July 2020

MTC-4208X/XL/XP/XLEV/XLEC, MTC-4210X/XL/XP/XLEV/XLEC & MTC-4213X SERIES TRANSFER CASES
This manual provides service and repair procedures for Meritor MTC-4208XL/XLEV/XLEC, MTC-4210XL/XLEV/XLEC, and MTC-4213X transfer cases.

Transfer Case Interchangeability

The MTC-4208XL/XLEV/XLEC and MTC-4210XL/XLEV/XLEC transfer case models are directly interchangeable with MTC-4208XL and MTC-4210XL transfer case specifications.

Interface points for the oil cooler inlet and outlet lines (if equipped) on the XL, XLEV, and XLEC models are different from the X and XP, which affect the lengths of the oil cooler lines. The exterior geometry of the housing and location of lubrication lines also change, which potentially impacts clearances to surrounding components. In addition, GS models cannot be used in place of the X models in applications with “engage-on-the-fly” systems or mid-ship pumps.

The MTC-4208XP, MTC-4210XP, & MTC-4213X transfer case models are backward-compatible with MTC-4208GS, MTC-4210GS, and MTC-4213GS transfer case specifications.

There are no changes to the oil cooler interface points with these models.

For more information on MTC-4208, MTC-4210, and MTC-4213GS Series transfer cases, refer to Maintenance Manual MM-0146 - Transfer Cases. To obtain this publication, visit Literature on Demand at meritor.com.

Before You Begin

1. Read and understand all instructions and procedures before you begin to service components.
2. Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.
3. Follow your company’s maintenance and service, installation, and diagnostics guidelines.
4. Use special tools when required to help avoid serious personal injury and damage to components.

How to Obtain Additional Maintenance, Service, and Product Information

Visit Literature on Demand at meritor.com to access and order additional information.

Contact the Meritor OnTrac™ Customer Call Center at 866-668-7221 (United States and Canada); 001-800-889-1834 (Mexico); or email OnTrac@meritor.com.

How to Obtain Tools and Supplies Specified in This Manual

Contact Meritor’s Commercial Vehicle Aftermarket at 888-725-9355.
Table of Contents

About This Manual ........................................................................................................ 1

Section 1: Exploded Views ....................................................................................... 1
  MTC-4208X/XP Transfer Case Rear Cover ............................................................... 1
  MTC-4208X/XP Transfer Case Front Cover .............................................................. 3
  MTC-4208X/XP Transfer Case Rear Cover .............................................................. 5
  MTC-4208X/XP Transfer Case Front Cover .............................................................. 7
  MTC-4208X/XP Transfer Case Rear Cover .............................................................. 9
  MTC-4208X/XP Transfer Case Front Cover ............................................................ 11
  MTC-4208X/XP Transfer Case Rear Cover ............................................................ 13
  MTC-4208X/XP Transfer Case Front Cover ............................................................ 15
  MTC-4208X/XP Transfer Case Rear Cover ............................................................ 17
  MTC-4208X/XP Transfer Case Front Cover ............................................................ 19
  MTC-4208X/XP Transfer Case Rear Cover ............................................................ 21
  MTC-4208X/XP Transfer Case Front Cover ............................................................ 23
  MTC-4208X/XP Transfer Case Rear Cover ............................................................ 25
  MTC-4208X/XP Transfer Case Front Cover ............................................................ 27
  MTC-4208XP & MTC-4210XP Declutch/PTO ....................................................... 29

Section 2: Introduction ............................................................................................. 31
  Model Nomenclature .............................................................................................. 31
  Description ............................................................................................................. 32
  Operation ................................................................................................................ 34

Section 3: Removal .................................................................................................. 37
  Hazard Alert Messages .......................................................................................... 37
  Remove the Transfer Case Assembly .................................................................... 37

Section 4: Disassembly ........................................................................................... 40
  Hazard Alert Messages .......................................................................................... 40
  Remove the Input Shaft Assembly from an Assembled Transfer Case (for input shaft repairs only) ................................................................. 40
  Disassemble the Transfer Case ............................................................................. 41

Section 5: Prepare Parts for Assembly ................................................................. 51
  Hazard Alert Messages .......................................................................................... 51
  Clean and Dry Parts ............................................................................................... 51
  Inspect Parts .......................................................................................................... 52

Section 6: Assembly ............................................................................................... 56
  Hazard Alert Messages .......................................................................................... 56
  Gear & Shaft Subassembly Build Up ..................................................................... 56
  Gear & Shaft Installation into the Transfer Case Halves ...................................... 61
  Install the Front Input Shaft, Input Bearing Cage, & Internal Oil Pump Assembly Installation (If Equipped) .............................................................. 62
  Install the Upper Rear Output Shaft (MTC-4213X Only) ...................................... 63
  End Play Check & Adjustment ............................................................................. 64
  Front Output Shaft End Play (All Models) ............................................................ 65
  MTC-4213X Rear Output Shaft End Play .............................................................. 67
  Final Assembly ..................................................................................................... 70
  Transfer Case Shifting Check .............................................................................. 77
  Transfer Case Assembly Test ............................................................................... 77
  External Oil Pump Priming Procedure (MTC-4208XL/XLEV & MTC-4210XL/XLEV) ................................................................. 78
  Pump Pressure Test & Oil Fill Check ................................................................... 78
  Optional Oil Pressure Test & Oil Fill Check .......................................................... 79
  MTC-4208/10 XLEC Oil Fill & Pump Pressure Test ............................................. 80

Section 7: Power Take-Off (PTO) ........................................................................ 81
  Hazard Alert Messages .......................................................................................... 81
  Installation ............................................................................................................. 81
  Exploded View ..................................................................................................... 82
  Remove the Transfer Case Rear Access Cover .................................................... 83
  Exploded View ..................................................................................................... 83
  Install the Yoke onto the PTO ............................................................................. 84
  Install the Optional Indicator Switch ................................................................... 84
  Install the PTO Onto the Transfer Case ............................................................... 85
  Test the PTO Installation ..................................................................................... 85
  Test the Transfer Case with PTO Assembly Installed ........................................ 86
  PTO Disassembly ................................................................................................. 86

Section 8: Installation ............................................................................................. 89
  Hazard Alert Messages .......................................................................................... 89
  Install the Transfer Case ...................................................................................... 89
  Oil Cooler Line Connections ............................................................................... 89
Contents

Section 9: Troubleshooting ........................................ 92
Transfer Case Lubrication Diagnostics .......................... 92
Excessive Noise and Vibration Diagnostics ..................... 94
PTO Does Not Engage/Disengage Diagnostics .................. 95
Front Axle Declutch Does Not Engage/Disengage Diagnostics .................................................. 96
High/Low Gear Shifting Diagnostics ................................ 97

Section 10: Lubrication & Maintenance .......... 98
Hazard Alert Messages .................................................. 98
How to Obtain Additional Information ............................. 98
Lubricant Temperatures .................................................. 98
Operating Information ..................................................... 98
Check & Adjust the Oil Level ........................................... 100
Drain & Replace the Oil .................................................. 101
Transfer Case Inspection ................................................. 101

Section 11: Torque Specifications ................. 104
Standard MTC-4213X, MTC-4208XP, & MTC-4210XP .............................................................. 104
Standard MTC-4208X/XL/XLEV & MTC-4210X/XL/XLEV .......................................................... 106

Section 12: Vehicle Towing Instructions ....... 108

Section 13: Tools .................................................. 109
Holding Fixture (905473-140) ........................................... 109
Bearing Cone Driver (905473-92) .................................. 110
Bearing Cone Driver (905473-82) .................................. 110
Bearing Driver ((4FI20-27110-000008)) ......................... 111
Bearing Driver (4FI20-27110-000008-D01) ..................... 111
Bearing Driver Guide (4FI20-27110-000008-D02) ............ 112
Bearing Cup Driver (910203-36) .................................. 112
Bearing Cup Driver (4FI20-27110-000007) ..................... 113
Bearing Cup Driver (910203-37) .................................. 114
PTO Bearing Cone Driver .............................................. 115
Modified Bearing Cup Puller .......................................... 116
Exploded Views

MTC-4208X/XP Transfer Case Rear Cover

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Capscrew and Washer</td>
<td>15</td>
<td>Bearing Cone</td>
</tr>
<tr>
<td>2</td>
<td>Cover</td>
<td>16</td>
<td>Ceramic Magnet</td>
</tr>
<tr>
<td>3</td>
<td>Lock Nut</td>
<td>17</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>4</td>
<td>Hardened Washer</td>
<td>18</td>
<td>Rear Output Oil Seal</td>
</tr>
<tr>
<td>5</td>
<td>Transfer Case Rear Cover</td>
<td>19</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>6</td>
<td>Shipping Protector</td>
<td>20</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>7</td>
<td>Shift Cylinder</td>
<td>21</td>
<td>PTO Assembly (Optional)</td>
</tr>
<tr>
<td>8</td>
<td>Shift Piston O-ring</td>
<td>22</td>
<td>Breather Assembly</td>
</tr>
<tr>
<td>9</td>
<td>Shift Piston</td>
<td>23</td>
<td>Snap Ring</td>
</tr>
<tr>
<td>10</td>
<td>O-ring</td>
<td>24</td>
<td>Elbow</td>
</tr>
<tr>
<td>11</td>
<td>Neutral Breather*</td>
<td>25</td>
<td>Shim</td>
</tr>
<tr>
<td>12</td>
<td>Speed Sensor</td>
<td>26</td>
<td>O-ring, Housing</td>
</tr>
<tr>
<td>13</td>
<td>Bearing Cup</td>
<td>27</td>
<td>Blow-by Breather</td>
</tr>
<tr>
<td>14</td>
<td>Idler Gear</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Vehicles not equipped with a transfer case neutral air control may be equipped with a neutral breather which allows the shift cavity to exhaust. On vehicles equipped with a neutral air control, the solenoid allows this cavity to exhaust.
MTC-4208X/XP Transfer Case Front Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lock Nut</td>
<td>28</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>2</td>
<td>Bearing Cone</td>
<td>29</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>3</td>
<td>Helical Driven Gear</td>
<td>30</td>
<td>Input Yoke</td>
</tr>
<tr>
<td>4</td>
<td>Front Output Shaft</td>
<td>31</td>
<td>Input Oil Seal</td>
</tr>
<tr>
<td>5</td>
<td>Front Output Clutch Collar</td>
<td>32</td>
<td>Inlet Oil Tube Assembly</td>
</tr>
<tr>
<td>6</td>
<td>Bearing Cone</td>
<td>33</td>
<td>Oil Fitting Assembly</td>
</tr>
<tr>
<td>7</td>
<td>O-ring</td>
<td>34</td>
<td>Front Output Yoke</td>
</tr>
<tr>
<td>8</td>
<td>Snap Ring</td>
<td>35</td>
<td>Front Output Oil Seal</td>
</tr>
<tr>
<td>9</td>
<td>Shift Piston</td>
<td>36</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>10</td>
<td>Shift Shaft</td>
<td>37</td>
<td>Relief Assembly</td>
</tr>
<tr>
<td>11</td>
<td>Shift Fork Capscrew</td>
<td>38</td>
<td>Relief Valve</td>
</tr>
<tr>
<td>12</td>
<td>Shift Fork</td>
<td>39</td>
<td>Bearing Cup</td>
</tr>
<tr>
<td>13</td>
<td>Helical Drive Gear, High Range</td>
<td>40</td>
<td>Locating Dowel Pin</td>
</tr>
<tr>
<td>14</td>
<td>High and Low Clutch Collar</td>
<td>41</td>
<td>Input Shaft</td>
</tr>
<tr>
<td>15</td>
<td>Helical Drive Gear, Low Range</td>
<td>42</td>
<td>Driven Gear and Rear Output Shaft</td>
</tr>
<tr>
<td>16</td>
<td>Snap Ring</td>
<td>43</td>
<td>Push Rod</td>
</tr>
<tr>
<td>17</td>
<td>Transfer Case Front Case</td>
<td>44</td>
<td>Spring</td>
</tr>
<tr>
<td>18</td>
<td>Locating Dowel Pin</td>
<td>45</td>
<td>Needle Bearing</td>
</tr>
<tr>
<td>19</td>
<td>Oil Cooler Male Connector</td>
<td>46</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>20</td>
<td>Loop Tube</td>
<td>47</td>
<td>3/8&quot; Plug</td>
</tr>
<tr>
<td>21</td>
<td>Oil Pump Capscrew and Washer</td>
<td>48</td>
<td>Drain Plug</td>
</tr>
<tr>
<td>22</td>
<td>Male Fitting</td>
<td>49</td>
<td>Magnetic Drain Plug</td>
</tr>
<tr>
<td>23</td>
<td>Oil Pump Assembly</td>
<td>50</td>
<td>Oil Fill Plug</td>
</tr>
<tr>
<td>24</td>
<td>Bearing Cone</td>
<td>51</td>
<td>Shift Piston</td>
</tr>
<tr>
<td>25</td>
<td>Shim</td>
<td>52</td>
<td>Shift Piston O-ring</td>
</tr>
<tr>
<td>26</td>
<td>Input Bearing Cage</td>
<td>53</td>
<td>Shipping Protector</td>
</tr>
<tr>
<td>27</td>
<td>Bearing Cage Capscrew and Washer</td>
<td>54</td>
<td>Shift Cylinder</td>
</tr>
</tbody>
</table>
MTC-4208XL Transfer Case Rear Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T-Fitting</td>
<td>19</td>
<td>Speed Sensor</td>
</tr>
<tr>
<td>2</td>
<td>Cap</td>
<td>20</td>
<td>Capscrew and Washer</td>
</tr>
<tr>
<td>3</td>
<td>Oil Pump Cover</td>
<td>21</td>
<td>Bearing Cups</td>
</tr>
<tr>
<td>4</td>
<td>Capscrew and Washer</td>
<td>22</td>
<td>Bearing Cone</td>
</tr>
<tr>
<td>5</td>
<td>Switch Assembly</td>
<td>23</td>
<td>Double Idler Gear</td>
</tr>
<tr>
<td>6</td>
<td>Oil Pump Housing</td>
<td>24</td>
<td>Rear Housing</td>
</tr>
<tr>
<td>7</td>
<td>Pump Cover O-ring</td>
<td>25</td>
<td>Breather</td>
</tr>
<tr>
<td>8</td>
<td>Oil Pump Assembly</td>
<td>26</td>
<td>Elbow</td>
</tr>
<tr>
<td>9</td>
<td>Shipping Protector</td>
<td>27</td>
<td>Filter Screen Assembly Tube</td>
</tr>
<tr>
<td>10</td>
<td>Shift Cylinder</td>
<td>28</td>
<td>O-ring, Housing</td>
</tr>
<tr>
<td>11</td>
<td>Snap Ring</td>
<td>29</td>
<td>Rear Output Oil Seal</td>
</tr>
<tr>
<td>12</td>
<td>Shift Piston O-Ring</td>
<td>30</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>13</td>
<td>Shift Piston</td>
<td>31</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>14</td>
<td>O-ring</td>
<td>32</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>15</td>
<td>Blow-by Breather</td>
<td>33</td>
<td>Oil Pump Inlet Tube</td>
</tr>
<tr>
<td>16</td>
<td>Neutral Breather</td>
<td>33A</td>
<td>Tube Assembly, Without Oil Cooler</td>
</tr>
<tr>
<td>17</td>
<td>Shipping Protector</td>
<td>34</td>
<td>Oil Pump Inlet Fitting</td>
</tr>
<tr>
<td>18</td>
<td>Neutral Breather Fitting</td>
<td>34A</td>
<td>Fitting, Without Oil Cooler</td>
</tr>
</tbody>
</table>
Exploded Views

MTC-4208XL Transfer Case Front Cover

4007102a
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lock Nut</td>
<td>26</td>
<td>Bearing Cage Capscrew and Washer</td>
</tr>
<tr>
<td>2</td>
<td>Washer</td>
<td>27</td>
<td>Input Oil Seal</td>
</tr>
<tr>
<td>3</td>
<td>Snap Ring</td>
<td>28</td>
<td>Input Yoke</td>
</tr>
<tr>
<td>4</td>
<td>Shift Piston O-ring</td>
<td>29</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>5</td>
<td>Shift Piston</td>
<td>30</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>31</td>
<td>Front Output Yoke</td>
</tr>
<tr>
<td>7</td>
<td>Shift Shaft</td>
<td>32</td>
<td>Front Output Oil Seal</td>
</tr>
<tr>
<td>8</td>
<td>Bearing Cone</td>
<td>33</td>
<td>Plug / Fitting</td>
</tr>
<tr>
<td>9</td>
<td>Helical Drive Gear, High Range</td>
<td>34</td>
<td>Declutch Cylinder</td>
</tr>
<tr>
<td>10</td>
<td>Shift Fork Capscrew</td>
<td>35</td>
<td>O-ring</td>
</tr>
<tr>
<td>11</td>
<td>Shift Fork</td>
<td>36</td>
<td>Declutch Cylinder Piston</td>
</tr>
<tr>
<td>12</td>
<td>High and Low Clutch Collar</td>
<td>37</td>
<td>Drain Plug</td>
</tr>
<tr>
<td>13</td>
<td>Oil Pump Pin</td>
<td>38</td>
<td>Shim</td>
</tr>
<tr>
<td>14</td>
<td>Input Shaft</td>
<td>39</td>
<td>Bearing Cup</td>
</tr>
<tr>
<td>15</td>
<td>Helical Drive Gear, Low Range</td>
<td>40</td>
<td>Front Output Clutch Collar</td>
</tr>
<tr>
<td>16</td>
<td>Snap Ring</td>
<td>41</td>
<td>Shift Fork</td>
</tr>
<tr>
<td>17</td>
<td>Male Fitting</td>
<td>42</td>
<td>Push Rod</td>
</tr>
<tr>
<td>18</td>
<td>Front Cover Housing</td>
<td>43</td>
<td>Driven Gear and Rear Output Shaft</td>
</tr>
<tr>
<td>19</td>
<td>Plug</td>
<td>44</td>
<td>Spring</td>
</tr>
<tr>
<td>20</td>
<td>Locating Dowel Pin</td>
<td>45</td>
<td>Front Output Shaft</td>
</tr>
<tr>
<td>21</td>
<td>Elbow</td>
<td>46</td>
<td>Needle Bearing</td>
</tr>
<tr>
<td>22</td>
<td>Oil Spacer</td>
<td>47</td>
<td>Helical Driven Gear</td>
</tr>
<tr>
<td>23</td>
<td>Shim</td>
<td>48</td>
<td>Fill Plug</td>
</tr>
<tr>
<td>24</td>
<td>O-ring</td>
<td>49</td>
<td>Magnetic Drain Plug</td>
</tr>
<tr>
<td>25</td>
<td>Input Bearing Cage</td>
<td>50</td>
<td>Yoke Sleeve</td>
</tr>
</tbody>
</table>
MTC-4208XLEV/XLEC Transfer Case Rear Cover

WITHOUT OIL COOLER

XLEC VARIANT

4011708c
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T-Fitting</td>
<td>24</td>
<td>Rear Housing</td>
</tr>
<tr>
<td>1A</td>
<td>Cap</td>
<td>25</td>
<td>Filter Screen Assembly Tube</td>
</tr>
<tr>
<td>2</td>
<td>Oil Pump Cover</td>
<td>26</td>
<td>Rear Output Oil Seal</td>
</tr>
<tr>
<td>3</td>
<td>Capscrew and Washer</td>
<td>27</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>4</td>
<td>Switch Assembly</td>
<td>28</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>5</td>
<td>Oil Pump Housing</td>
<td>29</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>6</td>
<td>Pump Cover O-ring</td>
<td>30</td>
<td>Oil Pump Inlet Tube</td>
</tr>
<tr>
<td>7</td>
<td>Oil Pump Assembly</td>
<td>30A</td>
<td>Tube Assembly, without Oil Cooler</td>
</tr>
<tr>
<td>8</td>
<td>Shipping Protector</td>
<td>31</td>
<td>Fitting, without Oil Cooler</td>
</tr>
<tr>
<td>9</td>
<td>Shift Cylinder</td>
<td>32</td>
<td>Pump Cover Assembly</td>
</tr>
<tr>
<td>10</td>
<td>Shift Piston O-ring</td>
<td>33</td>
<td>#6 Male JIC 37° x 3/8&quot; NPT Fitting</td>
</tr>
<tr>
<td>11</td>
<td>Snap Ring</td>
<td>34</td>
<td>Connector Fitting</td>
</tr>
<tr>
<td>12</td>
<td>0-ring</td>
<td>35</td>
<td>Capscrew</td>
</tr>
<tr>
<td>13</td>
<td>Shift Piston</td>
<td>36</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>14</td>
<td>Blow-by Breather</td>
<td>37A</td>
<td>LH-Side Cooler Oil Pump Tube</td>
</tr>
<tr>
<td>15</td>
<td>Neutral Breather</td>
<td>37B</td>
<td>RH-Side Cooler Oil Pump Tube</td>
</tr>
<tr>
<td>16</td>
<td>Shopping Protector</td>
<td>38</td>
<td>#6 Male JIC 37° (2 Port) x #6 Male JIC 37° Swivel</td>
</tr>
<tr>
<td>17</td>
<td>Neutral Breather Fitting</td>
<td>39</td>
<td>Pipe Plug, 1/4-18 NPT</td>
</tr>
<tr>
<td>18</td>
<td>Speed Sensor</td>
<td>40</td>
<td>Socket Head Bolt</td>
</tr>
<tr>
<td>19</td>
<td>Capscrew and Washer</td>
<td>41</td>
<td>P-Clamp</td>
</tr>
<tr>
<td>20</td>
<td>Bearing Cups</td>
<td>42</td>
<td>Angle Bracket</td>
</tr>
<tr>
<td>21</td>
<td>Shims</td>
<td>43</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>22</td>
<td>Bearing Cone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Double Idler Gear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Rear Housing</td>
<td>25</td>
<td>Filter Screen Assembly Tube</td>
</tr>
<tr>
<td>26</td>
<td>Rear Output Oil Seal</td>
<td>27</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>28</td>
<td>Flat Washer</td>
<td>29</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>30</td>
<td>Oil Pump Inlet Tube</td>
<td>30A</td>
<td>Tube Assembly, without Oil Cooler</td>
</tr>
<tr>
<td>31</td>
<td>Fitting, without Oil Cooler</td>
<td>32</td>
<td>Pump Cover Assembly</td>
</tr>
<tr>
<td>33</td>
<td>#6 Male JIC 37° x 3/8&quot; NPT Fitting</td>
<td>34</td>
<td>Connector Fitting</td>
</tr>
<tr>
<td>35</td>
<td>Capscrew</td>
<td>36</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>37A</td>
<td>LH-Side Cooler Oil Pump Tube</td>
<td>37B</td>
<td>RH-Side Cooler Oil Pump Tube</td>
</tr>
<tr>
<td>38</td>
<td>#6 Male JIC 37° (2 Port) x #6 Male JIC 37° Swivel</td>
<td>39</td>
<td>Pipe Plug, 1/4-18 NPT</td>
</tr>
<tr>
<td>40</td>
<td>Socket Head Bolt</td>
<td>41</td>
<td>P-Clamp</td>
</tr>
<tr>
<td>42</td>
<td>Angle Bracket</td>
<td>43</td>
<td>Lock Nut</td>
</tr>
</tbody>
</table>
Exploded Views

