ASSEMBLY, OPERATING INSTRUCTIONS AND PARTS LIST FOR

SEARS

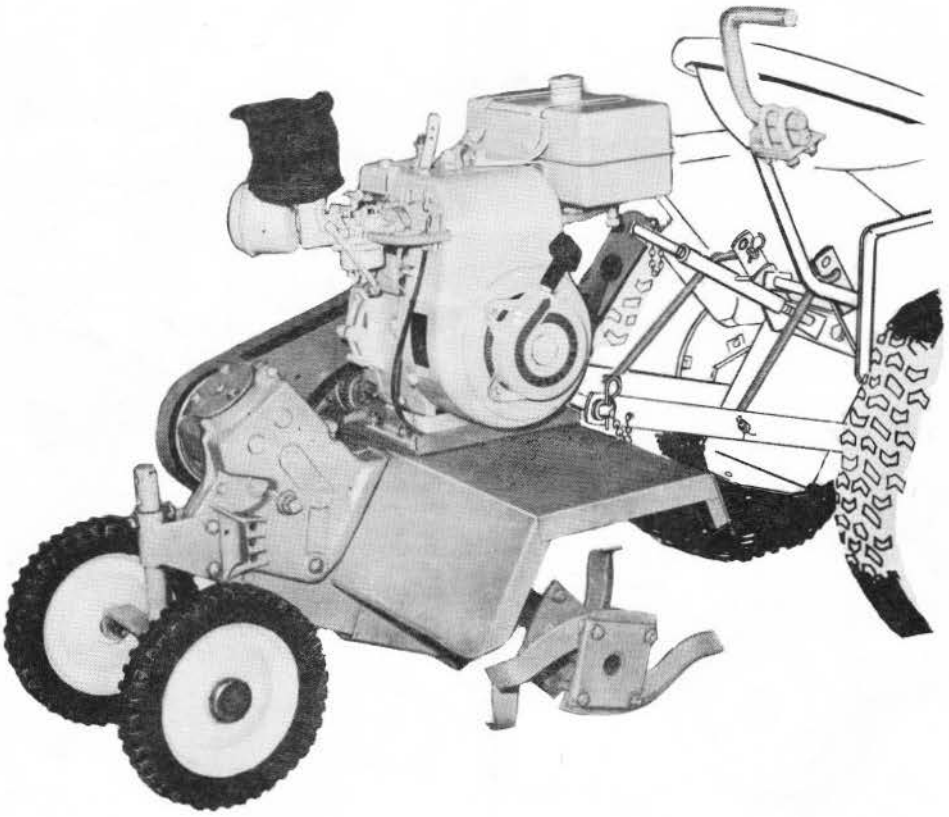
Self-powered

ROTO-SPADER ATTACHMENT

FOR SUBURBAN, CUSTOM AND HYDRO-TRAC TRACTORS

MODEL NUMBER 917.251840

Sears



SEARS, ROEBUCK AND CO.—U.S.A.

SIMPSONS-SEARS LIMITED – CANADA

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INTRODUCTION

Since there is a right way, and many wrong ways to operate any power-driven machinery, it is important that this manual be read carefully before you start your Spader. This will avoid unnecessary delays, expense or personal injury which might be caused by improper operation.

Your Roto-Spader attachment has been designed, engineered and manufactured to give you the best in performance with the least amount of trouble. Should you experience any minor problem which you cannot remedy, take your Spader to your nearest Sears, Roebuck and Co. or Simpsons-Sears Limited store. They have competent, trained mechanics and the proper tools to service and repair your Spader. Do not attempt to repair your Spader unless you are qualified to do so.

This Roto-Spader is designed for use with the Sears Suburban, Custom and Hydro-Trac Tractors. The Spader attaches to the three point hitch in the same manner as the other tillage attachments. Two lift links are provided to replace the lift links on the three point hitch.
IMPORTANT: A tractor front end weight is recommended to counter-balance the weight of the Roto-Spader when lifting the Spader. To slow down tractor ground travel for finer tillage, a slow speed pulley is necessary for all Suburban Tractors with speed changers and Custom Tractors with three speed transmission. Refer to page 7 for slow speed pulley listing.

