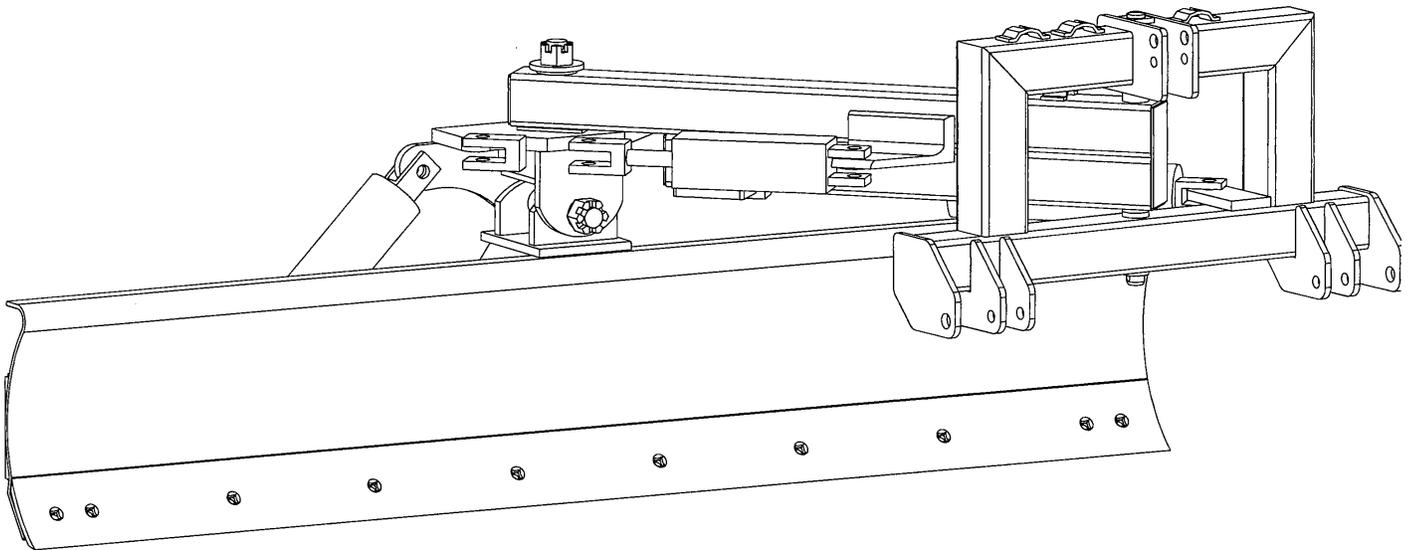


TAYLOR PITTSBURGH MFG., INC.  
P.O. BOX 1866  
ATHENS, TN 37371  
423-745-3110

---

# RMB8500 SERIES GRADER BLADES

---



**OWNER'S MANUAL**

Form Number #815013  
December 2003

---

**TO THE DEALER:**

The rear blade assembly and proper hookup to the tractor is the responsibility of the TAYLOR/PITTSBURGH dealer. Read manual instructions and safety rules. Make sure all items on the Pre-delivery and Delivery Check Lists are completed before releasing equipment to the owner.

**TO THE OWNER:**

Read this manual before operating your TAYLOR/PITTSBURGH rear blade. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all the adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your dealer or by calling 1-800-456-7929, in the USA and Canada only.

The rear blade you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the rear blade and tractor.

For service, your authorized TAYLOR/PITTSBURGH dealer has trained mechanics, genuine TAYLOR/PITTSBURGH service parts, and the necessary tools and equipment to handle all your needs. Use only genuine TAYLOR/PITTSBURGH service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. For your records, fill in the following:

**Date Purchased:** \_\_\_\_\_ **Dealer:** \_\_\_\_\_

**Model:** \_\_\_\_\_ **Serial Number:** \_\_\_\_\_

Provide this information to your dealer to obtain correct repair parts.

**LIMITED WARRANTY**

TAYLOR/PITTSBURGH DIVISION OF T.I.C. UNITED CORP., the manufacturer, warrants only to the Original Purchaser that this equipment, under normal use and service, will be free from defects in material and workmanship for one (1) year from date of purchase providing this equipment is purchased for individual and not for commercial use. This warranty does not apply to any equipment which has been damaged or which has been subjected to change, misuse, negligence, abnormal wear and tear, alterations, tampering, or failure to follow operating instructions. This warranty does not cover any product or parts not manufactured by Taylor/Pittsburgh Division.

Under this warranty, the manufacturer will repair or replace any part which the manufacturer determines has failed during the period of the warranty due to defects in material or workmanship. After written approval by the manufacturer, the equipment or defective part must be returned to Taylor/Pittsburgh Division, Athens, Tennessee 37303.

Warranty coverage and performance is expressly conditioned upon the return of the completed registration form to Taylor/Pittsburgh Division, Athens, Tennessee 37303.

PURCHASER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY, OTHER DEFECT, OR CONDUCT GIVING RISE TO LIABILITY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT SOLD, AND THE MANUFACTURER UNDER NO CIRCUMSTANCES SHALL BE LIABLE FOR ECONOMIC LOSS OR INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE MANUFACTURER DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR PURPOSE.

Taylor/Pittsburgh Division reserves the right to make improvements and changes in specifications without notice or obligation to modify previously sold units.

This manual describes the proper assembly procedures for your implement and furnishes operating and maintenance recommendations to help you obtain long and satisfactory service.

## SAFETY RULES



**ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



### SAFETY ALERT SYMBOL

**FIG. 1:** This is the safety alert symbol. It means **ATTENTION: BECOME ALERT! YOUR SAFETY IS INVOLVED!** Look for it, both in this manual and on safety decals on the equipment. It will direct your attention to information that involves your safety and the safety of others.



Figure 1

### SIGNAL WORDS

**FIG. 2:** The words **DANGER**, **WARNING** or **CAUTION** are used with the safety alert symbol. Learn to recognize these safety alerts, and follow the recommended precautions and safe practices.

 **DANGER:** The safety alert symbol, with the word **DANGER**, indicates an imminently hazardous situation that, if not avoided, will cause **DEATH OR VERY SERIOUS INJURY**.

 **WARNING:** The safety alert symbol, with the word **WARNING**, indicates a potentially hazardous situation that, if not avoided, could cause **DEATH OR SERIOUS INJURY**.

 **CAUTION:** The safety alert symbol, with the word **CAUTION**, indicates a potentially hazardous situation that, if not avoided, may cause a **MINOR INJURY**.



Figure 2

Replace any **DANGER**, **WARNING**, **CAUTION** or instructional decal that is not readable or is missing. The location and part number of these decals is identified later in the section of the manual.

**IMPORTANT:** The word **IMPORTANT** is used to identify special instructions or procedures which, if not strictly observed could result in damage to, or destruction of the machine, process or its surroundings.

## TABLE OF CONTENTS

---

WARRANTY .....	1
SAFETY SYMBOLS.....	2
INTRODUCTION .....	2
SPECIFICATIONS .....	4
SAFETY RULES .....	5 - 7
BOLT TORQUE CHART .....	7
SAFETY DECAL LOCATIONS .....	8
ASSEMBLY .....	9 - 11
BEFORE OPERATION .....	11
ATTACHING .....	11
OPERATION.....	12 - 14
TRANSPORTING .....	14
DETACHING .....	14
MAINTENANCE.....	14
STORAGE .....	15
OPTIONS .....	15
COMPONENTS .....	16 - 20

LEARN TO RECOGNIZE THIS SYMBOL!



