

OPERATOR'S MANUAL

TH SERIES TANDEM DISC



Tufliner®

www.monroetufliner.com

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Tufline dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Owner's/Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the Warranty Registration located on page 20 and mail to Tufline

TO THE OWNER:

Read this manual before operating your Tufline equipment. 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 selling dealer.

The equipment 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 equipment.

For service, your authorized Tufline dealer has trained mechanics, genuine Tufline service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Tufline service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model: _____ Date of Purchase: _____

Serial Number: (see Safety Decal section for location) _____

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

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.



This Safety-Alert Symbol indicates a hazard and means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

IMPORTANT

Indicates that failure to observe can cause damage to equipment.

NOTE

Indicates helpful information.

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SPECIFICATIONS

TH SERIES - PILLOW BLOCK BEARING MODELS

Model #	Blades	Spacing	Width of Cut	Weight
TH91618B	16-18"	9"	6' 4"	848#
TH91620B	16-20"	9"	6' 4"	890#
TH91622B	16-22"	9"	6' 4"	933#
TH72018B	20-18"	7 1/2"	6' 8"	847#
TH72020B	20-20"	7 1/2"	6' 8"	942#
TH971820B	18-20"	9 - 7 1/2"	6' 8"	915#
TH971822B	18-22"	9 - 7 1/2"	6' 8"	969#
TH72418B	24-18"	7 1/2"	6' 8"	958#
TH72420B	24-20"	7 1/2"	8'	1038#
TH92020B	20-20"	9"	8'	968#
TH92022B	20-22"	9"	8'	1026#
TH972220B	22-20"	9 - 7 1/2"	8'	1005#

TH/BF SERIES - FLANGE BEARING MODELS

Model #	Blades	Spacing	Width of Cut	Weight
TH91618BF	16-18"	9"	6' 4"	799#
TH91620BF	16-20"	9"	6' 4"	837#
TH72018BF	20-18"	7 1/2"	6' 8"	827#
TH72020BF	20-20"	7 1/2"	6' 8"	880#
TH971818BF	18-18"	9 - 7 1/2"	6' 8"	828#
TH971820BF	18-20"	9 - 7 1/2"	6' 8"	871#
TH72418BF	24-18"	7 1/2"	8'	930#
TH72420BF	24-20"	7 1/2"	8"	968#
TH92020BF	20-20"	9"	8'	942#

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your TUFLINE DISC. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance.

These instructions have been compiled from field experience and engineering data. Some information may be general in nature, due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to

your particular situation.

The illustrations and data used in this manual were current at the time of printing. However, due to possible in line production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

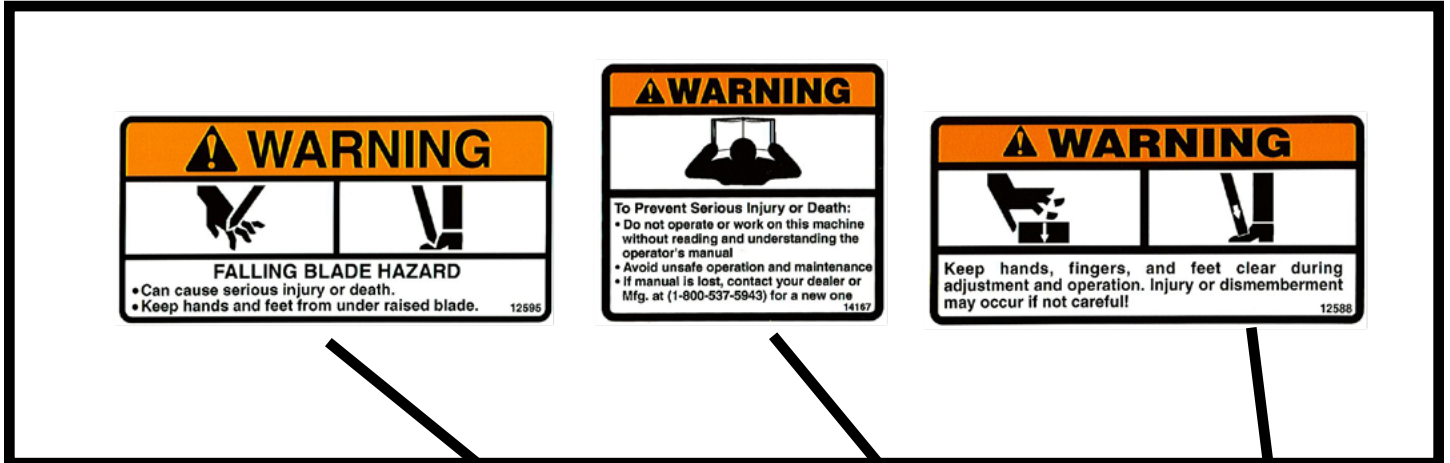
Throughout this manual, references are made to right and left direction. These are determined by standing behind the disc facing the direction of forward travel.

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH

Check that all safety decals are installed and in good condition. Replace if decals are worn or damaged. Replacement Part numbers are listed here.

Replace Decals Immediately If Damaged!



Safety Decals 2



SATETY 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 an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, 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 operator.

TRAINING

- Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals are available from selling dealer.) 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.
- 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.
- Never allow children or untrained persons to operate equipment.
- Train all new personnel and review instruction's frequently with existing workers. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or

death.

- Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.
- Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result.

CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.

PREPARATION

- Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.
- Make sure attachment is properly secured, adjusted, and in good operating condition.
- Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.
- Route hydraulic hoses carefully to prevent damage. Hoses must not be twisted, bent



SATETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



PREPARATION (cont'd)

sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hose immediately.

- Do not connect a low-pressure hydraulic hose into a high-pressure system—it will burst the hose. Do not use a high-pressure hose in place of a low-pressure hose—it is possible to rupture the valve.
- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in “locked up” position at all times.
- Do not exceed this implements transport speed of 20 mph (32 kmh). Exceeding this speed may cause loss of control during transport or braking and serious injury or death.
- Transport only with a properly ballasted tractor and a properly attached safety tow chain.
- Do not transport with a motor vehicle.
- Reduce speed and use additional caution when on inclines, towing when on adverse surface conditions, and turning.

TRANSPORTATION

- Always comply with all state and local laws governing highway safety and lighting and marking requirements.
- Never allow riders on power unit or attachment.
- Do not operate or transport on steep slopes.

- Use extreme care and reduce ground speed on slopes and rough terrain.
- Do not operate or transport equipment while under the influence of alcohol or drugs. Consult your doctor about operating this machine while taking prescription medications.

OPERATION

- Never go underneath equipment in the raised or transport position unless the transport lock is in place. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off.
- Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.
- Always comply with all state and local laws governing highway safety and lighting and marking requirements.
- Do not exceed this implements transport speed of 20 mph (32 kmh). Exceeding this speed may cause loss of control during transport or braking and serious injury or death.
- Transport only with a properly ballasted tractor and a properly attached safety tow chain.
- Do not transport with a motor vehicle.
- Reduce speed and use additional caution when on inclines, towing when on adverse surface conditions, and turning.
- Operate only in daylight or good artificial light.
- Keep bystanders away from equipment.



SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



OPERATION (cont'd)

- Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.
- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in “locked up” position at all times.
- Never allow riders on power unit or attachment.
- Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.
- Look down and to the rear and make sure area is clear before operating in reverse.
- Use extreme care when working close to fences, ditches, other obstructions, or on hillsides.
- Do not operate or transport on steep slopes.
- Do not stop, start, or change directions suddenly on slopes. Always operate down slopes; never across the face.
- Use extreme care and reduce ground speed on slopes and rough terrain.
- Keep alert and watch the front as well as the rear when operating.
- Always relieve the pressure on the hydraulic lift system before performing service or maintenance on any hydraulic components. Failure to do so may cause serious injury from injection of pressurized hydraulic fluid.

- Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.
- Do not use hands to search for leaks on any hydraulic components. Use cardboard or similar material. Failure to do so may cause serious injury from injection of pressurized hydraulic fluid.
- When making gang adjustments, be careful to keep hands and feet clear of sliding parts and possible pinch points.
- Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.
- Before leaving operator's seat, lower the lift carriage and put attachment on the ground. Engage brake, stop engine, remove key, and remove seat belt.