SETTING UP INSTRUCTIONS

Setting Up and Operating Instructions should be studied very closely before beginning to assemble your Spader.

A letter in parentheses in the following instructions refers to an arrow in an adjoining Figure (illistration), unless otherwise stated. When R.H. (Right Hand) or L.H. (Left Hand) are used it should be understood to mean from a position behind and facing the Spader or direction of travel.

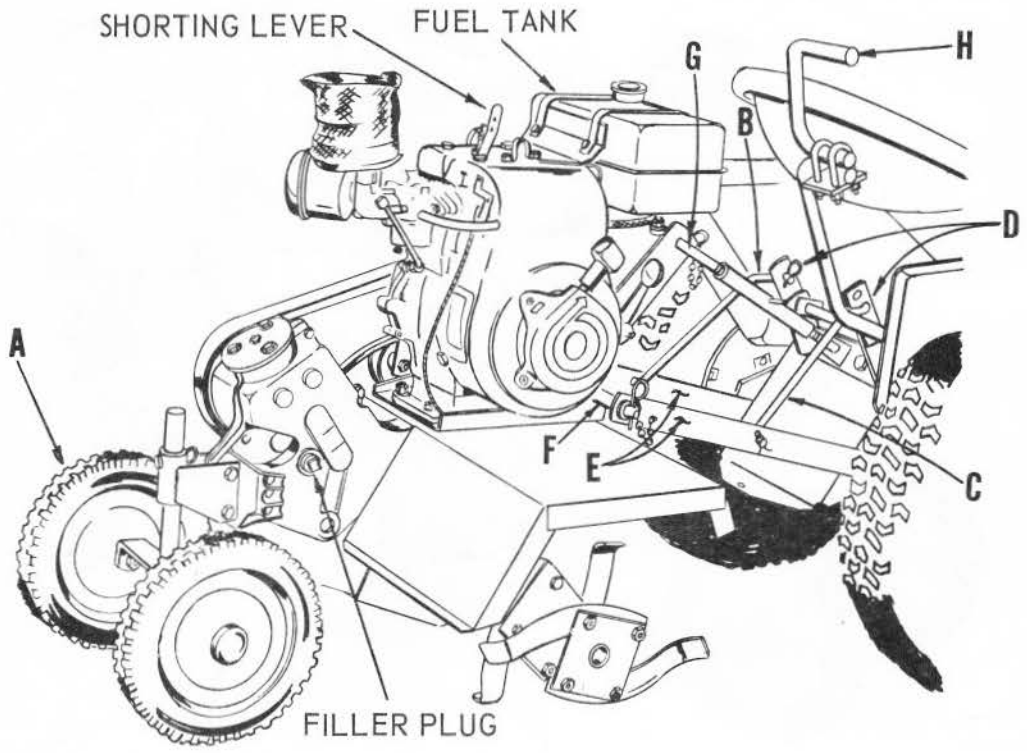


FIG. 1

SETTING UP INSTRUCTIONS – CONTINUED

1. Refer to Fig. 1. Remove Spader and parts from carton and lay out for assembly. Cut all wires. IMPORTANT – Fill transmission with oil before filling engine with oil, or attaching to tractor.
   A. Fill transmission with SAE 30 oil API rating MM Capacity 3 qts. Spader can be laid on its side to fill transmission. Use small neck funnel for filling transmission and engine.
   B. Fill engine crankcase with SAE 30 oil API rating MS capacity about 1½ pts.

2. Refer to Fig. 1. Place Spader on level ground where tractor can be backed up to Spader for assembly. Adjust Spader gauge wheels (A), so that engine is level.

3. Remove original L.H. lift link and R.H. lift link and turnbuckle from 3 point hitch. Tie two links together so that they will be available and paired for future reassembly to hitch for use with other attachments.

4. Refer to Fig. 1. There are two new lift links furnished with Spader. Assemble these new L.H. and R.H. lift links (B and C), to inner holes of each lever crank (D), as shown and secure with retainer springs provided.
   NOTE: Offset in links to top as shown.

