

Wheel Horse[®]

LAWN AND GARDEN TRACTORS

model

603

Tractor



**OPERATION AND
SERVICE MANUAL
WITH PARTS LIST**

WHEEL-HORSE PRODUCTS, INC.

SOUTH BEND, IND.

THINGS YOU SHOULD KNOW

The transmission is powered on needle bearings and roller bearings. The reduction is 108 to 1, and both final drives are steel forgings. All shafts are turned, ground, hardened, and polished for greater strength and best oil sealing.

Speeds are from 1 mph to 6 mph with 3 speeds forward and 1 reverse.

WARRANTY

We warrant WHEEL HORSE PRODUCTS for ONE YEAR from date of purchase against defective parts and workmanship. We will replace, free of charge, any defective part if returned to the factory PREPAID*. Wheel Horse Products, Inc., reserves the right to make changes or improvements upon its products without imposing any obligations upon itself to install the same upon its products that have been previously manufactured.

The engine and battery carry a separate warranty by the manufacturer. FOR ENGINE OR BATTERY SERVICE, CONTACT YOUR LOCAL ENGINE OR BATTERY SERVICE HEADQUARTERS.

*All warranty claims, work, shipments, must be handled through your authorized Wheel Horse dealer.

NOTE: 90 Day Warranty for Commercial Use.

BEFORE YOU START

There is **NO OIL** in the crankcase of the engine when shipped from the factory. Read Engine Manual and follow all instructions pertaining to type of lubrication specified. The engine is the heart of your tractor and it is very important that you keep it in good condition.

Lubricate all grease fittings with a regular pressure gun lubricant every eight to ten hours of operation. Refer to Figure 1 for the location of grease fittings.

A light machine oil should be used on all moving parts to keep joints from wearing and squeaking.

Remove oil filler plug, located at the left rear side of the transmission, and fill to level of hole with a good grade of S.A.E. 90 Gear Lube (will require about 3 pints).

The transmission should be checked after every 40 hours of use. The transmission should be drained once a year, by removing plug on bottom to drain oil. Refill as above paragraph. This is a regular automotive type transmission with sliding gears and should have the same care as your car.

TIRES

The front tires are 4:00 x 8 and should be inflated to 20 pounds of air pressure. The rear tires are 6:00 x 12 and should have 6 to 8 pounds of air pressure. The tires can also be filled with ballast if desired. Ordinarily this is not necessary as the weight of the operator will add sufficient weight for adequate traction.

STARTING ENGINE

1. Before starting the engine fill gas tank with a good grade of regular gas and open valve on sediment bowl.
2. Place gear shift lever in neutral position.
3. Pull throttle lever $\frac{1}{2}$ way out and turn to the right to lock it in position. **Note:** The Throttle control has a locking device. Turn the throttle control to the left to unlock, adjust to the desired position and turn to the right to lock.
4. Pull choke lever all the way out to choke engine. If engine is warm and has been running, choking will not be necessary.
5. Model 603 tractor has a recoil starter with an OFF and ON switch. To start push switch to ON position and pull recoil starter.
6. When engine starts push choke in to off position and regulate throttle control by turning to the left to unlock and push in or out to desired speed.
7. Depress clutch pedal on left side of tractor before selecting desired gear range.
8. When starting tractor in winter it is desirable to depress clutch so engine does not have to turn over transmission.

CLUTCHING

There is no need to force the gear shift lever if the gears do not immediately mesh. Depress clutch pedal all the way down and let up, then depress again and shift. To avoid sudden starts, release clutch pedal slowly. While in motion do not shift gears without depressing clutch pedal.

The clutch pedal also operates the brakes WHEN DEPRESSED ALL THE WAY DOWN. For this reason, you should depress the clutch pedal ONLY $\frac{1}{2}$ OF THE WAY DOWN WHEN SHIFTING while in motion. This clutch-brake pedal combination makes clutching automatic as you apply the brakes to stop.