MAINTENANCE

- Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.
- Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between



SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



MAINTENANCE (cont'd)

moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.

- When performing maintenance or repairs make sure the equipment is in the lowered

position and both the mainframe and gangs are properly blocked and secured to prevent rolling. Failure to do so can cause serious injury or death.

- Make sure attachment is properly secured, adjusted, and in good operating condition.
- Before leaving operator's seat, lower the lift carriage and put attachment on the ground. Engage brake, stop engine, remove key, and remove seat belt.
- Never perform service or maintenance with engine running.
- Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.
- Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.

- Route hydraulic hoses carefully to prevent

damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hose immediately.

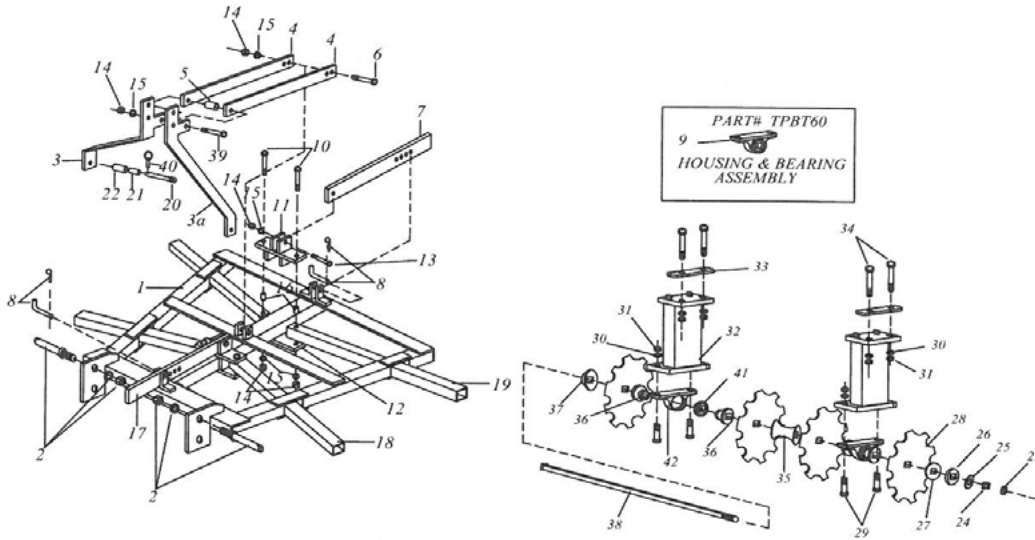
- Do not connect a low-pressure hydraulic hose into a high-pressure system—it will burst the hose. Do not use a high-pressure hose in place of a low pressure hose—it is possible to rupture the valve.
- Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result.

CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.

- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
- Tighten all bolts, nuts, and screws to torque chart specifications (page 16). Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.

STORAGE

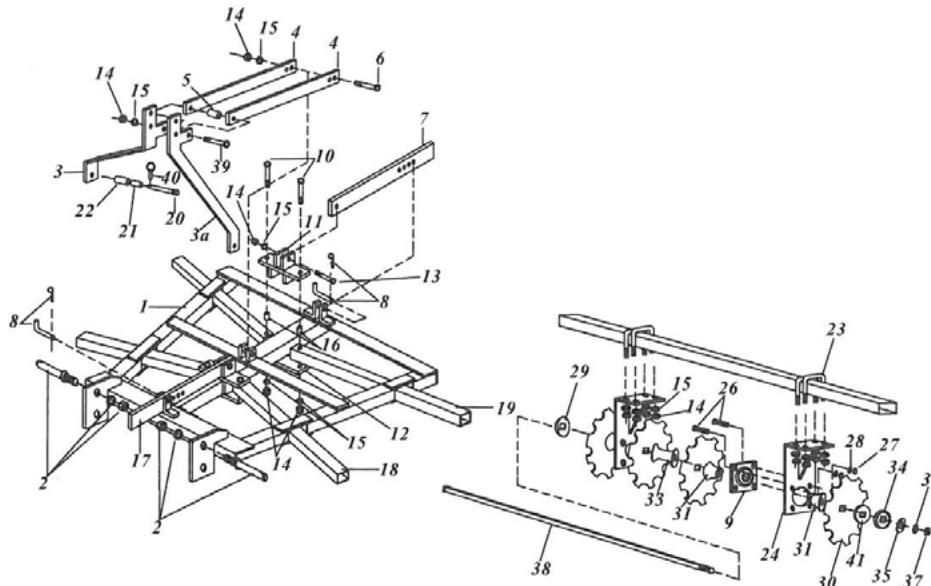
- Block equipment securely for storage in the lowered position.
- Keep children and bystanders away from storage area.



TH MAIN FRAME & 1 1/8" PILLOW BLOCK GANG ASSEMBLY

TH91618B, TH91620B, TH91622B, TH72018B, TH72020B, TH72022B, TH971820B
TH971822B, TH72418B, TH72420B, TH72422B, TH92020B, TH92022B, TH972220B, TH972222B

REF.#	PART #	DESCRIPTION	REF.#	PART #	DESCRIPTION
1	9757	MAIN FRAME	28	2-18138-1	18" DISC BLADE, PLAIN
2	T-33	HITCH PIN, 7/8" CAT 1 W/NUT & WASHER		2-18138-2	18" DISC BLADE, NOTCHED
3	15560	A-FRAME HITCH, 2 1/2" RIGHT		2-20138-1	20" DISC BLADE, PLAIN
3A	15559	A-FRAME HITCH 2 1/2" LEFT		2-20138-2	20" DISC BLADE, NOTCHED
4	14993	STRUT, 29 3/4", RIGHT		2-22157-1	22" DISC BLADE, PLAIN
5	9653	1 1/2" STRUT SPACER		2-22157-2	22" DISC BLADE, NOTCHED
6	T-725	5/8" X 3 3/4", GR. 5 HEX BOLT	29	T-740	HEX BOLT, 5/8" X 2" GR. 2
7	12443	18 1/2" REAR ADJUSTING BAR	30	T-24	LOCKWASHER, 5/8"
8	9690	ADJUSTING BAR PIN W/PIN	31	T-22	HEX NUT, 5/8"
9	TPBT60	PB BEARING & HOUSING ASSEMBLY	32	T-41	PB GANG HANGER
10	T-745	5/8" X 5" GR. 2 HEX BOLT	12378		PB GANG HANGER (FOR 22" BLADES)
11	12895	TOP ADJUSTING PLATE	33	T-714	GANG BEAM STRAP, 2 1/2"
12	12896	BOTTOM ADJUSTING PLATE	34	T-745	HEX BOLT, 5/8" X 5" GR. 5
13	9192	5/8" X 2 1/2" GR. 5 HEX BOLT	35	T-3	SPACER SPOOL, 1 1/8" X 9"
14	T-22	5/8" HEX NUT		T-91	SPACER SPOOL, 1 1/8" X 7 1/2"
15	T-24	5/8" LOCK WASHER	36	T-46	END SPACER, FOR 7 1/2" SPACING
16	T-56	BUSHING, 5/8" X 3 1/16"		T-48	END SPACER, FOR 9" SPACING
17	12444	22 1/2" FRONT ADJUSTING BAR	37	T-2	BUMPER WASHER, 1 1/8" FOR FRONT
18	T-63	FRONT GANG BEAM 3" X 3" X 27"		T-OR1	OUTRIGGER WASHER FOR REAR
	T-632	FRONT GANG BEAM 3" X 3" X 37"	38	T-13	AXLE 1 1/8" X 31 5/8", 4 BLADE 9" SPACING
	T-163	FRONT GANG BEAM 3" X 3" X 33"		T-14	AXLE 1 1/8" X 40 5/8", 5 BLADE 9" SPACING
	T-633	FRONT GANG BEAM 3" X 3" X 40"		T-133	AXLE 1 1/8" X 34 5/8", 5 BLADE 7 1/2" SPACING
19	T-635	REAR GANG BEAM 3X3X48"		T-141	AXLE 1 1/8" X 42 3/8", 6 BLADE 7 1/2" SPACING
	T-163	REAR GANG BEAM 3X3X33"	39	T-724	HEX BOLT, 5/8" X 4" GR. 2
	T-632	REAR GANG BEAM 3X3X37"	40	VP252	LYNCH PIN
20	15206	CAT 1 TOP LINK PIN, 3 7/8" USABLE	41	T-60	PB TRUNNION BEARING, 1 1/8"
21	15209	CAT 1 BUSHING, 1 15/16"	42	TPB	PILLOW BLOCK HOUSING
22	15210	CAT 2 BUSHING, 1 15/16"			
23	T-18A	HEX LOCK NUT, 1 1/8"			
24	T-20	LOCKWASHER, 1 1/8"			
25	T-698	FLAT WASHER, 1 1/8"			
26	T-1	END WASHER, 1 1/8"			
27	11170	SQ. HOLE WASHER, 1 1/8"			



