



# MODEL 2 ROTOTILLER

Trade Mark Reg.

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## PARTS MANUAL AND GENERAL INSTRUCTIONS

**ROTOTILLER, INC.**  
TROY, N. Y.  
U. S. A.

Founder of Rotary Soil Conditioning in the U. S. A.  
Since 1930

The parts listed on this page are for Models T2 and T3 only and are different from corresponding parts in the Model 2 Rototiller.

**MODEL T2**

**LIGHTNING CHANGE FRONT ASSEMBLY**

Part No. NAME  
T2A-1A Attachment Bracket

**BELT AND PULLEYS**

T231A Drive Pulley  
150 Cone Pulley  
2370 Low Speed Belt  
2333 High Speed Belt  
Low Speed Belt is used only when Rototiller is tilling under

**MOTOR MOUNT AND HANDLE BAR BASES**

T2A-13 Belt Pin

**WHEEL DRIVE AND CLUTCH ASSEMBLY**

T2-13 Wheel Drive Worm Gear

**CHASSIS AND WORM DRIVE ASSEMBLY**

T2-11 Drive Shaft  
T2-67 Sleeve "A"  
T2-30A Rear Spacer  
T2-8 Front Bearing Cap  
T2-50 Wheel Drive Worm  
T2-15A Time Drive Worm  
T2-30 Drive Shaft Spacer (Front)  
436 Ball Bearing  
416 Bearing Cone  
503 One Piece Retaining Ring

**TILLER DRIVE HOUSING ASSEMBLY**

T2-1 Tiller Drive Housing  
T2-6 Tiller Drive Worm Gear

**TINE HOLDER ASSEMBLY**

Standard equipment on Model T2

**ROTO-MILLER CHOPPER ASSEMBLY**

Available for use on Model T2

**MODEL T3**

**LIGHTNING CHANGE FRONT ASSEMBLY**

Part No. NAME  
T3A-1A Attachment Bracket

**BELT AND PULLEYS**

T3-31A Drive Pulley  
150-A Cone Pulley  
2410 Low Speed Belt  
2370 High Speed Belt  
very difficult conditions such as extremely hard ground.

**MOTOR MOUNT AND HANDLE BAR BASES**

T3A-13 Belt Pin

**WHEEL DRIVE AND CLUTCH ASSEMBLY**

T3-13 Wheel Drive Worm Gear

**CHASSIS AND WORM DRIVE ASSEMBLY**

T3-11 Drive Shaft  
T3-67 Sleeve "A"  
T3-30A Rear Spacer  
T3-8 Front Bearing Cap  
T3-50 Wheel Drive Worm  
T3-15A Time Drive Worm  
T3-30 Drive Shaft Spacer (Front)  
436 Ball Bearing  
416 Bearing Cone  
503 One Piece Retaining Ring

**TILLER DRIVE HOUSING ASSEMBLY**

T3-1 Tiller Drive Housing  
T3-6 Tiller Drive Worm Gear

**TINE HOLDER ASSEMBLY**

Available for use on Model T3

**ROTO-MILLER CHOPPER ASSEMBLY**

Standard equipment on Model T3

**YOUR MODEL 2** is an exceptionally well-built machine. Throughout its construction only the most desirable material is used. Workmanship throughout is equal to or better than general automobile practice.

Your machine has been carefully assembled, thoroughly tested and was in perfect **working condition** when it left the factory.

The efficiency of your Rototiller as well as its economy in operation depends largely upon the care it receives during the first months of service. Giving systematic attention to lubrication and mechanical adjustments will insure your receiving complete satisfaction.

With this care, your Rototiller should give you years of performance. Be proud of your Rototiller and respect it by giving it the care and attention a fine piece of machinery requires.

## PRICES, TERMS AND CONDITIONS

**DISCOUNTS.** We do not allow discounts excepting to bona fide Rototiller, Inc. dealers who are properly equipped to conduct their business successfully and serve the best interests of Rototiller owners.

**TERMS.** Orders will receive prompt attention. If no remittance accompanies order, shipment will be made C. O. D.

When remittance is forwarded, the amount must be sufficient to cover the postage also. If the remittance is more than sufficient, we will refund the amount overpaid.

**REMITTANCES** should be made by New York Exchange, Post Office Money Order, or Express Money Order. When checks on local banks are sent, we hold the order until we receive returns from the check.

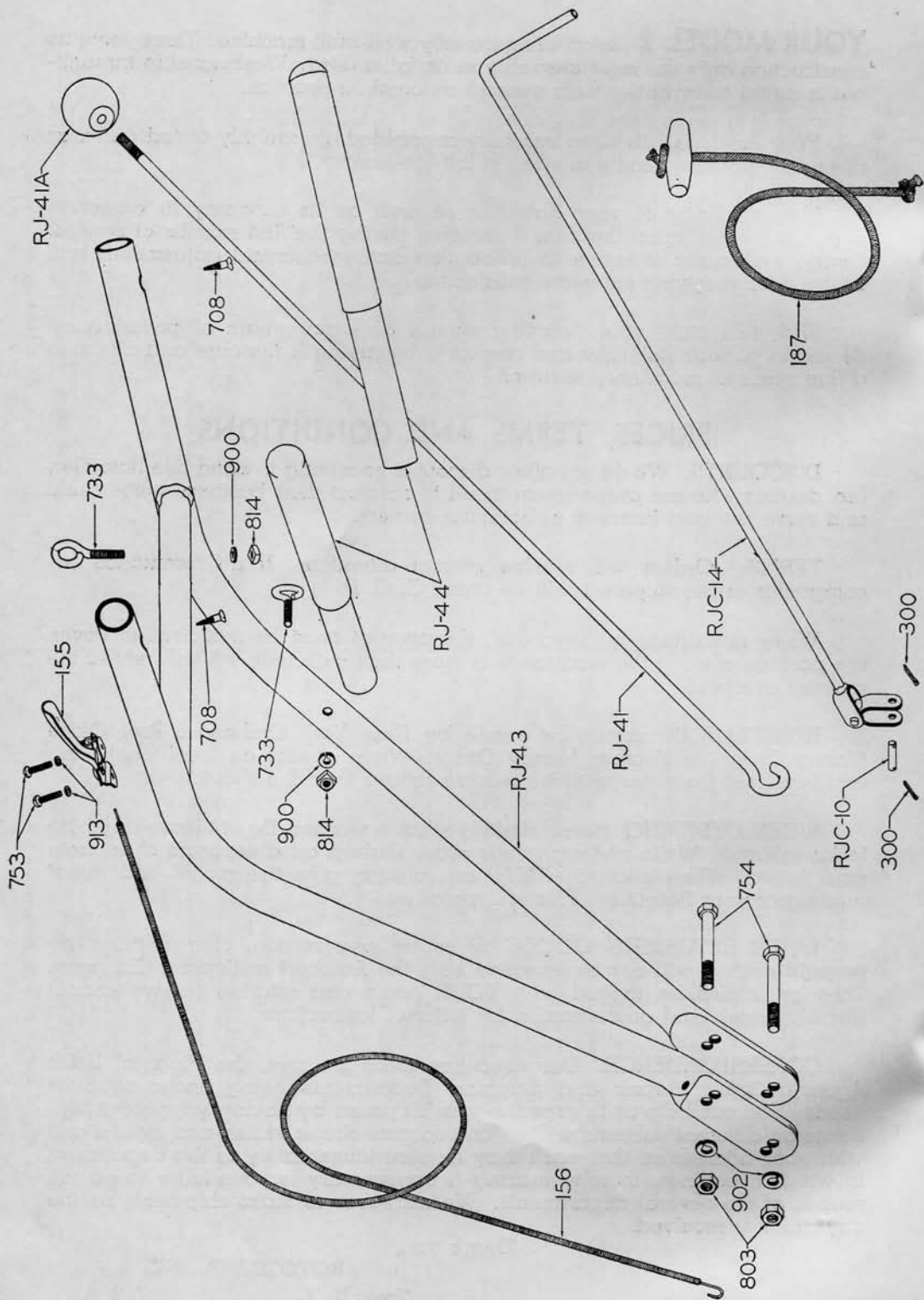
**WHEN ORDERING,** state definitely what is wanted. Do not leave anything to be inferred. Write and sign your order plainly, on a separate sheet from your letter. When ordering ANY part, always give the model and motor number of your Rototiller. This is imperative.

