OPERATOR'S MANUAL

TW5 SERIES DISC

www.monroetufline.com

14319 2/19/2009

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 24 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.

TABLE OF CONTENTS

INTRODUCTION ii

SPECIFICATIONS 1

SAFETY DECALS 2

SAFETY RULES . . . . . 3 - 6

PARTS CATALOG 7-9

ASSEMBLY 10-11

MAINTENANCE 12-14

OPTIONAL EQUIPMENT 15-17

DISC ADJUSTMENT 18

BOLT SIZE AND BOLT TORQUE CHART. 19

TROUBLE SHOOTING 20-21

WARRANTY 22-23

WARRANTY REGISTRATION. 24

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.

SPECIFICATIONS

Model #	Frame Width	Width of Cut	Blades	Blade Spacing	Approx. HSP	Weight
TW72420	61”	8’	24-20”	7 1/2”	35-55	1815#
TW92020	61”	8’	20-20”	9”	35-55	1705#
TW92022	61”	8’	20-22”	9”	35-55	1785#
TW972220	61”	8’	22-20”	9 - 7 1/2”	35-55	1740#
TW972222	61”	8’	22-22”	9 - 7 1/2”	35-55	1850#
TW92420	61”	9’ 6”	24-20”	9”	40-65	1825#
TW92422	61”	9’ 6”	24-22”	9”	40-65	1910#
TW972620	61”	9’ 6”	26-20”	9 - 7 1/2”	40-65	1865#
TW972622	61”	9’ 6”	26-22”	9 - 7 1/2”	40-65	1970#
TW72820	61”	9’ 6”	28-20”	7 1/2”	40-65	1895#
TW72822	61”	9’ 6”	28-22”	7 1/2”	40-65	2008#
TW72420	61”	8’	24-20”	7 1/2”	35-55	1815#
TW92020	61”	8’	20-20”	9”	35-55	1705#
TW92022	61”	8’	20-22”	9”	35-55	1785#
TW972220	61”	8’	22-20”	9 - 7 1/2”	35-55	1740#
TW972222	61”	8’	22-22”	9 - 7 1/2”	35-55	1850#
TW92420	61”	9’ 6”	24-20”	9”	40-65	1825#
TW92422	61”	9’ 6”	24-22”	9”	40-65	1910#
TW972620	61”	9’ 6”	26-20”	9 - 7 1/2”	40-65	1865#
TW972622	61”	9’ 6”	26-22”	9 - 7 1/2”	40-65	1970#
TW72820	61”	9’ 6”	28-20”	7 1/2”	40-65	1895#
TW72822	61”	9’ 6”	28-22”	7 1/2”	40-65	2008#
TW92820	91”	10’ 6”	28-20”	9”	50-75	2270#
TW92822	91”	10’ 6”	28-22”	9”	50-75	2400#
TW973020	91”	10’ 6”	30-20”	9 - 7 1/2”	50-75	2310#
TW973022	91”	10’ 6”	30-22”	9 - 7 1/2”	50-75	2450#
TW73220	91”	10’ 6”	32-20”	7 1/2”	50-75	2350#
TW93220	91”	12’	32-20”	9”	60-80	2800#
TW93222	91”	12’	32-22”	9”	60-80	2910#
TW973420	91”	12’	34-20”	9 - 7 1/2”	60-80	2850#
TW973422	91”	12’	34-22”	9 - 7 1/2”	60-80	2952#
TW73620	91”	12’	36-20”	7 1/2”	60-80	2890#
TW73622	91”	12’	36-22”	7 1/2”	60-80	3142#
TW93620	111”	13’ 4”	36-20”	9”	65-85	2868#
TW93622	111”	13’ 4”	36-22”	9”	65-85	3058#
TW74020	111”	13” 4”	40-20”	7 1/2”	65-85	3140#
TW74022	111”	13’ 4”	40-22”	7 1/2”	65-85	3230#
TW973820	111”	13’ 4”	38-30”	9 - 7 1/2”	65-85	3080#
TW973822	111”	13’ 4”	38-22”	9 - 7 1/2”	65-85	3188#
TW74420	111”	14”	44-20”	7 1/2”	70-85	3190#
TW74422	111”	14”	44-22”	7 1/2”	70-85	3412#
TW974220	111”	14”	42-20”	9 - 7 1/2”	70-85	3180#
TW974222	111”	14”	42-22”	9 - 7 1/2”	70-85	3325#
TW94020	111”	15”	40-20”	9”	70-85	3240#
TW94022	111”	15”	40-22”	9”	70-85	3345#

1 Specifications

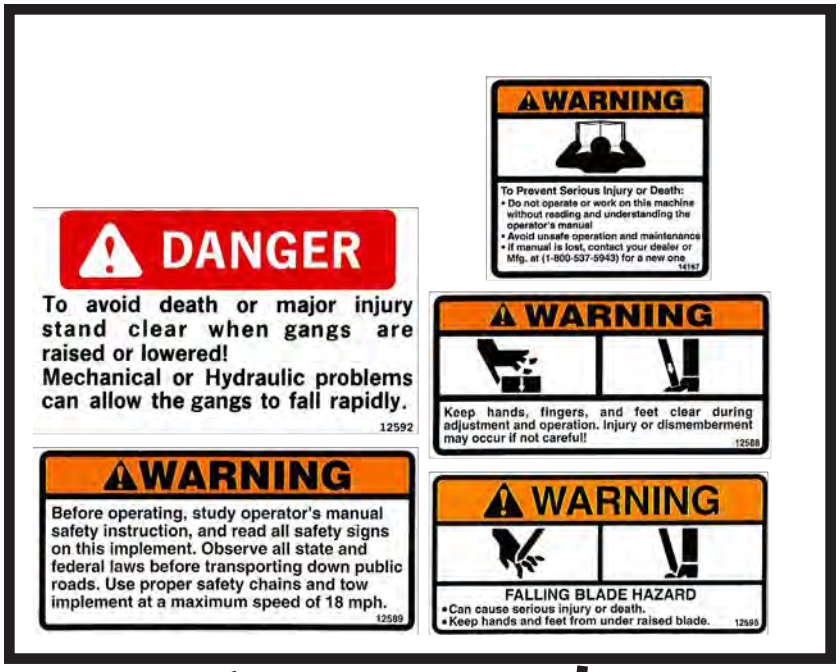
SAFETY & INSTRUCTIONAL DECALS

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!



