ROTARY TILLER

Model Nos. 213-380 ⁵⁴⁸ 213-385 ชมย

WARRANTY

For one year from date of purchase, MTD Products Inc. will replace for the original purchaser, free of charge, F.O.B. factory or authorized service firm, any part or parts found to be defective in material or workmanship. All transportation charges on parts submitted for replacement under this warranty must be paid by the purchaser. This warranty does not include replacement of parts which become inoperative through misuse, excessive use, accident, neglect, improper maintenance or alterations by unauthorized persons. This warranty does not include the engine, motor, battery, battery charger or any component parts thereof. For service on these units refer to the applicable manufacturer's warranty.

The above warranty will apply only to the original owner and will be effective only if the warranty card has been properly processed. It will not apply where the unit has been used commercially.

Warranty service is available through your local authorized service dealer or distributor. UNDER NO CIRCUMSTANCES WILL THE RETURN OF A COMPLETE UNIT BE ACCEPTED BY THE FACTORY UNLESS PRIOR WRITTEN PERMISSION HAS BEEN EXTENDED.

SAFETY RULES

- 1. Your tiller is a precision piece of power equipment. Exercise extreme caution at all times.
- 2. Do not attempt to start engine with the clutch control in the engaged or FORWARD position.
- 3. Stand clear of tines when starting engine. Never stand in front of, or work on tines while the engine is running.
- 4. NEVER place hands or feet in the vicinity of the tines while the engine is running.
- 5. Always stop engine when tiller is not in actual use.
- Always disconnect spark plug wire during repairs or refueling operations.
- 7. Do not fill gas tank while engine is running. Do not spill gasoline on hot engine.

Your rotary tiller is a precision built machine designed to take the work out of gardening and other related chores. It can be used for seed bed preparation, tilling, cultivating, furrowing, composting and mulching. Like any other piece of power equipment, it requires a certain amount of care and maintenance. In return for this, it will give a maximum of service and efficiency. Read these instructions carefully before assembling or operating your tiller. Through proper care and operation, you will obtain long, efficient service and trouble free operation.

ASSEMBLY

Your rotary tiller is shipped complete in a single carton. The wheels, handle, controls and depth bar are to be assembled. This is done in the manner described below.

WHEELS

Assemble the axle to the wheel hanger. Place the spacer over the axle and assemble the wheel, with a washer on both sides of the wheel, to the axle. See figure 1. Secure each wheel with a cotter pin. Place the wheel hanger inside the tailpiece and secure with the long clevis pin and lock pin. See figure 1.

DEPTH BAR

Assemble the depth bar to the tail piece using the short clevis pin and lock pin. See figure 1.

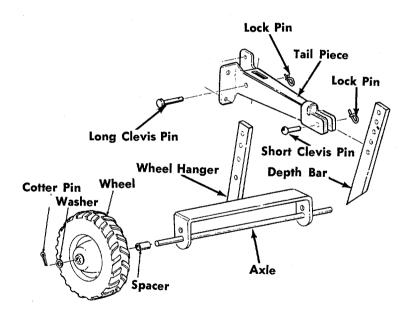
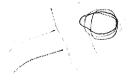


FIGURE 1. WHEEL AND DEPTH BAR ASSEMBLY



HANDLE ASSEMBLY

Assemble the handle to the handle brackets with four cap screws, lockwashers and hex nuts as shown in figure 2.

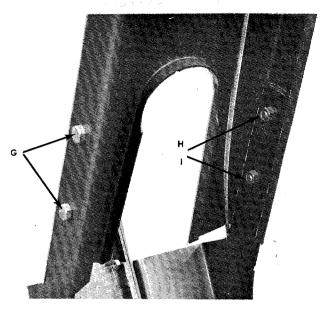


FIGURE 2. HANDLE ASSEMBLY CONTROL LEVER

Place clutch control lever through handle panel. Secure in place with hex bolt, flat washers, rubber washer and hex nut. See figure 3.

