

# Service Kit 753-0885

CODE: ST-158

DATE: September 14, 2000

SUBJECT: Drive system update

MODELS AFFECTED: Snow thrower attachments  
190-621-000 and  
OEM-190-621

Service Kit 753-0885 applies to 190-621 snow thrower attachments produced prior to 2000. This kit should be used in the event that the lower drive belt will not stay on or is continually damaged after all other updates have been performed. If you are unsure if the unit has been updated, contact customer service at 1-800-800-7310. Contents of kit are listed below.

QTY.	DESCRIPTION
1	90 degree gear box assembly with brackets, coupler, and belt
1	auger gear box assembly with impeller
2	upper lift links
2	lower lift links
1	roll pin*
3	hex flange lock nuts*
1	cross shaft assembly
1	lift bracket assembly
1	square key*
1	snap ring*
1	bearing housing*

\*Included in hardware pack

## Modifying the lift assembly

**NOTE:** Retain all hardware for reassembly unless instructed otherwise.

1. With the snow thrower lowered to the ground, use a 7/16 wrench to remove the top nut from the right side of the "U" Shaped Belt Keeper and loosen the upper nut on the left side. Pull down on the right side of the belt keeper and swing it to the rear. See Figure 1.
2. Unhook the Double Idler Spring from the Side Plate on the right using a rope or spring puller. See Figure 1.
3. Remove the Lower Drive Belt from the Double Stack Pulley and the Idler Pulleys. See Figure 1.

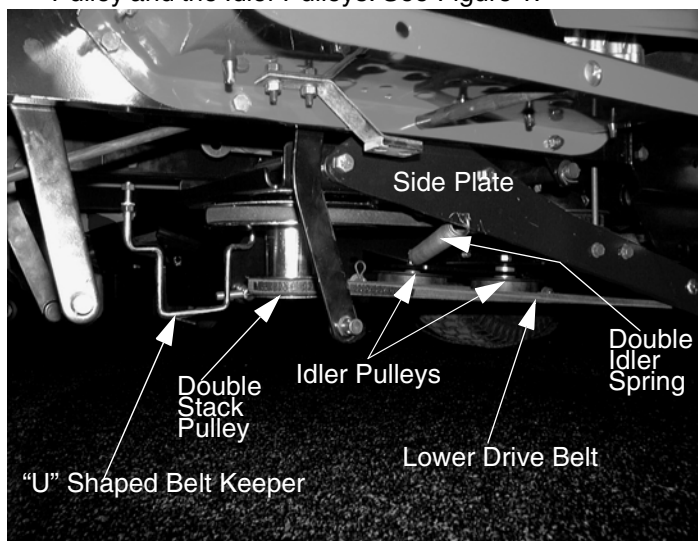


Figure 1

4. Remove the cotter pin connecting the U-Joint to the Upper Chute Crank. See Figure 2.
5. Working on the left side, use a 1/2 inch wrench and socket to remove the bolts, saddle washers, and hex flange lock nuts securing the Chute Crank Support Tube to the Upper Lift Link. See Figure 2.
6. Remove the hex bolts and lock nuts attaching the Upper Lift Links to the Carriage on both sides using a 3/4 inch wrench and socket. See Figure 2.
7. Remove the cotter pins followed by the castle nuts, flat washers, and bolts securing the Lower Lift Links to the Carriage on both sides. See Figure 2.
8. Remove the cotter pins, flat washers, and clevis pins which secure the Vertical Lift Links to the Lower Lift Links. See Figure 2.

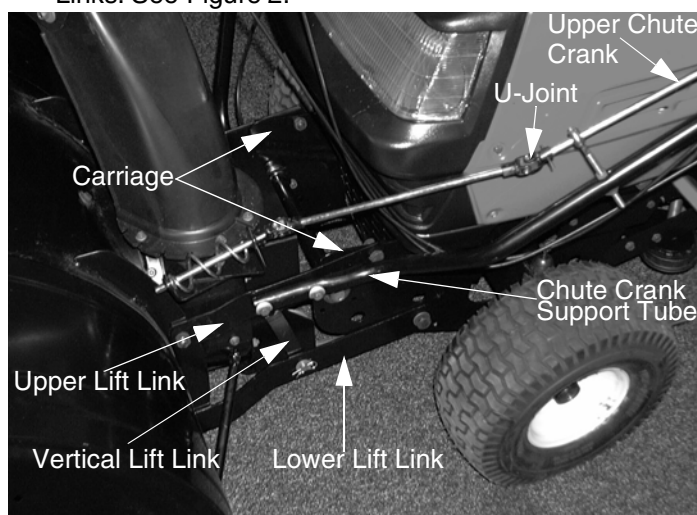
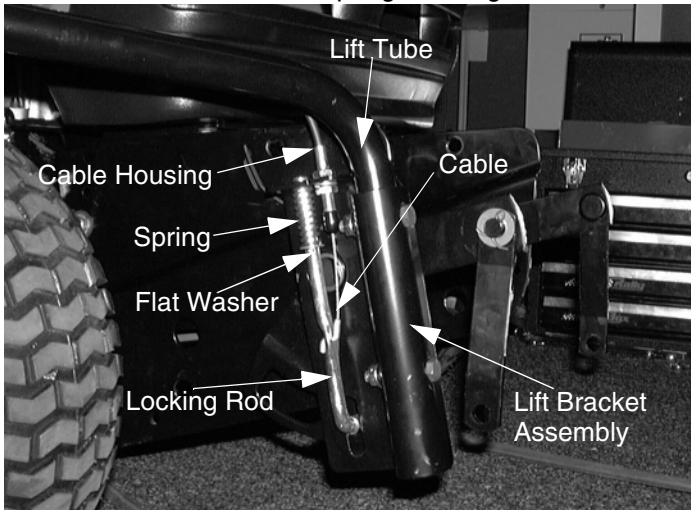


