

# OWNER'S GUIDE

• ASSEMBLY • PARTS •

*has parts list*

## 36" SNOW THROWER ATTACHMENT

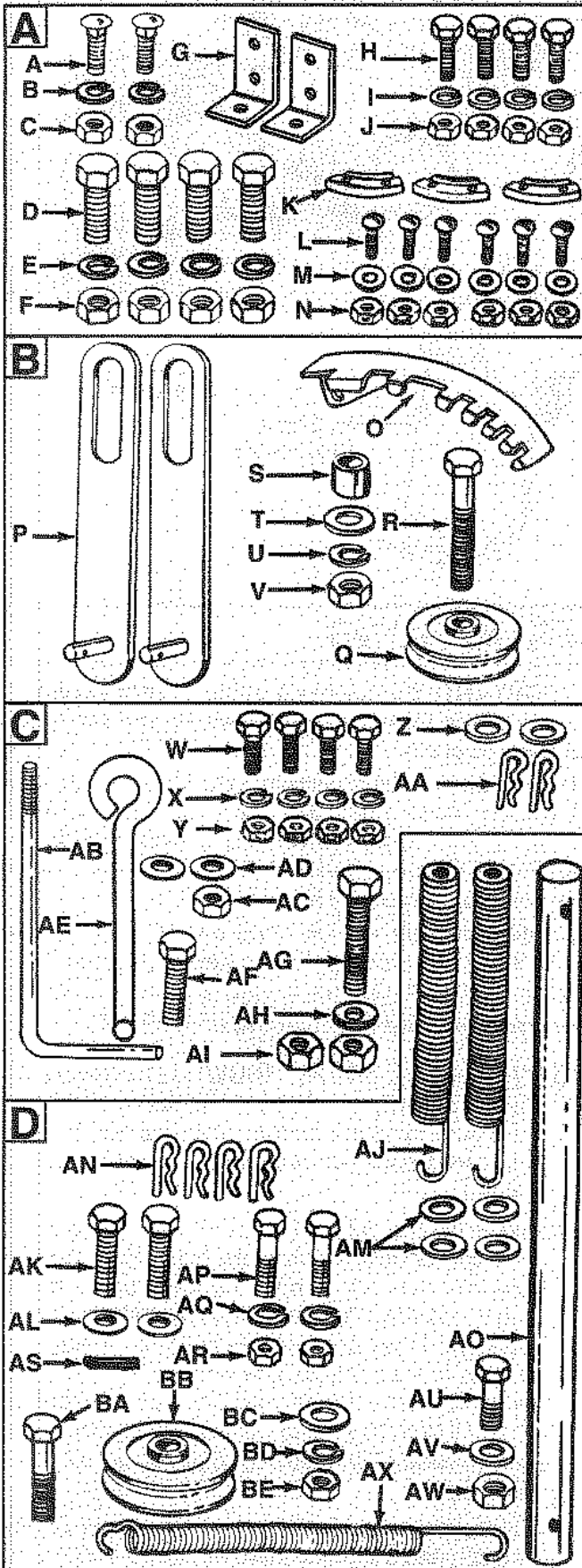
**Model Numbers**  
**190-491**  
**TMO-3384806**



Made  
in  
AMERICA

**IMPORTANT:**  
**Read Safety Rules and Instructions Carefully**

# CONTENTS OF HARDWARE PACK



Hardware pack may contain extra items not used on your unit.

### Group A—Preparing the Snow Thrower

- A (2) 710-0260 Carriage Bolts 5/16-18 x 5/8" Long
- B (2) 736-0119 Lock Washers 5/16" I.D.
- C (2) 712-0267 Hex Nuts 5/16-18 Thread
- D (4) 710-0474 Hex Bolts 1/2-13 x 1-1/4" Long
- E (4) 736-0921 Lock Washers 1/2" I.D.
- F (4) 712-0206 Hex Nuts 1/2-13 Thread
- G (2) 05933 Helper Spring Brackets
- H (4) 710-0299 Hex Bolts 1/4-28 x 1" Long
- I (4) 736-0329 Lock Washers 1/4" I.D.
- J (4) 712-0138 Hex Nuts 1/4-28 Thread
- K (3) 731-0851 Chute Flange Keepers
- L (6) 710-0255 Truss Machine Screws 1/4-20 x 3/4"
- M (6) 736-0142 Flat Washers 1/4" I.D. x 1/2" O.D.
- N (6) 712-0107 Hex Lock Nuts 1/4-20 Thread

### Group B—Preparing the Lawn Tractor

- O (1) 16462 Index Bracket
- P (2) 14802A Lift Links (marked 14803)
- Q (1) 756-0116 Idler Pulley
- R (1) 710-0859 Hex Bolt 3/8-16 x 2-1/2" Long
- S (1) 711-0396 Spacer
- T (1) 07386 Flat Washer 3/8" I.D. x 1-3/4" O.D.
- U (1) 736-0169 Lock Washer 3/8" I.D.
- V (1) 712-0798 Hex Nut 3/8-16 Thread

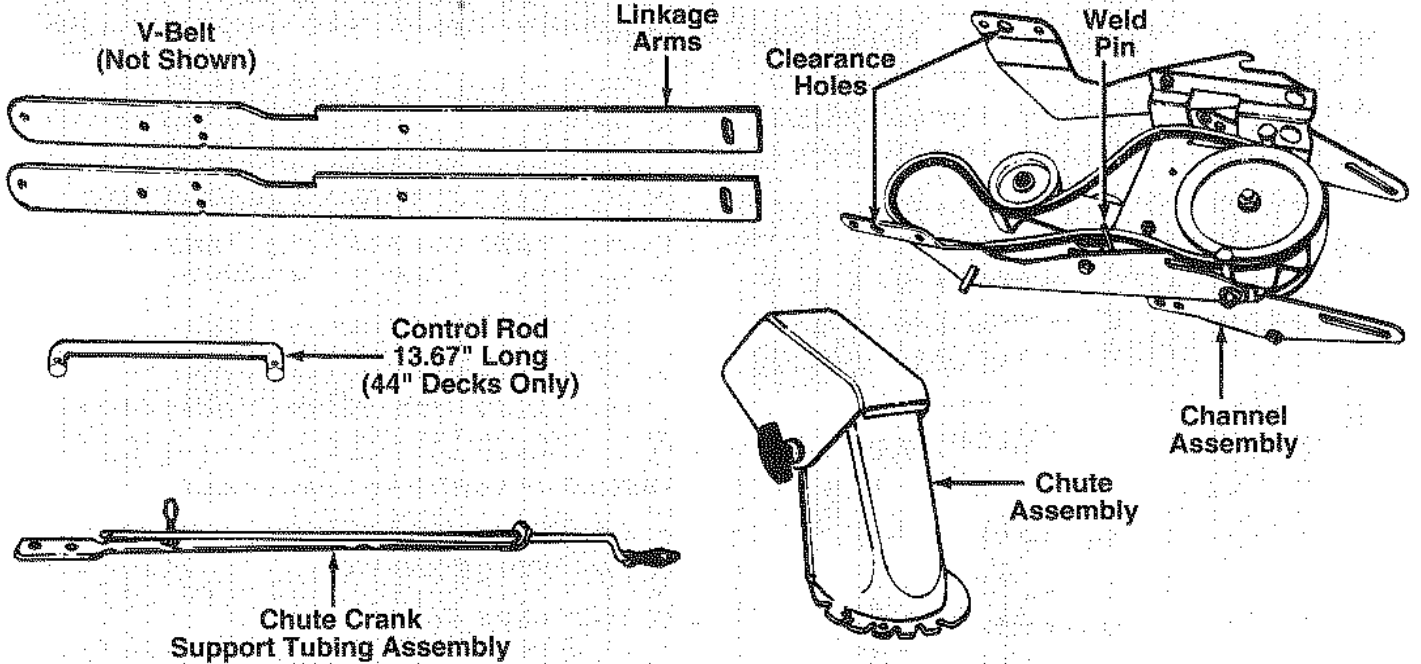
### Group C—Attaching the Channel Support

- W (4) 710-0642 Self-Tapping Screws 1/4-20 x 3/4"
- X (4) 736-0329 Lock Washers 1/4" I.D.
- Y (4) 712-0287 Hex Nuts 1/4-20 Thread
- Z (2) 736-0192 Flat Washers 1/2" I.D.
- AA (2) 714-0101 Hairpin Clips
- AB (1) 710-0836 J-Bolt (Belt Guard)
- AC (1) 712-0267 Hex Nut 5/16-18 Thread
- AD (2) 736-0242 Belleville (Cupped) Washers 5/16"
- AE (1) 747-0760 Belt Guard
- AF (1) 710-0118 Hex Bolt 5/16-18 x 3/4" Long
- AG (1) 710-0331 Hex Bolt 3/8-24 x 2-1/4" Long
- AH (1) 736-0169 Lock Washer 3/8" I.D.
- AI (2) 712-0241 Hex Nuts 3/8-24 Thread

### Group D—Attaching the Snow Thrower

- AJ (2) 732-0323 Helper Springs
- AK (2) 710-0959 Hex Bolts 5/16-18 x 1-1/2" Long (Full Thread)
- AL (2) 736-0242 Belleville (Cupped) Washers 5/16"
- AM (4) 736-0192 Flat Washers 1/2" I.D.
- AN (4) 714-0101 Hairpin Clips
- AO (1) 738-0242 Lift Handle Shaft
- AP (2) 710-0442 Hex Bolts 5/16-18 x 1-1/2" Long
- AQ (2) 736-0119 Lock Washers 5/16" I.D.
- AR (2) 712-0267 Hex Nuts 5/16-18 Thread
- AS (1) 714-0507 Cotter Pin
- AT (1) 761-0195 Auger Brake Bracket Assembly (Not Shown)
- AU (1) 710-0201 Hex Bolt 3/8-16 x 5/8" Long
- AV (1) 736-0356 Belleville (Cupped) Washer 3/8" I.D.
- AW (1) 712-0798 Hex Nut 3/8-16 Thread
- AX (1) 732-0470A Extension Spring
- AY (1) 725-0157 Cable Tie (Not Shown)
- AZ (2) 730-3000 Reflectors (Not Shown)
- BA (1) 710-0347 Hex Bolt 3/8-16 x 1-3/4" Long
- BB (1) 756-0417 Fixed Idler Pulley
- BC (1) 736-0235 Flat Washer 3/8" I.D. x 1-3/4" O.D.
- BD (1) 736-0169 Lock Washer 3/8" I.D.
- BE (1) 712-0342 Hex Jam Nut 3/8-16 Thread

# LOOSE PARTS IN CARTON



# ASSEMBLY INSTRUCTIONS

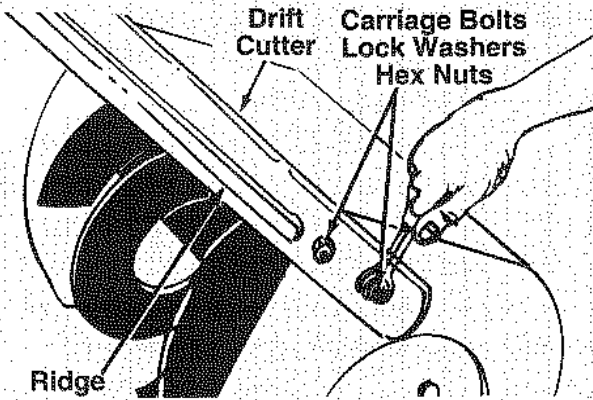


FIGURE 1.