5. Refer to Fig. 1. Attach lower ends of R.H. and L.H. links (B and C), to bottom links (E), as shown and secure with retainer springs.

6. Refer to Fig. 2. Back tractor up to Spader and attach rear of bottom links (E), to pin (F), on Spader and secure with retainer spring attached to bottom links.

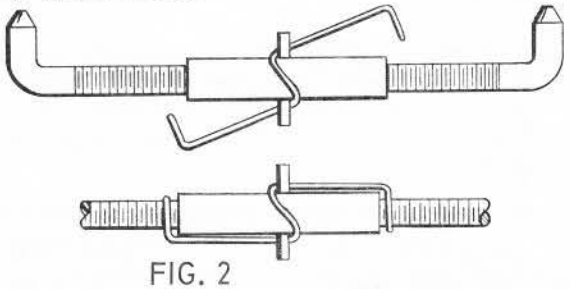


FIG. 2

7. Refer to Fig. 2. Loop turnbuckle spring over top turnbuckle and around pin as shown in Figure above. Bring ends of turnbuckle spring up and over top links as shown in Fig. 2 above and same as R.H. adjustable lift link removed from 3 pt. hitch. This creates extra tension (drag) so that top link turnbuckle will not get out of adjustment during operation. This spring is not used on heavy duty hitches.

8. Assemble adjustable top link (G), to upper hitch bar. Refer to Fig. 1.
   NOTE: It may be necessary to adjust top adjustable link (G), to assemble link to Spader, and to keep spader level. Secure with retainer spring.

9. Assemble lift handle extension (H), to lift lever with U bolt plate and huglock nuts. Tighten nuts securely. See Fig. 1.

BEFORE STARTING ENGINE

10. Check oil level in gear case and engine. Gear case capacity 3 qts., oil should be to level of filler hole. Engine capacity, approximately 1½ pts. Fill to full mark on dipstick. Fill fuel tank with clean fresh regular grade gasoline. Cap. 1 gal.

11. Lift Spader.

12. Move choke lever to full choke. (Refer to engine manual).

13. Place throttle lever about ½ throttle.

HANDLE GASOLINE WITH CARE -- IT IS HIGHLY FLAMMABLE.

USE APPROVED GASOLINE CONTAINER.

DO NOT FILL GASOLINE TANK WHILE ENGINE IS RUNNING. AVOID SPILLING GASOLINE ON A HOT ENGINE--THIS MAY CAUSE AN EXPLOSION AND SERIOUS INJURY. DO NOT MIX OIL WITH GASOLINE. USE CLEAN, FRESH "REGULAR" GRADE GASOLINE. FILL TANK COMPLETELY.

REPLACE GASOLINE CAP SECURELY.

START ENGINE

Grasp starter handle, pull cord slowly until starter clutch engages, then pull until resistance of compression is felt. Allow starter cord to recoil, and again pull out slowly until starter clutch engages. Then pull with a rapid movement until cord is pulled out 2 to 3 feet. Hold starter handle while allowing cord to recoil and repeat as necessary.
NOTE: Do not pull cord out to extreme end since this will cause cord and spring breakage.

Since the Spader is run at full throttle at all times, we feel a break in period is necessary for longer Spader life. Run engine at ½ throttle for approximately 2 hours before actual tillage.

STOP ENGINE

Press shorting lever against spark plug to stop engine. Refer to Fig. 1.

IMPORTANT: NEVER RUN ENGINE WITH AIR CLEANER REMOVED.

KEEP THE ENGINE CLEAN AND FREE FROM ACCUMULATIONS OF GRASS, LEAVES, SPILLED OIL OR GASOLINE, ETC. THE PRESENCE OF SUCH COMBUSTIBLE MATERIALS MAY CAUSE FIRE.