**WHEN RETURNING GOODS** to us for any reason, charges must be **prepaid or they will not be accepted** from the Railroad or Express Company. They must also be tagged with YOUR name and address (or we cannot identify them), and accompanied by letter of instructions.

**CORRESPONDENCE.** Our executive force is large, the Finance, Sales Agency, Order, Repair and Shipping Departments being under separate heads. You can help us to expedite your shipment by having your correspondence on different subjects written on separate sheets, dated and signed and with your address so that each may be sent immediately to the department to which it belongs, thereby making it unnecessary for one letter to go the rounds of the several departments. We endeavor to make shipments on the day order is received.

Thank you,

**ROTOTILLER, INC.**  
Troy, N. Y. U. S. A.



## HANDLE BAR AND CONTROL ASSEMBLY

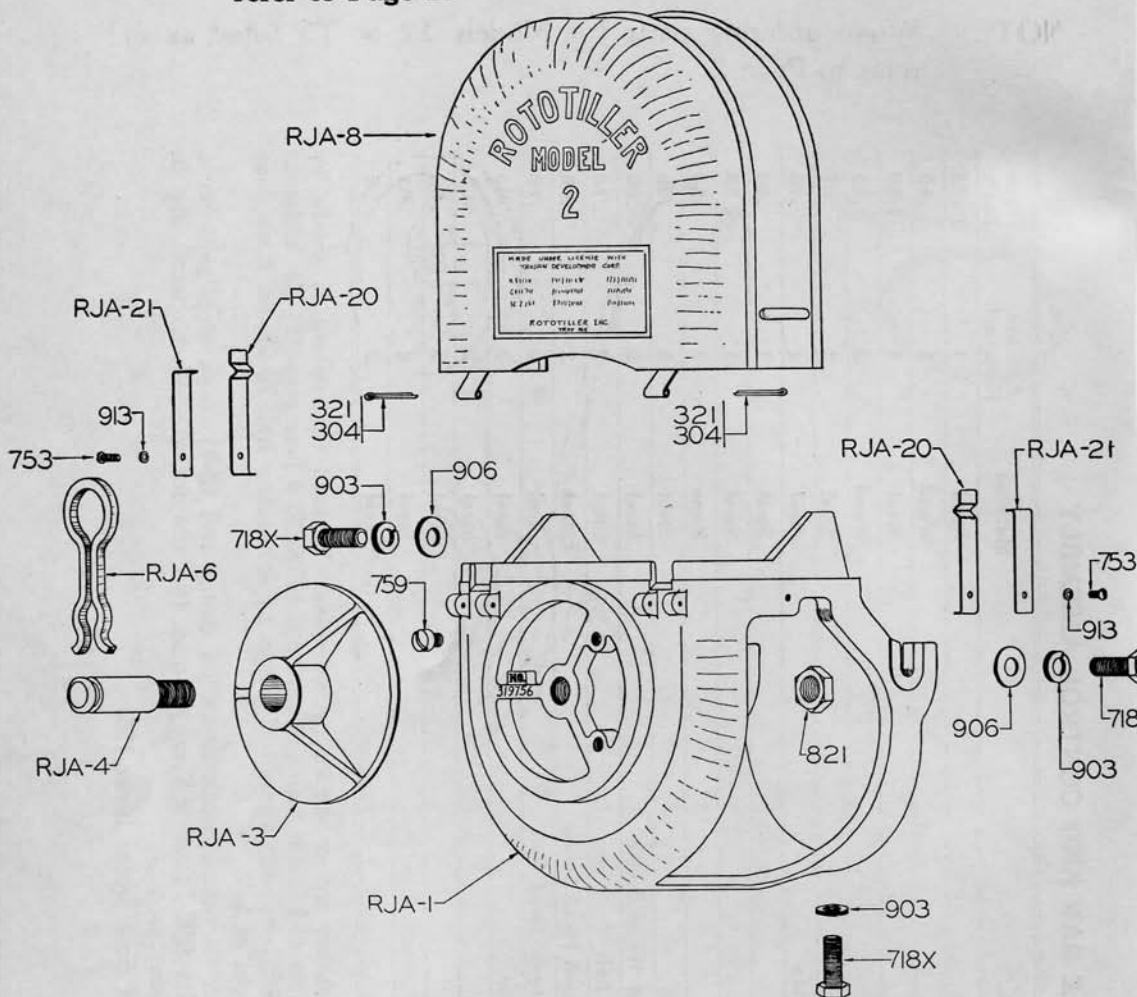
Part Number	NAME	Material	Number Required	Price Each
RJ-41	Clutch Rod	Steel	1	\$ .75
RJ-41A	Clutch Rod Grip	Wood	1	.10
RJ-43	Handle Bars	Steel	1	7.50
RJ-44	Handle Bar Grip	Wood	2	.25
RJC-10	Eccentric Shaft Pin	Steel	1	.05
RJC-14	Control Rod Assembly	Steel	1	.75
155	Accelerator Lever	Steel	1	.80
156	Accelerator Cable	Steel	1	1.25
187	Starting Rope	Rope	1	.50
300	1/16 x 1 Cotter Pin	Steel	2	.05
708	#12 x 1 Flat Head Wood Screw	Steel	2	.05
733	1/4—20 x 1 1/2 Eye Bolt	Steel	2	.10
753	#10—32 x 1/2 Round Head Screw	Steel	2	.05
754	3/8—16 x 3/4 Hexagon Head Bolt	Steel	2	.10
803	3/8—16 Hexagon Nut	Steel	2	.05
814	1/4—20 Square Nut	Steel	2	.05
900	1/4" Lock Washer	Steel	2	.05
902	3/8" Lock Washer	Steel	2	.05
913	#10 Lock Washer	Steel	2	.05

Handle bars (RJ-43) are adjustable up or down or sidewise. Vertical adjustment is made by position of bolts 754 in holes at heels of handle bar and on base block RJ-4 (see page 8). Six different vertical positions are possible. Sidewise adjustment is made by loosening bolt RJ-9A on base (see page 8) and swinging either to right or left.

To start Rototiller forward under its power, push down on clutch rod RJ-41 — to stop, pull back. To engage wheels, turn handle RJC-14 all the way down (do not force). When gears are in proper alignment, engagement is easy.

Motor speed is regulated with accelerator lever 155.

