N° 14332

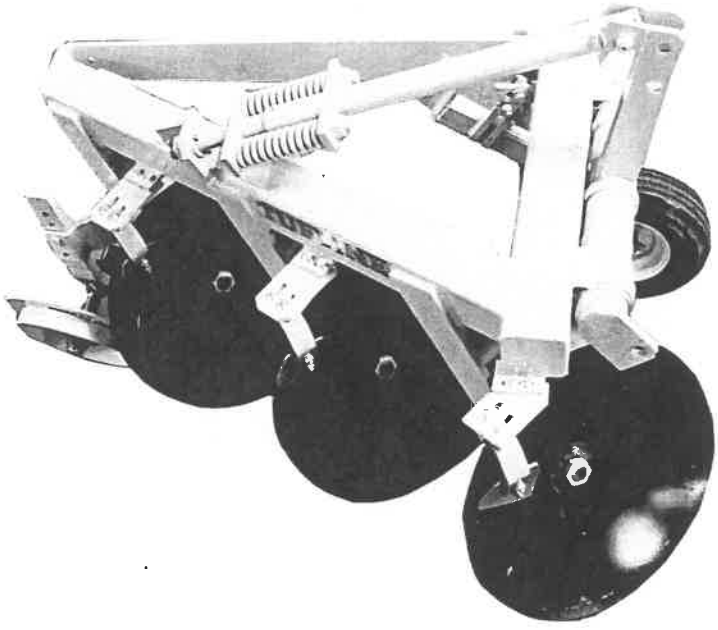
3 BLADE DISC PLOW

BY TUFLINE®

ASSEMBLY AND OPERATING INSTRUCTIONS

Dealer_____ Model Number_____

Date Purchased_____ Serial Number_____



MONROE-TUFLINE® MANUFACTURING CO., INC.

P. O. BOX 186 PHONE 328-8347 AREA CODE 662 COLUMBUS, MISS. 39701, U.S.A

INTRODUCTION

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

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

** DISCLAIMER**

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

LIMITED WARRANTY

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

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

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

Please fill out the registration card below and mail it to:
Monroe Tufline MFG. Attention: Owner Registration
P.O. Box 7755 Columbus, MS 39705

OWNER REGISTRATION

Name_____Address/City

State_____

Dealer Name_____ City/State_____

Date of Purchase_____Model No._____Serial #_____

Comments_____

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GENERAL SAFETY INSTRUCTIONS

ASSEMBLY: See Assembly Instructions for ⚠ in this manual.

HITCHING:

⚠ Before hitching always be certain that the proper hitch pins and retaining pins are available for each hitch position. Use of incorrect parts can allow an unexpected and possibly disastrous partial or complete disconnection which can result in serious property damage and/or personal injury to the operator and others in the vicinity. Direct hitched equipment can be jerked up on top of the tractor and operator and trail type can go anywhere. Jet blasts of escaping hydraulic fluid can severely injure also.

⚠ It is very inportant to throttle the engine to idle speed as the tractor is backed up to the implement and to keep helpers clear.

⚠ Be sure implement is solidly supported to prevent movement during hitching.

⚠ Never place hands or feet in possible "pinch points" such as hitch pin holes.

HYDRAULICS:

⚠ Watch out for high pressure hydraulic fluid spray and leaks. They can injure your skin, blind you or allow the implement to drop suddenly. Never activate tractor hydraulic control while not in the tractor seat. Repair all hydraulic leaks immediately.

⚠ Never allow anyone close to the implement when the hydraulic components are being operated. Be sure the instruction manual has been followed on bleeding air from the system and that the tractor system is full of fluid before operating. Air in the system can cause dangerous eratic operation.

TRANSPORTING:

⚠ Never allow anyone other than the operator to be on or around the tractor or implement when it is being operated or moved. No riders anywhere! The vast majority of accidents are from falls off of tractors!

⚠ Double check wheel bearings, wheel lugs, wing locks, and transport locks before starting and every 5 to 10 miles.

⚠ Use all legally required safety equipment such a Slow Moving Signs, Flashing Ambers, front and rear Caution vehicles, and obey all applicable area traffic regulations for such transport. Watch for low overheads including power lines!

⚠ If the implement is "over width", use common sense courtesy by periodically pulling off the road and stopping when you have an opportunity to let long lines of impatient traffic to unjam.

⚠ Never transport at night without adequate forerunner amd rearrunner caution lights plus width clearance cautions.

⚠ Never transport over 20 MPH on highways. on roads where "bumps" may exist, be aware that heavy implements cannot be designed economically and strong enough to withstand "severe bouncing". Hitting even small bumps at speeds faster than field speed can cause dangerous accidents for anyone in the vicinity and also cause most transport component problems. It is important that operators realize how severe these shocks can be!

OPERATION:

⚠ STOP tractor engine and PTO and apply park/brake before leaving tractor seat!

⚠ Always operate at reasonable field speeds. Absolute maximum for earth-working implements is 7 MPH. If occasional rocks and/or other obstructions, ground litter, and uneven terrain are present, 1½ to 3 MPH will seem slow but actually more productive and safer.

⚠ Use extra caution and slow speeds on steep slopes, near power lines, gullies, or overhanging obstructions such as tree limbs.

ADJUSTMENT & MAINTENANCE:

⚠ Lower the implement to the ground whenever possible before performing adjustment or maintenance.

⚠ If implement cannot be lowered, keep all parts of the body clear from under it or block it up securely.

⚠ Keep all parts of the body clear of pinch point possibilities when adjusting or maintaining. Never check hole alignments with the fingers. Sliding metal parts can shear or break flesh and bones.

⚠ Never step on top of implement wheels or walk on top of frames. Disc blades and other parts are very sharp and can cause fatal cuts from falls. Wheels can spin!

⚠ Never operate implement without all wheels in place. It may overturn.