SAFETY PRECAUTIONS

1. BEFORE STARTING THE ENGINE BE SURE CLUTCH IS DISENGAGED, AND TINES ARE CLEAR.
2. STAND CLEAR OF TINES WHEN STARTING ENGINE.
3. DO NOT RUN ENGINE INDOORS, EXHAUST GASES CONTAIN CARBON MONOXIDE WHICH IS ODORLESS AND DEADLY POISON. IF FOR SOME REASON ENGINE MUST RUN INDOORS, OPEN ALL DOORS AND WINDOWS FOR SUFFICIENT VENTILATION.
4. NEVER STAND IN FRONT OF/OR WORK ON TINES WHILE ENGINE IS RUNNING.
5. LIFT SPADER OUT OF THE GROUND WHEN TURNING CORNERS.
6. DO NOT PUT TRACTOR IN REVERSE GEAR WHILE SPADER IS IN THE GROUND.
7. CHECK SPADER PERIODICALLY, TIGHTEN ALL BOLTS, NUTS, ETC.

OPERATING INSTRUCTIONS

1. Start tractor engine.
2. Start Spader engine.
3. Engage clutch on Spader and move throttle lever to full throttle position.
4. Place tractor in slowest forward speed with throttle at idle speed or just above and engage tractor clutch.
5. Lower Spader.

TILLING DEPTH

The tilling depth is controlled by the gauge wheels and to some extent by the adjustable top link. When deeper tilling is required the gauge wheels must be raised. Wheels must be lowered for shallower tilling. Remove retainer spring from drilled rivet and remove drilled rivet. Adjust gauge wheels up or down as desired and replace rivet and retainer spring.
NOTE: Each hole will raise or lower gauge wheels 1 inch. Spader can be leveled if necessary by turning adjustable top link. Adjustable top link also controls tilling depth. Shortening adjustable top link will increase tilling depth, and lengthening top link will decrease tilling depth. However, try to keep Spader level or nearly so. See Fig. 3.

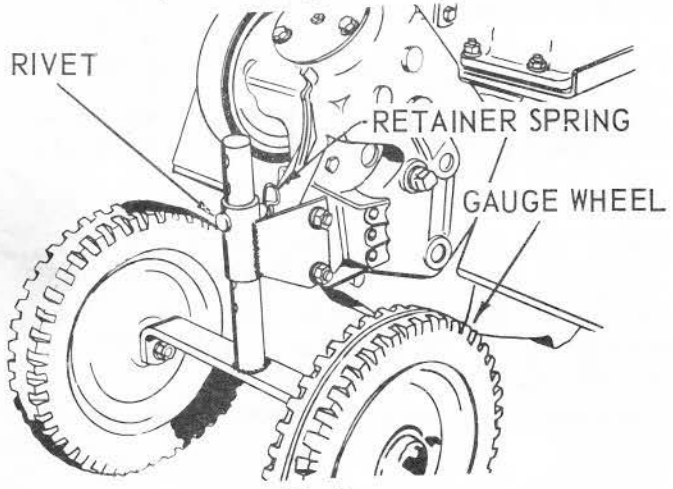


FIG. 3

The most efficient tillage is obtained when Spader engine is fully loaded. The sound of Spader engine can tell you when engine is loaded. When Spader engine is lightly loaded, raise gauge wheels to increase tilling depth. If engine seems to be overloaded or stalls out lower gauge wheels for shallower tilling.

Operate Spader engine at full throttle and operate tractor in slowest forward speed, with tractor engine at idle speed or just above idle. You will soon learn the proper combination of tilling depth and speed for good tillage.

Soil conditions will determine how deep Spader can penetrate on the first pass. In extremely hard ground several passes may be necessary to till to a depth of 6 inches, while in soft ground spader may penetrate to a depth of 6 inches in the first pass.

NOTE: Tractors equipped with speed changer, it is necessary to purchase a slow speed pulley to slow down ground travel. If three point hitch does not have two holes in lever crank on lever, drill another 17/32 hole in each lever crank ¾ inch in from present hole center.

TILLING IN HARD SOIL

In extremely hard soil it is suggested that the first pass be just deep enough not to over load Spader engine, and on each successive pass wheels be raised according to the capabilities of the engine. In some cases over lapping about half of the previously tilled path may be desireous. Keep tines sharp for better penetration in hard soil.
On final pass gauge wheels can be removed for a track free seed bed.