**NOTE** — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.

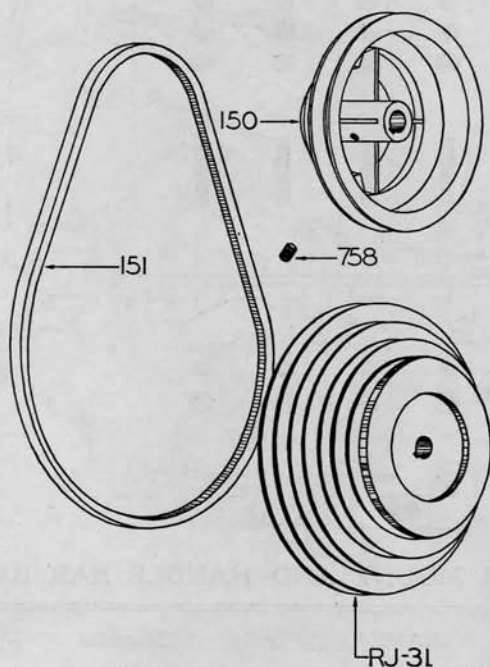


### LIGHTNING CHANGE FRONT ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
† RJA-1	Attachment Bracket	Cast Iron	1	\$10.50
RJA-3	Plate	Cast Iron	1	2.50
RJA-4	Bracket Pin	Steel	1	.75
RJA-6	Retainer Clip	Steel	1	1.50
RJA-8	Pulley Guard	Steel	1	3.50
RJA-20	Spring #1	Steel	2	.05
RJA-21	Spring #2	Steel	2	.05
* 304	1/8 x 1 1/2 Cotter Pin	Steel	2	.05
* 321				
753	#10—32 x 1/2 Round Head Screw	Steel	2	.05
759	3/8—16 x 1/2 Fillister Head Screw	Steel	1	.05
718X	1/2—13 x 1 1/4 Hexagon Head Screw	Steel	3	.05
903	1/2" Lock Washer	Steel	3	.05
906	1/2" Flat Washer	Steel	2	.05
913	#10 Lock Washer	Steel	2	.05

\* Note. 1/8 x 2 Cotter Pin is used on Attachment Bracket with wide Pulley Guard Clip Bosses.

**NOTE** — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.



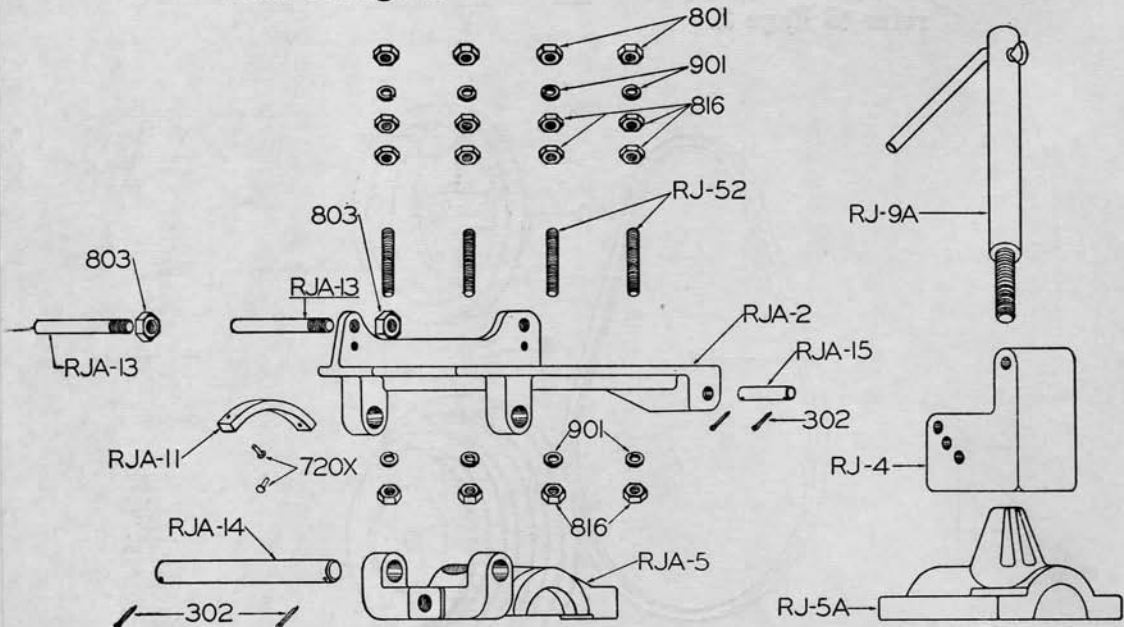
### BELT AND PULLEYS

Part Number	NAME	Material	Number Required	Price Each
† RJ-31	Drive Pulley	Aluminum	1	\$9.00
† 150	Cone Pulley	Aluminum	1	4.50
† 151	"V" Belt (No. 2333)	Rubber	1	1.45
758	5/16—18 x 3/8 Socket Set Screw	Steel	1	.10

The adjustment of "V" belt 151 is made by tilting cap RJA-5 (see next page) which raises or lowers the hinged end of the motor base.

The belt acts as the motor clutch. It must be gently tight when engaged and loose when disengaged. Too tight or too loose a belt will cause power loss. Belt must run between two guide posts (not over them) and should only touch guide posts when motor is disengaged and belt is loose.

**NOTE** — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.



### MOTOR MOUNT AND HANDLE BAR BASES

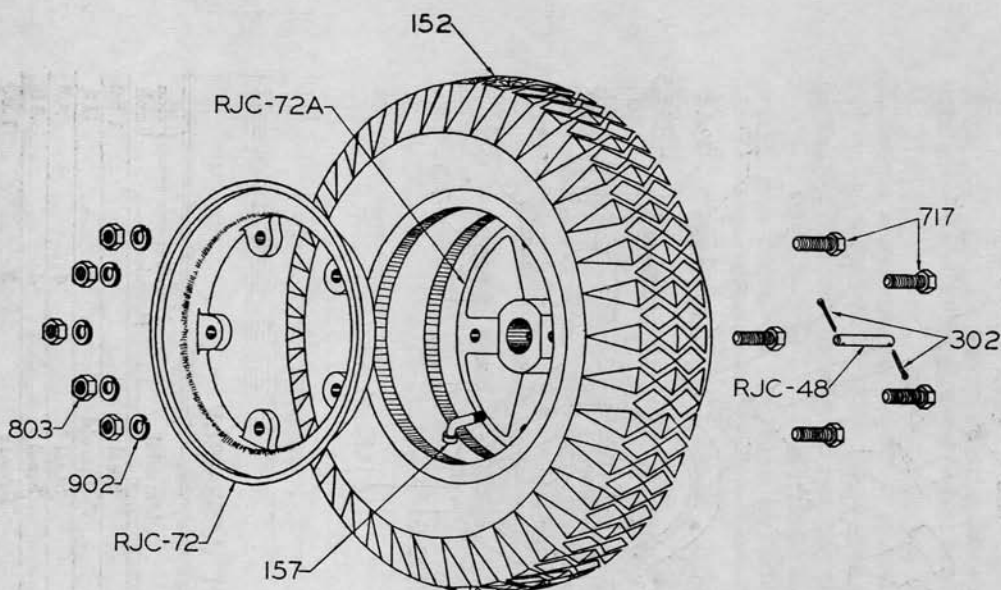
Part Number	NAME	Material	Number Required	Price Each
RJA-2	Motor Base	Cast Iron	1	\$2.00
RJA-5	Bracket Cap	Cast Iron	1	1.75
RJA-11	Brake Shoe	Leather	1	.25
† RJA-13	Belt Pin	Steel	2	.15
RJA-14	Motor Base Pin	Steel	1	.40
RJA-15	Swivel Pin	Steel	1	.15
RJ-4	Handle Bar Bracket	Cast Iron	1	2.00
RJ-5	Handle Bar Pivot	Cast Iron	1	2.00
RJ-9A	Clamp Assembly	Steel	1	.75
* RJ-52	Motor Stud	Steel	4	.10
- RJ-52A	Motor Stud—Short	Steel	4	.10
302	3/32 x 1 Cotter Pin	Steel	4	.05
720X	1/8 x 3/4 Tinnens Rivet	Steel	2	.05
801	5/16—18 Hexagon Nut	Steel	4	.05
803	3/8—16 Hexagon Nut	Steel	2	.05
816	5/16—18 Hexagon Jam Nut	Steel	12	.05
901	5/16 Lock Washer	Steel	8	.05

\* Used with Briggs & Stratton Engines.