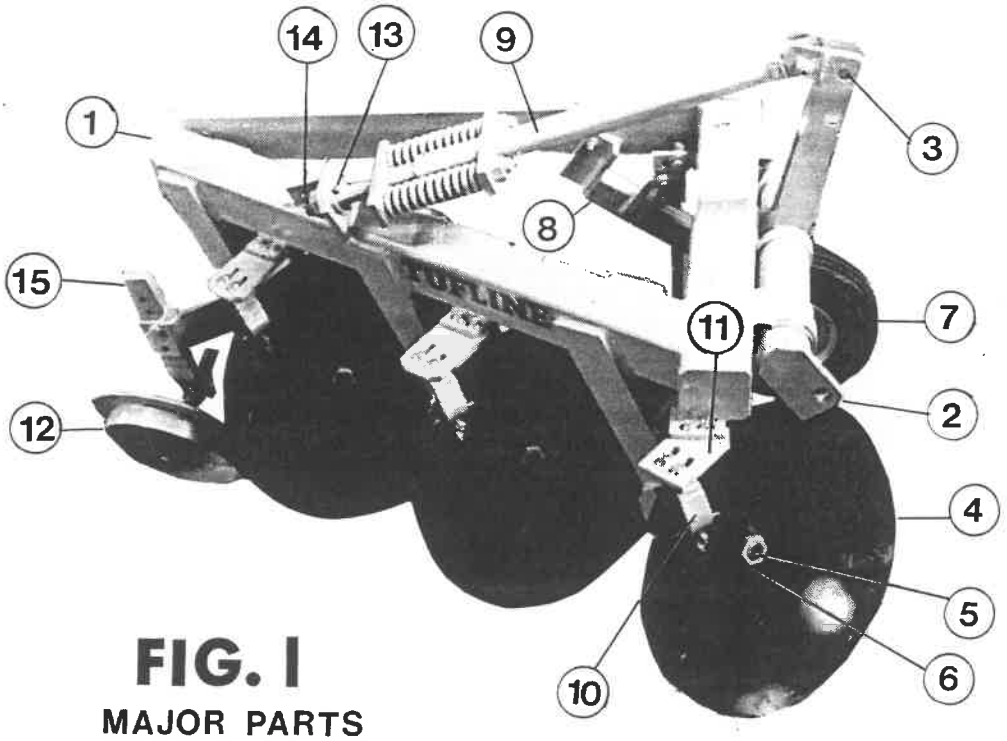


FIG. I
MAJOR PARTS

1. Main Frame
2. Hitch Ear
3. Mast Top Link Hole
4. Blade, Spindle, & Hub Assembly
5. Spindle
6. Nut
7. Gauge Wheel
8. Gauge Wheel Arm
9. Leveling Control Assembly
10. Scraper Arm & Blade Assembly
11. Front Scraper Adapter
12. Furrow Wheel & Hub Assembly
13. Roll Pin
14. Leveling Control Retainer Nut
15. Furrow Wheel Arm

INTRODUCTION

We are pleased to welcome you as an owner of a Tufline implement. This implement has been designed and manufactured to give you outstanding service; however, the quality of its performance also depends on your follow through to properly assemble, maintain, and operate it safely. We urge you to study the General Safety Instructions portion of this booklet first in order that you will be better prepared to appreciate the instructions. When properly used, these instructions provide the information to help you attain maximum satisfaction in using this implement.

IMPORTANT FEATURES OF YOUR TUFLINE DISC PLOW

While the disc plow has been in use for many years, we have made a number of significant improvements over the designs previously offered.

We hope you will study the explanation of these features and the following instructions carefully so that you will get the most out of owning this piece of equipment.

Especially Designed For Lightweight But Powerful Tractors

Frame: Greater strength to support the disc hubs has been obtained with less material weight used than in previous designs by positioning a beam directly above the disc hub centers and then "twisting" the supports to the ideal cutting angle while at the same time ideal "backward lean" (pitch angle) of the blade was also accomplished. Previous designs used more expensive and heavier brackets offset from the main beam to obtain each disc position and angle.

Ground Level and Furrow Wheel Control: A unique design has been used to provide "furrow hug" by the wheel and constant penetration by front and rear discs even when the ground level is uneven. Instead of using the conventional heavily weighted furrow wheel or a spring loaded one, the entire plow pivots at the hitch and is spring loaded from there. Economical weight is included at the hitch where, by being close to the tractor, it does not create a lifting problem but can still be transfered wherever it is needed by the leveling control assembly. This pressurized flexibility between the tractor and plow practically eliminates side draft problems that are common with many other plows.

Additional and Easier Adjustments: The position of the furrow wheel is very important to good performance since it must "hug" the furrow bottom and wall at all times. Our plow provides both side shift and vertical movement to allow for various blade sizes and to compensate for other adjustments. Older plows had no side shift and very little vertical adjustment.

Hitch Shift: The hitch is also shiftable to a greater distance than previous designs which allows you to adjust to the wheel width position of your tractor and to prevent "over biting" by the front disc which has previously been the major cause of side draft in disc plows. It also compensates for blade diameters.

Gauge Wheel: Uniform depth control is very important in getting the best performance out of your tractor and disc. Unless plowing depth is uniform, the amount of plowing accomplished will be less, tractor efficiency will be greatly reduced, and the plowed soil will be left uneven. The gauge wheel, when properly adjusted, will assure uniform operating depth and free the operator completely from the burden of intermittent manual depth regulation.

Hitch & General Assembly: Install 1 1/8" hitch pins in hitch holes, Ref. 1, Fig. II, with lockwashers, and nuts with lynch pin holes vertical and tighten securely as per torque chart. Install parking stand, Ref. 2, as shown in Fig. II. Refer to Fig. I and install the leveling control assembly as shown with 3/4" x 3½" bolt, lockwasher, and nut at the top of hitch mast and with the spacer in front of the pressure control anchor at the rear so that the roll pin pivots against it. Install the 1½" lock nut until approximately ¼" slack remains at Ref. 13, Fig. I. Caution: Do not overtighten the 3/4" x 3½" bolt when installing the upper end of the leveling control assembly since this will squeeze the mast too close for the tractor top link to be installed.