Figure 2

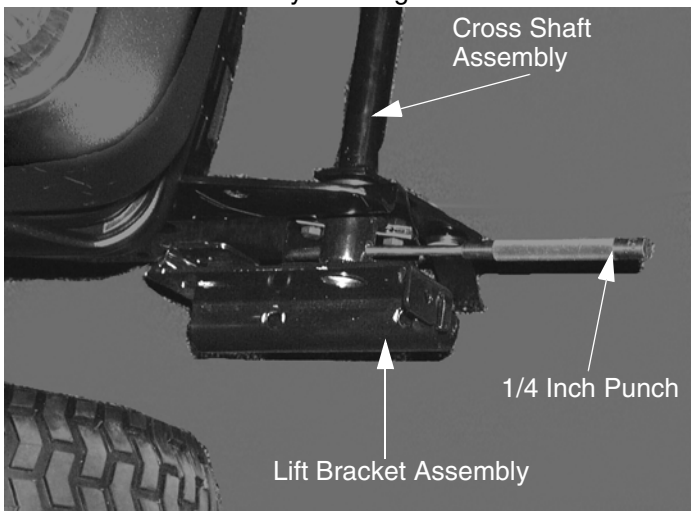
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9. Roll the tractor back away from the snow thrower housing.
10. Using a 1/2 inch wrench, loosen the upper nut attaching the Cable Housing to the Lift Bracket Assembly. Remove the Cable Housing from the bracket and the Cable from the Locking Rod. See Figure 3.
11. Use a 1/2 inch wrench and socket to remove the bolts and hex flange lock nuts securing the Lift Tube to the Lift Bracket Assembly. Remove the Lift Tube and Cable together. See Figure 3.
12. Use a 5/16 socket to remove the bolt and flat washer from the base of the Locking Rod. Remove the Locking Rod, Flat Washer, and Spring. See Figure 3.



**Figure 3**

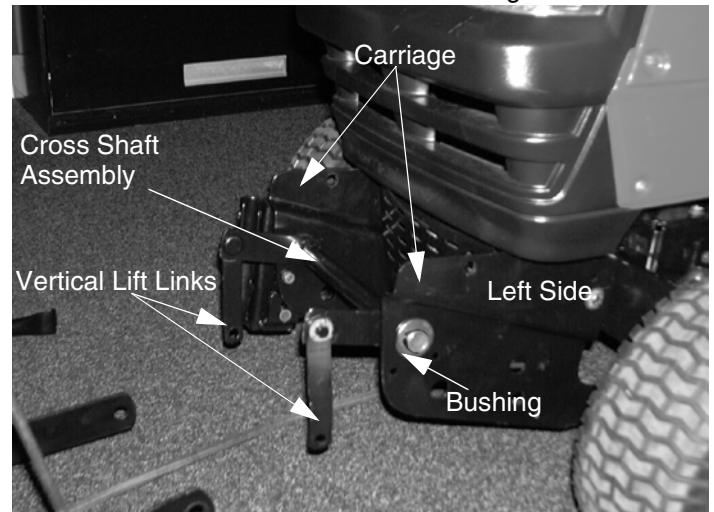
13. Use a 1/4 inch punch and mallet to remove the roll pin securing the Lift Bracket Assembly to the Cross Shaft Assembly. Discard the roll pin. Remove and discard the Lift Bracket Assembly. See Figure 4.



**Figure 4**

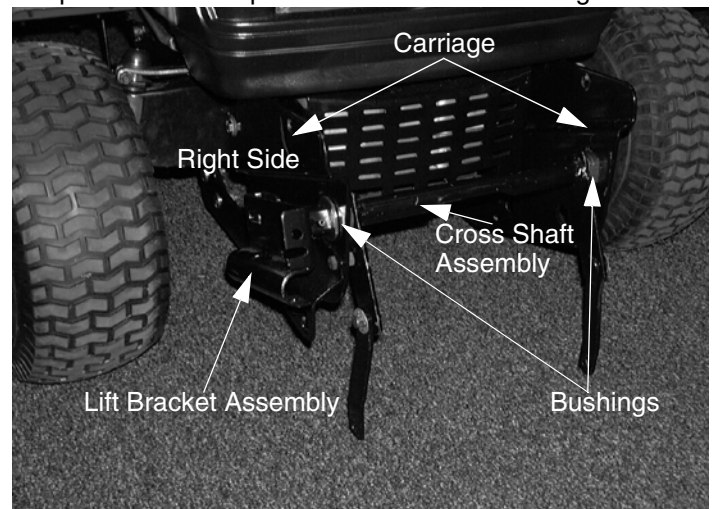
14. Using snap ring pliers, remove and discard the snap ring from the left end of the Cross Shaft Assembly. See Figure 5.

15. Remove the Bushings from each end of the Cross Shaft Assembly. See Figure 5.
16. Remove the Cross Shaft Assembly from both sides of the Carriage. Remove the left end first. See Figure 5.
17. Remove the Vertical Lift Links, flat washers and cotter pins. Reinstall them on the new Cross Shaft Assembly and discard the old cross shaft. See Figure 5.