It means: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

## SPECIFICATIONS

TRACTOR DRAWBAR RATING:	UP TO 85 HP
HITCH TYPE:	3 POINT -- CAT I & CAT II
BLADE WIDTHS:	6', 7', & 8' (1,828.8, 2,133.6, & 2,438.4mm)
BLADE ANGLING:	RATCHET JACK OR HYDRAULIC CYLINDER (OPTIONAL) FORWARD OR REVERSE 36 DEGREES RIGHT OR LEFT (INFINITELY ADJUSTABLE)
TILT:	RATCHET JACK OR HYDRAULIC CYLINDER (INFINITELY ADJUSTABLE) UP OR DOWN -- 24 DEGREES UP -- 28 DEGREES DOWN (INFINITELY ADJUSTABLE)
OFFSET:	MANUAL LINK OR HYDRAULIC CYLINDER (OPTIONAL) 28.75" (730.3mm) RIGHT TO 28.75" (730.3mm) LEFT
MOLDBOARD HEIGHT:	18" (457.2mm)
MOLDBOARD THICKNESS:	5/16" (7.93mm)
CUTTING EDGE:	1/2 x 6" (12.7 x 152.4mm) -- REVERSIBLE -- HEAT TREATED
PARKING STAND:	PIN TYPE
PIVOT DIAMETERS:	A-FRAME -- 1-3/8" (34.92mm) ANGLE -- 2-1/8" 53.98mm) TILT -- 1-1/2" (38.1mm)
MAST TUBE:	4" x 4" x 1/4" WALL (101.6 x 101.6 x 6.35mm)
SWING FRAME TUBE:	4" x 4" x 3/8" WALL (101.6 x 101.6 x 9.52mm)
APPROXIMATE WEIGHT:	6 FOOT (1,828.8mm) -- 761 LBS. (345.2 Kg) 7 FOOT (2,133.6mm) -- 793 LBS. (359.7 Kg) 8 FOOT (2,438.4mm) -- 825 LBS. (374.2 Kg)
SKID SHOES:	OPTIONAL
END COVERS:	OPTIONAL

**•• WARRANTY IS VALID FOR TRACTORS UP TO 85 HP  
REAR WHEEL DRIVE OR 65 HP TRACTORS EQUIPPED WITH  
FRONT WHEEL ASSIST**

# SAFETY RULES



**ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It has been said “**The best safety device is an informed, careful operator.**” We ask you to be that kind of an operator.

The designed and tested safety of this equipment depends on it being operated within the limitations as explained in this manual.

## TRAINING

- **Safety instructions are important! Read this manual and the tractor manual; follow all safety rules and safety decal information. (Replacement manuals are available from dealer or call 1-800-456-7929.) Failure to follow instructions or safety rules can result in serious injury or death.**

- **If you do not understand any part of this manual and need assistance, see your dealer.**

- **Know your controls and how to stop engine and cutter quickly in an emergency.**

- **Operators must be instructed in and be capable of the safe operation of the equipment, its attachments and all controls. Do not allow anyone to operate this equipment without proper instructions.**

- **Do not allow children or untrained persons to operate equipment.**

## PREPARATION

- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing and head.**

- **Ensure rear blade is properly mounted, adjusted and in good operating condition.**

- **Tighten all bolts, nuts and bolts, and check that all cotter pins are installed securely to ensure equipment is in a safe condition before operating.**

- **Tractor must be equipped with ROPS or ROPS CAB and seat belt. Keep seat belt securely fastened. Falling off tractor can result in death from being run over or crushed. Keep foldable ROPS systems in “locked up” position at all times.**

- **Remove accumulated debris from this equipment, tractor and engine to avoid fire hazard.**

- **Ensure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**

- **Ensure shields and guards are properly installed and in good condition. Replace if damaged.**

- **A minimum 20% of a tractor and cutter weight must be on the tractor front wheels with rear blade in transport position. Without this weight, tractor could tip over causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights.**



## SAFETY RULES



### ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

*(Safety Rules continued from previous page)*

#### OPERATIONAL SAFETY

- Keep bystanders away from equipment while it is in operation.
- Never direct discharge toward anyone.
- Operate only in daylight or good artificial light.
- Always comply with all state and local lighting and marking requirements.
- Do not allow other people in the area when operating, attaching, removing, assembling, or servicing cutter.
- Make certain all movement of cutter components has stopped before opening blade access cover.
- No riders are allowed on equipment.
- Always sit in tractor seat when operating controls or starting engine. Place transmission in park or neutral, engage brake and ensure all other controls are disengaged before starting tractor engine.
- Look down and to the rear and make sure area is clear before operating in reverse.
- Do not operate on steep slopes.
- Do not stop, start or change directions suddenly on slopes.
- Use extreme care and reduce ground speed on slopes and rough terrain.
- Watch for hidden hazards on the terrain during operation.

- Stop tractor and rear blade immediately upon striking an obstruction. Turn off engine, remove key, inspect and repair any damage before resuming operation.
- Disengage power to implement. Lower all raised components to the ground. Operate valve levers to release any hydraulic pressure. Stop engine, set parking brake and remove key before dismounting tractor or performing any service or maintenance.

#### MAINTENANCE SAFETY

- Before performing any service or maintenance, disconnect driveline from tractor.
- Before working underneath, raise rear blade to highest position and block securely. Blocking up prevents rear blade dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.
- Keep all persons away from operator control area while performing adjustments, service or maintenance.
  - Do not climb or walk on cutter frame, or tires.
- Never operate rear blade until hydraulic cylinders and lines are full of oil and free of air. See operating instructions.

*(Safety Rules continued on next page)*



# SAFETY RULES



## ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

### TRANSPORTING SAFETY

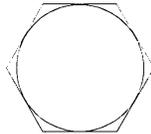
- Use a Slow - Moving - Vehicle (SMV) emblem and proper lighting when transporting the cutter.
- Do not road the rear blade over 20 miles per hour on the best surface conditions. Reduce speed when going up or down hills and when approaching ditches or corners.
- Always comply with all state and local lighting and marking requirements.

### STORAGE

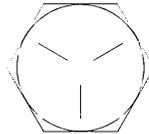
- Block equipment securely for storage.
- Clean all debris from rear blade.
- Coat soil engaging surfaces with a rust inhibitor after cleaning.
- Store on a level surface sheltered from the weather.
- Keep playing children and bystanders away from storage area.

## BOLT TORQUE CHART

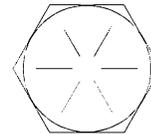
GRADE 2



GRADE 5



GRADE 8



## TORQUE IN FOOT POUNDS

BOLT HEADS		3/8	1/2	5/8	3/4	7/8	1	
HEX HEAD		9/16	3/4	15/16	1-1/8	1-5/16	1-1/2	
UNC	GRADE	2	18	45	89	160	252	320
		5	30	68	140	240	360	544
		8	40	100	196	340	528	792



## SAFETY DECALS

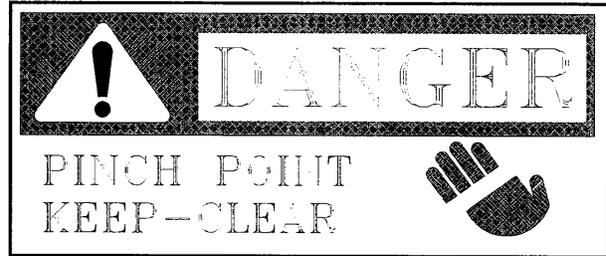


**ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**  
**Replace Immediately If Damaged!**  
**DECAL LOCATIONS**

The following safety decals are located on your implement. Read them and follow their instructions for your safety. Keep all decals in place and legible. Replace worn or missing decals. Replacement safety decals are available through your dealer. Order by number listed.



