

# 570MXT Loader Landscaper

## Service Manual

### 6-43571

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**NOTE:** Case Corporation reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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### GENERAL

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# Section 1001

## STANDARD TORQUE SPECIFICATIONS

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## TORQUE SPECIFICATIONS - DECIMAL HARDWARE

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphities, Molydisulfide greases, or other extreme pressure lubricants are used.

| Grade 5 Bolts, Nuts, and Studs                                                                                                                                                                                                                        |               |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|
|    |               |              |
| Size                                                                                                                                                                                                                                                  | Newton metres | Pound-Inches |
| 1/4 inch                                                                                                                                                                                                                                              | 10 to 12      | 91 to 103    |
| 5/16 inch                                                                                                                                                                                                                                             | 21 to 24      | 188 to 212   |
| 3/8 inch                                                                                                                                                                                                                                              | 38 to 43      | 336 to 378   |
|                                                                                                                                                                                                                                                       |               | Pound-Feet   |
| 7/16 inch                                                                                                                                                                                                                                             | 61 to 69      | 45 to 51     |
| 1/2 inch                                                                                                                                                                                                                                              | 94 to 104     | 68 to 76     |
| 9/16 inch                                                                                                                                                                                                                                             | 132 to 149    | 98 to 110    |
| 5/8 inch                                                                                                                                                                                                                                              | 183 to 210    | 138 to 155   |
| 3/4 inch                                                                                                                                                                                                                                              | 325 to 370    | 242 to 270   |
| 7/8 inch                                                                                                                                                                                                                                              | 530 to 595    | 390 to 435   |
| 1.0 inch                                                                                                                                                                                                                                              | 790 to 890    | 585 to 655   |
| 1-1/8 inch                                                                                                                                                                                                                                            | 980 to 1100   | 725 to 805   |
| 1-1/4 inch                                                                                                                                                                                                                                            | 1385 to 1555  | 1020 to 1145 |
| 1-3/8 inch                                                                                                                                                                                                                                            | 1810 to 2030  | 1335 to 1495 |
| 1-1/2 inch                                                                                                                                                                                                                                            | 2400 to 2700  | 1770 to 1990 |

| Grade 8 Bolts, Nuts, and Studs                                                                                                                                                                                                                              |               |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|
|    |               |              |
| Size                                                                                                                                                                                                                                                        | Newton metres | Pound-Inches |
| 1/4 inch                                                                                                                                                                                                                                                    | 15 to 16      | 130 to 145   |
| 5/16 inch                                                                                                                                                                                                                                                   | 30 to 34      | 268 to 301   |
| 3/8 inch                                                                                                                                                                                                                                                    | 54 to 60      | 474 to 534   |
|                                                                                                                                                                                                                                                             |               | Pound-Feet   |
| 7/16 inch                                                                                                                                                                                                                                                   | 86 to 97      | 63 to 71     |
| 1/2 inch                                                                                                                                                                                                                                                    | 132 to 149    | 96 to 110    |
| 9/16 inch                                                                                                                                                                                                                                                   | 191 to 213    | 140 to 155   |
| 5/8 inch                                                                                                                                                                                                                                                    | 260 to 293    | 190 to 215   |
| 3/4 inch                                                                                                                                                                                                                                                    | 480 to 515    | 340 to 380   |
| 7/8 inch                                                                                                                                                                                                                                                    | 745 to 835    | 550 to 615   |
| 1.0 inch                                                                                                                                                                                                                                                    | 1120 to 1280  | 825 to 925   |
| 1-1/8 inch                                                                                                                                                                                                                                                  | 1585 to 1785  | 1170 to 1315 |
| 1-1/4 inch                                                                                                                                                                                                                                                  | 2215 to 2235  | 1650 to 1855 |
| 1-3/8 inch                                                                                                                                                                                                                                                  | 2930 to 3295  | 2160 to 2430 |
| 1-1/2 inch                                                                                                                                                                                                                                                  | 3895 to 4375  | 2870 to 3225 |
| <b>NOTE:</b> Use thick nuts with Grade 8 bolts.                                                                                                                                                                                                             |               |              |

## TORQUE SPECIFICATIONS - METRIC HARDWARE

Use the following torques when specifications are not given.

These values apply to fasteners with both coarse and fine threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or Molydisulfide grease or oil is used. Use of a click type torque wrench, or better is required.

### Grade 8.8 Bolts, Nuts, and Studs

|  |               |              |
|-----------------------------------------------------------------------------------|---------------|--------------|
| Size                                                                              | Newton metres | Pound-Inches |
| M4                                                                                | 3 to 4        | 31 to 35     |
| M5                                                                                | 5 to 6        | 49 to 55     |
| M6                                                                                | 10 to 11      | 84 to 94     |
| M8                                                                                | 23 to 26      | 229 to 277   |
| M10                                                                               | 46 to 51      | 408 to 460   |
|                                                                                   |               | Pound-Feet   |
| M12                                                                               | 80 to 90      | 59 to 66     |
| M14                                                                               | 128 to 145    | 94 to 106    |
| M16                                                                               | 200 to 220    | 149 to 161   |
| M20                                                                               | 400 to 450    | 293 to 330   |
| M24                                                                               | 690 to 780    | 510 to 575   |
| M30                                                                               | 1375 to 1545  | 1010 to 1140 |
| M36                                                                               | 2400 to 2700  | 1770 to 1990 |

