NISSAN RE4RO1A/3A

PLANETARY FAILURE DUE TO LACK OF LUBE

COMPLAINT: Before or after overhaul, vehicle equipped with an RE4RO1A exhibits planetary gear train failure, due to lack of lubrication.

CAUSE: The cause may be one of the following.

1. Inadequate cooler flow.
2. Excessive output shaft to case bushing clearance.
3. Excessive clearance between the output shaft bushing and turbine shaft.
4. Forward clutch rings leaking on the low sprag inner race.
5. Internal leak on the turbine shaft.
6. Cooler relief check-ball capsule and spring leaking at the back of the case.
7. Bushing not removed from the front sun gear.

CORRECTION:

1. Insure that the vehicle has sufficient cooler flow. Minimum cooler flow must be no less than 1 quart per 20 seconds when the vehicle is **"HOT".** Warm vehicle until operating temperature is over 160 degrees. Raise and securely support vehicle on a lift ***(For safety concerns, do not attempt this test on the ground).*** Once operating temperature has been reached, shut motor off. Disconnect the "Rear" cooler line from the transmission and place the end of the line into a bucket or suitable apparatus to keep oil from spilling or splashing. Have a helper get into the vehicle and start the engine. Apply the parking brake then hold the brake pedal and move the selector lever into the D position. While holding the brake pedal on, allow the vehicle to idle in drive. **IMPORTANT:** Visually check the rear cooler line fitting at the transmission. ***THERE MUST BE NO OIL COMING FROM THE CASE.*** If there is oil coming from the case, the most likely cause is a leak at the forward clutch rings on the low sprag inner race. Count for approximately 20 seconds then move the selector lever back to park and shut the motor off. Measure the amount of oil in the container. There must be a minimum of 1 quart of oil in the container. If less oil flowed from the radiator, disconnect the front cooler line and repeat the test. If the test still shows insufficient cooler flow, the problem is most likely a restriction in the valve body. If cooler flow is now sufficient the problem is a plugged radiator. Repair or replace the radiator as necessary (Refer to Figure 1 for information on replacement cooler element).

2. Inspect the case bushings in the back of the case for wear (Refer to Figure 2). If needed insert the output shaft into the case and check for excessive play from side to side. If side to side movement is excessive replace the case bushings. Using compressed air and a blow gun, direct air pressure into the different lube holes in the output shaft and make sure there is no debris blocking the holes and that air passes through the holes freely.

CORRECTION: (Continued)

3. Inspect the output shaft bushing where turbine shaft rides *(Refer to Figure 3).* Insert the turbine shaft into the output shaft and move the turbine shaft from side to side. If excess movement is detected, replace the output shaft bushing.

4. Inspect the forward clutch sealing rings that are installed on the low sprag inner race *(Refer to Figure 4).* Make sure there are no cuts or nicks in the rings. Carefully remove the ring from the inner race and bore fit the rings in the drum. **IMPORTANT:** There must be no more than .003'' end gap between the butt ends of the rings. Replace the rings, or the low sprag inner race if necessary.

5. Inspect the turbine shaft for cracks and blow a small amount of compressed air approx. 30 psi. Into either end of the turbine shaft *(Refer to Figure 5).* **IMPORTANT:** No air must pass completely through the shaft from one end to the other. The shaft is blocked in the middle to separate converter release oil and lube oil. If this shaft leaks, all lube will be drained when lock-up is engaged.

6. Remove the cooler relief check-ball capsule and spring from the back of the transmission case *(Refer to Figure 6).* Install a solid cup plug or tap the case and thread in a pipe plug. ***Note,*** late model cases *(after 1994)* had the check-ball capsule and spring eliminated from the factory.

7. Remove bushing from the front sun gear and leave it out *(Refer to Figure 7).* This will allow more lube to pass through the sun gear to the front planetary. ***Note,*** if a new front sun gear shell is purchased from the factory, no bushing will be installed in the sun gear. Do not install a bushing into a new sun gear shell.

Most Nissan vehicles have what is known as a fin type cooler. This type cooler becomes easily restricted causing poor cooler flow resulting in lack of lubrication to the planetary gear train. Cooler line flushing machines cannot sufficiently flush this type of cooler. The spiral cooler shown in Figure 1 below is a replacement cooler. This cooler may be installed instead of replacing the entire radiator.
This cooler is available from Nissan the part number is 21606-15V25.

