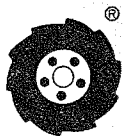


PARTS LIST AND INSTRUCTIONS

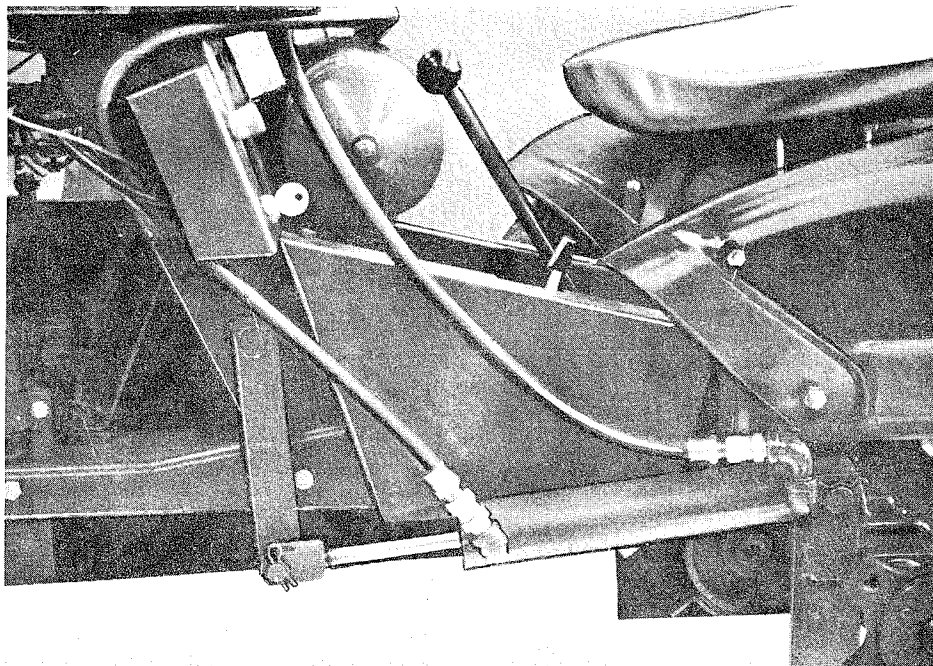


Wheel Horse®

WHEELHORSE PRODUCTS, INC. • SOUTH BEND, IND.

HYDRAULIC UNIT

HY-2



DESCRIPTION

The Hydraulic-Unit system is designed to give you hydraulic power for your attachments with fingertip control, eliminating the need for the manual lift lever. This unit is a completely self-contained hydraulic gear pump, directional control valve, and oil reservoir; with a companion hydraulic cylinder and hoses connecting the power unit to the cylinder. The unit has a built-in safety valve to eliminate overloading of the hydraulic system and tractor attachments. **Read instructions carefully.**

ASSEMBLY INSTRUCTIONS

1. Remove all parts from carton then remove hood from tractor and disconnect switch and starter button from instrument panel. Disconnect wire on positive side of battery first, then the wire from starter button to generator at the generator.

2. Lean tractor over and remove lift lever by knocking out roll pin (4231). After lever is removed, install lift link (4818) using same roll pin which was previously knocked out. See Figure 1.

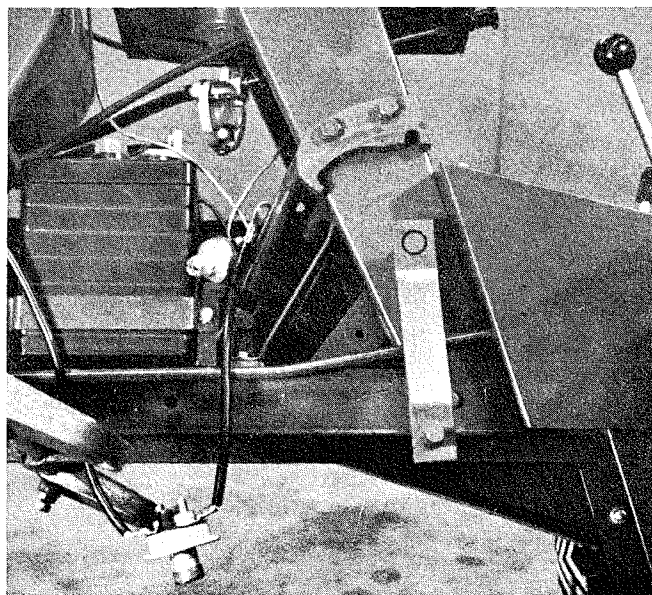


Figure 1

3. Remove left rear wheel from tractor, although this is not necessary, and mount cylinder support angle (4850) to axle, using "U" bolt (2378) and $\frac{3}{8}$ -16 lock nuts. This mounting bracket is the same as the one used on the dozer blade and when dozer is to be installed it will not be necessary to remove this bracket.

4. Mount cylinder to support angle using the cylinder pin (4872) and two hair pin cotters (1290) turning street elbows on cylinder toward the front.

5. Install switch and starter button into new instrument panel (4817) using same bolts which were removed from tractor.

6. Remove lift lever quadrant (4222) then bolt on new instrument panel in same two holes, again using same bolts which were in tractor. See Figure 2.