009537 Front Cross Member of Frame



029772 near pivot bolt on top of main frame

029771 red reflector back outside edges of moldboard

029770 amber reflector front outside edges of moldboard

## INTRODUCTION

This manual covers the assembly, operation, and maintenance of your Series 8500 Grader Blade. Studying and obeying these instructions will insure optimum product performance and longevity. Be sure to read all instructions carefully. Read all safety precautions prior to operation.

Maintain your implement with original repair parts to insure safety and optimum performance.

## MODIFICATIONS

It is the policy of the manufacturer to improve its products whenever possible and practical. We reserve the right to make changes, improvements, and modifications at any time without incurring the obligation to make such changes, improvements, and modifications on any implement sold previously.

## ASSEMBLY

### General

Your Series 8500 Grader Blade is shipped in bundles for assembly. Remove all wiring from bundles as they are called for. Choose a level area to arrange the parts conveniently. Assemble parts for each step loosely to insure fit. Use flatwashers with slotted holes. Always use lockwashers unless a lock nut is called for. Tighten hardware after parts are installed according to the torque chart given. Unless otherwise stated, all hardware is grade 5. The following assembly steps are given to minimize the need for adjustment after assembly. Remember that LEFT and RIGHT are determined by standing at the rear of the implement and facing it.

### WARNING

**A minimum 20% of a tractor and rear blade weight must be on tractor front wheels with attachment in transport position. Without this weight, tractor could tip over causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and rear blade. Do not estimate.**

### Mast Assembly (Refer to Figure 1)

1) Lay 3-point mast assembly down and install jackstand in transport position with pin in lower hole.

2) Support the main frame bundle from below to enable attaching to a tractor. Be sure frame is stable on

supports before proceeding.

3) Position mast assembly near 3 point arms on tractor with mast assembly flat on ground. Raise left side of mast assembly and pin into lower 3-point arm and install lynch pin. Raise right side of mast assembly and pin into lower 3-point arm and install lynch pin. Rotate mast assembly toward tractor and attach upper 3-point link to hole in mast plate assembly. Top hole is Cat II and lower hole is Cat I. Pin and install click pin.

4) Using the tractor's 3-point hydraulic lift, lift the frame bundle from its supports. Adjust the top link so that the main beam is approximately level from front to rear.

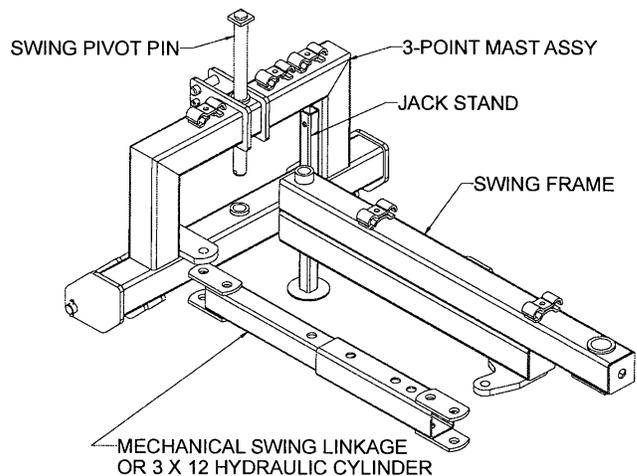


FIGURE 1

### Swing Frame to Mast Assembly (Refer to Figure 1)

1) Lower tractor 3 point to lowest position.

2) Support swing frame on blocks at height of lower mast tube. Slide swing frame between upper and lower mast tube. Align holes and insert swing pivot pin. Secure with cotter pin.

3) The swing frame is unstable in the condition. Install either a 3 x 12" hydraulic cylinder or the mechanical swing linkage between the mast assembly lug and the swing frame left lug. Center the swing frame so it is perpendicular to mast assembly (90°).

## Swing Weldment to Moldboard Assembly (Refer to Figure 2)

1) Align swivel weldment with cross hole in moldboard assembly. Install swing pivot pin from rear and secure with castle nut and cotter pin.

2) Install 3 x 8" hydraulic cylinder or ratchet jack between moldboard and swivel weldment lug. Adjust length so swivel pin is vertical. Stand moldboard vertical and block securely.

## Mast Assembly to Moldboard Assembly (Refer to Figure 1)

1) Align the swingframe with the blade so that the pivot bolt hole is over the pivot bolt. Slowly lower the swing frame onto the blade and secure with heavy flat washer, flatwasher, castle nut and cotterpin provided.

2) Install 3 x 8" hydraulic cylinder or ratchet jack between swing frame and swivel weldment lug.

3) Attach hydraulic hoses to tractor and secure hoses in hose clamps. Operate cylinders to purge all air out.

## MECHANICAL/HYDRAULIC SETUP

### Linkage Components (Refer to Fig 3)

The rear blade is functional with either mechanical links or hydraulic cylinders in each of the three functions: angling, tilt, and swing.

Depending on your selection, attach hydraulic cylinder or mechanical linkage in each location. The blade angling and tilt mechanical feature is a turnbuckle jack in each location for mechanical. The swing offset uses a tube within a tube design for mechanical. When a hydraulic function is used: attach hydraulic cylinders and hoses as shown in Figure 5 using the following instructions.

### BLADE ANGLING

1) With hydraulic line ports facing up, attach butt end of 3 x 8" cylinder to angle iron bracket on swing frame using pin and cotter pins provided.

2) Remove port plug on rod end of cylinder body to allow movement of piston.

3) Pull rod out to align clevis with bracket on swivel pivot. Attach rod end of cylinder to bracket using pin and cotter pins provided.

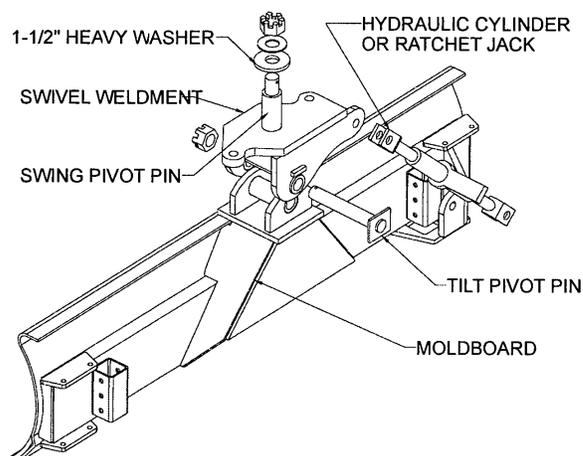


FIGURE 2

### BLADE TILT

1) With hydraulic line ports facing up, attach butt end of 3 x 8" cylinder to rear lug on swing frame using pin and cotter pins provided.

2) Remove port plug on rod end of cylinder body to allow movement of piston.

3) Pull rod out to align clevis with bracket on moldboard. Attach rod end of cylinder to bracket using pin and cotter pins provided.

### BLADE OFFSET

1) With hydraulic line ports facing up, attach butt end of 3 x 12" cylinder to lug on mast frame using pin and cotter pins provided.

2) Remove port plug on rod end of cylinder body to allow movement of piston.

3) Pull rod out to align clevis with bracket on swing frame. Attach rod end of cylinder to bracket using pin and cotter pins provided.

## Swing Weldment to Moldboard Assembly (Refer to Figure 2)

1) Align swivel weldment with cross hole in moldboard assembly. Install swing pivot pin from rear and secure with castle nut and cotter pin.

2) Install 3 x 8" hydraulic cylinder or ratchet jack between moldboard and swivel weldment lug. Adjust length so swivel pin is vertical. Stand moldboard vertical and block securely.

## Mast Assembly to Moldboard Assembly (Refer to Figure 1)

1) Align the swingframe with the blade so that the pivot bolt hole is over the king pin. Slowly lower the swing frame onto the blade and secure with heavy flat washer, flatwasher, castle nut and cotterpin provided.