### Grade 10.9 Bolts, Nuts, and Studs

|  |               |              |
|-------------------------------------------------------------------------------------|---------------|--------------|
| Size                                                                                | Newton metres | Pound-Inches |
| M4                                                                                  | 5 to 6        | 44 to 49     |
| M5                                                                                  | 8 to 9        | 71 to 79     |
| M6                                                                                  | 14 to 15      | 120 to 136   |
| M8                                                                                  | 33 to 37      | 293 to 329   |
|                                                                                     |               | Pound-Feet   |
| M10                                                                                 | 65 to 74      | 48 to 54     |
| M12                                                                                 | 114 to 128    | 85 to 94     |
| M14                                                                                 | 183 to 205    | 136 to 153   |
| M16                                                                                 | 285 to 320    | 208 to 235   |
| M20                                                                                 | 555 to 620    | 406 to 460   |
| M24                                                                                 | 955 to 1075   | 705 to 790   |
| M30                                                                                 | 1900 to 2140  | 1400 to 1580 |
| M36                                                                                 | 3315 to 3730  | 2445 to 2750 |

### Grade 12.9 Bolts, Nuts, and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

## TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

| <b>37 Degree Flare Fitting</b> |                        |                    |                      |                     |
|--------------------------------|------------------------|--------------------|----------------------|---------------------|
| <b>Nom. SAE Dash Size</b>      | <b>Tube OD/Hose ID</b> | <b>Thread Size</b> | <b>Newton metres</b> | <b>Pound-Inches</b> |
| -2                             |                        | 5/16 - 24          | 8 to 9               | 72 to 84            |
| -3                             |                        | 3/8 - 24           | 11 to 12             | 96 to 108           |
| -4                             | 6.4 mm (1/4 inch)      | 7/16 - 20          | 14 to 16             | 120 to 144          |
| -5                             | 7.9 mm (5/16 inch)     | 1/2 - 20           | 18 to 21             | 156 to 192          |
| -6                             | 9.5 mm (3/8 inch)      | 9/16 - 18          | 27 to 33             | 240 to 300          |
| -8                             | 12.7 mm (1/2 inch)     | 3/4 - 16           | 46 to 56             | 408 to 504          |
| -10                            | 15.9 mm (5/8 inch)     | 7/8 - 14           | 77 to 85             | 684 to 756          |
|                                |                        |                    |                      | <b>Pound-Feet</b>   |
| -12                            | 19.0 mm (3/4 inch)     | 1-1/16 - 12        | 107 to 119           | 79 to 88            |
| -14                            | 22.2 mm (7/8 inch)     | 1-3/16 - 12        | 127 to 140           | 94 to 103           |
| -16                            | 25.4 mm (1.0 inch)     | 1-5/16 - 12        | 131 to 156           | 97 to 117           |
| -20                            | 31.8 mm (1-1/4 inch)   | 1-5/8 - 12         | 197 to 223           | 145 to 165          |
| -24                            | 38.1 mm (1-1/2 inch)   | 1-7/8 - 12         | 312 to 338           | 230 to 250          |

| <b>Straight Threads with O-ring</b> |                        |                    |                      |                     |
|-------------------------------------|------------------------|--------------------|----------------------|---------------------|
| <b>Nom. SAE Dash Size</b>           | <b>Tube OD/Hose ID</b> | <b>Thread Size</b> | <b>Newton metres</b> | <b>Pound-Inches</b> |
| -2                                  |                        | 5/16 - 24          | 8 to 9               | 72 to 84            |
| -3                                  |                        | 3/8 - 24           | 11 to 12             | 96 to 108           |
| -4                                  | 6.4 mm (1/4 inch)      | 7/16-20            | 20 to 25             | 180 to 228          |
| -5                                  | 7.9 mm (5/16 inch)     | 1/2-20             | 27 to 33             | 240 to 300          |
| -6                                  | 9.5 mm (3/8 inch)      | 9/16-18            | 43 to 54             | 384 to 480          |
| -8                                  | 12.7 mm (1/2 inch)     | 3/4-16             | 73 to 90             | 648 to 804          |
|                                     |                        |                    |                      | <b>Pound-Feet</b>   |
| -10                                 | 15.9 mm (5/8 inch)     | 7/8-14             | 100 to 124           | 74 to 92            |
| -12                                 | 19.0 mm (3/4 inch)     | 1-1/16-12          | 138 to 173           | 102 to 128          |
| -14                                 | 22.2 mm (7/8 inch)     | 1-3/16-12          | 173 to 216           | 128 to 160          |
| -16                                 | 25.4 mm (1.0 inch)     | 1-5/16-12          | 203 to 253           | 150 to 187          |
| -20                                 | 31.8 mm (1-1/4 inch)   | 1-5/8-12           | 308 to 357           | 227 to 264          |
| -24                                 | 38.1 mm (1-1/2 inch)   | 1-7/8-12           | 492 to 542           | 363 to 400          |

| Split Flange Mounting Bolts |               |              |
|-----------------------------|---------------|--------------|
| Size                        | Newton metres | Pound-Inches |
| 5/16-18                     | 20 to 27      | 180 to 240   |
| 3/8-16                      | 27 to 34      | 240 to 300   |
| 7/16-14                     | 47 to 61      | 420 to 540   |
|                             |               | Pound-Feet   |
| 1/2-13                      | 74 to 88      | 55 to 65     |
| 5/8-11                      | 190 to 203    | 140 to 150   |