TH/BF MAIN FRAME & 1 1/8" BALL FLANGE GANG ASSEMBLY

TH91618BF, TH91620BF, TH72018BF, TH72020BF
TH971818BF, TH971820BF, TH72418BF, TH72420BF, TH92020BF

REF.#	PART #	DESCRIPTION	REF.#	PART #	DESCRIPTION
1	9757	MAIN FRAME	28	T-25	HEX NUT, 1/2"
2	T-33	HITCH PIN, 7/8" CAT 1 W/NUT & WASHER	29	T-2	BUMPER WASHER, 1 1/8"
3	15560	A-FRAME HITCH, 2 1/2" RIGHT	30	2-18138-2	DISC BLADE 18" X 1 1/8" NOTCHED
3A	15559	A-FRAME HITCH 2 1/2" LEFT	30	2-18138-1	DISC BLADE 18" X 1 1/8" PLAIN
4	14993	STRUT, 29 3/4", RIGHT	30	2-20138-2	DISC BLADE 20" X 1 1/8" NOTCHED
		STRUT, 29 3/4", LEFT	30	2-20138-1	DISC BLADE 20" X 1 1/8" PLAIN
5	9653	1 1/2" STRUT SPACER	31	T-46	END SPACER, 1 1/8", FOR 7 1/2" SPACING
6	T-725	5/8" X 3 3/4", GR.5 HEX BOLT	31	T-48	END SPACER, 1 1/8", FOR 9" SPACING
7	12443	18 1/2" REAR ADJUSTING BAR	33	T-91	SPACER SPOOL, 1 1/8" X 7 1/2"
8	9690	ADJUSTING BAR PIN W/PIN	33	T-3	SPACER SPOOL, 1 1/8" X 9"
9	15564	FLANGE & BEARING ASSEMBLY, 1 1/8"	34	T-1	END WASHER, 1 1/8"
10	T-745	5/8" X 5" GR.2 HEX BOLT	35	T-698	FLAT WASHER, 1 1/8"
11	12895	TOP ADJUSTING PLATE	36	T-20	LOCK WASHER, 1 1/8"
12	12896	BOTTOM ADJUSTING PLATE	37	T-18A	LOCK NUT 1 1/8"
13	9192	5/8" X 2 1/2" GR.5 HEX BOLT	38	T-13	AXLE 1 1/8" X 31 5/8", 4 BLADE 9" SPACING
14	T-22	5/8" HEX NUT	38	T-14	AXLE 1 1/8" X 40 5/8", 5 BLADE 9" SPACING
15	T-24	5/8" LOCK WASHER	38	T-133	AXLE 1 1/8" X 34 5/8", 5 BLADE 7 1/2" SPACING
16	T-56	BUSHING, 5/8" X 3 1/16"	38	T-141	AXLE 1 1/8" X 42 3/8", 6 BLADE 7 1/2" SPACING
17	12444	22 1/2" FRONT ADJUSTING BAR	39	T-724	HEX BOLT, 5/8" X 4" GR.2
	T-63	FRONT GANG BEAM 3" X 3" X 27"	40	VP252	LYNCH PIN
18	T-632	FRONT GANG BEAM 3" X 3" X 37"	41	11170	SPACER WASHER
	T-163	FRONT GANG BEAM 3" X 3" X 33"			
	T-633	FRONT GANG BEAM 3" X 3" X 40"			
	T-635	REAR GANG BEAM 3X3X48"			
19	T-163	REAR GANG BEAM 3X3X33"			
	T-632	REAR GANG BEAM 3X3X37"			
20	15206	CAT 1 TOP LINK PIN, 3 7/8" USABLE			
21	15209	CAT 1 BUSHING, 1 15/16"			
22	15210	CAT 2 BUSHING, 1 15/16"			
23	11139	5/8" U-BOLT FOR 3" X 3" GANG BEAM			
24	14419	BF GANG HANGER W/BRACE			
26	T-804	1/2" X 1 1/2" CARRIAGE BOLT, GR.2			
27	T-26	HEX NUT, 1/2"			

Operation

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 an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, 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 operator.

The operator is responsible for the safe operation of this equipment. The operator must be properly trained. Operators should be familiar with the equipment, the tractor, and all safety practices before starting operation. Read the safety rules and safety decals on pages 2-6.

Owner should check and tighten all hardware after the first hour of operation. The break in stage of your new disc harrow can cause minimal loosening of disc gangs and other hardware as the new paint wears. Please see Bolt Torque Chart (page 16) for proper torque infor-



mation.

- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.

- Never allow children or untrained persons to operate equipment.

- Keep bystanders away from equipment.

- NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures,

mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.

- Service work does not require going underneath.

- Read Manual for service instructions or have service performed by a qualified dealer.

- Stop tractor and implement immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.

- 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.

Owner/Operator Pre-Operation Checklist

(Owner's/Operator's Responsibility)

___ Review and follow all safety rules and safety decal instructions on page 2 through page 6.

___ Check that equipment is properly and securely attached to tractor.

___ Check that all safety decals are installed and in good condition. Replace if damaged.

___ Check that all hardware is properly installed and secured.

___ Do not allow riders.

___ Make sure tractor ROPS or ROPS CAB and seat belt are in good condition. Keep seat belt securely fastened during operation.

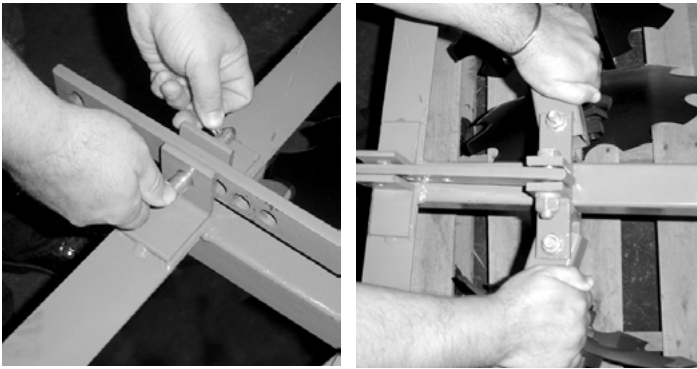
Adjusting Gang Angle



CAUTION

When making gang adjustments, be careful to keep hands and feet clear of sliding parts and possible pinch points.

The gang angles on the TH series disc are adjustable. The unit should be lifted two to three inches off the ground with the tractor hitch system for an easier adjustment. Remove cotter key and then pin and set angle at the desired setting. Make sure that the pin and cotter key is replaced properly after setting to secure the gang angles. (See photos below)

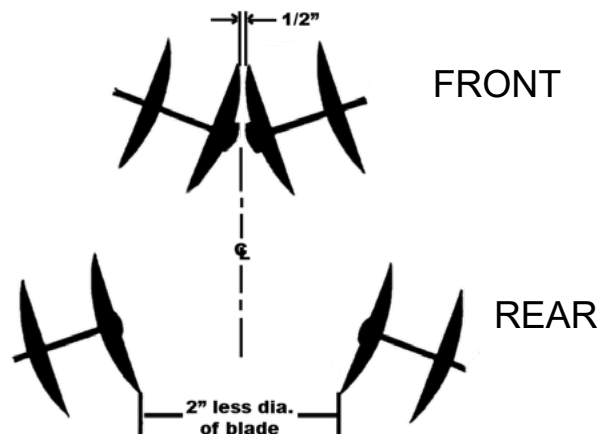


It is important that only one adjustment be made at a time and then tried between each adjustment. Remember each adjustment affects another; therefore, extreme care should be used when adjusting.

