



ARIENS

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Service Bulletin

Product Family: Ariens Equipment with General Transmission Drives

Subject: Diagnosis and Repair Information Available

Dealer Action: Diagnose Transmissions – Repair Rather Than Replace

Ariens Company would like to make Dealers aware that service videos and manuals are available to help technicians properly diagnose and repair RS800P and RS800F General Transmissions found in the Ariens products listed below.

| Model | Description |
|--------|--|
| 936048 | 42" Tractor, 19.5 HP Briggs & Stratton |
| 936049 | 42" Tractor, 19.5 HP Briggs & Stratton, CARB |
| 936073 | 42" Tractor, 21 HP Briggs & Stratton, Auto |
| 936074 | 42" Tractor, 21 HP Briggs & Stratton, Auto, CARB |
| 936075 | 46" Tractor, 22 HP Briggs & Stratton, Auto |
| 936076 | 42" Tractor, 19 HP Kohler, Auto |
| 936077 | 46" Tractor, 22 HP Kohler, Auto |
| 936083 | 42" Tractor, 19 HP Briggs & Stratton, Auto |
| 936084 | 42" Tractor, 19 HP Briggs & Stratton, Auto, CARB |
| 936085 | 46" Tractor, 20 HP Briggs & Stratton, Auto |
| 936086 | 46" Tractor, 20 HP Kohler, Auto |
| 936089 | 46" Tractor, 20 HP Briggs & Stratton, Auto, Canada |
| 936095 | 46" Tractor, 22 HP Briggs & Stratton |

These available diagnostic and repair resources will help technicians better understand the transmissions and lead to appropriate repair choices rather than replacement.

Video resources, along with service manuals can be found on the Ariens Support site and at the General Transmissions site:

<http://services.generaltransmissions.com/en/home-page.html>

In addition, a Husqvarna publication, titled "RS800 Transmission Inspections" is attached to this service Bulletin.

Training Videos

The following video segments are available to assist in diagnosis and repair.