| O-Ring Face Seal End |                         |             |               |              | O-Ring Boss End Fitting or Lock Nut |               |              |
|----------------------|-------------------------|-------------|---------------|--------------|-------------------------------------|---------------|--------------|
| Nom. SAE Dash Size   | Tube OD                 | Thread Size | Newton metres | Pound-Inches | Thread Size                         | Newton metres | Pound-Inches |
| -4                   | 6.4 mm<br>(1/4 inch)    | 9/16-18     | 23 to 26      | 204 to 228   |                                     |               |              |
| -6                   | 9.5 mm<br>(3/8 inch)    | 11/16-16    | 34 to 40      | 300 to 348   | 9/16-18                             | 48 to 54      | 432 to 480   |
| -8                   | 12.7 mm<br>(1/2 inch)   | 13/16-16    | 52 to 57      | 456 to 504   | 3/4-16                              | 70 to 78      | 612 to 684   |
| -10                  | 15.9 mm<br>(5/8 inch)   | 1-14        | 81 to 90      | 720 to 792   | 7/8-14                              | 102 to 114    | Pound-Feet   |
|                      |                         |             |               | Pound-Feet   |                                     |               | 75 to 84     |
| -12                  | 19.0 mm<br>(3/4 inch)   | 1-3/16-12   | 117 to 128    | 86 to 94     | 1-1/16-12                           | 142 to 160    | 105 to 117   |
| -16                  | 25.4 mm<br>(1.0 inch)   | 1-7/16-12   | 152 to 174    | 112 to 128   | 1-5/16-12                           | 237 to 254    | 175 to 187   |
| -20                  | 31.8 mm<br>(1-1/4 inch) | 1-11/16-12  | 179 to 201    | 132 to 148   |                                     |               |              |
| -24                  | 38.1 mm<br>(1-1/2 inch) | 2-12        | 213 to 235    | 157 to 173   |                                     |               |              |

| Pipe fittings      |                |                               |
|--------------------|----------------|-------------------------------|
| Nom. SAE Dash Size | Thread Size    | TFFT (Turns For Finger Tight) |
| -2                 | 1/8 - 27       | 2.0 - 3.0                     |
| -3                 | 1/8 - 27       | 2.0 - 3.0                     |
| -4                 | 1/8 - 27       | 2.0 - 3.0                     |
| -5                 | 1/8 - 27       | 2.0 - 3.0                     |
| -6                 | 1/4 - 18       | 1.5 - 3.0                     |
| -8                 | 3/8 - 18       | 2.0 - 3.0                     |
| -10                | 1/2 - 14       | 2.0 - 3.0                     |
| -12                | 3/4 - 14       | 2.0 - 3.0                     |
| -14                | 3/4 - 14       | 2.0 - 3.0                     |
| -16                | 1 - 11 1/2     | 1.5 - 2.5                     |
| -20                | 1 1/4 - 11 1/2 | 1.5 - 2.5                     |
| -24                | 1 1/2 - 11 1/2 | 1.5 - 2.5                     |
| -32                | 2 - 11 1/2     | 1.5 - 2.5                     |

**NOTE:** Apply sealant/lubricant to male pipe threads. The first two threads should be left uncovered to avoid system contamination. Screw pipe fitting into female pipe port to the finger tight position. Wrench tighten fitting to the appropriate turns from finger tight (TFFT) shown in table above, making sure the tube end of an elbow or tee fitting is aligned to receive incoming tube or hose fitting.



# Section 1002

## FLUID AND LUBRICANTS

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## CAPACITIES AND LUBRICANTS

### Engine Crankcase

Capacity with filter change ..... 11 litres (11.6 U.S. quarts)  
Specifications ..... Case No. 1 15W-40 API CG-4 or CF-4

### Fuel Tank

Capacity, usable ..... 117 litres (31.0 U.S. gallons)  
Optional tank ..... 151 litres (40 U.S. gallons) usable  
Specifications ..... See page 5

### Cooling System

Capacity with heater ..... 16.5 litres (17.4 U.S. quarts)  
Capacity without heater ..... 15.8 litres (16.7 U.S. quarts)  
Specifications ..... 50% water and 50% ethylene glycol

### Hydraulic System

Total System ..... 77 litres (20.3 U.S. gallons)  
Capacity with filter change ..... 55 litres (14.5 U.S. gallons)  
Capacity without filter change ..... 53 litres (14 U.S. gallons)  
Specifications ..... MS-1209, Hy-Tran<sup>®</sup> Ultra

### Transmission

#### Standard Transmission

##### 2 Wheel Drive

Total system capacity ..... 18.5 litres (19.5 U.S. quarts)  
Refill capacity with or without filter change ..... 11.9 litres (12.6 U.S. quarts)  
Type of Fluid ..... MS-1209, Hy-Tran<sup>®</sup> Ultra

##### 4 Wheel Drive

Total system capacity ..... 21.0 litres (22.2 U.S. quarts)  
Refill capacity with or without filter change ..... 14.4 litres (15.2 U.S. quarts)  
Type of Fluid ..... MS-1209, Hy-Tran<sup>®</sup> Ultra

### Front Drive Axle - 4 Wheel Drive

Capacity - center bowl ..... 5.5 litres (5.8 U.S. quarts)  
Capacity - each wheel end ..... 0.7 litres (0.75 U.S. quarts)  
Type of Fluid ..... MS-1209, Hy-Tran<sup>®</sup> Ultra

### Rear Axle

Capacity - center bowl ..... 14.0 litres (15 U.S. quarts)  
Capacity - each wheel end ..... 1.5 litres (1.6 U.S. quarts)  
Type of Fluid ..... MS-1209, Hy-Tran<sup>®</sup> Ultra

Brake Master Cylinder ..... (Brake fluid supplied by hydraulic reservoir, see Hydraulic System.)

