Reverse Gear Assembly

Installation Instructions

Frazer Farm Equipment Corporation

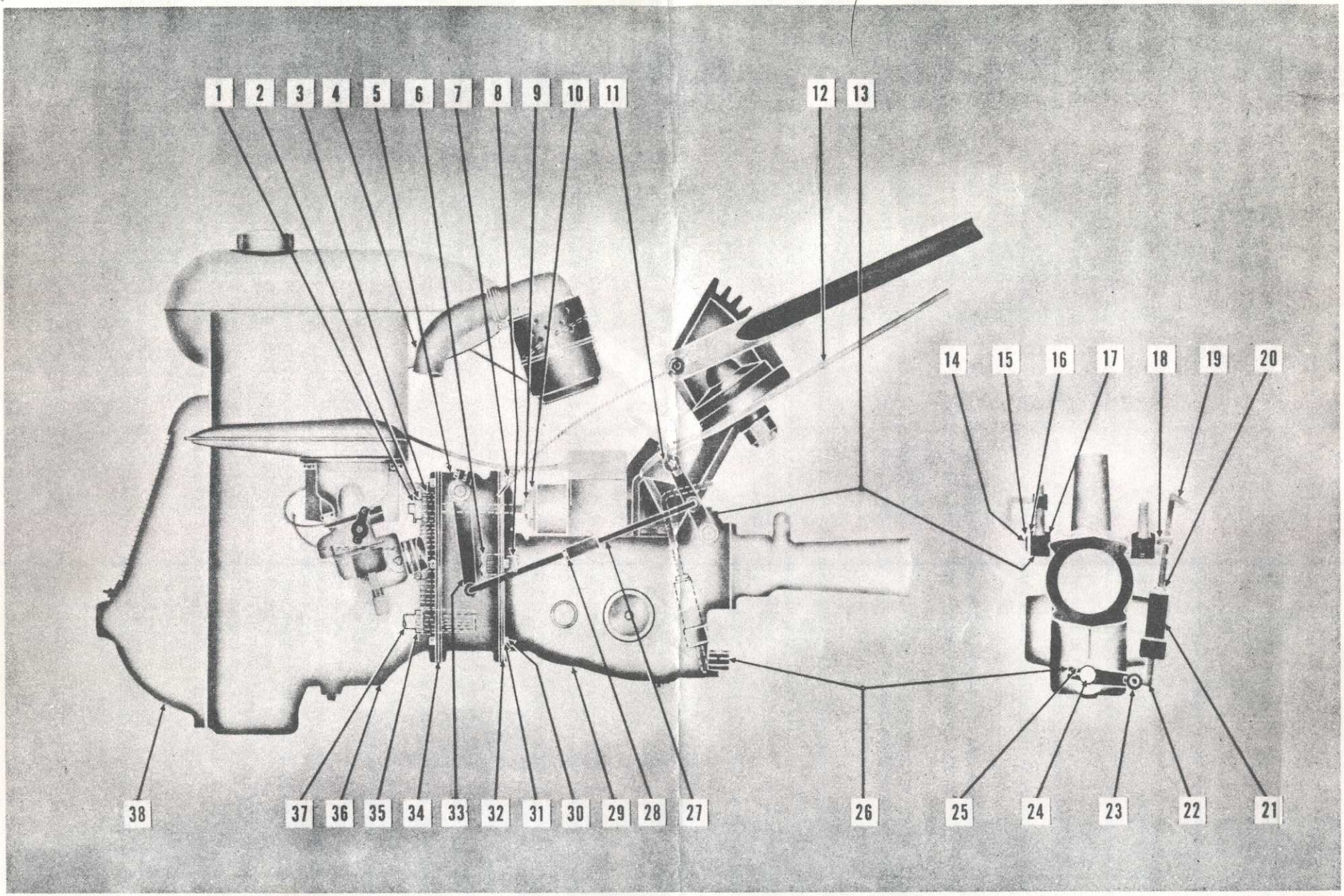
AUBURN, INDIANA

TO INSTALL NEW REVERSE GEAR ASSEMBLY

ALL PARTS REQUIRED TO ASSEMBLE NEW REVERSE GEAR

Reverse Gear Kit Number 5426 (1) consists of the following:

Ref. No.		Part No.	Qty.
	Gear Assy—Reverse includes Mag. Drive Shaft Assy. Gear Spacer and Thrust Washer	5398	1
34	Gasket—Crankcase to reverse gear	5228	1
32	Gasket—Trans. to reverse gear	5228	1
30	Cap Screw—Reverse gear to engine and transmission	566	10
30	Cap Screw—Trans. to reverse gear	361	6
31	Lockwasher—Reverse gear to engine and transmission	129	12
	Nut—Reverse gear to transmission	146	2
4	Tube—Air Cleaner to carburetor	5095	1
7	Clamp—Throttle control wire (Intermediate)	5441	1
	Screw—Throttle control wire (Inter.) Clamp	163	1
	Lockwasher—Throttle Control Wire (Inter.) Clamp Screw	273	1
	Nut—Throttle control wire (Inter.) Clamp Screw	165	1
27	Link Assembly—Reverse control	5454	1
18	Bracket and Spring Assembly—Speed Shifter	5459	1
19	Link—Speed Shift upper	5444	1
13	Lever Assy.—Reverse Control	5457	1
15	Snap Ring—Reverse Control Lever Assembly	5263	2
26	Arm—Speed Shifter	5447	1
25	Screw—Speed shifter arm clamp	362	1
11	Trunnion—Trans. shift (Removed from shift lever No. 5262)	5221	1
	Cable Assembly—Spark plug	5191	1
	Cotter Pins	138	6
20	Jam Nut (Remove from upper shift link)	188	1
23	Trunnion (Removed from transmission shift arm)	5221	1
16	Flat Washer	133	2
	Washer—Drive Gear	5563	2
	Spacer—Drive Gear	5564	1