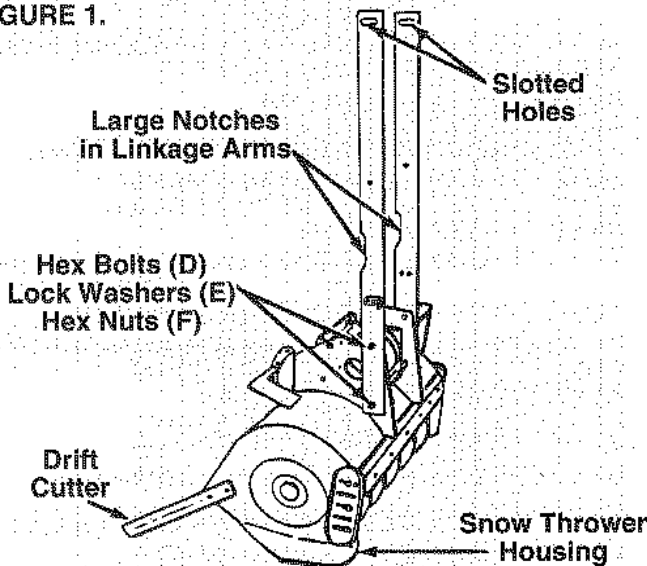


FIGURE 2.

**IMPORTANT:** This owner's guide covers assembly of the snow thrower attachment to various types of lawn tractors.

At this time, make certain you know what size deck you have (34", 36", 38", 40", 44" or 46"), whether your lawn tractor has a twin cylinder or single cylinder engine, and if possible, the year of manufacture of lawn tractor.

Not all hardware will be used on all units. Follow only those instructions which pertain to your unit.

**NOTE:** Left and right hand side is determined from the operator's position, sitting on the seat.

## PREPARING THE SNOW THROWER (Hardware A)

1. Remove the snow thrower, all loose parts and hardware from the carton. Make certain all contents have been removed before the carton is discarded.
2. Assemble the drift cutters as follows. Using a 1/2" wrench, remove the carriage bolts, lock washers and hex nuts which hold the drift cutters to the auger housing. Turn and place the drift cutters in position (ridges on the drift cutters go toward the outside of the unit). Secure with the hardware just removed, and carriage bolts (A), lock washers (B) and hex nuts (C). Heads of the carriage bolts are to the inside of the housing. See figure 1. Tighten securely.
3. Tip the snow thrower forward so it rests on the housing and the drift cutters as shown in figure 2.

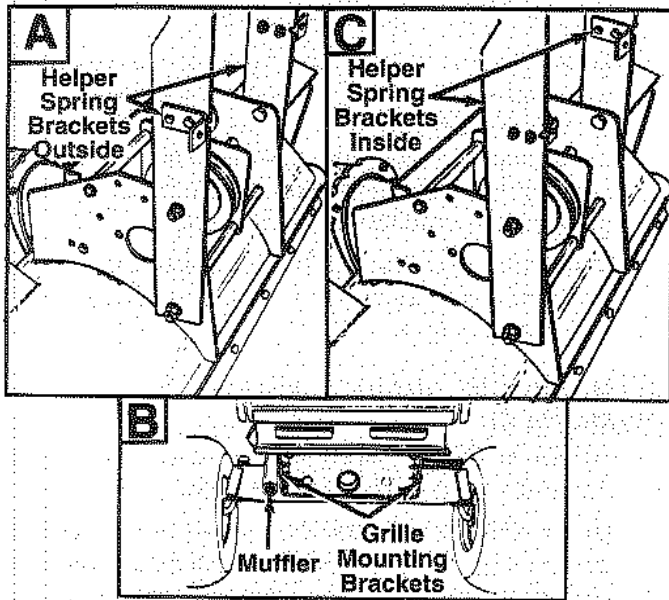


FIGURE 3.

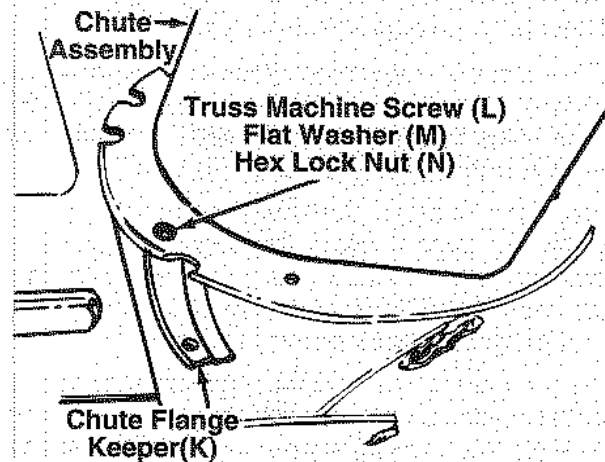


FIGURE 4.

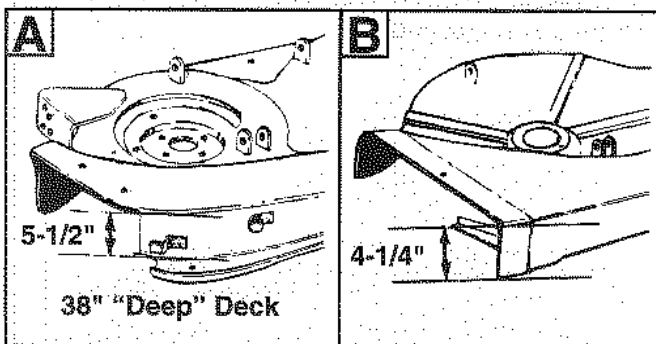


FIGURE 5.

4. Attach the linkage arm assemblies to the blower housing with the large notches in the linkage arms toward the top of the unit. The slotted holes in the linkage arms go away from the snow thrower. Secure with hex bolts (D), lock washers (E) and hex nuts (F).
5. Attach the helper spring brackets (G) just above the small notches in the linkage arms. See figures 2 and 3. If there are no holes in this location on the linkage arms, refer to supplement sheet PE-104, Form No. 770-8200G.

**Most Units:** The brackets go to the outside of the linkage arms, with the bend toward the bottom. See figure 3A. Secure with four hex bolts (H) (heads of bolts are to the outside), lock washers (I) and hex nuts (J).

**Lawn Tractors with twin cylinder Vanguard engines:** The muffler on your lawn tractor is to the outside of the grille mounting bracket as shown in figure 3B. Attach the brackets to the inside of the linkage arms, with the bend in the bracket toward the bottom. Secure with four hex bolts (H) (heads of bolts are to the inside), lock washers (I) and hex nuts (J). See figure 3C.

6. Lower the snow thrower so it rests on the linkage arm assemblies.
7. Grease the chute opening on the snow thrower using a multi-purpose automotive grease or equivalent.
8. Place the chute assembly over the chute opening, with the opening in the chute assembly facing the front of the unit. Place chute flange keepers (K) beneath the lip of the chute assembly. Secure with truss machine screws (L), flat washers (M) and hex lock nuts (N) as shown in figure 4. Tighten with a 7/16" wrench.

#### PREPARING THE LAWN TRACTOR (Hardware B)

**NOTE:** When preparing the lawn tractor for assembly of snow thrower attachment, store all items removed with the mowing deck unless otherwise instructed.

1. Disconnect the spark plug wire(s) from the spark plug(s) and ground against the engine.
2. Remove the mowing deck as instructed in the belt removal section of the owner's manual for the lawn tractor, or in the separate deck manual. When removing the belt keepers (hex bolts or J-bolts) from the engine pulley belt guard, note the hole locations to which they are assembled. Retain these belt keepers for use when assembling the snow thrower.
3. If the tractor has a front counterweight attached, remove it by removing the counterweight bracket (and counterweight) where it attaches to the grille mounting brackets.

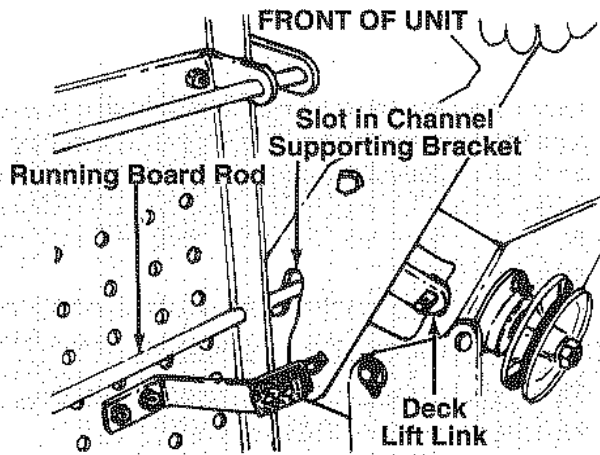


FIGURE 6.

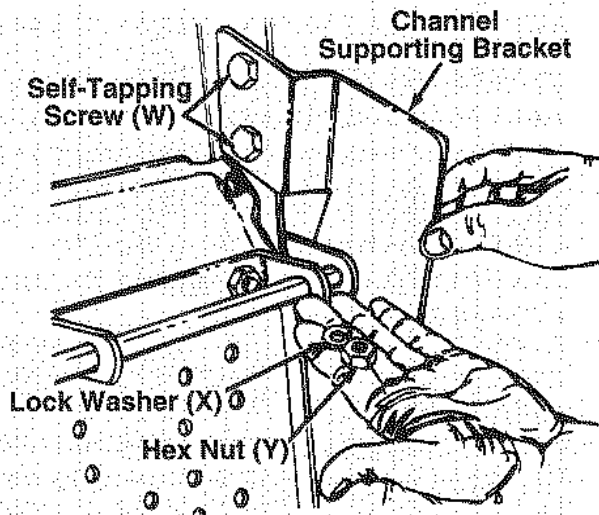


FIGURE 7.

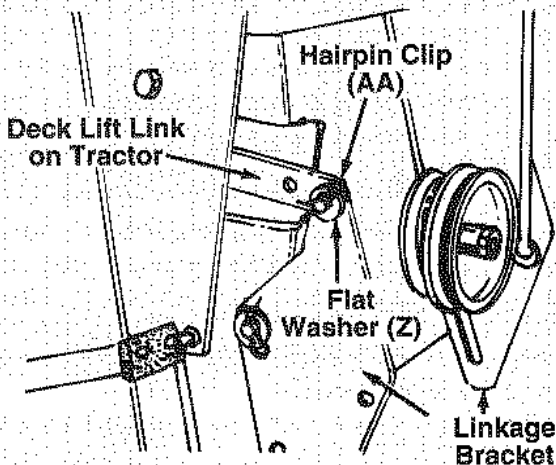


FIGURE 8.

4. **Lawn Tractors Prior to 1990:** At this time refer to instructions in Appendix A in the back of this owner's guide. Then return to next section ("Attaching the Channel Assembly").
5. **Lawn Tractors 1990 to Present:** Remove the adjustable lift link on your tractor by removing the hairpin clip and flat washer. Replace with one of the straight lift links provided with snow thrower, reusing the same hardware. Weld pin on link must face toward the inside of tractor.  
Retain the adjustable lift link for reassembly when snow thrower attachment is removed. Store it with your mowing deck.