## ENGINE OIL RECOMMENDATIONS

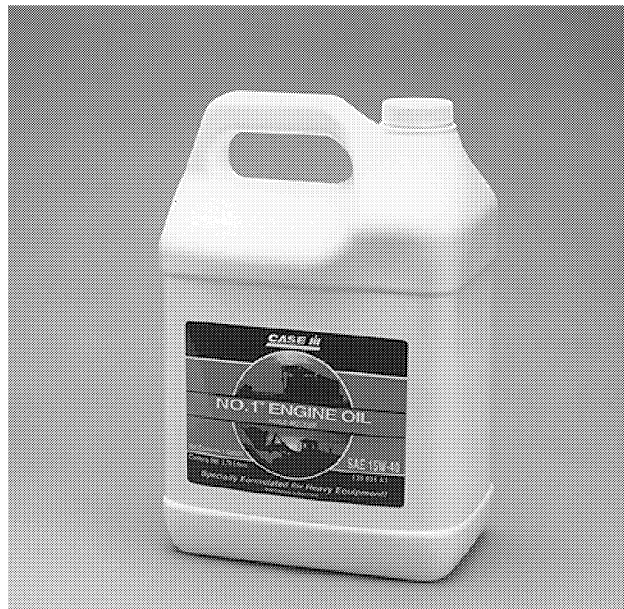
Case IH No.1 Engine Oil is recommended for use in your Case IH Engine. Case IH No.1 Engine Oil will lubricate your engine correctly under all operating conditions. If Case IH No. 1 Multi-Viscosity Engine Oil is not available, Case IH No. 1 Single Grade Engine Oil can be used.



RH99K130

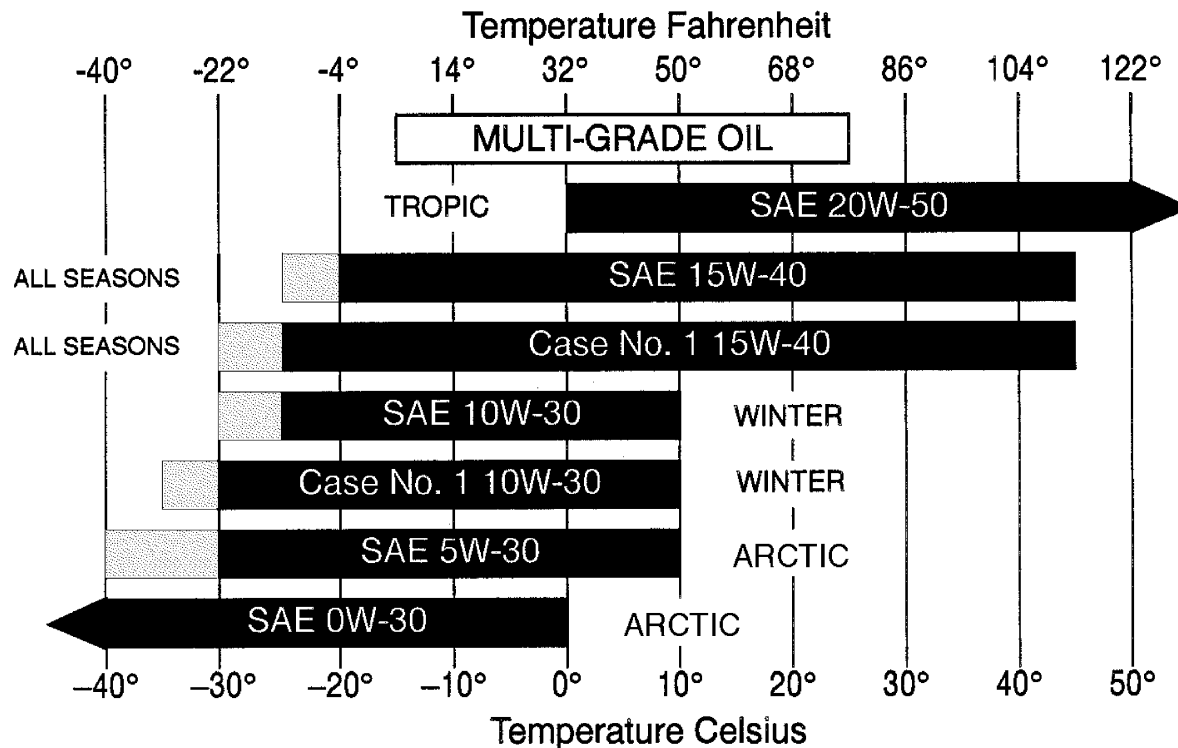
If Case IH No.1 Multi-Viscosity or Single Grade Engine Oil is not available, use only oil meeting API engine oil service category CE.

See the chart below for recommended viscosity at ambient air temperature ranges.



BP97H064

**NOTE:** Do not put Performance Additives or other oil additive products in the engine crankcase. The oil intervals given in this manual are according to tests with Case IH lubricants.



Indicates use of an engine oil heater or a jacket water heater is required.

BS99N019

## DIESEL FUEL

Use No. 2 diesel fuel in the engine of this machine. The use of other fuels can cause the loss of engine power and high fuel consumption.

In very cold temperatures, a mixture of No. 1 and No. 2 diesel fuels is temporarily permitted. See the following Note.

**NOTE:** *See your fuel dealer for winter fuel requirements in your area. If the temperature of the fuel is below the cloud point (wax appearance point), wax crystals in the fuel will cause the engine to lose power or not start.*

The diesel fuel used in this machine must meet the specifications in the chart below or Specification D975-81 of the American Society for Testing and Materials.

### Fuel Storage

If you keep fuel in storage for a period of time, you can get foreign material or water in the fuel storage tank. Many engine problems are caused by water in the fuel.

Keep the fuel storage tank outside and keep the fuel as cool as possible. Remove water from the storage container at regular periods of time.

### Specifications for Acceptable No. 2 Diesel Fuel

|                                                   |                                |
|---------------------------------------------------|--------------------------------|
| API gravity, minimum .....                        | 34                             |
| Flash Point, Minimum .....                        | 60° C (140° F)                 |
| Cloud point (wax appearance point), maximum ..... | -20° C (-5° F) See Note above  |
| Pour point, maximum .....                         | -26° C (-15° F) See Note above |
| Viscosity, at 100° F (88° C)                      |                                |
| Centistokes .....                                 | 2.0 to 4.3                     |
| Saybolt Seconds Universal .....                   | 32 to 40                       |

1002-6

## NOTES

# **Section 1003**

**1003**

## **METRIC CONVERSION CHART**

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| CONVERSION FACTORS ..... | 3 |
| Metric to U.S. ....      | 3 |
| U.S. to Metric .....     | 4 |

## CONVERSION FACTORS

### Metric to U.S.

|                     | <b><u>MULTIPLY</u></b>                                                                           | <b><u>BY</u></b>                                                                                     | <b><u>TO OBTAIN</u></b>                                                                                                                       |
|---------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Area:</b>        | sq. meter<br>hectare                                                                             | 10.763 91<br>2.471 05                                                                                | square foot<br>acre                                                                                                                           |
| <b>Force:</b>       | newton<br>newton                                                                                 | 3.596 942<br>0.224 809                                                                               | ounce force<br>pound force                                                                                                                    |
| <b>Length:</b>      | millimeter<br>meter<br>kilometer                                                                 | 0.039 370<br>3.280 840<br>0.621 371                                                                  | inch<br>foot<br>mile                                                                                                                          |
| <b>Mass:</b>        | kilogram                                                                                         | 2.204 622                                                                                            | pound                                                                                                                                         |
| <b>Mass/Area:</b>   | kilogram/hectare                                                                                 | 0.000 466                                                                                            | ton/acre                                                                                                                                      |
| <b>Mass/Energy:</b> | gr/kW/hr.                                                                                        | 0.001 644                                                                                            | lbs/hp/hr.                                                                                                                                    |
| <b>Mass/Volume:</b> | kg/cubic meter                                                                                   | 1.685 555                                                                                            | lb/cubic yd.                                                                                                                                  |
| <b>Power:</b>       | kilowatt                                                                                         | 1.341 02                                                                                             | horsepower                                                                                                                                    |
| <b>Pressure:</b>    | kilopascal<br>bar                                                                                | 0.145 038<br>14.50385                                                                                | lb/sq. inch<br>lb/sq. inch                                                                                                                    |
| <b>Temperature:</b> | degree C                                                                                         | 1.8 x C +32                                                                                          | degree F                                                                                                                                      |
| <b>Torque:</b>      | newton meter<br>newton meter                                                                     | 8.850 748<br>0.737 562                                                                               | lb/inch<br>lb/foot                                                                                                                            |
| <b>Velocity:</b>    | kilometer/hr.                                                                                    | 0.621 371                                                                                            | miles/hr.                                                                                                                                     |
| <b>Volume:</b>      | cubic centimeter<br>cubic meter<br>cubic meter<br>milliliter<br>litre<br>litre<br>litre<br>litre | 0.061 024<br>35.314 66<br>1.307 950<br>0.033 814<br>1.056 814<br>0.879 877<br>0.264 172<br>0.219 969 | cubic inch<br>cubic foot<br>cubic yd.<br>ounce (US fluid)<br>quart (US liquid)<br>quart (Imperial)<br>gallon (US liquid)<br>gallon (Imperial) |
| <b>Volume/Time:</b> | litre/min.<br>litre/min.                                                                         | 0.264 172<br>0.219 969                                                                               | gallon/min. (US liquid)<br>gallon/min. (Imperial)                                                                                             |

## U.S. to Metric

|                     | <b><u>MULTIPLY</u></b>                                                                                                                   | <b><u>BY</u></b>                                                                                     | <b><u>TO OBTAIN</u></b>                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Area:</b>        | square foot<br>acre                                                                                                                      | 0.092 903<br>0.404 686                                                                               | square meter<br>hectare                                                                          |
| <b>Force:</b>       | ounce force<br>pound force                                                                                                               | 0.278 014<br>4.448 222                                                                               | newton<br>newton                                                                                 |
| <b>Length:</b>      | inch<br>foot<br>mile                                                                                                                     | 25.4 *<br>0.304 8 *<br>1.609 344 *                                                                   | millimeter<br>meter<br>kilometer                                                                 |
| <b>Mass:</b>        | pound<br>ounce                                                                                                                           | 0.453 592<br>28.35                                                                                   | kilogram<br>gram                                                                                 |
| <b>Mass/Area:</b>   | ton/acre                                                                                                                                 | 2241 702                                                                                             | kilogram/hectare                                                                                 |
| <b>Mass/Energy:</b> | lb/hp/hr                                                                                                                                 | 608.277 4                                                                                            | gr/kW/hr                                                                                         |
| <b>Mass/Volume:</b> | lb/cubic yd.                                                                                                                             | 0.593 276                                                                                            | kg/cubic meter                                                                                   |
| <b>Power:</b>       | horsepower                                                                                                                               | 0.745 700                                                                                            | kilowatt                                                                                         |
| <b>Pressure:</b>    | lbs/sq. in.<br>lbs/sq. in.<br>lbs/sq. in.                                                                                                | 6.894 757<br>0.069<br>0.070 303                                                                      | kilopascal<br>bar<br>kg/sq. cm                                                                   |
| <b>Temperature:</b> | degree F                                                                                                                                 | 1.8 F - 32                                                                                           | degree C                                                                                         |
| <b>Torque:</b>      | pound/inch<br>pound/foot                                                                                                                 | 0.112 985<br>1.355 818                                                                               | newton meter<br>newton meter                                                                     |
| <b>Velocity:</b>    | miles/hr.                                                                                                                                | 1.609 344 *                                                                                          | kilometer/hr.                                                                                    |
| <b>Volume:</b>      | cubic inch<br>cubic foot<br>cubic yard<br>ounce (US fluid)<br>quart (US liquid)<br>quart (Imperial)<br>gallon (US)<br>gallons (Imperial) | 16.387 06<br>0.028 317<br>0.764.555<br>29.573 53<br>0.946 353<br>1.136 523<br>3.785 412<br>4.546 092 | cubic centimeter<br>cubic meter<br>cubic meter<br>milliliter<br>litre<br>litre<br>litre<br>litre |
| <b>Volume/Time:</b> | gallon/min.                                                                                                                              | 3.785 412                                                                                            | litre/min.                                                                                       |