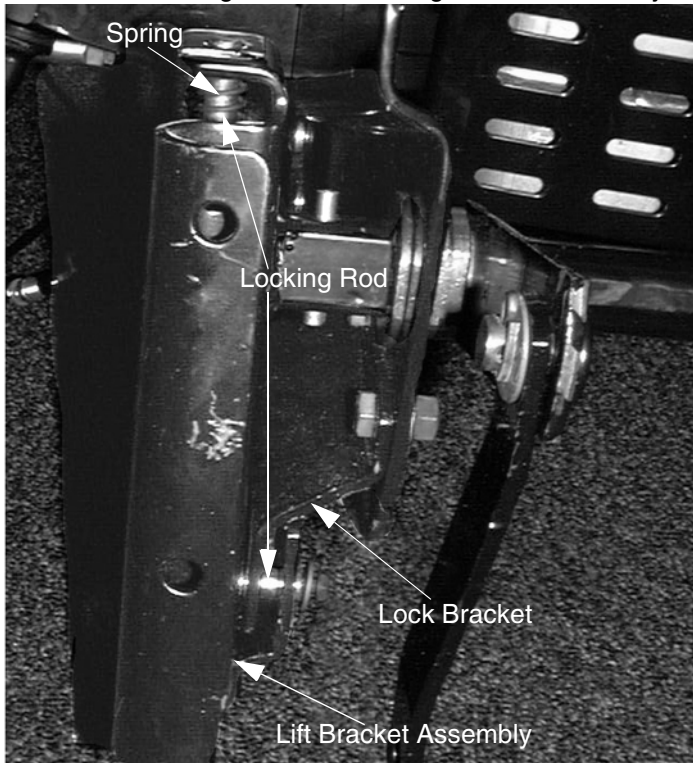
**Figure 5**

18. Install new Cross Shaft Assembly into the Carriage inserting the right side (square end) first. See Figure 6.
19. Reinstall the Bushings removed from the old Cross Shaft Assembly. The flanges go to the outside. See Figure 6.
20. Install the new snap ring to the left end of the new Cross Shaft Assembly.
21. Assemble the new Lift Bracket Assembly to the right end of the Cross Shaft Assembly as shown. Secure it with the new roll pin. Approximately 1/4 inch of the roll pin should be exposed at each end. See Figure 6.



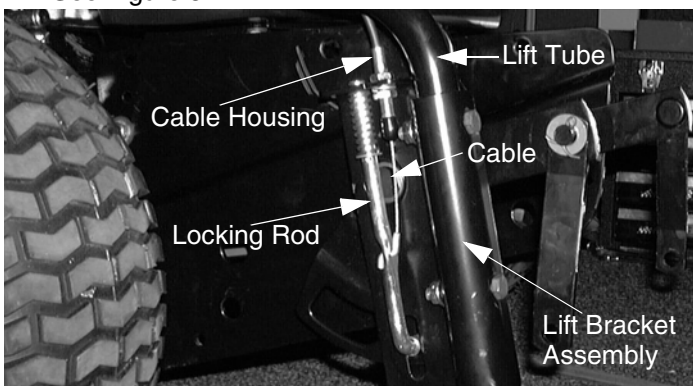
**Figure 6**

22. Install the Locking Rod, flat washer, and Spring into the new Lift Bracket Assembly. Rotate the cross shaft assembly to align the slots in the Lift Bracket Assembly with the slot in the Lock Bracket. Secure the Locking rod at the base with the bolt and flat Washer using a 5/16 socket. See Figure 7. Refer to Figure 8 if necessary.



**Figure 7**

23. Attach the Lift Tube to the new Lift Bracket Assembly with the hex bolts and hex flange lock nuts removed earlier. Secure the hardware using a 1/2 inch wrench and socket.
24. Thread the "Z" end of the Cable through the hole in the Locking Rod from the front. Thread the nuts on the Cable Housing away from each other. Place the threaded section of the Cable Housing in the slot on the Lift Bracket Assembly. One nut should be above the bracket; the lock washer and other nut should be below the bracket. Pull gently upward on the Cable Housing until nearly all the slack is removed from the Cable. Thread the lower nut upward until the lock washer is pushed against the bracket. Tighten the upper nut securely against the bracket using a 1/2 inch wrench. See Figure 8.

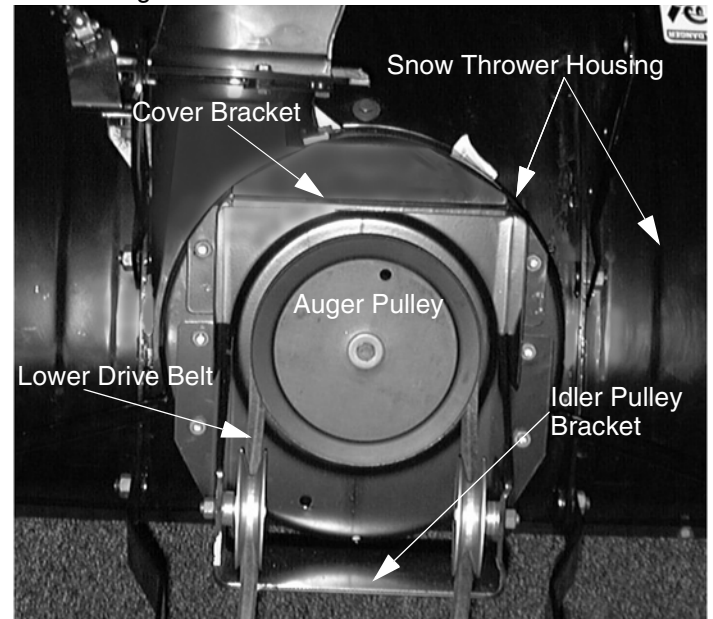


**Figure 8**

## Modifying the snow thrower housing

**NOTE:** Retain all hardware for reassembly unless instructed otherwise.

1. Tip the Snow Thrower Housing forward so that the pulleys are facing upward.
2. Use a 1/2 inch socket to remove the six hex nuts and lock washers securing the Cover Bracket and Idler Pulley Bracket to the Snow Thrower Housing. See Figure 9.
3. Remove the brackets and Lower Drive Belt. Discard the belt and Idler Pulley Bracket. See Figure 9.
4. Remove and discard the Auger Pulley and the hardware securing it using a 1/2 inch socket. See Figure 9.