1. Analyzing a tractor that keeps driving, has a sticking drive pedal or is hard to shift:

<https://www.youtube.com/watch?v=FKH-habvBFg&feature=youtu.be>



2. Replacing the primary pulley:

https://www.youtube.com/watch?v=wXC8Dg_bpk&feature=youtu.be



3. RS800 transaxle teardown:

<https://www.youtube.com/watch?v=grZPhUMnrYE&feature=youtu.be>



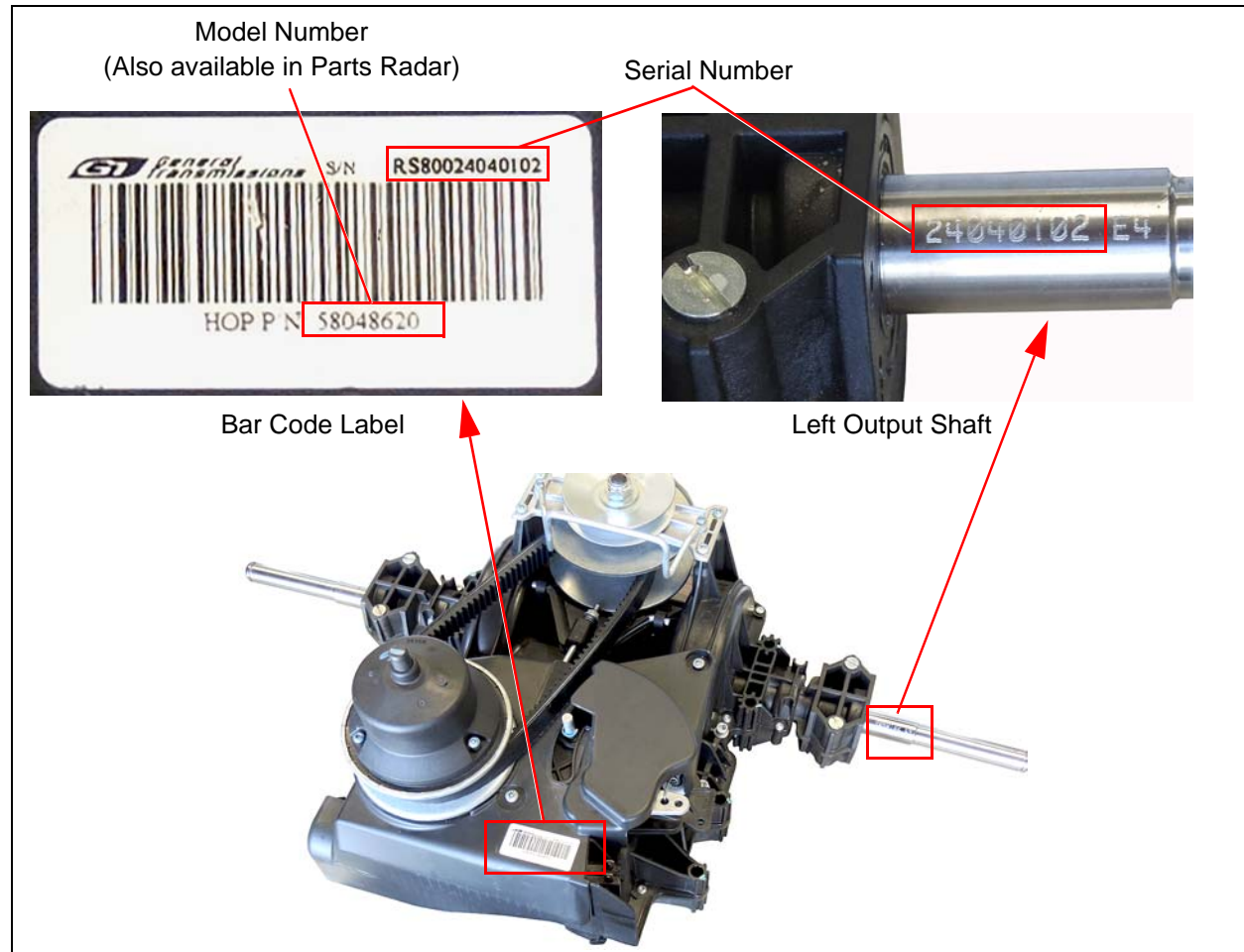
4. List of items to check and do BEFORE replacing a transmission:

<https://www.youtube.com/watch?v=GSTU4FqW4wM&feature=youtu.be>



Identification

The product information number is located in the top right corner of the bar code label on top of the transmission. The same number is engraved on the left output shaft. The model number is found at the bottom of the label.



Filing Warranty Claims

IMPORTANT: Failure to follow proper diagnostic procedures will result in refusal of claim.

Ariens tractors carry a two-year limited warranty, which includes the transmissions. Warranty claims for replacement or repair of General Transmissions used on Ariens products can be filed through Ariens Company.

IMPORTANT: The serial number for the tractor and the General Transmission MUST be included on each claim form for the claim to be processed.

Service parts must be purchased from Ariens Company in order to file a warranty claim with Ariens. If parts are purchased from a supplier other than Ariens, the warranty claim must be filed with that supplier.

For additional information, dealers may visit the Dealer Extranet page on the Internet. Click on the "Dealer Support Portal" button, then click the "Ask a Question" tab to submit a comment or question to the Customer Support team.



**Husqvarna
Group**

RS800 Transmission Inspections

Technician Guide 9/15/2016

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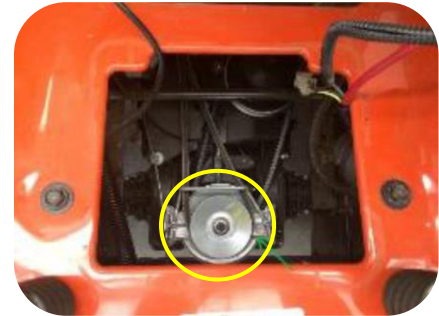
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Primary Variator Pulley, Variator Belt & Secondary Pulley

