

TXXH SERIES

TANDEM LIFT DISC HARROW

by **TUFLINE**

ASSEMBLY AND OPERATING INSTRUCTIONS



MONROE-TUFLINE MANUFACTURING CO., INC.
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INTRODUCTION

We are pleased that you have chosen a TUFLINE product. To assist you in the assembly and safe operation of your unit, we are providing this booklet. We urge you to read this booklet and thoroughly familiarize yourself with all aspects of safety, assembly, and operation. **NOTE:** All information contained in this booklet is general in nature and to be used for instructional purposes only. Actual appearance, material, and specifications may vary somewhat depending on the specific model being assembled or adjusted.

All references made to the left or right in this booklet are determined by standing at the rear of the machine and facing the direction of travel.

****DISCLAIMER****

Any modifications to this product without the specific permission of TUFLINE are not allowed. Unauthorized modifications beyond the original factory specifications could cause damage to the unit and void the warranty.

****LIMITED WARRANTY****

Monroe-Tuflin Mfg. Co. Inc., the manufacturer, warrants only to the original purchaser of new TUFLINE equipment that they are free of defects in material and workmanship under normal use and service. This warranty is applicable for one year from date of purchase if for personal use; 90 days for commercial or rental purposes. This warranty does not apply to any equipment which has been improperly assembled or which has been subjected to abuse, negligence, normal wear and tear, modifications, tampering or failure to follow operating instructions, or which has been used for a purpose for which the product is not designed. This warranty does not cover any parts not manufactured by Monroe-Tuflin Mfg. Co., Inc.

Claims shall be made to the dealer who originally sold the equipment. Warranty coverage is not valid unless the owner registration card below is completed and returned. All claims must be submitted within 30 days of equipment failure and faulted parts or equipment are subject for return to TUFLINE at TUFLINE'S expense and discretion. Monroe-Tuflin reserves the right to make improvements and/or changes in specifications of the product at any time without notice or obligation to modify previously manufactured unit.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

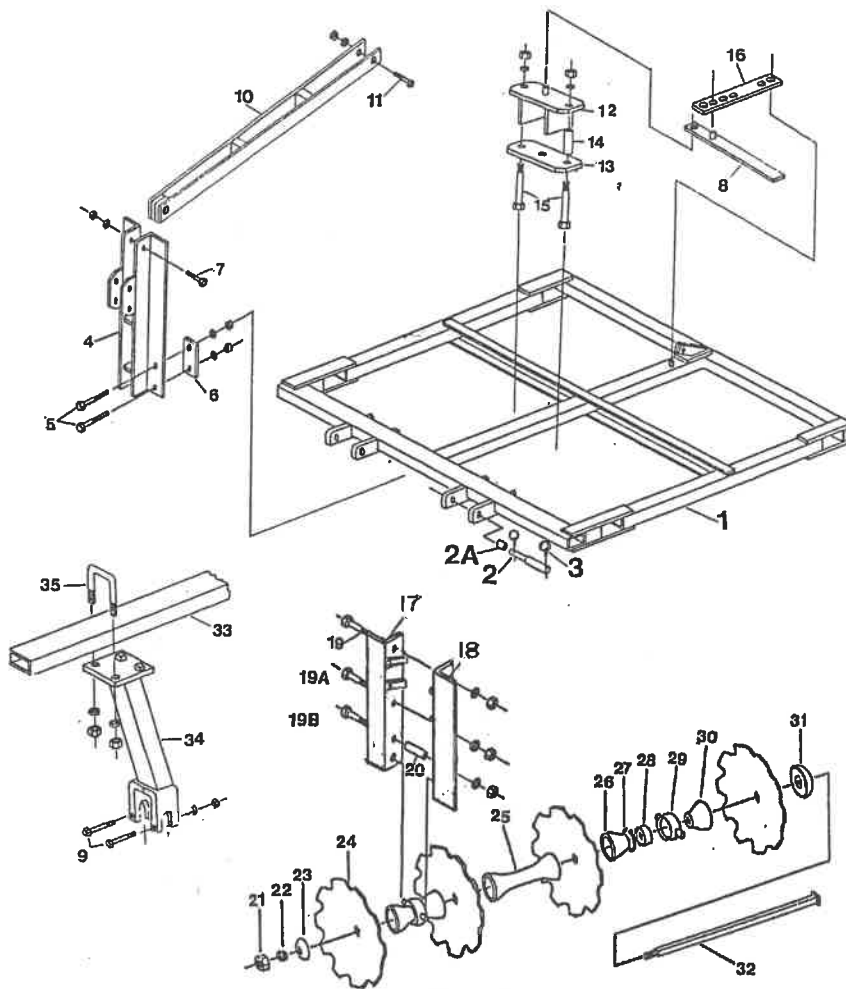
Please fill out the registration card below and mail it to: MONROE-TUFLINE MFG. CO., INC., P. O. Box 186, Columbus, MS 39703 - Attn; Owner Registration