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.

SATETY 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

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.

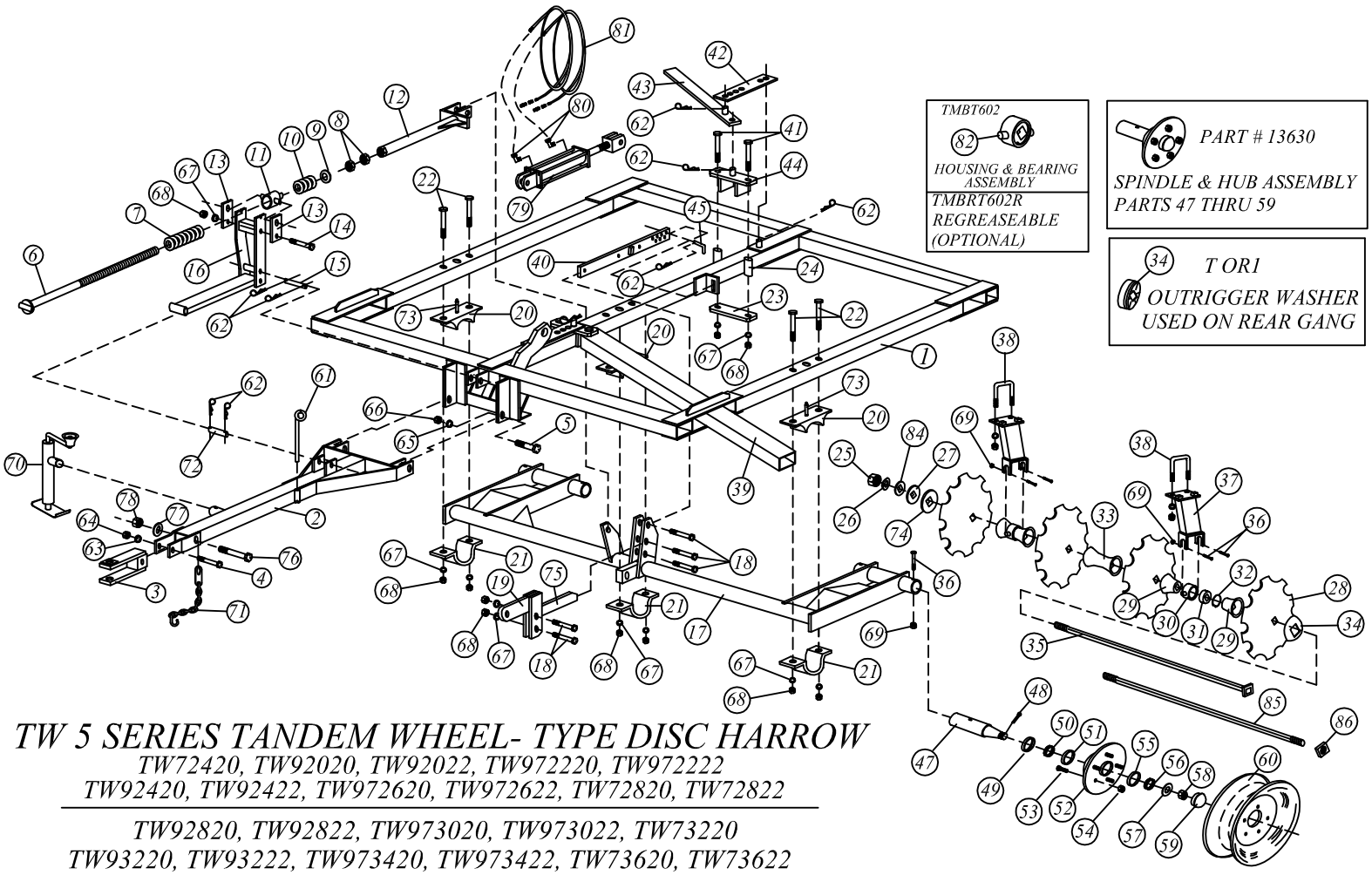
• Keep all persons away from operator control area while performing adjustments, service, or maintenance.

• Tighten all bolts, nuts, and screws to torque chart specifications (page 19). 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.



TW 5 SERIES TANDEM WHEEL- TYPE DISC HARROW

TW72420, TW92020, TW92022, TW972220, TW972222
TW92420, TW92422, TW972620, TW972622, TW72820, TW72822

TW92820, TW92822, TW973020, TW973022, TW73220
TW93220, TW93222, TW973420, TW973422, TW73620, TW73622
TW93620, TW93622, TW74020, TW74022,TW973820, TW973822

DUAL WHEEL MODELS

TW74420, TW74422, TW974220, TW974222,TW94020, TW94022

FIG. 1

TW5 SERIES PARTS LIST

REF #	PART #	DESCRIPTION
1	11423	MAIN FRAME, TW 51
	11424	MAIN FRAME, TW 52
	11425	MAIN FRAME, TW 53
2	9034	TONGUE, ALL TW5 SERIES
3	T-2665	TONGUE CLEVIS
4	T-772	HEX BOLT, 7/8" X 5" GR.5
5	T-780	HEX BOLT, 1" X 3 1/2" GR.5
6	9011	ADJUSTING ROD
7	T-509	SPRING, 8 1/2"
8	T-18	HEX NUT, 1 1/8"
9	T-698	FLAT WASHER, 1 1/8"
10	T-511	SPRING, 4 1/2"
11	T-510	SPRING HOUSING
12	11991	ADJUSTING TUBE FOR TW52 & 53
	9464	ADJUSTING TUBE FOR TW55 & 51
13	9006	RETAINER STRAP
14	T-749	HEX BOLT, 5/8" X 6 1/2" GR.5
15	T-918	PIN, 7/8" X 6"
16	10527	ROCKER ARM & LINK BAR
17	9894	WHEEL CARRIAGE, TW51
	11427	WHEEL CARRIAGE, TW52
	11429	WHEEL CARRIAGE, TW53
18	9651	HEX BOLT, 5/8" X 3" GR.2
19	9892	WHEEL LIFT BAR
20	T-58	W/CARRIAGE BEARING TOP 4"
21	T-57	W/CARRIAGE BEARING BOTTOM,4"
22	T-746	HEX BOLT, 5/8" X 5 1/2" GR.2
23	T-7022	SLIDE PLATE BOTTOM, 3 X 3
	11421	SLIDE PLATE BOTTOM, 3 X 4
24	T-56	BUSHING, 5/8" X 3 1/16"
25	T-18A	LOCK NUT, 1 1/8"
26	T-20	LOCKWASHER, 1 1/8"
27	T-1	END WASHER, 1 1/8" SQ.
28		DISC BLADE (SEE PAGE 9)
29	T-47	END SPACER, 1 1/8" X 3"
	T-49	END SPACER, 1 1/8" X 3 3/4"

