



# Technical Service Information

## NISSAN RE5R05A 1-2 SHIFT SHUDDER

**COMPLAINT:** Before or after overhaul, vehicles equipped with the RE5R05A may exhibit a 1-2 shift shudder. It also may be noted that the direct clutch during inspection slightly discolored friction plates, but the clutch is not destroyed.

**CAUSE:** The cause may be, the upper sealing ring on the drum support, as shown in Figure 1, has excessive clearance in the ring land, causing a leak into the lube circuit, which can create a slow application of the Direct Clutch. **Explanation:** There are two chambers in the Direct Clutch, a large and small. Notice in the application chart, in Figure 2, that during the 1-2 upshift both the large and small chambers are filled, and the large chamber is released when an upshift to 4th occurs, thru the Direct Clutch Piston Switch Valve, as shown in the theory of operation partial circuit diagrams in Figures 3 and 4. Refer to Figure 5 and note that the top sealing ring separates the Direct Clutch Large chamber from the lube circuit which is part of the Cancel circuit on the spring side of the Direct Clutch Piston. A leak in the top sealing ring may allow Direct Clutch Large chamber pressure to enter the lube circuit/cancel circuit slowing down the piston apply and causing a shudder during the 1-2 upshift.

**CORRECTION:** To correct this condition, inspect the sealing ring to ring land clearance as shown in Figure 1 after a new set of rings have been installed. If the clearance exceeds .005" replace the drum support. Note: Measure all three rings in their ring lands and compare the readings, as they should be the same. Refer to Figure 6 and ensure the piston seals are new and the Direct Drum is assembled correctly.