2) Install 3 x 8" hydraulic cylinder or ratchet jack between swing frame and swivel weldment lug.

3) Attach hydraulic hoses to tractor and secure hoses in hose clamps. Operate cylinders to purge all air out.

## MECHANICAL/HYDRAULIC SETUP

### Linkage Components (Refer to Fig 3)

The rear blade is functional with either mechanical links or hydraulic cylinders in each of the three functions: angling, tilt, and swing.

Depending on your selection, attach hydraulic cylinder or mechanical linkage in each location. The blade angling and tilt mechanical feature is a turnbuckle jack in each location for mechanical. The swing offset uses a tube within a tube design for mechanical. When a hydraulic function is used: attach hydraulic cylinders and hoses as shown in Figure 5 using the following instructions.

### BLADE ANGLING

1) With hydraulic line ports facing up, attach butt end of 3 x 8" cylinder to angle iron bracket on swing frame using pin and cotter pins provided.

2) Remove port plug on rod end of cylinder body to allow movement of piston.

3) Pull rod out to align clevis with bracket on swivel pivot. Attach rod end of cylinder to bracket using pin and cotter pins provided.

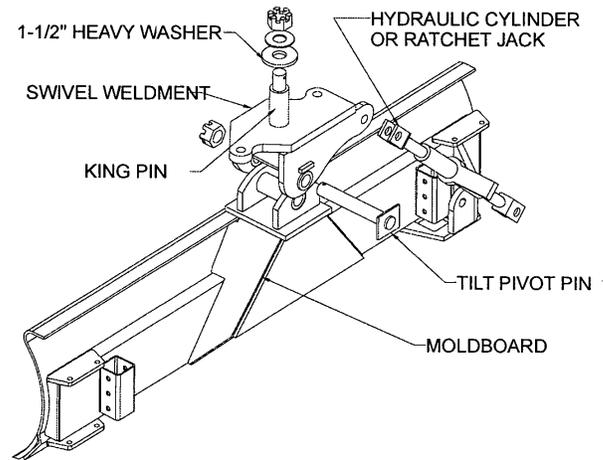


FIGURE 2

### BLADE TILT

1) With hydraulic line ports facing up, attach butt end of 3 x 8" cylinder to rear lug on swing frame using pin and cotter pins provided.

2) Remove port plug on rod end of cylinder body to allow movement of piston.

3) Pull rod out to align clevis with bracket on moldboard. Attach rod end of cylinder to bracket using pin and cotter pins provided.

### BLADE OFFSET

1) With hydraulic line ports facing up, attach butt end of 3 x 12" cylinder to lug on mast frame using pin and cotter pins provided.

2) Remove port plug on rod end of cylinder body to allow movement of piston.

3) Pull rod out to align clevis with bracket on swing frame. Attach rod end of cylinder to bracket using pin and cotter pins provided.

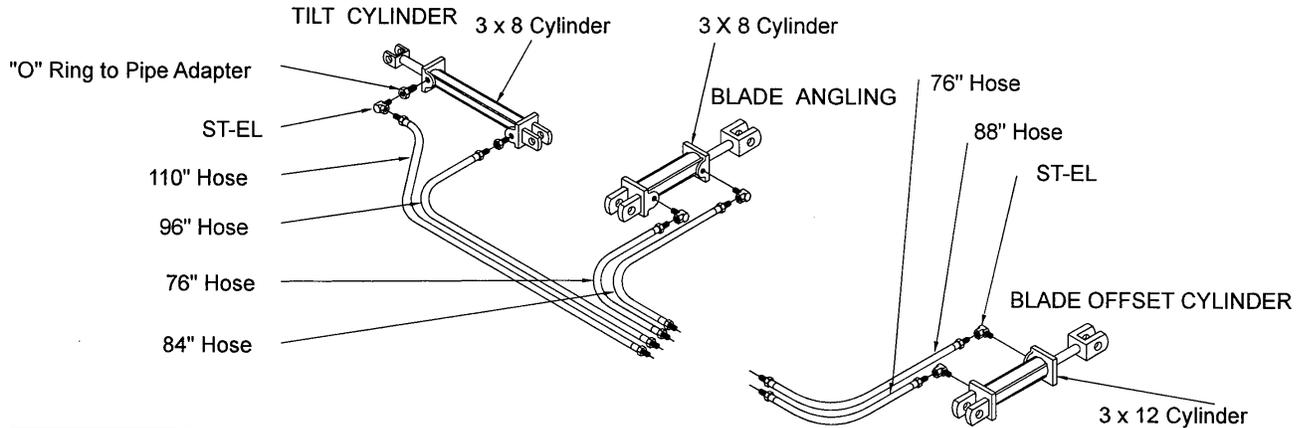


FIGURE 3

## Hydraulic Hose Assembly

Each hose has only one swivel end so it is important to connect the end with the non swivel to cylinder port first. Always tighten each hose end as it is connected before proceeding.

Use a thread sealant on fittings to prevent leaking. **DO NOT OVER TIGHTEN.**

Depending on the cylinder port type, screw a "O" ring to pipe adapter into "O" ring port cylinders before proceeding.

1) Screw a 90°str-el into butt and rod port of each cylinder. Rotate st-ell so it points toward tractor. Attach one hose non swivel end to st-el fitting of each cylinder using Figure 5 as guide to hose length.

**IMPORTANT: Do not over tighten hoses. Use teflon tape on threads to insure a good seal and prevent leakage.**

2) Thread hoses through hose clamps mounted on frame. Secure with 1/2" x 1-1/4" carriage bolts with lockwashers and nuts.

3) Attach tractor couplers to other end of hose. (Not provided)

4) Check all fittings to see that they are tight.

## WARNING

**Do not use bare hand to check for hydraulic leaks. Hydraulic fluid under high pressure can penetrate skin and cause poisoning.**

## BEFORE OPERATION

1) Tighten all loose hardware using the torque chart. **SEE PAGE 7.** Replace any missing hardware. On new machines, all hardware must be rechecked after first few hours of operation.

2) Replace any bent or broken parts.

3) Refer to your Tractor's Owner's Manual for recommended adjustments and weight distribution.

4) Check blade for signs of wear or damage. Replace if necessary. **SEE MAINTENANCE.**

5) Read the **SAFETY** section of this manual to be sure of all precautions.

## ATTACHING

### WARNING

**Be sure bystanders are clear. Do not stand between implement and tractor. Shut off tractor and engage parking brake prior to dismounting.**

1) Back tractor to align three--point hitch with frame.

2) Attach left lower link arm to frame first and secure with lynch pin.

3) Using leveling crank, align right lower link arm with link pin. Attach arm to link pin and secure with lynch pin.

4) Attach top link between the frame and the tractor with a pin and secure with click pins.

5) Tractor must be equipped with enough hydraulic outlets to accommodate all cylinder hoses. Example: Two hydraulic cylinders require two sets (4 outlets).

6) Attach hydraulic hoses to tractor remote couplers.. Check all fittings to see that they are tight.

## **WARNING**

**Do not use bare hand to check for hydraulic leaks. Hydraulic fluid under high pressure can penetrate skin and cause poisoning.**

6) Raise blade and lock jackstand in up position.

7) Cycle hydraulic cylinders several times to purge air from system. This will prevent erratic, jerky operation.

## **OPERATION**

### **Adjustments**

#### **Depth Control:**

The desired operating depth is selected by using the tractor's position control lever. When using position control, the blade will operate at the same depth, below the line of travel of the tires, until the setting is changed.