### ATTACHING THE CHANNEL ASSEMBLY (Hardware C)

1. **Units with 34" and 40" decks:** Refer to Appendix B on page 21 at this time.  
**Units with 38" decks:** Measure the side of the deck just in front of the chute opening, from the bottom to the top. If the measurement is 5-1/2" (see figure 5A), go to next step (step 2). If the measurement is 4-1/4" (see figure 5B), go to Appendix B on page 21.
2. **Units with twin cylinder engines:** Go to Appendix C on page 21 at this time.
3. If the channel supporting brackets on your snow thrower attachment do not have the larger clearance holes as shown in loose parts illustration on page 4, refer to Appendix D at this time.
4. Place the channel assembly on the tractor as shown in figure 6. Hook the channel supporting brackets over running board rod. Make certain the two deck lift links on tractor slide through the channel assembly as shown in figure 8.
5. Secure front of the channel supporting brackets to the tractor by placing self-tapping screws (W) through the channel supporting brackets, frame and engine pulley belt guard. Secure with lock washers (X) and hex nuts (Y). Tighten securely. See figure 7.
6. Secure deck lift links on tractor to linkage brackets with flat washers (Z) and hairpin clips (AA). See figure 8.

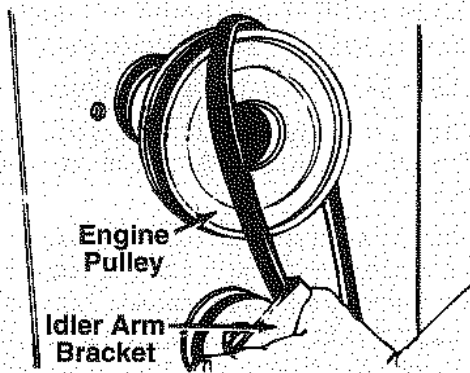


FIGURE 9.

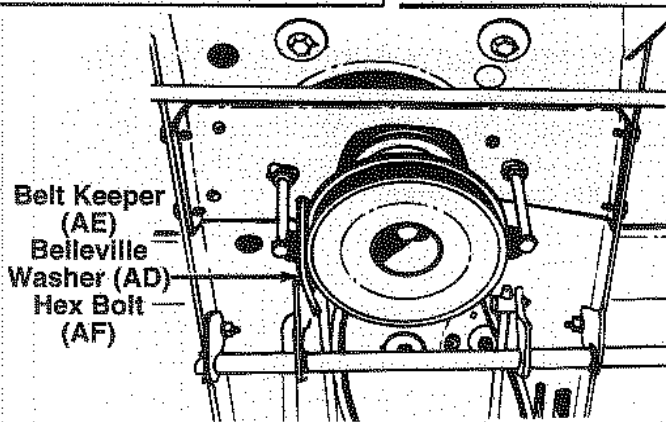
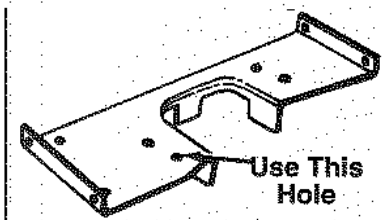


FIGURE 10.—Units Built 1990 and After

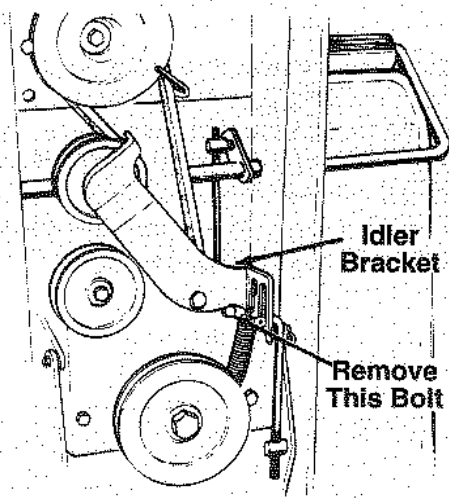


FIGURE 11.

7. Make certain belt is routed to the inside of the weld pin on the channel assembly as shown in loose parts illustration on page 4. Also be certain the belt is routed between idler pulley and the tab on the idler arm bracket. See figure 9.
  8. Push the idler bracket assembly to the right side of the unit, and slide belt over engine pulley.
  9. **Electric PTO Units Only:** Push the idler bracket assembly to the right side of the tractor, and slide the belt over the PTO clutch pulley.
- Disregard steps 10 and 11 as your unit is not equipped with belt keepers at the engine pulley.

10. **Units built prior to 1990:** The engine pulley belt guard is around the rear of the engine pulley on your unit. Refer to Appendix E at this time.

**Units built 1990 and after:** The engine pulley belt guard is around the front of the engine pulley on your unit. Assemble the belt keeper (AE) to the weld nut in the right side of the engine pulley belt guard using hex bolt (AF) and belleville washer (AD) (crowned side of washer goes against the head of the bolt). See figure 10.

11. Reassemble any other belt keepers (hex bolts) which were removed from the engine pulley belt guard when mowing deck was removed. Make certain belt is routed to the inside of any belt keepers on your unit, and the belt keepers are reassembled in the same locations from which they were originally removed.

12. **Lawn Tractors with 44" decks:** Follow instructions found in Appendix F at this time.

13. A bolt and nut were installed in the channel assembly at the factory to hold the idler bracket during shipping and assembly. Remove this shipping bolt at this time, as shown in figure 11.

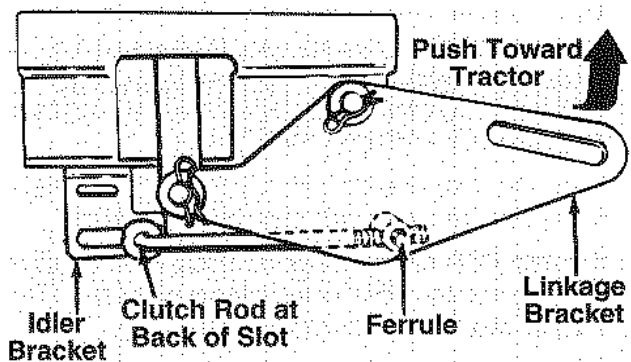


FIGURE 12.

14. All units **EXCEPT** those with 44" decks: Adjust the control rod as follows. See figure 12.
- Place the lift lever in the lowest position.
  - Push the slotted end of the linkage bracket so it pivots up towards the tractor as far as possible.
  - Pull the control rod towards the rear of the unit so it bottoms out on the slot on the idler bracket. Remove the cotter pin and flat washer, and adjust the ferrule on the control rod so it lines up with the hole in linkage bracket as shown. Reassemble using flat washer and cotter pin.

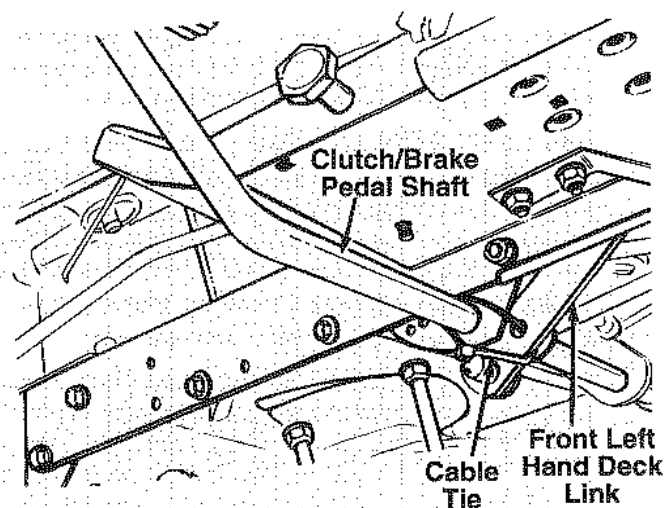


FIGURE 13.

#### ATTACHING SNOW THROWER TO TRACTOR (Hardware D)

- Secure the front left hand deck link to the clutch/brake pedal as shown in figure 13 using the cable tie (AY).

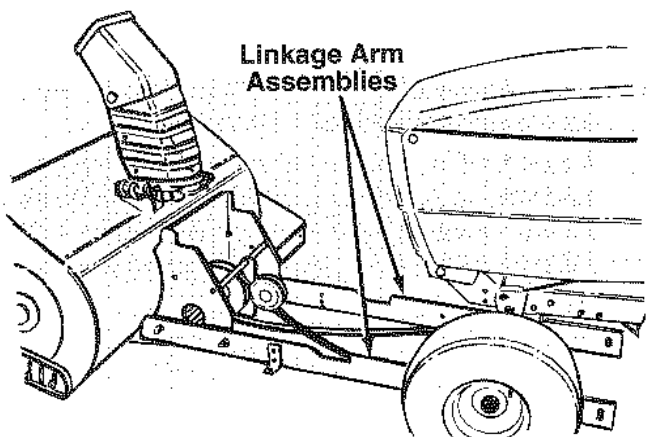


FIGURE 14.

- Place the snow thrower in position in front of the tractor with the linkage arm assemblies extending towards the rear of the unit. See figure 14. Push the tractor forward and position the linkage arm assemblies on the channel support brackets. Make certain the rear deck links are **outside** of the linkage arm assemblies. See figure 15.

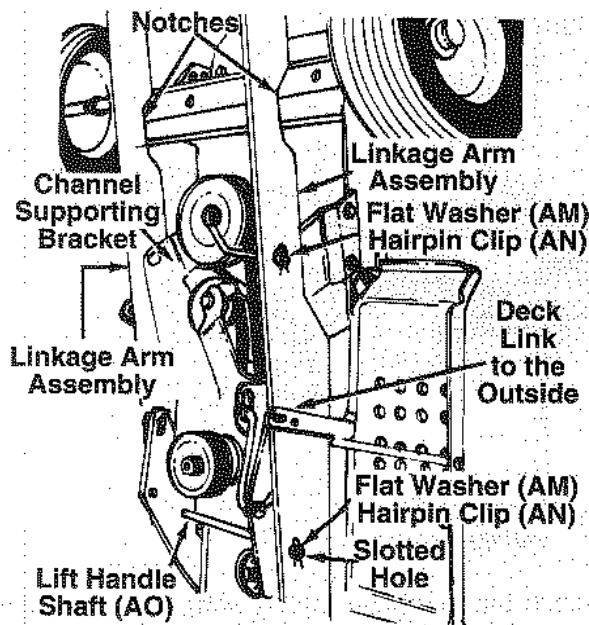


FIGURE 15.

- Secure linkage arm assemblies to the weld pins on channel support bracket using flat washers (AM) and hairpin clips (AN). See figure 15.

**NOTE:** Figure 15 is shown with the tractor on end for clarity only. It is not necessary to lift the tractor to assemble the linkage arm assemblies.

- Slide the lift handle shaft (AO) through the slots in the linkage arm assemblies and channel support brackets. Secure with flat washers (AM) and hairpin clips (AN). See figure 15.
- Place the lift lever in the disengaged position. Block the snow thrower up as far as possible.

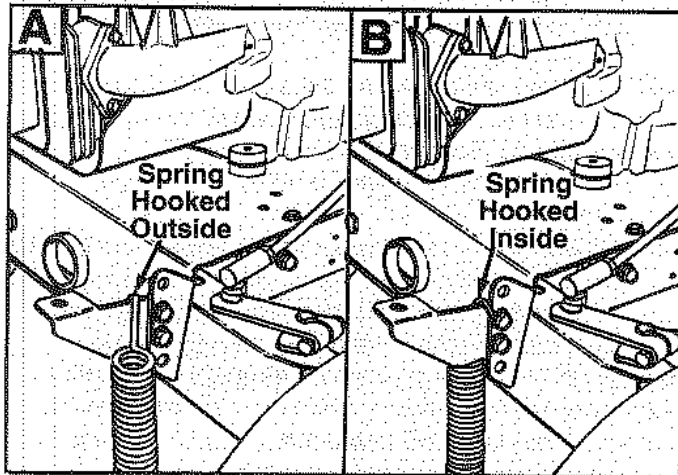


FIGURE 16.

