

Wheel Horse[®]

LAWN AND GARDEN TRACTORS

model

854



**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 obligation 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. 40 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.

BATTERY

The battery installed in the 854 tractor is a dry charged battery. It is important that you properly prepare this battery to insure good service and long life.

1. Remove vent caps. Remove or destroy any sealing device which may have been used to close or restrict the vent openings.

2. Fill each cell of the battery to the proper level with the battery electrolyte.

NOTE: Temperature of battery and electrolyte at time of filling should be above 60°F. Never fill battery in the vehicle.

3. **BOOST CHARGE:** 15 amps. for 10 minutes or 7 amps. for 30 minutes. Adjust electrolyte level, if necessary, after charge.

4. **Install battery with battery posts toward the rear of tractor.** Start engine. Check to see if generator is charging properly. After battery has been in service, add only approved water.

DO NOT ADD ACID.

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. The Model 854 tractor has a key starter-switch. Turn key all the way to right to start engine.

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 transmission.

CLUTCHING

Don't 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 $\frac{3}{4}$ 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, attachment, 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.

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

9. BATTERY. Check liquid after every 40 hours of use. If tractor has been in storage it may be necessary to recharge.

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

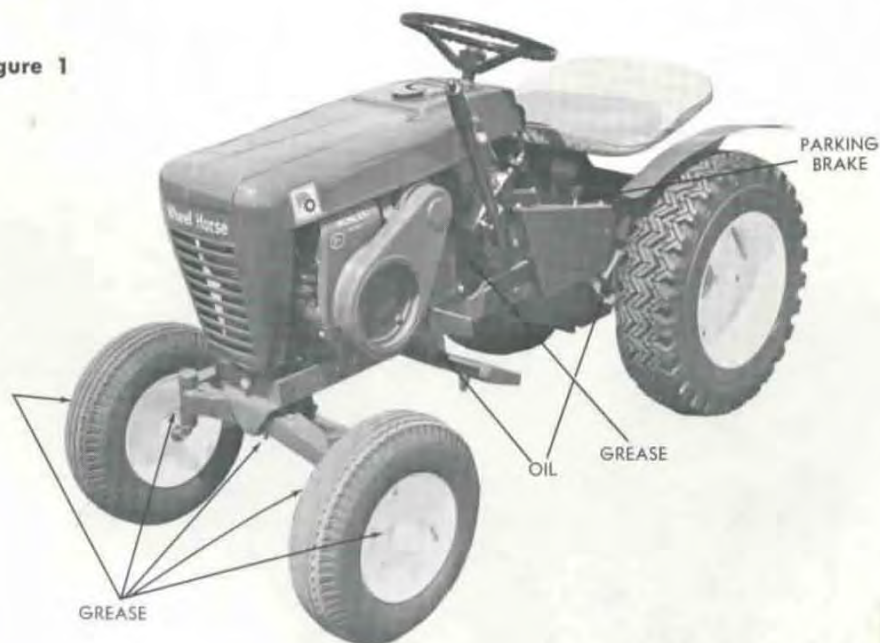
11. When replacing belts be sure to purchase genuine Wheel Horse belts, as these belts are specifically designed for each application.

(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. Keeps hands and feet from moving parts.
- D. Remove key when not in use.
- E. Be careful on high uneven ground.