REF #	PART #	DESCRIPTION
30	TMB	TRUNNION BEARING HOUSING
	TMB/R	TRUNNION BEARING HOUSING
		REGREASEABLE (OPTION)
31	T-602	BEARING, 1 1/8"SQ. (W208PPB12)
	T-602R	BEARING, 1 1/8"SQ.(GW208PP17)
		REGREASEABLE (OPTION)
32	T-722	SNAP RING, 3 1/2"
33	T-91	SPACER SPOOL, 1 1/8" X 7 1/2"
	T-3	SPACER SPOOL, 1 1/8" X 9"
34	T-OR1	FOR REAR OUTSIDE GANG
	T-2	BUMPER WASHER
35		AXLE 1 1/8" (SEE PAGE 9)
36	T-892	HEX BOLT, 3/8" X 3" GR.5
37	12102	TUBE HANGER, FOR 3 X 3 BEAM
	12021	TUBE HANGER, FOR 3 X 4 BEAM
38	12029	U-BOLT, 3/4"for 3 X 3 GANG BEAM
	11972	U-BOLT, 3/4"for 3 X 4 GANG BEAM
39		GANG BEAM (SEE PAGE 9)
40	9470	DEPTH CONTROL BAR
41	T-745	HEX BOLT, 5/8" X 5" GR.2
42	12411	GANG ADJ. BAR TW51 (14 3/4")
	12419	GANG ADJ. BAR TW51 (15 3/4")
	12413	GANG ADJ. BAR TW52 (17 3/4")
	12414	GANG ADJ. BAR TW53 (19 5/8")
43	12034	ADJUSTING LEVER
44	12055	SLIDE PLATE TOP, 3 X 3
	12026	SLIDE PLATE TOP, 3 X 4
45	9690	DEPTH CONTROL PIN, 5/8"
47	T-564	SPINDLE, 1 5/8"
48	T-342	COTTER PIN, 5/32" X 1 1/2"
49	T-576	SEAL, 1 1/2"
50	T-575	BEARING, 1 1/2" (LM67048)
51	T-583	INNER BEARING CUP
52	T-566	HUB, (ONLY)
53	T-562	LUG BOLT, 1/2" X 1 1/2"
54	T-23	LUG NUT, 1/2"

REF #	PART #	DESCRIPTION
55	T-582	OUTER BEARING CUP
56	T-574	BEARING, 3/4"
57	T-603	SPINDLE WASHER, 3/4"
58	T-567	CASTLE NUT, 3/4"
59	T-577	HUB CAP
60	T-612	WHEEL RIM
61	T-465	HOSE HOLDER, 23"
62	9979	COTTER HAIR PIN
63	T-21	LOCKWASHER, 7/8"
64	T-19	HEX NUT, 7/8"
65	T-34	LOCKWASHER, 1"
66	T-28	HEX NUT, 1"
67	T-24	LOCKWASHER, 5/8"
68	T-22	HEX NUT, 5/8"
69	12899	FLANGE LOCKNUT, 3/8"
70	T-933	TONGUE JACK ASSEMBLY
71	15186	SAFETY CHAIN
72	15183	PIN (FAB), 7/8" X 5"
73	12511	EXTENDED GREASE FITTING
74	11170	1 1/8" SQ. HOLE FLAT WASHER
75	9893	WHEEL LIFT BAR
76	15349	HEX BOLT, 1"X 6"GR. 5
77	T-606	FLAT WASHER, 1"
78	10332	LOCK NUT, 1"
79	11743	3 X 8 HYDAULIC CYLINDER
80	15540	MALE - FEMALE SWIVEL ELBOW
81	13068	HYDRAULIC HOSE, 150"
82	TMBT602	HOUSING & BEARING ASSY.
	TMBT602R	HOUSING & BEARING ASSY. REGREASEABLE (OPTION)
84	T-698	FLAT WASHER, 1 1/8"
85		SEE AXLE CHART PAGE 9
86	11398	SQ. AXLE NUT, 1 1/8"

NOTE: T-565 SPINDLE ASS'Y 47,48,57,58

NOTE: T-572 5 HOLE HUB ASS'Y 51,52,53,54,55

TW5 SERIES

DISC BLADES, AXLES & GANG BEAMS

REF. #28 DISC BLADES

PART NUMBER	HOLE SIZE	DIAMETTER	THICKNESS	CUTOUT/ PLAIN
2-20138-1	1 1/8"	20"	.138	PLAIN
2-20138-2	1 1/8"	20"	.138	CUTOUT
2-22157-1	1 1/8"	22"	.157	PLAIN
2-22157-2	1 1/8"	22"	.157	CUTOUT

REF. #85 AXLES

PART NUMBER	# OF BLADES	SPACING	LENGTH	THREADED EACH END
11323	8	7 1/2"	58 1/8"	THREADED EACH END
11324	9	7 1/2"	65 5/8"	THREADED EACH END
11330	7	9"	59 3/8"	THREADED EACH END
11331	8	9"	68 5/8"	THREADED EACH END

REF. #35 AXLES

PART NUMBER	# OF BLADES	SPACING	LENGTH	SQ. AXLE HEAD
T-132	4	7 1/2"	26 1/2"	1 3/4" SQ. AXLE HEAD
T-133	5	7 1/2"	34"	1 3/4" SQ. AXLE HEAD
T-141	6	7 1/2"	41 3/4"	1 3/4" SQ. AXLE HEAD
T-142	7	7 1/2"	49 1/4"	1 3/4" SQ. AXLE HEAD
T-13	4	9"	31"	1 3/4" SQ. AXLE HEAD
T-14	5	9"	40"	1 3/4" SQ. AXLE HEAD
T-142	6	9"	49 1/4"	1 3/4" SQ. AXLE HEAD