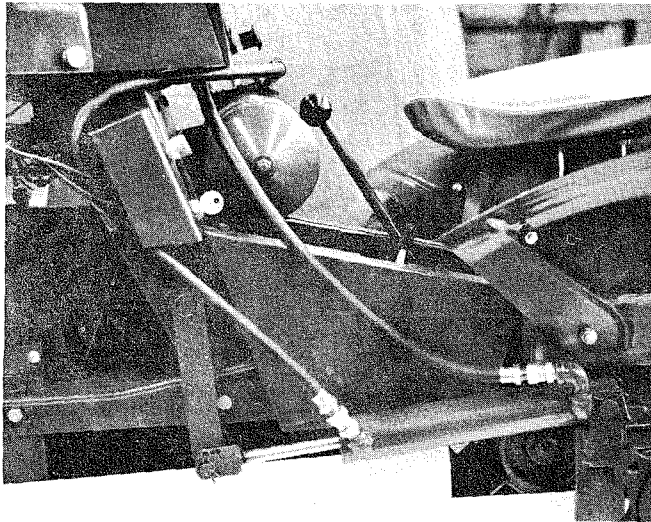


Figure 2

7. Bolt the pump mounting bracket to the hood stand using same holes where switch and starter button were removed. Using two $\frac{1}{4}$ -20 x $\frac{5}{8}$ Hex Head Cap Screws and two $\frac{1}{4}$ -20 Lock Nuts. Also the $\frac{3}{8}$ -16 x $\frac{3}{4}$ Hex Head Cap Screw and $\frac{3}{8}$ Flat Washers. See Figure 3.

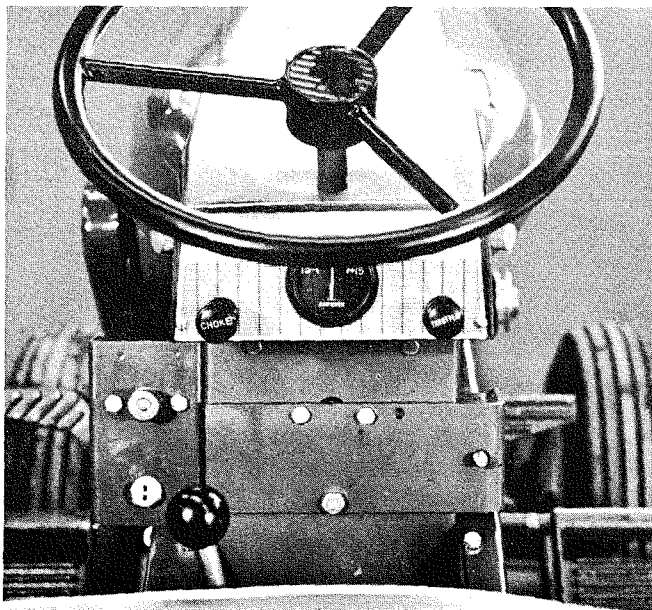


Figure 3

8. Bolt pump support (4827) to pump using $\frac{5}{16}$ -18 x $\frac{5}{8}$ Hex Head Cap Screw and $\frac{5}{16}$ Lock Washers. Install hoses to pump, placing the long hose to the front and the short one to the rear. Install operating handle. See Figure 4.

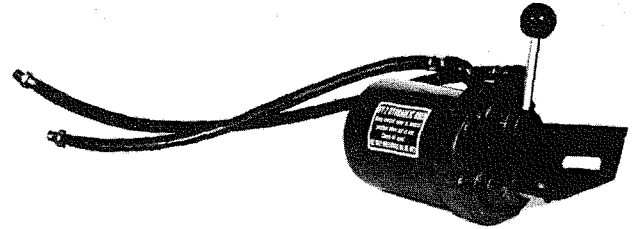


Figure 4

9. Bolt pump to pump mounting bracket using the $\frac{3}{8}$ -16 x $\frac{3}{4}$ Hex Head Cap Screw, $\frac{3}{8}$ Lock Washers and $\frac{3}{8}$ Flat Washers. Do not tighten at this time. See Figure 5.

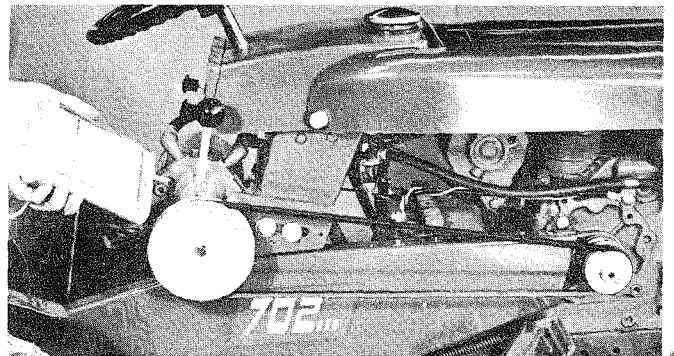


Figure 5

10. Fasten hoses to lift cylinder first installing the couplings into the street elbows on cylinder. Hook long hose to the front coupling and short one to the rear. See Figure 2. Make sure all hose connections are tight.

11. Install $2\frac{1}{4}$ " pulley to engine crank shaft and 5" pulley to pump. There are a few 552 engines in service with short crank shafts and on these it will be necessary to remove the 3 groove pulley from tractor and drill and tap and bolt the $2\frac{1}{4}$ " pulley to its outside faces. See Figure 6. This will not be necessary where crank shaft is long enough.