It is possible to operate the blade using draft control (if tractor is so equipped) when operating in the forward direction. When using draft control, the blade will operate at a depth which will result in a constant load on the tractor. NEVER operate with draft control when operating in the reverse direction with the moldboard reversed.

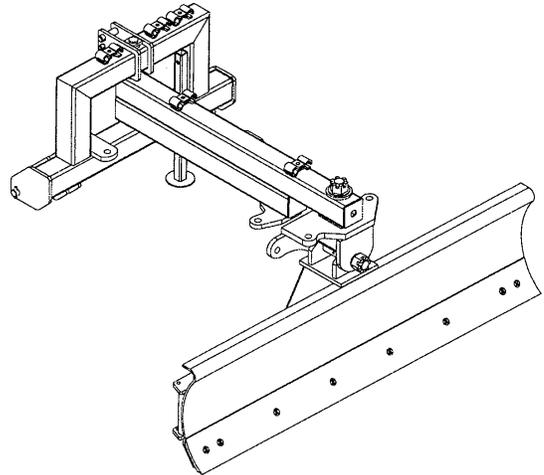
#### **Blade Moldboard Angle:**

Operating conditions for the job being done will largely determine the desired angle of the blade. A greater angle is generally used for cutting deep rather than for moving loose soil. As the blade is angled more, soil will roll and travel for a lesser distance, thus allowing a deeper cut. It is suggested that the blade be angled sufficiently to permit soil to move freely in front of the blade.

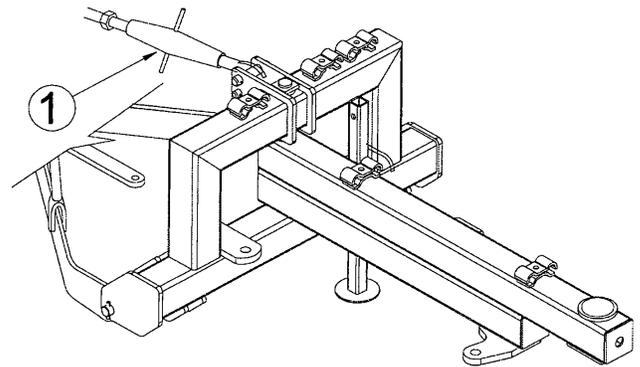
Blade angle is controlled by the 3 x 8" hydraulic cylinder or the ratchet jack assembly. Rotated to desired position.

#### **Reversing Moldboard (Refer to Figure 4)**

The moldboard may also be reversed if desired. Remove pin from hydraulic cylinder or ratchet jack and rotate blade 180 degrees and install pin. Secure with



**FIGURE 4**



**FIGURE 5**

cotterpin.

#### **Blade Pitch (Refer to Figure 5)**

The pitch of the blade can be changed by lengthening or shortening the tractor top link (1). Lengthening the top link increases blade "aggressiveness" and shortening the top link decreases blade "aggressiveness".

Adjust the blade pitch so that the soil tumbles ahead of the blade. Tumbling soil produces less draft and moves more earth. Normally, the upper edge of the moldboard is 1" to 2" ahead of an imaginary vertical line extending upward from the cutting edge of the moldboard.

In general, working in harder soils requires more aggressiveness in order to dig in to the soil surface.

### **Blade Tilt Angle:**

The moldboard can be tilted on the pivot assembly by the ratchet jack or 3 x 8" hydraulic cylinder.

Additional blade tilt can be achieved by using the tractor hitch lift link leveling crank or adjustable lift link.

### **Blade Offset:**

The blade can be offset up to 28.75" (730.25mm) by repositioning the mechanical linkage or the 3 x 12" hydraulic cylinder.

## **Operating**

### **Terrace Construction:**

In construction of a terrace system, the first terrace is always started near the top of the slope. Always prepare an outlet water channel before constructing a graded terrace. By starting at the top of the slope and completing the outlet channel, erosion damage, in the event of rain during construction, will be prevented.

### **Blade Setting:**

Set blade angle at 30° with the left--hand side of the blade forward. Raise the right--hand side of the blade to the desired cutting tilt by using the tractor right--hand lift link leveling crank. A first cut depth of 3" to 4" (76.2 to 101.6mm) is recommended although this may vary according to ground conditions.

### **Terrace Layout:**

The terrace is laid out as desired by marking the terrace course with stakes along the upper edge. The stakes provide a guide for the first cut which, on graded terraces, is started at the outlet channel. Follow the staked out course when making first shallow cut to mark out the terrace line.

On the return trip, the tractor is driven at a selected distance from the edge of soil deposited by blade on opening cut. This cut is also shallow and serves to mark lower edge of terrace.

### **Second Cut:**

The tractor front wheel should follow along the furrow wall made by the first cut with the blade lowered progressively deeper than the opening cut on the upper side of the terrace. On the lower side, make a cut slightly deeper than the opening cut.

### **Additional Cuts:**

On the upper side, drive the tractor so that the front wheel is evenly spaced above the furrow wall. This will permit the blade to move a cut of soil of the same width. Distance from front wheel to furrow wall edge determines the width of cut. Do not try too large a cut at any time. On the lower side, smaller cuts must be made if it is desired to increase the width of the terrace, since it is more difficult to roll soil uphill than downhill from upper edge of terrace.

### **Moving Loose Soil**

After each cut is made, move loose soil over onto terrace ridge. To complete ridge of terrace, additional soil is required. This is obtained from the area of the terrace designated as water channel. Cuts are made in channel until desired depth and sufficient soil for the terrace ridge has been obtained. Terrace is complete when all loose soil is cleared from water channel to provide a smooth channel.

### **Terrace Profile:**

The stakes mark location points of terrace. These points are:

- Upper edge of terrace
- Low point of water channel
- Crown of terrace ridge
- Lower edge of terrace

The ground below the terrace should be smoothed to blend into slope of adjoining undisturbed land. This prevents accumulation of water below ridge. Unless this ground blends into general slope, water will cause a soft spot in field and may start a gully.

The time required to construct a terrace and the number of rounds required to move loose soil will vary with soil type, local conditions, and size of terrace. The construction steps as outlined will be similar regardless of size or type of terrace being built. Discuss them with local conservation authorities.

By following these general suggestions, you will be able to build more terraces in less time.

### **Back Filling**

Reverse blade and operate at 0° to back fill ditches, etc.

## Drainage Ditch Construction

The grader blade lends itself readily to the construction of a V--type ditch used to drain surface water from wet areas. To start a ditch, angle left end of blade 30 and lower the left end of the blade. Make necessary cuts to obtain desired ditch depth. At intervals during construction, it may be necessary to move soil away from edge of ditch.

## Road Maintenance

Maintenance of roads can easily be handled with a grader blade. The grader blade will do an efficient job of grading the road to a smooth surface.

## Water Channel Construction

The grader blade can be used to construct a broad bottom water channel, one of the types that is popular with soil conservationists. After each new cut, move soil to sides of channel and spread evenly over side area. Place a gradual slope on channel edges so that the channel can be crossed easily by implements.

## TRANSPORTING

---

- Use a Slow - Moving - Vehicle (SMV) emblem and proper lighting on the tractor when transporting the rear blade.
- Do not drive the tractor and rear blade over 20 MPH (30 KPH) on the best surface conditions. Reduce speed when going up or down hills and when approaching ditches or corners. Towing vehicle must weigh more than towed implement.
- Always comply with all state and local lighting and marking requirements.
- Check condition of hitch pins and bolts before transporting.
- Keep your rear blade in proper working condition. Unauthorized modifications to the rear blade may impair the function and affect rear blade life. Do not add excessive weight to rear blade. Additional weight could cause frame to fail resulting in loss of control of rear blade/tractor during transport.
- Raise rear blade to highest position for transport.
- Watch low hanging Overhead Power Lines during transport. Avoid contact as this can cause serious injury or death.