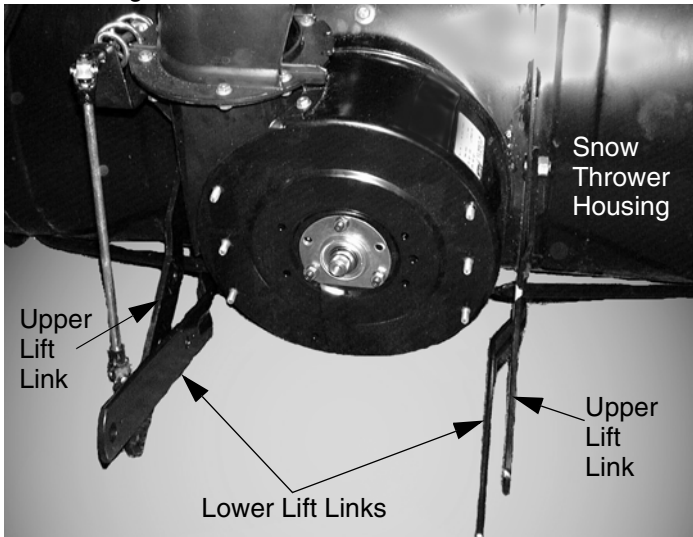
**Figure 9**

5. Remove and discard the Bearing Retainer and the hardware securing it to the Snow Thrower Housing using a 1/2 inch socket. See Figure 11.
6. Remove the bearing. See Figure 11.



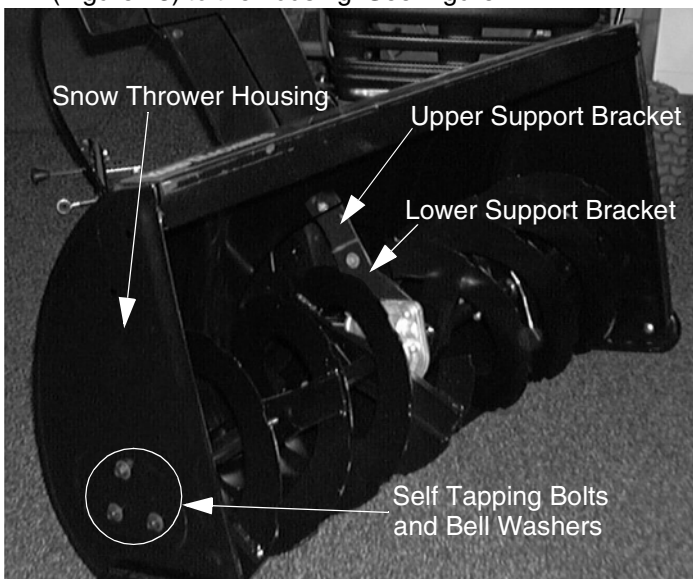
**Figure 10**

7. Use a 3/4 inch socket to remove the hex lock nuts securing the Upper Lift Links and the Lower Lift Links to the Snow Thrower Housing. See Figure 11.
8. Replace the links one at a time with the new links provided. The long links go on the bottom, the short ones go on the top. See Figure 11.
9. Secure the new links to the Snow Thrower Housing with the hex lock nuts using a 3/4 inch socket. Do not over tighten the nuts as the links must be able to pivot. See Figure 11.



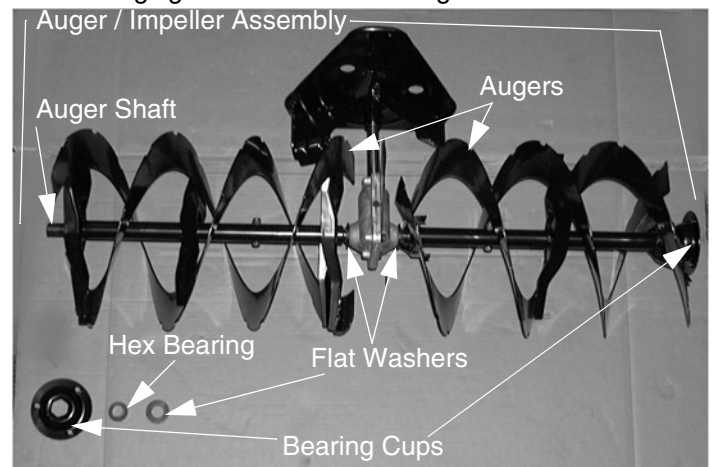
**Figure 11**

10. Place the Snow Thrower Housing in its normal position. (chute up) See Figure 12.
11. Use a 1/2 inch wrench and socket to remove the bolt, bell washers, and nut which secure the Upper Support Bracket to the Lower Support Bracket. See Figure 12.
12. Use a 1/2 inch socket to remove the three Self Tapping Bolts and Bell Washers from each side of the Snow Thrower Housing. These secure the Bearing Cups (Figure 13) to the housing. See Figure 12.



**Figure 12**

13. Remove the Auger / Impeller Assembly from the snow thrower housing. See Figure 13.
14. Remove the Bearing Cup, Hex Bearing, and Flat Washer from each end of the Auger Shaft. See Figure 13.
15. Use a 1/2 inch wrench and socket to remove the shear bolts and nylock nuts which secure the Augers to the Auger Shaft. See Figure 13.
16. Remove the Auger and two remaining flat washers from each side of the Auger Shaft. Be sure the bushings do not fall out of the Augers. See Figure 13.
17. Discard the remaining gear box assembly with the impeller attached.
18. Install the two flat washers onto each side of the Auger Shaft of the new gear box assembly. See Figure 13.
19. Install the Augers onto the Auger Shaft. Be sure the bushings do not fall out of the Augers. Also make sure the Augers are oriented as shown. See Figure 13.
20. Secure the Augers to the shaft with the shear bolts and nylock nuts using a 1/2 inch wrench and socket. See Figure 13.
21. Install the Flat Washer, Hex Bearing, and Bearing Cup onto each side of the Auger Shaft. The flanges on the bearings go to the inside. See Figure 13.

