MODULE CONTENT

| Unit of Competency | **DIAGNOSE AND OVERHAUL DIFFERENTIAL** |
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| Module Title | **DIAGNOSING AND OVERHAULING DIFFERENTIAL** |
| Module Descriptor | This unit identifies the competence required to diagnose and overhaul the differential. |
| Nominal Duration | **hours** |
| Summary of the Learning Outcomes: | |
| Upon completion of this module the student must be able to: | |
| LO1. Prepare to diagnose differential assembly | |
| LO2. Diagnose differential assembly | |
| LO3. Disassemble and evaluate differential assembly and components | |
| LO4. Assemble differential assembly and components | |
| LO5. Complete work processes | |

**LEARNING EXPERIENCES**

**LEARNING OUTCOMES NO.4**

**ASSEMBLE DIFFERENTIAL ASSEMBLY AND COMPONENTS**

| **Learning Activities** | **Special Instructions** |
| --- | --- |
| Read Information Sheet 3.1-1 Assemble differential assembly and components | If you have some problem with the content of the information sheet don’t hesitate to approach your Trainer.  If you feel that you are now knowledgeable on the content of the information sheet, you can now answer the self-check provided in the module. |
| Answer Self-Check 3.1-1 on Assemble differential assembly and components | Try to answer the Self-check without looking at the Answer Key  Compare your answer to Answer Key 3.1-1 |
| Observe Trainer’s demonstration on Task Sheet 3.1-1 on Assemble differential assembly and components | Listen carefully and attentively so that you may be able to perform a task correctly  Ask questions if are in doubt for clarification |
| Perform the Task Sheet 3.1-1 on Assemble differential assembly and components | Remember the step-by-step procedure the Assemble differential assembly and components |
| Evaluate the performance using the Performance Criteria Checklist 3.1-1 | Repeat the task in case fail to meet the criteria |

**INFORMATION SHEET 1.1-1**

**ASSEMBLE DIFFERENTIAL ASSEMBLY AND COMPONENTS**

**Learning Objectives:**

After reading this **Information Sheet**, you must be able to:

1. Made final inspection.
2. Turned-over vehicle.
3. Restored work area.
4. Managed wastes.
5. Checked and stored tools and equipment.
6. Accomplished workplace documents.

**Measuring and Adjusting Backlash and Side-Bearing Preload on a Final**

**Drive Assembly with a Shim Pack**

Measure the thickness of the original Install the differential case into the housing.

side bearing preload shims.

Install service spacers that are the same Install the bearing caps and fingers tighten

thickness as the original preload shims thickness as the bolts.

the original preload shims between each bearing cup

and the housing.

Mount a dial indicator to the housing so that Select two shims with a combined thickness

the button of the indicator touches the face of the ring to that of the original shims plus the indicator

gear. Using two screwdrivers, pry between the shims reading, then install them.

and the housing, Pry to one side and set the dial

indicator to zero, then pry to the opposite side and

record the reading.

Using the proper tool, drive the shims into Install and tighten the bearing caps to position until they are fully seated. specifications.



Check the backlash and preload of the gearset.

Check the backlash by socking the ring gear and noting

the movement on the dial indicator. Adjust the shim pack

to allow for the specified backlash. Recheck the backlash

at four points equally spaced around the ring gear.

**Measuring and Adjusting Backlash and Side-Bearing Preload on a Final**

**Drive Assembly with a Adjusting Nuts**

Lubricate the differential bearings, cups, and Install the differential case into the housing.

adjuster.

Install the bearing cups and adjusting nuts Snugly tighten the top bearing cup bolts and onto the differential case. finger tightens the lower bolts.

Turn each adjuster until bearing free play is Seat the bearings by rotating the pinion

eliminated with little or no backlash present between several times each times the adjusters are moved.

the ring and pinion gears.

Install a dial indicator and position the Determine how much the preload needs to

plunger against the drive side of the ring gear. Set be adjusted and set the preload by turning the right

the dial to zero. Using two screwdrivers, pry between adjusting nut.

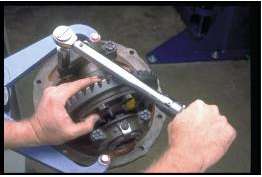
the differential case and the housing. Observe the

reading.

Check the backlash by rocking the ring gear Adjust the backlash by turning both and noting the movement on the dial indicator. adjusting nuts the same amount so that the preload

adjustment remains unchanged.

Install the blocks on the adjusting nuts. Tighten the bearing cup bolts to the specified torque.