Husqvarna

Service Bulletin	B0401904
	2004-05

Products: **Royal 53S Walk Mowers**

Subject: **Powerdrive System Rework**

The Royal 53S uses a variable speed self-propel drive system with an adjustable cable. In many cases, drive problems can be corrected by simply adjusting the drive cable as explained in service bulletin B0401902. This adjustment to the drive cable is necessary to maintain the proper travel of the drive control lever and ensure smooth operation.

If you encounter a unit with drive problems such as no drive, slow drive or sporadic drive and have already adjusted the powerdrive cable with no improvement, the variator assembly in the transmission and the powerdrive control/ cable will need to be replaced.

We have developed a powerdrive rework kit that includes an improved variator assembly and an improved powerdrive control/ cable assembly. Refer to the step by step instructions below for guidance when installing the rework kit.

Part No.	Description
*531 30 05-14	powerdrive rework kit

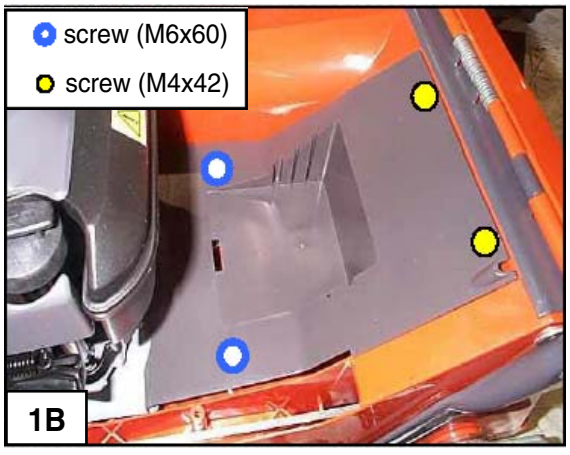
* includes a new variator assembly, a new cable/control assembly, a new drive disk, a cable "attention" tag, and powerdrive adjustment instructions

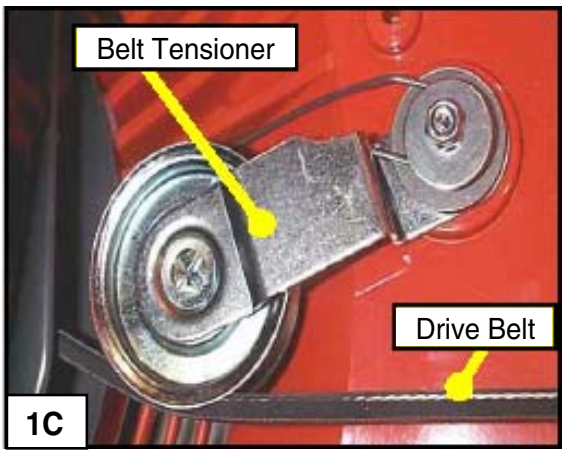
Step 1 - Prepare unit to be worked on

A. The mower will need to be tipped on its' rear section (discharge area) to access the drive system. Begin by removing the spark plug lead from the spark plug and draining the fuel from fuel tank. Also, ensure the oil filler cap is correctly secured to prevent leakage.

B. Remove the gray belt cover on top of the deck by removing the two M6x60 screws (engine side) and two M4x42 screws (discharge side) securing the cover.

C. With the belt cover removed, disengage the belt from the belt tensioner.



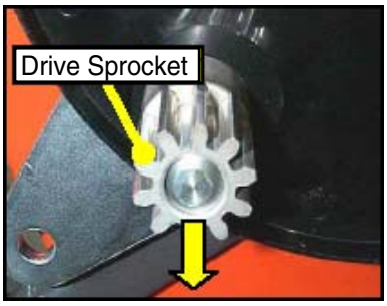


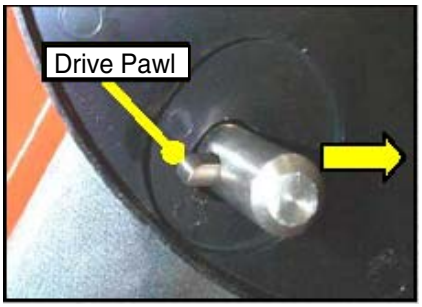
D. Next, fold the handle assembly down and remove the grass collector (or the mulch plug if equipped). Now tip the mower up on its' rear section.

