

**Report Forms  
L-42**

**Version:**

Conducted For:

|  |  |
|--|--|
|  | <b>V</b> = Valid   |
|  | <b>I</b> = Invalid   |
|  | <b>N</b> = Results Cannot Be Interpreted (See Comment Section) |

|  |                                    |
|--|------------------------------------|
|  | <b>NR</b> = Non-Reference Test Oil |
|  | <b>RO</b> = Reference Oil Result   |

|                             |  |                   |  |
|-----------------------------|--|-------------------|--|
| <b>Test Number</b>          |  |                   |  |
| Test Stand:                 |  | Stand Run Number: |  |
| Date Completed:             |  | EOT Time:         |  |
| Oil Code:                   |  |                   |  |
| Formulation/Stand Code:     |  |                   |  |
| Alternate Codes:            |  |                   |  |
| Test Version <sup>A</sup> : |  |                   |  |

In my opinion this test \_\_\_\_\_ been conducted in a valid manner in accordance with the latest draft of L-42 procedure and the appropriate amendments through the information letter system. The remarks included in this report describe the anomalies associated with this test.

<sup>A</sup> Standard or Canadian

Submitted By:

\_\_\_\_\_

Testing Laboratory

\_\_\_\_\_

Signature

\_\_\_\_\_

Typed Name

\_\_\_\_\_

Title

\_\_\_\_\_

Section

**L-42  
Form 1  
Test Result Summary**

|           |            |                |                                |
|-----------|------------|----------------|--------------------------------|
| Lab:      | Stand No.: | Stand Run No.: | TMC Oil Code (reference only): |
| Oil Code: |            |                | Lab Oil Code:                  |

| Test Date Started         | Test Date Completed | Drive Side Scoring (%)    |          | Coast Side Scoring (%) |  |                     | Coast Side Torque (lbf-ft) |                          |
|---------------------------|---------------------|---------------------------|----------|------------------------|--|---------------------|----------------------------|--------------------------|
|                           |                     | EOT Pinion                | EOT Ring | EOT Pinion             | EOT Ring                               | Shock Series 1 Ring | Shock Series 1 (Average)   | Shock Series 2 (Average) |
|                           |                     |                           |          |                        |  |                     |                            |                          |
| Conditioning 2 Test Time: |                     | Conditioning 4 Test Time: |          |                        | End of Test Time:                      |                     | Total Test Minutes:        |                          |
| Ring Batch:               |                     | Pinion Batch:             |          |                        | Latest Information Letter Run Against: |                     |                            |                          |

| <b>Stand Reference Oil Test History In Chronological Order</b> |                   |                     |               |          |             |                        |          |                        |          |                     |                            |                          |
|--|-------------------|---------------------|---------------|----------|-------------|------------------------|----------|------------------------|----------|---------------------|----------------------------|--------------------------|
|  | Test Date Started | Test Date Completed | Stand Run No. | CMIR No. | TMC Oil No. | Drive Side Scoring (%) |          | Coast Side Scoring (%) |          |                     | Coast Side Torque (lbf-ft) |                          |
|  |                   |                     |               |          |             | EOT Pinion             | EOT Ring | EOT Pinion             | EOT Ring | Shock Series 1 Ring | Shock Series 1 (Average)   | Shock Series 2 (Average) |
| <b>Discrimination</b> <sup>A</sup>                             |                   |                     |               |          |             |                        |          |                        |          |                     |                            |                          |
| <b>Calibration Sequence Passing Tests Only</b> <sup>B</sup>    |                   |                     |               |          |             |                        |          |                        |          |                     |                            |                          |
|  |                   |                     |               |          |             |                        |          |                        |          |                     |                            |                          |
|  |                   |                     |               |          |             |                        |          |                        |          |                     |                            |                          |
| <b>Passing Reference Oil Test Average</b>                      |                   |                     |               |          |             |                        |          |                        |          |                     |                            |                          |

<sup>A</sup>Only for non-reference tests.

<sup>B</sup>For non-reference and discrimination tests only.

**L-42**  
**Form 2**  
**Conditioning Phase Operational Data Summary**

|           |            |                |
|-----------|------------|----------------|
| Lab:      | Stand No.: | Stand Run No.: |
| Oil Code: |            |                |

| Operational Data |                        |                     |                        |                     |
|------------------|------------------------|---------------------|------------------------|---------------------|
|                  | Conditioning 1         |                     | Conditioning 3         |                     |
|                  | Wheel Speed<br>(r/min) | Torques<br>(lbf-ft) | Wheel Speed<br>(r/min) | Torques<br>(lbf-ft) |
| <b>Average</b>   |                        |                     |                        |                     |

| Operational Data  |         |                        |                     |                        |                     |
|-------------------|---------|------------------------|---------------------|------------------------|---------------------|
|                   |         | Conditioning 2         |                     | Conditioning 4         |                     |
|                   |         | Wheel Speed<br>(r/min) | Torques<br>(lbf-ft) | Wheel Speed<br>(r/min) | Torques<br>(lbf-ft) |
| <b>Drive Side</b> | Maximum |                        |                     |                        |                     |
|                   | Minimum |                        |                     |                        |                     |
|                   | Average |                        |                     |                        |                     |
| <b>Coast Side</b> | Maximum |                        |                     |                        |                     |
|                   | Minimum |                        |                     |                        |                     |
|                   | Average |                        |                     |                        |                     |

| Lubricant Temperature Data                   |               |         |         |         |
|--|---------------|---------|---------|---------|
| Phase  | Specification | Average | Minimum | Maximum |
| Gear Conditioning<br>(After reaching 215 °F) | 225 ± 10 °F   |         |         |         |

| Percent Deviation |                           |       |                      |       |                      |       |
|-------------------|---------------------------|-------|----------------------|-------|----------------------|-------|
|                   | Entire Conditioning Phase |       | Conditioning Phase 1 |       | Conditioning Phase 3 |       |
| Parameter         | Limits                    | % Out | Limits               | % Out | Limits               | % Out |
| Axle Oil Temp.    | 5.0%                      |       |                      |       |                      |       |
| Axle r/min        |                           |       | 5.0%                 |       | 5.0%                 |       |
| Pinion Torque     |                           |       | 5.0%                 |       | 5.0%                 |       |