CULTIVATING

Set gauge wheels so that Spader will penetrate soil to a depth of 2 to 3 inches. The Spader engine should be run at full throttle except when cultivating small plants a slower engine speed is necessary to prevent burying the plants.

KEEP MACHINE IN GOOD OPERATING CONDITION AND KEEP SAFETY DEVICES IN PLACE. USE GUARDS AS INSTRUCTED IN OWNERS MANUAL.

DISENGAGE POWER TO ANY ATTACHMENT, STOP ENGINE AND DISENGAGE SPARK PLUG BEFORE MAKING REPAIRS OR ADJUSTMENTS.

KNOW THE CONTROLS AND HOW TO STOP QUICKLY -- READ THE OWNERS MANUAL.

DO NOT ALLOW CHILDREN TO OPERATE MACHINE; NOR ADULTS TO OPERATE IT WITHOUT PROPER INSTRUCTION.

MAINTENANCE AND SERVICE INSTRUCTIONS

CHANGING ENGINE OIL

1. Always drain the oil while engine is warm. Remove drain plug at front of engine and tilt machine forward to assure complete removal of old oil. Refer to engine manual for type and grade of oil for refueling. Oil capacity approximately 1½ pints.

TRANSMISSION LUBRICATION

1. At each engine oil change, check oil level in transmission at plug located on R.H. side of transmission. Refer to Figure 1. Oil level must be at bottom of plug with spader level. If necessary add S.A.E. 30 motor oil for service MM. Transmission capacity 3 qts.

DUSTY CONDITIONS

Service engine regularly in dusty conditions. Air filter should be cleaned every day and change oil every 15 hours of operation. In extreme dusty conditions clean air filter every four hours and change oil every 10 hours of operation. The service given engine greatly effects the life of the engine.

CLEAN AIR FILTER

1. Remove precleaner bag and spring from air filter.
2. Loosen two screws holding air filter cover to base and remove cover and element.
3. Tap element to knock off accumulated dirt on element. Compressed air can be used to clean element by blowing air through element from inside to outside of element. Keep dirt from falling into elbow opening when removing element. Replace element, cover precleaner bag and spring. Tighten cover securely. See Fig. 4.

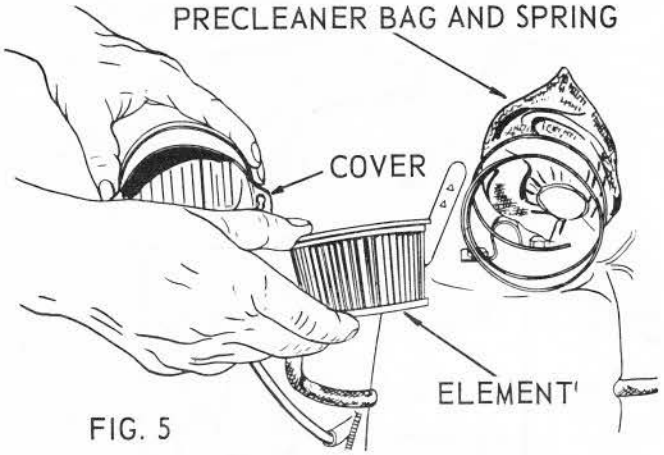


FIG. 5

BELT ADJUSTMENT

The clutch is a belt tightener type clutch. Belt should be just tight enough to prevent slipping. To tighten belt remove retainer spring securing belt tightener link to lever and arm, and turn link in a counter clockwise direction when standing in front of spader, one turn at a time until belt no longer slips. A belt that is too tight stretches the belt, requires more H.P. and puts more strain on bearings. See Fig. 5.