OWNER REGISTRATION

NAME _____ ADDRESS/CITY/ST _____
DEALER NAME _____ CITY/STATE _____
DATE OF PURCHASE _____ MODEL NO. _____ SERIAL # _____
COMMENTS _____

GENERAL SAFETY

- ! Before hitching, always be certain that the proper hitch pins and retaining pins are available for each position. Use of incorrect parts can allow an unexpected and possibly disastrous partial or complete disconnection which can result in serious property damage and/or personal injury to the operator and others in the vicinity. Direct hitched equipment can be jerked up on top of the tractor.
- ! It is very important to throttle the engine to idle speed as the tractor is backed up to the implement and to keep helpers clear.
- ! Be sure implement is solidly supported to prevent movement during hitching.
- ! Never place hands or feet in possible "pinch holes" such as hitch pin holes.
- ! Never allow anyone other than the operator to be on or around the tractor or implement when it being operated. NO RIDERS ANYWHERE! Most accidents are from falls off the tractor.
- ! Use all legally required safety equipment during transport such as slow moving vehicle signs and flashing lights front and rear. Obey all applicable traffic regulations for such transportation. Watch for overheads such as power lines and low limbs.
- ! If the equipment is "over width", use common sense courtesy by pulling off the road and stopping in order to let impatient traffic to pass.
- ! Never transport at night without adequate front and rear caution lights.
- ! Never transport at speeds over 20 MPH on highways or roads where bumps may exist. Be aware that heavy implements cannot withstand severe bouncing. Hitting bumps can cause accidents for not only the operator but others in the vicinity.
- ! Stop the tractor engine and PTO and apply the parking brake before leaving the tractor seat.
- ! Always operate at reasonable field speeds. Absolute maximum for earth working implements is 7 MPH. If terrain is uneven or obstructions are present, 1 1/2 to 3 MPH will probably be more productive and safer.
- ! Use extra caution and slow speeds on steep slopes, near power lines, gullies, or trees.
- ! Lower the implement to the ground before performing adjustments or maintenance.
- ! If the implement cannot be lowered, keep all parts of your body clear and securely block the implement up to prevent accidental falling.
- ! Never step or walk On the top of the frame. Falls can result in serious injury.



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	11298	Main Frame, 111"	19	T-746	Hex Bolt, 5/8" x 5 1/2" Gr. 2
	11372	Main Frame, 95"	19A	T-748	Hex Bolt, 5/8" x 6" Gr. 5
2	VP251	Hitch Pin, Cat. II & III	19B	T-735	Hex Bolt, 1/2" x 5 1/2" Gr. 2
2A	11826	Spacer, 2 3/4"	20	T-822	Spacer
3	VP252	Lynch Pin	21	T-18A	Hex Lock Nut, 1 1/8"
4	11455	Mast Weldment	22	T-20	Lockwasher, 1 1/8"
5	10760	Hex Bolt, 3/4" x 7 1/2" Gr. 5	23	T-1	End Washer, 1 1/8" SQ.
6	11456	Clamp Plate	24		Disc Blade
7	9859	Hex Bolt, 3/4" x 4" Gr. 5	25	T-3	Spacer Spool, 1 1/8" SQ. x 9"
8	12034	Adjusting Bar Lever		T-91	Spacer Spool, 1 1/8" SQ x 7 1/2"
9	T-892	Hex Bolt, 3/8" x 3" Gr. 5	26	T-49	End Spacer, 1 1/8" SQ. x 9"
10	12760	Strut		T-47	End Spacer, 1 1/8" SQ. x 7 1/2"
11	9859	Hex Bolt, 3/4" x 4"	27	T-722	Snap Ring, 3 1/2'
12	12026	Top Slide Plate	28	T-602	Bearing, 1 1/8" Sq. (W208PPB12)
13	11431	Bottom Slide Plate	29	TMB	Trunnion Bearing Housing
14	T-56	Bushing	30	T-49	End Spacer, 1 1/8" SQ. x 9"
15	T-745	Hex Bolt, 5/8" x 5" Gr. 2		T-47	End Spacer, 1 1/8" SQ. x 7 1/2"
16	12420	Gang Angle Adjusting Bar, 95"	31	T-2	Bumper Washer, 1 1/8" SQ.
	12421	Gang Angle Adjusting Bar, 111"	32		Axle, 1 1/8" SQ.
17	T-684R	Angle Hanger, 6 , RH	33		Gang Beam, 3" x 4"
18	T-684L	Angle Hanger, 6 , LH	34	12021	Tube Gang Hanger, 3" x 4" GB
			35	11972	U-Bolt, 3/4"