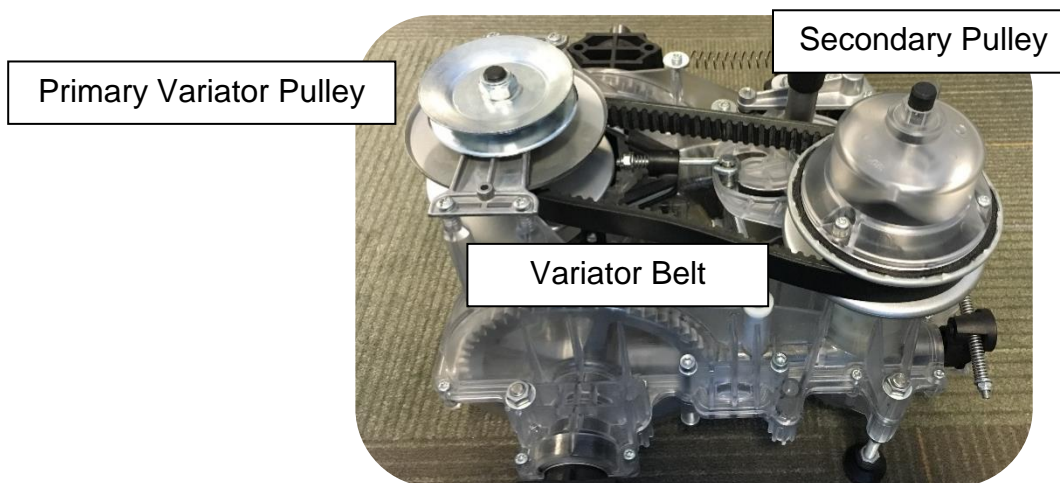
The primary variator pulley is located at the rear end of the transmission just below the tractor seat.

The primary variator pulley is the equivalent of the clutch and torque converter. A pivoting control assembly is used to manipulate the primary variator pulley. When pivoted in one direction, forward motion is selected. When pivoted the opposite way, reverse motion is selected.



It is driven by a belt connected to the engine crankshaft. Based on input from the operator, it powers a wide drive belt called the “variator belt” to provide input power to the transmission.

The secondary pulley is connected to the primary pulley by the variator belt and when turned it provides power into the transmission.



A complete service manual with exploded views of components can be obtained for free by visiting the General Transmissions website at <http://www.generaltransmissions.com/> and clicking on the Service & Parts tab then choosing a manual,

Broken Parts on Top of Transmission

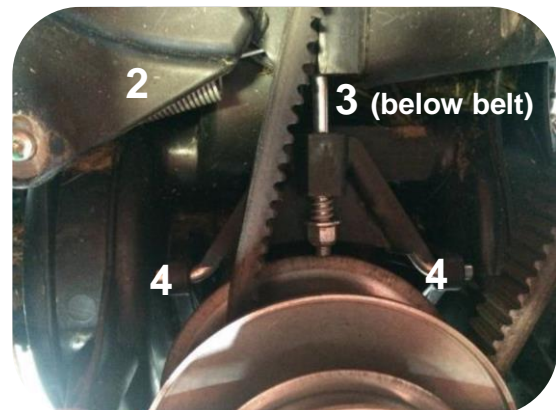
Prior to replacing a transmission, inspections must be performed for any broken or damaged parts, linkages, clips etc.

Many parts can affect traction, torque, speed or neutral setting and failure to inspect these components can result in unnecessary transmission replacement.

Removal of the battery should be done in order to gain as much visual access as possible.

After removing the battery, inspect the following for damage, improper connection or interference from debris:

- 1) Secondary pulley
- 2) Neutral spring
- 3) Shift cam
- 4) Variator levers



Also inspect belts, pulleys, idlers and any linkage for wear or damage.

Sticking of the Pedal – No Return to Neutral

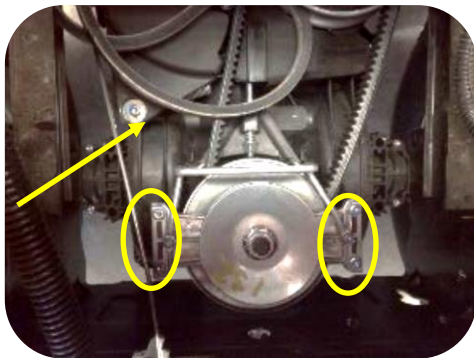
Cause: The most common cause of this symptom is debris accumulation under and around the primary variator pulley. The debris prevents the proper operation of the pivoting control, and the pulley is kept partially engaged rather than returning to a neutral position.

