Service Manual

LT-5 Lawn Tractor

NOTE: These materials are for use by trained technicians who are experienced in the service and repair of outdoor power equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. These materials are intended to provide supplemental information to assist the trained technician. Untrained or inexperienced individuals should seek the assistance of an experienced and trained professional. Read, understand, and follow all instructions and use common sense when working on power equipment. This includes the contents of the product's Operators Manual, supplied with the equipment. No liability can be accepted for any inaccuracies or omission in this publication, although care has been taken to make it as complete and accurate as possible at the time of publication. However, due to the variety of outdoor power equipment and continuing product changes that occur over time, updates will be made to these instructions from time to time. Therefore, it may be necessary to obtain the latest materials before servicing or repairing a product. The company reserves the right to make changes at any time to this publication without prior notice and without incurring an obligation to make such changes to previously published versions. Instructions, photographs and illustrations used in this publication are for reference use only and may not depict actual model and component parts.

MTD Products Inc - Product Training and Education Department

FORM NUMBER - 769-01415

2/2005

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Servicing the LT-5 Lawn Tractor

LT-5 LAWN TRACTOR (TROY-BILT MODEL SHOWN)

GENERAL INFORMATION

Model used in the Service Manual - 13AN779G766

17.5 hp Briggs & Stratton engine - 42” cutting deck

- RMC - “Reverse Mowing Control” technology
- Greaseable Spindles.
- Square Shoulder Tires.
- Wider tires 15X6 and 20X8 .
- 18” Turning Radius
- Improved Independent Controls.
- Operational Controls on Fender and Dash.
- Cup Holder.
- Fully Welded Frame.
- 38” and 42” decks with Fast Attach.
- All decks are “Wash Kit” ready
- Enhanced Hour Meter Package

RMC - “REVERSE MOWING CONTROL”

The operator can choose to over-ride our “No Cut In Reverse” safety system.

The revised ANSI Standard B71.1 taking effect September 1, 2004 states:

“A means shall be provided that prevents reverse drive operation at a ground speed greater than 1 ft./sec.with powered blade(s).

An override capability may be provided to permit reverse drive with powered blades temporarily. If an override capability is provided, it shall automatically reset when one or more of the following actions occurs:

The blade(s) is (are) re-engaged or (2) the engine is restarted or (3) the directional control is moved from reverse.”

How It Works:

- Operator turns the key from the run position #3 to position #2. See Figure 1.

Figure 1

- Presses RMC button.
- Light indicator gives visual confirmation to the operator.

Operator may mow in forward or reverse until:

- Leaves the tractor seat.
- Turns the key back to right (position #3).
- Turns the engine off (position #1).

Incorporated on 2005 LT-5 and RT99.

NUMBERING SYSTEM

The LT-5 will follow the same model number configuration as the BFR which was the 600 series (frame size) but now in the fifth position there will be a (7) to signify transition to the new platform.

Example: 13AD789G790

1. DECK REMOVAL

1.1. Place the unit on a firm and level surface.

1.2. Remove the key from the ignition.

1.3. Lower the deck to its lowest cutting position.

1.4. Using needle nose pliers, remove the hairpin clips securing the deck hanger brackets to the deck. Release the hanger links from the deck. See Figure 2.

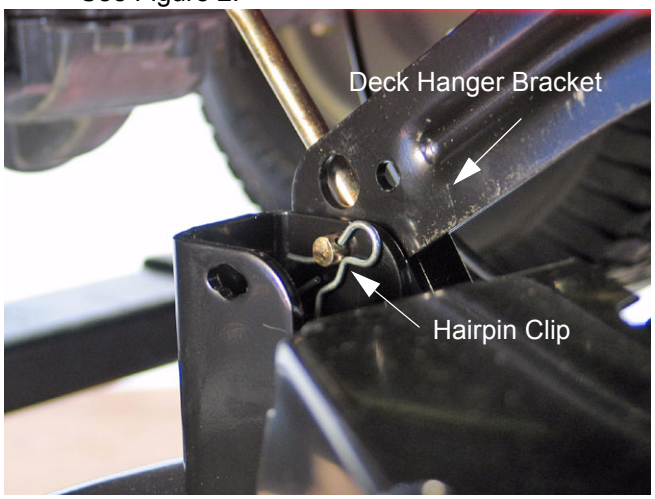

Figure 2

1.5. Using a 1/2” socket, remove the hex head cap screw securing the belt keeper to the frame. Remove the belt keeper. See Figure 3.

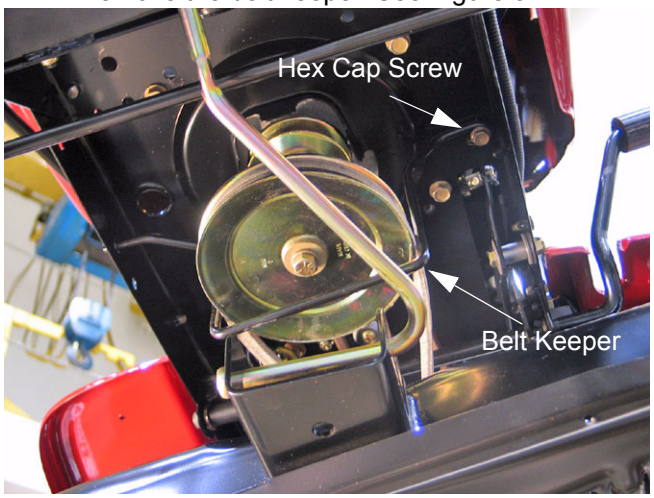

Figure 3

NOTE: Note the location of the belt keeper during removal. There are two holes in the side frame. Use the forward hole during assembly.

1.6. Slide the deck forward and remove the deck belt from around the engine pulley. See Figure 4.

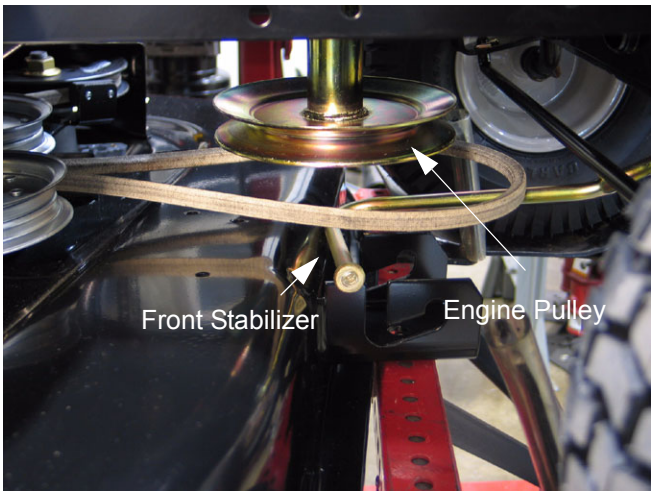

Figure 4

1.7. Lift the front stabilizer from the front stabilizer bracket.

1.8. Remove front stabilizer adjustment rod by sliding rod forward untill the flat area is in line with stabilizer bracket notch. Turn the rod 90 degrees and remove it from the tractor.

1.9. Raise the deck lift lever to its highest cutting position.

1.10. Using needle nose pliers, remove the hairpin clip securing the deck engagement cable to the deck flange. See Figure 5.

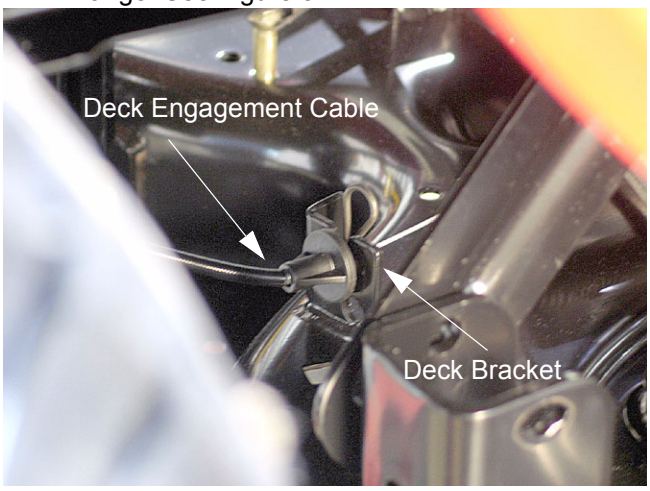

Figure 5

1.11. Slip the oval plastic retainer ring from the connector. Pull the connector rearward, lining the grooves in the connector with the deck flange and slide it up and out of the flange. See Figure 6.

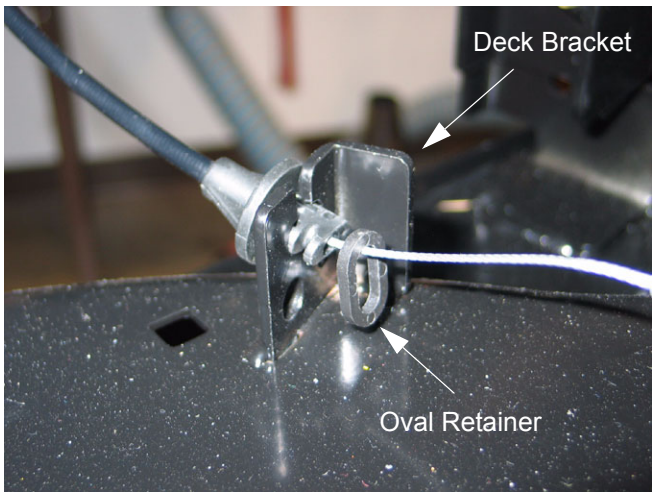

Figure 6

1.12. Remove the tension spring from the deck idler bracket.

NOTE: Depending on which deck is installed on the unit, it may be necessary to remove the spindle brake connecting rod between the two spindles in order to remove the deck engagement spring.

1.13. Slide the deck out from under the unit.

2. BLADE DRIVE BELT REMOVAL

NOTE: The 38” deck has a single pulley on the idler. The 42” deck has two pulleys on the idler. Disassembly procedures are similar.

2.1. Remove the cutting deck from the unit.

2.2. Using a ½” socket, remove the three screws securing the belt cover to the deck. Repeat for the other belt cover. See Figure 7.

Figure 7

NOTE: The belt covers are interchangeable.

2.3. Using a 9/16” socket and an open-end wrench, loosen but do not remove the nuts securing both idler pulleys to the idler bracket. See Figure 8.

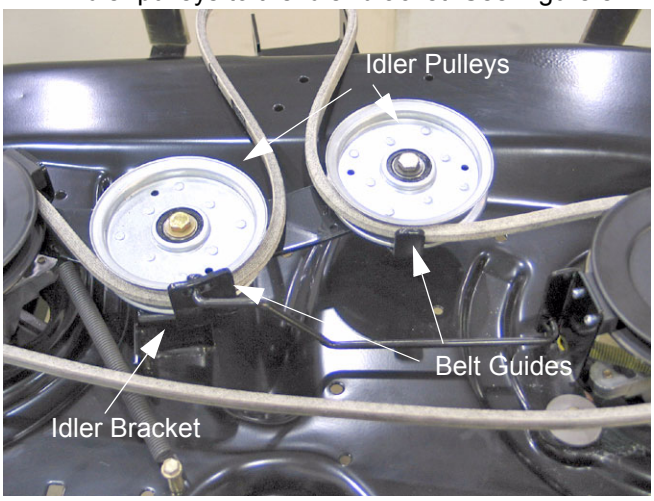

Figure 8

2.4. Remove the belt from around the idler pulleys and spindles.

3. DECK IDLER BRACKET REMOVAL

NOTE: The 38” deck has a single pulley on the idler. The 42” deck has two pulleys on the idler. Disassembly procedures are similar.