REF. #39 3 X 3 GANG BEAMS

PART NUMBER	LENGTH
12292	41"
T-635	48"
12295	51"
12296	58"

REF. #39 3 X 4 GANG BEAMS

PART NUMBER	LENGTH
12297	56"
12299	62"
12300	66"
12303	70"
12301	74"
12302	77"
11559	80"
12304	84"
12305	87"
12306	93"

MAIN FRAME ASSEMBLY

1. Assemble wheel hub on spindle according to Fig. 4 and instructions on page 12.

2. Insert the spindles into wheel carriage tubes and insert the 3/8” x 3” Gr. 5 hex bolt, Fig 1, Ref. 36.

3. Attach wheel hubs and tighten lug nuts evenly. These should be rechecked after 4 or 5 hours of operation.

4. Maneuver wheel carriage, with legs extending to the rear as shown in Fig.1, until it is underneath the three sets of holes on each side of the main frame.

5. Lubricate three T-58 wheel carriage bearing tops, Ref. 22, page 7, and place them on tip of the wheel carriage pipe with one on each end and one in the center. Raise the carriage until it is in place. Install the T-57 wheel carriage bearing bottoms, Ref. 23, and bolt into place with the 5/8” x 5” Gr. 5 bolts, Ref.26.

6. If a standard 8” turnbuckle is available, install it between the cylinder anchor and the wheel carriage cylinder arm or use the hydraulic cylinders that go with the harrow. Whatever is used, be certain to block the frame up for absolute safety.

7. Attach the tongue and tongue braces as shown in Fig, 1 using 1” x 3 1/2“ Gr. 5 bolts, Ref. 5.

8. Install the leveling assembly as per instructions on page 13, Fig.6.

9. Install the two slide plate top weldments with “U” downward over the center member of the main frame. Place one on the front and one on the rear near where the gang beams will be mounted. See Fig, 1, Ref. 44 & 23.

10. Select the correct main gang beam from the gang diagram page and insert the pivot hole end of the gang beam through the frame. Install the 5/8” x 5 “Gr. 5 bolts, Ref. 31.

GANG POSITIONING

1. Mount the tubular gang hangers, Ref. 1, Fig. 2, to the gangs at the bearing housing using the 3/8 x 3 “ Gr. 5 hex bolts, Ref. 2. Be sure the “lean” of the hanger is with the concavity of the blade. Lift the entire gang (with hangers attached) underneath the gang beam until the top of the hanger is flush against the bottom of the gang beam. Place the U-bolt, Ref. 3, over the gang beam and into the tubular gang hanger and tighten loosely. Do not fully tighten these U-bolts until all gangs are mounted and properly spaced.

FIG. 2

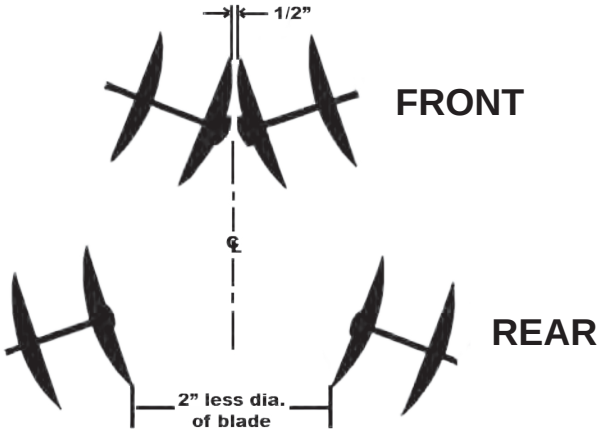
2. Install the rear gangs first since it is easy to hoist the tongue and lower the rear of the harrow down to the gangs. Space the rear gangs so that the inside blades are equal distances from the center of the main frame and so that the rear edges of the blades at the closest point are about 2” less than the diameter of the disc blades. For example, 22” blades would be spaced 20” apart on the rear. See Fig. 3.

3. Space the next gang out so the space between them is the same as all the other blades.

4. To install the front gangs, you will probably have to adjust the wheel carriage and lower the tongue, Space the inside front blades so that they just clear each other (about ¼ “ to ½ “) and are perfectly center under the main frame at maximum gang angle.

5. When all gangs are in place and properly spaced, tighten all U-bolts.

FIG. 3



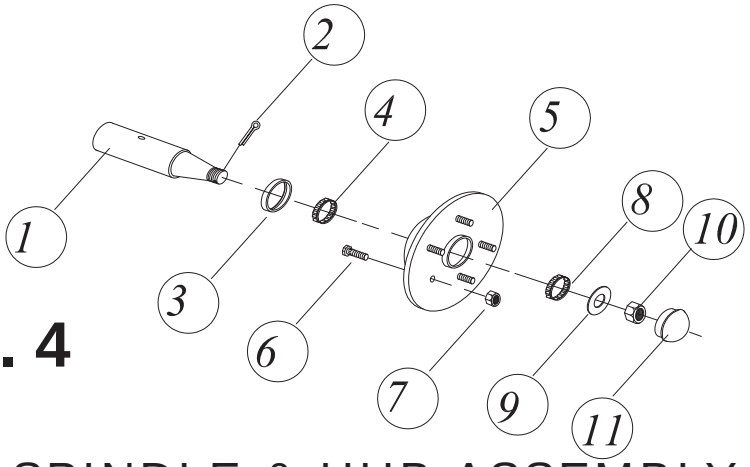


FIG. 4

SPINDLE & HUB ASSEMBLY

1. Refer to Fig. 4. Using the utmost cleanliness, pack the wheel bearings with grease and stuff the hub.

2. Install the large bearing, Ref. 4, and seal, Ref. 3, with the seal lip toward the hub.

3. Insert the bearing, washer, and nut, Ref. 8, 9, and 10. Always use the washer.

4. Tighten the nut, Ref. 10, until the hub is very hard to turn and then back off one slot on the nut. Insert the coter pin, Ref. 2. NOTE: Attention to initial assembly and proper maintenance of hub, spindles, and wheels is very important. Farm implement wheel bearings should not be as free as automotive.