\* = exact

## SECTION INDEX

### ENGINES

| Section Title                                          | Section Number |
|--------------------------------------------------------|----------------|
| Engine and Radiator Removal and Installation . . . . . | 2000           |
| Stall Tests . . . . .                                  | 2002           |
| For Engine Repair, see the Engine Service Manual       |                |



# Section 2000

## Engine and Radiator Removal and Installation

CASE CORPORATION  
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June, 2001

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| ENGINE REMOVAL .....                      | 6  |
| INSTALLING THE FRONT ENGINE SUPPORT ..... | 22 |

## SPECIAL TOOLS



B430842

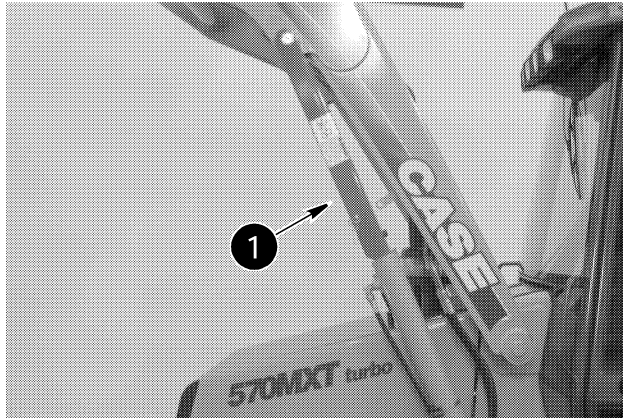
The CAS1690A is used to rotate the flywheel on the engine.

## RADIATOR REMOVAL

Put identification tags on all disconnected hoses and wires. Close disconnected hoses and fittings with caps and plugs.

**NOTE:** *The photos in this procedure may be different from your machine and are for reference only.*

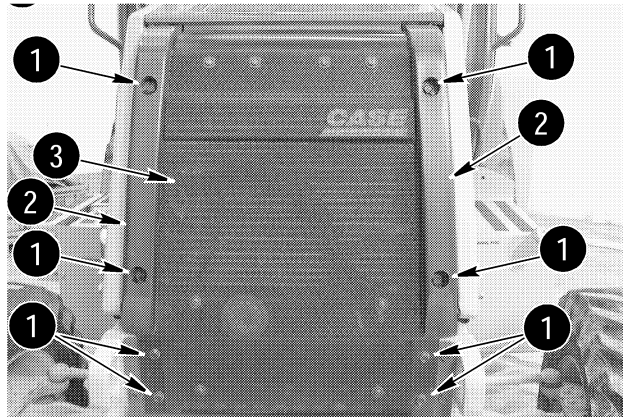
### STEP 1



BD01D042

Park the machine on a level surface. Raise the loader and lock the support strut (1) to hold the loader. Stop the engine and apply the parking brake.

### STEP 2



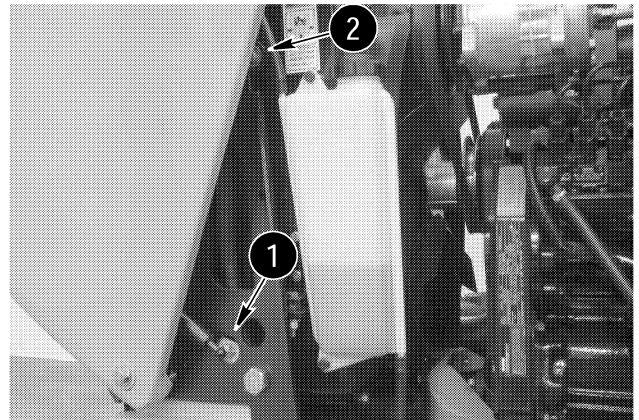
BD01B356

Remove the bolts (1), bumpers (2), and the grille (3) from the front of the machine.

### STEP 3

Open the hood. Connect acceptable lifting equipment to the hood.

### STEP 4

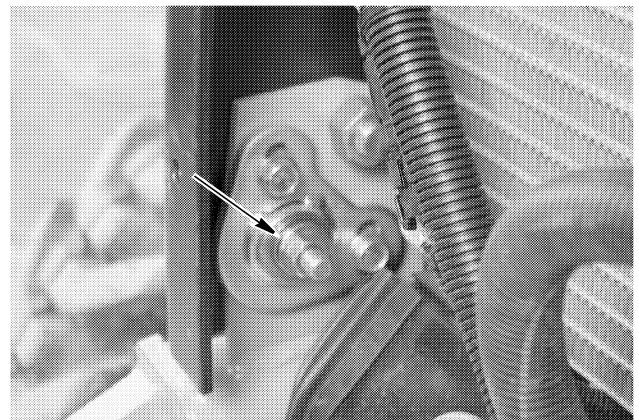


BD01D045

Do the following procedure to remove the hood.

- A. Remove the retainers from the hood struts (1) and disconnect the hood struts from the stud.
- B. Disconnect the hood cable (2) from the radiator shroud.
- C. Carefully lower the hood back to the closed position.

### STEP 5

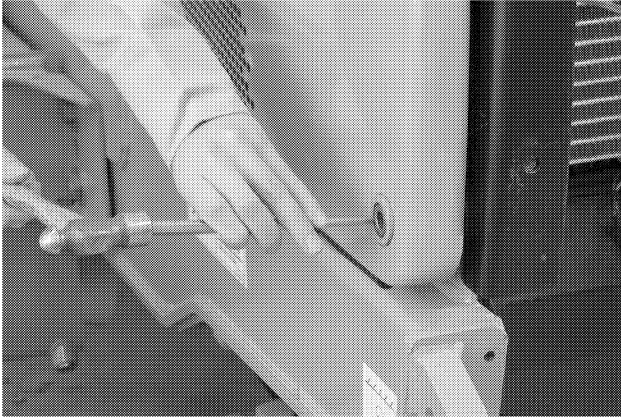


BD01B311

Remove the bolts, washers, and nuts from the pivot point on the hood.