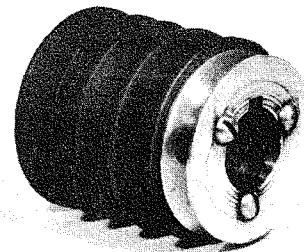


Figure 6

12. Place the drive belt over the two pulleys and take up the slack by tightening the $\frac{3}{8}$ -16 x $2\frac{3}{4}$ Hex Head Cap Screw in the rear of the pump mounting bracket (previously installed). Now tighten the two $\frac{3}{8}$ -16 x $\frac{3}{4}$ Hex Head Cap Screws to lock unit fast.

13. Remove the allen screw from the side of pump and fill pump with the (3) cans of hydraulic fluid as shown in Figure 5. After filling replace and tighten screw.

14. Insert belt guard in place using the short spacer in front and the long one in the rear and the two 5/16-18 x 2½ Hex Head Cap Screws and Lock Washers. See Figure 7.

15. On all tractors prior to Serial No. 62-2856, it will be necessary to bend the gear shift lever so that handle will clear the Hydraulic Unit and the seat. However; the proper gear shift lever may be ordered from Wheel Horse if so desired. Part No. 4440. See Figure 8.



Figure 7

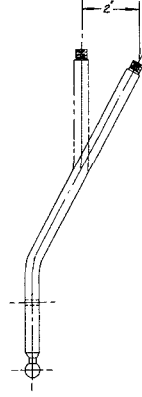


Figure 8

OPERATING INSTRUCTIONS

A. After unit is completely installed and filled with fluid, start tractor and adjust to fast idle.

B. To raise tractor attachments, pull handle toward you, upon release of handle it will return to the center or neutral position. A slightly sluggish action of the control lever returning to neutral may exist during the break-in period. A few hours of running time will eliminate this.

C. Make sure at this time that all fittings are tight and no oil is escaping.

D. All attachments that normally work off of the tractor lift lever will operate in the same way with the hydraulic unit.

E. **IMPORTANT:** Never run unit without fluid or warranty will be voided.

F. If unit is torn apart for service make sure all parts are completely clean before putting unit together again. After service it is advisable to install new fluid.

G. When raising or lowering attachments, after unit is either up or down, make sure handle is in neutral. Never hold open as this will cause considerable harm to unit over a long period of time.

The hydraulic unit carries a separate warranty by the Hein Werner Corporation and all warranty claims should be handled through their service station. A list is available through your distributor.

HY-2 HYDRAULIC UNIT PART'S LIST

Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
	4805	Hydraulic Power Unit, Assembly Complete	1	33	1001	Knob	1
1	4806	Hose ¼" x 27" long	1	34	1018	¾ SAE Washer	3
2	4807	Hose ¼" x 23" long	1	35	1042	Socket Head Set Screw 5/16-18 x 5/16	1
3	4808	¼" NPT Pipe Couplings	2	36	1066	Socket Head Set Screw ¼-20 x ¼	1
4	4809	Cylinder Assembly Complete	1	37	1093	Hex Head Cap Screw ¾-16 x 2¾	1
4	4811	"V" Pulley 2¼" OD dia.	1	38	1238	Hex Head Cap Screw 5/16-18 x 5/8	2
5	4812	"V" Pulley 5" OD dia.	1	39	1350	Roll Pin ⅝ x 1¼ long	1
	4813	Caution-Decal	1	40	1386	Hair Pin Cotter Key	1
6	4814	Belt Guard	1	41	1406	Lock Nut ¼-20	2
7	4816	Pump Mounting Bracket	1	42	1408	Lock Nut ¾-16	3
8	4817	Instrument Mounting Bracket	1	43	1417	Lock Washer 5/16	2
9	4818	Lift Link W/A	1	44	1418	Lock Washer ¾	2
10	4827	Pump Support Bracket	1	45	1423	Hex Head Cap Screw ¾-16 x ¾	3
11	4828	Pipe Spacer ¼ x 2½ lg	1	46	1428	Hex Head Cap Screw ¼-20 x 5/8	2
12	4829	Pipe Spacer ¼ x 2¼ lg	1	47	1446	Hex Head Cap Screw 5/16-18 x 2½	2
13	4830	PU-100 Pump Body	1	48	1447	B-44 Seal	1
14	4831	125-1 Pump Ball	1	49	1448	Allen Head Pipe Plug ⅝ NPT	2
15	4832	5111 Pump Spring	1	50	1449	Snap Ring (Spirolox) US175	1
16	4833	388 Plug	1	51	1450	"O" Ring ARP-568-218	3
17	4834	Street Elbows ¼ NPTF 90°	5	52	1451	Fillister Head Machine Screw 10-32 x ¾	6
18	4835	PU-107 Handle	1	53	1452	Roll Pin 5/32 x 5/8	1
19	4836	PU-101 Spool	1	54	1453	Washer	1
20	4837	PU-110 Spring	1	55	1454	Hex Head Lock Nut ¾-16	1
21	4838	PU-102 Cover	1	56	1455	"O" Ring ARP-568	1
22	4839	PU-104 Gear	1	57	1456	"O" Ring ARP-568-112	1
23	4840	PU-106 Shaft	1	58	1457	Back Up Washer	2
24	4841	15A59 Drive Shaft Assembly	1	59	1584	"V" Belt 3L-510	1
25	4842	PU-108 Gasket	1	60	1433	Square Key ¼ x ¼ x 1	1
26	4843	PU-103 Reservoir	1	61	1353	Shakeproof Washer 10-32	6
27	4844	PU-109 Stud ¾" dia.	1	62	4850	Cylinder Support	1
28	4845	C-17006 Head	1	63	4852	Cylinder Pin	1
29	4846	C-18011 Cylinder Tube	1	64	1290	Hair Pin Cotter	2
30	4847	C-26001 Cylinder Clevis	1	65	2378	"U" Bolt	1
31	4848	C-22007 Guide	1				
32	4849	12A76 Rod & Piston Assembly (Cylinder)	1				

Figure 9

Order all parts in Figure 9 from Hein Werner service stations.