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21

The parts contained in this reverse gear package when properly installed on the Model B1-6 Rototiller Power Tiller, will convert it to a Model B1-6RS. Time required for installation is approximately two hours. The following procedure for installation of the reverse gear unit should be observed:

1. DISASSEMBLE POWER TILLER.
   a. Place Power Tiller on floor of original shipping crate so that it is supported beneath engine and transmission.
   b. Disconnect throttle control cable from carburetor.
   c. Remove throttle control cable clamp from engine.
   d. Remove tiller hood by removing cotter pin and flat washer from one end of bracket pin and withdrawing pin from bracket, then remove clevis pin from hood adjusting bar.
   e. Disconnect wheel speed control rod and upper shift link from transmission shift lever assembly, then remove snap ring to pull shift lever from shaft. Remove inner washer and snap ring from shaft.
   f. Remove cotter pin from shift lever trunnion, and set trunnion aside to be used in reassembly.
   g. Disconnect shift control lower link from transmission shift arm at lower rear of transmission case, and remove upper link from link assembly. Set jam nut aside to be used in reassembly.
   h. Loosen set screw and pull transmission shift arm from shaft at lower rear of transmission case. Remove trunnion from shift arm and set aside for use in reassembly.
   i. Remove spark plug cable assembly.
   j. Remove all transmission-to-crankcase bolts, nuts, and lock washers, then pull transmission from engine.
   k. Remove transmission-to-crankcase gasket, then remove snap rings from transmission worm shaft and remove drive gear and spacer.
   l. Remove snap rings from end of chankshaft, and remove crankshaft gear.
   m. Bend lock washer lugs to free magneto lock nut at coupling, then loosen nut and slide coupling forward to remove floating member. Pull adjustable coupling from shaft, then remove key and pull magneto drive gear and shaft from transmission case.

2. INSTALL REVERSE GEAR UNIT. (See drawing.)
   a. Place Spacer (Part No. 5564) so that transmission worm shaft (8) enters spacer from chamfered end.
   b. Measure the distance from top of Spacer to edge of transmission case (29) flange, and then measure from edge of reverse gear case (5) flange to the top of sleeve of reverse gear worm gear drive shaft (6).
   c. The difference between the two dimensions will govern the number of 3/32" washers, Part No. 5563, to be installed, leaving a minimum clearance of 1/32" and a maximum clearance of 1/8".
   d. Insert the required number of 3/32" washers (Part No. 5563) between spacer (Part No. 5564) and the sleeve of reverse gear worm gear drive shaft (6).

      Caution: It is of the utmost importance that the minimum clearance of 1/32" be held in order to refrain from springing or breaking the reverse gear housing or binding the mechanism in the Reverse Gear Assembly.
   e. Place gasket (32) on transmission case and fit reverse gear case (5) to transmission case (29) aligning splines of transmission worm shaft (8) with sleeve of reverse gear worm gear shaft (6). Secure with four 3/8" x 1" Cap Screws (30) and four lockwashers (31) at the four upper attaching positions, and two 3/8" x 1 3/8" Cap Screws (30), two lockwashers (31) and two nuts at the two bottom attaching positions.