3.1. Remove the deck from the unit.

3.2. Remove the deck drive belt.

3.3. Remove the deck idler bracket spring. See Figure 9.

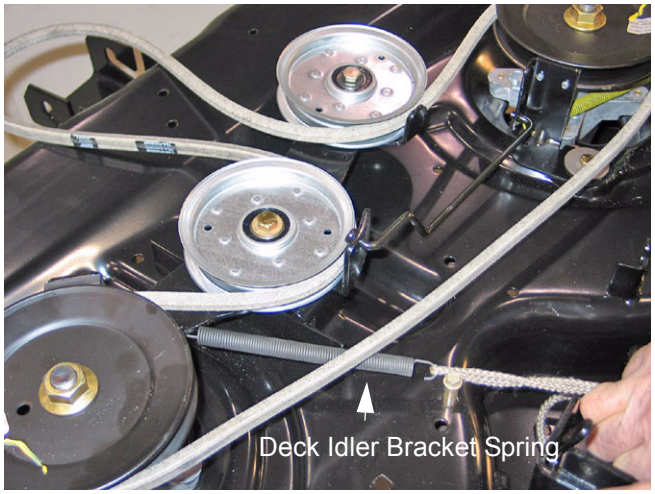

Figure 9

3.4. Remove the cotter pin holding the brake rod to the idler bracket and remove the brake rod connected to the idler bracket. See Figure 10.

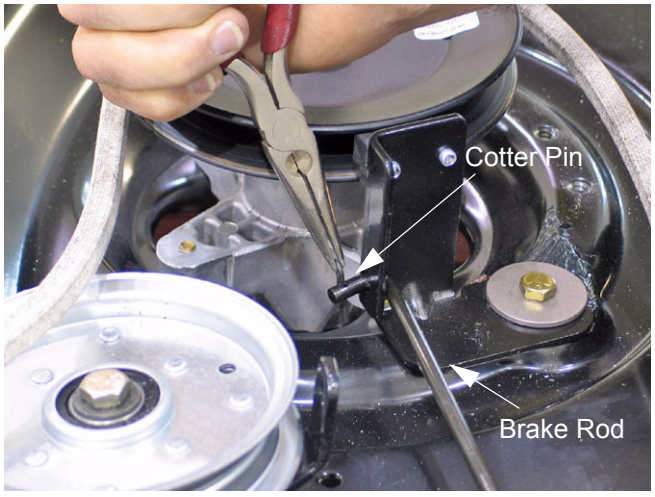

Figure 10

3.5. Using a 9/16” socket and a 9/16” wrench, remove the bolt and nut securing the idler bracket to the frame. There is a shoulder spacer under the idler bracket. Remove the idler bracket. Inspect the idler bracket for wear or damage. Inspect the brake puck at the end of the idler bracket for wear or damage. The brake puck is riveted to the idler bracket. See Figure 11.

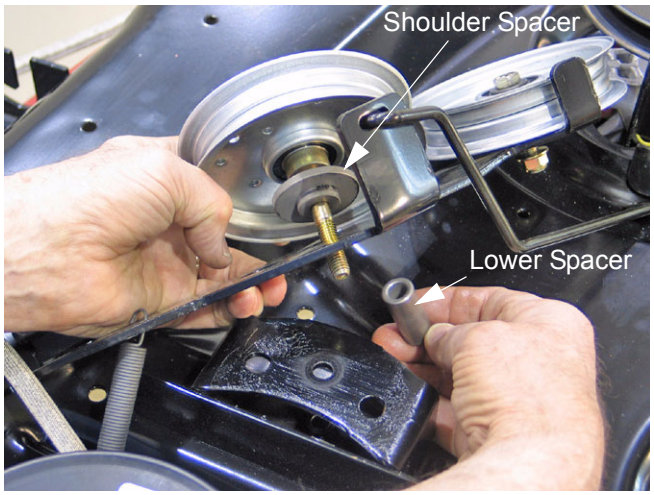

Figure 11

NOTE: The 38” and 42” deck share the same idler bracket. They each use unique mounting holes. Correct holes are marked on the bracket. This is also true for the tension springs. The hole in the center of the bracket has a step washer in it. See Figure 12.

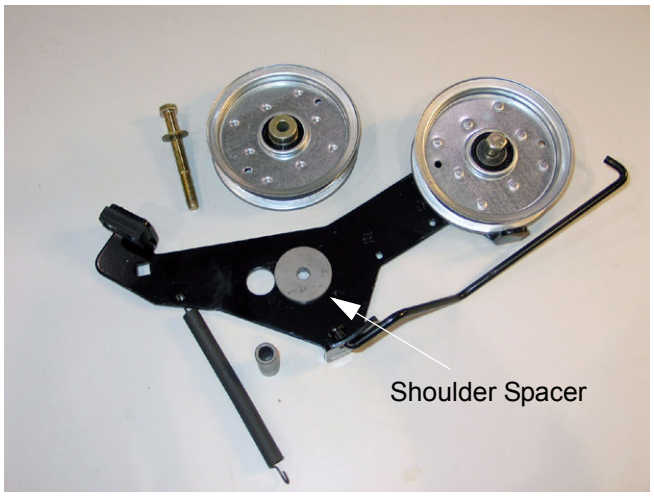

Figure 12

3.6. Using two 9/16” wrenches remove the idler pulleys.

3.7. Inspect the pulleys and pulley bearings for damage and wear. Replace as needed.

NOTE: When reassembling be sure to install the spacer under the pulley and the thinner flat washer on top.

NOTE: Lubricate the idler bracket with a small amount of lithium grease during assembly. Perform this lubrication on a yearly basis.

4. RIGHT SPINDLE BRAKE

4.1. Remove the brake spring attached from the deck frame to the brake assembly at the right spindle. See Figure 13.

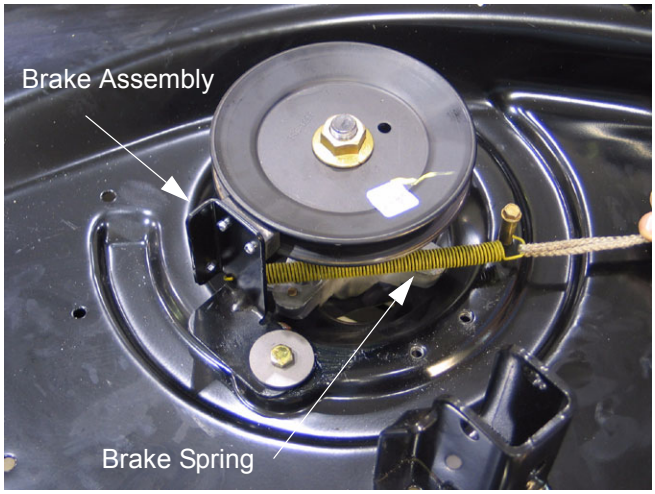

Figure 13

NOTE: Although similar, this spring is different from the spring on the Idler arm. This spring may be painted yellow.

4.2. Using a ½ inch socket and a ½" wrench remove the brake assembly bracket. Inspect the brake puck for wear or damage. The brake puck is riveted to the bracket and must be replaced as an assembly. See Figure 14.

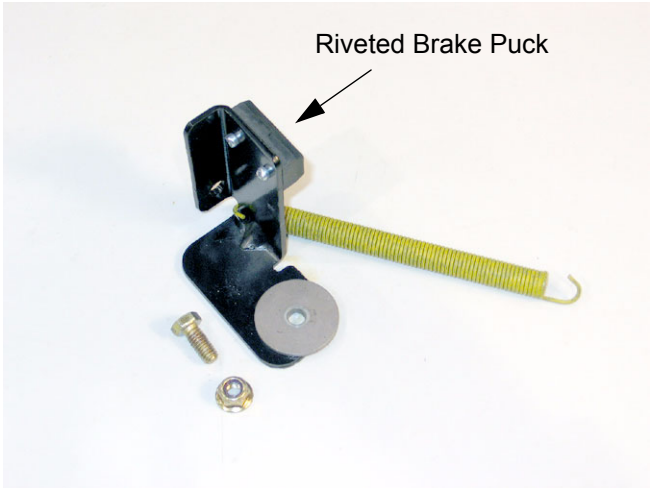

Figure 14

5. SPINDLE REMOVAL

5.1. Remove the deck from the unit. See DECK REMOVAL Section.

5.2. Remove the blade drive belt. See BLADE DRIVE BELT REMOVAL Section.

5.3. Remove the deck Idler bracket and spindle brake bracket. See DECK IDLER BRACKET REMOVAL Section.

5.4. Using an impact wrench and a 15/16” socket remove the pulley and blade from the spindle assembly. See Figure 15.

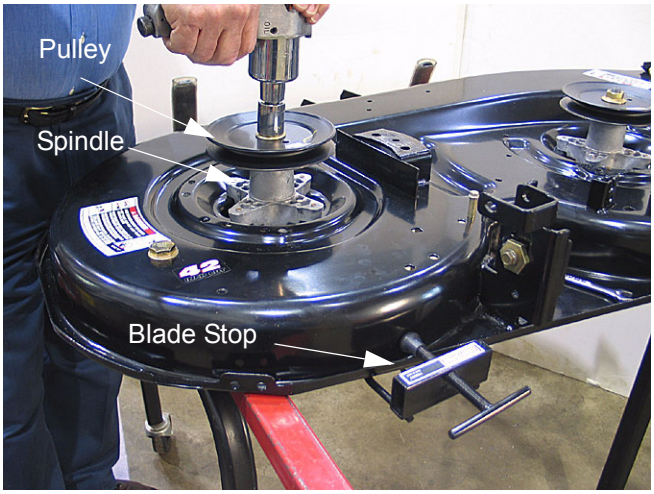

Figure 15

NOTE: Use a blade stop to secure the blade and prevent it from rotating during disassembly.

