Automotive Power Train Systems

Project Lab Report for Transmissions and Transaxles

Make and model of component if available

Proper lubricant for component and application

Attempt to shift component through all gears, obtain instructor signature
Shifts_______ Does not shift_______
Instructor signature________________________

Technical resources used for overhaul procedures (Mitchell, Google)

Draw a sketch of transmission gearing and record all gear ratios
Instructor signature________________________

Demonstrate power flow through all gears Instructor signature________________________
Complete the inspection procedure as listed below (O.K., Replace)
Instructor signature____________________

Case (cracks, wear) ________

**Input shaft inspection**

- Input shaft pilot bearing journal ________
- Input shaft seal area scoring ________
- Input shaft bearing ________
- Input shaft dog teeth ________
- Input shaft synchronizer blocking ring mating surface ________
- Clutch spline wear ________
- Pocket bearing ________
- Pocket bearing bore ________

**Mainshaft inspection**

- Mainshaft journals (scoring) ________
- Mainshaft splines ________
- Mainshaft snap rings and snap ring grooves ________
- Mainshaft output bearing ________
- Mainshaft pocket bearing pilot ________

1st gear

- Gear tooth wear (spalling, cracks) ________
- Scoring in bore of gear ________
- Dog tooth wear (are teeth sharp?) ________
- Blocking ring mating surface ________
- Blocking ring (dog teeth and ridges sharp?) ________
- Inserts ________
- Expander rings ________
- Shift sleeve wear (splines sharp, fork slot wear) ________
- Hub splines ________

2nd gear

- Gear tooth wear (spalling, cracks) ________
- Scoring in bore of gear ________
- Dog tooth wear (are teeth sharp?) ________
- Blocking ring mating surface ________
- Blocking ring (dog teeth and ridges sharp?) ________
- Inserts ________
- Expander rings ________
- Shift sleeve wear (splines sharp, fork slot wear) ________
- Hub splines ________
3rd gear

- Gear tooth wear (spalling, cracks)
- Scoring in bore of gear
- Dog tooth wear (are teeth sharp?)
- Blocking ring mating surface
- Blocking ring (dog teeth and ridges sharp?)
- Inserts
- Expander rings
- Shift sleeve wear (splines sharp, fork slot wear)
- Hub splines

4th gear (if applicable)

- Gear tooth wear (spalling, cracks)
- Scoring in bore of gear
- Dog tooth wear (are teeth sharp?)
- Blocking ring mating surface
- Blocking ring (dog teeth and ridges sharp?)
- Inserts
- Expander rings
- Shift sleeve wear (splines sharp, fork slot wear)
- Hub splines

5th gear (if applicable)

- Gear tooth wear (spalling, cracks)
- Scoring in bore of gear
- Dog tooth wear (are teeth sharp?)
- Blocking ring mating surface
- Blocking ring (dog teeth and ridges sharp?)
- Inserts
- Expander rings
- Shift sleeve wear (splines sharp, fork slot wear)
- Hub splines

Reverse (inspect all that are applicable)

- Reverse idler
- Reverse idler shaft
- Gear tooth wear (spalling, cracks)
- Scoring in bore of gear
- Dog tooth wear (are teeth sharp?)
Blocking ring mating surface
Blocking ring (dog teeth and ridges sharp?)
Inserts
Expander rings
Shift sleeve wear (splines sharp, fork slot wear)
Hub splines

Shifting Mechanism

Shift rails (scored, bent?)
Gates
Shift forks (worn, bent, missing inserts)
Internal linkage

Countershaft

Thrust washers (if applicable)
Tapered roller bearings (if applicable)
Needle bearings (if applicable)
Cluster gear (check bore)
Gear teeth

Electrical

Back-up light switch works?

Show instructor completely disassembled unit, and describe damaged parts

Assemble transmission/transaxle

Attempt to shift through all gears

Trans shifts__________       Does not shift__________

Instructor signature ______________________