- Hook the ends of the helper springs (AJ) over the grille mounting brackets. If you assembled the helper spring brackets to the outside of the linkage arm assemblies (see figure 3A), the springs go outside the grille mounting brackets. If you assembled the helper spring brackets inside of the linkage arm assemblies (see figure 3B), the springs go inside the grille mounting brackets. See figure 16.

- Place Belleville washers (AL) underneath helper spring brackets (cupped side of washer goes against the bracket). Thread the full thread hex bolts (AK) through washers, brackets and into springs. Tighten until springs are against brackets.

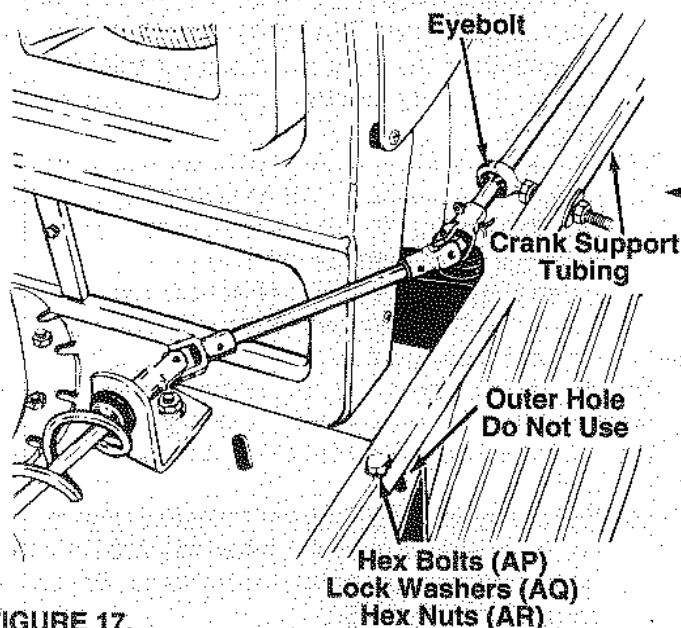


FIGURE 17.

- Assemble the crank support tubing to the snow thrower housing, using the inner hole in the housing as shown in figure 17. Secure in place with two hex bolts (AP), lock washers (AQ) and hex nuts (AR). An adjustable wrench and 1/2" wrench are required.

- Remove the blocks from under the snow thrower housing.
- Slip the end of chute crank rod through the grommet in eyebolt and into the universal joint. Secure with cotter pin (AS). Secure by bending the ends of the pin in opposite directions. See figure 17.



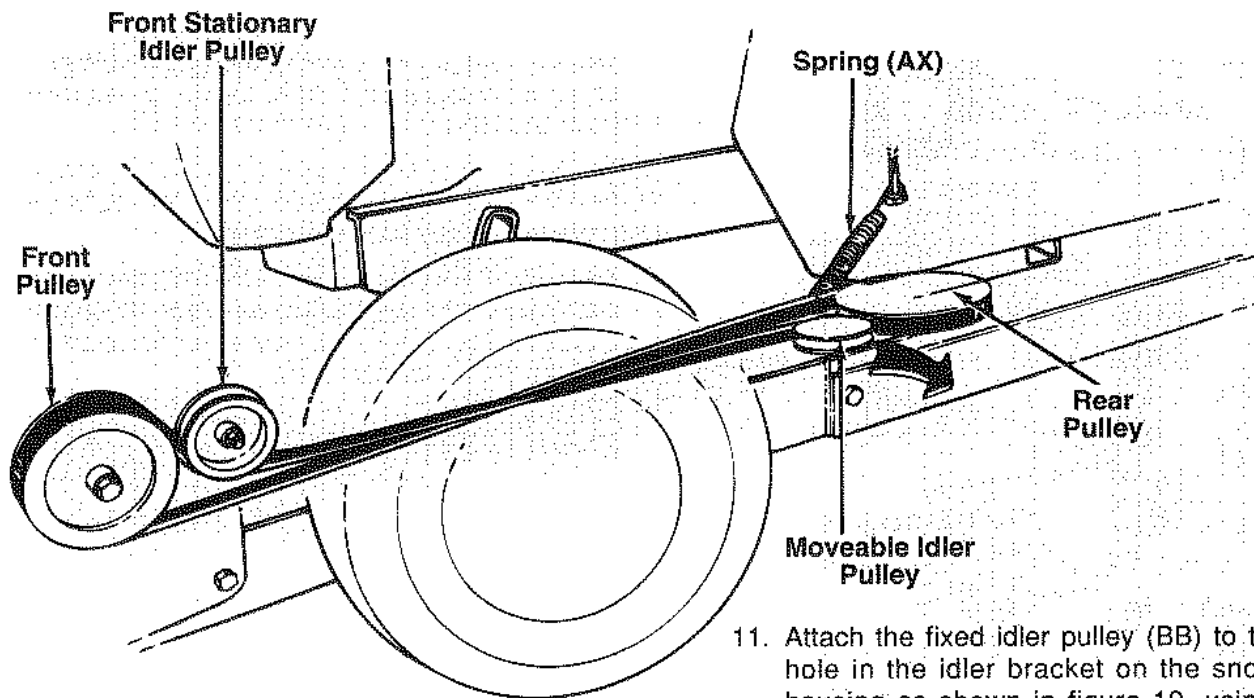


FIGURE 18.

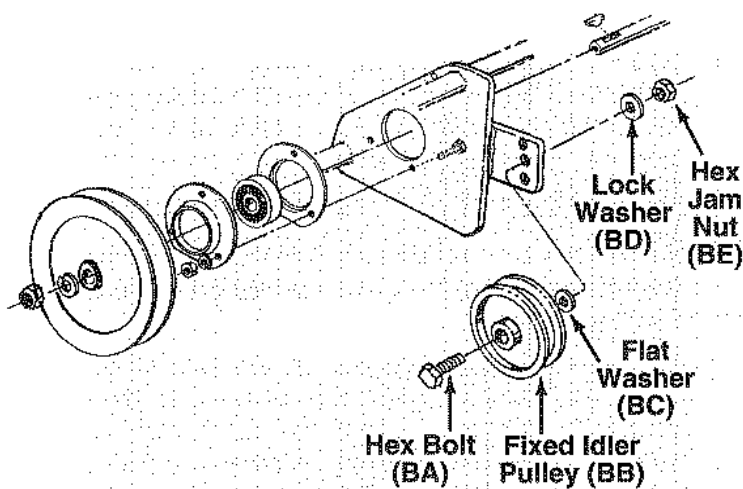


FIGURE 19.

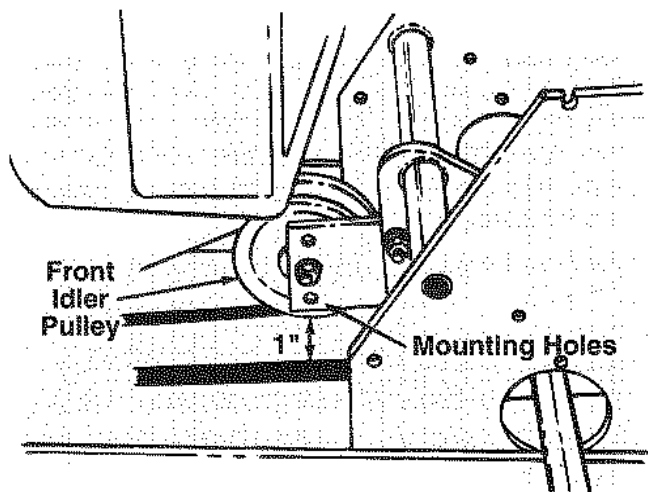


FIGURE 20.

11. Attach the fixed idler pulley (BB) to the **middle** hole in the idler bracket on the snow thrower housing as shown in figure 19, using hex bolt (BA), flat washer (BC), lock washer (BD), and hex jam nut (BE).

**NOTE:** If the belt cannot be assembled onto the support bracket pulley (step 13), move the fixed idler pulley to the top hole in the idler bracket.

12. Remove the idler spring from the right hand side of tractor.
13. Pull moveable idler pulley to the left hand side of the channel assembly. Twist drive belt to the left (determined from the operating position), and place belt on rear drive pulley. See figure 18.

**NOTE:** Belt must be assembled as shown. Top of belt goes over rear pulley and then twists to the right. The bottom of the belt goes to the left. If the belt is assembled incorrectly, the augers will run in reverse.

14. Use a pair of pliers to bend the end of spring (AX) open slightly. Attach spring (AX) to the hole in the idler arm and the bolt beneath the channel assembly on the right hand side of tractor. See figure 18 and reference numbers 27 and 67 on page 18.

15. Check the position of the fixed idler pulley. There should be at least 1 inch of space between the two sides of the belt at the area of the fixed idler pulley, to avoid damage to the belt.

If there is not at least 1" of space, remove idler pulley and move it down to the next lower mounting hole. See figure 20.

**NOTE:** When operating the snow thrower, if the spring-loaded idler does not put enough tension on the belt, move the fixed idler to the bottom hole in the bracket.

16. If your tractor does not have reflectors or taillights on the fenders, peel the backing paper off the reflectors packed with Hardware D. Press in place on rear fenders.

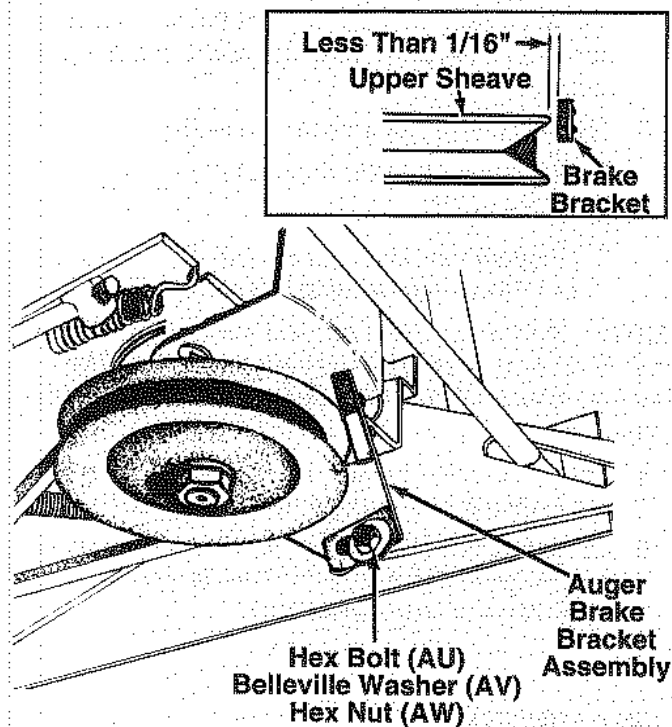


FIGURE 21.

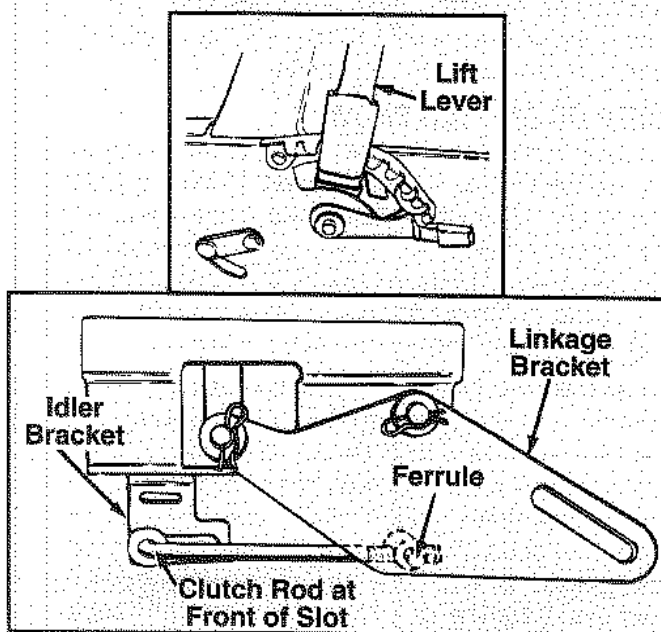


FIGURE 22.