5.5. Using a ½” socket remove the spindle housing for inspection or replacement. See Figure 16.

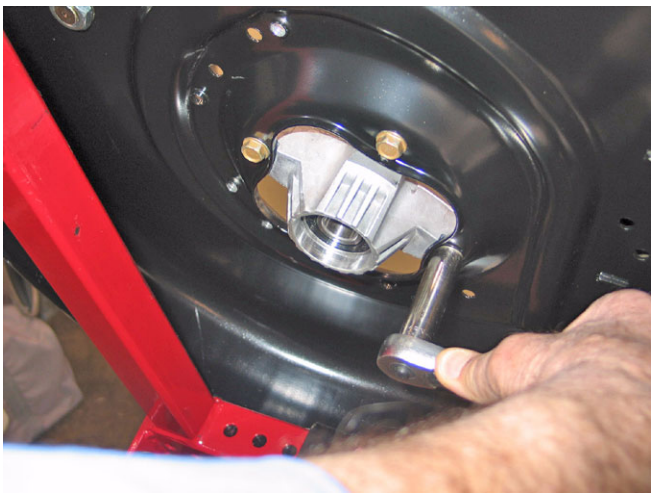

Figure 16

5.6. Assemble the spindle in reverse order of disassembly. See Figure 17.

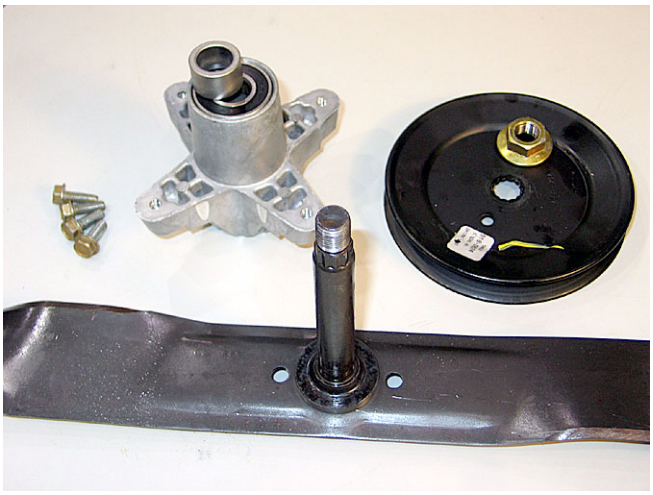

Figure 17

NOTE: During assembly, align the two bearing spacers inside the spindle as you insert the spindle shaft.

6. FENDER REMOVAL

6.1. Tip the seat forward.

6.2. Remove the battery and battery tray. See Figure 18.

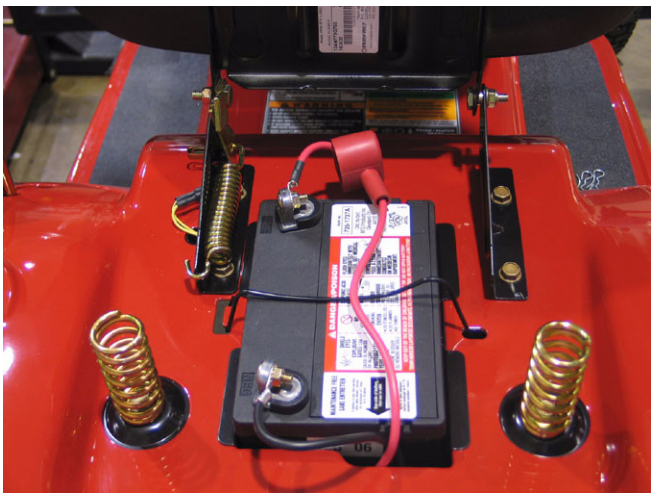

Figure 18

6.3. Using a spring puller, carefully remove the seat spring. See Figure 19.

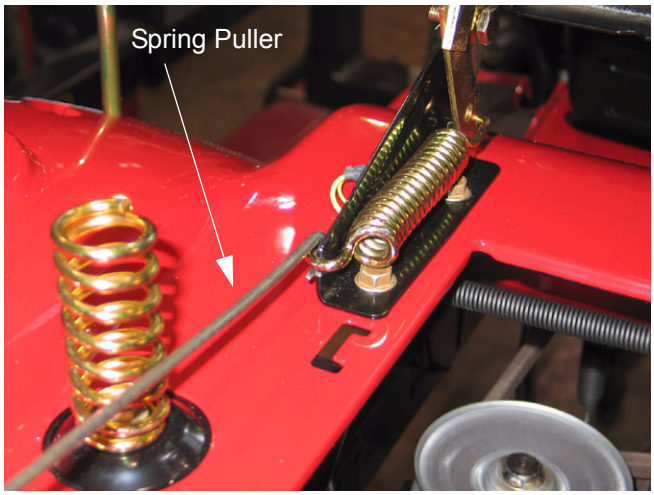

Figure 19

CAUTION: The tension spring is wound very tight.

6.4. Disconnect seat safety switch wires. See Figure 20.

Figure 20

NOTE: Remember to reconnect wires before returning to service.

6.5. Using a ½" socket remove the four bolts securing the seat bracket to the frame. See Figure 21.

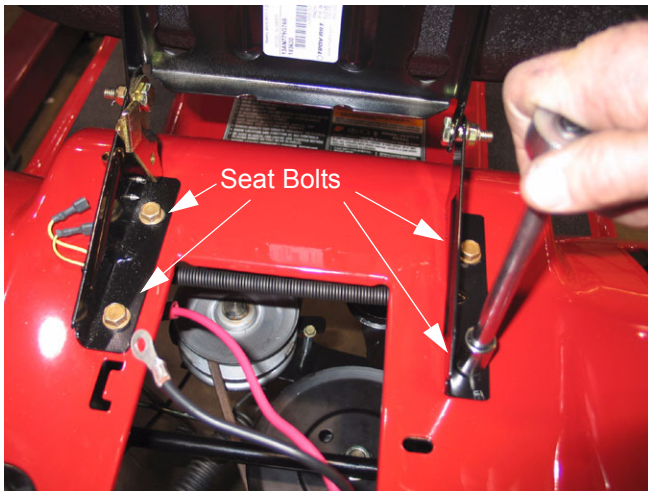

Figure 21

6.6. Lift the seat off of the frame and set it aside.

6.7. Working from under the running boards and using a ½" socket, remove the two nuts securing the running boards to the frame. See Figure 22.

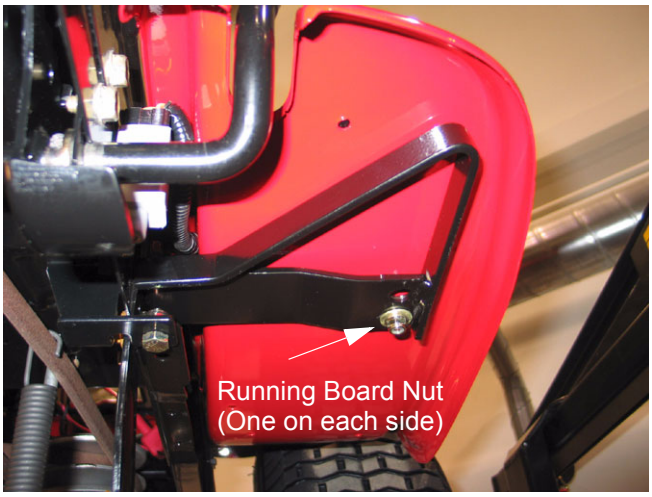

Figure 22

NOTE: The running board footpads cover the bolts securing the fenders to the frame. It is not necessary to remove the footpads. Hold down on the top of the bolt during disassembly.

6.8. Using a heat gun, carefully heat the warning label and peel it from the fender panel. Set it aside to be re-installed during assembly. See Figure 23.

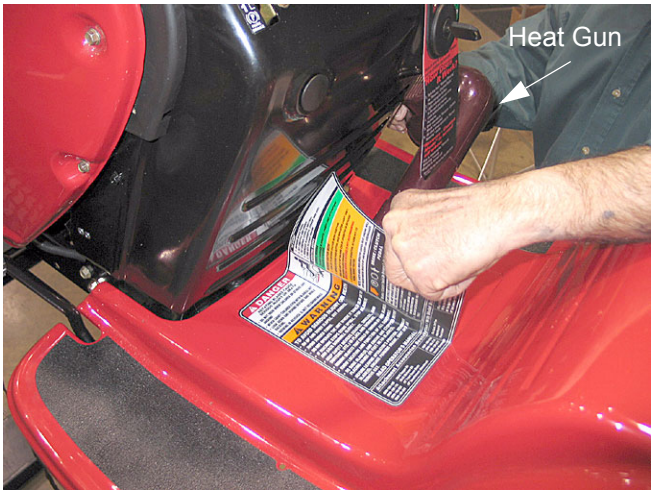

Figure 23

6.9. Using 3/8” socket, remove the two screws securing the center section of the fender to the frame. See Figure 24.

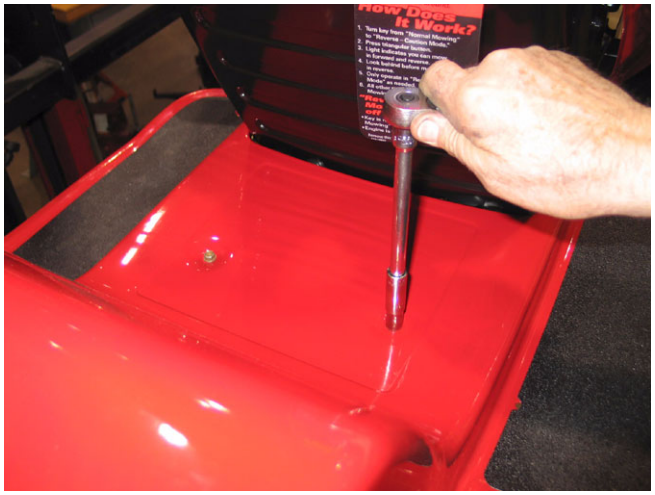

Figure 24

6.10. Remove the shifter knob, deck lift grip, and deck engagement grip.

NOTE: You can use an air gun placed in the hole at the top of each grip to ease disassembly.

6.11. Lift up on the rear of the fender to clear the seat support springs, slide the fender towards the rear and remove it from the tractor. See Figure 25.

Figure 25

NOTE: During removal, slip the seat safety switch wires through the hole in the fender. Remember to route these wires through the same hole during assembly.

7. UPPER DRIVE BELT REMOVAL

NOTE: It is recommmended that both the upper and lower drive belts be replaced as a set.

7.1. Tip the seat forward.

7.2. Disconnect the battery cables, remove the battery and the battery tray from the unit.

7.3. Using a spring puller or length of starter cord, remove the large spring attached between the variable speed idler arm and the rear of the tractor frame. See Figure 26.

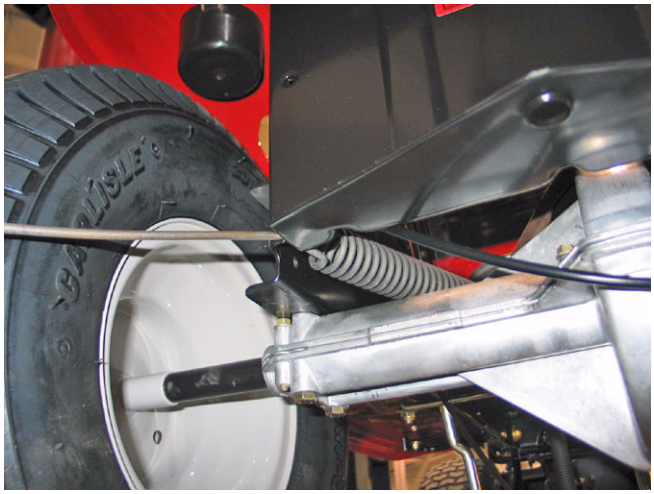

Figure 26

CAUTION: This is a very strong spring. Be careful when removing and installing it.