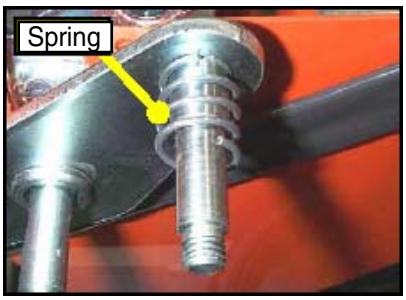
Step 2 - Remove the wheel components

Note - The drive sprockets are unique to the left and right side of the unit, so it may be helpful to keep the two sides separated during service. All references to the right or left side are from the normal operators' position.

A. Working on the left side first, remove the rear wheel components including the hub cap, wheel nut, wheel, drive sprocket, drive pawl, back plate and spring.







B. Place all of the removed components in the upturned wheel for safe keeping.

C. Now repeat steps A and B with the right side.

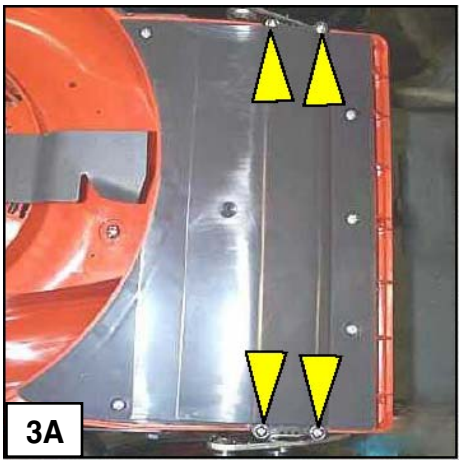
Step 3 - Remove the bottom plate covering the drive system

A. Remove the four 25mm screws (two on each side) closest to the wheels.

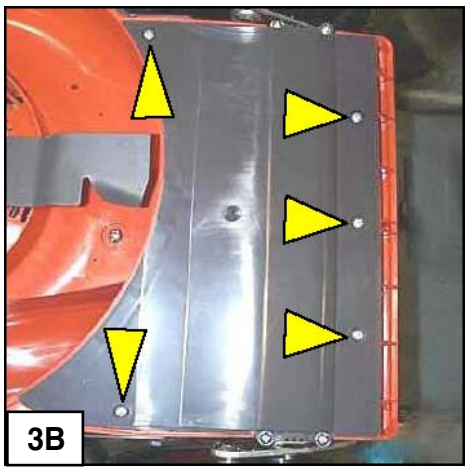
B. Remove the remaining five M6.5x16 screws securing the plate.

C. Remove the bottom plate and set aside along with all of the removed screws.

25mm



M6.5x16



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Step 4 - Remove the variator assembly

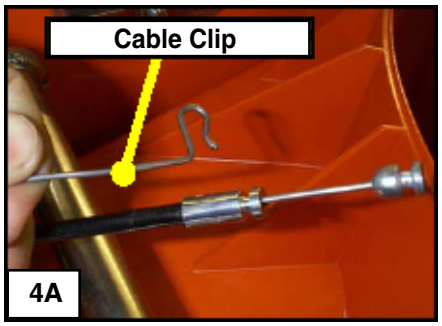
A. Remove the cable clip (that holds the cables away from the axle) from the variator cable, this clip can remain in position on the drive cable.

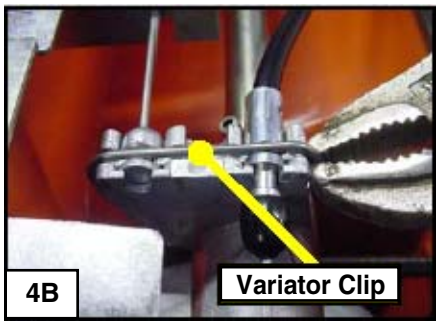
B. Carefully remove the variator clip (that secures the cables onto the variator).

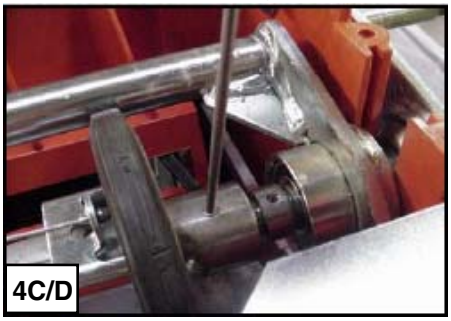
Note - Now you will need to remove the four pins from the shaft. Be careful not to bend the shaft while driving out the pins.