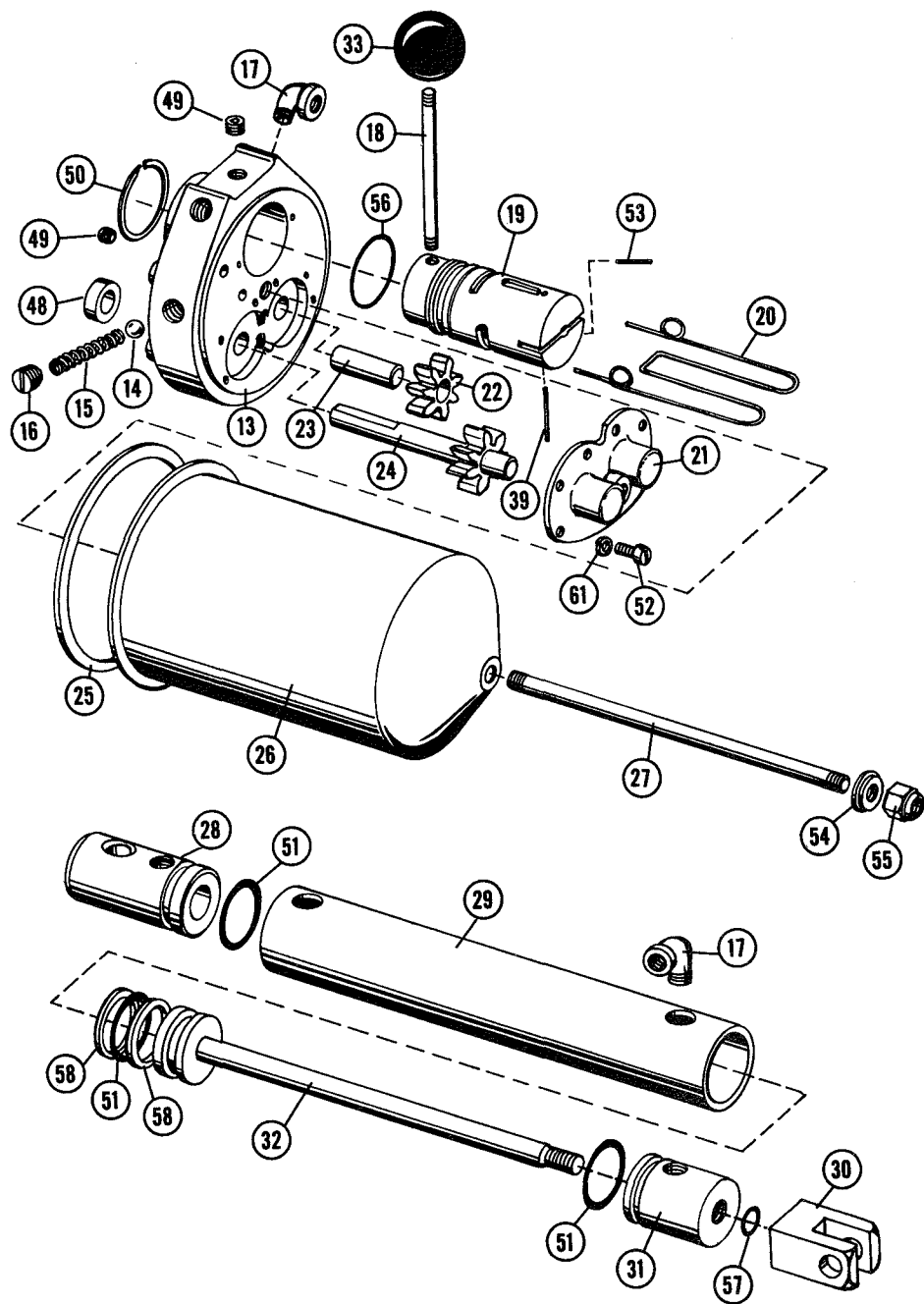
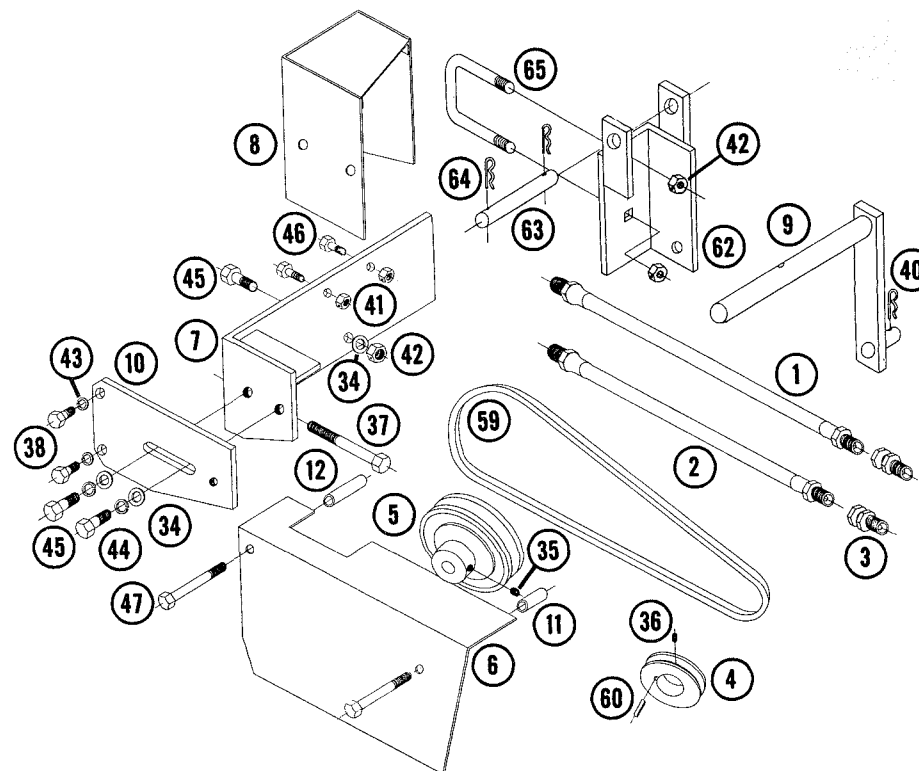