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 in excessive time and labor loss due to changing conditions.

While making your initial run, observe the disc 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 tractor top link. After making the necessary adjustment, 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, it would indicate that the front gangs are more aggressive than the rear gangs. To correct this, either increase the angle of the rear gangs or decrease the angle of the front gangs. Conversely, if the disc is ridging, that is leaving a ridge behind it, this would indicate that the rear gang is more aggressive than the front gang. To correct this, either decrease the angle of the rear gang or increase the angle of the front gangs.



Owner Service

⚠ WARNING

- NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.
- Service work does not require going underneath.
- Read Manual for service instructions or have service performed by a qualified dealer.

⚠ WARNING

The information in this section is written for operators who possess basic mechanical skills. If you need help, your dealer has trained service technicians available. For your protection, read and follow the safety information in this manual.

- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
- Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3 point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.

⚠ CAUTION

- 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.

Gang Assembly for Maintenance

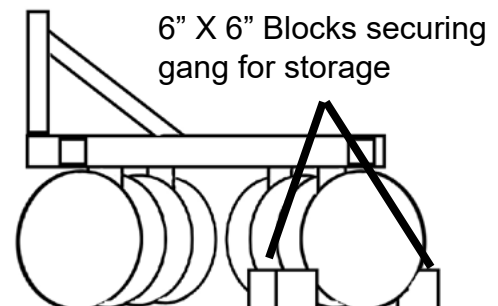
⚠ WARNING

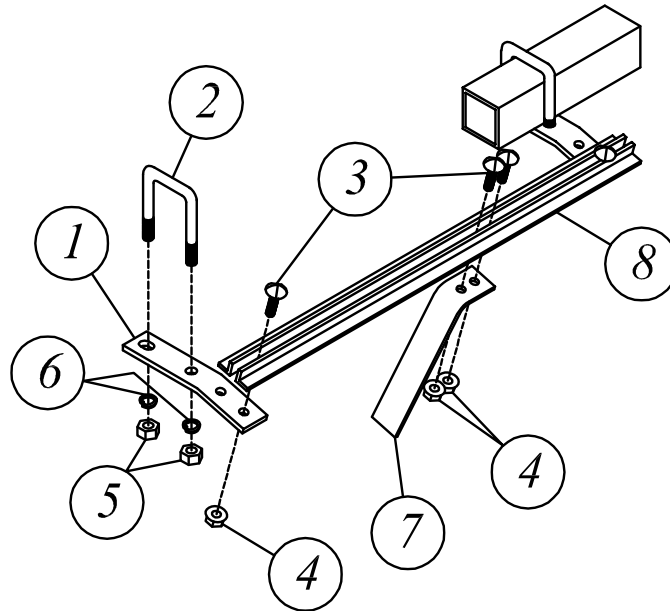
- When performing maintenance or repairs make sure the equipment is in the lowered position and both the mainframe and gangs are properly blocked and secured to prevent rolling. Failure to do so can cause serious injury or death.

When gang component replacement is required, carefully observe all safety issues. Place unit on level ground prior to gang drop. Also make sure that gangs are blocked to keep them from rolling in either direction. After unit is lowered to ground and gangs are secure, loosen nuts on all hex bolts holding hangers to main frame (item 10). Observe the sequence and location of each gang component and refer to the gang diagram on Figure 1 for removal and replacement of the desired component. After replacement is completed reinstall gang parts in proper order as shown on gang diagram on Figure 1. Make sure that the gang nut on the gang axle is properly tightened after replacements are made. Refer to “ Bolt Tightening Torque Chart” on page 16 for proper torque.

Storage

When storing your disc harrow make sure the unit is placed on level ground and that the gangs are properly chocked by bracing with 6”x6” blocks on the front and rear side of one complete gang assembly. See the diagram below.



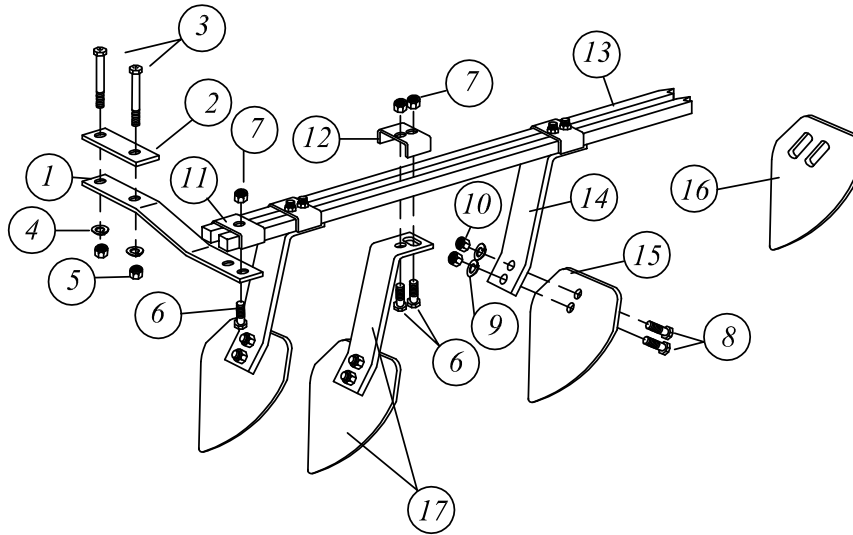


REGULAR SCRAPER KIT

<i>REF #</i>	<i>PART#</i>	<i>DESCRIPTION</i>
1	12889	REGULAR SCRAPER BAR HOLDER
2	11139	U-BOLT, 5/8" FOR 3 X 3 (THE, TH, & THF)
3	T-805	CARRIAGE BOLT, 1/2" X 2" GR. 2
4	9226	FLANGE LOCK NUT, 1/2"
5	T-22	HEX NUT, 5/8"
6	T-24	LOCK WASHER, 5/8"
7	T-265	REGULAR SCRAPER BLADE

<i>REF #</i>	<i>PART#</i>	<i>DESCRIPTION</i>	<i>MODEL USED ON</i>
8	14980	REGULAR SCRAPER BAR, 29"	FRONT - TH916, TH9718 REAR - TH916
	12307	REGULAR SCRAPER BAR, 33"	FRONT - TH720 REAR - TH9718, TH720
	15689	REGULAR SCRAPER BAR, 37"	FRONT - TH920, TH9722 REAR - TH920
	12308	REGULAR SCRAPER BAR, 41"	FRONT - TH724 REAR - TH724, TH9722