Spiral Cooler
Part Number 21606-15V25

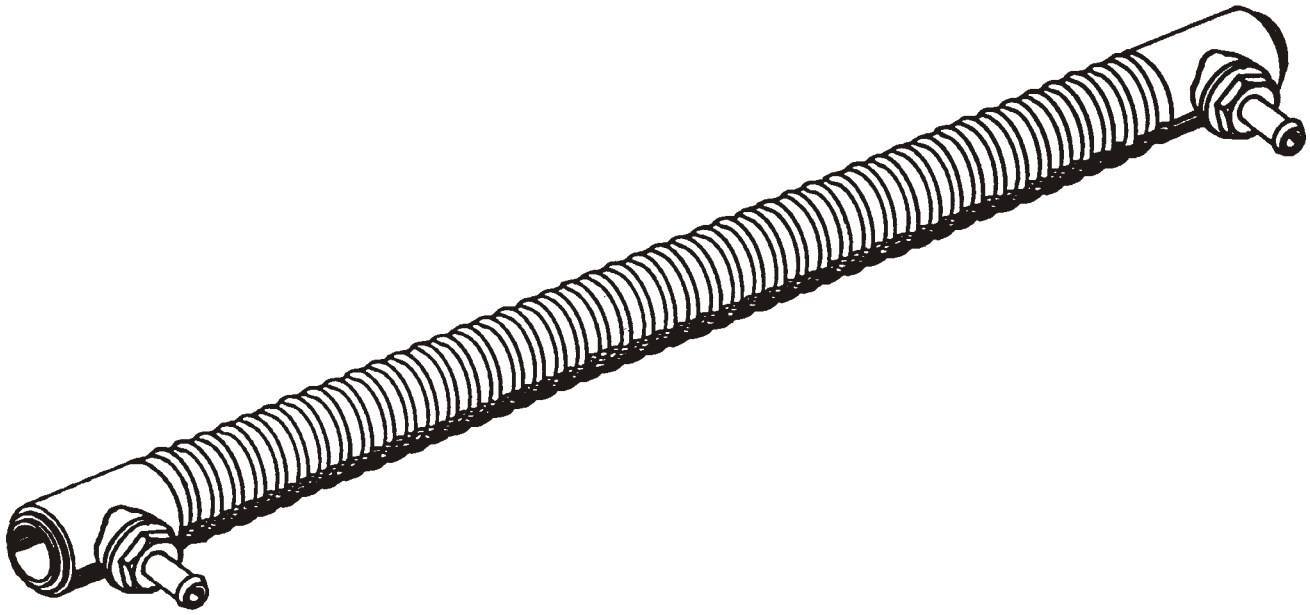

Figure 1

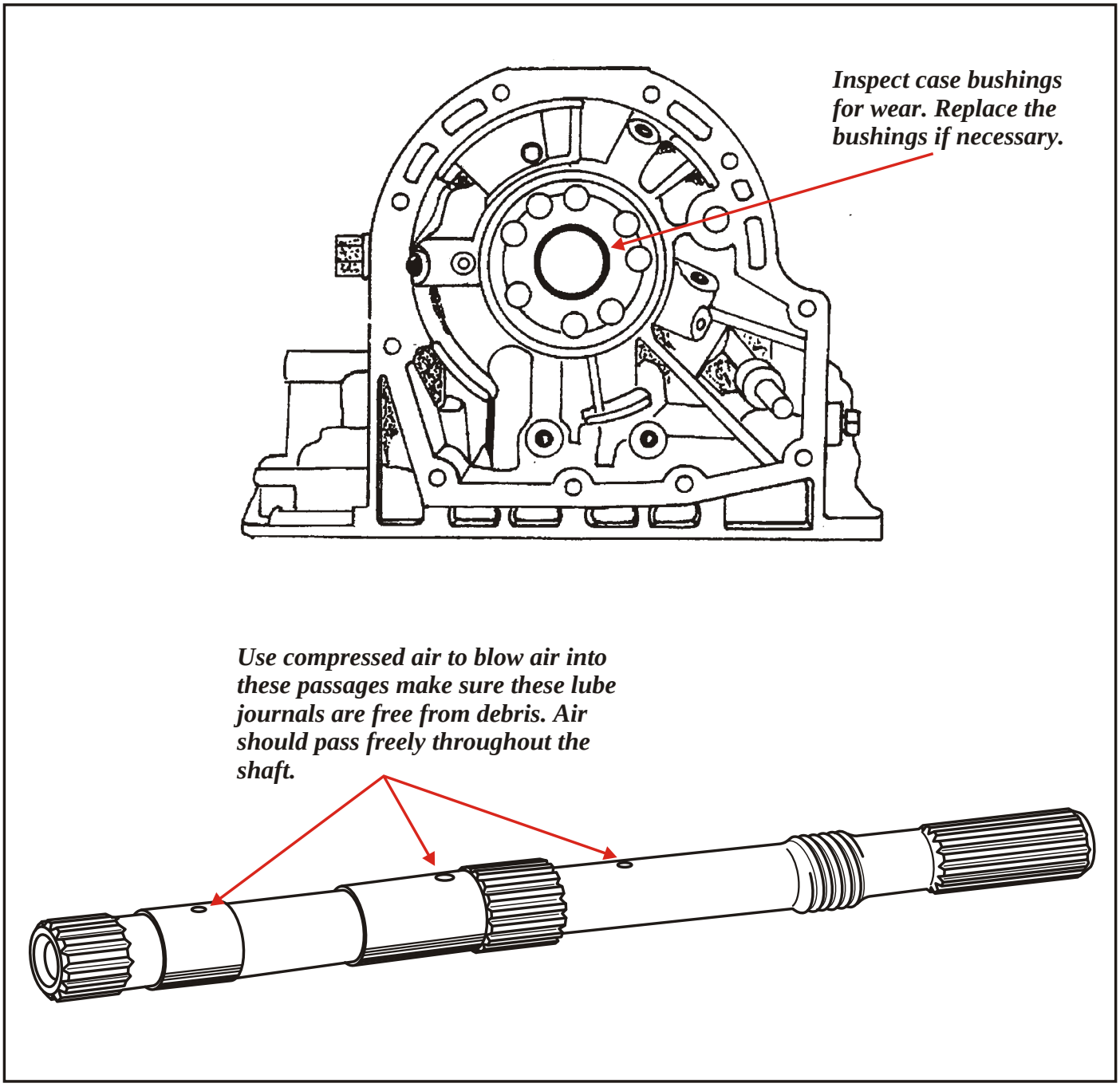
Inspect case bushings for wear. Replace the bushings if necessary.
Use compressed air to blow air into these passages make sure these lube journals are free from debris. Air should pass freely throughout the shaft.

Figure 2

Inspect this bushing closely for wear or damage. All gear train lube for the front of the transmission must pass through this bushing. Insert turbine shaft into bushing to determine amount of side clearance.

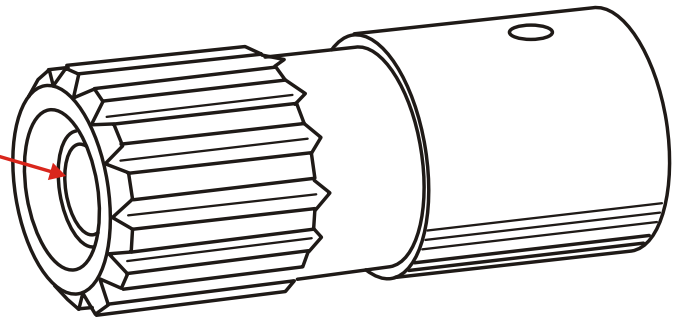

Figure 3

Nissan Part Number
31525-41X00

Inspect these rings for nicks and cuts. Also bore fit the rings in the Forward Drum. End gap between the butt ends of the rings must be less than .003". Rings with excessive gap must be replaced.

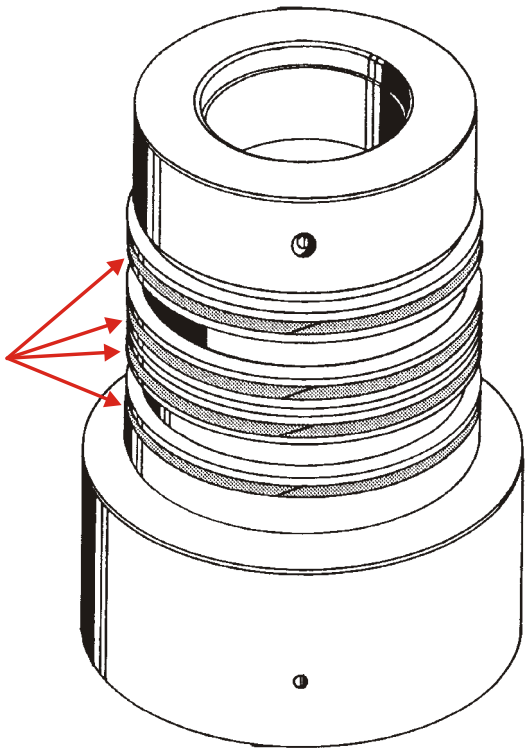

Figure 4

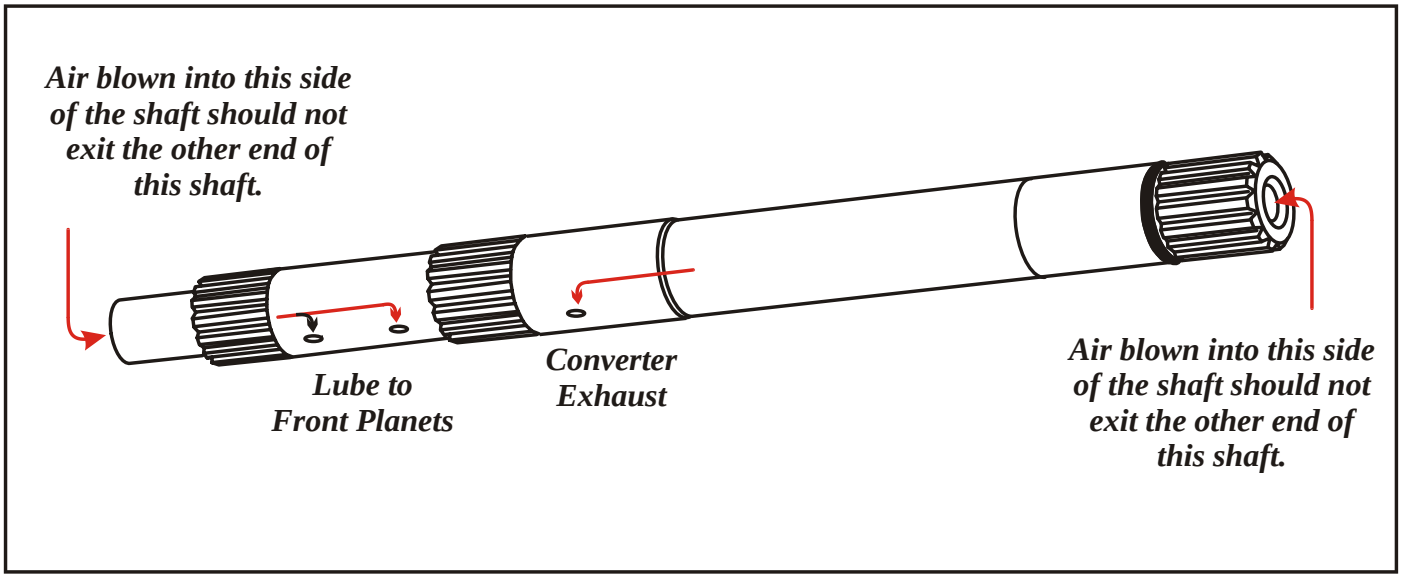

Figure 5

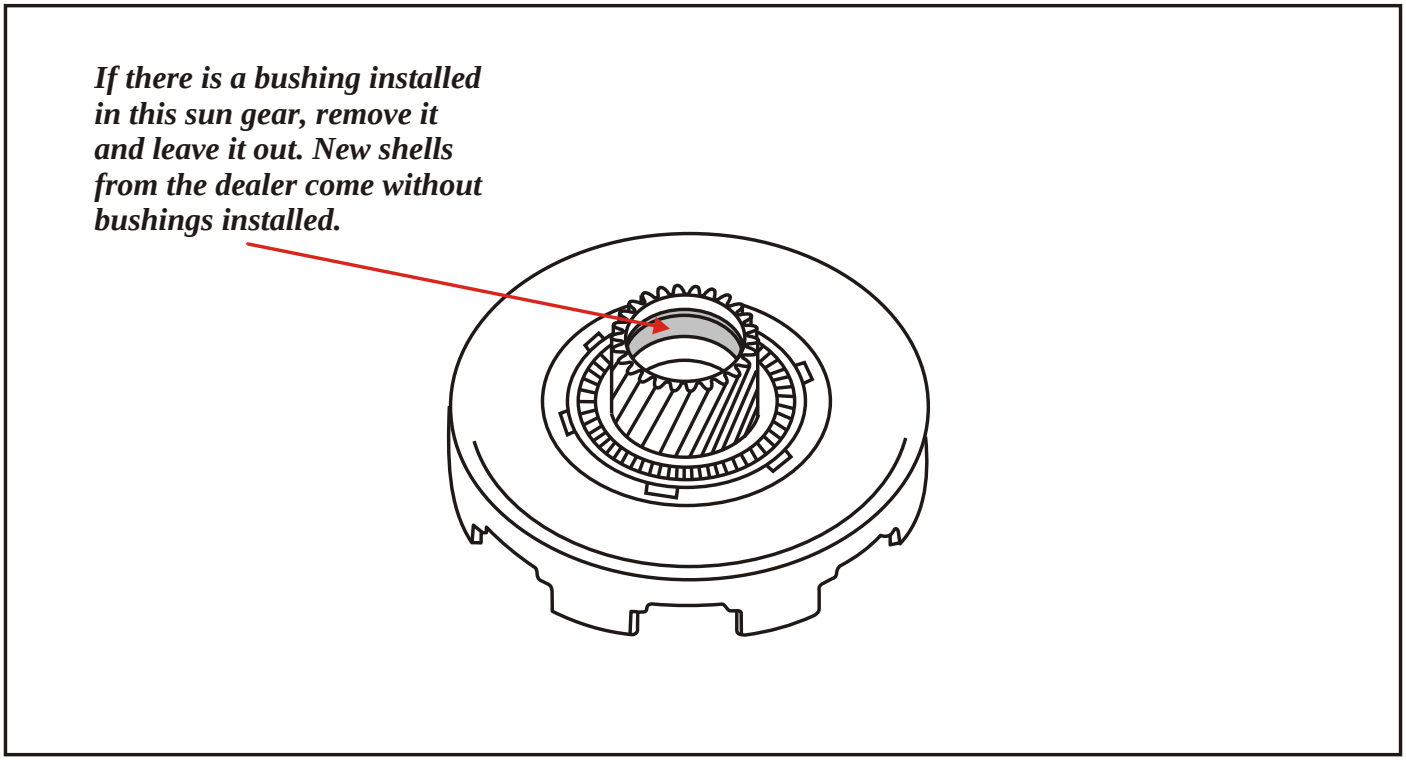

Figure 6