ASSEMBLY

FRAME ASSEMBLY:

Refer to Fig. 1 on page 1. Lay the main frame, Ref. 1, on stands approximately 24" tall. Slide the gang beams, Ref. 33, into the side of the main frame. Be sure that the drilled end of the gang beam goes in first. Place the slide plate top, Ref. 12, on top of the center member of the main frame with the front slide plate in the extreme rear adjusting position and the rear slide plate in the extreme front position. Insert the drilled end of the gang beam between the top and bottom slide plates and fasten with 5/8" x 5" hex bolts, Ref. 15.

Attach the mast, Ref. 4, to the front of the main frame with the clamp plate, Ref. 6, behind the front cross beam of the frame using four 3/4" x 7 1/2" hex bolts, Ref. 5. Next take the narrow end of the strut weldment, Ref. 10, and place it at the top of the mast and secure it with the 3/4" x 4" hex bolt, Ref. 7. Place the opposite end of the strut and bolt it to the top rear of the main frame with another 3/4" x 4" hex bolt, Ref. 11.

GANG ASSEMBLY:

Gangs are shipped loosely assembled less the disc blades. Carefully observe the sequence and location of each spool and bearing. Disassemble gangs in order to reassemble them with the disc blades. Be sure to put each blade, spool, and bearing back into its proper location. After assembly of the gangs, tighten each axle nut to the proper torque as specified in the Torque Chart in this booklet.

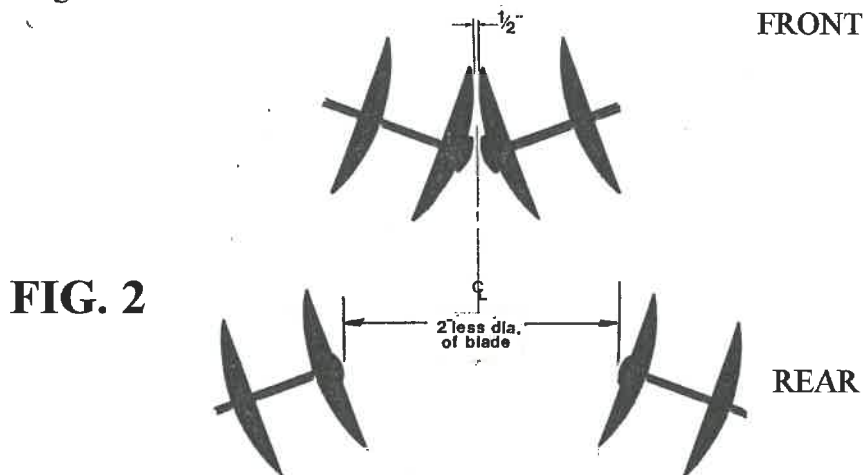


CAUTION: Tighten by hand. Do not rely on an impact wrench to provide proper torque. This could be critical to trouble free operation of your unit.

Arrange the disc gangs under the gang beams. The front gangs are mounted with the blade concavity turned out and the rear gangs with the concavity turned in. See Fig. 2. The outside rear gangs are equipped with outrigger washers for the attachment of optional outrigger kits. On units with combination blade spacing, the 9" spacing is always mounted on the front and the 7 1/2" spacing is on the rear of the disc.

GANG ADJUSTMENT:

Locate the center of the main frame and position the fronts gangs so that the bumper washers and disc blades of each gang are an equal distance from the center of the unit and 1/2" apart from one another. See Fig. 2.



The spacing of the rear gangs depends on the size of the disc blades used. Spacing is usually 2" less than the diameter of the disc blade. For example: A 20" diameter disc blade on an unit will allow the spacing between the rear gangs to be approximately 18". Again locate the center of the main frame and equally space the gangs from that point.

