

General Diagnostic Table

DIFFERENTIALS

9. General Diagnostic Table

A: INSPECTION

| Symptom or trouble | Possible cause | Remedy |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 1. Oil leakage | (1) Worn, scratched or incorrectly seated front or side oil seal. Scored, 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 differential spindle or side retainer, or incorrectly fitted O-ring. | 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 spindle, side retainer and oil seal. | Correct or replace. |
| 2. Seizure NOTE: Seized 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) Insufficient 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 seized part and fill with specified oil to specified level. |
| 3. Damage 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. | Retightening. |
| | (5) Damage due to overloading. | Replace. |
| 4. Noises when starting or shifting gears NOTE: Noises may be caused by differential assembly, universal joint, wheel bearing, etc. Find out 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 specified torque. |
| | (5) Loose bolts and nuts such as side bearing retainer attaching bolt. | Tighten to specified torque. |
| 5. Noises when cornering | (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. |

General Diagnostic Table

DIFFERENTIALS

| Symptom or trouble | Possible cause | Remedy |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------|
| 6. Gear noise 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 condition of trouble. When listening to noises, shift gears into four wheel drive and fourth speed position, trying to pick up only differential noise. | (1) Improper tooth contact of hypoid gear. | Readjust or replace hypoid gear set. |
| | (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, scored or chipped front or rear bearing. | Replace. |
| | (7) Seized, scored or chipped side bearing. | Replace. |
| | (8) Vibrating differential carrier. | Replace. |