MTC-4208XLEV/XLEC Transfer Case Front Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Snap Ring</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>Shift Piston</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>O-ring</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>Shift Piston O-ring</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>O-ring</td>
<td>33</td>
</tr>
<tr>
<td>6</td>
<td>Shift Shaft</td>
<td>34</td>
</tr>
<tr>
<td>7</td>
<td>Shift Fork Capscrew</td>
<td>35</td>
</tr>
<tr>
<td>8</td>
<td>Shift Fork</td>
<td>36</td>
</tr>
<tr>
<td>9</td>
<td>Oil Pump Pin</td>
<td>37</td>
</tr>
<tr>
<td>10</td>
<td>Input Shaft</td>
<td>38</td>
</tr>
<tr>
<td>11</td>
<td>Needle Bearing</td>
<td>39</td>
</tr>
<tr>
<td>12</td>
<td>Helical Drive Gear, Low Range</td>
<td>40</td>
</tr>
<tr>
<td>13</td>
<td>Spacer</td>
<td>41</td>
</tr>
<tr>
<td>14</td>
<td>Snap Ring</td>
<td>42</td>
</tr>
<tr>
<td>15</td>
<td>Male Fitting</td>
<td>43</td>
</tr>
<tr>
<td>16</td>
<td>Front Cover Housing</td>
<td>44</td>
</tr>
<tr>
<td>17</td>
<td>Plug</td>
<td>45</td>
</tr>
<tr>
<td>18</td>
<td>Breather</td>
<td>46</td>
</tr>
<tr>
<td>19</td>
<td>Locating Dowel Pin</td>
<td>47</td>
</tr>
<tr>
<td>20</td>
<td>Bearing</td>
<td>48</td>
</tr>
<tr>
<td>21</td>
<td>Oil Spacer</td>
<td>49</td>
</tr>
<tr>
<td>22</td>
<td>Bearing Cup</td>
<td>50</td>
</tr>
<tr>
<td>23</td>
<td>Shim</td>
<td>51</td>
</tr>
<tr>
<td>24</td>
<td>O-ring</td>
<td>52</td>
</tr>
<tr>
<td>25</td>
<td>Input Bearing Cage</td>
<td>53</td>
</tr>
<tr>
<td>26</td>
<td>Bearing Cage Capscrew and Washer</td>
<td>54</td>
</tr>
<tr>
<td>27</td>
<td>Input Oil Seal</td>
<td>55</td>
</tr>
<tr>
<td>28</td>
<td>Yoke Sleeve</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Item</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>PTO Assembly (Optional)</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Capscrew and Washer</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>Cover</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>Hardened Washer</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>Lock Nut</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>Transfer Case Rear Cover</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Shipping Protector</td>
<td>21</td>
</tr>
<tr>
<td>8</td>
<td>Shift Cylinder</td>
<td>22</td>
</tr>
<tr>
<td>9</td>
<td>Snap Ring</td>
<td>23</td>
</tr>
<tr>
<td>10</td>
<td>Shift Piston O-ring</td>
<td>24</td>
</tr>
<tr>
<td>11</td>
<td>Shift Piston</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>O-ring</td>
<td>26</td>
</tr>
<tr>
<td>13</td>
<td>Blow-by Breather</td>
<td>27</td>
</tr>
<tr>
<td>14</td>
<td>Housing O-ring</td>
<td></td>
</tr>
</tbody>
</table>

* Vehicles not equipped with a transfer case neutral air control may be equipped with a neutral breather which allows the shift cavity to exhaust. On vehicles equipped with a neutral air control, the solenoid allows this cavity to exhaust.
MTC-4210X/XP Transfer Case Front Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lock Nut</td>
<td>27</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>2</td>
<td>Bearing Cone</td>
<td>28</td>
<td>Input Yoke</td>
</tr>
<tr>
<td>3</td>
<td>Helical Driven Gear</td>
<td>29</td>
<td>Input Oil Seal</td>
</tr>
<tr>
<td>4</td>
<td>Front Output Shaft</td>
<td>30</td>
<td>Inlet Oil Tube Assembly</td>
</tr>
<tr>
<td>5</td>
<td>Front Output Clutch Collar</td>
<td>31</td>
<td>Oil Fitting Assembly</td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>32</td>
<td>Front Output Yoke</td>
</tr>
<tr>
<td>7</td>
<td>Snap Ring</td>
<td>33</td>
<td>Front Output Oil Seal</td>
</tr>
<tr>
<td>8</td>
<td>Shift Piston</td>
<td>34</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>9</td>
<td>Shift Shaft</td>
<td>35</td>
<td>Relief Valve Spring</td>
</tr>
<tr>
<td>10</td>
<td>Shift Fork Capscrew</td>
<td>36</td>
<td>Relief Valve</td>
</tr>
<tr>
<td>11</td>
<td>Shift Fork</td>
<td>37</td>
<td>Bearing Cup</td>
</tr>
<tr>
<td>12</td>
<td>Helical Drive Gear, High Range</td>
<td>38</td>
<td>Locating Dowel Pin</td>
</tr>
<tr>
<td>13</td>
<td>High and Low Clutch Collar</td>
<td>39</td>
<td>Input Shaft</td>
</tr>
<tr>
<td>14</td>
<td>Helical Drive Gear, Low Range</td>
<td>40</td>
<td>Driven Gear and Rear Output Shaft</td>
</tr>
<tr>
<td>15</td>
<td>Snap Ring</td>
<td>41</td>
<td>Push Rod</td>
</tr>
<tr>
<td>16</td>
<td>Transfer Case Front Cover</td>
<td>42</td>
<td>Spring</td>
</tr>
<tr>
<td>17</td>
<td>Locating Dowel Pin</td>
<td>43</td>
<td>Needle Bearing</td>
</tr>
<tr>
<td>18</td>
<td>Oil Cooler Male Connector</td>
<td>44</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>19</td>
<td>Loop Tube</td>
<td>45</td>
<td>3/8” Plug</td>
</tr>
<tr>
<td>20</td>
<td>Oil Pump Capscrew and Washer</td>
<td>46</td>
<td>Drain Plug</td>
</tr>
<tr>
<td>21</td>
<td>Male Fitting</td>
<td>47</td>
<td>Magnetic Drain Plug</td>
</tr>
<tr>
<td>22</td>
<td>Oil Pump Assembly</td>
<td>48</td>
<td>Oil Fill Plug</td>
</tr>
<tr>
<td>23</td>
<td>Shim</td>
<td>49</td>
<td>Shift Cylinder</td>
</tr>
<tr>
<td>24</td>
<td>Input Bearing Cage</td>
<td>50</td>
<td>Shift Piston O-ring</td>
</tr>
<tr>
<td>25</td>
<td>Bearing Cage Capscrew and Washer</td>
<td>51</td>
<td>Shipping Protector</td>
</tr>
<tr>
<td>26</td>
<td>Lock Nut</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MTC-4210XL Transfer Case Rear Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T-Fitting</td>
<td>19</td>
<td>Speed Sensor</td>
</tr>
<tr>
<td>2</td>
<td>Cap</td>
<td>20</td>
<td>Capscrew and Washer</td>
</tr>
<tr>
<td>3</td>
<td>Oil Pump Cover</td>
<td>21</td>
<td>Bearing Cup</td>
</tr>
<tr>
<td>4</td>
<td>Capscrew and Washer</td>
<td>22</td>
<td>Bearing Cone</td>
</tr>
<tr>
<td>5</td>
<td>Switch Assembly</td>
<td>23</td>
<td>Double Idler Gear</td>
</tr>
<tr>
<td>6</td>
<td>Oil Pump Housing</td>
<td>24</td>
<td>Rear Housing</td>
</tr>
<tr>
<td>7</td>
<td>Pump Cover O-ring</td>
<td>25</td>
<td>Breather</td>
</tr>
<tr>
<td>8</td>
<td>Oil Pump Assembly</td>
<td>26</td>
<td>Elbow</td>
</tr>
<tr>
<td>9</td>
<td>Shipping Protector</td>
<td>27</td>
<td>Filter Screen Assembly Tube</td>
</tr>
<tr>
<td>10</td>
<td>Shift Cylinder</td>
<td>28</td>
<td>Housing O-ring</td>
</tr>
<tr>
<td>11</td>
<td>Snap Ring</td>
<td>29</td>
<td>Rear Output Oil Seal</td>
</tr>
<tr>
<td>12</td>
<td>Shift Piston O-ring</td>
<td>30</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>13</td>
<td>Shift Piston</td>
<td>31</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>14</td>
<td>O-ring</td>
<td>32</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>15</td>
<td>Blow-by Breather</td>
<td>33</td>
<td>Oil Pump Inlet Tube</td>
</tr>
<tr>
<td>16</td>
<td>Neutral Breather</td>
<td>33A</td>
<td>Tube Assembly, without Oil Cooler</td>
</tr>
<tr>
<td>17</td>
<td>Shipping Protector</td>
<td>34</td>
<td>Oil Pump Inlet Fitting</td>
</tr>
<tr>
<td>18</td>
<td>Neutral Breather Fitting</td>
<td>34A</td>
<td>Fitting, without Oil Cooler</td>
</tr>
</tbody>
</table>
MTC-4210XL Transfer Case Front Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Snap Ring</td>
<td>26</td>
<td>Input Yoke</td>
</tr>
<tr>
<td>2</td>
<td>Shift Piston O-ring</td>
<td>27</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>3</td>
<td>Shift Piston</td>
<td>28</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>4</td>
<td>O-ring</td>
<td>29</td>
<td>Front Output Yoke</td>
</tr>
<tr>
<td>5</td>
<td>Shift Shaft</td>
<td>30</td>
<td>Front Output Oil Seal</td>
</tr>
<tr>
<td>6</td>
<td>Shift Fork Capscrew</td>
<td>31</td>
<td>Plug / Fitting</td>
</tr>
<tr>
<td>7</td>
<td>Shift Fork</td>
<td>32</td>
<td>Declutch Cylinder</td>
</tr>
<tr>
<td>8</td>
<td>Oil Pump Pin</td>
<td>33</td>
<td>O-ring</td>
</tr>
<tr>
<td>9</td>
<td>Input Shaft</td>
<td>34</td>
<td>Declutch Cylinder Piston</td>
</tr>
<tr>
<td>10</td>
<td>Helical Drive Gear, Low Range</td>
<td>35</td>
<td>Push Rod</td>
</tr>
<tr>
<td>11</td>
<td>Snap Ring</td>
<td>36</td>
<td>Driven Gear and Rear Output Shaft</td>
</tr>
<tr>
<td>12</td>
<td>Shim</td>
<td>37</td>
<td>Spring</td>
</tr>
<tr>
<td>13</td>
<td>Male Fitting</td>
<td>38</td>
<td>High and Low Clutch Collar</td>
</tr>
<tr>
<td>14</td>
<td>Front Housing Cover</td>
<td>39</td>
<td>Helical Drive Gear, High Range</td>
</tr>
<tr>
<td>15</td>
<td>Plug</td>
<td>40</td>
<td>Washer</td>
</tr>
<tr>
<td>16</td>
<td>Locating Dowel Pin</td>
<td>41</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>17</td>
<td>Bearing Cone</td>
<td>42</td>
<td>Helical Driven Gear</td>
</tr>
<tr>
<td>18</td>
<td>Oil Spacer</td>
<td>43</td>
<td>Needle Bearing</td>
</tr>
<tr>
<td>19</td>
<td>Bearing Cup</td>
<td>44</td>
<td>Front Output Shaft</td>
</tr>
<tr>
<td>20</td>
<td>Shim</td>
<td>45</td>
<td>Shift Fork</td>
</tr>
<tr>
<td>21</td>
<td>O-ring</td>
<td>46</td>
<td>Front Output Clutch Collar</td>
</tr>
<tr>
<td>22</td>
<td>Input Bearing Cage</td>
<td>47</td>
<td>Drain Plug</td>
</tr>
<tr>
<td>23</td>
<td>Bearing Cage Capscrew and Washer</td>
<td>48</td>
<td>Magnetic Drain Plug</td>
</tr>
<tr>
<td>24</td>
<td>Input Oil Seal</td>
<td>49</td>
<td>Fill Plug</td>
</tr>
<tr>
<td>25</td>
<td>Yoke Sleeve</td>
<td>50</td>
<td>Elbow</td>
</tr>
</tbody>
</table>
MTC-4210XLEV/XLEC Transfer Case Rear Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T-Fitting</td>
<td>24</td>
<td>Rear Housing</td>
</tr>
<tr>
<td>1A</td>
<td>Cap</td>
<td>25</td>
<td>Filter Screen Assembly Tube</td>
</tr>
<tr>
<td>2</td>
<td>Oil Pump Cover</td>
<td>26</td>
<td>Rear Output Oil Seal</td>
</tr>
<tr>
<td>3</td>
<td>Capscrew and Washer</td>
<td>27</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>4</td>
<td>Switch Assembly</td>
<td>28</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>5</td>
<td>Oil Pump Housing</td>
<td>29</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>6</td>
<td>Pump Cover O-ring</td>
<td>30</td>
<td>Oil Pump Inlet Tube</td>
</tr>
<tr>
<td>7</td>
<td>Oil Pump Assembly</td>
<td>30A</td>
<td>Pump Cover Assembly</td>
</tr>
<tr>
<td>8</td>
<td>Shipping Protector</td>
<td>31</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>9</td>
<td>Shift Cylinder</td>
<td>32</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>10</td>
<td>Shift Piston O-ring</td>
<td>33</td>
<td>Oil Pump Inlet Tube</td>
</tr>
<tr>
<td>11</td>
<td>Snap Ring</td>
<td>34</td>
<td>Tube Assembly, without Oil Cooler</td>
</tr>
<tr>
<td>12</td>
<td>O-ring</td>
<td>35</td>
<td>Fitting, without Oil Cooler</td>
</tr>
<tr>
<td>13</td>
<td>Shift Piston</td>
<td>36</td>
<td>Pump Cover Assembly</td>
</tr>
<tr>
<td>14</td>
<td>Blow-by Breather</td>
<td>37A</td>
<td>#6 Male JIC 37° x 3/8&quot; NPT Fitting</td>
</tr>
<tr>
<td>15</td>
<td>Neutral Breather</td>
<td>37B</td>
<td>Connector Fitting</td>
</tr>
<tr>
<td>16</td>
<td>Shipping Protector</td>
<td>38</td>
<td>Capscrew</td>
</tr>
<tr>
<td>17</td>
<td>Neutral Breather Fitting</td>
<td>39</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>18</td>
<td>Speed Sensor</td>
<td>40</td>
<td>LH-Side Cooler Oil Pump Tube</td>
</tr>
<tr>
<td>19</td>
<td>Capscrew and Washer</td>
<td>41</td>
<td>RH-Side Cooler Oil Pump Tube</td>
</tr>
<tr>
<td>20</td>
<td>Bearing Cups</td>
<td>42</td>
<td>#6 Male JIC 37° (2 Port) x #6 Male JIC 37° Swivel</td>
</tr>
<tr>
<td>21</td>
<td>Shims</td>
<td>43</td>
<td>Pipe Plug, 1/4-18 NPT</td>
</tr>
<tr>
<td>22</td>
<td>Bearing Cone</td>
<td>44</td>
<td>Socket Head Bolt</td>
</tr>
<tr>
<td>23</td>
<td>Double Idler Gear</td>
<td>45</td>
<td>P-Clamp</td>
</tr>
<tr>
<td>24</td>
<td>Rear Housing</td>
<td>46</td>
<td>Angle Bracket</td>
</tr>
<tr>
<td>25</td>
<td>Filter Screen Assembly Tube</td>
<td>47</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------</td>
<td>------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Snap Ring</td>
<td>29</td>
<td>Input Yoke</td>
</tr>
<tr>
<td>2</td>
<td>Shift Piston</td>
<td>30</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>3</td>
<td>O-ring</td>
<td>31</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>4</td>
<td>Shift Piston O-ring</td>
<td>32</td>
<td>Front Output Yoke</td>
</tr>
<tr>
<td>5</td>
<td>O-ring</td>
<td>33</td>
<td>Front Output Oil Seal</td>
</tr>
<tr>
<td>6</td>
<td>Shift Shaft</td>
<td>34</td>
<td>Elbow</td>
</tr>
<tr>
<td>7</td>
<td>Shift Fork Capscrew</td>
<td>35</td>
<td>Plug / Fitting</td>
</tr>
<tr>
<td>8</td>
<td>Shift Fork</td>
<td>36</td>
<td>Declutch Cylinder</td>
</tr>
<tr>
<td>9</td>
<td>Oil Pump Pin</td>
<td>37</td>
<td>O-ring</td>
</tr>
<tr>
<td>10</td>
<td>Input Shaft</td>
<td>38</td>
<td>Declutch Cylinder Piston</td>
</tr>
<tr>
<td>11</td>
<td>Needle Bearing</td>
<td>39</td>
<td>Fill Plug</td>
</tr>
<tr>
<td>12</td>
<td>Helical Drive Gear, Low Range</td>
<td>40</td>
<td>Drain Plug</td>
</tr>
<tr>
<td>13</td>
<td>Spacer</td>
<td>41</td>
<td>Magnets</td>
</tr>
<tr>
<td>14</td>
<td>Snap Ring</td>
<td>42</td>
<td>Push Rod</td>
</tr>
<tr>
<td>15</td>
<td>Male Fitting</td>
<td>43</td>
<td>Bearing Cup</td>
</tr>
<tr>
<td>16</td>
<td>Front Cover Housing</td>
<td>44</td>
<td>Spring</td>
</tr>
<tr>
<td>17</td>
<td>Plug</td>
<td>45</td>
<td>Driven Gear and Rear Output Shaft</td>
</tr>
<tr>
<td>18</td>
<td>Breather</td>
<td>46</td>
<td>High and Low Clutch Collar</td>
</tr>
<tr>
<td>19</td>
<td>Locating Dowel Pin</td>
<td>47</td>
<td>Helical Drive Gear, High Range</td>
</tr>
<tr>
<td>20</td>
<td>Bearing</td>
<td>48</td>
<td>Bearing Cone</td>
</tr>
<tr>
<td>21</td>
<td>Oil Spacer</td>
<td>49</td>
<td>Washer</td>
</tr>
<tr>
<td>22</td>
<td>Bearing Cup</td>
<td>50</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>23</td>
<td>Shim</td>
<td>51</td>
<td>Helical Driven Gear</td>
</tr>
<tr>
<td>24</td>
<td>O-ring</td>
<td>52</td>
<td>Needle Bearing</td>
</tr>
<tr>
<td>25</td>
<td>Input Bearing Cage</td>
<td>53</td>
<td>Front Output Shaft</td>
</tr>
<tr>
<td>26</td>
<td>Bearing Cage Capscrew and Washer</td>
<td>54</td>
<td>Shift Fork</td>
</tr>
<tr>
<td>27</td>
<td>Input Oil Seal</td>
<td>55</td>
<td>Front Output Clutch Collar</td>
</tr>
<tr>
<td>28</td>
<td>Yoke Sleeve</td>
<td>56</td>
<td>Magnetic Drain Plug</td>
</tr>
</tbody>
</table>
Exploded Views

MTC-4213X Transfer Case Rear Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lock Nut</td>
</tr>
<tr>
<td>2</td>
<td>Flat Washer</td>
</tr>
<tr>
<td>3</td>
<td>Rear Output Yoke</td>
</tr>
<tr>
<td>4</td>
<td>Rear Output Oil Seal</td>
</tr>
<tr>
<td>5</td>
<td>Plug</td>
</tr>
<tr>
<td>6</td>
<td>Shift Cylinder</td>
</tr>
<tr>
<td>7</td>
<td>Snap Ring</td>
</tr>
<tr>
<td>8</td>
<td>O-ring</td>
</tr>
<tr>
<td>9</td>
<td>Outer Shift Piston</td>
</tr>
<tr>
<td>10</td>
<td>O-ring</td>
</tr>
<tr>
<td>11</td>
<td>Piston O-ring</td>
</tr>
<tr>
<td>12</td>
<td>Inner Shift Piston</td>
</tr>
<tr>
<td>13</td>
<td>O-ring</td>
</tr>
<tr>
<td>13A</td>
<td>Housing O-ring</td>
</tr>
<tr>
<td>14</td>
<td>Neutral Breather</td>
</tr>
<tr>
<td>15</td>
<td>Neutral Breather Fitting</td>
</tr>
<tr>
<td>16</td>
<td>Plug</td>
</tr>
<tr>
<td>17</td>
<td>Speed Sensor</td>
</tr>
<tr>
<td>18</td>
<td>Capscrew</td>
</tr>
<tr>
<td>19</td>
<td>Washer</td>
</tr>
<tr>
<td>20</td>
<td>O-ring</td>
</tr>
<tr>
<td>21</td>
<td>Bearing Cup</td>
</tr>
<tr>
<td>22</td>
<td>High and Low Shift Shaft</td>
</tr>
<tr>
<td>23</td>
<td>Bearing Cone</td>
</tr>
<tr>
<td>24</td>
<td>Rear Output Shaft</td>
</tr>
<tr>
<td>25</td>
<td>Plug</td>
</tr>
<tr>
<td>26</td>
<td>Pocket Bearing</td>
</tr>
<tr>
<td>27</td>
<td>Helical Drive Gear, High Range</td>
</tr>
<tr>
<td>28</td>
<td>Shift Fork Capscrew</td>
</tr>
<tr>
<td>29</td>
<td>High and Low Shift Fork</td>
</tr>
<tr>
<td>30</td>
<td>High and Low Clutch Collar</td>
</tr>
<tr>
<td>31</td>
<td>Helical Drive Gear, Low Range</td>
</tr>
<tr>
<td>32</td>
<td>Input Shaft</td>
</tr>
<tr>
<td>33</td>
<td>Shims</td>
</tr>
<tr>
<td>34</td>
<td>Rear Housing</td>
</tr>
<tr>
<td>35</td>
<td>Capscrew and Washer</td>
</tr>
<tr>
<td>36</td>
<td>Elbow</td>
</tr>
<tr>
<td>37</td>
<td>Breather</td>
</tr>
<tr>
<td>38</td>
<td>Capscrew and Washer</td>
</tr>
<tr>
<td>39</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>40</td>
<td>Spacer</td>
</tr>
<tr>
<td>41</td>
<td>Shims</td>
</tr>
</tbody>
</table>
MTC-4213X Transfer Case Front Cover
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearing Cone</td>
<td>18</td>
<td>Front Output Yoke</td>
</tr>
<tr>
<td>2</td>
<td>Double Idler Gear</td>
<td>19</td>
<td>Front Output Oil Seal</td>
</tr>
<tr>
<td>3</td>
<td>Bearing Cup</td>
<td>20</td>
<td>Declutch Shift Cylinder</td>
</tr>
<tr>
<td>4</td>
<td>Front Housing</td>
<td>21</td>
<td>Shift Piston O-ring</td>
</tr>
<tr>
<td>5</td>
<td>Locating Dowel Pin</td>
<td>22</td>
<td>Declutch Shift Piston</td>
</tr>
<tr>
<td>6</td>
<td>Oil Loop Tube</td>
<td>23</td>
<td>Shift Piston O-ring</td>
</tr>
<tr>
<td>7</td>
<td>Shipping Plug</td>
<td>24</td>
<td>Inlet Tube</td>
</tr>
<tr>
<td>8</td>
<td>Shims</td>
<td>25</td>
<td>Single Idler Gear</td>
</tr>
<tr>
<td>9</td>
<td>Oil Pump Capscrews</td>
<td>26</td>
<td>Shift Fork Spring</td>
</tr>
<tr>
<td>10</td>
<td>Front Oil Pump</td>
<td>27</td>
<td>Shift Fork</td>
</tr>
<tr>
<td>11</td>
<td>O-ring</td>
<td>28</td>
<td>Shift Shaft</td>
</tr>
<tr>
<td>12</td>
<td>Input Bearing Cage</td>
<td>29</td>
<td>Front Output Shaft</td>
</tr>
<tr>
<td>13</td>
<td>Input Oil Seal</td>
<td>30</td>
<td>Helical Drive Gear</td>
</tr>
<tr>
<td>14</td>
<td>Input Yoke</td>
<td>31</td>
<td>Needle Bearing</td>
</tr>
<tr>
<td>15</td>
<td>Flat Washer</td>
<td>32</td>
<td>Drain Plug</td>
</tr>
<tr>
<td>16</td>
<td>Lock Nut</td>
<td>33</td>
<td>Magnetic Drain Plug</td>
</tr>
<tr>
<td>17</td>
<td>Plug</td>
<td>34</td>
<td>Oil Fill Plug</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Connector Switch Assembly - Engage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Capscrew</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Shifter Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Flat Washer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Special Screw</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Connector Switch Assembly - Disengage (Optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Shipping Protector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Push Rod</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Shifter Piston</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>O-ring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>O-ring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Cover Plate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Clutch Collar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Shift Fork</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Bearing Assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>PTO Housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>PTO Shaft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Oil Seal Assembly</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Introduction

Model Nomenclature

Identification tags are riveted on the axle housing and the differential carrier. Use the model number and ratio number marked on the identification tag to obtain replacement parts. Figure 2.1.