Optional Equipment 12



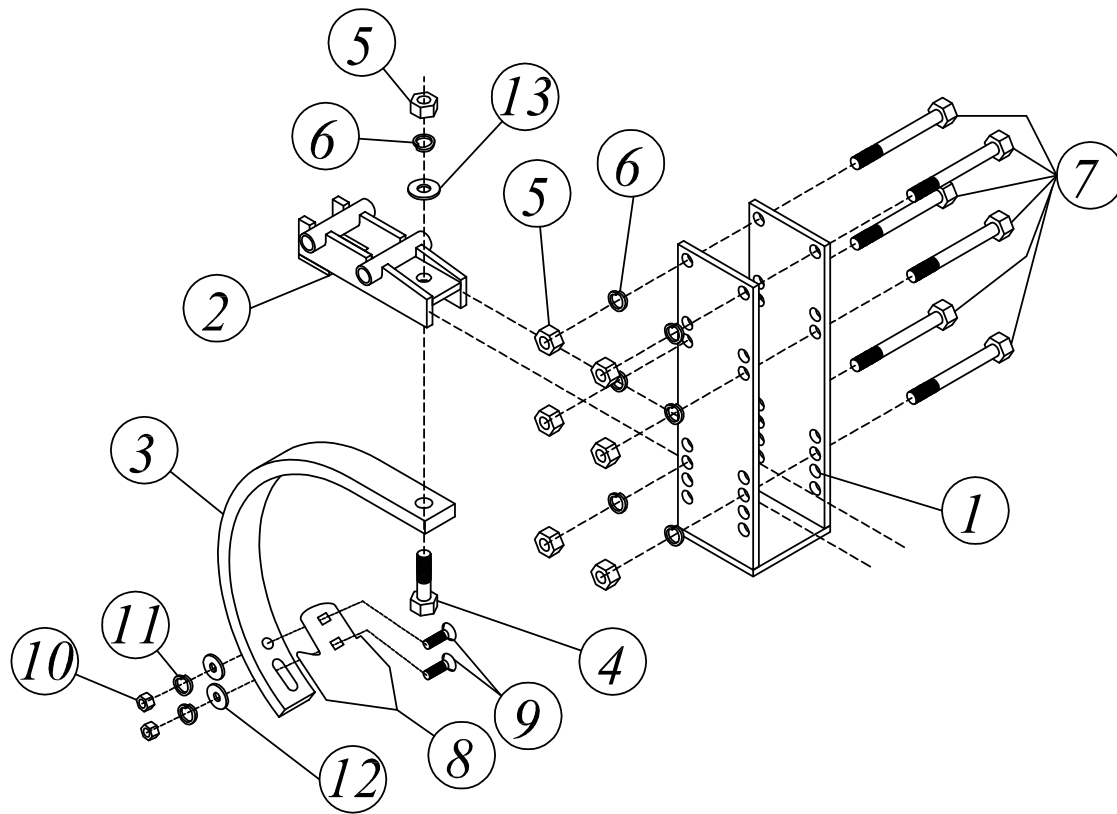
HEAVY SCRAPER KIT THREE POINT LIFT DISC

REF #	PART#	DESCRIPTION	REF #	PART#	DESCRIPTION
1	12892	SCRAPER BAR MOUNTING BRACKET	11	T-803	CLAMP, 1 HOLE
			12	9356	CLAMP, 2 HOLE
			13		HEAVY SCRAPER BAR (SEE BELOW)
2	12090	SCRAPER BAR TOP MOUNTING PLATE 3" X 3"	14	10151	SCRAPER ARM
3	T-745	HEX BOLT, 5/8" X 5" GR.2	15	11081	SCRAPER BLADE
4	T-24	LOCKWASHER, 5/8"	16	11065	OUTRIGGER SCRAPER BLADE
5	T-22	HEX NUT, 5/8"	17	11027	ARM & BLADE ASSEMBLY RIGHT FRONT/ LEFT REAR WITH SCRAPER ARM
6	11082	HEX BOLT, 1/2" X 2 1/2" GR.2		11028	ARM & BLADE ASSEMBLY LEFT FRONT/ RIGHT REAR WITH SCRAPER ARM
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"			

REF. # 13 HEAVY SCRAPER BAR

PART #	DESCRIPTION	MODEL USE ON
12337	HEAVY SCRAPER BAR, 27"	FRONT - TH916, TH9718 REAR - TH916
T-261	HEAVY SCRAPER BAR, 33"	FRONT - TH720 REAR - TH9718, TH720
12338	HEAVY SCRAPER BAR, 37"	FRONT - TH920, TH9722, REAR - TH920
11738	HEAVY SCRAPER BAR, 40"	FRONT - TH724 REAR - TH724, TH9722

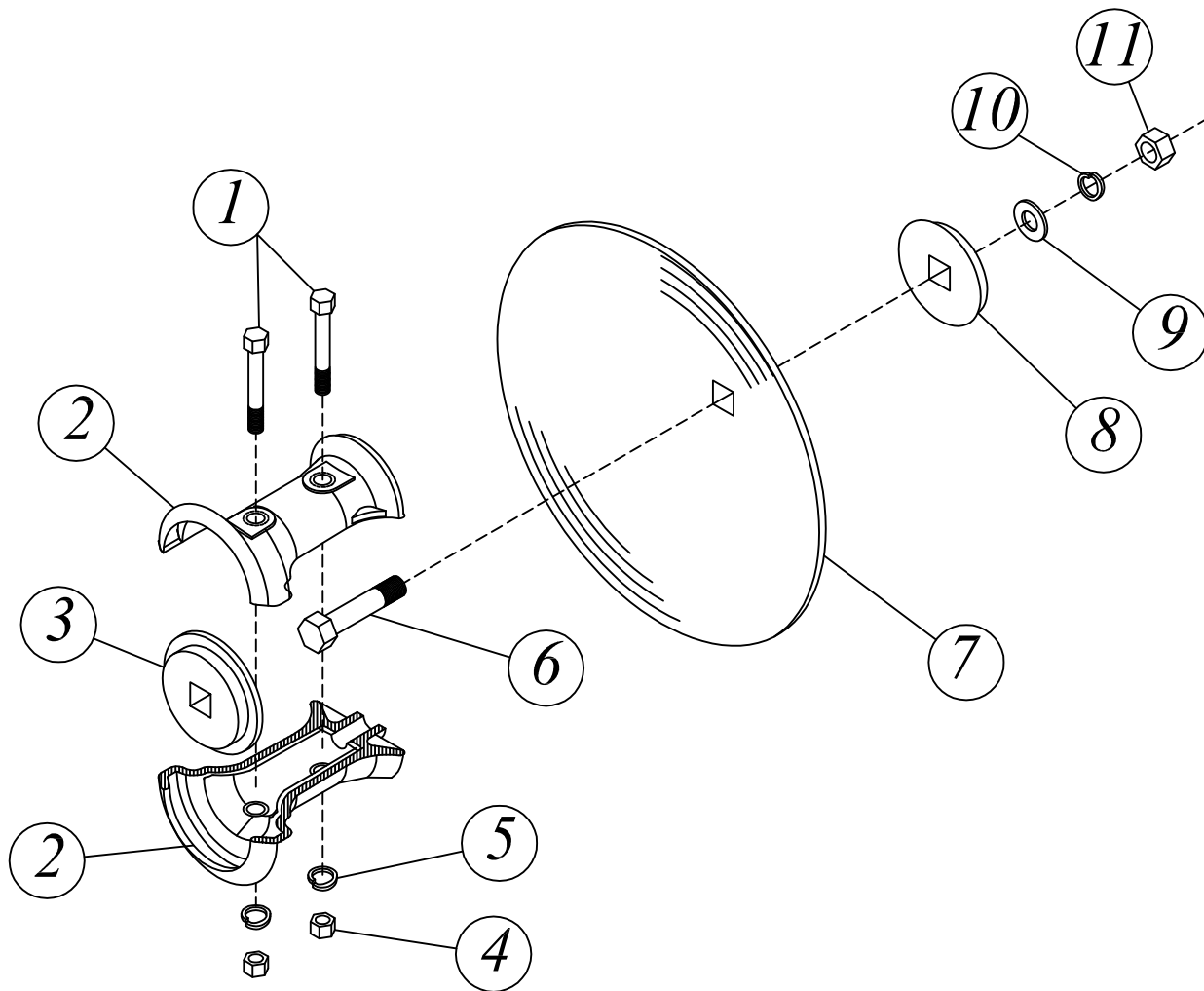
13 Optional Equipment



BALK BREAKER THREE POINT DISC

<i>REF #</i>	<i>PART#</i>	<i>DESCRIPTION</i>
<i>1</i>	<i>10601</i>	<i>SHANK BRACKET 3" BEAM (TH MODELS)</i>
<i>2</i>	<i>10599</i>	<i>SHANK HOLDER 3" BEAM (TH MODELS)</i>
<i>3</i>	<i>10602</i>	<i>BALK BREAKER SHANK</i>
<i>4</i>	<i>9192</i>	<i>HEX BOLT, 5/8" X 2 1/2", GR. 5</i>
<i>5</i>	<i>T-22</i>	<i>HEX NUT, 5/8"</i>
<i>6</i>	<i>T-24</i>	<i>LOCK WASHER, 5/8"</i>
<i>7</i>	<i>T-744</i>	<i>HEX BOLT, 5/8" X 4 1/2" GR. 2 (TH MODELS)</i>
<i>8</i>	<i>13614</i>	<i>4" SWEEP POINT</i>
<i>9</i>	<i>14984</i>	<i>PLOW BOLT, 7/16" X 1 1/2"</i>
<i>10</i>	<i>14986</i>	<i>HEX NUT, 7/16"</i>
<i>11</i>	<i>14987</i>	<i>LOCK WASHER, 7/16"</i>
<i>12</i>	<i>14985</i>	<i>FLAT WASHER, 7/16"</i>
<i>13</i>	<i>9354</i>	<i>FLAT WASHER, 5/8"</i>