Figure 1



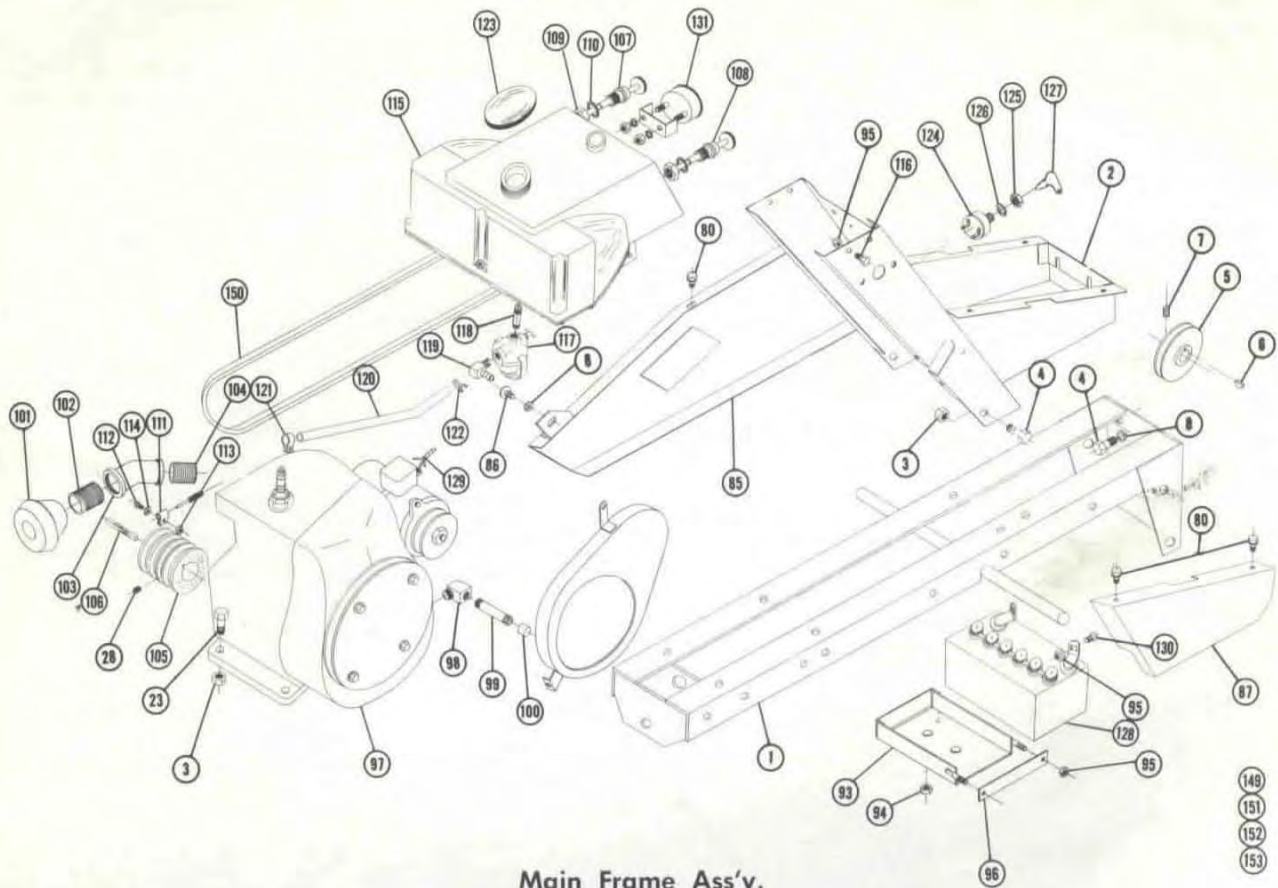
To adjust, depress clutch brake pedal and move parking brake lever forward into the engaged position. Tighten nut on brake rod until both rear wheels skid when tractor is pushed — parking brake engaged. Tighten nut another $\frac{1}{2}$ turn. The brake and parking brake are now properly adjusted.

7. CLUTCH-BRAKE PEDAL ADJUSTMENT. The clutch-brake pedal rod may be turned in or out to adjust the pedal to operator's desired position. Remove pin from rod and turn rod in or out for adjustment. There are also two holes in the pedal to adjust for travel. The upper hole is for a short movement of travel, the lower hole is for a long movement.