GANG ANGLE ADJUSTMENT

1. Insert the gang adjusting bar, Ref. 1, over the slide plate stud, Ref. 2. Next insert the adjusting lever stud, Ref. 4, into the proper hole in the bar which will provide leverage to shift the slide plate, Ref. 5, in whichever direction desired to provide the angle of the gang beams, Ref. 6. Shift until the desired hole position in bar aligns with stud and remove lever, Ref. 3, and pin in a vacant hole in the bar. See Fig. 5.

2. Re-pin the bar on the stud. The end of the lever should be positioned to rest on top of the frame of gang beam.

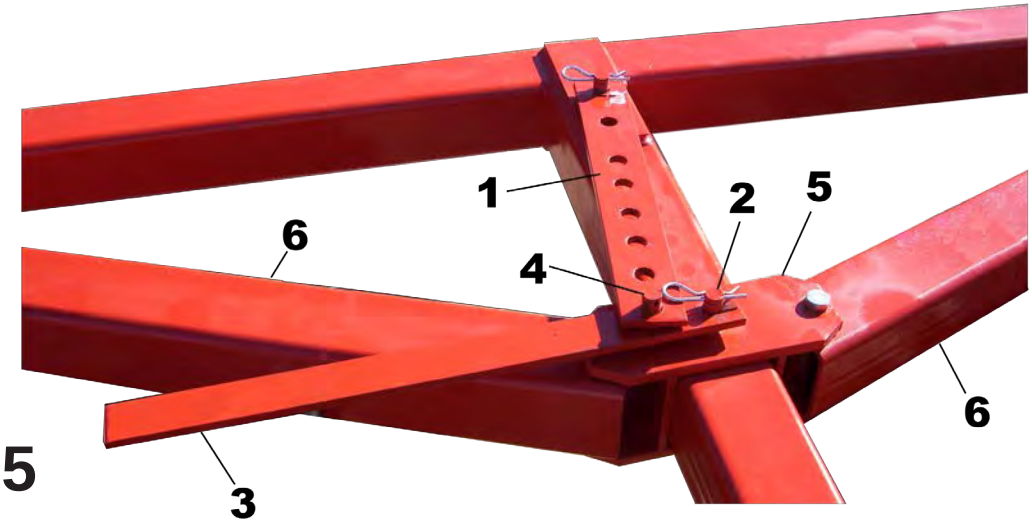


FIG. 5

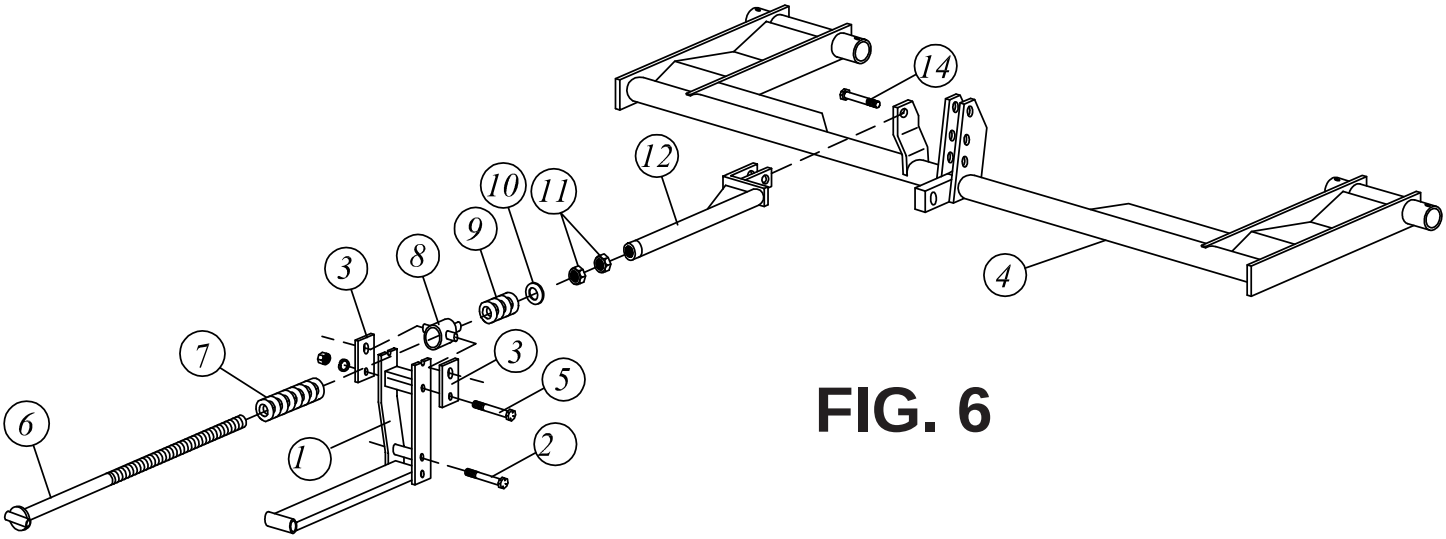


FIG. 6

LEVELING SYSTEM

The leveling system automatically controls the harrow from full depth penetration all the way up to transport height. Once it is set for a particular tractor drawbar height, only minor adjustments will ever be required. The springs allow pressure controlled flexibility when obstructions and/or uneven terrain are encountered.

1. Be sure that the 8 ½ " spring, Ref. 7, Fig. 6, is in front and goes into the recess of the trunnion , Ref. 8. Tighten one nut, Ref. 11, until the springs measure 12 ½" from end to end. Use one nut, Ref.11, to jam and lock the adjustment. Except to increase or decrease flexibility, you will never need to adjust these springs again.

2. Position the rocker arm and link bar weldment, Ref. 1, between the brackets on the front of the main frame and insert the pin, Ref.2. Be sure offset in rocker arm is to the right as shown and that the bottom ends are clipped off on the rear corner.

3. Loosen the bolt, Ref.5, and insert the trunnion, Ref. 8, into the slots. Then place both retainer straps, Ref. 3, over the trunnion ears and tighten bolt, Ref.5.

4. Apply a little oil to washers and nuts at each end of the springs so that the adjusting rod, Ref.6, can be turned easier.