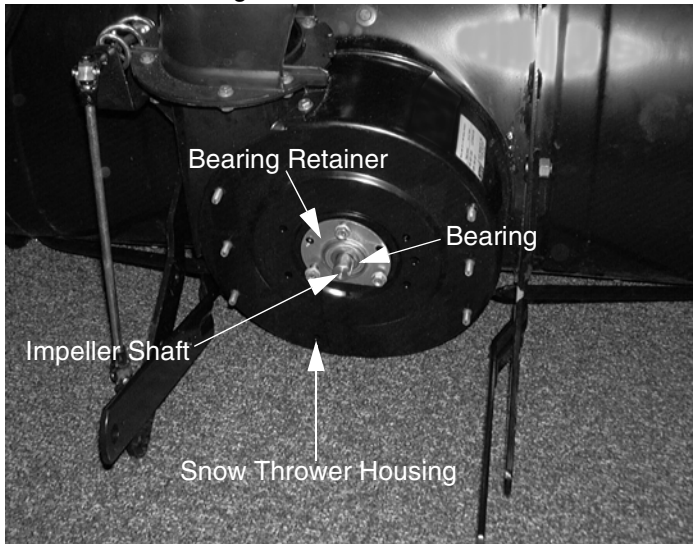


**Figure 13**

22. Install the Auger / Impeller Assembly into the Snow Thrower Housing. Refer Back to Figure 12.
23. Install the bolt, two bell washers, and nut which attach the Upper Support Bracket to the Lower Support Bracket. Tighten them finger tight only. Refer Back to Figure 12.
24. Attach the Bearing Cups (Figure 13) to each side of the Snow Thrower Housing with three Self Tapping Bolts and Bell Washers per side. Tighten them finger tight only. Refer Back to Figure 12.

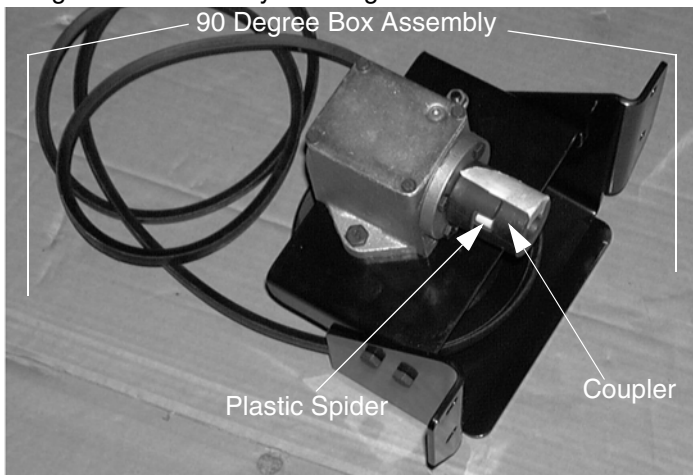


25. Install the Bearing against the back of the Snow Thrower Housing. It slides over the Impeller Shaft with the hub facing inward toward the impeller. See Figure 14.
26. Attach the new Bearing Retainer to the back of the Snow Thrower Housing. It slides over the Bearing with the lip facing outward away from the impeller. See Figure 14.
27. Secure the retainer with the new hex flange lock nuts provided. Tighten them until they just contact the retainer. See Figure 14.



**Figure 14**

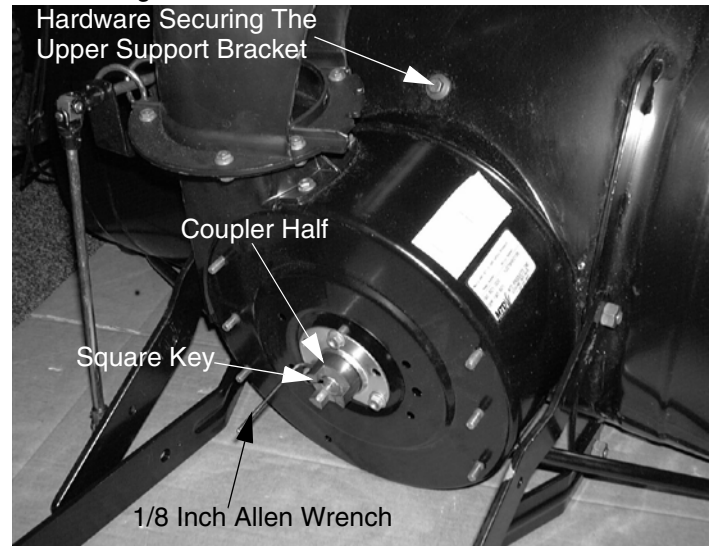
28. Remove the tape securing the two halves of the Coupler to each other. Remove the free half of the Coupler from the half attached to the 90 Degree Gear Box Assembly. The Plastic Spider must stay with the gear box assembly. See Figure 15.



**Figure 15**

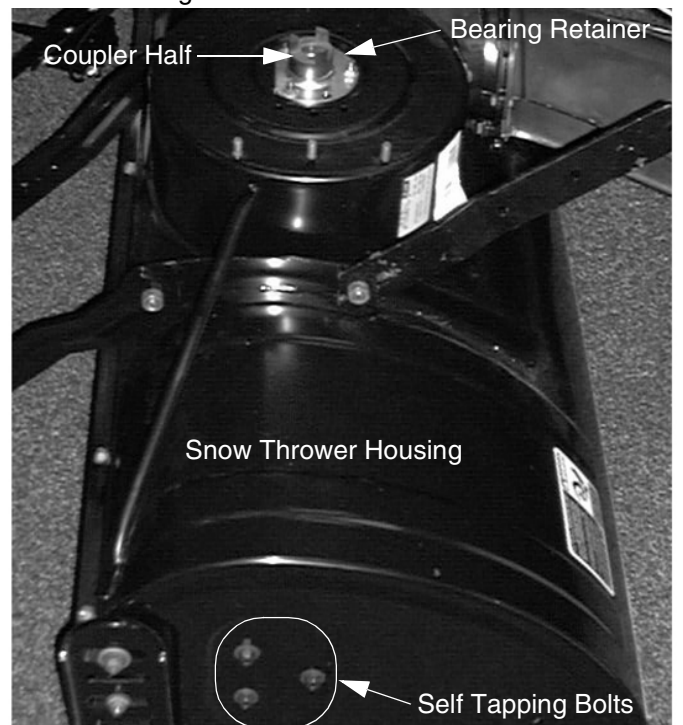
29. Install the Square Key provided into the key way in the Impeller Shaft (Figure 14). The key should be flush with the end of the shaft. See Figure 16.
30. Slide the free Coupler Half onto the shaft over the key. The inner recessed edge of the Coupler Half should be flush with the end of the shaft as well as the end of the key. See Figure 16.
31. Tighten the set screw in the Coupler Half securely using a 1/8 Inch Allen Wrench. See Figure 16.