7.4. Remove the small tension spring attached between the long bolt extending up from the frame and the transmission idler pulley. See Figure 27.

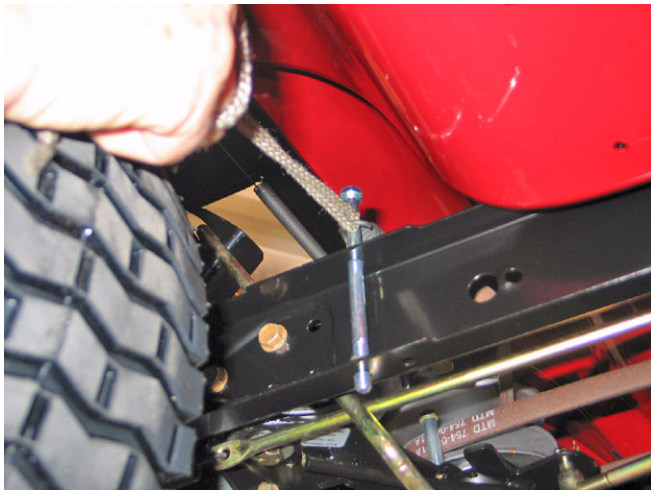

Figure 27

7.5. Using a 7/8” socket and extension, remove the nut securing the transmission pulley to the transmission. See Figure 28.

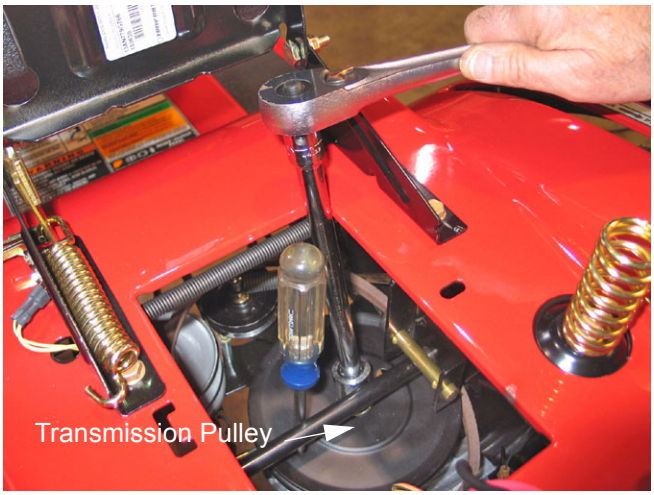

Figure 28

NOTE: Place a phillips screwdriver through the hole in the pulley as a stop to ease removal of the pulley nut.

7.6. Lift the pulley off the transmission and remove the belt from around the pulley. See Figure 29.

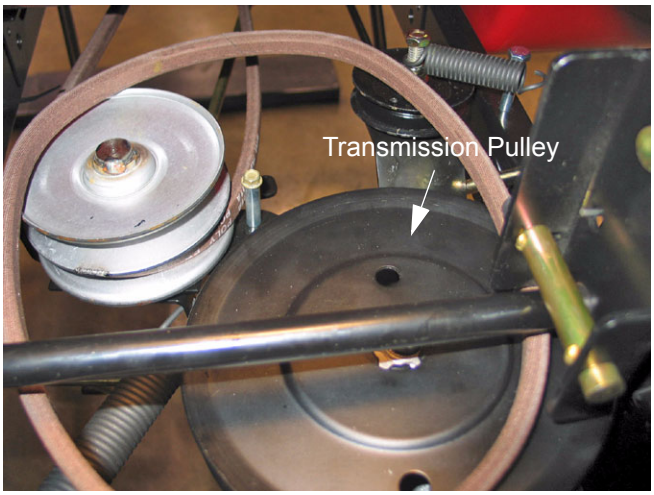

Figure 29

7.7. Remove the drive belt up and over the variable speed pulley. Replace in the reverse order of disassembly.

NOTE: Replace both the upper and lower drive belt as a set. See the LOWER DRIVE BELT REMOVAL Section.

8. LOWER DRIVE BELT REMOVAL.

NOTE: It is recommmended that both the upper and lower drive belts be replaced as a set. The following directions cover replacement of the lower belt only. If both belts are being replaced, refer to the upper drive belt removal section first and then continue with the lower drive belt removal instructions.

8.1. Remove the cutting deck. Refer to the section on removing the cutting deck.

8.2. Using a spring puller or length of starter cord, remove the large spring attached between the variable speed idler arm and the rear of the tractor frame. See Figure 30.

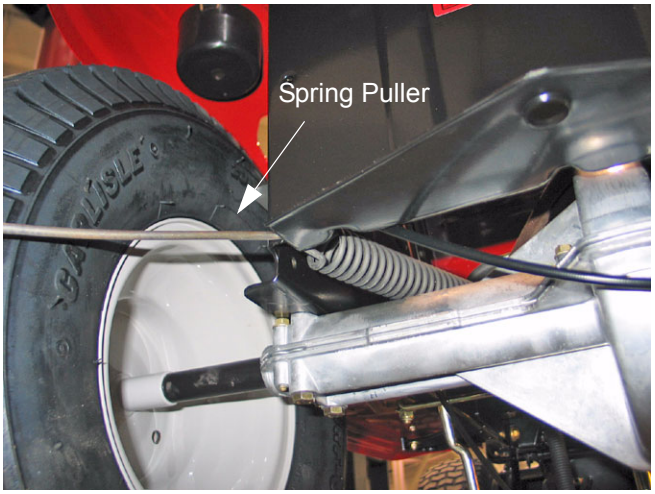

Figure 30

CAUTION: This is a very strong spring. Be careful when removing and installing it.

8.3. Remove the small tension spring attached between the long bolt extending up from the frame and the transmission idler pulley. See Figure 31.

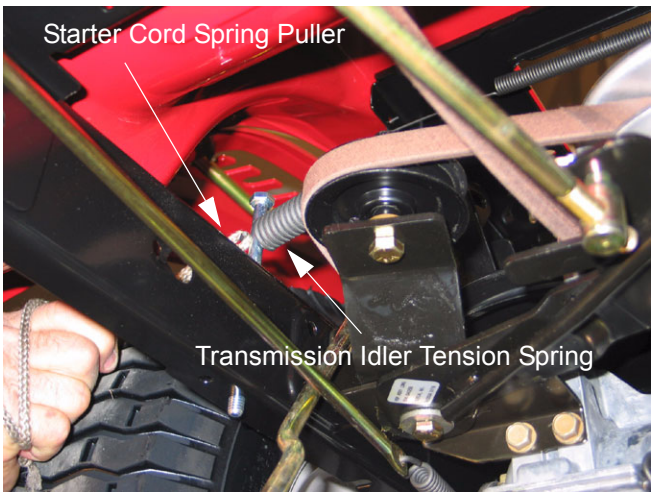

Figure 31

8.4. Remove the upper drive belt from around the idler pulley. See Figure 32.

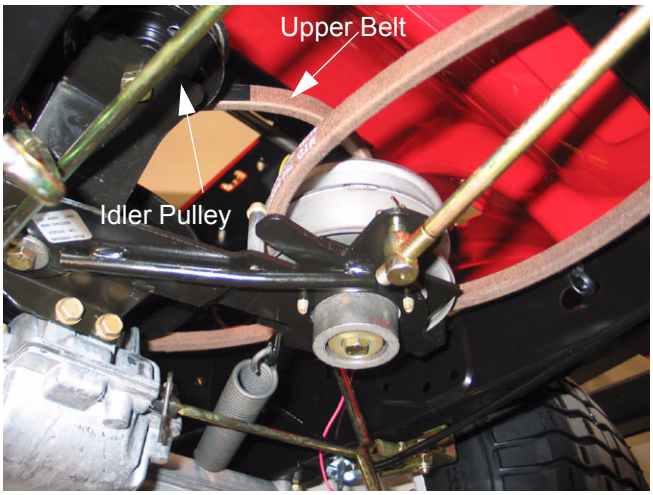

Figure 32

8.5. Remove the upper drive belt from around the upper sheeve of the Variable Speed Pulley.

8.6. Raise the middle sheave of the variable speed pulley to allow raising the lower drive belt around the belt guard. See Figure 33.

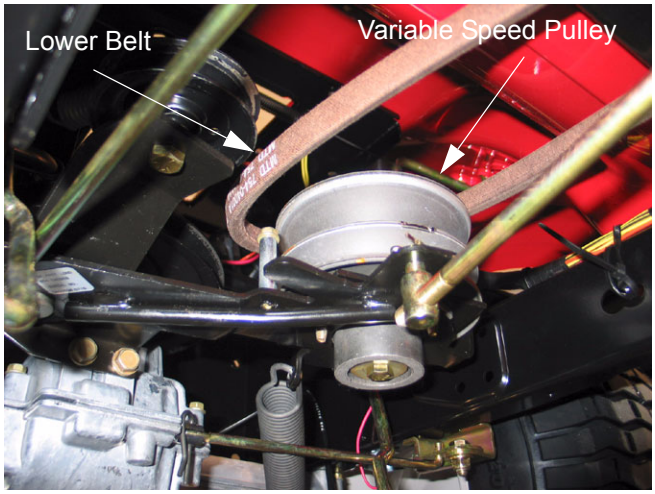

Figure 33

8.7. Using a 5/8” socket on an impact gun, remove the bolt securing the engine pulley to the engine crankshaft.

8.8. Carefully lower the pulley from the crankshaft and remove the belt from around the engine pulley. See Figure 34.

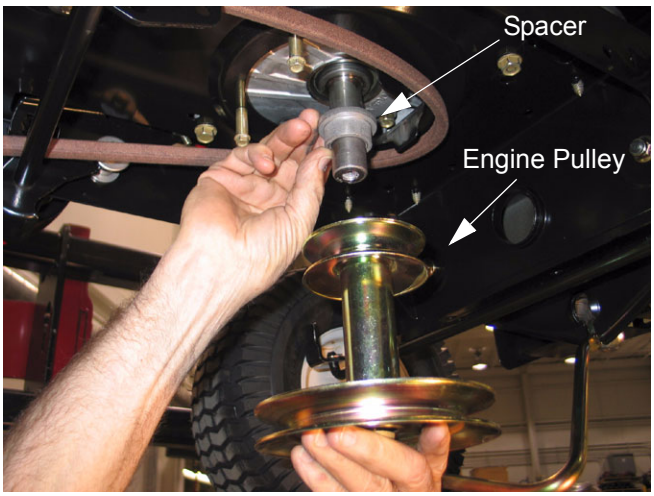

Figure 34

NOTE: There is a spacer between the pulley and the engine. The larger flange side should face up during assembly. See Figure 35.