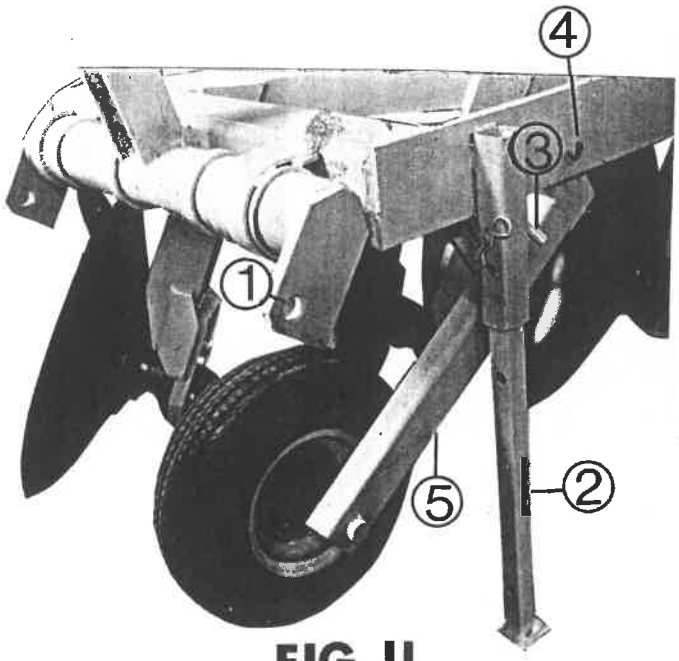


FIG. II

Disc & Hub Assembly: Leave the frame on its left top side so that the disc hub support arms, Ref. 5, Fig. V, angle slightly upward. Install a hub assembly, Ref. 6A, Fig. V, on the front support first. Carefully align holes. Install the 6 - 9/16" x 2½" fine thread bolts (From the parts package) being very careful that all bolts are started straight before any are tightened. Lubricating the bolt threads will help. Tighten bolts evenly; alternating to opposite sides of the hub until you torque them to approximately 75 ft. lbs. Caution: Be sure that hub tightens flatly against plate and that there is no foreign material between them. Excessively uneven tightening can break the hub flange.

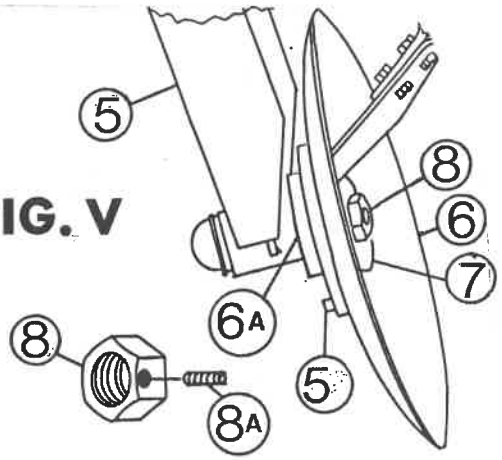


FIG. V

Disc Installation: If the disc has not been preassembled to the hub, assure that the hub surface is clean and smooth then install the disc blade, Ref. 6, Fig. V, and the nut washer, Ref. 7, Fig. V, and the nut, Ref. 8. Be sure allen screw, Ref. 8A, is screwed out far enough to positively clear the threads before this nut is installed or removed.

Tighten this nut to 1200 - 1500 ft. lbs. torque by holding the spindle with wrench on lug welded to the rear of hub, Ref. 5A, Fig. V. Allow wrench on this lug to encounter the frame to act as a secure stop while you tighten. Now screw the allen firmly against the thread. Caution: Never try to remove nut without first loosening set screw. Threads can be damaged beyond repair. If for any reason disc is operated loose on the hub, the hub and disc must be thoroughly cleaned before reassembly.

Furrow Wheel Assembly: With unit still on its side, insert the furrow wheel arm, Ref. 1, Fig. III and IV, as shown to the last hole and insert the bolt to retain it. Do not tighten the nut. If spindle, hub, and wheel assembly, Ref. 2, have not been attached at the factory, install spindle so that the arm is about halfway of the threaded area. Snug jam nuts, Ref. 3, but don't tighten. See operating adjustment for tightening.

Gauge Wheel Assembly: Turn unit upright and on parking stand. Attach the gauge wheel arm, Ref. 5, Fig. II and VI with 5/8" x 2½" bolt, lockwasher, and nut, Ref. 4, as shown in Fig. II and VI. Install the 5/8" x 2½", Gr. 5 adjusting bolt, Ref. 1, Fig. VI, with 5/8" flat washer on its head and U-shaped clamp weldment, Ref. 2, on opposite side of slotted adjusting rail as shown in Fig. VI. Insert the second grade, 5, 5/8" x 2½" bolt, Ref. 3, from the opposite side with flatwasher on its head also and with the flat clamp stop weldment, Ref. 6. Only snuggly tighten each of these awaiting adjustment and operation instructions.