Angle hangers, Ref. 17 & 18, consist of LH and RH angle halves. Assemble the hanger halves with the spacer, Ref. 20, between them using a 1/2" x 5 1/2" hex bolt, Ref. 19B. This bolt needs to be very loose until the bottom ends of the angle hangers can be installed over the trunnion housing ears, Ref. 29, and the upper ends can be clamped to the sides of the gang beam. Use the 5/8" x 5 1/2" and the 5/8" x 6" hex bolt, Ref. 19 & 19A to clamp the hangers onto the gang beam. Tighten these bolts enough to secure them in place while gang positions and spacing can be checked. After all adjustments are made, tighten all bolts to proper torque.

Mount the tubular gang hangers, Ref. 34, onto the gangs at the trunnion bearing housing, Ref. 29, using two 1/2" x 3 1/2" gr. 5 hex bolts, Ref. 9. Attach the hangers underneath the gang beam with the 3/4" U-bolt, Ref. 35. Loosely tighten the U-bolt until the gangs are aligned and blade spacing is checked. When gangs are properly positioned, tighten U-bolts to correct torque.

Check all gang spacing and alignments before final tightening of the hanger bolts. After all the adjustments are complete, tighten bolts to specified torque.

LUBRICATION:

All Tufline ball bearing harrows are shipped with triple sealed ball bearings unless specifically ordered with re-greasible type bearings. Sealed bearings require no lubrication since they are pre-lubricated by the bearing manufacturer.

GANG ANGLE ADJUSTMENT:

Refer to Fig. 3. Check the slide plate bolts to make sure they are loose enough to allow the slide plate assembly to slide on the center beam of the main frame. Place the lever bar, Ref. 1, over the stud on the top of the slide plate, Ref. 2. Next pin one end of the gang adjusting bar, Ref. 3, onto the frame at point A and the other end of the bar onto the lever bar stud at point B. Secure with the hair pin cotters. Pushing or pulling on the lever will increase or decrease the gang angle. When desired angle is reached, store the lever and adjusting bar on top of the gang beam or main frame.

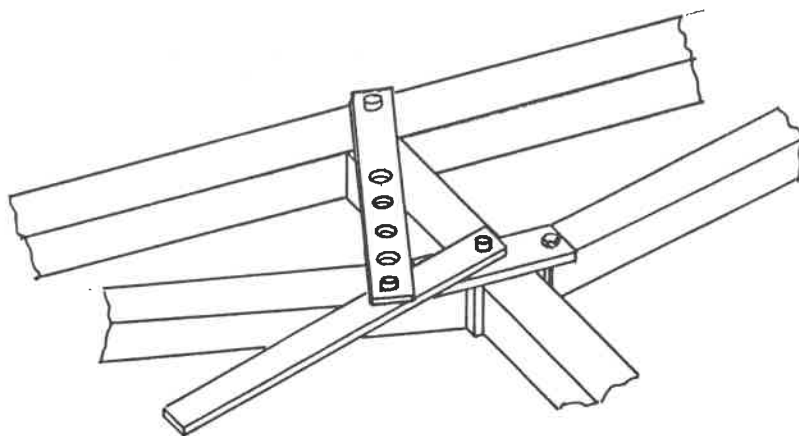


FIG. 3

The heavy scraper kit assembly is shown in Fig. 4. The scraper mounting bracket, Ref. 1, is clamped underneath the gang beam with the top clamp plate, Ref. 2, using 5/8" x 5" hex bolts, Ref. 3. The mounting bracket is placed so the the scraper bar is on the rear of the gang beam. Place the scraper bar, Ref. 13, on top of the mounting bracket and secure with the one hole clamp, Ref. 11, and the 1/2" x 2 1/2" hex bolt, Ref. 6. The scraper arm and blade assemblies, come assembled from the factory with half being right hand and half being left hand. Bolt the scraper arm and blade assembly, Ref. 16, under the scraper bar using a two hole clamp, Ref. 12, and two 1/2" x 2 1/2" hex bolts. Assign a scraper blade to each disc blade except the outside front and inside rear disc blades. Position each scraper as near to the disc blade as possible without touching it. The mounting arm, Ref. 14, has a slotted hole for angular adjustment to more closely fit the blade concavity. Turning the gang after mounting the scrapers is recommendd to prevent dragging or binding of the gang. After all scraper are correctly adjusted, tighten bolts to approximately 50 ft.lbs.