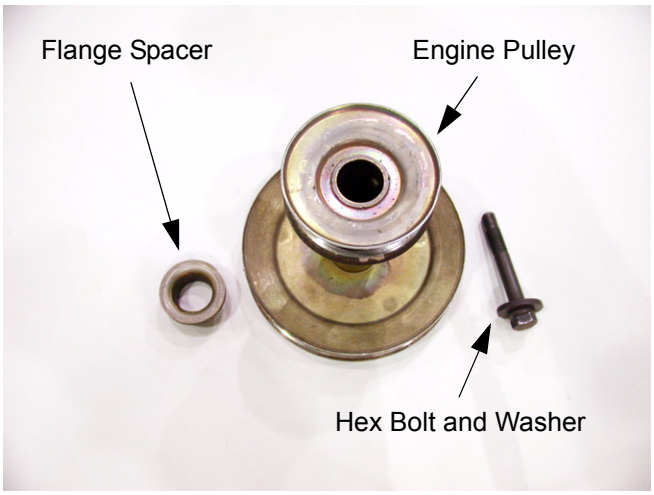

Figure 35

8.9. Replace the lower drive belt in the reverse order of disassembly.

9. VARIABLE SPEED PULLEY REMOVAL

9.1. Remove the cutting deck.

9.2. Using a spring puller or length of starter cord, remove the large spring attached between the variable speed idler arm and the rear of the tractor frame. See Figure 36.

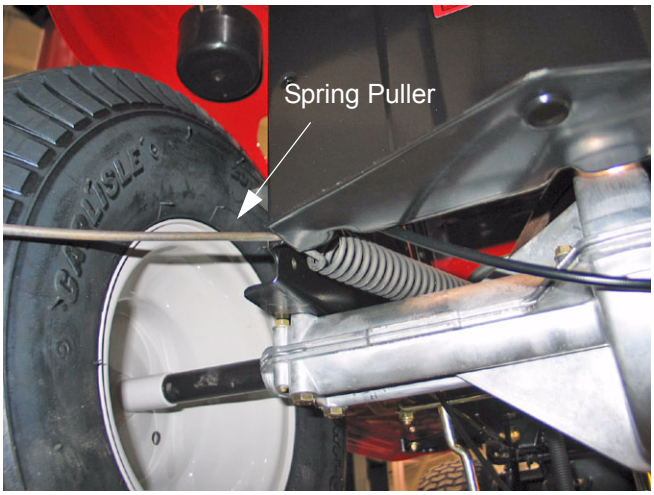

Figure 36

CAUTION: This is a very strong spring. Be careful when removing and installing it.

9.3. Remove the small tension spring attached between the long bolt extending up from the frame and the transmission idler pulley. See Figure 37.

Figure 37

9.4. Remove the upper drive belt from around the idler pulley.

9.5. Remove the upper drive belt from around the upper sheeve of the Variable Speed Pulley.

9.6. Raise the middle sheave of the variable speed pulley to allow raising the lower drive belt around the belt guard. See Figure 38.

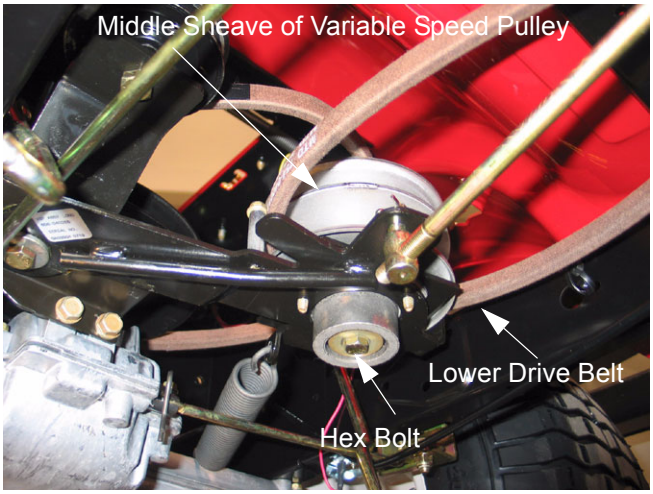

Figure 38

9.7. Using a ½" socket, remove the bolt securing the variable speed pulley to the idler bracket.

9.8. Raise the variable speed pulley up and out of the idler bracket. See Figure 39.

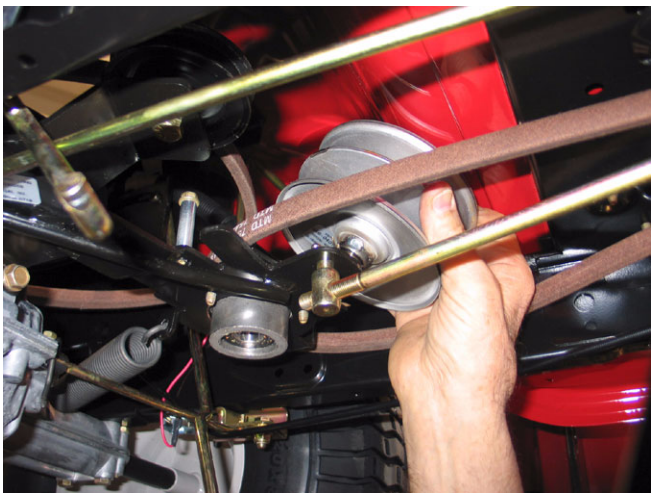

Figure 39

9.9. Replace the pulley in the reverse order of disassembly.

10. VARIABLE SPEED IDLER BRACKET REMOVAL

10.1. Follow steps 9.1 to 9.6 in the Variable Speed Pulley Removal Section. Then continue with the following steps.

10.2. Remove the cotter pin securing the variable speed control rod to the variable speed idler bracket. Remove the ferrule from the bracket and let the rod hang down out of the way. See Figure 40.

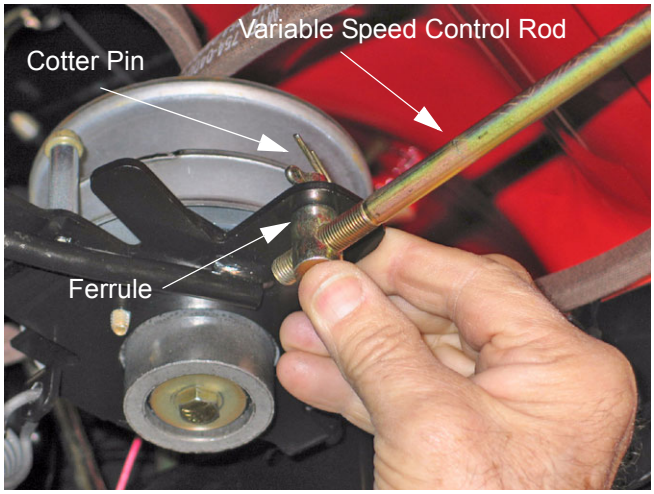

Figure 40

10.3. Using a ½" socket, remove the two screws securing the torque bracket to the frame. See Figure 41.

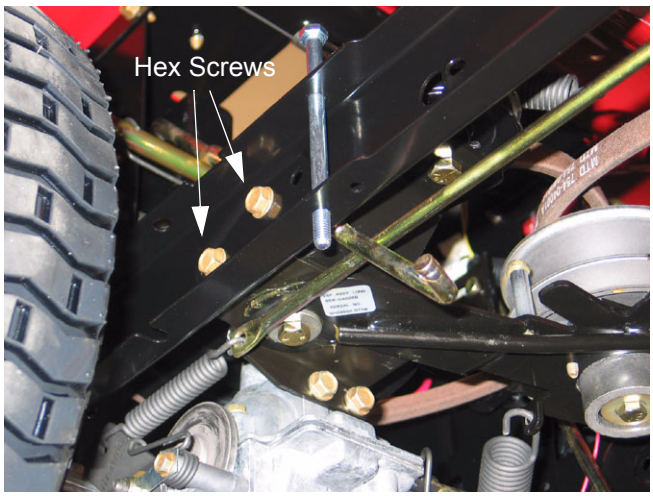

Figure 41

NOTE: If you are using air tools you can remove the right rear tire to gain better access to the hex screws.

10.4. Using a ½" socket, remove the two screws securing the torque bracket to the transmission. See Figure 42.

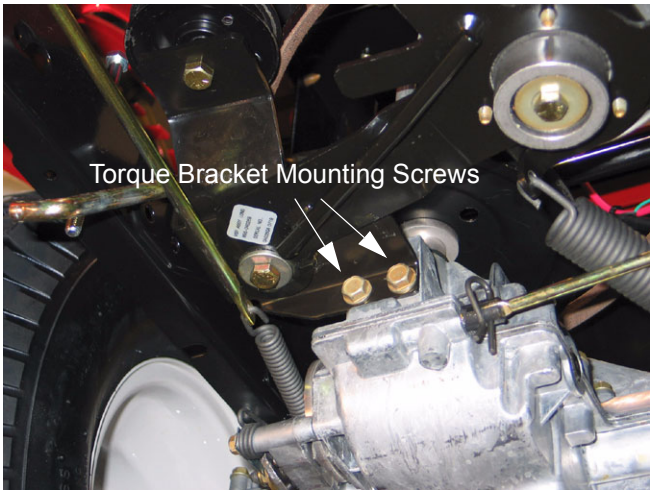

Figure 42

NOTE: Pivot the idler bracket away from the transmission to allow better access to the mounting screws.

10.5. Remove the torque bracket and variable speed idler assembly from the unit.

10.6. Inspect all components of the variable speed assembly. See Figure 43.

Figure 43

10.7. Replace any warn or damaged parts.

10.8. Lubricate all moving parts before assembly.

11. TRANSMISSION REMOVAL – 618-04072

11.1. Remove the cutting deck.

11.2. Using a ½" socket, loosen the bolts securing the wheels to the axles.

11.3. Support the unit at the rear with the wheels off the ground. Leave room to lower the transmission from the unit. See Figure 44.

Figure 44

11.4. Remove the axle bolts from both rear wheels. Remove the rear wheels.

11.5. Using a spring puller or length of starter cord, remove the large spring attached between the variable speed idler arm and the rear of the tractor frame. See Figure 45.

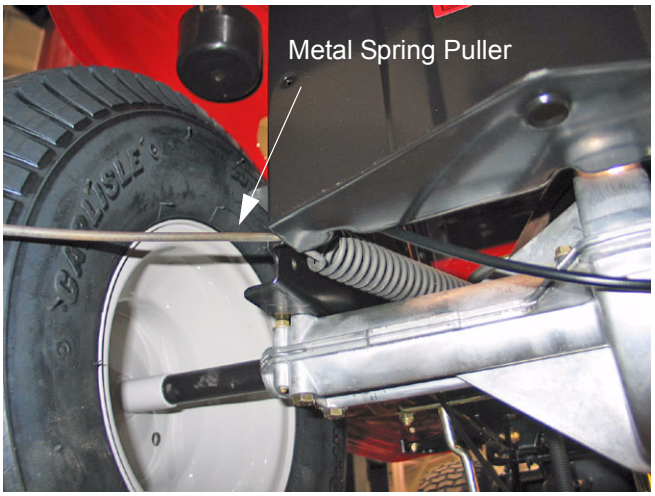

Figure 45

11.6. Remove the small tension spring attached between the long bolt extending up from the frame and the transmission idler pulley. See Figure 46.