PARKING BRAKE

The parking brake is located on the left side of the tractor as shown in Figure 1. To set the parking brake depress the clutch-brake pedal as far as possible and push the parking brake forward. To release the brake depress the clutch-brake pedal and pull the parking brake back.

ATTACHING TOOLS

Complete information on the assembly, attaching, operation and service of the many attaching tools will be provided with each attachment.

All drawn implements attach in seconds. Simply lift the tractor hitch pin, insert the tongue, and replace pin.

All power implements will use the attachment clutch pedal located on the right side of the tractor.

CARE OF TRACTOR

1. Keep tractor greased and oiled regularly. Refer to Figure 1 for the location of grease fittings. Check transmission and engine case oil levels.
2. Keep engine air cleaner clean. This will add to engine life.

3. Keep tires properly inflated. See previous instructions.

4. Keep tractor covered and in a dry place when not in use.

5. Keep grass and dirt out of engine cowling as these will stop the flow of air and decrease engine life.

6. **BRAKE ADJUSTMENT.** The brake band, located on the left side of the transmission, brakes the transmission and in turn stops the wheels.

To adjust first set the parking brake then adjust the nut on the brake rod until it locks the rear wheels. Disengage parking brake, remove cotter pin from clutch rod or clutch brake pedal and by turning in or out adjust clutch brake pedal to operators desired position.

7. When replacing belts or mounting drive implements make sure all pulleys are in line.

8. Your tractor is only as good as the service you give it. See your Wheel Horse Dealer for a through check-up after each season of use.

9. When replacing belts be sure to purchase them from your Wheel Horse Dealer, as these belts are specifically designed for each application.

(NOTE: Make sure all pulleys are in line.)

FOR YOUR SAFETY

- A. Keep all guards on at all times.
- B. Never abuse your tractor by improper handling.
- C. Keep hands and feet from moving parts.
- D. Remove key when not in use.
- E. Be careful on high uneven ground.

WHEEL HORSE MODEL 603 TRACTOR SPECIFICATIONS

(Specifications subject to change without notice.)

Length overall .....	.61 inches
Wheelbase .....	.41 $\frac{1}{4}$ inches
Width overall .....	.30 inches
Width at front wheels .....	.28 $\frac{1}{2}$ inches
Height .....	.36 $\frac{1}{2}$ inches
Height to top of hood .....	.32 inches
Net weight .....	.349 lbs.
Crop clearance .....	.7 $\frac{1}{2}$ inches
Frame clearance .....	.13 $\frac{1}{2}$ inches
Engine (4-cycle, single cylinder, air cooled) .....	.6 hp.
Fuel capacity .....	.4 quarts
Tires (front) ... 4.00 x 8" pneumatic (16" wheel dia.)	
Tires (rear) Cleat-type or All Purpose tread	
6.00 x 12" pneumatic (22" wheel dia.)	