5. Attach the adjusting tube, Ref. 12, with the ¾ " x 2 ½ " Gr.5 hex bolt, Ref. 14. Screw the adjusting rod, Ref. 6, until the top of the tongue is about 22" above the ground with the gangs on the ground.

MAINTENANCE AND LUBRICATION

LUBRICATION

Lubricate the following every 50 hours of operation:

1. Wheel carriage bearings.
2. Leveling tube.
3. Leveling rocker pivot.

Lubricate the following every 150 hours of operation:

1. Optional regreasible bearings.

Lubricate at the end of each season:

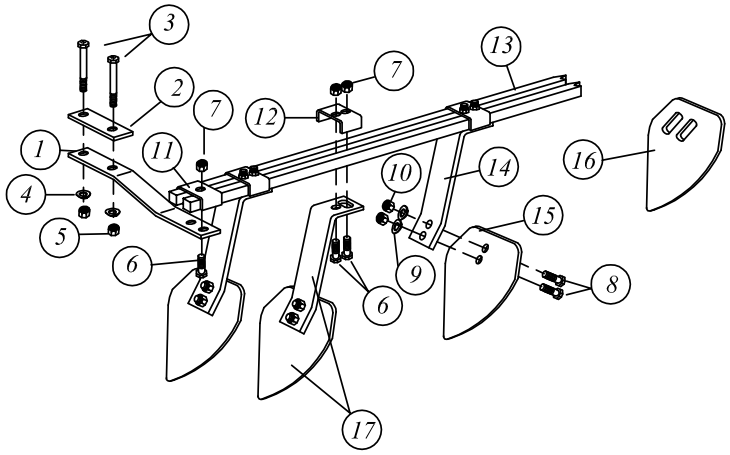
1. Transport wheel bearings. Pack with heavy wheel bearing grease.

MAINTENANCE

1. Check all gang axle nuts for proper torque every 150 hours.

2. Check gang beam clamps and gang hanger bolts every 150 hours.

3. Lower unit for storage on level ground with gangs resting on plyboard or other sheet material to keep components out of ground.

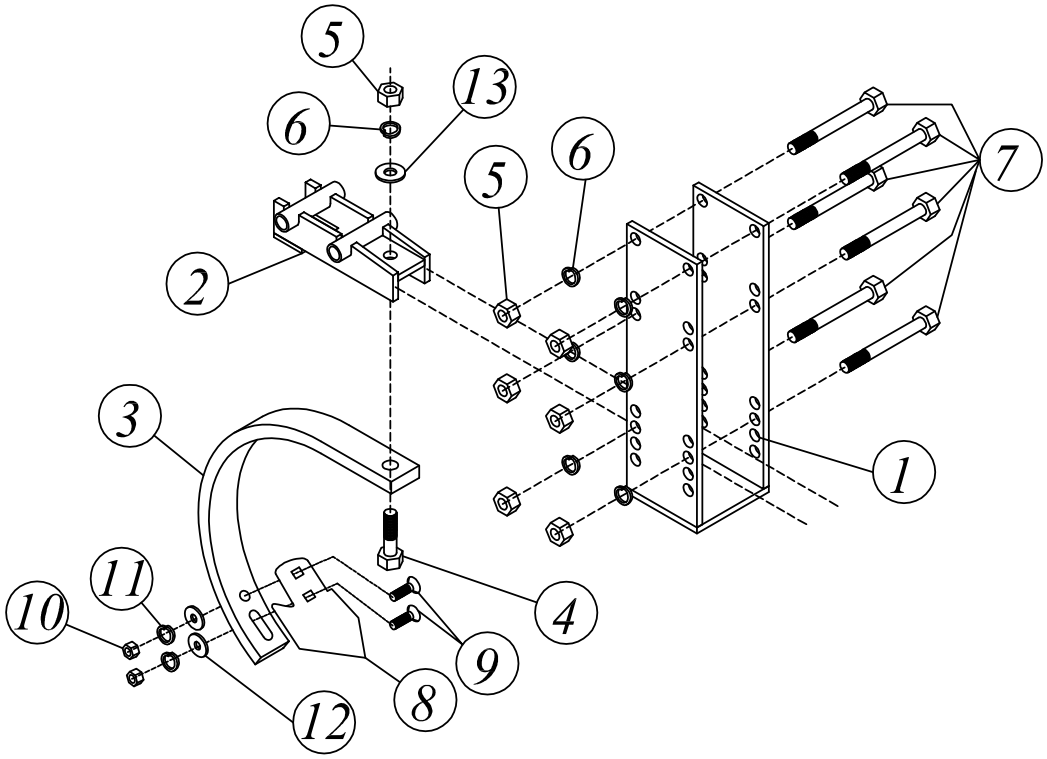


HEAVY SCRAPER KIT

REF #	PART#	DESCRIPTION	REF #	PART#	DESCRIPTION
1	12892	SCRAPER BAR MOUNTING BRACKET (TW5 8'-9'6" MODELS)	9	T-25	LOCKWASHER, 1/2"
			10	T-26	HEX NUT, 1/2"
	12891	SCRAPER BAR MOUNTING BRACKET (TW5 10'6"-15' MODELS)	11	T-803	CLAMP, 1 HOLE
			12	9356	CLAMP, 2 HOLE
2	12090	SCRAPER BAR TOP MOUNTING PLATE (TW5 8'-9'6" MODELS)	13		HEAVY SCRAPER BAR (SEE BELOW)
	12894	SCRAPER BAR TOP MOUNTING PLATE (TW5 10'6-15' MODELS)	14	10151	SCRAPER ARM
			15	11081	SCRAPER BLADE
3	T-745	HEX BOLT, 5/8" X 5" GR.2	16	11065	OUTRIGGER SCRAPER BLADE
4	T-24	LOCKWASHER, 5/8"	17	11027	ARM & BLADE ASSEMBLY RIGHT FRONT/ LEFT REAR WITH SCRAPER ARM
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"		11028	ARM & BLADE ASSEMBLY LEFT FRONT/ RIGHT REAR WITH SCRAPER ARM
8	T-733	HEX BOLT, 1/2" X 1 1/2" GR.2			