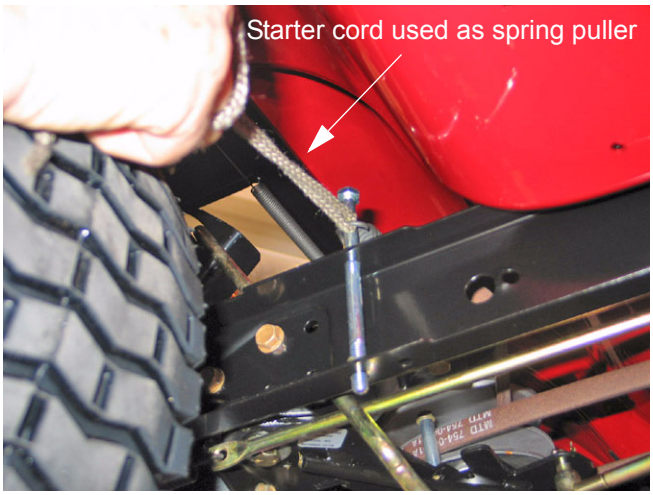

Figure 46

11.7. Remove the hairpin clip securing the shift rod to the transmission. Move the shift rod out of the way. See Figure 47.

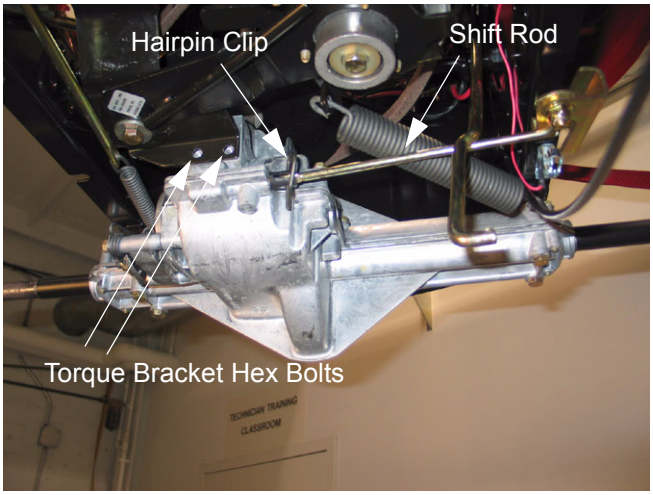

Figure 47

11.8. Using a ½" socket, remove the two screws securing the torque bracket to the transmission.

11.9. Using a ½" socket, remove the four bolts, lock washers and nuts securing the transmission to the frame. See Figure 48.

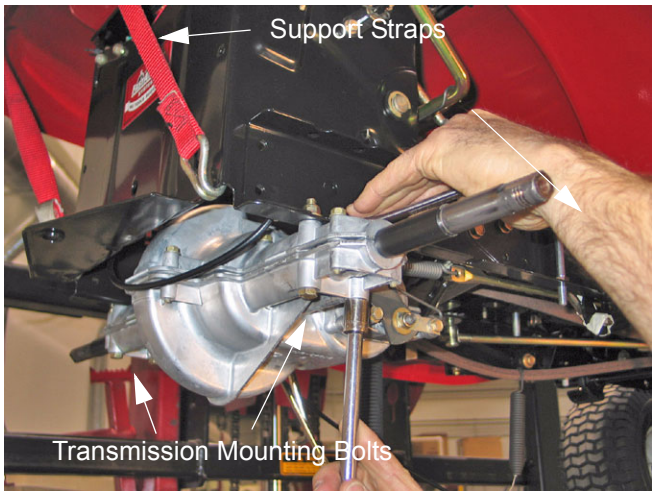

Figure 48

NOTE: Support the transmission during this procedure to keep it from falling from the unit.

11.10. As you remove the transmission, slip the upper drive belt from around the transmission pulley. See Figure 49.

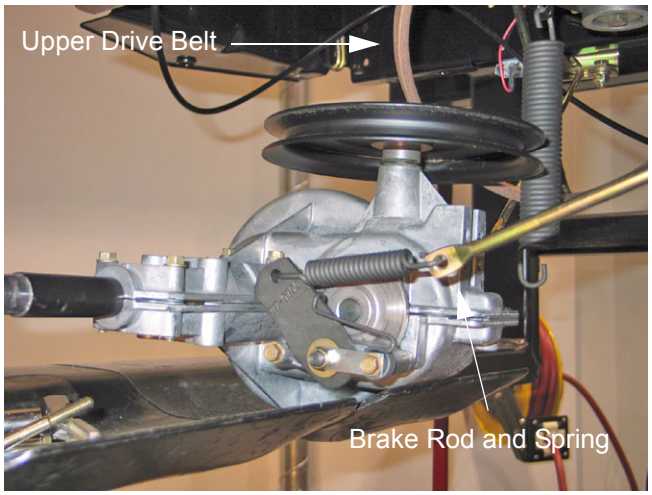

Figure 49

11.11. Disconnect the brake rod spring from the brake arm. See Figure 49.

11.12. Service the transmission and install in the reverse order of disassembly.

NOTE: During assembly, route the upper drive belt around the transmission pulley as you install the transmission into the tractor.

12. DECK LIFT ASSEMBLY

NOTE: You might be inclined to try to remove the deck lift assembly without removing the fender assembly. While it can be done, it is much easier to take the few minutes to remove the fender.

12.1. Remove the fender assembly as described in section 5.

12.2. Remove E-clips from both ends of deck lift shaft. See Figure 50.

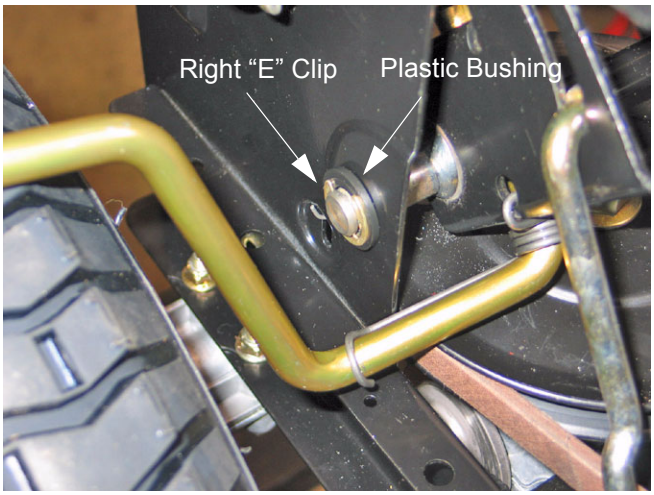

Figure 50

12.3. Remove plastic hex bushings. Inspect for wear and damage replace as needed. See Figure 51.

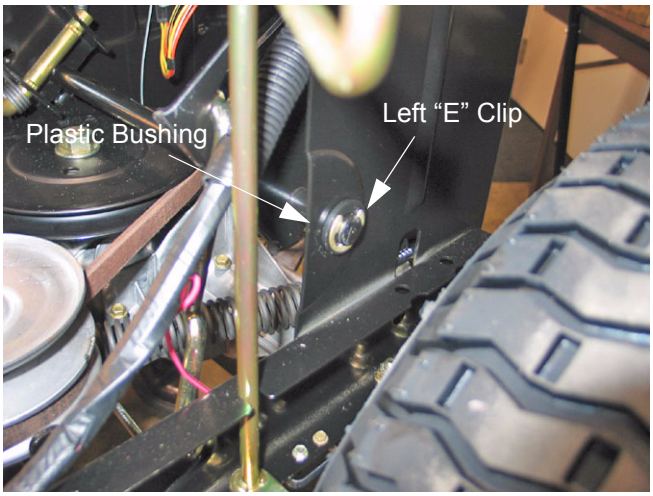

Figure 51

12.4. Slide deck lift shaft to left to allow right side to come out of the frame. See Figure 52.

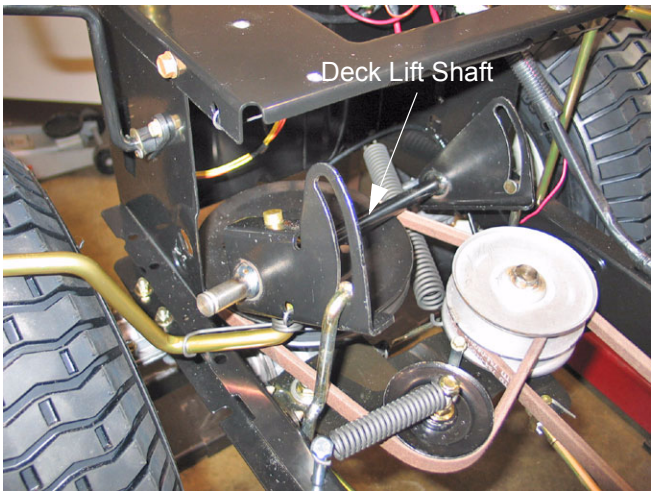

Figure 52

12.5. Slide deck lift shaft to right to allow the left side to come out of the frame.

12.6. Carefully lift out the assembly. See Figure 53.

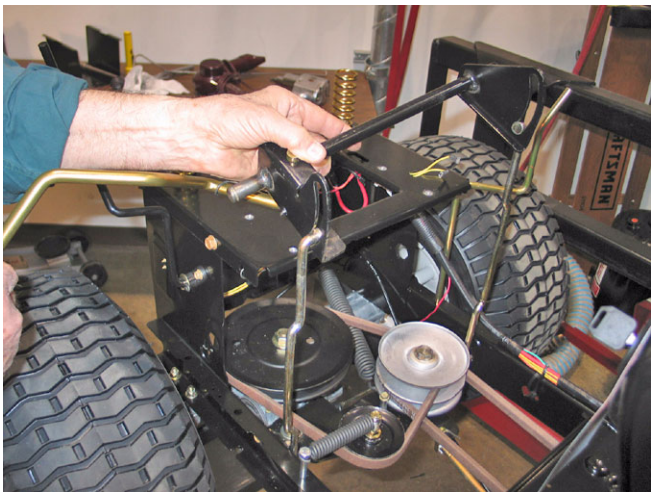

Figure 53

12.7. Inspect the deck lift shaft for wear, cracks and bends. See Figure 54.

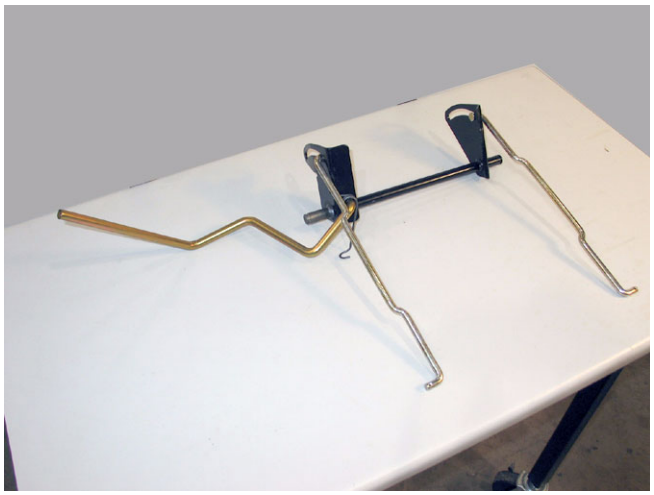

Figure 54

13. DECK LIFT INSPECTION

13.1. Access is gained by removing the battery and battery box. Inspect the lever for proper operation and engagement of the deck safety switch. See Figure 55.