Figure 10

Order all parts in Figure 10 from Wheel Horse.



TROUBLE SHOOTING CHART

Trouble	Probable Cause	Remedy
Slow action with tractor engine at operating speed	Belt slipping	Tighten Belt
	Improper type of oil	Replace Oil
	Low Oil Supply	Fill oil to proper level
	Air lock	Loosen allen screw on top and operate to release air
	Slow engine RPM	Speed engine
Attachment not holding in raised position	Oil leak in system	Check all connections
	Improper type of oil	Use Wheel Horse (4822)
	Oil leak at seals	Replace
Excessive noise or chattering	Insufficient oil	Fill with proper oil
	Unit run at too high a RPM	Reduce shaft speed to recommended speed as originally equipped
	Improper oil	Drain and refill system with correct oil (4822)
Excessive Heating	Restriction in the system such as kinked or pinched lines	Replace defective hoses. Straighten kinked hoses and check fittings for obstruction
	Insufficient oil	Fill with 4822 to proper level
Unit does not operate	Low Oil	Check and fill
	"O" Rings worn in pump and cylinder	Replace with new "O" Rings
	Pulley loose on pump	Tighten

PARTS LIST AND INSTRUCTIONS



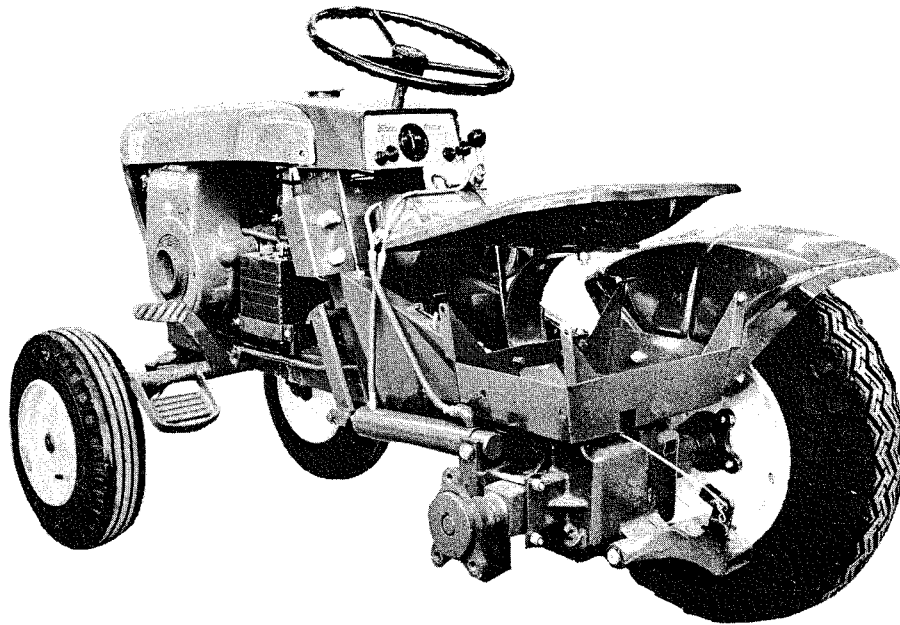
Wheel Horse

WHEELHORSE PRODUCTS, INC. • SOUTH BEND, IND.

