

# Service Parts

## Engine

Engine Models:

**John Deere 4024TF281**  
**4024HF285**  
**4045HF275/285**  
**4045TF270/280**  
**5030HF285**

Generator Models:

20-60REOZJC  
50/60REOZJB  
50/60REOZJD  
50REOZJE  
80/100REOZJC/D/E/F  
125REOZJF/G

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# Introduction

This manual lists service replacement parts for John Deere engines listed on the front cover.

At the time of print this manual applied to the engine models listed in the Specification Number Index. On occasion this manual may apply to engines not listed in the Specification Number Index.

Information in this publication represents data available at the time of print. The generator set manufacturer reserves the right to change this publication and the products represented without notice and without any obligation or liability whatsoever.

This manual includes the following main sections:

**Table of Contents.** Lists the sections of the manual.

**Introduction (and other information sections).** Contains introductory material about part numbers, illustrations, and hardware.

**Index.** Lists the engine models and groups.

**Group Parts Lists.** List the part numbers of parts in the groups.

## Numbering System Significance

This manual uses the following numbering systems:

**Engine Model.** The product identification number located on the engine nameplate. Engines break down into groups.

**Group Number.** A unique number representing a parts group needed to assemble an engine function. For example, Group 1 is the Air Intake group.

**Variation Number.** A group might have several variations. Each variation performs the same function with different parts lists. For example, a 12-volt alternator and 24-volt alternator both perform the same function, but, with different parts. Each difference requires a group variation or module number.

**Part Number.** The part number identifies an individual assembly, subassembly, component, or accessory kit.

## Illustrations

Illustrations (or exploded-view drawings) best representing the widest range of variations accompany most groups in this manual. Illustrations do not depict all details and may not show all parts. Do not use illustrations for assembly or disassembly.

## How to Find Part Numbers

Use the following steps to locate a service replacement part.

1. Locate the engine nameplate to **identify the engine model number**.
2. **Turn to the Specification Number Index.** The first column lists the engine model numbers. The headings identify the groups of parts that make up the engine.
3. **Identify the group** most likely to include the service part number.
4. **Find the group variation number** at the intersection of the model row and the group column. Note the variation number. If 2 or more variation numbers are listed, note all variation numbers.
5. **Page forward to locate the group** identified in step 3 or find the appropriate page in the Table of Contents.
6. **Find the part on the illustration** and note the item number of the part or **find the part description in the parts list**.
7. Select **the part number that corresponds to your group variation**. The first column lists the illustration item number. Find the variation(s) identified in the Specification Number Index in the appropriate column on the right side of the parts list table. Find the quantity used at the intersection of the item number row and the variation column. A blank space at the intersection means the variation/module does not use that part number.

## Hardware References

Many common hardware items do not appear in parts manuals or will appear as common hardware entries. A common hardware entry lists the size of the hardware. For example, an item that appears as "Hardware, 3/8-16" in the text means that the piece is 3/8-16 size. Obtain common hardware locally.

Some hardware items require a specific size or some other characteristic. In that case, use the part number listed in the text.

**When replacing hardware, do not substitute inferior grade hardware.** Replacement hardware grade should be equal to or better than the grade of the manufacturer's original hardware.

# Model Number Index, Engine Model 4024/5030

| Group Title                                                      | Air Intake | Water Pump | Water Pump Pulley | Water Pump Inlet | Thermostat | Fan Belt             | Fan Drive | Fan Pulley           | Belt Tensioner | Vent Tube | Camshaft | Valve Train | Rocker Arm Cover | Fuel Injection System |
|------------------------------------------------------------------|------------|------------|-------------------|------------------|------------|----------------------|-----------|----------------------|----------------|-----------|----------|-------------|------------------|-----------------------|
| Group No.                                                        | 1          | 2          | 3                 | 4                | 5          | 6                    | 7         | 8                    | 9              | 10        | 11       | 12          | 13               | 14                    |
| Variation Number                                                 |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| <b>20/30REOZJC (Specification Numbers GM57153-GAxx)</b>          |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| 4024TF281                                                        | 1703       | 2001       | —                 | —                | 2201       | 2406                 | 2301B     | 8603                 | 8701           | 2999      | 4604     | 4907        | 1101B            | 1632                  |
| <b>20/30REOZJC (Specification Numbers GM73381-GAxx)</b>          |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| 4024TF281                                                        | 1703       | 2001       | —                 | —                | 2201       | 2413                 | 2304      | 8604                 | 8701           | 2999      | 4604     | 4907        | 1101B            | 1632                  |
| <b>40/50REOZJC (Specification Numbers GM57153-GAxx)</b>          |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| 4024HF285                                                        | —          | 2001       | —                 | —                | 2201       | 2435                 | 2309      | 8603                 | 8701           | 2999      | 4618     | 4907        | 1109             | 1662                  |
| <b>40/50REOZJC (Specification Numbers GM73381-GAxx)/50REOZJD</b> |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| 4024HF285                                                        | —          | 2001       | —                 | —                | 2201       | 2439                 | 2311      | 8605                 | 8701           | 2999      | 4618     | 4907        | 1109             | 1662                  |
| <b>60REOZJC (Specification Numbers GM57153-GAxx)</b>             |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| 5030HF285                                                        | —          | 2001       | —                 | —                | 2201       | 2439                 | 2309      | 8603                 | 8701           | 2999      | 4619     | 4908        | 1113             | 1646                  |
| <b>60REOZJC (Specification Numbers GM73381-GAxx)/60REOZJD</b>    |            |            |                   |                  |            |                      |           |                      |                |           |          |             |                  |                       |
| 5030HF285                                                        | —          | 2001       | —                 | —                | 2201       | 2439*<br>or<br>2441* | 2311      | 8605*<br>or<br>8606* | 8701           | 2999      | 4619     | 4908        | 1113             | 1646                  |

\* 5030HF285 engines (GM73389-) changed to a smaller pulley. Verify pulley diameter before ordering.

| Group Title                                                      | Fuel Lines | Fuel Pump | Fuel Filter | Primary Fuel Filter | Crankshaft | Crankshaft Pulley | Piston & Connecting Rod | Flywheel | Flywheel Housing | Cylinder Head | Exhaust Manifold | Exhaust Elbow | Oil Filter | Dipstick |
|------------------------------------------------------------------|------------|-----------|-------------|---------------------|------------|-------------------|-------------------------|----------|------------------|---------------|------------------|---------------|------------|----------|
| Group No.                                                        | 15         | 16        | 17          | 17B                 | 18         | 19                | 20                      | 21       | 22               | 23            | 24               | 25            | 26         | 27       |
| Variation Number                                                 |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| <b>20/30REOZJC</b>                                               |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4024TF281                                                        | —          | 3701      | 3505        | —                   | 4701       | 1301              | 4806                    | 1508     | 1415‡            | 5101          | 2806             | —             | 8801       | 4003     |
| <b>40/50REOZJC (Specification Numbers GM57153-GAxx)</b>          |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4024HF285                                                        | —          | 3712*     | 3540*       | —                   | 4703       | 1301              | 4814                    | 1508     | 1401*            | 5105          | 2806             | —             | 8801       | 4003     |
| <b>40/50REOZJC (Specification Numbers GM73381-GAxx)/50REOZJD</b> |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4024HF285                                                        | —          | 3712      | 3540        | —                   | 4703       | 1303              | 4814                    | 1508     | 1401             | 5105          | 2806             | —             | 8801       | 4003     |
| <b>60REOZJC/60REOZJD</b>                                         |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 5030HF285 (4P)                                                   | —          | 3712†     | 3543†       | —                   | 4704       | 1303              | 4815                    | 1508     | 1401             | 5106          | 2807             | —             | 8801       | 4003     |
| 5030HF285 (4V)                                                   | —          | 3712†     | 3543†       | —                   | 4704       | 1303              | 4815                    | 1508     | 1406B            | 5106          | 2807             | —             | 8801       | 4003     |

\* 4024HF285 engines with serial number PE4024L003825 and before used Fuel Pump variation code 3709, Fuel Filter variation code 3535, and Flywheel Housing variation code 1415. Check the engine nameplate to verify the variation code.

† 5030HF285 engines with serial number PE5030L003800 and before used Fuel Pump variation code 3709 and Fuel Filter variation code 3538. Check the engine nameplate to verify the variation code.

‡ 4024TF281 engines with serial number PE4024R001060 through PE4024R001475 inclusive used Flywheel Housing variation code 1408 and Sensor variation code 6702. Check the engine nameplate to verify the variation code.

# Model Number Index, Engine Model 4024/5030

| Group Title                 | <i>Oil Pan</i> | <i>Oil Cooler</i> | <i>Oil Pump</i> | <i>Cylinder Block</i> | <i>Front Plate</i> | <i>Timing Gear Cover</i> | <i>Turbocharger &amp; Oil Lines</i> | <i>Starter Motor</i> | <i>Alternator</i> | <i>Alternator Brackets</i> |
|-----------------------------|----------------|-------------------|-----------------|-----------------------|--------------------|--------------------------|-------------------------------------|----------------------|-------------------|----------------------------|
| Group No.                   | 28             | 29                | 30              | 31                    | 32                 | 33                       | 34                                  | 35                   | 36                | 37                         |
| Variation Number            |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| <b>20/30REOZJC</b>          |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4024TF281                   | 1924           | 5903              | 5001            | 4604                  | —                  | 4401                     | 6526                                | 3002                 | 3102              | 6202                       |
| <b>40/50REOZJC/50REOZJD</b> |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4024HF285                   | 1924           | 5903              | 5001            | 4618                  | —                  | 4402                     | 6571                                | 3002                 | 3102              | 6202                       |
| <b>60REOZJC/60REOZJD</b>    |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 5030HF285 (4P)              | 1902           | 5903              | 5001            | 4619                  | —                  | 4402                     | 6567                                | 3002                 | 3102              | 6202                       |
| 5030HF285 (4V)              | 1902           | 5903              | 5001            | 4619                  | —                  | 4402                     | 6567                                | 3002                 | 3102              | 6202                       |

| Group Title                 | <i>Short Block</i> | <i>Cylinder Head Gasket Set</i> | <i>Overhaul Gasket Set</i> | <i>Engine Sensors</i> | <i>Wiring Harness</i> | <i>Engine Balancer Shafts</i> | <i>Starting Aid (Glow Plugs)</i> |
|-----------------------------|--------------------|---------------------------------|----------------------------|-----------------------|-----------------------|-------------------------------|----------------------------------|
| Group No.                   | 38                 | 39                              | 40                         | 41                    | 42                    | 43                            | 44                               |
| Variation Number            |                    |                                 |                            |                       |                       |                               |                                  |
| <b>20/30REOZJC</b>          |                    |                                 |                            |                       |                       |                               |                                  |
| 4024TF281                   | 3                  | —                               | 3                          | 6712‡                 | —                     | —                             | 4301                             |
| <b>40/50REOZJC/50REOZJD</b> |                    |                                 |                            |                       |                       |                               |                                  |
| 4024HF285                   | —                  | —                               | 2                          | 6711                  | —                     | —                             | 4315                             |
| <b>60REOZJC/60REOZJD</b>    |                    |                                 |                            |                       |                       |                               |                                  |
| 5030HF285 (4P)              | —                  | —                               | 2                          | 6711                  | —                     | —                             | 4316                             |
| 5030HF285 (4V)              | —                  | —                               | 2                          | 6711                  | —                     | —                             | 4316                             |

‡ 4024TF281 engines with serial number PE4024R001060 through PE4024R001475 inclusive used Flywheel Housing variation code 1408 and Sensor variation code 6702. Check the engine nameplate to verify the variation code.

# Model Number Index, Engine Model 4045

| Group Title                                   | <div> <div>Air Intake</div> <div>Water Pump</div> <div>Water Pump Pulley</div> <div>Water Pump Inlet</div> <div>Thermostat</div> <div>Fan Belt</div> <div>Fan Drive</div> <div>Fan Pulley</div> <div>Belt Tensioner</div> <div>Vent Tube</div> <div>Camshaft</div> <div>Valve Train</div> <div>Rocker Arm Cover</div> <div>Fuel Injection System</div> </div> |       |       |      |      |      |      |      |       |      |      |       |      |      |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|------|------|------|------|------|-------|------|------|-------|------|------|
| Group No.                                     | 1                                                                                                                                                                                                                                                                                                                                                             | 2     | 3     | 4    | 5    | 6    | 7    | 8    | 9     | 10   | 11   | 12    | 13   | 14   |
| Variation Number                              |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| <b>50/60 kW (50/60REOZJB)</b>                 |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| 4045TF270, 12V                                | 1701                                                                                                                                                                                                                                                                                                                                                          | 4429A | 2002A | 5722 | 2112 | 240B | 2314 | 8605 | 8711  | 2915 | 4616 | 4901  | 1101 | 164X |
| 4045TF270, 24V                                | 1701                                                                                                                                                                                                                                                                                                                                                          | 4429A | 2002A | 5722 | 2112 | 240B | 2314 | 8605 | 8711  | 2915 | 4616 | 4901  | 1101 | 164Y |
| <b>50kW (50REOZJE)</b>                        |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| 4045TF280, 12V*                               | 17CT                                                                                                                                                                                                                                                                                                                                                          | 4428  | 2002B | 5722 | 2124 | 24HE | 2314 | 8605 | 8701B | 2915 | 4651 | 4901B | 1101 | 16F8 |
| 4045TF280, 12V**                              | 17CT                                                                                                                                                                                                                                                                                                                                                          | 4428  | 2002B | 5722 | 2124 | 24HE | 2314 | 8605 | 8701B | 2904 | 4651 | 4901B | 1103 | 16F8 |
| <b>100 kW (100REOZJC)</b>                     |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| 4045HF275, 12V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4429B | 2002A | 5722 | 2102 | 2409 | 2301 | 8604 | 8702  | 2915 | 4614 | 4901  | 1101 | 163W |
| 4045HF275, 24V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4429B | 2002A | 5722 | 2102 | 2409 | 2301 | 8604 | 8702  | 2915 | 4614 | 4901  | 1101 | 163Y |
| <b>80/100 kW Tier 3 (80/100REOZJD)</b>        |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| 4045HF285, 12V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4446  | 2002B | 5722 | 2156 | 24HA | 2342 | 8605 | 8727  | 2997 | 4643 | 4901  | 1162 | 16A5 |
| 4045HF285, 24V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4446  | 2002B | 5722 | 2156 | 24HA | 2342 | 8605 | 8727  | 2997 | 4643 | 4901  | 1162 | 16A5 |
| <b>80/100 kW Tier 3 (80/100REOZJE/REOZJF)</b> |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| 4045HF285, 12V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4446  | 2002B | 5722 | 2156 | 24GY | 2342 | 8604 | 8727  | 2997 | 4643 | 4901  | 1162 | 16A5 |
| 4045HF285, 24V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4446  | 2002B | 5722 | 2156 | 24GY | 2342 | 8604 | 8727  | 2997 | 4643 | 4901  | 1162 | 16A5 |
| <b>125 kW Tier 3 (125REOZJF/REOZJG)</b>       |                                                                                                                                                                                                                                                                                                                                                               |       |       |      |      |      |      |      |       |      |      |       |      |      |
| 4045HF285, 12V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4433  | 2002B | 5722 | 2156 | 24GG | 2341 | 8610 | 8724  | 2997 | 4659 | 4901  | 1162 | 16A5 |
| 4045HF285, 24V                                | 1783                                                                                                                                                                                                                                                                                                                                                          | 4433  | 2002B | 5722 | 2156 | 24GG | 2341 | 8610 | 8724  | 2997 | 4659 | 4901  | 1162 | 16A5 |

\* 4045TF280, 12V Right Side Service (engine number GM90762-1)

\*\* 4045TF280, 12V Left Side Service (engine number GM90762-2)

# Model Number Index, Engine Model 4045

| Group Title                                   |      | Fuel Lines | Fuel Pump | Fuel Filter | Primary Fuel Filter | Crankshaft | Crankshaft Pulley | Piston & Connecting Rod | Flywheel | Flywheel Housing | Cylinder Head | Exhaust Manifold | Exhaust Elbow | Oil Filter | Dipstick |
|-----------------------------------------------|------|------------|-----------|-------------|---------------------|------------|-------------------|-------------------------|----------|------------------|---------------|------------------|---------------|------------|----------|
| Group No.                                     | 15   | 16         | 17        | 17B         | 18                  | 19         | 20                | 21                      | 22       | 23               | 24            | 25               | 26            | 27         |          |
| Variation Number                              |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| <b>50/60 kW (50/60REOZJB)</b>                 |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045TF270, 12V                                | —    | 3702       | 3563      | —           | 4715                | 1328       | 4823              | 1509                    | 1406     | 5102             | 2803          | 6401             | 8842          | 4002       |          |
| 4045TF270, 24V                                | —    | 3702       | 3563      | —           | 4715                | 1328       | 4823              | 1509                    | 1406     | 5102             | 2803          | 6401             | 8842          | 4002       |          |
| <b>50kW (50REOZJE)</b>                        |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045TF280, 12V*                               | —    | 3702       | 35EU      | —           | 4715                | 1328       | 4843              | 1509                    | 1406     | 5127             | 2802          | —                | 8842          | 4002       |          |
| 4045TF280, 12V**                              | —    | 3702       | 35EV      | —           | 4715                | 1328       | 4843              | 1509                    | 1404     | 5127             | 2802          | —                | 8854          | 4014       |          |
| <b>80kW (80REOZJC)</b>                        |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045HF275, 12V                                | 6313 | 3702       | 35BV      | —           | 4715                | 1327       | 4822              | 1503                    | 1406     | 5102             | 2803          | 6401             | 8842          | 4002       |          |
| 4045HF275, 24V                                | 6313 | 3702       | 35BV      | —           | 4715                | 1327       | 4822              | 1503                    | 1406     | 5102             | 2803          | 6401             | 8842          | 4002       |          |
| <b>100 kW (100REOZJC)</b>                     |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045HF275, 12V                                | 6366 | 3702       | 35BV      | —           | 4715                | 1327       | 4822              | 1503                    | 1406     | 5102             | 2803          | 6401             | 8842          | 4002       |          |
| 4045HF275, 24V                                | 6366 | 3702       | 35BV      | —           | 4715                | 1327       | 4822              | 1503                    | 1406     | 5102             | 2803          | 6401             | 8842          | 4002       |          |
| <b>80/100 kW Tier 3 (80/100REOZJD)</b>        |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045HF285, 12V                                | 6386 | 3713       | 35ED      | 8170        | 4715                | 1328       | 4838              | 1503                    | 1406     | 5122             | 2888          | 6438             | 8842          | 4002       |          |
| 4045HF285, 24V                                | 6386 | 3713       | 35ED      | 8170        | 4715                | 1328       | 4838              | 1503                    | 1406     | 5122             | 2888          | 6438             | 8842          | 4002       |          |
| <b>80/100 kW Tier 3 (80/100REOZJE/REOZJF)</b> |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045HF285, 12V                                | 6386 | 3713       | 35ED      | 8170        | 4715                | 1328       | 4838              | 1503                    | 1406     | 5122             | 2888          | 6499             | 8842          | 4002       |          |
| 4045HF285, 24V                                | 6386 | 3713       | 35ED      | 8170        | 4715                | 1328       | 4838              | 1503                    | 1406     | 5122             | 2888          | 6499             | 8842          | 4002       |          |
| <b>125 kW Tier 3 (125REOZJF/REOZJG)</b>       |      |            |           |             |                     |            |                   |                         |          |                  |               |                  |               |            |          |
| 4045HF285, 12V                                | 6386 | 3713       | 35ED      | 8170        | 4715                | 1328       | 4847              | 1503                    | 1406     | 5130             | 2888          | 6499             | 8842          | 4002       |          |
| 4045HF285, 24V                                | 6386 | 3713       | 35ED      | 8170        | 4715                | 1328       | 4847              | 1503                    | 1406     | 5130             | 2888          | 6499             | 8842          | 4002       |          |

\* 4045TF280, 12V Right Side Service (engine number GM90762-1)

\*\* 4045TF280, 12V Left Side Service (engine number GM90762-2)

# Model Number Index, Engine Model 4045

| Group Title                                   |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
|-----------------------------------------------|----------------|-------------------|-----------------|-----------------------|--------------------|--------------------------|-------------------------------------|----------------------|-------------------|----------------------------|
|                                               | <i>Oil Pan</i> | <i>Oil Cooler</i> | <i>Oil Pump</i> | <i>Cylinder Block</i> | <i>Front Plate</i> | <i>Timing Gear Cover</i> | <i>Turbocharger &amp; Oil Lines</i> | <i>Starter Motor</i> | <i>Alternator</i> | <i>Alternator Brackets</i> |
| Group No.                                     | 28             | 29                | 30              | 31                    | 32                 | 33                       | 34                                  | 35                   | 36                | 37                         |
| Variation Number                              |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| <b>50/60 kW (50/60REOZJB)</b>                 |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045TF270, 12V                                | 1904           | 5901              | 5001            | 4616                  | 3618               | 4429                     | 65HE                                | 3006                 | 3122              | 6211                       |
| 4045TF270, 24V                                | 1904           | 5901              | 5001            | 4616                  | 3618               | 4429                     | 65HE                                | 3041                 | 3104              | 6212                       |
| <b>50kW (50REOZJE)</b>                        |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045TF280, 12V*                               | 19AE           | —                 | 5001            | 4651                  | 3602               | 4428                     | 65SN                                | 3012                 | 3109              | 6203                       |
| 4045TF280, 12V**                              | 19AE           | —                 | 5001            | 4651                  | 3602               | 4428                     | 65SN                                | 3005                 | 3109              | 6203                       |
| <b>80kW (80REOZJC)</b>                        |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045HF275, 12V                                | 1904           | 5901              | 5002            | 4616                  | 3618               | 4429                     | 65HE                                | 3006                 | 3138              | 6201                       |
| 4045HF275, 24V                                | 1904           | 5901              | 5002            | 4616                  | 3618               | 4429                     | 65HE                                | 3041                 | 3142              | 6201                       |
| <b>100 kW (100REOZJC)</b>                     |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045HF275, 12V                                | 1904           | 5901              | 5002            | 4614                  | 3618               | 4429                     | 65HE                                | 3006                 | 3138              | 6201                       |
| 4045HF275, 24V                                | 1904           | 5901              | 5002            | 4614                  | 3618               | 4429                     | 65HE                                | 3041                 | 3142              | 6201                       |
| <b>80/100 kW Tier 3 (80/100REOZJD)</b>        |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045HF285, 12V                                | 19AE           | 5902              | 5001            | 4643                  | 3612               | 4446                     | 65RQ                                | 3012                 | 3138              | 6201                       |
| 4045HF285, 24V                                | 19AE           | 5902              | 5001            | 4643                  | 3612               | 4446                     | 65RQ                                | 3041                 | 3142              | 6201                       |
| <b>80/100 kW Tier 3 (80/100REOZJE/REOZJF)</b> |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045HF285, 12V                                | 19AE           | 5902              | 5001            | 4643                  | 3612               | 4446                     | 65RQ                                | 3012                 | 3138              | 6201                       |
| 4045HF285, 24V                                | 19AE           | 5902              | 5001            | 4643                  | 3612               | 4446                     | 65RQ                                | 3041                 | 3142              | 6201                       |
| <b>125 kW Tier 3 (125REOZJF/REOZJG)</b>       |                |                   |                 |                       |                    |                          |                                     |                      |                   |                            |
| 4045HF285, 12V                                | 19AE           | 5902              | 5001            | 4659                  | 3612               | 4433                     | 65RQ                                | 3012                 | 3138              | 6278                       |
| 4045HF285, 24V                                | 19AE           | 5902              | 5001            | 4659                  | 3612               | 4433                     | 65RQ                                | 3041                 | 3142              | 6278                       |

\* 4045TF280, 12V Right Side Service (engine number GM90762-1)

\*\* 4045TF280, 12V Left Side Service (engine number GM90762-2)

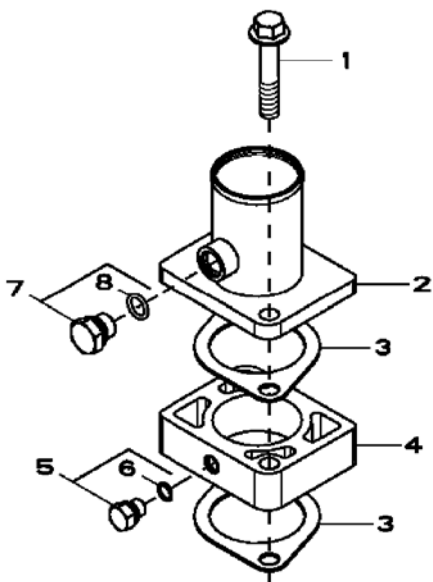
# Model Number Index, Engine Model 4045

| Group Title                                   | <div> Short Block Cylinder Head Gasket Set Overhaul Gasket Set Engine Sensors Wiring Harness Engine Balancer Shafts Aux. Drive Cover Oil Filler </div> |    |    |      |      |      |      |      |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|------|------|------|------|------|
| Group No.                                     | 38                                                                                                                                                     | 39 | 40 | 41   | 42   | 43   | 45   | 46   |
| Variation Number                              |                                                                                                                                                        |    |    |      |      |      |      |      |
| <b>50/60 kW (50/60REOZJB)</b>                 |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045TF270, 12V                                | 1                                                                                                                                                      | 1  | 1  | —    | —    | —    | —    | —    |
| 4045TF270, 24V                                | 1                                                                                                                                                      | 1  | 1  | —    | —    | —    | —    | —    |
| <b>50kW (50REOZJE)</b>                        |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045TF280, 12V*                               | 6                                                                                                                                                      | 3  | 5  | —    | —    | —    | 5204 | —    |
| 4045TF280, 12V**                              | 6                                                                                                                                                      | 3  | 5  | —    | —    | —    | 5204 | 1210 |
| <b>80kW (80REOZJC)</b>                        |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045HF275, 12V                                | 2                                                                                                                                                      | 1  | 1  | 7635 | 8407 | —    | —    | —    |
| 4045HF275, 24V                                | 2                                                                                                                                                      | 1  | 1  | 7635 | 8407 | —    | —    | —    |
| <b>100 kW (100REOZJC)</b>                     |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045HF275, 12V                                | 2                                                                                                                                                      | 1  | 1  | 7635 | 8407 | —    | —    | —    |
| 4045HF275, 24V                                | 2                                                                                                                                                      | 1  | 1  | 7635 | 8407 | —    | —    | —    |
| <b>80/100 kW Tier 3 (80/100REOZJD)</b>        |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045HF285, 12V                                | 4                                                                                                                                                      | 2  | 4  | 6730 | 8457 | 4501 | —    | —    |
| 4045HF285, 24V                                | 4                                                                                                                                                      | 2  | 4  | 6730 | 8457 | 4501 | —    | —    |
| <b>80/100 kW Tier 3 (80/100REOZJE/REOZJF)</b> |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045HF285, 12V                                | 4                                                                                                                                                      | 2  | 4  | 6730 | 8457 | 4501 | —    | —    |
| 4045HF285, 24V                                | 4                                                                                                                                                      | 2  | 4  | 6730 | 8457 | 4501 | —    | —    |
| <b>125 kW Tier 3 (125REOZJF/REOZJG)</b>       |                                                                                                                                                        |    |    |      |      |      |      |      |
| 4045HF285, 12V                                | 5                                                                                                                                                      | 2  | 4  | 6730 | 8457 | 4501 | —    | —    |
| 4045HF285, 24V                                | 5                                                                                                                                                      | 2  | 4  | 6730 | 8457 | 4501 | —    | —    |

\* 4045TF280, 12V Right Side Service (engine number GM90762-1)

\*\* 4045TF280, 12V Left Side Service (engine number GM90762-2)

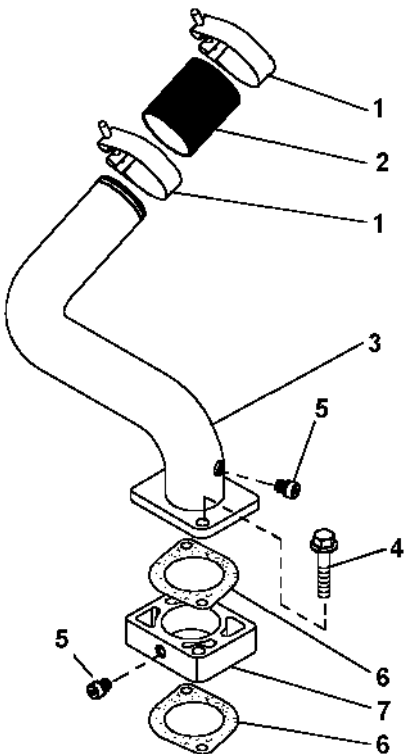
# Group 1: Air Intake



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| Item | Part Number | Description           | Quantity       |
|------|-------------|-----------------------|----------------|
|      |             |                       | Variation 1783 |
| 1    | #           | Screw                 | 2              |
| 2    | GM24517     | Manifold, intake      | 1              |
| 3    | 223532      | Gasket                | 1              |
| 4    | GM17483     | Spacer                | 1              |
| 5    | GM24516     | Fitting               | 1              |
| 6    | #           | O-ring, 8.1 x 1.6 mm  | 1              |
| 7    | 360013      | Plug                  | 1              |
| 8    | GM21508     | O-ring, 11.3 x 2.2 mm | 1              |

# Common hardware; procure locally.

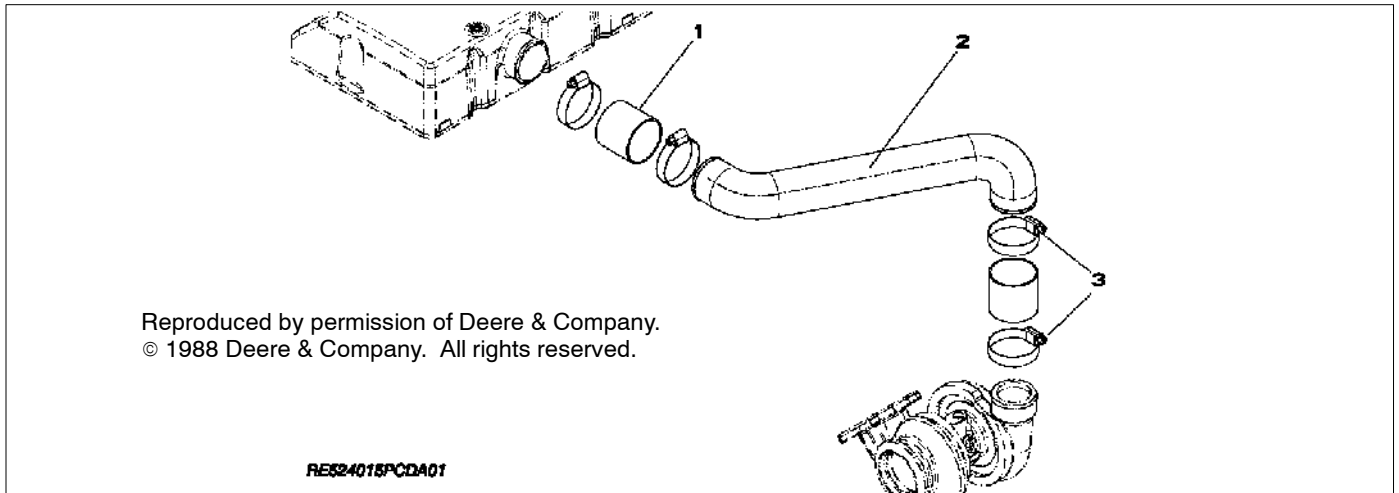


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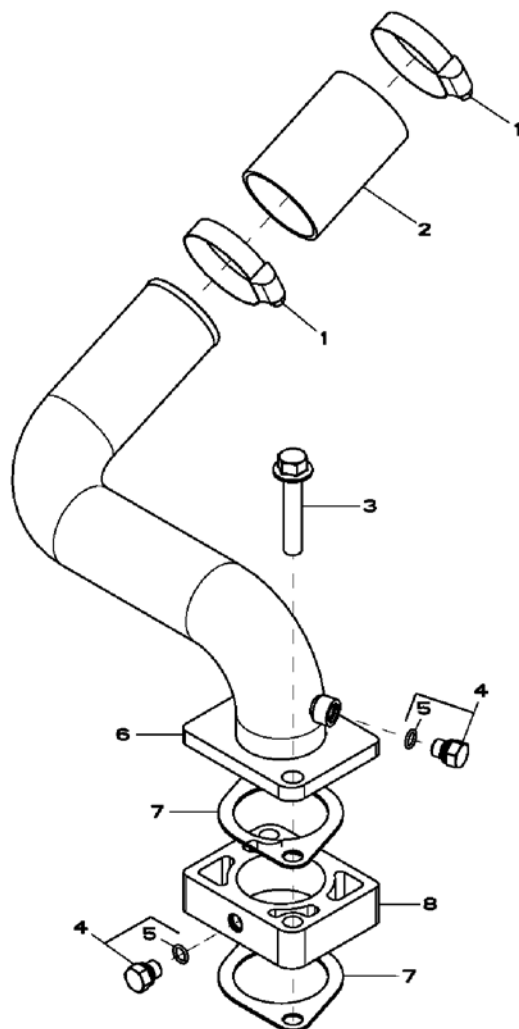
| Item | Part Number | Description               | Quantity       |
|------|-------------|---------------------------|----------------|
|      |             |                           | Variation 1701 |
| 1    | GM18669     | Clamp                     | 2              |
| 2    | GM32781     | Hose                      | 1              |
| 3    | GM32826     | Air intake                | 1              |
| 4    | #           | Screw, M10 x 50           | 2              |
| 5    | GM24516     | Fitting (includes O-ring) | 2              |
| 6    | 223532      | Gasket                    | 2              |
| 7    | GM17483     | Spacer                    | 1              |

## Group 1: Air Intake, continued



| Item | Part Number | Description | Quantity       |
|------|-------------|-------------|----------------|
|      |             |             | Variation 1703 |
| 1    | GM63756     | Hose, 49 mm | 2              |
| 2    | GM63769     | Tube        | 1              |
| 3    | GM18882     | Clamp       | 4              |

## Group 1: Air Intake, continued

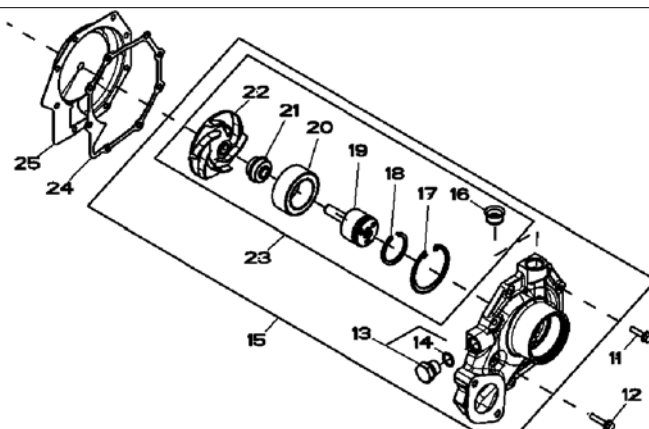


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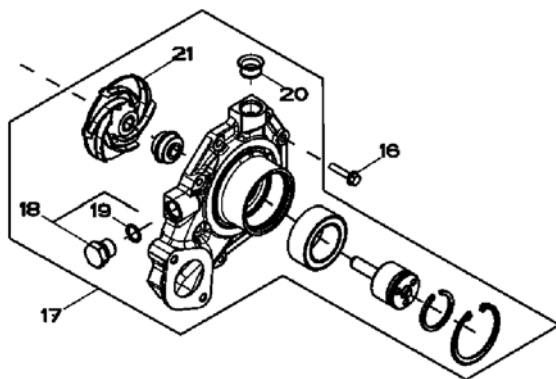
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| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 17CT |
| 1    | 336706      | Clamp, Hose     | 2              |
| 2    | GM32781     | Hose            | 1              |
| 3    | #           | Screw, M10 X 55 | 2              |
| 4    | GM24516     | Fitting         | 2              |
| 5    | GM32896     | O-ring          | 1              |
| 6    | GM91807     | Air Intake      | 1              |
| 7    | 223532      | Gasket          | 2              |
| 8    | GM17483     | Spacer          | 1              |

## Group 2: Water Pump



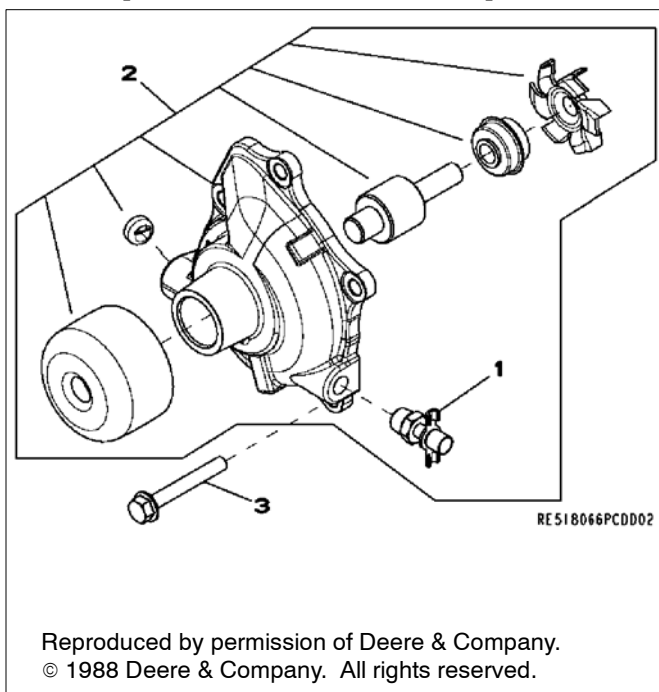
| Item | Part Number | Description                                            | Quantity  |       |      |      |
|------|-------------|--------------------------------------------------------|-----------|-------|------|------|
|      |             |                                                        | Variation |       |      |      |
|      |             |                                                        | 4429A     | 4429B | 4433 | 4446 |
| 11   | #           | Screw, M6 x 25                                         | 5         | 5     | 5    | 5    |
| 12   | #           | Screw, M6 x 30                                         | 3         | 3     | 3    | 3    |
| 13   | 360014      | Plug                                                   | 2         | 1     | 1    | 1    |
| 14   | 360176      | O-ring                                                 | 1         | 1     | 1    | 1    |
| 15   | GM29383     | Pump, water                                            | 1         |       |      |      |
| 15   | GM29382     | Pump, water (also order items 16 and 24)               |           | 1     | 1    | 1    |
| 16   | 360116      | Gasket                                                 | 1         | 1     | 1    | 1    |
| 17   | X           | Ring                                                   | 1         | 1     | 1    | 1    |
| 18   | 360003      | Ring, snap                                             | 1         | 1     | 1    | 1    |
| 19   | X           | Shaft                                                  | 1         | 1     | 1    | 1    |
| 20   | X           | Ball bearing                                           | 1         | 1     | 1    | 1    |
| 21   | X           | Seal                                                   | 1         | 1     | 1    | 1    |
| 22   | X           | Impeller                                               | 1         | 1     | 1    | 1    |
| 23   | GM32829     | Water pump kit (includes items 13, 14, 16-22, 25)      | 1         |       |      |      |
| 23   | GM17551     | Water pump seal kit (includes items 13, 14, 16-22, 25) |           | 1     |      |      |
| 23   | GM32944     | Water pump kit (includes items 16-22)                  |           |       | 1    | 1    |
| 24   | 360124      | Gasket, water pump                                     | 1         | 1     | 1    | 1    |
| 25   | GM17443     | Filter (not shown)                                     | 2         | 2     |      |      |



| Item | Part Number | Description               | Quantity       |
|------|-------------|---------------------------|----------------|
|      |             |                           | Variation 4428 |
| 16   | #           | Screw, M6 X 30            | 8              |
| 17   | GM29383     | Pump, water               | 1              |
| 18   | 360014      | Plug                      | 1              |
| 19   | 360176      | O-Ring                    | 1              |
| 20   | -           | Impeller                  | 1              |
| 21   | 360116      | Gasket, water bypass tube | 1              |

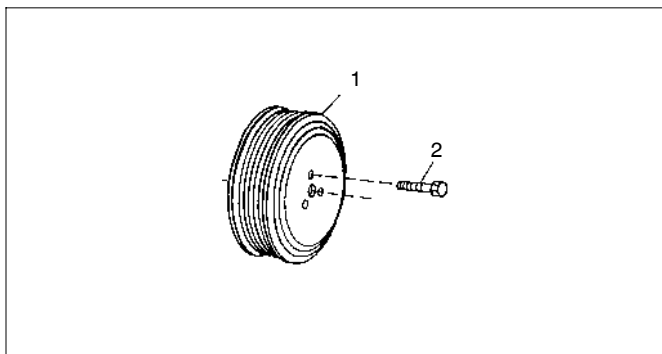
# Common hardware; procure locally.  
X Not sold separately.

## Group 2: Water Pump, continued



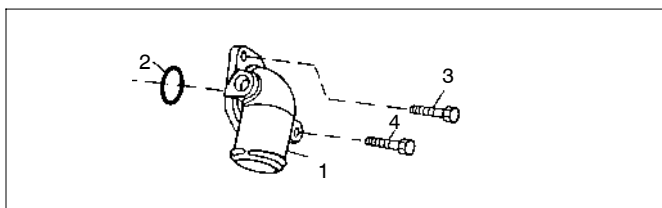
| Item | Part Number | Description    | Quantity  |  |
|------|-------------|----------------|-----------|--|
|      |             |                | Variation |  |
| 1    | 223435      | Drain valve    | 1         |  |
| 2    | GM63808     | Water pump     | 1         |  |
| 3    | GM63706     | Screw, M8 x 60 | 5         |  |
| —    | GM63859     | Sealant        | 1         |  |

## Group 3: Water Pump Pulley



| Item | Part Number | Description        | Quantity  |   |
|------|-------------|--------------------|-----------|---|
|      |             |                    | Variation |   |
| 1    | 360085      | Pulley, water pump | 1         |   |
| 1    | 360559      | Pulley             |           | 1 |
| 2    | #           | Screw, M6 x 12     | 3         | 3 |

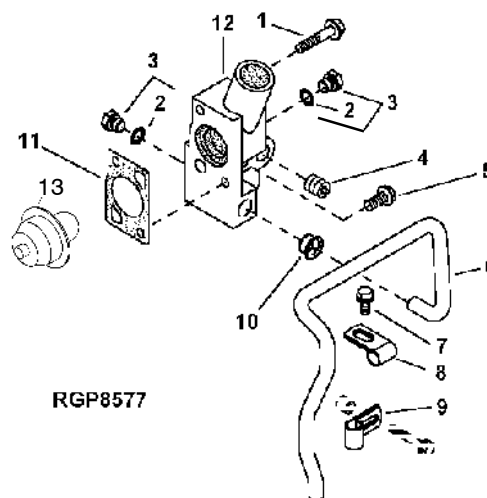
## Group 4: Water Pump Inlet



| Item | Part Number | Description                   | Quantity  |  |
|------|-------------|-------------------------------|-----------|--|
|      |             |                               | Variation |  |
| 1    | GM32792     | Housing                       | 1         |  |
|      | 360014      | Plug (includes O-ring 360176) | 1         |  |
| 2    | 224172      | O-ring                        | 1         |  |
| 3    | #           | Screw, M8 x 25                | 1         |  |
| 4    | #           | Screw, M8 x 65                | 1         |  |

# Common hardware; procure locally.

## Group 5: Thermostat

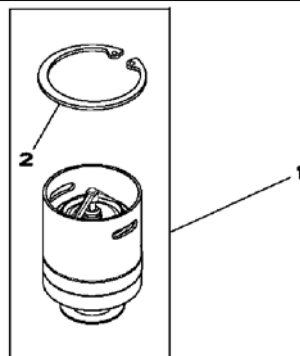


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| Item | Part Number | Description               | Quantity |                |      |
|------|-------------|---------------------------|----------|----------------|------|
|      |             |                           | 2102     | Variation 2112 | 2156 |
| 1    | #           | Screw, M10 x 70           | 1        | 1              |      |
| 1    | #           | Screw, M10 x 50           |          |                | 1    |
| 2    | GM21508     | O-ring                    | 2        | 2              | 2    |
| 3    | 360013      | Plug                      | 2        | 2              | 2    |
| 4    | GM15403     | Plug, pipe                | 3        | 3              |      |
| 5    | #           | Screw, M10 x 30           | 1        | 1              | 1    |
| 6    | 360142      | Tube                      | 1        |                |      |
| 6    | GM23839     | Tube                      |          | 1              |      |
| 6    | GM49898     | Tube                      |          |                | 1    |
| 7    | #           | Screw, M12 x 25           | 1        | 1              |      |
| 8    | 360120      | Clamp                     | 1        | 1              |      |
| 9    | 360121      | Clamp                     | 1        | 1              | 1    |
| 10   | 360116      | Gasket, water bypass tube | 1        | 1              | 1    |
| 11   | 360484      | Gasket                    | 1        | 1              | 1    |
| 12   | GM32786     | Cover, thermostat         | 1        | 1              |      |
| 12   | GM49827     | Cover, thermostat         |          |                | 1    |
| 13   | GM32812     | Thermostat                | 1        | 1              | 1    |

# Common hardware; procure locally.

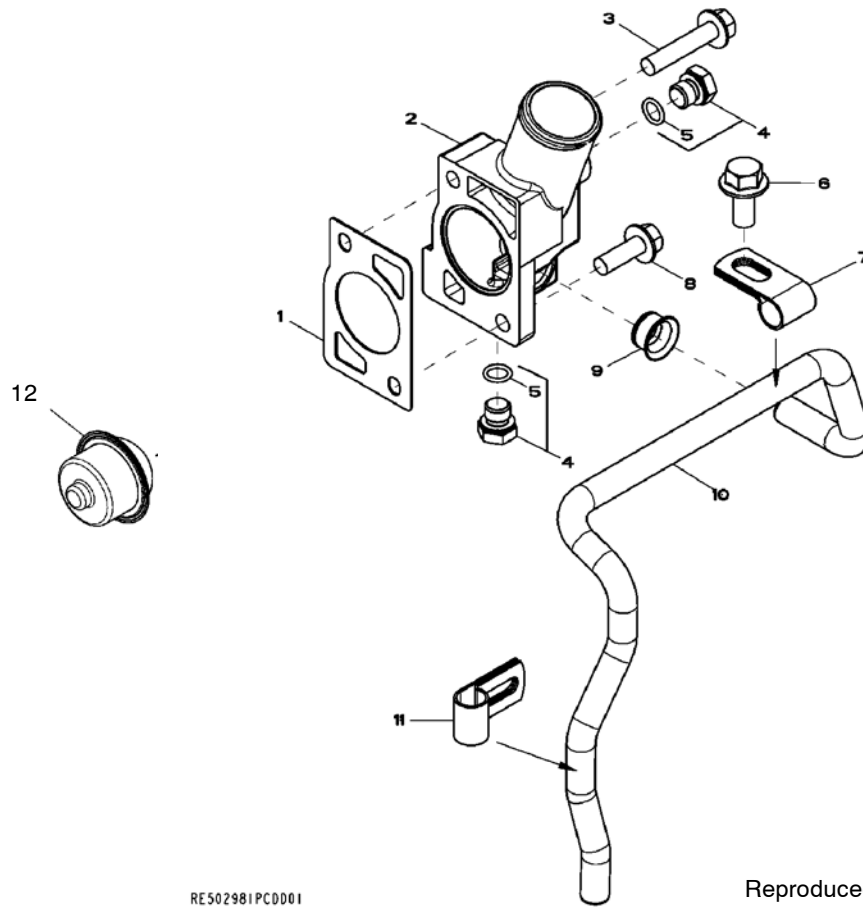


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| Item | Part Number | Description    | Quantity       |
|------|-------------|----------------|----------------|
|      |             |                | Variation 2201 |
| 1    | GM63866     | Thermostat kit | 1              |
| 2    | GM63780     | Snap ring      | 1              |

## Group 5: Thermostat, continued

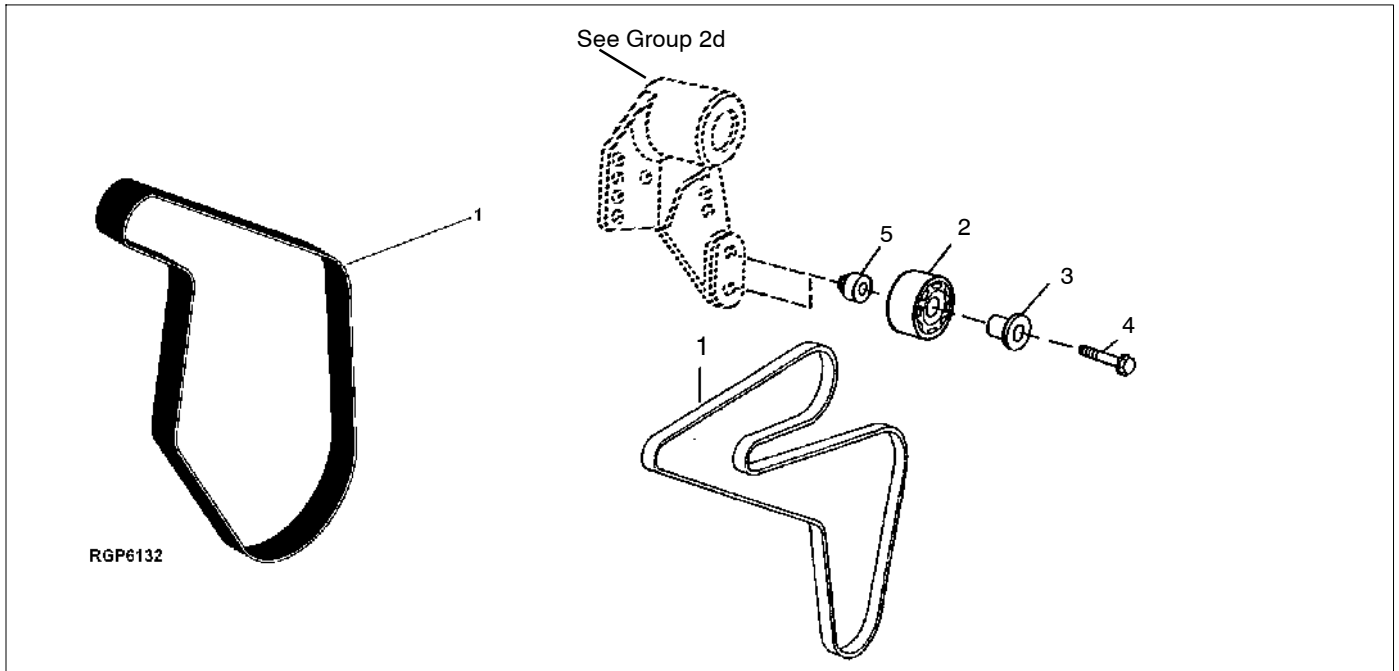


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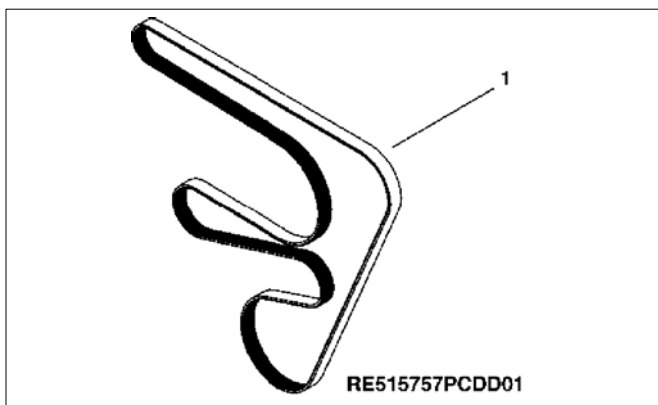
| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 2124 |
| 1    | GM21406     | Gasket          | 1              |
| 2    | GM91808     | Cover           | 1              |
| 3    | #           | Screw, M10 X 50 | 1              |
| 4    | 360013      | Plug            | 3              |
| 5    | GM21508     | O-ring          | 1              |
| 6    | #           | Screw, M12 X 25 | 1              |
| 7    | 360120      | Clamp           | 1              |
| 8    | #           | Screw, M10 x 30 | 1              |
| 9    | 360116      | Gasket          | 1              |
| 10   | GM91809     | Tube            | 1              |
| 11   | 360121      | CLamp           | 1              |
| 12   | GM32812     | Thermostat      | 1              |

## Group 6: Fan Belt



| Item | Part Number | Description             | Quantity  |      |      |      |      |      |
|------|-------------|-------------------------|-----------|------|------|------|------|------|
|      |             |                         | Variation |      |      |      |      |      |
|      |             |                         | 2409      | 240B | 24HA | 24GG | 24GY | 24HE |
| 1    | GM23828     | V-belt, 1575 mm (8 rib) | 1         |      |      |      |      |      |
| 1    | GM28308     | V-belt, 1515 mm (8 rib) |           | 1    |      |      |      |      |
| 1    | GM52514     | V-belt, 1550 mm         |           |      | 1    |      |      |      |
| 1    | 352793      | V-belt, 1700 mm         |           |      |      | 1    |      |      |
| 1    | GM77161     | V-belt, 1545 mm         |           |      |      |      | 1    |      |
| 1    | GM91810     | V-belt                  |           |      |      |      |      | 1    |
| 2    | GM17529     | Pulley                  | 1         |      | 1    |      | 1    | 1    |
| 3    | GM17488     | Sleeve                  | 1         |      | 1    |      | 1    | 1    |
| 4    | #           | Screw, M10 x 65         | 1         |      | 1    |      | 1    | 1    |
| 5    | GM23835     | Spacer                  | 1         |      | 1    |      | 1    | 1    |

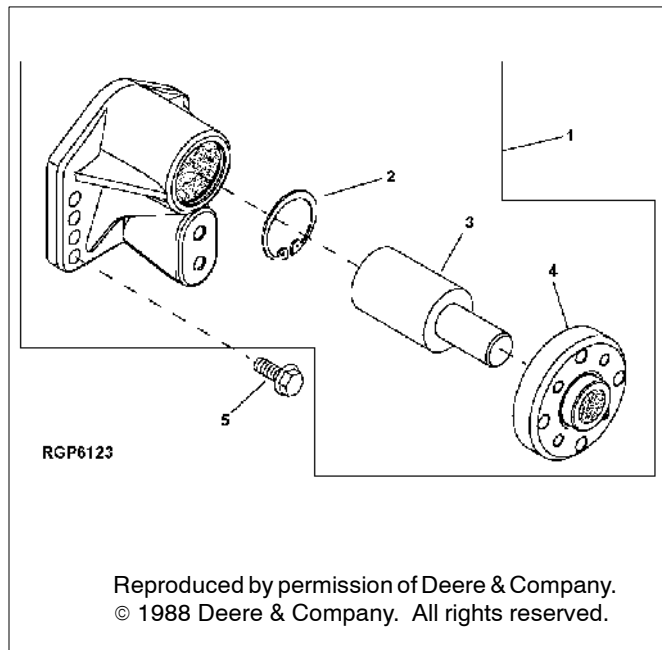
# Common hardware; procure locally.



| Item | Part Number | Description | Quantity  |      |      |      |       |       |
|------|-------------|-------------|-----------|------|------|------|-------|-------|
|      |             |             | Variation |      |      |      |       |       |
|      |             |             | 2406      | 2413 | 2415 | 2435 | 2439* | 2441* |
| 1    | GM63750     | V-belt      | 1         |      |      |      |       |       |
| 1    | GM77162     | V-belt      |           | 1    |      |      |       |       |
| 1    | GM63761     | V-belt      |           |      | 1    |      |       |       |
| 1    | GM71811     | V-belt      |           |      |      | 1    |       |       |
| 1    | GM74072     | V-belt*     |           |      |      |      | 1     |       |
| 1    | GM87022     | V-belt*     |           |      |      |      |       | 1     |

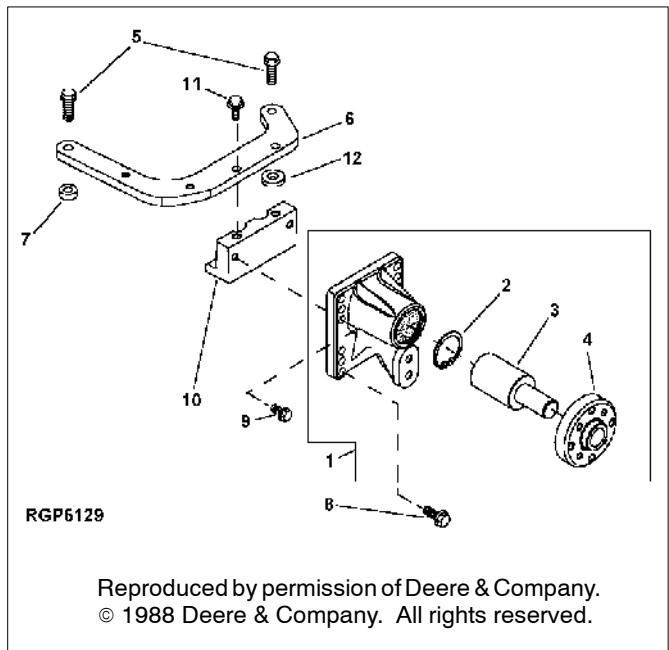
\* 5030HF285 engines (GM73389-) changed to a smaller pulley. Verify pulley diameter before ordering pulley or belt.  
See Group 8 for pulley dimensions.