**Figure 2.1**

*MTC-4208 and MTC-4210 only, not available for MTC-4213*
Description

Meritor MTC-4208X/XL/XP/XLEV/XLEC, MTC-4210X/XL/XP/XLEV/XLEC and MTC-4213X Series transfer cases are four-shaft designs with two-speed front and rear output having a 1:1 and a 1:2.05 ratio for use with part-time 4x4 and 6x6 vehicles. The MTC-4208 and MTC-4210 Series are designed specifically for use in 4x4 vehicles (the MTC-4213 Series is designed specifically for 6x6) as part of the Meritor medium-duty 4x4 drive system. Figure 2.2.

The air-actuated front-axle declutch (if equipped), high and low shifter and full-torque power take-off (PTO) lockup are controlled from the cab. An air plunger or electric switch, usually mounted on the instrument panel, engages or disengages a mechanical clutch.

An optional speed sensor measures transfer case output driveline rpm. Optional switches indicate when the front axle declutch is fully engaged or disengaged.

These transfer cases provide for two-speed output (high range and low range) and a neutral position used for PTO-equipped transfer cases only. Non-PTO cases can have this neutral position plugged with a breather. Figure 2.3.

The front axle declutch permits shifting from part-time 4x4 or 6x6 operation to rear-wheel drive (RWD). Figure 2.4, Figure 2.5 and Figure 2.6. Engagement can be confirmed by hearing it, noticing improved vehicle performance, or observing the optional indicator light in the cab.

The full-torque PTO option provides an outlet to drive auxiliary power devices. Figure 2.7.

Optional switches for full-torque PTOs indicate full engagement or disengagement.
Operation

Front Axle Declutch

**WARNING**

NEVER ENGAGE THE FRONT AXLE DECLUTCH WHEN THE VEHICLE’S WHEELS ARE SLIPPNG OR WHEN MOVING UP OR DOWN A STEEP HILL OR GRADE, WHICH CAN CAUSE THE VEHICLE TO LOSE STABILITY. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

OPERATION OF THE FRONT AXLE SHOULD OCCUR ONLY ON OFF-ROAD OR POOR TRACTION CONDITIONS. ENGAGING THE DECLUTCH AFFECTS THE VEHICLE’S TURNING AND STEERING RESPONSIVENESS. NEVER ENGAGE THE DECLUTCH OR LOW GEAR RANGE UNDER NORMAL OPERATING CONDITIONS. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

Speeds of under 20 mph or 32 km/h are recommended for part-time 4x4 or 6x6 operation.

Engage the declutch when the vehicle is stationary or operating at constant low speed, below 10 mph or 4 km/h.

**NOTE:** Front engagement can take place when the wheels are slipping, but a 150 rpm driveline differential speed guideline must be adhered to. Special ECU programming is required.

**HIGH-LOW SHIFTING**

Shift the transfer case into low from high gear or from high to low gear when the vehicle is stationary. Apply the parking brake with the transmission in Neutral on automatic or manual transmissions.

- **If the clutch does not fully engage:**
  - Turn the steering wheel in one direction and rock the vehicle back and forth until engagement occurs.

Engagement can be confirmed by hearing it, noticing improved vehicle performance, or observing the optional indicator light in the cab.

Oil Cooler Option

Vehicle configuration can have a significant impact on MTC model transfer cases. Vehicles with overdrive transmissions used primarily for high-speed highway routes run at higher transfer case input speeds. Transfer case running temperature is primarily affected by input speed, regardless of rear-wheel-drive only or part-time 4x4 or 6x6 operation.

A transfer case oil cooler reduces operating temperatures which will improve yoke seal life, reduce oil degradation and reduce the likelihood for other oil and air leaks. Figure 2.8, Figure 2.9, Figure 2.10, Figure 2.11, Figure 2.12, and Figure 2.13.
**Blow-by Breather**

The rear cover portion of the housing is equipped with a blow-by breather for the high/low shifter. Figure 2.14. The breather, which points sideways on the driver side of the housing, prohibits pressurization of the housing if an o-ring becomes damaged. Because all range shifts require full time pressurization, a damaged o-ring would allow air to fill the housing which could further damage the yoke seals or blow oil from the housing.

**Full-Torque Power Take-Off (PTO)**

⚠️ **CAUTION**

**NEVER ENGAGE THE FULL-TORQUE POWER TAKE-OFF (PTO) WHEN THE TRANSFER CASE PROP SHAFTS ARE TURNING. DAMAGE TO THE TRANSFER CASE WILL RESULT.**

Engage or disengage the PTO when the vehicle is stationary, the transmission is in Neutral, and the transfer case prop shafts are not turning. NEVER load the driven auxiliary device when PTO is initially engaged. Use the transfer case in-cab switches to place the transfer case into Neutral.

Engagement can be confirmed by hearing it or observing the optional indicator light in the cab.

The PTO may be operated in high/low/Neutral range.

When operating the PTO in Neutral range, do not exceed 2,000 rpm. Control the transmission shift range and engine rpm to ensure this limit is not exceeded.
Removal

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ DANGER

PARK THE VEHICLE ON A LEVEL SURFACE. BLOCK THE WHEELS TO PREVENT THE VEHICLE FROM MOVING. SUPPORT THE VEHICLE WITH SAFETY STANDS. NEVER WORK UNDER A VEHICLE SUPPORTED ONLY BY JACKS. JACKS CAN SLIP AND FALL OVER. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

⚠️ WARNING

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

Remove the Transfer Case Assembly

1. Wear eye protection.
2. Park the vehicle on a level surface. Place blocks under the wheels not being raised to keep the vehicle from moving.
3. Raise the vehicle so the area to be serviced is off the ground. Support the vehicle with safety stands.
4. Place a large container under the transfer case.
5. Remove the magnetic drain plug from the bottom of the transfer case. Drain and discard the oil correctly. Clean the magnetic drain plug. Figure 3.1, Figure 3.2, and Figure 3.3.
6. Disconnect the drivelines from the input and output yokes or flanges of the transfer case.

7. Disconnect the cooler lines. Loosen or remove the p-clamp assembly, if necessary. Figure 3.1, Figure 3.2, Figure 3.3, Figure 3.4, Figure 3.5, and Figure 3.6.

8. Disconnect the air lines at the shift cylinders of the transfer case.

9. Disconnect the harness for the indicator switch wires.

**DANGER**

TAKE CARE WHEN USING LIFTING DEVICES DURING SERVICE AND MAINTENANCE PROCEDURES TO AVOID SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS. INSPECT A LIFTING STRAP TO ENSURE IT IS NOT DAMAGED. NEVER SUBJECT THE LIFTING STRAPS TO SHOCKS OR DROP-LOADING.

10. Use a hydraulic roller jack to support the transfer case. Remove the mounting bolts attaching the transfer case to the vehicle.

11. Carefully remove the transfer case with the hydraulic jack.
**CAUTION**

CLOSE OR COVER ALL OPENINGS, INCLUDING THE BREATHER, OIL DRAIN, AND SPEED SENSOR, BEFORE STEAM CLEANING THE OUTSIDE OF THE TRANSFER CASE. STEAM CAN DAMAGE COMPONENTS.

12. Close or cover all openings before steam cleaning. These openings include the breather, oil drain and speed sensor.

13. Steam clean the outside of the transfer case to remove heavy amounts of dirt.

14. Construct suitable mounting brackets or similar fixtures. Attach the brackets to the front half of the transfer case by installing bolts through the mounting holes in the transfer case. Figure 3.7 and Figure 3.8.

**NOTE:** Eyebolts permit easier lifting of the transfer case.

15. Install eyebolts in the lifting holes located in either half of the transfer case housing. Lifting holes are located at the top and bottom of each half of the transfer case near the center. Figure 3.9.

**DANGER**

SUPPORT THE TRANSFER CASE WITH A LIFTING STRAP BEFORE MOUNTING THE TRANSFER CASE INTO THE REPAIR STAND. A TRANSFER CASE NOT SUPPORTED CORRECTLY CAN FALL. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

**NOTE:** The transfer case filled with lubricant weighs approximately 750 lbs (340.2 kg) without the PTO.

16. Attach a suitable lifting device to the eyebolts to lift the transfer case. Use suitable brackets to mount the case in the repair stand. Figure 3.7 and Figure 3.8.
Disassembly

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ WARNING

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

Remove the Input Shaft Assembly from an Assembled Transfer Case (for input shaft repairs only)

If necessary, the input shaft may be removed without separating the transfer case halves. Once the transfer case is removed from the vehicle and the oil drained, Meritor recommends checking and recording the end play for the input shaft, output shafts, and idler gears before beginning this procedure. Refer to the procedures in “Removal” on page 36 and “Assembly” on page 55.

1. MTC-4208XL/XLEV/XLEC & MTC-4210XL/XLEV/XLEC only:
   a. Disconnect the transfer case oil inlet line from the oil pump cover. Figure 4.1.

   **NOTE:** MTC-4208/10 XLEC uses the same procedure to remove just the oil tube.

   b. Disconnect the oil cooler-to-pump cover oil lines.

   c. Plug the oil lines and cap the oil cover fittings.

   d. Remove the external oil pump housing from the transfer case.

   e. Remove the oil pump assembly from the rear of the input shaft. Refer to the procedure on page 41.

2. MTC-4208X and MTC-4210X transfer cases only:
   a. Disconnect the transfer case oil inlet line from the oil pump cover. Figure 4.2.

   b. Remove the PTO capscrews and remove the PTO cover.

3. MTC-4208XP and MTC-4210XP transfer cases only:
   a. Disconnect the transfer case oil inlet line from the oil pump cover. Figure 4.2.

   b. Remove the PTO air lines.

   c. Remove the PTO-to-transfer case capscrews.

   d. Remove the PTO.

4. Remove the 3” (76 mm) diameter locknut and washer from the rear half of the input shaft.

5. Apply shop air to the high range shift cylinder air port to engage the clutch collar in the high range position. This will prevent the high range gear and bearing from falling out of position when removing the input shaft from the transfer case assembly.

6. Rotate the transfer case so it is in the normal operating position.

7. Remove the input bearing cage capscrews and washers.
8. Remove the input bearing cage and input shaft assembly from the transfer case. If necessary, use a yoke puller or an appropriate lifting device. It may be necessary to gently pry the input bearing cage up to dislodge it from the transfer case. Figure 4.3.

9. Remove the shims.

10. Remove the input bearing cage oil seal (o-ring) and discard it.

11. Remove the air line from the high range port. The high/low shift is air actuated and will remain in the high position.

   **NOTE:** For disassembly of the input shaft, refer to page 43.

**MTC-4213X ONLY**

1. Disconnect the oil line from the input bearing cage. Figure 4.2.

2. Apply shop air to the high range shift cylinder air port to engage the high range gear. This will prevent the clutch collar from falling into the transfer case half.

3. Rotate the transfer case so it is in the normal operating position.

4. Remove the input bearing cage capscrews and washers.

5. Remove the input bearing cage and input shaft assembly from the transfer case. If necessary, use a yoke puller or an appropriate lifting device. It may be necessary to gently pry the input bearing cage up to dislodge it from the transfer case.

6. Remove the shims.

   **NOTE:** The MTC-4213X has a two piece through shaft. Because of this design, only the forward half of the input shaft will be removed while the upper rear output shaft will remain in place.

**Disassemble the Transfer Case**

**Front and Rear Output Yokes**

1. Rotate the transfer case in the repair stand so the yoke being removed faces UPWARD.

2. Use a yoke holder to secure the yokes from turning. Remove the yoke lock nuts and washers from the front and rear output shafts. Figure 4.4.

3. Use a yoke puller to remove the yokes from the output shafts. Do not remove the deflector from the yoke or flange unless it is damaged.

4. Use a yoke holder to secure the input yoke from turning. Loosen but do not remove the front input yoke, lock nut, and washer from the front input shaft. The yoke is used to lift the input shaft assembly from the transfer case. Figure 4.4.

5. **MTC-4208XP & MTC-4210XP only:**
   Remove the PTO, if equipped, or rear-mounted pump assembly from the rear of the transfer case. Refer to the procedure on page 43.
Rear-Mounted Pump Assembly
(MTC-4208XL/XLEV/XLEC & MTC-4210XL/XLEV/XLEC Only)

1. Disconnect the inlet oil line and original lube fittings. Figure 4.5, Figure 4.6, Figure 4.7, Figure 4.8, and Figure 4.9.
2. Remove the pump housing washers and bolts. Remove the pump housing and cover. Figure 4.10.

3. Remove the pump by applying forward pressure to the pump assembly and disengage the assembly from the oil pump drive pins located on the rear half on the input shaft. Figure 4.11.

4. If necessary, disassemble the pump as follows.
   a. Remove the spring from the rear half of the input shaft.
   b. Gently tap the idler carrier out of the rotor. The idler and floating plate will come out with the idler carrier. Figure 4.12.

**NOTE:** Once the oil lines and pump cover have been removed from the MTC-4208/10 XLEC, refer to the MTC-4208/10 XLEV instructions throughout this section for disassembly of XLEC variants.
Optional PTO Assembly on MTC-4208XP & MTC-4210XP Transfer Cases

1. Rotate the transfer case in the repair stand so the PTO assembly, if so equipped, is facing UPWARD. Figure 4.13.

2. Remove the yoke nut, washer, and yoke. Use a yoke puller to remove the yoke.

3. Remove the PTO indicator switch from the shift plate, if equipped.

4. Remove the cage mounting capscrews and washers from the PTO. Lift the PTO assembly off the transfer case.

Remove the Front Input Shaft, Input Bearing Cage, & Internal Pump Assembly (If Equipped)

1. On transfer cases with an internal oil pump, remove the inlet oil tube from the transfer case by loosening the fittings at the lower front case and input-bearing cage. Figure 4.14.

2. On transfer case models MTC-4208XP/XP & MTC-4210XP, remove the PTO cover or PTO, whichever applies. Use a 3” socket to remove the large retaining nut and washer from the rear half of the input shaft. Use a yoke tool on the input shaft yoke to prevent the shaft from rotating while removing the retaining nut.

   If the input shaft retaining nut cannot be removed, it will not be possible to remove the front input shaft before opening the housing. Skip this procedure.

   NOTE: The MTC-4213X has a split shaft design. It is only necessary to remove the front half of the input shaft during disassembly. The rear half of the input shaft is pressed into the rear case half and cannot be removed until after the transfer case halves are separated.

3. On transfer case models MTC-4208XL/XLEV & MTC-4210XL/XLEV, use a 3” socket to remove the large retaining nut and washer from the rear half of the input shaft. Use a yoke tool on the input shaft yoke to prevent the shaft from rotating when removing the retaining nut.

   If the input shaft retaining nut cannot be removed, it will not be possible to remove the front input shaft before opening the housing. Skip this procedure.
4. Remove the capscrews securing the input bearing cage and internal pump assembly, if equipped.

**NOTE:** The high- and low-range clutch collar becomes loose on the shift fork as the input bearing cage and pump assembly is removed and may drop into the case. Shifting the transfer case into high range keeps the shift collar on the high-range gear, which keeps it in place. Also, shifting into high range allows easier rear cover removal on the MTC-4208 & MTC-4210 transfer cases.

5. Shift the transfer case into high range using compressed air at the high-range port of the shift cylinder. Figure 4.15.

![Figure 4.15](image1)

**CAUTION**

**USE A PRY BAR AND MALLET TO REMOVE THE INPUT CAGE COVER. TAKE CARE NOT TO DAMAGE THE SHIM PACK. DAMAGE TO THE TRANSFER CASE WILL RESULT.**

6. Use a pry bar and mallet to loosen the input cage cover and internal pump assembly, if equipped. Figure 4.16.

![Figure 4.16](image2)

7. Remove the shim pack. Figure 4.16.

8. With the front input yoke still installed, remove the yoke, input shaft, input bearing cage and pump, if equipped, as an assembly. Figure 4.17.
High/Low Shift Cylinder Components

Use the following procedure to disassemble the high/low shift components before separating the case halves.

1. Rotate the transfer case so the shift cylinder is facing UP.

   **NOTE:** After the air source is removed, the high range gear may move out of position.

2. Disconnect the air lines used to shift in the previous steps. Figure 4.18.

   ![Figure 4.18](4007108a)

   **Figure 4.18**

3. Remove the high and low range shift cylinder from the rear cover of the transfer case.

4. Remove the outer shift piston snap ring from the shift shaft. Remove the shift piston. Figure 4.19.

   ![Figure 4.19](4000192a)

   **Figure 4.19**

5. To remove the inner piston, reinstall and hand-tighten the shift cylinder. Apply air to the high gear input port. When the air pressure pushes the inner piston UP, remove the snap ring and inner piston. Figure 4.20.

   ![Figure 4.20](4000193b)

   **Figure 4.20**

Split the Case Halves

1. Remove the capscrews securing the rear cover to the front case.

2. Use a pry bar to separate the two halves of the transfer case at the pry tab locations around the case.

3. Place eyebolts into the rear cover lift holes located at the top and bottom of the cover.

   **CAUTION**

   **AS THE REAR COVER IS LIFTED, APPLY DOWNWARD PRESSURE ON THE SHIFT ROD TO PREVENT THE GEARS FROM DROPPING OUT OF THE REAR TRANSFER CASE HALF.**

4. Attach a suitable lifting device to the eyebolts. Lift the rear cover from the front case. Figure 4.21.

   ![Figure 4.21](4000187b)

   **Figure 4.21**

5. As the rear cover is lifted, verify the high and low shift shaft remains in the case by placing pressure on the shaft while separating the transfer case halves.
Disassembly

6. **MTC-4213X only:** The rear output shaft and high-range gear are removed as an assembly along with the rear cover. The shaft is pressed into the bearing assembly which keeps the shaft retained in the housing. Refer to the *Disassemble MTC-4213X Rear Output Shaft Assembly* on page 47.

7. **MTC-4208X/XP/XL/XLEV & MTC-4210X/XP/XL/XLEV only:** Remove the high range helical gear.

8. Remove the high and low shift fork, shift shaft, and clutch collar from the front case. Figure 4.22.

9. Remove the single-gear idler shaft on MTC-4213X, or rear output on MTC-4208X/XP/XL/XLEV & MTC-4210X/XP/XL/XLEV, and the double-gear idler shaft from the case. Figure 4.23.

10. Remove the front output shaft, clutch collar, shift fork, and spring as an assembly.

11. Remove the shift cylinder and push rod from the front case.

12. Remove the two locating dowel pins. Note their correct location.

**Disassemble the Front Output Shaft Assembly**

1. Temporarily install the yoke and nut. Secure the yoke to prevent the shaft from rotating when removing the rear nut. Support the shaft correctly.

2. Remove the rear nut and washer.

3. Remove the yoke.

4. Prepare the shaft for bearing and gear removal. Install the front output shaft into a press with the rear of the output shaft facing up. Support the shaft correctly. Figure 4.24.

5. Press the shaft downward to remove the rear tapered roller bearing, helical gear, clutch collar, and needle bearing from the assembly.

6. Install a bearing separator or other suitable tool below the forward roller bearing. Figure 4.25.

7. Install the output shaft assembly into a press and support it correctly. Figure 4.25.

8. Press the output shaft downward to remove the front roller bearing.
Disassemble MTC-4213X Rear Output Shaft Assembly

**WARNINGS**

**WARNING**

**THE REAR OUTPUT SHAFT ASSEMBLY IS HEAVY. SUPPORT THE ASSEMBLY TO PREVENT IT FROM DROPPING DURING THE PRESSING OPERATION. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.**

1. Set the rear cover with the rear output shaft as an assembly into a suitable press. Figure 4.26.

2. Press the rear output shaft assembly out of the rear cover. Figure 4.26.

3. Use a suitable puller to remove the rear output shaft outer bearing cup from the rear cover if required. Discard the cone and cup.

4. Inspect the rear output shaft inner bearing cone and cup for wear or damage. Replace a worn or damaged bearing cone and cup.

5. Remove the high range helical gear from the upper rear output shaft. The gear is splined to the shaft.

6. Turn the shaft assembly over. Install a bearing separator or suitable tool under the bearing.

7. Install the shaft assembly into a press.

8. Press the shaft assembly DOWNWARD until the bearing is free from the shaft.

Disassemble the Front Input Shaft, Input Shaft Bearing Cage, & Internal Oil Pump, If Equipped

1. Support the front input shaft and bearing cage assembly at the workbench. Figure 4.27.

2. Remove the yoke nut and washer.

3. Use a yoke puller to remove the front input yoke. Figure 4.28.

4. Lift the front input bearing cage and internal oil pump assembly, if equipped, off the input shaft. Figure 4.29.
5. Remove the snap ring retaining the small helical gear on the input shaft. For MTC-4208XLEV & MTC-4210XLEV, remove the spacer from the input shaft. Lift the small helical gear off the shaft. For MTC-4208XLEV & MTC-4210XLEV, remove the needle bearing from the input shaft. Figure 4.30 and Figure 4.31.

6. **MTC-4208X/XP & MTC-4210X/XP Only:**
   Remove the internal pump, if equipped, from the input-bearing cage to service the front input shaft tapered roller bearing cone and cup.
   a. Remove the six bolts retaining the oil pump to the input-bearing cage.
   b. Mark the position of the pump to the cage for reassembly. Figure 4.32.
   c. Inspect the pump inner rotor in the spline area for cracks or other damage. The entire pump must be replaced if the pump or inner gear rotor is damaged in any way. The bearing cup is pressed into the bearing cage.
   d. Remove the relief valve and spring.

7. Replace the bearing cone and cup as necessary.

**Idler Gear & Rear Output Shaft Disassembly**

1. Use a suitable bearing cone puller to remove the bearing cones as necessary from the single idler-gear shaft, rear output shaft on MTC-4208 & MTC-4210 transfer cases, or double idler-gear shaft assemblies.