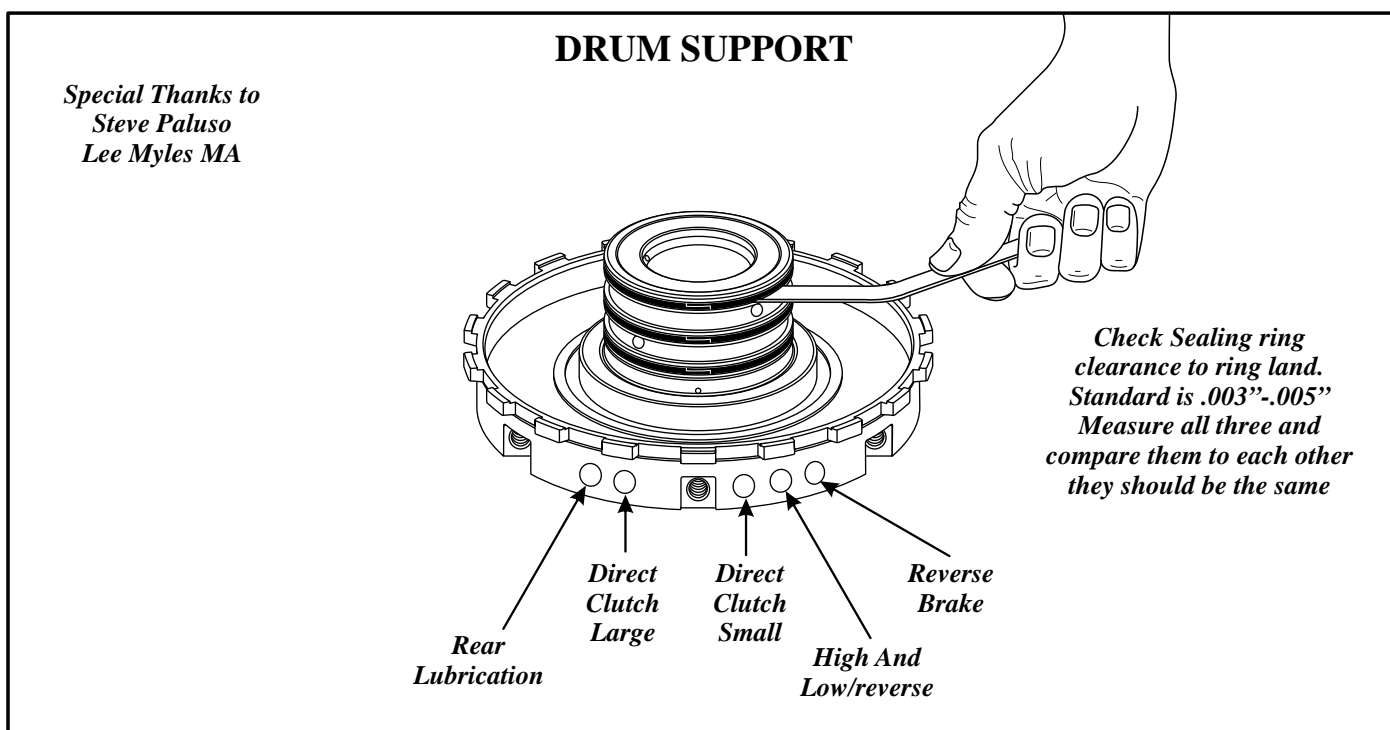


Figure 1



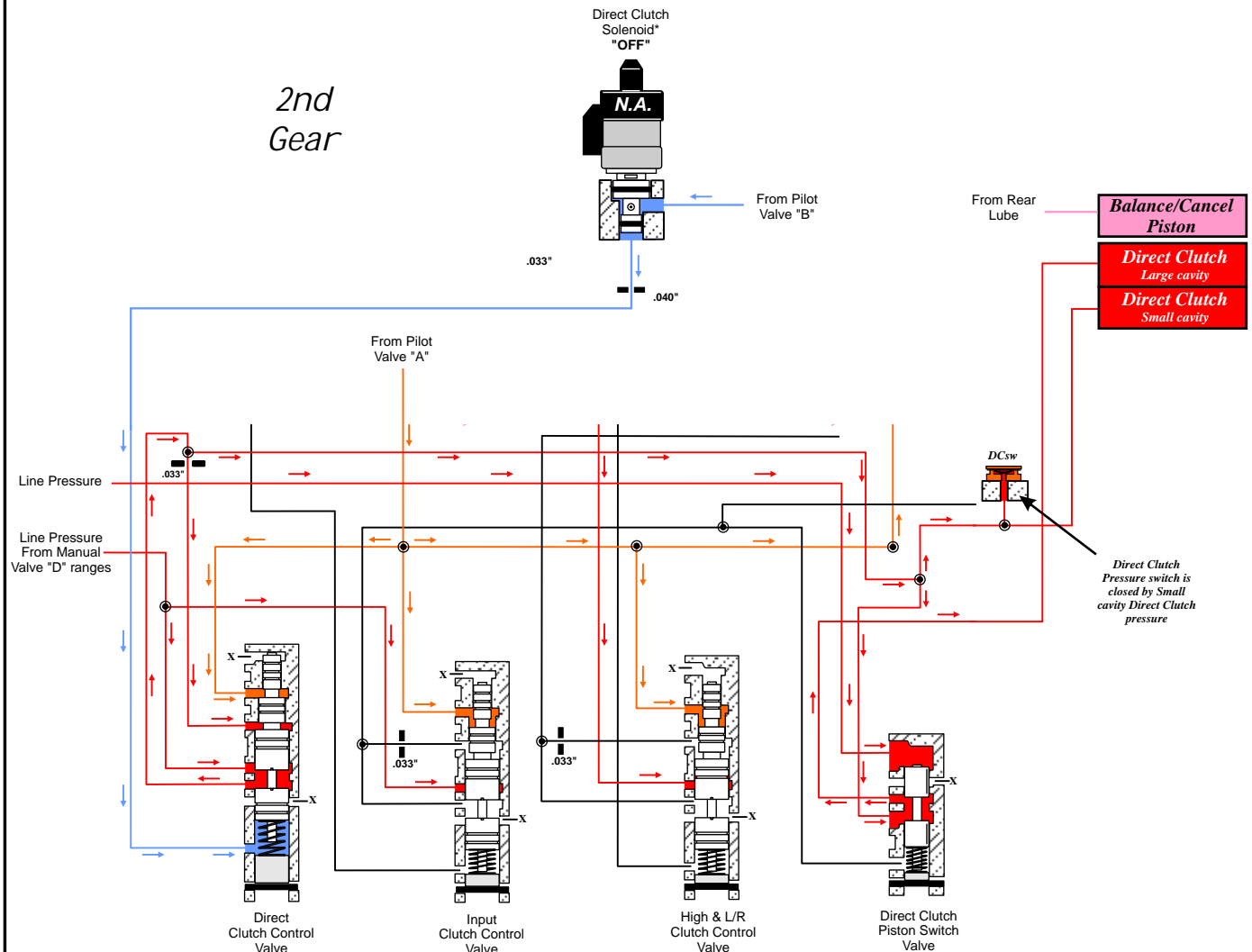
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## COMPONENT APPLICATION CHART