HYDRAULIC UNIT

HY-2

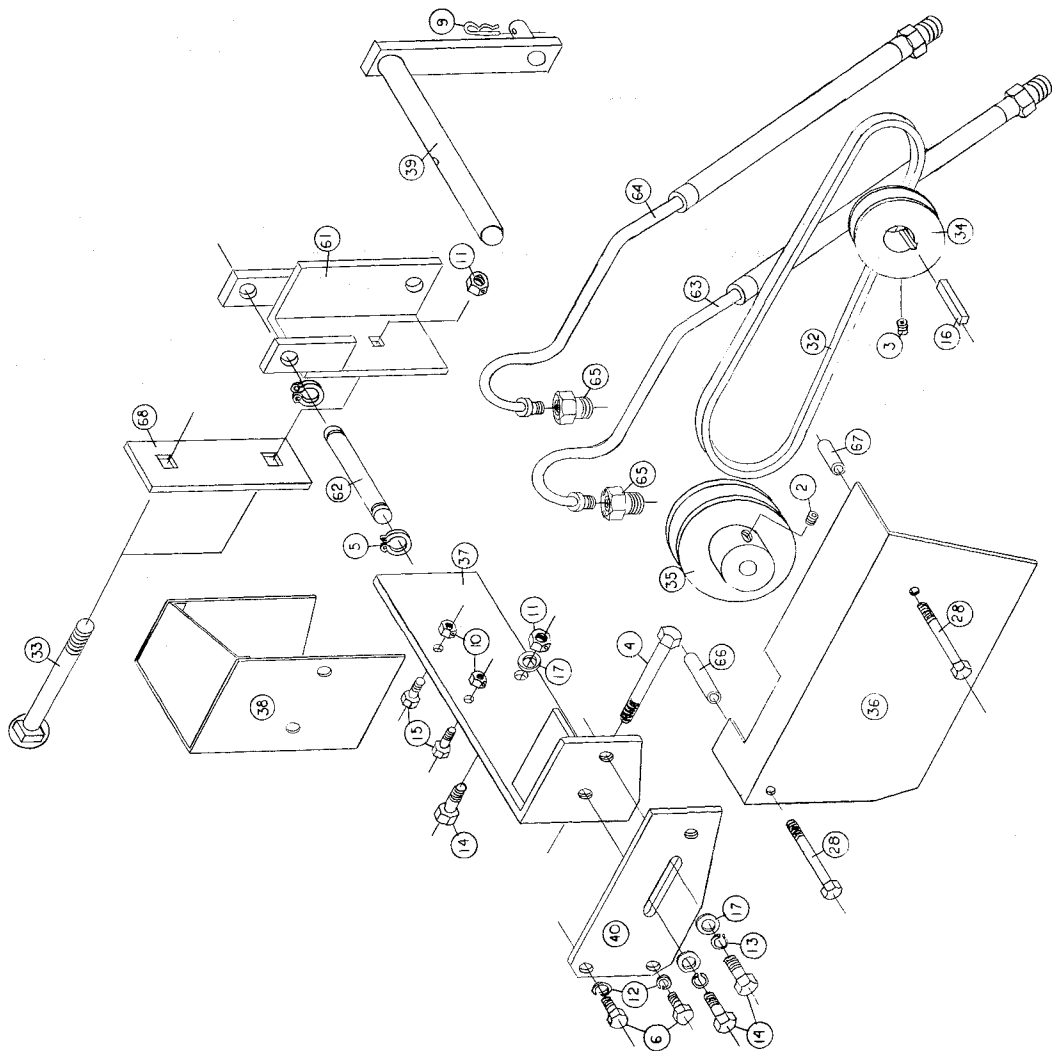
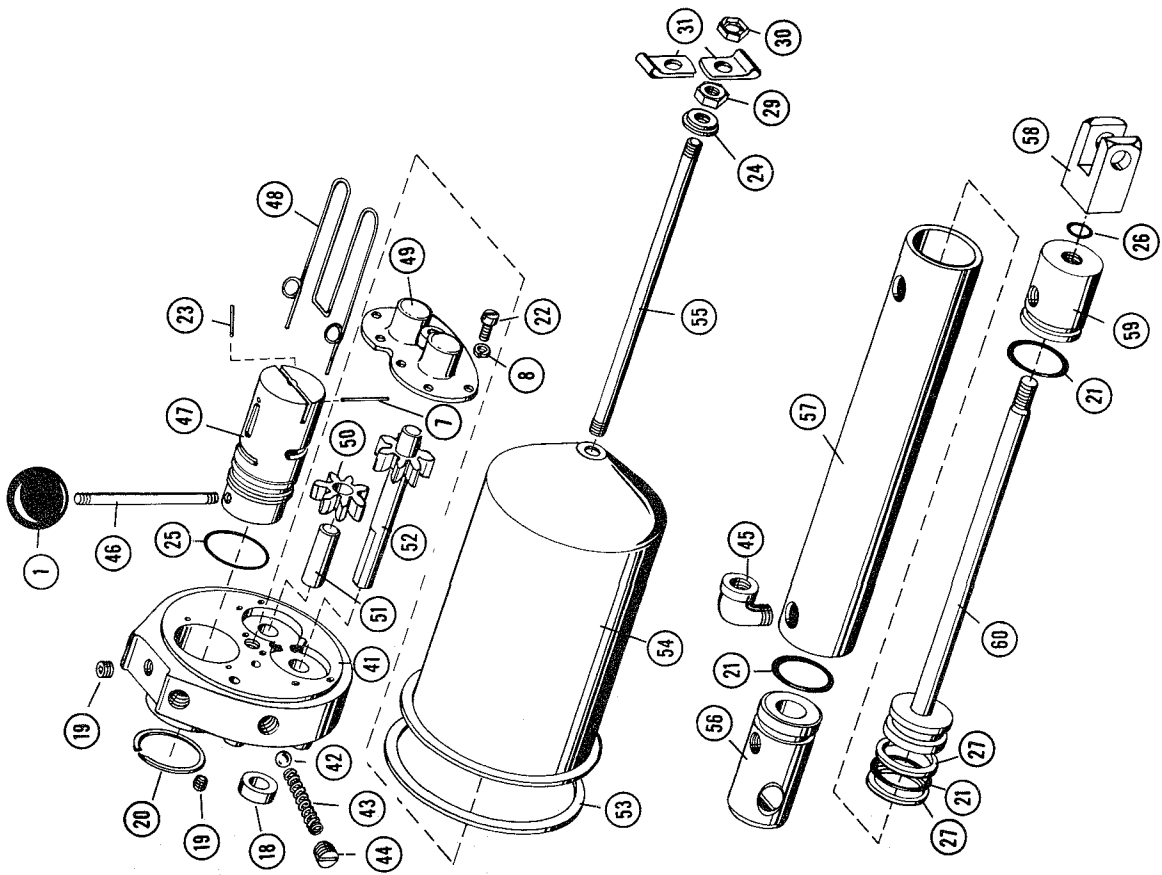
(SUPPLEMENT)