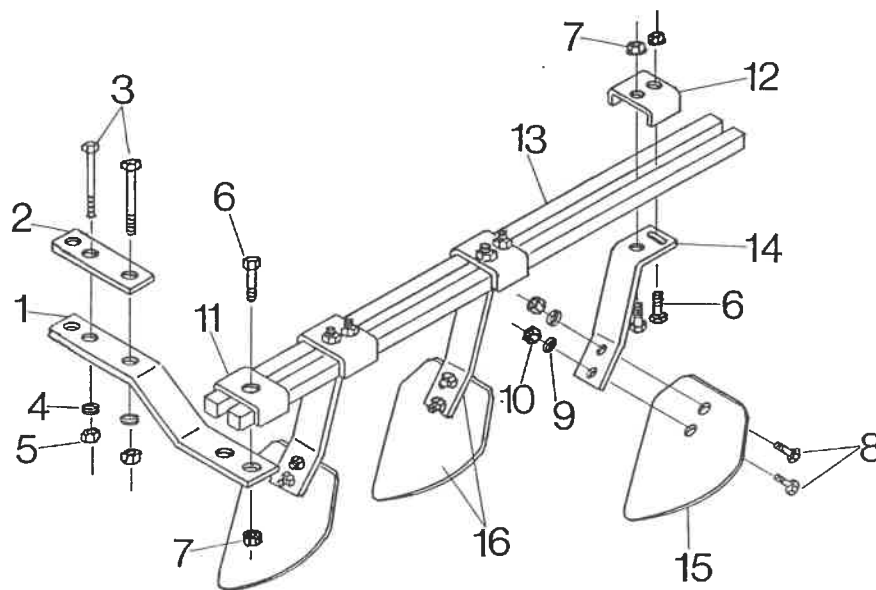


FIG. 4

REF. NO.	PART NO.	DESCRIPTION
1	12891	SCRAPER BAR MOUNTING BRACKET
2	12894	TOP CLAMP PLATE
3	T-745	HEX BOLT, 5/8" x 5", GR. 2 FOR 3 x 4 TUBING
4	T-24	LOCKWASHER, 5/8"
5	T-22	HEX NUT, 5/8"
6	11082	HEX BOLT, 1/2" x 2 1/2", GR. 2
7	9226	FLANGE LOCK NUT, 1/2"
8	T-733	HEX BOLT, 1/2" x 1 1/2", GR. 2
9	T-25	LOCKWASHER, 1/2"
10	T-26	HEX NUT, 1/2"
11	T-803	CLAMP, 1 HOLE
12	9356	CLAMP, 2 HOLE
13		SCRAPER BAR, 1" SQ.
14	10151	SCRAPER ARM
15	11081	SCRAPER BLADE
16	11027	ARM & BLADE ASSEMBLY (RH FRONT, LH REAR)
	11028	ARM & BLADE ASSEMBLY (LH FRONT, RH REAR)

FIELD ADJUSTMENTS

Your harrow should be ready for use after proper assembly. As in any new machine, all bolts and nuts should be checked to insure they are tight prior to use. Pay special attention to axle nuts and gang hanger bolts. It is important that only one adjustment be made at a time and then tried between each adjustment. Remember each adjustment affects another; therefore, extreme care should be used when adjusting.

Each trial run should be made with the tractor in the same gear and approximately the same RPM. Changing discing speed while attempting to adjust will result only in excessive time and labor loss due to changing conditions.

While making your first trial run, observe the disc harrow closely as it is traveling. It should be level from the front to rear as it travels. If not, level it by adjustment of your top link on the tractor. After making the necessary adjustments, the disc should pull level with both front and rear gangs penetrating the soil at approximately the same depth.

Now observe the soil behind the disc. It should be level and smooth. If after making the above adjustments, the disc leaves a water furrow in the center (example:), it would indicate that the front gangs are more aggressive than the rear gangs. To correct this problem, either increase the angle of the rear gangs or decrease the angle of the front gangs. Conversely, if the disc is leaving a ridge, (example:), this would indicate that the rear gang is more aggressive than the front gang. To correct this, either decrease the angle of the rear gangs or increase the angle of the front gangs.

Keep in mind that many variables affect the operation of your disc. These include, but are not limited to penetration, speed, soil conditions, etc. Any changes in any one of these could cause a requirement for further adjustments.