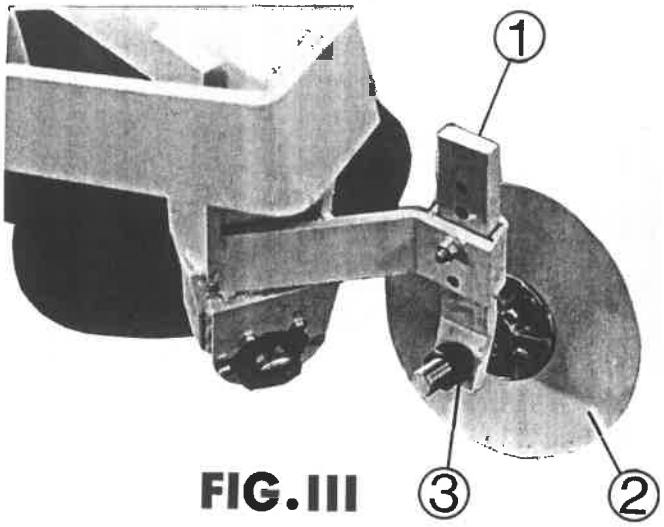


FIG. III

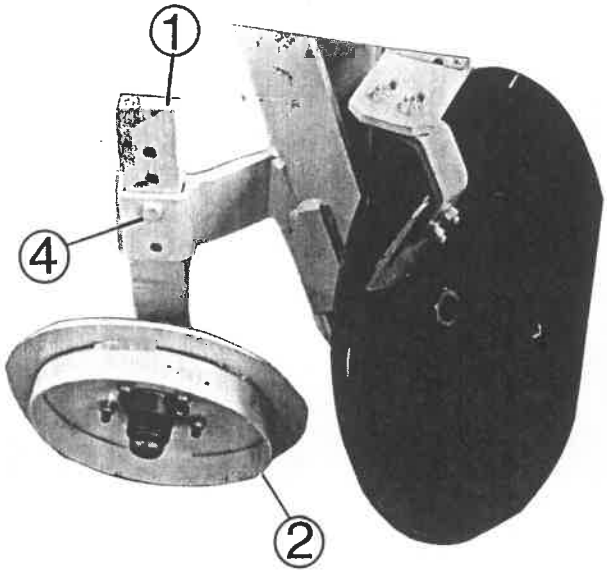


FIG. IV

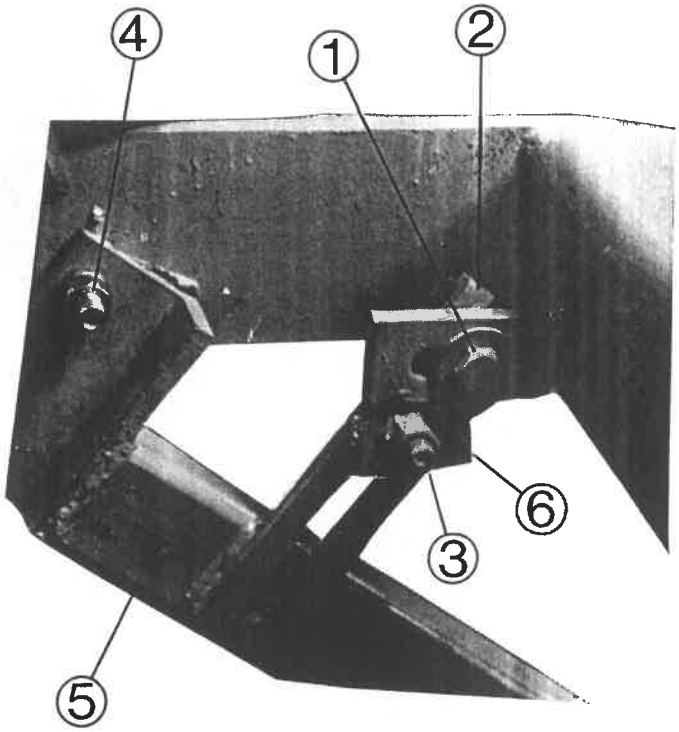


FIG. VI

Scraper Attachment: Refer to Fig. X and XI. Attach the front spacer plate, Ref. 10, (the longest plate with one clipped corner) toward the front of the plow. Place underneath the mounting bracket, Ref. 35, and bolt it loosely with ½" x 1½" bolts and flange lock nuts. Next attach the rear spacer plate, Ref. 11, with parallel slots away from the plow with the slot nearest the end of the plate toward the front of the plow. Install both scrapers and shift scrapers and plates so that the scraper almost touches when disc is rotated to the closest contact and with scraper blade outside of the disc edge about 3/4".

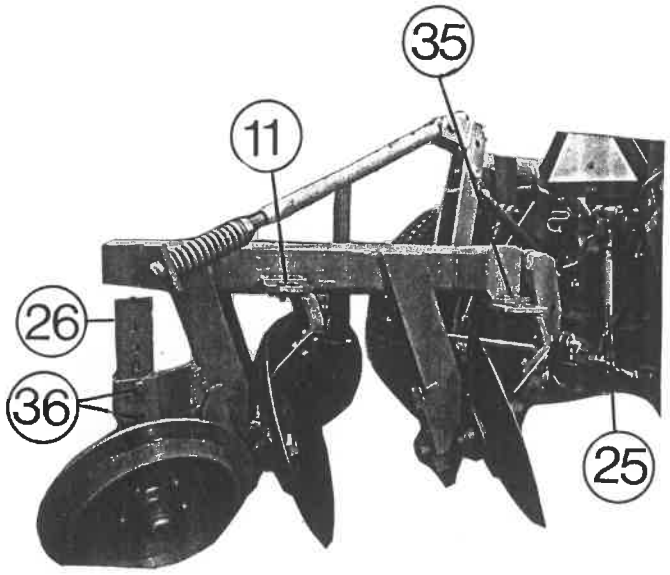


FIG. X

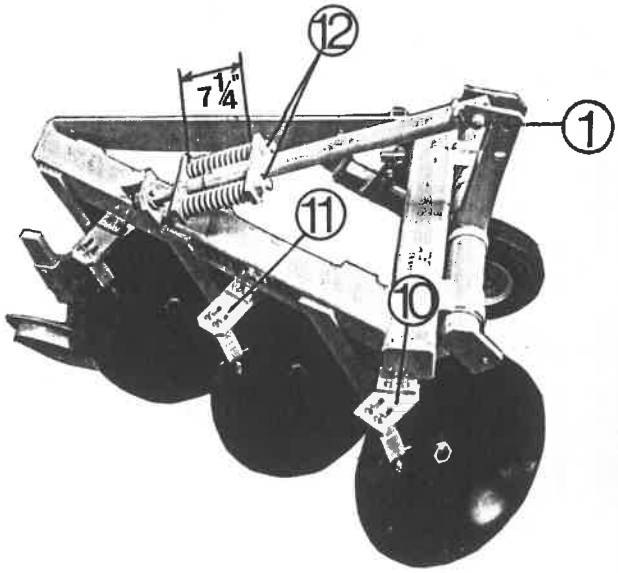


FIG. XI

ADJUSTMENT & OPERATION

Furrow Wheel: Lower the wheel so that it is about 3/4" lower than the disc blade bottom edge. Note that two holes in the bracket, Ref. 36, Fig. X, allow adjustment of ½ of the space between holes in the arm, Ref. 26, Fig. X, by alternating from use of the two holes.

Sideways position of the furrow wheel is mostly determined by the diameter of the blades. The position shown in Fig. XII, is approximately correct for 22" blades. It should be moved to the right for larger blades. The lockwasher can be switched from one side to the other if more adjustment is needed. Caution: Securely tighten both the 5/8" bolt and the 1½" nuts before operation. Check the 1½" nuts, Ref. 31, after first hour of operation. They must be kept tight.