ORDER ALL PARTS FROM YOUR DISTRIBUTOR OR HEIN-WERNER SERVICE STATION

REVISED PARTS LIST

Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	1001	Knob	1	37	4816	Pump Mounting Bracket	1
2	1042	Set Screw 5/16 - 18 x 5/16	1	38	4817	Instrument Panel Mounting Bracket	1
3	1066	Set Screw 1/4 - 20 x 1/4	1	39	4818	Lift Link	1
4	1093	Hex Hd. Cap Screw 3/8 - 16 x 2 3/4	1	40	4827	Pump Support	1
5	1127	Snap Ring 3/4 I.D.	2	41	4830	Body	1
6	1238	Hex Hd. Cap Screw 5/16 - 18 x 5/8	2	42	4831	Ball	1
7	1350	Roll Pin 1/8 x 1 1/4	1	43	4832	Spring	1
8	1353	Lock Washer # 10 - 32	1	44	4833	Plug	1
9	1386	Hair Pin Cotter	2	45	4834	Street Elbow 1/4 x 90°	1
10	1406	Nylock Nut 1/4 - 20	2	46	4835	Handle	1
11	1408	Nylock Nut 3/8 - 16	3	47	4836	Spool Valve	1
12	1417	Lock Washer 5/16	4	48	4837	Spring	1
13	1418	Lock Washer 3/8	2	49	4838	Cover	1
14	1423	Hex Hd. Cap Screw 3/8 - 16 x 3/4	3	50	4839	Gear	1
15	1428	Hex Hd. Cap Screw 1/4 - 20 x 5/8	2	51	4840	Shaft	1
16	1433	Key 1/4 x 1 1/4 x 1	1	52	4841	Drive Shaft Assembly	1
17	1434	Flat Washer 3/8 S.A.E.	3	53	4842	Gasket	1
18	1447	Seal	1	54	4843	Reservoir	1
19	1448	Allen Hd. Pipe Plug 1/8	2	55	4844	Stud	1
20	1449	Snap Ring	2	56	4845	Head	1
21	1450	O Ring	2	57	4846	Tube	1
22	1451	Machine Screw # 10 - 32 x 3/8	6	58	4847	Clevis	1
23	1452	Roll Pin 5/32 x 7/8	1	59	4848	Guide	1
24	1453	Washer	1	60	4849	Piston Rod Assembly	1
25	1455	O Ring	1	61	4850	Cylinder Support	1
26	1456	O Ring	1	62	4852	Pin	1
27	1457	Back Up Washer	2	63	4853	Hose	1
28	1463	Hex Hd. Cap Screw 5/16 - 18 x 2 3/4	2	64	4854	Hose	1
29	1470	Hex Jam Nut 3/8 - 16	1	65	4855	Tube Coupling	2
30	1471	Hex Pal Nut 3/8 - 16	1	66	4828	Pipe Spacer 1/4 Std. Blk Pipe 2 1/8	1
31	1472	Tube Clamp 1/4 I.D.	2	67	4829	Pipe Spacer 1/4 Std. Blk Pipe 2 1/4	1
32	1504	"V" Belt 5L-510	1	68	2277	Mounting Bar - Rear	1
33	2279	Carriage Bolt 3/8 - 16 x 3	1		4822	Oil In Cans	
34	4811	Pulley 2 1/4 Dia.	1		4813	Decal	
35	4812	Pulley 5 Dia.	1		4805	Hydraulic Unit Assembly	
36	4814	Belt Guard	1		4809	Cylinder Assembly	



Wheel Horse Service Bulletins 1961 - 1990: **#26** Issued: November 29, 1961

Engineering Changes

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TO OUR DISTRIBUTORS & DEALERS

1. A POSITIVE TURNING STOP #4447 HAS BEEN ADDED TO THE RIGHT HAND STEERING ARM #3919 ON ALL TRACTORS.

2. BEGINNING WITH SERIAL NO. 2856, A NEW GEAR SHIFT LEVER #4440 IS BEING INSTALLED ON ALL MODEL 552 AND 702 TRACTORS. THIS WILL ELIMINATE THE NECESSITY OF BENDING THE PREVIOUS SHIFT LEVER, #4215 IN THE EVENT THAT A HYDRAULIC UNIT KIT, HY-2 IS INSTALLED.

3. A PLASTIC STRIP, #4443, HAS BEEN ADDED TO THE LEFT EDGE OF THE HOOD ON THE MODEL 502 BEGINNING WITH SERIAL NUMBER 2741.