2. Inspect and replace bearing cones with new as needed. Replace bearing cones and cups as a set.

3. Inspect the shafts and gears for wear or damage.
Remove the Bearing Cups

1. Correctly support the transfer case half.

2. Use a suitable puller to remove the bearing cups from the transfer case half. Figure 4.33.

3. Clean and save the shims so they can be used to measure the shim pack thickness during reassembly, if necessary.
Prepare Parts for Assembly

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ WARNING

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

Clean and Dry Parts

Clean Ground and Polished Parts

⚠️ WARNING

SOLVENT CLEANERS CAN BE FLAMMABLE, POISONOUS, AND CAUSE BURNS. EXAMPLES OF SOLVENT CLEANERS ARE CARBON TETRACHLORIDE, AND EMULSION-TYPE AND PETROLEUM-BASE CLEANERS. READ THE MANUFACTURER’S INSTRUCTIONS BEFORE USING A SOLVENT CLEANER, THEN CAREFULLY FOLLOW THE INSTRUCTIONS. ALSO FOLLOW THE PROCEDURES BELOW.

- Wear eye protection.
- Wear clothing that protects the skin.
- Work in a well-ventilated area.
- NEVER use gasoline or solvents that contain gasoline. Gasoline can explode.
- Hot solution tanks or alkaline solutions must be used correctly. Read the manufacturer’s instructions before using hot solution tanks and alkaline solutions. Then carefully follow the instructions.

⚠️ CAUTION

NEVER USE HOT SOLUTION TANKS OR WATER AND ALKALINE SOLUTIONS TO CLEAN GROUND OR POLISHED PARTS. DAMAGE TO PARTS CAN RESULT.

IF REQUIRED, USE A SHARP KNIFE TO REMOVE GASKET MATERIAL FROM PARTS. BE CAREFUL NOT TO DAMAGE THE GROUND OR POLISHED SURFACES.

1. Use a cleaning solvent to clean ground or polished parts or surfaces, such as bearings, gears, shafts, and oil pump components. NEVER USE GASOLINE.
2. Remove gasket material from the parts. Take care not to damage the ground surfaces.
3. NEVER clean ground or polished parts in a hot solution tank, water, steam, or alkaline solution to avoid damaging the surfaces.

Clean Rough Parts

1. Clean rough parts with the same method as cleaning ground and polished parts.
2. Use a cleaning solvent or a hot solution tank with a weak alkaline solution to clean parts with a rough finish.
3. Leave the parts in the hot solution tank until they are completely cleaned and heated. When the parts are clean, remove them from the tank.
4. Wash the parts with water until the alkaline solution is completely removed.
5. Clean the three internal magnets attached to the bottom of the front case.
6. Remove and clean the magnetic drain plug.

Clean Transfer Case Assemblies

⚠️ CAUTION

CLOSE OR COVER ALL OPENINGS BEFORE STEAM CLEANING. STEAM CAN CAUSE COMPONENT DAMAGE.

1. Steam clean transfer cases on the outside to remove heavy amounts of dirt.
2. Before steam cleaning the transfer case, close or put a cover over all openings in the case.
3. Remove any remaining silicone sealant from the transfer case halves using a suitable scraper or wire wheel.

Dry Cleaned Parts

⚠️ CAUTION

DRY BEARINGS WITH CLEAN PAPER OR RAGS. NEVER USE COMPRESSED AIR, WHICH CAN CAUSE ABRASIVE PARTICLES TO CONTAMINATE THE BEARINGS. DAMAGE TO THE COMPONENTS AND REDUCED LINING LIFE CAN RESULT.

Immediately after cleaning, use clean paper, cloth rags, or compressed air to dry the parts.

Prevent Corrosion

NOTE: Parts must be clean and dry before lubricating them.

1. If parts are being assembled immediately after cleaning, ensure they are dry and lubricate them with grease to prevent corrosion.
2. If the parts are being stored after cleaning, apply a corrosion-preventive material to all machined surfaces. Store the parts in a special paper or other material that prevents corrosion.
Oil Seals and O-Rings
Discard all oil seals and o-rings. Replace with new parts.

Inspect Parts
It is very important to inspect all parts carefully and completely before the transfer case is assembled. Check all parts for wear and stress. Replace all damaged parts to avoid costly downtime at a future date.

1. Inspect the tapered roller bearings. Inspect the cup, cone, rollers, and cage of all tapered roller bearings in the assembly. If any of the following conditions exist, the bearing must be replaced:
   - The center of the large diameter end of the rollers is worn level with or below the outer surface.
   - The radius at the large diameter end of the rollers is worn to a sharp edge.
   - A visible roller groove is worn in the inner race surfaces of the cup or cone. The groove can be seen at the small or large diameter end of both parts.
   - Deep cracks or breaks appear in the surfaces of the cup, cone, inner race, or rollers.

2. Inspect the gears for wear or damage. Replace worn or damaged gears.

3. Inspect the housing.
   a. Remove all dirt from the housing and oil lubrication passages, troughs, slots, and holes.
   b. Inspect machined surfaces for cracks and damage. Repair or replace damaged parts.

4. Inspect all shafts, flanges and yokes for wear, stress, and cracks at the splines, shaft, and yoke ears. Replace worn or cracked shafts, flanges, and yokes.

5. Verify oil passages in the shafts are clean and free of debris.
6. Inspect the declutch and output shaft components, if applicable:
   a. Inspect the clutch collar internal splines, external declutch teeth and shift for grooves. Replace worn, cracked, or damaged collars.
   b. Inspect the collar pads of the shift fork for wear. If the pads are worn, replace the shift fork.
   c. Inspect the declutch shaft and yoke for wear, stress and cracks at the splines, shaft and yoke ears. Replace worn or cracked shafts and yokes.
   d. Inspect the declutch or PTO push rod and piston for wear or damage. Replace worn or damaged parts.

7. Inspect the rotor, housing, and idler of the oil pump, if equipped, for scoring. Inspect the drive tab of the rotor assembly. Inspect the splines on the pump inner rotor for cracks along the spline area. Also, check for excessive wear. Replace the pump if these conditions exist.

8. Remove and inspect the plug at the end of the input shaft. Verify the orifice is clear of debris.

**Helical Gears**

Inspect the helical gear teeth, splines and journals. If any of the following conditions exist, replace the gear.

- A crack in the root of a tooth or along the tooth flank.

- Severe scoring or fretting on the surface of a tooth. Gears with scoring and fretting on the teeth, but without cracks, may continue to operate satisfactorily with higher noise.

- Chipped or severely worn shifting splines on the input gears.

- Chipped or cracked splines on the output gears.

**Shafts**

Inspect the input and output shafts for damage to the gear journals, shifting splines, threads and gear retaining splines. If any of the following conditions exist, replace the shaft.

- Deep gouges or metal transfer along the input shaft journals.

- Deep gouges or metal transfer along the input gear journals.

- Cracks along the internal journal of the input gears.

- Chipped or worn shifting splines on the input shaft.
• Chipped or cracked splines on the output shaft.

• Cracks along the yoke splines, bearing journal abutments, or cross-drilled holes. Magnaflux may be necessary to see small cracks.

PTO Components
Inspect the PTO housing, shaft, taper bearings, shift collar, shift fork, and sensors for damage. If any of the following conditions exist, replace the component.

• Cracks in the housing.
• Cracks along the shaft yoke spline or ball bearing abutment. Magnaflux may be necessary to see small cracks.
• Chipped or cracked shifting splines on the shift collar or shaft.
• The rollers of the taper bearings do not roll easily or lack lubrication. The raceway is cracked or dented.
• Cracked or missing tangs on the shift fork arms.
• The sensor ball sticks or does not return to its resting position. The sensors do not complete a circuit when tested with a volt-ohm meter (VOM).
• Check all shift forks and slots in sliding clutches for wear or discoloration due to heat.

High & Low Shifting Components
Inspect the shift collar, shift fork, shift shaft, retaining pins, shift cylinder, piston, o-ring and case halves for damage. If any of the following conditions exist, replace or repair the component.

• Cracked or missing tangs on the shift fork arms.
• Chipped or cracked shifting splines on the shift collar.
• Cracks or deep gouges on the shift shaft.
• The retaining pins in the shift shaft are not 0.100" (2.54 mm) above the shaft diameter. Remove and set to the correct position.
• Gouges on the inside of the shift cylinder.
• Torn or feathered areas on the o-ring.
• Deep gouges in the shifting bores of the case halves.

Oil & Lubrication System
The lubrication system is extremely important to the performance of the transfer case. Inspect all parts closely for excessive wear or damage. Perform the following checks.

1. Inspect the oil for metal shavings, dirt, and consistency. Perform an analysis if the oil appears contaminated.
2. Check the magnets for metal shavings. A small amount of metal shavings is normal. However, excessive build-up indicates gear and bearing damage. Thoroughly remove all metal shavings from the magnets. The magnets must be firmly fastened to the case.
3. Check the sump screen. Remove any material that may restrict oil flow through the mesh.
4. Check the oil line for damage. Replace if it is dented or kinked.

Internal Oil Pump
1. Inspect the seals closely. Look for nicks and tears on all sealing lips. Any damage is likely to result in a seal leak.
2. Check the pump for easy rotation. If the internal gear does not spin easily or jams when rotating the crescent plate, replace the pump. Also inspect for signs of heat/discholoration.
3. Inspect the input shaft and oil pump splines for damage.
4. Verify the relief valve spring and bushing are in good condition and replace, if necessary.

External Rear-Mounted Oil Pump
1. Verify the pump drive pins on the rear half of the input shaft correctly engage the pump. If necessary, remove the pump and reinstall it in the correct position.
2. Inspect the pump gear for damage.
3. Verify the transfer spring is in good condition.
4. Once the transfer case has been installed on the vehicle, verify the pump pressure is correct. Refer to the pump pressure check instructions in the final assembly procedures.

Transfer Case Halves
Inspect the case halves for cracks and internal wear. If any of the following conditions exist, replace the damaged parts.

• A crack in either case half.
• Deep gouges in the shifting bores.
• Signs of bearing cup rotation.
Preparing the Case & Cover for Seal Replacement

1. Pry out all oil seals using a suitable pry bar.

2. As necessary, use a suitable puller to remove the bearing cups pressed into the transfer case halves.

3. Clean and inspect the transfer case and cover for cracks, worn threaded holes or other wear or damage. Clean the gasket surfaces of both transfer case halves using a suitable gasket scraper or wire wheel.

4. Press new bearing cups into the case halves as necessary. Refer to “Assembly” for bearing settings and starting shim pack procedures, if required.

5. Inspect the bearing end play to ensure that it’s within specification. Adjust the end play, if required. Refer to “Assembly”.

6. Install new oil seals into the case halves. Refer to Table I on page 101 for correct seal part numbers and installation tool kit numbers. Refer to the Service Notes page on the front inside cover of this manual to obtain new seals and installation tools. Refer to page 70 for seal and sleeve installation instructions.
Assembly

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ WARNINGS

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

WHEN APPLYING SOME SILICONE GASKET MATERIALS, A SMALL AMOUNT OF ACID VAPOR IS PRESENT. TO PREVENT SERIOUS PERSONAL INJURY, ENSURE THE WORK AREA IS WELL-VENTILATED. READ THE MANUFACTURER’S INSTRUCTIONS BEFORE USING A SILICONE GASKET MATERIAL, THEN CAREFULLY FOLLOW THE INSTRUCTIONS. IF A SILICONE GASKET MATERIAL GETS INTO THE EYES, FOLLOW THE MANUFACTURER’S EMERGENCY PROCEDURES AND GET CHECKED BY A PHYSICIAN AS SOON AS POSSIBLE.

TAKE CARE WHEN USING LOCTITE ADHESIVE TO AVOID SERIOUS PERSONAL INJURY. READ THE MANUFACTURER’S INSTRUCTIONS BEFORE USING THIS PRODUCT. FOLLOW THE INSTRUCTIONS CAREFULLY TO PREVENT IRRITATION TO THE EYES AND SKIN. IF LOCTITE ADHESIVE MATERIAL GETS INTO THE EYES, FOLLOW THE MANUFACTURER’S EMERGENCY PROCEDURES AND GET CHECKED BY A PHYSICIAN AS SOON AS POSSIBLE.

⚠️ CAUTION

ALTHOUGH MERITOR DOES NOT RECOMMEND ITS USE IN TRANSFER CASES, IF A FORMED-IN-PLACE GASKET IS USED FOR REPAIRS, EXTREME CAUTION MUST BE EXERCISED TO PREVENT COMPOUND FROM ENTERING BEARINGS, OIL GALLERIES, AND PASSAGES OR TAPPED HOLES. ALL BEADS MUST BE KEPT SMALLER THAN 0.100” DIAMETER.

Gear & Shaft Subassembly Build Up

Assemble the Front Output Shaft Subassembly

1. Use an appropriate holding fixture to fully support the shaft assembly. Refer to the “Holding Fixture (905473-140)” on page 107.

⚠️ WARNING

OBSERVE ALL WARNINGS AND CAUTIONS PROVIDED BY THE PRESS MANUFACTURER TO AVOID DAMAGE TO COMPONENTS AND SERIOUS PERSONAL INJURY.

2. Use a press and sleeve, tool number 905473-82, to press the forward bearing DOWN onto the output shaft until it is fully seated. Refer to “Tools” on page 107 for the tool drawing. Press down only on the inner race of the bearing during installation. Use a 0.002” shim or feeler gauge to verify the bearing is correctly seated. Figure 6.1.

NOTE: Unless otherwise noted, follow the MTC-4208 XLEV & MTC-4210 XLEV assembly instructions throughout this section for assembly of MTC-4208/10 XLEC variants.

3. Turn the shaft over and reinstall it into the holding fixture. Refer to tool “Holding Fixture (905473-140)” on page 107.

4. Install the clutch collar. Figure 6.2.
5. Install the needle bearing onto the rear half of the output shaft and lubricate it with a light coat of lithium-based grease, Meritor specification O-668. The needle bearing is a slip fit assembly. Figure 6.3.

![Figure 6.3](image)

6. Install the helical gear onto the shaft. The helical gear is a slip fit gear.

7. Remove the shaft from the holding fixture and install it into a press. Correctly support the shaft in the press.

8. Use tool number 905473-92 to install the bearing onto the top of the output shaft with the small tapered end UP. Use a press and sleeve to push the bearing DOWN onto the output shaft until it is fully seated. Refer to “Tools” on page 107 for tool drawings. Press down only on the inner race of the bearing during installation. Use a 0.002" shim or feeler gauge to verify the bearing is correctly seated. Figure 6.4.

![Figure 6.4](image)

**WARNING**

TO AVOID SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS, TAKE CARE WHEN USING LIFTING DEVICES DURING SERVICE AND MAINTENANCE PROCEDURES. INSPECT A LIFTING STRAP TO ENSURE IT IS NOT DAMAGED. NEVER SUBJECT THE LIFTING STRAPS TO SHOCKS OR DROP-LOADING.

9. Remove the output shaft from the press and reinstall it into the holding fixture. Refer to tool “Holding Fixture (905473-140)” on page 107. Use an appropriate lifting device to lift the shaft.

10. Lubricate the output shaft threads with SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.

11. Install the washer and the locknut onto the shaft. Tighten the locknut to 700-900 lb-ft (949-1220 N-m). Figure 6.5.

![Figure 6.5](image)
Assemble the Single Idler Gear Subassembly
(MTC-4213X Only)

1. Install the shaft assembly into a press and support it correctly with the forward end facing UP.

2. Place the bearing onto the forward end of the shaft assembly. Use a sleeve, “Bearing Cone Driver (905473-82)” on page 108, and press to push the forward bearing cone DOWN until it is fully seated. Only press on the inner race of the bearing cone. Use a 0.002” shim or feeler gauge to ensure the bearing cone is correctly seated.

3. Rotate the shaft so the rear half of the shaft is facing UP. Use a sleeve, tool number 905473-92, and press to push the rear bearing cone DOWN until it is fully seated. Refer to “Tools” on page 107 for tool drawings. Only press on the inner race of the bearing cone. Use a 0.002” shim or feeler gauge to ensure the bearing cone is correctly seated.

Assemble the Rear Output Shaft Subassembly
(MTC-4208X/XP/XL/XLEV & MTC-4210X/XP/XL/XLEV Only)

1. Install the shaft assembly into a press and support it correctly.

2. Place the bearing cone onto the end of the shaft assembly with the appropriate end facing UP. Use a sleeve, “Bearing Cone Driver (905473-82)” on page 108, and press to push the bearing cone DOWN until it is fully seated. Only press on the inner race of the bearing cone. Use a 0.002” shim or feeler gauge to ensure the bearing cone is correctly seated.

3. Turn the shaft assembly over and install the bearing cone on the other end using Steps 1-2.

Assemble the Double Idler Gear Subassembly
(All Models)

1. Install the shaft assembly into a press and support it correctly.

2. Place the bearing cone onto the end of the shaft assembly with the appropriate end facing UP. Use a sleeve, (non-XLEV models use “Bearing Cone Driver (905473-82)” on page 108) (XLEV models use “Bearing Driver (4FI20-27110-000008-D01)” on page 109), and press to push the bearing cone DOWN until it is fully seated. Only press on the inner race of the bearing cone. Use a 0.002” shim or feeler gauge to ensure the bearing cone is correctly seated.

3. Turn the shaft assembly over and install the bearing cone on the other end using Steps 1-2.

Assemble the Input Shaft Subassembly
(MTC-4213X Only)

1. Press the bearing cup into the input bearing cage until it is fully seated.

2. Place the large o-ring around the groove on the bearing cage.

3. Install the relief valve and spring into the oil pump. The plunger should be seated into the relief valve orifice.

4. Install the internal oil pump using the following procedure.
   a. Pack lithium-complex grease, Meritor specification 0-668, into the pump oil inlet port before assembling the oil pump to the input bearing cage.
   b. Place the bearing cone on the race in the bearing cage.
   c. Insert the relief valve and spring into the relief port of the input bearing cage. Install the large diameter end of the spring down. Align the oil pump inlet with the oil inlet port of the input bearing cage.
   d. Install the six pump-to-inlet bearing cage capscrews and washers. Apply Loctite 277 sealant to the capscrews. Tighten the capscrews to 35-50 lb-ft (48-68 N∙m). Lubricate the sealing rings on the inside diameter of the pump and the shaft Journal adjacent to the pump splines.
   e. Place the small helical gear over the input shaft with the spline side of the gear down and install the spiral snap ring. The gear is a slip fit.

5. Install the shaft assembly into a press and support it correctly.

6. Place the bearing cone onto the end of the shaft assembly with the appropriate end facing UP. Use a sleeve, “Bearing Cone Driver (905473-82)” on page 108, and press to push the bearing cone DOWN until it is fully seated. Only press on the inner race of the bearing cone. Use a 0.002” shim or feeler gauge to ensure the bearing cone is correctly seated.

8. Apply Locitite 592 threadlocker to the restrictor plug and install it into the end of the bearing cone. Tighten the plug to 15 lb-ft (20 N-m). Figure 6.6.
Assemble the Front Input Shaft, Input Shaft Bearing Cage, & Internal Oil Pump (If Equipped) Subassemblies (MTC-4208X/XP/XL/XLEV & MTC-4210X/XP/XL/XLEV Only)

1. Use “Bearing Cup Driver (910203-37)” on page 112 to press the bearing cup into the input bearing cage until it is fully seated.

2. Place the large o-ring around the groove on the bearing cage. Figure 6.7.

3. Install the internal oil pump, if equipped, using the following procedure.
   a. MTC-4208X/XP & MTC-4210X/XP transfer cases only: Pack lithium-complex grease, Meritor specification O-668, into the pump oil inlet port before assembling the oil pump to the input bearing cage. Figure 6.8.
   b. Place the bearing cone on the race in the bearing cage.
   c. MTC-4208X/XP & MTC-4210X/XP transfer cases only: Insert the relief valve and spring into the relief port of the input bearing cage. Install the large diameter end of the spring down. Figure 6.7. Align the oil pump inlet with the oil inlet port of the input bearing cage. Figure 6.8.
   d. MTC-4208X/XP & MTC-4210X/XP transfer cases only: Install the six pump-to-inlet bearing cage capscrews and washers. Apply Loctite 277 sealant to the capscrews. Tighten the capscrews to 22-29 lb-ft (29-39 N·m).
   e. MTC-4208X/XP & MTC-4210X/XP transfer cases only: Lubricate the sealing rings on the inside diameter of the pump and the shaft journal adjacent to the pump splines. Figure 6.9.

4. MTC-4208XLEV & MTC-4210XLEV transfer case only: Install the needle bearing on the input shaft. Figure 6.10.
5. Place the low-range helical gear over the input shaft with the spline side of the gear down. For MTC-4208XLEV and MTC-4210XLEV, install the oil spacer. The oil spacer has two oil channels cut into it. The oil channels can face forward or aft when installed. Install the spiral snap ring to secure the helical gear. The gear is a slip fit. Figure 6.10.

6. Lubricate the gear and shaft before assembly.

7. **MTC-4208XL/XLEV & MTC-4210XL/XLEV transfer cases only:** Install the high- and low-range clutch collar over the input shaft splines. Place the high-range helical gear over the input shaft with the spline side of the gear facing the low-range helical gear. Install the bearing cone with the large end of the cone toward the high-range gear. Install the spacer on the shaft next to the bearing cone. Figure 6.11.

![Figure 6.11](image1)

**CAUTION**

**EXERCISE CARE WHEN ASSEMBLING THE INPUT SHAFT TO THE PUMP. LINE UP AND SLOWLY DIRECT THE INPUT SHAFT INTO THE PUMP OPENING. MISALIGNMENT DURING ASSEMBLY CAN CAUSE THE SHAFT TO “HANG UP” ON THE PUMP SEALING RINGS RESULTING IN DAMAGE TO THE RINGS.**

**NOTE:** Use care when installing the input bearing cage to prevent damage to the o-ring.

8. Place the oil pump, if equipped, and input bearing cage assembly over the input shaft. The drive teeth on the inner pump rotor must engage the teeth on the input shaft. NEVER use force to engage the splines. If a sealing ring is broken, remove and replace the pump.

9. Place the assembly into a holding fixture (Refer to “Holding Fixture (905473-140)” on page 107) and install the yoke assembly.

10. Install the washer and yoke nut. Tighten the yoke nut to 700-900 lb-ft (949-1220 N·m).

### Assemble the Upper Rear Output Shaft

(MTC-4213X Only)

1. Place the shaft into a holding fixture with the larger end facing UP.

2. Align the internal splines of the high range helical gear with the shaft splines and install the gear onto the shaft. Ensure the clutch collar gears are facing UP. Figure 6.12.

![Figure 6.12](image2)

3. Turn the shaft assembly over and secure it in a holding fixture.

4. Use a press and sleeve to press the bearing DOWNWARD onto the output shaft until it bottoms out against the helical gear. Refer to “Bearing Cone Driver (905473-82)” on page 108. Use a 0.002” shim or feeler gauge to verify the bearing is fully seated against the gear. Figure 6.13.

![Figure 6.13](image3)

5. Continue with the procedures for checking and adjusting end play and final assembly of the transfer case. Refer to “End Play Check & Adjustment” on page 63.
Gear & Shaft Installation into the Transfer Case Halves

Before installing the gear shafts, refer to "End Play Check & Adjustment" on page 63 for the correct shim pack starting thickness.