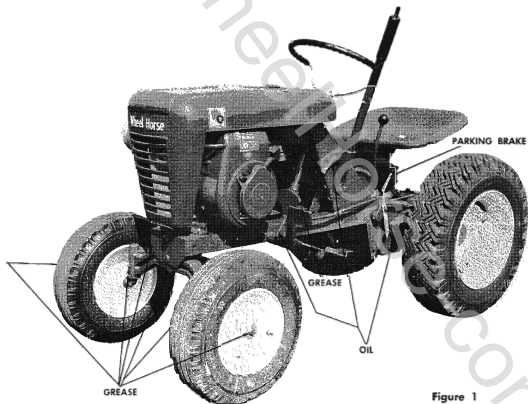
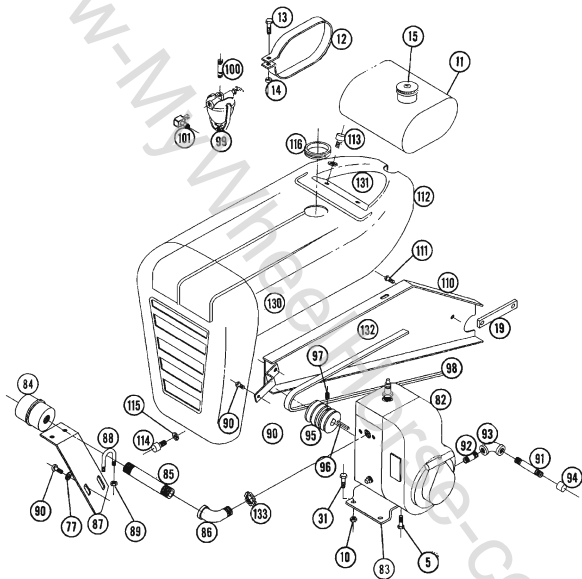
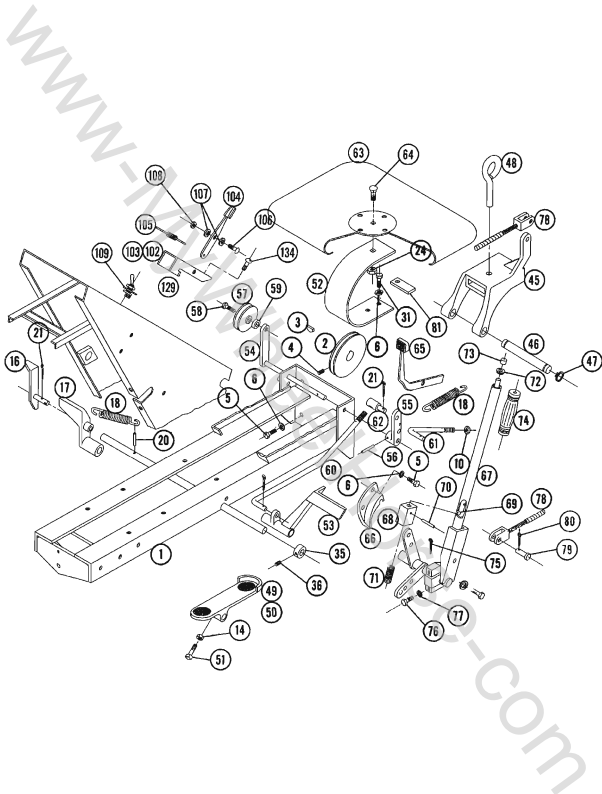


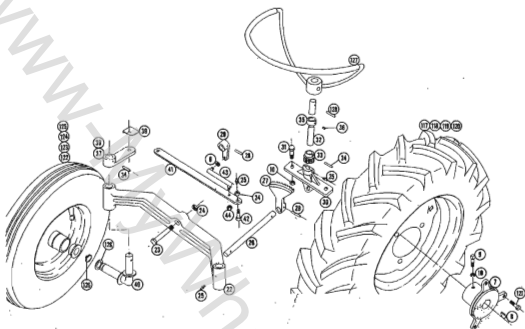
Figure 1

Main Frame Assembly





Steering and Wheel Assembly



PART LIST FOR MODEL 603 TRACTOR

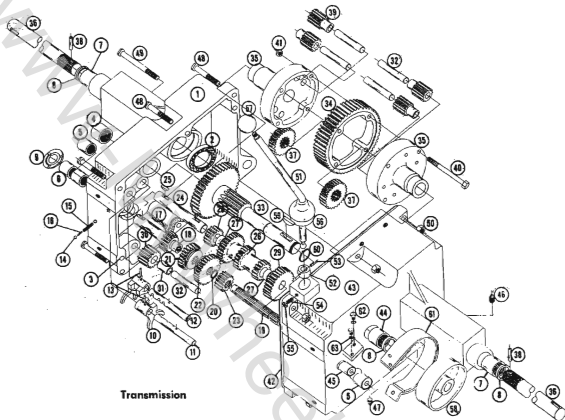
(Except Transmission — see last page for Transmission break down and Parts List.)

When ordering parts always list Part No. and name of part.