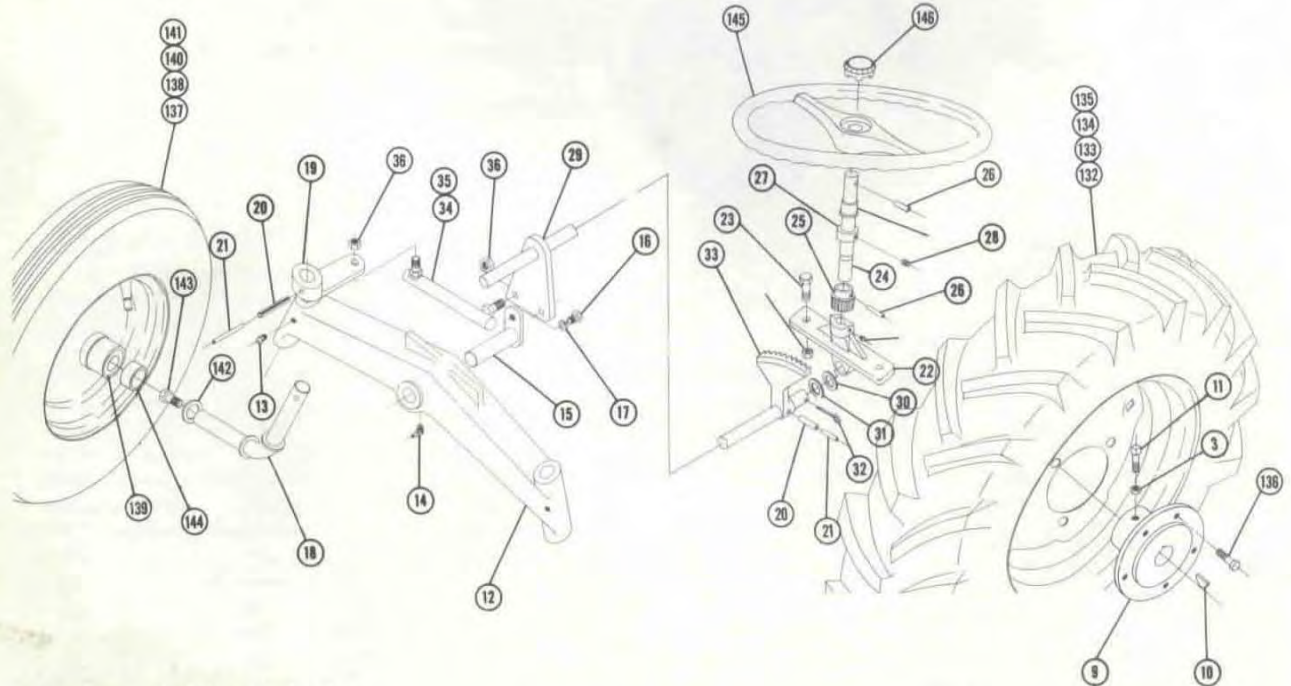
SPECIFICATIONS

(Specifications subject to change without notice.)

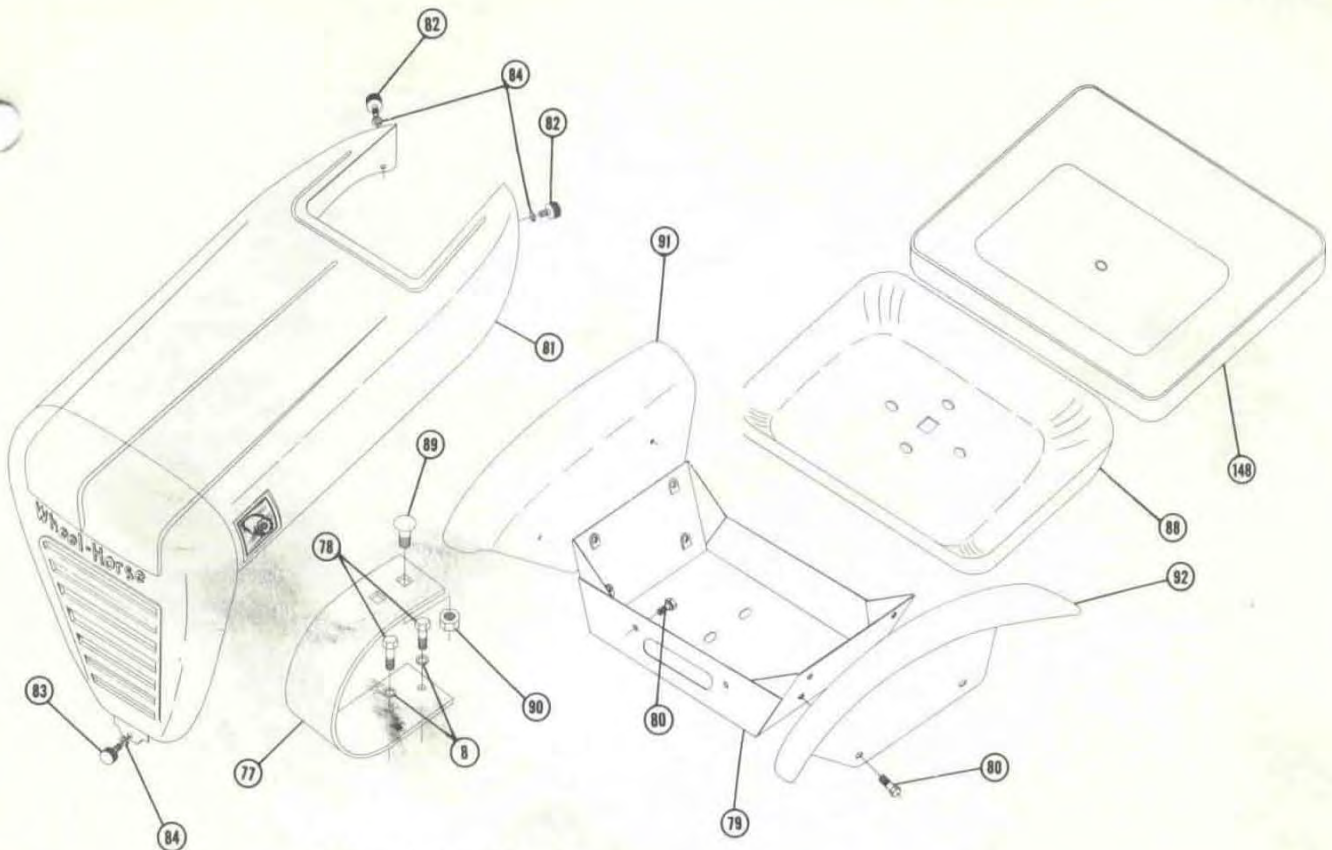
Length Overall	60 inches
Wheelbase	41 $\frac{1}{4}$ inches
Width Overall	30 inches
Width at Front Wheels	31 $\frac{1}{4}$ inches
Height	37 inches
Height to Top of Hood	32 inches
Approx. Shipping Weight	450 lbs.
Crop Clearance	7 $\frac{1}{4}$ inches
Frame Clearance	13 $\frac{1}{2}$ inches
Engine (4-cycle, single cylinder, air cooled) Electric Start	8 H.P.
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.)	
Speeds — 3 Forward to 6 mph. 1 Reverse to 2 $\frac{1}{2}$ mph.	
Turning radius (to outside of outside wheel)	6 $\frac{1}{4}$ '



