

# Your New

Model No. 217-350  
217-300



## ROTARY TILLER

### 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.

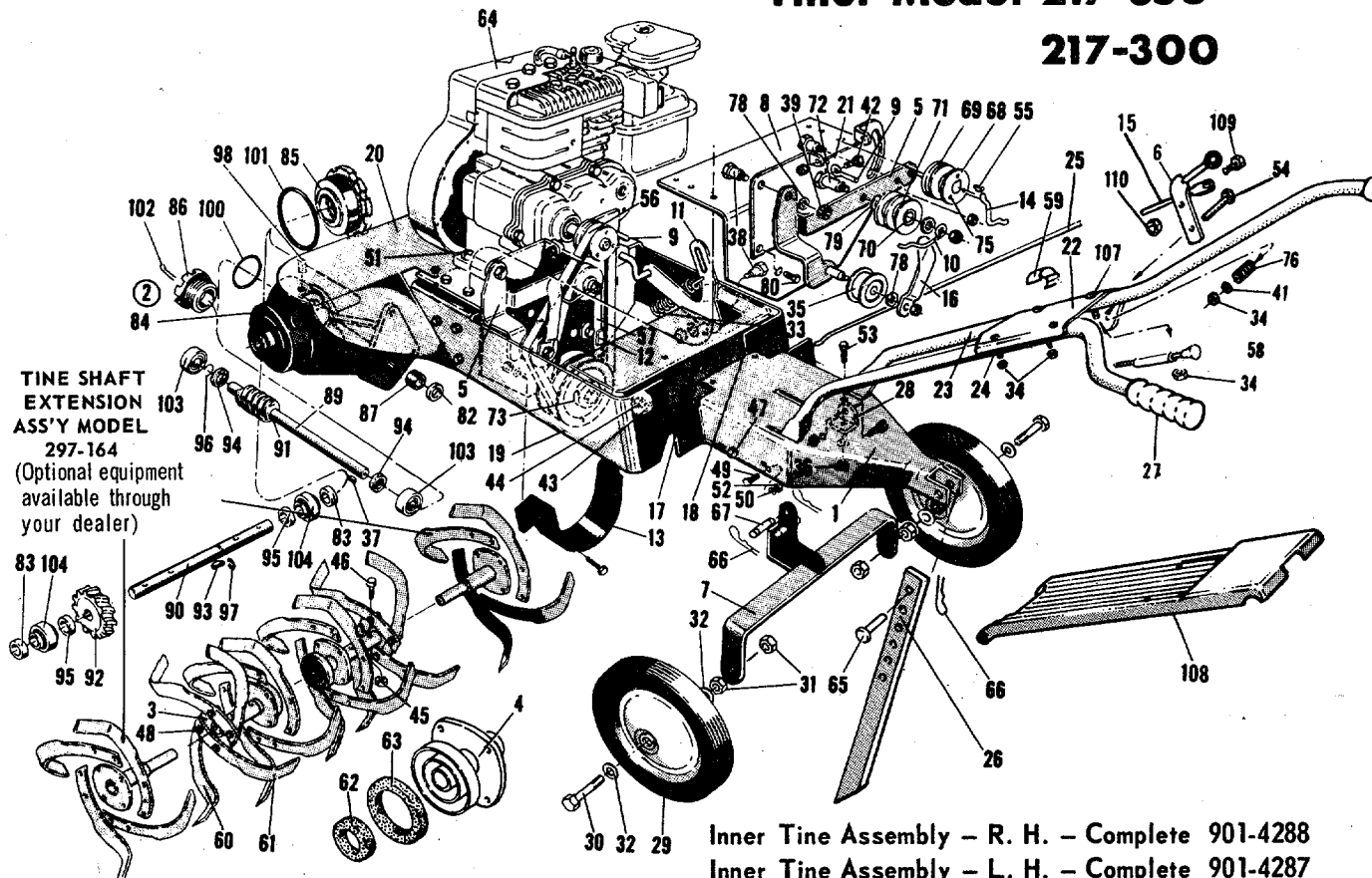
### SAFETY RULES

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.

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 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.
6. 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.