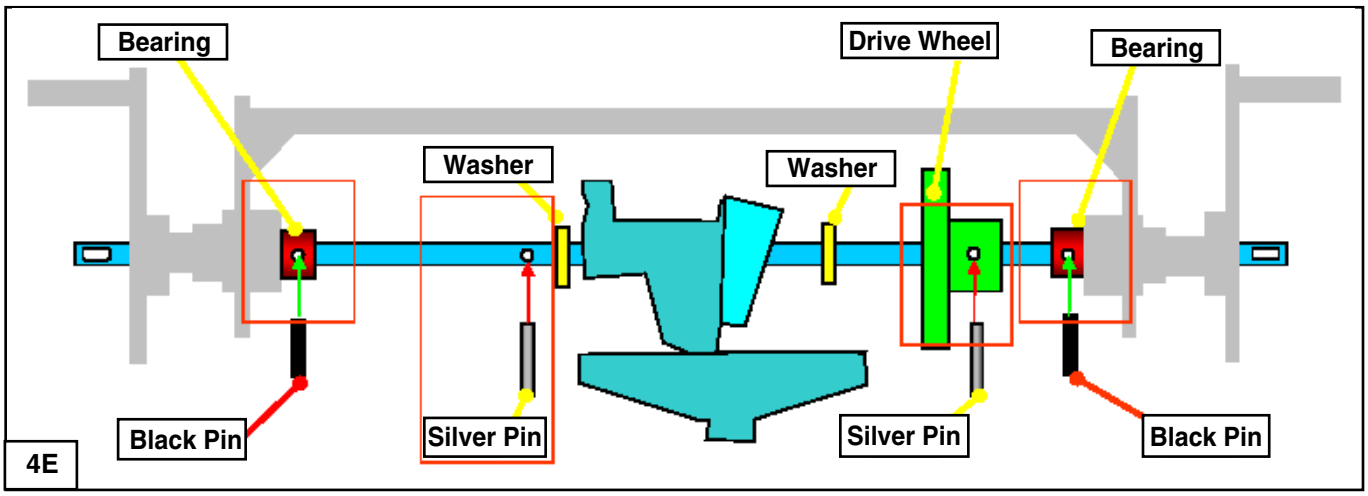
C. Using a 3/32" punch, carefully remove the outer two 3mm black drive pins from the drive shaft.

D. Using a 3/16" punch, carefully remove the first 5mm silver drive pin from the drive disk, then slide the axle across so the final 5mm pin in the center of the axle is supported by the side bearing and drive it out with 3/16" punch. This better supports the shaft and prevents accidental bending of the shaft.

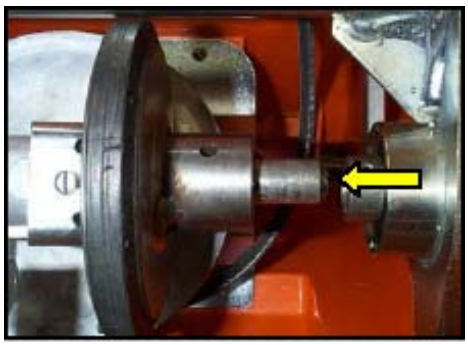


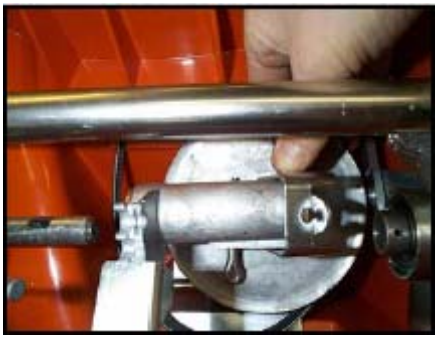






E. The drive shaft is now free to be removed. Carefully, pull the shaft out from one side of the deck while removing the washers, the variator and the rubber drive disk.





F. Set the shaft, the flat washers and the plastic glide bearing from the top of the variator assembly to the side to be reused. The rubber drive disk and the variator assembly can be discarded.

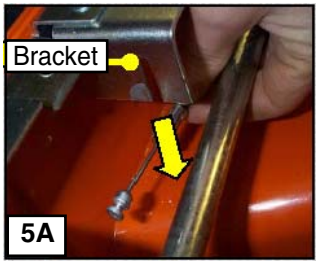
Step 5 - Replace the variator control/ cable assembly

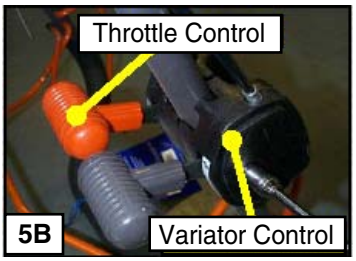
A. Disconnect the variator cable from the deck bracket and pull through deck.

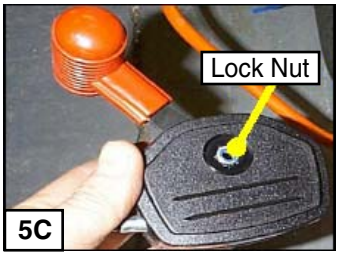
B. Remove the lock nut and bolt securing the variator and throttle controls to the handle. Remove and discard the variator control/ cable assembly.