- Used with Clinton Engines.

Leather piece RJA-11 is a brake used to quickly check speed of power pulley and keep machine from creeping forward when clutch is disengaged. This part will wear out and must be renewed from time to time.



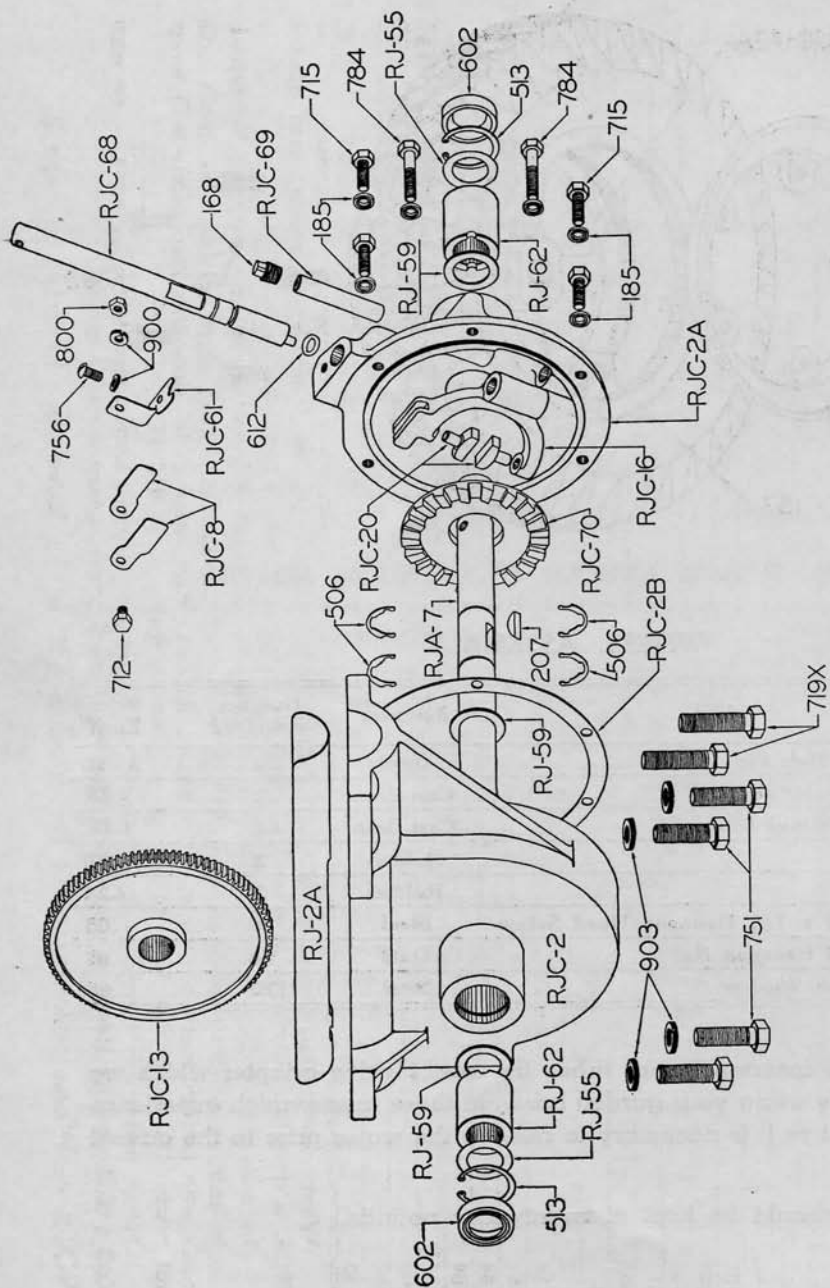


### WHEEL ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RJC-48	Wheel Hub Pin	Steel	2	\$ .10
RJC-72	Outside Wheel Disc	Cast Iron	2	2.25
RJC-72A	Inside Wheel Disc	Cast Iron	2	1.25
152	Tire	Rubber	2	6.30
157	Tube	Rubber	2	2.24
717	$\frac{3}{8}$ —16 x 1 $\frac{1}{4}$ Hexagon Head Screw	Steel	10	.05
803	$\frac{3}{8}$ —16 Hexagon Nut	Steel	10	.05
902	$\frac{3}{8}$ Lock Washer	Steel	10	.05

Water can be inserted in tire tubes by use of valve adapter which we can supply, and by using your garden hose. In those areas which experience freezing temperatures it is necessary to remove the water prior to the advent of cold weather.

Air pressure should be kept at twenty-four pounds.



### WHEEL DRIVE AND CLUTCH ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RJA-7	Axle	Steel	1	1.50
RJ-2A	Wheel Drive Housing Gasket	Vellumoid	1	.15
RJ-55	#1 Shim	Steel	4	.05
RJ-59	Wheel Drive Housing Washer	Steel	4	.10
RJ-62	Front Bushing	Bronze	2	1.00

RJC-2	Wheel Drive Housing	Cast Iron	1	8.50
RJC-2A	Housing Cover	Cast Iron	1	3.50
RJC-2B	Housing Cover Gasket	Vellumoid	1	.10
RJC-8	Speed Shifting Spring	Steel	2	.12
†RJC-13	Wheel Drive Worm Gear	Bronze	1	10.00
RJC-16	Speed Shifting Fork	Cast Iron	1	1.25
RJC-20	Speed Shifting Fork Shoe	Brass	2	.30
RJC-61	Spring Clip	Steel	1	.30
RJC-68	Eccentric Shaft	Steel	1	1.00
RJC-69	Fork Pin	Steel	1	.25
RJC-70	Wheel Drive Clutch	Cast Iron	1	2.15
168	¼" Pipe Plug	Steel	1	.10
185	5/16 Copper Gasket	Copper-Asbestos	6	.02
207	¼ x 1 Woodruff Key	Steel	1	.10
506	Two Piece Retaining Ring	Steel	2	.25
513	One Piece Retaining Ring	Steel	2	.20
602	Oil Seal	Steel	2	.70
612	"O" Ring	Rubber	1	.15
712	¼—20 x ⅝ Hexagon Head Screw	Steel	1	.05
715	5/16—18 x ¾ Hexagon Head Screw	Steel	4	.05
751	½—13 x 1 ¼ Hexagon Head Screw	Steel	4	.10
756	¼—20 x ½ Round Head Screw	Steel	1	.05
784	5/16—18 x 1 ¾ Hexagon Head Screw	Steel	2	.05
719X	½—13 x 2 Hexagon Head Tap Bolt	Steel	2	.15
800	¼—20 Hexagon Nut	Steel	1	.05
900	¼" Lock Washer	Steel	2	.05
903	½" Lock Washer	Steel	6	.05