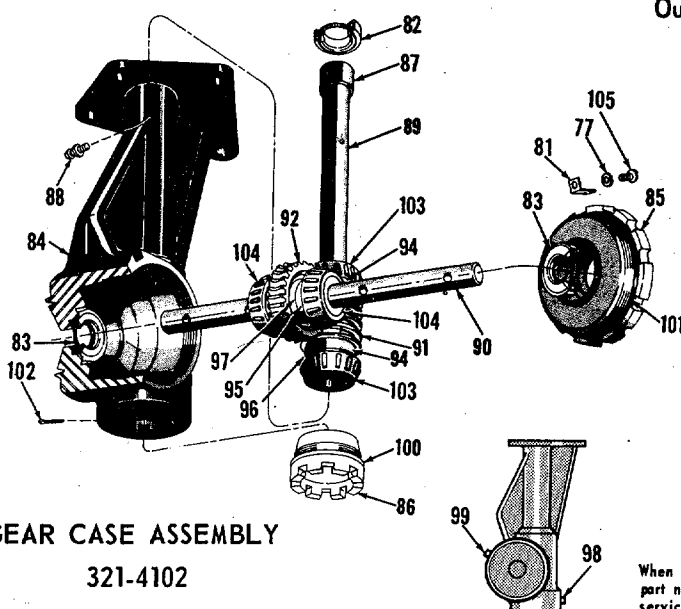
MTD PRODUCTS INC • 5389 WEST 130th ST. • P.O. BOX 2741 • CLEVELAND, OHIO 44111

# Tiller Model 217-350 217-300

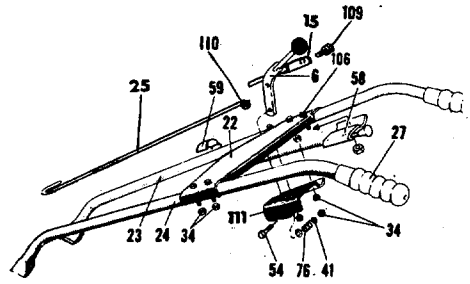


**TINE SHAFT  
EXTENSION  
ASS'Y MODEL  
297-164**  
(Optional equipment  
available through  
your dealer)

- Inner Tine Assembly - R. H. - Complete 901-4288
- Inner Tine Assembly - L. H. - Complete 901-4287
- Outer Tine Assembly - R. H. - Complete 901-4290
- Outer Tine Assembly - L. H. - Complete 901-4289



**GEAR CASE ASSEMBLY**  
321-4102



**PLOW TYPE HANDLE**

When ordering replacement parts, be sure to specify your mower model number, part number, description of part, and the number of parts required . . . Parts and service should be handled by your nearest authorized service firm as recommended by your dealer. Request for parts and service received at the factory will be forwarded to the appropriate Central Service Distributor in your area for handling.

MODEL 217-350 and 217-300

Illus. No.	Part No.	DESCRIPTION ( ) - No. Required Per Assembly	Illus. No.	Part No.	DESCRIPTION ( ) - No. Required Per Assembly
1	350-4330	Tailpiece Assembly	58	746-122	Control - Throttle (complete) Std. Handle
2	321-4102-1	Gear Case Assembly (Complete)	58	746-110	Control - Throttle (Plow Type Handle)
3	350-4134	Outer Tine Adapter Assembly	59	746-111	Cable Clip
4	350-4138	Inner Tine Adapter Assembly	60	742-107	Tine - L. H.
5	310-4168	Reverse Pivot Bracket Assembly	61	742-108	Tine - R. H.
6	310-4164	Control Handle Assembly	62	736-124	Dust Pad
7	321-4172	Wheel Hanger Assembly	63	736-125	Dust Pad
8	350-4170	Engine Mounting Plate	64	—	Engine
9	310-4149	Belt Retainer	65	711-231	Clevis Pin
10	310-4151	Belt Retainer	66	714-106	Locking Pin
11	310-4158	Control Lever	67	711-137	Support Pin
12	310-4148	Belt Clip	68	756-104	Pulley
13	321-4162	Belt Guard	69	717-109	Reverse Drive Wheel
14	310-4155	Control Rod	70	748-111	Bronze Sleeve Bearing
15	310-8271	Adjustment Tube	71	756-112	Pulley - 2 Stage
16	310-4147	Belt Clip	72	711-138	Shoulder Screw
17	350-4114	Rear Frame	73	756-108	Pulley - 2 Stage
18	350-4112	Side Frame - R. H.	74	710-765	Set Screw - Allen 5/16-24 x 1/4 lg. (Not Shown)
19	350-4113	Side Frame - L. H.	75	710-185	Allen Socket Head Cap Screw 10-32 x 1 lg.*
20	312-4261	Dust Shield	76	732-958	Spring - Compression
21	310-4167	Adjustment Plate	77	736-147	Lockwasher #10 Screw *
22	312-4243	Handle Panel - Small - Std. Handle	78	736-300	Washer 3/8 I.D.*
22	350-4121	Handle Panel - Plow Type	79	736-466	Washer 17/32 I.D.*
23	310-4246	Handle - R. H. - Std.	80	710-122	Hex Hd. Cap Scw. 5/16-24 x 1 lg.*
23	310-4186	Handle - Plow Type - R. H.	81	310-4101	Locking Clamp (Not Shown) †
24	310-4247	Handle - L. H. - Std.	82	721-100	Oil Seal - Garlock #76 x 6113 †
24	310-4143	Handle - Plow Type - L. H.	83	721-101	Oil Seal - Garlock #78 x 7510 †
25	711-213	Control Rod	84	719-100	Housing - Gear Case †
26	321-4328	Depth Bar	85	719-101R	Bearing Adjustment Cap - 1" †
27	305-1166	Grip	86	719-102	Bearing Adjustment Cap - 3/4" †
28	310-4124	Handle Mounting Bracket	87	748-106	Bronze Sleeve Bearing †
29	501-4221	Wheel Assembly	88	737-108	Alemite Drive Fitting #1992-B1 * †
30	710-275	Hex Hd. Cap Scw. 1/2-13 x 5 lg.*	89	711-132	Worm Shaft - 3/4" †
31	712-384	Hex Centerlock Nut 1/2-13 thd. *	90	711-133	Tine Shaft - 1" †
32	736-108	Washer 33/64 I.D.*	91	717-104	Worm †
33	732-376	Spring - Tension	92	717-105	Worm Wheel †
34	712-107	Hex Centerlock Nut 1/4-20 thd.*	93	714-103	Key - Woodruff #91 * †
35	756-370	Idler Bearing Assembly	94	711-130	Spacer - 3/4" †
36	712-372	Hex Centerlock Nut 5/16-18 thd.*	95	711-131	Spacer - 1" †
37	714-314	Key - Hi Pro #606	96	716-101	Snap Ring - Tru Arc #5100-75 * †
38	710-373	Shoulder Bolt	97	716-102	Snap Ring - Tru Arc #5100-175 * †
39	712-430	Hex Elastic Stop Nut 3/8-16 thd.	98	737-102	Pipe Plug - Special Breather Type †
40	712-123	Hex Nut 5/16-24 thd. *	99	737-103	Pipe Plug - Square Head 3/8 thread * †
41	736-463	Washer 9/32 I.D. *	100	735-100	"O" Ring 2-1/8 x 2-3/8 x 1/8 †
42	710-258	Hex Hd. Cap Scw. 1/4-20 x 5/8 lg.*	101	735-101	"O" Ring 3-5/8 x 3-7/8 x 1/8 †
43	736-169	Lockwasher 3/8 Screw *	102	714-474	Cotter Pin 1/8 Dia. x 3/4 lg.* †
44	712-798	Hex Nut 3/8-16 thd. *	103	741-107	Roller Bearing - Timken 3/4" †
45	712-116	Hex Elastic Stop Nut 3/8-24	104	741-108	Roller Bearing - Timken 1" †
46	710-113	Hex Hd. Cap Scw. 3/8-24 x 1-5/8 lg. Heat Treated *	105	710-125	Rd. Hd. Mach. Scw. 10-24 x 1/2 lg. * †
47	710-253	Hex Hd. Cap Scw. 3/8-16 x 1 lg. *	107	710-256	Carriage Bolt 1/4-20 x 1-1/2 lg. *
48	710-183	Hex Hd. Cap Scw. 3/8-16 x 1-1/8 lg.*	108	312-4257	Handle Panel (Large) Std. Handle Only
49	710-451	Carriage Bolt 5/16-18 x 3/4 lg. *	109	710-252	Hex Hd. Cap Scw. 1/4-20 x 3/4 lg. *
50	736-119	Lockwasher 5/16 Screw *	110	712-324	Hex Stop Nut 1/4-20 thread *
51	710-442	Hex Hd. Cap Scw. 5/16-18 x 1-1/2 lg. *	111	350-4160	Control Mtg. Brkt. - Plow Type Handle
52	712-267	Hex Nut 5/16-18 thd.*		901-4287	Inner Tine Ass'y - L.H. - Complete
53	710-118	Hex Hd. Cap Scw. 5/16-18 x 3/4 lg.*		901-4288	Inner Tine Ass'y - R.H. - Complete
54	710-136	Hex Hd. Cap Scw. 1/4-20 x 1-3/4 lg. *		901-4289	Outer Tine Ass'y - L.H. - Complete
55	714-105	Key - Square 3/16 x 3/16 x 1 lg.*		901-4290	Outer Tine Ass'y - R.H. - Complete
56	754-104	"V" Belt 1/2 x 32 - Gates *		727-112	Lubricant 5 oz. (Gear Case)
57	754-103	"V" Belt 1/2 x 27 - Gates *			

\* 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.

† Part of Gear Case Assembly (Complete) 321-4102-1.

## ASSEMBLY

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

**TINES** - Mount tines on tine shaft as shown. Tines must be mounted with the cutting edges facing the front. The tiller will not operate properly unless the sharpened surface of the tines enter the soil first. Secure tines in position on tine shaft with cap screws (46), and nuts (45). NOTE: Dust pads (62 & 63) are provided in screw pack. These must be assembled as shown.

**WHEELS** - Insert axle bolts (30) into wheel hubs. Secure with locknuts (31) tightened only enough to allow free movement of the wheels (29). Attach wheel and axle assemblies to tiller with support and locking pins.

**HANDLES** - Insert handles (23 & 24) into slots in tailpiece assembly (1). NOTE: The handles are left (24) and right (23) and must be positioned accordingly. Secure handles in position with cap screws (47) through the upper mounting holes and the tailpiece bracket (28). Fasten with lockwashers (43) and nuts (44). Do not tighten.

**HANDLE PANEL & CLUTCH CONTROL - STD. HANDLE**  
Assemble handle panel (22) to handles as shown with handle panel (108) (large) covering both small panel and handles. Secure top portion with carriage bolts (107) and locknuts (34). Secure large panel at bottom with cap screws (47), lockwashers (43) and nuts (44). Assemble control handle assembly (6) to panel with cap screw (54), spring (76), washer (41) and locknut (34) as shown. Attach adjustment tube (15) to control rod (25). Insert formed end of control rod into control pivot lever (11) from left side. Fasten upper end to control handle assembly with cap screw (109) and locknut (110). Move throttle control knob out enough to allow face washer to be loosened. Position control (58) into slot in end of large panel. Tighten face washer. Fasten control cable to handle with cable clip (59).

### HANDLE PANEL AND CLUTCH CONTROL -

**PLOW TYPE HANDLE** - Position handle panel (22) over upper handles. Hold in position with cap screws (106). Mount throttle control on under side of left handle. Position on upper cap screw and fasten with locknut (34). Do not tighten. Fasten control cable to handle with cable clip (59). Attach hooked end of upper control rod (25) to control pivot lever (11) from left side. Put hand of control handle assembly (6) in "Forward" position. Attach adjustment tube to control handle with cap screw (109) and stop nut (110). Be sure "F-N-R" can be read from operator's position of tiller. Position control mounting bracket (111) on under side of right handle. Wide end should be to top. Fasten with cap screws as shown. Assemble remaining nuts. Tighten all nuts securely.

**DEPTH BAR** - Attach depth bar (26) in desired position with clevis pin (65) and locking pin (66).

**GRIPS** - Assemble grips (27) to handle bars.

## OPERATION

1. Check tiller tines for proper installation. With throttle control lever set on "Stop" position and the clutch control handle set in "Forward" position, slowly crank engine to determine direction of tine rotation. Be sure all tines are mounted so the sharpened edges enter the soil first.
2. Check all nuts and bolts for proper tightness. This is especially important during the initial operation period. Make this same check periodically thereafter.
3. Check throttle control for proper setting. If choke control on engine is not fully extended when the throttle control lever is on "Choke" position, reset as shown in ADJUSTMENT instructions.
4. Check gear case for proper lubricant level. With tiller on a level surface, lubricant level should be up to the front pipe plug opening. This can be checked by removing front pipe plug. Maintain correct lubricant level with Molilube SAE 140 Gear Oil or equivalent. The gear case holds five (5) ounces of lubricant.
5. Check fuel tank. Clean, fresh, regular gasoline should be used at all times.
6. Check engine crankcase for proper oil level. The engine is shipped without oil in the crankcase. Be sure to fill crankcase before starting engine. Be sure crankcase is FULL.

NOTE: The engine is warranted separately by the engine manufacturer. For warranty service contact the engine manufacturer or their local authorized service station. All important information pertaining to care and operation is included in the engine manual.