32. Loosen but do not remove the Hardware Securing The Upper Support Bracket for the auger gear box. See Figure 16.



**Figure 16**

33. Tip the Snow Thrower Housing forward so that the Coupler Half faces up. See Figure 17.
34. Rotate the Coupler Half a few complete turns. See Figure 17.
35. Use a 1/2 inch socket to tighten the hex flange lock nuts securing the Bearing Retainer to the Snow Thrower Housing. Tighten them in an alternating fashion. When tightened completely, the bearing should protrude evenly from the retainer on all sides. See Figure 17.
36. Use a 1/2 inch socket to tighten the three Self Tapping Bolts on each side of the Snow Thrower Housing which secure the Bearing Cups (Figure 13) for the auger shaft. See Figure 17.



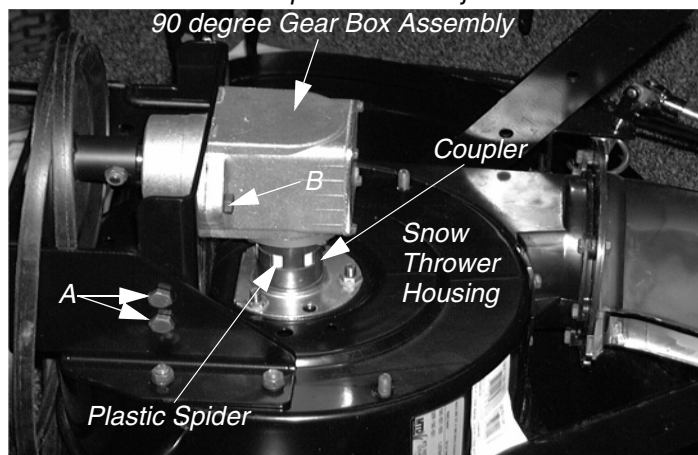
**Figure 17**

37. Place the 90 Degree Gear Box Assembly onto the

Snow Thrower Housing. The two halves of the Coupler must be aligned with the Plastic Spider between them. The pulley on the gear box should face away from the discharge chute. See Figure 18.

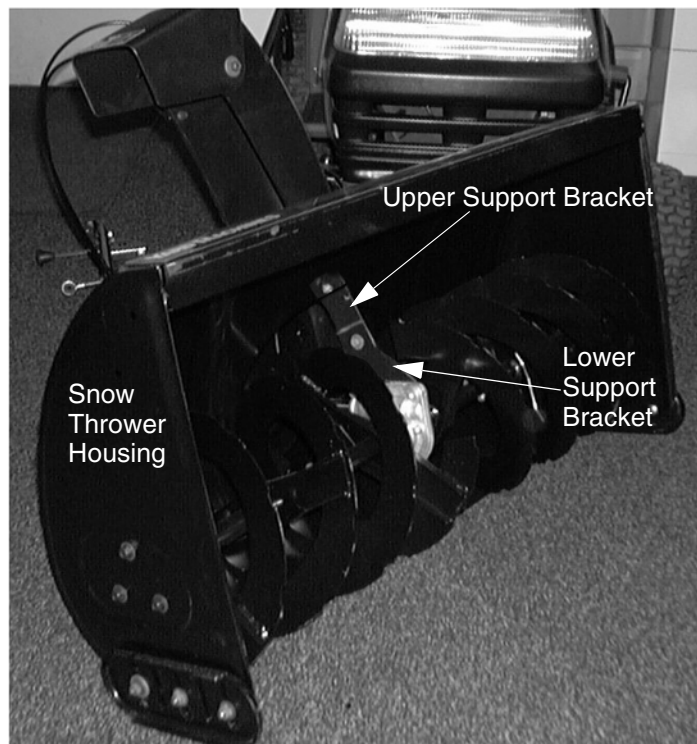
38. Secure the 90 Degree Gear Box Assembly to the Snow Thrower Housing with four lock washers and four nuts. Use a 1/2 inch socket and tighten completely. See Figure 18.
39. Rock the gear box to make sure the two halves of the Coupler are parallel. Then tighten the hardware "A" on both sides (one side shown) securing the two brackets using a 9/16 socket and wrench. See Figure 18.
40. Check the alignment of the coupler halves by rotating the pulley on the gear box a few complete turns. There should be no binding or tight spots in the rotation. See Figure 18.

**NOTE:** If it is necessary to realign the coupler halves, loosening the hardware "B" that secures the gear box to the bracket will allow side to side adjustment. Loosening the hardware "A" will allow up and down adjustment.