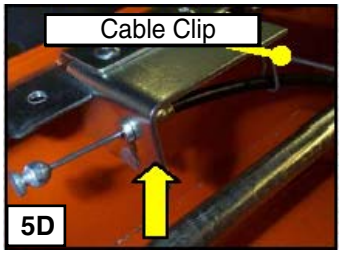
C. Feed the bolt through the new variator control, handle and throttle control and secure with the lock nut.

D. Feed the new variator cable through the deck and reattach it to the deck bracket. Reattach the cable clip.





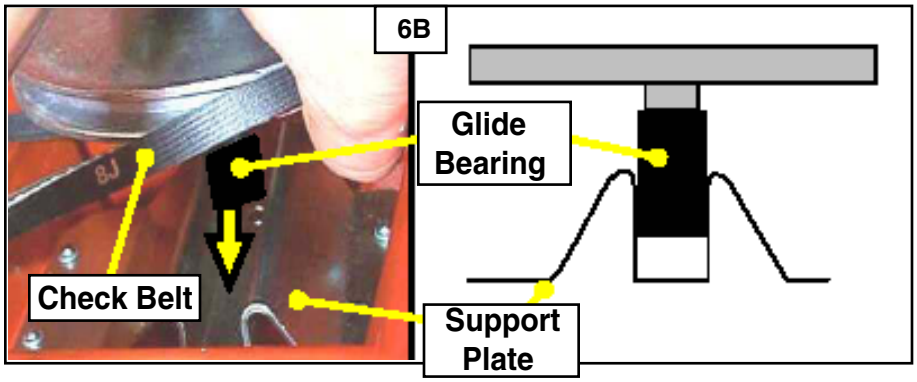




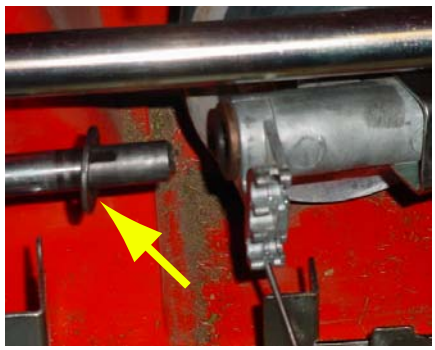
Step 6 - Install the new variator assembly

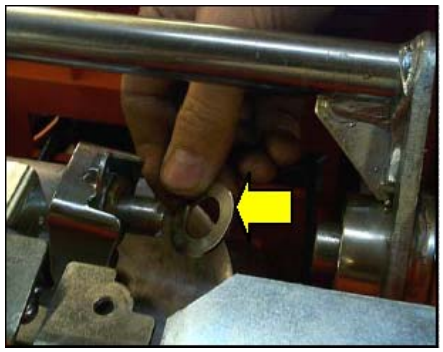
A. Position the drive belt around the support plate.

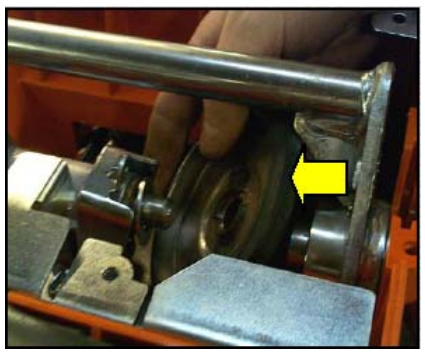
B. Install the old glide bearing onto the new variator assy. Position the new variator assembly into the deck, ensuring that the glide bearing is positioned in the support plate groove. Place the belt around the variator pulley.



C. Reinstall the drive shaft by feeding it through the bearing on the side of the deck. While sliding it through, reinstall the washers, the new variator assembly, and the new drive disk (as shown in the pictures below and in diagram 4E).