Range	High/Low Reverse Clutch	Direct Clutch		Input Clutch	Reverse Brake Clutch	Front Brake Band	Forward Brake Clutch	Low Coast Brake Clutch	1st Sprag	Forward Sprag	3rd Sprag	Gear Ratio
		Large	Small									
<i>P</i>	<b>**ON</b>					<b>**ON</b>						
<i>R</i>	<i>ON</i>				<i>ON</i>	<i>ON</i>			<i>Hold</i>		<i>Hold</i>	2.613
<i>N</i>	<b>**ON</b>					<b>**ON</b>						
<i>"D"-1st</i>	<i>ON</i>					<b>**ON</b>	<i>ON</i>	<i>*ON</i>	<i>Hold</i>	<i>Hold</i>	<i>Hold</i>	3.827
<i>"D"-2nd</i>		<i>ON</i>	<i>ON</i>			<b>**ON</b>	<i>ON</i>			<i>Hold</i>	<i>Hold</i>	2.368
<i>"D"-3rd</i>	<i>ON</i>	<i>ON</i>	<i>ON</i>			<i>ON</i>	<b>**ON</b>		<i>*Hold</i>		<i>Hold</i>	1.520
<i>"D"-4th</i>	<i>ON</i>		<i>ON</i>	<i>ON</i>			<b>**ON</b>		<i>*Hold</i>			1.000
<i>"D"-5th</i>	<i>ON</i>			<i>ON</i>		<i>ON</i>	<b>**ON</b>		<i>*Hold</i>		<i>*Hold</i>	0.834
<i>"4"-1st</i>	<i>ON</i>					<b>**ON</b>	<i>ON</i>	<i>*ON</i>	<i>Hold</i>	<i>Hold</i>	<i>Hold</i>	3.827
<i>"4"-2nd</i>		<i>ON</i>	<i>ON</i>			<b>**ON</b>	<i>ON</i>			<i>Hold</i>	<i>Hold</i>	2.368
<i>"4"-3rd</i>	<i>ON</i>	<i>ON</i>	<i>ON</i>			<i>ON</i>	<b>**ON</b>		<i>*Hold</i>		<i>Hold</i>	1.520
<i>"4"-4th</i>	<i>ON</i>		<i>ON</i>	<i>ON</i>			<b>**ON</b>		<i>*Hold</i>			1.000
<i>"3"-1st</i>	<i>ON</i>					<b>**ON</b>	<i>ON</i>	<i>*ON</i>	<i>Hold</i>	<i>Hold</i>	<i>Hold</i>	3.827
<i>"3"-2nd</i>		<i>ON</i>	<i>ON</i>			<b>**ON</b>	<i>ON</i>			<i>Hold</i>	<i>Hold</i>	2.368
<i>"3"-3rd</i>	<i>ON</i>	<i>ON</i>	<i>ON</i>			<i>ON</i>	<b>**ON</b>		<i>*Hold</i>		<i>Hold</i>	1.520
<i>"2"-1st</i>	<i>ON</i>					<b>**ON</b>	<i>ON</i>	<i>*ON</i>	<i>Hold</i>	<i>Hold</i>	<i>Hold</i>	3.827
<i>"2"-2nd</i>		<i>ON</i>	<i>ON</i>			<i>ON</i>	<i>ON</i>	<i>ON</i>		<i>Hold</i>	<i>Hold</i>	2.368
<i>"1"-1st</i>	<i>ON</i>					<i>ON</i>	<i>ON</i>	<i>ON</i>	<i>Hold</i>	<i>Hold</i>	<i>Hold</i>	3.827
* <i>Effective, only when coasting.</i> ** <i>ON, but not effective.</i>												
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Figure 2