Testing the Primary Variator Pulley for debris accumulation

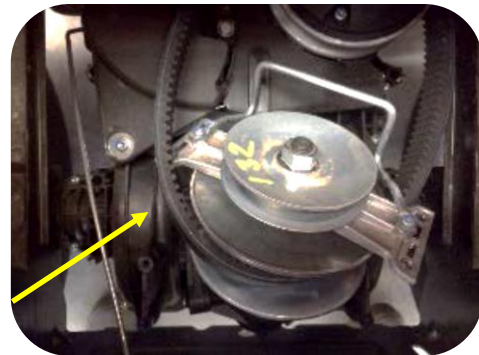
- Engage the tractor parking brake to slacken the drive belt.
- Manually rotate the pulley in a clockwise direction (as viewed from the top of the tractor).
- If the pulley cannot rotate freely, visually check for debris accumulation in the area of the pulley. Debris under the pulley will prevent it from returning to its fully open position and allowing the belt to spin freely around it.

Cleaning debris from the variator pulley:

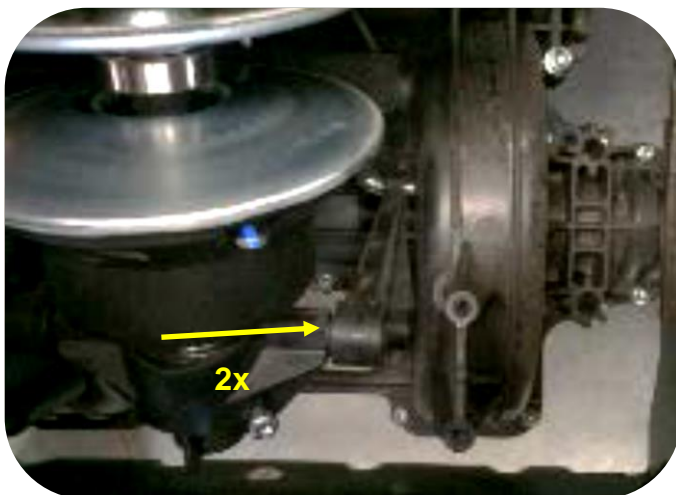
Step 1) Remove the drive belt and 4 screws



