

# CDX Tasksheet Number: MHT2D004

## Student/Intern Information

Name \_\_\_\_\_ Date \_\_\_\_\_ Class \_\_\_\_\_

## Vehicle, Customer, and Service Information

Vehicle used for this activity:

Year \_\_\_\_\_ Make \_\_\_\_\_ Model \_\_\_\_\_

Odometer \_\_\_\_\_ VIN \_\_\_\_\_

## Materials Required

- Vehicle with possible driveshaft and universal joint concerns
- Vehicle manufacturer's repair information
- Manufacturer-specific tools depending on the concern/procedure(s)

## Task-Specific Safety Considerations

- Activities may require test-driving the vehicle on the school grounds or on a hoist, both of which carry severe risks. Attempt this task only with full permission from your supervisor/instructor, and follow all the guidelines exactly.
- Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with federal, state, and local regulations.
- Always wear the correct protective eyewear and clothing and use the appropriate safety equipment, as well as fender covers, seat protectors, and floor mat protectors.
- Make sure you understand and observe all legislative and personal safety procedures when carrying out practical assignments. If you are unsure of what these are, ask your supervisor/instructor.
- While working on the vehicle, wheel chocks must be placed on both sides of one set of tires or as directed by your supervisor/instructor.
- Exhaust evacuation hoses must be placed over exhaust outlets while the engine is used in the confined shop space.

► **TASK** Measure driveline angles; determine needed action.

**MTST**  
II.D.4; P2

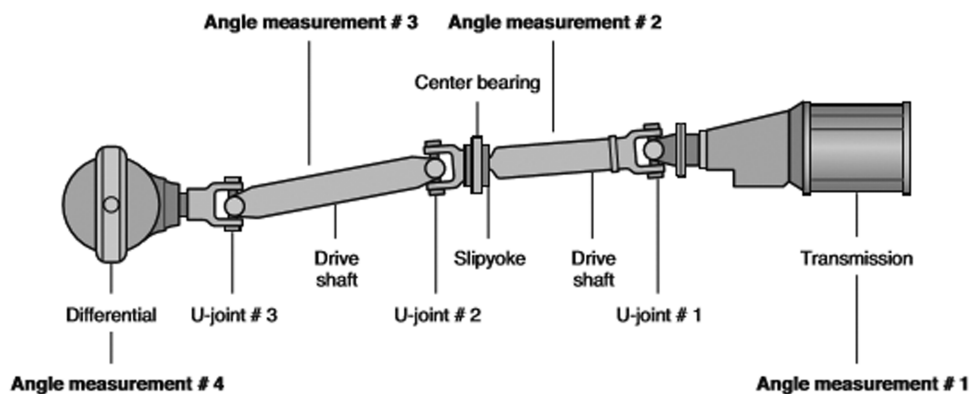
**Student Instructions:** Read through the entire procedure prior to starting. Prepare your workspace and any tools or parts that may be needed to complete the task. When directed by your supervisor/instructor, begin the procedure to complete the task and check the box as each step is finished.