## STARTING YOUR TILLER

1. Be sure clutch control handle is in "Neutral" position.
2. Move throttle control lever to "Choke" position.
3. After cranking the engine several times, or as the engine fires, move the throttle control lever to run position.
4. Use "Choke" as needed to keep engine operating during warm-up period.
5. Adjust throttle control lever for desired operating speed.
6. 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 break in 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.

## OPERATING INSTRUCTIONS

For your own convenience and safety, observe all safety suggestions shown on the front cover. Your tiller is not a toy, it is a precision piece of power equipment. Treat it as such.

It is important to recognize the fact that the forward and penetrating action of the rotary tiller is obtained from the rotating action of the tines in the soil. The depth bar acts as a brake for the tiller and controls the depth and speed at which the machine will operate. By lowering the setting of the depth bar, the forward speed of the machine is reduced and the working depth of the tines is increased. Raising the setting of the depth bar increases the forward speed and reduces the working depth. When soil conditions are severe and several passes must be made over a certain area, the depth bar setting should be lowered each time a pass is made. Further control of tilling depth and travel speed can be obtained by variation of pressure on the handles. A downward pressure on the handles will increase the working depth and reduce the forward speed. An upward pressure on the handles will reduce the working depth and increase the forward speed. The type of soil and working conditions will determine the actual setting of the depth bar and the handle pressure required.

1. Tine engagement and forward travel is achieved by moving the clutch control handle to "Forward" position. Tine rotation and forward motion are stopped by moving the clutch control handle to "Neutral" position. Reverse tine action and reverse travel motion can be maintained by HOLDING the clutch control handle in "Reverse" position. Releasing the handle stops reverse operation automatically.
2. The throttle control lever adjusts the engine speed. It also gives fingertip control of the carburetor choke and magneto stop switch. With the throttle control knob pushed completely forward, and carburetor is in "Choke" position. Pulling the knob out slightly releases the carburetor from "Choke" and adjusts the engine speed to "Fast." Pulling the knob further out reduces the engine speed to "Slow."

When the knob is pulled completely out, the magneto stop switch grounds out the spark and stops the engine.

3. With the depth bar raised out of operation, self propelled transporting of the tiller is easily achieved. With no pressure on the handles and the throttle control set for "Slow" engine speed, move the clutch control handle to the rear position and let the tiller gently propel itself.

## ADJUSTMENTS

**BELTS** - Belt slack is taken up by a spring loaded idler pulley. Because of this, belt adjustment is not required.

**CLUTCH.** - No adjustment in clutch linkage is required. This is done automatically by the spring loaded idler.

**"O" RING** - If oil leakage at the bearing cap should occur, take up on the "o" ring of the gear case may be needed. This is accomplished by removing the locking clamp and turning the bearing adjustment cap clockwise enough to correct. Move adjustment cap back one notch and replace locking clamp.

**THROTTLE** - If adjustment becomes necessary, the throttle control wire assembly can be reset as follows:

1. Loosen, but do not remove, screw securing throttle control wire assembly at engine.
2. Move throttle control knob to "Choke" position.
3. Move lever, to which control wire is fastened at engine, to full choke position and retighten screw to secure throttle control wire assembly.

**HANDLES** - The position of the handles may be adjusted by removing and moving carriage bolts in the lower mounting holes. Adjustment should be made for the most convenient operating height.

**WHEELS** - Wheel positions may be varied to give further adjustment of handle height. Various wheel positions also give variations of the leverage and weight distribution over the tines. Wheels should be set to suit the local soil conditions and the operator's convenience.

**TINES** - The standard width of cut is 26". Because of the various types of work the tiller may be put to, variation in the tilling width may be necessary. This can be accomplished in a number of ways.

1. Standard tine arrangement. 26"
2. Remove outer tine assemblies (complete). 12"
3. Remove outer tines from outer tine assemblies. 20"  
Tines may be interchanged with opposite sides.
4. Add tine extensions to standard arrangement. 40"

**NOTE:** When adjusting tines, be sure the cutting edges enter the soil first.

## MAINTENANCE AND LUBRICATION

**ENGINE** - Service engine in accordance with the engine manufacturer's owner's guide. **NOTE:** To drain oil, remove oil filler plug and tip tiller on its side. Drain oil while the engine is warm. See engine manual for filling instructions.

**GEAR CASE** - Proper lubricant level should be up to the front pipe plug. Check with tiller on a level surface. Add lubricant through the vented pipe plug hole. Add enough to bring level up to front plug hole. Use Mobilube SAE 140 Gear Oil or equivalent. Gear case should be maintained with five (5) ounces of lubricant.