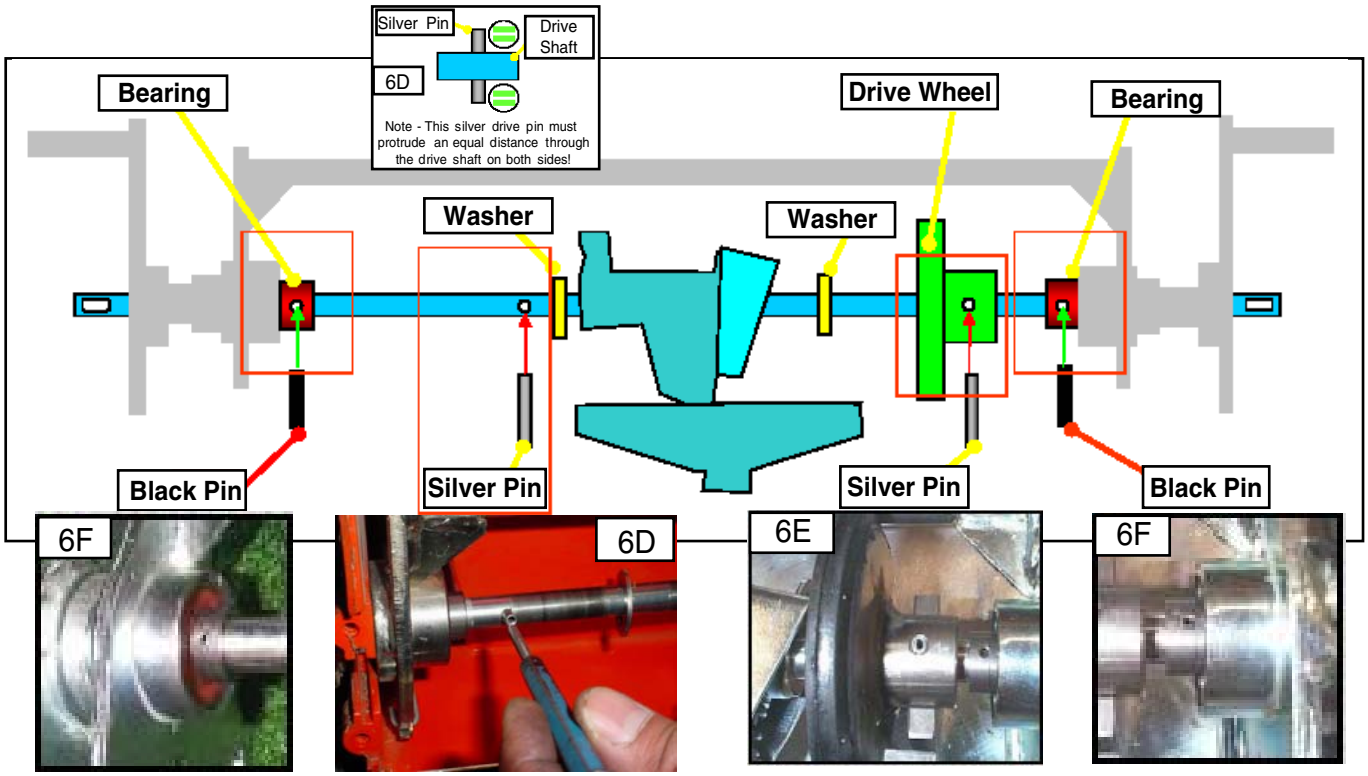
Step 6 (continued) - Install the new variator assembly

Note - Now you will need to reinstall the four drive pins removed earlier. In order to better support the shaft and prevent bending, we recommend installing the center silver pin as described below before you fully insert the drive shaft.

D. With the shaft now partially inserted with the washers, variator assy. and drive disk loosely assembled, position the centermost pin hole beside the side bearing. Using a 3/16" punch, install a 5mm silver pin through the drive shaft. This pin must be driven in so that an equal length extends out on both sides of the drive shaft to hold the washer in position.

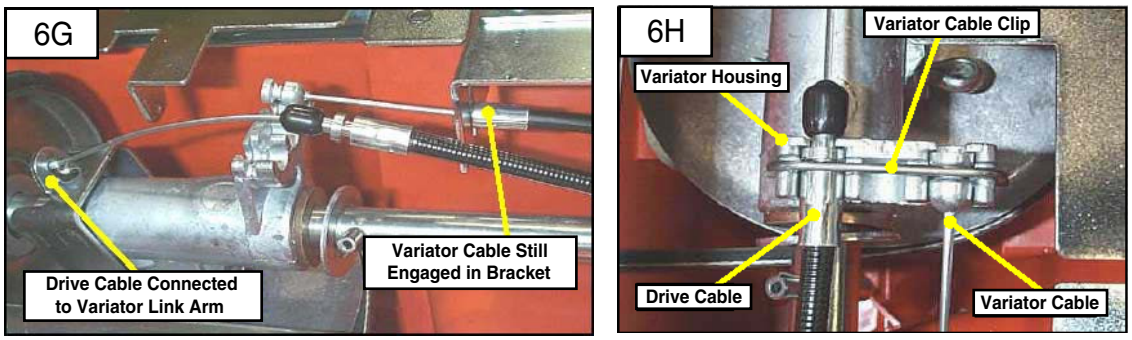
E. Now you can fully insert the drive shaft all the way through to the other side bearing and secure the drive disk by installing the other silver drive pin using the 3/16" punch until it is flush with the bearing.