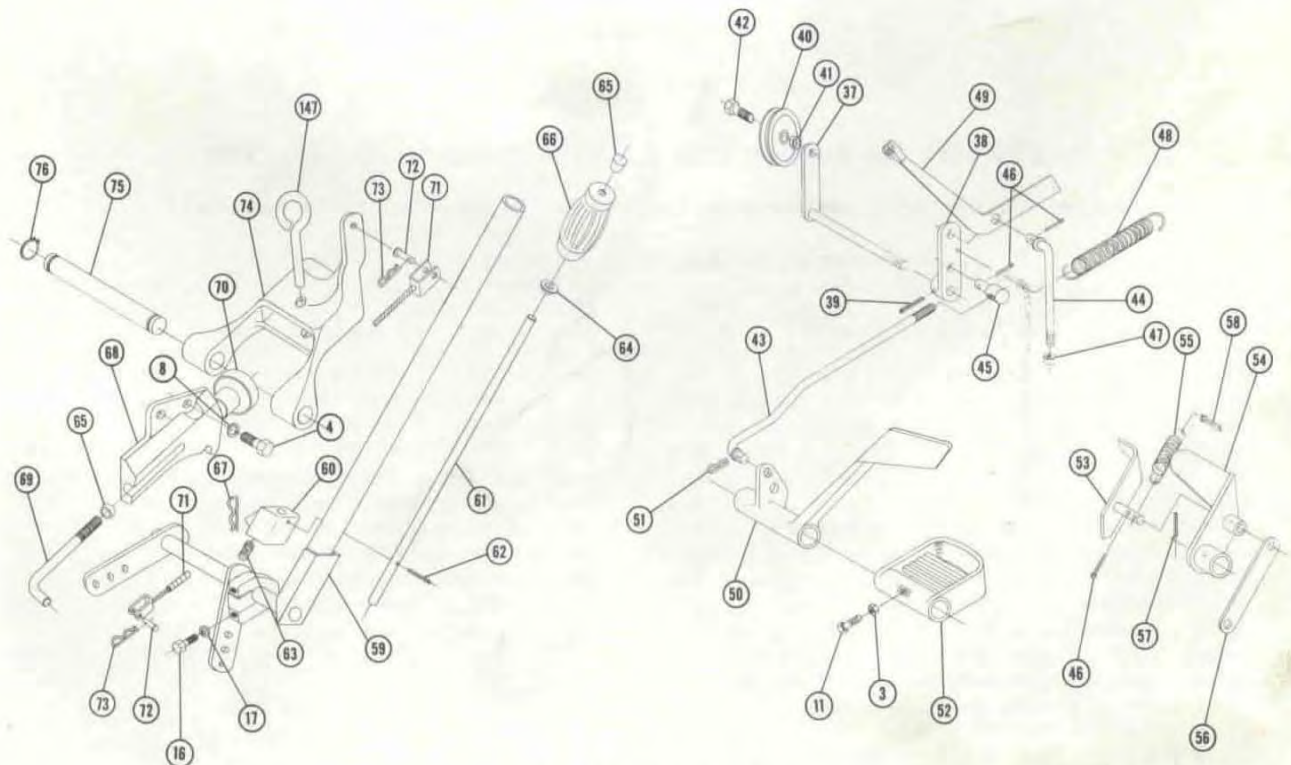
Main Frame Ass'y.