**Figure 18**

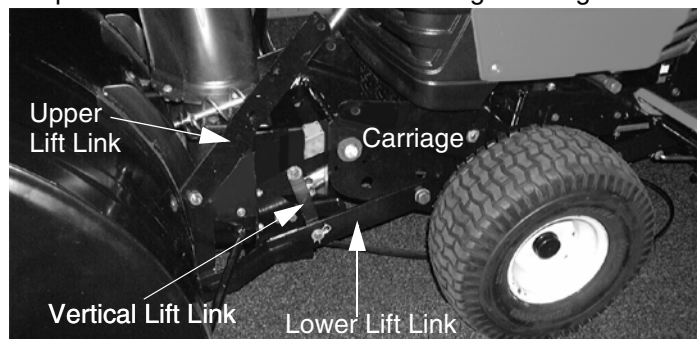
41. Reattach the Cover Bracket (Figure 9) to the snow thrower housing and secure with two lock washers and two nuts using a 1/2 inch socket.
42. Return the Snow Thrower Housing to its normal position (chute up) and tighten the hardware securing the Upper Support Bracket to the Snow Thrower Housing. Then tighten the hardware securing the Upper Support Bracket to the Lower Support Bracket. Use a 1/2 inch wrench and socket for this hardware. See Figure 19.



**Figure 19**

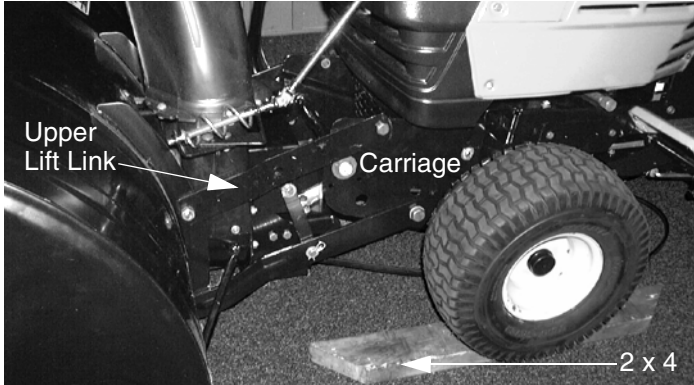
## Reattaching the Snow Thrower Housing

1. Position the snow thrower housing in front of the tractor with the gear box to the rear and the belt extended beneath the tractor. Pull the Upper Lift Links up as far as possible and hold them in this position with a bungy cord or other suitable item.
2. Roll the tractor up to the snow thrower housing.
3. Attach the Vertical Lift Links to the center hole in the Lower Lift Links with a clevis pin, flat washer, and internal cotter pin. Make sure the Lower Lift Links stay to the outside of the Carriage. The Vertical Lift Links and the clevis pins go to the inside. See Figure 20.
4. Attach the Lower Lift Links to the lowest holes in the Carriage with a bolt and flat washer from the outside, and a castle nut and flat washer on the inside. Tighten the hardware finger tight and then back the nut off until the hole in the bolt lines up with one of the slots in the nut. Install a cotter pin and bend the open end to prevent the hardware from loosening. See Figure 20.



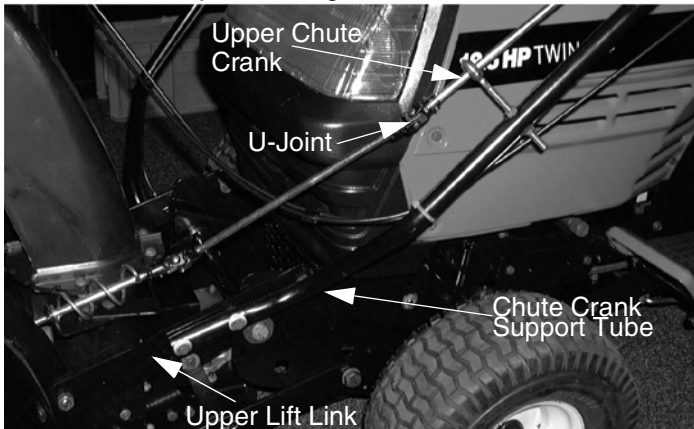
**Figure 20**

5. Place a 2 x 4 behind each of the front wheels and roll the tractor backwards onto them. This will allow the gear box to clear the cross shaft. See Figure 21.
6. Attach the rear hole of each Upper Lift Link to the upper holes in the Carriage with the hex bolts and lock nuts. The links go to the outside of the Carriage. Use a 3/4 inch wrench and socket to tighten the hardware. Do not over tighten as this must be able to pivot. See Figure 21.



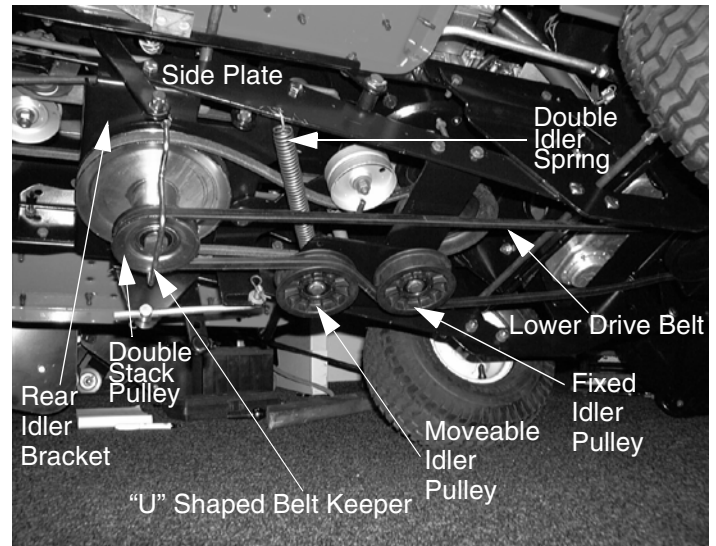
**Figure 21**

7. Test the operation of the lift mechanism and make sure it is working properly. If not, locate the problem and correct it.
8. Attach the Chute Crank Support Tube to the Upper Lift Link on the left side with two hex bolts, saddle washers, and hex flange lock nuts. Be sure the control cables for the chute tilt are not tangled and tighten the hardware using a 1/2 inch wrench and socket. See Figure 22.
9. Reinstall the Upper Chute Crank through the grommets and into the U-Joint. Secure the crank to the U-Joint with a cotter pin. See Figure 22.