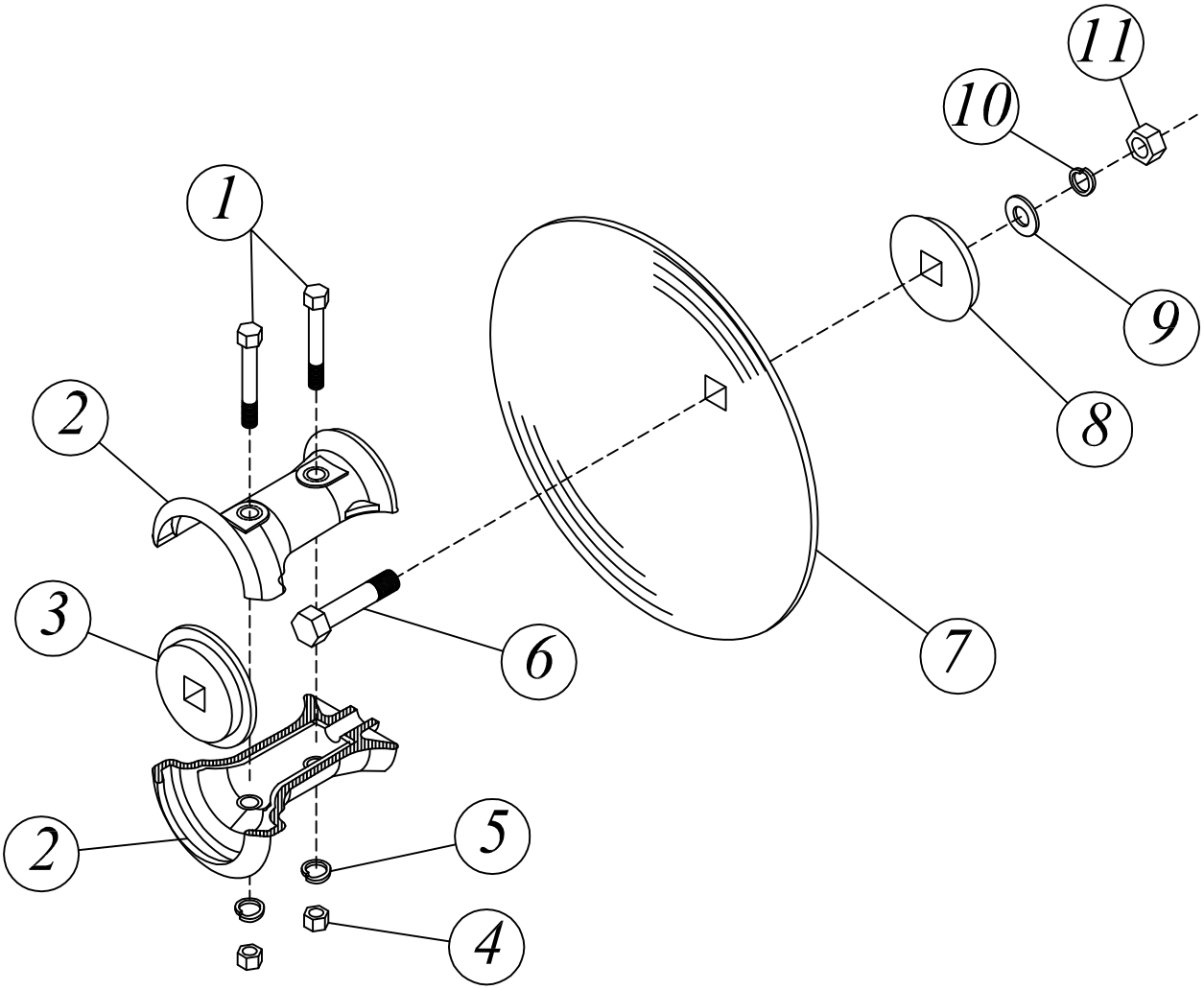
REF. # 13 HEAVY SCRAPER BAR

PART #	DESCRIPTION	MODEL USE ON
12338	HEAVY SCRAPER BAR, 37"	FRONT - TW920,TW724, TW9722
T-2551	HEAVY SCRAPER BAR, 43"	FRONT - TW924,TW728, TW9726
11729	HEAVY SCRAPER BAR, 45"	REAR - TW920,TW724, TW9722
11739	HEAVY SCRAPER BAR, 48"	REAR - TW924, TW728, 9726
12344	HEAVY SCRAPER BAR, 55"	FRONT - TW928,TW732, TW9730
T-2621	HEAVY SCRAPER BAR, 58"	REAR - TW928,TW732, TW9730
12346	HEAVY SCRAPER BAR, 61"	FRONT - TW736
T-2531	HEAVY SCRAPER BAR, 66"	FRONT - TW932, TW9734
T-2561	HEAVY SCRAPER BAR, 69"	FRONT - TW740 REAR - TW932, TW736, TW9734
T-2581	HEAVY SCRAPER BAR, 73"	FRONT - TW936, TW9738 REAR - TW740
T-2635	HEAVY SCRAPER BAR, 78"	FRONT - TW744 REAR - TW936, TW9738,
T-2645	HEAVY SCRAPER BAR, 81"	FRONT - TW9742, TW940, TW6940 REAR - TW744/5, 38/920, 42/920
T-2646	HEAVY SCRAPER BAR, 84"	FRONT - TW61036 REAR - TW9742



BALK BREAKER

REF #	PART#	DESCRIPTION
1	15375	SHANK BRACKET 3" BEAM (TW5 8'-9'6" MODELS)
	10388	SHANK BRACKET 4" BEAM (TW5 10'6"-15' MODELS)
2	10599	SHANK HOLDER 3" BEAM (TW5 8'-9'6" MODELS)
	9175	SHANK HOLDER 4" BEAM (TW5 10'6"-15' MODELS)
3	10602	BALK BREAKER SHANK
4	9192	HEX BOLT, 5/8" X 2 1/2", GR. 5
5	T-22	HEX NUT, 5/8"
6	T-24	LOCK WASHER, 5/8"
7	T-744	HEX BOLT, 5/8" X 4 1/2" GR. 2 (TW5 8'-9'6" MODELS)
	T-746	HEX BOLT, 5/8" X 5 1/2", GR. 2 (TW5 10'6"-15' MODELS)
8	13614	4" SWEEP POINT
9	14984	PLOW BOLT, 7/16" X 1 1/2"
10	14986	HEX NUT, 7/16"
11	14987	LOCK WASHER, 7/16"
12	14985	FLAT WASHER, 7/16"
13	9354	FLAT WASHER, 5/8"



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"
			11	T-27	HEX NUT, 3/4"
	T-OR15	OUTRIGGER WASHER, 1 1/2" (NOT INCLUDED IN KIT)			
4	T-26	HEX NUT, 1/2"	NOTE:	T-703	OUTRIGGER KIT INLUDES 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			

ADJUSTMENTS PRIOR TO FIELD TEST

These adjustments can be made when the harrow is completely assembled and attached to the tractor.