## DIRECT CLUTCH SOLENOID THEORY OF OPERATION

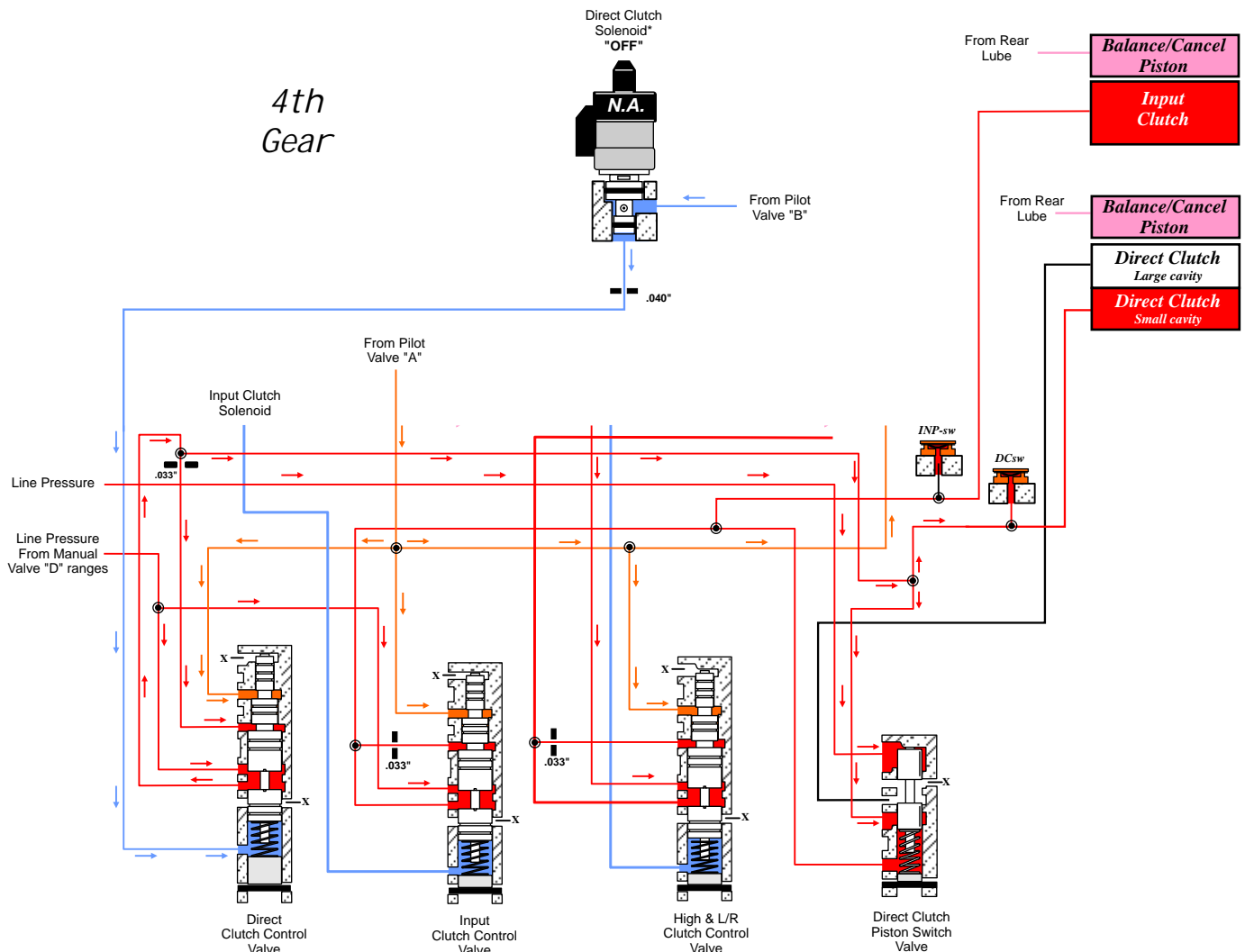


*The Direct Clutch solenoid is a Normally Applied solenoid. The Solenoid is fed solenoid pressure from Pilot Valve "B." When the solenoid is "ON" it blocks solenoid pressure from entering the spring side of the Direct Clutch Control Valve, keeping the Direct Clutch from applying. When the solenoid is "OFF," it allows solenoid pressure to enter the spring side of the Direct Clutch Control Valve which strokes the valve against Pilot "A" pressure allowing Line pressure from the Manual valve Drive