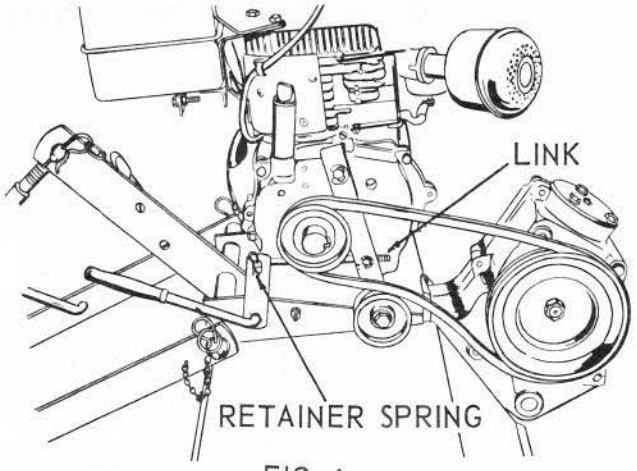


FIG. 6

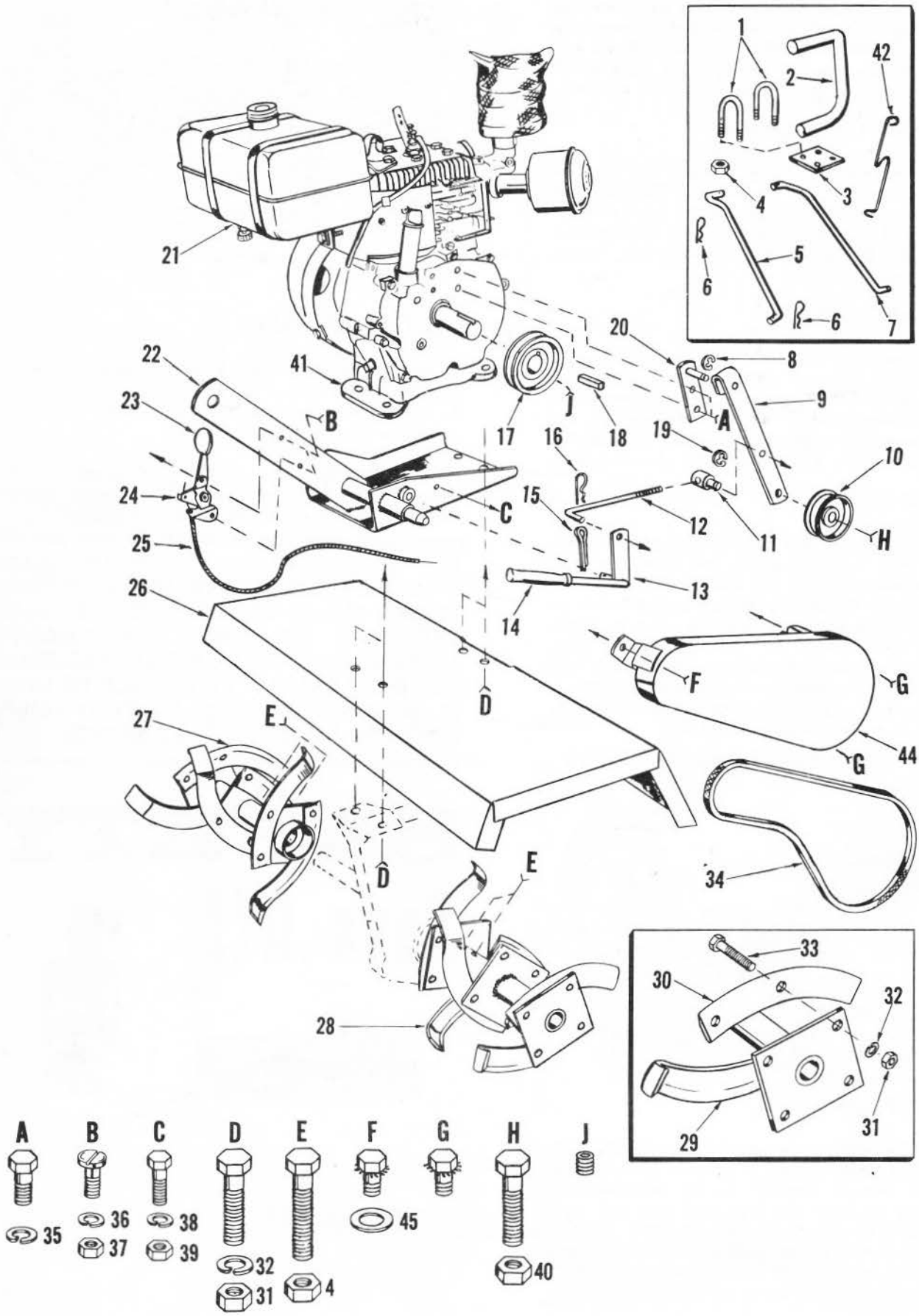
BELT REPLACEMENT

1. Remove 3 bolts holding belt guard to spader.
2. Remove old belt.
3. Install new belt so that lower side of belt is above idler as shown.
4. Replace belt guard.