Install the Gear Shafts & Assemble the Case Halves

1. Lubricate all bearing cups and cones, gears, and shaft assemblies before installation into the case. Use SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.

2. Use a mallet or press and sleeve to install the bearing cups into the bore until correctly seated. Refer to "Tools" on page 107 to identify the correct sleeve for the model being serviced. Refer to "End Play Check & Adjustment" on page 63 for initial shim stack up requirements. Figure 6.14.

3. With the inside of the front case facing UPWARD, install the single idler shaft (MTC-4213X only), or rear output shaft (MTC-4208X/XP/XL/XLEV & MTC-4210X/XP/XL/XLEV), and double-gear idler shaft assemblies (all models). Figure 6.15.

4. Position the clutch collar onto the shift fork. Position the shift fork and clutch collar onto the front output shaft clutch hub.

5. Install the push rod into the transfer case.

6. Install the front output shaft, shift fork, and clutch collar in the front case. The shift fork will slide over the push rod. Figure 6.16 and Figure 6.17.

7. Install the release spring over the push rod and shift fork.

8. Temporarily install the shift cylinder onto the case to secure the push rod in place.


10. Install the input shaft, input bearing cage, and internal oil pump, if equipped. Refer to page 61 for the procedure.

11. For MTC-4213X transfer cases, install the upper rear output shaft into the rear transfer case half. Refer to page 62 for the procedure.

12. Install the pocket bearing into the recess in the input shaft.

   **NOTE:** All shaft bearing end plays must be determined before final assembly. Refer to "End Play Check & Adjustment" on page 63.

13. Install the two locating dowel pins into the corresponding holes in the front case.

   **NOTE:** Do not install sealant at this time.
14. Use a suitable lifting device to install the rear cover and output shaft as an assembly over the front case. Figure 6.18. Guide the cover over the shift fork and push rod as the cover is being set into place over the case.

![Figure 6.18](400207a)

15. Verify the locating dowel pins have engaged both the case and the cover and that the cover is fully seated on the case.

16. Secure the case to the cover joint by assembling at least six equally spaced case-to-cover capscrews.

Install the Front Input Shaft, Input Bearing Cage, & Internal Oil Pump Assembly Installation (If Equipped)

1. Rotate the transfer case so the front is facing UPWARD.

2. Position the shim pack for the input bearing cage and internal oil pump assembly, if equipped, over the front input opening. Position so that the open areas of the shims face the bottom of the transfer case.

   **For MTC-4208X/XL/XP/XLEV & MTC-4210X/XL/XP/ XLEV models:** The initial input bearing cage shim pack thickness is 0.036”.

   **For MTC-4213X model:** The initial input bearing cage shim pack thickness is 0.056”.

3. Lubricate the input bearing cage large o-ring, internal oil pump, if equipped, helical drive gear, and bearing cone before installation. Use SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.

4. Install the input shaft with the bearing cage and internal oil pump assembly, if equipped, into the transfer case. Position the assembly so that the inlet oil tube fitting is facing the correct direction.

5. Install at least three input bearing cage-to-housing capscrews. Tighten the capscrews to 85-115 lb-ft (115-156 N∙m). ▶

   **NOTE:** For MTC-4208X/XL/XP/XLEV & MTC-4210X/XL/XP/XLEV models, continue with the steps in this procedure. For MTC-4213X shaft completion, proceed to the upper rear output shaft procedure and the input shaft procedure in this section.

6. Install the high range helical gear and bearing cone onto the input shaft. The gear and bearing are a slip-type fit.

7. **MTC-4208X/XL/XP/XLEV & MTC-4210X/XL/XP/XLEV transfer cases only:** Install the 3” (76 mm) diameter nut and washer onto the rear end of the input shaft. Tighten the nut to 700-900 lb-ft (949-1220 N∙m). ▶

   After installing all gearing and shaft assemblies into the transfer case half, continue the assembly of the transfer case by installing the rear cover. Refer to “End Play Check & Adjustment” on page 63.
Install the Upper Rear Output Shaft (MTC-4213X Only)

1. Position the output shaft under the rear transfer case half. Use an appropriate lifting device to place the shaft and transfer case into a press.

2. Use bar stock or other material to support the rear output shaft underneath the rear transfer case half. Ensure the bar stock does not rest under the transfer case mounting flange, but only supports the gear and shaft assembly. Figure 6.19.

3. Check the inner bearing is seated in the bearing cup and the gear is vertical and not leaning.

4. Install the shims and spacer over the shaft. If the bearings are being replaced, install a starting shim pack thickness of 0.036" (0.91 mm) or use the same thickness as removed. Figure 6.20.

5. Use a bearing cone driver, tool number 905473-82, and a press to press the bearing down on the shaft until it is fully seated. Press only on the inner race of the bearing during installation. Figure 6.21.

6. Install the yoke, washer, and locknut. Tighten the lock nut to 700-900 lb-ft (949-1220 N·m).

7. Use a dial indicator to check the end play on the rear upper output shaft. Refer to “End Play Check & Adjustment” on page 63. The end play must be 0.002-0.004" (0.051-0.102 mm). To adjust the end play, remove the rear output shaft and outer bearing cone and add or remove shims, as necessary, to achieve the correct end play.

**NOTE:** The end play for the MTC-4213X upper rear output can be completed before installing the rear case half onto the front case half.
End Play Check & Adjustment

Shim Pack Starting Thickness Requirements

End play must be checked and adjusted at all shaft positions before final assembly.

**NOTE:** Reuse the existing yoke nuts during end play preliminary measurements. Install new yoke nuts only on final assembly.

**NOTE:** Unless otherwise noted, all 29 fasteners must be installed and tightened to the specified torque prior to checking end plays.

Start with the following shim pack thicknesses to begin this process.

- MTC-4213X input shaft starting thickness must be equal to or greater than 0.056”.
- MTC-4213X upper output starting thickness is 0.039”.
- MTC-4213X begins by setting the upper rear output end play first with a starting shim pack size of 0.039”. Set the end play to 0.002-0.004” (0.051-0.102 mm). After setting the MTC-4213X upper rear output, rotate the transfer case and set the input shaft end play to 0.002-0.004” (0.051-0.102 mm). All other MTC-4213X shaft end plays are 0.001-0.005” (0.025-0.127 mm).
- MTC-4208X/XP/XL/XLEV & MTC-4210X/XP/XL/XLEV input shaft initial starting shim pack thickness is 0.036”.
- MTC-4208XP & MTC-4210XP upper rear output yoke does not require an end play check.

For all other locations, determine the starting shim pack size by cleaning and measuring the thickness of shims removed from the respective bearing cup location. Use new shims to obtain the same thickness as the original shim pack. This will be the starting shim pack thickness to use when setting the respective shaft’s end play.

**MTC-4208X/XL/XP/XLEV & MTC-4210X/XL/XP/XLEV Lower Rear Output Shaft End Play**

Determine the rear output shaft bearing end play before final assembly. Seals should not be installed until the end plays are set.

1. Install the rear output shaft yoke. Temporarily tighten the yoke nut to 700-900 lb-ft (949-1220 N·m).
2. Rotate the output shaft several times to seat the bearings.
3. Use a dial indicator to check output shaft bearing end play. Center the dial indicator over the shaft.

**NOTE:** For accuracy, place a ball bearing into the recess found on the end of the shaft, then place the tip of the dial indicator on top of the ball bearing. Figure 6.22 and Figure 6.23.
4. Use a pry bar to lift the yoke to obtain a measurement. To obtain a consistent and averaged reading, perform this operation two or three times. Record the reading for this shaft. The end play should be 0.002-0.006" (0.051-0.152 mm).

If the end play reading is not within 0.002-0.006" (0.051-0.152 mm): Add shims to reduce end play or remove shims to increase end play. Bearing shims come in 0.003-, 0.005- and 0.010" (0.08, 0.13 and 0.25 mm) thicknesses.

5. If the rear output shaft bearing end play requires adjustment, remove the rear output shaft yoke so the case and cover can be easily separated.

6. Measure the end play on the remaining shafts before splitting the case to make adjustments.

7. After performing all bearing end play measurements, separate the transfer case halves as necessary to adjust shims and achieve the correct end play on the shaft requiring adjustment.

8. Adjust shims to achieve the correct bearing end play on all shafts as required.

Front Output Shaft End Play (All Models)

Determine the front output shaft bearing end play before final assembly. Seals should not be installed until the end plays are set.

1. Install the front output shaft yoke. Temporarily tighten the yoke nut to 700-900 lb-ft (949-1220 N·m).

2. Rotate the output shaft several times to seat the bearings.

3. Set up a dial indicator to check the output shaft bearing end play. Center the dial indicator over the shaft.

NOTE: For accuracy, place a ball bearing into the recess found on the end of the shaft, then place the tip of the dial indicator on top of the ball bearing. Figure 6.23 and Figure 6.24.

4. Use a pry bar to lift the yoke to obtain a measurement. To obtain a consistent and averaged reading, perform this operation two or three times. Record the reading for this shaft.

- **If the end play is greater than 0.002-0.006" (0.051-0.152 mm):** Add shims to reduce end play.

- **If the end play is less than specification:** Remove shims to increase end play. Bearing shims come in 0.003", 0.005", and 0.010" (0.08, 0.13, and 0.25 mm) thicknesses.

- **If the front output shaft bearing end play requires adjustment:** Remove the front output shaft yoke so the case and cover can be easily separated.

5. Measure the end play on the remaining shafts before splitting the case to make adjustments.

6. After performing all bearing end play measurements, separate the transfer case halves as necessary to adjust the shims and achieve the correct end play on the shaft requiring adjustment.
7. Adjust the shims to achieve the correct bearing end play on all shafts as required and recheck.

8. Before installing the yoke, clean the splines of old silastic. Apply a 1/8" (3.175 mm) bead of RTV 732 sealant 360 degrees around the underside of the washer. Figure 6.25.

---

**Idler Shaft (Single or Double) Bearing End Play (All Models)**

Determine the shaft bearing end play before final assembly. The MTC-4213X has both single idler and doubler idler gear shafts while all other models have a double idler gear shaft. Seals should not be installed until the end plays are set.

1. Rotate the transfer case with the front of the case facing UPWARD.

2. Remove the 3/8" (9.5 mm) pipe plugs at the shaft locations on the front of the case.

3. To prepare to check shaft bearing end play, insert a 1/2"-13 bolt into the shaft through the pipe plug hole, until the bolt is fully seated. The bolt should extend out of the transfer case enough to be used to lift the idler shaft.

4. Tighten the bolt until it bottoms in the shaft for an accurate end play measurement.

5. Rotate the idler shaft several times to help seat the bearing cones.

6. Set up the dial indicator to check the idler shaft bearing end play. Center the dial indicator on the bolt head. Zero the indicator. Figure 6.26.

7. Use pry bars to lift up on the bolt head to obtain a measurement. To obtain a consistent and averaged reading, perform this operation two or three times. Record the reading for this shaft. The specification is 0.002-0.006” (0.051-0.152 mm).

- **If the end play is greater than 0.006” (0.152 mm):**
  Add shims to reduce end play.

- **If the end play is less than 0.002” (0.051 mm):**
  Remove shims to increase end play. Bearing shims come in 0.003”, 0.005”, and 0.010” (0.08, 0.13, and 0.25 mm) thicknesses.
8. Remove the bolt from the shaft. Install the 3/8” pipe plug or breather assembly depending on shaft measured. Tighten the bolt to 20-25 lb-ft (27-34 N·m).

9. After performing all bearing end play measurements, if adjustment is required, separate the transfer case halves.

10. Adjust the shims to achieve the correct bearing end play on all shafts as required and recheck. Refer to “End Play Check & Adjustment” on page 63.

---

**MTC-4213X Rear Output Shaft End Play**

**NOTE:** Determine the rear output shaft bearing end play before installing the rear cover onto the front case.

1. If the rear output shaft and cover assembly has been disassembled, install the rear output shaft, bearing cones, spacer, and shims, yoke into the rear cover. Temporarily tighten the yoke nut to 700-900 lb-ft (949-1220 N·m). Place the rear cover on the bench to measure bearing end play. Refer to the bearing cup and shim installation procedures in this section. Figure 6.27.

2. Rotate the output shaft several times to seat the bearings.

3. Use a suitable dial indicator setup and pry UP on the yoke to determine bearing end play. End play should be 0.002-0.004” (0.051-0.102 mm). To obtain a consistent reading, perform this operation two or three times. Record the reading for this shaft. Figure 6.28.

- **If bearing end play is within specification:**
  The rear cover assembly is ready for installation.

- **If bearing end play is out of specification:**
  Remove the rear output shaft and install an appropriate spacer and shim combination between the bearing cones.
4. If necessary, remove the rear output shaft. Add shims to increase end play or remove shims to reduce end play. Reinstall the rear output shaft assembly.

5. Recheck the end play.

Front Input Shaft End Play Check & Adjustment (All Models)

1. Set up a dial indicator to check input shaft bearing end play. Center the dial indicator over the shaft using a ball bearing for accuracy. Figure 6.29.

2. Use a pry bar to lift the yoke to obtain a measurement. To obtain a consistent and averaged reading, perform this operation two or three times. Record the reading for the input shaft. The specification for MTC-4208 and MTC-4210 transfer cases is 0.002-0.006” (0.052-0.152 mm), and 0.002-0.004” (0.051-0.102 mm) for the MTC-4213 transfer case.

   • If the end play is greater than 0.006” (0.152 mm) for MTC-4208 and MTC-4210 transfer cases, or 0.004” (0.051-0.102 mm) for the MTC-4213 transfer case: Remove shims to decrease end play.

   • If the end play reading is less than specification: Add shims to increase end play. Bearing shims come in 0.003”, 0.005”, and 0.010” (0.08, 0.13, and 0.25 mm) thicknesses.

3. If it is necessary to add or remove shims, remove the input bearing cage and oil pump assembly capscrews and lift the assembly enough to insert or remove shims.

   • This can be done without completely removing the pump and shaft assembly from the housing.

   • The nut on the rear end of the shaft on MTC-4208 & MTC-4210 transfer cases must be removed first. Refer to the exploded views in this manual starting on page 1.

4. When the correct shim pack is chosen, reinstall all seven input bearing cage and oil pump assembly capscrews. Tighten the capscrews to 85-115 lb-ft (115-156 N-m).

5. Recheck the input shaft bearing end play. Adjust the end play as necessary.
**Shim Assembly**

In order to adjust the end play on any shaft, it is necessary to split the transfer case.

**NOTE:** The exception is the input shaft which can have the horseshoe-style shims removed or added by loosening or removing the input bearing cage capscrews.

1. Rotate the transfer case in the stand with the rear cover facing UP. Remove the case-to-cover capscrews.
2. Use a suitable lift to remove the rear cover. Mount the cover so the pressed-in bearing cups can be removed.
3. Use a bearing puller to remove the bearing cups from the cover. Shims are placed between the cover and the cup. Refer to “Remove the Bearing Cups” on page 49.
4. Select the correct shim or shims to achieve the correct end play. If the end play measurement is below 0.002” (0.051 mm), which indicates a pre-loaded shaft, start by removing shims until some measurable end play is observed.

### TABLE A: EXAMPLE OF SHIM SELECTION

<table>
<thead>
<tr>
<th>Initial measurement (idler shaft)</th>
<th>0.018”</th>
<th>0.46 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specification</td>
<td>0.002” - 0.006”</td>
<td>0.051 - 0.152 mm</td>
</tr>
<tr>
<td>Required shim stack</td>
<td>0.016-0.012”</td>
<td>0.406-0.305 mm</td>
</tr>
</tbody>
</table>

### TABLE B: POSSIBLE SHIM STACK COMBINATIONS

| 2 (0.005) | 1 (0.010) | 1 (0.010) |
| 1 (0.005) | 0.015”    | 2 (0.003) |
| 0.013”    |           | 0.016”    |
| 2 (0.13 mm)| 1 (0.25 mm)| 1 (0.25 mm)|
| 1 (0.08 mm)| 1 (0.13 mm)| 2 (0.08 mm)|
| 0.34 mm   | 0.38 mm   | 0.41 mm   |

5. After selecting the correct shim combination, place the shims in the bottom of the bearing bore. Refer to the exploded views starting on page 1 in this manual.

6. Press the bearing cup into the bore until it is completely seated. The shims must be centered in the bore while pressing in the bearing cup.

**NOTE:** On MTC-4208 and MTC-4210 models, shims are installed between the bearing cups and housing bore on the rear cover, except at the input shaft position. The shims for input shaft are installed between the input cage and front cover.

On MTC-4213 models, the front input shaft is shimmed between the input cage and front case half. The rear output shaft is shimmed between the two tapered bearing set. All other shafts are shimmed between the bearing cup and housing bore on the rear case cover.

7. Repeat Step 3 through Step 6 for each bearing needing an end play adjustment.

**NOTE:** Before final assembly, verify each shim selection procedure results in the correct end play specification. Repeat the end play measurement steps, as necessary, to obtain the correct end play specification on all shafts.

8. Reassemble the cover to the case. Install all 29 case-to-cover capscrews and flat washers. Tighten the capscrews to 60-75 lb-ft (81-102 N·m).

9. Recheck the end play. Once the measurements are correct, remove the cover and prepare for final assembly.
**Final Assembly**

1. Lubricate and install the o-ring into the rear cover push rod journal. Use a light coat of lithium-based grease, Meritor specification O-668, prior to cover installation. Figure 6.30.

   ![Image](MTC-4208XL/XLEV & MTC-4210XL/XLEV 4007107a)

   **Figure 6.30**

2. Apply Loctite 518 sealant to the case-to-cover flange. Apply a 1/8” (3 mm) bead of sealant around the entire flange between each bolt hole making sure to encircle each hole.

3. Reinstall the rear cover over the front case. Guide the high and low shift shaft and push rod through the cover as necessary. Verify the cover is aligned with the locating dowel pins and correctly seated.

4. If the capscrews are not pre-covered, apply Loctite 272 sealant to the first three threads of the cover-to-case capscrews.

5. Install all cover-to-case capscrews and flat washers. Tighten the capscrews to 60-75 lb-ft (81-102 N-m).

6. Recheck the end play. Repeat the end play measurements on all shafts. Repeat the adjustment procedures as required.

**High and Low Shifter**

1. Grease all o-ring seals. Use a light coat of lithium-based grease, Meritor specification O-668. Refer to Figure 6.31 for shifter component arrangement.

   ![Image](MTC-4208XL/XLEV AND MTC-4210XL/XLEV 4007107a)

   **Figure 6.31**

2. Install o-rings onto the inside diameter and outside diameter of the inner piston. Install the inner shift piston and snap ring onto the shift shaft. Figure 6.32.

   ![Image](INNER SHIFT PISTON 4000193b)

   **Figure 6.32**

3. Install o-rings onto the inside diameter and outside diameter of the outer piston. Install the outer shift piston with the o-ring end first to ensure the piston is facing the correct direction.
4. Install the outer shift piston outer snap ring onto the shift shaft. Figure 6.33.

5. Apply a 1/8" (3 mm) bead of Loctite 277 sealant to the first three threads of the shift cylinder.

6. Install the high and low shift cylinder. Tighten the cylinder to 80-100 lb-ft (108-136 N·m).

Input Shaft Oil Seal & Yoke

For all transfer cases: Install the input seal and sleeve using Meritor kits 2728T1 and 2728T2 respectively. Install the forward output shaft seal using Meritor Kit 4454.

For MTC-4208X/XL/XP/XLEV and MTC-4210X/XL/XP/XLEV transfer cases: Install the rear output shaft seal using Meritor Kit 4454.

For MTC-4213X transfer case: Install the rear output shaft seal using Meritor Kit 4454.

**WARNING**

SOLVENT CLEANERS CAN BE FLAMMABLE, POISONOUS, AND CAUSE BURNS. EXAMPLES OF SOLVENT CLEANERS ARE CARBON TETRACHLORIDE, AND EMULSION-TYPE AND PETROLEUM-BASE CLEANERS. READ THE MANUFACTURER’S INSTRUCTIONS BEFORE USING A SOLVENT CLEANER, THEN CAREFULLY FOLLOW THE INSTRUCTIONS. ALSO FOLLOW THE PROCEDURES BELOW.

- Wear eye protection.
- Wear clothing that protects the skin.
- Work in a well-ventilated area.
- NEVER use gasoline or solvents that contain gasoline. Gasoline can explode.

Hot solution tanks or alkaline solutions must be used correctly. Read the manufacturer’s instructions before using hot solution tanks and alkaline solutions. Then carefully follow the instructions.

1. If a seal sleeve is installed onto a yoke, remove the sleeve using a bearing puller. NEVER reuse seal sleeves.

2. Inspect the yoke seal area for damage that could cause lubricant leaks after installing the seal. Use emery paper or an equivalent product to remove scratches, nicks, or burrs only.

3. Clean the ground and polished surface of the yoke journal using a clean shop towel and a safe cleaning solvent. NEVER use abrasive cleaners, towels, or scrubbers to clean the yoke or flange surface. NEVER use gasoline.

4. Inspect the yoke seal area for damage that could cause lubricant leaks after installing the seal. Use emery paper or an equivalent product to remove scratches, nicks, or burrs only.
WARNINGS

OBSERVE ALL WARNINGS AND CAUTIONS PROVIDED BY THE PRESS MANUFACTURER TO AVOID DAMAGE TO COMPONENTS AND SERIOUS PERSONAL INJURY.

USE A BRASS OR SYNTHETIC MALLET FOR ASSEMBLY AND DISASSEMBLY PROCEDURES. NEVER HIT STEEL PARTS WITH A STEEL HAMMER. PIECES OF A PART CAN BREAK OFF. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

5. Apply a light coat of lubricant to the yoke seal journal. Position the sleeve into the yoke sleeve driver. NEVER touch the greased areas of the sleeve. The sleeve must be kept clean prior to assembly into the seal. Use an arbor press and the appropriate driver to install the sleeve into the yoke. Verify the sleeve is fully seated in the yoke to prevent damage to components. Figure 6.34.

The yoke must be fully pressed into the sleeve driver until the end of the yoke bottoms out in the sleeve driver. This will correctly position the sleeve on the yoke. When correctly seated, the sleeve is positioned 0.030" ± 0.030" (0.76 mm ± 0.76 mm) from the end of the yoke. Figure 6.35.

If a press is not available:
Position the yoke on a 5" (127 mm) spacer on a workbench. Use a dead-blow hammer and the appropriate driver to install the sleeve into the yoke. Figure 6.36.

6. Install the input seal. Hold the sleeve and seal only on the outer diameter. Position the seal onto the input seal driver and align it with the shaft. NEVER touch the lips in the inner diameter of the seal. Use a dead-blow hammer and the appropriate driver to install the seal onto the input bearing cage. Figure 6.37.
7. Use a feeler gauge to check the seal gap. The seal is correctly installed if the gap is less than 0.005" (0.127 mm) around the circumference of the seal flange.

If the gap is more than 0.005" (0.127 mm): Use a dead-blow hammer and the appropriate driver to completely install the seal.

8. Clean the splines of the old Silastic before installing the yoke. Apply a light coat of transfer case oil to the yoke seal journal and then use a mallet to install the yoke.