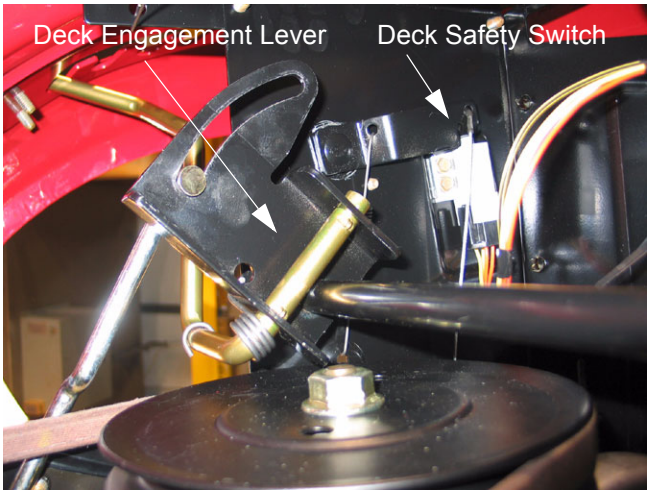

Figure 55

14. SERVICING THE SOLENOID.

14.1. The solenoid can be inspected and serviced by removing the battery and battery box. See Figure 56.

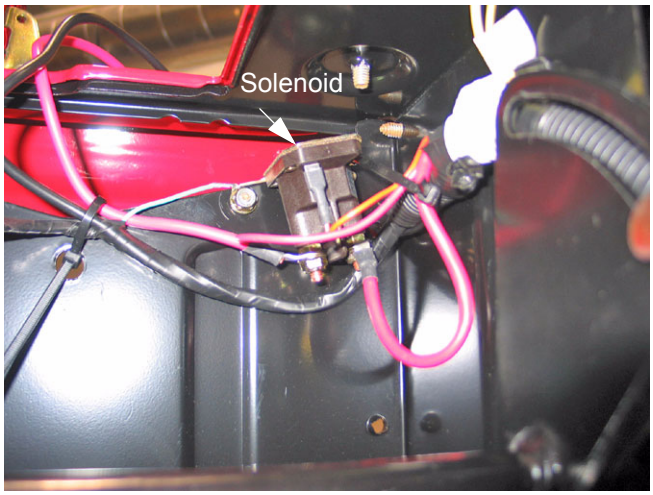

Figure 56

15. REMOVAL OF THE STEERING SHAFT AND SECTOR GEAR

15.1. Engage the parking brake on the tractor. This will ease disassembly later.

15.2. Remove the cutting deck.

15.3. Raise the hood or remove the hood.

15.4. Remove the right side panel. See Figure 57.

Figure 57

15.5. Working from under the tractor, use a #4 phillips bit on a socket to remove the screw securing the steering shaft through the frame. See Figure 58.

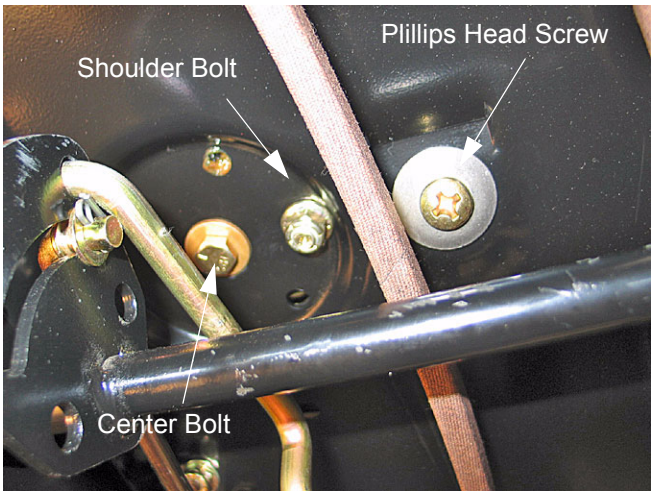

Figure 58

15.6. Using a 9/16” socket on the bottom and a 9/16” wrench on the top, remove the center bolt on the sector gear bracket. See Figure 59.

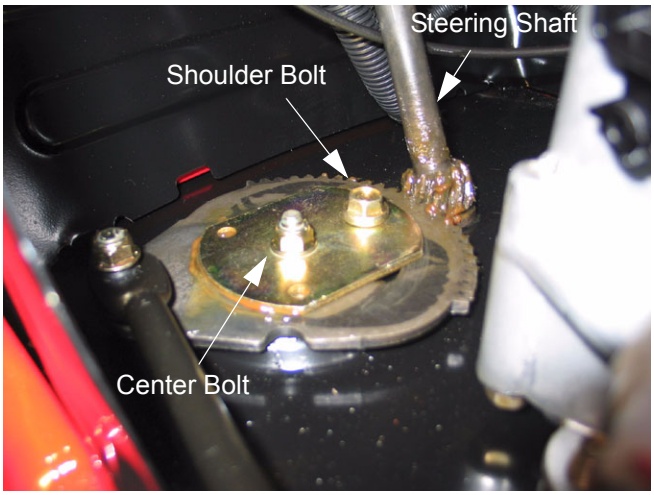

Figure 59

15.7. Order of parts is: bolt, bell washer, top plate, spacer through sector gear, frame and flange lock nut.

15.8. Using a 9/16” socket on the bottom and a 7/16” wrench on the top, remove the flange lock nut and shoulder bolt passing through the groove of the sector gear.

15.9. Using a ½" wrench on the top and a 9/16" wrench on the bottom, remove the nut securing the drag link to the steering arm. See Figure 60.

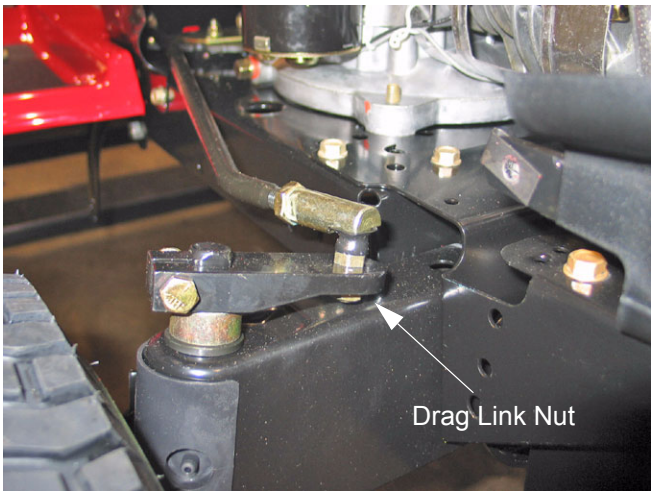

Figure 60

15.10. Remove the sector gear and drag link from the unit.

15.11. Inspect all components for wear or damage. See Figure 61.

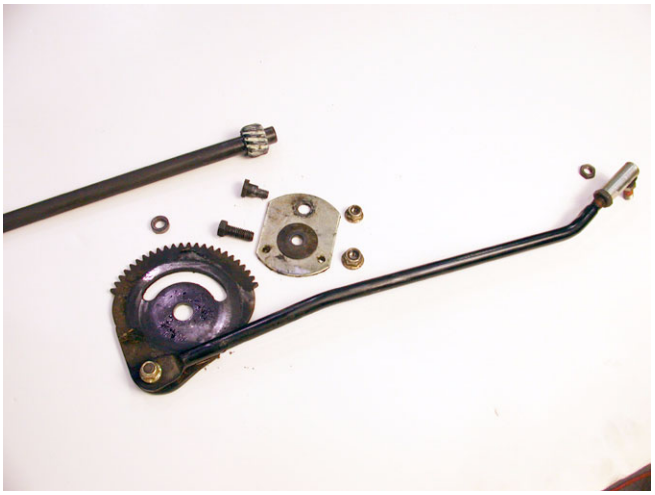

Figure 61

15.12. Apply lithium grease to the sector gear and worm gear during assembly.

16. PEDAL SUPPORT BRACKET REMOVAL

16.1. Remove the cutting deck.

16.2. Remove the left side panel.

16.3. Working from under the tractor, remove the cotter pin securing the speed control rod to the variable speed idler bracket. Remove the ferrule from the bracket the let the rod hang down. See Figure 62.

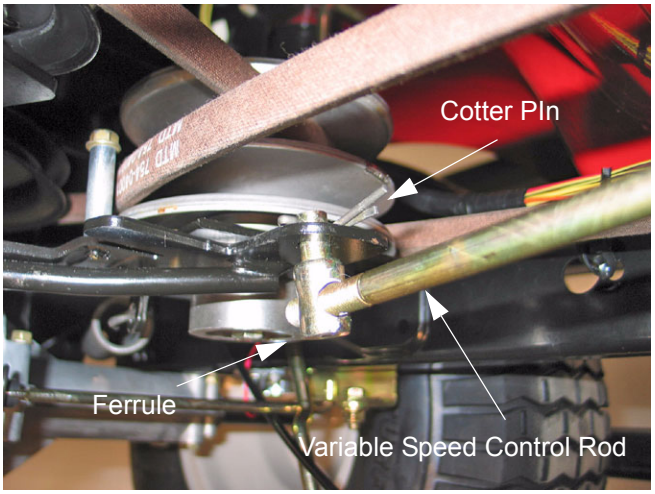

Figure 62

NOTE: Mark the position of the ferrule on the rod with some whiteout. This will aid assembly and allow you to maintain the proper position of the ferrule.

16.4. Using a ½' socket, remove the hex screws securing the left side of the pedal support bracket to the frame. See Figure 63.

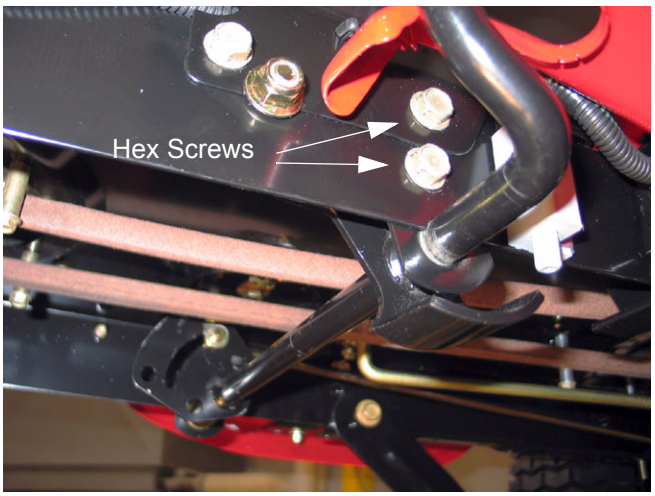

Figure 63

16.5. Lower the left side of the bracket from the tractor as you slide the rod out of the mounting bracket on the right side of the frame.

16.6. Disconnect the brake rod spring from the brake arm.

16.7. Inspect the bracket for wear or damage. Pay close attention to the notched teeth on the bracket. See Figure 64.

Figure 64

16.8. Assemble in reverse order of disassembly

17. SPEED CONTROL LATCH REMOVAL

17.1. Remove the cutting deck.

17.2. Remove the cotter pin securing the speed control selector rod to the speed control latch. Slide the ferrule from the latch. See Figure 65.