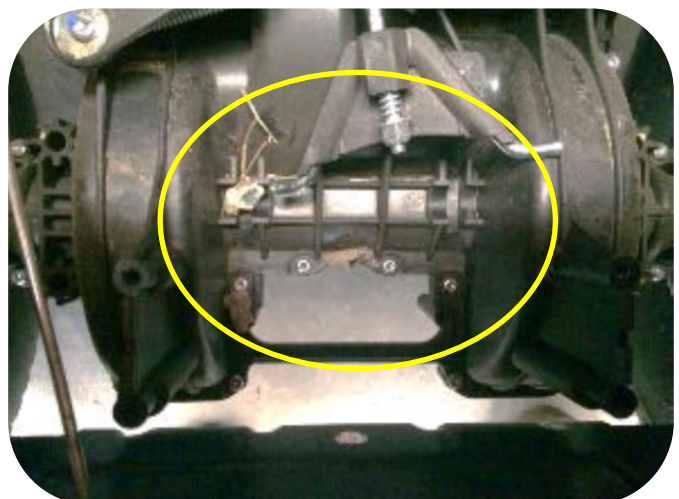
Step 2) Remove the variator belt



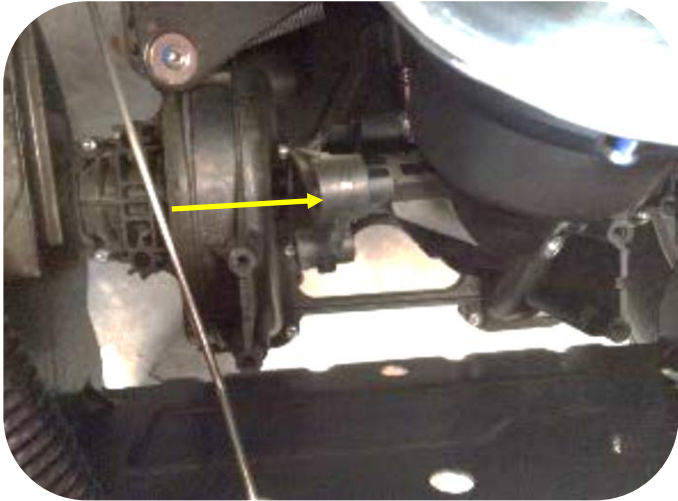
Step 3) Remove both variator levers



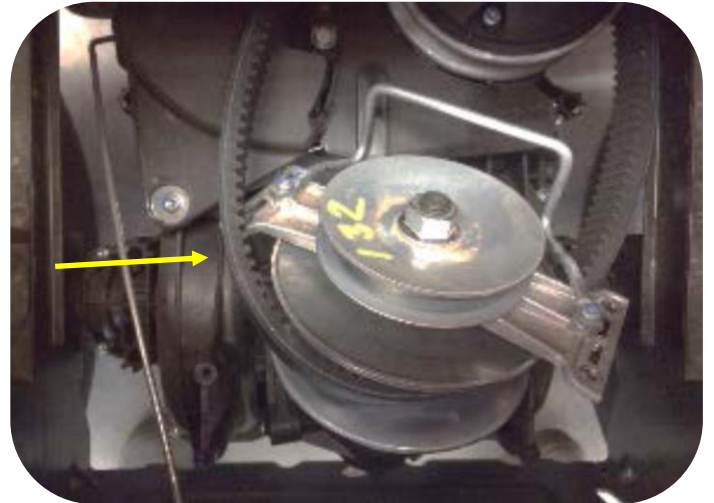
Step 4) Clean debris from area



Step 5) Install variator lever on both sides of the variator pulley



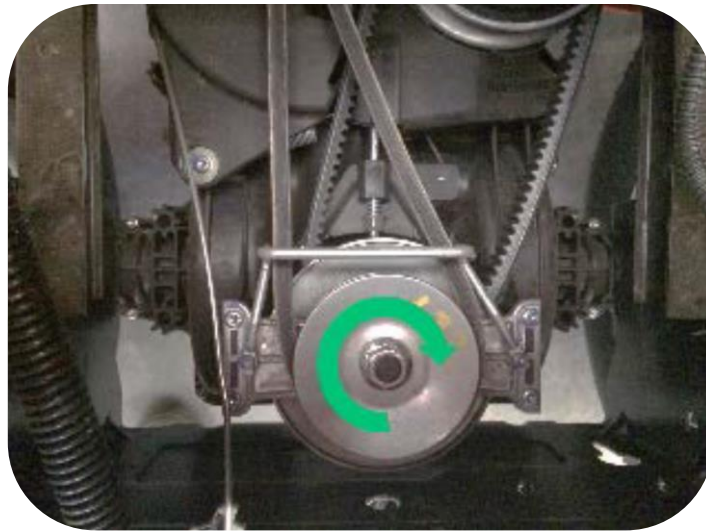
Step 6) Install variator belt in the pulley



Step 7) Install variator pulley and tighten 4 mounting screws. Use Loctite® 454 or similar. Ensure that both variator levers are properly seated in the housing.



Step 8) Ensure variator pulley rotates freely and install drive belt in pulley.



*Replace any damaged parts using service kit: GT78254 (for pedal version), or GT79325 (for fender version)

Difficult Inversion (Difficult Pedal)

Cause: The most common cause of difficult inversion with the pedal is debris accumulation under or around the primary variator pulley.

With the drive belt removed from the primary variator pulley, the primary pulley should rotate freely without driving the variator belt.



If the primary pulley does not rotate freely with the drive belt removed, refer to “Sticking of the pedal – no return to neutral” and check for debris accumulation under the primary variator pulley.

Hard to Freewheel / Hard to Push

Cause: The most common causes of a hard to push tractor when the freewheel bypass rod is activated is either an improper neutral adjustment or a broken brake lever.

*Always verify proper tire pressure when diagnosing a hard to push tractor.

In order to verify proper function of the freewheel feature, the transmission must be in neutral. If the tractor has a gear selector it must be in “N”, and if it is pedal controlled the pedal must be at rest with no pressure applied to it.

Freewheel OFF

The Freewheel or Bypass rod engages or disengages the drive gears. When the lever is pushed in toward the tractor as pictured below, the transmission should function normally.



Freewheel ON

When the rod is pulled (extended) from the rear of the tractor, the drive gears in the transmission are disconnected which allows the tractor to be pushed or pulled as if it were in neutral.

If the tractor is still hard to push with the freewheel bypass rod out, slightly move the lever or foot pedal (depending on type of drive) forward and backward to see if neutral can be selected and the tractor will push. If the tractor pushes easily, shift linkage should be inspected.



Resetting Freewheel (bypass) rod with brake pedal

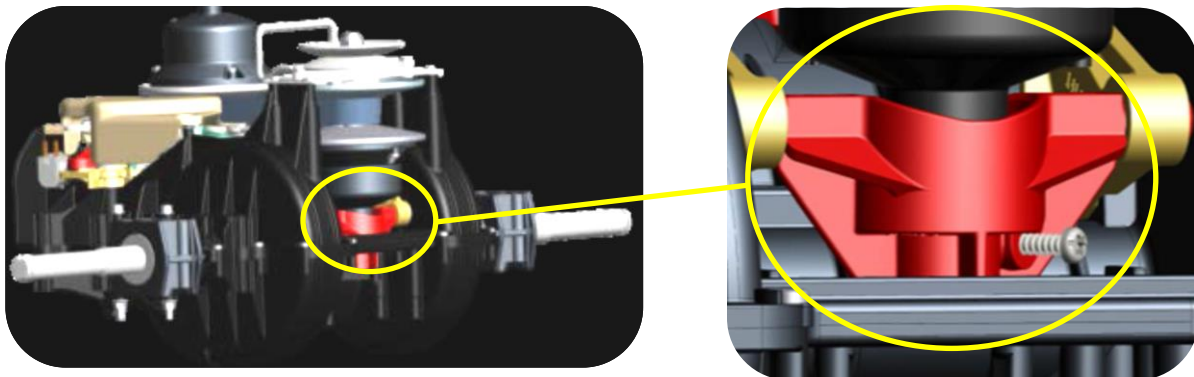
When pressing on the brake so the foot pedal moved fully down, the bypass rod should reset.



If the freewheel rod does not move in toward the tractor and reset when applying the brake, the brake lever (indicated by arrow below) on the transmission must be inspected for damage or interference. Replace any damaged components.



Note: Over-adjustment of the screw pictured below can lead to the tractor creeping in neutral. If this occurs, back out the screw until neutral is re-established.



Loss of Traction, Loss of Torque, Noise

Cause: The most common cause of loss of traction, torque and noise is a damaged primary variator pulley.

The pulley should be checked for signs of damage. Below are pictured a new pulley (left) and a damaged pulley (right)



This inspection can be performed while looking at the rear of the tractor. Pictured below is a view of the primary variator pulley from underneath the rear of the tractor. Replace any damaged components and clean any debris.



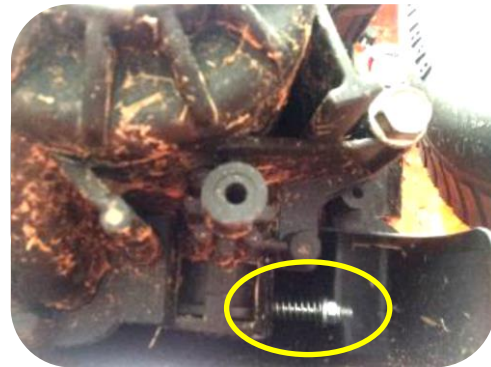
Hard to Select Reverse

Cause: The most common cause of this complaint is the loss of the spring and retaining nut on the inversion rod.

The inversion rod is located on the front of the transmission on the right side of the tractor.



The spring and retaining nut are pictured here.



If the spring and retaining nut are missing, refer to the IPL for needed components; washers may also be needed.

Set distance between spring stops to 63.5mm +/- 0.3mm (2.5" +/- 0.01")



Loss of Forward (Sometimes Including Loss of Reverse)

Cause: The most common cause of loss of forward (sometimes including reverse) motion is the loss of the clip connecting the control rod to the axle.

The pedal may also feel “loose” and have more forward and rearward movement than expected when the rod has become disconnected.



Visually inspect the rod for a secure connection to the transmission. Replace the clip if necessary (refer to IPL as clip is not a GenTrans part), and reconnect the rod.

Rod Connected



Rod Disconnected



Verification of Differential / Confirming Internal Transmission Damage

Cause: The most common cause of the wheels not turning in opposite directions when the transmission is in neutral is a broken or missing keyway at the axle to wheel interface or internal transmission damage.