9. Verify the yoke is fully seated on the input shaft.

10. Apply a 1/8" (3.175 mm) bead of Silastic RTV 732 sealant 360° around the underside of the washer. Figure 6.38.

Front Axle Shift Cylinder

1. Rotate the transfer case to install the front axle shift cylinder.

2. Remove the front axle shift cylinder used to temporarily hold the shift shaft in place.

3. Grease the o-ring on the piston and install the piston into the cylinder.

4. Apply a 1/8" (3 mm) bead of Loctite 277 sealant to the first three threads of the shift cylinder.

5. Install and tighten the shift cylinder to 80-100 lb-ft (108-136 N-m).

Output Shaft Oil Seal & Yoke

For all transfer cases: Install the input seal and sleeve using Meritor kits 2728T1 and 2728T2 respectively. Install the forward output shaft seal using Meritor Kit 4454.

For MTC-4208X/XL/XP/XLEV & MTC-4210X/XL/XP/XLEV transfer cases: Install the rear output shaft seal using Meritor Kit 4454.

For MTC-4213X transfer case: Install the rear output shaft seal using Meritor Kit 4454.

1. Install the front output shaft oil seal using the appropriate seal driver. Drive the seal until it is fully seated. Figure 6.39.

2. Apply a light coat of transfer case oil to the yoke journal. Install the front output yoke, washer and new yoke nut. Tighten the yoke nut to 700-900 lb-ft (949-1220 N-m).

3. Repeat Steps 1 and 2 for the rear output seal and yoke.

4. Once final assembly of the transfer case has been completed and the yokes have been installed, remeasure the input and output yoke end plays to ensure they are within specification.

11. Install the rear output shaft yoke washer and new yoke nut. Tighten the nut to 700-900 lb-ft (949-1220 N-m).
Rear-Mounted Pump

**ASSEMBLY**

1. Install the floating plate, idler and idler carrier into the rotor body. Figure 6.40.

2. Install the pump assembly according to the procedure in this section.

**INSTALLATION**

1. Verify the drive pins are installed into the input shaft. Figure 6.41.

2. Install the pump spring into the orifice at the rear of the input shaft.

3. Place the pump onto the input shaft. Rotate the pump assembly to engage the drive pins. Ensure the pump is correctly seated. Leave 3/16” (4.763 mm) of the drive pins extending from the input shaft. Figure 6.42.

4. Apply a 0.125” (3.175 mm) bead of Loctite 518 sealant around the rear housing face. Figure 6.43.
5. Install the pump housing and align with the transfer case alignment dowels. Tap the cover into place with a mallet. Figure 6.44.

```
<table>
<thead>
<tr>
<th>PUMP HOUSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASHER</td>
</tr>
<tr>
<td>PUMP HOUSING BOLT</td>
</tr>
</tbody>
</table>
```

**Figure 6.44**

4007117a

6. Install the pump housing washers and bolts.

7. Use a 5/8" socket and tighten the housing bolts in a criss-cross pattern to 60-75 lb-ft (101 N·m).

8. Apply a very light bead of Loctite 518 sealant onto the pump housing. NEVER allow the sealant to enter the pump cavity. Damage to the pump can result. Figure 6.45.

```
<table>
<thead>
<tr>
<th>Align</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUMP REVERSING TAB</td>
</tr>
<tr>
<td>PUMP SEALS</td>
</tr>
<tr>
<td>LOCTITE 518 SEALANT</td>
</tr>
<tr>
<td>PUMP COVER</td>
</tr>
</tbody>
</table>
```

**Figure 6.45**

4006326d

9. Install the pump cover at the 9:00 position.

10. Align the reversing tab (roll pin) on the pump cover with the corresponding recess on the pump. The pump cover must be at this orientation to prevent damage to components. Figure 6.46.

```
<table>
<thead>
<tr>
<th>PUMP HOUSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUMP COVER</td>
</tr>
<tr>
<td>WASHER</td>
</tr>
</tbody>
</table>
```

**Figure 6.46**

4007118a

11. Install the pump cover washers and bolts. Figure 6.46.

12. Use a 7/16" socket and tighten the bolts in a criss-cross pattern to 10-13 lb-ft (14-18 N·m).
Breather, Speed Sensor, & Plugs

1. If necessary, install the breather into the rear cover. Figure 6.47.

2. Install the oil inlet tube to the lower and upper fittings. Tighten the fitting nuts to 35-40 lb-ft (48-54 N·m). Figure 6.48.

3. If removed, install the speed sensor into the top of the transfer case. Figure 6.49. Fasten with a capscrew and washer.

4. On MTC-4208XP and MTC-4210XP, install the PTO engagement and disengagement switch assemblies, if equipped. Otherwise, install a nut and washer into the open port.

5. Reinstall all other pipe threaded plugs using Loctite 592 threadlocker.

Oil Cooler Connections

1. Reinstall the male connector fittings, if removed. Apply Loctite 592 threadlocker to the pipe threads. Tighten the fittings to 25 lb-ft (34 N·m).

2. Connect the oil cooler lines:
   - MTC-4213X, MTC-4208X/XP, & MTC-4210X/XP, PTO Ready: Reconnect the loop line. Tighten the fittings to 20 lb-ft (27 N·m).
   - MTC-4208XL/XLEV & MTC-4210XL/XLEV with Rear-Mounted Pump: Reconnect the tube between the pump outlet and front idler bearing orificed elbow.
   - MTC-4208XLEC & MTC-4210XLEC: Refer to the instructions on page 90 for oil tube installation.
**Transfer Case Shifting Check**

1. Apply 60 psi (4.14 bar) or greater of air pressure to the front axle declutch. Figure 6.49.
2. Turn the input shaft by hand to verify the front output turns at same rate as the rear output.
3. Remove the air pressure.
4. Apply 60 psi (4.14 bar) or greater of air pressure to the high-range shaft air port. Figure 6.50.

**Transfer Case Assembly Test**

**CAUTION**

**THE AIR PRESSURE MUST NOT EXCEED 10 PSI (0.69 BAR). DAMAGE TO COMPONENTS CAN RESULT.**

1. Pressure test the transfer case assembly for air leakage.
2. Verify the fittings are installed correctly.
3. Remove the breather assembly. Figure 6.47.

5. Turn the input shaft by hand to verify the rear output turns at same rate as the input.
6. Remove the air pressure.
7. Apply 60 psi (4.14 bar) or greater of air pressure to the low-range shaft cylinder air port. Figure 6.50.
8. Turn the input shaft by hand to verify the rear output turns at approximately half the rate as the input.
9. Remove the air pressure.
10. For PTO-equipped cases, apply 60 psi (4.14 bar) or greater of air pressure to the neutral shift location. Figure 6.50.
11. Turn the input shaft by hand to verify the rear output does not turn at all. Have someone hold the output shafts to prevent them from turning while spinning the input.
12. Remove the air pressure.
13. Remove the transfer case from the stand.
**External Oil Pump Priming Procedure (MTC-4208XL/XLEV & MTC-4210XL/XLEV)**

Prior to the pump priming procedure, check the oil fill level in the transfer case. The level should be the bottom of the fill hole.

⚠️ **CAUTION**

**PRIOR TO PERFORMING A PUMP PRESSURE TEST OR OPERATING THE VEHICLE, VERIFY THE OIL PUMP IS PRIMED. IF THE PUMP IS NOT PRIMED, DAMAGE TO COMPONENTS CAN RESULT.**

1. Prior to connecting the oil cooler line to the tee fitting, remove the tee fitting upper cap and add SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81, to the tee fitting until the tee fitting cavity is completely filled. Figure 6.51.

![Figure 6.51](4006328a)

2. Reinstall the cap on the upper tee fitting.

**Pump Pressure Test & Oil Fill Check**

**NOTE:** For MTC-4208/10 XLEV 10EC variant models, refer to the other procedure provided in this section.

⚠️ **WARNING**

THE TRANSFER CASE AND OIL LINES MAY BE HOT. USE CARE TO AVOID GETTING BURNED.

1. With the vehicle on a level surface, fill the transfer case to the bottom of the fill hole with SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.

2. Install the 3/8" female JIC fitting onto one end of the 10' (3.05 meter) pressure hose and the pressure gauge onto the other end.

3. Connect the female fitting to the unused port of the diagnostic tee fitting. Figure 6.51.

4. Route the gauge to a position where it can be viewed in the cab of the vehicle.

⚠️ **CAUTION**

WHEN PERFORMING AN OIL PUMP PRESSURE DIAGNOSTIC CHECK, ROAD TEST THE SYSTEM FOR ONE MILE (1.6 KM). IF THE OIL PRESSURE IS NOT AT LEAST 3 PSI (0.21 BAR) AFTER ONE MILE, TURN THE VEHICLE OFF. DO NOT REPEAT THE ROAD TEST. DAMAGE TO COMPONENTS CAN RESULT. CALL THE MERITOR ONTrac™ CUSTOMER CALL CENTER AT 866-668-7221 FOR ASSISTANCE.

5. Perform an oil pump pressure diagnostic check. Road test the system for one mile (1.6 km) above 30 mph (48 kph) or until the oil pressure reaches 10 psi (0.69 bar), whichever comes first.

- A positive pressure greater than 3 psi (0.21 bar) indicates the pump and oil cooler system are primed.

- If oil pressure is not at least 3 psi (0.21 bar) after one mile: Turn the vehicle off. Do not repeat the test or damage to components can result. Call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further assistance.

6. Remove the diagnostic equipment and plug the diagnostic port.

7. Reinstall the diagnostic port cap. Tighten to 35-40 lb-ft (47-54 N·m).

8. Check the system for leaks at all fitting connections and transfer case oil ports.

9. Check the oil fill level in the transfer case. The level should be below the fill hole following the priming run.

10. Refill the transfer case to the bottom of the fill hole.
Optional Oil Pressure Test & Oil Fill Check

1. Park the vehicle on a level surface and set the parking brake.

**WARNING**

**THE TRANSFER CASE AND OIL LINES MAY BE HOT. USE CARE TO AVOID GETTING BURNED.**

2. With the vehicle on a level surface, fill the transfer case to the bottom of the fill hole with SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.

3. Install the 3/8” female JIC fitting onto one end of the 10’ (3.05 meter) pressure hose and the pressure gauge onto the other end.

4. Connect the female fitting to the unused port of the diagnostic tee fitting. Figure 6.51.

5. Route the gauge to a position where it can be viewed in the cab of the vehicle.

6. Verify the parking brake is set.

7. Start and idle the vehicle for one minute with the pressure gauge connected. If necessary, refer to the original equipment manufacturer (OEM) instructions to start the vehicle.

8. Verify the vehicle primary and secondary air pressures are at least 90 psi (6.2 bar).

9. Move the transfer case toggle switch to the Neutral (middle) position. The transfer case will not shift into Neutral if the air pressure is below 90 psi (6.2 bar). If necessary, refer to the original equipment manufacturer (OEM) instructions to start the vehicle.

10. Place the transmission into drive.

11. Verify the transmission is in the highest range possible. If not, refer to the vehicle operator’s manual for shifting instructions.

**DANGER**

**KEEP CLEAR FROM UNDER THE VEHICLE WHEN CHECKING THE INPUT SHAFT TO PREVENT SERIOUS PERSONAL INJURY.**

12. With the transmission in High, have an assistant outside the vehicle verify the input shaft to the transfer case is turning. Keep clear from under the vehicle when checking the input shaft. If the input shaft is not turning, the transfer case is not in Neutral. If the transfer case is not in Neutral, perform the following procedure.

   a. Shift the transmission back into Neutral.

   b. Shift the transfer case to high and low range and back to Neutral.

   c. Attempt to place the vehicle back into drive and repeat the procedure until the transfer case goes into Neutral.

**CAUTIONS**

RUN THE ENGINE FOR NO LONGER THAN ONE MINUTE. DO NOT REPEAT THE TEST OR DAMAGE TO COMPONENTS CAN RESULT.

WHEN PERFORMING THE OPTIONAL OIL PUMP PRESSURE DIAGNOSTIC CHECK, TEST THE SYSTEM FOR NO LONGER THAN ONE MINUTE. IF THE OIL PRESSURE IS NOT AT LEAST 3 PSI (0.21 BAR) AFTER ONE MINUTE, TURN THE VEHICLE OFF. DO NOT REPEAT THE TEST. DAMAGE TO COMPONENTS CAN RESULT. CALL THE MERITOR ON-TRACT™ CUSTOMER CALL CENTER AT 866-668-7221 FOR ASSISTANCE.

13. Once the transfer case is in Neutral and the transmission is in High, press the accelerator and run the engine at 1800-2200 rpm for no longer than one minute or until oil pressure reaches 10 psi (0.69 bar), whichever occurs first. With the transmission in High, observe the reading on the pressure gauge. The reading should be 5-20 psi (0.34-1.38 bar).

   If oil pressure is not at least 3 psi (0.21 bar) after one minute: Turn the vehicle off. Do not repeat the test or damage to components can result. Call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further assistance.

14. Once the test is complete, allow the engine to idle back down. Shift the transmission back to Low.

15. Shift the transmission back to Neutral.

**DANGER**

SHIFT THE TRANSFER CASE INTO HIGH RANGE FOR THIS PROCEDURE. REFER TO THE VEHICLE OPERATOR’S MANUAL INSTRUCTIONS. IF YOU DO NOT SHIFT INTO HIGH RANGE, SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

16. Shift the transfer case back into high range. If necessary, refer to the vehicle operator’s manual instructions.

17. Turn the vehicle off. If necessary, refer to the original equipment manufacturer (OEM) instructions.

18. Remove the diagnostic equipment.

19. Reinstall the diagnostic port cap. Tighten to 35-40 lb-ft (47-54 N·m).

20. Check the system for leaks at all fitting connections and transfer case oil ports.

21. Check the oil fill level in the transfer case. The level should be below the fill hole following the priming run.

22. Refill the transfer case to the bottom of the fill hole.

23. Refill the transfer case to the bottom of the fill hole.
MTC-4208/10 XLEC Oil Fill & Pump Pressure Test

1. Check and, if necessary, fill the transfer case, cooler and lines as follows. Use Meritor-approved lubricant, full-synthetic 50W or 40W oil. Refer to publication TP-90114 - Transmission Lubricant Specifications for a list of approved distributors. Fill transfer case to a total volume of 16 pints (7.57 liters).

2. Perform an oil pump pressure check as follows.
   a. Remove the pipe plug from the diagnostic port of the pump cover using a 1/4" square drive. Figure 6.52.
   b. Install a pressure gauge to the diagnostic port using a suitable 1/4" pipe fitting.
      
      **NOTE:** A pressure gauge with a maximum reading of 100 psi (6.89 bar) must be used for this model.
   c. Use one of the following methods to test the oil pump pressure.
      
      • Install the gauge on a hose long enough to position the gauge inside the vehicle cab and road test the vehicle for at least one mile (1.6 km), at a speed of at least 30 mph (48 km/h).
      
      • If the transfer case is not equipped with a neutral range shift, remove the rear drive shaft from the transfer case rear output yoke. Place the transfer case in high range, 2-wheel drive, and the transmission in 4th gear (1:1 ratio), and run the engine at least 400 rpm for 20 seconds.

   d. Check the pump pressure gauge to verify it has reached an oil pump pressure of 10 psi (0.69 bar).
      
      • A positive pressure of at least 10 psi (0.69 bar) indicates the pump and oil cooler system are correctly primed.
      
      • If oil pressure is not at least 10 psi (0.69 bar), turn the vehicle off. Do not repeat the test or damage to components can result. Recheck the oil fill level at the transfer case fill port on the front case. Ensure the oil is at the bottom of the fill hole. Verify the hose and fittings are tight and no leaks are evident.

3. Remove the pressure gauge and fitting from the diagnostic port.

4. Apply Loctite 592 or equivalent pipe sealant to the pipe plug and reinstall it into the diagnostic port of the pump cover.

5. Using a 1/4" square drive, tighten the pipe plug to 15 lb-ft (20 N·m).

6. Check the oil fill in the transfer case. The level should be to the bottom of the fill hole.

7. Add lube oil as necessary to bring the level up to the bottom of the fill hole.

8. Reinstall the plug and tighten to 35 lb-ft (48 N·m).
Power Take-Off (PTO)

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ DANGER

PARK THE VEHICLE ON A LEVEL SURFACE. BLOCK THE WHEELS TO PREVENT THE VEHICLE FROM MOVING. SUPPORT THE VEHICLE WITH SAFETY STANDS. NEVER WORK UNDER A VEHICLE SUPPORTED ONLY BY JACKS. JACKS CAN SLIP AND FALL OVER. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

⚠️ WARNINGS

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

WHEN APPLYING SOME SILICONE GASKET MATERIALS, A SMALL AMOUNT OF ACID VAPOR IS PRESENT. TO PREVENT SERIOUS PERSONAL INJURY, ENSURE THE WORK AREA IS WELL-VENTILATED. READ THE MANUFACTURER’S INSTRUCTIONS BEFORE USING A SILICONE GASKET MATERIAL, THEN CAREFULLY FOLLOW THE INSTRUCTIONS. IF A SILICONE GASKET MATERIAL GETS INTO THE EYES, FOLLOW THE MANUFACTURER’S EMERGENCY PROCEDURES AND GET CHECKED BY A PHYSICIAN AS SOON AS POSSIBLE.

TAKE CARE WHEN USING LOCTITE® ADHESIVE TO AVOID SERIOUS PERSONAL INJURY. READ THE MANUFACTURER’S INSTRUCTIONS BEFORE USING THIS PRODUCT. FOLLOW THE INSTRUCTIONS CAREFULLY TO PREVENT IRRITATION TO THE EYES AND SKIN. IF LOCTITE ADHESIVE MATERIAL GETS INTO THE EYES, FOLLOW THE MANUFACTURER’S EMERGENCY PROCEDURES AND GET CHECKED BY A PHYSICIAN AS SOON AS POSSIBLE.

OBSERVE ALL WARNINGS AND CAUTIONS PROVIDED BY THE PRESS MANUFACTURER TO AVOID DAMAGE TO COMPONENTS AND SERIOUS PERSONAL INJURY.

### Installation

This section provides instructions on installing a power take-off (PTO) assembly onto Meritor MTC-4208 & MTC-4210 transfer cases using Kit 2540. Refer to Table C and Figure 7.1. Refer to the Service Notes page on the front inside cover of this manual to obtain this kit.

#### TABLE C: KIT 2540

<table>
<thead>
<tr>
<th>Model</th>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTO Assembly</td>
<td>1</td>
<td>MDP-10-AF-100</td>
<td>10,000 lb-ft (13 500 N∙m) torque rating</td>
</tr>
<tr>
<td>Washer</td>
<td>8</td>
<td>1229-E-1513</td>
<td>0.81” O.D. x 0.47” I.D. x 0.09” thickness</td>
</tr>
<tr>
<td>Capscrew</td>
<td>6</td>
<td>S-2710-2</td>
<td>7/16” - 14 thread x 1.25” long</td>
</tr>
<tr>
<td>Capscrew</td>
<td>2</td>
<td>S-2746-2</td>
<td>7/16” - 14 thread x 5.75” long</td>
</tr>
<tr>
<td>Washer</td>
<td>1</td>
<td>1229-T-1736</td>
<td>2.36” x 1.56 I.D. x 0.12” thickness</td>
</tr>
<tr>
<td>Lock Nut</td>
<td>1</td>
<td>40-X-1237</td>
<td>M39 x 1.5 thread</td>
</tr>
<tr>
<td>Dowel Pin</td>
<td>2</td>
<td>1246-T-1190</td>
<td>3/8” diameter x 1” long</td>
</tr>
</tbody>
</table>
Exploded View

PTO MDP-10-AF-100

Figure 7.1

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearing Cage</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Bearing Assembly</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>PTO Shaft</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Push Rod</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Shift Fork</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Differential Lockout Collar</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Shifter Piston</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>O-ring, 1.46” (37 mm) Diameter</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>O-ring, 1.80” (46 mm) Diameter</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Cover Plate</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Switch Assembly, Standard (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Capscrew</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Shifter Spring</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Cap</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Declutch Switch Assembly (Optional)</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Oil Seal Assembly</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Shipping Protector</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Flat Washer</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Special Screw</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>Capscrew, 1.25” (32 mm) Long</td>
<td>6</td>
</tr>
<tr>
<td>21</td>
<td>Capscrew, 5.75” (146 mm) Long</td>
<td>2</td>
</tr>
<tr>
<td>22</td>
<td>Washer</td>
<td>8</td>
</tr>
</tbody>
</table>
Remove the Transfer Case Rear Access Cover

1. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
2. Remove the air from the vehicle’s system.
3. Place a suitable container under the transfer case to catch the hydraulic fluid when removing the rear access cover.
4. Remove the mounting bolts and washers securing the rear-mounted pump housing. Figure 7.2.

**NOTE:** It is necessary to replace the rear-mounted pump with the internal pump in order to install the PTO. Refer to Technical Bulletin TP-0708 - Removing the External Oil Pump and Installing the Internal Oil Pump for the correct kit and instructions.

5. Clean the PTO mounting surface to remove all sealant.

Exploded View

MTC-4210 Transfer Case & KIT 2540 Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transfer Case</td>
<td>6</td>
<td>Yoke</td>
</tr>
<tr>
<td>2*</td>
<td>PTO Assembly</td>
<td>7*</td>
<td>Washer, Yoke Mounting</td>
</tr>
<tr>
<td>3*</td>
<td>Washer, 0.47” (12 mm) Inside Diameter</td>
<td>8*</td>
<td>Lock Nut, Yoke Mounting</td>
</tr>
<tr>
<td>4*</td>
<td>Capscrew, 1.25” (32 mm) Long</td>
<td>9</td>
<td>Switch and Connector Assembly</td>
</tr>
<tr>
<td>5*</td>
<td>Capscrew, 5.75” (146 mm) Long</td>
<td>10</td>
<td>Dowel Pin</td>
</tr>
</tbody>
</table>

* Kit 2540 component
**Install the Yoke onto the PTO**

A Meritor yoke with the spline code “RAI” must be installed onto the PTO. For yoke options, refer to Table D and Figure 7.3.

### TABLE D: PTO YOKE OPTIONS AND DIMENSIONS

<table>
<thead>
<tr>
<th>Part #</th>
<th>Yoke Type</th>
<th>17NYS32-100A1</th>
<th>17TYS32-68A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Center to End</td>
<td>Full Round</td>
<td>5.16&quot; (131 mm)</td>
<td>5.47&quot; (139 mm)</td>
</tr>
<tr>
<td>B Spline Length</td>
<td>2.32&quot; (59 mm)</td>
<td>2.32&quot; (59 mm)</td>
<td></td>
</tr>
<tr>
<td>C Hub Diameter</td>
<td>3.00&quot; (76 mm)</td>
<td>3.00&quot; (76 mm)</td>
<td></td>
</tr>
<tr>
<td>D Bearing Diameter</td>
<td>1.94&quot; (49 mm)</td>
<td>1.94&quot; (49 mm)</td>
<td></td>
</tr>
<tr>
<td>E Across Ears</td>
<td>6.00&quot; (152 mm)</td>
<td>6.20&quot; (157 mm)</td>
<td></td>
</tr>
<tr>
<td>F Spline Size</td>
<td>2.00 x 39&quot; (51 x 991 mm)</td>
<td>2.00 x 39&quot; (51 x 991 mm)</td>
<td></td>
</tr>
</tbody>
</table>

Refer to Table D for Yoke Dimensions

1. Use a press and an applied press force of 500-1500 lbs (227-680 kg) to install a Meritor yoke, spline code RAI, onto the PTO shaft. Figure 7.2.