Optional Equipment 14

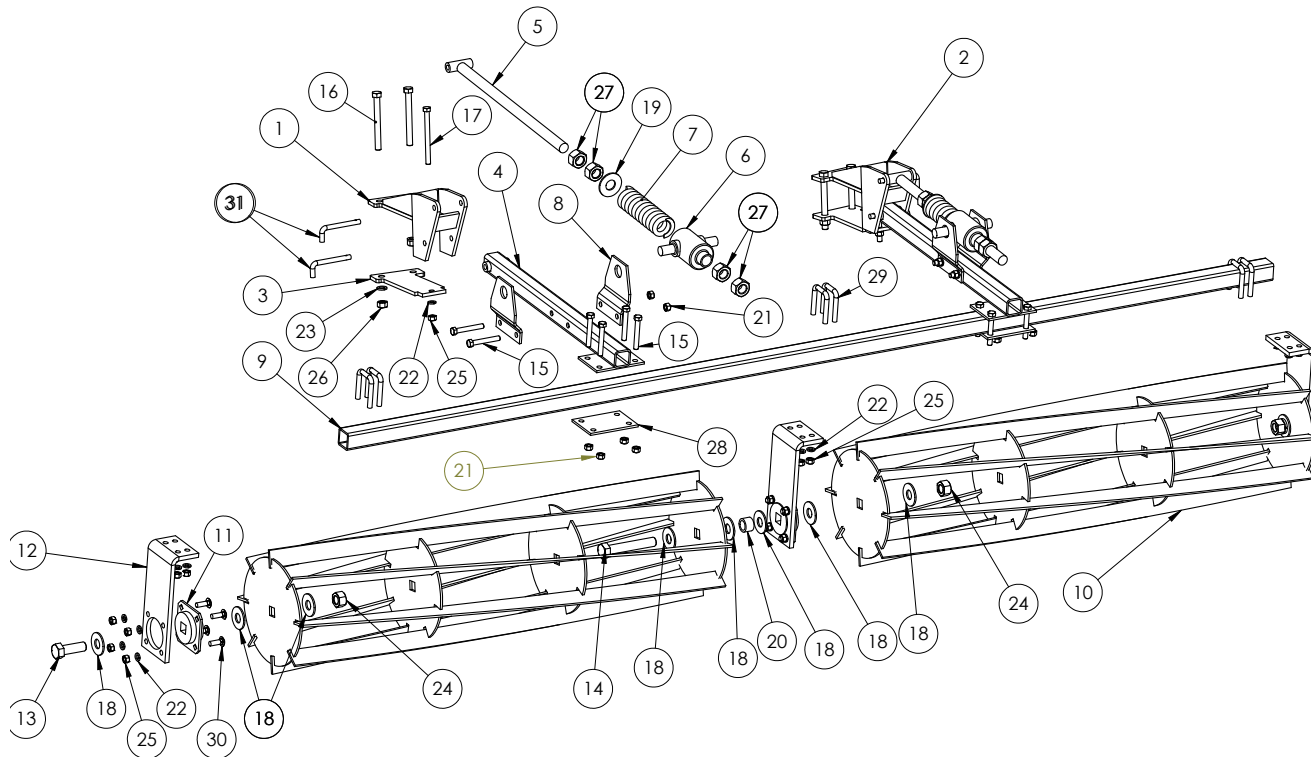


OUTRIGGER KIT

REF #	PART#	DESCRIPTION	REF #	PART#	DESCRIPTION
1	12163	HEX BOLT, 1/2" X 3 1/2" GR. 5	8	T-1	END WASHER, 1 1/8"
2	T-OR2	OUTRIGGER HALF	9	T-723	FLAT WASHER, 3/4"
3	T-OR1	OUTRIGGER WASHER, 1 1/8" (NOT INCLUDED IN KIT)	10	T-31	LOCK WASHER, 3/4"
	T-OR15	OUTRIGGER WASHER, 1 1/2" (NOT INCLUDED IN KIT)	11	T-27	HEX NUT, 3/4"
4	T-26	HEX NUT, 1/2"	NOTE:	T-703	OUTRIGGER KIT INCLUDES 2 COMPLETE ASSEMBLIES LESS BLADES FOR TW5
5	T-25	LOCK WASHER, 1/2"			
6	T-760	HEX BOLT, 3/4" X 3 1/2" GR. 5			
7	5-16118-1	DISC BLADE, 16" X 1" PLAIN			
	5-18118-1	DISC BLADE, 18" X 1" PLAIN			
	2-20138-1	DISC BLADE, 20" X 1" PLAIN			

15 Optional Equipment

Roller Basket Schematic



Roller Basket Parts List

Ref.# Part # Description Qty.

Ref.#	Part #	Description	Qty.
1	16066L	LEFT HAND MOUNTING BRACKET	1
2	16066R	RIGHT HAND MOUNTING BRACKET	1
3	16067	RB MOUNT PLATE	2
4	16076	ARM WELDMENT	2
5	16080	SPRING ROD WELDMENT	2
6	T-510	SPRING HOUSING	2
7	T-509	ADJUSTING SPRING 8 1/2"	2
8	16082	PIVOT PLATE	4
9	16083	TOOL BAR 96", DH1276, DH1280	1
	16084	TOOL BAR 117", DH1296	1
10	16093	90" ROLLER BASKET WELDMENT	1
	16089	54" ROLLER BASKET WELDMENT	2
11	13689	1" BALL FLANGE BEARING	*MS
12	15095	GANG HANGER	*MS
13	T-780	HEX BOLT, 1" X 3 1/2"	2
14	16166	HEX BOLT, 1" X 5" GR. 5	*MS
15	12163	HEX BOLT, 1/2" X 3 1/2"	12
16	T-747	HEX BOLT, 5/8" X 6"	4
17	T-736	HEX BOLT, 1/2" X 6"	2

16 Optional Equipment

Ref.#	Part #	Description	Qty.
18	T-606	FLAT WASHER, 1"	*MS
19	T-698	FLAT WASHER, 1 1/8"	2
20	16167	SPACER	*MS
21	16104	LOCK NUT, 1/2"	8
22	T-25	LOCK WASHER, 1/2"	*MS
23	T-24	LOCK WASHER, 5/8	4
24	10332	LOCK NUT, 1"	*MS
25	T-26	HEX NUT, 1/2"	*MS
26	T-22	HEX NUT, 5/8	4
27	T-18	HEX NUT, 1 1/8"	8
28	16079	ARM TOOLBAR MOUNT PLATE	2
29	11138	2" X 2" U-BOLT	*MS
30	T-804	CARRIAGE BOLT, 1/2" X 1 1/2"	*MS
31	9406	ADJUSTMENT PIN	4

17 *Optional Equipment*

Roller Basket Assembly

Assembly

WARNING

Mounting bracket, straps, arm, spring rod assembly and hardware are assembled together (Photo 30). Attach the mounting