Time off \_\_\_\_\_

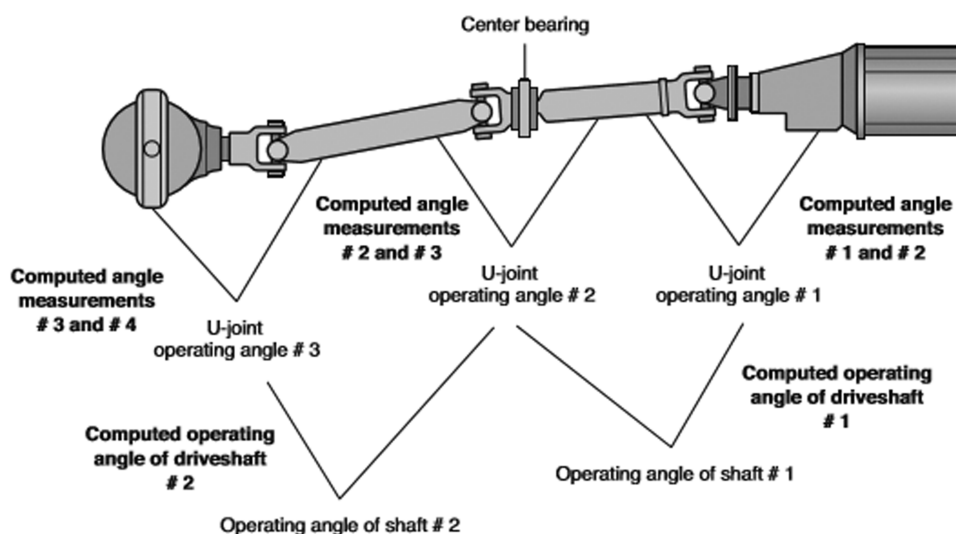
Time on \_\_\_\_\_

Total time \_\_\_\_\_

Procedure:	Step Completed
1. Reference the appropriate workshop manual. ( <b>Note:</b> Measuring driveline angles ensures that all universal joints operate at the proper angle to prevent premature driveline wear or a catastrophic failure.)	<input type="checkbox"/>
2. Utilizing an inclinometer or a dial protractor, measure the angles of the universal joint by placing it on the flat surface of each driveline component. Driveline components include transmission, driveshaft(s), and differential. Make sure the driveline components have a clean flat surface to enable a measuring tool to be used. ( <b>Note:</b> Always stay on one side of the vehicle's driveline while recording readings. Start with the transmission flat surface, then proceed to the first driveshaft and then to the next shaft or component in the drivetrain. Any angle that runs downhill from the front to the back of the vehicle is considered a positive angle. Negative angles can be present when driveline components are running uphill from the front to the back of the vehicle.)	<input type="checkbox"/>
3. Measure and record the angle for each component in the following spaces. The number of readings will vary depending on the number of components. See Figure 35-1.	<input type="checkbox"/>
a. Measure component angle 1: _____ degrees	<input type="checkbox"/>
b. Measure component angle 2: _____ degrees	<input type="checkbox"/>
c. Measure component angle 3: _____ degrees	<input type="checkbox"/>
d. Measure component angle 4: _____ degrees	<input type="checkbox"/>
e. Measure component angle 5: _____ degrees	<input type="checkbox"/>
f. Measure component angle 6: _____ degrees	<input type="checkbox"/>



4. Compute angles by adding or subtracting two readings depending on whether they are positive or negative to get the operating angle of each U-joint. See Figure 35-2. ( <b>Note:</b> See the example for computation of angle measurement: Measuring the transmission reads +2 degrees, while measuring the first driveshaft reads -1 degrees. A +2 reading minus a -1 reading will result in a + or positive 1 reading for the operating angle of joint 1.) ( <b>Note:</b> The number of shafts and drive components involved will result in more driveline operating angles. All joints should have a computed operating angle of 0.5 degrees below 3500 rpm and 1 degree above 3500 rpm.)	<input type="checkbox"/>
a. Computed angle measurement result 1: _____ degrees	<input type="checkbox"/>
b. Computed angle measurement result 2: _____ degrees	<input type="checkbox"/>
c. Computed angle measurement result 3: _____ degrees	<input type="checkbox"/>
d. Computed angle measurement result 4: _____ degrees	<input type="checkbox"/>
5. Compute operating angles of each driveshaft. See Figure 35-2.	<input type="checkbox"/>
a. Computed operating angle of driveshaft 1: _____ degrees	<input type="checkbox"/>
b. Computed operating angle of driveshaft 2: _____ degrees	<input type="checkbox"/>



c. Depending on the reading outcomes, angles may have to be adjusted.	<input type="checkbox"/>
d. If adjustments are necessary, record the procedure to correct any angles that are not in operating parameters:	<input type="checkbox"/>
6. Return the vehicle to its beginning condition, and return any tools you used to their proper locations.	<input type="checkbox"/>
7. Discuss your findings with your supervisor/instructor.	<input type="checkbox"/>

Non-Task-Specific Evaluations:	Step Completed
1. Tools and equipment were used as directed and returned in good working order.	<input type="checkbox"/>
2. Complied with all general and task-specific safety standards, including proper use of any personal protection equipment (PPE).	<input type="checkbox"/>
3. Completed the task in an appropriate time frame (recommendation: 1.5 or 2 times the flat rate).	<input type="checkbox"/>
4. Left the workspace clean and orderly.	<input type="checkbox"/>
5. Cared for customer property and returned it undamaged.	<input type="checkbox"/>

Student signature \_\_\_\_\_ Date \_\_\_\_\_

**Comments:**

Have your supervisor/instructor verify satisfactory completion of this procedure, any observations made, and any necessary action(s) recommended.

**Evaluation Instructions:** The scoring box below is intended to act as a guide for both student and supervisor/instructor. Each criterion listed will help students to understand what is expected of them and help supervisors/instructors to articulate the level of success at a particular task. The scoring is set up to allow a second attempt at each task (see the Test and Retest columns). Scoring is also designed only to award students points for task criteria that were completed correctly. Points are lost for failure to complete the employability requirements (see Non-Task-Specific Evaluation criteria). When all criteria are evaluated, tally the points for a total at the bottom of each column.

## Tasksheet Scoring

	Test		Retest	
Evaluation Items	Pass	Fail	Pass	Fail
Task-Specific Evaluation	(1 pt)	(0 pts)	(1 pt)	(0 pts)
Student detailed the 3 Cs on the submitted repair order.				
Student used manufacturer's repair information.				
Student performed diagnostic measurements properly and made appropriate conclusions.				
Student completed repairs as directed by the supervisor/instructor.				
Non-Task-Specific Evaluation	(0 pts)	(-1 pt)	(0 pts)	(-1 pt)
Student successfully completed at least three of the non-task-specific steps.				
Student successfully completed all five of the non-task-specific steps.				
<b>Total Score:</b> <total # of points /4 = %>				

### Supervisor/Instructor:

Supervisor/instructor signature \_\_\_\_\_ Date \_\_\_\_\_

### Comments:

Retest supervisor/instructor signature \_\_\_\_\_ Date \_\_\_\_\_

### Comments:

