

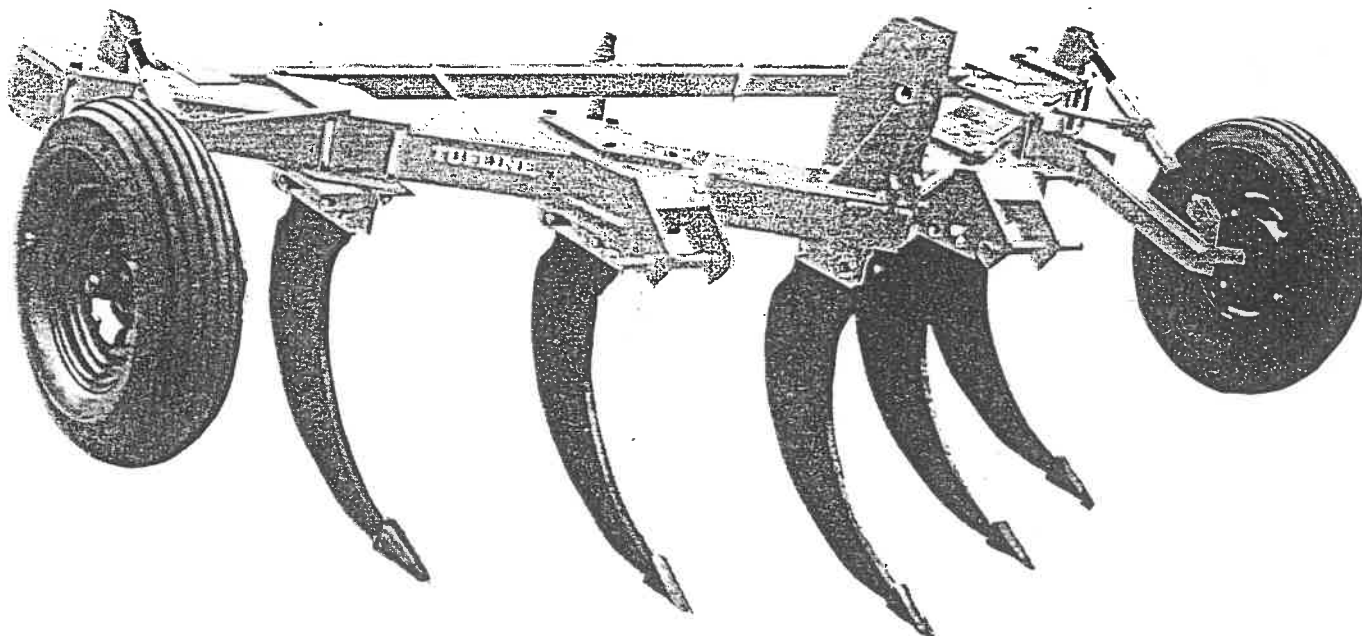
"V" PLOW

BY TUFLINE®

ASSEMBLY AND OPERATING INSTRUCTIONS

Dealer _____ Model Number _____

Date Purchased _____ Serial Number _____



MONROE-TUFLINE® MANUFACTURING CO., INC.

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 book'let. We urge you to read this booklet and thoroughly familiarize yourself with all aspects of safety, assembly, and operation. **Note:** All information contained in this booklet is general in nature and to be used for instructional purposes only. Actual appearance, material and specifications may vary somewhat depending on the specific model being assembled or adjusted.

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

** DISCLAIMER **

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

** LIMITED WARRANTY **

Monroe 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 from date of purchase if for personal use; 90 days for commercial or rental purposes. This warranty does not apply to any equipment which has been improperly assembled or which has been subjected to abuse, negligence, normal wear and tear, modifications, tampering or failure to follow operating instructions, or which has been used for a purpose for which the product is not designed. This warranty does not cover any parts not manufactured by Monroe-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

- ⚠ 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 important to throttle the engine to idle speed as the tractor is backed up to the implement and to keep helpers clear.
- ⚠ Be sure implement is solidly supported to prevent movement during hitching.
- ⚠ Never place hands or feet in possible "pinch holes" such as hitch pin holes.
- ⚠ 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 erratic operation.
- ⚠ 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 as slow moving signs, flashing ambers, front and rear caution vehicles, and obey all applicable area traffic regulations for such transportation. Watch for 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 and rearrunner caution lights plus width clearance cautions.
- ⚠ Never transport over 20 MPH on highways or 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!
- ⚠ STOP tractor engine and PTO and apply park/brake before leaving tractor seat.
- ⚠ Always operate at reasonable field speeds. Absolute maximum for earthe 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.
- ⚠ 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 or 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.