2. Apply a 1.8” (46 mm) bead of RTV silicone gasket material around the end of the yoke spline under the washer surface.

3. Install the washer and locknut supplied in the kit. Tighten the lock nut to 700-900 lb-ft (949-1220 N·m).

**Install the Optional Indicator Switch**

### TABLE E: PTO SWITCH OPTION

<table>
<thead>
<tr>
<th>Part #</th>
<th>Switch and Connector Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Name</td>
<td>3237-W-1167</td>
</tr>
<tr>
<td>Description</td>
<td>2 Amp x 12 VDC, M16 x 1&quot; thread</td>
</tr>
<tr>
<td>Qty</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Remove the screw and washer from the end of the PTO cap. Figure 7.4.

2. Apply Loctite 518 gasket sealant to the indicator switch threads.

3. Install the indicator switch. Tighten the switch to 25-30 lb-ft (34-41 N·m). Figure 7.5.
Install the PTO Onto the Transfer Case

1. Install two dowel pins into the transfer case PTO flange.
2. Apply a thin coating of Loctite 518 gasket sealant to the entire PTO flange mounting surface. Figure 7.2.
3. Slide the PTO assembly onto the output shaft spline. Align the assembly to the two dowel pins.
4. Install the washers and mounting bolts. Tighten the bolts to 60-75 lb-ft (81-102 N·m).
5. Install the PTO air control line and fitting. Follow the vehicle manufacturer’s instructions.

Test the PTO Installation

⚠️ CAUTION

THE PTO CLUTCH MUST BE ENGAGED TO OPERATE THE DRIVE. ALWAYS ENGAGE AND DISENGAGE THE PTO WITH THE VEHICLE STATIONARY AND IN NEUTRAL. NEVER APPLY A LOAD TO THE PTO DRIVE UNTIL THE DRIVE HAS BEEN ENGAGED. DAMAGE TO COMPONENTS CAN RESULT.

THE AIR PRESSURE MUST NOT EXCEED 90 PSI (6.2 BAR). DAMAGE TO COMPONENTS CAN RESULT.

1. Connect a regulated air pressure line to the air control port. Figure 7.6.
2. Apply 90 psi (6.2 bar) of air pressure.
3. Check for leaks in the PTO air control line.
4. Cycle the air control pressure. Follow the procedures below to verify the PTO clutch engages correctly.

PTO Without an Optional Indicator Switch

1. Remove the switch port screw and washer. Figure 7.4.
2. Measure the PTO push rod travel to verify the travel is 0.75" (19 mm) and the clutch is fully engaged.

If the push rod travel is not at 0.75" (19 mm) and the PTO clutch is not fully engaged:
Disengage the clutch by releasing the air pressure. Rotate the clutch output shaft by hand and retest.

If the clutch still is not fully engaged:
Remove the PTO assembly. Check the transfer case output shaft splines and the PTO clutch collar splines. Replace worn or damaged parts. Repeat the assembly procedures.

PTO with an Optional Indicator Switch

1. Install the indicator switch. Tighten the switch to 25-30 lb-ft (34-40.8 N·m).
2. Verify the indicator switch closes when the PTO completes a shift to engage the drive. Figure 7.5.

If the indicator switch does not close to fully engage the drive:
Measure the PTO push rod travel to verify the travel is 0.75" (19 mm) and the clutch is fully engaged.

If the push rod travel is not at 0.75" (19 mm) and the PTO clutch is not fully engaged:
Disengage the clutch by releasing the air pressure. Rotate the clutch output shaft by hand and retest.

If the clutch still is not fully engaged:
Remove the PTO assembly. Check the transfer case output shaft splines and the PTO clutch collar splines. Replace worn or damaged parts. Repeat the assembly procedures.
Test the Transfer Case with the PTO Assembly Installed

⚠️ CAUTION
THE AIR PRESSURE MUST NOT EXCEED 10 PSI (0.69 BAR). DAMAGE TO COMPONENTS CAN RESULT.

1. Connect a regulated air pressure line to the air transfer case breather. Figure 7.7.

Figure 7.7

2. Verify the air pressure line fittings are installed correctly.

3. With the correct fitting installed into the breather port, apply a pressure of 8-10 psi (0.55-0.69 bar).

4. Turn the air supply OFF. Check the pressure.

   **If the pressure decreases by more than 2 psi (0.14 bar) in 10 minutes:**
   Check for external leaks at the fittings. Correct any leaks. Recheck the pressure.

5. Install the breather.

PTO Disassembly

Once the PTO has been removed according to the procedure in Section 4, use the following procedure for disassembly.

⚠️ WARNING
TAKE CARE WHEN REMOVING THE SPRING-LOADED PTO CAP. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

1. Carefully remove the spring-loaded PTO cap by turning each bolt a few turns at a time until all the bolts can be removed at once.

2. Remove the capscrews from the cover of the declutch piston. Remove the cover.

3. Remove the PTO piston push rod and the return spring. Remove the o-ring seal from the PTO piston.

4. Remove the o-ring seal on the cover. Discard the seal. Remove the shift fork and clutch collar.

5. Remove the oil and dirt seals from the bearing cage assembly. Discard the seals.

6. Press the shaft out of the bearing cage. Remove the bearing assembly.

7. Remove the bearing cups as a unit with the bearing spacer by pressing the cups out of the bearing cage. NEVER separate these parts. They are a matched set.
PTO Assembly

1. Rotate the transfer case in the repair stand so the output shaft to the PTO is facing UPWARD.

**CAUTION**

THE CUPS MUST FIT SECURELY IN THE HOUSING BORES. DAMAGE TO THE COMPONENTS CAN RESULT.

2. Assemble the PTO components by performing the following steps.
   a. Install the bearing cups into the PTO bearing cage housing. This is an interference fit. Freeze the bearing to −65°F (−54°C) and position the two cups into the housing bores. Figure 7.8.
      
      If the cups are loose after the cup warms: Replace the housing.
      
      b. Preheat the first bearing cone to 200°F (93°C). Support the shaft and slide the heated cone in place onto the output shaft. Figure 7.9.
      
      c. Install the shaft assembly into the housing. Slide the bearing spacer onto the splined end of the shaft.
      
      d. With the bearing spacer in position, the second bearing cone can be heated to 200°F (93°C) and installed onto the shaft. Figure 7.10.
      
      e. Support the shaft and apply a press of 50-60 lbs (23-27 kg) to the bearing cone to set the bearing in place while the bearing cools.
      
      f. Apply a light film of SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.
      
      g. Assemble the shift fork to the clutch collar. Install this unit into the bearing cage housing.
      
      h. Install the push rod into the housing and through the shift fork assembly.
      
      i. Apply 20-30 lbs (9-14 kg) of pressure to insert the piston into the housing. Figure 7.11.
      
      j. Install the cover plate with the o-ring seal in place.
      
      k. Lightly lubricate all parts with SAE Grade full-synthetic 40W or 50W oil, Meritor specification O-81.
      
      l. Install the 1/4-20 screws using Loctite 242 sealant. Tighten the screws to 10-14 lb-ft (14-19 N·m).
m. Insert the spring into the housing over the push rod. Figure 7.12.

n. Apply a thin film of Loctite 518 gasket material to the cap surface. Install the cap with the 1/4-20 screws using Loctite 242 sealant. Tighten the screws to 10-14 lb-ft (14-19 N-m). Figure 7.12.

o. Install the PTO shaft seal into the housing.

p. Press the seal into position until the seal is seated on the housing.

3. Install the PTO assembly onto the transfer case.

4. Apply a thin film of Loctite 518 gasket material to the housing.

5. Slide the housing onto the output shaft of the transfer case, aligning the splines of the clutch to the shaft.

6. Install the eight 7/16" (11 mm) diameter screws and washers using Loctite 277 sealant. Tighten the screws to 60-75 lb-ft (81-102 N-m).

7. Verify the clutch engages and disengages correctly.

8. Pressure test the PTO shifter for air leakage by performing the following steps.
   a. With the correct fitting installed into the air control port, apply a pressure of 90 psi (6.2 bar).
   b. Shut off the air supply.

9. Install the indicator switch. Tighten the switch to 25-30 lb-ft (34-40 N-m). Figure 7.13.

   If a switch is not used:
   Install the special plug and washer used to cap the access hole. Tighten the plug to 25-30 lb-ft (34-40 N-m). Figure 7.13.

10. Repeat Step 1 through Step 9 for each remaining declutch, PTO or proportional differential lockout assemblies.

**CAUTION**

CHECK FOR EXTERNAL LEAKS AT THE COVER PLATE JOINT AND FITTING IF THE PRESSURE DECREASES MORE THAN 5 PSI (0.3 BAR) IN 10 MINUTES. LEAKS CAN CAUSE COMPONENT DAMAGE.

   c. Check for external leaks at the cover plate joint and fitting if the pressure decreases more than 5 psi (0.3 bar) in 10 minutes.

   If the external joints are sealed and the leakage is still more than 5 psi (0.3 bar): Remove the piston and inspect the o-ring and housing bore for damage. Repair parts as necessary.
Installation

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ WARNINGS

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

Install the Transfer Case

⚠️ DANGER

SUPPORT THE TRANSFER CASE WITH A LIFTING DEVICE BEFORE MOVING THE TRANSFER CASE. A TRANSFER CASE THAT IS NOT SUPPORTED CORRECTLY CAN FALL. SERIOUS PERSONAL INJURY AND DAMAGE TO COMPONENTS CAN RESULT.

1. Use a suitable lifting device to move the transfer case from the repair stand to a suitable hydraulic roller jack. If used, remove the temporary eye-bolts and mounting brackets from the transfer case housing.

2. Move the transfer case into position under the vehicle with the hydraulic roller jack.

3. Install the transfer case into the vehicle with the mounting bolts. Tighten the bolts to the torque specification supplied by the vehicle manufacturer.

4. Connect the drivelines to the input and output yokes of the transfer case. Refer to the vehicle manufacturer’s recommended procedure.

5. Connect any switch or speed sensor wiring.

6. Fill the transfer case with the correct quantity of specified lubricant. Refer to “Lubrication & Maintenance” on page 97.

Oil Cooler Line Connections

MTC-4213, or MTC-4208 & MTC-4210 with Oil Cooler

NOTE: There are different transfer case lubrication systems available. Determine the transfer case model before ordering cooler adaptation ports.

MTC-4213 or MTC-4208 & MTC-4210 Models with PTO

1. Disconnect the loop line on top of the transfer case connecting the pump exit and return ports on the transfer case. Figure 8.1 and Figure 8.2.

2. Install the cooler inlet and outlet lines.
MTC-4208 & MTC-4210 with Rear-Mounted Pump

1. Disconnect the tube between the pump outlet and orificed elbow fitting at the front idler bearing port.

2. Install the cooler inlet line at the pump outlet. Connect the cooler outlet line to the front idler bearing orificed elbow. Figure 8.2, Figure 8.3, and Figure 8.4.

3. Connect the oil exit line JIC fitting to the transfer case. Tighten to 20 lb-ft (27.2 N·m).

4. Connect the oil return line JIC fitting to the transfer case. Tighten to 20 lb-ft (27.2 N·m).
Installation

MTC-4208/10 XLEC Crossover Tube Installation for Driver-Side Mounted Cooler (Connection at 1:00 Position)

1. Install the tee fitting onto the front case idler bearing oil supply port elbow fitting. Tighten the tee fitting to 20 lb-ft (54 N·m). Figure 8.5.

2. Install the new oil pump crossover tube to the tee fitting on the front case half. Tighten the tube nut to 20 lb-ft (27 N·m). Figure 8.5.

3. Reconnect the OE chassis cooler return hose to the tee fitting on the front case half at the idler front bearing position. Tighten the hose nut to 40 lb-ft (54 N·m). Figure 8.5.

4. Connect the oil pump crossover tube from the front case to the pump outlet fitting on the rear case half. Tighten the tube nut to 20 lb-ft (27 N·m). Figure 8.6.

5. Remove the housing capscrew and install through the angle bracket as shown in Figure 8.5. Apply Loctite 518 to the first 3 threads, reinstall, and tighten to 60-75 lbs-ft. Place the P-clamp around the oil pump crossover tube and, using the supplied socket head bolt and lock nut, attach it to the angle bracket and tighten to 8-10 lbs-ft. NOTE: The P-clamp bracket is intended to support the crossover tube. Make certain there is no tension applied to the crossover tube once the fasteners have been tightened.

MTC-4208/10 XLEC Crossover Hose Installation for Passenger-Side Mounted Cooler (Connection at 9:00 Position)

1. Install the tee fitting onto the front case idler bearing oil supply port elbow fitting. Tighten the tee fitting to 20 lb-ft (54 N·m). Figure 8.7.

2. Install the new oil pump crossover tube to the tee fitting on the front case half. Tighten the tube nut to 20 lb-ft (27 N·m). Figure 8.7.

3. Reconnect the OE chassis cooler return hose to the tee fitting on the front case half at the idler front bearing position. Tighten the hose nut to 40 lb-ft (54 N·m). Figure 8.7.

4. Connect the oil pump crossover tube from the front case to the pump outlet fitting on the rear case half. Tighten the tube nut to 20 lb-ft (27 N·m). Figure 8.8.

5. Remove the housing capscrew and install through the angle bracket as shown in Figure 12. Apply Loctite 518 to the first 3 threads, reinstall, and tighten to 60-75 lbs-ft. Place the P-clamp around the oil pump crossover tube and, using the supplied socket head bolt and lock nut, attach it to the angle bracket and tighten to 8-10 lbs-ft. NOTE: The P-clamp bracket is intended to support the crossover tube. Make certain there is no tension applied to the crossover tube once the fasteners have been tightened.
Troubleshooting

Transfer Case Lubrication Diagnostics

1. Check the transfer case oil level.
2. Check the transfer case for air leaks.

Continue to next page.

Inspect the breather for clogging or oil blowing out.

Does oil blow-out from the breather?

Yes

Breather clogged?

Yes

Inspection

1. Replace the breather.
2. Determine if the breather is mounted in the correct location. Call the Meritor OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221) for additional information.

No

Inspect the transfer case for housing damage and joint seal leaks.

Remove the transfer case from the vehicle and disassemble. Inspect parts for damage and replace as needed. Reassemble transfer case.

Clean the transfer case and operate the vehicle.

Inspect seals for leaks.

Fill the transfer case with the correct type and amount of oil.

Road test the vehicle, then check for leaks. Return vehicle to service.

Dirty

Does oil blow-out from the breather?
Continued from previous page.

Check the oil level in the transfer case.

Seal leaking?

Yes

Too much oil or the incorrect type of oil can cause the transfer case to overheat, which may cause seal damage.

No

Check the yoke journal for burrs, rough edges or wear grooves. Rub down any burrs or rough spots. If a wear groove is present, replace the yoke.

Remove leaking seal.

Oil level too high?

Yes

No

Check the shaft for excessive movement. Repair as necessary.

1. Check the shaft for excessive movement. Repair as necessary.
2. Determine if the transfer case requires an oil cooler. Call the Meritor OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221) for additional information.

Check the oil level in the transfer case.

Check the transfer case for leaks.

Fill the transfer case with the correct type and amount of oil.

Road test the vehicle, then check for leaks. Return vehicle to service.

Install a new seal using the correct seal driver. NOTE: An incorrect installation can cause a seal leak.

Install a new seal using the correct seal driver. NOTE: An incorrect installation can cause a seal leak.

NOTE: An incorrect installation can cause a seal leak.

Remove leaking seal.

Check the yoke journal for burrs, rough edges or wear grooves. Rub down any burrs or rough spots. If a wear groove is present, replace the yoke.

Check the oil level in the transfer case.

Too much oil or the incorrect type of oil can cause the transfer case to overheat, which may cause seal damage.

Seal leaking?

Yes

No

Check oil level, adjust if necessary, then return the vehicle to service.

Yes

No

Remove leaking seal.

Check the yoke journal for burrs, rough edges or wear grooves. Rub down any burrs or rough spots. If a wear groove is present, replace the yoke.

Check the oil level in the transfer case.

Oil level too high?

Yes

No

Check the shaft for excessive movement. Repair as necessary.

1. Check the shaft for excessive movement. Repair as necessary.
2. Determine if the transfer case requires an oil cooler. Call the Meritor OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221) for additional information.

Check the oil level in the transfer case.

Check the oil level in the transfer case.

Too much oil or the incorrect type of oil can cause the transfer case to overheat, which may cause seal damage.

Seal leaking?

Yes

No

Check oil level, adjust if necessary, then return the vehicle to service.

Yes

No

Remove leaking seal.

Check the yoke journal for burrs, rough edges or wear grooves. Rub down any burrs or rough spots. If a wear groove is present, replace the yoke.

Check the oil level in the transfer case.

Oil level too high?

Yes

No

Check the shaft for excessive movement. Repair as necessary.

1. Check the shaft for excessive movement. Repair as necessary.
2. Determine if the transfer case requires an oil cooler. Call the Meritor OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221) for additional information.

Check the oil level in the transfer case.

Too much oil or the incorrect type of oil can cause the transfer case to overheat, which may cause seal damage.

Seal leaking?

Yes

No

Check oil level, adjust if necessary, then return the vehicle to service.
Excessive Noise and Vibration Diagnostics

Determine all driveline angles. Angles should not exceed 5° and the difference between any of the angles should not be greater than 1.5°.

Are angles excessive?

- Yes: Excessive driveline angles are the leading cause of drivetrain vibration and noise. Consult the vehicle manufacturer.
- No: Check all drivelines for adequate balancing.

Balanced?

- Yes: Check transfer case mounting fasteners for correct torque. Refer to vehicle manufacturer's specifications.
- No: Replace or rebalance driveline.

Check transfer case mounting fasteners for correct torque. Refer to vehicle manufacturer's specifications.

- Yes: Replace worn bearings or damaged components.
- No: Check u-joints for excessive wear and damaged rollers.

Wear or damage?

- Yes: Replace worn bearings or damaged components.
- No: Check for loose or broken case-to-vehicle mounting brackets and fasteners.

Road test the vehicle to determine if noise/vibration is still present.

Problem corrected?

- Yes: Return the vehicle to service.
- No: Check all declutch and all transfer case shafts for excessive wear. Repair as necessary.

Replace broken brackets and/or tighten all fasteners to specified torque.

Loose fasteners or broken bracket?

- Yes: Replace worn bearings or damaged components.
- No: Check for loose or broken case-to-vehicle mounting brackets and fasteners.

Replace or rebalance driveline.

Figure 9.3
PTO Does Not Engage/Disengage Diagnostics

Check air connection to PTO shift port.

PTO shifts correctly?

Yes

Return the vehicle to service.

No

Replace faulty indicator light or sensor, then try to shift PTO.

Yes

Return the vehicle to service.

No

Check the available air pressure. The transfer case requires at least 60 psi (4.14 bar) at all times to operate correctly.

Light or sensor faulty?

Yes

Replace faulty indicator light or sensor, then try to shift PTO.

No

Check the piston cylinder on the PTO. Clean the air supply system. Refer to vehicle manufacturer’s instructions. Check that the PTO engages correctly.

No

Remove the PTO from the transfer case. Disassemble the PTO and inspect the bearings, shift collar, shift fork declutch bore and return spring for damage. Repair all damaged components.

Air pressure 65 psi (4.48 bar) or more?

Yes

Correct system air pressure. Refer to the vehicle manufacturer’s instructions.

No

Air system contaminated?

Yes

Check the piston cylinder on the PTO. Clean the air supply system. Refer to vehicle manufacturer’s instructions. Check that the PTO engages correctly.

No

Return the vehicle to service.

Verify the PTO engages and disengages correctly.

Check the PTO for leaks.

Reassemble and install the PTO on the transfer case. Road test the vehicle to confirm the problem is corrected.

Return the vehicle to service.
Front Axle Declutch Does Not Engage/Disengage Diagnostics

1. Turn wheels left and right several times, then try to shift declutch.
2. Check indicator light, and engagement and disengagement sensors for correct operation.
3. Yes → Declutch shifts correctly? Yes → Return the vehicle to service.
4. No → Light or sensor faulty? Yes → Replace faulty indicator light or sensor, then try to shift declutch.
5. No → Check the available air pressure. The transfer case requires at least 60 psi (4.14 bar) at all times to operate correctly.
6. No → Air pressure 65 psi (4.48 bar) or more? No → Correct system air pressure. Refer to OEM instructions. Yes → Return the vehicle to service.
7. Yes → Air system contaminated? Yes → Check the piston cylinder on the declutch. Clean the air supply system. Refer to OEM instructions. Verify the transfer case shifts correctly. Yes → Return the vehicle to service.
8. No → Remove the transfer case from the vehicle. Follow disassembly procedures. Inspect the front axle drive gear, shaft, shift collar, collar engagement teeth on gear, shift fork, shift fork bore, piston, o-ring, and return spring for damage. Repair all damaged components.
9. Reassemble the transfer case. Verify the transfer case shifts correctly.
10. Check the PTO for leaks.
11. Reinstall the transfer case onto the vehicle. Road test the vehicle to confirm the problem is corrected.
12. Return the vehicle to service.
Troubleshooting

High/Low Gear Shifting Diagnostics

Turn wheels left and right several times, then try to shift into high or low gear.

Yes

Problem fixed?

Yes

Return the vehicle to service.

No

Vehicle stationary?

Yes

No

Shift transmission to neutral. Shift transfer case to neutral. Shift transmission into 1st gear, press lightly on the accelerator. (PTO models only)

Check the available air pressure. The transfer case requires at least 60 psi (4.14 bar) at all times to operate correctly.

No

Air pressure 65 psi (4.48 bar) or more?

Yes

Correct system air pressure. Refer to the vehicle OEM instructions.

No

Check the piston cylinder. If dirty, disassemble shifter components for cleaning. Clear the air supply system. Refer to the vehicle OEM instructions. Verify the transfer case shifts correctly.

Yes

Air blowing out the housing breather?

Yes

Remove the transfer case from the vehicle. Disassemble and replace housing o-ring and piston o-rings. Reassemble and verify transfer case shifts correctly.

No

No

Air blowing out the neutral breather or port?

Yes

Remove the shift cylinder and pistons. Inspect o-rings, pistons, snap rings, and shift bore. Repair any damaged components. Reassemble and check transfer case shifts correctly.

No

Disassemble transfer case and inspect shift shaft, shift fork, shift collar, and shift bore. Repair any damaged components. Reassemble and check the transfer case shifts correctly.

Yes

Problem fixed?

Yes

Reinstall transfer case in vehicle and return vehicle to service.

No

Return vehicle to service.

No

Problem fixed?

Yes

Reinstall transfer case in vehicle and return vehicle to service.

No

Disassemble transfer case and inspect shift shaft, shift fork, shift collar, and shift bore. Repair any damaged components. Reassemble and check the transfer case shifts correctly.

Contact OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221).

4001530c
Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠️ WARNING

TO PREVENT EYE INJURY, ALWAYS WEAR EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE OR SERVICE.

How to Obtain Additional Maintenance, Service, and Product Information

For complete lubrication information for Meritor’s transfer cases, refer to Maintenance Manual 1 - Preventive Maintenance and Lubrication. To obtain a copy of this publication or access it on Meritor’s website, refer to the Service Notes page on the inside front cover of this manual.