## Group 7: Fan Drive



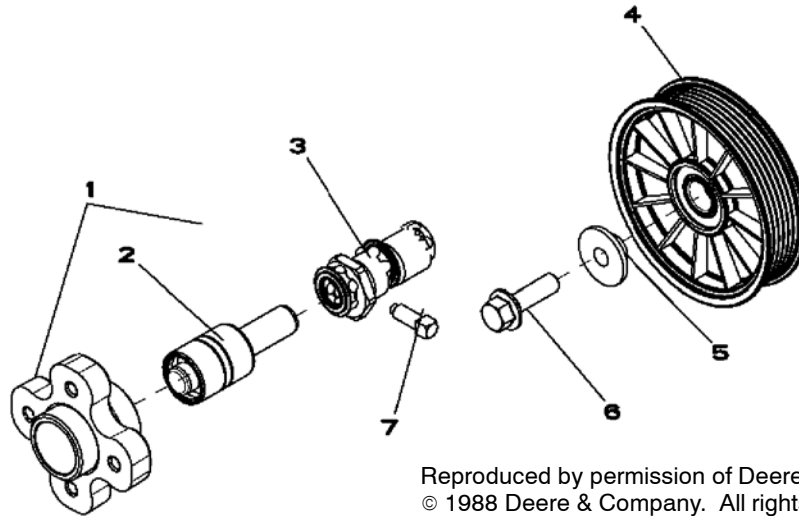
| Item | Part Number | Description                 | Quantity       |
|------|-------------|-----------------------------|----------------|
|      |             |                             | Variation 2301 |
| 1    | 360030      | Housing, bearing w/ bearing | 1              |
| 2    | 360005      | Ring, snap                  | 1              |
| 3    | X           | Bearing (order item 1)      | 1              |
| 4    | X           | Hub (order item 1)          | 1              |
| 5    | #           | Screw, M10 x 35             | 4              |

# Common hardware; procure locally.  
X Not sold separately.



| Item | Part Number | Description     | Quantity  |      |      |
|------|-------------|-----------------|-----------|------|------|
|      |             |                 | Variation |      |      |
|      |             |                 | 2314      | 2341 | 2342 |
| 1    | GM23844     | Support         | 1         | 1    | 1    |
| 2    | 223730      | Ring, snap      | 1         | 1    | 1    |
| 3    | X           | Shaft           | 1         | 1    | 1    |
| 4    | X           | Hub             | 1         | 1    | 1    |
| 5    | #           | Screw, M12 x 35 | 2         |      |      |
| 6    | GM23831     | Bracket         | 1         |      |      |
| 6    | GM46599     | Bracket         |           | 1    |      |
| 7    | GM23826     | Washer          | 1         |      |      |
| 8    | #           | Screw, M10 x 35 | 4         |      |      |
| 8    | #           | Screw, M10 x 30 |           | 4    | 4    |
| 9    | #           | Screw, M10 x 20 | 2         |      |      |
| 10   | GM23830     | Spacer          | 1         |      |      |
| 11   | #           | Screw, M10 x 30 | 2         |      |      |
| 11   | #           | Screw, M10 x 25 |           | 2    |      |
| 12   | GM23855     | Washer          | 1         |      |      |

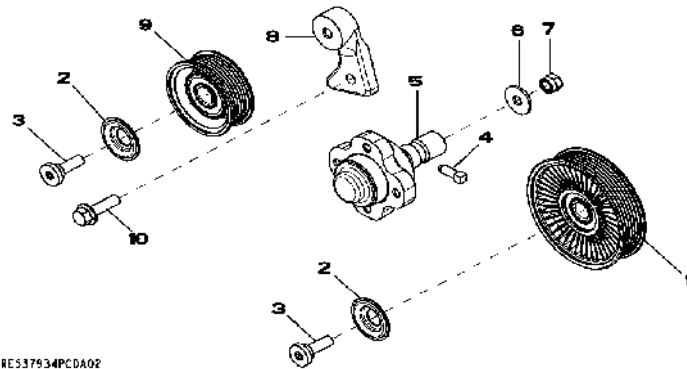
## Group 7: Fan Drive, continued



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RE 509685PCD601

| Item | Part Number | Description     | Quantity  |      |
|------|-------------|-----------------|-----------|------|
|      |             |                 | Variation |      |
|      |             |                 | 2301B     | 2304 |
| 1    | GM63804     | Hub             | 1         |      |
| 1    | GM71634     | Hub             |           | 1    |
| 2    | GM63766     | Ball bearing    | 1         |      |
| 2    | -           | Ball bearing    |           | 1    |
| 3    | GM63758     | Tube nut        | 1         |      |
| 3    | -           | Tube nut        |           | 1    |
| 4    | GM63867     | Idler           | 1         | 1    |
| 5    | GM63730     | Sleeve          | 1         | 1    |
| 6    | GM63708     | Screw           | 1         | 1    |
| 6    | GM63708     | Screw, M10 x 35 | 1         | 1    |
| 7    | GM71633     | Set screw       | 1         | 1    |



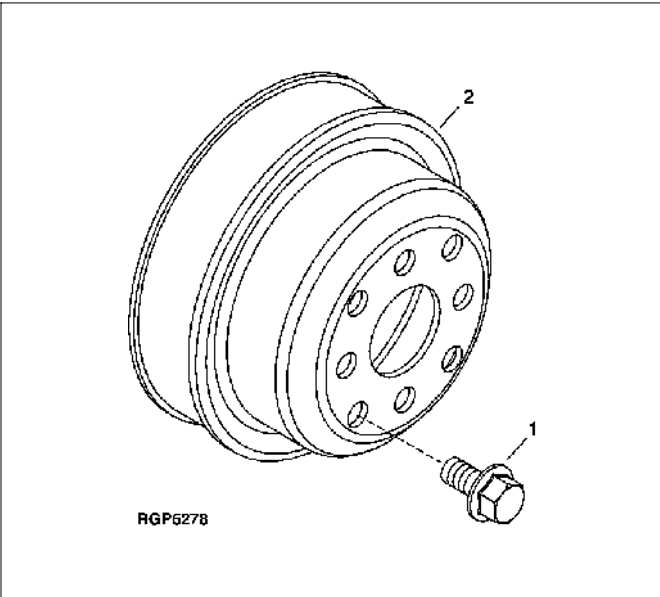
RES37934PCDA02

See Group 29 for idler pulley bracket

4024HF285

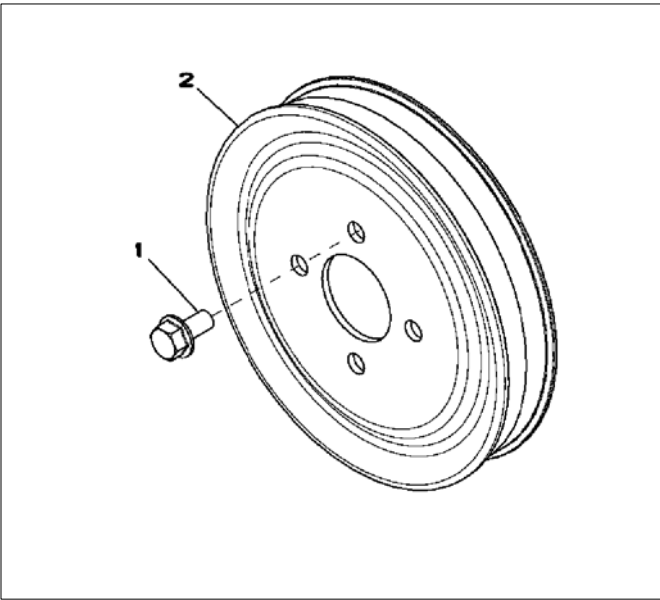
| Item | Part Number | Description       | Quantity  |      |
|------|-------------|-------------------|-----------|------|
|      |             |                   | Variation |      |
|      |             |                   | 2309      | 2311 |
| 1    | GM63867     | Idler             | 1         | 1    |
| 2    | GM63730     | Dust shield       | 2         | 2    |
| 3    | GM74075     | Socket head screw | 2         | 2    |
| 4    | GM71633     | Set screw         | 1         | 1    |
| 5    | GM63804     | Hub               | 1         |      |
| 5    | GM71634     | Hub               |           | 1    |
| 6    | GM71635     | Washer            |           | 1    |
| 7    | GM71636     | Lock nut          |           | 1    |
| 7    | GM63758     | Tube nut          | 1         |      |
| 8    | GM74076     | Bracket           | 1         | 1    |
| 9    | GM74077     | Idler             | 1         | 1    |
| 10   | GM74078     | Screw             | 1         | 1    |

# Group 8: Fan Pulley



Engine Model 4045

| Item | Part Number | Description | Quantity  |      |      |
|------|-------------|-------------|-----------|------|------|
|      |             |             | Variation |      |      |
|      |             |             | 8604      | 8605 | 8610 |
| 1    | GM32765     | Screw       | 4         | 4    | 4    |
| 2    | 360578      | Pulley, fan | 1         |      | 1    |
| 2    | 360143      | Pulley, fan |           | 1    |      |

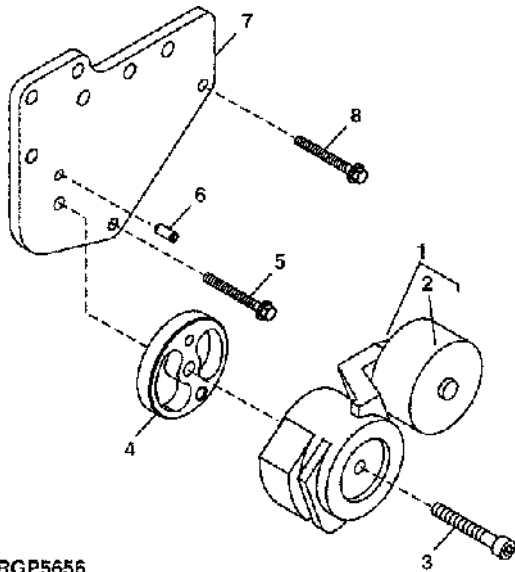


Engine Model 4024/5030

| Item | Part Number | Description                                   | Quantity  |      |       |       |
|------|-------------|-----------------------------------------------|-----------|------|-------|-------|
|      |             |                                               | Variation |      |       |       |
|      |             |                                               | 8603      | 8604 | 8605* | 8606* |
| 1    | #           | Screw                                         | 4         | 4    | 4     | 4     |
| 2    | GM63744     | Pulley                                        | 1         |      |       |       |
| 2    | GM77163     | Pulley (145.94 mm)                            |           | 1    |       |       |
| 2    | GM71637     | Pulley (160 mm diameter*)                     |           |      | 1     |       |
| 2    | GM87021     | Pulley (127 mm diameter, use belt code 2441*) |           |      |       | 1     |

\* 5030HF285 engines (GM73389-) changed to a smaller pulley.  
Verify pulley diameter before ordering pulley or belt.

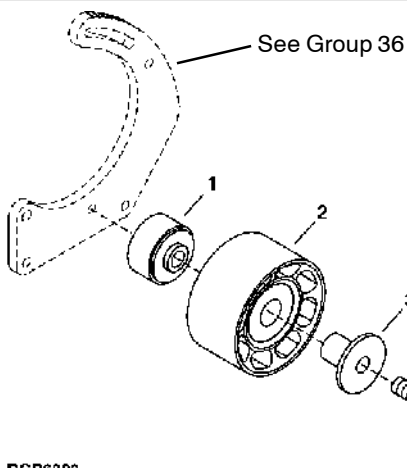
## Group 9: Belt Tensioner



RGP5656

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| Item | Part Number | Description                            | Quantity Variation |      |      |       |
|------|-------------|----------------------------------------|--------------------|------|------|-------|
|      |             |                                        | 8702               | 8724 | 8727 | 8701B |
| 1    | GM49938     | Tensioner                              | 1                  | 1    | 1    | 1     |
| 2    | X           | Bolt                                   | 1                  | 1    | 1    |       |
| 3    | #           | Screw, M10 x 90                        | 1                  | 1    | 1    | 1     |
| 4    | #           | Washer, 10 X 18 X 2.500 mm (not shown) |                    |      |      | 1     |
| 4    | GM49836     | Spacer                                 | 1                  | 1    | 1    |       |
| 4    | GM88681     | Spacer                                 |                    |      |      | 1     |
| 5    | #           | Screw, M8 x 60 mm                      | 1                  | 1    | 1    |       |
| 6    | GM46601     | Pin, spring                            | 1                  | 1    | 1    |       |
| 7    | GM24521     | Support                                | 1                  |      |      |       |
| 7    | GM49896     | Support                                |                    | 1    |      |       |
| 7    | GM52515     | Support                                |                    |      | 1    |       |
| 8    | #           | Screw, M8 x 60 mm                      | 1                  | 1    | 1    |       |



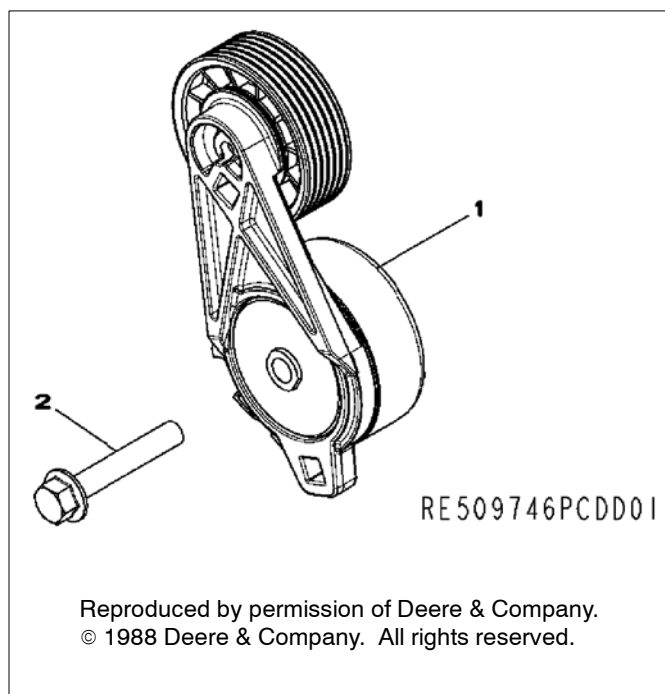
RGP6282

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| Item | Part Number | Description     | Quantity Variation |
|------|-------------|-----------------|--------------------|
|      |             |                 | 8711               |
| 1    | GM23835     | Spacer          | 1                  |
| 2    | GM17529     | Pulley          | 1                  |
| 3    | GM17488     | Sleeve          | 1                  |
| 4    | #           | Screw, M10 x 60 | 1                  |

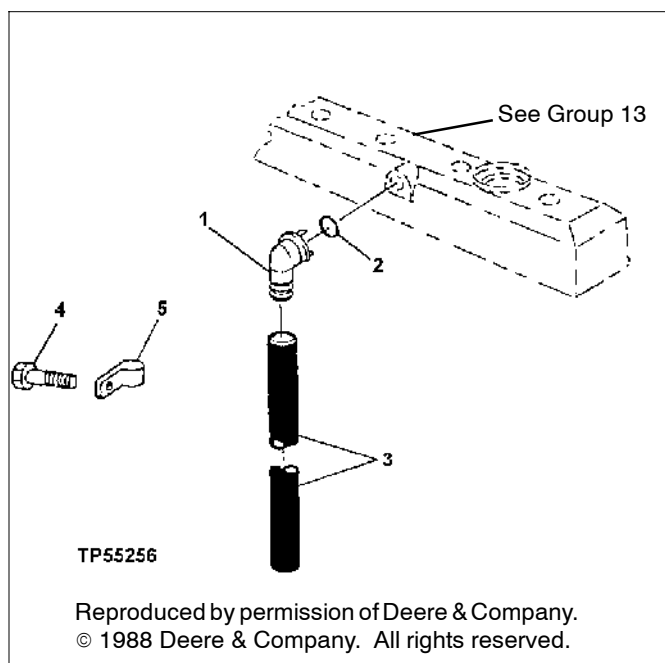
# Common hardware; procure locally.  
X Not sold separately.

## Group 9: Belt Tensioner, continued



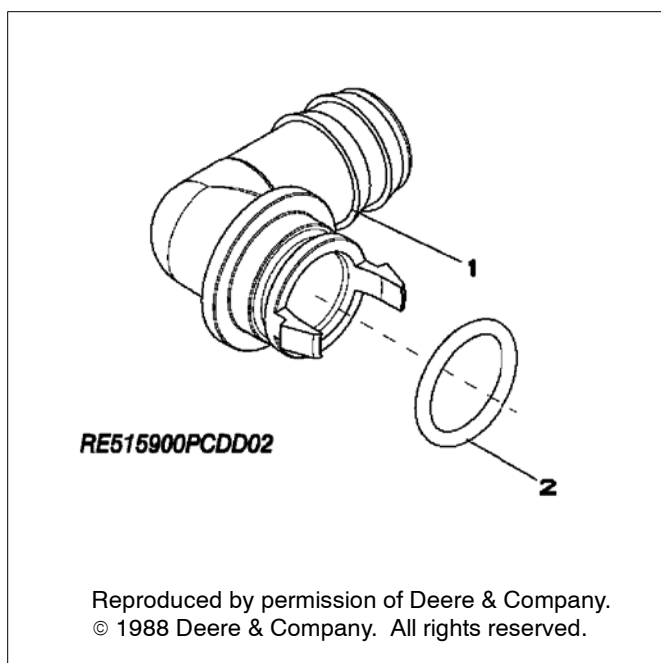
| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 8701 |
| 1    | GM63812     | Belt tensioner  | 1              |
| 2    | #           | Screw, M10 x 60 | 1              |

## Group 10: Vent Tube



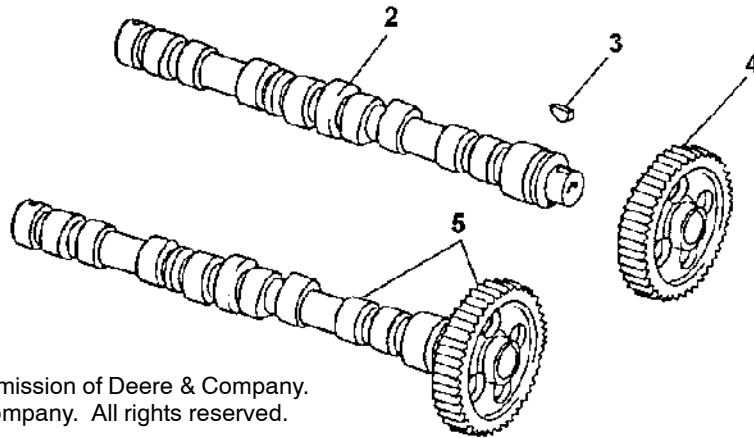
| Item | Part Number | Description    | Quantity       |                |                |
|------|-------------|----------------|----------------|----------------|----------------|
|      |             |                | Variation 2904 | Variation 2915 | Variation 2997 |
| 1    | 360098      | Fitting, elbow | 1              | 1              | 1              |
| 2    | 223851      | O-ring         | 1              | 1              | 1              |
| 3    | GM17459     | Hose           |                | 1              |                |
| 3    | GM91811     | Hose           | 1              |                |                |
| 4    | #           | Screw, M8      | 1              | 1              |                |
| 5    | 360530      | Clamp          | 1              | 1              |                |

# Common hardware; procure locally.



| Item | Part Number | Description    | Quantity       |
|------|-------------|----------------|----------------|
|      |             |                | Variation 2999 |
| 1    | 360098      | Fitting, elbow | 1              |
| 2    | 223851      | O-ring         | 1              |

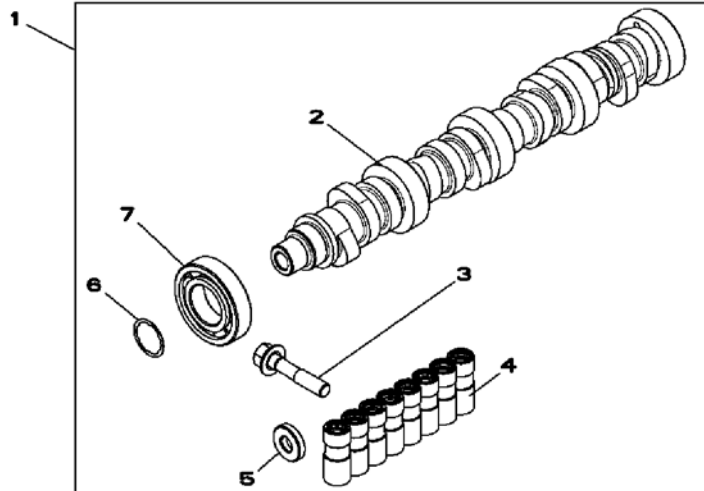
## Group 11: Camshaft



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| Item | Part Number | Description             | Quantity |      |                   |      |      |
|------|-------------|-------------------------|----------|------|-------------------|------|------|
|      |             |                         | 4614     | 4616 | Variation<br>4659 | 4643 | 4651 |
| 2    | X           | Camshaft (order item 5) | 1        | 1    |                   |      |      |
| 3    | 360158      | Key, shaft              | 1        | 1    |                   |      |      |
| 4    | X           | Gear (order item 5)     | 1        | 1    |                   |      |      |
| 5    | GM32813     | Camshaft                | 1        | 1    | 1                 |      |      |
| 5    | GM52516     | Camshaft                |          |      |                   | 1    |      |
| 5    | GM91812     | Camshaft                |          |      |                   |      | 1    |

X Not sold separately.

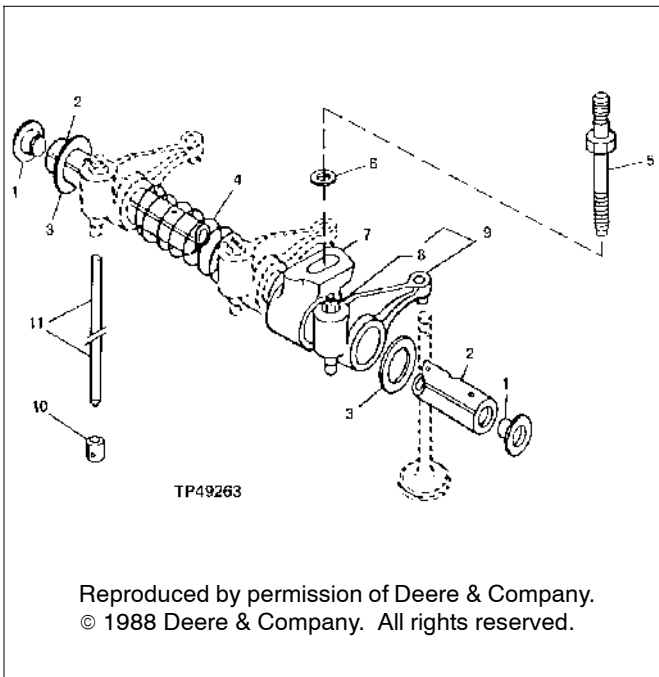


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RE535921RGP01

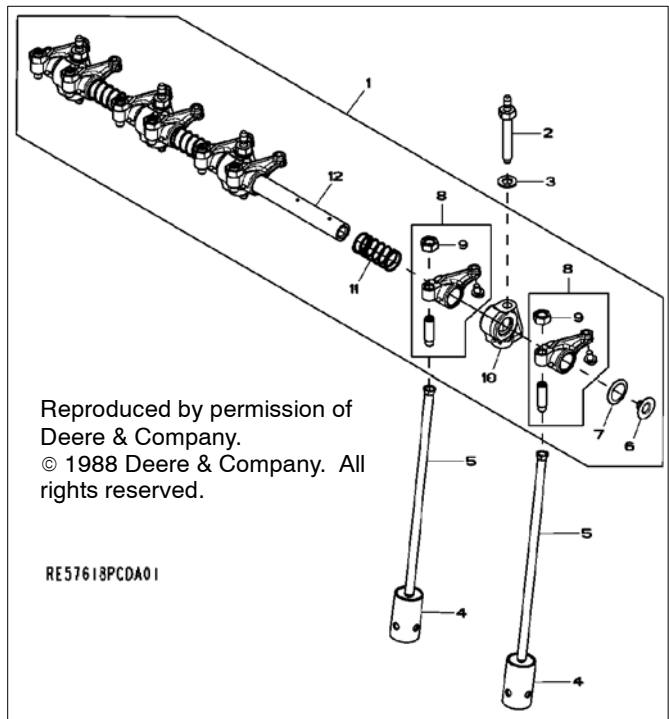
| Item | Part Number | Description  | Quantity |                   |      |
|------|-------------|--------------|----------|-------------------|------|
|      |             |              | 4604     | Variation<br>4618 | 4619 |
| 1    | GM63858     | Cam kit      | 1        | 1                 |      |
| 1    | GM63911     | Cam kit      |          | 1                 |      |
| 1    | GM63907     | Cam kit      |          |                   | 1    |
| 2    | —           | Camshaft     | 1        | 1                 | 1    |
| 3    | GM63752     | Screw        | 1        | 1                 | 1    |
| 4    | GM63833     | Follower     | 8        | 8                 | 10   |
| 5    | GM63748     | Washer       | 1        | 1                 | 1    |
| 6    | GM63728     | Shim         | 1        | 1                 | 1    |
| 7    | GM63821     | Ball bearing | 1        | 1                 | 1    |

## Group 12: Valve Train



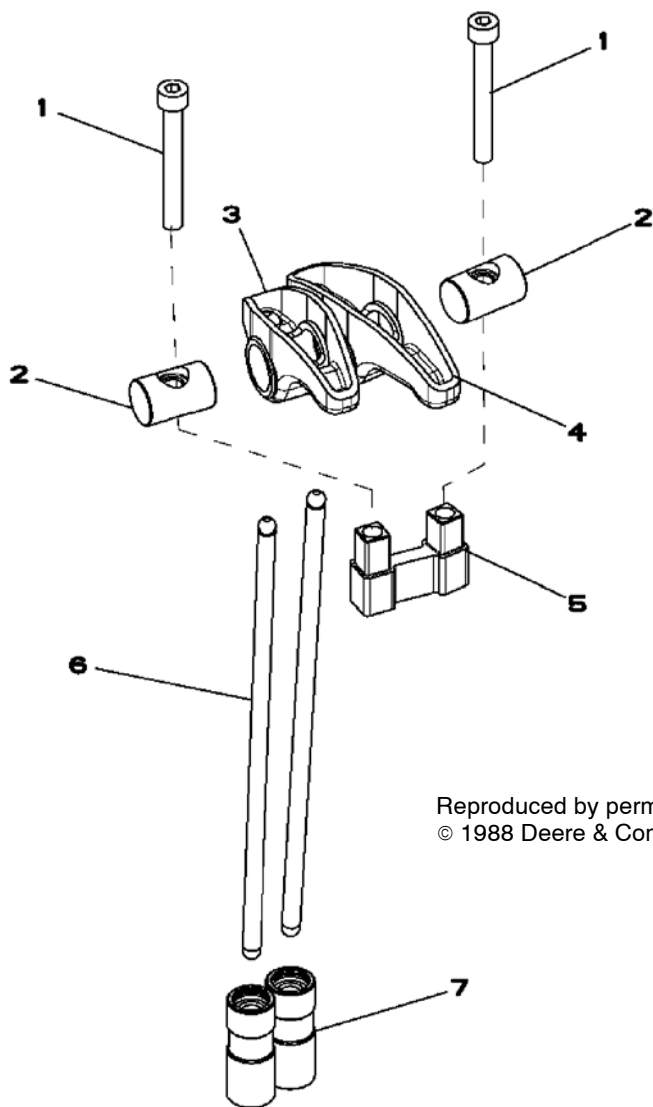
| Item | Part Number | Description            | Quantity        |
|------|-------------|------------------------|-----------------|
|      |             |                        | Variation 4901A |
| 1    | 223480      | Plug                   | 2               |
| 2    | 360509      | Shaft, rocker arm      | 1               |
| 3    | 223634      | Washer                 | 2               |
| 4    | 223632      | Spring                 | 3               |
| 5    | 360118      | Stud                   | 4               |
| 6    | 223756      | Washer, 11 x 20 x 2 mm | 4               |
| 7    | 360112      | Support                | 4               |
| 8    | #           | Nut, M10               | 1               |
| 9    | 360072      | Arm, rocker            | 8               |
| 10   | 360135      | Tappet                 | 8               |
| 11   | 352026      | Rod, push              | 8               |

# Common hardware; procure locally.



| Item | Part Number | Description            | Quantity        |
|------|-------------|------------------------|-----------------|
|      |             |                        | Variation 4901B |
| 1    | 223481      | Shaft                  | 1               |
| 2    | 360118      | Stud                   | 4               |
| 3    | #           | Washer, 11 x 20 x 2 mm | 6               |
| 4    | 360135      | Tappet                 | 8               |
| 5    | 352026      | Rod, push              | 8               |
| 6    | 223480      | Plug                   | 2               |
| 7    | 223634      | Washer                 | 2               |
| 8    | GM50611     | Arm, rocker            | 8               |
| 9    | #           | Nut, M10               | 1               |
| 10   | 360112      | Support                | 6               |
| 11   | 223632      | Spring                 | 5               |
| 12   | 360509      | Shaft, rocker arm      | 1               |

# Group 12: Valve Train, continued



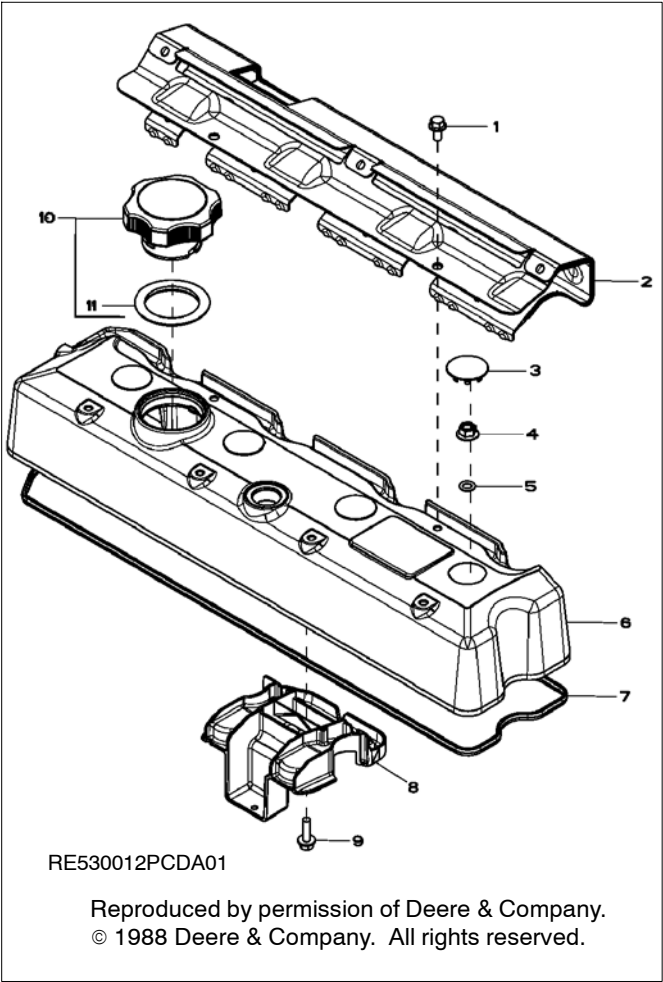
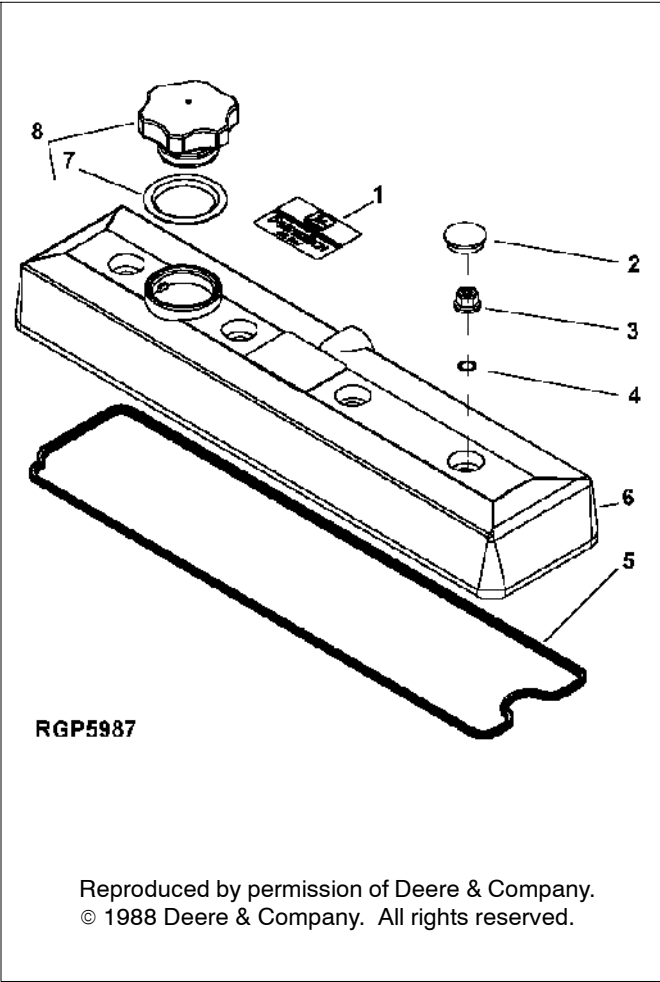
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RE51881PCDE01

| Item | Part Number | Description                | Quantity  |      |
|------|-------------|----------------------------|-----------|------|
|      |             |                            | Variation |      |
|      |             |                            | 4907      | 4908 |
| 1    | #           | Screw, M6 x 65             | 8         | 10   |
| 2    | GM63753     | Rocker arm shaft           | 8         | 10   |
| 3    | GM63823     | Rocker arm (intake valve)  | 4         | 5    |
| 4    | GM63824     | Rocker arm (exhaust valve) | 4         | 5    |
| 5    | GM63777     | Pedestal                   | 4         | 5    |
| 6    | GM63820     | Push rod                   | 8         | 10   |
| 7    | GM63833     | Follower                   | 8         | 10   |

# Common hardware; procure locally.

# Group 13: Rocker Arm Cover



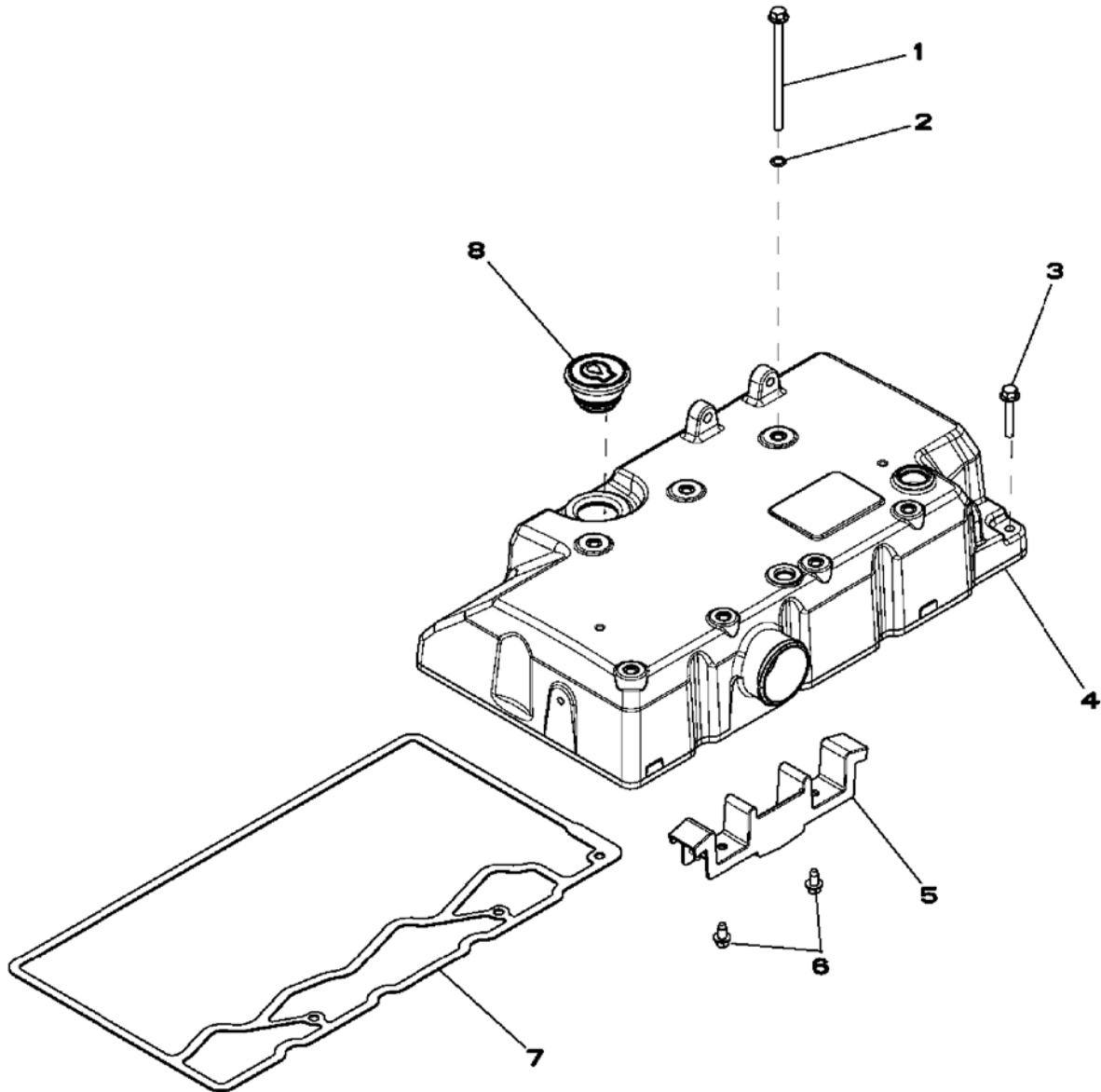
| Item | Part Number | Description                      | Quantity       |
|------|-------------|----------------------------------|----------------|
|      |             |                                  | Variation 1101 |
| 1    | X           | Medallion                        | 1              |
| 2    | 360004      | Plug                             | 6              |
| 3    | 360138      | Nut                              | 6              |
| 4    | 360139      | O-ring                           | 6              |
| 5    | 360585      | Gasket, rocker arm cover         | 1              |
| 6    | 360507      | Cover, rocker arm                | 1              |
| 7    | GM17493     | Packing                          | 1              |
| 8    | 360018      | Cap, oil fill (includes packing) | 1              |

X Not sold separately.

| Item | Part Number | Description    | Quantity       |
|------|-------------|----------------|----------------|
|      |             |                | Variation 1162 |
| 1    | GM50057     | Screw, M6 x 12 | 2              |
| 2    | GM52517     | Heat shield    | 1              |
| 3    | 360004      | Plug           | 4              |
| 4    | 360138      | Nut, M8        | 4              |
| 5    | 360139      | O-ring         | 4              |
| 6    | GM52518     | Valve cover    | 1              |
| 7    | GM52519     | Gasket         | 1              |
| 8    | GM50069     | Deflector      | 1              |
| 9    | #           | Screw, M6 x 20 | 1              |
| 10   | 360018      | Filler cap     | 1              |
| 11   | GM17493     | Packing        | 1              |

# Common hardware; procure locally.

## Group 13: Rocker Arm Cover, continued



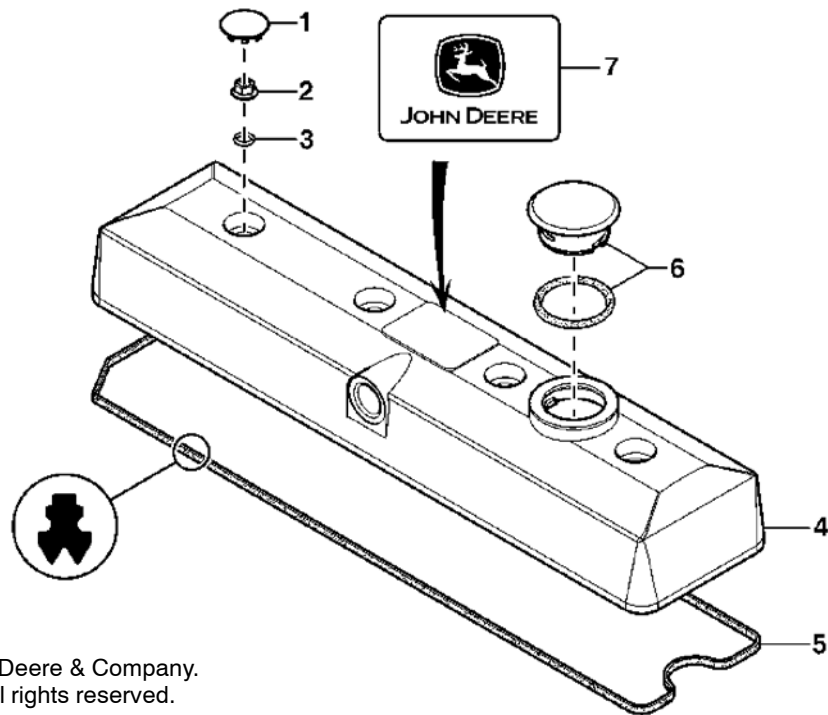
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RE529372PCD801

| Item | Part Number | Description    | Quantity Variation |      |      |
|------|-------------|----------------|--------------------|------|------|
|      |             |                | 1101B              | 1109 | 1113 |
| 1    | GM63819     | Screw          | 5                  | 7    | 9    |
| 2    | GM63709     | O-ring         | 5                  | 7    | 9    |
| 3    | #           | Screw, M6 x 35 | 1                  | 1    | 1    |
| 4    | GM63813     | Valve cover    | 1                  |      |      |
| 4    | GM63786     | Valve cover    |                    | 1    |      |
| 4    | GM63787     | Valve cover    |                    |      | 1    |
| 5    | GM63722     | Isolator       | 1                  |      |      |
| 5    | GM63789     | Isolator       |                    | 1    | 1    |
| 6    | #           | Screw, M6 x 12 | 2                  | 2    | 2    |
| 7    | GM63705     | Sealant        | 1                  |      |      |
| 7    | GM63775     | Gasket         |                    | 1    |      |
| 7    | GM63774     | Gasket         |                    |      | 1    |
| 8    | GM63726     | Filler cap     | 1                  | 1    | 1    |

# Common hardware; procure locally.

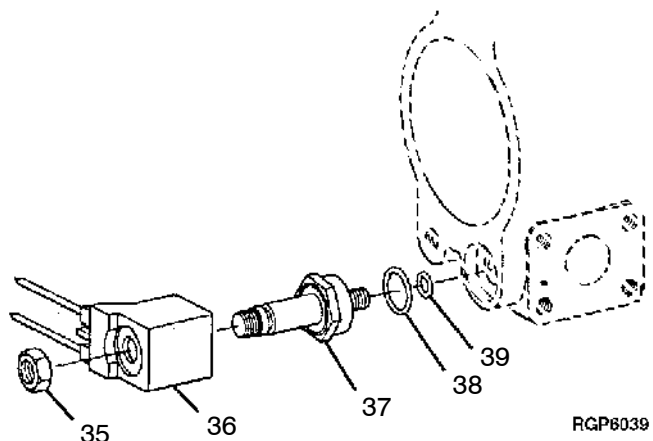
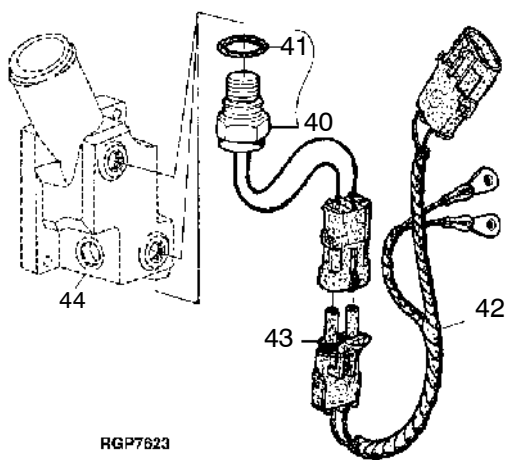
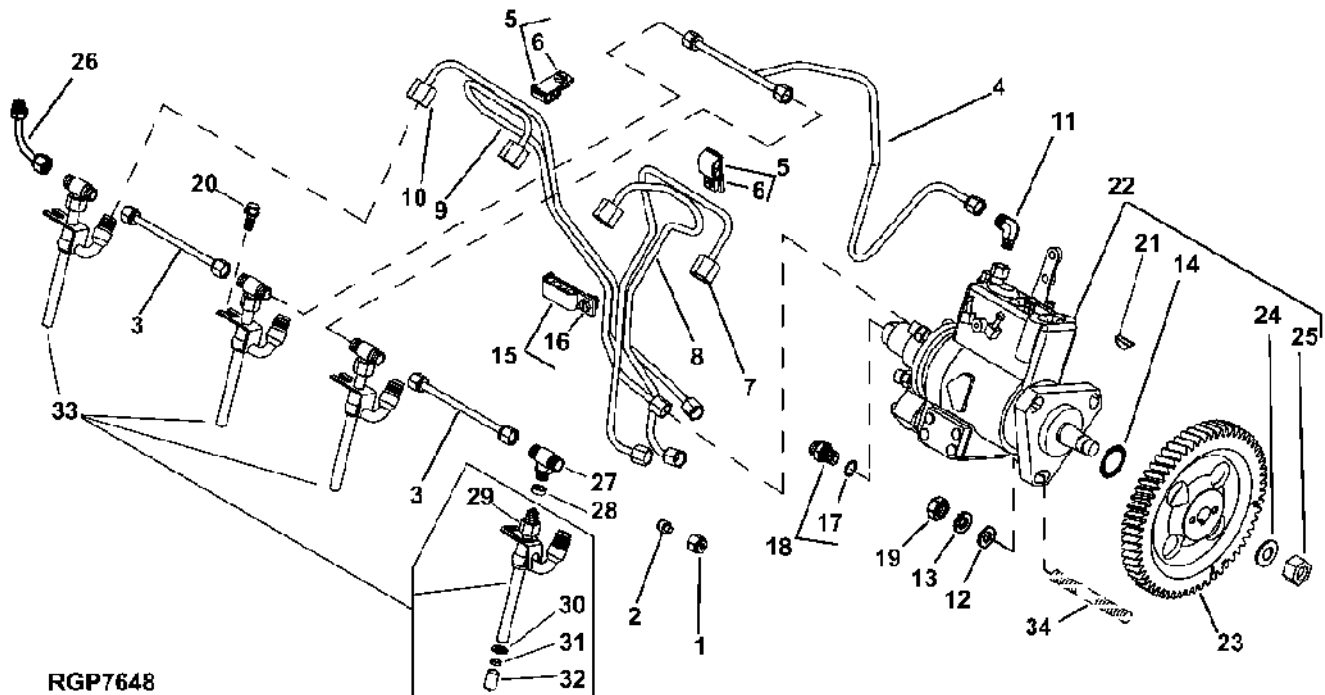
## Group 13: Rocker Arm Cover



| Item | Part Number | Description      | Quantity  |
|------|-------------|------------------|-----------|
|      |             |                  | Variation |
| 1    | 360004      | Plug             | 4         |
| 2    | 360138      | Nut              | 4         |
| 3    | 360139      | O-Ring           | 4         |
| 4    | 360507      | Rocker Arm Cover | 1         |
| 5    | GM50616     | Gasket           | 1         |
| 6    | GM91813     | Plug             | 1         |
| 7    | -           | Medallion        | 1         |