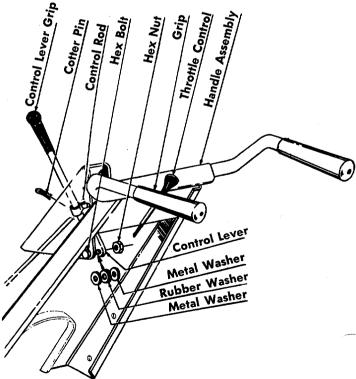


FIGURE 3. CONTROL ASSEMBLY

CONTROL ROD

Screw the control rod into the ferrule until it extends through the ferrule % of an inch. See figure 4.

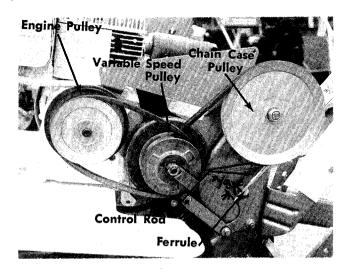


FIGURE 4. FERRULE ADJUSTMENT

Place the bent end into the control handle as shown in figure 5 and fasten with a cotter hairpin.

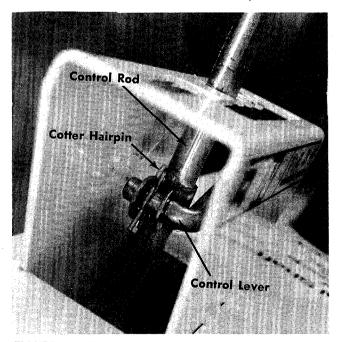


FIGURE 5. CONTROL ROD

CAUTION

With the spark plug wire disconnected and grounded, place the control lever in NEUTRAL and pull the recoil starter several times. THE TINES SHOULD NOT TURN. If they do, screw the control rod into the ferrule several more turns as shown in figure 4.

THROTTLE—Assemble as shown in figure 6.

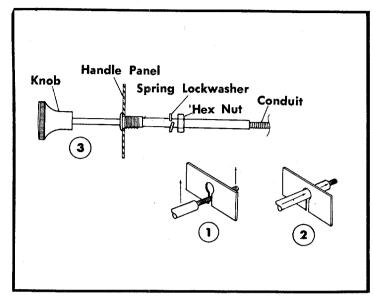


FIGURE 6. THROTTLE CONTROL

CHECK LIST BEFORE OPERATION

- Check tiller tines for proper installation. With throttle control lever set on STOP position and the control lever set in No. 1 position, slowly crank engine to determine direction of tine rotation. Be sure all tines are mounted so the sharpened edges enter the soil first.
- Check all nuts and bolts for proper tightness. This is especially important during the initial operation period. Make the same check periodically thereafter.
- 3. Check throttle control for proper setting. Move throttle control knob to STOP position. Move lever, to which control wire is fastened at engine, to CLOSE position and retighten screw to secure throttle control wire assembly.
- Check fuel tank. Clean, fresh, regular gasoline should be used at all times.
- Check engine crankcase for proper oil level. The engine is shipped without oil in the crankcase. Be sure crankcase is FULL.

STARTING YOUR TILLER

- Be sure clutch control handle is in NEUTRAL position.
- 2. Move throttle control lever to STOP position.
- 3. Move choke lever, located at the engine, to CHOKE position. Refer to your engine manual.

- After cranking the engine several times, or as the engine fires, move the throttle control lever to RUN position.
- 5. Use CHOKE as needed to keep engine operating during warm-up period.
- 6. Set the throttle control in the FAST position.
- 7. Move the control lever into the number one position and the tines will begin rotating. Number four position will give the maximum tine speed. Tilling the ground for the first time should be done in the number one or two position. To pulverize the soil after it has been tilled, move the control lever to the number three or four position.

NOTE

The engine must be running to move the control lever into the faster speeds.

8. To stop engine, move throttle control lever to STOP position. Keep throttle control lever in STOP position at all times when tiller is not in use.

NOTE

A brief break-in period is essential to insure maximum engine life. This consists of running the engine at half speed for a period of time required to use one tank of gasoline. This is necessary on the initial run only. It is also recommended that the oil be changed after five (5) hours of operation. This allows for the removal of impurities which may have accumulated during the breakin period. Subsequent oil changes should be made as stated in the engine manual. Always check oil before using your tiller. Be sure crankcase is full.