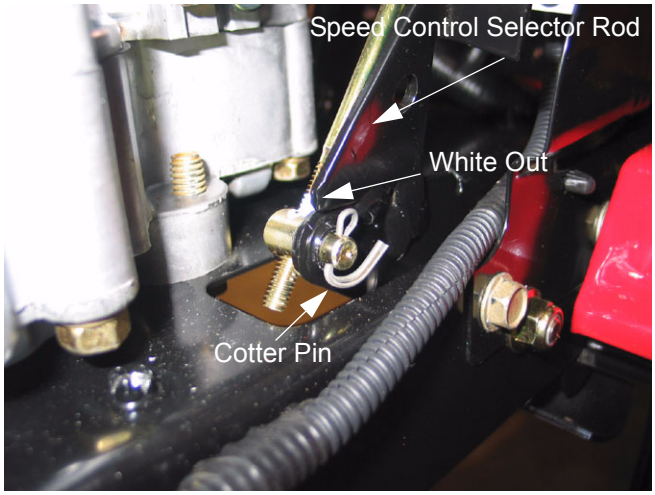

Figure 65

NOTE: Mark the position of the ferrule on the rod with some whiteout. This will aid assembly and allow you to maintain the proper position of the ferrule.

17.3. Using a 9/16” socket and an open-end wrench, remove the nut securing the speed control latch assembly to the frame. See Figure 66.

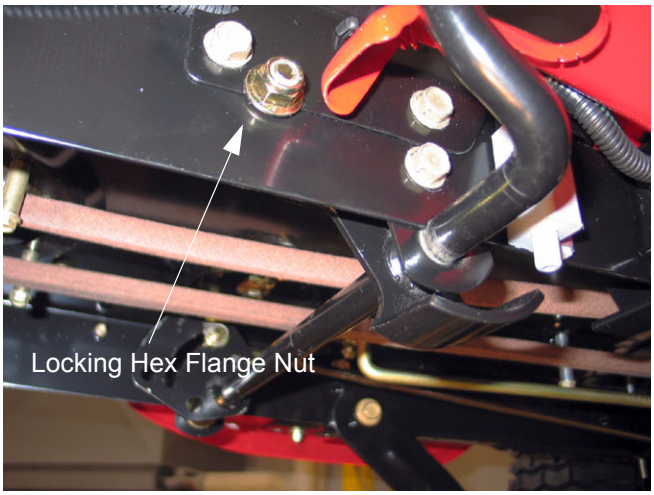

Figure 66

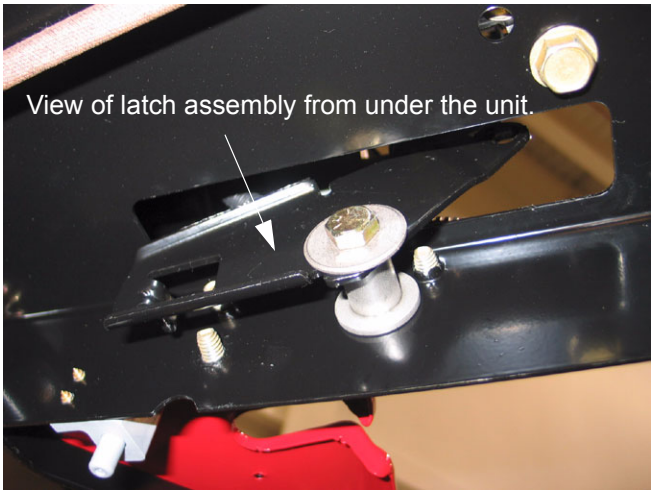

Figure 67

17.4. Inspect the latch for any wear or damage. Pay close attention to the flange that mates with the

teeth on the pedal support bracket. See Figure 68.

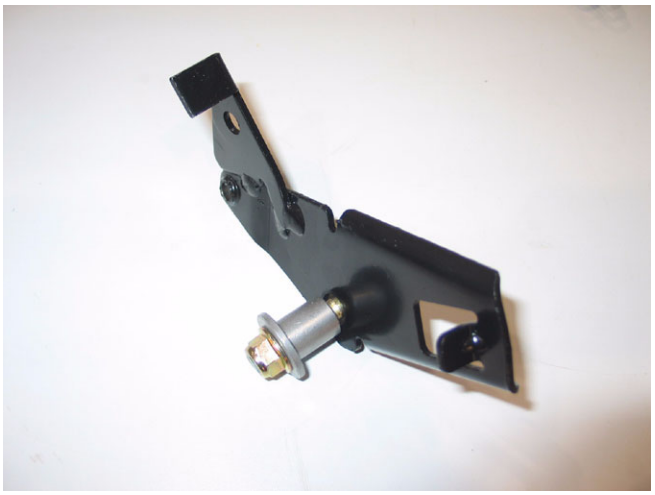

Figure 68

17.5. Install in the reverse order of disassembly.

18. 7-SPEED SHIFT LEVER REMOVAL

18.1. Remove the cotter pin securing the speed control selector rod to the speed control latch. Slide the ferrule from the latch. See Figure 69.

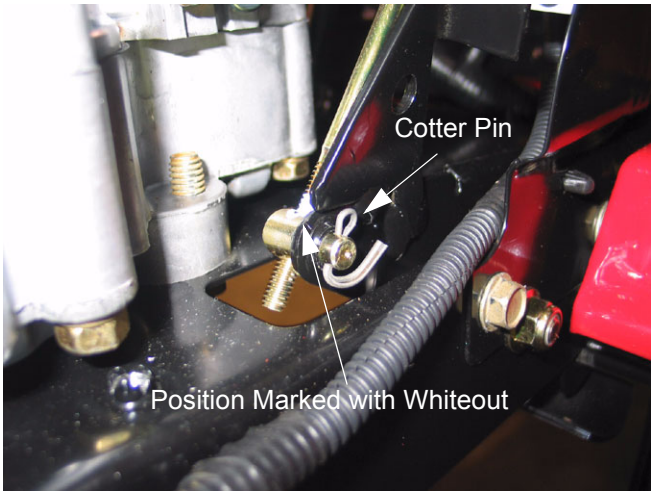

Figure 69

NOTE: Mark the position of the ferrule on the rod with some whiteout. This will aid assembly and allow you to maintain the proper position of the ferrule.

18.2. Remove the shift lever knob.

18.3. Using a 3/8” socket and a 7/16” wrench, remove the two hex screws and nuts securing the shift lever assembly to the dash. See Figure 70.

Figure 70

18.4. Remove the shift lever assembly from the dash and slide the lever assembly and rod up and through the hole in the dash bracket. Inspect for wear or damage. See Figure 71.

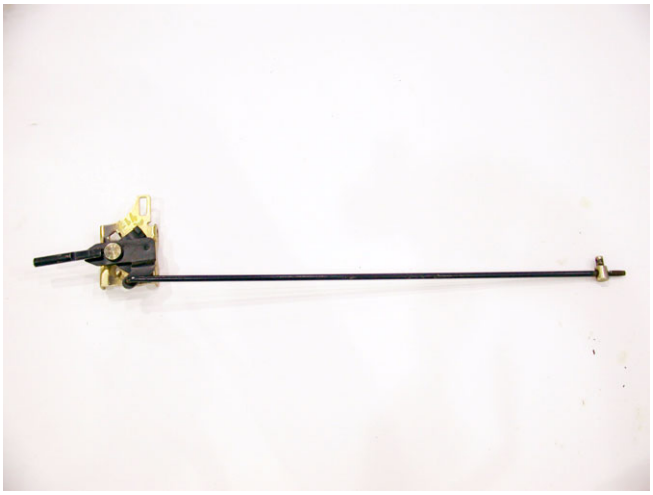

Figure 71

18.5. Inspect the detents in the assembly for any wear or damage. See Figure 72.

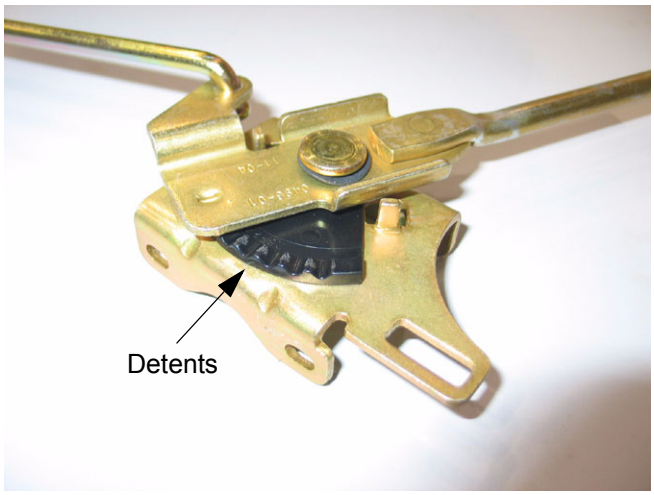

Figure 72

19. PARKING BRAKE AND SHIFT CONTROL ADJUSTMENTS

19.1. With the parking brake engaged and the unit in neutral, try rolling the unit forward or back. The brake should hold the unit in place. If not, adjust the parking brake.

19.2. With the unit on a level surface and the brake released, place a .010” feeler gauge between the brake puck and brake disk on the right side of the transmission. Using a ½” wrench, adjust the elastic stop nut until there is slight tension on the gauge but it can be easily removed. Test the parking brake. It should hold the unit in place.

19.3. If the brake still fails to hold the unit in place, check the alignment of the 7-speed cam and the speed control latch.

19.4. When in the park position, the speed control latch should engage the 7-speed cam in its lowest position. The parking brake on the transmission should be engaged and the unit should not roll with the transmission in the neutral position.

19.5. To adjust the alignment of these components, make sure the engine drive belt is in the outermost position of the variable speed pulley sheave. This will give you full range of movement of the shift mechanism.

19.6. Press down on the speed control/brake foot pedal and place the shift lever in the 7th speed position. Release the foot pedal. The speed control latch should line up with the highest cam on the 7-speed cam bracket.

19.7. Repeat this procedure as you shift through each gear. The cam bracket and latch should step through each of the cam positions for each gear.

19.8. The final position should be the parking brake.

19.9. If there is a misalignment between the shift lever detent positions and the latch/cam positions, remove the hairpin clip on the ferrule securing the speed selector rod to the speed control latch.

19.10. Loosen or tighten the ferrule to adjust the latch to line up with the cam notch.

19.11. Assemble the ferrule and hairpin clip and check operation of the shift lever. Make sure the brake still works properly after making changes to the shift mechanism.

20. TOE-IN ADJUSTMENT

20.1. Point the tractor tires straight ahead. Measure the distance between the front wheels at the front of the rim and the rear of the rim. The toe-in should be between 1/16” to 5/16” closer at the front then the rear.

20.2. To adjust the toe-in of the front wheels remove the cotter pin securing the tie rod to the right front axle and adjust the ferrule on the tie rod to set the correct toe-in.