## WARNING

**When implement is transported on public roads day or night, use signal lights conforming to local law. A Slow Moving Vehicle (SMV) emblem must be displayed and be visible from the rear. Do not exceed 20mph travel speed.**

## DETACHING

---

### WARNING

**Be sure bystanders are clear. Do not stand between rear blade and tractor. Shut off tractor and engage parking brake prior to dismounting.**

- Lower rear blade to the ground. Lower and pin jack stand.
- Detach the tractor top link from the rear blade.
- Lower the blade frame unto supports and shut off tractor engine. Be sure blade is stable on supports.
- Detach tractor right hand lower link arm then left hand lower link arm from rear blade.
- Remove hydraulic pressure from lines and disconnect hydraulic quick couplers.

### WARNING

**To help avoid injury from escaping hydraulic fluid under pressure, relieve the pressure in the system by shutting off tractor and moving remote cylinder operating levers in both directions before attaching to or detaching from the breakaway couplers.**

## MAINTENANCE

---

Keep cutting edge sharp for maximum performance. Reverse the cutting edge to get maximum use from both edges. Replace cutting edge as wear becomes excessive.

Inspect hydraulic hoses and fittings for wear or leaks. Repair or replace if damaged.

Lubricate ratchet jack and king pin every 50 hours with a multi purpose, lithium base grease. King pin grease fitting is accessible through hole in rear of swing tube.

## STORAGE

---

- Store on a level surface sheltered from the weather.
- Lower rear blade to the ground and block to prevent rolling.
- Clean all debris from rear blade.
- Coat soil engaging surfaces with a rust inhibitor after cleaning.
- Keep playing children and bystanders away from storage area.

## OPTIONS

### END COVERS (Refer to Figure 6)

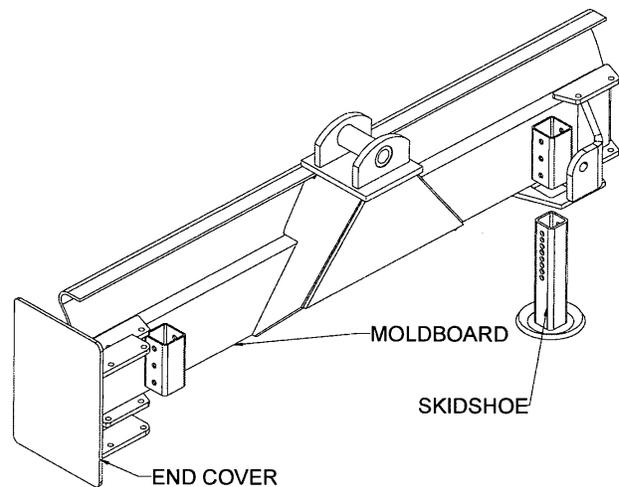
The end caps control the runout of material when leveling.

Position the end cap brackets overlapping brackets on the moldboard. Attach with 1/2" bolts, lockwashers, and nuts provided.

### SKID SHOES (Refer to Figure 6)

The skid shoes provide a stable surface for the blade to ride against. They are adjustable height wise.

Raise the blade off the ground and block up. Slide the skid shoe into the attachment tube and pin at desired height.



---

FIGURE 6

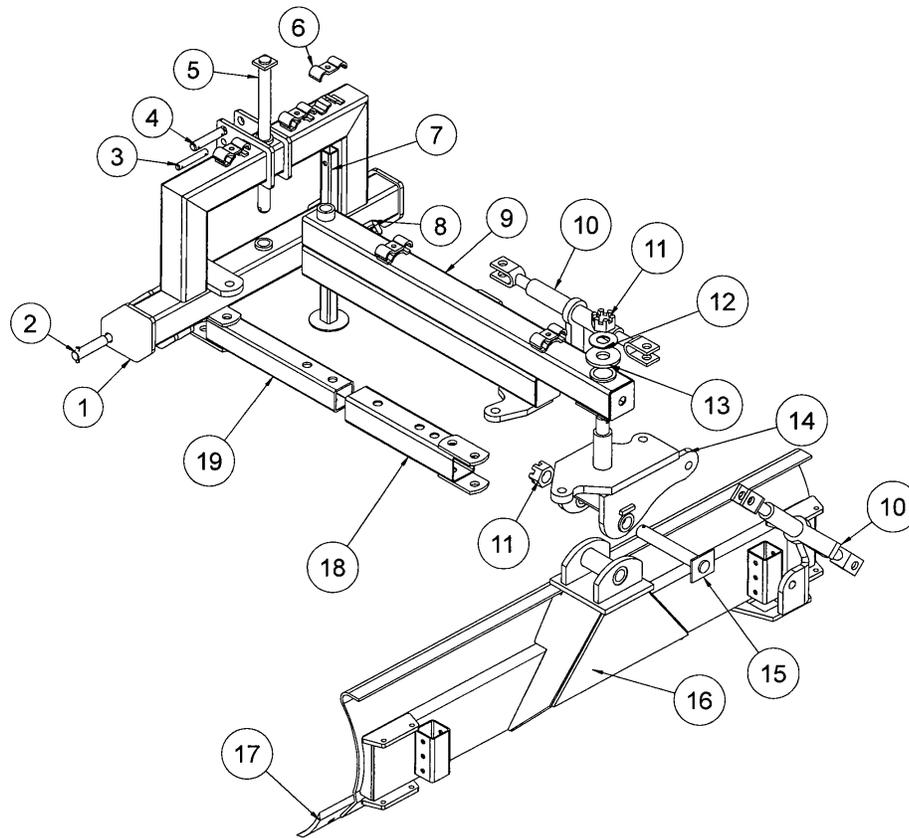


FIGURE 7 - GRADER BLADE COMPONENTS

ITEM	PART #	DESCRIPTION	QTY	ITEM	PART #	DESCRIPTION	QTY
1	815084	MAST ASSY	1	304142	PIN/COTTER 5/16 x 3	2	
2	815109	PIN/STEPPED CAT I & II	2	12	303978	WASHER/FLAT 1-3/8	1
	304260	PIN/ROLL 3/8 x 2	2	13	24438	WASHER-HEAVY 1-9/16 x 3/8	1
	303113	PIN/CLICK	2	14	815100	UPPER PIVOT	1
3	814699	PIN/3 POINT UP CAT I	1	15	815078	PIN W.A. HORIZONTAL	1
	304111	PIN/COTTER 3/16 x 2	1	16	815157	72 INCH MOLDBOARD ASY	
	304244	PIN/HAIRPIN COTTER 3/16	1		815158	84 INCH MOLDBOARD ASY	
814704	PIN/3 POINT UP CAT II	1	815070		96 INCH MOLDBOARD ASY		
4	304111	PIN/COTTER 3/16 x 2	1	17	815153	CUTTING EDGE/72 INCH	
	304244	PIN/HAIRPIN COTTER 3/16	1		815154	CUTTING EDGE/84 INCH	
	5	815106	PIVOT PIN		1	815004	CUTTING EDGE/96 INCH
304142		PIN/COTTER 5/16 x 3	1		303942	BOLT/PLOW 5/8 x 1-3/4	
6		208259	HOSE - CLAMP		5	303956	WASHER/LOCK 5/8
	303859	BOLT/CARR 1/2 x 1-1/2 GR5	5		304008	NUT/HEX 5/8 NC	
	303955	WASHER/LOCK 1/2	5	18	815127	TUBE/INNER SWING ADJ	1
	304007	NUT/HEX 1/2 NC	5		303762	HHCS 1 x 5-1/2 GR5	1
7	815082	SUPPORT STAND	1		304024	NUT/HEX LOCK 1	1
	8	815150	PIN/BENT	1	19	815128	TUBE/OUTER ADJ
		304244	PIN/HAIRPIN COTTER 3/16	1	303762	HHCS 1 x 5-1/2 GR5	1
9	815091	PIVOT TUBE ASSY	1	304024	NUT/HEX LOCK 1 NC	1	
10	807858	TURNBUCKLE ASSY		206123	BOLT 1 x 5-1/2 - DRILLED	1	
or	811237	HYD CYL 3 X 8		304244	HAIRPIN COTTER 3/16 x 3-1/4	1	
11	304042	NUT/HEX SLOTTED 1-1/2 NC	2				