To reverse the tine rotation to back up or release an object jamming the tines, pull the control lever into the REVERSE position.

NOTE

The control lever must be held in the REVERSE position. When you release the lever it will go into the NEUTRAL position.

1.0. The depth bar acts as a brake for the tiller and controls the tilling depth and ground speed. By lowering the setting of the depth bar, the forward speed of the tiller is reduced and the tilling depth of the tines is increased. Raising the settings of the depth bar increases the forward speed and reduces the working depth. See figure 7.

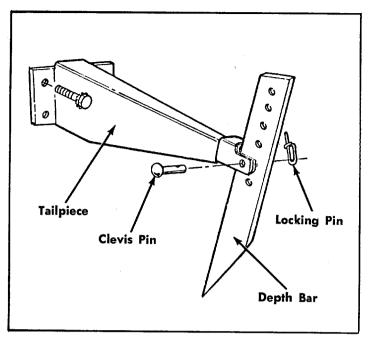


FIGURE 7. DEPTH BAR

11. The wheel height can be adjusted by removing the long clevis pin for the wheel hanger and raising or lowering the setting. See figure 1.

NOTE

Pick a height that places the handles in a comfortable position for the operator. The higher the setting, the deeper you till.

MAINTENANCE AND LUBRICATION

ENGINE—Service engine in accordance with the engine manufacturer's owner's guide. **Note**: To drain oil remove oil drain plug and tip tiller forward. Drain oil while the engine is warm. See engine manual for filling instructions.

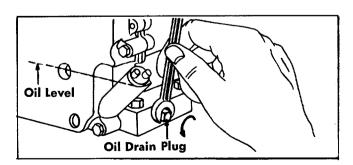


FIGURE 8. OIL DRAIN

THROTTLE—Periodically lubricate throttle control lever and throttle control wire assembly with a few drops of light oil (SAE 10 or 20) for ease of operation.

AIR CLEANER

- 1. Remove wing nut and cover.
- 2. Lift off foam element from support base.
- Remove metal support tube assembly (screen and two metal end caps) from foam element by compressing foam element. See figure 9.
- 4. Wash the element in a solvent such as kerosene. Squeeze dry and blot to remove all kerosene or solvent. Saturate element with engine oil. Squeeze element to distribute and remove excess oil.
- Insert metal support tube assembly into element so that end cap without projection enters first. Make sure metal caps are seated on screen.

IMPORTANT: When support tube is in place, pull rubber gasket over shoulder of metal end cap. Rubber gasket then forms a protective seal when cover is assembled.

Install element and cover. Tighten wing nut securely. See figure 9.

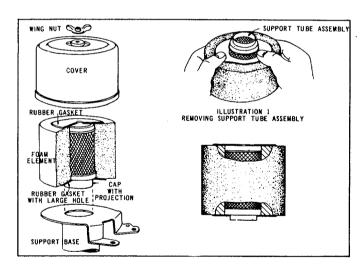


FIGURE 9. AIR CLEANER

CHAIN CASE LUBRICATION

The chain is permanently lubricated and requires no further lubrication unless the case is disassembled for repair.

If the case is disassembled, clean the chain with kerosene, allow it to dry and work a high temperature grease, such as Lubriplate No. 310 into the chain.

NOTE

A 4 oz. container of Lubriplate No. 310 is available under part number 727-136.

CHAIN ADJUSTMENT

No chain adjustment is necessary.

BELT ADJUSTMENT

To check the belt adjustment, it is necessary to remove the belt cover so the belts are exposd as shown in figure 10.

Start the engine and move the control lever into the number four position. Stop the engine and remove the spark plug wire. Remove the belt cover. The belt between the variable speed pulley and the chain case pulley should move to the outside edge of the variable speed pulley so the top of the belt is almost flush with the pulley. If adjustment is necessary, shut off the engine and screw the control rod in or out of the ferrule until the belt is in the proper position.

BELT REPLACEMENT

- Step 1. Remove the belt cover so the belts are exposed as shown in figure 10.
- Step 2. Put the depth bar on the wheel hanger and place the tip of the depth bar under the variable speed pulley bracket as shown in figure 10.

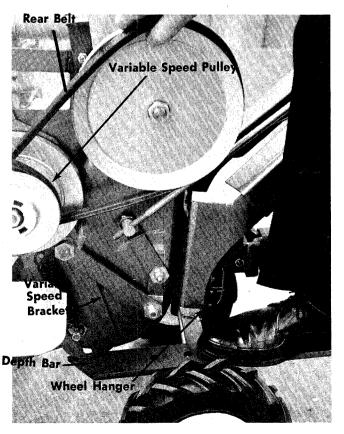


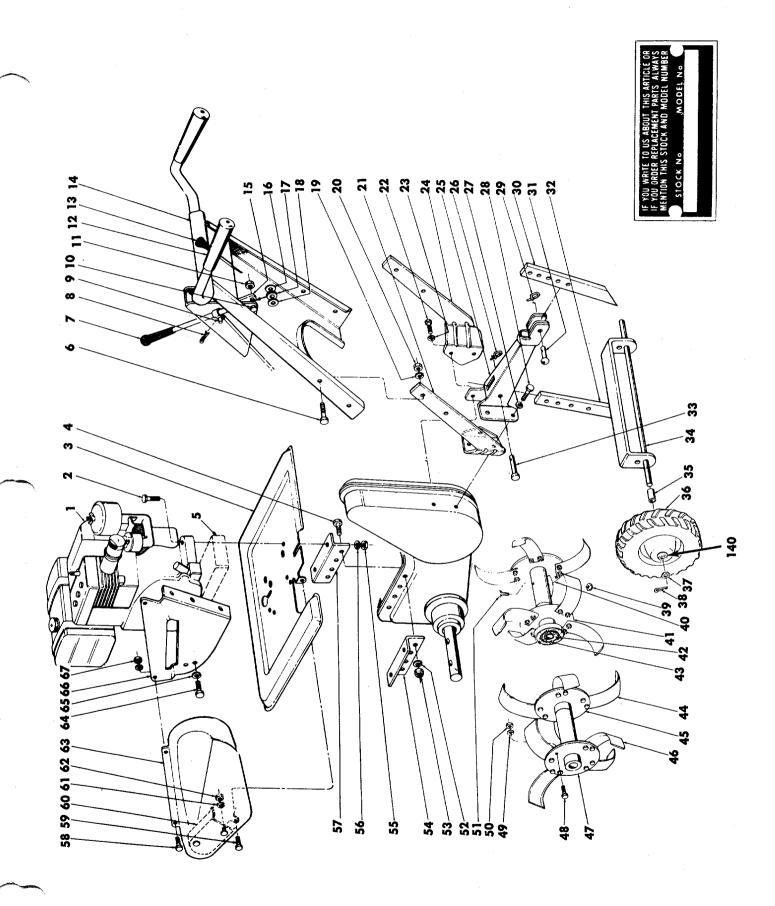
FIGURE 10. BELT REMOVAL

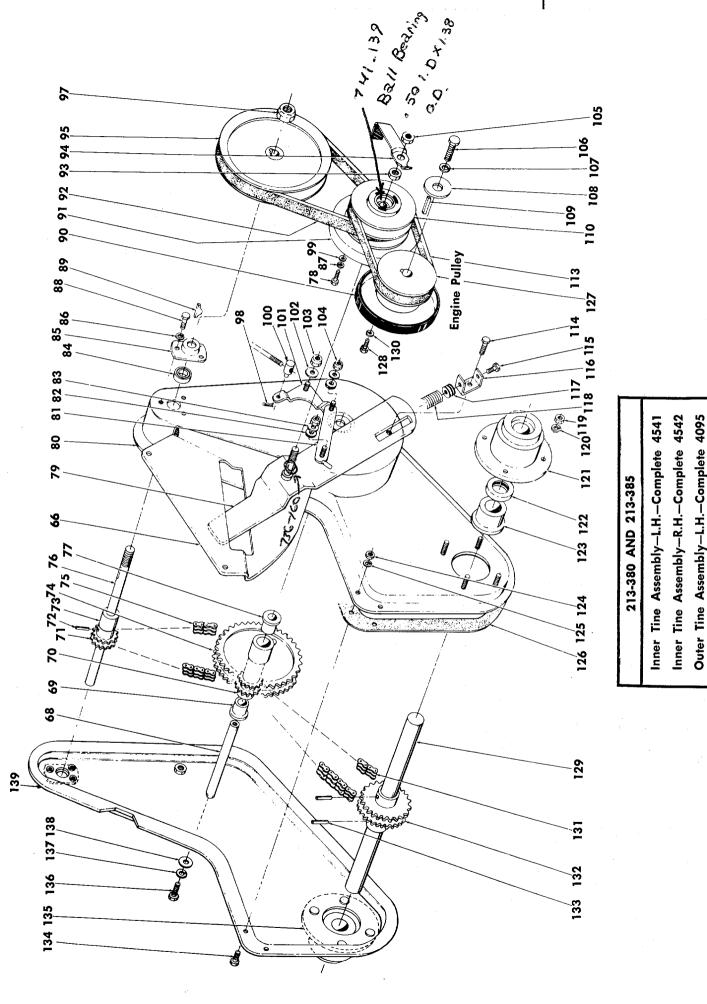
- Step 3. Place your foot on the rear of the depth bar and apply pressure. The belts will go slack.
- Step 4. Remove the REAR belt first and ALLOW IT TO FORM A LOOP AROUND THE VARIABLE SPEED PULLEY.
- Step 5. Slide the center section of the variable speed pulley towards the engine.
- Step 6. Remove the FORWARD belt from the engine pulley and the variable speed pulley.

NOTE

By following this order of belt removal, it is not necessary to remove the belt guard on the variable speed pulley.

- Step 7. Remove the rear belt from the variable speed pulley.
- Step 8. Reassemble with the new belts.





Outer Tine Assembly—R.H.—Complete 4096

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DESCRIPTION	Flat Washer*	Cotter Pin 1/8 Dia. x 1" Lg.* Hex Elastic Stop Nut 7/16-20			Dust Pad	Tine—L.H.	Inner T			Spring Lockwasher for % Scr.*	Hex Jam Nut %-24 Thd.*	Hex Hd. Cap Scr. // 10-20 X 21/4" La.*	Spring Lockwasher 5/16	Hex Centerlock Nut		Engine Mounting brk. Hex Center Locknut 5/16-	18 Thd.*	Spring Lockwasher 3/ 10 scr. Fnaine Mounting Brkt		Lg.* Hex Hd. Cap Scr. 1⁄4-20 x 3⁄4″	Lg.* Belt Guard	Spring Lockwasher ¼" Scr.*	Hex Not 1/4-20 Thd.*	Hex Hd. Cap Scr. 1/2-20 x 3/4"	*.6J	Spring Lockwasher ½" Scr. Variable Speed Guiding Brkt.	Hex Nut 1/4-20 Thd.*	Sprocket Shatt	Double Sprocket Assembly	11-2 Teeth Sprocket % Pitch
PART COLOR	736-160	714-115	227 727	1 1	736-220		4511—438	742-110 4474—438		736-169	712-711	710-483	736-119	712-158		4519—438 712-158	, ,	736-119		710-252	4516	736-329	712-287	710-121	· · ·	736-921	7	711-504	/40-633 4529	717-188
7. C	37.	38 8	;	3 4	42	4 4 5 4	45	4 4 7	48	40	50	5	52	53	i	54 55	. !	2,7	28	59	. 09	61	62	20 40	<u> </u>	65	67	68	2 6	7
NEW	r war																													
DESCRIPTION		Hex Hd. Cap Scr. 5/16-18 x 13%' (1a (213-385)	Hex Hd. Cap Scr. 5/16-18 x	Z% Lg. (Z13-300) Tine Shield	Hex Hd. Cap Scr. 5/16-18 x	Ly. Engine Spacer Ass'y.	(213-380 Only)	Hex Hd. Cap Scr. %-16 x 3," a.*	Grip	Cotter Pin 3/32 x %" Lg.*	Hex Hd. Cap Scr. 5/16-18 x	11/4" Lg.* Hav Contarlact Nut 5/16-18	Thd.*	Grip Throttle Control—Complete		Control Lever Assembly Flat Washer*	Rubber Washer*	Flat Washer*	Spring Lockwasher % Sci. Hex Nut %-16 Thd.*	Handle Mounting Bracket L.H. Hex Hd. Cap Scr. %-24 x	1" Lg.* Spring Lockwasher % Scr.*	Handle Mounting Brkt R.H.	Tail Piece	Spring Pin	Hex Hd. Cap Scr. %-24 x	1" Lg.*	Ω		Wheel Hanger Brkt. Ass y. Clevis Pin	Rear Axle
REF. PART COLOR	ū												•		3—438					5—438 2	17	438	438			7	28—438	•	7—438 0	_ (
PART COLOR	NO. COL	710-380	710-176	4524	710-376	4494		710-216	720-143	714-507	710-528	710 150	001-717	1166 746-122	4533-	4525 736-264	735-126	736-264	712-798	4506- 710-152	736-217	•	4507	732-194	710-152	730-104	4328	711-23	4527. 711-510	4451

* For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally order by part number and size as shown on parts list.

(438-Polar Blo

When ordering parts if color or finish is important, use the appropriate color code shown at left. (e.g. Polar Blue finish, 4328 (438).)

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NEW PART																														•					
DESCRIPTION		Spacer	Roller Chain w/Master Link	#35-2 × 363/" Lg.	Pulley Shaft	Hex Hd. Cap Scr. 14-28 x 1/2"	Lg. Variable Speed Rrbt Assis	Ass'v	Link (Rubber Washer	Ball Bearing % I.D. x 1% O.D.	Hous	1/4" Scr.*	Spring Lockwasher 1/4" Scr.* Hex Hd. Cap Scr. 1/4-20 x 5/4"	Lg.*	Hi Pro Key #505	Friction Wheel Assembly	"V"-Belt 21/32 x 35" Lg.	Special	Hex Jam Nut 1/2-13 Thd.	Variable speed beit Guard 8" O.D. x % Split Pullev	Push On Pual Nut (Not Shown)	(Located on Pin at Spring) Hex Elastic Stop Not 56-18	Thd.	Cotter Pin 1/8 Dia. x 1" Lg.*	Flat Washer	renoie Link Bracket Assembly	Washer	Hex Elastic Stop Nut %-24	Hex Elastic Stop Nut %-24	Thd. Hex Jam Nut 1/2-13 Thd	Hex Hd. Cap Scr. %-24 x 1"	Lg. H.I. Spring Lockwasher % Scr	uty	Flat Washer Sq. Key 3/16 x 1½" Lg.* (213-380)
PART COLOR NO. CODE	750.110	9	713-149		748-855	710-230		4501—438		/36-161 736-703	741-155	5034	/36-329	710-258		/14-136	3000 4515	754-158	.,,	712-461		726-106	712-221		714-115	736-204	438	736-703	/12-116	712-116	712-461	710-152	736-217		714-133
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For faster service obtain standard nuts, bolts and washers locally. If these item cannot be obtained locally order by part number and size as shown on parts list.