Part No.	Ref. No.	Description	No. Req'd.	Part No.	Ref. No.	Description	No. Req'd.
1	2878	Ass'y. Frame	1	23	908064-4	Bolt $\frac{1}{2}$ - 13 x 2 $\frac{1}{2}$	1
2	1611	Pulley - Trans.	1	24	915115-6	Nut - Nylock $\frac{1}{2}$ - 13	4
3	937014	Key - #9 Woodruff	3	25	1030	Fitting - Grease	8
4	909862-4	Set Screw $\frac{1}{8}$ - 18 x $\frac{3}{16}$ Hex Soc.	1	26	3944	Shaft - Steering - Lower	1
5	908032-4	Bolt - Hex $\frac{3}{8}$ - 16 x $\frac{3}{4}$	10	27	4413	Sector - Steering	1
6	920083-4	Lock Washer $\frac{3}{4}$ Dia.	9	28	933217	Roll Pin $\frac{1}{4}$ x 1 $\frac{1}{2}$	2
7	3574	Hub - Wheel	2	29	3918	Pivot - Steering	1
8	937022	Key - #15 Woodruff	2	30	4412	Support - Steering	1
9	909554	Set - Screw Sq Hd. $\frac{3}{4}$ - 16 x 1	2	31	908035-4	Bolt - Hex. - $\frac{3}{4}$ - 16 x 1 $\frac{1}{4}$	8
10	915113-6	Nut - Nylock $\frac{3}{8}$ - 16	9	32	2671	Shaft - Steering - Upper	1
11	2676	Ass'y. Tank - Fuel	1	33	3917	Gear - Steering Pinion	1
12	2890	Strap	1	34	933215	Roll Pin $\frac{1}{4}$ x 1 $\frac{1}{4}$	3
13	908019-4	Bolt - Hex $\frac{1}{2}$ - 18 x 1	1	35	1085	Collar	2
14	915112-6	Nut - Nylock $\frac{3}{8}$ - 18	3	36	909848-4	Set Screw $\frac{1}{8}$ - 20 x $\frac{1}{4}$ Hex Soc.	2
15	1789	Cap - Fuel Tank	1	37	3919-8	Arm - Steering RH	1
16	4246	Ass'y. Trip Lever W/A	1	38	3919-4	Arm - Steering LH	1
17	4339	Pedal - Attachment Clutch	1	39	4447	Stop	1
18	1014	Spring	2	40	4408	Ass'y. Spindle	2
19	3933	Link	1	41	3605	Tie Rod	1
20	933188	Roll Pin $\frac{3}{8}$ x 1	1	42	3949	Pin - Clevis	2
21	932017-4	Cotter Pin $\frac{1}{4}$ x 1	6	43	3940	Link - Drag	1
22	4220	Axle	1	44	915002-6	Nut - Nylock $\frac{3}{4}$ - 24	1

PARTS LIST FOR MODEL 603 TRACTOR (continued)