F. Lastly, position the drive shaft so that the shaft pin holes line up with the bearing pin holes, use a 3/32" punch to install the two 3mm black pins until flush with the bearing.



G. Reconnect the drive cable to the variator link arm. Ensure that the variator cable is still engaged in the bracket.

H. Connect the cables to the variator housing and carefully re-fit the variator clip.



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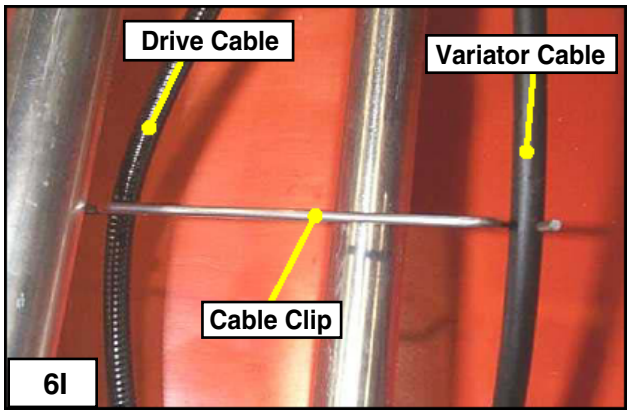
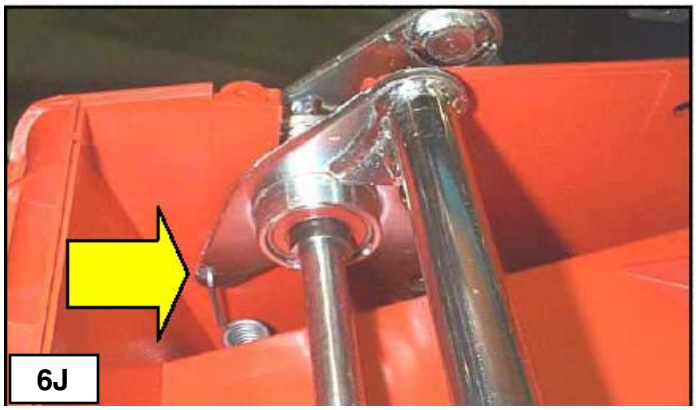
Step 6 (continued) - Install the new variator assembly

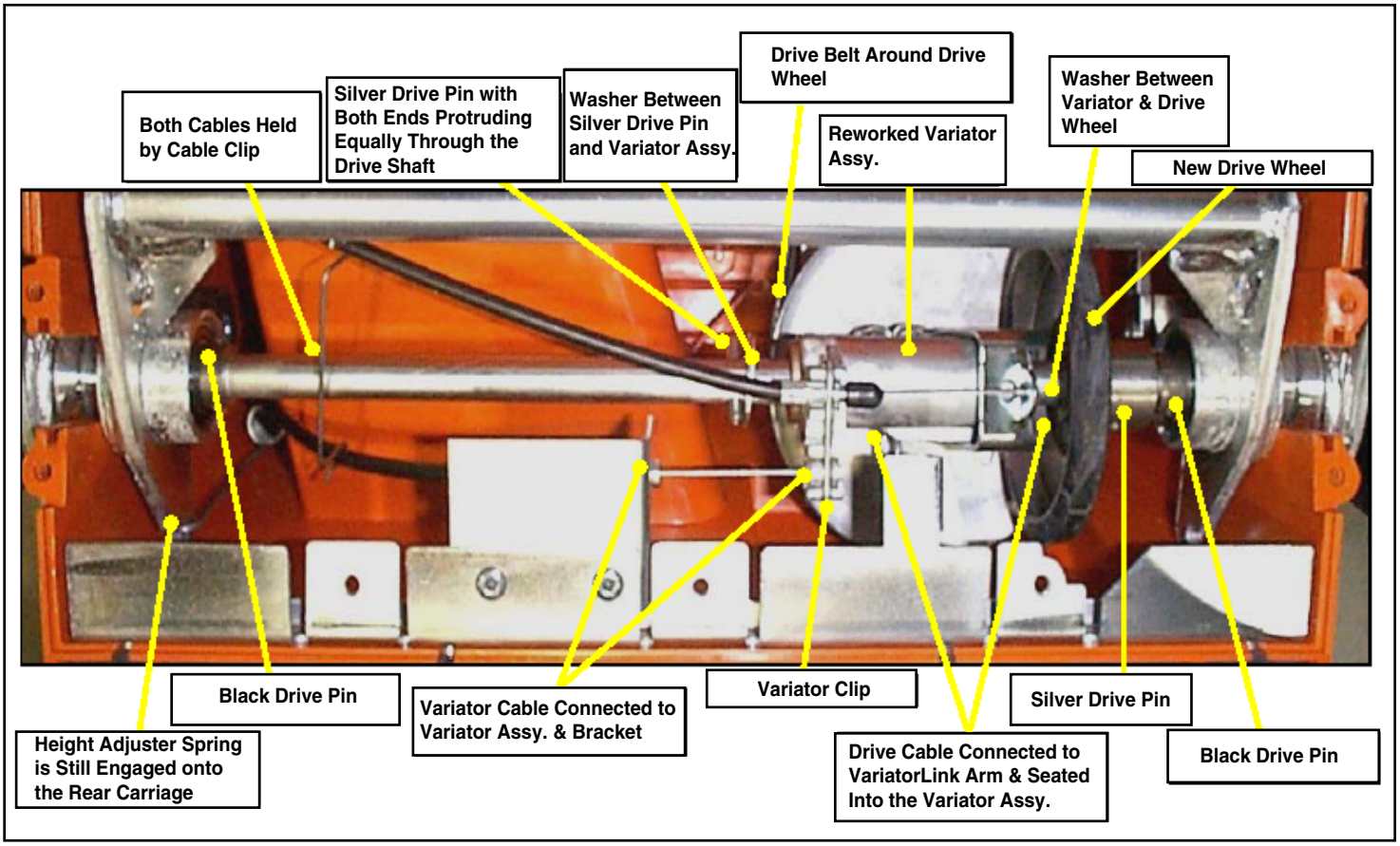
I. Ensure that both the drive and variator cables are still held by the cable clip.

