

# General Diagnostic Table

## DIFFERENTIALS

### 8. General Diagnostic Table

#### A: INSPECTION

Symptom or trouble	Possible cause	Remedy
<b>1. Oil leakage</b>	(1) Worn, scratched, or incorrectly seated front or side oil seal. Cut-away, battered or excessively worn sliding surface of companion flange.	Correct or replace.
	(2) Clogged or damaged air breather.	Clean, repair or replace.
	(3) Loose bolts on the side retainer, or incorrectly fitted O-rings.	Tighten the bolts to specified torque. Replace the O-ring.
	(4) Loose rear cover attaching bolts or damaged gasket.	Tighten the bolts to specified torque. Replace gasket and apply liquid gasket.
	(5) Loose oil filler or drain plug.	Retighten and apply liquid gasket.
	(6) Wear, damage or incorrectly fitting for side retainer and oil seal.	Correct or replace.
<b>2. Seizure</b>  NOTE: Incorrect or damaged parts should be replaced, and also other parts should be thoroughly checked for any defect and should be repaired or replaced as required.	(1) Improper backlash for hypoid gear.	Readjust or replace.
	(2) Excessive preload for side, rear or front bearing.	Readjust or replace.
	(3) Insufficient or improper oil used.	Replace the incorrect part and fill with specified oil to specified level.
<b>3. Damage</b>  NOTE: Damaged parts should be replaced, and also other parts should be thoroughly checked for any defect and should be repaired or replaced as required.	(1) Improper backlash for hypoid gear.	Replace.
	(2) Insufficient or excessive preload for side, rear or front bearing.	Readjust or replace.
	(3) Excessive backlash for differential gear.	Replace gear or thrust washer.
	(4) Loose bolts and nuts such as hypoid driven gear bolt.	Retighten.
	(5) Damage due to overloading.	Replace.
<b>4. Noises when starting or shifting gears</b>  NOTE: Noises may be caused by differential assembly, universal joint, wheel bearing, etc. Identify what is actually making noise before disassembling.	(1) Excessive backlash for hypoid gear.	Readjust.
	(2) Excessive backlash for differential gear.	Replace gear or thrust washer.
	(3) Insufficient preload for front or rear bearing.	Readjust.
	(4) Loose drive pinion nut.	Tighten to the specified torque.
	(5) Loose bolts and nuts such as side bearing retainer attaching bolt.	Tighten to the specified torque.
<b>5. Noises when cornering</b>	(1) Damaged differential gear.	Replace.
	(2) Excessive wear or damage of thrust washer.	Replace.
	(3) Broken pinion mate shaft.	Replace.
	(4) Seized or damaged side bearing.	Replace.

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<b>6. Gear Noise</b>	(1) Improper tooth contact of hypoid gear.	Readjust or replace hypoid gear set.
NOTE: Since noises from engine, muffler, transmission, propeller shaft, wheel bearings, tires and body are sometimes mistaken for noises from differential assembly, be careful in checking them. Inspection methods to locate noises include coasting, accelerating, cruising, and jacking-up all four wheels. Perform these inspections according to the condition of trouble. When listening to noises, shift the gear into four wheel drive and fourth speed position, trying to pick up only differential noise.	(2) Improper backlash for hypoid gear.	Readjust.
	(3) Scored or chipped teeth of hypoid gear.	Replace hypoid gear set.
	(4) Seized hypoid gear.	Replace hypoid gear set.
	(5) Improper preload for front or rear bearings.	Readjust.
	(6) Seized, cut-away or chipped front or rear bearing.	Replace.
	(7) Seized, cut-away or chipped side bearing.	Replace.
	(8) Differential gear is vibrating.	Replace.

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