## Group 14: Fuel Injection Pump



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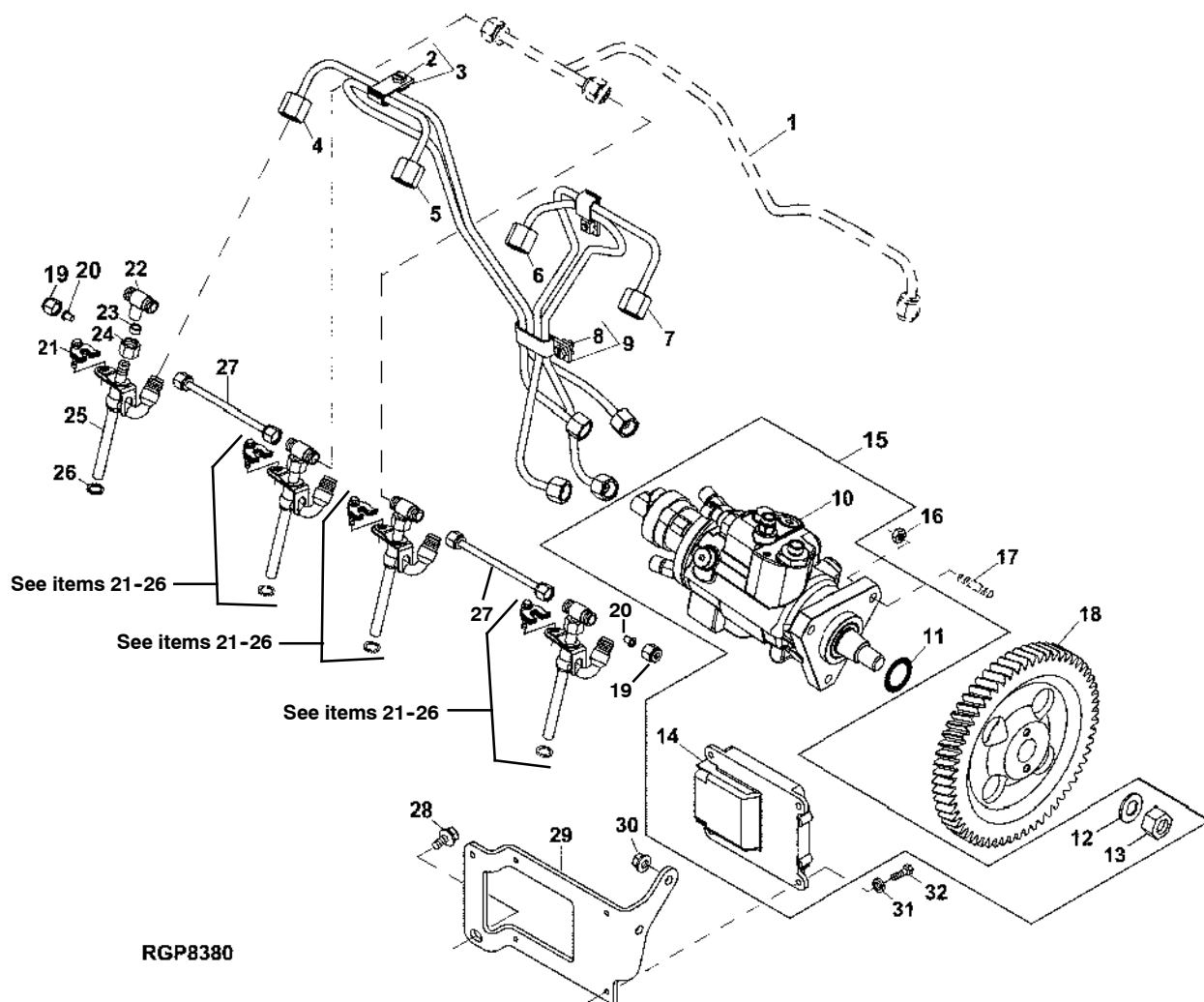
## Group 14: Fuel Injection Pump, continued

| Item | Part Number | Description                   | Quantity  |      |
|------|-------------|-------------------------------|-----------|------|
|      |             |                               | Variation |      |
|      |             |                               | 164X      | 164Y |
| 1    | 360141      | Nut                           | 2         | 2    |
| 2    | 223710      | Plug                          | 2         | 2    |
| 3    | 223504      | Tube                          | 2         | 2    |
| 4    | GM17549     | Fuel line                     | 1         | 1    |
| 5    | 223572      | Clamp                         | 2         | 2    |
| 6    | #           | Screw, M6 x 12                | 2         | 2    |
| 7    | 360536      | Fuel line, no. 1              | 1         | 1    |
| 8    | 360537      | Fuel line, no. 2              | 1         | 1    |
| 9    | 360538      | Fuel line, no. 3              | 1         | 1    |
| 10   | 360539      | Fuel line, no. 4              | 1         | 1    |
| 11   | 223837      | Elbow fitting                 | 1         | 1    |
| 12   | #           | Washer, lock, 8 mm            | 3         | 3    |
| 13   | 224338      | Washer                        | 3         | 3    |
| 14   | GM17487     | O-ring                        | 1         | 1    |
| 15   | 223573      | Clamp                         | 1         | 1    |
| 16   | #           | Screw, M6 x 12                | 1         | 1    |
| 17   | 360178      | O-ring                        | 1         | 1    |
| 18   | 360037      | Fitting                       | 1         | 1    |
| 19   | #           | Nut, M8                       | 3         | 3    |
| 20   | 360091      | Screw                         | 4         | 4    |
| 21   | —           | Not used                      | —         | —    |
| 22   | GM32841     | Pump, fuel injection          | 1         |      |
| 22   | GM32842     | Pump, fuel injection          |           | 1    |
| 23   | 360153      | Gear, 60 teeth                | 1         | 1    |
| 24   | GM17456     | Washer                        | 1         | 1    |
| 25   | 224161      | Nut                           | 1         | 1    |
| 26   | —           | See Group 17                  | —         | —    |
| 27   | GM21513     | Tee fitting                   | 4         | 4    |
| 28   | 223518      | Washer                        | 4         | 4    |
| 29   | 223517      | Tube nut                      | 1         | 1    |
| 30   | 224285      | Packing                       | 1         | 1    |
| 31   | GM17473     | Washer (standard nozzle bore) | 1         | 1    |
| 32   | 224257      | Plug                          | 1         | 1    |
| 33   | 360017      | Injection nozzle              | 4         | 4    |
| 34   | —           | See Group 32                  | 3         | 3    |
| 35   | GM32791     | Nut                           | 1         | 1    |
| 36   | GM32784     | Solenoid valve coil           | 1         | 1    |
| 37   | GM32783     | Valve                         | 1         | 1    |
| 38   | GM32785     | Seal                          | 1         | 1    |
| 39   | GM17487     | O-ring                        | 1         | 1    |
| 40   | GM21509     | Switch, temperature           | 1         | 1    |
| 41   | GM21508     | O-ring                        | 1         | 1    |
| 42   | GM21510     | Wiring harness                | 1         | 1    |
| 43   | X           | Connector                     | 1         | 1    |
| 44   | —           | See Group 5                   | 1         | 1    |

# Common hardware; procure locally.

X Not sold separately.

## Group 14: Fuel Injection Pump, continued



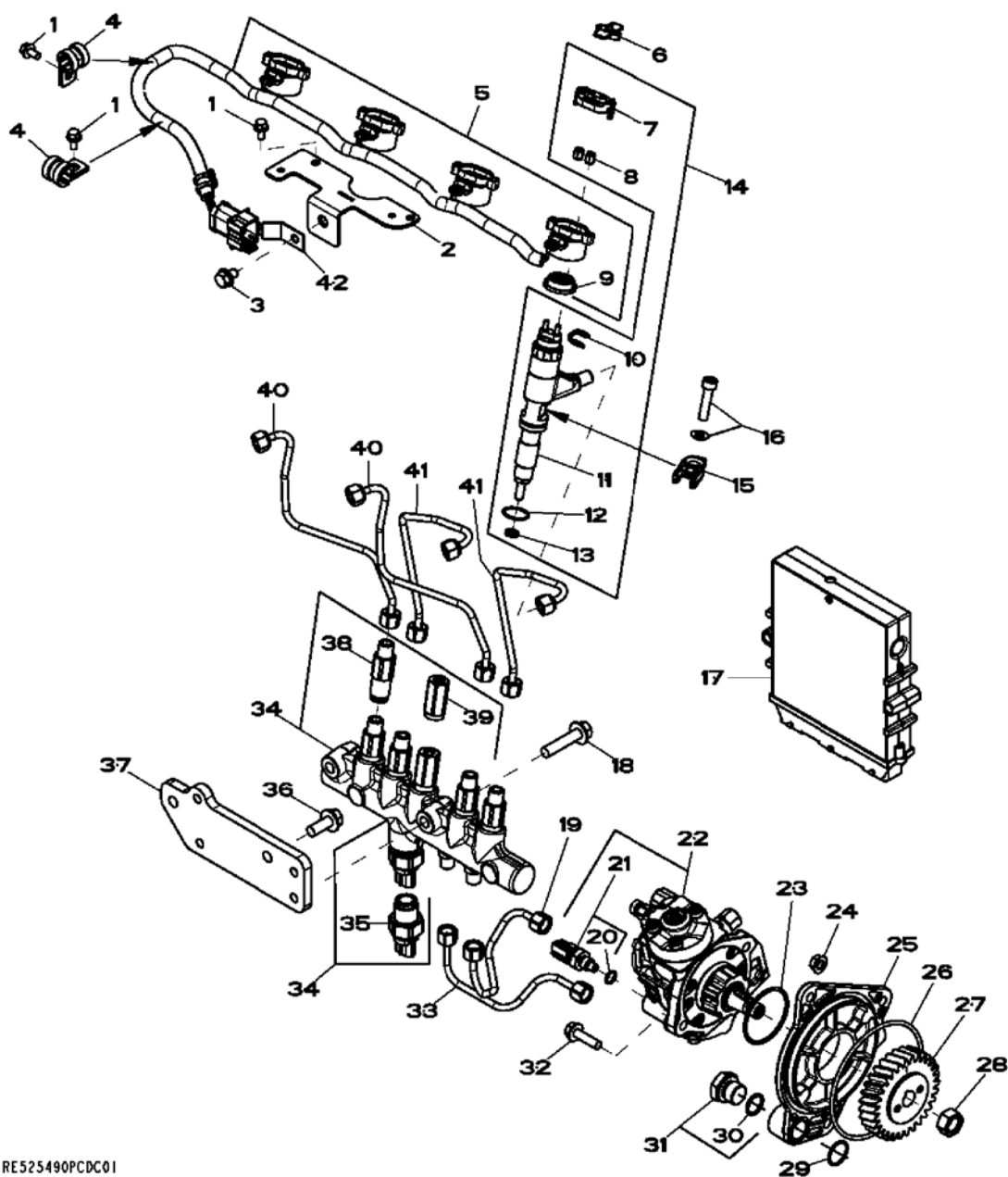
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## Group 14: Fuel Injection Pump, continued

| Item | Part Number | Description                   | Quantity  |      |      |      |
|------|-------------|-------------------------------|-----------|------|------|------|
|      |             |                               | Variation |      |      |      |
|      |             |                               | 163G      | 161G | 163W | 163Y |
| 1    | —           | See Group 15                  | 1         | 1    | 1    | 1    |
| 2    | #           | Screw                         | 2         | 2    | 2    | 2    |
| 3    | 223572      | Clamp                         | 2         | 2    | 2    | 2    |
| 4    | GM32818     | Fuel line, no. 4              | 1         | 1    | 1    | 1    |
| 5    | GM32817     | Fuel line, no. 3              | 1         | 1    | 1    | 1    |
| 6    | GM32816     | Fuel line, no. 2              | 1         | 1    | 1    | 1    |
| 7    | GM32815     | Fuel line, no. 1              | 1         | 1    | 1    | 1    |
| 8    | #           | Screw                         | 1         | 1    | 1    | 1    |
| 9    | 223573      | Clamp                         | 1         | 1    | 1    | 1    |
| 10   | GM32839     | Pump, fuel injection          | 1         | 1    | 1    | 1    |
| 11   | GM17487     | O-ring                        | 1         | 1    | 1    | 1    |
| 12   | GM17456     | Washer                        | 1         | 1    | 1    | 1    |
| 13   | 224161      | Nut                           | 1         | 1    | 1    | 1    |
| 14   | GM32840     | Controller, engine (ECU) 24 V |           | 1    |      |      |
| 14   | GM32844     | Controller, engine (ECU) 12 V | 1         |      | 1    |      |
| 14   | GM32845     | Controller, engine (ECU) 24 V |           |      |      | 1    |
| 15   | GM32835     | Kit, pump/controller          |           | 1    |      |      |
| 15   | GM32834     | Kit, pump/controller          | 1         |      | 1    |      |
| 16   | #           | Nut, flange                   | 3         | 3    | 3    | 3    |
| 17   | —           | See Group 32                  | 1         | 1    | 1    | 1    |
| 18   | GM32798     | Gear                          | 1         | 1    | 1    | 1    |
| 19   | 360141      | Nut                           | 2         | 2    | 2    | 2    |
| 20   | 223710      | Plug                          | 2         | 2    | 2    | 2    |
| 21   | GM32825     | Clamp                         | 4         | 4    | 4    | 4    |
| 22   | GM21513     | Tee fitting                   | 4         | 4    | 4    | 4    |
| 23   | 223518      | Washer                        | 4         | 4    | 4    | 4    |
| 24   | 223517      | Tube nut                      | 4         | 4    | 4    | 4    |
| 25   | GM32819     | Nozzle, injection             | 4         | 4    |      |      |
| 25   | 360017      | Nozzle, injection             |           |      | 4    | 4    |
| 26   | 224285      | Packing                       | 4         | 4    | 4    | 4    |
| 27   | 223504      | Tube                          | 2         | 2    | 2    | 2    |
| 27   | 223476      | Sealing washer                |           |      | 2    | 2    |
| 28   | #           | Screw, M10 x 20               | 1         | 1    | 1    | 1    |
| 29   | GM32793     | Bracket                       | 1         | 1    | 1    | 1    |
| 30   | #           | Nut, flange                   | 2         | 2    | 2    | 2    |
| 31   | #           | Washer                        | 4         | 4    | 4    | 4    |
| 32   | #           | Screw, cap                    | 4         | 4    | 4    | 4    |

# Common hardware; procure locally.

## Group 14: Fuel Injection Pump, continued



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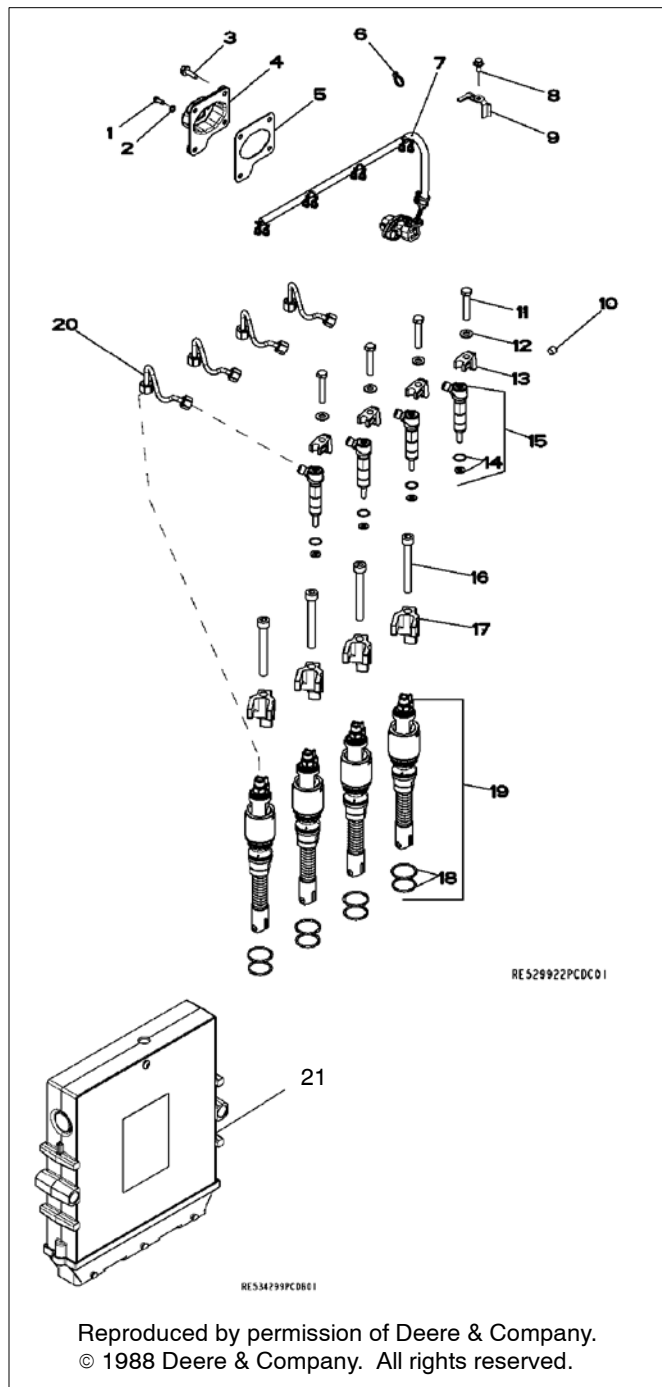
## Group 14: Fuel Injection Pump, continued

| Item | Part Number | Description              | Quantity Variation 16A5 |
|------|-------------|--------------------------|-------------------------|
| 1    | GM50033     | Cap screw                | 1                       |
| 2    | GM49924     | Bracket                  | 1                       |
| 3    | GM50057     | Screw                    | 4                       |
| 4    | GM50086     | Clamp                    | 2                       |
| 5    | GM52520     | Wiring harness           | 1                       |
| 6    | —           | Cap                      | 1                       |
| 7    | GM50065     | Electrical connector cap | 4                       |
| 8    | GM46621     | Nut                      | 8                       |
| 9    | GM49915     | Seal                     | 1                       |
| 10   | GM49918     | Washer, sealing          | AR                      |
| 11   | —           | (Order item 14)          | 4                       |
| 12   | GM46681     | O-ring                   | 4                       |
| 13   | GM49927     | Washer, sealing          | 4                       |
| 14   | GM52521     | Kit, injector            | 4                       |
| 15   | GM49883     | Clamp                    | 4                       |
| 16   | GM50059     | Screw with washer        | 4                       |
| 17   | GM50042     | Engine controller        | 1                       |
| 18   | #           | Screw, M10 x 45          | 2                       |
| 19   | GM50049     | Fuel line                | 1                       |
| 20   | GM52522     | O-ring                   | 1                       |
| 21   | GM46641     | Fuel temperature sensor  | 1                       |
| 22   | GM50052     | Fuel injection pump      | 1                       |
| 22   | GM77158     | Control Valve            | 1                       |
| 23   | GM46643     | O-ring                   | 1                       |
| 24   | #           | Flange nut, M8           | 3                       |
| 25   | GM46647     | Adapter                  | 1                       |
| 26   | GM46644     | O-ring                   | 1                       |
| 27   | GM46645     | Gear                     | 1                       |
| 28   | 224161      | Nut                      | 1                       |
| 29   | GM46646     | O-ring                   | 1                       |
| 30   | 360180      | O-ring, 17.3 x 2.2 mm    | 1                       |
| 31   | 360078      | Plug, drain              | 1                       |
| 32   | #           | Screw, M8 x 30           | 2                       |
| 33   | GM50050     | Fuel line                | 1                       |
| 34   | GM52523     | Rail                     | 1                       |
| 35   | GM49988     | Sensor                   | 1                       |
| 36   | #           | Screw, M10 x 25          | 2                       |
| 37   | GM52524     | Bracket                  | 1                       |
| 38   | GM46637     | Restrictor               | 4                       |
| 39   | GM49936     | Pressure relief valve    | 1                       |
| 40   | GM50044     | Fuel line                | 2                       |
| 41   | GM50043     | Fuel line                | 2                       |
| 42   | GM49889     | Bracket                  | 1                       |

AR As Required

# Common hardware; procure locally.

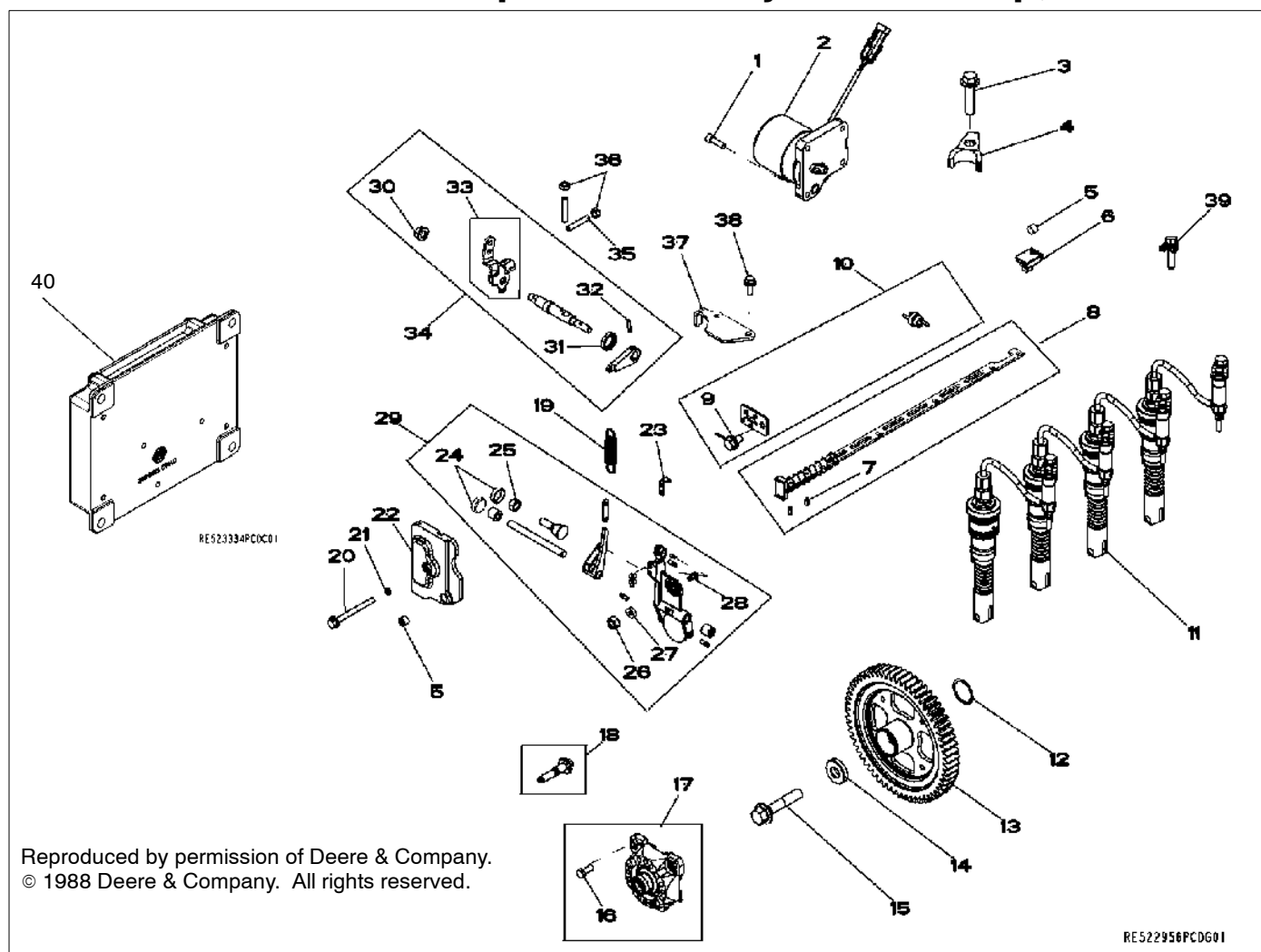
## Group 14: Fuel Injection Pump, continued



| Item | Part Number | Description                   | Quantity  |      |
|------|-------------|-------------------------------|-----------|------|
|      |             |                               | Variation |      |
|      |             |                               | 1646      | 1662 |
| 1    | #           | Cap screw, M5 x 12            | 2         | 2    |
| 2    | #           | Washer                        | 2         | 2    |
| 3    | #           | Screw, M6 x 20                | 4         | 4    |
| 4    | GM63782     | Cover                         | 1         | 1    |
| 5    | GM63784     | Gasket                        | 1         | 1    |
| 6    | GM63754     | Tie band                      | 1         | 1    |
| 7    | GM63883     | Wiring harness                | 1         |      |
| 7    | GM63884     | Wiring harness                |           | 1    |
| 8    | #           | Screw, M6 x 12                | 1         | 1    |
| 9    | GM63781     | Bracket                       | 1         | 1    |
| 10   | #           | Pipe plug, 3.175 mm (1/8 in.) | 1         | 1    |
| 11   | #           | Cap screw, M8 x 45            | 5         | 4    |
| 12   | 224338      | Washer                        | 5         | 4    |
| 13   | GM63773     | Clamp                         | 5         | 4    |
| 14   | GM63893     | Seal kit                      | 5         | 4    |
| 15   | GM63882     | Injection nozzle              | 5         | 4    |
| 16   | #           | Screw, M10 x 85               | 5         | 4    |
| 17   | —           | Clamp                         | 5         | 4    |
| 18   | GM63890     | O-ring kit                    | 5         | 4    |
| 19   | GM63902     | Fuel injection pump           | 5         | 4    |
| 20   | GM63879     | Fuel line                     | 5         | 4    |
| 21   | GM63876     | Engine controller             | 1         | 1    |

# Common hardware; procure locally.

## Group 14: Fuel Injection Pump, continued

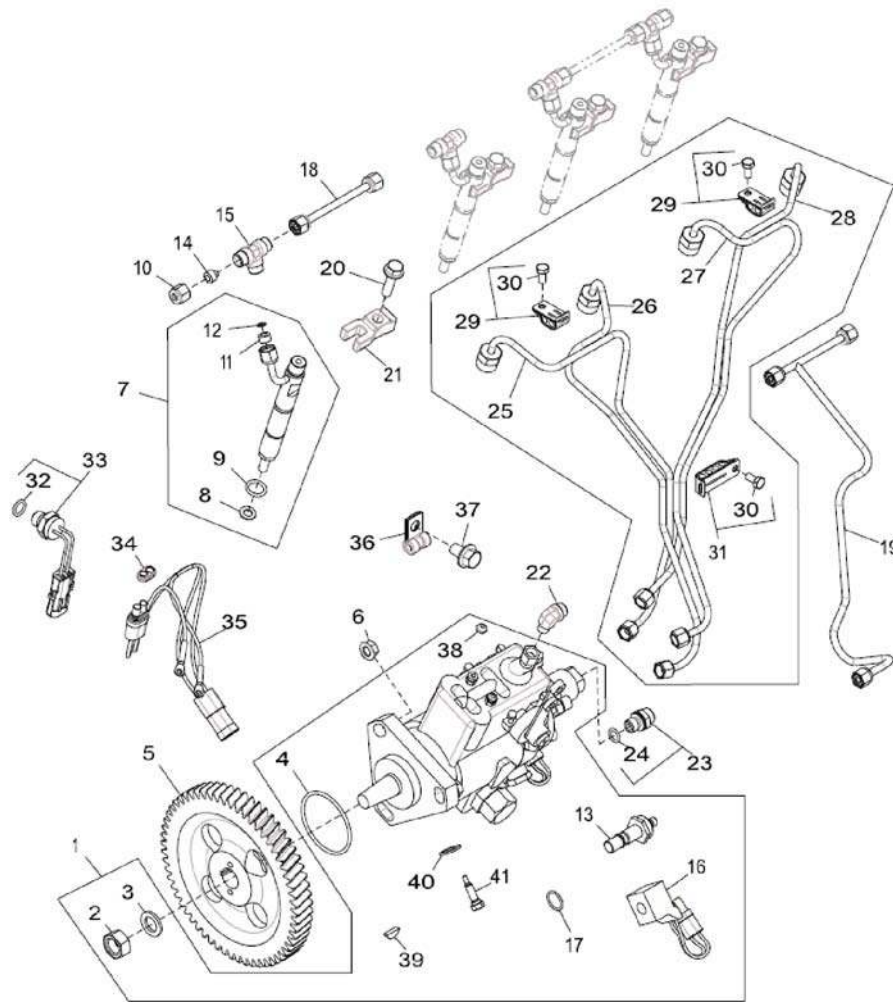


| Item | Part Number | Description                   | Quantity       | Item | Part Number | Description           | Quantity       |
|------|-------------|-------------------------------|----------------|------|-------------|-----------------------|----------------|
|      |             |                               | Variation 1632 |      |             |                       | Variation 1632 |
| 1    | #           | Screw, M6 x 20                | 4              | 21   | 223665      | O-ring                | 2              |
| 2    | GM63843     | Actuator                      | 1              | 22   | GM63765     | Cover                 | 1              |
| 3    | #           | Screw, M10 x 45               | 4              | 23   | GM63739     | Leaf spring           | 1              |
| 4    | GM63788     | Clamp                         | 4              | 24   | GM63719     | Plug                  | 2              |
| 5    | #           | Pipe plug, 3.175 mm (1/8 in.) | 2              | 25   | #           | Nut                   | 1              |
| 6    | GM63844     | Rack                          | 1              | 26   | #           | Nut, M8               | 1              |
| 7    | #           | Spring pin                    | 2              | 27   | —           | Plate (order item 29) | 1              |
| 8    | GM63846     | Rack kit                      | 1              | 28   | —           | Screw (order item 29) | 1              |
| 9    | #           | Screw, M8 x 12                | 1              | 29   | GM63872     | Governor kit          | 1              |
| 10   | GM63837     | Guide kit                     | 1              | 30   | #           | Flange nut, M8        | 1              |
| 11   | GM63887     | Fuel pump                     | 4              | 31   | GM63807     | Seal                  | 1              |
|      | GM63840     | Seal kit                      | AR             | 32   | #           | Spring pin            | 1              |
| 12   | GM63728     | Shim                          | 1              | 33   | GM63850     | Lever                 | 1              |
| 13   | GM63714     | Spur gear                     | 1              | 34   | GM63861     | Throttle kit          | 1              |
| 14   | GM63748     | Washer                        | 1              | 35   | #           | Set Screw, M6 x 35    | 2              |
| 15   | GM63752     | Screw                         | 1              | 36   | #           | Nut, M6               | 2              |
| 16   | #           | Cap screw, M6 x 16            | 4              | 37   | GM63760     | Plate                 | 1              |
| 17   | GM63873     | Flywheel kit                  | 1              | 38   | #           | Screw, M6 x 16        | 2              |
| 18   | GM63857     | Magnet kit                    | 1              | 39   | GM63755     | Clamp                 | 4              |
| 19   | GM63738     | Extension spring              | 1              | 40   | GM63847     | Engine controller     | 1              |
| 20   | #           | Screw, M6 x 65                | 1              |      |             |                       |                |

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# Common hardware; procure locally.

## Group 14: Fuel Injection Pump, continued

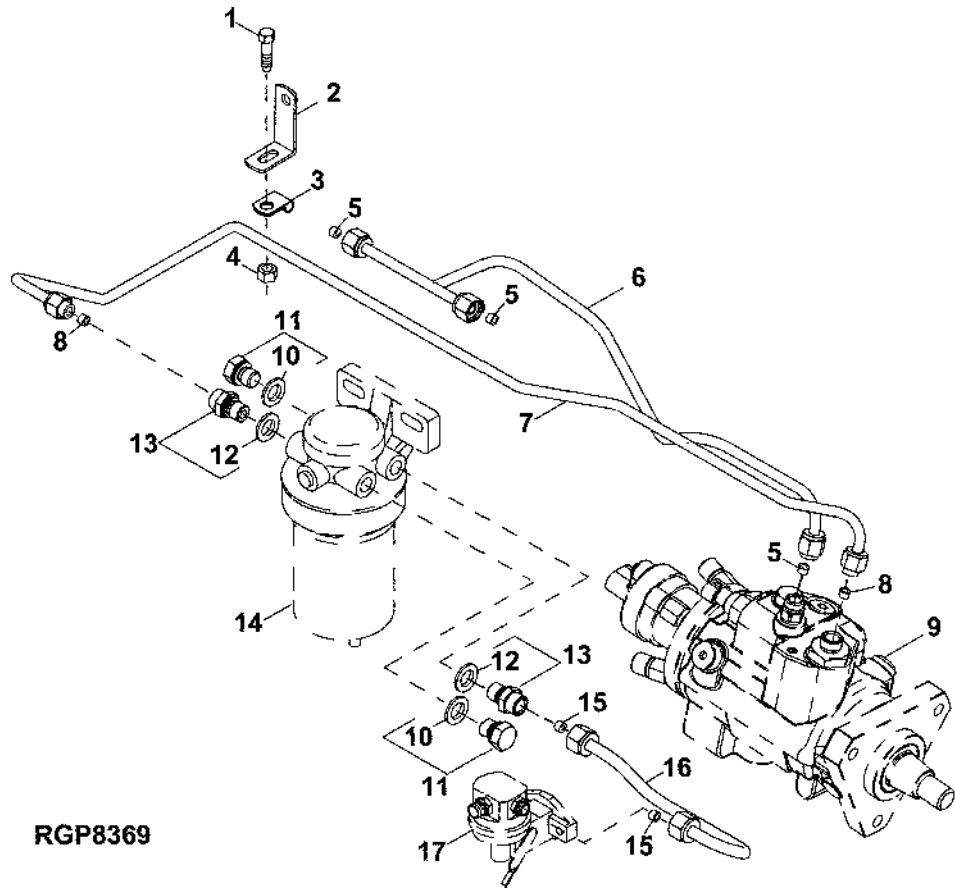


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| Item | Part Number | Description         | Quantity<br>Variation<br>16F8 |
|------|-------------|---------------------|-------------------------------|
| 1    | GM91814     | Fuel Injection Pump | 1                             |
| 2    | 224161      | Nut                 | 1                             |
| 3    | GM17456     | Washer              | 1                             |
| 4    | GM17487     | O-ring              | 1                             |
| 5    | 360153      | Gear                | 1                             |
| 6    | #           | Flange Nut, M8      | 3                             |
| 7    | GM91815     | Injection Nozzle    | 4                             |
| 8    | GM91816     | Washer              | 1                             |
| 9    | GM91817     | O-Ring              | 1                             |
| 10   | 360141      | Nut                 | 1                             |
| 11   | 223476      | Packing             | 1                             |
| 12   | GM91818     | Piston Ring         | 1                             |
| 13   | GM32783     | Valve               | 1                             |
| 14   | 223710      | Plug                | 2                             |
| 15   | 223912      | Tee Fitting         | 4                             |
| 16   | GM32784     | Solenoid valve coil | 1                             |
| 17   | GM32785     | Seal                | 1                             |
| 18   | GM91819     | Fuel Line           | 2                             |
| 19   | GM91820     | Fuel Line           | 1                             |
| 20   | #           | Screw, M8 X 30      | 4                             |
| 21   | GM91821     | Clamp               | 4                             |

| Item | Part Number | Description         | Quantity<br>Variation<br>16F8 |
|------|-------------|---------------------|-------------------------------|
| 22   | 223837      | Elbow Fitting       | 1                             |
| 23   | 360037      | Fitting             | 1                             |
| 24   | 360178      | O-Ring              | 1                             |
| 25   | GM91822     | Fuel Line           | 1                             |
| 26   | GM91823     | Line                | 1                             |
| 27   | GM91824     | Fuel Line           | 1                             |
| 28   | GM91825     | Fuel Line           | 1                             |
| 29   | 223572      | Clamp               | 2                             |
| 30   | #           | Cap Screw, M6 X 12  | 1                             |
| 31   | 223573      | Clamp               | 1                             |
| 32   | GM21508     | O-ring              | 1                             |
| 33   | GM91826     | Temperature Swith   | 1                             |
| 34   | GM50657     | Connector accessory | 1                             |
| 35   | GM21510     | Wiring harness      | 1                             |
| 36   | GM50659     | Clamp               | 1                             |
| 37   | #           | Screw, M10 X 16     | 1                             |
| 38   | GM32791     | Nut                 | 2                             |
| 39   | GM21499     | Shaft key           | 1                             |
| 40   | GM91827     | Lock Washer         | 1                             |
| 41   | GM91828     | Cap Screw And Nut   | 1                             |

## Group 15: Fuel Lines



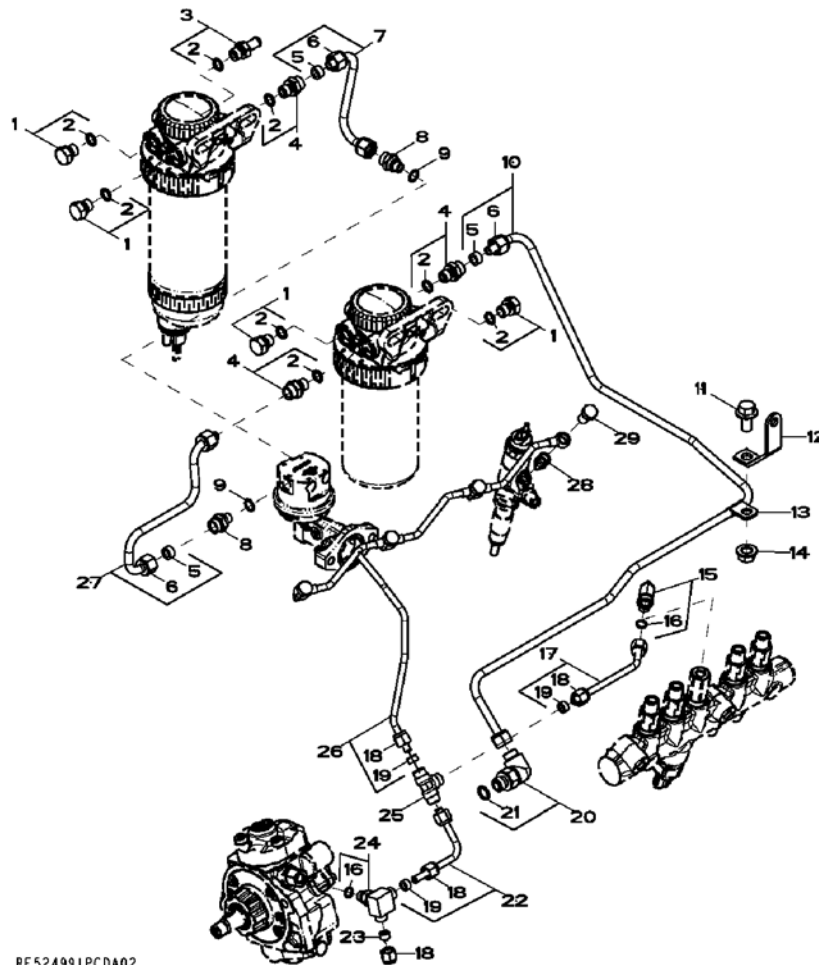
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| Item | Part Number | Description     | Quantity  |      |
|------|-------------|-----------------|-----------|------|
|      |             |                 | Variation |      |
|      |             |                 | 6313      | 6366 |
| 1    | #           | Screw, M10 x 20 | 1         | 1    |
| 2    | GM32797     | Bracket         | 1         | 1    |
| 3    | 360171      | Clamp           | 1         | 1    |
| 4    | #           | Flange nut, M10 | 1         | 1    |
| 5    | 223476      | Sealing washer  | 3         | 3    |
| 6    | GM32814     | Line, fuel      | 1         |      |
| 6    | GM32833     | Line, fuel      |           | 1    |
| 7    | GM32831     | Line, fuel      | 1         | 1    |
| 8    | GM17494     | Sealing washer  | 4         | 4    |
| 9    | —           | See Group 14    | 1         | 1    |
| 10   | 360178      | O-ring          | 2         | 2    |
| 11   | 360015      | Plug            | 2         | 2    |
| 12   | 360178      | O-ring          | 2         | 2    |
| 13   | 360037      | Adapter         | 2         | 2    |
| 14   | —           | See Group 17    | 1         | 1    |
| 15   | GM17494     | Sealing washer  | 4         | 4    |
| 16   | GM32830     | Line, fuel      | 1         | 1    |
| 17   | —           | See Group 16    | 1         | 1    |

# Common hardware; procure locally.

## Group 15: Fuel Lines, continued



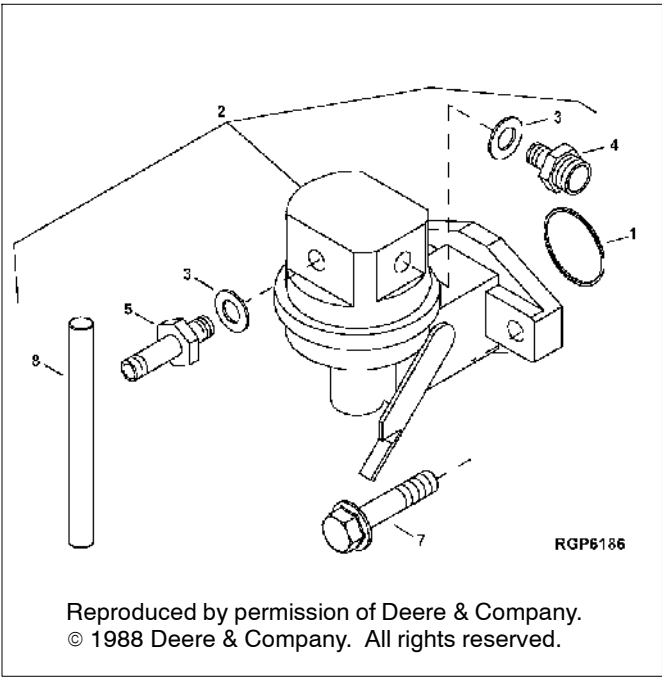
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| Item | Part Number | Description     | Quantity<br>Variation<br>6386 |
|------|-------------|-----------------|-------------------------------|
| 1    | 360015      | Plug            | 4                             |
| 2    | 360178      | O-ring          | 1                             |
| 3    | GM34530     | Adapter         | 1                             |
| 4    | 360037      | Fitting         | 3                             |
| 5    | GM17494     | Sealing washer  | 1                             |
| 6    | GM21453     | Nut             | 1                             |
| 7    | GM52525     | Fuel line       | 1                             |
| 8    | GM17470     | Fitting         | 2                             |
| 9    | GM17471     | O-ring          | 2                             |
| 10   | GM52526     | Fuel line       | 1                             |
| 11   | GM32765     | Screw           | 1                             |
| 12   | GM49832     | Bracket         | 1                             |
| 13   | 360171      | Clip            | 1                             |
| 14   | #           | Flange nut, M10 | 1                             |
| 15   | GM32920     | Fitting         | 1                             |

| Item | Part Number | Description     | Quantity<br>Variation<br>6386 |
|------|-------------|-----------------|-------------------------------|
| 16   | GM32896     | O-ring          | 1                             |
| 17   | GM50018     | Fuel line       | 1                             |
| 18   | 360141      | Nut             | 7                             |
| 19   | 223476      | Packing         | 6                             |
| 20   | GM50037     | Fitting, elbow  | 1                             |
| 21   | GM21508     | O-ring          | 1                             |
| 22   | GM50079     | Fuel line       | 1                             |
| 23   | 223710      | Plug            | 1                             |
| 24   | GM50026     | Fitting         | 1                             |
| 25   | 223912      | Tee fitting     | 1                             |
| 26   | GM52527     | Fuel line       | 1                             |
| 27   | GM32830     | Line, fuel      | 1                             |
| 28   | GM49918     | Washer, sealing | 4                             |
| 29   | GM32895     | Fitting         | 4                             |

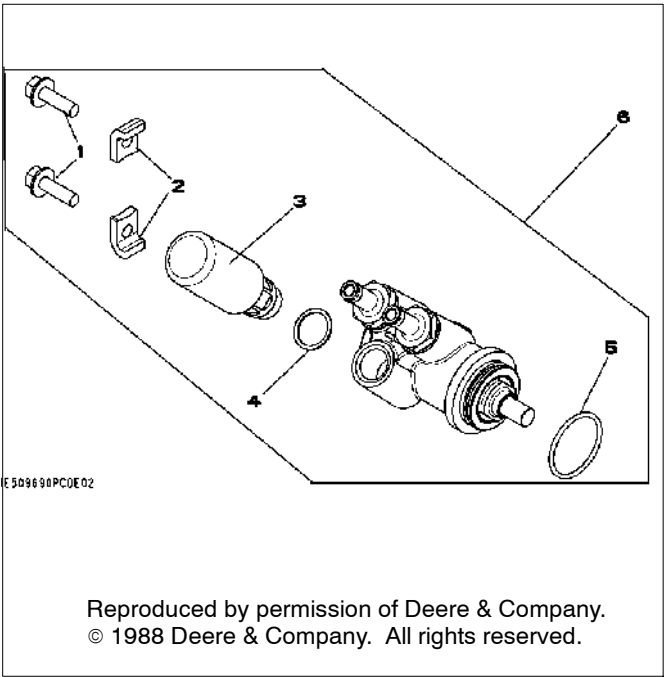
# Common hardware; procure locally.