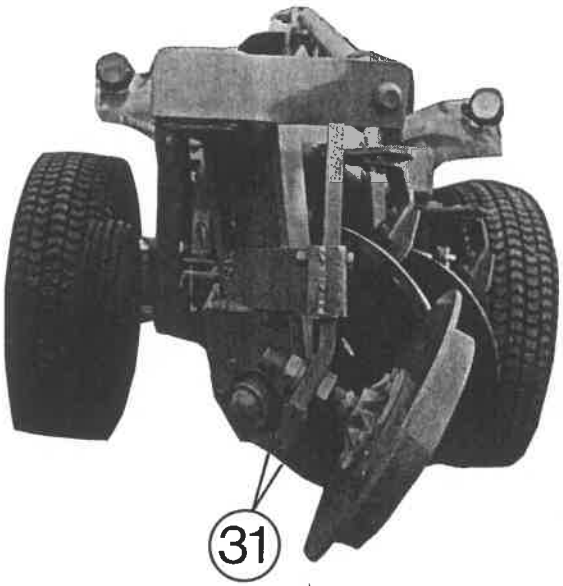


FIG. XII

Tractor Linkage; Very Important: Since the tractor top link, Ref. 23, Fig. VIII and IX, and the right hand lift linkage, Ref. 25, Fig. IX an X, provide the primary way to adjust the plow on the tractor, they must be well lubricated and work freely if adjustment is to be properly made. First, the top link should be in the proper hole on the tractor and on the plow. Refer to Ref. 22, Fig. VIII, for these holes on the tractor and Ref. 1, Fig. XI, for those on the plow mast. The lower holes should be used for tractors with less than 32" maximum lift and the upper holes used for the tractor lifts close to the 32" range.

The RH lift linkage, Ref. 25, Fig. IX, must be adjusted upward so that the plow will be level when the tractor wheel is at plowing depth. For example: If you plan to plow 5" deep, the RH lift arm hole should be approximately 2½" higher than the left hand. This must be field adjusted.

The top link, Ref. 23, Fig. VIII, be adjusted so that when the plow the ground it is slightly lower in the front than in the rear.

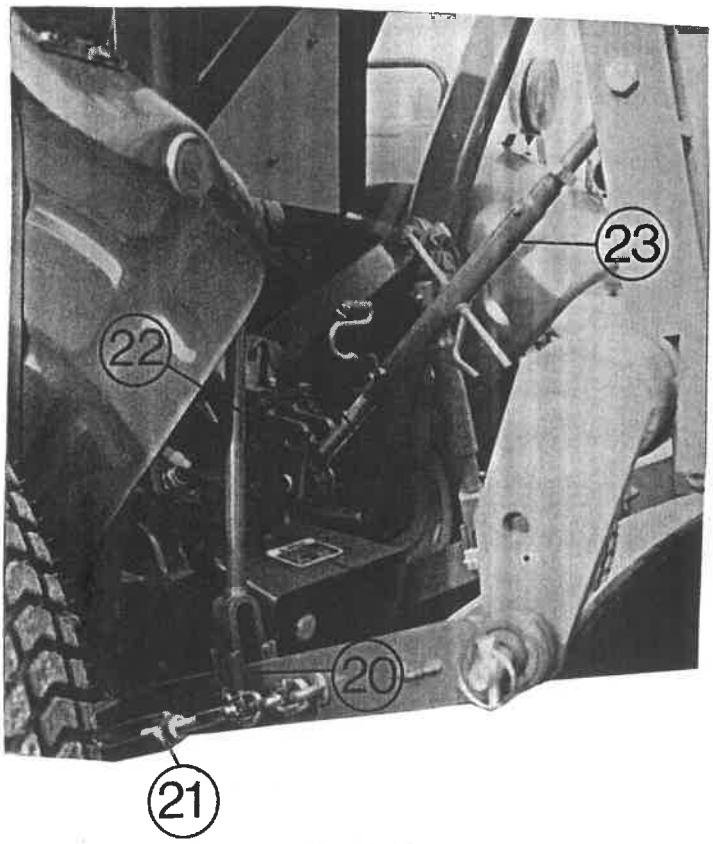


FIG.VIII

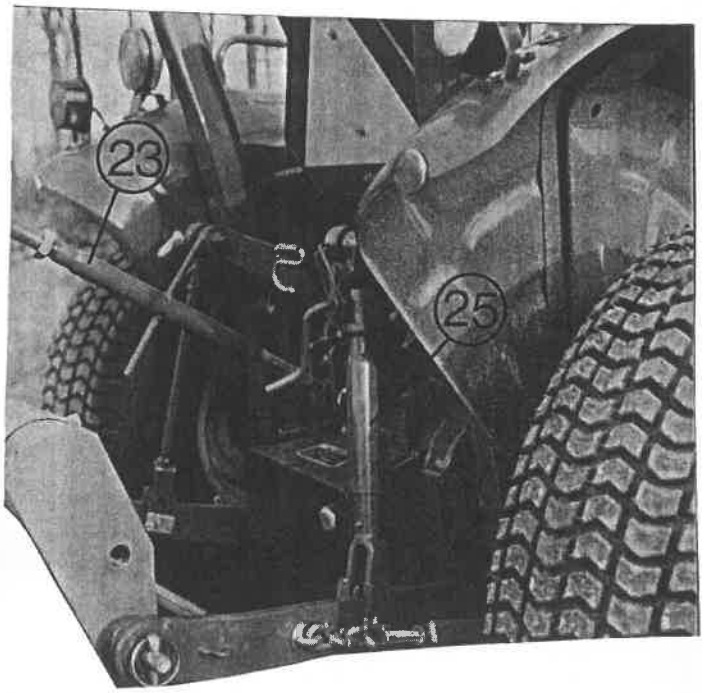


FIG. IX

Sway Control and Lift Arm Linkage: Unless your tractor has a very narrow rear tread width, you should swing the lift arms as far to the right as possible by loosening the LH and tightening the RH sway braces. In most cases, the LH lift arm linkage should be adjusted all the way down and the right upward as per instructions.