Remove this cup plug, ball and spring from the case. Replace with a solid cup plug or thread the hole and install a pipe plug.

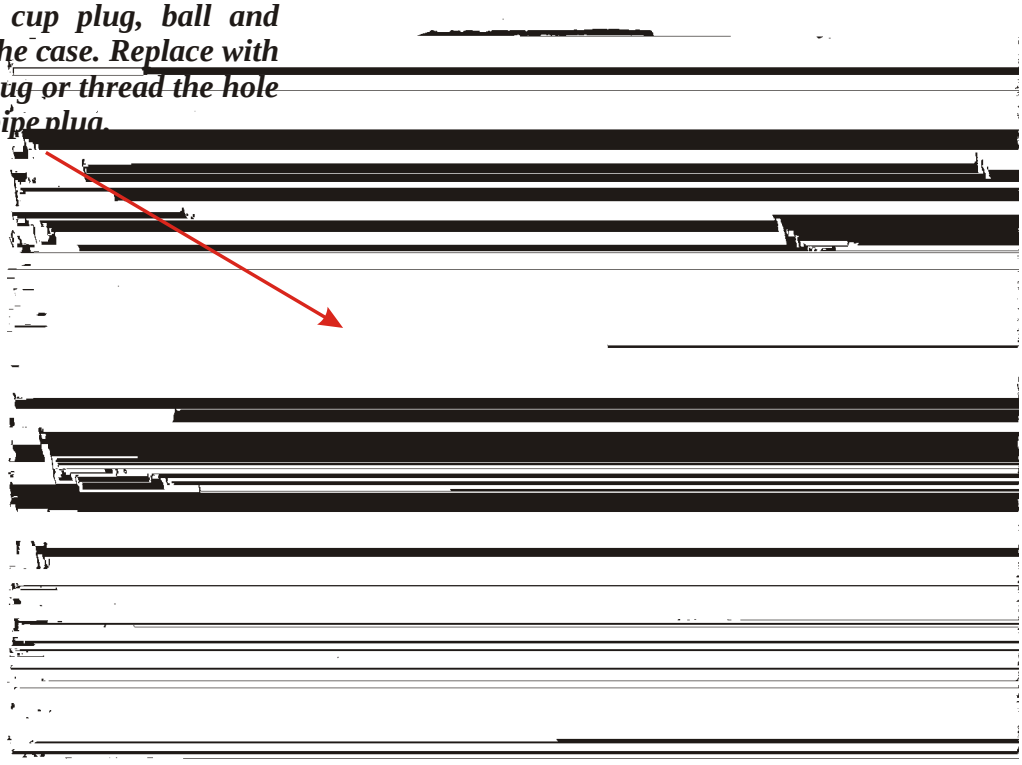

Figure 7