# Group 16: Fuel Pump



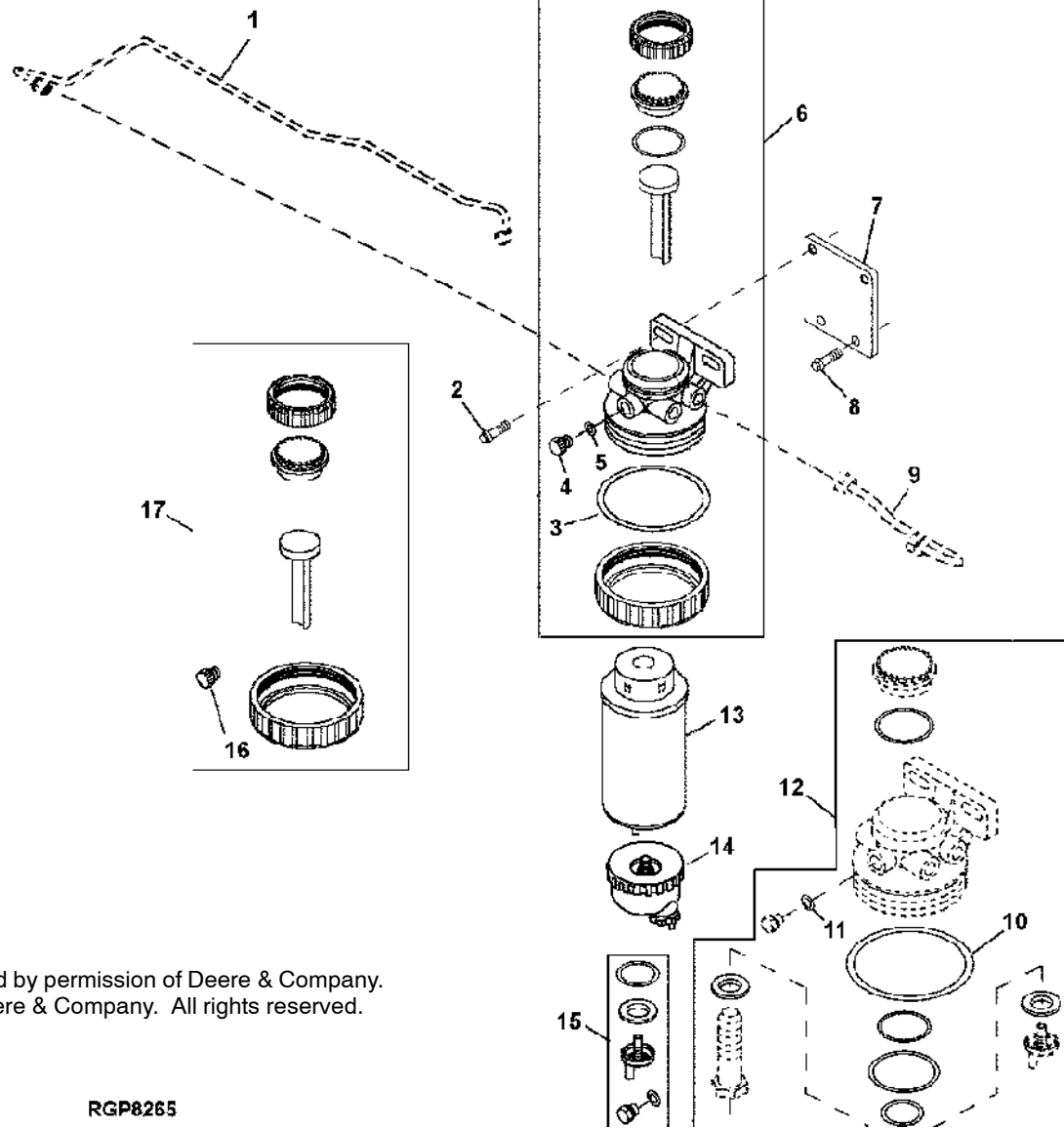
| Item | Part Number | Description         | Quantity  |      |
|------|-------------|---------------------|-----------|------|
|      |             |                     | Variation |      |
|      |             |                     | 3702      | 3713 |
| 1    | 360119      | O-ring              | 1         | 1    |
| 2    | 360071      | Pump, fuel transfer | 1         |      |
| 2    | GM52528     | Pump, fuel transfer |           | 1    |
| 3    | GM17471     | O-ring              | 2         |      |
| 4    | GM17470     | Fitting             | 1         |      |
| 5    | GM18722     | Fitting             | 1         |      |
| 7    | GM17525     | Screw, cap          | 2         | 2    |
| 8    | 360159      | Rod, push           | 1         | 1    |

# Common hardware; procure locally.



| Item | Part Number | Description            | Quantity  |      |      |
|------|-------------|------------------------|-----------|------|------|
|      |             |                        | Variation |      |      |
|      |             |                        | 3701      | 3709 | 3712 |
| 1    | #           | Screw, M6 x 20         | 2         | 2    | 2    |
| 2    | —           | Bracket                | 2         |      | 2    |
| 3    | GM18867     | Hand primer            | 1         |      | 1    |
| 4    | 223800      | Washer                 | 1         |      | 1    |
| 5    | GM63802     | O-ring kit             | 1         | 1    | 1    |
| 6    | GM63891     | Fuel pump              | 1         |      |      |
| 6    | GM64241     | Fuel pump (w/o primer) |           | 1    |      |
| 6    | GM63920     | Fuel pump              |           |      | 1    |

## Group 17: Fuel Filter



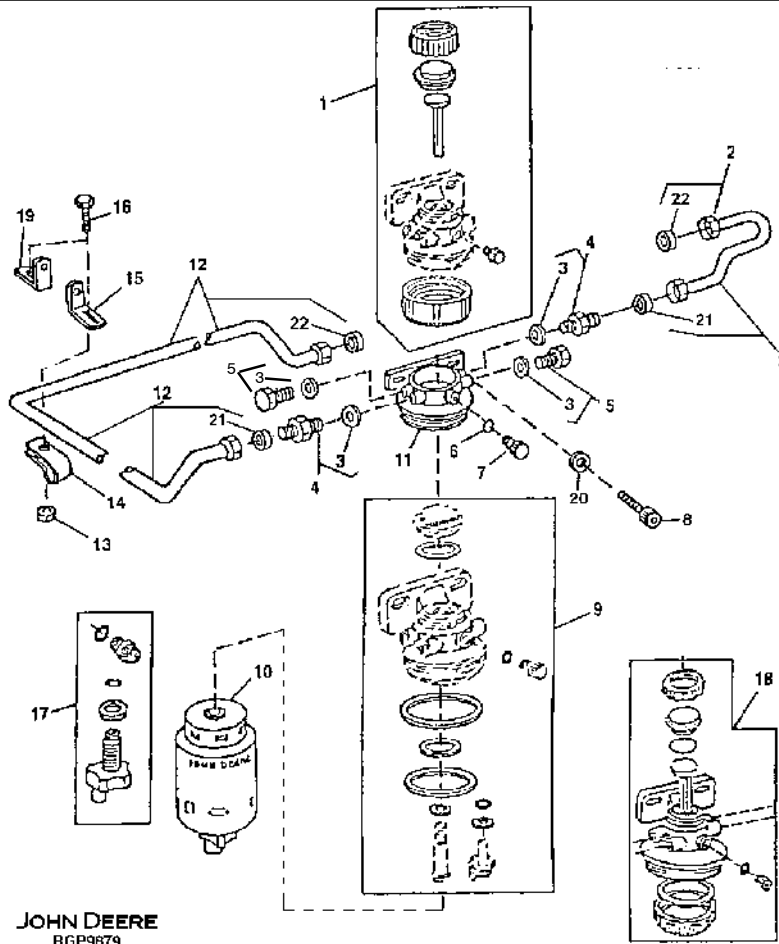
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RGP8265

| Item | Part Number | Description                     | Quantity       |
|------|-------------|---------------------------------|----------------|
|      |             |                                 | Variation 35BV |
| 1    | —           | Fuel line (See Group 15)        | 1              |
| 2    | #           | Screw                           | 2              |
| 3    | 222772      | Seal                            | 1              |
| 4    | GM17444     | Drain plug                      | 1              |
| 5    | 352053      | O-ring                          | 1              |
| 6    | GM32828     | Seal kit                        | 1              |
| 7    | GM32800     | Bracket                         | 1              |
| 8    | #           | Screw, M10 x 20                 | 2              |
| 9    | —           | Fuel line (See Group 15)        | 1              |
| 10   | GM32836     | Ring kit                        | 1              |
| 11   | 352053      | O-ring                          | 1              |
| 12   | GM32836     | Ring kit                        | 1              |
| 13   | GM32827     | Filter element                  | 1              |
| 14   | GM32731     | Bowl, sediment                  | 1              |
| 15   | 360048      | Kit, bleed plug and drain valve | 1              |
| 16   | GM17444     | Drain plug                      | 1              |
| 17   | 222773      | Seal kit                        | 1              |

# Common hardware; procure locally.

## Group 17: Fuel Filter, continued



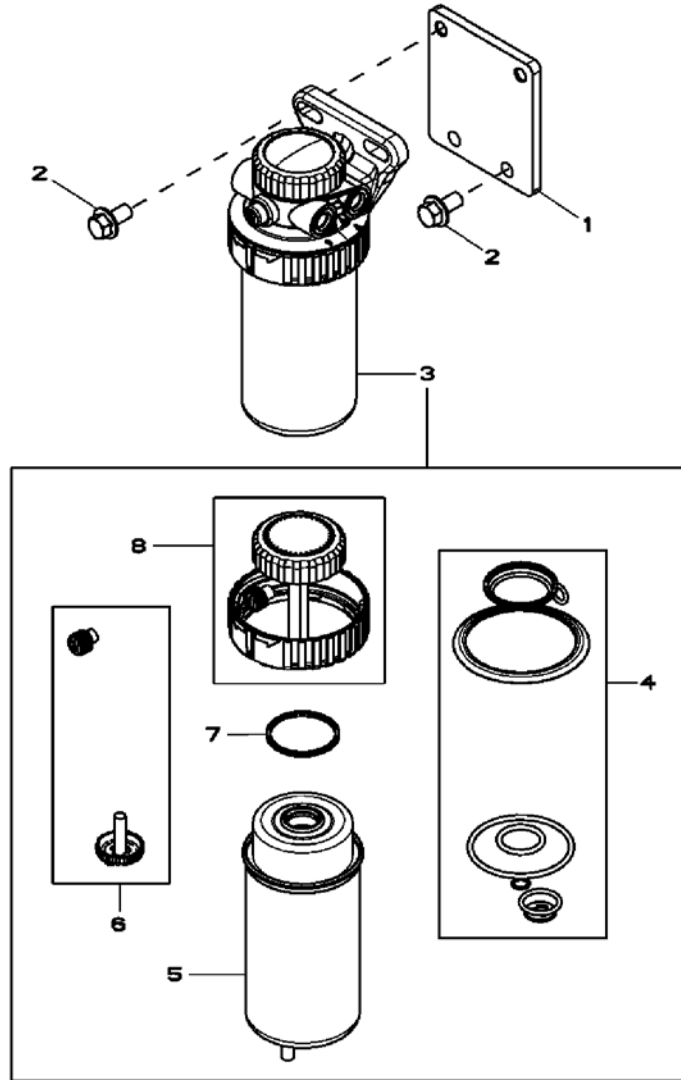
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| Item | Part Number | Description               | Quantity       |
|------|-------------|---------------------------|----------------|
|      |             |                           | Variation 3563 |
| 1    | 222773      | Seal kit                  | 1              |
| 2    | 275502      | Fuel line                 | 1              |
| 2    | GM17494     | Washer                    | 2              |
| 3    | 360178      | O-ring                    | 1              |
| 4    | 360037      | Adapter                   | 2              |
| 5    | 360015      | Plug                      | 1              |
| 6    | X           | O-ring (order item 17)    | 1              |
| 7    | X           | Plug (order item 17)      | 1              |
| 8    | #           | Screw, M10 x 25           | 2              |
| 9    | 222772      | Kit                       | 1              |
| 10   | 336661      | Filter, fuel              | 1              |
| 11   | GM17543     | Kit                       | 1              |
| 12   | GM17534     | Fuel line                 | 1              |
| 13   | #           | Nut, M8                   | 1              |
| 14   | 360171      | Clamp                     | 1              |
| 15   | 360088      | Bracket                   | 1              |
| 16   | #           | Screw, M8 x 16            | 1              |
| 17   | 360048      | Kit                       | 1              |
| 18   | GM17543     | Kit                       | 1              |
| 19   | 223492      | Strap                     | 1              |
| 20   | #           | Washer, 10.5 x 8 x 1.6 mm | 2              |
| 21   | GM17494     | Sealing washer            | 2              |
| 22   | GM17494     | Sealing washer            | 2              |
| 23   | GM32731     | Sediment bowl (not shown) | 1              |

# Common hardware; procure locally.

X Not sold separately

## Group 17: Fuel Filter, continued



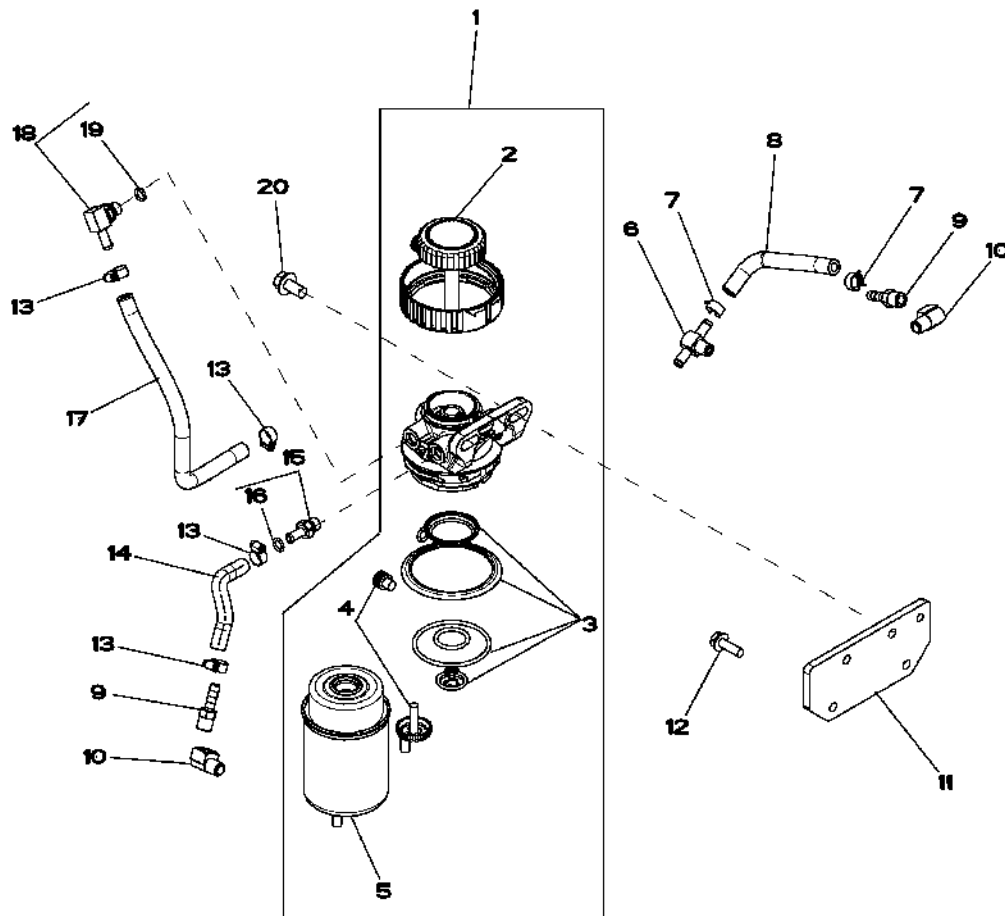
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| Item | Part Number | Description                     | Quantity<br>Variation<br>35ED |
|------|-------------|---------------------------------|-------------------------------|
| 1    | GM32800     | Bracket                         | 1                             |
| 2    | #           | Screw, M10 x 20                 | 4                             |
| 3    | GM50032     | Filter                          | 1                             |
| 4    | 222772      | Seal                            | 1                             |
| 5    | GM50006     | Filter element                  | 1                             |
| 6    | 360048      | Kit, bleed plug and drain valve | 1                             |
| 7    | GM32836     | Ring kit                        | 1                             |
| 8    | 222773      | Seal kit                        | 1                             |

# Common hardware; procure locally.

## Group 17: Fuel Filter, continued



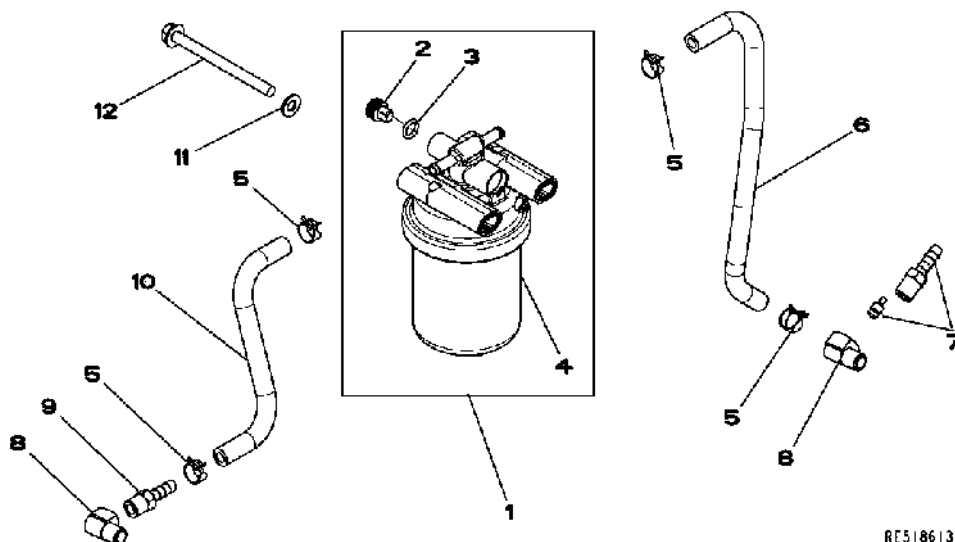
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| Item | Part Number | Description                   | Quantity  |      |      |      |
|------|-------------|-------------------------------|-----------|------|------|------|
|      |             |                               | Variation |      |      |      |
|      |             |                               | 3535      | 3538 | 3540 | 3543 |
| 1    | GM64242     | Filter (w/hand pump)          | 1         | 1    |      |      |
| 1    | GM63921     | Filter                        |           |      | 1    | 1    |
| 1    | GM64243     | Kit, hand pump (not shown)    | 1         | 1    |      |      |
| 2    | 222773      | Seal kit                      | 1         | 1    | 1    | 1    |
| 3    | 222772      | Seal kit                      | 1         | 1    | 1    | 1    |
| 4    | 360048      | Kit, bleed plug & drain valve | 1         | 1    | 1    | 1    |
| 5    | GM63894     | Filter element                | 1         | 1    | 1    | 1    |
| 6    | GM64244     | Tee fitting                   | 1         | 1    |      |      |
| 6    | GM63922     | Tee fitting                   |           |      | 1    | 1    |
| 7    | GM63751     | Hose clamp                    | 2         | 2    | 2    | 2    |
| 8    | GM63779     | Hose                          | 1         | 1    | 1    | 1    |
| 9    | GM63897     | Hose fitting                  | 2         | 2    | 2    | 2    |
| 10   | GM63896     | Elbow fitting                 | 2         | 2    | 2    | 2    |
| 11   | GM63794     | Bracket                       | 1         | 1    | 1    | 1    |
| 12   | #           | Screw, M8 x 25                | 2         | 2    | 2    | 2    |
| 13   | GM63929     | Clamp                         | 4         | 4    | 4    | 4    |
| 14   | GM63797     | Hose                          | 1         |      | 1    |      |
| 14   | GM63796     | Hose                          |           | 1    |      | 1    |
| 15   | GM63900     | Fitting                       | 1         | 1    | 1    | 1    |
| 16   | 360178      | O-ring                        | 1         | 1    | 1    | 1    |
| 17   | GM63795     | Hose                          | 1         | 1    | 1    | 1    |
| 18   | GM21454     | Fitting, hose                 | 1         | 1    | 1    | 1    |
| 19   | 360178      | O-ring                        | 1         | 1    | 1    | 1    |
| 20   | #           | Screw                         | 2         | 2    | 2    | 2    |

# Common hardware; procure locally.

## Group 17: Fuel Filter, continued

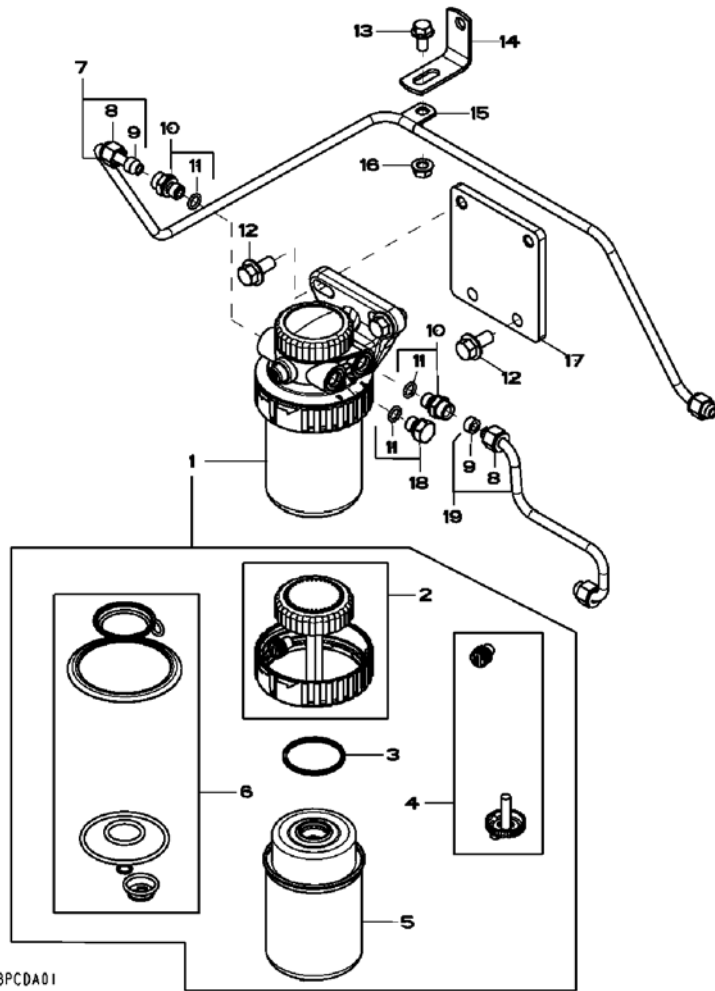


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| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 3505 |
| 1    | GM63863     | Fuel filter     | 1              |
| 2    | GM17444     | Drain plug      | 1              |
| 3    | 352053      | Ring            | 1              |
| 4    | GM63809     | Fuel filter     | 1              |
| 5    | GM63751     | Hose clamp      | 4              |
| 6    | GM21451     | Hose            | 1              |
| 7    | GM63810     | Hose fitting    | 1              |
| 8    | GM63896     | Elbow fitting   | 2              |
| 9    | GM63897     | Hose fitting    | 1              |
| 10   | GM21451     | Hose            | 1              |
| 11   | 224338      | Washer          | 2              |
| 12   | #           | Screw, M8 x 100 | 2              |

# Common hardware; procure locally.

## Group 17: Fuel Filter, continued



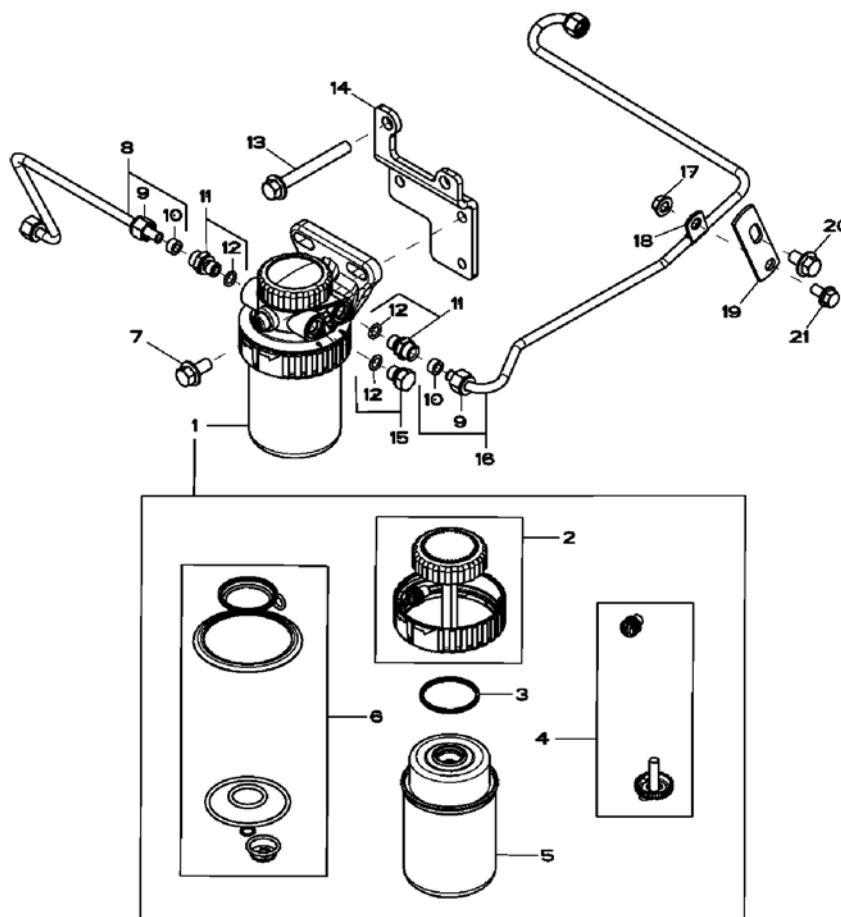
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| Item | Part Number | Description                   | Quantity       |
|------|-------------|-------------------------------|----------------|
|      |             |                               | Variation 35EU |
| 1    | GM91829     | Filter                        | 1              |
| 2    | 222773      | Seal Kit                      | 1              |
| 3    | GM32836     | Ring kit                      | 1              |
| 4    | 360048      | KIT, BLEED PLUG & DRAIN VALVE | 1              |
| 5    | GM91830     | Filter Element                | 1              |
| 6    | 222772      | Seal Kit                      | 1              |
| 7    | GM91831     | Fuel Line                     | 1              |
| 8    | GM21453     | Nut                           | AR             |
| 9    | GM17494     | Sealing washer                | AR             |
| 10   | 360037      | FITTING                       | 2              |
| 11   | 360178      | O-RING                        | 1              |
| 12   | GM32765     | Screw                         | 4              |
| 13   | #           | Screw, M8 X 16                | 1              |
| 14   | 360088      | Bracket                       | 1              |
| 15   | 360171      | CLIP                          | 1              |
| 16   | #           | Flange Nut, M8                | 1              |
| 17   | GM32800     | Bracket                       | 1              |
| 18   | 360015      | PLUG                          | 2              |
| 19   | GM32830     | Line, fuel                    | 1              |

# Common hardware; procure locally.

X Not sold separately

## Group 17: Fuel Filter, continued



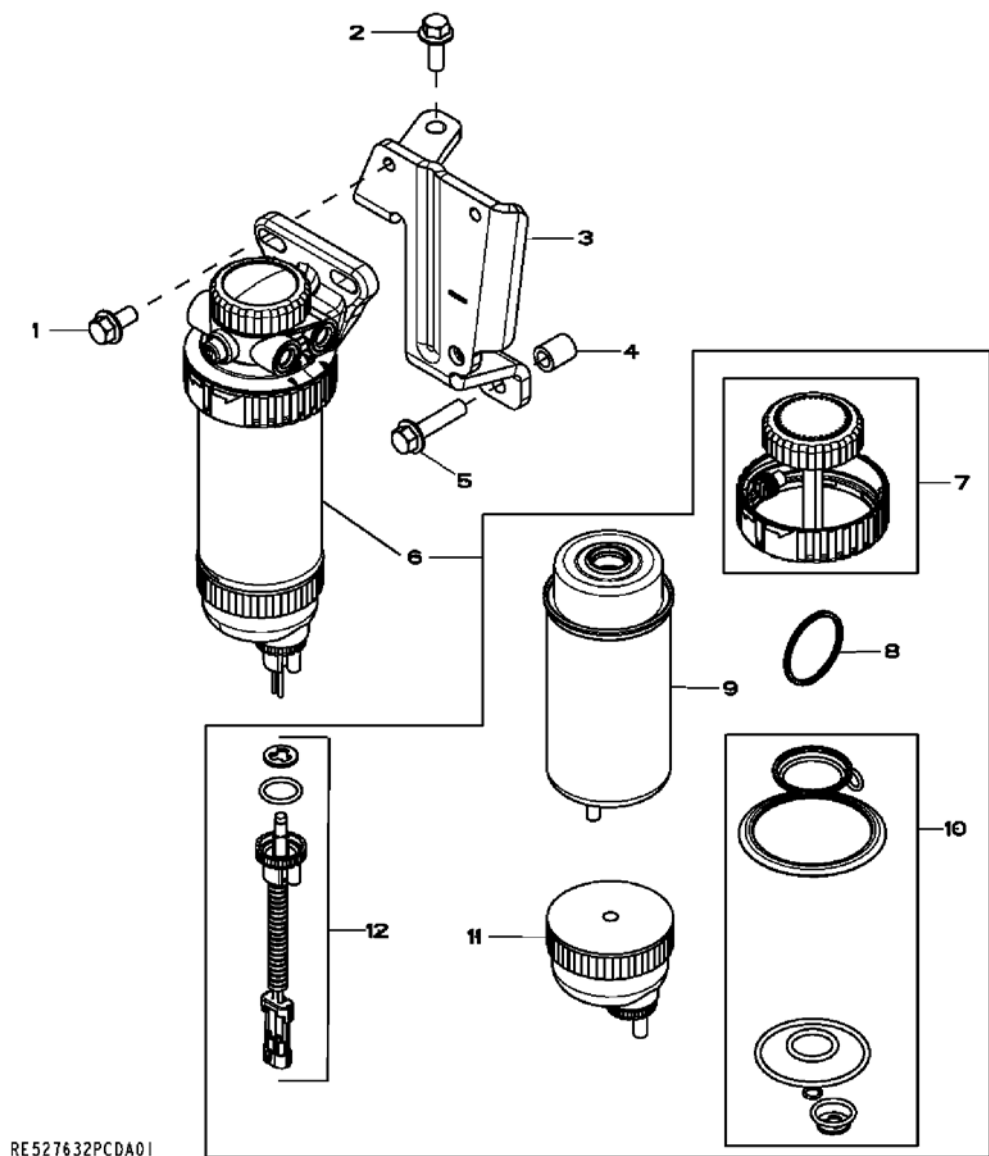
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| Item | Part Number | Description                   | Quantity<br>Variation<br>35EV |
|------|-------------|-------------------------------|-------------------------------|
| 1    | GM91829     | Filter                        | 1                             |
| 2    | 222773      | Seal Kit                      | 1                             |
| 3    | GM32836     | Ring kit                      | 1                             |
| 4    | 360048      | KIT, BLEED PLUG & DRAIN VALVE | 1                             |
| 5    | GM91830     | Filter Element                | 1                             |
| 6    | 222772      | Seal Kit                      | 1                             |
| 7    | GM32765     | Screw                         | 2                             |
| 8    | GM91834     | Fuel Line                     | 1                             |
| 9    | GM21453     | Nut                           |                               |
| 10   | GM17494     | Sealing washer                |                               |
| 11   | 360037      | FITTING                       | 2                             |
| 12   | 360178      | O-RING                        | 1                             |
| 13   | #           | Screw, M10 X 85               | 2                             |
| 14   | GM91835     | Bracket                       | 1                             |
| 15   | 360015      | PLUG                          | 2                             |
| 16   | GM91836     | Fuel Line                     | 1                             |
| 17   | #           | Flange Nut, M8                | 1                             |
| 18   | 360171      | CLIP                          | 1                             |
| 19   | 223492      | STRAP                         | 1                             |
| 20   | #           | Screw, M10 X 16               | 1                             |
| 21   | #           | Screw, M8 X 16                | 1                             |

# Common hardware; procure locally.

X Not sold separately

# Group 17B: Primary Fuel Filter



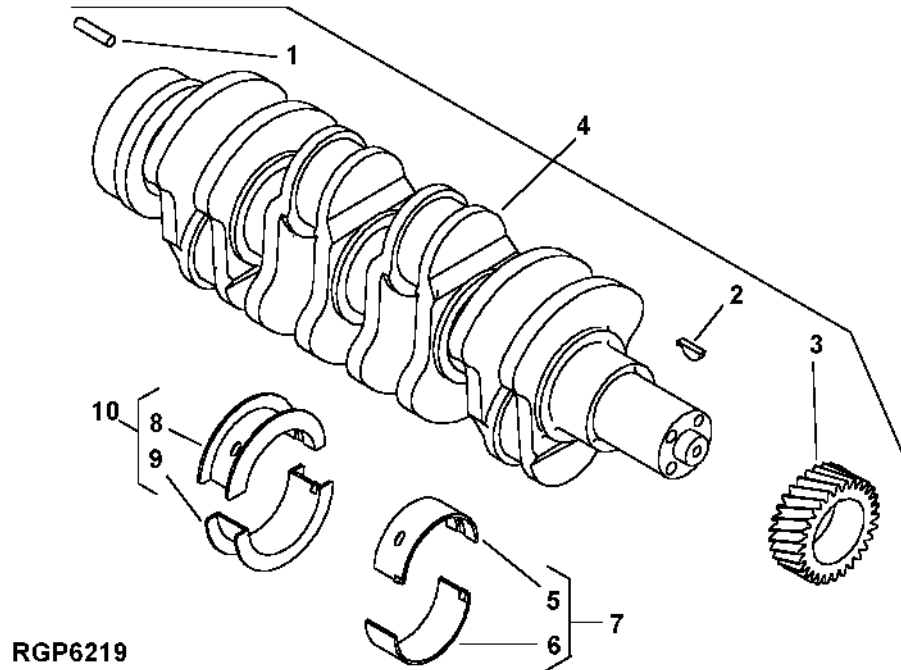
RE527632PCDA01

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| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 8170 |
| 1    | #           | Screw, M10 x 20 | 2              |
| 2    | #           | Screw, M10 x 25 | 1              |
| 3    | GM52539     | Bracket         | 1              |
| 4    | GM52540     | Spacer          | 1              |
| 5    | #           | Screw, M10 x 45 | 1              |
| 6    | GM50073     | Filter          | 1              |
| 7    | 222773      | Seal kit        | 1              |
| 8    | GM32836     | O-ring kit      | 1              |
| 9    | GM50074     | Filter element  | 1              |
| 10   | 222772      | Seal kit        | 1              |
| 11   | GM32731     | Sediment bowl   | 1              |
| 12   | GM49940     | Moisture sensor | 1              |

# Common hardware; procure locally.

## Group 18: Crankshaft

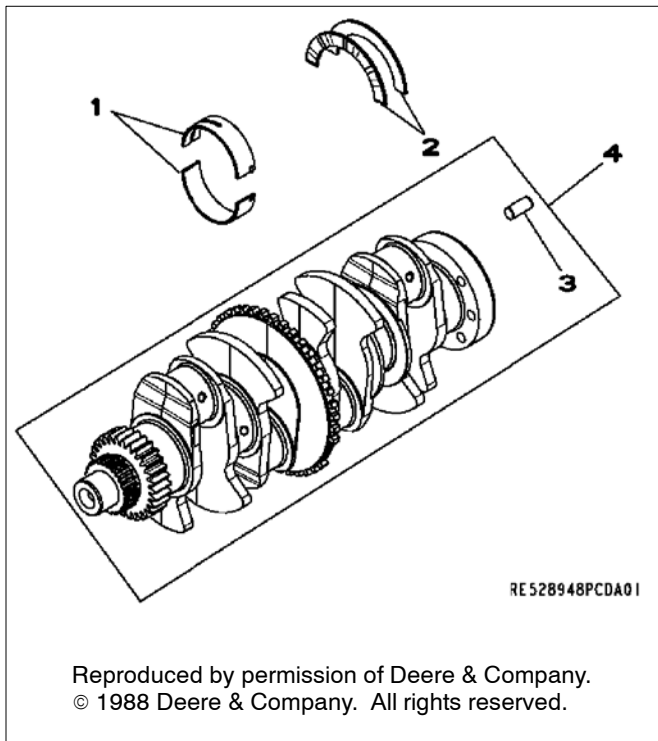


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| Item | Part Number | Description                     | Quantity       |
|------|-------------|---------------------------------|----------------|
|      |             |                                 | Variation 4715 |
| 1    | 223472      | Dowel pin                       | 1              |
| 2    | 360503      | Key, shaft                      | 1              |
| 3    | 360099      | Gear 30 teeth                   | 1              |
| 4    | GM32811     | Crankshaft                      | 1              |
| 5    | X           | Bearing (not sold separately)   | 4              |
| 6    | X           | Bearing (not sold separately)   | 4              |
| 7    | 360049      | Bearing kit, standard           | 4              |
| 7    | 360055      | Bearing kit, undersize 0.254 mm | 4              |
| 8    | X           | Bearing (not sold separately)   | 4              |
| 9    | X           | Bearing (not sold separately)   | 4              |
| 10   | 360050      | Bearing, standard               | 1              |
| 10   | 360056      | Bearing, undersize 0.254 mm     | 1              |
| —    | 360581      | Bolt, flywheel/crankshaft       | 4              |

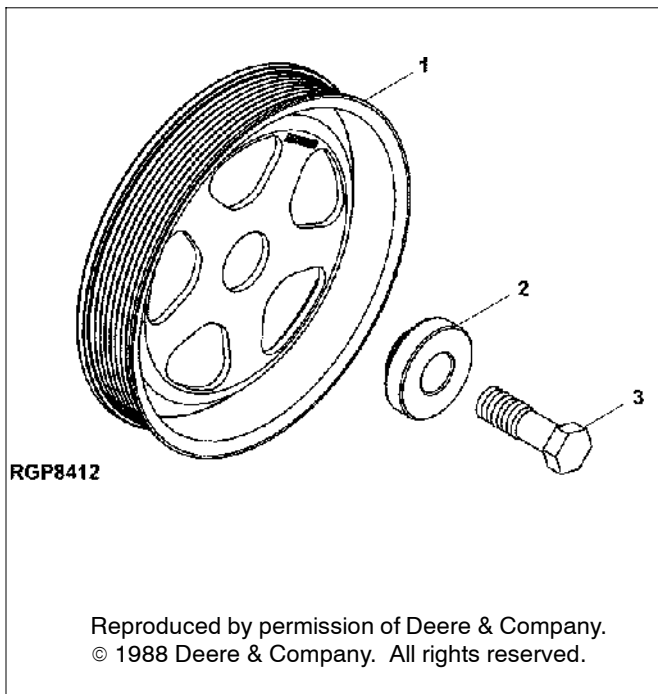
X Not sold separately.

## Group 18: Crankshaft, continued



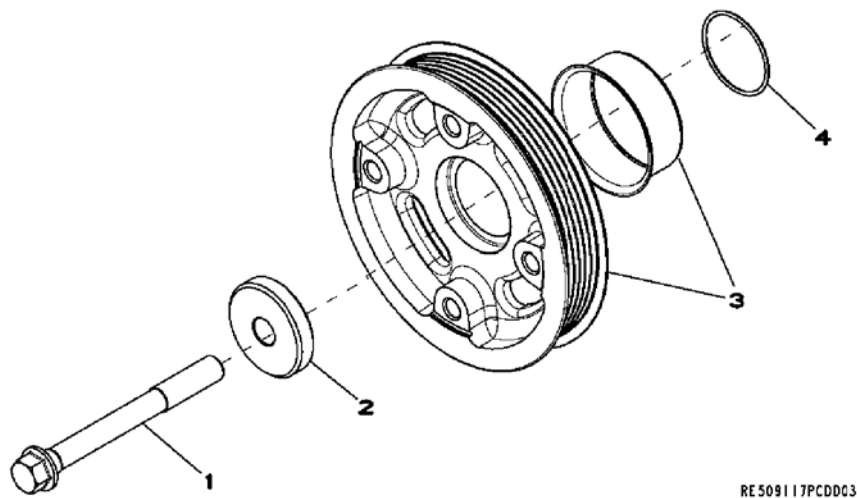
| Item | Part Number | Description          | Quantity  |      |      |
|------|-------------|----------------------|-----------|------|------|
|      |             |                      | Variation |      |      |
|      |             |                      | 4701      | 4703 | 4704 |
| 1    | GM63831     | Bearing kit std      | 5         | 5    | 6    |
| 1    | GM63855     | Bearing kit, 0.25 US | 5         | 5    | 5    |
| 2    | GM63832     | Thrust washer kit    | 1         | 1    | 1    |
| 3    | 223472      | Dowel pin            | 1         | 1    | 1    |
| 4    | GM63803     | Crankshaft           | 1         |      |      |
| 4    | GM63868     | Crankshaft           |           | 1    |      |
| 4    | GM63869     | Crankshaft           |           |      | 1    |

## Group 19: Crankshaft Pulley



| Item | Part Number | Description | Quantity  |      |
|------|-------------|-------------|-----------|------|
|      |             |             | Variation |      |
|      |             |             | 1327      | 1328 |
| 1    | GM37464     | Pulley      |           | 1    |
| 1    | GM32794     | Pulley      | 1         |      |
| 2    | GM32801     | Bushing     | 1         | 1    |
| 3    | GM32764     | Bolt        | 1         | 1    |

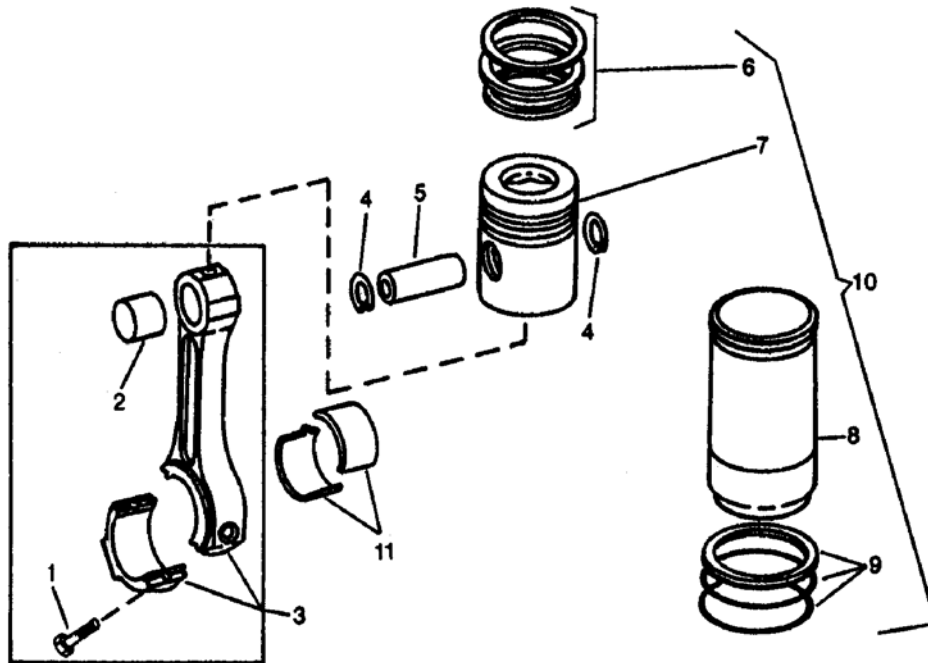
# Group 19: Crankshaft Pulley, continued



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| Item | Part Number | Description                         | Quantity  |      |
|------|-------------|-------------------------------------|-----------|------|
|      |             |                                     | Variation |      |
|      |             |                                     | 1301      | 1303 |
| 1    | GM63720     | Cap screw, M12 x 110                | 1         | 1    |
| 2    | GM63716     | Bushing                             | 1         | 1    |
| 3    | GM63829     | Pulley kit (also order seal 223422) | 1         |      |
| 3    | GM63845     | Pulley kit (also order seal 223422) |           | 1    |
| 4    | GM63924     | O-ring                              | 1         | 1    |

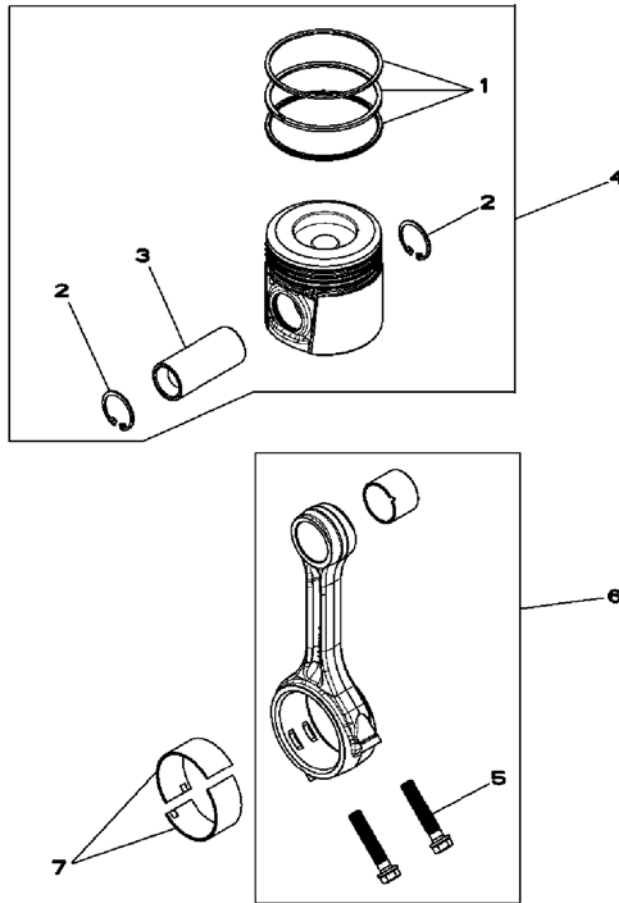
## Group 20: Piston and Connecting Rod



| Item | Part Number | Description                | Quantity |      |                   |      |      |
|------|-------------|----------------------------|----------|------|-------------------|------|------|
|      |             |                            | 4822     | 4823 | Variation<br>4838 | 4847 | 4843 |
| 1    | GM17477     | Screw                      | 8        | 8    | 8                 | 8    | 8    |
| 2    | GM17446     | Bushing                    | 6        |      | 4                 | 4    |      |
| 2    | GM17451     | Bushing                    |          | 6    |                   |      | 4    |
| 3    | GM17610     | Rod, connecting            | 4        |      | 4                 | 4    |      |
| 3    | GM17499     | Rod, connecting            |          | 4    |                   |      | 4    |
| 4    | 223479      | Ring, snap                 | 8        |      | 8                 | 8    |      |
| 4    | 223452      | Ring, snap                 |          | 8    |                   |      | 8    |
| 5    | GM17450     | Pin, piston                | 6        |      |                   |      |      |
| 5    | 360114      | Pin, piston                |          | 6    |                   |      | 4    |
| 5    | GM46667     | Pin, piston                |          |      | 4                 | 4    |      |
| 6    | GM32821     | Kit, piston ring           | 4        | 4    |                   |      | 4    |
| 6    | GM50056     | Kit, piston ring           |          |      | 4                 | 4    |      |
| 7    | X           | Not sold separately        | 4        | 4    | 4                 | 4    | 4    |
| 8    | X           | Not sold separately        | 4        | 4    | 4                 | 4    | 4    |
| 9    | 223419      | Kit, O-ring                | 4        | 4    | 4                 | 4    | 4    |
| 10   | GM32820     | Kit, piston liner          | 4        |      |                   |      |      |
| 10   | GM32823     | Kit, piston liner          |          | 4    |                   |      |      |
| 10   | GM50055     | Kit, piston liner          |          |      | 4                 | 4    |      |
| 10   | GM91837     | Kit, piston liner          |          |      |                   |      | 4    |
| 11   | 360053      | Bearing, standard          | 4        | 4    | 4                 | 4    | 4    |
| 11   | 360054      | Bearing, 0.25 mm undersize | 4        | 4    | 4                 | 4    | 4    |

X Not sold separately.

## Group 20: Piston and Connecting Rod, continued

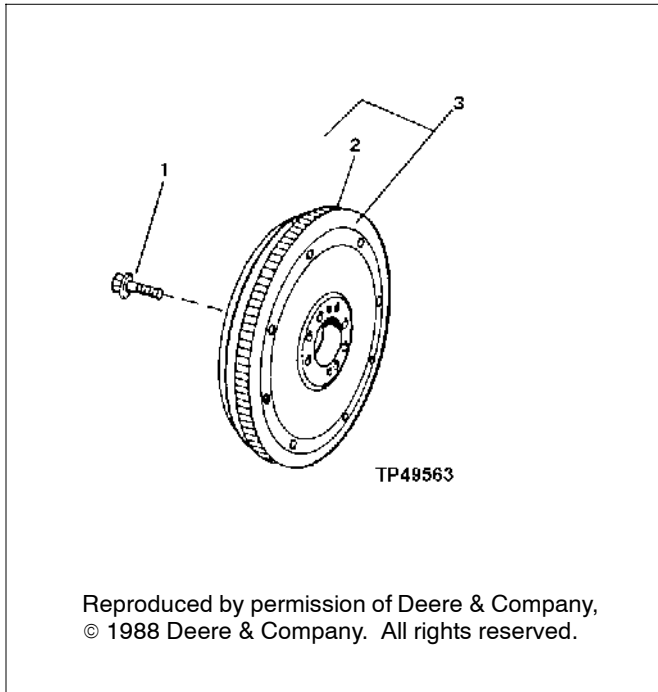


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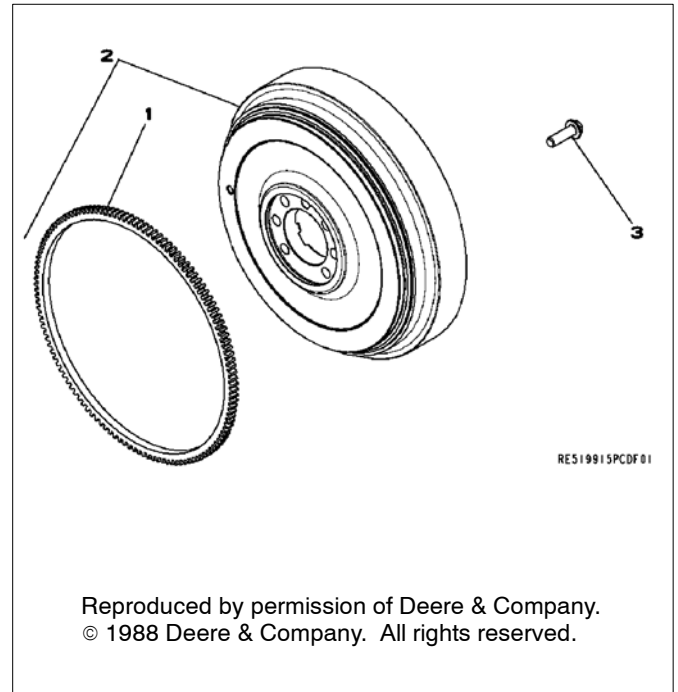
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| Item | Part Number | Description                     | Quantity  |      |      |
|------|-------------|---------------------------------|-----------|------|------|
|      |             |                                 | Variation |      |      |
|      |             |                                 | 4806      | 4814 | 4815 |
| 1    | GM63834     | Piston ring kit std.            | 4         |      |      |
| 1    | GM63899     | Piston ring kit std.            |           | 4    | 5    |
| 1    | GM63853     | Piston ring kit, 0.25 OS        | 4         |      |      |
| 1    | GM63913     | Piston ring kit, 0.25 OS        |           | 4    | 5    |
| 1    | GM63854     | Piston ring kit, 0.50 OS        | 4         |      |      |
| 1    | GM63914     | Piston ring kit, 0.50 OS        |           | 4    | 5    |
| 2    | GM63704     | Snap ring                       | 8         | 8    | 8    |
| 3    | GM63717     | Piston pin                      | 4         | 4    | 5    |
| 4    | GM63842     | Piston replacement kit std.     | 4         |      |      |
| 4    | GM63915     | Piston replacement kit std.     |           | 4    | 5    |
| 4    | GM63852     | Piston replacement kit, 0.25 OS | 4         |      |      |
| 4    | GM63916     | Piston replacement kit, 0.25 OS |           | 4    | 5    |
| 4    | GM63854     | Piston replacement kit, 0.50 OS | 4         |      |      |
| 4    | GM63917     | Piston replacement kit, 0.50 OS |           | 4    | 5    |
| 5    | GM63713     | Screw, M10 x 49                 | 8         | 8    | 10   |
| 6    | GM63801     | Connecting rod                  | 4         | 4    | 5    |
| 7    | GM63835     | Bearing kit std.                | 4         | 4    | 5    |
| 7    | GM63856     | Bearing kit, 0.25 US            |           | 4    | 5    |

## Group 21: Flywheel

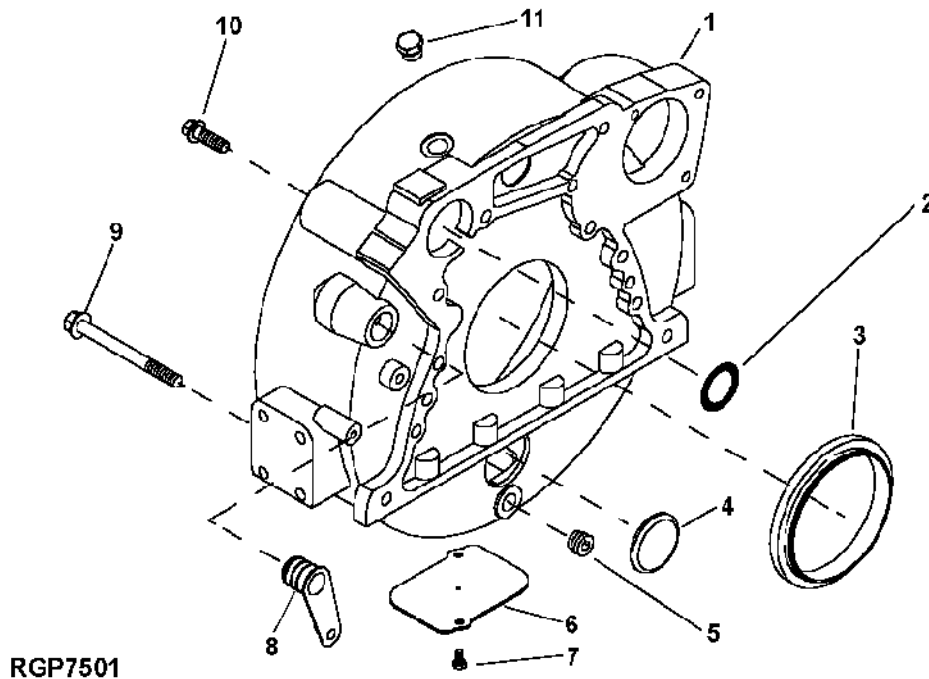


| Item | Part Number | Description     | Quantity  |      |
|------|-------------|-----------------|-----------|------|
|      |             |                 | Variation |      |
|      |             |                 | 1503      | 1509 |
| 1    | 360581      | Bolt            | 4         | 4    |
| 2    | 223750      | Gear, 129 teeth | 1         | 1    |
| 3    | GM17501     | Flywheel        | 1         |      |
| 3    | GM23840     | Flywheel        |           | 1    |



| Item | Part Number | Description     | Quantity  |   |
|------|-------------|-----------------|-----------|---|
|      |             |                 | Variation |   |
|      |             |                 | 1508      |   |
| 1    | GM63759     | Ring gear       |           | 1 |
| 2    | GM63826     | Flywheel        |           | 1 |
| 3    | GM63818     | Screw, M12 x 38 |           | 6 |