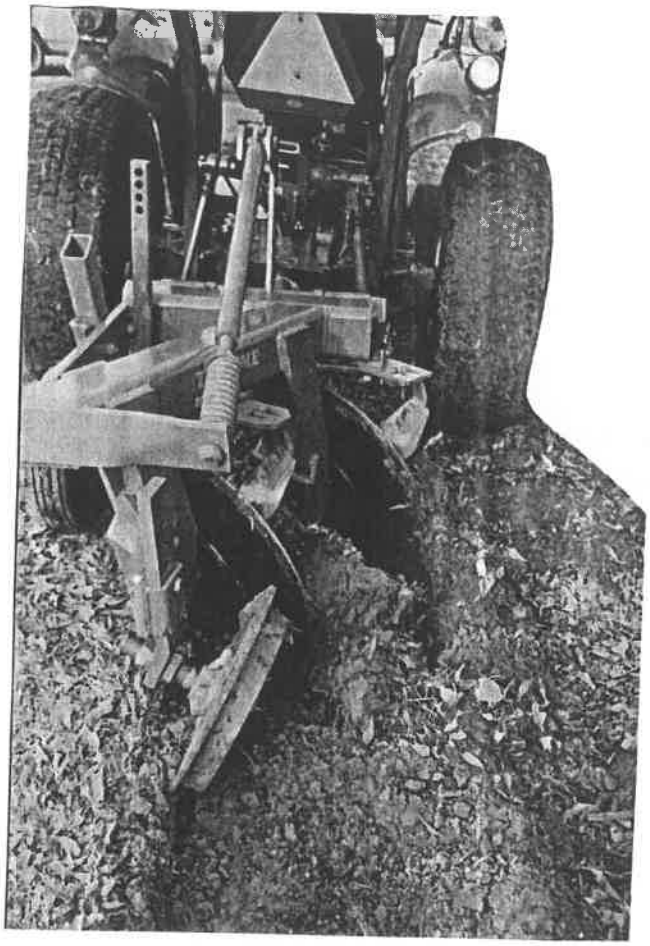


FIG. XIII

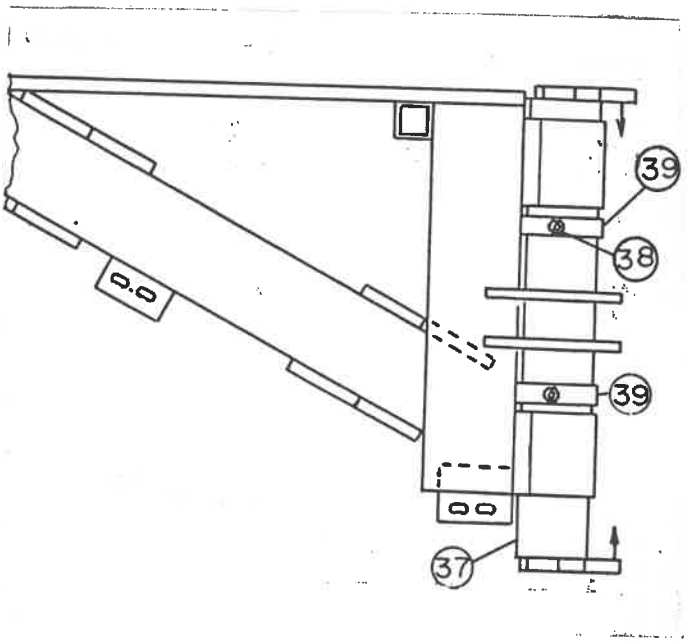


FIG. XIV

Hitch & Tractor Position: Refer to Fig. XIII and Fig. XIV. Your tractor wheels should, in most cases, be set in as narrow as possible.

The hitch pivot shaft on the plow, Ref. 37, Fig. XIV, should be shifted to the left almost as much as possible for tractors with wider minimum wheel treads and/or smaller diameter blades and shifted to the right somewhat for narrow wheel treads and/or larger diameter discs such as the 26" blades.

To shift the hitch pivot shaft, loosen set screws, Ref. 38, Fig. XIV, in set collars, shift shaft, and reset collars. Do not tighten set screws more than 40 ft. lbs. since collars may be split. This adjustment of the hitch pivot shaft should be done before hitching to the tractor or with no pressure on the tractor hitch.

MAINTENANCE AND OPERATION

Lubrication: The disc hub and furrow wheel bearings are tapered rollers. They have been lightly lubed at the factory but do not operate the plow until you have applied grease with a pressure gun until a small amount appears at the seal of each hub. Repeat this lubrication every 50 hours of operation.

Leveling & Pressure Control: This adjustment is very important to the satisfactory performance of the plow. Refer to Fig. XI. Adjust spring pressure with nuts, Ref. 12, to approximately 7¼" as shown. This adjustment regulates the pressure on the rear of the plow to hold the furrow wheel in place and also the flexibility to ride over rough terrain and obstructions. Tightening springs too much may restrict flexibility over obstructions. Not tight enough allows furrow wheel to come up in the furrow thus creating too much "bite" by the plow and excessive side draft.

Leveling, front to rear, is accomplished by adjusting the tractor top link. To start furrow, screw top link in until front disc is slightly lower than the rear. As soon as furrow is established you may need to screw the top link out to compensate for the tractor wheel being in the furrow and to make the furrow wheel stay down. Always adjust front to rear and side to side level so that front disc doesn't plow deeper than the rear. If it is allowed to do so, it will usually cause the plow to "buck up" and the rear and furrow wheel will come out of the ground and swing around causing unsatisfactory plowing and excessive side draft.

TROUBLE SHOOTING

Problem	Cause	Correction
Plow won't penetrate satisfactorily on the starting pass	Plow out of level (too low in rear)	Screw top link in until it is slightly low in front to start
	Furrow wheel too low and is holding rear blade out of the ground	Raise on position at a time. Tough ground will hold furrow furrow wheel rim up higher than softer ground
Furrow wheel won't stay in furrow. Side draft on tractor.	Front of plow too low.	Adjust top link longer.
	Right hand tractor lift linkage not screwed up high enough when tractor wheel is in furrow.	Screw linkage to raise, Ref. 25, Fig. X.
	Front disc cutting strip too wide.	Check for proper shift of hitch to the left, Ref. 37, Fig. XIV, If hitch is all the way to the left you may be driving with RH tractor wheel too close to the furrow edge. If this is not the case, tractor wheels may need moving in narrower. RH tractor wheel can be driven further from furrow depending on how far out the soil is moved because of speed.
Plow leaving ridge between discs.	Furrow wheel adjusted too far to the right so that rear disc is overcutting for blade diameter used.	Adjust furrow wheel to the left.
	Front disc running deeper than the rear or hitch shifted too far to the left.	Level the plow and/or shift the hitch to the RH side.
Gauge wheel doesn't hold plow at desired depth.	Wheel not low enough. See Fig. II & VI and installation. Tractor lift linkage must not float.	Lower wheel according to the instructions. Lock left hand tractor lift linkage.
	RH tractor linkage too low.	Must be raised slightly more than for draft control

This plow comes under the category of a "breaking or turning plow and just as a moldboard type will leave an open furrow wherever the plowing of the plot is completed.