J. Check that the height adjuster spring is still properly attached to the rear carriage.





K. As a final check, compare your machine to the photo below.



Step 7 - Refit the bottom plate.

Note - Refer to Step 3 for screw locations.

A. Install the bottom plate onto the deck and secure it with the four 25mm screws (two on each side) near the wheels.

B. Use the remaining five M6.5x16 screws to finish securing the plate to the deck.

Step 8 - Refit the left rear wheel assembly

Note - The drive sprockets are unique to the left and right side of the unit, so care should be taken to ensure that the sprockets are installed correctly. All references to the right or left side are from the normal operators' position. Refer to Step 2 for photos depicting these components.

A. Fit the left side wheel components first. If the wheel parts have been mixed up, you can identify the drive sprockets by letter codes cast into the side of them. The code on the left side sprocket starts with a letter "V".

B. Refit the spring onto the wheel hub shaft and then reinstall the back plate.

C. Fit the drive pawl through the drive shaft. Be sure that you position the pawl correctly or the unit will not work properly. Re-fit the left-side drive sprocket (code V) and the wheel. To check that you have proper pawl position, rotate the wheel at this time. The wheel should "freewheel" when turned forward and the drive shaft should engage (turning both wheels) when the wheel is rotated backward. If it doesn't, remove the wheel and sprocket, reverse the drive pawl and try again.

D. After you verify that the pawl is installed correctly, install the wheel nut and torque to approx. 25 Nm.

E. Refit the hub cap.

Step 9 - Refit the right rear wheel assembly

Note - Refer to Step 2 for photos depicting these components.

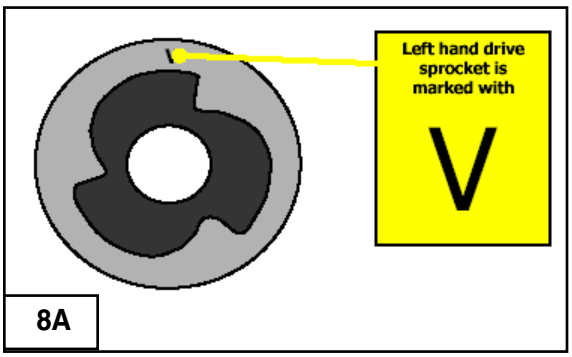
A. Fit the right side wheel components next. If the wheel parts have been mixed up, you can identify the drive sprockets by letter codes cast into the side of them. The code on the right side sprocket starts with a letter "H".