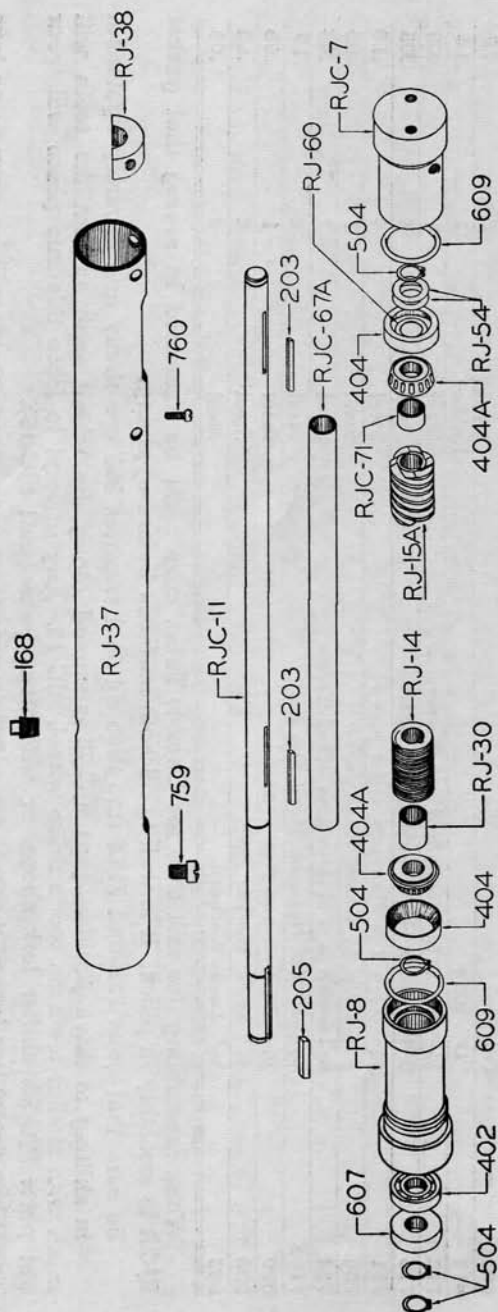
When assembling this unit onto the Chassis Tube, care must be exercised in seeing that gasket RJ-2A is smoothly in place. It is well to oil both surfaces before applying.

Be sure that bolts 751 and 719X and also oil seal washers 903 are firmly and securely tightened. In shifting to drive position, part RJC-70 is moved along the wheel shaft so that the teeth will mesh with similar teeth on worm drive wheel, RJC-13. Any attempt to force this into place will wear out parts RJC-20, shifter fork shoes, or will break yoke (part RJC-16).

When motor has turned worm drive wheel to proper position, engagement will be easy — so turn shift handle gently keeping slight pressure on it until engagement is made easily.

**NOTE** — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.

NOTE — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.



### CHASSIS AND WORM DRIVE ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RJC-7	Rear Bearing Cap	Cast Iron	1	\$1.50
† RJC-11	Drive Shaft	Steel	1	4.00
† RJC-67A	Sleeve "A"	Steel	1	.75
† RJC-71	Rear Spacer	Steel	1	.15
† RJ-8	Front Bearing Cap	Cast Iron	1	2.50
† RJ-14	Wheel Drive Worm	Steel	1	3.50
† RJ-15	Tine Drive Worm	Steel	1	4.50
† RJ-30	Drive Shaft Spacer	Steel	1	.10

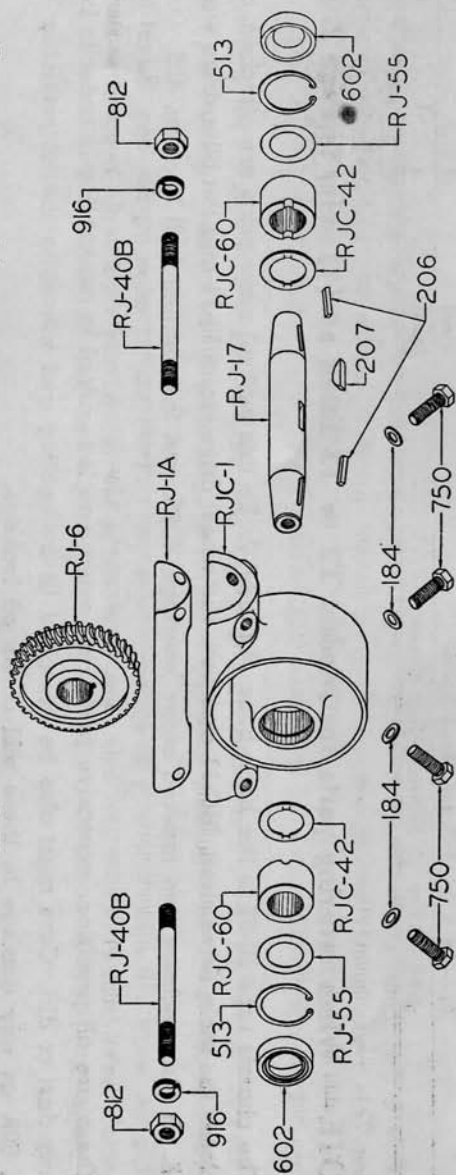
RJ-37	Chassis Tube	Steel	1	4.50
RJ-38	Tapped Block	Steel	1	.50
RJ-54	Bearing Shim	Steel	4	.05
RJ-60	#3 Shim	Steel	1	.05
168	¼" Pipe Plug	Steel	1	.10
203	½ Square Key x 1 ¾" Long	Steel	2	.10
205	3/16 Square Key x 2" Long	Steel	1	.10
† 402	Ball Bearing	Steel	1	2.35
404	Bearing Cup	Steel	2	1.40
† 404A	Bearing Cone	Steel	2	2.30
† 504	One Piece Retaining Ring	Steel	4	.15
607	Oil Seal		1	.55
609	"O" Ring	Rubber	2	.15
759	¾—16 x ½ Fillister Head Screw	Steel	1	.05
760	#10—32 x ½ Fillister Head Screw	Steel	1	.05

**NOTE** — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.

The chassis tube RJ-37 is the back bone of Model 2. To this part all other parts are attached, and it encloses the main drive shaft, RJC-11 and both the wheel drive worm RJ-14 and the tiller drive worm, RJ-15A. It also encloses two tapered roller bearings, 404A and the annular ball bearing, 402.

These are all precision, expensive parts and great care is required in assembling in order to keep out any dust or dirt. Care must also be exercised in assembling and mounting the oil retaining "O" rings, 609, as any damage to these will cause oil leakage.

NOTE — When ordering parts for Models T2 or T3 listed as (†) refer to Page 2.