714-118 10843 750-166 748-180 754-157 738-138 710-380 11002 711-509 732-232 711-509 732-232 711-509 736-119 736-119 736-119 736-119 736-119	Sq. Key ½ x 1½" Lg.* (213-385) Variable Speed Pulley Ass′y. Spacer (For Item #116) Not Shown Pivot Slide (For Item #79)	
10843 750-166 748-180 754-157 738-138 710-380 11002 711-509 732-232 712-158 736-119 4530—438 721-117 748-194	Variable Speed Pulley Ass'y. Spacer (For Item #116) Not Shown Pivot Slide (For Item #79) Not Shown	
748-180 754-157 738-138 710-380 11002 711-509 732-232 712-158 736-119 4530—438 721-117 748-194	Not Shown Pivot Slide (For Item #79) Not Shown	
754-157 738-138 710-380 11002 711-509 732-232 712-158 736-119 4530—438 721-117 748-194	Not shown	
738-138 710-380 11002 711-509 732-232 712-158 736-119 4530—438 721-117 748-194	"V"-Belt 21/32 x 28" Lg.—	
11002 711-509 732-232 712-158 736-119 4530—438 721-117 748-194	Shoulder Bolt—Special Hex Hd. Cap Scr. 5/16-18 x	
736-119. 4530—438 721-117 748-194	1%" Lg.* Spring Bracket Spring Insert Variable Drive Spring Hex Center Locknut 5/16-18	
	Thd* Spring Lockwasher 5/16 Scr.* Cast Bearing Housing Ass'y. Oil Seal 1¼" I.D. x 1¾" O.D. Flange Bearing 1¼" I.D. x	
124 /12-28/ He 125 /36-329 Spi 126 /21-119 Ga 127 4532 Eng	1 %". O.D. Hex Center Locknut ¼-20 Thd.* Spring Lockwasher ¼". Scr.* Gasket Engine Pulley Ass'y. (For 213-	
4531	380 5 H.P. Only) Engine Pulley Ass'y. (For 213- 385 8 H.P. Only)	
128 /10-118 He 129 /11-506 Tin 130 /36-119 Spi 131 /13-150 Rol	Hex Hd. Cap Scr. 5/16-18 x ¾" Lg. Tine Shaft Spring Lockwasher 5/16 Scr.* Roller Chain w/Master link	
132 717-189 24. 133 715-125 Spi	#40-2 x 34" Lg. 24-2 Teeth Sprocket ½" Pitch Spirol Pin % Dia. x 2" Lg.	
134 710-258 He 135 4530—438 Ca; 136 710-118 He	Heavy Duty Hex Hd. Cap Scr. 1/4-20 x 5%" Lg.* Cast Bearing Housing Ass'y. Hex Hd. Cap Scr. 5/16-18 x	
137 736-119 Spi 138 736-703 Fla 139 4503—438 Hou 140 748-147 Bus	34" Lg.* Spring Lockwasher 5/16 Scr.* Flat Washer Housing Ass'y.—R. H. Side Bushing	

PARTS INFORMATION

DEFECTIVE OR MISSING PARTS must be reported to the factory immediately. Such claims must include your model number and date of purchase.

MOWER, TILLER, SNOW THROWER, TRACTOR, TRAIL BIKE AND MUD BUG PARTS

Mower, tiller, snow thrower, tractor, trail bike and mud bug parts are available through the authorized service firms listed below. All orders should specify the model number of your unit, parts numbers, de-

A 1 Engine & Mower Co. 327 East 9th Street Salt Lake City, Utah 84102

American Electric Ignition Co. 124 N. W. 8th Street Oklahoma City, Oklahoma 73102

Auto Electric & Carburetor Co. 2625 4th Avenue, S. P. O. Box 1948 Birmingham, Alabama 35233

Automotive Equipment Service Co. 3117 Holmes Street Kansas City, Missouri 64109

Bailey's Rebuild Inc. 1325 E. Madison Street Seattle, Washington 98102

Brown Equipment Distributor Inc. 110 Beech Street Corydon, Indiana 47112

Bullard Supply 2409 Commerce Street Houston, Texas 77003

Catto & Putty, Inc. P. O. Box 2408 510 Soledad Street San Antonio, Texas 78205

Center Supply Company 6867 New Hampshire Avenue Takoma Park, Maryland 20012

Charles B. Wright Co. 309 4th Avenue, South Nashville, Tennessee 37201

W. B. Clements 400 Salem Avenue Roanoke, Virginia 24016

Morton B. Collins Co. 300 Birnie Avenue Springfield, Massachusetts 01107 scription of parts and the quantity of each part required.

