

**Results:**

- Turn control rod to lengthen or shorten, to obtain specified distance.

**IMPORTANT:** Make sure control rod is centered in ball joint end.

## TRANSMISSION NEUTRAL ADJUSTMENT

**Reason:**

To assure that machine does not creep when pedals are in neutral.

**Equipment:**

- Hoist
- Jackstands (4)

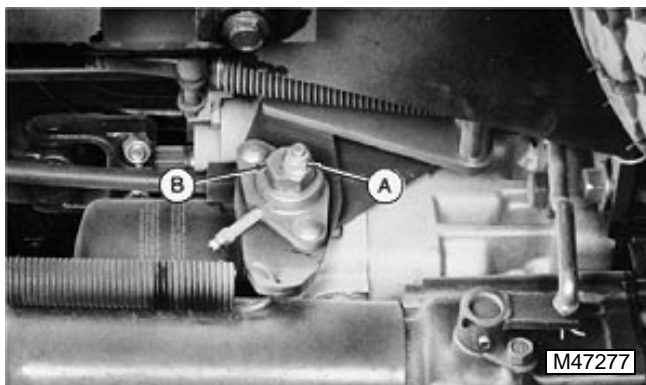
*NOTE: If creep is intermittent, inspect transmission control linkage for wear or damage or neutral return linkage for binding before adjusting transmission neutral.*

**Procedure:**

### CAUTION

When servicing a MRWD equipped vehicle with front wheels supported off ground and engine running, always support rear wheels in a similar manner. The MRWD is always engaged and will push vehicle off supports if wheels are not raised.

1. Lift machine with a hoist and support both front and rear wheels off the ground.
2. Put jackstands under frame and rear axle.



3. Loosen lock nut (A).

**Procedure continued:**

### CAUTION

Use extreme caution when doing this adjustment. Drive wheels are free to spin.

4. Have someone push down center of seat cushion to activate seat safety switch, or use a jumper wire to bypass the seat switch.
5. Start engine and run at low idle. Put transaxle in Hi range.
6. With brakes disengaged, turn eccentric nut (B) forward and backward until drive wheels stop turning.

*NOTE: Eccentric nut must be positioned rearward and eccentric positioned forward for correct adjustment.*

7. Hold adjustment and tighten lock nut (A). Make sure adjustment did not change.
8. Put transaxle shift lever in neutral. Depress both forward and reverse speed pedals then release.
9. Put transaxle in Hi range. Check neutral adjustment. Repeat adjustment as necessary.



### CAUTION

Remove jumper wire from seat switch if installed.

10. Lower machine to the ground. Remove seat switch jumper wire if used.

**Results:**

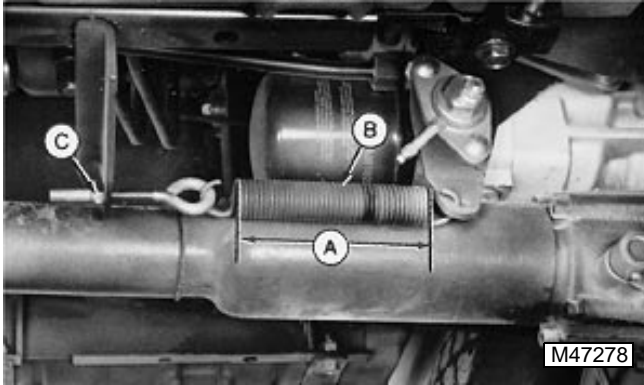
- If drive wheels continue to turn, check for worn or binding neutral return linkage or too light of tension on neutral return spring. Check neutral return adjustment.

## TRANSMISSION NEUTRAL RETURN ADJUSTMENT

### Reason:

To assure that the transmission always returns to neutral at the desired rate when the pedals are released.

### Procedure:



1. With machine in neutral, check that dimension (A) ACROSS THE COILS ONLY on the neutral return spring (B) is 133 mm (5.24 in.). DO NOT allow spring coil length to drop below 120 mm (4.72 in.).

*NOTE: This dimension is only an initial setting. Length may vary with operator preference.*

2. Start engine at fast idle and operate speed controls.

### Results:

**IMPORTANT: If linkage is too loose, speed control pedals may not return to neutral.**

- If transmission does not return to neutral or returns too slowly, tighten nut (C) to increase tension on return linkage.
- If transmission returns to neutral too fast, loosen nut (C) to decrease tension on return linkage. Repeat test several times to make sure transmission will return to neutral.

## CRUISE CONTROL LINKAGE ADJUSTMENT

### Reason:

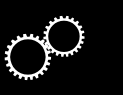
To assure that cruise control will engage and disengage properly.