      Note: Attach throttle control intermediate clamp (7) to upper cap screw on left side of transmission case (29).
   f. Insert long shaft end of magneto drive gear and shaft (3) through reverse gear unit into needle bearing in transmission case (29).
   g. Install shaft key on shaft (3) and insert magneto adjustable coupling (10) onto shaft. Engage floating drive member with impulse coupling, then slide adjustable coupling to the rear, engaging it with floating drive member; do not tighten coupling nut (9).
   h. On gear end of shaft, install spacer (2) and thrust washer (1), then install gasket (34) to engine rear crankcase (36).
   i. Align splines of crankshaft (37) to enter splined sleeve of reverse gear main drive pinion (35), and end of magneto drive shaft to enter needle bearing in rear crankcase, then attach rear crankcase (38) to reverse gear case (5) with six 3/8" x 1" cap screws (30) and six lockwashers (31).
   j. On reverse control lever shaft (14) install snap ring (15), flat washer (16), lever assembly (13), flatwasher (16) and secure with snap ring (15).
   k. Install trunnion (11) which was removed in step 1e, to new assembly (13), lock in place with cotter pin.
   l. Engage reverse control ling assembly (27) with reverse control lever assembly (13) on transmission and reverse control lever (33) on reverse gear unit. Secure in place with a cotter pin on each end.
   m. Attach reverse control rod (12) to trunnion (11), lock in place with cotter pin.
   n. Remove the two cap screws which secure right side of handle bar bracket to transmission, and install speed shifter bracket and spring assembly (18), secure in place with the two cap screws just removed.
   o. Assemble trunnion (23) removed in step 1h, to speed shifter arm (26) and secure in place with cotter pin.
   p. Install speed shifter arm (26) onto shaft (24) and clamp in place with clamp screw (25).
   q. Assemble speed shifter upper link (19) to bracket and spring assembly (18) with threads on link down, then install jam nut (20) removed in step 1g. Assemble upper link (19) to control link housing (21).
   r. Engage lower link (22) with trunnion (23) on speed shifter arm (26) and secure with cotter pin.
   s. Connect throttle control cable to carburetor. Support cable with intermediate clamp (7).
   t. Install tube (4) from air cleaner to carburetor.
   u. Install new spark plug cable assembly.
   v. Install tiller hood and connect hood adjusting bar.
   w. Check transmission lubricant level, add sufficient lubricant to bring level up to "full" mark on dip stick.

3. ADJUST TRANSMISSION SHIFT LINKAGE. (See drawing.)—To adjust the reverse and the transmission linkages, place the reverse control rod (12) in neutral position and proceed as follows:
   a. Disconnect lower link (22) from transmission shift arm (26).
   b. Press down on transmission shift arm (26) and push the Power Tiller forward until the wheels lock.
   c. Operate the speed shift lever (upper link) (19) so that the upper notch is engaged with the bracket (18).
   d. Loosen jam nut (20) on upper link, and turn control link housing (21) until lower link slides easily into shift arm (26).
   e. Tighten jam nut (20) and install cotter pin in lower link (22), then place the speed shift lever (19) in neutral position.
   f. Disconnect reverse control link (27) from reverse control lever (33).
   g. Pull reverse control lever (33) to the rear and push Power Tiller forward until wheels lock.
   h. Operate reverse control lever so that shift lever (13) quadrant is just to rear of the lock spring.
   i. Loosen jam nut (28) on forward link and turn link until it can be inserted easily into the reverse control lever.
   j. Tighten jam nut (28) and install cotter pin at reverse control lever (33).

4. TIME MAGNETO TO ENGINE. (See drawing.)
   a. Remove cooling fan housing (38), exposing fan. (Fastened in place by two cap screws.)
   b. Remove spark plugs (to permit easier cranking of engine).
   c. Turn fan until timing mark on outer face of fan is in perfect alignment with timing mark on crankcase.
   d. Turn magneto adjustable coupling (10) to the right (clockwise) until impulse starter trips. (The impulse starter makes a loud clicking noise when it trips.) Next, turn coupling (10) back to the left (counter-clockwise) until timing mark on drive member is in perfect alignment with timing mark on impulse starter housing.
   Note: Directions for checking and setting the timing of the Edison-Splitdorf Magneto are the same as the Fairbanks Morse Magneto, with the exception that the impulse timing marks are located just right of center on the outer surface of the impulse cover, and on the front surface of the magneto housing.
   e. Holding magneto drive coupling to prevent its turning, insert a .010 feeler gage between the floating drive member and the coupling flange, then tighten lock nut (9) finger tight.
   f. Holding fan to prevent its turning, securely tighten magneto lock nut (9).
   g. Fasten lock nut in place by bending the lugs of the lock washer over flat surfaces of nut.
   h. Re-install front cover and spark plug, then install spark plug cable.

PARTS TO BE REMOVED AND NOT USED IN REASSEMBLY

Tube—Air cleaner to carburetor	5095	1	
Lever—Transmission shift	5262	1	
Trunnion—Transmission Shift Lever	5221	1	
Clip—Throttle control (Intermediate)	5074	1	
Link—Shift control upper	5386	1	
Gear—Magneto drive	5186	1	
Shaft—Magneto drive	5187	1	
Key—Magneto drive shaft	142	1	
Bolt—Transmission to crankcase	113	1	
Lockwasher—Transmission to crankcase	129	6	
Nut—Transmission to crankcase	146	6	
Arm—Transmission shift	5260	1	
Set Screw—Transmission Shift arm	5217 or	1	
	Set Screw ... 332 and	1	
	Lock Nut ... 333	1	
Cable Assembly—Spark plug	5191	1	
Gear—Transmission Drive	5234	1	
Snap Ring—Trans. drive gear	5024 or	1	
	5430	2	
Spacer—Transmission drive gear	5235	1	
Gear—Crankshaft	5023	1	
Snap Ring—Crankshaft gear	5024 or	1	
	5430	2	
Cotter Pin—3/32 x 5/8	138	1	
Gasket—Trans. to crankcase	5228	1	
Snap Ring—Trans. Shift lever (Inner)	5263	1	

Printed in U. S. A.