ranges to enter the Direct Clutch Small cavity and the Direct Clutch Piston Switch Valve. The Direct Clutch Piston Switch Valve is controlled by regulated line pressure on the first land and by Input Clutch Pressure on the spring side. Both large and small cavity of the Direct Clutch are filled in 2nd and 3rd gears, because of the position of the Direct Clutch Piston Switch Valve. The Direct Clutch Pressure switch is Closed by the presence of Small Cavity Direct Clutch Pressure.*

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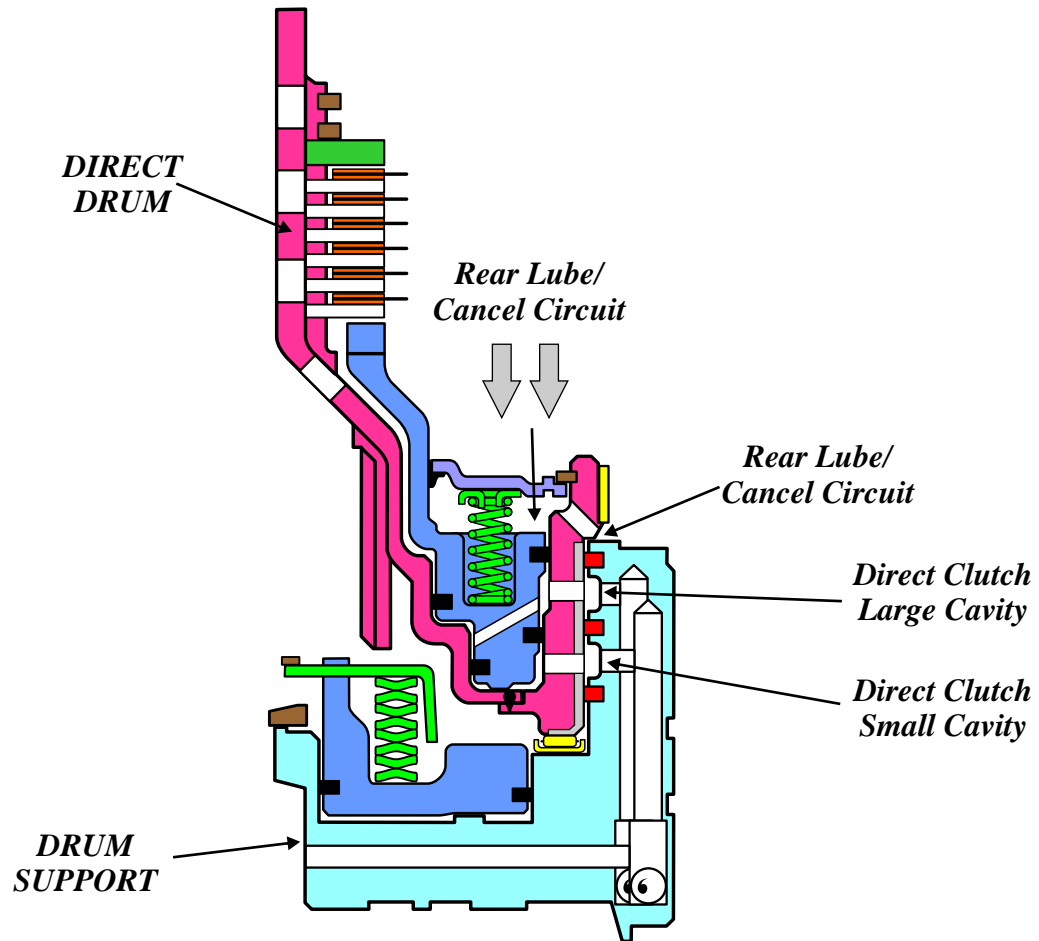
Figure 3