NOTE: Bolt in engine at front of guard has fine threads. The other two bolts have course threads. Readjust belt. See Belt adjustment above.

USE FRESH, CLEAN, REGULAR GRADE GASOLINE ONLY. IF ROTO-SPADER IS TO BE STORED FOR AN EXTENDED PERIOD, DRAIN THE TANK AND EMPTY THE GASOLINE STORAGE CONTAINER, EITHER DISCARDING THE GASOLINE IN A SAFE PLACE OR USING IT IN OTHER GASOLINE-POWERED EQUIPMENT FOR WHICH IT MAY BE SUITED.

SAFETY
Pays Off



SEARS ROTO-SPADER ATTACHMENT -- MODEL NUMBER 917.251840

PARTS LIST

KEY NO.	PART NO.	DESCRIPTION
1	6678H	U Bolt
2	6657H	Lift Handle Extension
3	6665H	U Bolt Plate
4	6684H	Huglock Nut 3/8 - 16
5	6654H1	Lift Link L.H.
6	4939M	Retainer Spring (4 Required)
7	6655H1	Lift Link R.H.
8	4927H	E Ring
9	4853H1	Idler Arm
10	4933H	Idler Pulley
11	6656H	Adjusting Pin
12	6652H	Belt Retainer Link
13	634A60	Lever and Arm
14	4379H	Handle Grip
15	103395	Cotter Pin 5/32 x ¾
16	4497H	Retainer Spring
17	4931H	Engine Sheave
18	4914H	Sq. Key ¼ Sq.
19	6683H	E Ring
20	624A12	Idler Arm Support and Pivot
21	634A241	Engine 7 H.P. Model 143.586162
22	634A56	Hitch Channel Weldment
23	575H	Throttle Control
24	6680H	Throttle Wire
25	6681H	Throttle Wire Cover
26	6671H	Tine Shield
27	634A64	Tine Plate and Hub R.H. (less tines)
28	634A63	Tine Plate and Hub L.H. (less tines)
29	6712H	Tine L.H.
30	6713H	Tine R.H.
31	120377	Hex Nut 3/8 - 16
32	131099	Lock Washer 3/8"
33	179839	Finished hex bolt 3/8 - 16 x 1 grade 5 H.T.
34	4897H1	V-Belt ½" x 38" 4L380
35	120638	Lockwasher 5/16
36	131096	Lock Washer #10
37	120361	Hex Nut #10 - 24
38	131098	Lockwasher ¼
39	120375	Hex Nut ¼ - 20
40	124829	Hex Ham Nut 3/8 - 16
41	4951H	Engine Base
42	6682H	Turnbuckle Spring
44	624A13	Belt Guard and Brackets
45	120395	Washer 11/32 x 11/16 x 16 Ga.
A	120741	Hex Bolt 5/16 - 24 x ¾
B	445639	Truss Hd. Slotted Machine Screw #10 - 24 x ¾ C.P.
C	121900	Hex Bolt ¼ - 20 x 1
D	120918	Hex Bolt 3/8 - 16 x 1½
E	180128	Hex Bolt 3/8 - 16 x 1¾ Grade 5 H.T.
F	21630510	Hex Bolt W/External Tooth Lock Washer 5/16 - 24 x 5/8
G	17850512	Hex Bolt W/External Tooth Lock Washer 5/16 - 18 x ¾
H	120918	Hex Bolt 3/8 - 16 x 1½
J	120580	Hex Socket Headless Set Screw 5/16 - 18 x ¼
---	8408H	Instruction and Parts Book

OPTIONAL EQUIPMENT (NOT ILLUSTRATED)

3567H	Slow Speed Engine Pulley for 1" dia. shaft
6109H	Slow Speed Engine Pulley for 1-1/8" dia. shaft
3568H	V Belt for 3567H or 6109H slow speed engine pulleys
5352H1	Slow speed engine pulley for 3 speed custom tractor
5559H	V Belt for 5352H1 Engine Pulley.