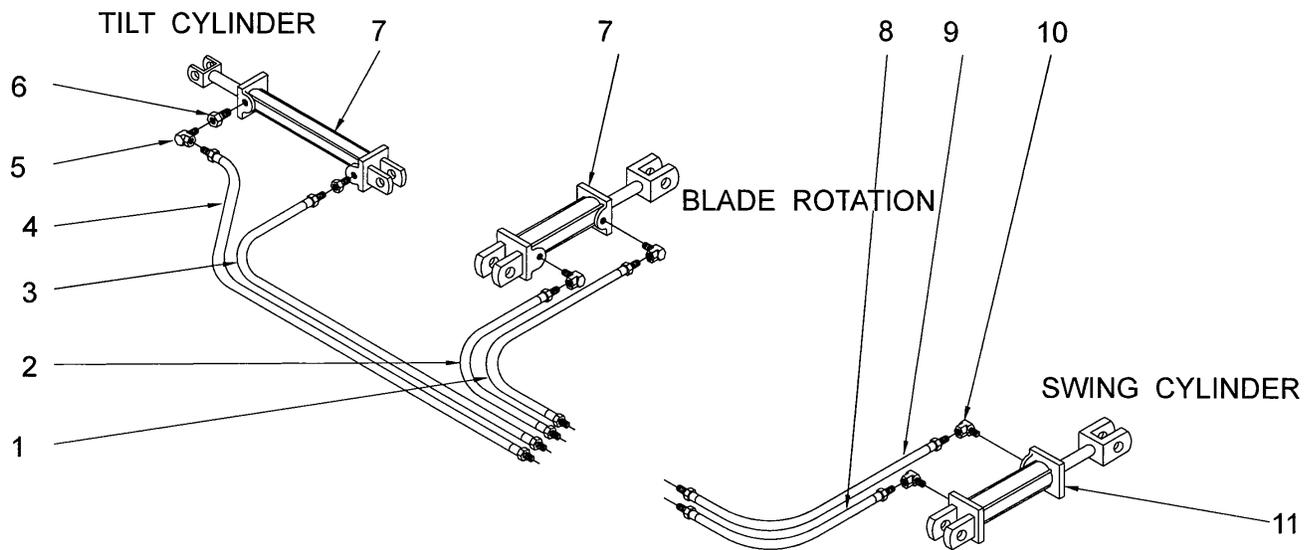
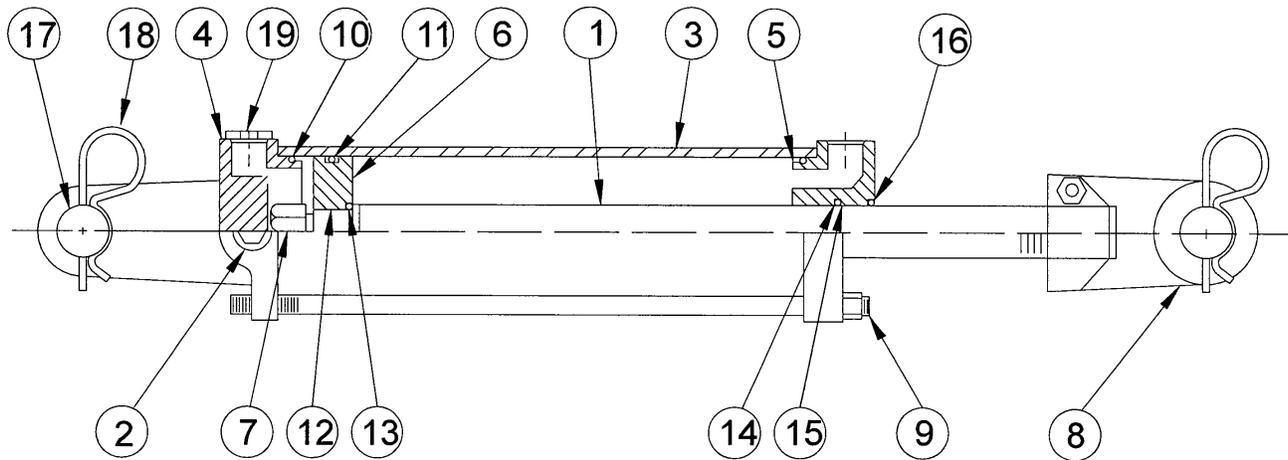


FIGURE 8 - HYDRAULIC COMPONENTS

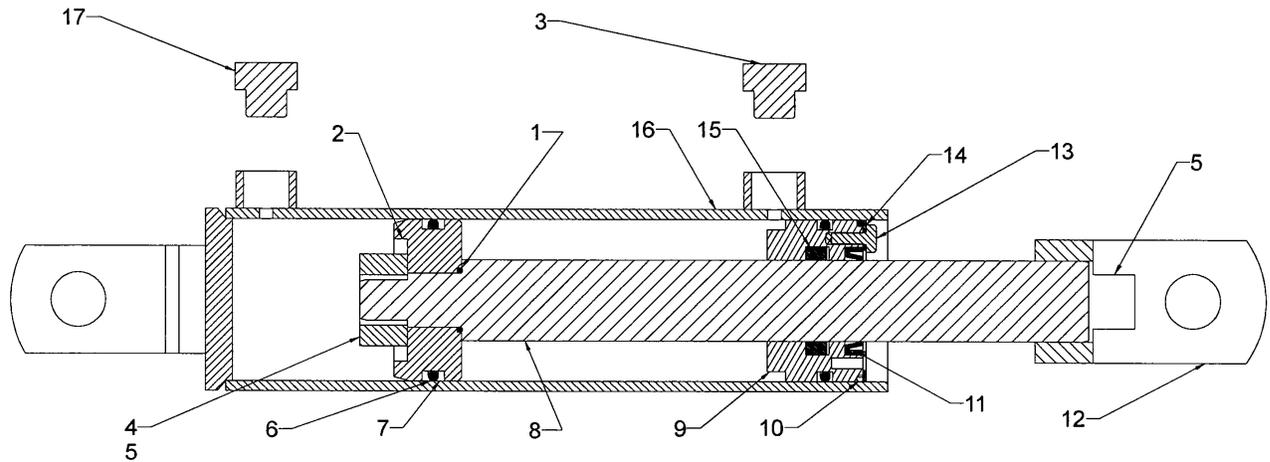
ITEM	PART #	DESCRIPTION
1	207979	HYD HOSE ASY 84"
2	803856	HYD HOSE ASY 76"
3	803852	HYD HOSE ASY 96"
4	605405	HYD HOSE ASY 110"
5	207982	ST - EL 1/2 X 90
6	814432	ADAPTER/HYD 8 - 8 SAE TO 1/2 NPT
7	505742	HYDRAULIC CYLINDER 3 X 8
8	803856	HYD HOSE ASY 76"
9	209227	HYD HOSE ASY 88"
10	207982	ST - EL 1/2 X 90
11	806557	HYDRAULIC CYLINDER 3 X 12