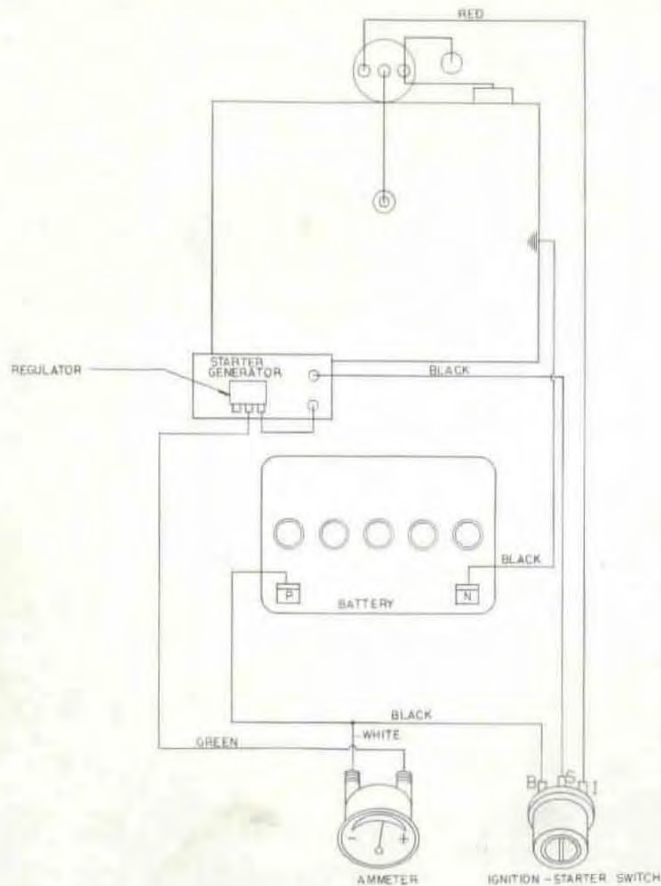
Steering & Wheel Ass'y.



Fender & Hood Ass'y.



Lift & Brake Ass'y.



Wiring for 854

PARTS LIST for MODEL 854 LAWN and GARDEN TRACTOR

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

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

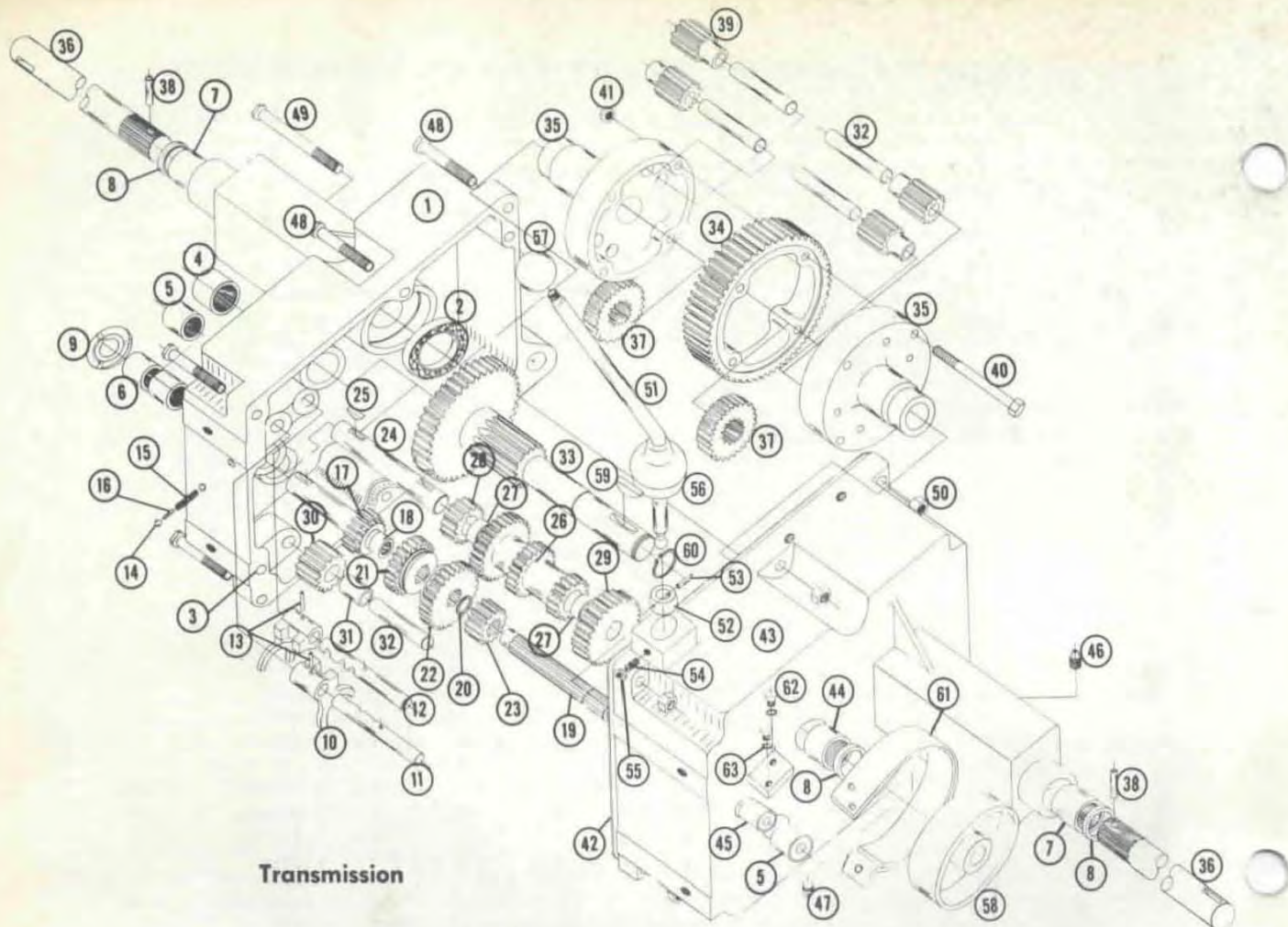
Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	4990	Ass'y. Frame	1	18	1898	Ass'y. Spindle	2
2	4995	Ass'y. Hood Stand	1	19	1899	Arm - Steering	2
3	915113-6	Nut - Nylok $\frac{3}{8}$ -16	12	20	933216	Roll Pin $\frac{1}{4}$ x $1\frac{3}{8}$	3
4	908032-4	Bolt - Hex $\frac{3}{8}$ -16 x $\frac{3}{4}$	8	21	933174	Roll Pin $\frac{3}{32}$ x $1\frac{3}{8}$	3
5	1611	Pulley	1	22	4412	Support - Steering	1
6	937014	Key #9 Woodruff	1	23	908035-4	Bolt - Hex $\frac{3}{8}$ -16 x $1\frac{1}{4}$	6