Part No.	Ref. No.	Description	No. Req'd.	Part No.	Ref. No.	Description	No. Req'd.
45	3926	Hitch	1	90	1432	Bolt - Rd. Hd. $\frac{3}{8}$ - 24 x $\frac{1}{2}$	3
46	3988	Pin	1	91	4213	Nipple $\frac{1}{4}$ Pipe x 3	1
47	5-50-73	Snap Ring $\frac{3}{4}$ Shaft	4	92	4218	Nipple $\frac{1}{4}$ Pipe x 1 $\frac{1}{2}$	1
48	1813	Tool Pin	1	93	4216	Elbow $\frac{1}{4}$ x 90°	1
49	4200	Foot Rest - RH	1	94	4217	Cap - $\frac{1}{4}$ Pipe	1
50	4201	Foot Rest - LH	1	95	1621	Pulley - Engine	1
51	909545-4	Set Screw - Sq. Hd. $\frac{3}{8}$ - 18 x 1 $\frac{1}{4}$	2	96	1349	Key $\frac{1}{4}$ x $\frac{3}{4}$ x 1 $\frac{1}{2}$	1
52	3537	Spring - Seat	1	97	909484	Set Screw $\frac{1}{4}$ - 20 x $\frac{1}{4}$ Cup Pt.	1
53	2267	Pedal - Clutch	1	98	1576	"V" Belt - Drive - 70"	1
54	3930	Ass'y. Idler Arm & Shaft	1	99	1786	Ass'y. Fuel Strainer	1
55	3979	Arm - Clutch Rod Pivot	1	100	1192	Nipple - Fuel Tank $\frac{1}{4}$ Close Pipe	1
56	933158	Roll Pin $\frac{1}{4}$ x 1 $\frac{1}{4}$	1	101	1217	Fitting - Elbow	1
57	1623	Pulley - Idler	1	102	2734	Ass'y. Control - Throttle & Choke	1
58	1363	Bolt $\frac{3}{8}$ - 16 x $\frac{3}{4}$ Special	1	103	3328	Bracket	1
59	1536	Bushing	1	104	3327	Ass'y. Lever & Knob	2
60	2593	Rod - Clutch	1	105	3331	Wipe Ass'y.	2
61	3935	Rod - Brake	1	106	3329	Screw	2
62	1861	Stud - Clutch Rod	1	107	3330	Washer - Friction	4
63	3988	Seat	1	108	915000-6	Nut - Nylon	2
64	908888-8	Bolt - Carriage $\frac{1}{2}$ - 13 x 1	1	109	3279	Ass'y. Switch - Ignition - Toggle	1
65	3088	Ass'y. Lever & Knob - Brake	1	110	4423	Ass'y. Belt Guard	1
66	4028	Quadrant	1	111	1385	Screw - Sems $\frac{1}{4}$ - 20 x $\frac{3}{8}$	2
67	2266	Ass'y. Lift Lever - Manual	1	112	2669	Ass'y. Hood - Complete	1
68	4438	Plunger	1	113	1345	Thumb Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$	2
69	4439	Rod	1	114	1346	Thumb Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$	1
70	933168	Roll Pin $\frac{3}{16}$ x $\frac{1}{2}$	1	115	920081-4	Lock Washer $\frac{1}{4}$ Dia.	3
71	3624	Spring	1	116	2767	Grainmet 2 $\frac{1}{2}$ I. D.	1
72	3578	Guide - Plunger	1	117	1667	Ass'y. Wheel - Rear	2
73	3680	Cap	1	118	1700	Wheel	2
74	1000	Handle Grip	1	119	1662	Tire - Lawn Thread	2
75	932036-8	Cotter Pin $\frac{3}{16}$ x $\frac{1}{2}$	1	120	1654	Tube	2
76	908025-8	Bolt $\frac{3}{8}$ - 18 x $\frac{1}{2}$	3	121	1004	Lug Bolt	6
77	920082-6	Lock Washer $\frac{3}{8}$ Dia.	5	122	1709	Ass'y. Wheel - Front	2
78	3931	Ass'y. Cable	1	123	1712	Wheel	2
79	992120-4	Pin - Clevis $\frac{1}{4}$ Dia.	2	124	1656	Tire	2
80	932001-4	Cotter Pin $\frac{1}{8}$ x $\frac{3}{4}$	2	125	1657	Tube	2
81	3583	Clamp - Cable	1	126	1278	Washer	1
82	2639	Ass'y. Engine & HP Louson (Re.)	1	127	2668	Wheel - Steering	2
83	4416	Base	1	128	933191	Roll Pin - $\frac{3}{16}$ x $\frac{1}{2}$	1
84	1739	Muffler	1	129	2875	Decal - Choke & Throttle	1
85	1754	Nipple $\frac{1}{4}$ Pipe x $\frac{3}{8}$	1	130	4410	Decal - Wheel Horse Emblem	2
86	1755	Elbow $\frac{1}{4}$ Pipe x 90° Street EL.	1	131	4418	Decal - SHR & Serial No.	1
87	2297	Brace - Exhaust	1	132	2636	Decal "603"	1
88	1240	"U" Bolt	1	133	1756	Nut - Lock $\frac{3}{4}$ Pipe	1
89	915111-6	Nut - Nylon $\frac{1}{4}$ - 20	2	134	909134-4	Bolt - Round R.D. H.D. 10 - 32 x $\frac{3}{4}$	2



Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	3900	Case - Transmission	1	33	3903	Gear - Brake Shaft	1
2	1533	Bearing - Ball	1	34	3906	Gear - Bull	1
3	3915	Pin - Locating	2	35	2905	Case - Differential	2
4	1532	Bearing - Needle	1	36	3904	Axle - Rear	2
5	1529	Bearing - Needle	2	37	3908	Gear - Axle	2
6	1508	Bearing - Needle	2	38	933217	Pin - Ball $\frac{1}{2}$ x $1\frac{1}{2}$	2
7	1528	Bearing - Needle	2	39	4235	Gear - Differential Pinion	4
8	1232	Seal - Oil	40	40	1329	Cop Screw - Hex $\frac{3}{16}$ - 18 x $3\frac{1}{2}$	4
9	1303	Seal - Oil	1	41	915133-6	Nut - Hex - Lock $\frac{1}{4}$ - 18	4
10	3503	Fork - Shift	2	42	3912	Gasket	1
11	3515	Roll - Front Shift	1	43	3901	Case Transmission	1
12	3516	Roll - Rear Shift	1	44	1530	Bearing - Needle	1
13	933156	Pin - Roll $\frac{3}{8}$ x 1	2	45	1531	Bearing - Needle	1
14	3517	Bolt - Stop	2	46	943460-4	$\frac{1}{4}$ Std. Pipe Plug	1
15	3518	Spring - Stop	1	47	943420-4	$\frac{3}{8}$ Std. Pipe Plug	1
16	3573	Shift Pin - Stop	1	48	908038-4	Bolt - Hex - $\frac{3}{8}$ - 16 x 2	5
17	3522	Gear - Input Drive	1	49	908043-4	Bolt - Hex - $\frac{3}{8}$ - 16 x $3\frac{1}{2}$	1
18	1518	Shaft - Spine	50	50	915133-6	Nut - Nylock $\frac{3}{8}$ - 16	6
19	3907	Shaft - Spine	1	51	4440	Stick - Shaft	1
20	5-50-75	Snap Ring Truarc $\frac{3}{4}$ Shaft	1	52	3514	Collar - Shift	1
21	3523	Gear (Hi & Inter.)	1	53	933168	Pin - Roll $\frac{3}{8}$ x $\frac{1}{4}$	1
22	3524	Gear (Low & Reverse)	1	54	909854-4	Screw - Soc. Hd. - Set $\frac{1}{16}$ - 20 x $\frac{3}{4}$	1
23	3526	Gear - Spine Shaft	1	55	915111-4	Nut - Hex Lock $\frac{1}{4}$ - 20	1
24	3910	Cluster - Shaft	1	56	3577	Boot - Shift Lever	1
25	932014	Key - #9 Woodruff	2	57	1001	Knob - Shift	1
26	3525	Gear - Cluster	1	58	3902	Drum - Brake	1
27	1504	Bushing - Bronze	2	59	937022	Key #15 Woodruff	1
28	3528	Pinion - Cluster Shaft Reduction	1	60	5-50-100	Snap Ring 1" Shaft	1
29	3527	Gear - Cluster Shaft Reduction	1	61	4437	Band - Brake	1
30	4204	Gear - Reverse Idler	1	62	908092-4	Bolt - Hex $\frac{3}{8}$ - 20 x $\frac{3}{4}$	2
31	1536	Bushing - Bronze	1	63	920081-4	Washer - Lock $\frac{1}{4}$	2
32	3989	Pin - Reverse Idler	5				