Lubricate the upper bushing in the gear case with a small amount of grease. Do not over lubricate as any excess will enter the gear case proper. Use a high pressure gun grease.

**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.

**BELTS** - "V" Belts and pulley assemblies are accessible at the rear of the tiller. The belts are changed as described below.

To remove large belt —

1. Place clutch control handle in "Neutral" position.
2. Remove lower belt guard (13).
3. Loosen (Do not remove) belt clip (16) and remove belt (56).

To remove small belt —

1. Remove large belt as described.
2. Place clutch control handle in "Forward" position.
3. Loosen belt retainer (10) and remove belt (57).

To replace small belt —

1. Position belt on pulleys. Be sure belt is in proper pulley grooves.
2. Move clutch control handle to "Neutral" position.
3. Move belt retainer (10) into position against reverse pivot bracket and tighten. Do not tighten excessively. Pulley (71) should have approximately 1/16" end play.

To replace large belt —

1. Position belt on pulley (35).
2. Position belt on pulley (68).
3. Position belt on pulley (73).
4. Replace and tighten lower guard (13).
5. Place clutch control handle in "Forward" position.
6. Tighten belt clip (16). CAUTION: Upper part of belt clip should clear belt by 1/8".

**GENERAL** - Check periodically all nuts and bolts. loose nuts and bolts can cause permanent damage to your unit. Keep all nuts and bolts securely tightened.

**STORAGE** - The following steps should be taken to prepare your tiller for storage.

1. Clean tiller thoroughly and lubricate as described in the preceding instructions.
2. Coat tilling tines with grease to prevent rusting.
3. Prepare engine for storage in accordance with engine manufacturer's owner's guide.
4. Block tiller legs to raise tires clear of floor. Be sure tiller is level.
5. Store in a dry clean area.

## ATTACHMENTS

**EXTENSION TINES** - This attachment is available to increase your tilling width up to 40". Extension tines are easily installed and removed. Order under part number 297-164.

**FURROW OPENER** - This attachment is easily installed on the depth bar of your tiller. It can be used for either furrowing or hilling operations. These attachments are available through your local dealer.

For wide (2" x .43" depth bar, order furrow opener 297-179.

For narrow (1-1/2" x 3/8") depth bar, order furrow opener 297-178.