2000-4

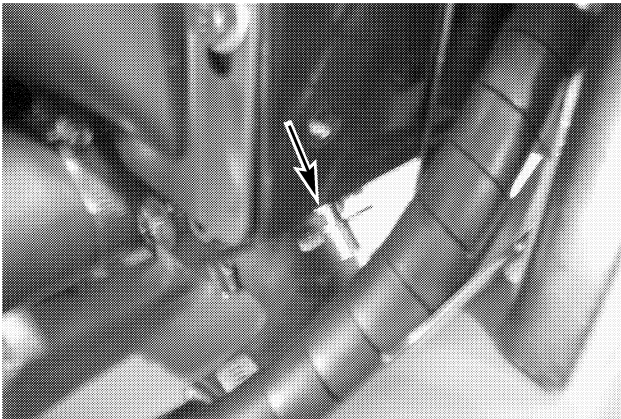
## STEP 6



BD01B311

Drive the pivot tubes out of the hood pivot point. Remove the hood from the machine.

## STEP 7

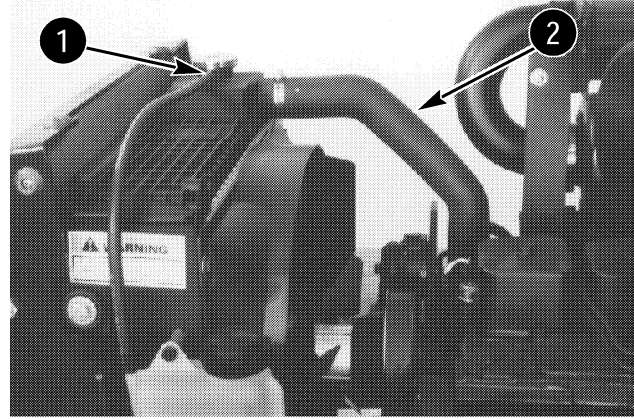


BD01B322

Slowly remove the radiator cap. Install a hose on the drain valve and drain the radiator into a clean container that holds approximately 17 litres (18 U.S. quarts).

**NOTE:** During installation, fill the radiator and coolant reservoir completely. See Section 1002 for coolant specifications. Start and run the engine until the coolant is at operating temperature. Stop the engine and check for leakage. When the coolant is cold, check the coolant reservoir level. Add coolant as required.

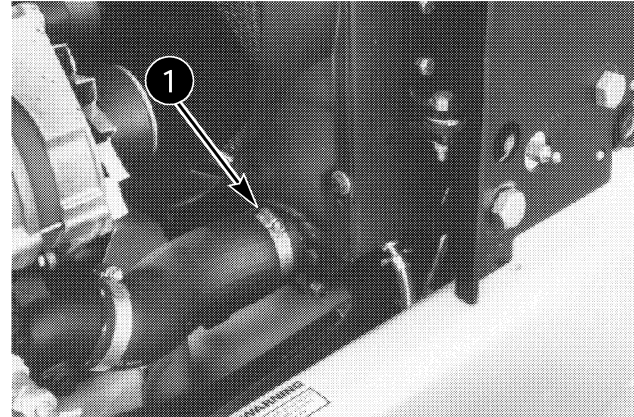
## STEP 8



BP9502292

Disconnect the overflow hose (1) from the radiator neck. Loosen the clamp and disconnect the upper radiator hose (2).

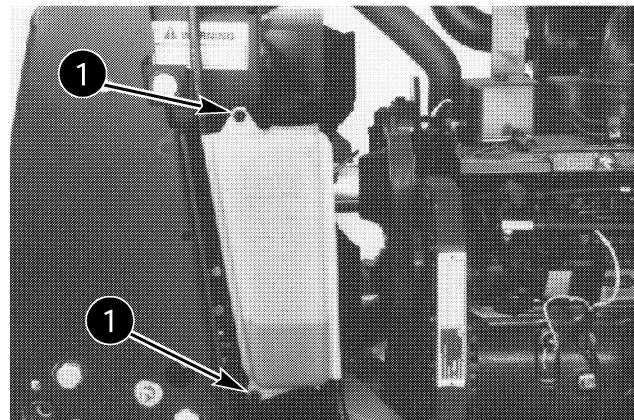
## STEP 9



BP9502290

Loosen the clamp (1) and disconnect the lower radiator hose.

## STEP 10

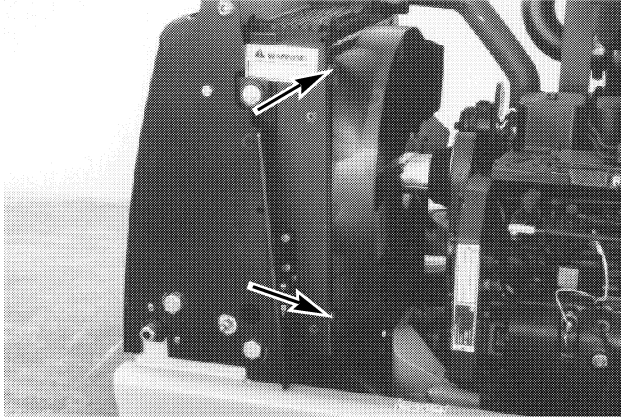


BP9502291

Remove the bolts (1), spacers, washers, and coolant reservoir from the machine.