## Group 22: Flywheel Housing

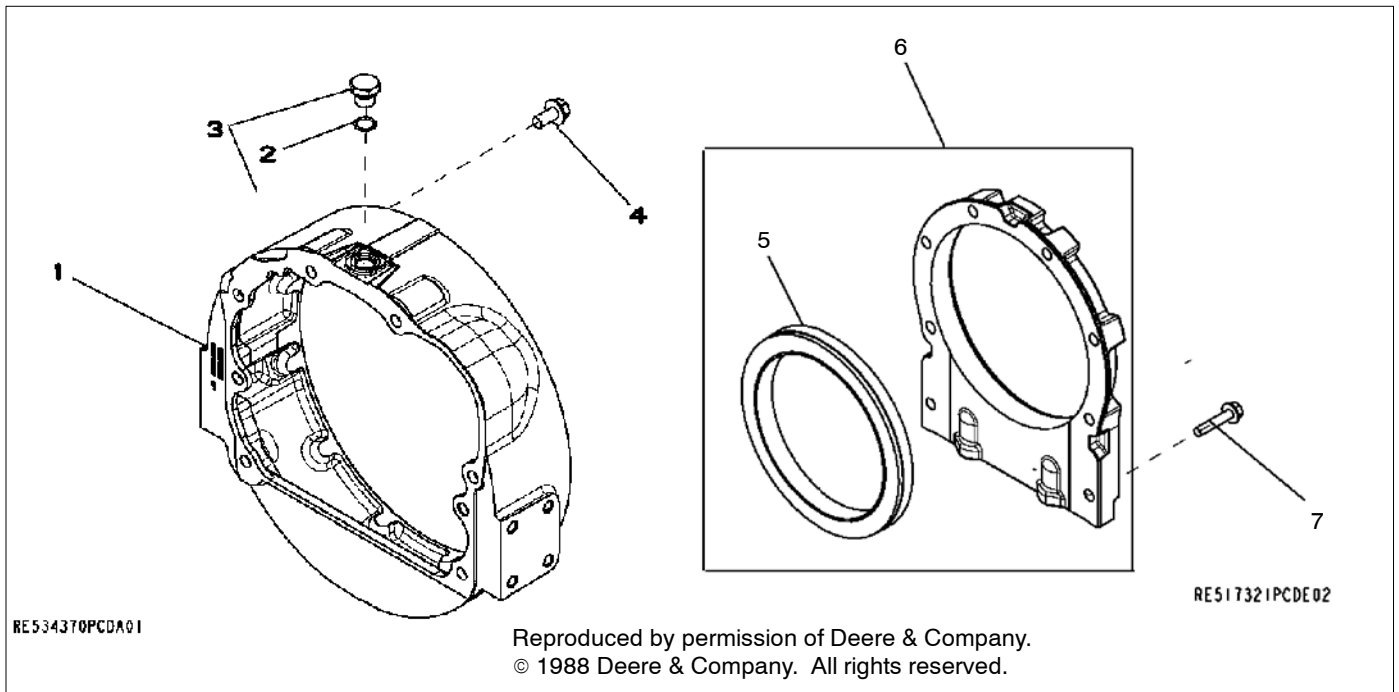


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| Item | Part Number | Description                           | Quantity  |      |
|------|-------------|---------------------------------------|-----------|------|
|      |             |                                       | Variation |      |
|      |             |                                       | 1406      | 1404 |
| 1    | GM24539     | Housing, flywheel (order item 2 also) | 1         |      |
| 1    | GM91838     | Housing                               |           | 1    |
| 2    | GM24540     | O-ring                                | 1         | 1    |
| 3    | 223583      | Seal                                  | 1         | 1    |
| 4    | GM17553     | Cap                                   | 1         | 1    |
| 5    | GM15403     | Plug, pipe, 1/2 in.                   | 1         | 1    |
| 6    | GM17449     | Plate                                 | 1         | 1    |
| 7    | #           | Screw, cap                            | 2         | 2    |
| 8    | GM17453     | Plug 360149                           | 1         |      |
| 8    | 360149      | Plug                                  |           | 1    |
| 9    | #           | Screw, M12 x 50                       | 4         | 4    |
| 10   | 360581      | Bolt                                  | 8         | 8    |
| 11   | GM17468     | Fitting                               | 1         | 1    |

# Common hardware; procure locally.

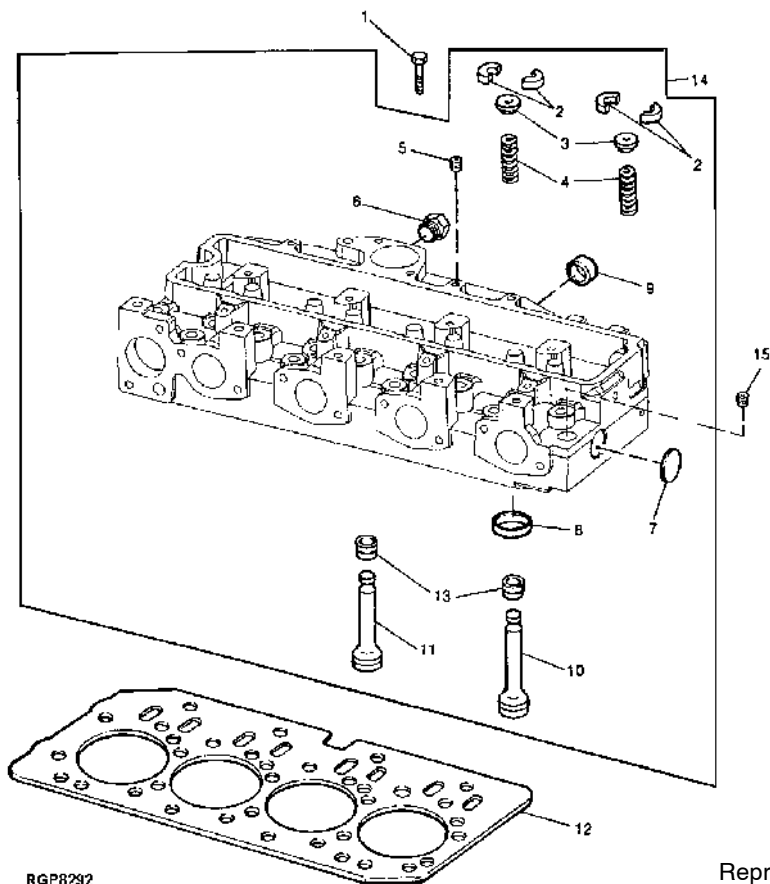
## Group 22: Flywheel Housing, continued



| Item | Part Number | Description           | Quantity  |       |      |      |
|------|-------------|-----------------------|-----------|-------|------|------|
|      |             |                       | Variation |       |      |      |
|      |             |                       | 1401      | 1406B | 1408 | 1415 |
| 1    | GM63793     | Housing               | 1         |       |      |      |
| 1    | GM63740     | Housing               |           | 1     |      |      |
| 1    | GM64245     | Housing               |           |       | 1    |      |
| 1    | GM63792     | Housing               |           |       |      | 1    |
| 2    | 360180      | O-ring, 17.3 x 2.2 mm |           |       |      | 1    |
| 3    | 360078      | Plug, drain           |           |       |      | 1    |
| 4    | #           | Screw, M12 x 25       | 6         | 6     | 6    | 6    |
| 5    | 223583      | Seal                  | 1         | 1     | 1    | 1    |
| 6    | GM64246     | Seal kit              | 1         | 1     | 1    | 1    |
| 7    | #           | Screw, M6 x 30        | 8         | 8     | 8    | 8    |
| —    | GM63705     | Sealant               | AR        | AR    | AR   | AR   |

# Common hardware; procure locally.

## Group 23: Cylinder Head



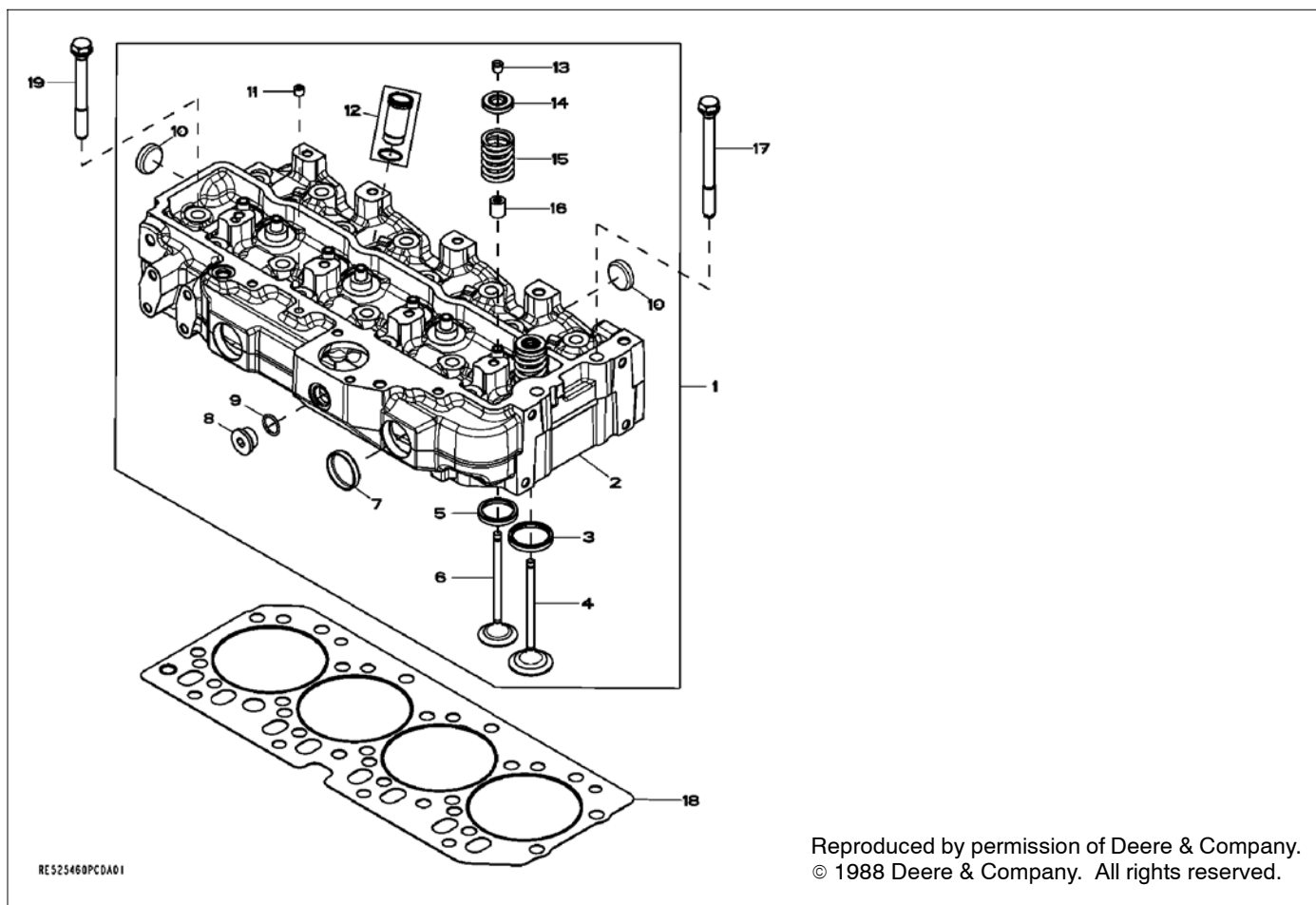
RGP8292

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| Item | Part Number | Description                                   | Quantity       |
|------|-------------|-----------------------------------------------|----------------|
|      |             |                                               | Variation 5102 |
| 1    | 224164      | Screw, cap                                    | 18             |
| 2    | 224184      | Lock                                          | 16             |
| 3    | 224176      | Rotator                                       | 8              |
| 4    | 223455      | Spring                                        | 8              |
| 5    | 224268      | Plug, pipe                                    | 1              |
| 6    | 360174      | Fitting                                       | 1              |
| 6    | 223746      | O-ring                                        | 1              |
| 7    | 223448      | Cap                                           | 1              |
| 8    | GM21433     | Insert, intake valve seat                     | 4              |
| 8    | GM21434     | Insert, exhaust valve seat                    | 4              |
| 9    | 224157      | Cap                                           | 2              |
| 10   | 224156      | Valve, exhaust, standard                      | 4              |
| 10   | 224153      | Valve, exhaust, 0.015 in., 0.381 mm, oversize | AR             |
| 10   | 224151      | Valve, exhaust, 0.030 in., 0.762 mm, oversize | AR             |
| 11   | 224168      | Valve, intake, standard                       | 4              |
| 11   | 224193      | Valve, intake, 0.015 in., 0.381 mm, oversize  | AR             |
| 11   | 224197      | Valve, intake, 0.030 in., 0.762 mm, oversize  | AR             |
| 12   | 360531      | Gasket, cylinder head                         | 1              |
| 13   | 224243      | Seal                                          | 8              |
| 14   | 360532      | Head, cylinder                                | 1              |
| 15   | 224268      | Plug, pipe                                    | 1              |

AR As Required

## Group 23: Cylinder Head, continued

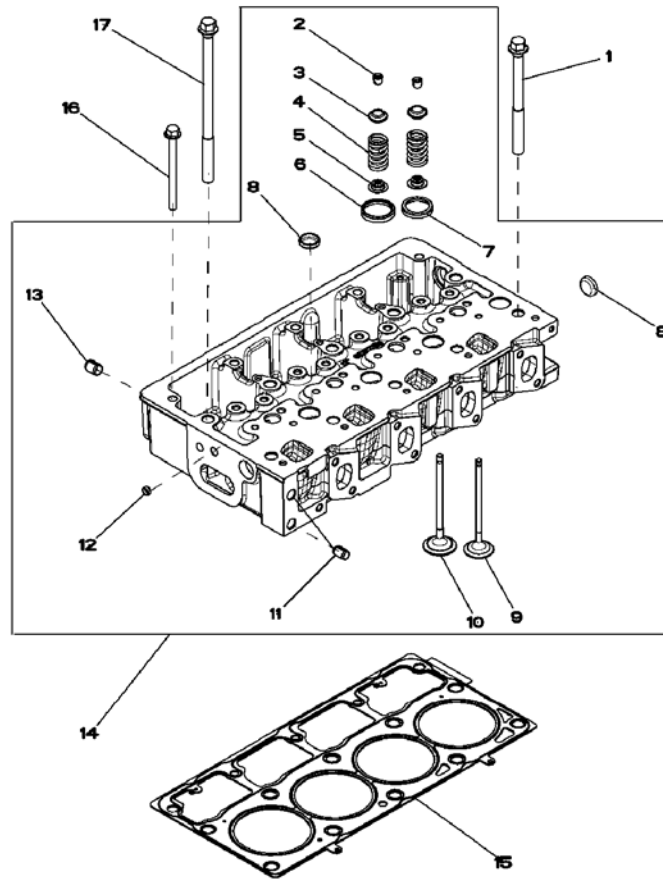


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| Item | Part Number | Description               | Quantity Variation |      |
|------|-------------|---------------------------|--------------------|------|
|      |             |                           | 5122               | 5130 |
| 1    | GM52529     | Cylinder head kit         | 1                  |      |
| 1    | GM77164     | Cylinder head kit         |                    | 1    |
| 2    | —           | Not sold separately       | 1                  | 1    |
| 3    | GM21433     | Insert, valve             | 4                  |      |
| 3    | 224162      | Insert, valve             |                    | 4    |
| 4    | 224168      | Intake valve, standard    | 4                  | 4    |
| 4    | 224193      | Intake valve, 0.381 mm OS | AR                 | AR   |
| 4    | 224197      | Intake valve, 0.762 mm OS | AR                 | AR   |
| 5    | GM21434     | Insert, valve             | 4                  |      |
| 5    | 224166      | Insert, valve             |                    | 4    |
| 6    | 224156      | Exhaust valve, std.       | 4                  | 4    |
| 6    | 224153      | Exhaust valve, 0.381 mm   | AR                 | AR   |
| 6    | 224151      | Exhaust valve, 0.762 mm   | AR                 | AR   |
| 7    | 224157      | Cap                       | 2                  | 3    |
| 8    | 360174      | Fitting                   | 1                  | 1    |
| 9    | 223746      | O-ring                    | 1                  | 1    |
| 10   | 223448      | Cap                       | 1                  | 1    |
| 11   | -           | Not used                  |                    |      |
| 12   | GM50051     | Sleeve                    | 4                  | 4    |
| 13   | 224184      | Lock                      | 16                 | 16   |
| 14   | 224176      | Rotator                   | 8                  | 8    |
| 15   | 223455      | Spring                    | 8                  | 8    |
| 16   | GM50076     | Seal                      | 8                  |      |
| 16   | 224243      | Seal                      |                    | 8    |
| 17   | GM46671     | Screw, cylinder head      | 2                  | 2    |
| 18   | 360531      | Gasket, cylinder head     | 1                  | 1    |
| 19   | 224164      | Cap screw                 | 16                 | 16   |

AR As Required

## Group 23: Cylinder Head, continued



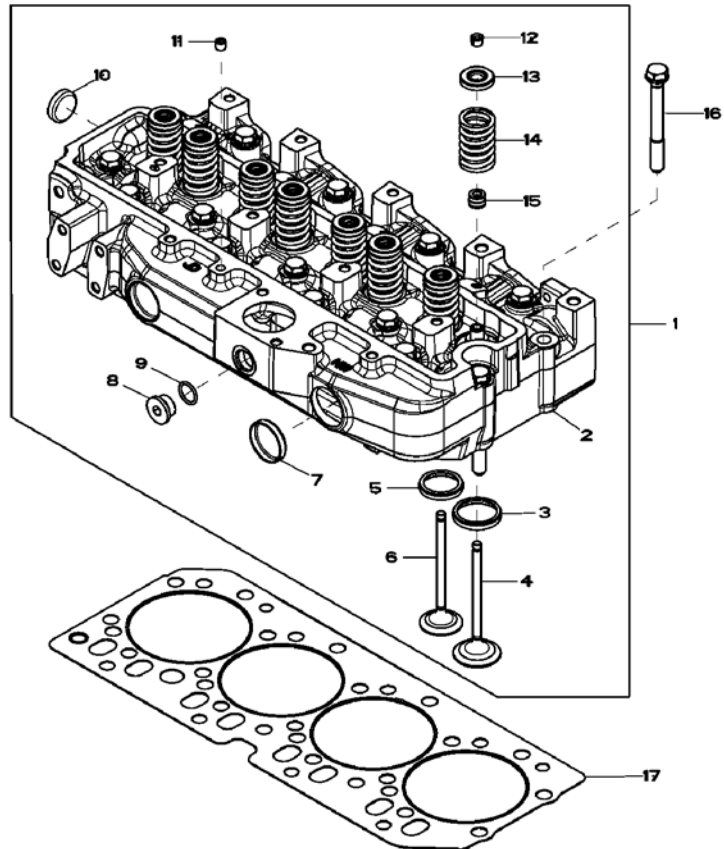
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RE528709PCDC01

| Item | Part Number | Description                                | Quantity  |      |      |
|------|-------------|--------------------------------------------|-----------|------|------|
|      |             |                                            | Variation |      |      |
|      |             |                                            | 5101      | 5105 | 5106 |
| 1    | —           | Screw (order bolt kit)                     | 2         | 2    | 2    |
| 2    | GM46672     | Retainer                                   | 16        | 16   | 20   |
| 3    | GM46673     | Cap                                        | 8         | 8    | 10   |
| 4    | GM63776     | Spring                                     |           | 8    | 10   |
| 4    | GM63710     | Spring                                     | 8         |      |      |
| 5    | GM63892     | Seal                                       |           | 8    | 10   |
| 5    | GM63836     | Seal                                       | 8         |      |      |
| 6    | GM63799     | Valve seat insert                          |           | 4    | 5    |
| 7    | GM63800     | Valve seat insert                          |           | 4    | 5    |
| 8    | GM63925     | Plug                                       | 6         | 5    | 6    |
| 8    | 360517      | Plug                                       | 5         |      |      |
| 9    | GM63712     | Exhaust valve                              | 4         | 4    | 5    |
| 10   | GM63711     | Intake valve                               | 4         | 4    | 5    |
| 11   | #           | Spring pin, 11 x 16 mm                     | 2         | 2    | 2    |
| 12   | GM52777     | Plug                                       |           | 1    | 1    |
| 13   | #           | Spring pin, 13 x 16 mm                     | 2         | 2    | 2    |
| 14   | GM63909     | Cylinder head                              |           | 1    |      |
| 14   | GM63806     | Cylinder head                              | 1         |      |      |
| 14   | GM63910     | Cylinder head                              |           |      | 1    |
| 15   | GM63895     | Engine cylinder head gasket, standard      | 1         |      |      |
| 15   | GM63878     | Engine cylinder head gasket, standard      |           | 1    |      |
| 15   | GM63877     | Engine cylinder head gasket, standard      |           |      | 1    |
| 15   | GM63903     | Engine cylinder head gasket, 0.25, 0.50 OS | 1         |      |      |
| 15   | GM63904     | Engine cylinder head gasket, 0.25, 0.50 OS |           | 1    |      |
| 15   | GM63905     | Engine cylinder head gasket, 0.25, 0.50 OS |           |      | 1    |
| 16   | #           | Screw, M8 x 100                            | 5         | 5    | 6    |
| 17   | GM63747     | Screw                                      | 8         | 8    | 10   |
| —    | GM63838     | Bolt kit (includes items 1, 16, 17)        | 1         | 1    |      |
| —    | GM63839     | Bolt kit (includes items 1, 16, 17)        |           |      | 1    |

# Common hardware; procure locally.

## Group 23: Cylinder Head, continued



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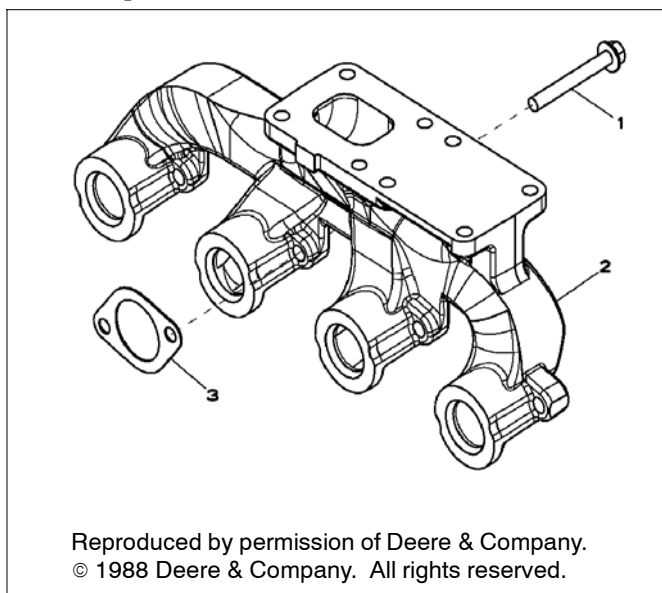
RE531087PCDA01

| Item | Part Number | Description               | Quantity       |
|------|-------------|---------------------------|----------------|
|      |             |                           | Variation 5127 |
| 1    | GM91839     | Cylinder Head             | 1              |
| 2    | -           | Cylinder Head             | 1              |
| 3    | GM21433     | Insert, valve             | 4              |
| 4    | 224168      | Intake Valve              | 4              |
| 4    | 224193      | Intake Valve 0.381 mm; OS | AR             |
| 4    | 224197      | Intake Valve 0.762 mm; OS | AR             |
| 5    | GM21434     | Insert, valve             | 4              |
| 6    | 224156      | Exhaust Valve             | 4              |
| 6    | 224153      | Exh. Valve 0.381 mm; OS   | AR             |
| 6    | 224151      | Exh. Valve 0.762 mm; OS   | AR             |

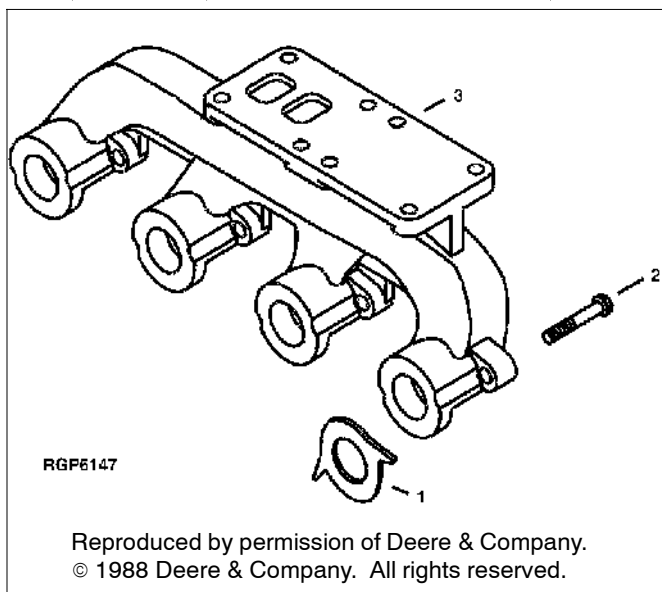
| Item | Part Number | Description          | Quantity       |
|------|-------------|----------------------|----------------|
|      |             |                      | Variation 5127 |
| 7    | 224157      | Plug                 | 2              |
| 8    | 360174      | Fitting Plug         | 1              |
| 9    | 223746      | O-Ring               | 1              |
| 10   | 223448      | Plug                 | 1              |
| 11   | GM18873     | Pipe Plug            | AR             |
| 12   | 224184      | Retainer             | 16             |
| 13   | 224176      | Rotator              | 8              |
| 14   | 223455      | Spring               | 8              |
| 15   | 224243      | Cap Screw            | 8              |
| 16   | 224164      | Cap Screw            | 18             |
| 17   | 360531      | Cylinder Head Gasket | 1              |

# Common hardware; procure locally.

## Group 24: Exhaust Manifold

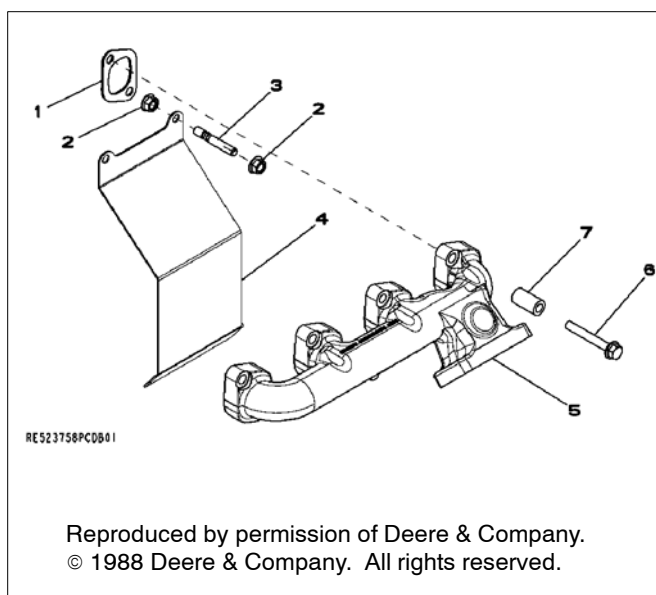


| Item | Part Number | Description               | Quantity  |      |
|------|-------------|---------------------------|-----------|------|
|      |             |                           | Variation | 2802 |
| 1    | #           | SCREW, HEX CAP M10 x 80mm | 8         |      |
| 2    | GM91840     | Exhaust Manifold          | 1         |      |
| 3    | GM46685     | Gasket                    | 4         |      |



| Item | Part Number | Description                     | Quantity  |           |
|------|-------------|---------------------------------|-----------|-----------|
|      |             |                                 | Variation | 2803 2888 |
| 1    | 223547      | Gasket                          | 4         |           |
| 1    | GM49855     | Gasket                          |           | 4         |
| 2    | #           | Screw, M10 x 80                 | 8         |           |
| 2    | GM49914     | Screw, M10 x 80                 |           | 8         |
| 3    | 360534      | Manifold, exh. (4045TF275 eng.) | 1         |           |
| 3    | GM32803     | Manifold, exh. (4045TF270 eng.) | 1         |           |
| 3    | GM52530     | Manifold, exhaust               |           | 1         |

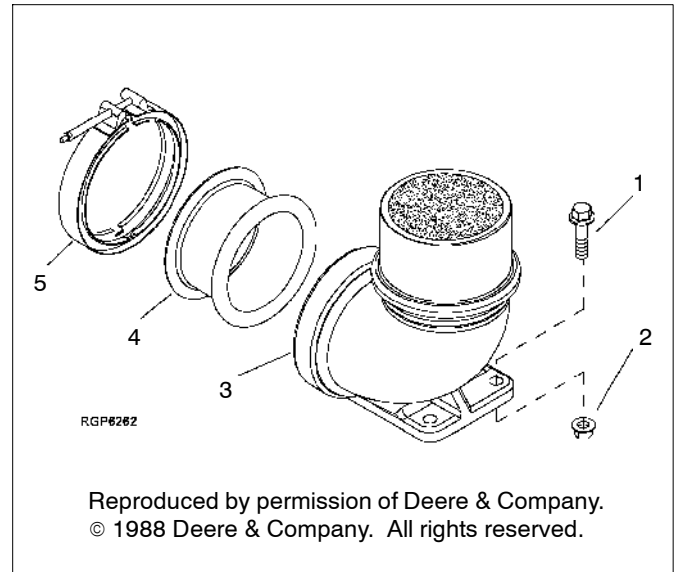
# Common hardware; procure locally.



| Item | Part Number | Description      | Quantity  |           |
|------|-------------|------------------|-----------|-----------|
|      |             |                  | Variation | 2806 2807 |
| 1    | GM63737     | Gasket           | 4         | 5         |
| 2    | #           | Flange nut, M8   | 4         | 5         |
| 3    | GM63770     | Stud             | 2         | 3         |
| 4    | GM63771     | Heat shield      | 1         | 1         |
| 5    | GM63768     | Exhaust manifold | 1         |           |
| 5    | GM63772     | Exhaust manifold |           | 1         |
| 6    | #           | Screw, M8 x 60   | 6         | 7         |
| 7    | GM63790     | Spacer           | 6         | 7         |

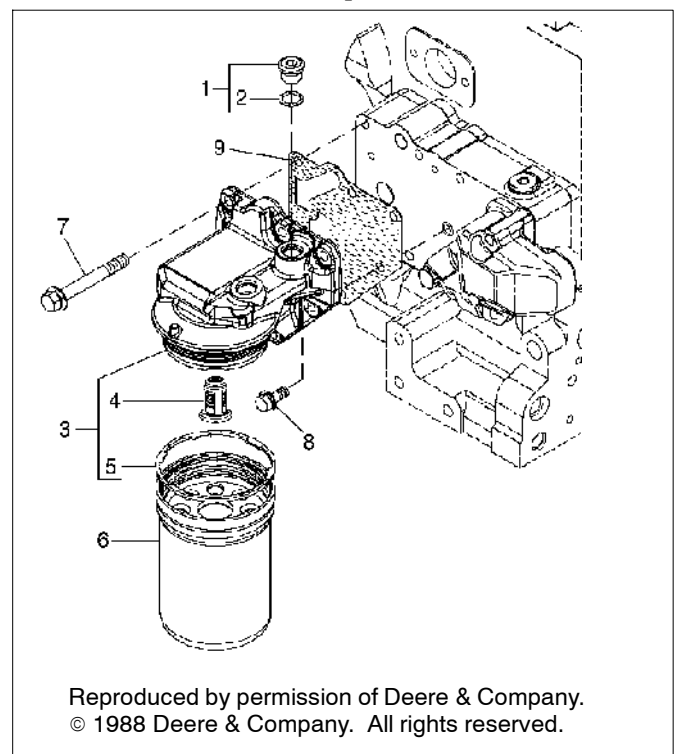
## Group 25: Exhaust Elbow

| Item | Part Number | Description          | Quantity  |      |
|------|-------------|----------------------|-----------|------|
|      |             |                      | Variation |      |
|      |             |                      | 6401      | 6438 |
| 1    | #           | Screw, cap, M10 x 40 | 4         | 2    |
| 1    | GM49897     | Stud (not shown)     |           | 2    |
| 2    | #           | Nut, flange, M10     | 4         | 4    |
| 3    | 360117      | Elbow, pipe          | 1         |      |
| 3    | GM49928     | Elbow, pipe          |           | 1    |
| 4    | 223891      | Adapter              | 1         | 1    |
| 5    | 224132      | Clamp                | 1         | 1    |



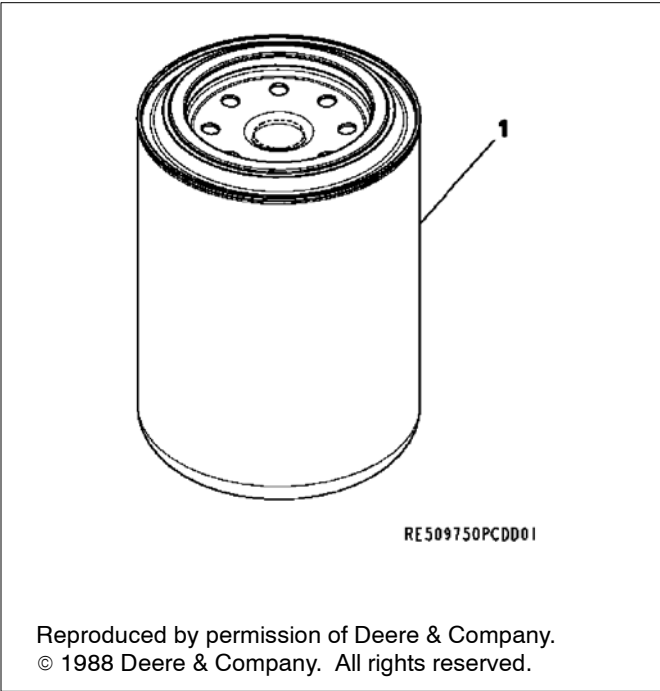
## Group 26: Oil Filter

| Item | Part Number | Description    | Quantity  |
|------|-------------|----------------|-----------|
|      |             |                | Variation |
|      |             |                | 8842      |
| 1    | GM24535     | Plug           | 1         |
| 2    | 360557      | O-ring         | 1         |
| 3    | GM32808     | Filter head    | 1         |
| 4    | GM32807     | Valve          | 1         |
| 5    | GM32787     | Seal           | 1         |
| 6    | GM32809     | Filter, oil    | 1         |
| 7    | #           | Screw, M8 x 65 | 5         |
| 8    | GM24536     | Screw          | 1         |
| 9    | GM24537     | Gasket         | 1         |



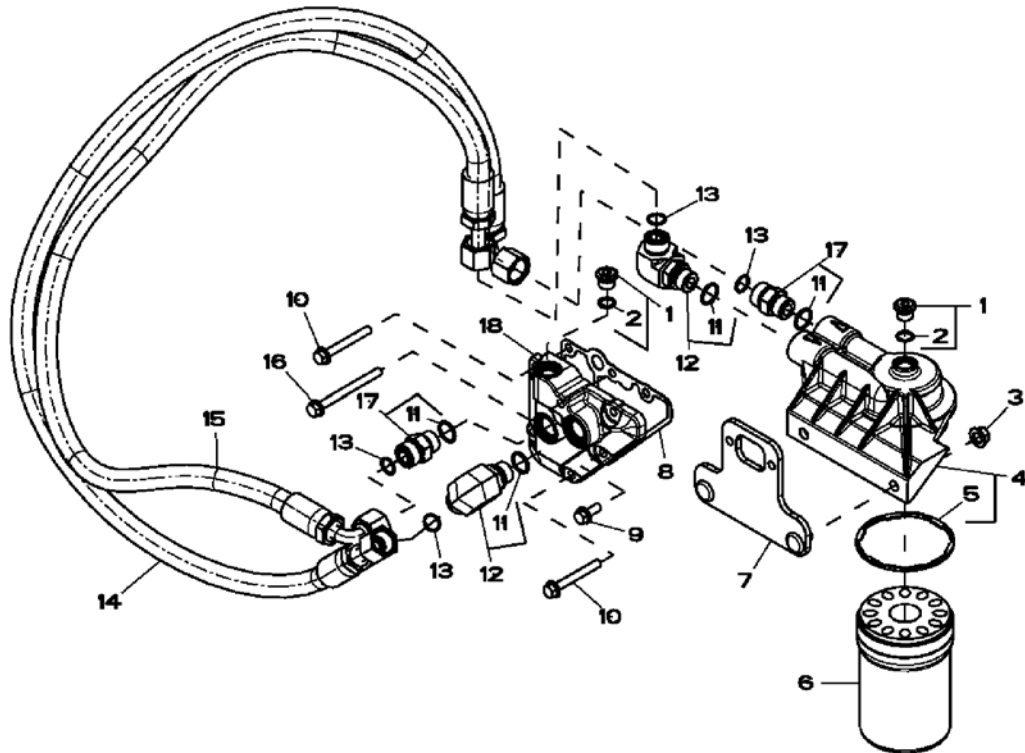
# Common hardware; procure locally.

Group 26: Oil Filter, continued



| Item | Part Number | Description | Quantity          |
|------|-------------|-------------|-------------------|
|      |             |             | Variation<br>8801 |
| 1    | GM34935     | Filter, oil | 1                 |

## Group 26: Oil Filter, continued

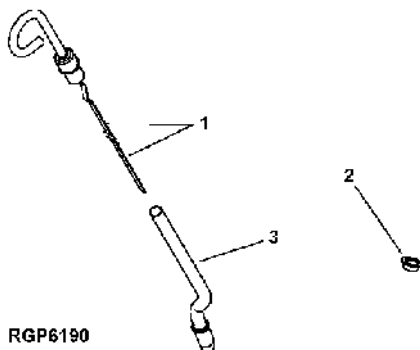


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| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 8854 |
| 1    | GM24535     | Plug            | 1              |
| 2    | 360557      | O-Ring          | 1              |
| 3    | GM30375     | Flange Nut, M10 | 2              |
| 4    | GM91841     | Filter Head     | 1              |
| 5    | GM32787     | Seal            | 1              |
| 6    | GM32809     | Filter, oil     | 1              |
| 7    | GM91842     | Bracket         | 1              |
| 8    | 360133      | Gasket          | 1              |
| 9    | GM24536     | Screw           | 1              |

| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 8854 |
| 10   | #           | Screw, M8 X 65  | 4              |
| 11   | GM17437     | O-ring          | 1              |
| 12   | GM91843     | Elbow Fitting   | 1              |
| 13   | GM91844     | O-Ring          | 1              |
| 14   | GM91845     | Hydraulic Hose  | 1              |
| 15   | GM91845     | Hydraulic Hose  | 1              |
| 16   | #           | Screw, M8 X 90  | 1              |
| 17   | GM91847     | Adapter Fitting | 1              |
| 18   | GM91848     | Adapter Fitting | 1              |

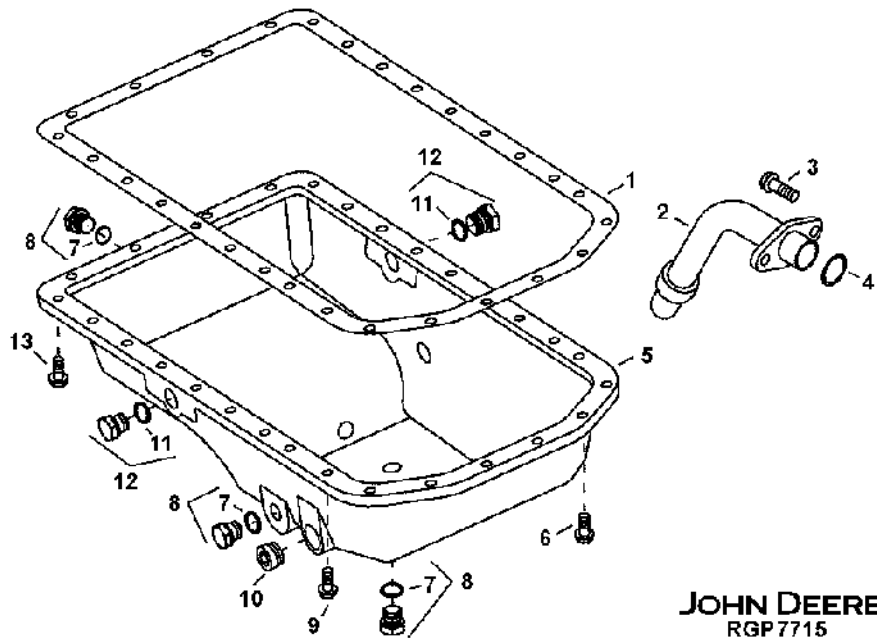
## Group 27: Dipstick



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| Item | Part Number | Description    | Quantity  |      |      |
|------|-------------|----------------|-----------|------|------|
|      |             |                | Variation |      |      |
|      |             |                | 4002      | 4003 | 4014 |
| 1    | 360073      | Dipstick       | 1         |      |      |
| 1    | GM63822     | Dipstick       |           | 1    |      |
| 1    | GM91849     | Dipstick       |           |      | 1    |
| 2    | GM32789     | Plug           | 1         |      | 1    |
| 3    | GM32788     | Tube, dipstick | 1         |      |      |
| 3    | GM63791     | Tube, dipstick |           | 1    |      |
| 3    | GM71257     | Tube, dipstick |           |      | 1    |

## Group 28: Oil Pan

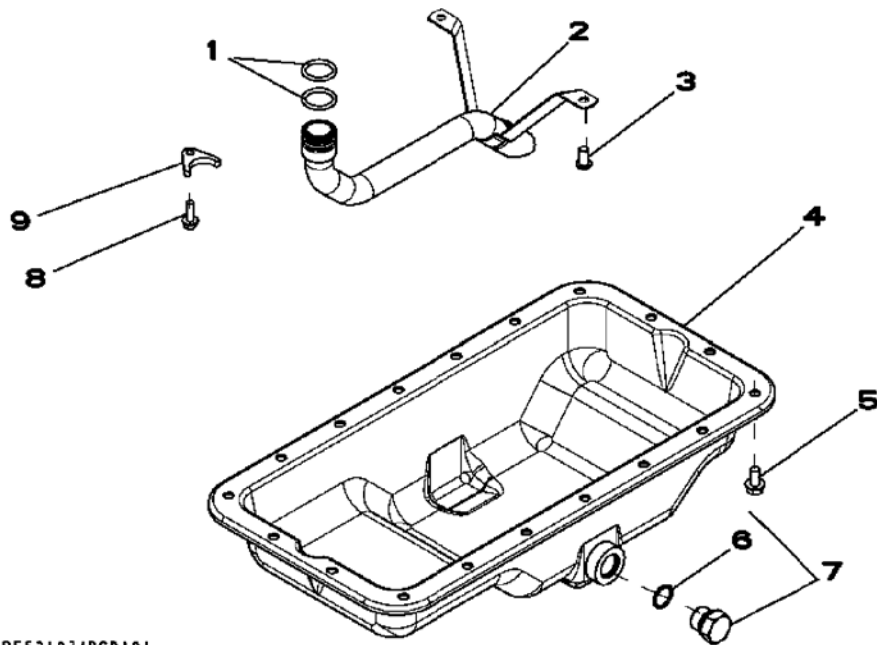


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| Item | Part Number | Description         | Quantity |                   |      |
|------|-------------|---------------------|----------|-------------------|------|
|      |             |                     | 1904     | Variation<br>1923 | 19AE |
| 1    | 360527      | Gasket, oil pan     | 1        | 1                 |      |
| 1    | GM50621     | Gasket, oil pan     |          |                   | 1    |
| 2    | 360523      | Intake, oil pump    | 1        |                   | 1    |
| 2    | GM32846     | Intake, oil pump    |          | 1                 |      |
| 3    | #           | Screw, M8 x 100     | 2        | 2                 | 2    |
| 4    | 224035      | O-ring              | 1        | 1                 | 1    |
| 5    | 360529      | Pan, oil            | 1        |                   |      |
| 5    | GM32780     | Pan, oil            |          | 1                 |      |
| 5    | GM51536     | Pan, oil            |          |                   | 1    |
| 6    | #           | Screw, M8 x 30      | 6        | 6                 | 6    |
| 7    | 360176      | O-ring              | 3        | 1                 | 3    |
| 8    | 360014      | Plug                | 3        | 1                 | 3    |
| 9    | #           | Screw, M8 x 25      | 18       | 18                |      |
| 9    | #           | Screw, M8 x 16      |          |                   | 18   |
| 10   | #           | Plug, pipe, 3/4 in. | 1        |                   | 1    |
| 11   | GM17437     | O-ring              | 2        | 2                 | 2    |
| 12   | GM17498     | Fitting             | 2        | 2                 | 2    |
| 13   | #           | Screw, M8 x 45      | 4        | 4                 |      |
| 13   | #           | Screw, M8 x 16      |          |                   | 4    |

# Common hardware; procure locally.

# Group 28: Oil Pan, continued



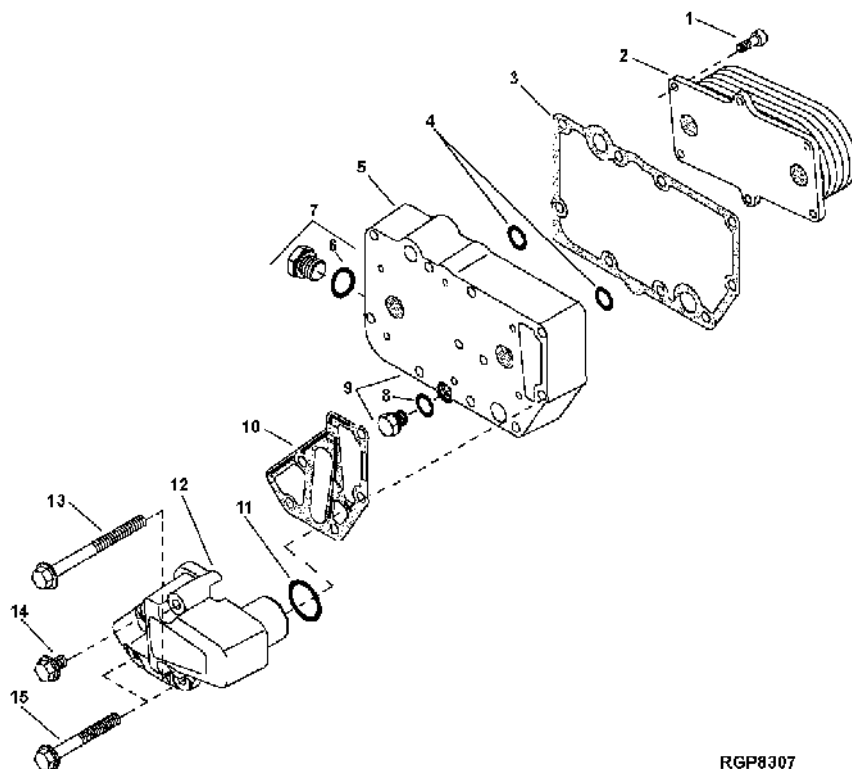
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| Item | Part Number | Description    | Quantity Variation |      |
|------|-------------|----------------|--------------------|------|
|      |             |                | 1902               | 1924 |
| 1    | 223763      | O-ring         | 2                  | 2    |
| 2    | GM63886     | Tube           | 1                  |      |
| 2    | GM63885     | Tube           |                    | 1    |
| 3    | #           | Screw          | 2                  | 2    |
| 4    | GM63814     | Oil pan        | 1                  |      |
| 4    | GM63815     | Oil pan        |                    | 1    |
| 5    | #           | Screw, M8 x 16 | 20                 | 18   |
| 6    | GM17437     | O-ring         | 1                  | 1    |
| 7    | GM17498     | Fitting        | 1                  | 1    |
| 8    | #           | Screw, M6 x 20 | 1                  | 1    |
| 9    | GM63727     | Clamp          | 1                  | 1    |
| —    | GM63705     | Sealant        | AR                 | AR   |

# Common hardware; procure locally.

## Group 29: Oil Cooler



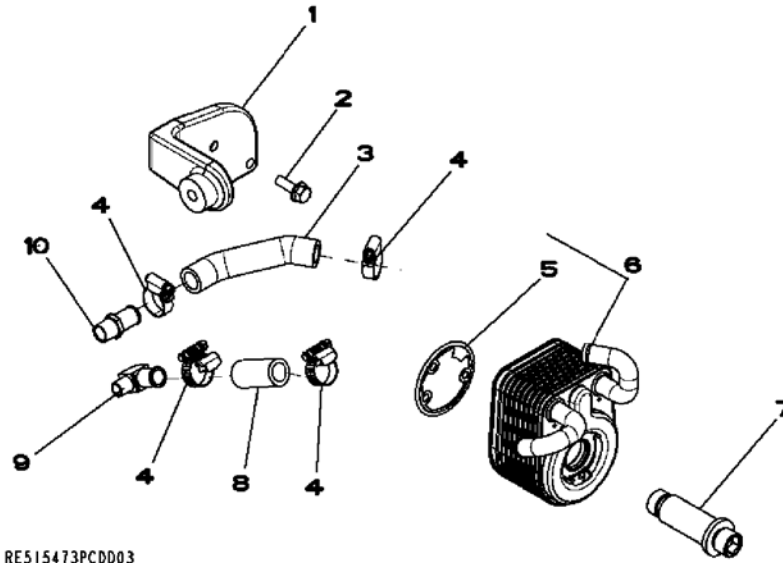
RGP8307

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| Item | Part Number | Description            | Quantity  |      |
|------|-------------|------------------------|-----------|------|
|      |             |                        | Variation |      |
|      |             |                        | 5901      | 5902 |
| 1    | #           | Screw, M6 x 16         | 6         | 6    |
| 2    | GM17531     | Cooler, oil            | 1         |      |
| 2    | 275503      | Cooler, oil            |           | 1    |
| 3    | 360130      | Gasket                 | 1         | 1    |
| 4    | 360170      | O-ring                 | 2         | 2    |
| 5    | 360127      | Housing                | 1         | 1    |
| 6    | 360176      | O-ring                 | 1         | 1    |
| 7    | 360014      | Plug (includes O-ring) | 1         | 1    |
| 8    | 360178      | O-ring                 | 1         | 1    |
| 9    | 360015      | Plug (includes O-ring) | 1         | 1    |
| 10   | GM17479     | Gasket                 | 1         | 1    |
| 11   | GM24543     | O-ring                 | 1         | 1    |
| 12   | GM32790     | Adapter                | 1         |      |
| 12   | GM49933     | Adapter                |           | 1    |
| 13   | #           | Screw, M8 x 100        | 2         | 2    |
| 14   | #           | Screw, M8 x 20         | 1         | 1    |
| 15   | #           | Screw, M8 x 65         | 2         | 2    |

# Common hardware; procure locally.

## Group 29: Oil Cooler, continued



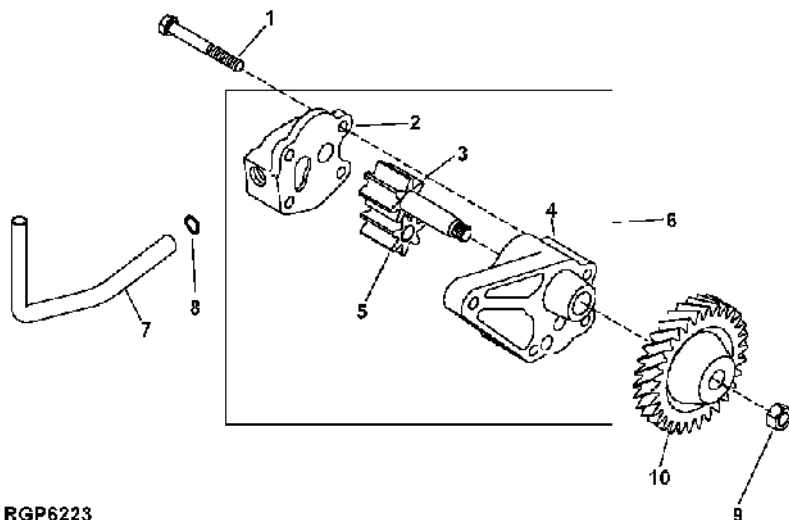
RE515473PCDD03

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| Item | Part Number | Description         | Quantity       |
|------|-------------|---------------------|----------------|
|      |             |                     | Variation 5903 |
| 1    | GM63729     | Bracket             | 1              |
| 2    | #           | Screw, M8 x 25      | 1              |
| 3    | GM63735     | Hose, inlet         | 1              |
| 4    | GM21409     | Clamp, hose         | 4              |
| 5    | GM63732     | Gasket              | 1              |
| 6    | GM63817     | Oil cooler          | 1              |
| 7    | GM63731     | Threaded nipple     | 1              |
| 8    | GM63928     | Hose, outlet, 52 mm | AR             |
| 9    | GM63733     | Fitting, hose       | 1              |
| 10   | GM63736     | Fitting, hose       | 1              |

# Common hardware; procure locally.

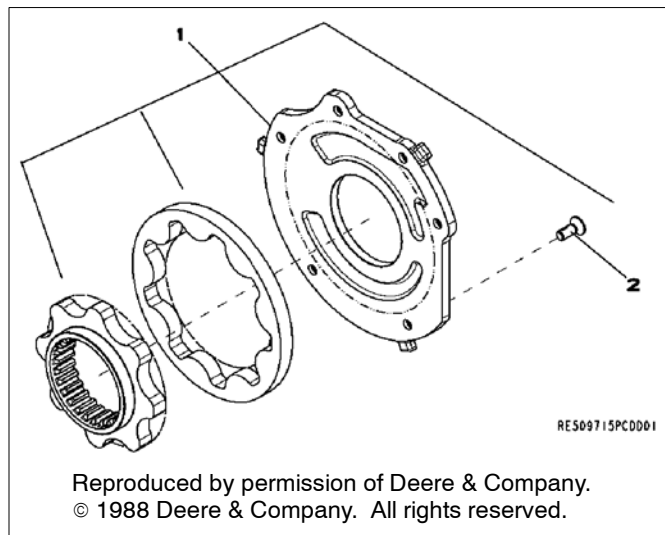
## Group 30: Oil Pump



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| Item | Part Number | Description                                 | Quantity  |      |
|------|-------------|---------------------------------------------|-----------|------|
|      |             |                                             | Variation |      |
|      |             |                                             | 5001      | 5002 |
| 1    | #           | Screw, M8 x 65                              | 2         | 2    |
| 2    | —           | Cover (not sold separately, order item 6)   | 1         | 1    |
| 3    | —           | Gear (not sold separately, order item 6)    | 1         | 1    |
| 4    | —           | Housing (not sold separately, order item 6) | 1         | 1    |
| 5    | —           | Gear (not sold separately, order item 6)    | 1         | 1    |
| 6    | 360028      | Pump, oil                                   | 1         | 1    |
| 7    | 360104      | Tube                                        | 1         | 1    |
| 8    | 336458      | O-ring                                      | 1         | 1    |
| 9    | #           | Nut, M12                                    | 1         | 1    |
| 10   | 360524      | Gear, 30 teeth                              | 1         | 1    |

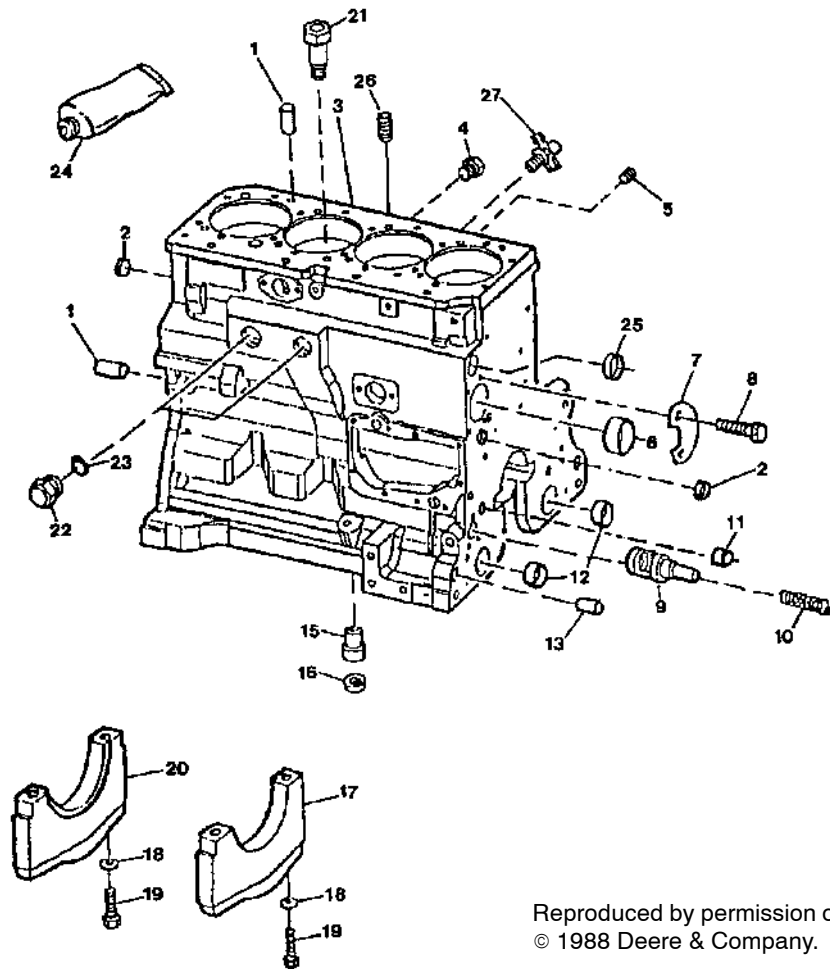
# Common hardware; procure locally.