BRIGGS & STRATTON, TECUMSEH AND PEERLESS PARTS

BRIGGS & STRATTON, TECUMSEH AND PEERLESS PARTS AND SERVICE

Briggs & Stratton, Tecumseh and Peerless parts and service should be handled by your nearest authorized engine service firm. Check the yellow pages of your telephone directory under the listing Engines - Gasoline, Briggs & Stratton or Tecumseh Lauson — Power Products.

Dixie Sales Company
P. O. Box 1408
327 Battleground Avenue
Greensboro, North Carolina 27402

East Point Cycle & Key Shop 1617 Whiteway East Point, Georgia 30044

Gamble Distributors West End Avenue Carthage, New York 13619

Garden Equipment Co., Inc. 6600 Cherry Avenue Long Beach, California 90805

Henzler, Inc. 2015 Lemay Ferry Road St. Louis, Missouri 63125

Frank E. Ives & Son 1101 Lincoln Avenue Prospect Park, Pennsylvania 19076

J. W. Jewett Co. 981 Folsom Street San Francisco, California 94107

Kenton Supply 8216 North Denver Avenue Portland, Oregon 97217

Kimber's Inc. 115 W. Geddes St. Syracuse, New York 13204

The Lawnmower Shop 1340 El Camino Real San Carlos, California 94070

Marr Brothers 423 E. Jefferson Dallas, Texas 75203

Mathews Auto Electric Co. 420 East 2nd Street Tulsa Oklahoma 74120

McClure Lawn & Garden Supply 1114 Lexington Avenue Mansfield, Ohio 44907

Memphis Cycle & Supply Co. 421 Monroe Avenue Memphis Tennessee 38103 Moz-All of Florida, Inc. 365 Greco Avenue Coral Gables, Florida 33146

National Central, Div. of Joe Sterling, Inc. Drawer "D" 687 Seville Rd. Wadsworth, Ohio 44281

Power Equipment Distributor 36463 So. Gratiot Avenue Mt. Clemons, Michigan 48043

Parts & Sales Inc. 2101 Industrial Pkwy. Elkhart, Indiana 46514

Parts & Sales Inc. 335 West St. Charles Road Villa Park, Illinois 60181

Power Lawn & Garden Equip. Co. 2551-2571 J. F. Kennedy Road Dubuque, Iowa 52001

Raub Supply Company
James & Mulberry Sts.
Lancaster, Pennsylvania 17604

Radco Distributors 2403 Market Street P. O. Box 3216 Jacksonville, Florida 32206

Richmond Battery & Ignition
P. O. Box 25369 – 957 Myers St.
Richmond, Virginia 23260

Smith Hardware Company 515 N. George Street Goldsboro, North Carolina 27530

South Denver Lawn Equip. Co. 527 West Evans Denver, Colorado 80223

Suhren Engine 8330 Earhart Blvd. New Orleans, Louisiana 70118

Sutton's Lawn Mower Shop Route 4, Box 343 North Little Rock, Arkansas 72117

Warner Equipment 7520 Lyndale Avenue, So. Minneapolis, Minnesota 55423

WARRANTY PARTS AND SERVICE POLICY

The purpose of warranty is to protect the customer from defects in material and workmanship, defects which are not detected at the time of manufacture.

Our aim is to build into our product quality and reliability. Considerable emphasis is placed on quality control in order to assure our customer of satisfactory product performance. To achieve this goal, it is necessary to gain the cooperation of all concerned, MTD, our sales force and our customers.

MTD's responsibility is to build a quality product and to back up that product. MTD must build this quality product at a competitive price. This cannot be achieved without production in quantity. Quantity production is mass production. In mass production it is always possible for undetected defects to be present when the product reaches the customer. Our warranty is extended to assure the customer that any such defects will be corrected.

Use and maintenance are the responsibility of the customer. MTD cannot assume responsibility for conditions over which it has no control. MTD's responsibility does not cover misuse, excessive use, accident neglect, improper maintenance or alterations by unauthorized persons. Satisfactory product performance can only result when a manufacturer provides and backs up a quality product and the customer follows through with proper use and proper maintenance of that product. When both the manufacturer and the customer recognizes and assumes his responsibility, satisfactory product performance and customer satisfaction are assured.