

## 12. General Diagnostic Table

### A: INSPECTION

#### 1. CLUTCH

Symptom	Possible cause	Corrective
1. Clutch slippage. It is hard to perceive clutch slippage in the early stage, but pay attention to the following symptoms • Engine speeds up when shifting. • High speeds driving is impossible; especially rapid acceleration impossible and vehicle speed does not increase in proportion to an increase in engine speed. • Power falls, particularly when ascending a slope, and there is a smell of burning of the clutch facing. • Method of testing: Put the vehicle in a stationary condition with parking brake fully applied. Disengage the clutch and shift the transmission gear into the first. Gradually allow the clutch to engage while gradually increasing the engine speed. The clutch function is satisfactory if the engine stalls. However, the clutch is slipping if the vehicle does not start off and the engine does not stall.	(a) Clutch facing smeared by oil (b) Worn clutch facing (c) Deteriorated diaphragm spring (d) Distorted pressure plate or flywheel (e) Defective release bearing holder	Replace. Replace. Replace. Correct or replace. Correct or replace.
2. Clutch drags. As a symptom of this trouble, a harsh scratching noise develops and control becomes quite difficult when shifting gears. The symptom becomes more apparent when shifting into the first gear. However, because much trouble of this sort is due to defective synchronization mechanism, carry out the test as described after. • Method of testing: <Ref. to CL-32, DIAGNOSTIC DIAGRAM OF CLUTCH DRAG, INSPECTION, General Diagnostic Table.> It may be judged as insufficient disengagement of clutch if any noise occurs during this test.	(a) Worn or rusty clutch disc hub spline (b) Excessive deflection of clutch disc facing (c) Seized crankshaft pilot needle bearing (d) Cracked clutch disc facing (e) Sticked clutch disc (smeared by oil or water)	Replace clutch disc. Correct or replace. Replace. Replace. Replace.
3. Clutch chatters. Clutch chattering is an unpleasant vibration to the whole body when the vehicle is just started with clutch partially engaged.	(a) Adhesion of oil on the facing (b) Weak or broken torsion spring (c) Defective facing contact or excessive disc (d) Warped pressure plate or flywheel (e) Loose disc rivets (f) Loose engine mounting (g) Improper adjustment of pitching stopper	Replace clutch disc. Replace clutch disc. Replace clutch disc deflection. Correct or replace. Replace clutch disc. Retighten or replace mounting. Adjustment.

# GENERAL DIAGNOSTIC TABLE

## CLUTCH SYSTEM

Symptom	Possible cause	Corrective
4. Noisy clutch Examine whether the noise is generated when the clutch is disengaged, engaged, or partially engaged.	(a) Broken, worn or unlubricated release bearing (b) Insufficient lubrication of pilot bearing (c) Loose clutch disc hub (d) Loose torsion spring retainer (e) Deteriorated or broken torsion spring	Replace release bearing. Apply grease. Replace clutch disc. Replace clutch disc. Replace clutch disc.
5. Clutch grabs. When starting the vehicle with the clutch partially engaged, the clutch engages suddenly and the vehicle jumps instead of making a smooth start.	(a) Grease or oil on facing (b) Deteriorated cushioning spring (c) Worn or rusted spline of clutch disc or main shaft (d) Deteriorated or broken torsion spring (e) Loose engine mounting (f) Deteriorated diaphragm spring	Replace clutch disc. Replace clutch disc. Take off rust, apply grease or replace clutch disc or main shaft. Replace clutch disc. Retighten or replace mounting. Replace.

## 2. CLUTCH PEDAL

Trouble	Corrective action
Insufficient pedal play	Adjust pedal play.
Clutch pedal free play insufficient	Adjust pedal free play.
Excessively worn and damaged pedal shaft and/or bushing	Replace bushing and/or shaft with new one.

## 3. DIAGNOSTIC DIAGRAM OF CLUTCH DRAG

Step	Check	Yes	No
1 <b>CHECK GEAR NOISE.</b> 1)Start the engine. 2)Disengage the clutch and shift quickly from neutral to reverse. Is there any abnormal noise from the transmission gear?	Abnormal noise from the transmission gear.	Go to step 2.	Clutch is normal.
2 <b>CHECK GEAR NOISE.</b> Disengage the clutch at idle and shift from neutral to reverse after 0.5 to 1.0 seconds. Is there any abnormal noise from the transmission gear?	Abnormal noise from the transmission gear.	Go to step 3.	Defective transmission or excessive clutch drag torque. Inspect Pilot bearing, clutch disc, transmission and clutch disc hub spline.
3 <b>CHECK GEAR NOISE.</b> 1)Disengage the clutch at idle and shift from N to R, R to N several times 0.5 to 1.0 seconds after disengaging the clutch. Is there any abnormal noise from the transmission gear?	Abnormal noise from the transmission gear.	Defect in clutch disengaging. Inspect clutch disc, clutch cover, clutch release, and clutch pedal free play.	Clutch and fly-wheel seizure. Inspect clutch disc, spline of clutch disc hub.