17. All units **EXCEPT** with 44" deck or electric PTO: Attach the auger brake bracket assembly to linkage bracket on the right side of your unit. See figure 21. Secure with hex bolt (AU), Belleville washer (AV) (cupped side goes against the brake bracket) and hex nut (AW). Do not tighten.

Adjust the auger brake bracket assembly as follows.

- a. Place the lift lever in the highest cutting height position (position just below disengagement).
  - b. Adjust the brake bracket so the brake pad is **less than 1/16"** away from the upper sheave of the pulley. See figure 21, inset. Tighten the hex bolt and nut to hold the bracket in this position.
  - c. Place the lift lever in the disengaged position. Make certain the brake pad is against the upper sheave of the pulley.
18. Attach spark plug wire(s) to spark plug(s).
  19. Check tire pressure. It may be necessary to put more air into the front tires due to weight of the snow thrower.
  20. Place the lift lever in the disengaged position (all the way back). Start the engine, and make certain the augers are not turning. If the augers turn in the disengaged position, adjust as instructed in step 21. Reassemble and recheck the adjustment for neutral position.
  21. If necessary, adjust the control rod on the undercarriage of the tractor as follows (all units except with 44" decks or with electric PTO).
    - a. Place the lift lever on the tractor in the highest cutting height position (position just below disengagement) as shown in figure 22.
    - b. Remove ferrule on the control rod from the linkage bracket by removing the cotter pin and flat washer. Adjust the ferrule so the control rod is as long as possible (other end of rod bottoms out at the front of the slot in the idler bracket assembly) as shown in figure 22. There should not be any pressure on the control rod.
    - c. Be certain to check the adjustment as instructed in step 20.
  22. Test the auger rotation of snow thrower. The auger should be turning forward and down to pull the snow in. If it does not, the belt is twisted the wrong way. Unhook the belt and twist in opposite direction. See figure 18.
  23. Adjust skid shoes to desired position and tighten hex nuts. See adjustment section.

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## CONTROLS

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The thrower controls are conveniently located at the operator's position on the lawn tractor.

### LIFT LEVER

The lift lever which is used to raise and lower the snow thrower is located on the right hand side of the tractor. On all units except those with 44" decks or electric PTO's, the lift lever also engages and disengages the spirals. To raise snow thrower (and disengage the spirals on most units), pull lift lever all the way back and lock. To lower the snow thrower (and engage the spirals on most units), push the lift lever forward slowly until the snow thrower reaches ground level.

### ENGAGEMENT LEVER (Units with 44" Decks Only)

The engagement lever is located beside the right fender. The spirals are engaged by moving the engagement lever forward. Move the engagement lever toward the rear of the tractor to stop the snow throwing action.

**NOTE:** When starting the unit, make certain the engagement lever is all the way back in the disengaged position or the unit will not start.

### POWER TAKE-OFF (PTO) SWITCH (Units with Electric PTO Only)

The PTO switch is located on the dashboard. The spirals are engaged by moving the PTO switch to the ON position. Move the PTO switch OFF to stop the snow throwing action.

**NOTE:** When starting the unit, make certain the PTO switch is in the OFF position or the unit will not start.

### DISCHARGE CHUTE CONTROL CRANK

The discharge chute control crank is located on the left hand side of the snow thrower. The chute crank controls the direction in which snow is thrown. The discharge radius is 180°. Turn crank to the right to direct snow to the right hand side. Turn to the left to direct snow to left hand side.

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## OPERATION

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The snow thrower is capable of handling heavy snow conditions. If given the opportunity to function within reasonable requirements, it should give many years of service. Become fully familiar with all aspects of both the lawn tractor and snow thrower prior to its usage. Do Not remove any guards or covers while operating tractor and thrower.

### BEFORE PLACING SNOW THROWER INTO OPERATION

1. Make certain to change the oil in the tractor engine to winter weight oil (SAE 5W-20 or 5W-30).

2. Make certain all nuts and bolts are tightened securely. Be sure that all parts are properly assembled.
3. Test all controls for smooth operation.
  - A. Discharge chute control crank.
  - B. Lift Lever
  - C. Engagement lever (units with 44" decks only) or PTO switch (electric PTO units only).

**NOTE:** Start engine and engage the spirals. If spirals run in reverse, belt is assembled incorrectly. Refer to step numbers 12 and 13 under assembly instructions, page 10.

4. Check the lawn tractor and thrower to make certain both are in good operating condition.
5. Fill gas tank out-of-doors. Avoid spilling gasoline over engine. **Do not** fill tank while engine is running. Wipe up any spilled gas.

### OPERATING SPEED

Start lawn tractor engine and run at full throttle. The spiral speed is directly related to engine speed. For maximum snow removal and discharge, maintain high engine R.P.M. (full throttle). The lawn tractor forward speed is controlled by selecting one of the forward speeds. It is advisable to operate the lawn tractor at a slow ground speed (1st gear) for safe and efficient snow removal. Engage the spirals slowly.

### SNOW CONDITIONS

Snow removal conditions vary greatly from light fluffy snowfall to the wet heavy snow. Therefore, operating instructions must be flexible to fit conditions encountered. The operator must adapt the lawn tractor and snow thrower to depth of snow, wind direction, temperature, and surface conditions.

### DEEP OR DRIFTED SNOW

In deep, drifted, or banked snow, it will be necessary to use full throttle and first speed. Drive the spiral into the snow, disengage clutch and allow spiral to clear the snow. Repeat this method until a path is cleared. On the second pass, overlap the first enough to allow the spiral to handle the snow without repeated clutching and declutching of the tractor.

In extremely deep snow, raise thrower from the ground and drive tractor ahead in the deep snow to remove top layers first. Do not drive tractor into snow bank where snow has not been removed to ground level. Disengage tractor clutch and allow thrower to clear the snow. Reverse tractor and lower thrower to the ground. Drive tractor ahead and repeat process to remove balance of snow. Working with repeated passes into and out of drifts will eventually move even the deepest of snow piles.



**CAUTION:** If snow thrower becomes plugged with snow or jammed due to hitting a foreign object, disengage snow thrower immediately and stop tractor engine. Clear snow from chute if plugged before resuming operation.

**NOTE:** If spiral is jammed or bent from hitting a foreign object, stop engine. Remove spark plug wire from spark plug and then remove foreign object from spiral. If spiral damage is noted, repair prior to continuing operation. Then replace spark plug wire and resume operation.

### OPERATING TIPS

1. Whenever possible, discharge snow down wind.
2. Do not attempt to remove ice or hard packed frozen snow.
3. Always overlap each pass slightly to assure complete snow removal.
4. A frozen or stuck spiral or chute must be broken loose or thawed with care. When attempting to loosen frozen or jammed spiral, shut off engine and remove spark plug wire. Never attempt to clear snow thrower at any time with engine running.

**NOTE:** When snow thrower and lawn tractor are not in use, lower snow thrower to the ground to prevent excess weight on front tires.

### USE OF TIRE CHAINS

Tire chains should always be used when extra traction is needed. They add maneuverability in handling snow removal jobs.

## ADJUSTMENTS



**CAUTION:** When making skid shoe or chute deflector adjustments, turn lawn tractor engine off.

### SKID SHOE ADJUSTMENT

The skid shoes are mounted on each side of spiral housing. These regulate the distance the shave plate is raised above the plowing surface. When removing snow from a gravel driveway or an uneven surface, it is advisable to keep shave plate as high above the surface as possible to prevent possible damage to spiral.

On blacktop or concrete surface, keep shave plate as close to the surface as possible. Skid shoes can be adjusted so that shave plate will rest directly on the surface. Turning skid shoes around will allow even wear on skid shoes.

Raise snow thrower off the ground and place a block at each end of shave plate. Loosen 4 hex nuts securing skid shoes to spiral housing (2 nuts on each side). Move skid shoes up or down to desired position and tighten nuts securely. Adjust both skid shoes to the same height to keep spiral level. See figure 23.

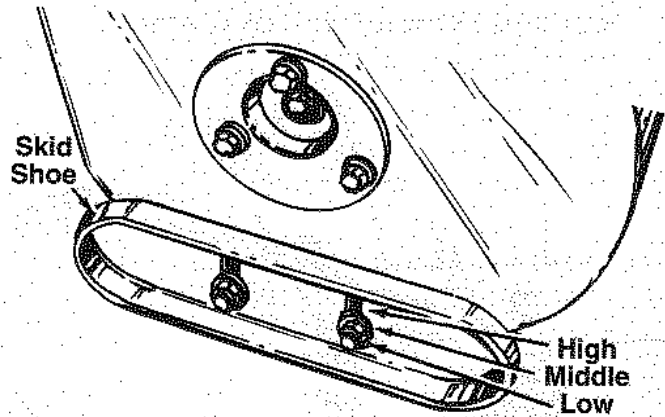


FIGURE 23.

### CHUTE DEFLECTOR ADJUSTMENT

The upper chute deflector mounted on the top of the chute determines the distance snow is thrown. Moving top of deflector down decreases distance of throw and raising deflector increases distance of throw. Operator must get off lawn tractor to make this adjustment. Disengage spirals and turn engine off before making this adjustment.

To adjust, loosen hand knob on the side of chute deflector and pivot to desired position. Retighten hand knob. See figure 24.

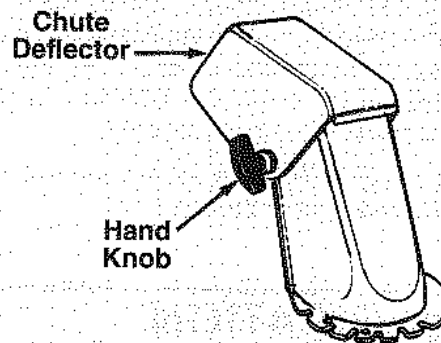


FIGURE 24.

### SPIRAL DRIVE CHAIN ADJUSTMENT

Excessive slack in spiral drive chain due to normal chain stretch can be removed by adjusting spiral housing nuts.

To adjust spiral chain:

1. Disengage snow thrower and loosen the adjusting nut 2 or 3 complete turns. See figure 25.
2. Move adjusting nut down as needed.



**CAUTION:** Do not overtighten chain. A correctly adjusted chain will have a slight amount of slack. An overtightened chain will result in early failure of chain.

3. Tighten adjusting nut to secure chain adjustment. Check chain clearance. It must clear chain guard assembly. Test chain and repeat adjustment if necessary until all excess slack is removed.

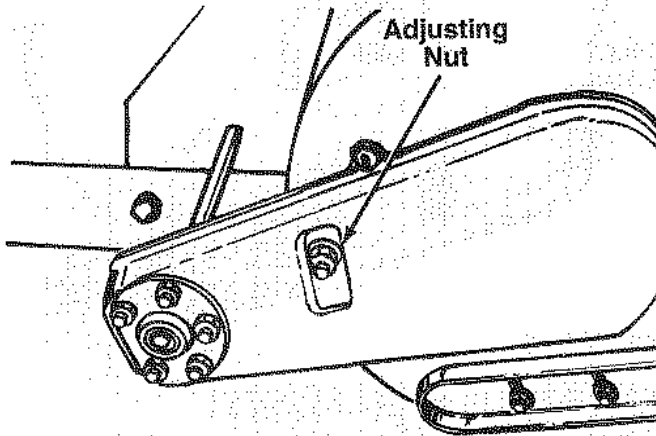


FIGURE 25.