### Procedure:

1. Put service-park brake in disengaged position, transaxle in neutral.
2. With engine not running, push down forward drive pedal and engage cruise control. Drive pedal should remain in down position.
3. Engage service-park brake. Forward drive pedal should disengage.

### Results:

- If cruise control slips or does not engage, disconnect link (A) and turn clockwise as necessary for a smooth engagement.



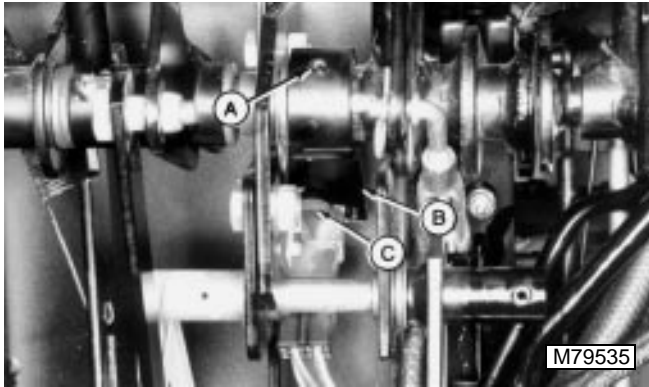
- If drive pedal sticks or does not disengage when service-park brake is engaged, disconnect link (A) and turn counterclockwise as necessary for smooth disengagement.

## SERVICE—PARK BRAKE SWITCH ADJUSTMENT

### Reason:

To make sure switch plunger is being completely depressed and that lever is not resting against switch body.

**Procedure:**



1. With service-park brake pedal disengaged, stop (B) should depress switch plunger (C).

**Results:**

- If switch is not depressed, loosen set screw (A) and move stop against switch so plunger is all the way in but not against the switch housing. Tighten set screw.

**HYDROSTATIC TRANSMISSION REPAIR**

**SERVICE EQUIPMENT AND TOOLS**

*NOTE: Order tools from the U.S. SERVICE-GARD Catalog or from the European Microfiche Tool Catalog (MTC). Some tools may be available from a local supplier.*

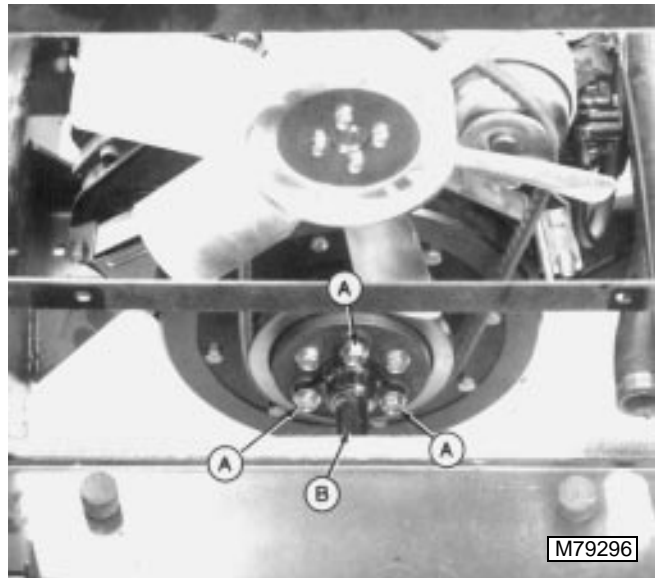
Name	Use
Bushing, Bearing, and Seal Driver Set	To service bearings and seals.
Internal, 2-Jaw Slide Hammer Puller	To remove bearings.
Knife-Edge Puller	To remove bearings.
Hydraulic Press	To service bearings.
Snap Ring Pliers Set	To remove snap rings.
Overhead Hoist	To remove hydro-static transmission.
#8 - 32 x 1 UNC-28 Cap Screw	To remove hydro motor bearings retaining pin.

**SERVICE PARTS KITS**

The following kits are available through your parts catalog:

- Charge Relief Valve Shim Pack Kit
- Implement Relief Valve Shim Pack Kit

**REMOVE DRIVE SHAFT—HYDROSTATIC TRANSMISSION**



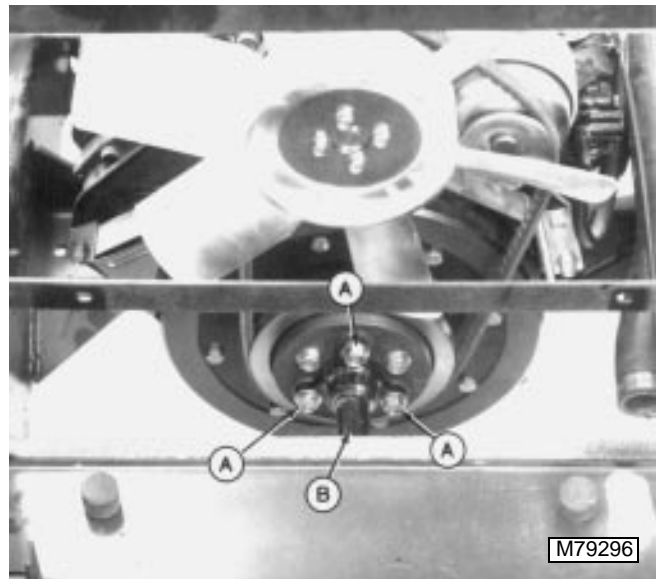
1. Remove three cap screws (A) from drive shaft (B) at engine coupler.



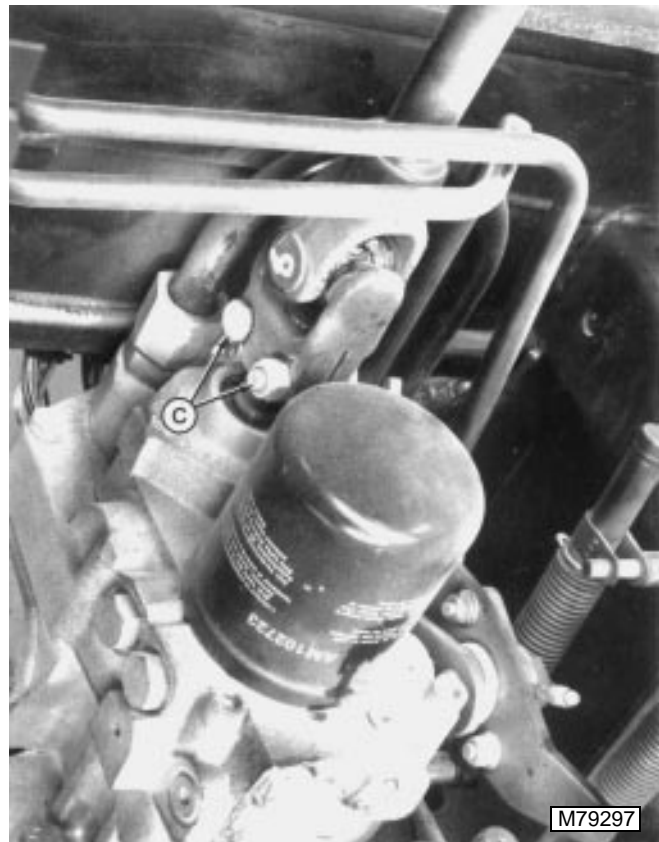
2. Loosen two cap screws and nuts (C).
3. Push driveshaft (B) forward on charge pump input shaft to separate the shaft from the recess of the engine coupler.
4. Remove driveshaft from charger pump input shaft.

### INSTALL DRIVE SHAFT— HYDROSTATIC TRANSMISSION

1. Put drive shaft on transmission charge pump input shaft.
2. Install other end of drive shaft into recess of engine coupler. Align shaft mounting holes with coupler holes as you install drive shaft.



3. Fasten drive shaft (B) to engine with three long cap screws (A). Tighten cap screws to **49 N·m (36 lb-ft)**.



4. Fasten other end of drive shaft to charge pump input shaft with cap screws and nuts (C). Install cap screws from opposite directions to help maintain balance. Tighten to **60 N·m (45 lb-ft)**.