## DIRECT CLUTCH SOLENOID THEORY OF OPERATION



*The Direct Clutch solenoid is a Normally Applied solenoid. The Solenoid is fed solenoid pressure from Pilot Valve "B." When the solenoid is "ON" it blocks solenoid pressure from entering the spring side of the Direct Clutch Control Valve, keeping the Direct Clutch from applying. When the solenoid is "OFF," it allows solenoid pressure to enter the spring side of the Direct Clutch Control Valve which strokes the valve against Pilot "A" pressure allowing Line pressure from the Manual valve (Drive ranges) to enter the Direct Clutch Small cavity and the Direct Clutch Piston Switch Valve. The Direct Clutch Piston Switch Valve is controlled by regulated line pressure on the first land and by Input Clutch Pressure on the spring side. The Small Cavity of the Direct Clutch piston is filled in 4th gear as the Input Clutch is ON. Input Clutch Pressure is fed to the spring side of the Direct Clutch Piston Switch Valve, stroking the valve, which releases the Large Cavity of the Direct Clutch.*

## DIRECT CLUTCH PASSAGE IDENTIFICATION

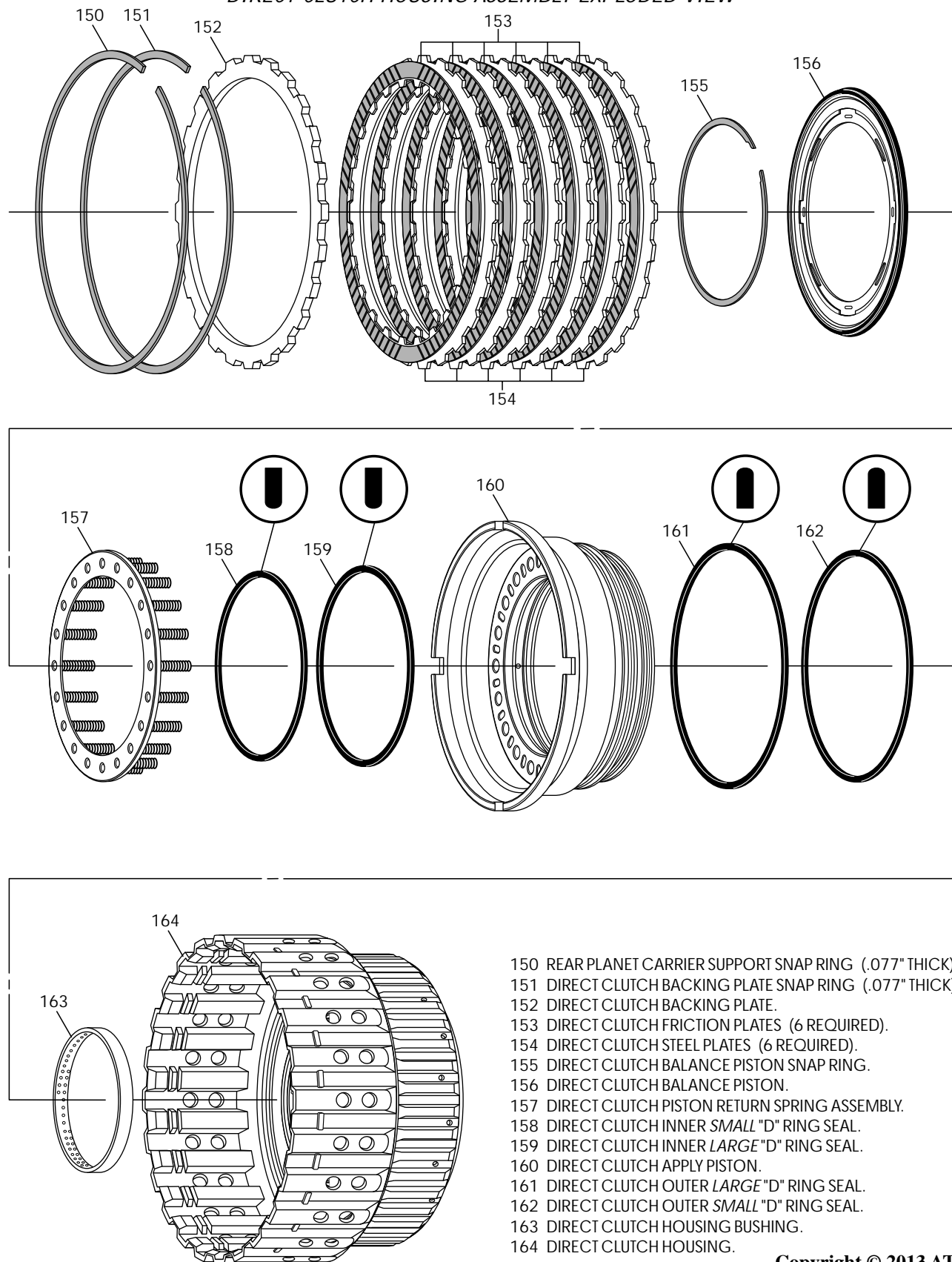


*Rear Lube/Cancel Circuit is fed between the balance piston and the spring retainer. This can provide a quick release of the piston as it will basically add to the release spring tension.*

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Figure 5

## DIRECT CLUTCH HOUSING ASSEMBLY EXPLODED VIEW



- 150 REAR PLANET CARRIER SUPPORT SNAP RING (.077" THICK).
- 151 DIRECT CLUTCH BACKING PLATE SNAP RING (.077" THICK).
- 152 DIRECT CLUTCH BACKING PLATE.
- 153 DIRECT CLUTCH FRICTION PLATES (6 REQUIRED).
- 154 DIRECT CLUTCH STEEL PLATES (6 REQUIRED).
- 155 DIRECT CLUTCH BALANCE PISTON SNAP RING.
- 156 DIRECT CLUTCH BALANCE PISTON.
- 157 DIRECT CLUTCH PISTON RETURN SPRING ASSEMBLY.
- 158 DIRECT CLUTCH INNER SMALL "D" RING SEAL.
- 159 DIRECT CLUTCH INNER LARGE "D" RING SEAL.
- 160 DIRECT CLUTCH APPLY PISTON.
- 161 DIRECT CLUTCH OUTER LARGE "D" RING SEAL.
- 162 DIRECT CLUTCH OUTER SMALL "D" RING SEAL.
- 163 DIRECT CLUTCH HOUSING BUSHING.
- 164 DIRECT CLUTCH HOUSING.

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Figure 6