### TILLER DRIVE HOUSING ASSEMBLY

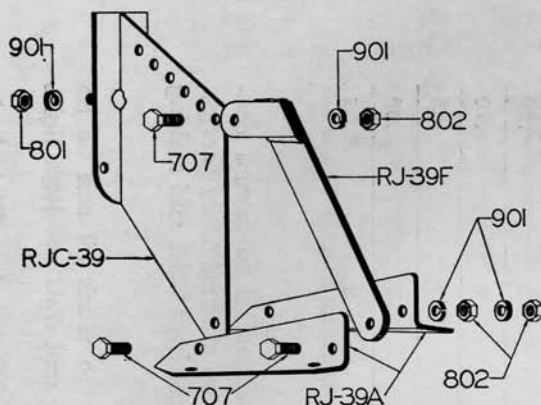
Part Number	NAME	Material	Number Required	Price Each
RJ-1A	Tiller Drive Housing Gasket	Vellumoid	1	\$ .10
† RJ-6	Tiller Drive Worm Gear	Bronze	1	5.00
RJ-17	Tine Shaft	Steel	1	1.50
RJ-40B	Tine Shaft Stud	Steel	2	.25
RJ-55	#1 Shim	Steel	4	.05
† RJC-1	Tiller Drive Housing	Aluminum	1	5.00
RJC-42	Rear Thrust Washer	Steel	2	.10
RJC-60	Rear Bushing	Bronze	2	.75

184	3/16 Copper Gasket	Copper	4	.05
206	3/16 Square Key 1 1/16 Long	Steel	2	.10
207	1/4 x 1 Woodruff Key	Steel	1	.10
513	One Piece Retaining Ring	Steel	2	.20
602	Oil Seal		2	.70
750	3/8—16 x 1 1/4 Hexagon Head Screw	Steel	4	.05
812	7/16—14 Hexagon Nut	Steel	2	.05
916	7/16 Lock Washer	Steel	2	.05

This is the business end of the Model 2. The bearings and parts are subject to severe conditions. This means that a certain amount of attention is required to assure years of satisfactory service. This is easily and quickly done, as all that is required is to see that bolts 750 are kept tight, and making sure the oil level in the chassis tube is always maintained.

Always remember that in any piece of high grade precision machinery too much oil can do no damage but one drop too little may cause great damage. Be sure all bolts and nuts are kept tight.

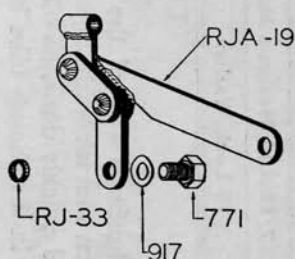
Oil Seals, 602, are intentionally installed backwards to prevent dirt entering housing. Slight leakage of oil may occur until Rototiller has been operated a few hours and until seals become seated on tiller shaft (RJ-17).



### DEPTH CONTROL ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RJC-39	Blade Assembly	Steel	1	\$2.75
RJ-39A	Depth Control Shoe	Steel	2	.50
RJ-39F	Link Assembly	Steel	1	1.00
707	5/16—24 x 3/4 Hexagon Head Screw	Steel	3	.05
801	5/16—18 Hexagon Nut	Steel	1	.05
802	5/16—24 Hexagon Nut	Steel	3	.05
901	5/16 Lock Washer	Steel	4	.05

Depth control assembly should be entirely removed when working in heavy, stringy, cover crops.

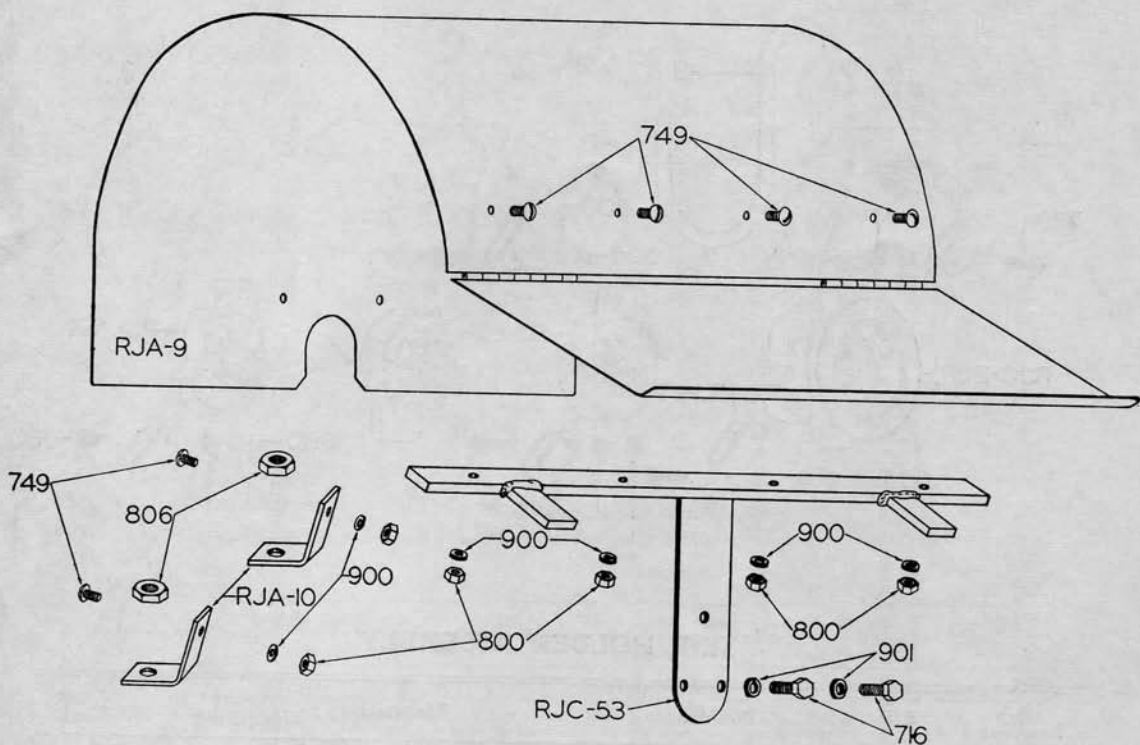


### MOTOR CLUTCH CONTROL

Part Number	NAME	Material	Number Required	Price Each
RJA-19	Clutch Linkage	Steel	1	1.00
RJ-33	Collar	Steel	1	.15
771	1/2—13 x 3/4 Hexagon Head Bolt	Steel	1	.05
917	17/32 Bowed Washer	Spring Steel	1	.05

Motor clutch control bolt 771 must be kept tight, otherwise severe rattling will occur. (See page 16).

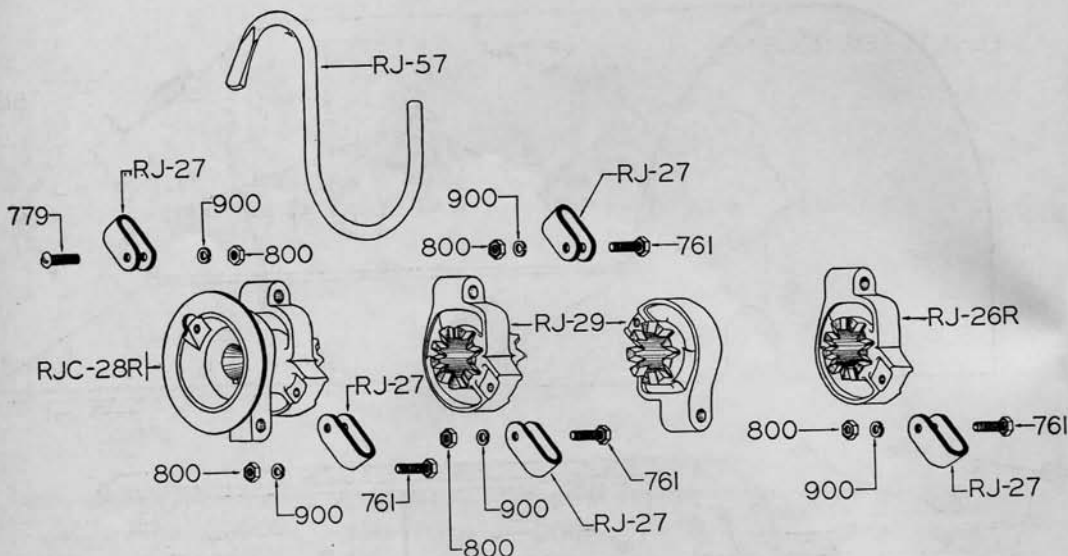




### HOOD ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RJA-9	Hood Assembly	Steel	1	\$5.00
RJA-10	Hood Clip	Steel	2	.25
RJC-53	Hood Bracket Assembly	Steel	1	1.50
716	5/16—18 x 1 Hexagon Head Screw	Steel	2	.05
749	1/4—20 x 5/8 Truss Head Screw	Steel	6	.05
800	1/4—20 Hexagon Nut	Steel	6	.05
806	1/2—13 Hexagon Jam Nut	Steel	2	.05
900	1/4 Lock Washer	Steel	6	.05
901	5/16 Lock Washer	Steel	2	.05

The hood should be used at all times in order to produce a smooth level seed bed, and as a protection.