If this characteristic is properly dealt with it can usually be an advantage on the other hand, if it is disregarded, it can present frustrations.

For instance: If your land is almost level, it sometimes pays to plan your plowing so that you can use the open or "water" furrows as field drains. If your land is quite sloping, you should never plow so that the furrow will be in the direction of slope.

In the diagrams below, we have attempted to show plowing patterns which may give you an idea of how to plan your plowing. Fig. A shows starting in the counter clockwise direction on the outside of a generally rectangulat or square field. The corners can be turned without lifting the plow if rather long curve is made on the first round. This prevents the severe compaction that occurs on the corners if square corners are made that require loop turns. It also utilizes time and fuel more efficiently. Note that the corners are replowed just at the center get down to about the width that will be required to thoroughly break the corners so that very little unnecessary turning and compaction is done.

Fig. B is a suggestion for plowing in terraces in a way that prevent deteriortion of the terraces.

After plots have been plowed, water furrows can be partially leveled by setting the plow at approximately ½ the previous plowing depth and throwing soil back toward the furrow for a round or two while gradually reducing the plowing depth.

After plowing plots several times from the outside they can be plowed in reverse to reduce the adverse affects of furrows being left. When doing this, it must be remembered that it is necessary to start in exactly the same points that have been your finishing points.

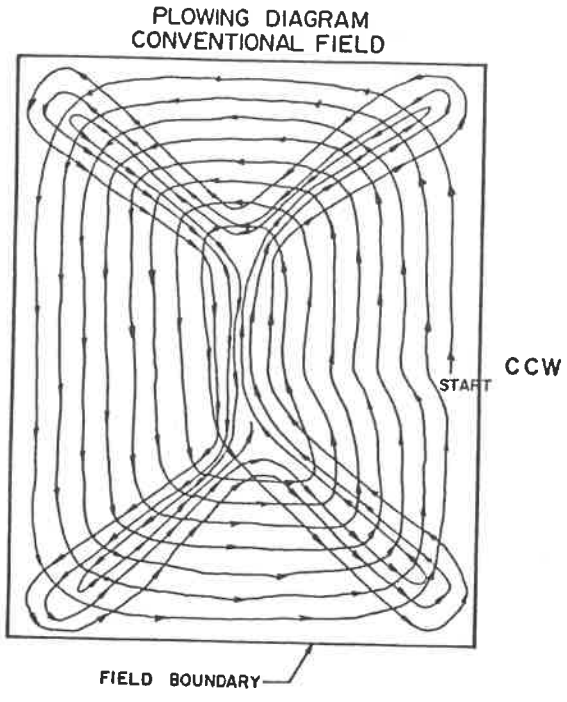


FIG. A

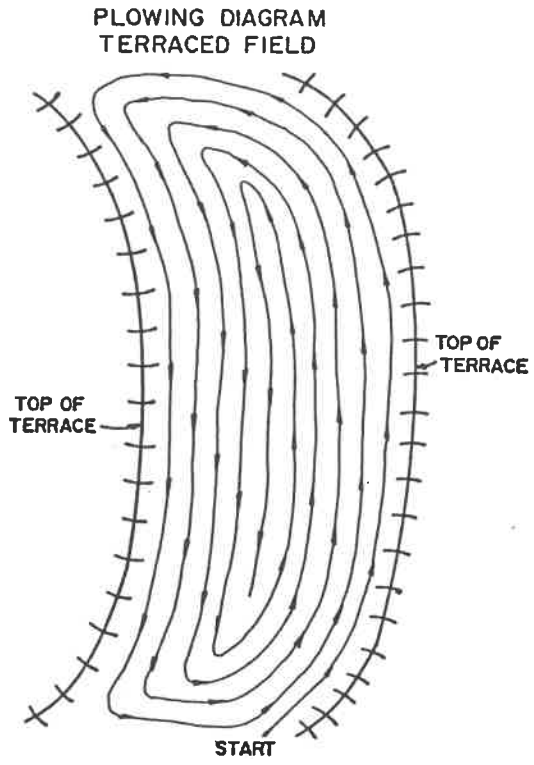
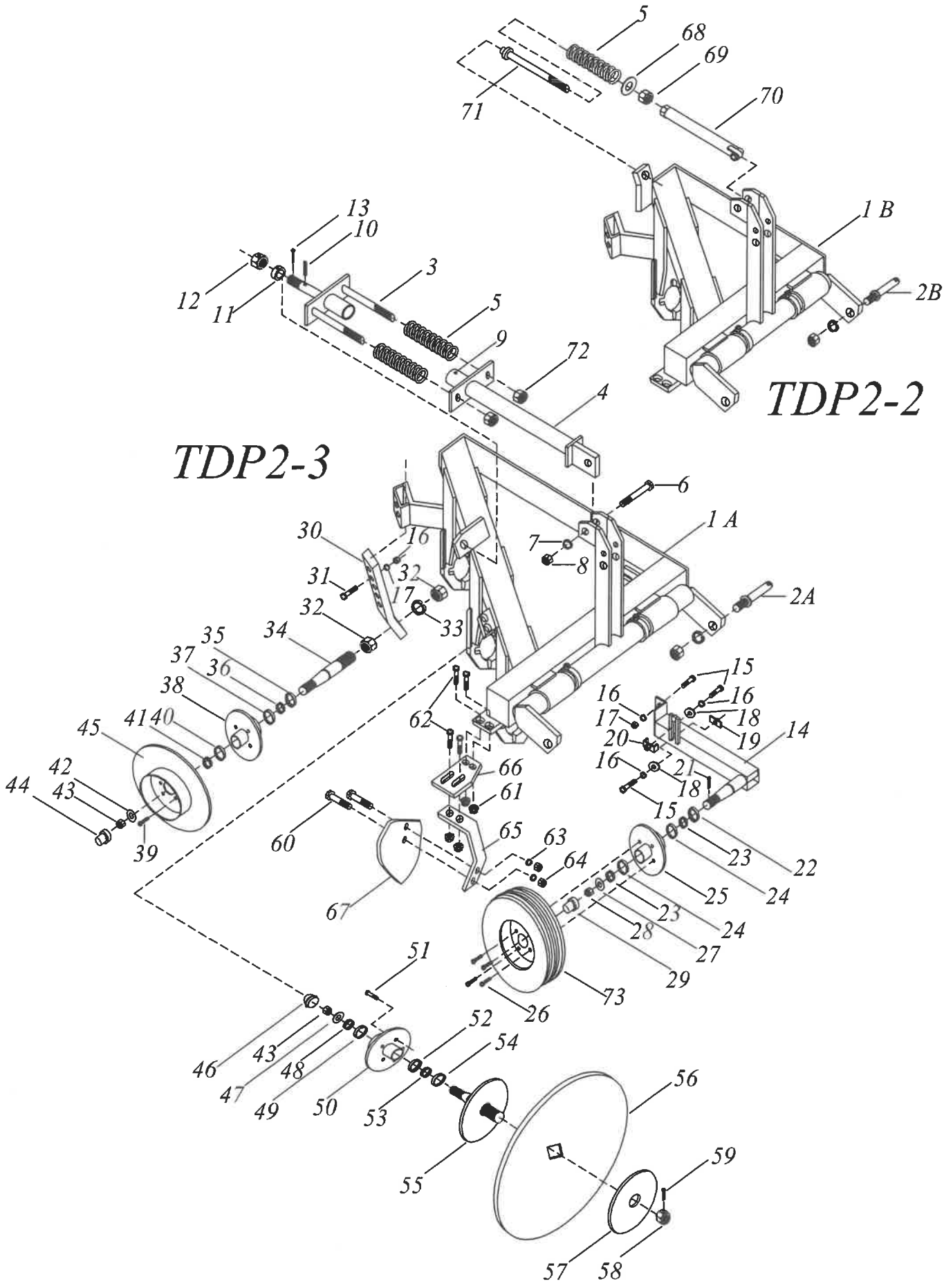