ASSEMBLY INSTRUCTIONS

V-plows can be assembled easiest upside down because the shank and mounting angle assemblies are difficult to lift up underneath the frame while bolting.

⚠ Never assemble upside down unless your hoisting equipment will provide an unquestionably safe operation when completed unit is being uprighted.

Remember that the weight should never rest on one or two of the points. ⚠ If the unit must be assembled in the upright position, be sure to use adequate safe support stands!

Begin by installing the center shank using the bolts provided in the center mounting angles. Then mark off positions for each additional shank by measuring from the opposite side of the center shank according to the spacing, i.e., 15, 20, 30 that you may have selected. Mark the front edge of the main tube. See Fig. I

<u>MODEL</u>	<u>SHANK SPACING</u>	<u>SHANKS</u>
3-28-88	20"-30"	3
5-28-120	20"	5
5-28-142	20"-30"	5
7-28-142	20"	7
7-28-182	20"	7
9-28-182	20"	9
7-28-222	30"	7
9-28-222	20"	9
11-28-222	20"	11

EXAMPLE:

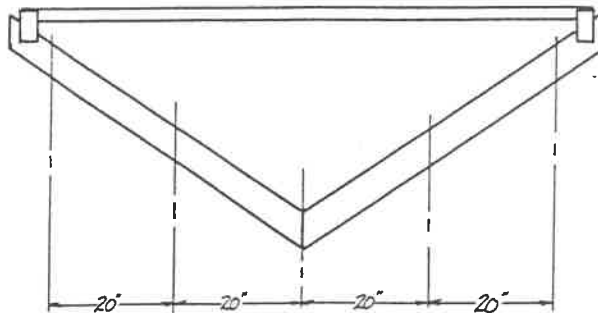


Fig. I

MODEL 5-28-120

These marks will be the location of the inner edge of each shank.

Position the shank assemblies as shown in Fig. I and insert 3/4" x 8" gr. 5 bolts through the top clamp plate and into the mounting angles. Install nuts and lockwashers loosely.

After shanks are all mounted and spaced, snug the bolts lightly and recheck spacing and alignment by measuring from the center shank opposite side to the next shank near side using a tape and the front and rear of the shanks (straight between) as shown. When both measurements are equal, the shanks will be parallel and straight forward. See Fig. II.

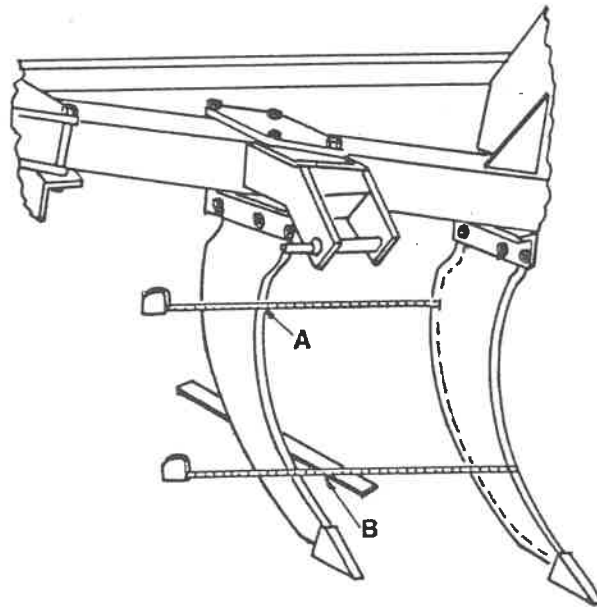


Fig. II

Next tighten the clamp bolts and turn adjusting screw, Fig. III Ref. 1 in until they touch the beam. Lock the jam nut, Ref. 2. NOTE: Shank alignment is very important because wayward shanks waste horsepower and can result in shank and/or mounting failure.

Gauge wheels are mounted in the same manner as the shanks except that top clamp plate, Ref. 20, Fig. IV, is the anchor for the turnbuckle and the bottom plate, Ref. 21, furnishes

the mounting for the gauge wheel arm. Mount these brackets and the arm assemblies as shown remembering that the assemblies are LH and RH.

Gauge wheel alignment is also important because damage to tires and wheels can result if they don't run straight forward. Other than sighting, the best check is to measure from the front and the rear ends of the wheel arm side to the center shank mounting angle and align until both measurements are equal. Wheel arm should be level for this measurement.

Bolt tightening and rechecking is very important. Tighten all 3/4" clamp bolts equally to 250 ft. lbs.