**Figure 22**

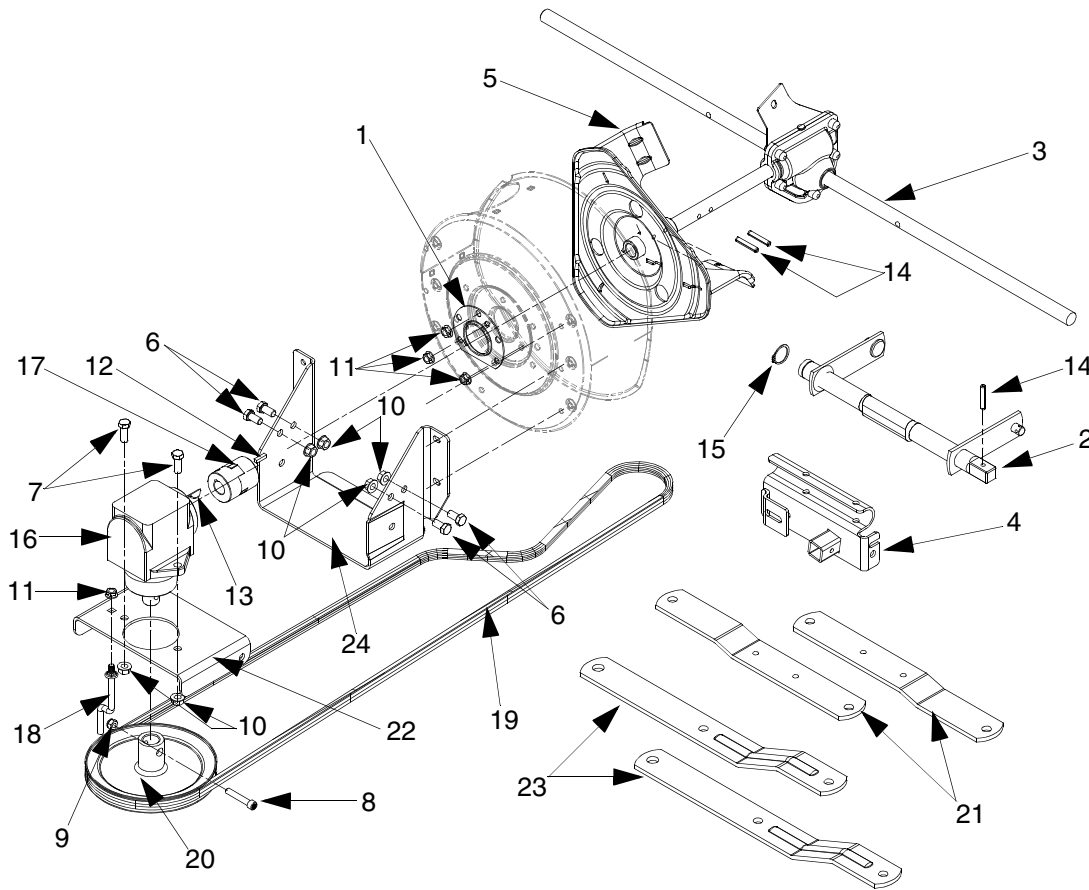
10. Lower the snow thrower housing against the ground. Route the Lower Drive Belt around the outside of the Double Stack Pulley and the Fixed Idler. Route the belt to the inside of the Moveable Idler. See 12..
11. Using a rope or spring puller, reattach the Idler Spring to the hole in the Side Plate on the right side. See Figure 23.
12. Reattach the "U" Shaped Belt Keeper to the Rear Idler Bracket Assembly. The lock washer goes below the bracket above one nut. The other nut goes above the bracket. Make sure the keeper does not interfere with any belt or pulley. Tighten the upper nut on each side securely using a 7/16 inch wrench. See Figure 23.



**Figure 23**

13. Raise the snow thrower housing and check for clearance between the Lower Drive Belt (Figure 23) and the heat shield below the muffler. Bend the heat shield to allow clearance if necessary.
14. Roll the tractor off the 2 x 4s and test the operation of the snow thrower.

Use this parts list as a supplement to the one in your owner's guide when ordering replacement parts.



ITEM #	PART #	QTY	DESCRIPTION
1	05931A	1	Bearing Housing; 1.85 ID
2	611-0132	1	Cross Shaft Assembly
3	618-0563	1	Auger Gearbox Assembly
4	683-0298	1	Lift Bracket Assembly
5	684-0158	1	Impeller Assembly; 12.00 DIA
6	710-0216	4	Hex Bolt; 3/8-16 x .75
7	710-0514	2	Hex Bolt; 3/8-16 x 1.00
8	710-3251	1	Allen Head Bolt; 5/16-18 x 1.75
9	712-0429	1	Nylock Hex Nut; 5/16-18
10	712-0431	6	Hex Flange Lock Nut; 3/8-16
11	712-3004A	4	Hex Flange Lock Nut; 5/16-18
12	714-0122	1	Square Key; 3/16 x .75
13	714-0126	1	Hi Pro Key; 3/16 x 3/4 DIA
14	715-0114	3	Roll Pin; .250 DIA x 1.50
15	716-0102	1	Snap Ring; 1.00 DIA
16	717-1714A	1	90 Degree Gear Box
17	718-0691	1	Coupling; 3/4 ID x 2.13LG
18	747-1257	1	Belt Keeper Rod
19	754-0330	1	V Belt
20	756-1181A	1	Pulley; 7.00
21	783-0878	2	Upper Lift Link; 13.25 LG
22	783-1014A	1	Gear Box Mounting Bracket
23	783-1263	2	Lower Lift Link; 17.30 LG
24	784-0402	1	Skid Plate