With the tractor in neutral “N” and rear of the tractor raised off the ground, manually rotate one wheel. The other wheel should rotate in the opposite direction.



If the other wheel does not rotate in the opposite direction, verify keyways in BOTH wheels. If keyways in both wheels are intact, transmission must be replaced.



Verification Transmission Can Provide Forward and Reverse / Confirming Internal Transmission Damage

Cause: An internal failure can cause complete loss of drive.

With the rear of the tractor off the ground and the ***parking brake released and the engine off***, engage the pedal in forward or reverse.



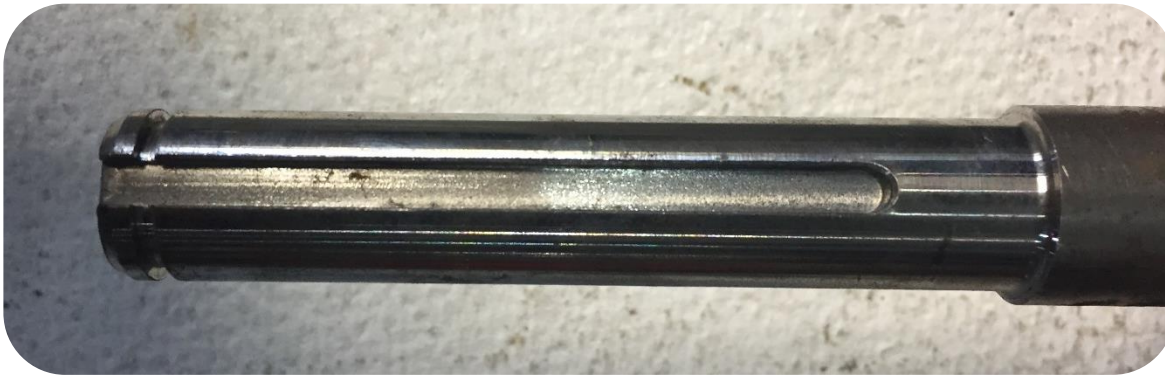
While keeping the tractor engaged in either forward or reverse, manually rotate the secondary pulley. While manually rotating the secondary pulley, the rear wheels should turn. If the wheels do not turn while turning the secondary pulley with the unit in gear, the transmission must be replaced.



PARKING BRAKE MUST BE RELEASED DURING TEST

Reference Photos to be used with Transaxle Analysis Checklist

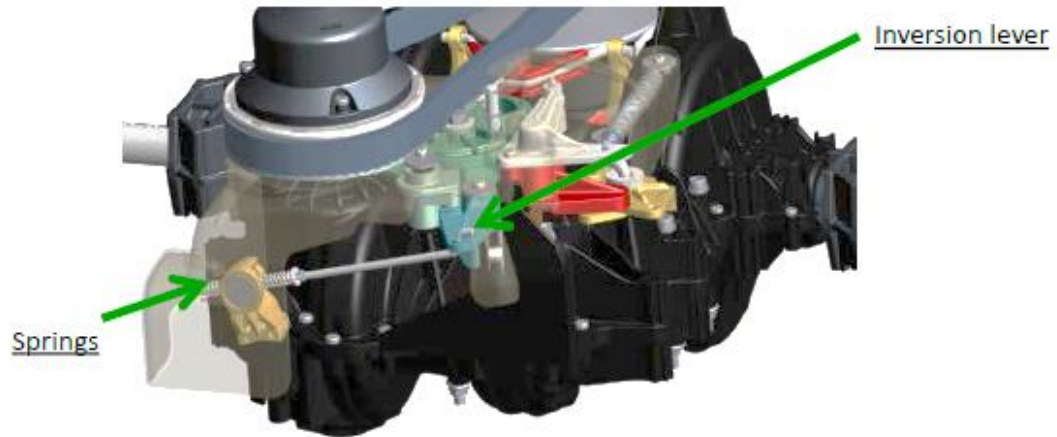
Reference photos VA5: Axle keyway undamaged



Reference photo VA9: Visual damage check of cam and components



Reference photo VA10: Inversion lever location



Reference photo VA11: White lever correct position



Reference photo VA12: Control cam 5mm gap



Reference photo VA13: Metal tab pivots freely