### REMOVE AND INSTALL DRIVE SHAFT—MECHANICAL REAR WHEEL DRIVE (MRWD)

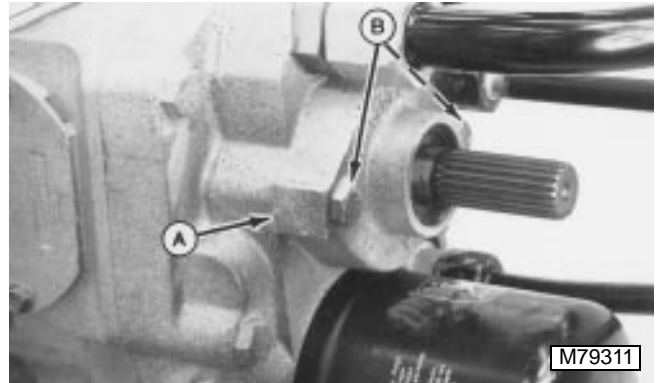


1. Loosen clamps. Slide front and rear covers away from universal joints.

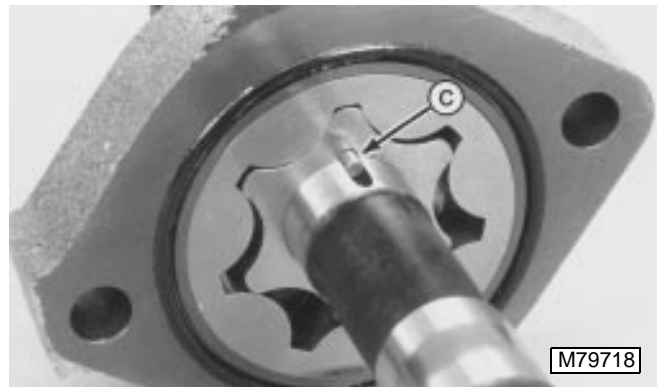


2. Drive pin out of front universal joint to remove shaft.
3. To install, align pin holes of drive shaft front U-joint and MRWD input shaft as you slide the shaft into position.
4. Fasten with spring pin removed earlier.
5. Fasten front cover in place with band clamps.
6. Fasten rear U-joint to drive shaft to transaxle output shaft.
7. Fasten rear cover in places with band clamps.

### REMOVE AND INSTALL HYDROSTATIC TRANSMISSION CHARGE PUMP



**IMPORTANT:** Orientation of charge pump - flat surface (A) on charge pump housing must be on left-hand side of the transmission. If turned 180° to the opposite side, pump will not function - no charge pressure will be generated.



**IMPORTANT:** DO NOT lose small round key (C) that drives the inner gear of the charge pump. It may fall out when you remove the charge pump assembly from the input shaft.

1. Remove two cap screws (B) to remove charge pump. Look to see if small round key (C) is still in keyway of input shaft.
2. Remove round key (C). Inspect key and input shaft for damage or wear. Replace if necessary.
3. Inspect machined surfaces of charge pump and transmission center section for severe scoring. If scoring is noted, replace charge pump and center section.
4. Clean and dry all parts. Machined surfaces must be clean and smooth.
5. Apply clean transmission oil on all internal parts.
6. Apply petroleum jelly to round key (C) and input shaft keyway to hold key in place during installation of charge pump.

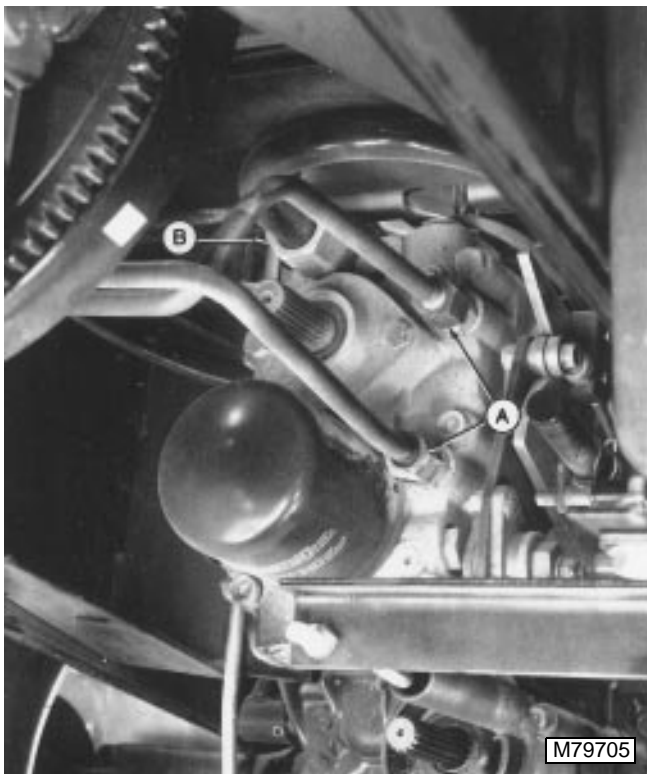
7. Be sure pump O-ring is seated in its groove.
8. Install charge pump on transmission with flat surface (A) on left-hand side. Tighten two cap screws (B) to **37—50 N·m (27—37 lb-ft)**.