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| Item | Part Number | Description                                     | Quantity  |
|------|-------------|-------------------------------------------------|-----------|
|      |             |                                                 | Variation |
|      |             |                                                 | 5001B     |
| 1    | —           | Oil pump (order complete timing gear cover kit) | 1         |
| 2    | GM63816     | Screw                                           | 6         |

## Group 31: Cylinder Block

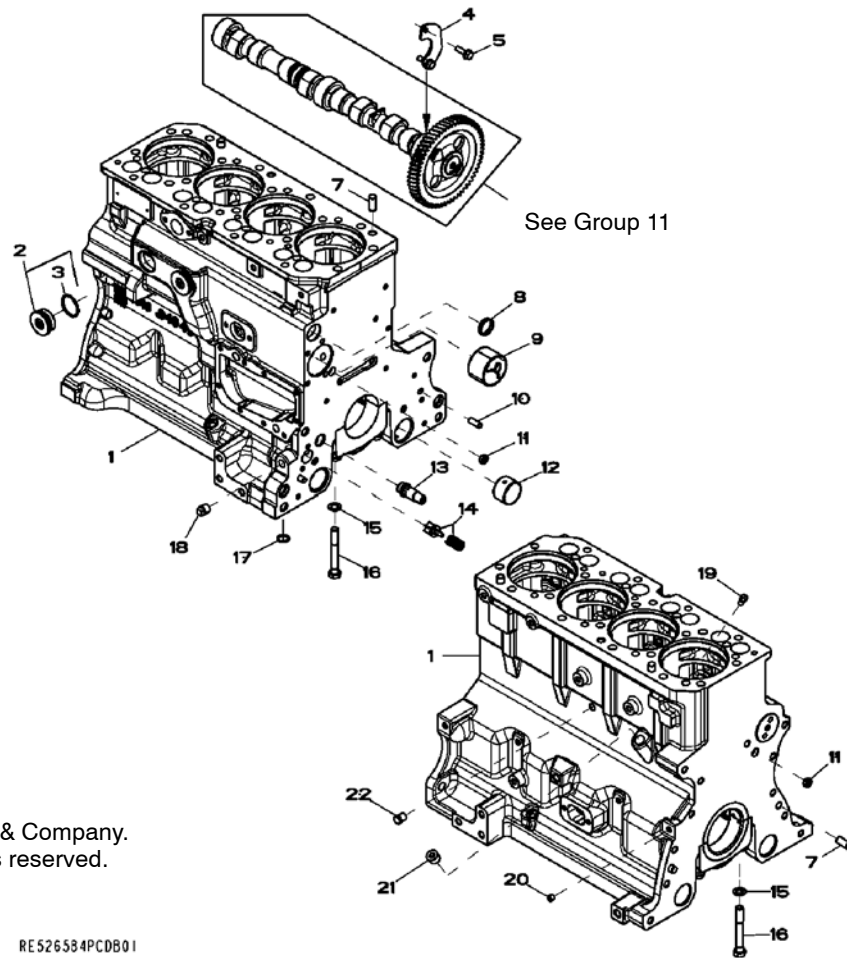


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| Item | Part Number | Description                       | Quantity  |      |
|------|-------------|-----------------------------------|-----------|------|
|      |             |                                   | Variation |      |
|      |             |                                   | 4614      | 4616 |
| 1    | 223472      | Pin, dowel                        | 4         | 4    |
| 2    | 360517      | Cap                               | 2         | 2    |
| 2    | 360093      | Plug                              | 1         | 1    |
| 3    | —           | Block, cylinder (see short block) | 1         | 1    |
| 4    | 223802      | Plug, pipe                        | 1         | 1    |
| 5    | 224268      | Plug, pipe                        | 5         | 5    |
| 6    | 352246      | Bushing                           | 1         | 1    |
| 7    | 360154      | Plate, thrust                     | 1         | 1    |
| 8    | #           | Screw, M8x 25                     | 2         | 2    |
| 9    | 360103      | Valve, engine oil bypass          | 1         | 1    |
| 10   | 360080      | Spring                            | 1         | 1    |
| 11   | GM32810     | Valve, bleed                      | 1         | 1    |
| 12   | 350519      | Bushing                           | 6         | 6    |
| 13   | 352064      | Pin, dowel                        | 2         | 2    |
| 15   | 360087      | Bushing                           | 1         | 1    |
| 16   | 223512      | O-ring                            | 1         | 1    |
| 17   | 360084      | Cap, main bearing                 | 4         | 4    |
| 18   | 224089      | Washer                            | 10        | 10   |
| 19   | 223639      | Screw, cap                        | 10        | 10   |
| 20   | 360151      | Cap, main thrust bearing          | 1         | 1    |
| 21   | 360146      | Jet                               | 4         | 4    |
| 22   | GM32824     | Plug                              | 2         | 2    |
| 23   | 223988      | O-ring                            | 2         | 2    |
| 24   | 360173      | Gasket                            | 1         | 1    |
| 25   | 360093      | Plug                              | 1         | 1    |
| 26   | GM15403     | Plug, pipe                        | 1         | 1    |
| 27   | 223435      | Valve, drain                      | 1         | 1    |

# Common hardware; procure locally.

## Group 31: Cylinder Block, continued



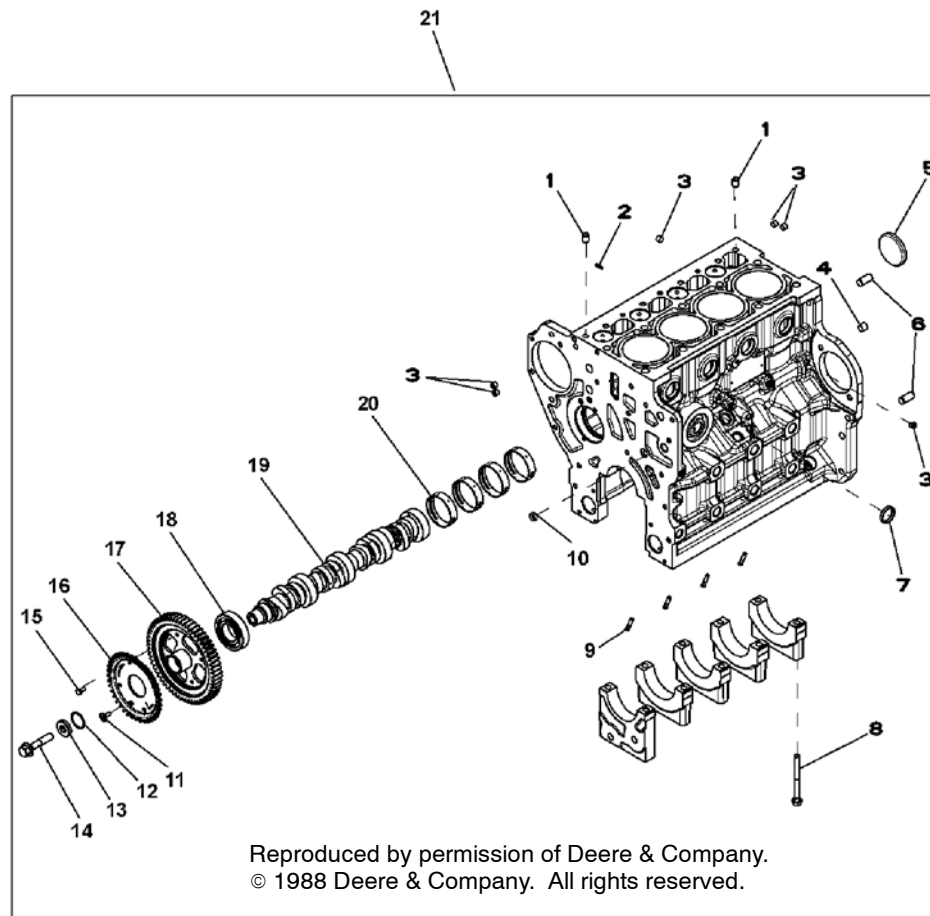
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RE526584PCDB01

| Item | Part Number | Description                       | Quantity |                   |      |
|------|-------------|-----------------------------------|----------|-------------------|------|
|      |             |                                   | 4643     | Variation<br>4659 | 4651 |
| 1    | —           | Block, cylinder (see short block) | 1        | 1                 | 1    |
| 2    | GM32824     | Plug                              | 2        | 2                 | 2    |
| 3    | 223988      | O-ring                            | 1        | 1                 | 1    |
| 4    | 360154      | Plate, thrust                     | 1        | 1                 | 1    |
| 5    | #           | Screw, M8 x 25                    | 2        | 2                 | 2    |
| 7    | 223472      | Pin, dowel                        | 4        | 4                 | 4    |
| 8    | 360093      | Plug                              | 1        | 1                 | 1    |
| 9    | 352246      | Bushing                           | 1        | 1                 | 1    |
| 10   | 352064      | Pin, dowel                        | 1        | 1                 | 2    |
| 11   | 360517      | Cap                               | 1        | 1                 | 2    |
| 12   | 360519      | Bushing                           | 6        | 6                 | 6    |
| 13   | GM32810     | Valve                             | 1        | 1                 | 1    |
| 14   | GM21420     | Kit, valve                        | 1        | 1                 | 1    |
| 15   | 224089      | Washer                            | 10       | 10                | 10   |
| 16   | 223639      | Cap screw                         | 10       | 10                | 10   |
| 17   | 336458      | O-ring                            | 1        | 1                 | 1    |
| 18   | #           | Plug, pipe, 3/8 in.-18 NPT        | 1        | 1                 | 1    |
| 19   | 360146      | Jet                               | 4        | 4                 | 4    |
| 20   | 224268      | Plug, pipe                        | 5        | 5                 |      |
| 20   | GM18873     | Plug, pipe                        |          |                   | 5    |
| 21   | #           | Plug, pipe, 1/2 in.-14 NPT        | 1        | 1                 | 1    |
| 22   | #           | Plug, pipe, 1/4 in.-18 NPT        | 1        | 1                 |      |
| 22   | GM77165     | Elbow fitting (not shown)         | 1        |                   |      |
| 22   | 223435      | Drain valve                       |          |                   | 1    |

# Common hardware; procure locally.

## Group 31: Cylinder Block, continued

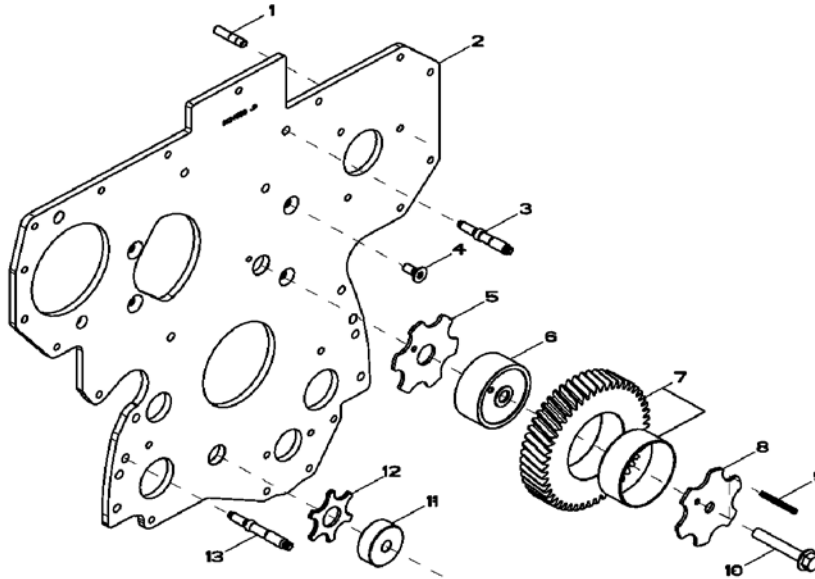


RE533671RGP01

| Item | Part Number | Description                       | Quantity Variation |      |      |
|------|-------------|-----------------------------------|--------------------|------|------|
|      |             |                                   | 4604               | 4618 | 4619 |
| 1    | #           | Spring pin, 11 x 16 mm            | 2                  | 2    | 2    |
| 2    | #           | Spring pin, 4 x 16 mm             | 5                  | 4    | 5    |
| 3    | #           | Plug, pipe, 3.175 mm (1/8 in.)    | 24                 | 23   | 27   |
| 4    | #           | Plug, pipe, 6.350 mm (1/4 in.)    | 1                  | 1    | 1    |
| 5    | GM63723     | Plug                              | 1                  | 1    | 1    |
| 6    | 223472      | Pin, dowel                        | 2                  | 2    | 2    |
| 7    | 360093      | Plug                              | 6                  | 6    | 7    |
| 8    | GM63725     | Screw                             | 10                 | 10   | 12   |
| 9    | GM63724     | Orifice                           | 4                  | 4    | 4    |
| 10   | 360517      | Cap                               | 1                  | 1    | 1    |
| 11   | #           | Screw, M6 x 16                    |                    | 2    | 2    |
| 12   | GM63728     | Shim                              |                    | 1    | 1    |
| 13   | GM63748     | Washer                            |                    | 1    | 1    |
| 14   | GM63752     | Screw                             |                    | 1    | 1    |
| 15   | #           | Cap screw, M6 x 12                | 2                  | 4    | 4    |
| 16   | GM63778     | Wheel                             |                    | 1    | 1    |
| 17   | GM63783     | Gear, spur                        |                    | 1    | 1    |
| 18   | GM63821     | Bearing, ball                     | 1                  | 1    | 1    |
| 19   | GM63749     | Camshaft                          | 1                  |      |      |
| 20   | GM63907     | Camshaft                          |                    | 1    |      |
| 20   | GM63721     | Bushing                           | 4                  | 4    | 4    |
| 21   | —           | Block, cylinder (see short block) | 1                  |      |      |
| 21   | GM63912     | Block, cylinder                   |                    | 1    |      |
| 21   | GM63906     | Block, cylinder                   |                    |      | 1    |

# Common hardware; procure locally.

## Group 32: Front Plate

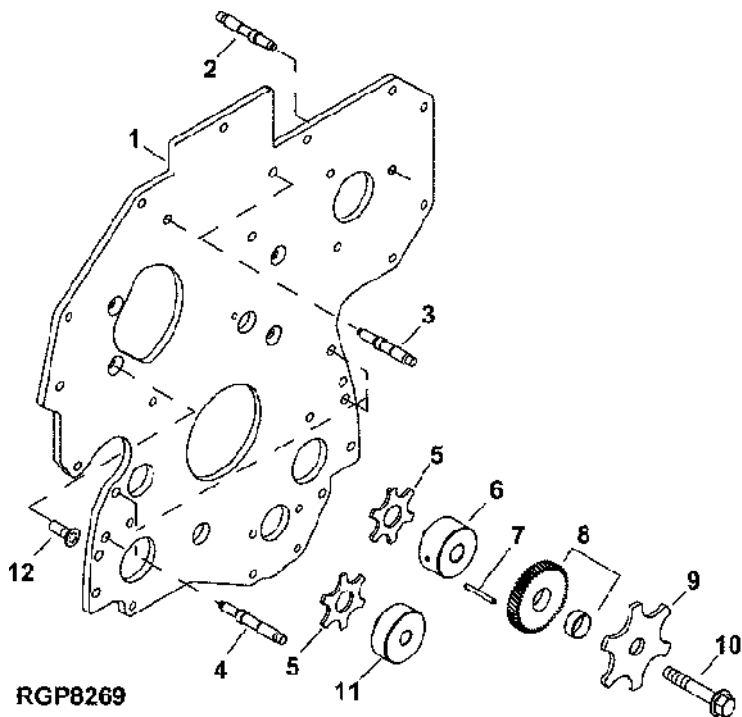


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| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 3602 |
| 1    | 360092      | Stud            | 3              |
| 2    | GM17461     | Plate           | 1              |
| 3    | 360514      | Stud            | 2              |
| 4    | 360516      | Screw           | 4              |
| 5    | 360113      | Lock Washer     | 1              |
| 6    | 360101      | Shaft           | 1              |
| 7    | GM50613     | Gear            | 1              |
| 8    | 360147      | Thrust Washer   | 1              |
| 9    | 360179      | Spring Pin      | 1              |
| 10   | #           | Screw, M10 X 65 | 1              |
| 11   | 360083      | Shaft           | 1              |
| 12   | 336446      | Thrust Washer   | 1              |
| 13   | 360140      | Stud            | 4              |
| -    | GM50612     | Sealant         | 1              |

# Common hardware; procure locally.

# Group 32: Front Plate, continued



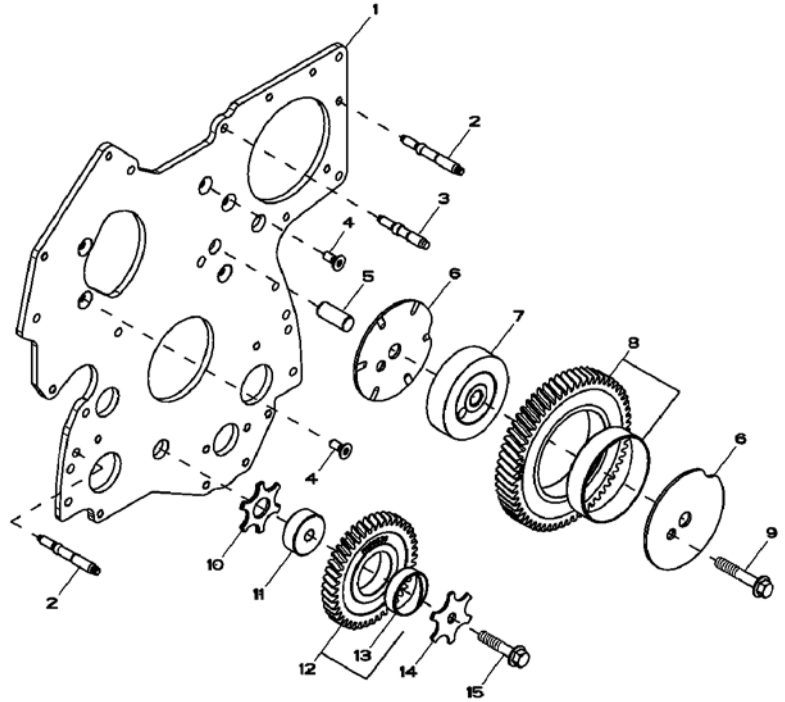
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**RGP8269**

| Item | Part Number | Description    | Quantity       |
|------|-------------|----------------|----------------|
|      |             |                | Variation 3618 |
| 1    | GM23829     | Plate, front   | 1              |
| 2    | 360092      | Stud           | 3              |
| 3    | 360514      | Stud           | 2              |
| 4    | 360140      | Stud           | 4              |
| 5    | 336446      | Washer, thrust | 2              |
| 6    | 360101      | Shaft, upper   | 1              |
| 7    | 360179      | Pin, spring    | 1              |
| 8    | 360020      | Gear           | 1              |
| 9    | 360147      | Washer, thrust | 1              |
| 10   | #           | Screw          | 1              |
| 11   | 360083      | Shaft, lower   | 1              |
| 12   | 360516      | Screw          | 4              |

# Common hardware; procure locally.

## Group 32: Front Plate, continued

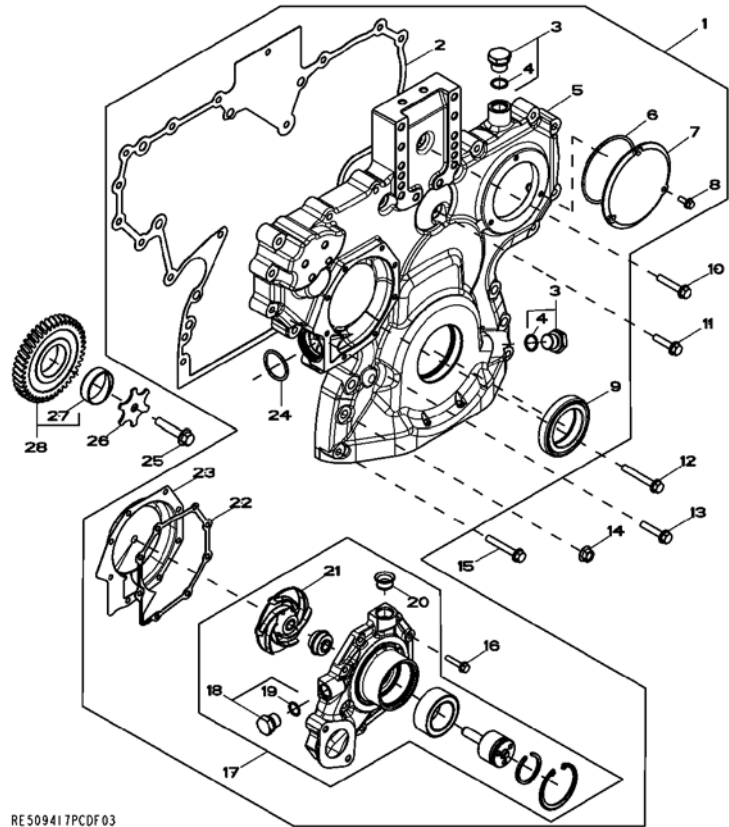


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| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 3612 |
| 1    | GM46690     | Plate           | 1              |
| 2    | GM52531     | Stud, 84mm      | 7              |
| 3    | 360514      | Stud, 84mm      | 2              |
| 4    | 360516      | Screw, M8 x 20  | 5              |
| 5    | GM46693     | Pin, dowel      | 1              |
| 6    | GM46691     | Washer, lock    | 2              |
| 7    | GM46692     | Shaft, upper    | 1              |
| 8    | GM46694     | Gear            | 1              |
| 9    | #           | Screw, M10 x 60 | 1              |
| 10   | 336446      | Washer, thrust  | 1              |
| 11   | 360083      | Shaft           | 1              |
| 12   | 360021      | Gear            | 1              |
| 13   | 360082      | Bushing         | 1              |
| 14   | 360148      | Washer, thrust  | 1              |
| 15   | #           | Screw, M10 x 50 | 1              |

# Common hardware; procure locally.

## Group 33: Timing Gear Cover



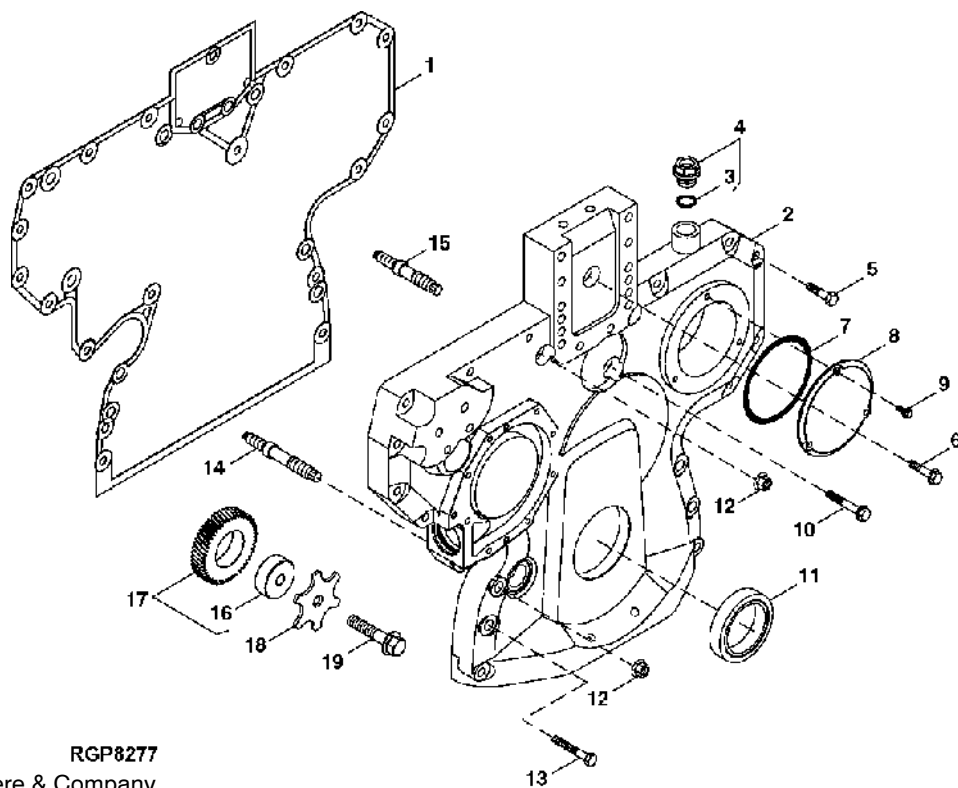
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RE 509417PCDF03

| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 4428 |
| 1    | GM91851     | Kit             | 1              |
| 2    | GM60527     | Gasket          | 1              |
| 3    | 360078      | Fitting         | 1              |
| 4    | 360180      | O-Ring          | 1              |
| 5    | -           | Cover           | 1              |
| 6    | 360107      | O-Ring          | 1              |
| 7    | 360105      | Cover           | 1              |
| 8    | #           | Screw, M6 X 16  | 3              |
| 9    | 360181      | Seal            | 1              |
| 10   | 360512      | Screw           | 1              |
| 11   | #           | Screw, M8 X 35  | 1              |
| 12   | #           | Screw, M8 X 60  | 1              |
| 13   | #           | Screw, M8 X 40  | 10             |
| 14   | GM30375     | Flange Nut      | 6              |
| 15   | #           | Screw, M8 X 55  | 2              |
| 16   | #           | Screw, M6 X 30  | 8              |
| 17   | GM29383     | Water Pump      | 1              |
| 17   | GM81862     | Water Pump      | 1              |
| 18   | 360014      | Fitting Plug    | 1              |
| 19   | 360176      | O-Ring          | 1              |
| 20   | -           | Impeller        | 1              |
| 21   | 360116      | Seal            | 1              |
| 22   | 360124      | Gasket          | 1              |
| 23   | 360029      | Insert          | 1              |
| 24   | GM24543     | O-Ring          | 1              |
| 25   | #           | Screw, M10 X 50 | 1              |
| 26   | 360148      | Thrust Washer   | 1              |
| 27   | 360021      | Gear            | 1              |
| 28   | 360082      | Bushing         | 1              |

# Common hardware; procure locally.

## Group 33: Timing Gear Cover, continued



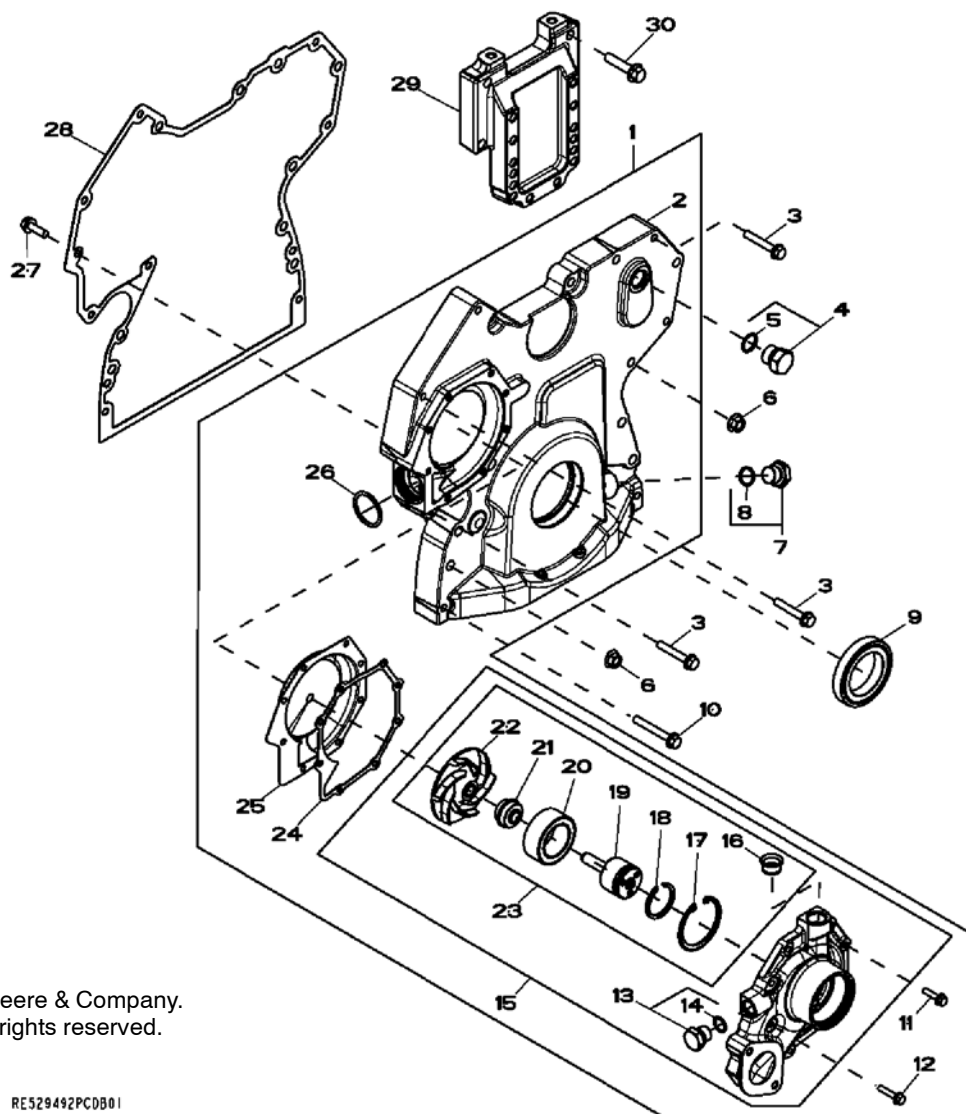
RGP8277

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| Item | Part Number | Description           | Quantity       |
|------|-------------|-----------------------|----------------|
|      |             |                       | Variation 4429 |
| 1    | 360125      | Gasket, gear cover    | 1              |
| 2    | GM32796     | Cover, gear           | 1              |
| 3    | 360180      | O-ring, 17.3 x 2.2 mm | 1              |
| 4    | GM17508     | Plug                  | 1              |
| 5    | 360512      | Screw                 | 1              |
| 6    | #           | Screw, M8 x 35        | 1              |
| 7    | #           | Screw, M8 x 60        | 1              |
| 8    | 360107      | O-ring                | 1              |
| 9    | 360105      | Cover                 | 1              |
| 10   | #           | Screw, M6 x 16        | 3              |
| 11   | 360512      | Screw                 | 2              |
| 12   | 360181      | Seal kit              | 1              |
| 13   | #           | Nut, flange           | 6              |
| 14   | #           | Screw                 | 2              |
| 15   | 360140      | Stud                  | 4              |
| 16   | 360514      | Stud                  | 2              |
| 17   | 360082      | Bushing               | 1              |
| 18   | 360021      | Gear                  | 1              |
| 19   | 360148      | Washer, thrust        | 1              |
|      | #           | Screw                 | 1              |

# Common hardware; procure locally.

## Group 33: Timing Gear Cover, continued



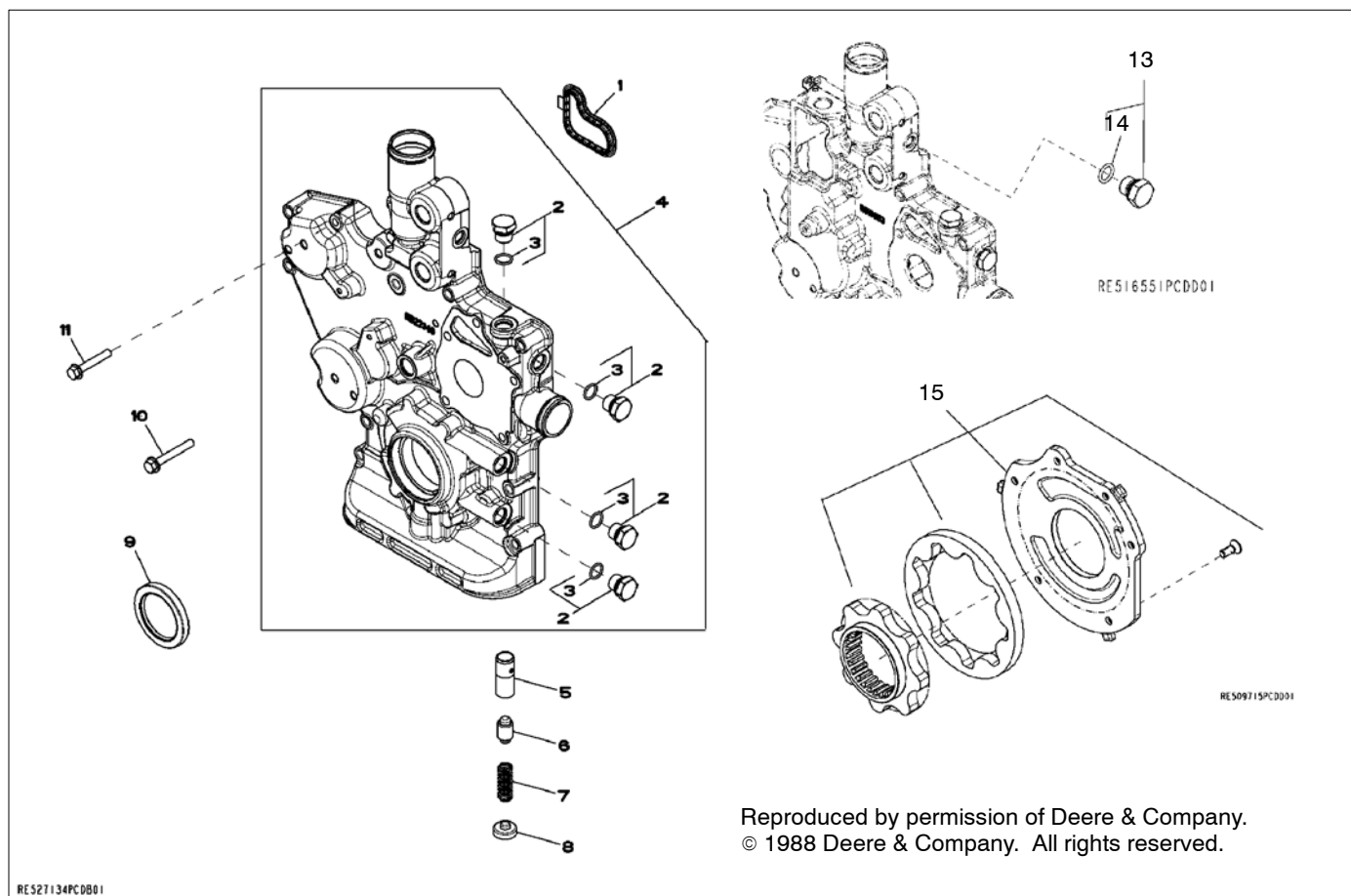
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RE529492PCDB01

| Item | Part Number | Description           | Quantity       |      |
|------|-------------|-----------------------|----------------|------|
|      |             |                       | Variation 4433 | 4446 |
| 1    | GM52532     | Cover kit             | 1              | 1    |
| 2    | —           | Cover (order item 1)  | 1              | 1    |
| 3    | #           | Screw, M8 x 50        | 5              | 5    |
| 4    | GM17498     | Fitting               | 1              | 1    |
| 5    | GM17437     | O-ring                | 1              | 1    |
| 6    | #           | Nut, flange, M10      | 9              | 9    |
| 7    | 360078      | Plug, drain           | 1              | 1    |
| 8    | 360180      | O-ring, 17.3 X 2.2 mm | 1              | 1    |
| 9    | 360181      | Seal kit              | 1              | 1    |
| 10   | #           | Screw, M8 x 60        | 3              | 3    |
| 26   | GM24543     | O-ring                | 1              | 1    |
| 27   | #           | Screw, M8 x 25        | 1              | 1    |
| 28   | GM52533     | Gasket                | 1              | 1    |
| 29   | GM46695     | Adapter               | 1              | 1    |
| 29   | GM52534     | Support               | 1              | 1    |
| 30   | #           | Screw, M10 x 45       | 4              | 4    |

# Common hardware; procure locally.

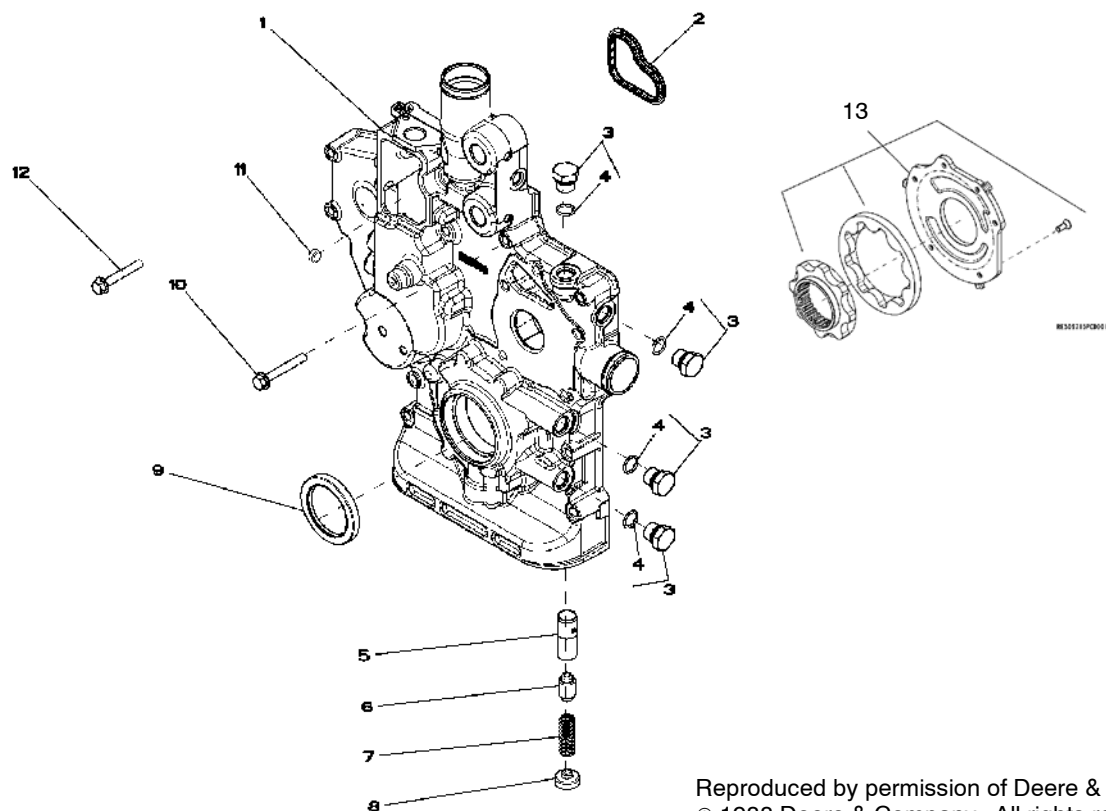
## Group 33: Timing Gear Cover, continued



| Item | Part Number | Description                             | Quantity          |
|------|-------------|-----------------------------------------|-------------------|
|      |             |                                         | Variation<br>4402 |
| 1    | —           | Seal                                    | 14                |
| 2    | 360014      | Plug                                    | 14                |
| 3    | 360176      | O-ring                                  | 4                 |
| 4    | GM63880     | Cover (include items 2, 3)              | 1                 |
| 5    | GM63764     | Valve seat                              | 1                 |
| 6    | GM63745     | Valve                                   | 1                 |
| 7    | GM63743     | Spring, compression                     | 1                 |
| 8    | GM63742     | Plug                                    | 1                 |
| 9    | 223422      | Seal                                    | 1                 |
| 10   | GM63706     | Screw, M8 x 60                          | 1                 |
| 11   | #           | Screw, M8 x 50                          | 11                |
| —    | GM63705     | Sealant                                 | AR                |
| 13   | 360013      | Plug                                    | 1                 |
| 14   | GM21508     | O-ring                                  | 1                 |
| 15   | —           | Pump, oil (order item 16)               | 1                 |
| 16   | GM64247     | Cover kit (include items 2, 3, 5-9, 15) | 1                 |

# Common hardware; procure locally.

## Group 33: Timing Gear Cover, continued

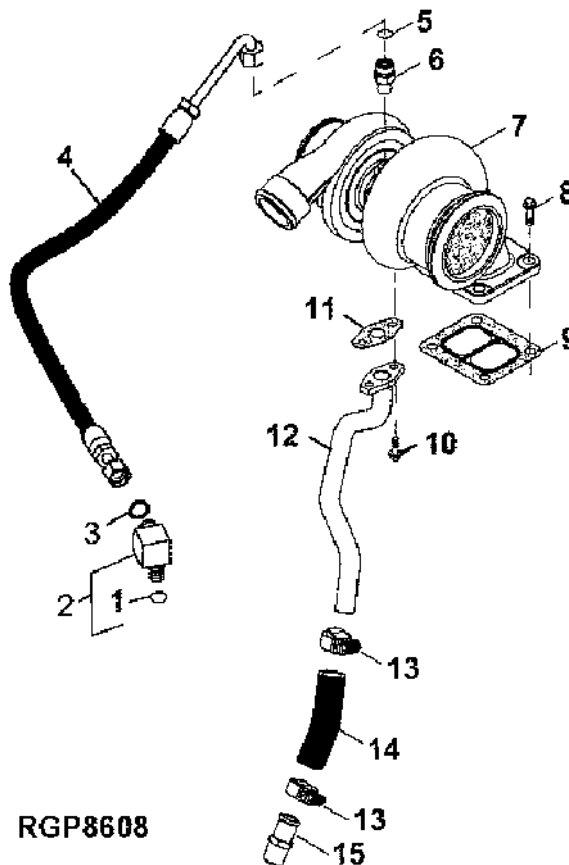


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| Item | Part Number | Description                       | Quantity       |
|------|-------------|-----------------------------------|----------------|
|      |             |                                   | Variation 4401 |
| 1    | —           | Cover (order item 14)             | 1              |
| 2    | GM63798     | Gasket                            | 1              |
| 3    | 360014      | Plug                              | 4              |
| 4    | 360176      | O-ring                            | 4              |
| 5    | GM63764     | Seat, valve                       | 1              |
| 6    | GM63745     | Valve                             | 1              |
| 7    | GM63743     | Spring, compression               | 1              |
| 8    | GM63742     | Plug                              | 1              |
| 9    | 223422      | Seal                              | 1              |
| 10   | GM63706     | Screw, M8 x 60                    | 1              |
| 11   | GM63763     | Plug                              | 1              |
| 12   | #           | Screw, M8 x 55                    | 11             |
| —    | GM63705     | Sealant                           | AR             |
| 13   | —           | Pump, oil (order item 14)         | 1              |
| 14   | GM63860     | Cover kit (include items 2-9, 13) | 1              |

# Common hardware; procure locally.

## Group 34: Turbocharger and Oil Lines



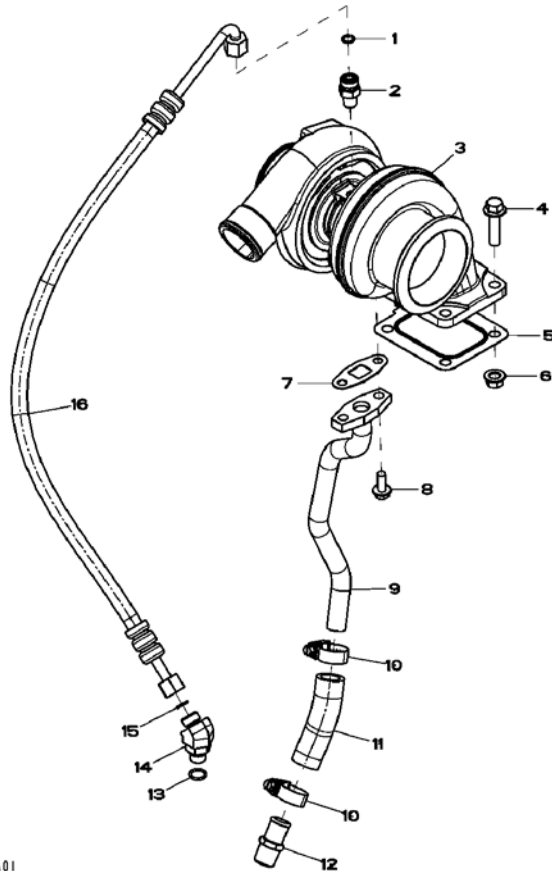
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**RGP8608**

| Item | Part Number | Description                       | Quantity  |      |
|------|-------------|-----------------------------------|-----------|------|
|      |             |                                   | Variation |      |
|      |             |                                   | 65HE      | 65RQ |
| 1    | 360557      | O-ring                            | 1         | 1    |
| 2    | 360556      | Fitting, elbow, 45 deg.           | 1         | 1    |
| 3    | 360555      | O-ring                            | 1         | 1    |
| 4    | GM23842     | Oil line                          | 1         |      |
| 4    | GM52537     | Oil line                          |           | 1    |
| 5    | 360165      | O-ring                            | 1         | 1    |
| 6    | 360006      | Adapter                           | 1         | 1    |
| 7    | GM32838     | Turbocharger                      | 1         |      |
| 7    | GM52535     | Turbocharger                      |           | 1    |
| 8    | #           | Screw                             | 4         | 4    |
| 9    | 360137      | Gasket, turbo to exhaust manifold | 1         | 1    |
| 10   | #           | Screw, M8 x 20                    | 2         | 2    |
| 11   | 360136      | Gasket, turbo oil outlet tube     | 1         | 1    |
| 12   | 360558      | Oil line                          | 1         |      |
| 12   | GM52536     | Oil line                          |           | 1    |
| 13   | 360062      | Clamp                             | 2         | 2    |
| 14   | 224055      | Hose                              | 1         |      |
| 14   | GM49926     | Hose                              |           | 1    |
| 15   | GM21492     | Fitting, hose                     | 1         | 1    |

# Common hardware; procure locally.

## Group 34: Turbocharger and Oil Lines, continued



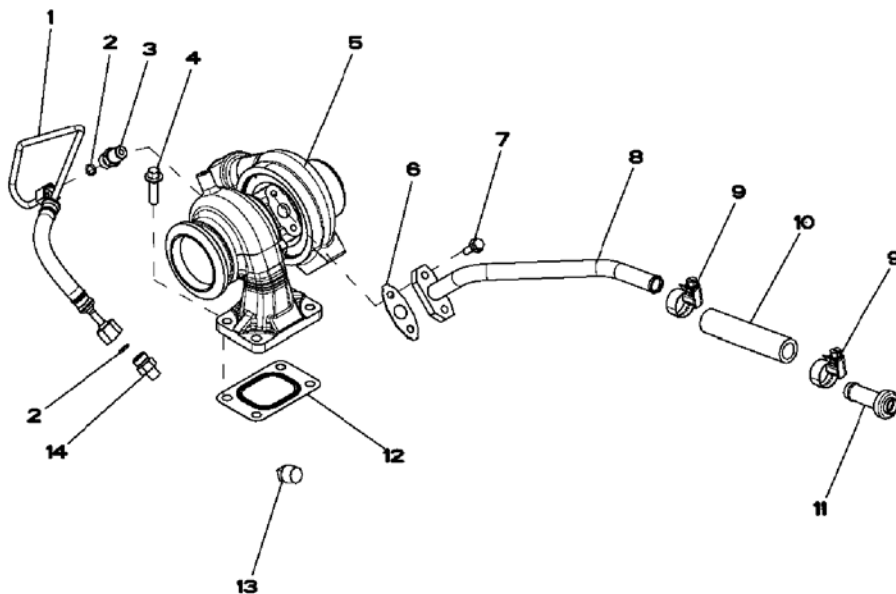
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RES31936PCDA01

| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 65SN |
| 1    | 360165      | O-Ring          | 1              |
| 2    | 360006      | Adapter Fitting | 1              |
| 3    | GM91852     | Turbocharger    | 1              |
| 4    | #           | Screw, M10 X 40 | 4              |
| 5    | 352809      | Gasket          | 1              |
| 6    | GM30375     | Flange Nut      | 4              |
| 7    | 360136      | Gasket          | 1              |
| 8    | #           | Screw, M8 X 20  | 2              |
| 9    | 360558      | Oil Line        | 1              |
| 10   | 360062      | Clamp           | 2              |
| 11   | GM49926     | Hose            | 1              |
| 12   | GM21492     | Hose Fitting    | 1              |
| 13   | 360557      | O-Ring          | 1              |
| 14   | 360556      | Elbow Fitting   | 1              |
| 15   | 360555      | O-Ring          | 1              |
| 16   | GM23842     | Hose            | 1              |