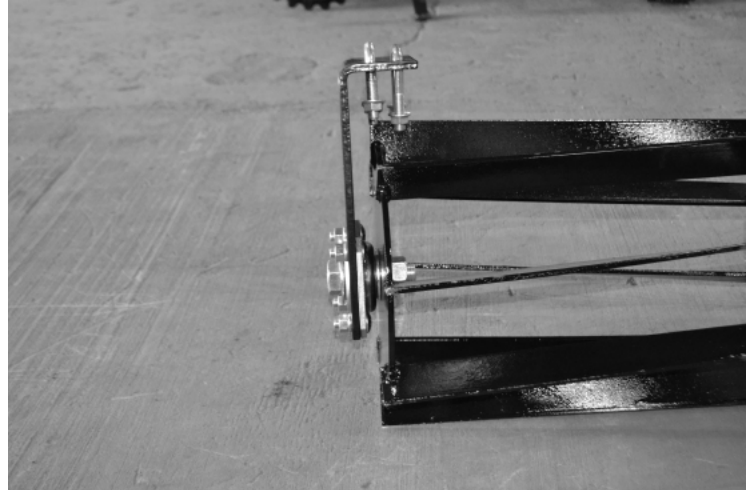
bracket to the rear of the frame, with the mounting plates, using the 5/8" x 6" bolts, and 1/2" x 6" bolts, lock washers and nuts. Out side edge of bracket should be even with the



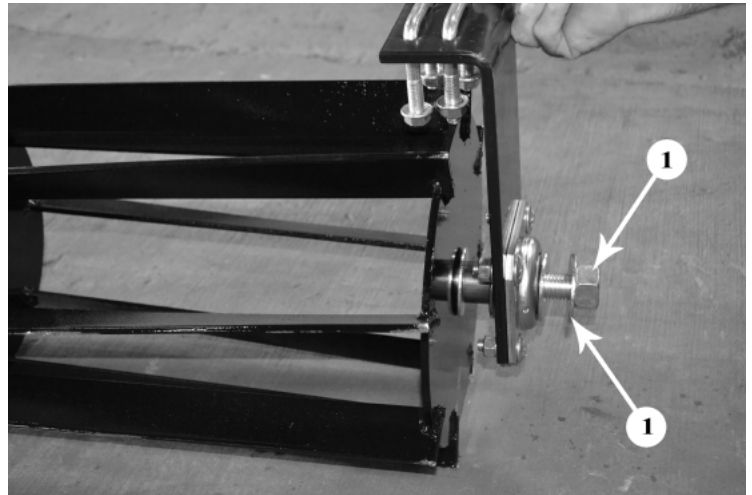
end of the frame angle iron. (Photo 31). Tighten the front and rear bolts evenly during



this step. Failure to do so will not allow the bracket to mount properly. Next attach the arm and spring rod assembly using the two mount pins (Photo 32). After both sides have been mounted start assembling the roller baskets together (if two baskets are used). Outer hangers are pre assembled onto the

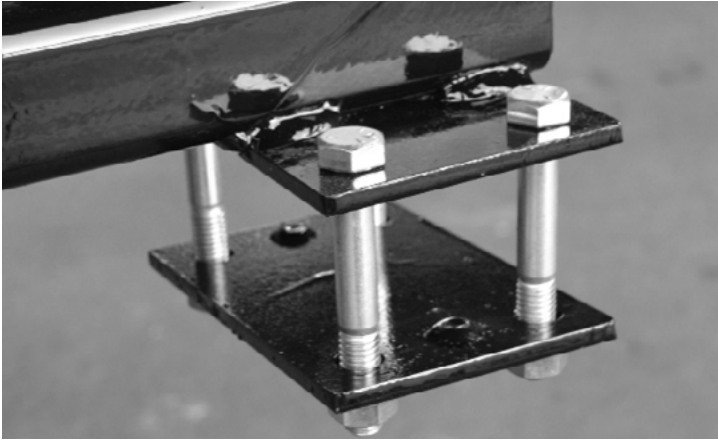


outer end of the roller basket (Photo 33). The inner hanger is loosely attached to the inner end of the

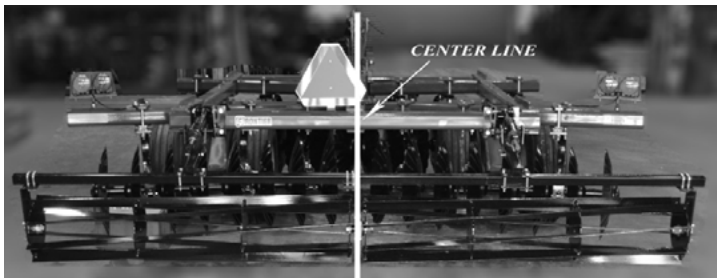


roller basket (Photo 34). Attach the inner ends of the roller baskets together. Do this by removing the 1" lock nut and one 1" flat washer (Photo 34, Ref. 1). Slide baskets together and insert end of bolt into hole in the roller basket. Put flat washer and lock nut back onto bolt. Tighten bolt and lock nut to torque specs (Page 45). Place tool bar onto hanger assembly. Use 2" sq. u-bolts located on the hanger. Adjust tool bar to the center. Roughly 2" of tool bar should extend past outer hangers. Attach tool bar to arms. Remove arm toolbar mount plate from arm

Roller Basket Assembly (cont'd.)



assembly (Photo35). Place roller assembly under arms. Position roller assembly to the center of disc left to right (Photo 36). Remove pin (Photo30, Ref 1) from arm and spring rod assembly. This will let the arms easily lay on top of the tool bar. Place



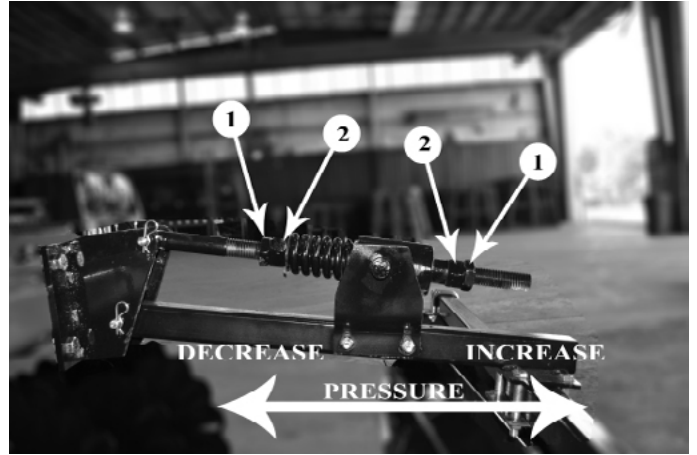
the four 1/2" x 3 1/2" bolts thru the plate welded to the arm. Place the arm mount plate under the tool bar with four 1/2" lock nuts (Photo 37). Check to make sure the roller basket assembly is centered to the disc (Photo 36). Tighten bolts and lock nuts in an alternating pattern to ensure even pressure



to torque specs (Page45). Raise roller basket assembly with hoist to reinsert top pin.

Adjusting Roller Basket

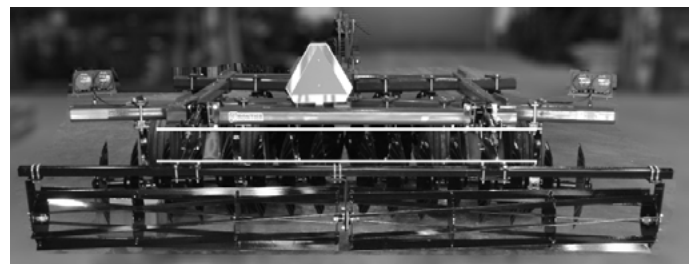
Loosen jam nuts (Photo38, Ref. 1) and hex nuts (Photo38, Ref. 2) on both ends of each spring rod assembly. Adjust the rear facing hex nut on spring rod assemblies to desired height. Tighten the jam nut on each side against the



hex nut to create a lock. Tighten the forward facing hex nut on the front of each spring rod assembly to apply pressure on the spring (Photo 39). Once desired pressure is applied tighten the jam nut to create the lock. Make