**"These Cylinders are Tie Rod Design with Square Ends"**

FIGURE 9 HYDRAULIC CYLINDER COMPONENTS

Item	Part No.	Description	3 x 8	3 x 12 - Swing
1	800572	ROD/PISTON 3 X 8	1	-
	806963	ROD/PISTON 3 X 12	-	1
2	800573	PIPE PLUG "O" RING SAE #8	3	2
3	800574	TUBE/CYL 3 X 8	1	-
	806964	TUBE/CYL 3 X 12	-	1
4	800575	BUTT/ 3"	1	1
5	800576	GLAND/ 3"	1	1
6	800577	PISTON	1	1
7	606941	NUT/LOCK 3/4"	1	1
8	800584	CLEVIS ASSEMBLY 3 X 8	1	-
	806965	CLEVIS ASSEMBLY 3 X 12	-	1
9	800578	TIE ROD 3 X 8	1	-
	806966	TIE ROD 3 X 12	-	1
10	**	O-RING	2	2
11	**	O-RING	1	1
12	**	BU-WASHER	2	2
13	**	O-RING	1	1
14	**	O-RING	1	1
15	**	BU-WASHER	1	1
16	**	WIPER	1	1
17	606949	CLEVIS PIN 1" X 3-1/2"	2	2
18	304244	PIN/SPR LK 3/16 X 3-1/2	4	4
19	806950	BREATHER	1	1
**	800585	PACKING KIT (INCL. 10-16) (3 X 8)	1	1
**	810054	PACKING KIT (INCL. 10-16) (3 X 12)	1	1
	<b>505742</b>	<b>3 X 8 HYDRAULIC CYLINDER COMPLETE</b>	-	-
	<b>806557</b>	<b>3 X 12 HYDRAULIC CYLINDER COMPLETE</b>	-	-



"These Cylinders are Round Barrel -- Non Tie Rod Design"

FIGURE 10 HYDRAULIC CYLINDER COMPONENTS

Item	Part No.	Description	3x8	3x12 - Swing
1**	811417	SHAFT SEAL	1	1
2	811420	CYLINDER PISTON	1	1
3	811422	PLUG 1/2" NPT	2	1
4	811424	PISTON LOCK NUT	1	1
5	811425	SCREW/SET 5/16" X 5/16"	2	2
6**	811426	SEAL/PISTON	2	2
7**	811429	BACKUP WASHER	3	3
8	811434	ROD/CYLINDER 3 X 8	1	-
	811435	ROD/CYLINDER 3 X 12	-	1
9	811439	CYLINDER GLAND	1	1
10	811442	SNAP RING	1	1
11**	811445	WIPER/CANNED 1-1/2"	1	1
12	811448	ADJUSTABLE YOKE	1	1
13	811449	SCREW/MACHINE 1/4" X 1"	2	-
	811450	HHCS 1/4" X 1/2"	-	2
14	811454	WASHER/FLAT 1/4" SAE	-	4
15**	811457	ROD SEAL	1	1
16	811462	TUBE/CYLINDER 3 X 12	-	1
	811464	TUBE/CYLINDER 3 X 8	1	-
-	811472	STOP PLATE	1	-
**	811467	SEAL KIT (INCL. 1,6,7,11,15)	-	-
	<b>811237</b>	<b>3X8 TRANSPORT HYDRAULIC CYLINDER</b>	-	-
	<b>811230</b>	<b>3X12 WING HYDRAULIC CYLINDER</b>	-	-

## OPTIONS

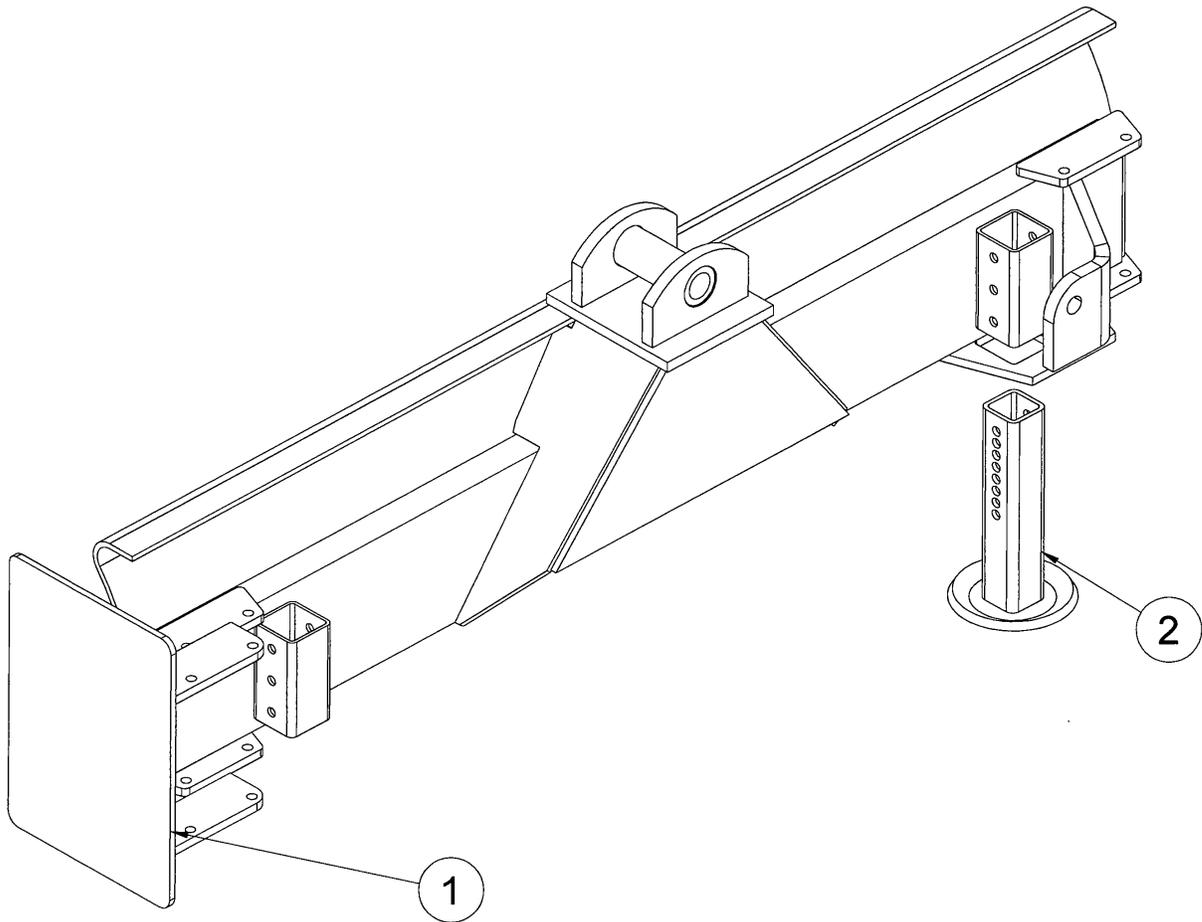


FIGURE 11 OPTIONAL COMPONENTS

ITEM	PART #	DESCRIPTION	QTY
1	815117	END CAP ASY RR BLD	2
	303653	HHCS 1/2 x 2 GR5	8
	303955	WASHER/LOCK 1/2	8
	304007	NUT/HEX 1/2 NC	8
	<b>815149</b>	<b>END COVER BNDL</b>	
2	815111	SKID ASY RR BLD	2
	815150	PIN/BENT 1/2 x 3-1/2	2
	304244	HAIRPIN COTTER 3/16 x 3-1/4	2
		<b>815148</b>	<b>SKID SHOE BNDL</b>