## REMOVE HYDROSTATIC TRANSMISSION

*NOTE: Use shop cloths or paper towels to catch and clean-up any spilled oil immediately. Cap-off or plug all ports and lines.*

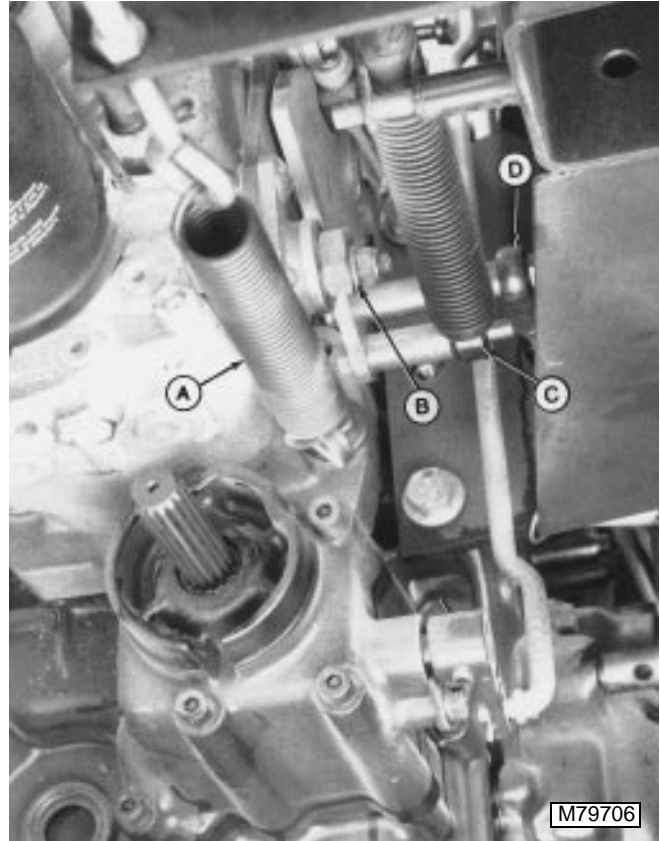


1. Remove plug (A) to drain transaxle. Plug is located under the operator's station at the front of the unit. Oil capacity is approximately **17 L (4.5 gal)**.
2. Remove drive shaft, see REMOVE DRIVE SHAFT—HYDROSTATIC TRANSMISSION earlier in this section.

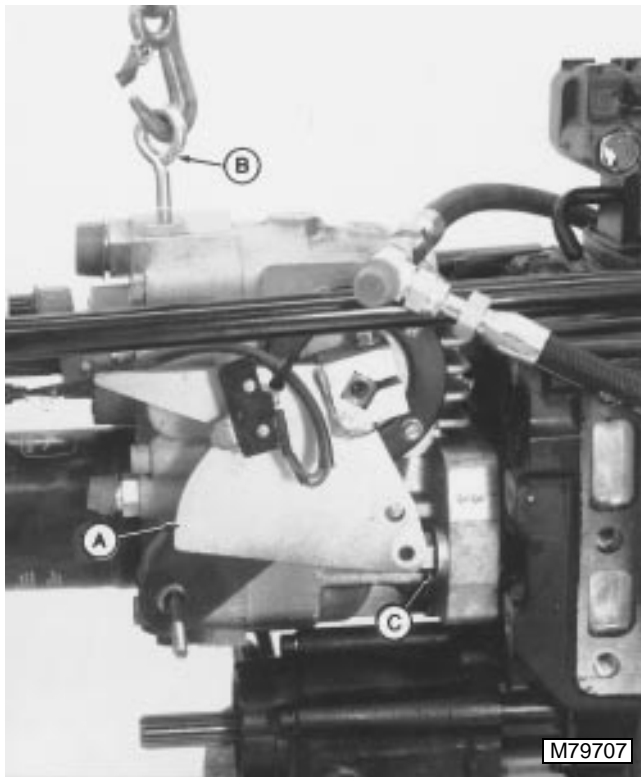


3. Remove oil cooler lines (A). Lines are located below the radiator area.

4. Disconnect suction line (B).



5. Disconnect neutral return spring (A).
6. Remove eccentric/cam follower assembly (B) from carriage bolt of mounting bracket.
7. Disconnect neutral return dampener linkage (C).
8. Disconnect foot control rod (D).



*NOTE: Transaxle removed for clarity purposes only.*

9. Remove swashplate bracket (A).
10. Install eyebolt (B) in threaded hole on top of hydro and attach overhead hoist. Take the slack out of the chain.
11. Have a clean oil pan and shop cloth ready to catch and clean-up any oil.
12. Remove cap screw and flat washer (C) from each side.
13. Separate the transmission from the transaxle. Clean-up and spilled oil immediately. Thoroughly clean outside surface of transmission using wire brush and solvent.
14. Move transmission to a workbench and put it in a clean oil pan.
15. Remove oil filter and wipe-up any spilled oil.



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