### BELT TENSION ADJUSTMENT

Periodically check spiral drive belt to insure that it is properly adjusted. It is important to maintain proper belt adjustment to obtain maximum belt life.

The idler bracket has three holes for belt tension adjustment. As the belt stretches from normal wear, more belt tension may be required. Check the idler spring for wear against the drive shaft at least once a season. If the idler spring is rubbing against the drive shaft, the belt has stretched and must be adjusted. Remove the idler pulley from the bracket, and reassemble in next lower hole on the bracket.

If belt is stretched beyond idler take up, replace with a new belt of the type specified in parts list.

## LUBRICATION

1. Spiral drive chain: Lubricate chain every 40 hours with No. 30 oil. It is important that oil reaches inside each roller. Wipe off excess oil from chain.
2. Pivot and friction points: To maintain smooth and free operation, apply a few drops of No. 30 oil as required to all pivot and friction points.

The spiral and idler pulley bearings are self-lubricating. However, periodic lubrication with No. 30 oil will lengthen service life.

## MAINTENANCE

### SHAVE PLATE AND SKID SHOES

Both the shave plate and skid shoes are subject to wear and are designed to be easily replaced. Replace before wear is excessive. Failure to do so will result in damage to the spiral housing.

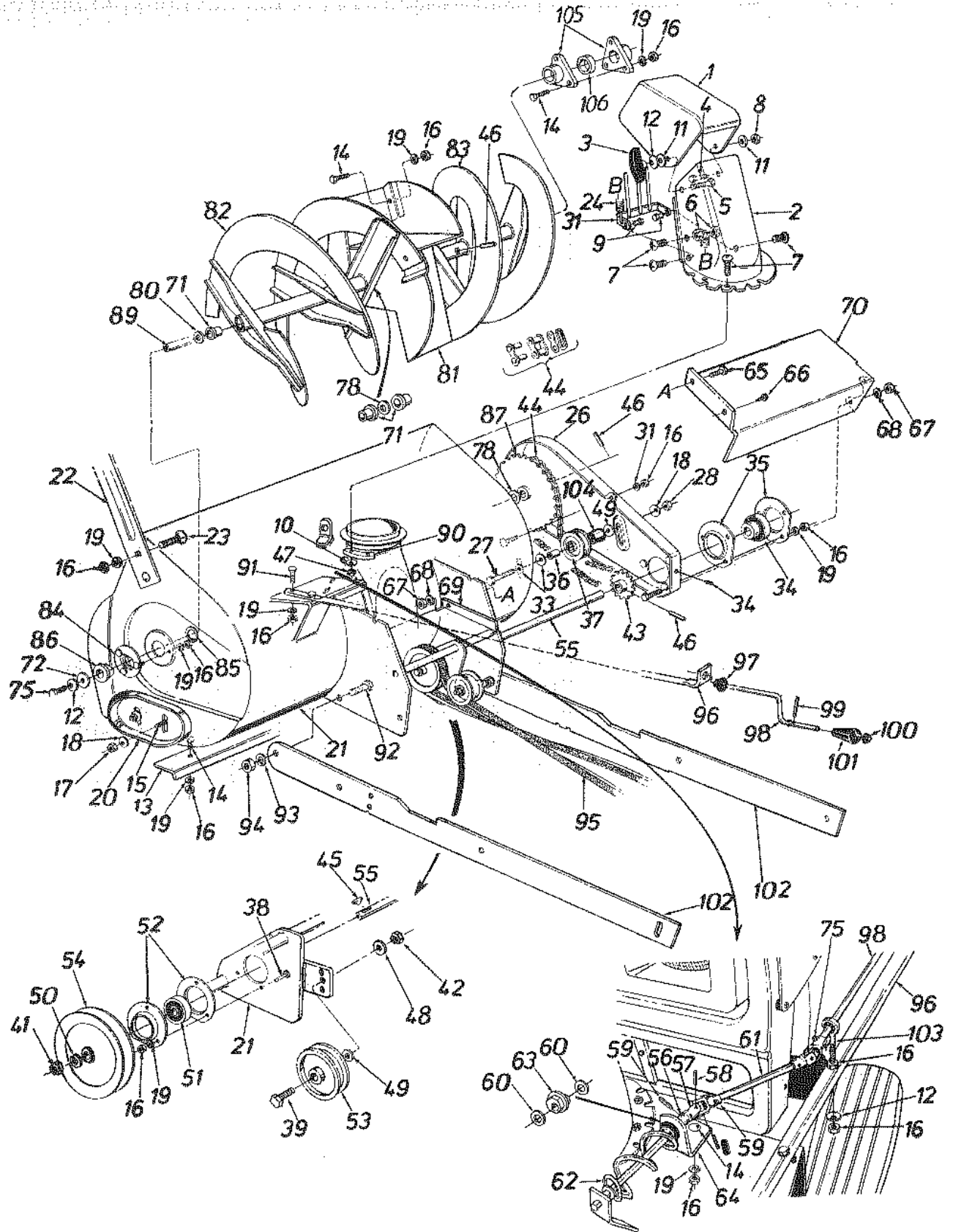
## OFF-SEASON STORAGE

At the end of the snow season, the following steps are recommended:

1. Remove snow thrower assembly from lawn tractor.
2. Wash off any salt deposit which may have dried on the thrower and housing. Paint or cover exposed metal with a light coat of oil.
3. Follow lubrication recommendations. Thrower drive chain must be oiled thoroughly to prevent rust from forming. The preferred method is to remove the chain and soak in oil for several hours before reinstalling.
4. Store thrower in a dry place.

**NOTE:** When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rust proof the equipment. Using a light oil or silicone, coat the equipment, especially any chains, springs, bearings and cables.

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## PARTS LIST FOR MODEL 491 36" SNOW THROWER ATTACHMENT

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	731-0846B		Upper Chute	53	756-0417		Idler Pulley
2	731-0843B		Lower Chute	54	756-0456		5/8 V-Pulley .75" I.D. x 6" O.D.
3	720-0241		Knob Handle Ass'y.	55	784-5077A		Drive Shaft Ass'y.
4	710-0323		Truss Mach. Scr. 5/16-18 x .75" Lg.	56	05066		Joint Brkt. Ass'y.
5	710-0276		Carriage Bolt 5/16-18 x 1" Lg.	57	711-0584		Joint Block
6	712-0291		Hex Cent. L-Nut 5/16-18 Thd.	58	728-0147		Oval Head Rivet
7	710-0255		Truss Mach. Scr. 1/4-20 x .75" Lg.	59	715-0129		Spiral Pin 1/8" Dia.
8	712-0158		Hex Cent. L-Nut 5/16-18 Thd.	60	736-0140		FI-Wash. .385" I.D. x .62"
9	738-0561		Shid. Nut 1/4-20 Thd.	61	747-0523A		Chute Crank Ext. Rod
10	736-0142		FI-Wash. 1/4" I.D.	62	784-5084		Chute Crank Ass'y. R.H.
11	736-0231		FI-Wash. .344" I.D. x 1.125"	63	741-0475		Plastic Bushing .38" I.D.
12	736-0242		Bell-Wash. .345" I.D. x .88"	64	784-5085A		Chute Crank Brkt.
13	05378		Shave Plate	65	710-0258		Hex Bolt 1/4-20 x .62" Lg.*
14	710-0451		Carriage Bolt 5/16-18 x .62" Lg.	66	710-0599		Hex Wash. S-Tap Scr. 1/4-20 x .50" Lg.
15	710-0790		Carriage Bolt 3/8-16 x .62" Lg.	67	712-0287		Hex Nut 1/4-20 Thd.*
16	712-0267		Hex Nut 5/16-18 Thd.*	68	736-0329		L-Wash. 1/4" I.D.*
17	712-0342		Hex Jam Nut 3/8-16 Thd.	69	784-5214		Belt Cover
18	736-0105		Bell-Wash. .40" I.D. x .88"	70	784-5215		Drive Shaft Cover
19	736-0119		L-Wash. 5/16" I.D.*	71	741-0494		Plastic Bushing
20	784-5038B	N	Slide Shoe	72	07386		Washer .39" I.D. x 1.75" O.D.
21	784-5212		Spiral Hsg. Ass'y.—36"	73	710-0371		Hex Bolt 5/16-18 x .88" Spec.
22	05139A		Guide Blade	75	714-0507		Cotter Pin 3/32" Dia.
23	710-0260		Carriage Bolt 5/16-18 x .62"	78	736-0163		FI-Wash. 1.03" I.D. x 1.62"
24	732-0118		Extension Spring	80	736-0250		FI-Wash. 1" I.D. x 1.75"
26	05379A		Chain Guard Ass'y.	81	784-5216		Rotor Paddle Ass'y.
27	710-0427		Hex Bolt 3/8-16 x 2" Lg.*	82	784-5219		36" Spiral Ass'y.—L.H.
28	712-0130		Hex Ins. Nut 3/8-16 Thd.	83	784-5220		36" Spiral Ass'y.—R.H.
31	784-5192		Chute Guard Ass'y.	84	05360		Bearing Hsg. Ass'y.
33	736-0300		FI-Wash. .385" I.D. x .87" O.D.	85	716-0121		Snap Ring for 1.5" Shaft
34	741-0310		Ball Brg. .75" I.D.	86	741-0170		Flange Brg. w/flats 1" I.D.
35	741-0311		Flangette	87	713-0177		Sprocket Hub Ass'y. 40 Teeth
36	750-0252		Spacer .375" I.D. x .60" O.D.	89	738-0229		Spiral Axle
37	756-0358A		Flat Idler 1.875" Dia.	90	731-0851A	N	Chute Flange Keeper
38	710-0198		Hex Sems Bolt 5/18 x .75" Lg.	91	710-0442		Hex Bolt 5/16-18 x 1.5" Lg.*
39	710-0347		Hex Bolt 3/8-16 x 1.75" Lg.*	92	710-0474		Hex Bolt 1/2-13 x 1.25" Lg.*
41	712-0301		Hex Jam Nut 3/4-10 Thd.	93	736-0921		L-Wash. 1/2" I.D.*
42	712-0342		Hex Jam Nut 3/8-16 Thd.	94	712-0206		Hex Nut 1/2-13 Thd.*
43	713-0188		Sprocket Ass'y.—14 Teeth	95	754-0294		"V"-Belt
44	713-0189		#420 Chain x 1/2" Pitch— 77 Links	96	749-0675		Chute Crank Support Tubing
	713-0154		Master Link	97	741-0475		Plastic Bushing
45	714-0388		#61 Hi-Pro-Key 3/16 x 5/8"	98	747-0438		Chute Crank 34.5" Lg.
46	715-0118		Spring Pin Spir. 5/16" Dia. x 1.75" Lg.	99	715-0138		Roll Pin .12" Dia. x .63"
47	712-0107		Hex L-Nut 1/4-20 Thd.	100	726-0100		Push Nut 3/8" Rod
48	736-0169		L-Wash. 3/8" I.D.*	101	720-0201A		Knob Black
49	736-0235		FI-Wash. .406" I.D. x 1.25"	102	05836		Linkage Arm
50	736-0367		Spr. L-Wash. 3/4" I.D.	103	747-0481A		Eye Bolt 5/16-18 x 3" Lg.
51	741-0309		Self-Aligning Brg.	104	741-0322		Idler Spacer
52	741-0311		Flangette	105	741-0243		Bearing
				106	741-0303		Ball Bearing
					730-3000		Reflectors (Not Shown)