Lubricant Temperatures

Meritor MTC-4208, MTC-4210, & MTC-4213 Series Transfer Cases

⚠️ CAUTION

Meritor MTC-4208, MTC-4210, and MTC-4213 Series transfer cases may operate with an oil temperature above 300°F (148°C). However, if the oil temperature reaches 350°F (177°C), stop the vehicle immediately. Check for the cause of overheating to prevent damage to components.

Meritor MTC-4208, MTC-4210 and MTC-4213 Series transfer cases may operate with an oil temperature above 300°F (148°C). However, if the oil temperature reaches 350°F (177°C), stop the vehicle immediately and check for the cause of overheating. Oil temperatures at this range should only occur in linehaul or utility applications that operate under high speed for long periods of time.

Do Not Install API GL-5 Oils

⚠️ CAUTION

MERITOR DOES NOT APPROVE PETROLEUM-BASED AND MULTI-VISCOSITY OIL. NEVER INSTALL API GL-5 OILS, WHICH CONTAIN EXTREME-PRESSURE (EP) ADDITIVES. THESE ADDITIVES CAN FORM SLUDGE AT NORMAL OPERATING TEMPERATURES. DAMAGE TO COMPONENTS CAN RESULT. USE ONLY SAE GRADE FULL-SYNTHETIC 40W OR 50W OIL, MERITOR SPECIFICATION O-81, IN THE TRANSFER CASE. USE ONLY SAE GRADE FULL-SYNTHETIC 40W OR 50W OIL, MERITOR SPECIFICATION O-81, IN THE TRANSFER CASE.

NEVER install API GL-5 oils in a transfer case. This specification contains extreme pressure (EP) additives that can form sludge at normal operating temperatures and damage transfer case components.

Petroleum-Base and Multi-Viscosity Oils

Meritor does not approve the use of petroleum-base and multi-viscosity motor oils. Refer to Maintenance Manual 1 - Preventive Maintenance and Lubrication; or TP-90114 - Transmission Lubricant Specifications for a list of approved oils.

Meritor does approve the use of synthetic-base oils.

Operating Information

Magnets and Magnetic Drain Plugs

Most Meritor transfer cases are equipped with magnetic drain plugs with a minimum pick-up capacity of 20 ounces (0.57 kg) of low carbon steel. Reinstall the magnetic drain plug each time the oil is changed. Use the correct part. If a pipe plug is used instead of a drain plug, the pipe plug will leak.

Drain plugs can be reused if it has a minimum pick-up capacity of 20 ounces (0.57 kg) of low carbon steel after it has been cleaned.
Breather

⚠️ CAUTION

COVER THE BREATHER WHEN STEAM CLEANING THE HOUSING. IF THE BREATHER IS NOT COVERED, WATER CAN ENTER THE HOUSING AND CONTAMINATE THE OIL.

The breather releases pressure that builds up inside the transfer case during vehicle operation. Figure 10.1, Figure 10.2, and Figure 10.3.

Seals

⚠️ CAUTION

ALWAYS USE THE CORRECT TOOLS AND PROCEDURES WHEN REPLACING A SEAL. A SEAL NOT CORRECTLY INSTALLED CAN LEAK. DAMAGE TO COMPONENTS CAN RESULT.

Seals keep lubricant in and dirt out of a component. When they are worn or damaged, seals leak and produce low lubricant levels which may damage components.

Always replace unitized seals after yokes have been removed. MLS seals may be reused if they are not damaged or leaking.

Meritor has released the multiple-lip seal (MLS) for use in the INPUT POSITION ONLY on the MTC-4208, MTC-4210, and MTC-4213 transfer cases. The multiple-lip seal is compatible with the current input shaft seal and can be used in service. Refer to Figure 10.4 for the INPUT position and front OUTPUT position. Refer to Figure 10.1 for the MTC-4208 and MTC-4210 rear OUTPUT position. Refer to Figure 10.3 for the MTC-4213 rear OUTPUT position.
CAUTION

ONLY INSTALL THE MERITOR MULTI-LIP UNIDIRECTIONAL SEAL AT THE INPUT POSITION FROM THE TRANSMISSION IN AN MTC-4208, MTC-4210, OR MTC-4213 SERIES TRANSFER CASE. IF THE MULTI-LIP SEAL IS INSTALLED IN EITHER THE REAR OUTPUT POSITION OR FORWARD OUTPUT POSITION ON THESE TRANSFER CASES, LOSS OF LUBRICANT AND DAMAGE TO COMPONENTS CAN OCCUR.

The multiple-lip seal must be serviced with the seal and sleeve. The service part number provides both when required. Check the application carefully before installing the multiple-lip seal.

Special Tools and Installation Procedure

Refer to the Assembly section starting on page 55 in this manual for the correct seal installation procedure. To obtain these sleeves, seals, and drivers, call Meritor’s Commercial Vehicle Aftermarket at 888-725-9355.

---

Check & Adjust the Oil Level

CAUTIONS

ONLY USE NEW LUBRICANT WHEN CHANGING OR ADJUSTING THE OIL IN THE TRANSFER CASE. NEVER REUSE LUBRICANT, WHICH CAN CONTAIN METALLIC PARTICLES AND OTHER CONTAMINANTS. DAMAGE TO COMPONENTS CAN RESULT.

MERITOR DOES NOT APPROVE PETROLEUM-BASED AND MULTI-VISCOSITY OIL. NEVER INSTALL API GL-5 OILS, WHICH CONTAIN EXTREME-PRESSURE (EP) ADDITIVES. THESE ADDITIVES CAN FORM SLUDGE AT NORMAL OPERATING TEMPERATURES. DAMAGE TO COMPONENTS CAN RESULT. USE ONLY SAE GRADE FULL-SYNTHETIC 40W OR 50W OIL, MERITOR SPECIFICATION O-81, IN THE TRANSFER CASE.

NEVER OPERATE THE TRANSFER CASE IF THE OIL LEVEL IS BELOW THE BOTTOM OF THE FILL HOLE, WHICH MAY BE AN INDICATION THAT THE TRANSFER CASE IS LEAKING. DAMAGE TO COMPONENTS CAN RESULT. IF THE TRANSFER CASE IS LEAKING, REPAIR THE LEAK. ADJUST THE OIL LEVEL BEFORE RETURNING THE TRANSFER CASE TO SERVICE.

WHEN SERVICING THE TRANSFER CASE, ADD THE SPECIFIED LUBRICANT UNTIL THE OIL LEVEL IS EVEN WITH THE BOTTOM OF THE FILL HOLE. NEVER OVERFILL THE TRANSFER CASE, WHICH CAN CAUSE THE TRANSFER CASE TO OVERHEAT. DAMAGE TO COMPONENTS CAN RESULT.

NOTE: Meritor recommends the oil cooler lines should be routed to prevent oil flow back into the transfer case sump. This can be accomplished by routing lines with a P-trap configuration for both the oil cooler inlet and outlet lines. Failure to do so may result in the oil draining back in to the transfer case sump, giving the appearance of an over filled transfer case when checking and adjusting the oil level.

1. Ensure the oil cooler and lines are properly primed and filled with oil by driving the vehicle for at least one mile.
2. Park the vehicle on a level surface.
3. Clean the area around the fill plug. Remove the fill plug from the transfer case. Figure 10.5.
4. The oil level must be even with the bottom of the fill plug.

**If oil flows from the fill plug port when the plug is loosened:**
The oil level is too high. Drain the oil to the bottom of the fill plug hole. Ensure cooler oil line routing prevents back flow to the transfer case sump.

**NOTE:** Oil can drain back from the oil cooler, giving the appearance of an over full condition.

**If the oil level is below the fill/level plug hole:**
Add SAE Grade full synthetic 40W or 50W oil, Meritor Specification 0-81, until oil is even with the bottom of the fill hole.

5. Install and tighten the fill plug to 35-50 lb-ft (47-68 N\(\cdot\)m).

6. Test drive the vehicle for at least one mile (1.6 km). Allow the oil to settle for five minutes and recheck the fluid level. Top off the oil level by adding oil to the fill opening. Reinstall and tighten the fill plug to 35-50 lb-ft (47-68 N\(\cdot\)m).

---

**Drain & Replace the Oil**

1. Park the vehicle on a level surface. Place a large container under the transfer case.

2. Remove the magnetic drain plug from the bottom of the transfer case. Drain and discard the oil correctly. Clean the plug. Figure 10.5.

3. Install and tighten the drain plug to 35-50 lb-ft (47-69 N\(\cdot\)m). Clean the area around the fill plug. Remove the fill plug from the transfer case.

4. Add SAE Grade full-synthetic 40W or 50W oil, Meritor specification 0-81, into the transfer case until the oil level is even with the bottom of the fill plug hole. Install and tighten the fill plug to 35-50 lb-ft (47-68 N\(\cdot\)m).

5. Test drive the vehicle for at least one mile (1.6 km). Allow the oil to settle for five minutes and recheck the fluid level. Top off the oil level by adding oil to the fill opening. Reinstall and tighten the fill plug to 35-50 lb-ft (47-68 N\(\cdot\)m).

---

**Transfer Case Inspection**

Visually inspect the transfer case daily for any leaks. The oil level should be inspected every 1,000 miles (1069 km), 100 hours or every month, whichever comes first. In addition, the transfer case should be inspected for leaks and the correct oil level before and after extended time high speed road trips. Areas to inspect are:

- Cooler lines and fittings
- Seals
- Breather
- Fill and drain plugs
- Pump inlet tube and fittings
- Gaskets and shims
- During the inspection visually check to ensure the transfer case oil level is to the bottom of the oil fill hole.
Lubrication & Maintenance

Operation Frequency

- Inspect for oil leaks Daily
- Check oil level 1,000 miles (1609 km), 100 hours, or every month, whichever occurs first
- Initial oil change 2,500 miles (4000 km) or 125 hours, whichever occurs first
- Synthetic oil change Every 25,000 miles (40,000 km), 1,250 hours, or every 12 months, whichever occurs first

TABLE F: TRANSFER CASE OIL SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Synthetic Oil</td>
<td>O-81</td>
<td></td>
<td></td>
<td></td>
<td>40W</td>
<td>Above -40°F (-40°C)</td>
</tr>
</tbody>
</table>

- Do not mix or switch oil types. Use the same oil that initially filled the transfer case.
- Do not use multi-viscosity oils.
- Any Meritor-approved full-synthetic oil for Meritor manual transmissions is also approved for Meritor transfer cases. Refer to publication TP-90114 - Transmission Lubricant Specifications, for a list of approved distributors.
- Transfer case oil fill volumes do not include additional oil needed to fill the OEM oil cooler and lines.
- All oil cooler equipped transfer cases will use additional oil to compensate for the cooler and cooler lines. OEM’s and vehicle operators must ensure during oil level check and adjustment additional oil is added. See procedure to in this section to check and adjust the oil level for cooler equipped transfer cases.

TABLE G: TRANSFER CASE OIL CAPACITY

<table>
<thead>
<tr>
<th>Model</th>
<th>Pints (Liters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTC-4208X</td>
<td>14.0 (6.62)</td>
</tr>
<tr>
<td>MTC-4208XLEC</td>
<td>16.0 (7.57)</td>
</tr>
<tr>
<td>MTC-4208XLEV</td>
<td>12.0 (5.68)</td>
</tr>
<tr>
<td>MTC-4208XP</td>
<td>14.0 (6.62)</td>
</tr>
<tr>
<td>MTC-4210X</td>
<td>14.0 (6.62)</td>
</tr>
<tr>
<td>MTC-4210XLEC</td>
<td>16.0 (7.57)</td>
</tr>
<tr>
<td>MTC-4210XLEV</td>
<td>12.0 (5.68)</td>
</tr>
<tr>
<td>MTC-4210XP</td>
<td>14.0 (6.62)</td>
</tr>
<tr>
<td>MTC-4213</td>
<td>15.0 (7.1)</td>
</tr>
</tbody>
</table>

- Do not mix or switch oil types. Use the same oil that initially filled the transfer case. Use synthetic oil only if the transfer case was initially filled with synthetic oil.
- Do not use multi-viscosity oils.

TABLE H: DRY WEIGHT

<table>
<thead>
<tr>
<th>Unit</th>
<th>Weight lbs (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Model</td>
<td>670 (304)</td>
</tr>
<tr>
<td>PTO</td>
<td>65 (29.5)</td>
</tr>
</tbody>
</table>

TABLE I: TRANSFER CASE SEALS AND DRIVERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Seal Position</th>
<th>Seal Service Part Number</th>
<th>Previous Seal Part Number</th>
<th>Seal Driver</th>
<th>Sleeve Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTC-4208, MTC-4210, &amp; MTC-4213</td>
<td>Input Shaft</td>
<td>A1-1205X2728</td>
<td>A 1205R2592</td>
<td>2728T1</td>
<td>2728T1</td>
</tr>
<tr>
<td>MTC-4208, MTC-4210</td>
<td>Forward &amp; Rear Output</td>
<td>R945007</td>
<td>A 1205R2592</td>
<td>KIT 4454</td>
<td>NA</td>
</tr>
<tr>
<td>MTC-4210X, MTC-4210</td>
<td>Forward Output</td>
<td>R945007</td>
<td>A 1205R2592</td>
<td>KIT 4454</td>
<td>NA</td>
</tr>
<tr>
<td>MTC-4213</td>
<td>Rear Output</td>
<td>R945010</td>
<td>A 1205Q2591</td>
<td>KIT 4454</td>
<td>NA</td>
</tr>
<tr>
<td>MTC-4208 &amp; MTC-4210</td>
<td>PTO Seal</td>
<td>R945008</td>
<td>A 1205P2590</td>
<td>KIT 4454</td>
<td>NA</td>
</tr>
</tbody>
</table>
Torque Specifications
Standard MTC-4213X, MTC-4208XP, & MTC-4210XP
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Torque lb-ft (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearing Cage Cover Capscrews</td>
<td>85-115 (115-156)</td>
</tr>
<tr>
<td>2</td>
<td>Loop Tube Fittings</td>
<td>20 (27)</td>
</tr>
<tr>
<td>3</td>
<td>Oil Cooler Male Connectors¹</td>
<td>25 (34)</td>
</tr>
<tr>
<td>4</td>
<td>Yoke Lock Nuts</td>
<td>700-900 (949-1220)</td>
</tr>
<tr>
<td>5</td>
<td>Magnetic Drain Plug²</td>
<td>35-50 (48-68)</td>
</tr>
<tr>
<td>6</td>
<td>3/8&quot; (9.5 mm) Plug²</td>
<td>20 (27)</td>
</tr>
<tr>
<td>7</td>
<td>Fill Plug²</td>
<td>35 (48)</td>
</tr>
<tr>
<td>8</td>
<td>Cover-to-Case Capscrews</td>
<td>60-75 (81-102)</td>
</tr>
<tr>
<td>9</td>
<td>Shaft Lock Nut</td>
<td>700-900 (949-1220)</td>
</tr>
<tr>
<td>10</td>
<td>Bearing Cage Capscrews</td>
<td>85-115 (115-156)</td>
</tr>
<tr>
<td>11</td>
<td>Shaft Lock Nut</td>
<td>700-900 (949-1220)</td>
</tr>
<tr>
<td>12</td>
<td>Oil Pump Capscrews³</td>
<td>22-29 (29-39)</td>
</tr>
<tr>
<td>13</td>
<td>Shift Cylinders⁴</td>
<td>80-100 (108-136)</td>
</tr>
<tr>
<td>14</td>
<td>Male Connector</td>
<td>35 (49)</td>
</tr>
<tr>
<td>15</td>
<td>Fitting — Screen</td>
<td>35-50 (48-68)</td>
</tr>
<tr>
<td>16</td>
<td>Neutral Breather/Bushing</td>
<td>10 (14)</td>
</tr>
<tr>
<td>17</td>
<td>Female Connector</td>
<td>25 (34)</td>
</tr>
<tr>
<td>18</td>
<td>3/8&quot; (9.5 mm) Plug²</td>
<td>20 (27)</td>
</tr>
<tr>
<td>19</td>
<td>Elbow²</td>
<td>20 (27)</td>
</tr>
<tr>
<td>20</td>
<td>Fitting</td>
<td>25-30 (34-41)</td>
</tr>
<tr>
<td>21</td>
<td>Fitting</td>
<td>25-30 (34-41)</td>
</tr>
<tr>
<td>22</td>
<td>Capscrews</td>
<td>10-13 (14-18)</td>
</tr>
<tr>
<td>23</td>
<td>Capscrews</td>
<td>10-13 (14-18)</td>
</tr>
<tr>
<td>24</td>
<td>Restrictor Plug²</td>
<td>15 (20)</td>
</tr>
</tbody>
</table>

1 Apply Loctite 582 threadlocker to pipe threads

2 Apply Loctite 592 threadlocker

3 Apply Loctite 242 threadlocker

4 Apply Loctite 518 threadlocker to the first three threads
Standard MTC-4208X/XL/XLEV & MTC-4210X/XL/XLEV

Figure 11.2
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Torque lb-ft (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearing Cage Cover Capscrews</td>
<td>85-115 (115-156)</td>
</tr>
<tr>
<td>2</td>
<td>Loop Tube Fittings</td>
<td>20 (27)</td>
</tr>
<tr>
<td>3</td>
<td>Loop Tube Connectors(^1)</td>
<td>25 (34)</td>
</tr>
<tr>
<td>4</td>
<td>Yoke Lock Nuts</td>
<td>700-900 (949-1220)</td>
</tr>
<tr>
<td>5</td>
<td>Magnetic Drain Plug(^2)</td>
<td>35-50 (48-68)</td>
</tr>
<tr>
<td>6</td>
<td>3/8&quot; (9.5 mm) Plug(^2)</td>
<td>20 (27)</td>
</tr>
<tr>
<td>7</td>
<td>Fill Plug(^2)</td>
<td>35 (48)</td>
</tr>
<tr>
<td>8</td>
<td>Cover-to-Case Capscrews</td>
<td>60-75 (81-102)</td>
</tr>
<tr>
<td>9</td>
<td>Shaft Lock Nut</td>
<td>700-900 (949-1220)</td>
</tr>
<tr>
<td>10</td>
<td>Bearing Cage Capscrews</td>
<td>85-115 (115-156)</td>
</tr>
<tr>
<td>11</td>
<td>Shaft Lock Nut</td>
<td>700-900 (949-1220)</td>
</tr>
<tr>
<td>12</td>
<td>Oil Pump Capscrews(^3)</td>
<td>22-29 (29-39)</td>
</tr>
<tr>
<td>13</td>
<td>Shift Cylinders(^4)</td>
<td>80-100 (108-136)</td>
</tr>
<tr>
<td>14</td>
<td>Male Connector</td>
<td>35 (48)</td>
</tr>
<tr>
<td>15</td>
<td>Fitting — Screen</td>
<td>35-50 (48-68)</td>
</tr>
<tr>
<td>16</td>
<td>Neutral Breather/Bushing</td>
<td>10 (14)</td>
</tr>
<tr>
<td>17</td>
<td>Female Connector</td>
<td>25 (34)</td>
</tr>
<tr>
<td>18</td>
<td>3/8&quot; (9.5 mm) Plug(^2)</td>
<td>20 (27)</td>
</tr>
<tr>
<td>19</td>
<td>Elbow(^2)</td>
<td>20 (27)</td>
</tr>
<tr>
<td>20</td>
<td>Restrictor Plug(^2)</td>
<td>15 (20)</td>
</tr>
<tr>
<td>21</td>
<td>7/16 x 1.75 PTO Cover Capscrews</td>
<td>60-75 (81-102)</td>
</tr>
<tr>
<td>22</td>
<td>Plug</td>
<td>25 (34)</td>
</tr>
<tr>
<td>23</td>
<td>Oil Pump Cover Capscrews(^3)</td>
<td>10-13 (14-18)</td>
</tr>
<tr>
<td>24</td>
<td>Elbow</td>
<td>20 (27)</td>
</tr>
<tr>
<td>25</td>
<td>Connector</td>
<td>20 (27)</td>
</tr>
<tr>
<td>26</td>
<td>Pump Housing Capscrews</td>
<td>60-75 (81-102)</td>
</tr>
</tbody>
</table>

1. Apply Loctite 582 threadlocker to pipe threads
2. Apply Loctite 592 threadlocker
3. Apply Loctite 242 threadlocker
4. Apply Loctite 518 threadlocker to the first three threads
Vehicle Towing Instructions

⚠️ CAUTION

FOLLOW TOWING PROCEDURES RECOMMENDED BY MERITOR TO PREVENT INTERNAL DAMAGE TO THE TRANSFER CASE.

Meritor recommends using one of the two methods below when towing to prevent damage to the transfer case.

**NOTE:** For complete towing information and instructions on axle shaft removal, refer to Technical Bulletin TP-9579 - Driver Instruction Kit.

**METHOD 1:**
Remove both axle shafts from the axles that will remain on the road when the vehicle is transported.

**METHOD 2:**
Remove the drive shafts from axles that contact the ground.
Tools

The following section provides details of tooling to facilitate service of the transfer case. Service tools may be manufactured using these drawings or contact Meritor for a price and delivery quotation. The manufacture of these tools should be carried out by professional machinists and certified welders, following typical good workmanship procedures and safe practices.

Holding Fixture (905473-140)

![Holding Fixture Diagram](image-url)
**Bearing Cone Driver (905473-92)**

Figure 13.2

![Diagram of Bearing Cone Driver (905473-92)](image)

**Bearing Cone Driver (905473-82)**

Figure 13.3

![Diagram of Bearing Cone Driver (905473-82)](image)

**NOTE:** Not available from Meritor.
Bearing Driver (4FI20-27110-000008)

Assembled Tool - 2 pieces:
4FI20-27110-000008-D01
4FI20-27110-000008-D02

Figure 13.4

Bearing Driver (4FI20-27110-000008-D01)

QTY (2)
4140 PRE-HARDENED

Tool Assembly Instructions:
1. Install Tool B, bearing driver guide, into the bore of Tool A, bearing driver.
2. Install a 3/16" O.D. x 1/2" long roll pin through the 1/4 x 2-1/2" long slot of Tool A, and into the 3/16" hole in Tool B. The roll pin can be obtained from McCaster Carr, part number 98296-A975.

Figure 13.5
Bearing Driver Guide (4FI20-27110-000008-D02)

Figure 13.6

Bearing Cup Driver (910203-36)

Figure 13.7
Bearing Cup Driver (4Fl20-27110-000007)

4Fl20-27110-000007-D01

USE FOR INSTALLATION OF MTC-4210XLEV
FORWARD & REAR IDLER SHAFT BEARING
CUPS JM207010 AND 33821

Tool Assembly Instructions:
Use a fastener to attach Tool A, driver handle, to Tool B, bearing driver face tool.

Figure 13.8

4Fl20-27110-000007-D02

BEARING CUP DRIVER FOR
CUPS JM207010 AND 33821

SEE TOOL ASSEMBLY INSTRUCTIONS

Figure 13.9
Bearing Cup Driver (910203-37)
PTO Bearing Cone Driver

Figure 13.11

![Diagram of PTO Bearing Cone Driver]
**Modified Bearing Cup Puller**

**USE FOR REMOVAL OF IDLER SHAFT BEARING CUPS ON MTC-4208XL/XLEV & MTC-4210XL/XLEV**

Tool Instructions:
Obtain Snap-On tool, Part #CJ82B, and modify as described here.

- **Grind to sharp the upper edge to maximize cup contact**
- **Grind the corner for clearance**
- **Remove — not needed**
- **Disassemble and turn the fingers out (both sides)**

*Figure 13.12*