7	909849-6	Set Screw $\frac{1}{4}$ -20 x $\frac{3}{8}$ Nylok	1	24	4971	Shaft - Steering Upper	1
8	920083-4	Lockwasher $\frac{3}{8}$ Dia.	9	25	3917	Gear - Steering Pinion	1
9	4996	Hub - Wheel - 5 Bolt	2	26	933215	Roll Pin $\frac{1}{4}$ x $1\frac{1}{4}$	2
10	937022	Key #15 Woodruff	2	27	1085	Collar	1
11	909554-4	Set Screw Square Hd. $\frac{3}{8}$ -16 x 1	4	28	909848-6	Set Screw $\frac{1}{4}$ -20 x $\frac{1}{4}$ Nylok	2
12	1649	Axle - Front	1	29	4959	Ass'y. Steering Shaft - Lower	1
13	1030	Fitting - Grease	3	30	5210	Washer - Shim (.015)	2
14	1481	Fitting - Grease 45°	1	31	1278	Washer - Shim (.050)	2
15	2294	Ass'y. Pin & Plate	1	32	932035-4	Cotter Pin $\frac{3}{16}$ Dia. x $1\frac{1}{4}$	1
16	908015-4	Bolt - Hex $\frac{3}{8}$ -18 x $\frac{1}{2}$	4	33	4413	Sector - Steering	1
17	920082-4	Lockwasher $\frac{3}{8}$ Dia.	4	34	1772	Ass'y. Ball Joint R.H.	1

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Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
35	1773	Ass'y. Ball Joint L.H.	1	95	915111-6	Nut - Nyllok 1/4-20	8
36	915002-6	Nut - Nyllok 3/8-24	4	96	4958	Clamp - Battery	1
37	3950	Ass'y. Idler Arm & Shaft	1	97	5151	Ass'y. Engine - 8 H.P. Kohler	1
38	4899	Arm - Clutch Rod Pivot	1	98	5222	Elbow 90° (Special)	1
39	933158	Roll Pin 1/8 x 1 1/4	1	99	5223	Nipple 3/8 Pipe x 4	1
40	1623	Pulley - Idler	1	100	5224	Cap 3/8 Pipe	1
41	1536	Bushing	1	101	1744	Muffler	1
42	1363	Bolt - Hex 3/8-16 x 3/8 Special	1	102	3947	Nipple 1" Close Pipe	1
43	2593	Rod - Clutch	1	103	3939	Elbow 1" x 45°	1
44	3935	Rod - Brake	1	104	943366-4	Nipple 1" Pipe x 2	1
45	1861	Stud - Clutch Rod	1	105	1621	Pulley - Engine	1
46	932017-4	Cotter Pin 1/8 x 1	4	106	1349	Key 1/4 x 1/4 x 1 1/2	1
47	915605-4	Nut 3/8-16 Elastic Stop	1	107	5171	Ass'y. Control - Throttle	1
48	5185	Spring - Clutch	1	108	5170	Ass'y. Control - Choke	1
49	3069	Ass'y. Lever & Knob - Brake	1	109	1364	Nut 3/8-18 Round	2
50	2267	Pedal - Clutch	1	110	920127-4	Lockwasher 3/8 Shakeproof	2
51	S-52-4	Hairpin Cotter	1	111	1277	Clip	2
52	4421	Footrest	2	112	909000-4	Bolt - Rd. Head #8-32 x 1/2	1
53	4246	Ass'y. Trip Lever	1	113	915562-4	Nut - Hex #8-32	1
54	4239	Pedal - Attachment - Clutch	1	114	920078-4	Lockwasher #8	1
55	1014	Spring	1	115	2271	Ass'y. Fuel Tank	1
56	3933	Link	1	116	910057-4	Bolt 1/4-20 x 3/8 Fil. Hd.	4
57	933188	Roll Pin 3/8 x 1	1	117	1786	Ass'y. Fuel Strainer	1
58	932034-4	Cotter Pin 3/8 x 1 1/4	1	118	1192	Nipple - Fuel Tank	1
59	2266	Ass'y. Lift Lever	1	119	1217	Elbow - 90° Nylon	1
60	4438	Plunger	1	120	1796	Hose - Fuel Line	1
61	4439	Rod	1	121	4256	Clip - Fuel Line	1
62	933168	Roll Pin 3/32 x 1 3/8	1	122	950141-4	Clamp 3/8 Dia. Corbin	1
63	3624	Spring	1	123	3998	Cap - Fuel Tank	1
64	3578	Guide - Plunger Rod	1	124	4988	Ass'y. Switch - Ignition	1
65	3680	Cap - Plunger Rod	2	125	4882	Nut - Hex 3/4-32 Special	1
66	1000	Grip - Handle	1	126	4881	Lockwasher 3/8	1
67	S-52-6	Hairpin	1	127	4989	Key	1
68	2274	Quadrant	1	128	3653	Battery	1
69	2179	Rod - Height Control	1	129	4992	Wiring Harness	1
70	5280	Knob	1	130	908002-4	Bolt - Hex 1/4-20 x 3/8	2
71	3931	Ass'y. Cable - Lift	1	131	1745	Ammeter	1
72	932120	Pin - Clevis 1/4 Dia.	2	132	1667	Ass'y. Wheel, Tire & Tube - Rear	2
73	S-52-3	Hairpin Cotter	2	133	1700	Wheel	2
74	3926	Hitch	1	134	1662	Tire - Lawn Tread	2
75	3988	Pin - Hitch Shaft	1	135	1654	Tube	2
76	S-50-75	Snap Ring 3/4 Shaft	2	136	1004	Lug Bolt - Wheel 3/8-20	10
77	3537	Spring - Seat	1	137	4997	Ass'y. Wheel, Tire & Tube - Front	2
78	908034-4	Bolt - Hex 3/8-16 x 1	2	138	4998	Wheel	2
79	4892	Ass'y. Tool Box	1	139	4999	Ball Bearing	4
80	1385	Screw - Sems 1/4-20 x 1/2	16	140	1656	Tire	2
81	4986	Ass'y. Hood - Complete	1	141	1657	Tube	2
82	1345	Thumb Screw 1/4-20 x 3/8	2	142	2844	Washer	2
83	1346	Thumb Screw 1/4-20 x 3/4	1	143	908033-6	Bolt 3/8-16 x 3/8 Nyllok	2
84	920081-4	Lockwasher 1/4 Dia.	3	144	2816	Hub Cap	2
85	4993	Ass'y. Belt Guard	1	145	4983	Steering Wheel	1
86	909082-4	Screw - Rd. Hd. 3/8-16 x 1/2	1	146	2897	Insert	1
87	4419	Shield	1	147	1813	Tool Pin	1
88	3973	Seat	1	148	3978	Cushion	1
89	900113-4	Bolt - Carriage 1/2-13 x 1 1/4	1	149	S-56-6	Wrench 1/8 Hex Allen	1
90	915115-6	Nut - Nyllok 1/2-13	1	150	1576	"V" Belt - Drive	1
91	4972	Fender R.H.	1	151	4410	Decal - Wheel Horse Emblem	2
92	4973	Fender L.H.	1	152	5221	Decal - Instrument Panel	1
93	4953	Ass'y. Battery Box	1	153	5146	Decal - 854	1
94	915112-6	Nut - Nyllok 3/8-18	2				

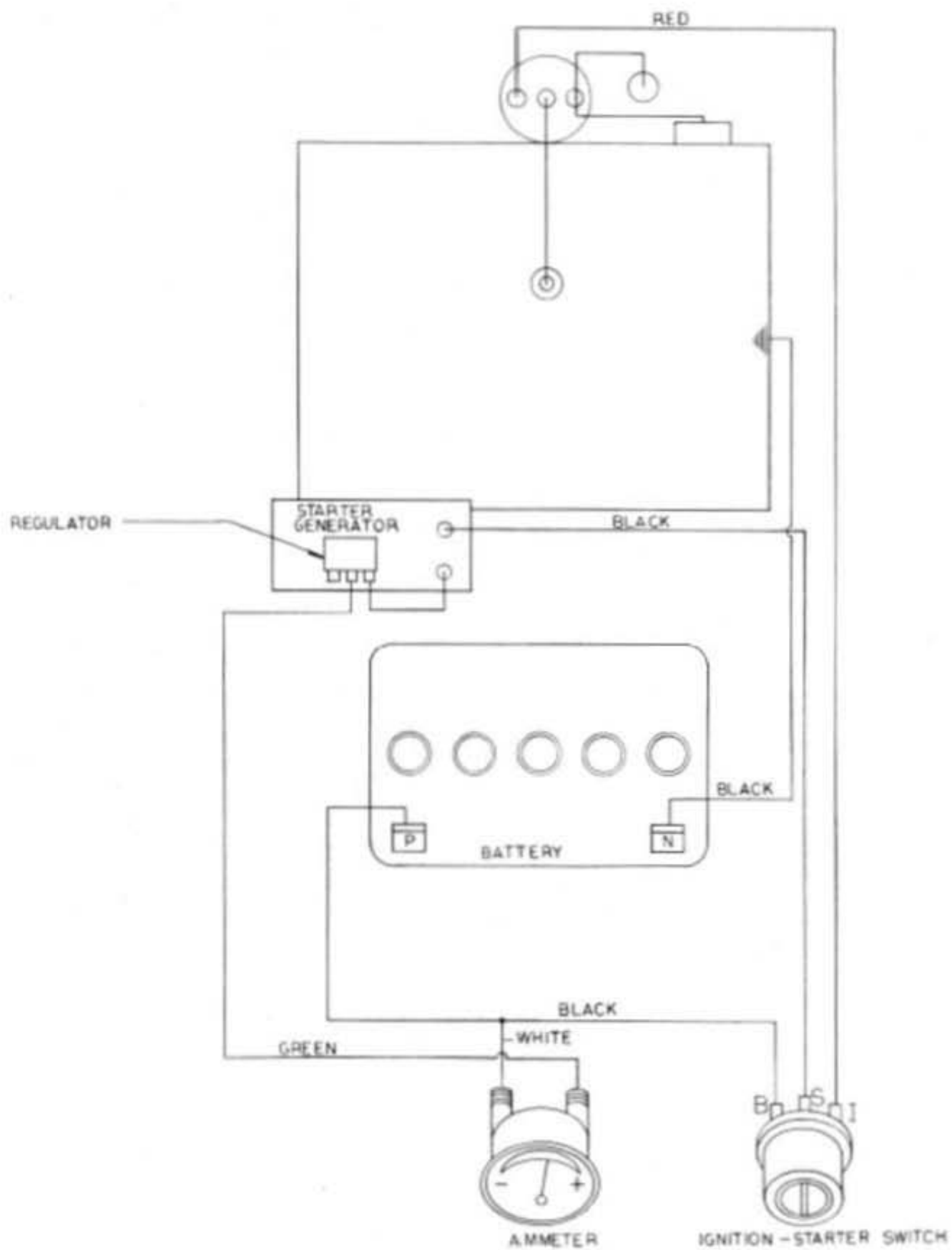


Transmission

TRANSMISSION PARTS LIST

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

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	3905	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 - Roll $\frac{1}{4} \times 1\frac{1}{2}$	2
7	1528	Bearing - Needle	2	39	4235	Gear - Differential Pinion	4
8	1232	Seal - Oil	3	40	1329	Cap Screw - Hex $\frac{5}{16} - 18 \times 3\frac{1}{4}$	4
9	1303	Seal - Oil	1	41	1316	Nut - Hex - Lock $\frac{5}{16} - 18$	4
10	3503	Fork - Shift	2	42	3912	Gasket	1
11	3515	Rail - Front Shift	1	43	3901	Case Transmission	1
12	3516	Rail - Rear Shift	1	44	1530	Bearing - Needle	1
13	933156	Pin - Roll $\frac{1}{4} \times 1$	2	45	1531	Bearing - Needle	1
14	3517	Ball - 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 - $\frac{3}{8} - 16 \times 2$	5
17	3522	Gear - Input Drive	1	49	908043-4	Bolt - Hex - $\frac{3}{8} - 16 \times 3\frac{1}{2}$	1
18	1518	Bearing - Needle	1	50	915113-6	Nut - Nylock $\frac{3}{8} - 16$	6
19	3907	Shaft - Spline	1	51	5278	Stick - Shift Ass'y.	1
20	S-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 $\frac{3}{32} \times 1\frac{1}{16}$	1
22	3524	Gear (Low & Reverse)	1	54	1239	Screw - Soc. Hd. - Set $\frac{1}{4} - 20 \times \frac{3}{4}$	1
23	3526	Gear - Spline 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	937014	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	S-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	908002-4	Bolt - Hex $\frac{1}{4} - 20 \times \frac{5}{8}$	2
31	1516	Bushing - Bronze	1	63	920081-4	Washer - Lock $\frac{1}{4}$	2
32	3909	Pin - Reverse Idler	5				



Wiring for 854