KEY NO.	PART NO.	DESCRIPTION
1	634A67	Transmission
2	4939M	Retainer spring
3	4929H	Drilled pan head rivet 3/8 x ¾
4	634A61	Gauge wheel sleeve and brackets
5	634A62	Gauge wheel adjusting shaft and brackets
5A	19121316	Washer 25/64 x 13/16 x 16 Ga.
6	4930H	Wheel
7	4898H	Shoulder bolt
8	8274H	Hub cap
9	103028	Hex nut ½ - 20
10	131099	Lockwasher 3/8
11	03560600	Lock nut
12	4932H	Input sheave
13	4697H	Oil seal
14	4894H	Needle bearing
15	6677H	Needle bearing shell
16	4895H	Needle bearing
17	4910H	Oil seal
18	4896H	Needle bearing
19	4877H1	Gear case shield L.H.
20	634A65A	Gear case half and bearings
21	4911H2	Gasket
22	4870H	Thrust cap
23	4950H	Roller link
24	4949H	Connecting link
25	4903H	Roller chain
26	9880M	Dowel pin
27	4912H	Gasket
28	624A2	Tine shaft and sprocket
29	1370H	Thrust bearing race
30	634A59	2nd reduction shaft and gears
31	634A58	1st reduction shaft and gears
32	9858M1	Woodruff key 3/16 x 5/8
33	634A57	Input shaft and pinion
34	6672H	Gear shift cover
35	5855H	Relief valve
36	4913H	Gasket
36A	-----	Model number plate
37	219199	Pipe plug ½ 14 N.P.T.
38	634A66A	Gear case half and bearings R.H.
39	4878H1	Gear case shield R.H.
40	120638	Lockwasher 5/16
41	120376	Hex nut 5/16 - 18
42	1685H	Lock nut 5/16 - 18
43	19121410	Washer 3/8 x 7/8 x 10 Ga.
44	120377	Hex nut 3/8 - 16
A	106333	Hex bolt 3/8 - 16 x 2¼
B	9404999	Hex head tapping screw 5/16 - 18 x 1½ Type T
C	122007	Hex bolt 5/16 - 18 x ¾
D	122065	Hex bolt 5/16 - 18 x 2
E	9403810	Flat head slotted tapping screw 5/16 - 18 x 1½
F	9403808	Flat head slotted tapping screw 5/16 - 18 x 1¼
G	144490	Hex bolt 5/16 - 18 x 5½
H	17850512	Hex bolt with external tooth lockwasher 5/16 - 18 x ½

COAST TO COAST NATION-WIDE SERVICE FROM SEARS FOR YOUR ROTO-SPADER ATTACHMENT

SEARS, ROEBUCK AND CO. and SIMPSONS-SEARS LIMITED in Canada back up your investment with quick mechanical service and genuine replacement parts.

If and when you need repairs or service, call on us to protect your investment in this fine piece of equipment.

634X63

ROTO-SPADER ATTACHMENT 917.251840

The Model Number will be found on a plate attached to R.H. side of transmission.

ENGINE MODEL NUMBER

See Engine Manual for Engine Model Number and Engine Parts List.

HOW TO ORDER REPAIR PARTS

All parts listed herein may be ordered through SEARS, ROEBUCK AND CO. or SIMPSONS-SEARS LIMITED. When ordering parts by mail from the mail order house which serves the territory in which you live, selling prices will be furnished on request or parts will be shipped at prevailing prices and you will be billed accordingly.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION AS SHOWN IN THIS LIST:

1. The PART NUMBER.
2. The PART NAME.
3. The MODEL NUMBER - 917.251840
4. The NAME of item - Roto-Spader.

SEARS, ROEBUCK AND CO. - U.S.A.

SIMPSONS - SEARS LIMITED, CANADA