# Common hardware; procure locally.

## Group 34: Turbocharger and Oil Lines, continued



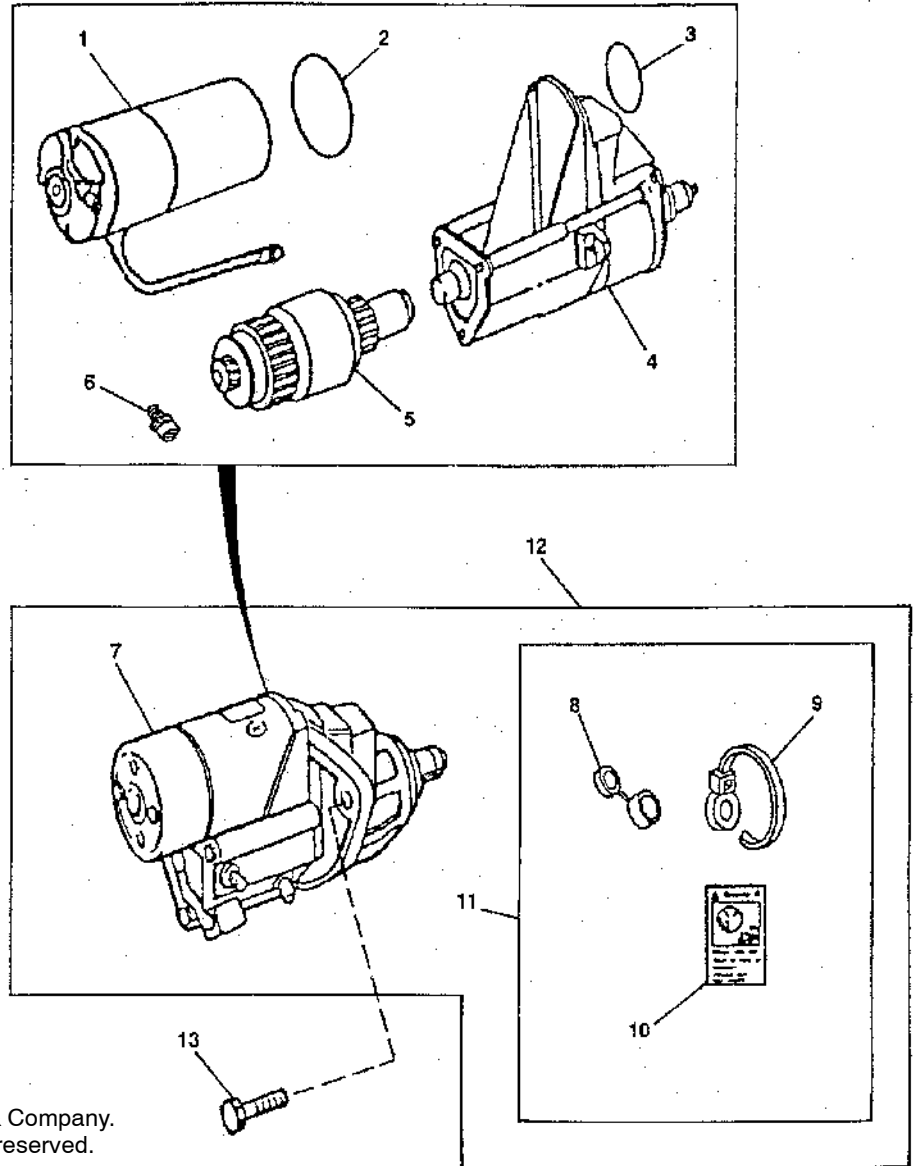
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RGP12604

| Item | Part Number | Description                    | Quantity  |      |      |      |
|------|-------------|--------------------------------|-----------|------|------|------|
|      |             |                                | Variation |      |      |      |
|      |             |                                | 6526      | 6553 | 6567 | 6571 |
| 1    | GM63848     | Hose, hydraulic                | 1         |      |      |      |
| 1    | GM63889     | Hose, hydraulic                |           | 1    | 1    | 1    |
| 2    | GM17557     | O-ring                         | 1         |      |      |      |
| 2    | GM63923     | O-ring                         |           | 2    | 2    | 2    |
| 3    | GM63927     | Fitting, adapter               |           | 1    | 1    | 1    |
| 4    | GM63746     | Screw                          | 4         | 4    | 4    | 4    |
| 5    | GM21487     | Turbocharger                   | 1         |      |      |      |
| 5    | GM63898     | Turbocharger                   |           | 1    |      |      |
| 5    | GM63908     | Turbocharger                   |           |      | 1    |      |
| 5    | GM87023     | Turbocharger                   |           |      |      | 1    |
| 6    | GM63785     | Gasket                         |           | 1    | 1    | 1    |
| 7    | #           | Screw, M6 x 20                 |           | 2    | 2    | 2    |
| 8    | GM63849     | Oil line                       | 1         |      |      |      |
| 8    | GM63888     | Oil line                       |           | 1    | 1    | 1    |
| 9    | 360062      | Clamp                          | 2         | 2    | 2    | 2    |
| 10   | GM63757     | Hose                           | 1         | 1    | 1    | 1    |
| 11   | GM63851     | Tube, oil                      | 1         | 1    | 1    | 1    |
| 12   | GM63734     | Gasket                         | 1         | 1    | 1    | 1    |
| 13   | #           | Plug, pipe, 6.350 mm (1/4 in.) | 1         |      | 1    |      |
| 13   | #           | Plug, pipe, 3/8 in.            |           | 1    |      | 1    |
| 14   | GM63926     | Fitting, adapter               | 1         | 1    | 1    | 1    |

# Common hardware; procure locally.

## Group 35: Starter Motor

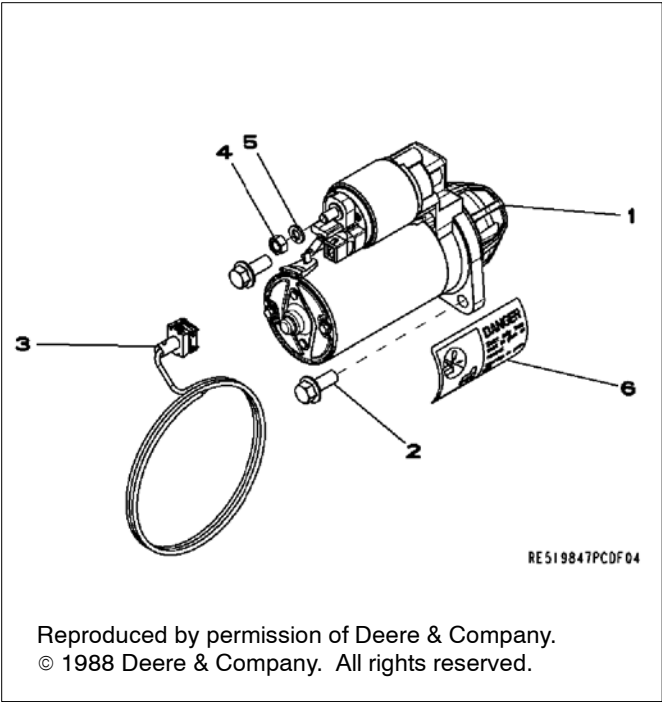
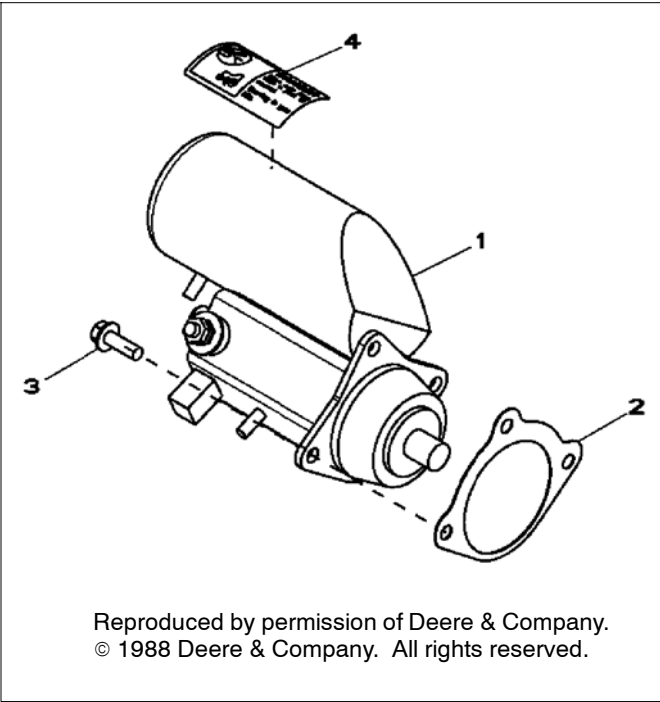


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| Item | Part Number | Description                  | Quantity  |      |
|------|-------------|------------------------------|-----------|------|
|      |             |                              | Variation |      |
|      |             |                              | 3006      | 3041 |
| 1    | —           | Motor                        | 1         | 1    |
| 2    | GM17463     | Seal                         | 1         | 1    |
| 3    | GM17464     | O-ring                       | 1         | 1    |
| 4    | GM17544     | Switch                       | 1         |      |
| 4    | GM17546     | Switch                       |           | 1    |
| 5    | GM17545     | Clutch                       | 1         |      |
| 5    | GM17547     | Clutch                       |           | 1    |
| 6    | GM18874     | Screw, with washer, M5 x 0.8 | 1         | 1    |
| 7    | —           | Motor, starter               | 1         | 1    |
| 8    | —           | Cover                        | 1         | 1    |
| 9    | GM17495     | Tie band                     | 1         | 1    |
| 10   | GM17554     | Label                        | 1         | 1    |
| 11   | GM17548     | Kit                          | 1         | 1    |
| 12   | 352390      | Starter                      | 1         |      |
| 12   | GM16801     | Starter, 24 V                |           | 1    |
| 13   | #           | Screw, M10 x 30              | 3         | 3    |

# Common hardware; procure locally.

Group 35: Starter Motor, continued

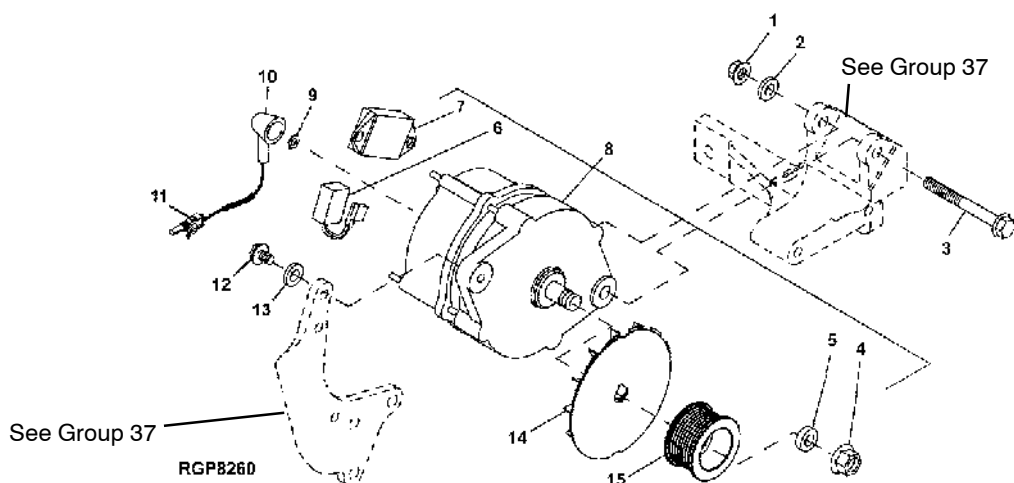


| Item | Part Number | Description     | Quantity  |      |
|------|-------------|-----------------|-----------|------|
|      |             |                 | Variation |      |
|      |             |                 | 3005      | 3012 |
| 1    | GM52538     | Starter         |           | 1    |
| 1    | GM23699     | Starter         | 1         |      |
| 2    | 223791      | Gasket          | 1         | 1    |
| 3    | #           | Screw, M10 x 30 | 2         | 3    |
| 4    | GM17554     | Label           | 1         | 1    |
| 5    | 352140      | Switch          |           | 1    |
| 5    | GM29784     | Switch          | 1         |      |
| 6    | 352116      | Clutch          |           | 1    |
| 6    | GM29785     | Clutch          | 1         |      |

| Item | Part Number | Description        | Quantity       |
|------|-------------|--------------------|----------------|
|      |             |                    | Variation 3002 |
| 1    | GM63811     | Motor, starter     | 1              |
| 2    | #           | Screw, M10 x 25    | 2              |
| 3    | GM63862     | Harness, wiring    | 1              |
| 4    | #           | Nut, M8            | 1              |
| 5    | #           | Washer, lock, 8 mm | 1              |
| 6    | GM17554     | Label              | 1              |

# Common hardware; procure locally.

## Group 36: Alternator

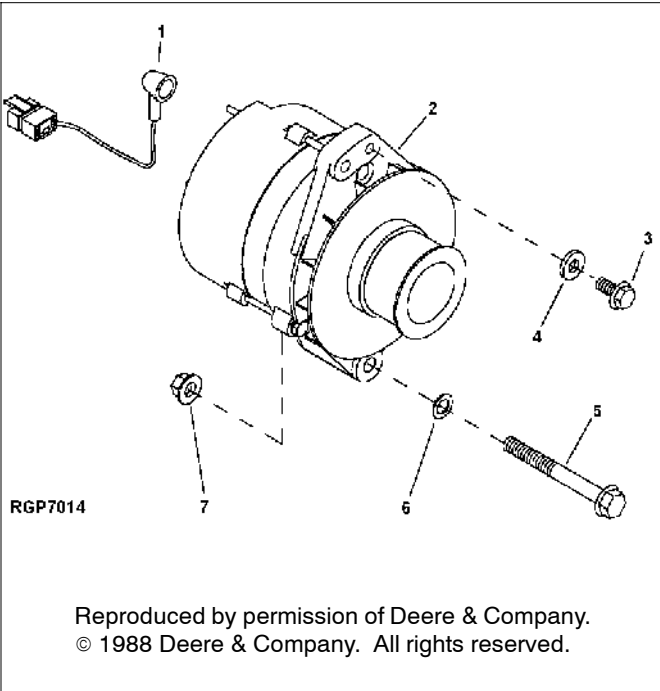


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| Item | Part Number | Description        | Quantity  |      |      |      |
|------|-------------|--------------------|-----------|------|------|------|
|      |             |                    | Variation |      |      |      |
|      |             |                    | 3104      | 3109 | 3138 | 3142 |
| 1    | #           | Nut, flange        | 1         | 1    | 1    | 1    |
| 2    | 360166      | Washer             | 1         | 1    | 1    | 1    |
| 3    | #           | Screw              | 1         |      | 1    | 1    |
| 3    | GM70547     | Screw              |           | 1    |      |      |
| 4    | #           | Nut                |           |      | 1    | 1    |
| 5    | 224331      | Washer             |           |      | 1    | 1    |
| 6    | 360589      | Capacitor          | 1         |      | 1    | 1    |
| 6    | GM91854     | Capacitor          |           | 1    |      |      |
| 7    | 360591      | Regulator          |           |      | 1    |      |
| 7    | 360590      | Regulator          | 1         |      |      | 1    |
| 7    | GM91855     | Regulator          |           | 1    |      |      |
| 8    | 360001      | Alternator, 12 V   |           |      | 1    |      |
| 8    | GM91853     | Alternator, 12 V   |           | 1    | 1    |      |
| 8    | GM17440     | Alternator, 24 V   |           |      |      | 1    |
| 9    | #           | Nut                | 1         | 1    | 1    | 1    |
| 10   | GM32923     | Harness, wiring    |           |      | 1    | 1    |
| 10   | GM50648     | Harness, wiring    | 1         |      |      |      |
| 10   | GM17528     | Wiring Harness     |           | 1    |      |      |
| 11   | GM32805     | Connector          | 1         |      | 1    | 1    |
| 12   | #           | Screw, M8 x 25     | 1         |      | 1    | 1    |
| 12   | #           | Screw, M8 X 30     |           | 1    |      |      |
| 13   | GM18719     | Washer             | 1         |      | 1    | 1    |
| 13   | GM32782     | Washer             |           | 1    |      |      |
| 14   | 360588      | Fan                | 1         |      | 1    | 1    |
| 14   | GM52596     | Fan                |           | 1    |      |      |
| 15   | GM17485     | Pulley, alternator | 1         |      | 1    | 1    |
| 15   | GM52597     | Pulley, alternator |           | 1    |      |      |

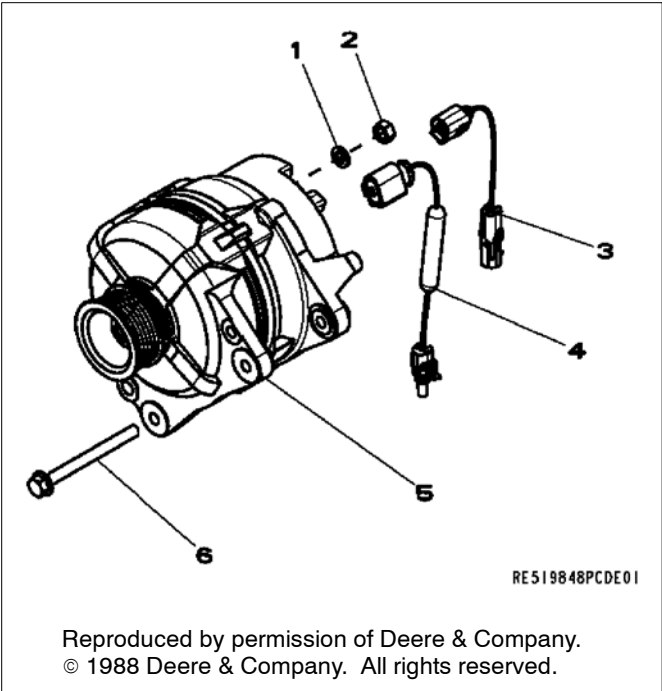
# Common hardware; procure locally.

Group 36: Alternator, continued



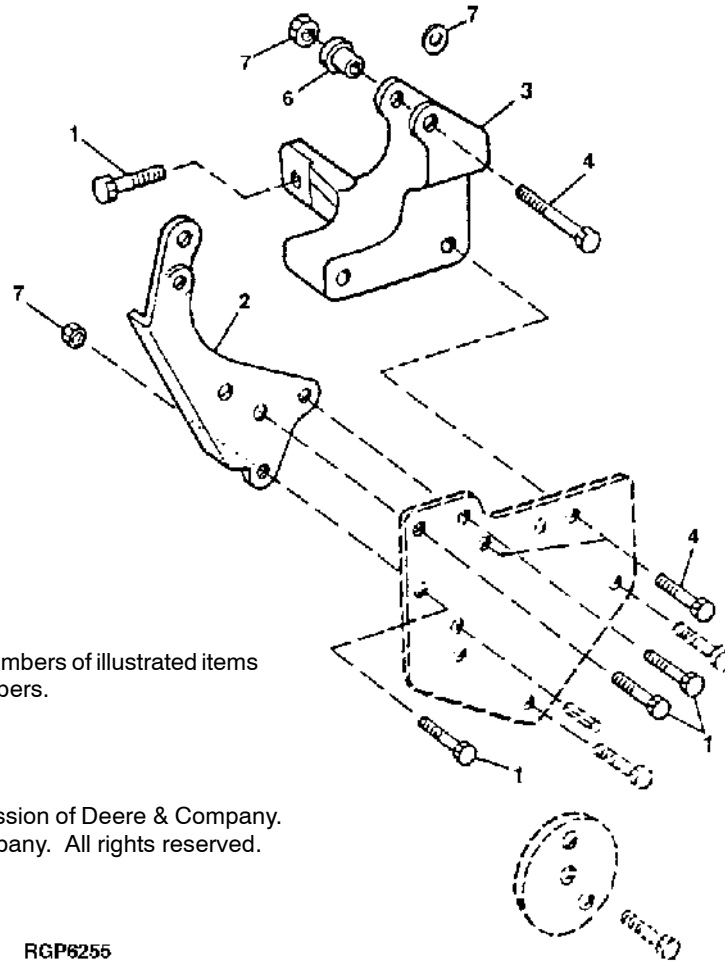
| Item | Part Number | Description      | Quantity       |
|------|-------------|------------------|----------------|
|      |             |                  | Variation 3122 |
| 1    | GM21518     | Harness, wiring  | 1              |
| 2    | GM23850     | Alternator       | 1              |
| 3    | #           | Screw, M8 x 25   | 1              |
| 4    | GM32782     | Washer           | 1              |
| 5    | #           | Screw, M10 x 100 | 1              |
| 6    | 360166      | Washer, thrust   | 1              |
| 7    | #           | Nut, M10         | 1              |

# Common hardware; procure locally.



| Item | Part Number | Description       | Quantity       |
|------|-------------|-------------------|----------------|
|      |             |                   | Variation 3102 |
| 1    | #           | Lock washer, 8 mm | 1              |
| 2    | #           | Nut, M8           | 1              |
| 3    | GM63828     | Harness, wiring   | 1              |
| 4    | GM63827     | Harness, wiring   | 1              |
| 5    | GM63881     | Alternator        | 1              |
| 6    | #           | Screw, M8 x 90    | 2              |

## Group 37: Alternator Mounting



See Group 9 for part numbers of illustrated items without reference numbers.

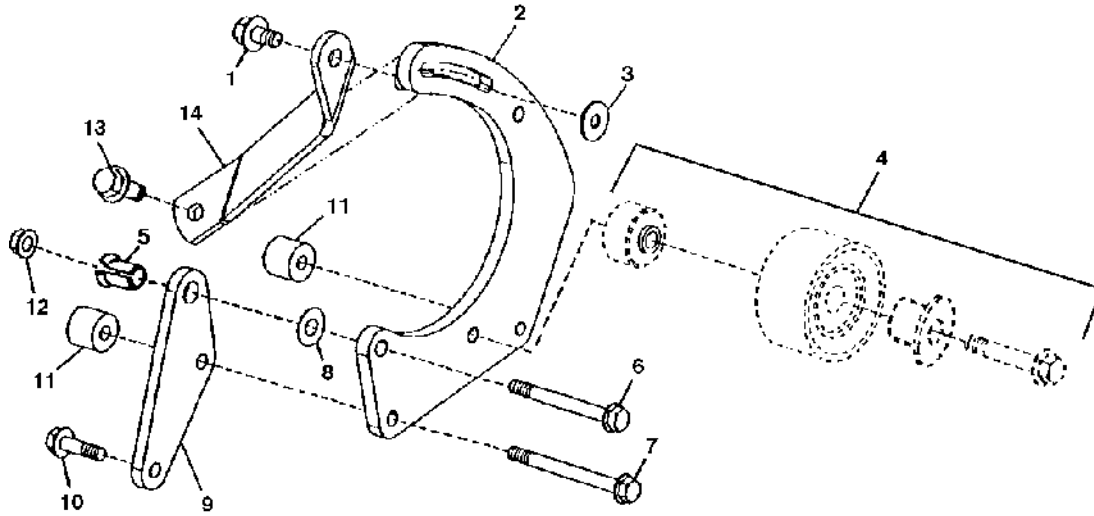
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RGP6255

| Item | Part Number | Description          | Quantity       |
|------|-------------|----------------------|----------------|
|      |             |                      | Variation 6201 |
| 1    | #           | Screw, M10 x 30      | 5              |
| 2    | GM17455     | Strap                | 1              |
| 3    | 360150      | Bracket              | 1              |
| 4    | #           | Screw, cap, M10 x 25 | 2              |
| 6    | 360076      | Bushing              | 1              |
| 7    | #           | Nut, flange, M10     | 3              |

# Common hardware; procure locally.

## Group 37: Alternator Mounting, continued



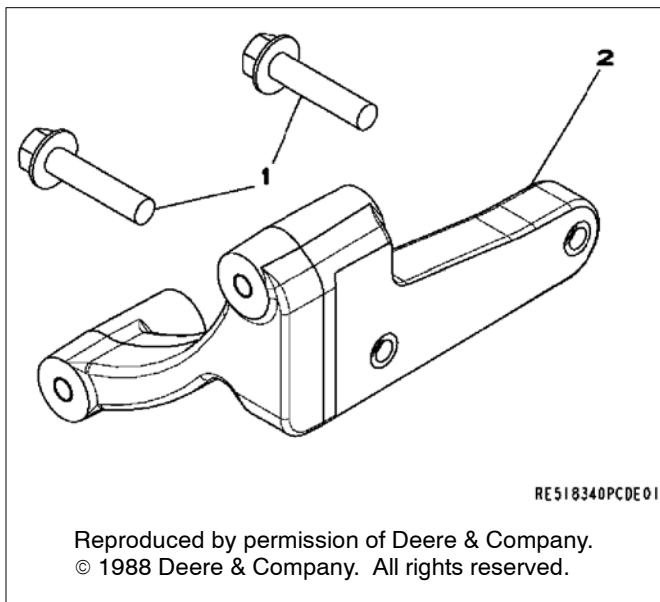
RGP9891

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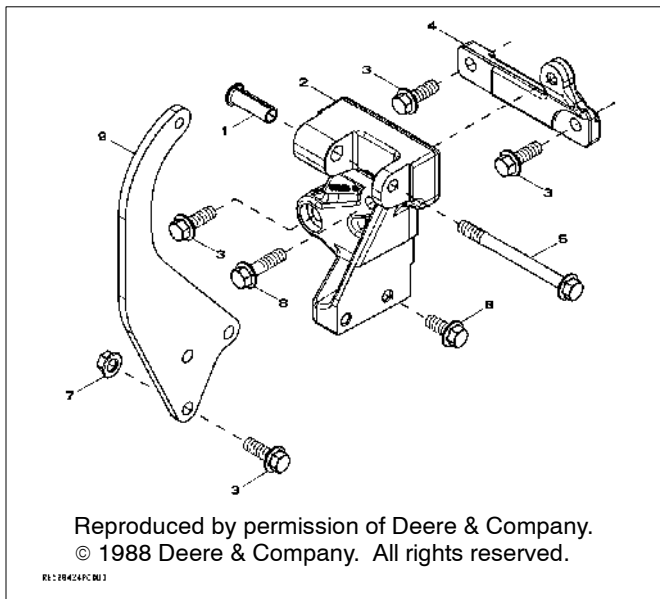
| Item | Part Number | Description             | Quantity  |      |
|------|-------------|-------------------------|-----------|------|
|      |             |                         | Variation |      |
|      |             |                         | 6211      | 6212 |
| 1    | #           | Screw, M10 x 16         | 1         | 1    |
| 2    | GM32795     | Bracket                 | 1         | 1    |
| 3    | #           | Washer, 8.4 x 24 x 2 mm | 1         | 1    |
| 4    | —           | See Group 9             | 1         | 1    |
| 5    | GM23838     | Bushing                 | 1         | 1    |
| 6    | #           | Screw, M8 x 80          | 1         | 1    |
| 7    | #           | Screw, M8 x 100         | 1         | 1    |
| 8    | 360166      | Washer, thrust          | 1         | 1    |
| 9    | GM23834     | Bracket                 | 1         | 1    |
| 10   | #           | Screw, M8 x 30          | 1         | 1    |
| 11   | GM23837     | Spacer                  | 2         | 2    |
| 12   | #           | Nut, M8                 | 1         | 1    |
| 13   | #           | Screw, M10 x 25         | 1         | 1    |
| 14   | GM23836     | Bracket                 | 1         | 1    |

# Common hardware; procure locally.

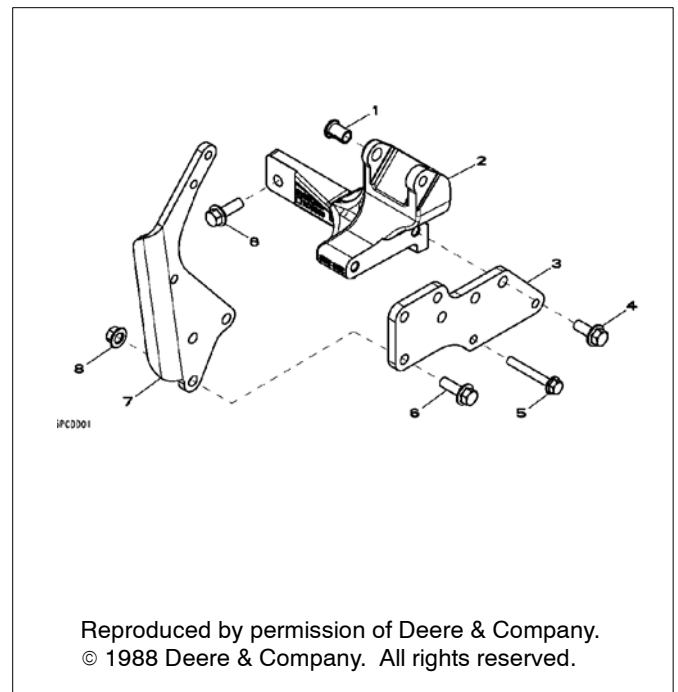
## Group 37: Alternator Mounting, continued



| Item | Part Number | Description    | Quantity       |
|------|-------------|----------------|----------------|
|      |             |                | Variation 6202 |
| 1    | #           | Screw, M10x 45 | 2              |
| 2    | GM63741     | Bracket        | 1              |



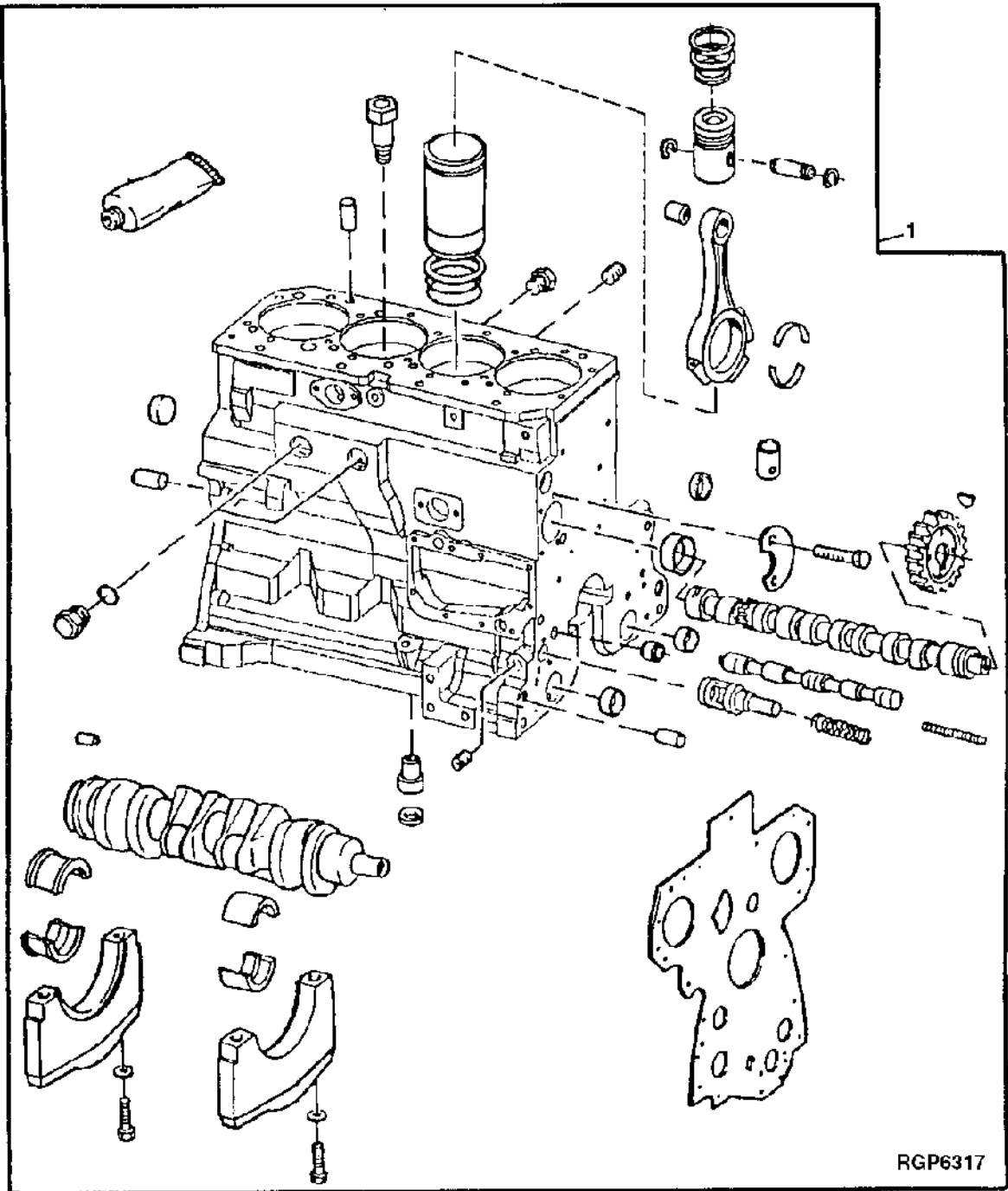
| Item | Part Number | Description      | Quantity       |
|------|-------------|------------------|----------------|
|      |             |                  | Variation 6278 |
| 1    | GM46702     | Bushing          | 1              |
| 2    | GM49887     | Bracket          | 1              |
| 3    | #           | Screw, M10 x 30  | 6              |
| 4    | GM49923     | Bracket          | 1              |
| 5    | #           | Screw, M10 x 120 | 1              |
| 6    | #           | Screw, M10 x 25  | 2              |
| 7    | #           | Flange nut, M10  | 3              |
| 8    | #           | Screw, M10 x 40  | 2              |
| 9    | GM49888     | Strap            | 1              |



| Item | Part Number | Description     | Quantity       |
|------|-------------|-----------------|----------------|
|      |             |                 | Variation 6203 |
| 1    | 360076      | Bushing         | 1              |
| 2    | 360150      | Bracket         | 1              |
| 3    | 360155      | Support         | 1              |
| 4    | #           | Screw, M10 X 25 | 2              |
| 5    | #           | Screw, M8 X 60  | 1              |
| 6    | #           | Screw, M10 X 30 | 5              |
| 7    | 360156      | Strap           | 1              |
| 8    | GM30375     | Flange Nut      | 3              |

# Common hardware; procure locally.

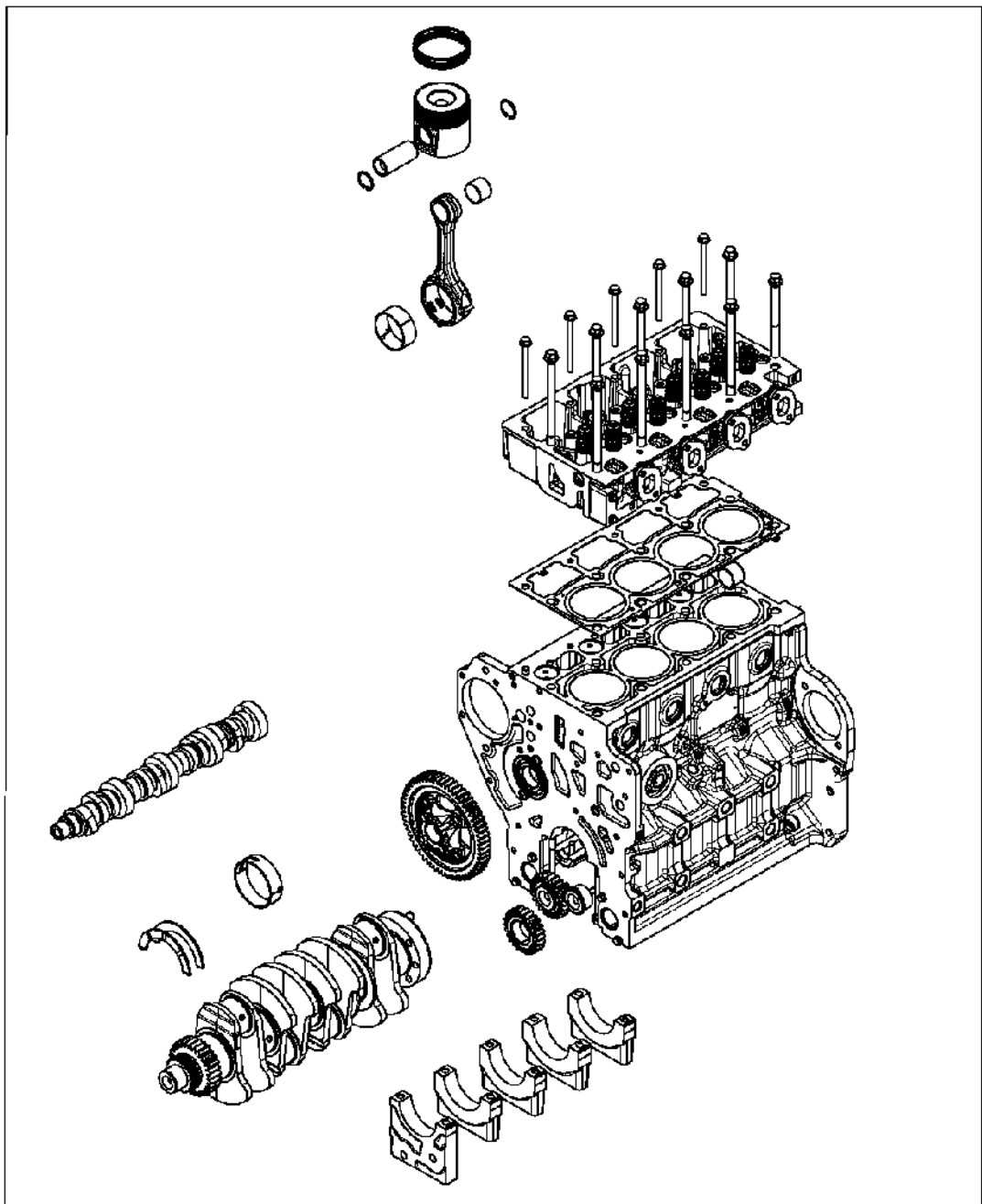
# Group 38: Short Block



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| Item | Part Number | Description                       | Quantity    |             |
|------|-------------|-----------------------------------|-------------|-------------|
|      |             |                                   | Variation 1 | Variation 2 |
| 1    | GM32843     | Block assembly, short (4045TF270) | 1           |             |
| 1    | GM32832     | Block assembly, short (4045HF275) |             | 1           |

Group 38: Short Block, continued

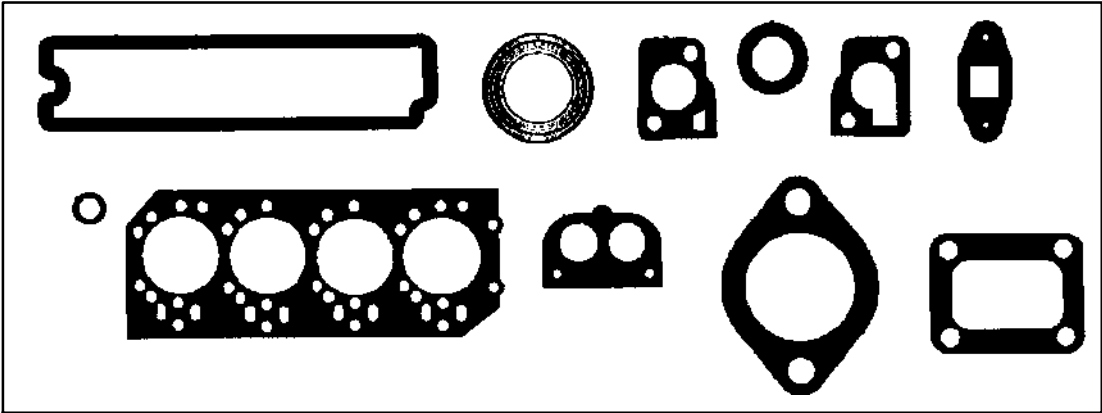


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RE528292RGP01

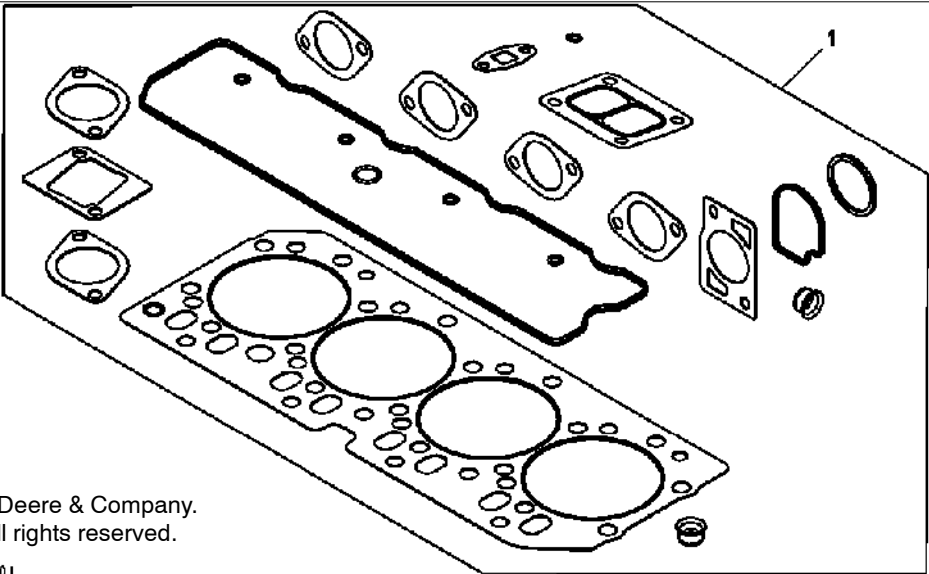
| Item | Part Number | Description             | Quantity  |   |   |   |
|------|-------------|-------------------------|-----------|---|---|---|
|      |             |                         | Variation |   |   |   |
|      |             |                         | 3         | 4 | 5 | 6 |
| 1    | GM63871     | Complete block assembly | 1         |   |   |   |
| 1    | GM77166     | Short block assembly    |           | 1 |   |   |
| 1    | GM77167     | Short block assembly    |           |   | 1 |   |
| 1    | GM91856     | Short block assembly    |           |   |   | 1 |

# Group 39: Cylinder Head Gasket Set



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| Item | Part Number | Description                           | Quantity  |
|------|-------------|---------------------------------------|-----------|
|      |             |                                       | Variation |
| 1    | 360586      | Gasket kit, cylinder head (4045HF275) | 1         |

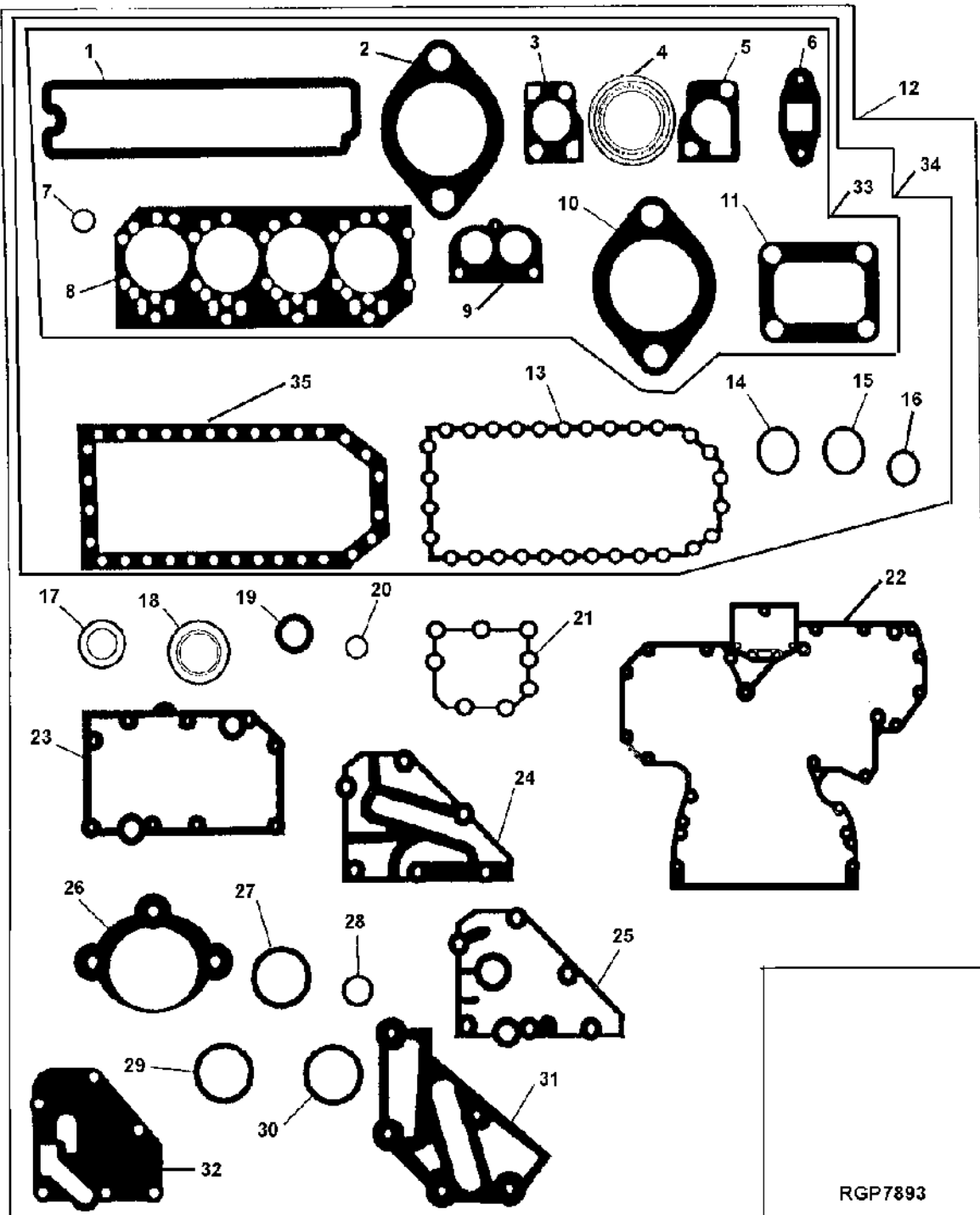


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RE532842PCDA01

| Item | Part Number | Description                           | Quantity  |   |
|------|-------------|---------------------------------------|-----------|---|
|      |             |                                       | Variation |   |
| 1    | GM77168     | Gasket kit, cylinder head (4045HF285) | 2         | 3 |
| 1    | GM91857     | Gasket kit, cylinder head (4045TF280) | 1         | 1 |

## Group 40: Overhaul Gasket Set

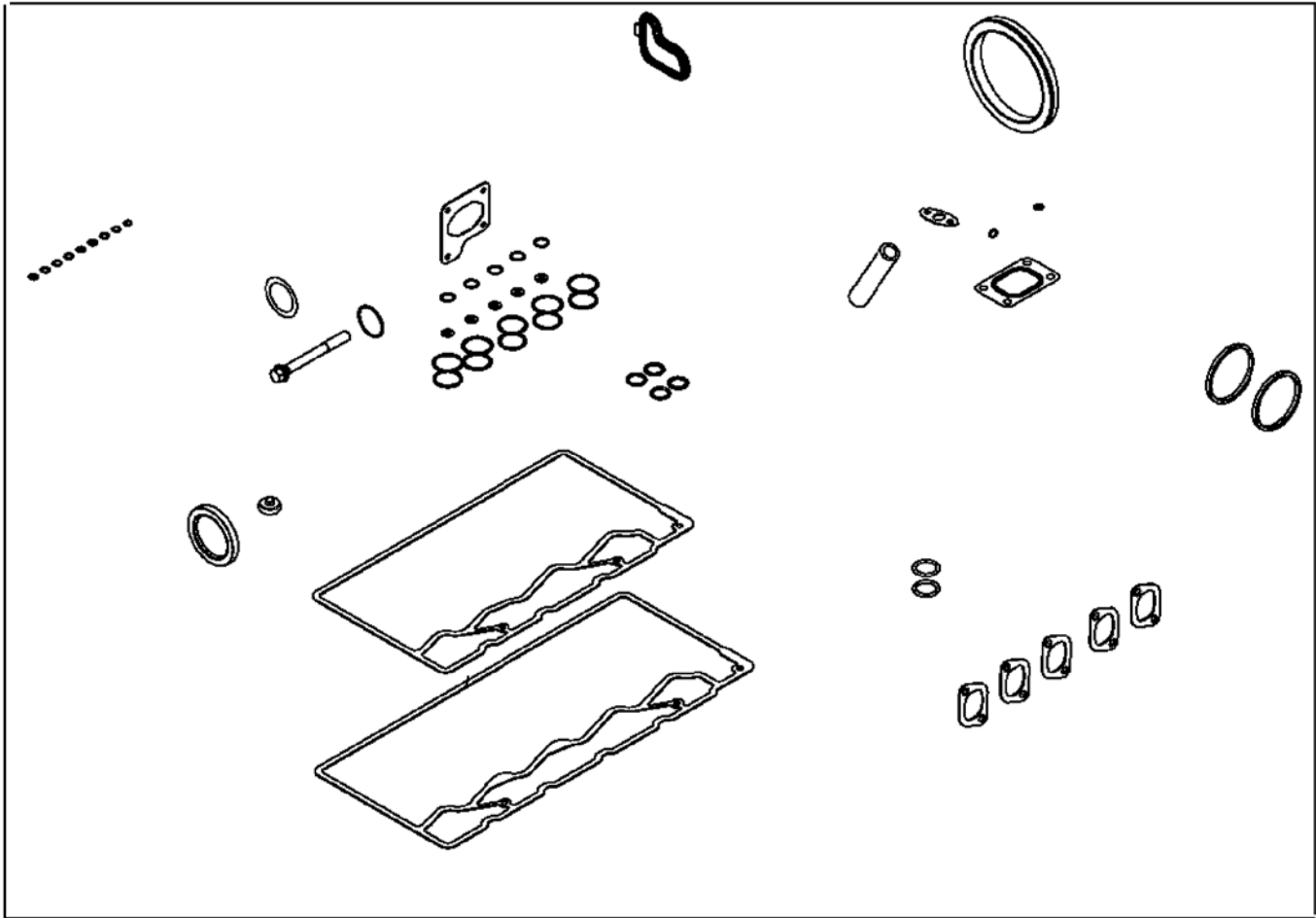


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| Item | Part Number | Description                             | Quantity  |
|------|-------------|-----------------------------------------|-----------|
|      |             |                                         | Variation |
| 12   | 360587      | Gasket kit (includes items 1-11, 13-34) | 1         |