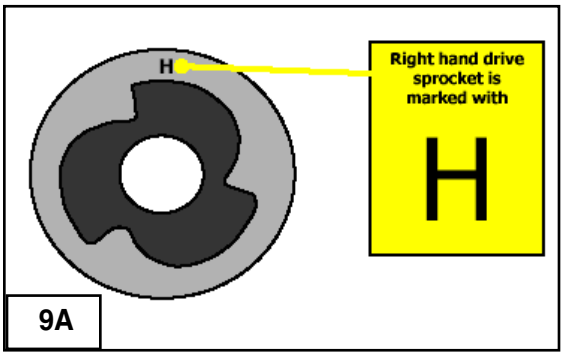
B. Refit the spring onto the wheel hub shaft and then reinstall the back plate.

C. Fit the drive pawl through the drive shaft. Be sure that you position the pawl correctly or the unit will not work properly. Re-fit the right-side drive sprocket (code H) and the wheel. To check that you have proper pawl position, rotate the wheel at this time. The wheel should "freewheel" when turned forward and the drive shaft should engage (turning both wheels) when the wheel is rotated backward. If it doesn't, remove the wheel and sprocket, reverse the drive pawl and try again.

D. After you verify that the pawl is installed correctly, install the wheel nut and torque to approx. 25 Nm.

E. Refit the hub cap.

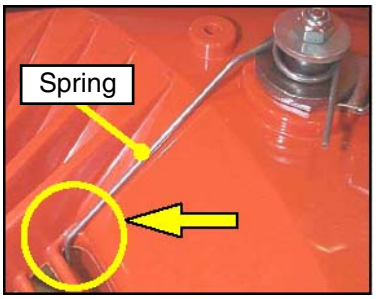


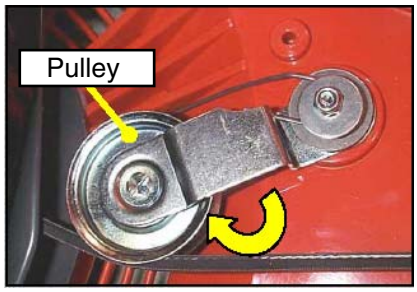


Step 10 - Re-engage the belt tensioner and re-install the drive cover

A. Place the mower back down on all four wheels and unfold the handles to the operating position.

B. Ensure that the arm of the belt tensioner spring is still fitted into the deck. Swing the pulley around (toward the engine) and fit the belt into the pulley.





C. Refit the belt cover with the two M6x60 screws (engine side) and two M4x42 screws (discharge side). *(Review Step 1 for screw locations.)*

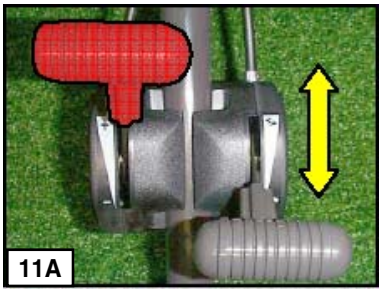
Step 11 - Verify proper variator re-assenbly

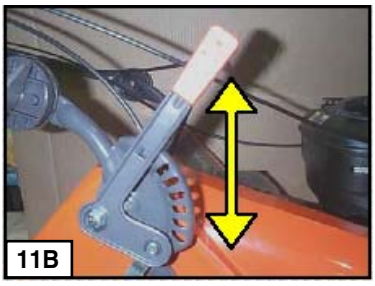
A. Do a final check by ensuring that the variator control knob can be moved through its' entire range.

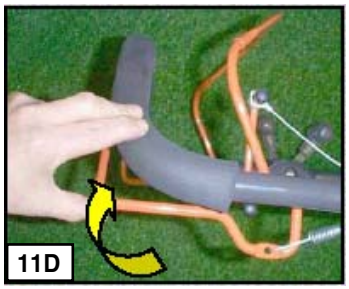
B. Check that the height adjustment lever can be moved through its' entire range.

C. Check, that with no levers depressed, the unit can easily "free wheel" when pulled backwards.

D. Depress the drive bail (lower bail) and try to pull backwards, rear wheels must lock.







E. If the unit passes these tests, the variator rework is nearly complete. Secure the cable to the handle and ensure it doesn't get caught behind the height adjustment lever when the handle is opened out. Don't forget to reattach the spark plug lead and the grass catcher (or mulch plug if equipped).

Step 12 - Powerdrive Cable Adjustment

A. We recommend that you start the unit and verify that the drive system is adjusted properly. If the unit does not engage or drives intermittantly, cable adjustment may be necessary. Follow the Powerdrive Adjustment Instructions that are included with this kit prior to delivery to the customer.

B. Once the Powerdrive adjustment is complete, please insert the Powerdrive Adjustment Instruction sheet into the operator's manual for future reference by the customer, and affix the yellow "Attention" tag to the Powerdrive cable to inform the customer that occational cable adjustment may be necessary to ensure smooth operation.