FIG. B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DISC PLOW TDP2 SERIES 2 & 3 BLADE

TDP2-2/22, TDP2-2/24, TDP2-2/26

TDP2-3/24, TDP2-3/26, TDP2-3/28

REF.#	PART #	DESCRIPTION	REF.#	PART #	DESCRIPTION
1A	11926	MAIN FRAME, 2-3	39	T-562	LUG STUD, 1/2" X 1 1/2"
1B	11221	MAIN FRAME, 2-2	40	T-582	BEARING CUP (1.781)
2A	T-331	HITCH PIN, CAT II	41	T-574	BEARING, 3/4"
2B	T-33	HITCH PIN, CAT I	42	T-603	SPINDLE WASHER,
3	11923	GUIDE BAR	43	T-567	CASTLE NUT, 3/4" UNF.
4	11924	LEVELING TUBE	44	T-577	HUB CAP
5	T-509	SPRING, 8 1/2"	45	11741	FURROW WHEEL
6	9859	HEX BOLT, 3/4" X 4" GR.5	46	T-578	HUB CAP
7	T-31	LOCKWASHER, 3/4"	47	10049	SPINDLE WASHER
8	T-27	HEX NUT, 3/4"	48	T-575	BEARING, 1 1/4" (LM67048)
9	9413	GREASE FITTING, 1/4"	49	T-583	BEARING CUP (2.328)
10	10660	ROLL PIN, 1/2" X 2 1/2"	50	10042	HUB, 6-BOLT
11	11925	ROLL PIN WASHER	51	11463	HEX BOLT, 9/16" X 2 1/2"NF.GR8
12	T-727	HEX NUT, 1 1/2"	52	9962	INNER BEARING CUP
13	10050	COTTER PIN, 3/16" X 2 1/2"	53	10040	BEARING (INNER 1 5/8")
14	11299	GAUGE W/ARM & SPINDLE	54	10039	SEAL, 2"ID X 3 1/16"OD.
15	9192	HEX BOLT, 5/8" X 2 1/2" GR. 5	55	11187	DISC SPINDLE
16	T-24	LOCKWASHER, 5/8"	56	3-22177-1	DISC BLADE, 22" PLAIN
17	T-22	HEX NUT, 5/8"		3-24256-1	DISC BLADE, 24" PLAIN
18	9354	FLAT WASHER, 5/8"		3-26256-1	DISC BLADE, 26" PLAIN
19	11308	DOUBLE CLAMP WASHER		3-28310-1	DISC BLADE, 28" PLAIN
20	11306	CLAMP CHANNEL	57	11196	NUT WASHER
21	11986	COTTER PIN, 1/8" X 1 1/2"	58	11227	BLADE RETAINER NUT, 1 /12"
22	11980	SEAL, 1 15/16" OD. X 1 1/4" ID	59	12176	SET SCREW, 3/8" X 1/2"
23	11981	BEARING, 1" T/ROLLER (L44543)	60	T-733	HEX BOLT, 1/2" X 1 1/2" GR.2
24	11984	BEARING CUP (L44543)	61	9226	FLANGE LOCK NUT, 1/2"
25	11978	HUB 4 BOLT, 2 7/16" PILOT	62	T-805	CARRIAGE BOLT, 1/2" X 2" GR.2
26	11979	LUG BOLT, 1/2" UNF X 1"	63	T-25	LOCKWASHER, 1/2"
27	11983	SPINDLE WASHER 13/16" ID	64	T-26	HEX NUT, 1/2"
28	T-567	SLOTTED NUT, 3/4" UNF	65	11310	SCRAPER ARM
29	11985	HUB CAP, 2" OD.	66	11233	FRONT SCRAPER MNT.BRACKET
30	11935	FURROW WHEEL ARM	67	11081	SCRAPER BLADE
31	9192	HEX BOLT, 5/8" X 2 1/2" GR.5	68	T-698	FLAT WASHER, 1 1/8"
32	9472	JAM NUT, 1 1/2"	69	9401	JAM NUT, 1 1/8"
33	T-728	LOCKWASHER, 1 1/2"	70	11205	ADJUSTING TUBE, TDP2-2
34	11178	SPINDLE, 1 /58"	71	11200	ADJUSTING SCREW, TDP2-2
35	T-576	SEAL, 1 1/2"	72	T-18A	LOCK NUT, 1 1/8"
36	T-575	BEARING, 1 1/4" (LM67048)	73	11977	GAUGE WHEEL & TIRE ASSY.
37	T-583	BEARING CUP (2.328 O.D.)	N/S	11236	REAR SCRAPER MNT. BRACKET
38	T-572	HUB ASS'Y, 5-BOLT	14-29	12496	GAUGE W/ASSEMBLY COMPLETE