Reverse Complaints

This bulletin should simplify some of the diagnosis associated with reverse complaints, including parts identification and clearance checking your assembly.

**Diagnosis and Road testing:**
The diagnosis should begin with a thorough road test. During the course of the road test pay attention to these two specific modes of transmission operation:

- **#1** How's the 2-3 shift? Is there any slippage under heavy load? If so, the reverse complaint may be associated to the 3rd/Reverse clutch (direct clutch).

- **#2** Compression or coast braking in the manual low position/range. Perform this test: Put the lever in D4 or D3 and get the vehicle going about 25mph, lift foot off the accelerator pedal then pull the selector lever back to manual low/1st gear. When the computer commands 1st gear there should be a strong hold back or deacceleration feeling from the engines compression. If there's no hold back during the coast braking this indicates the complaint is associated to the reverse/low band & components.

**Pressure testing:**
We strongly recommend taking Line Pressure readings when diagnosing transmission problems, especially a slipping or no reverse concern. To perform the line pressure tests an analog dial type gauge 0-350 or 400psi is required. An alternative type of gauge is a DVOM or scope with a pressure transducer.

**Pressure specs:**
Drive range @ idle 42-65psi, Max 165-185psi. Reverse @ idle 120-125psi Max 280-305psi.

**Basic band, drum and servo clearance procedure:**
In the vehicle or on the bench a quick check of the drum and band clearance is to forcefully push the Reverse/Low servo pin only into the case bore until it bottoms out holding the band snug against drum. There should be a minimum of about (1/16 inch .060 to 1/8 inch .125) of the servo pin spring seat (shoulder) protruding above the pin bore in the case. If the spring seat on the servo pin sinks below the top of the case into the pin bore there's a problem with the drum or reverse band indicating the need for internal repairs. This check will tell you if the band clearances are within range or not. If out of range it will NOT tell you whether the band lining is burnt or worn or if the band anchor is broken. This deteriorated condition may allow for an engagement into reverse but it will slip with throttle because the band simply can't grab the drum properly.
Specifications and differences between early and late design reverse and low parts:

Early Pre 96 drum (reaction carrier) with grooved surface and band with grooved lining no longer sold only available as used parts. As a set they replace each other-early or late.

Late 96-Up drum (reaction carrier) with smooth surface and band with smooth lining—sold as new parts to replace both early and late model parts from GM. As a set they replace each other “early or late”.

Notice: Check the reverse low band anchor areas for cracks and wear. Check the inside lining in these areas also, this is usually where linings start to get into trouble. Check the (2) anchor pins in case area below, they are notorious for moving outward especially on earlier units.

Refinished drums (reaction carrier) that are undersize in the aftermarket are common, check actual size.

The reverse low band should simply be physically inspected as noted above. If reverse low band is in doubt, replace with a new band.
Quick Tips:
• If the trans is experiencing a harsh reverse engagement you can try to correct it by reducing the servo travel with a longer servo pin. If a longer pin is installed and now there’s a bind on the 1-2 shift or in the man 2 position the band is now set too tight. The pin needs to be shorter. Note: If the direct clutch wave plate was left out a harsh reverse will be the end result.
• If a vehicle continues to break the 96-Up late style reverse low servo piston check the max reverse pressure. If it exceeds 325psi this can lead to failed reverse components. Suspect a worn EPC boost bushing when max reverse pressure is too high. Installing the early Pre 96 type reverse servo assembly can reduce servo problems when max reverse pressure is within spec.
• Some extreme usage vehicles, snow plows etc., may need a higher max pressure in reverse to keep the band from failing. If you have one these special situations give one of our techs a call.
• Need an adjustable/longer servo pin for the Pre 96 early style reverse low servo? Order TransGo part number 400-RK. We are being told the early OEM factory servo pins are getting difficult to find and are no longer offered by GM.

Final note:
• If the direct clutch passes the road test, no slipping in 3rd and engine braking in low is functioning and there are no apparent line pressure problems, remove the valve body and check the center support bolt with a 12" ratchet. This is a high interference bolt, it may seem tight when the bolt has not bottomed out, this creates a leak in the direct circuit. When the bolt is not fully tightened there is no slippage in 3rd due to the reduced load on the direct clutch at higher road speeds and excessive pump volume.

Early Pre 96 servo pin
- 3.468" - 3.474"
- 3.356" - 3.362"

Late 96-Up servo pin
- 3.440" - 3.446"
- 3.412" - 3.418"

Measure servo pins from the points shown above within the arrows or compare to GM chart to the right. There is a .174 difference from the shortest to the longest size. The most common pin is the "(2) two thin rings" version that measures 3.356 to 3.362.