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## SERVICE NOTES

### DRIVE BELT SLIPS

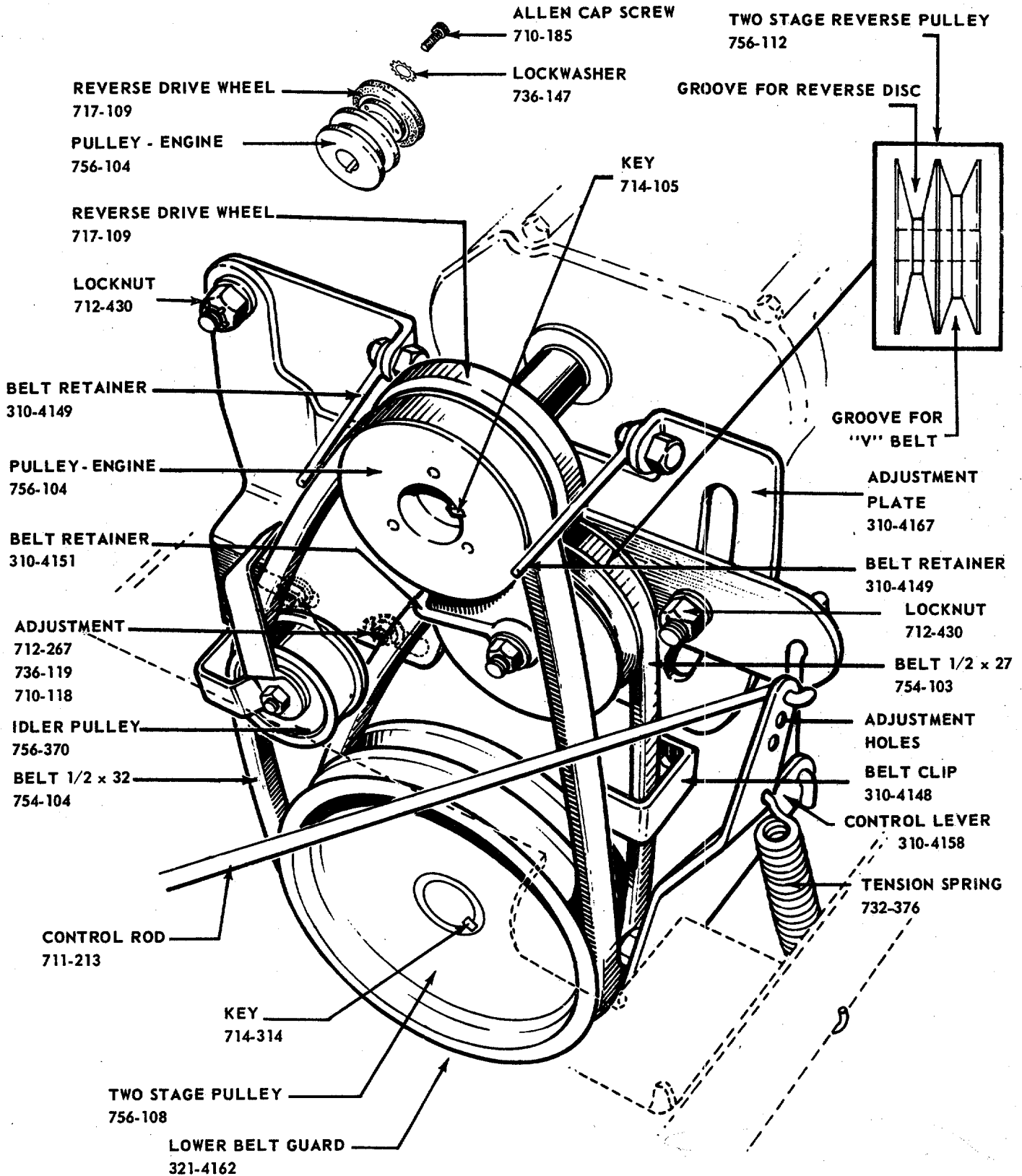
1. Lubricate contact surface between pivot bracket assembly and adjustment plate.
2. Check pivot bracket assembly locknuts for excessive tightness.
3. Check control rod for improper assembly. If adjustment tube is attached to lower end instead of upper end, it may bind on control lever and prevent full use of tension spring.
4. If spring tension is still insufficient, adjust to another mounting hole on control lever.
5. Some measure of belt adjustment may be made by loosening the mounting bolts on the adjustment plate and moving as needed. This adjustment is usually used for reverse drive wheel adjustments.
6. Large pulley and belt may be rubbing on lower belt guard.
7. Idler pulley must operate freely.
8. Belt guard or clips must not touch the belt when it is tightened.

### REVERSE DRIVE WHEEL ADJUSTMENT

1. Reverse drive wheel should line up with its matching pulley. If it does not, loosen pulley to which reversing drive wheel is attached and align as needed. When reassembling, tighten set screw securely.
2. Matching pulley for reversing drive wheel can be mounted one way only. The reversing drive wheel must operate in the deeper groove.
3. If belt retainer touches engine pulley after adjustment, move to outside mounting or bend away as needed.
4. Additional reverse adjustment may be made by loosening the mounting bolts on the adjustment plate and moving as needed.
5. Reverse should operate only when control handle assembly is held in reverse position. Adjust control rod for proper operating position.

NOTE: If belts are excessively stretched, replacement will be necessary.