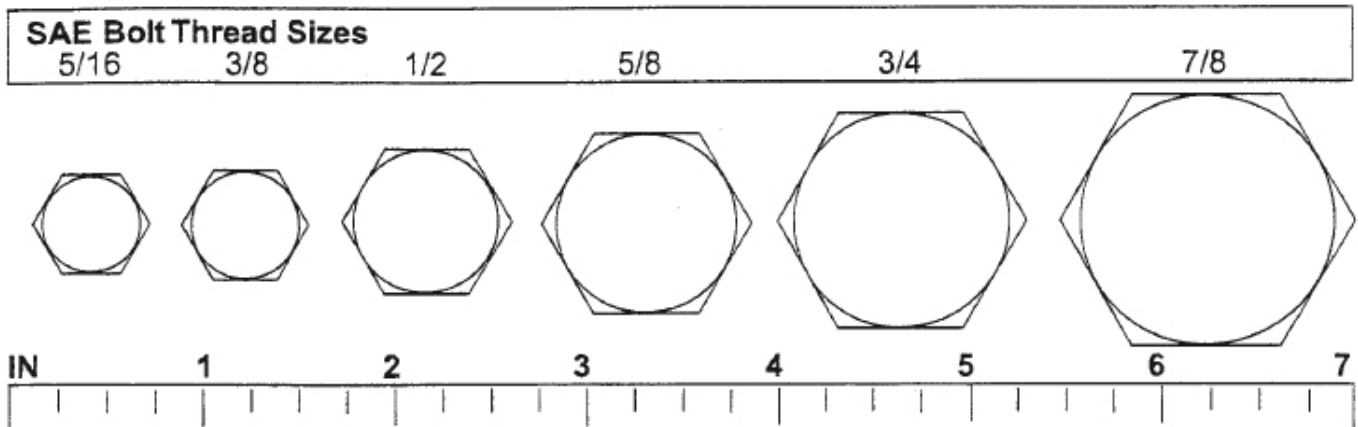


sure the roller basket assembly is level horizontally with the disc (Photo 40).

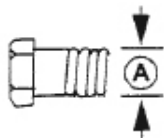


Bolt Size Chart

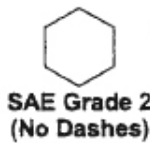
NOTE: Chart shows bolt thread sizes and corresponding head (wrench) sizes for standard SAE and metric bolts.



SAE Torque Chart



SAE SERIES TORQUE CHART



A Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18
5/16"	1/2"	12	17	19	26	27	37
3/8"	9/16"	23	31	35	47	49	67
7/16"	5/8"	36	48	55	75	78	106
1/2"	3/4"	55	75	85	115	120	163
9/16"	13/16"	78	106	121	164	171	232
5/8"	15/16"	110	149	170	230	240	325
3/4"	1-1/8"	192	261	297	403	420	569
7/8"	1-5/16"	306	416	474	642	669	907
1"	1-1/2"	467	634	722	979	1020	1383

Gang Adjustment Trouble Shooting

- | | |
|---|---|
| 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 cut or depth on front and rear.
B. Reduce speed.
C. Reduce gang angle.
D. Reduce depth of cut by carrying on 3 point lift discing shallow the first time over. NOTE: Some experimentation may be required by trial and error to arrive at proper solution. |
| 3. Unit leaving water furrow in center. | A. Increase speed.
B. Increase angle on rear gangs.
C. Decrease angle on front gangs.
D. Disc not level. Lower rear gangs or raise front gangs.
E. Any combination of the above. |
| 4. Unit ridging or leaving behind a high spot in center of machine. | 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 T70316 outrigger attachment with a round disc blade about 4" smaller than stock blades. |
| 6. Blades plugging with soil or trash. | A. Add optional scraper kit (Page 12-13). If already equipped, re-adjust them.
B. Soil conditions not suitable for discing due to excessive moisture. |
| 7. Unit leaving a balk between front inside gangs. | A. Add optional 11477 center sweep balk breaker assembly (Page 14). |

WARRANTY

Please enter information below and save for future reference:

Date Purchase: _____ From (Dealer): _____
Model Number: _____ Serial Number: _____

Monroe-Tuflin Manufacturing Co., Inc. ("Monroe-Tuflin") warrants this product to be free from defect in material and workmanship. Except as otherwise set forth below, the duration of this Warranty shall be for SIX (6) MONTHS COMMENCING ON THE DATE OF DELIVERY OF THE PRODUCT TO THE ORIGINAL PURCHASER.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of Monroe-Tuflin, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not apply in the event that the product has been materially modified or repaired by someone other than Monroe-Tuflin, a Monroe-Tuflin authorized dealer or distributor, and/or a Monroe-Tuflin authorized service center. This Warranty does not cover normal wear or tear, or normal maintenance items. This Warranty also does not cover repairs made with parts other than those obtainable through Monroe-Tuflin.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

Monroe-Tuflin makes no warranty, express or implied, with respect to cutting edges, shanks, tires or other parts or accessories not manufactured by Monroe-Tuflin. Warranties for these items, if any, are provided separately by their respective manufacturers.

Monroe-Tuflin's obligation under this Warranty is limited to, at Monroe-Tuflin's option, the repair or replacement, free of charge, of the product if Monroe-Tuflin, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. Such parts shall be provided by the selling dealer to the user during regular working hours. If requested, the product must be returned to Monroe-Tuflin with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid. Monroe-Tuflin shall complete such repair or replacement within a reasonable time after Monroe-Tuflin receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. MONROE-TUFLIN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MONROE-TUFLIN SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE (EXCEPT WHERE PROHIBITED BY LAW).

Monroe-Tuflin shall not be liable for any incident or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Monroe-Tuflin's obligation under this warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed for a particular purpose and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include but not be limited to: transportation charges other than normal freight charges; loss of crops or any other loss of income; rental of substitute equipment, expenses due to loss, damage, detention or delay in the delivery of equipment or parts resulting from acts beyond the control of Monroe-Tuflin.

This Warranty is subject to any existing conditions of supply which may directly affect Monroe-Tuflin's ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, serviceperson, salesperson, or employee of any company, including without limitation, Monroe-Tuflin, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

This Warranty is subject to the warranty registration being submitted. For warranty services, contact your selling dealer.

WARRANTY FOR PARTS

Monroe-Tufline Manufacturing Co., Inc. ("Monroe-Tufline") warrants its parts to be free from defect in material and workmanship for a period of ninety (90) days from the date of delivery of the part(s) to the original purchaser.

Replacement or repair parts installed in the equipment covered by warranty are warranted for ninety (90) days from date of purchase of such part or to the expiration of the applicable new equipment warranty period, whichever occurs later.

Under no circumstances will this Warranty apply in the event that the product the parts are installed in, in the good faith opinion of Monroe-Tufline, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not cover normal wear or tear, or normal maintenance items.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to a third party purchaser in any way. There are no third party beneficiaries of this Warranty.

Monroe-Tufline's obligation under this Warranty is limited to, at Monroe-Tufline's option, the repair or replacement, free of charge, of the product if Monroe-Tufline, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. The selling dealer shall provide such parts to the user during regular working hours. If requested, the product must be returned to Monroe-Tufline with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid. Monroe-Tufline shall complete such repair or replacement within a reasonable time after Monroe-Tufline receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. MONROE-TUFLINE MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MONROE-TUFLINE SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE (EXCEPT WHERE PROHIBITED BY LAW).

Monroe-Tufline shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, Monroe-Tufline specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply which may directly affect Monroe-Tufline's ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, service person, salesperson, or employee of any company, including without limitation, Monroe-Tufline, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

For warranty services, contact your selling dealer.

NOTES: _____

FILL OUT REGISTRATION CARD BELOW AND MAIL TO:

MONROE TUFLINE
Attn; Owner Registration
PO BOX 7755
Columbus, MS 39705

OWNER WARRANTY REGISTRATION

NAME _____ ADDRESS / CITY / STATE _____

DEALER NAME _____ CITY / STATE _____

DATE OF PURCHASE _____ MODEL # _____ SERIAL # _____

COMMENTS _____

PART NO.
14321

The logo for Tufline, featuring the word "Tufline" in a stylized, italicized font. The letters are filled with a gradient from yellow to red, outlined in black, and have a slight shadow effect. A registered trademark symbol (®) is located at the end of the word.

MONROE TUFLINE MFG. CO., INC.

PO BOX 7755 / 2219 TUFLINE LANE

COLUMBUS, MS 39705-0004

(662)328-8347

www.monroetufline.com

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