4. BEGINNING WITH SERIAL NO. 2623, A CAST IRON PLUNGER ASSEMBLY, #4438 REPLACED THE #4243 LOWER PLUNGER ASSEMBLY. PLUNGER, 4439 REPLACED THE #3987 PLUNGER ROD. THE TWO NEW PARTS, #4439 AND #4438 ARE NOT INTERCHANGEABLE WITH THE PREVIOUS PARTS, #4232 AND #3987 INDIVIDUALLY. THEY MUST BE REPLACED IN SETS. 1-#1242 ROLL PIN IS REQUIRED TO INSTALL THE NEW PLUNGER SYSTEM.

CORRECTIONS AND ADDITIONS

THE INSIDE SPRING RETAINERS AND THE SPRING HOOK ASSEMBLIES ON THE BD-4262 DOZER BLADE MUST BE ORDERED IN RIGHTS OR LEFTS, THERE FORE, PLEASE NOTE THE FOLLOWING ON YOUR PARTS LISTS.

#2133-INSIDE SPRING RETAINER R.H.
 #2140-INSIDE SPRING RETAINER L.H.
 #2144-SPRING HOOK ASSEMBLY L.H.
 #2145-SPRING HOOK ASSEMBLY R.H.

PRICE ADDITIOINS

#4447-STEERING STOP	N/C
#4440-SHIFT LEVER	\$2.10
#4443-PLASTIC STRIP	N/C
#4438-LOWER PLUNGER ASSY.	.65
#4439-PLUNGER ROD	.65

WHEEL HORSE PRODUCTS, INC.

PARTS & SERVICE DEPARTMENT

JDW:csu

NOTE: OUR DEALERS SHOULD HAVE THE FOLLOWING Bulletins No's. 11, 12, 13, 19, 21, 23, AND 26.



Service Bulletin

42

FEBRUARY 6, 1963

TO ALL DISTRIBUTORS AND DEALERS
SUBJECT: HYDRAULIC PARTS & WARRANTY

EFFECTIVE THIS DATE, ALL HYDRAULIC PARTS AND WARRANTY SERVICE WILL BE HANDLED THROUGH WHEEL HORSE PRODUCTS.

HERE IS HOW!!!!!!!

1. ORDER YOUR HYDRAULIC PARTS FROM YOUR WHEEL HORSE DISTRIBUTOR. YOUR USUAL WHEEL HORSE PARTS DISCOUNT WILL APPLY.
2. MAKE YOUR OWN REPAIRS ON PUMPS AND CYLINDERS. WARRANTY REPAIRS ARE HANDLED ACCORDING TO WHEEL HORSE WARRANTY POLICY AND PROCEDURE (FORM S2-S3). WARRANTY PARTS MUST BE RETURNED TO YOUR WHEEL HORSE DISTRIBUTOR FOR CREDIT. NOTE: ALL WARRANTY FORMS MUST LIST PUMP SERIAL NUMBER.

HYDRAULIC FLAT RATE SCHEDULE

A. REMOVAL & RE-INSTALLATION OF #4805 PUMP	\$1.50
B. REPLACEMENT OF BODY & SPOOL ASSEMBLY (INCLUDES REMOVAL AND RE-INSTALLATION)	\$3.75
C. ALL OTHER PUMP REPAIRS	\$1.50
D. ALL CYLINDER REPAIRS	\$1.50

SERVICE HINTS

1. CYLINDER

ALL "O" RINGS AND BACK-UP WASHERS SHOULD BE REPLACED IF IT BECOMES NECESSARY TO REPLACE ONE OF EITHER. THEY SHOULD NOT BE REPLACED INDIVIDUALLY.

2. PUMP

THE #1453 WASHER AND #4842 GASKET SHOULD BE REPLACED WHENEVER IT IS NECESSARY TO REMOVE THE #4843 RESERVOIR. THE NEW #4844 STUD SHOULD BE ONLY FINGER TIGHT IN THE #4830 BODY. (DO NOT USE PLIERS)

THE PUMP COVER #4838 IS A TAP-FIT. START ALL SCREWS AND TIGHTEN TOGETHER MAKING SURE THAT THE #4841 DRIVE SHAFT TURNS FREELY.

D. J. PALBYKIN
CUSTOMER RELATIONS MANAGER

Wheel Horse Service Bulletins 1961 - 1990: **#53** Issued: January 23, 1964

Hydraulic Units - Improved Idler Gear

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TO OUR DEALERS & DISTRIBUTORS

THROUGH AN AGREEMENT WITH THE HEIN-WERNER CORPORATION, WE NOW HAVE A KIT AVAILABLE, PART NO. 6050, WHICH WILL REPLACE THE PRESENTLY USED PART NO. 4839 GEAR IN THE PART NO. 4805 AND 2719 HYDRAULIC PUMPS. THIS KIT PERMITS THE IMPROVED PART NO. 5264 IDLER GEAR WITH BEARINGS TO BE INSTALLED ON THOSE UNITS PREVIOUSLY PRODUCED.

THE PART NO. 4839 GEAR IS NO LONGER AVAILABLE. KIT NO. 6050 WILL BE SHIPPED AS A REPLACEMENT FROM OUR PARTS DEPARTMENT.

JACK D. WALTON

SERVICE MANAGER

JDW: jr