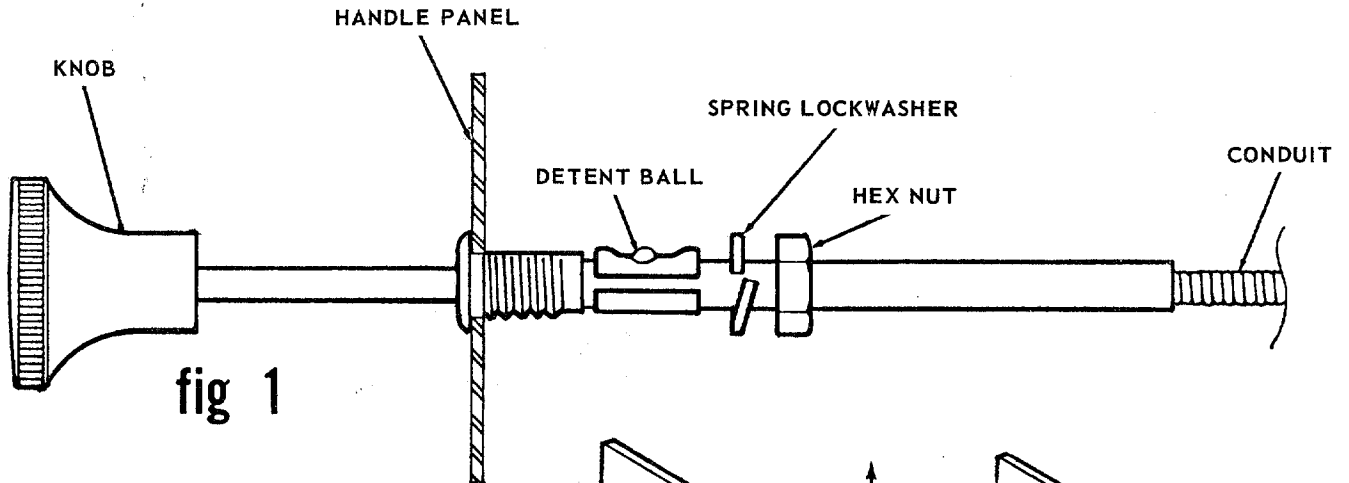
# TILLER DRIVE MECHANISM



# THROTTLE ASSEMBLY

## FOR PANEL MOUNT CONTROL

To assemble the Throttle Assembly, push the black plastic knob in all the way, then pull it out until the detent ball clicks into the second notch. If the Throttle Assembly does not do this see adjustments below. The knob will be pulled out approximately 1-3/8" when in the second notch. In this position the spring lockwasher and the hex nut will slide past the detent ball. Place the conduit through the slot in the handle panel (see fig. 2) and push the unit (see fig. 3) in until it seats as shown (see fig. 1). Secure with the spring lockwasher and hex nut.



### ADJUSTMENTS - (see fig. 4)

#### To Check:

Remove Air Cleaner. Move Throttle Assembly to CHOKE position. The carburetor choke should then be closed. Move the Throttle to STOP. Control lever on carburetor should then make good contact with stop switch to short out ignition.

#### To Adjust:

Place Throttle on equipment in FAST (high speed) position. Lever "C" on carburetor should be just touching choke arm at "D". To adjust, loosen casing clamp screw "A" on blower housing. Move control casing "B" forward or backward until correct position is obtained. Tighten screw "A". Recheck above operation and replace Air Cleaner.

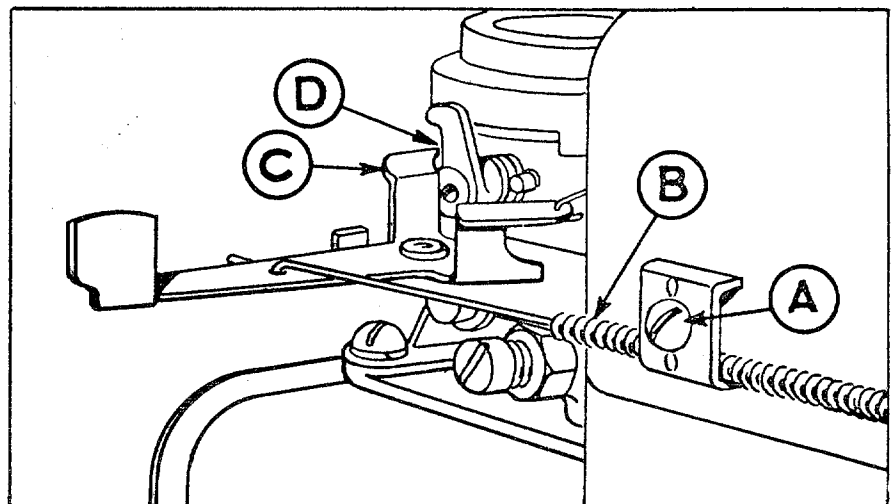
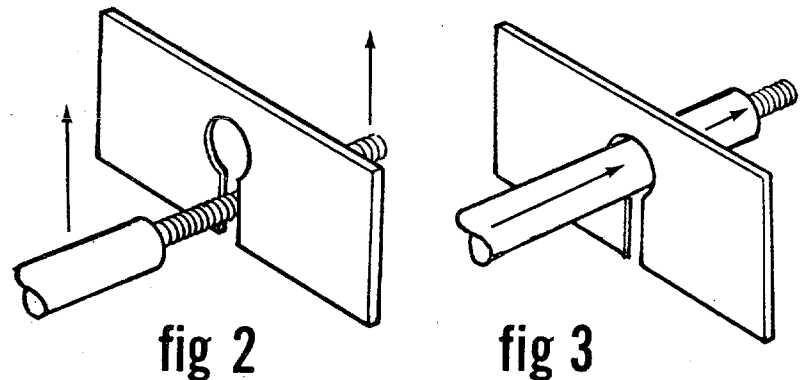


fig 4