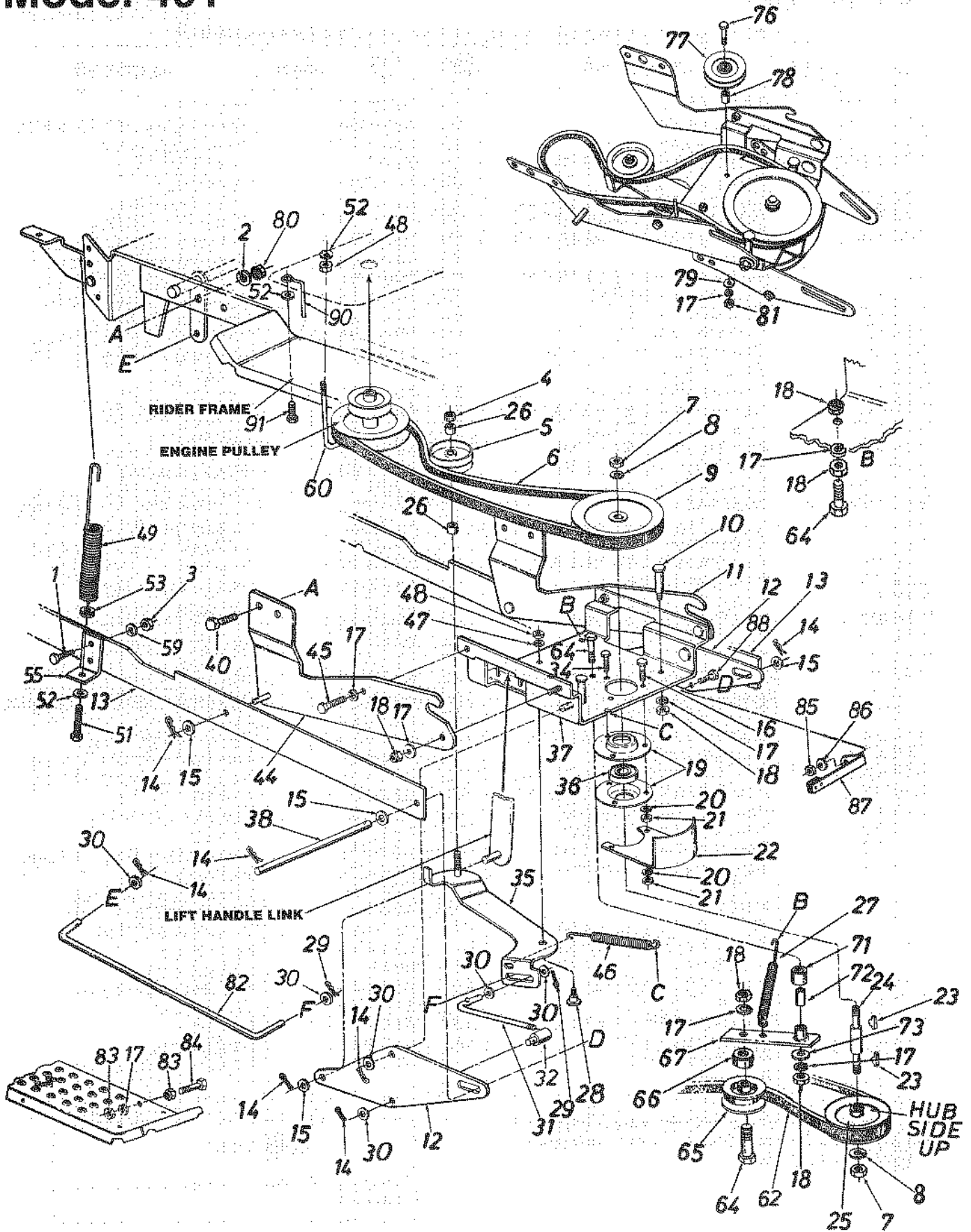
\*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.



NOTE

Specifications subject to change without notice or obligation.

# Model 491





# Model 491

## PARTS LIST FOR MODEL 491 36" SNOW THROWER ATTACHMENT

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	710-0299		Hex Bolt 1/4-28 x 1" Lg. Grade 5	45	710-0253		Hex Bolt 3/8-16 x 1" Lg.
2	736-0329		L-Wash. 1/4" I.D.*	46	732-0146		Extension Spring
3	712-0138		Hex Nut 1/4-28 Thd.*	47	736-0119		L-Wash. 5/16" I.D.*
4	712-0375		Hex Cent. L-Nut 3/8-16 Thd.	48	712-0267		Hex Nut 5/16-18 Thd.*
5	756-0417		Idler Pulley	49	732-0323		Helper Spring
6	754-0299		"V"-Belt	51	710-0959		Hex Bolt 5/16-18 x 1.5" Lg. (Special)
7	712-0242		Hex Jam Nut 5/8-11 Thd.	52	736-0242		Bell-Wash. .345" I.D. x .88"
8	736-0158		L-Wash. 5/8" I.D.*	53	711-0509		Spring Insert
9	756-0216		Pulley .627" I.D. x 6.5" O.D.	55	05933		Helper Spring Brkt.
10	738-0129		Shoulder Bolt	59	736-0329		L-Wash. 1/4" I.D.*
11	05826B		Channel Support Brkt. R.H.	60	710-0836		J-Bolt 5/16-18 Thd.
12	05835		Linkage Brkt.	62	754-0294		"V"-Belt
13	05836A		Linkage Arm Ass'y.	64	710-0427		Hex Bolt 3/8-16 x 2.0" Lg.*
14	714-0101		Intern. Cotter Pin .5" Dia.*	65	756-0417		Idler Pulley
15	736-0192		FI-Wash.	66	750-0503		Spacer .385" I.D. x .503"
16	710-0528		Hex Bolt 5/16 x 1.25" Lg.	67	703-1292		Idler Arm Ass'y.
17	736-0169		L-Wash. 3/8" I.D.*	71	711-0242		Spacer .380" I.D.
18	712-0342		Hex Jam Nut 3/8-16 Thd.	72	750-0252		Spacer .3775" I.D.
19	08253B		Bearing Housing	73	736-0258		FI-Wash. 3/8" I.D. x 1" O.D.
20	736-0119		L-Wash. 5/16" I.D.*	76	710-0859		Hex Bolt 3/8-16 x 2.5" Lg. (Grade 5)
21	712-0267		Hex Nut 5/16-18 Thd.*	77	756-0116		Idler Pulley .38" I.D. x 3.06" O.D.†
22	05406		Belt Guard	78	711-0396		Spacer .385" I.D. x .76" Lg.†
23	714-0388		#Hi-Pro-Key 3/16" x 5/8" Dia.	79	07386		FI-Wash. .39" I.D. x 1-3/4" O.D.†
24	738-0246		Pulley Spindle	80	712-0287		Hex L-Nut 1/4-20 Thd.
25	756-0457		Pulley .628" I.D. x 5.56" O.D.	81	712-0798		Hex Nut 3/8-16 Thd.*†
26	750-0503		Spacer .383" I.D. x .503"	82	747-0532		Clutch Control Rod††
27	732-0470A		Extension Spring 5.25" Lg.	83	712-0241		Hex Nut 3/8-24 Thd.*††
28	738-0140		Shoulder Bolt	84	710-0331		Hex Bolt 3/8-24 x 2.25" Lg.*††
29	714-0111		Cotter Pin 3/32" Dia.	85	712-0798		Hex Nut 3/8-16 Thd.
30	736-0300		FI-Wash. .385" I.D. x .87"	86	736-0356		Bell-Wash. 3/8" I.D.
31	747-0533		Control Rod (Clutch)	87	761-0195		Auger Brake Brkt. Ass'y.
32	711-0723A		Ferrule	88	710-0201		Hex Bolt 3/8-16 x 5/8" Lg.
34	710-0198		Hex Sems Scr. 5/16-18 x .75" Lg.*	89	730-3000		Reflectors (Not Shown)
35	05409A		Clutch Idler Brkt. Ass'y.	90	747-0760		Belt Guard
36	741-0919		Ball Bearing	91	710-0118		Hex Bolt 5/16-18 x .75" Lg.*
37	05411B		Channel Ass'y.	—	14632		Index Brkt. (Hardened— Not Shown)
38	738-0242		Lift Handle Shaft	—	14802A		Lift Link (Not Shown)
40	710-0642		Hex Self-Tap Scr. 1/4-20 x .75" Lg.				
44	05827B		Channel Supporting Brkt.—L.H.				

† Units with Twin Cylinder Engines Only.

†† Units with 44" Decks Only.

## APPENDIX A—Lawn Tractors Prior to 1990

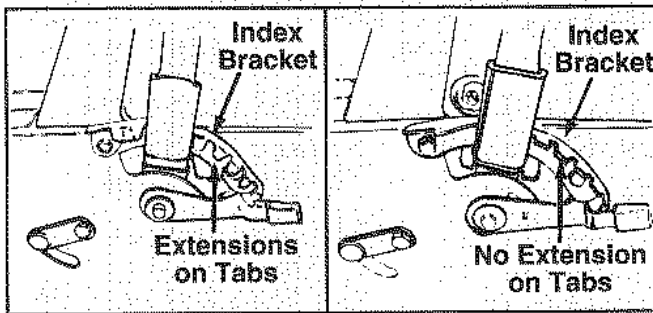


FIGURE A.

1. Compare the index bracket, located on the right side of your unit, to the ones shown in Figure A and the one in the hardware pack. If the index bracket is the style shown on the left (with extensions on tabs), proceed to step 2. If the index bracket is the style shown on the right (no extensions on tabs), remove the index bracket from the tractor by removing two hex bolts and nuts. Reassemble the new bracket supplied with the snow thrower, reusing the same hardware. Discard the old index bracket.

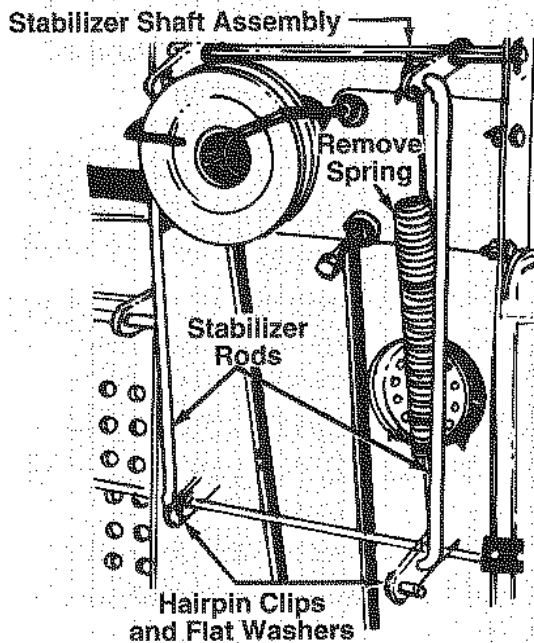


FIGURE B.

2. **All units EXCEPT those with 44" decks:** Remove the stabilizer rods by removing the hairpin clips and flat washers. See figure B. Remove any springs which are attached to either the stabilizer shaft assembly or to the lift links on the tractor.