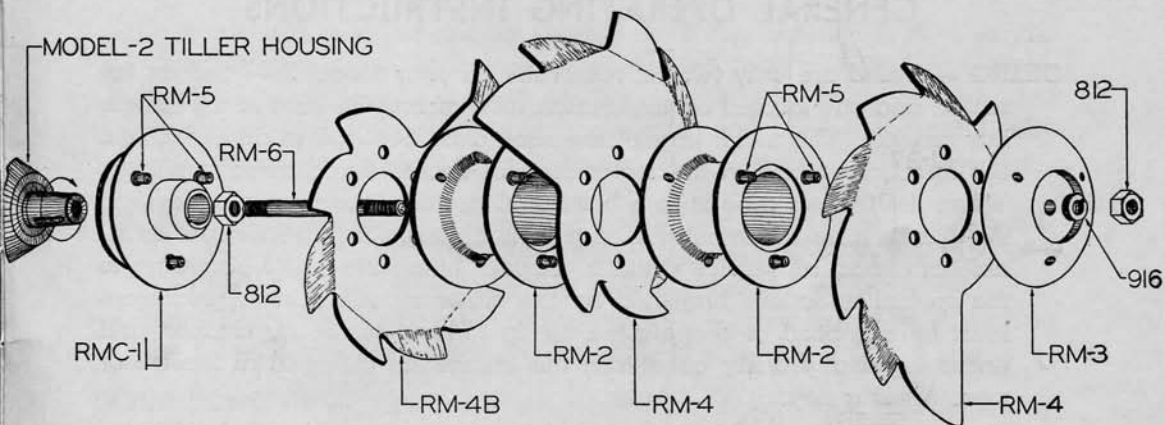
### TINE HOLDER ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RJC-28R	R. H. Inside Tine Holder	Cast Iron	1	\$3.50
RJC-28L	L. H. Inside Tine Holder	Cast Iron	1	3.50
RJ-26R	R. H. Outside Tine Holder	Cast Iron	1	.90
RJ-26L	L. H. Outside Tine Holder	Cast Iron	1	.90
RJ-27	Tine Clip	Steel	12	.15
RJ-29	Middle Tine Holder	Cast Iron	6	.90
RJ-57	Pointed Tine	Steel	12	.45
761	¼—20 x 1 Hexagon Head Screw	Steel	10	.05
779	¼—20 x 1¼ Round Head Screw	Steel	2	.05
800	¼—20 Hexagon Nut	Steel	12	.05
900	¼ Lock Washer	Steel	12	.05

The tine holder assembly is such that more or less RJ-29 middle tine holders can be used. By adding additional tine holders, a wider cut can be made, and by omitting, a narrower cut will be obtainable.

Proper studs (RJ-40, page 14) are available in lengths required to make any change considered desirable.

Tine holders must be as evenly spaced around the tine circle as possible. Exact even spacing is not always possible, but approximate even spacing is entirely satisfactory.



### ROTO-MILLER ASSEMBLY

Part Number	NAME	Material	Number Required	Price Each
RMC-1	Inside Holder	Cast Iron	2	\$4.05
RM-2	Middle Holder	Cast Iron	4	3.00
RM-3	Cap	Cast Iron	2	1.00
RM-4	Outside Blade	Steel	4	1.40
RM-4A	Right Blade	Steel	1	1.65
RM-4B	Left Blade	Steel	1	1.65
RM-5	Pin	Steel	18	.08
RM-6	Stud	Steel	2	.25
812	7/16—14 Hexagon Nut	Steel	4	.05
916	7/16 Lock Washer	Steel	2	.05

Roto-Millers are made for surface mulching and not deep digging.

Roto-Millers revolve in a direction which causes the points to trail. If Roto-Millers are assembled backward, they will not function, will tangle up, and prove to be completely unsatisfactory.

A special book on the use and mounting of Roto-Millers is available to all owners of Roto-Millers.

## GENERAL OPERATING INSTRUCTIONS

**OILING** — There are only two oil reservoirs on your Model 2 — one on the motor, and one located on the chassis tube directly in front of the handle bar bracket. The motor crank case should be kept full at all times, and the directions found in the motor manual should be followed implicitly. When the chassis tube is in a horizontal position, the proper oil level in the chassis tube is one-half full of #90 multi purpose gear lubricant available at almost all service stations. Besides oiling the motor according to the special directions furnished by the motor manufacturers, great care must be exercised in keeping the oil up to level in the air cleaner, and under especially dusty conditions this should be changed at least 2 or more times a day.

The toggle linkage which raises and lowers the motor base should also be kept lubricated.

**STARTING MOTOR** — We refer you to the accompanying instructions for care and operation of the engine. In order that you may have trouble-free operation, **it is essential that these instructions be learned and followed.**

**CLUTCH** — Your Rototiller has two clutches. One located on the handle bar cross bar which is known as the motor clutch, and the other located on the right side of the handle bar which is known as the wheel clutch. By pushing forward on the motor clutch the engine is raised, thus tightening the V belt which transmits power to the main drive shaft. After several hours use, the V Belt will tend to stretch and in order to retain the same tension on the V Belt it will be necessary to increase the center to center distance between the two four-step pulleys. In order to accomplish this it is first necessary to loosen the two bolts on the ends of the motor base mounting cap, part RJA-5, which hold the top of the Lightning Change Front in place. The next step is to loosen the cap screw, part number 751, which fastens the left or hinge end of the motor base mounting cap to the wheel housing. The cap screw, 751, on the opposite end of the motor base mounting cap should then be tightened. It is necessary to tilt the motor base mounting cap only a fraction of an inch in order to increase the tension the required amount. Due to the force exerted by the motor clutch control when the motor is raised it is easily possible to bend the drive shaft supporting the lower four-step pulley if the belt is too tight. Great care should therefore be exercised to raise the motor only the amount necessary to restore the proper tension.

Both rubber tired wheels are keyed to the axle shaft so that it is impossible to operate with only one wheel engaged. When the wheel clutch handle points upward, the wheel clutch is in the disengaged position which will allow the axle to turn freely. When the clutch handle points downward, the clutch is engaged and the wheels are thus locked in gear. When engaging this clutch, **be sure not to use force and be sure handle is all the way up or all the way down.**

If your clutch does not readily engage when the machine is stopped, the clutch dogs will be hitting against each other and in order to get them to mesh it is necessary to move the Rototiller either forward or backward an inch or two. If the motor clutch is already engaged, then no difficulty will be experienced in engaging the wheel clutch.