QUICK REFERENCE TROUBLE SHOOTING GUIDE

PROBLEM

POSSIBLE SOLUTION

- | | |
|---|---|
| 1. Unit not tracking or is fishtailing | A. Adjust top link to increase weight on the rear of the disc.
B. Disc assembled incorrectly. Refer to assembly instructions. |
| 2. Unit not tracking: skipping, jumping, and fishtailing (In untilled, hard soil) | A. Insure equal depth of cut on front and rear.
B. Reduce speed.
C. Reduce gang angle.
D. Reduce depth of cut by carrying on 3 pt. lift disking shallow first time over. NOTE: Some experimentation may be required by trial and error to arrive at the proper solution. |
| 3. Unit leaving water furrow. | A. Increase speed.
B. Increase angle on rear gangs.
C. Decrease angle on front gangs.
D. Disc not level. Lower rear gangs or raise the front gangs.
E. Any combination of the above. |
| 4. Unit ridging or leaving behind a high spot. | A. Decrease speed.
B. Decrease angle on rear gangs.
C. Increase angle on front gangs.
D. Disc not level. Raise rear gangs or lower front gangs.
E. Any combination of the above. |
| 5. Unit leaving water furrows on outside of each rear gang. | A. Add optional T-703 outrigger attachments with a round disc blade about 4" smaller than stock blades.
B. Taper the outside blade size on last one or two blades of each gang by replacing blades with blades decreasing in size. |
| 6. Blades plugging with soil or trash. | A. Add optional regular or heavy scraper kit. If already equipped, readjust them.
B. Soil conditions not suitable for disking due to excessive moisture content. |
| 7. Unit leaving a balk between front inside gangs. | A. Add optional balkbreaker assembly. |

TUFLINE BOLT TIGHTENING TORQUE CHART

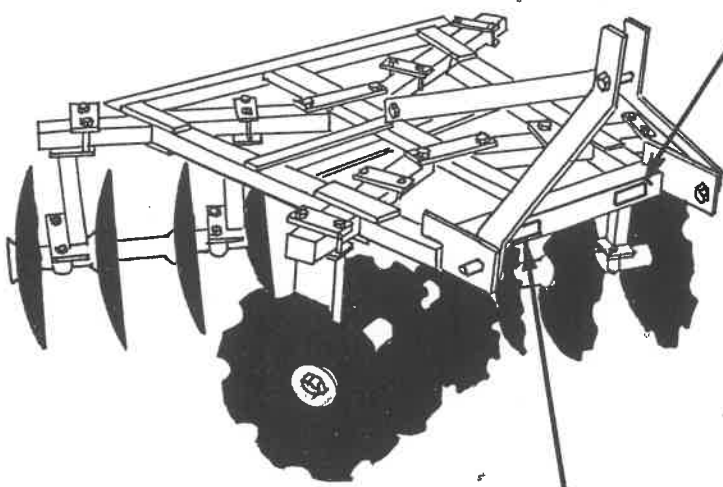
<u>BOLT or AXLE SIZE</u>	<u>DESCRIPTION</u>	<u>FT./LBS. TIGHTENING TORQUE</u> <u>LUBRICATED THREADS, SAE OR</u> <u>ASTM GRADE</u>		
		<u>2</u>	<u>3</u>	<u>5</u>
1/2"	HEX BOLT	45		75
5/8"	HEX BOLT	93		150
3/4"	HEX BOLT	150		250
7/8"	HEX BOLT	202		378
7/8"	GANG AXLE	250		
1"	HEX BOLT	300		583
1 1/8"	HEX BOLT	474		782-78*
1 1/8"	GANG AXLE		700-70*	

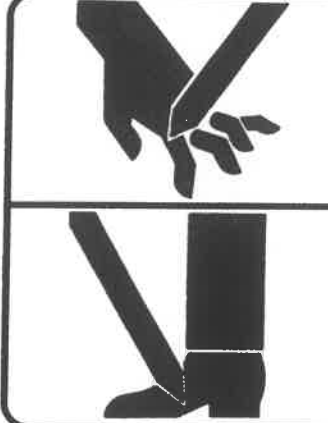
* Torque wrenches are not ordinarily available for these torques. Complete tightening process with a 10 ft. lever measure from the center of the wrench using the last figure shown as pounds of force at the end of the lever. Spring scales may be used to check.

SAFETY DECAL PLACEMENT

**** NOTE:** If safety decals have been damaged, removed, or become illegible, new decals must be applied. New decals are available from your distributor or dealer parts department or the factory.

	<p>! WARNING</p> <p>Keep hands, fingers, and feet clear during adjustment and operation. Injury or dismemberment may occur if not careful!</p> <p>12588</p>
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	<p>! WARNING</p> <p>FALLING BLADE HAZARD</p> <ul style="list-style-type: none">• Can cause serious injury or death.• Keep hands and feet from under raised blade. <p>12595</p>
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