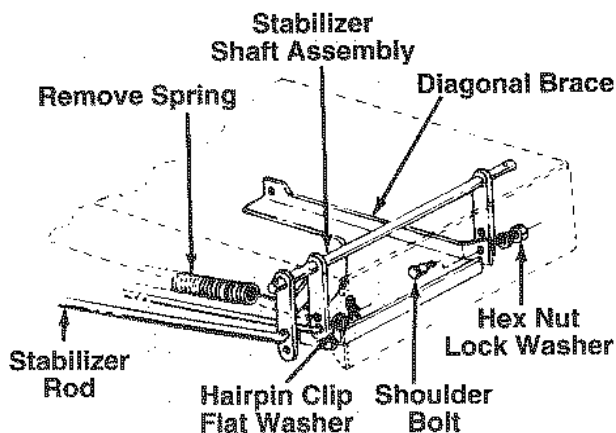


FIGURE C.—Lawn Tractors with 44" Decks.

3. **Units with 44" decks:** Remove the shoulder bolt, nut and washer which secure the diagonal brace to the stabilizer shaft assembly. Remove the diagonal brace from the unit. See figure C.

4. **All Units:** Compare the part numbers stamped on the lift links on your tractor to the part number on the lift links included in the hardware pack (14803). If the lift links on your tractor are not the same part number, remove them by removing the hairpin clips and flat washers. Assemble the new lift links provided, reusing the same hardware. Weld pins on the links must face toward the inside of tractor.

Retain the original lift links for reassembly when snow thrower attachment is removed. Store them with your mowing deck.

5. Go to "Attaching the Channel Assembly" on page 6.

## APPENDIX B—Tractors with 34", 40" and Some 38" Decks

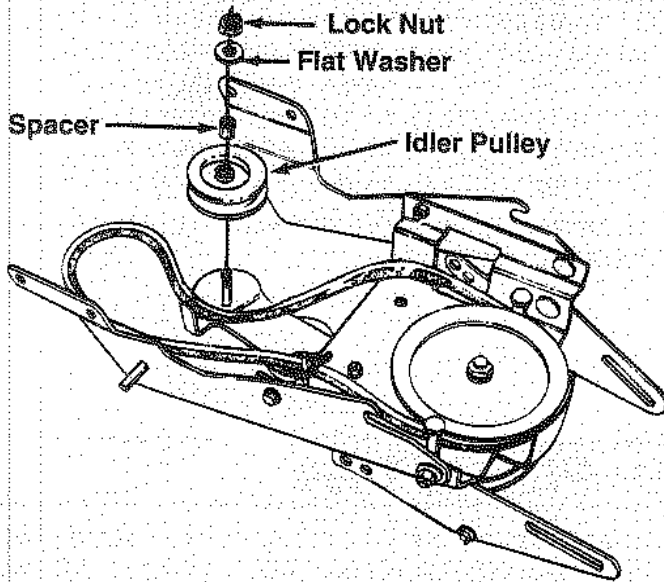


FIGURE E.—34" or 40" Decks, or 38" Deck Shown in Figure 5B

The preassembled channel assembly has been shipped with a spacer below the idler pulley. If your unit is equipped with a 34" or 40" deck, or 38" side discharge deck shown in figure 5B, the spacer must be moved as follows. See figure E.

1. Remove the lock nut, flat washer, idler pulley and spacer from the channel assembly.
2. Place the idler pulley on the weld bolt (hub side against the channel assembly), then the spacer and secure with flat washer and lock nut.
3. If your tractor has a twin cylinder engine, proceed with Appendix C, below. For single cylinder engines, return to step 3 of "Attaching the Channel Assembly," page 6.

## APPENDIX C—Lawn Tractors with Twin Cylinder Engines

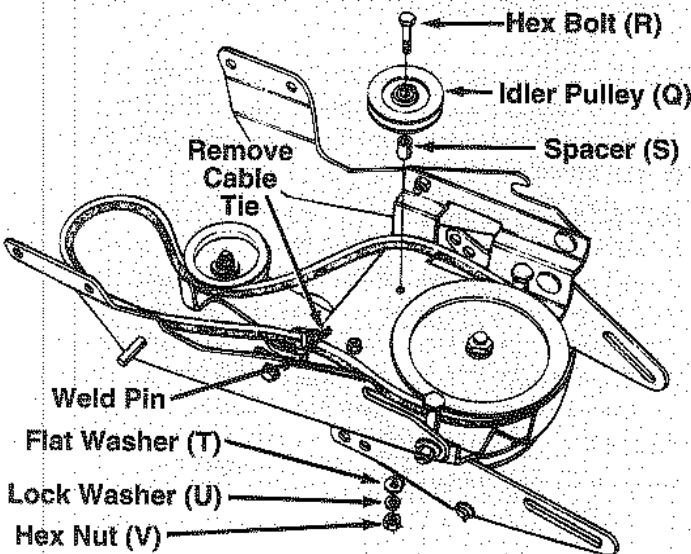


FIGURE F.—Units with Twin Cylinder Engine

**All lawn tractors with twin cylinder engines:** Assemble the additional idler pulley (packed with Hardware B) to the channel assembly as follows. See figure F.

1. Place idler pulley (Q) on hex bolt (R) (hub side of idler pulley is away from the head of the hex bolt).
2. Place spacer (S) on hex bolt against hub of idler pulley.
3. Place hex bolt through hole in channel assembly shown in figure F. Secure with flat washer (T), lock washer (U) and hex nut (V). Tighten securely.
4. Route belt to the outside of the idler pulley as shown.

**Units with 44" Decks only:** Disconnect and discard the control rod which is attached beneath the channel assembly shown in figure G by removing the cotter pin and flat washer. Retain the hardware. The control rod 13.67" long will be used on your unit in place of the shorter control rod.

**Units with Electric PTO:** Disconnect and discard the control rod which is attached beneath the channel assembly shown in figure G by removing the cotter pin and flat washer. Discard the control rod and hardware.

**All Units:** Go to step 3 of "Attaching the Channel Assembly," page 6.

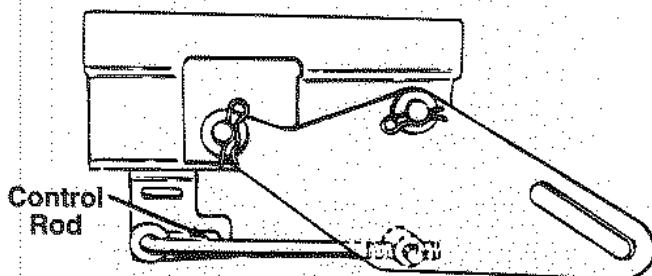


FIGURE G.

## APPENDIX D—Snow Throwers Prior to 1992

Remove and discard the hardware which secures the engine pulley belt guard to the frame. The belt guard will drop down slightly.

On units with 44" decks, this same hardware secures the brake cable bracket. On these units, slip the battery drain tube out of the cable tie on the brake cable bracket. Remove the brake cable bracket from the unit, and store with the mowing deck for reassembly when the snow thrower is removed.

On some twin cylinder units, there are only two holes on each side of the engine pulley belt guard. On these units, use the hole in the frame as a guide to drill the third hole in the bracket in order to install the channel assembly. Drill one additional hole on each side of the engine pulley belt guard, using a 9/32" drill.

All units: Go to step 4 of "Attaching the Channel Assembly," page 6.

## APPENDIX E—Units Prior to 1990

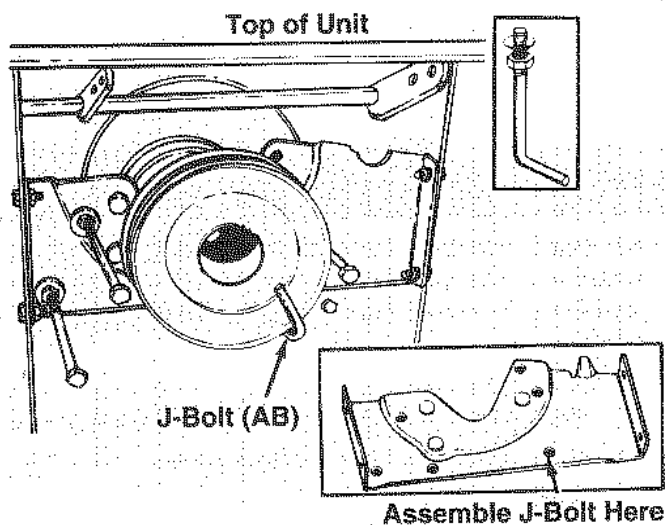


FIGURE H.—Units Built Prior to 1990

Thread one hex nut (AC) onto J-bolt belt guard (AB). Place one Belleville washer (AD) onto J-bolt, with the crowned side of washer against the hex nut. See figure H inset (upper right).

Assemble the J-bolt (AB) to the weld nut in the left side (determined from the operating position, sitting on the seat of the unit) of engine pulley belt guard as shown in figure H. Make certain end of J-bolt crosses over the pulley.

**NOTE:** This J-bolt protects the lower long belt from being damaged by the engine pulley when engine is running and the snow thrower is disengaged. Be certain J-bolt is installed correctly.

**NOTE:** Your unit may not have a weld nut in the proper position for the J-bolt on the engine pulley belt guard. If it does not, order belt guard part number 16218A for units with a 3 or 5 speed Peerless transaxle, or belt guard part number 16219A for transmatic units. Or, if there is a hole in the correct location on your belt guard, secure the J-bolt with a 5/16-18 hex nut.

Now go to step 11 on page 7.

## APPENDIX F—Lawn Tractors with 44" Decks

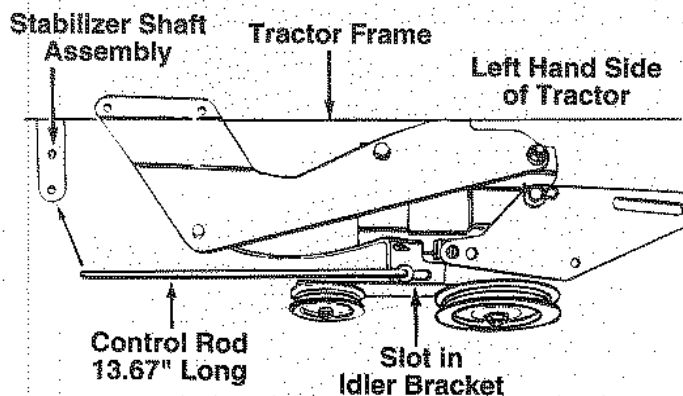


FIGURE I.

1. Assemble the 13.67" control rod to the slot in the idler bracket as shown in figure I. Attach the other end of control rod to the lower hole in the stabilizer shaft on tractor. Reuse hardware removed previously. Secure by bending the ends of the cotter pins in opposite directions.

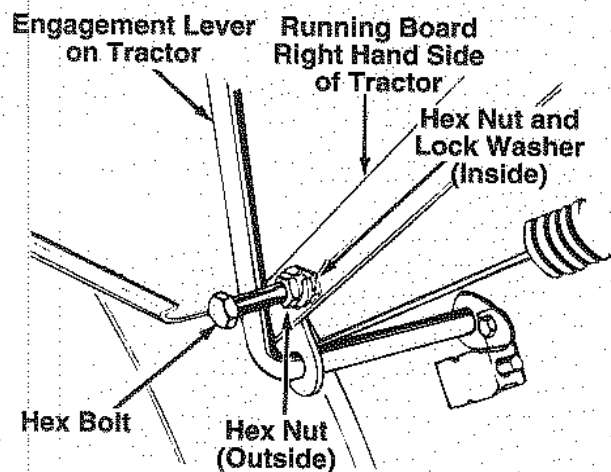


FIGURE J.

2. Place one hex nut (AI) on hex bolt (AG). Insert hex bolt (AG). Insert hex bolt into hole in right hand running board, just in front of the engagement lever. Secure with lock washer (AH) and hex nut (AI). See figure J.
3. Go to step 13 on page 7.