**WARNING** — The wheel clutch is not a brake, and if, when using the trailer or going down a hill, the wheel clutch is suddenly engaged it is very possible to cause damage which will necessitate tearing down your machine in order that repairs can be made. It is therefore wisest to engage the wheel clutch only when the Rototiller is stopped.

**DEPTH CONTROL** — Attached to the rear of the chassis tube is a device for regulating the depth of tillage. Two shoes, located on either side of the vertical section are adjustable in six locations. The lower these shoes are set, the shallower will be the cultivation or tilling and vice versa. Should the ground be exceptionally hard or covered with a thick cover crop, the shoes should be removed.

**HANDLE BARS** — The handle bars can be adjusted vertically by placing the bottom handle bar bolt in one of the three holes provided in the handle bar base as shown on page 8, RJ-4. The handle bar can be moved laterally and can be set in any one of three positions by loosening the cylindrical handle which fastens the handle bar base to the wheel housing RJ-9A.

**OPERATION** — When you have removed your Rototiller from its crate, mount the handle bars in the position most suitable to you. Thread the throttle cable up through the handle bar tube, and with a piece of hooked wire draw the end out of the upper hole located directly in front of the throttle control and cut off length not required. Remove the throttle by unscrewing the two screws. Pass the wire through the collar and through the hole in the adjustment swivel. Twist the throttle clockwise and screw it on to the cable. Replace throttle control and with pair of pliers, push the wire into cable thus closing the carburetor throttle. Set control lever in closed position and tighten set screw. Cut off wire leaving about  $\frac{1}{4}$ " protruding from swivel. Bind wire around swivel. Start motor in accordance with instructions in the special motor instruction book, making sure that the round handle clutch control is in the out position (pull back handle as far as it will go.) After engine has warmed up, engage wheel clutch, and push motor clutch handle forward. Lift handles high enough to keep tiller clear of ground to prevent digging. If you have considerable distance to go to get to your garden, machine should be in high speed or use free wheeling for easy transport. When you have arrived at the place you wish to till, stop machine and kill motor by pressing "shorter" against top of spark plug. Change belt to low speed position. Restart motor and engage motor clutch. Let tiller into the ground. It is not necessary to

hold the handle bars tightly and do not press down on them. Under tough conditions it may be necessary to hold back slightly on the handle bars until the machine has been over the ground once. When you have reached the end of the row, close the throttle so that the engine won't race. Reverse the direction of the Rototiller and start tilling in the next row. If you don't wish to walk directly behind the machine loosen the handle bar base and move handle bars either to right or left into the notches provided. Then retighten screw so that handle bars are solid. When tilling in stony, trashy, or tough going, the engine should be throttled down in order to have the tiller revolve slowly. This will prevent breakage. If these instructions are followed, the motor will stall before any damage will be done to the machine.

The following instructions should be followed for best results:

1. Under tough, bad conditions, operate in low gear with motor running slowly.
2. Under normal conditions, not too difficult tilling, operate in second speed, with motor running slowly.
3. Never use your tiller in 3rd or 4th speed unless the ground is friable and completely clean of all stones and trash.

Remember that as the speed of the tines increases, the blow on hitting stones or obstructions is increased, and that damage to the tines, or tine holders can only occur when tines are traveling at high speed. When tines are going slowly and motor is not racing, but just running smoothly at a moderate speed, it will stall before any damage can occur.

**PARTS OR ATTACHMENTS** — When ordering parts or attachments for your Rototiller it is essential that you give your machine number. This number is stamped on one of the horizontal ribs of the Lightning Change Front directly behind the removable disc.

**GUARANTEE** — To make your guarantee valid, the warranty card enclosed with these instructions must be filled in accurately and returned to the factory.

**CHANGING SPEEDS** — This should only be done when the engine is not in operation. To put Rototiller in slowest speed, belt should be placed on smallest diameter step on motor pulley and on the largest step of driven pulley. To increase speed place belt on next largest step, etc. Forward speed in any gear can be varied by opening or closing the hand throttle located on the handle bar.

**TINEHOLDERS** — Tineholders are held in place by studs screwed into ends of tiller shaft. To remove tineholders, unscrew nuts located on outside tineholders. If it is desired to decrease or increase number of tineholders, it will be necessary to also use shorter or longer studs. Inside tineholders

are keyed to the tapered tiller shaft, and it is recommended that when removing them, a tineholder puller be used to make this operation easy and to prevent any damage to the tineholders. It is essential that the nuts on the outside end of the tineholder studs be kept tight at all times. Tightness should be checked before operating the machine and every fifteen or twenty minutes for the first few hours of operation. The tineholders are castings and the surfaces of the meshing teeth are therefore necessarily rough. Vibration or use causes the meshing surfaces to become smooth which allows the tineholders to become loose or sloppy. When this condition exists, the tine shaft stud is allowed to bend and eventually it will break off where it enters the tiller shaft. To prevent this **keep the outside nuts tight.**

**TINES** — Two types of tines are available, the pointed or hooked tine for use in clean, hard ground, and the knife tines for use in cultivating or where there is a cover crop. These are designated by the numbers 1 and 2 respectively. It is advisable to have both types on hand. When tines are installed, only one tine on each side should be entering the ground at one time. Each tine should be staggered approximately 60 degrees from its next inside neighbor and the tines on the opposite tiller shaft should be in the same relative positions. In short, space the tines as evenly as possible around the tine circle. Changing of tines is made easier by having an additional set of tineholders.

**ROTO-MILLERS** — In addition to the tines described above, Roto-Millers are available which are designed primarily for surface tillage and incorporating cover crop into the soil and for cultivating. Three millers are used on each side of the tiller housing. The two inner ones should be so installed so that the curved portion of the tip faces the tiller housing. The reason for this is to minimize as much as possible the untilled strip directly beneath the tiller housing. The middle and outer millers are the same for each side. The Roto-Millers are cam shaped and should be installed so that as the tiller shaft revolves, the edge of the cam biting into the ground goes from the smallest radius to the largest radius. As the tiller shaft revolves with the direction of travel of the Rototiller, the Miller must be installed so that the point of the teeth trail and do not enter the ground first. The proper position of the Roto-Millers is as follows:

The right inside Miller should be installed so that the straight edge of the miller points up, the middle right miller should be turned 120 degrees from this, and the outside miller, 240 degrees. The left inside miller should be installed with the straight edge pointing downward with the middle miller 120 degrees from this and the outside miller 240 degrees.

## ROTOTILLER WARRANTY

ROTOTILLER, INC. warrants for ninety days from date of delivery all such parts of new Rototillers as shall, under normal use and service, appear to it to have been defective in workmanship or material. This warranty shall be limited to shipment, to the purchaser without charge, except for transportation, of the part or parts intended to replace those acknowledged by ROTOTILLER, INC. to be defective. ROTOTILLER, INC. cannot, however, and does not accept any responsibility in connection with any of its Rototillers when they have been altered outside of its own factories or branch shops. This warranty does not include any component parts not manufactured by ROTOTILLER, INC. The warranty of the respective manufacturers applies to these parts. If the purchaser shall use or allow to be used in his Rototillers, parts not made or supplied by the Manufacturer, then this warranty shall become void. ROTOTILLER, INC. is not responsible to any purchaser of its goods for any undertaking, representation or warranty made by Dealer selling its products, beyond those herein expressed.

It is covered by one or more of the following U. S. A. patents:

117788	2199954	2366625
1944937	2352267	2366626
2054129	2366571	2428973
2161060	2366624	2466594
2176261		2502094

Trade Mark No. 300066

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OTHER PATENTS PENDING

# ROTOTILLER, INC.

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