**L-42**  
**Form 3**  
**Shock Series Operational Summary**

|          |            |               |
|----------|------------|---------------|
| Lab:     | Stand No.: | Stand Run No: |
| Oilcode: |            |               |

| <b>Stand Set-up</b>   |                       |              |                       |              |
|-----------------------|-----------------------|--------------|-----------------------|--------------|
|                       | <b>Shock Series 1</b> |              | <b>Shock Series 2</b> |              |
| Parameter             | Acceleration          | Deceleration | Acceleration          | Deceleration |
| Potentiometer Setting |                       |              |                       |              |
| Stand Set-up Version  |                       |              |                       |              |

| <b>Gear Loading Data</b> |         |                        |                     |                         |                        |                     |                         |
|--------------------------|---------|------------------------|---------------------|-------------------------|------------------------|---------------------|-------------------------|
| <b>Gear Side</b>         |         | <b>Shock Series 1</b>  |                     |                         | <b>Shock Series 2</b>  |                     |                         |
|                          |         | Wheel Speed<br>(r/min) | Torques<br>(lbf-ft) | Cycle Time<br>(Seconds) | Wheel Speed<br>(r/min) | Torques<br>(lbf-ft) | Cycle Time<br>(Seconds) |
| Drive                    | Maximum |                        |                     |                         |                        |                     |                         |
|                          | Minimum |                        |                     |                         |                        |                     |                         |
|                          | Average |                        |                     |                         |                        |                     |                         |
| Coast                    | Maximum |                        |                     |                         |                        |                     |                         |
|                          | Minimum |                        |                     |                         |                        |                     |                         |
|                          | Average |                        |                     |                         |                        |                     |                         |

| <b>Lubricant Temperature Data</b> |               |             |         |
|-----------------------------------|---------------|-------------|---------|
| Phase                             | Specification | Start Value | Maximum |
| Shock Series 1                    |               |             |         |
| Shock Series 2                    |               |             |         |

**L-42  
Form 4  
Measurement Summary**

|           |            |                |
|-----------|------------|----------------|
| Lab:      | Stand No.: | Stand Run No.: |
| Oil Code: |            |                |

| Axle Codes    |           |              |            |
|---------------|-----------|--------------|------------|
| Assembly Date | Match No. | Pinion Batch | Ring Batch |
|               |           |              |            |

| Contact Pattern Measurements   |             |            |             |
|--------------------------------|-------------|------------|-------------|
|                                |             | Drive Side | Coast -Side |
| Length Rating                  | As Received |            |             |
|                                | As Tested   |            |             |
| Flank Rating                   | As Received |            |             |
|                                | As Tested   |            |             |
| Contact Pattern Rater Initials |             |            |             |

| Test Axle Build Data            |                |         |                       |   |   |      |         |         |
|---------------------------------|----------------|---------|-----------------------|---|---|------|---------|---------|
| Backlash (in.)                  | Specification  | Average | Position Measurements |   |   |      | Minimum | Maximum |
|                                 |                |         | 1                     | 2 | 3 | 4    |         |         |
| Initial                         | .004 -.009 in. |         |                       |   |   |      |         |         |
| Final                           |                |         |                       |   |   |      |         |         |
| Increase                        |                |         | Break                 |   |   | Turn |         |         |
| Initial Pinion Torque (lbf -in) |                |         |                       |   |   |      |         |         |

| Inspection      | Ring% Scoring |            | Pinion % Scoring   |            |
|-----------------|---------------|------------|--------------------|------------|
|                 | Drive Side    | Coast Side | Drive Side         | Coast Side |
| Inspection 1    |               |            |                    |            |
| Inspection 2    |               |            |                    |            |
| EOT             |               |            |                    |            |
| EOT Rating Date |               |            | EOT Rater Initials |            |
|                 |               |            |                    |            |





**L-42**  
**Form 6**

**Conditioning Phase 1 & 2 – Wheel Speed vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |



**L-42**  
**Form 7**

**Conditioning Phase 3 & 4 – Wheel Speed vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 8**

**Shock Series 1 – Wheel Speed vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 9**

**Shock Series 2 – Wheel Speed vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 10**

**Conditioning Phase 1 & 2 – Pinion Torque vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 11**

**Conditioning Phase 3 & 4 – Pinion Torque vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 12**

**Conditioning Phase 2 – Pinion Torque vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 13**

**Conditioning Phase 4 – Pinion Torque vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 14**

**Shock Series 1 – Pinion Torque vs. Time (5 shocks)**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |



**L-42**  
**Form 15**

**Shock Series 2 – Pinion Torque vs. Time (10 shocks)**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |

**L-42**  
**Form 16**

**Axle Oil Temperature vs. Time**

|          |            |                |
|----------|------------|----------------|
| Lab:     | Stand No.: | Stand Run No.: |
| Oilcode: |            |                |