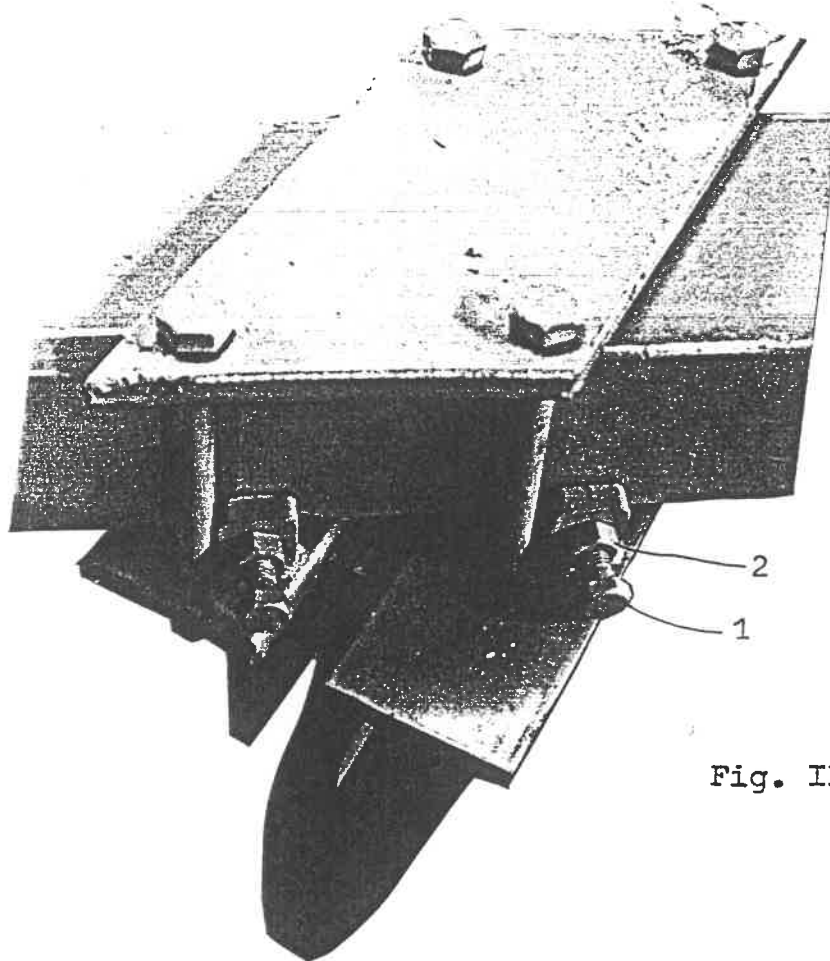


Fig. III


ADJUSTMENT AND OPERATION

V-plows are basically V shaped subsoilers which have the advantage of shifting residue to each side somewhat; thus, they tend to choke less. The V also almost eliminates the possibility of "wedging" between the shanks.

Tufline V-plow shanks were designed with the ideal pitch angle to penetrate without creating unnecessary horsepower requirements from excessive "digging in". It also minimizes clod throw-out.

We recommend gauge wheels on all units larger than three shanks but larger units can be operated without them if carefully adjusted.

Turn the 1-1/8" diameter end of the hitch pin toward the center for Cat. II free link hitch with the spacer on the outside and turn it toward the outside for Cat. II quick hitch with the spacer to the inside for Cat. III free link and quick hitches. Use the bottom mast hole for Cat. II and the top to Cat. III.

 Be sure all hitch pins are securely installed. Loose subsoilers are very dangerous. They can destroy tractor tires and even be forced to the operator's position on the tractor!

Preliminary adjustment of the top link should hold the plow just slightly down in the front just as it touches the ground.

Pull it into the ground to the desired operating depth being sure that gauge wheels aren't stopping the penetration. Set your tractor hitch depth control. Then adjust the gauge wheels equally by measuring turnbuckle length at each side after adjustment.

Next, lengthen top link one round at the time until the plow starts out of the ground and then go back about $1\frac{1}{2}$ " rounds.

MAINTANENCE

Points should be checked frequently for wear so as to prevent wear past rebuilding stage. If excessive point wear is allowed it can also result in damage to the shank itself.

Gauge wheel tire pressure should be at the maximum recommended for the tire being used and should especially be equal in both tires.

Wheel bearings should be checked for adjustment and lubricated at beginning of each season.

All shank and gauge wheel clamp bolts should be retorqued after the first 5 or 6 hours of operation and at the start of each season thereafter. If any are at all loose, they should be rechecked for straight forward positioning before retightening.

TROUBLE SHOOTING GUIDE

Plow pulls very hard and/or front of tractor comes off of ground. Throws out large clods. Jumps in and out of ground.

Runs deep on one side and then the other

Plow pulls hard and top link adjustment has been made. Shanks starting to twist.

Shear bolts fail to shear when overloads encountered. Twists shanks and mounting brackets.

Top link adjusted too short. See adjustment and operation. Raise top link hitch position on tractor, if selective.

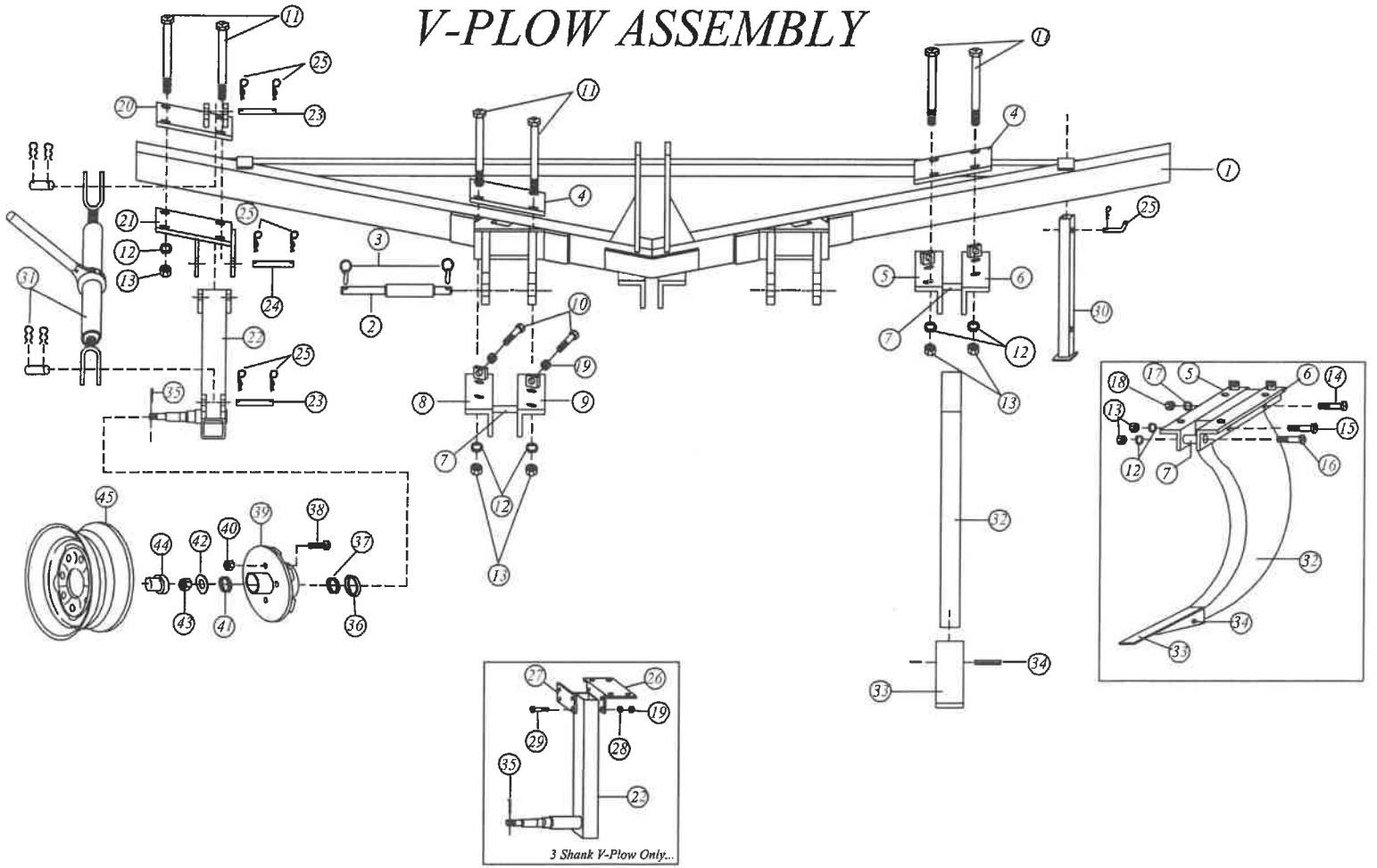
Usually needs gauge wheels to stabilize it. Top link may be adjusted out longer so that plow becomes less sensitive to suction of hard spots.

Shanks may not be straight to line of travel and parallel to each other. See assembly instructions on shanks.

Grade 5 - 3/4"x 4" shear bolts are usually furnished and in some conditions may not shear at low enough load. Grade 2 bolts may be used but they may not break as cleanly.

The shear bolt must be 4" long. If shorter, the threads will be in the shear zone on one side and this can cause it to shear on that side first, which can damage the mounting angles and cause shanks to twist.

V-PLOW ASSEMBLY



V-PLOW ASSEMBLY PARTS LIST

COVERS MODELS WITH MAIN FRAME WIDTHS OF 88", 120", 142", 182", 222"

REF. #	PART #	DESCRIPTION	REF. #	PART #	DESCRIPTION
1	11348	MAIN FRAME, 88"	27	12683	GAUGE WHEEL CLAMP PLATE 3 SHANK ONLY
	11349	MAIN FRAME, 120"	28	T-24	LOCKWASHER, 5/8"
	11350	MAIN FRAME, 142"	29	T-745	HEX BOLT, 5/8" X 5" GR.2
	11351	MAIN FRAME, 182"	30	VP54	PARKING STAND, 36"
	11352	MAIN FRAME, 222"	31	15005	TURNBUCKLE ASSEMBLY
2	VP251	HITCH PIN, CAT II & III 12 1/8"	32	VP28	SHANK, 28" X 1 1/4"
3	VP252	LYNCH PIN		VP32	SHANK, 32" X 1 1/4"
4	10531	TOP MOUNT PLATE	33	MT13454	POINT, 1 1/4"
5	VP112	RH. SHANK MOUNT ANGLE <small>FOR LH. SIDE OF FLOW</small>		VP35M	V-PLOW POINT MODIFIED
6	VP102	LH. SHANK MOUNT ANGLE <small>FOR LH. SIDE OF FLOW</small>	34	VP25	ROLL PIN, 7/16" X 2"
7	10535	SPACER, 3/4" X 1 1/4"	35	T-342	COTTER PIN, 5/32" X 1 1/4"
8	VP101	RH. SHANK MOUNT ANGLE <small>FOR RH. SIDE OF FLOW</small>	36	T-576	SEAL, 1 1/2"
9	VP111	LH. SHANK MOUNT ANGLE <small>FOR RH. SIDE OF FLOW</small>	37	T-575	INNER BEARING, 1 1/4"(LM67048)
10	12178	HEX BOLT, 5/8" X 2 1/2" GR.2 <small>ALL THREAD</small>	38	T-562	LUG BOLT, 1/2" X 1 1/2"
11	11032	HEX BOLT, 3/4" X 8" GR.5	39	T-572	HUB ASSEMBLY
12	T-31	LOCKWASHER, 3/4"	40	T-23	LUG NUT, 1/2"
13	T-27	HEX NUT, 3/4"	41	T-574	OUTER BEARING, 3/4"
14	T-771	PIVOT BOLT, 7/8" X 4" GR.5	42	T-603	SPINDLE WASHER, 3/4"ID. X 1 1/2"
15	12870	SHEAR BOLT, 3/4" X 4" GR. 2	43	T-567	CASTLE NUT, UNF 3/4"
16	9859	HEX BOLT, 3/4" X 4" GR.5	44	T-577	HUB CAP
17	T-21	LOCKWASHER, 7/8"	45	T-612	WHEEL RIM 5-BOLT
18	T-19	HEX NUT, 7/8"			
19	T-22	HEX NUT, 5/8"			
20	11946	RH GAUGE W/MOUNT BRACKET TOP			
NS	11947	LH. GAUGE W/MOUNT BRACKET TOP			
21	11948	RH. " " " BOTTOM			
NS	11949	LH. " " " BOTTOM			
22	11752	SPINDLE ARM (3 SHANK REGULAR)			
	11754	SPINDLE ARM RH, (REGULAR)			
NS	11759	SPINDLE ARM LH, (REGULAR)			
23	T-2661	PIN, 1" X 4"			
24	11944	PIN, 1" X 6 1/2"			
25	T-341	COTTER PIN, 3/16" X 1 1/2"			
26	12681	RH. GAUGE W/MOUNT PLATE WELD'T (3- SHANK VP)			
	12682	LH. GAUGE W/MOUNT PLATE WELD'T (3- SHANK VP)			

All units with a serial number greater than #21270 will use part number MT13454
Part number VP35M will fit all shanks prior to this date.

SAFETY DECAL PLACEMENT

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