1. Adjust until the rear blades touch the ground when the front blades are about 2” above the ground.

2. Fine tune this adjustment to obtain equal penetration by the front and rear gangs and to stay bilize the direction and side shift of the harrow as well as leveling across the pass being cut.

3. Most operating problems are caused by unequal pressure and penetration of the front and rear gangs. Turn the adjusting screw clockwise to lower the rear and counter clockwise to raise it. Recheck adjusted length of springs to be sure they haven’t unlocked.

FIELD TEST & ADJUSTMENTS

Your harrow should be ready for use after proper assembly and lubrication. As in any new machine, all bolts and nuts should be checked to insure they are tight prior to use. (See bolt torque chart for details.) Pay special attention to axle nuts and gang hanger bolts. If the harrow has been in storage for a lengthy period of time, it is recommended that it be lubricated prior to use. 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. Keep in mind that any disc with
7 ½” spacing is primarily a pulverizing disc and will perform better in tilled soil. Normally a blade spacing of 9” or 10 ½” is recommended for cutting untilled soil.

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. Be sure that the tractor drawbar is pinned or locked in one position prior to use.

While making your first trial run, observe the disc closely as it is traveling. It should be level from the front to rear at it travels. Insure that the depth control or transport lock arm is unpinned and free before adjusting up or down on the leveling rod. Screwing the adjusting rod in the tube (shortening the assembly) will lower the front gangs in order for them to penetrate more. After making the necessary adjustments, the disc should pull level with both the 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. Conversely, if the disc is ridging, (example:), this would indicate that the rear gang is more aggressive. To correct this, either decrease the angle of the rear gangs or increase the angle of the front gangs.

SAE TORQUE CHART

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

THIS IS STANDARD FOR SAE GUIDE FOR ALL MONROE TUFLINE IMPLEMENTS

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	23	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

TROUBLE SHOOTING CHART

	PROBLEM		POSSIBLE SOLUTION
1.	Furrow gradually worsening in low area toward the center of each pass sometimes accompanied by slightly high area at the edge of the cut.	A.	Tilt disc down in rear if necessary, far enough to see if it will start to bed in center slightly. If this can be done, the leveling adjustment will correct the problem.
		B.	If the problem persists, increase the speed and/or reduce the space in the center of the harrow. All Gang hangers on both sides will have to be loosened and the gang moved toward the center in equal amounts.
2.	Unit leaving a bed in center of the pass.	A.	Make opposite adjustments to those above.
3.	Leaving a ridge outside of cut with a furrow just inside.	A.	Reduce the amount of soil being thrown out by the front gang by checking front to rear leveling and if the front is low, turn the leveling screw counter clockwise. Also reduce the angle in the front gangs slightly.
		B.	If no outrigger is being used, add an outrigger with a blade 4" to 6" smaller than the disc blade diameter.
		C.	If the problem persists, check the space between the rear gangs and if it appears close, you may need to move both rear gangs out slightly in order to pick up the soil being thrown out by the front gangs.
4.	Leaving a bed just inside the cut approximately 1 ½" to 2" and a furrow on the edge of the cut.	A.	Rear gangs are spaced too wide causing the outside rear gangs to pick up soil beyond where the front gangs are working.
5.	Harrow does not run straight behind the tractor and/or shifts from side to side.	A.	Check to see if both the front and rear gangs are centered on the harrow.
		B.	Front gangs running deeper than rear gangs. The rear gang must be held down firmly to stabilize the disc.
		C.	Check the spring tension adjustments on the leveling assembly. It should be 12 ¼" to 12 ½" long. This helps stabilize the rear gang.
		D.	Check if both sides of the front and rear gangs are set at equal angles.
6.	Leaves a low area or "swag" behind the tractor wheels.	A.	Check for tire slippage and/or deep tractor tracks due to load or soil conditions.
		B.	Add duals to the tractor and/or increase speed, gang angle, and cutting depth.
		C.	Rear of harrow may need lowering.

7.	Bending or breaking outside front disc blades or gang axle.	A.	Do not make sharp turns with discs in the ground.
		B.	Keep gang axle nuts tightened to torque chart specifications.
8.	Bearing problems or wear on bearing housings.	A.	Gang axles may be bent thus causing gangs to wobble.
		B.	Dirt or trash between spacers causing them to misalign.
		C.	Damaged seals
		D.	Frequent lubrication without cleaning the fittings causing contamination.
		E.	Seals popping out due to high speed lubrication in cold weather. Lubricate slowly.
9.	Gang axles won't stay tight. Bending of axles.	A.	End washer or disc blade not going on square of axle giving a false tightness.
		B.	Trash between spacers working out during operation and causing loosening.
		C.	Check soil areas for rocks or stumps. Operation in this type of conditions is not recommended.
10.	Harrow does not penetrate as desired.	A.	Increase front gang angle about 2 degrees more than the rear.
		B.	Fill harrow tires with water.
		C.	Be sure harrow tires are clearing the ground. Check depth control and cylinders.
11.	Not leaving ground as smooth as expected.	A.	Too much gang angle. Using the least angle required is always the best.

WARRANTY

Please enter information below and save for future reference:

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

Monroe-Tufline Manufacturing Co., Inc. (“Monroe-Tufline”) 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-Tufline, 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-Tufline, a Monroe-Tufline authorized dealer or distributor, and/or a Monroe-Tufline 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-Tufline.

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

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. 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-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 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-Tufline’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-Tufline.

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, serviceperson, 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.

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.

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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.

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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.
14319

MONROE TUFLINE MFG. CO., INC.
PO BOX 7755 / 2219 TUFLINE LANE
COLUMBUS, MS 39705-0004
(662)328-8347

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