# Group 40: Overhaul Gasket Set, continued

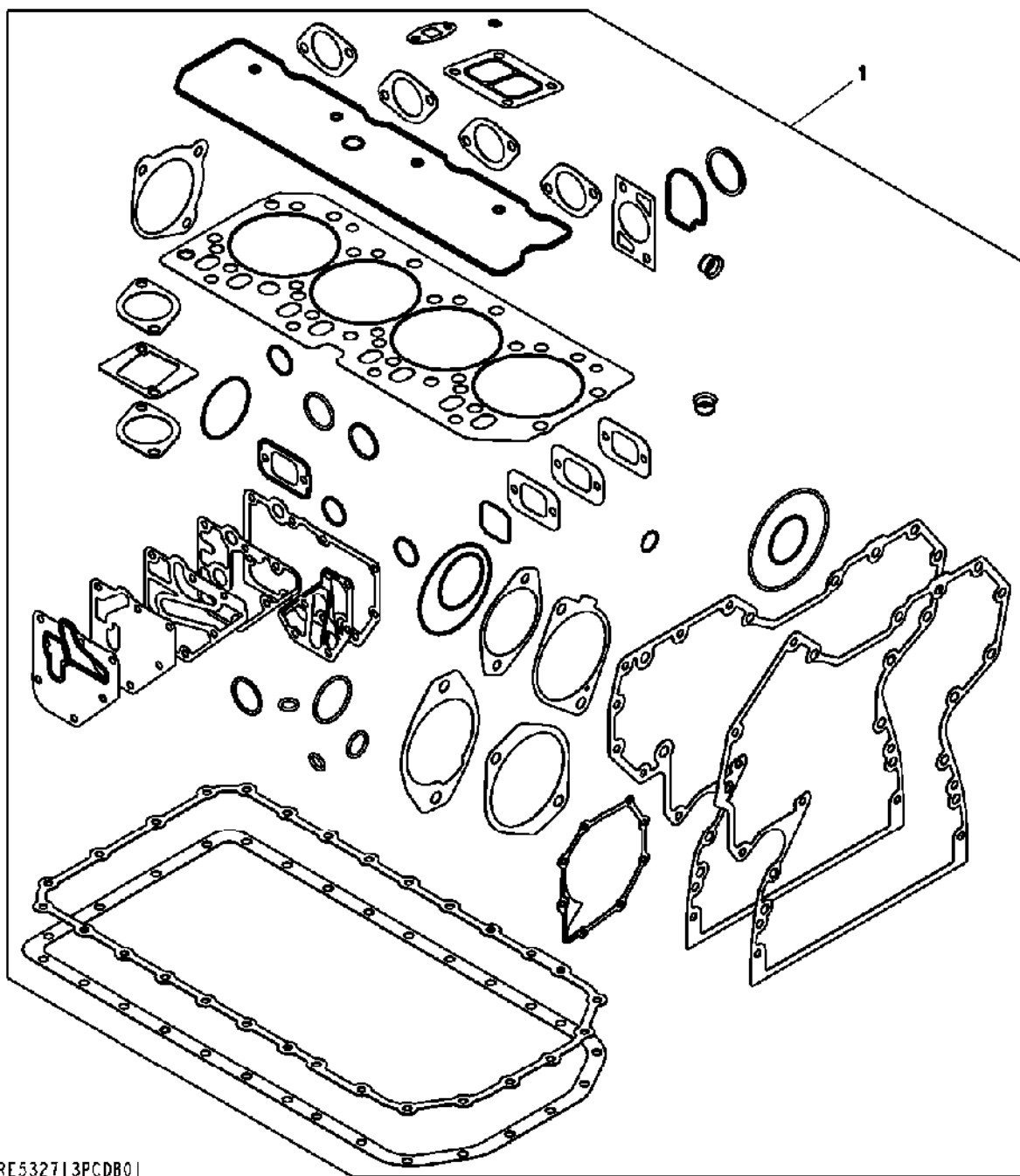
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RE536448PCDA01

| Item | Part Number | Description | Quantity  |   |
|------|-------------|-------------|-----------|---|
|      |             |             | Variation |   |
|      |             |             | 2         | 3 |
| 1    | GM63919     | Gasket kit  | 1         |   |
| 1    | GM64248     | Gasket kit  |           | 1 |

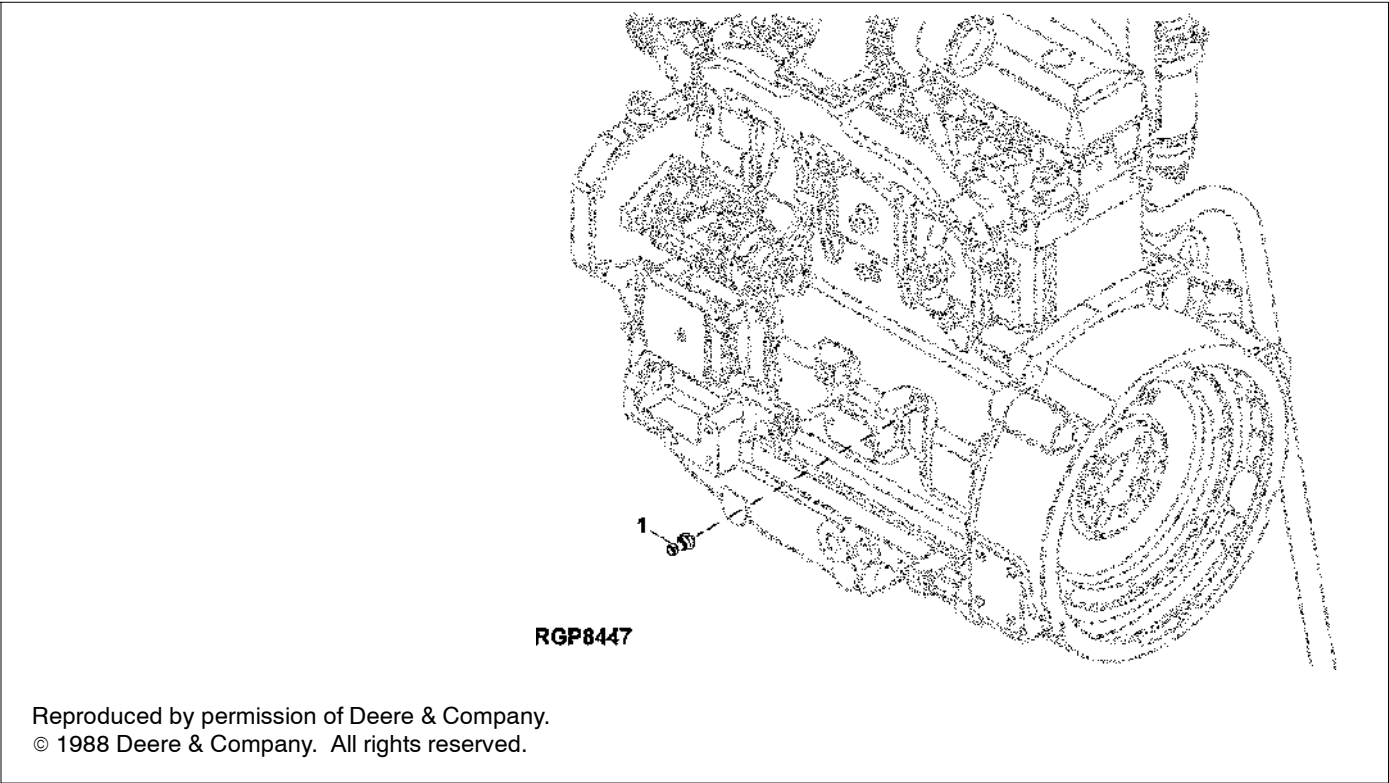
## Group 40: Overhaul Gasket Set, continued



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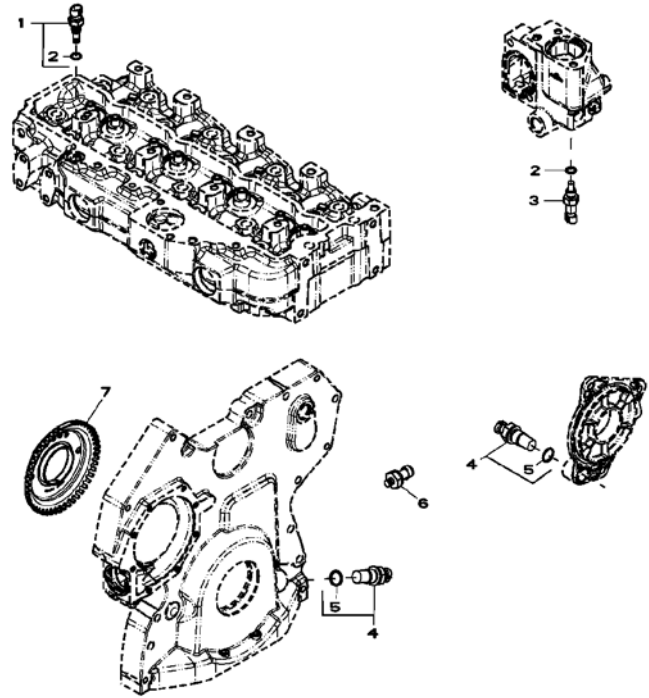
| Item | Part Number | Description            | Quantity    |             |
|------|-------------|------------------------|-------------|-------------|
|      |             |                        | Variation 4 | Variation 5 |
| 1    | GM77169     | Gasket kit (4045HF285) | 1           |             |
| 1    | GM91858     | Gasket kit             |             | 1           |

# Group 41: Engine Sensors



| Item | Part Number | Description                 | Quantity       |
|------|-------------|-----------------------------|----------------|
|      |             |                             | Variation 7635 |
| 1    | GM32919     | Sensor, engine oil pressure | 1              |

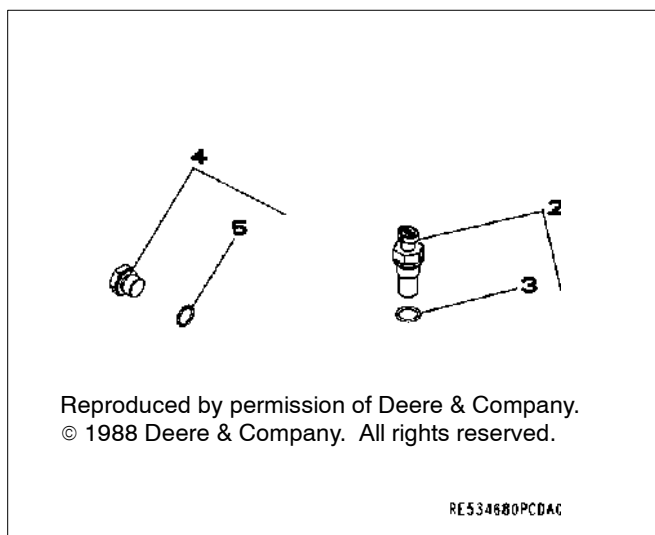
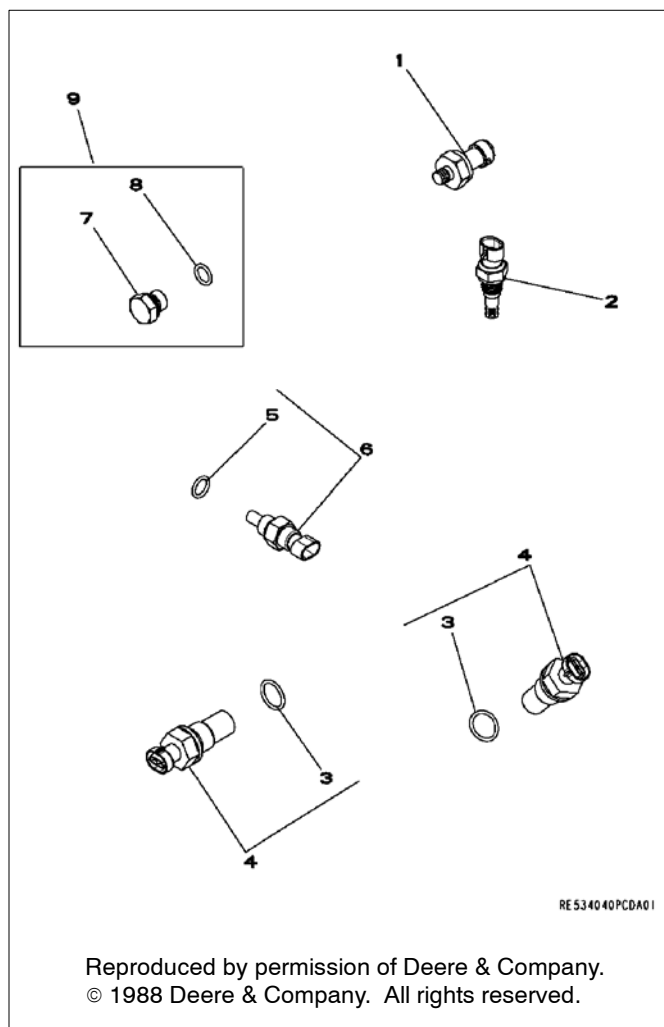
## Group 41: Engine Sensors, continued



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| Item | Part Number | Description                   | Quantity       |
|------|-------------|-------------------------------|----------------|
|      |             |                               | Variation 6730 |
| 1    | GM50034     | Thermocouple, air temperature | 1              |
| 2    | GM21508     | O-ring                        | 1              |
| 3    | GM32955     | Sensor, coolant temperature   | 1              |
| 4    | GM50704     | Sensor, engine speed          | 2              |
| 5    | 360180      | O-ring 17.3 x 2.2 mm          | 2              |
| 6    | GM32919     | Sensor, pressure              | 1              |
| 7    | GM49838     | Wheel                         | 1              |

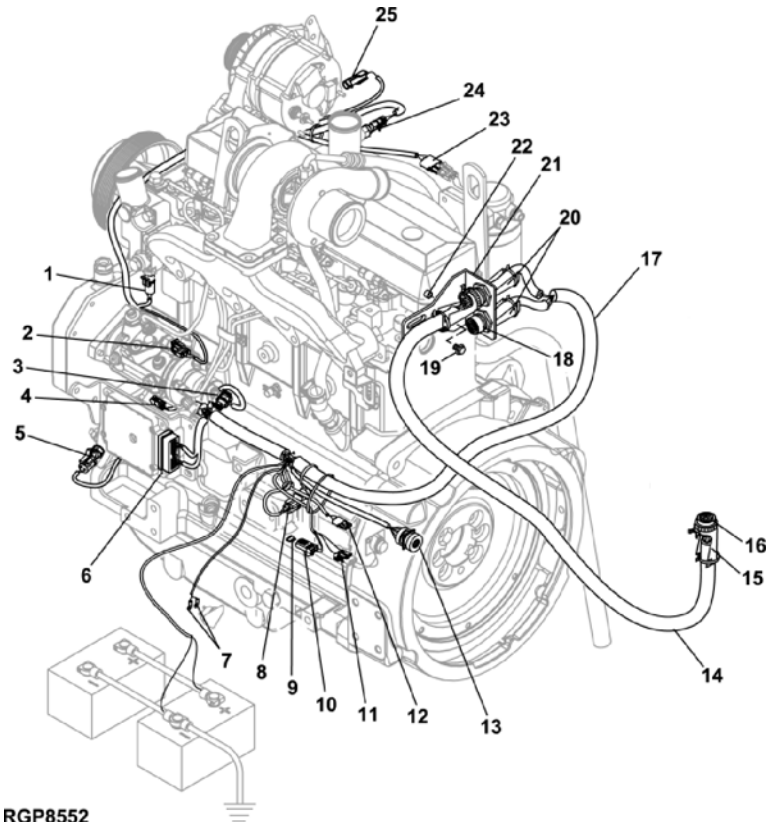
## Group 41: Engine Sensors, continued



| Item | Part Number | Description           | Quantity       |                |
|------|-------------|-----------------------|----------------|----------------|
|      |             |                       | Variation 6702 | Variation 6712 |
| 2    | GM49939     | Sensor                |                | 1              |
| 2    | 246040      | Sensor (3/8-24)       | 1              |                |
| 3    | 360180      | O-ring, 17.3 x 2.2 mm |                | 1              |
| 4    | 360078      | Plug, drain           | 1              | 1              |
| 5    | 360180      | O-ring, 17.3 x 2.2 mm | 1              | 1              |

| Item | Part Number | Description                   | Quantity       |
|------|-------------|-------------------------------|----------------|
|      |             |                               | Variation 6711 |
| 1    | GM32919     | Sensor, pressure              | 1              |
| 2    | GM50034     | Thermocouple, air temperature | 1              |
| 3    | 360180      | O-ring, 17.3 x 2.2 mm         | 1              |
| 4    | GM59793     | Sensor, engine speed          | 2              |
| 5    | GM21508     | O-ring                        | 1              |
| 6    | GM50195     | Sensor                        | 1              |
| 7    | GM63707     | Drain plug                    | 1              |
| 8    | GM21508     | O-ring                        | 1              |
| 9    | 360013      | Plug                          | 1              |

## Group 42: Wiring Harness

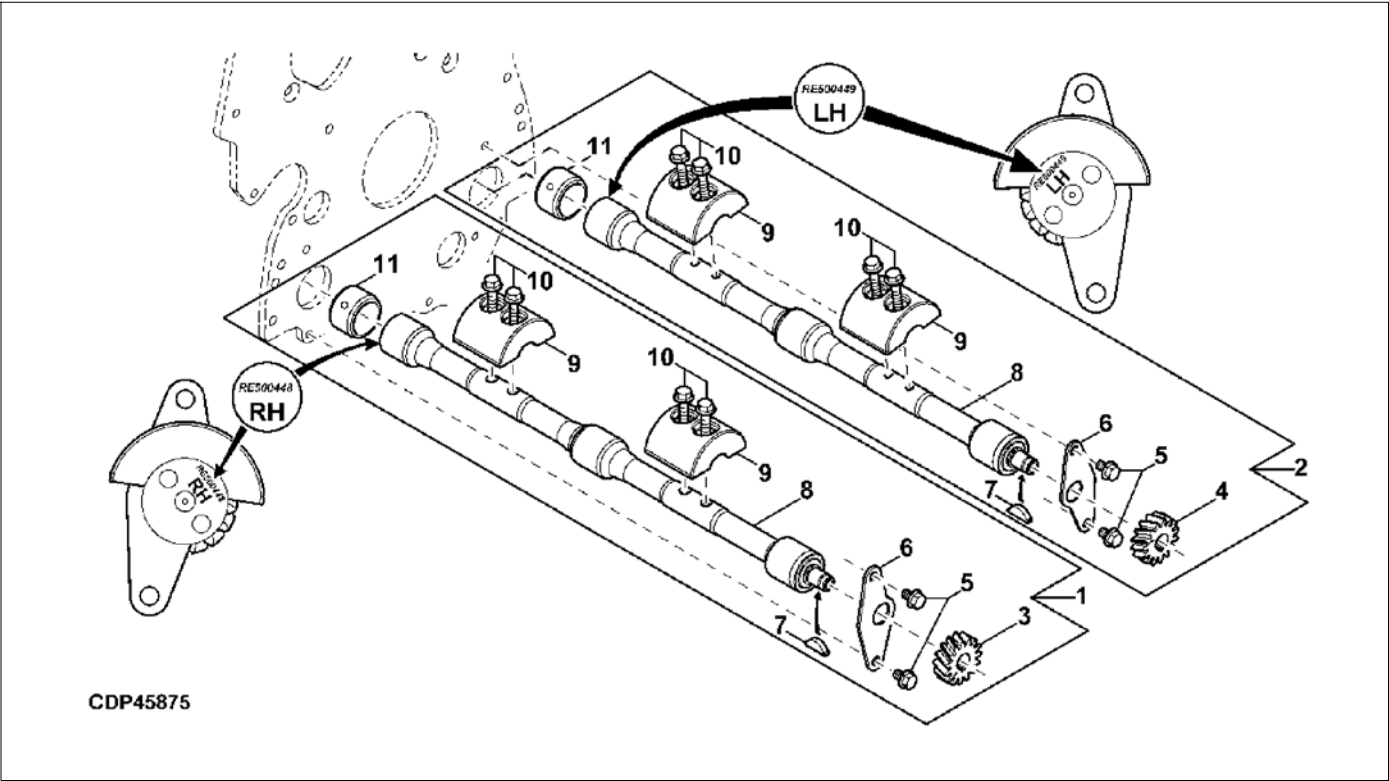


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RGP8552

| Item | Part Number | Description    | Quantity Variation |      |
|------|-------------|----------------|--------------------|------|
|      |             |                | 8407               | 8457 |
| 1    | GM32768     | Connector      | 1                  |      |
| 2    | GM32768     | Connector      | 1                  |      |
| 3    | GM32771     | Connector      | 1                  |      |
| 4    | GM32773     | Connector      | 1                  |      |
| 5    | GM32768     | Connector      | 1                  |      |
| 6    | GM32767     | Connector      | 1                  |      |
| 7    | GM32772     | Connector      | 2                  |      |
| 8    | GM32774     | Connector      | 1                  |      |
| 9    | GM32766     | Fuse           | 1                  |      |
| 10   | GM32778     | Connector      | 1                  |      |
| 11   | GM32806     | Connector      | 1                  |      |
| 12   | GM32769     | Connector      | 1                  |      |
| 13   | GM32775     | Connector      | 1                  |      |
| 14   | GM32837     | Wiring harness | 1                  |      |
| 15   | GM32779     | Connector      | 1                  |      |
| 16   | GM32776     | Connector      | 2                  |      |
| 17   | GM32822     | Wiring harness | 1                  |      |
| 18   | GM32777     | Connector      | 1                  |      |
| 19   | GM32765     | Screw          | 1                  |      |
| 20   | GM32779     | Connector      | 2                  |      |
| 21   | GM32802     | Bracket        | 1                  |      |
| 22   | GM32847     | Bushing        | 1                  |      |
| 23   | GM32770     | Connector      | 1                  |      |
| 24   | GM32768     | Connector      | 1                  |      |
| 25   | GM32804     | Connector      | 1                  |      |

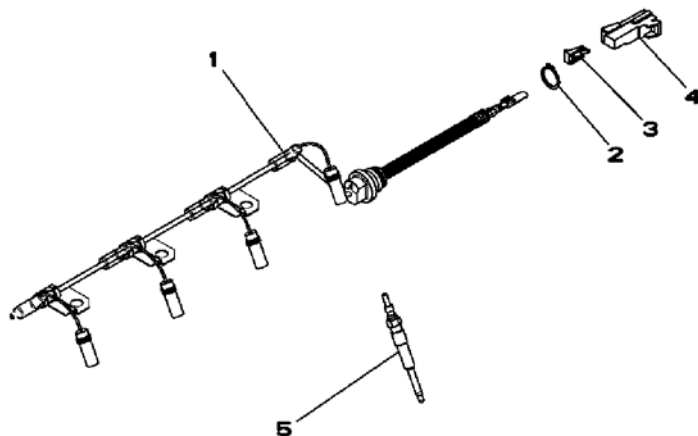
# Group 43: Engine Balancer Shafts



| Item | Part Number | Description                   | Quantity       |
|------|-------------|-------------------------------|----------------|
|      |             |                               | Variation 4501 |
| 1    | GM50634     | Balancer shaft, right hand    | 1              |
| 2    | GM50635     | Balancer shaft, left hand     | 1              |
| 3    | 360549      | Gear, 15 teeth                | 1              |
| 4    | 360100      | Gear, 30 teeth                | 1              |
| 5    | #           | Screw, M8 x 12                | 1              |
| 6    | 360547      | Plate                         | 1              |
| 7    | 360158      | Key, shaft                    | 1              |
| 8    | —           | Balancer shaft (order item 1) | 1              |
| 8    | —           | Balancer shaft (order item 2) | 1              |
| 9    | GM50636     | Weight                        | 2              |
| 10   | #           | Screw, M8 x 40                | 4              |
| 11   | 360519      | Bushing                       | 3              |

# Common hardware; procure locally.

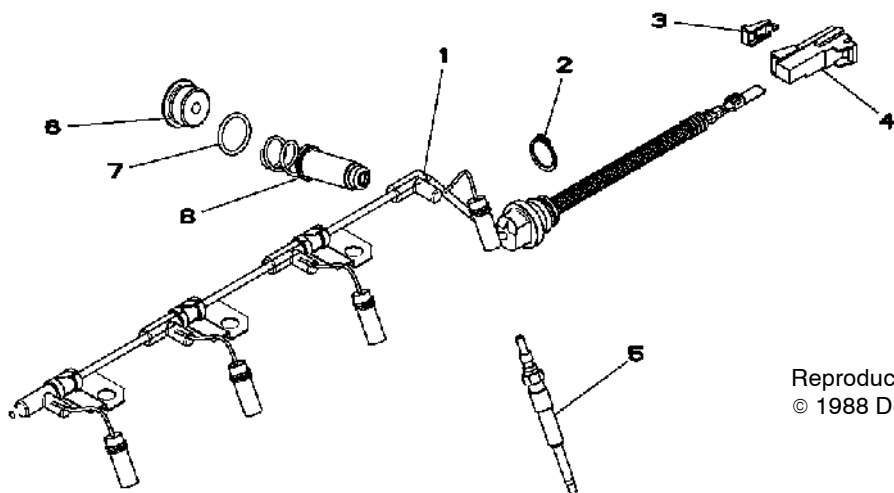
## Group 44: Starting Aid (Glow Plugs)



RE528711PCDA01

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| Item | Part Number | Description              | Quantity  |      |
|------|-------------|--------------------------|-----------|------|
|      |             |                          | Variation |      |
|      |             |                          | 4315      | 4316 |
| 1    | GM63875     | Wiring harness           | 1         |      |
| 1    | GM63874     | Wiring harness           |           | 1    |
| 2    | GM63703     | Snap ring                | 1         | 1    |
| 3    | GM63767     | Differential lock        | 1         | 1    |
| 4    | GM63762     | Electrical connector cap | 1         | 1    |
| 5    | GM63805     | Glow plug                | 4         | 4    |

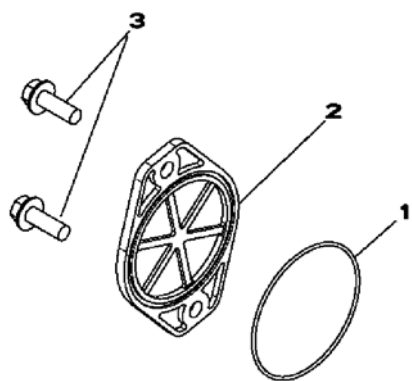


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RE509135PC0603

| Item | Part Number | Description              | Quantity       |
|------|-------------|--------------------------|----------------|
|      |             |                          | Variation 4301 |
| 1    | GM63841     | Wiring harness           | 1              |
| 2    | GM63703     | Snap ring                | 1              |
| 3    | GM63767     | Differential lock        | 1              |
| 4    | GM63762     | Electrical connector cap | 1              |
| 5    | GM63805     | Glow plug                | 4              |
| 6    | GM63825     | Fitting plug             | 1              |
| 7    | GM17437     | O-ring                   | 1              |
| 8    | GM63870     | Thermostat               | 1              |

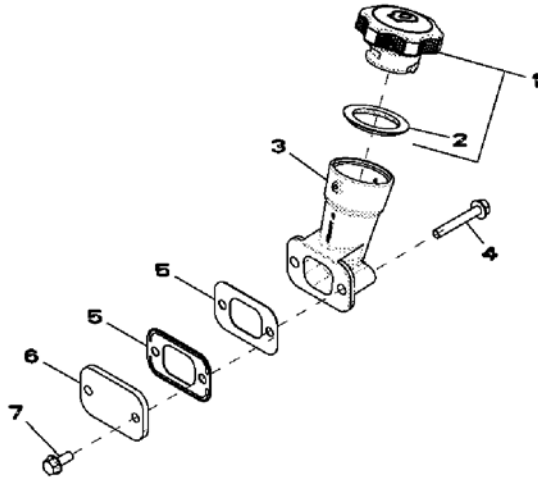
# Group 45: Auxiliary Drive Cover



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| Item | Part Number | Description | Quantity       |
|------|-------------|-------------|----------------|
|      |             |             | Variation 5204 |
| 1    | 360172      | O-Ring      | 1              |
| 2    | 360593      | Cover       | 1              |
| 3    | GM70546     | Screw       | 2              |

## Group 46: Oil Filler Neck



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| Item | Part Number | Description    | Quantity       |
|------|-------------|----------------|----------------|
|      |             |                | Variation 1210 |
| 1    | 360018      | Filler Cap     | 1              |
| 2    | GM17493     | Packing        | 1              |
| 3    | GM42207     | Filler Neck    | 1              |
| 4    | #           | Screw, M8 X 55 | 2              |
| 5    | GM17466     | Gasket         | 3              |
| 6    | 360089      | Cover          | 1              |
| 7    | GM24536     | Screw          | 2              |

# Appendix A Common Hardware Identification

| Screw/Bolts/Studs                            |                                                                                     |
|----------------------------------------------|-------------------------------------------------------------------------------------|
| Head Styles                                  |                                                                                     |
| Hex Head or Machine Head                     |    |
| Hex Head or Machine Head with Washer         |    |
| Flat Head (FHM)                              |    |
| Round Head (RHM)                             |    |
| Pan Head                                     |    |
| Hex Socket Head Cap or Allen™ Head Cap       |    |
| Hex Socket Head or Allen™ Head Shoulder Bolt |    |
| Sheet Metal Screw                            |    |
| Stud                                         |    |
| Drive Styles                                 |                                                                                     |
| Hex                                          |    |
| Hex and Slotted                              |   |
| Phillips®                                    |  |
| Slotted                                      |  |
| Hex Socket                                   |  |

| Nuts                         |                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------|
| Nut Styles                   |                                                                                     |
| Hex Head                     |    |
| Lock or Elastic              |    |
| Square                       |    |
| Cap or Acorn                 |    |
| Wing                         |    |
| Washers                      |                                                                                     |
| Washer Styles                |                                                                                     |
| Plain                        |    |
| Split Lock or Spring         |    |
| Spring or Wave               |    |
| External Tooth Lock          |    |
| Internal Tooth Lock          |    |
| Internal-External Tooth Lock |  |

| Hardness Grades                       |                                                                                     |
|---------------------------------------|-------------------------------------------------------------------------------------|
| American Standard                     |                                                                                     |
| Grade 2                               |  |
| Grade 5                               |  |
| Grade 8                               |  |
| Grade 8/9 (Hex Socket Head)           |  |
| Metric                                |                                                                                     |
| Number stamped on hardware; 5.8 shown |  |

Allen™ head screw is a trademark of Holo-Krome Co.

Phillips® screw is a registered trademark of Phillips Screw Company.

## Sample Dimensions

### American Standard (Screws, Bolts, Studs, and Nuts)

$\frac{1}{4}$ -20 x 1  
 Length In Inches (Screws and Bolts)  
 Threads Per Inch  
 Major Thread Diameter In Fractional Inches Or Screw Number Size

### Metric (Screws, Bolts, Studs, and Nuts)

M8-1.25 x 20  
 Length In Millimeters (Screws and Bolts)  
 Distance Between Threads In Millimeters  
 Major Thread Diameter In Millimeters

### Plain Washers

$\frac{9}{32}$  x  $\frac{5}{8}$  x  $\frac{1}{16}$   
 Thickness  
 External Dimension  
 Internal Dimension

### Lock Washers

$\frac{5}{8}$   
 Internal Dimension

# Appendix B Common Hardware List

The Common Hardware List lists part numbers and dimensions for common hardware items.

## American Standard

### Part No. Dimensions Hex Head Bolts (Grade 5)

|           |                |
|-----------|----------------|
| X-465-17  | 1/4-20 x .38   |
| X-465-6   | 1/4-20 x .50   |
| X-465-2   | 1/4-20 x .62   |
| X-465-16  | 1/4-20 x .75   |
| X-465-18  | 1/4-20 x .88   |
| X-465-7   | 1/4-20 x 1.00  |
| X-465-8   | 1/4-20 x 1.25  |
| X-465-9   | 1/4-20 x 1.50  |
| X-465-10  | 1/4-20 x 1.75  |
| X-465-11  | 1/4-20 x 2.00  |
| X-465-12  | 1/4-20 x 2.25  |
| X-465-14  | 1/4-20 x 2.75  |
| X-465-21  | 1/4-20 x 5.00  |
| X-465-25  | 1/4-28 x .38   |
| X-465-20  | 1/4-28 x 1.00  |
|           |                |
| X-125-33  | 5/16-18 x .50  |
| X-125-23  | 5/16-18 x .62  |
| X-125-3   | 5/16-18 x .75  |
| X-125-31  | 5/16-18 x .88  |
| X-125-5   | 5/16-18 x 1.00 |
| X-125-24  | 5/16-18 x 1.25 |
| X-125-34  | 5/16-18 x 1.50 |
| X-125-25  | 5/16-18 x 1.75 |
| X-125-26  | 5/16-18 x 2.00 |
| 230578    | 5/16-18 x 2.25 |
| X-125-29  | 5/16-18 x 2.50 |
| X-125-27  | 5/16-18 x 2.75 |
| X-125-28  | 5/16-18 x 3.00 |
| X-125-22  | 5/16-18 x 4.50 |
| X-125-32  | 5/16-18 x 5.00 |
| X-125-35  | 5/16-18 x 5.50 |
| X-125-36  | 5/16-18 x 6.00 |
| X-125-40  | 5/16-18 x 6.50 |
|           |                |
| X-125-43  | 5/16-24 x 1.75 |
| X-125-44  | 5/16-24 x 2.50 |
| X-125-30  | 5/16-24 x .75  |
| X-125-39  | 5/16-24 x 2.00 |
| X-125-38  | 5/16-24 x 2.75 |
|           |                |
| X-6238-2  | 3/8-16 x .62   |
| X-6238-10 | 3/8-16 x .75   |
| X-6238-3  | 3/8-16 x .88   |
| X-6238-11 | 3/8-16 x 1.00  |
| X-6238-4  | 3/8-16 x 1.25  |
| X-6238-5  | 3/8-16 x 1.50  |
| X-6238-1  | 3/8-16 x 1.75  |
| X-6238-6  | 3/8-16 x 2.00  |
| X-6238-17 | 3/8-16 x 2.25  |
| X-6238-7  | 3/8-16 x 2.50  |
| X-6238-8  | 3/8-16 x 2.75  |
| X-6238-9  | 3/8-16 x 3.00  |
| X-6238-19 | 3/8-16 x 3.25  |
| X-6238-12 | 3/8-16 x 3.50  |
| X-6238-20 | 3/8-16 x 3.75  |
| X-6238-13 | 3/8-16 x 4.50  |
| X-6238-18 | 3/8-16 x 5.50  |
| X-6238-25 | 3/8-16 x 6.50  |

### Part No. Dimensions Hex Head Bolts, cont.

|           |                |
|-----------|----------------|
| X-6238-14 | 3/8-24 x .75   |
| X-6238-16 | 3/8-24 x 1.25  |
| X-6238-21 | 3/8-24 x 4.00  |
| X-6238-22 | 3/8-24 x 4.50  |
|           |                |
| X-6024-5  | 7/16-14 x .75  |
| X-6024-2  | 7/16-14 x 1.00 |
| X-6024-8  | 7/16-14 x 1.25 |
| X-6024-3  | 7/16-14 x 1.50 |
| X-6024-4  | 7/16-14 x 2.00 |
| X-6024-11 | 7/16-14 x 2.75 |
| X-6024-12 | 7/16-14 x 6.50 |
|           |                |
| X-129-15  | 1/2-13 x .75   |
| X-129-17  | 1/2-13 x 1.00  |
| X-129-18  | 1/2-13 x 1.25  |
| X-129-19  | 1/2-13 x 1.50  |
| X-129-20  | 1/2-13 x 1.75  |
| X-129-21  | 1/2-13 x 2.00  |
| X-129-22  | 1/2-13 x 2.25  |
| X-129-23  | 1/2-13 x 2.50  |
| X-129-24  | 1/2-13 x 2.75  |
| X-129-25  | 1/2-13 x 3.00  |
| X-129-27  | 1/2-13 x 3.50  |
| X-129-29  | 1/2-13 x 4.00  |
| X-129-30  | 1/2-13 x 4.50  |
| X-463-9   | 1/2-13 x 5.50  |
| X-129-44  | 1/2-13 x 6.00  |
|           |                |
| X-129-51  | 1/2-20 x .75   |
| X-129-45  | 1/2-20 x 1.25  |
| X-129-52  | 1/2-20 x 1.50  |
|           |                |
| X-6021-3  | 5/8-11 x 1.00  |
| X-6021-4  | 5/8-11 x 1.25  |
| X-6021-2  | 5/8-11 x 1.50  |
| X-6021-1  | 5/8-11 x 1.75  |
| 273049    | 5/8-11 x 2.00  |
| X-6021-5  | 5/8-11 x 2.25  |
| X-6021-6  | 5/8-11 x 2.50  |
| X-6021-7  | 5/8-11 x 2.75  |
| X-6021-12 | 5/8-11 x 3.75  |
| X-6021-11 | 5/8-11 x 4.50  |
| X-6021-10 | 5/8-11 x 6.00  |
|           |                |
| X-6021-9  | 5/8-18 x 2.50  |
|           |                |
| X-6239-1  | 3/4-10 x 1.00  |
| X-6239-8  | 3/4-10 x 1.25  |
| X-6239-2  | 3/4-10 x 1.50  |
| X-6239-3  | 3/4-10 x 2.00  |
| X-6239-4  | 3/4-10 x 2.50  |
| X-6239-5  | 3/4-10 x 3.00  |
| X-6239-6  | 3/4-10 x 3.50  |
|           |                |
| X-792-1   | 1-8 x 2.25     |
| X-792-5   | 1-8 x 3.00     |
| X-792-8   | 1-8 x 5.00     |

### Part No. Dimensions Type

#### Hex Nuts

|           |         |           |
|-----------|---------|-----------|
| X-6009-1  | 1-8     | Standard  |
|           |         |           |
| X-6210-3  | 6-32    | Whiz      |
| X-6210-4  | 8-32    | Whiz      |
| X-6210-5  | 10-24   | Whiz      |
| X-6210-1  | 10-32   | Whiz      |
|           |         |           |
| X-6210-2  | 1/4-20  | Spiralock |
| X-6210-6  | 1/4-28  | Spiralock |
| X-6210-7  | 5/16-18 | Spiralock |
| X-6210-8  | 5/16-24 | Spiralock |
| X-6210-9  | 3/8-16  | Spiralock |
| X-6210-10 | 3/8-24  | Spiralock |
| X-6210-11 | 7/16-14 | Spiralock |
| X-6210-12 | 1/2-13  | Spiralock |
| X-6210-15 | 7/16-20 | Spiralock |
| X-6210-14 | 1/2-20  | Spiralock |
|           |         |           |
| X-85-3    | 5/8-11  | Standard  |
| X-88-12   | 3/4-10  | Standard  |
| X-89-2    | 1/2-20  | Standard  |

#### Washers

| Part No. | ID    | OD    | Thick. | Bolt/<br>Screw |
|----------|-------|-------|--------|----------------|
| X-25-46  | .125  | .250  | .022   | #4             |
| X-25-9   | .156  | .375  | .049   | #6             |
| X-25-48  | .188  | .438  | .049   | #8             |
| X-25-36  | .219  | .500  | .049   | #10            |
| X-25-40  | .281  | .625  | .065   | 1/4            |
| X-25-85  | .344  | .687  | .065   | 5/16           |
| X-25-37  | .406  | .812  | .065   | 3/8            |
| X-25-34  | .469  | .922  | .065   | 7/16           |
| X-25-26  | .531  | 1.062 | .095   | 1/2            |
| X-25-15  | .656  | 1.312 | .095   | 5/8            |
| X-25-29  | .812  | 1.469 | .134   | 3/4            |
| X-25-127 | 1.062 | 2.000 | .134   | 1              |

## Metric

Hex head bolts are hardness grade 8.8 unless noted.

### Part No. Dimensions Hex Head Bolts (Partial Thread)

|               |                |
|---------------|----------------|
| M931-05055-60 | M5-0.80 x 55   |
| M931-06040-60 | M6-1.00 x 40   |
| M931-06055-60 | M6-1.00 x 55   |
| M931-06060-60 | M6-1.00 x 60   |
| M931-06060-SS | M6-1.00 x 60   |
| M931-06070-60 | M6-1.00 x 70   |
| M931-06070-SS | M6-1.00 x 70   |
| M931-06075-60 | M6-1.00 x 75   |
| M931-06090-60 | M6-1.00 x 90   |
| M931-06145-60 | M6-1.00 x 145  |
| M931-06150-60 | M6-1.00 x 150  |
| M931-08035-60 | M8-1.25 x 35   |
| M931-08040-60 | M8-1.25 x 40   |
| M931-08045-60 | M8-1.25 x 45   |
| M931-08050-60 | M8-1.25 x 50   |
| M931-08055-60 | M8-1.25 x 55   |
| M931-08055-82 | M8-1.25 x 55*  |
| M931-08060-60 | M8-1.25 x 60   |
| M931-08070-60 | M8-1.25 x 70   |
| M931-08070-82 | M8-1.25 x 70*  |
| M931-08075-60 | M8-1.25 x 75   |
| M931-08080-60 | M8-1.25 x 80   |
| M931-08090-60 | M8-1.25 x 90   |
| M931-08095-60 | M8-1.25 x 95   |
| M931-08100-60 | M8-1.25 x 100  |
| M931-08110-60 | M8-1.25 x 110  |
| M931-08120-60 | M8-1.25 x 120  |
| M931-08130-60 | M8-1.25 x 130  |
| M931-08140-60 | M8-1.25 x 140  |
| M931-08150-60 | M8-1.25 x 150  |
| M931-08200-60 | M8-1.25 x 200  |
| M931-10040-82 | M10-1.25 x 40* |
| M931-10040-60 | M10-1.50 x 40  |
| M931-10045-60 | M10-1.50 x 45  |
| M931-10050-60 | M10-1.50 x 50  |
| M931-10050-82 | M10-1.25 x 50* |
| M931-10055-60 | M10-1.50 x 55  |
| M931-10060-60 | M10-1.50 x 60  |
| M931-10065-60 | M10-1.50 x 65  |
| M931-10070-60 | M10-1.50 x 70  |
| M931-10080-60 | M10-1.50 x 80  |
| M931-10080-82 | M10-1.25 x 80* |
| M931-10090-60 | M10-1.50 x 90  |
| M931-10090-82 | M10-1.50 x 90* |
| M931-10100-60 | M10-1.50 x 100 |
| M931-10110-60 | M10-1.50 x 110 |
| M931-10120-60 | M10-1.50 x 120 |
| M931-10130-60 | M10-1.50 x 130 |
| M931-10140-60 | M10-1.50 x 140 |
| M931-10180-60 | M10-1.50 x 180 |
| M931-10235-60 | M10-1.50 x 235 |
| M931-10260-60 | M10-1.50 x 260 |
| M960-10330-60 | M10-1.25 x 330 |
| M931-12045-60 | M12-1.75 x 45  |
| M960-12050-60 | M12-1.25 x 50  |
| M960-12050-82 | M12-1.25 x 50* |
| M931-12050-60 | M12-1.75 x 50  |
| M931-12050-82 | M12-1.75 x 50* |
| M931-12055-60 | M12-1.75 x 55  |
| M931-12060-60 | M12-1.75 x 60  |
| M931-12060-82 | M12-1.75 x 60* |
| M931-12065-60 | M12-1.75 x 65  |
| M931-12075-60 | M12-1.75 x 75  |
| M931-12080-60 | M12-1.75 x 80  |
| M931-12090-60 | M12-1.75 x 90  |
| M931-12100-60 | M12-1.75 x 100 |
| M931-12110-60 | M12-1.75 x 110 |

### Part No. Dimensions Hex Head Bolts (Partial Thread), continued

|               |                 |
|---------------|-----------------|
| M960-16090-60 | M16-1.50 x 90   |
| M931-16090-60 | M16-2.00 x 90   |
| M931-16100-60 | M16-2.00 x 100  |
| M931-16100-82 | M16-2.00 x 100* |
| M931-16120-60 | M16-2.00 x 120  |
| M931-16150-60 | M16-2.00 x 150  |
| M931-20065-60 | M20-2.50 x 65   |
| M931-20090-60 | M20-2.50 x 90   |
| M931-20100-60 | M20-2.50 x 100  |
| M931-20120-60 | M20-2.50 x 120  |
| M931-20140-60 | M20-2.50 x 140  |
| M931-20160-60 | M20-2.50 x 160  |
| M931-22090-60 | M22-2.50 x 90   |
| M931-22120-60 | M22-2.50 x 120  |
| M931-22160-60 | M22-2.50 x 160  |
| M931-24090-60 | M24-3.00 x 90   |
| M931-24120-60 | M24-3.00 x 120  |
| M931-24160-60 | M24-3.00 x 160  |
| M931-24200-60 | M24-3.00 x 200  |

### Hex Head Bolts (Full Thread)

|               |                |
|---------------|----------------|
| M933-04006-60 | M4-0.70 x 6    |
| M933-05030-60 | M5-0.80 x 30   |
| M933-05035-60 | M5-0.80 x 35   |
| M933-05050-60 | M5-0.80 x 50   |
| M933-06010-60 | M6-1.00 x 10   |
| M933-06012-60 | M6-1.00 x 12   |
| M933-06014-60 | M6-1.00 x 14   |
| M933-06016-60 | M6-1.00 x 16   |
| M933-06020-60 | M6-1.00 x 20   |
| M933-06025-60 | M6-1.00 x 25   |
| M933-06030-60 | M6-1.00 x 30   |
| M933-06040-60 | M6-1.00 x 40   |
| M933-06050-60 | M6-1.00 x 50   |
| M933-07025-60 | M7-1.00 x 25   |
| M933-08010-60 | M8-1.25 x 10   |
| M933-08012-60 | M8-1.25 x 12   |
| M933-08016-60 | M8-1.25 x 16   |
| M933-08020-60 | M8-1.25 x 20   |
| M933-08025-60 | M8-1.25 x 25   |
| M933-08030-60 | M8-1.25 x 30   |
| M933-08030-82 | M8-1.25 x 30*  |
| M933-10012-60 | M10-1.50 x 12  |
| M961-10020-60 | M10-1.25 x 20  |
| M933-10020-60 | M10-1.50 x 20  |
| M933-10025-60 | M10-1.50 x 25  |
| M961-10025-60 | M10-1.25 x 25  |
| M933-10025-82 | M10-1.50 x 25* |
| M961-10030-60 | M10-1.25 x 30  |
| M933-10030-60 | M10-1.50 x 30  |
| M933-10030-82 | M10-1.50 x 30* |
| M961-10035-60 | M10-1.25 x 35  |
| M933-10035-60 | M10-1.50 x 35  |
| M933-10035-82 | M10-1.50 x 35* |
| M961-10040-60 | M10-1.25 x 40  |

### Part No. Dimensions Hex Head Bolts (Full Thread), continued

|                |                |
|----------------|----------------|
| M933-12016-60  | M12-1.75 x 16  |
| M933-12020-60  | M12-1.75 x 20  |
| M961-12020-60F | M12-1.50 x 20  |
| M933-12025-60  | M12-1.75 x 25  |
| M933-12025-82  | M12-1.75 x 25* |
| M961-12030-60  | M12-1.25 x 30  |
| M933-12030-82  | M12-1.75 x 30* |
| M961-12030-82F | M12-1.50 x 30* |
| M933-12030-60  | M12-1.75 x 30  |
| M933-12035-60  | M12-1.75 x 35  |
| M961-12040-82  | M12-1.25 x 40* |
| M933-12040-60  | M12-1.75 x 40  |
| M933-12040-82  | M12-1.75 x 40* |
| M961-14025-60  | M14-1.50 x 25  |
| M933-14025-60  | M14-2.00 x 25  |
| M961-14050-82  | M14-1.50 x 50* |
| M961-16025-60  | M16-1.50 x 25  |
| M933-16025-60  | M16-2.00 x 25  |
| M961-16030-82  | M16-1.50 x 30* |
| M933-16030-82  | M16-2.00 x 30* |
| M933-16035-60  | M16-2.00 x 35  |
| M961-16040-60  | M16-1.50 x 40  |
| M933-16040-60  | M16-2.00 x 40  |
| M961-16045-82  | M16-1.50 x 45* |
| M933-16045-82  | M16-2.00 x 45* |
| M933-16050-60  | M16-2.00 x 50  |
| M933-16050-82  | M16-2.00 x 50* |
| M933-16060-60  | M16-2.00 x 60  |
| M933-16070-60  | M16-2.00 x 70  |
| M933-18035-60  | M18-2.50 x 35  |
| M933-18050-60  | M18-2.50 x 50  |
| M933-18060-60  | M18-2.50 x 60  |
| M933-20050-60  | M20-2.50 x 50  |
| M933-20055-60  | M20-2.50 x 55  |
| M933-24060-60  | M24-3.00 x 60  |
| M933-24065-60  | M24-3.00 x 65  |
| M933-24070-60  | M24-3.00 x 70  |

### Pan Head Machine Screws

|                 |               |
|-----------------|---------------|
| M7985A-03010-20 | M3-0.50 x 10  |
| M7985A-03012-20 | M3-0.50 x 12  |
| M7985A-04010-20 | M4-0.70 x 10  |
| M7985A-04016-20 | M4-0.70 x 16  |
| M7985A-04020-20 | M4-0.70 x 20  |
| M7985A-04050-20 | M4-0.70 x 50  |
| M7985A-04100-20 | M4-0.70 x 100 |
| M7985A-05010-20 | M5-0.80 x 10  |
| M7985A-05012-20 | M5-0.80 x 12  |
| M7985A-05016-20 | M5-0.80 x 16  |
| M7985A-05020-20 | M5-0.80 x 20  |
| M7985A-05025-20 | M5-0.80 x 25  |
| M7985A-05030-20 | M5-0.80 x 30  |
| M7985A-05080-20 | M5-0.80 x 80  |
| M7985A-05100-20 | M5-0.80 x 100 |
| M7985A-06100-20 | M6-1.00 x 100 |

### Flat Head Machine Screws

|                |              |
|----------------|--------------|
| M965A-04012-SS | M4-0.70 x 12 |
| M965A-05012-SS | M5-0.80 x 12 |
| M965A-05016-20 | M5-0.80 x 16 |
| M965A-06012-20 | M6-1.00 x 12 |

\* This metric hex bolt's hardness is grade 10.9.

## Metric, continued

| Part No.        | Dimensions | Type         |
|-----------------|------------|--------------|
| <b>Hex Nuts</b> |            |              |
| M934-03-50      | M3-0.50    | Standard     |
| M934-04-50      | M4-0.70    | Standard     |
| M934-04-B       | M4-0.70    | Brass        |
| M934-05-50      | M5-0.80    | Standard     |
| M934-06-60      | M6-1.00    | Standard     |
| M934-06-64      | M6-1.00    | Std. (green) |
| M6923-06-80     | M6-1.00    | Spiralock    |
| M982-06-80      | M6-1.00    | Elastic Stop |
| M934-08-60      | M8-1.25    | Standard     |
| M6923-08-80     | M8-1.25    | Spiralock    |
| M982-08-80      | M8-1.25    | Elastic Stop |
| M934-10-60      | M10-1.50   | Standard     |
| M934-10-60F     | M10-1.25   | Standard     |
| M6923-10-80     | M10-1.50   | Spiralock    |
| M6923-10-62     | M10-1.50   | Spiralock†   |
| M982-10-80      | M10-1.50   | Elastic Stop |
| M934-12-60      | M12-1.75   | Standard     |
| M934-12-60F     | M12-1.25   | Standard     |
| M6923-12-80     | M12-1.75   | Spiralock    |
| M982-12-80      | M12-1.75   | Elastic Stop |
| M982-14-60      | M14-2.00   | Elastic Stop |
| M6923-16-80     | M16-2.00   | Spiralock    |
| M982-16-80      | M16-2.00   | Elastic Stop |
| M934-18-80      | M18-2.5    | Standard     |
| M982-18-60      | M18-2.50   | Elastic Stop |
| M934-20-80      | M20-2.50   | Standard     |
| M982-20-80      | M20-2.50   | Elastic Stop |
| M934-22-60      | M22-2.50   | Standard     |
| M934-24-80      | M24-3.00   | Standard     |
| M982-24-60      | M24-3.00   | Elastic Stop |
| M934-30-80      | M30-3.50   | Standard     |

## Washers

| Part No.    | ID   | OD   | Thick. | Bolt/<br>Screw |
|-------------|------|------|--------|----------------|
| M125A-03-80 | 3.2  | 7.0  | 0.5    | M3             |
| M125A-04-80 | 4.3  | 9.0  | 0.8    | M4             |
| M125A-05-80 | 5.3  | 10.0 | 1.0    | M5             |
| M125A-06-80 | 6.4  | 12.0 | 1.6    | M6             |
| M125A-08-80 | 8.4  | 16.0 | 1.6    | M8             |
| M125A-10-80 | 10.5 | 20.0 | 2.0    | M10            |
| M125A-12-80 | 13.0 | 24.0 | 2.5    | M12            |
| M125A-14-80 | 15.0 | 28.0 | 2.5    | M14            |
| M125A-16-80 | 17.0 | 30.0 | 3.0    | M16            |
| M125A-18-80 | 19.0 | 34.0 | 3.0    | M18            |
| M125A-20-80 | 21.0 | 37.0 | 3.0    | M20            |
| M125A-24-80 | 25.0 | 44.0 | 4.0    | M24            |

† This metric hex nut's hardness is grade 8.