**NOTE:** During installation tighten the bolts to a torque of 5 to 6 Nm (44 to 53 pound-inches).

## STEP 11

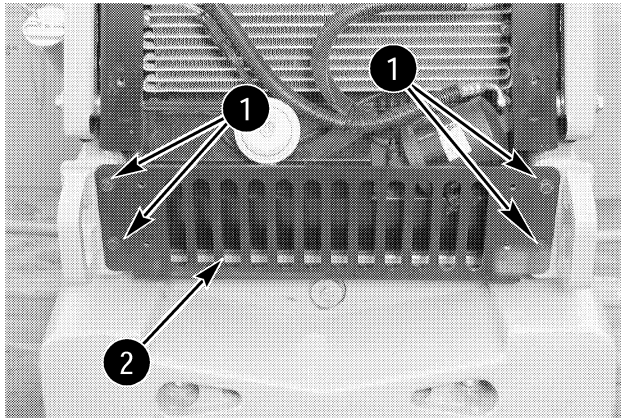


BP9502293

Remove the hardware from the fan shroud. Move the fan shroud away from the radiator.

**NOTE:** During installation tighten the bolts to a torque of 26 to 31 Nm (19 to 23 pound-feet).

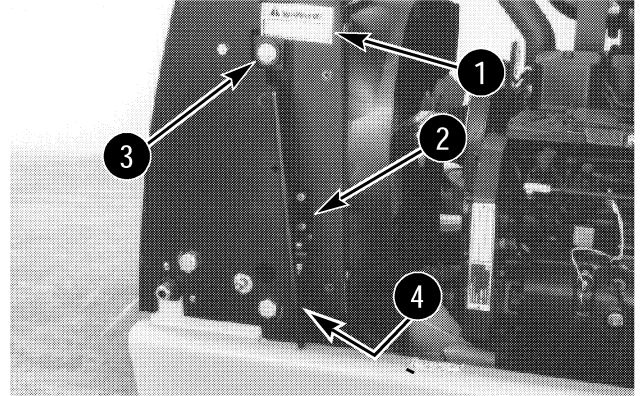
## STEP 12



BD01B309

Remove the bolts (1) and pump guard (2) from the machine.

## STEP 13



BP9502293

Use a sharp knife and cut the warning decal (1). Remove the bolts that fasten the lower brackets (2) to the radiator. Remove the hardware and the lower brackets (2) from the radiator shroud. Remove the bolts and flat washers that fasten the upper brackets (3) to the radiator. Remove the bolts and flat washers (4) that fastens the condenser if equipped and oil cooler to the radiator. Lift the radiator straight up and remove the radiator from the machine.

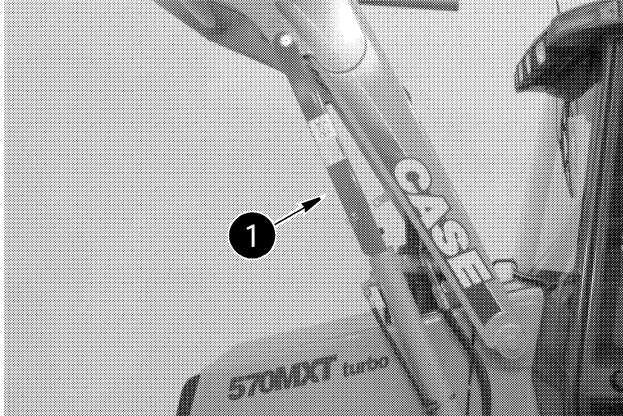
**NOTE:** Installation of the radiator is the reverse of removal.

## ENGINE REMOVAL

Put identification tags on all disconnected hoses and wires. Close disconnected hoses and fittings with caps and plugs.

**NOTE:** *The photos in this procedure may be different from your machine and are for reference only.*

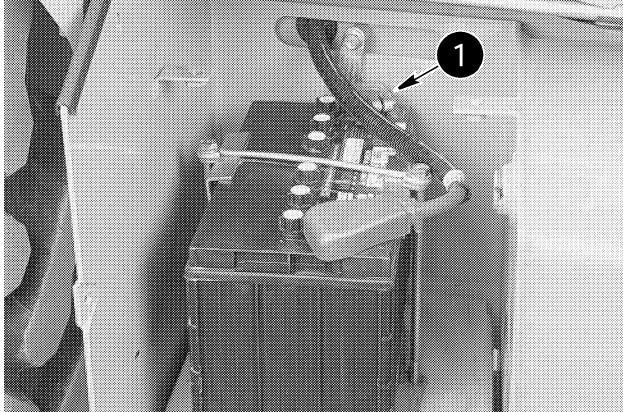
### STEP 1



BD01D042

Park the machine on a level surface. Raise the loader and lock the support strut to hold the loader.

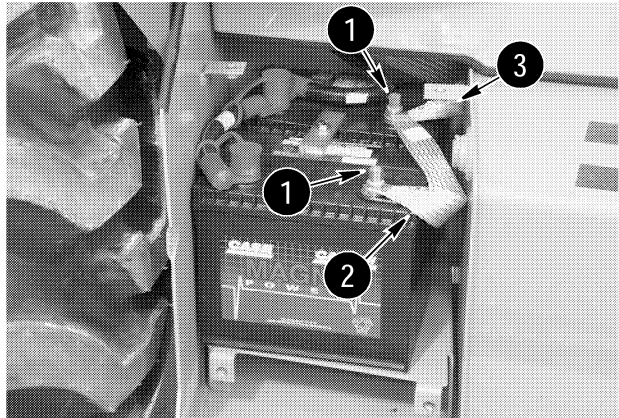
### STEP 2



BD00F122

Remove the battery cover from the right step. If the machine has only one battery, disconnect the negative battery cable from the battery.

### STEP 3



BD00H122

If the machine has two batteries, remove the terminal nuts (1). Remove the jumper cable (2) from the batteries. Remove the negative ground strap (3) from the battery.

### STEP 4

Drain the oil from the hydraulic reservoir.

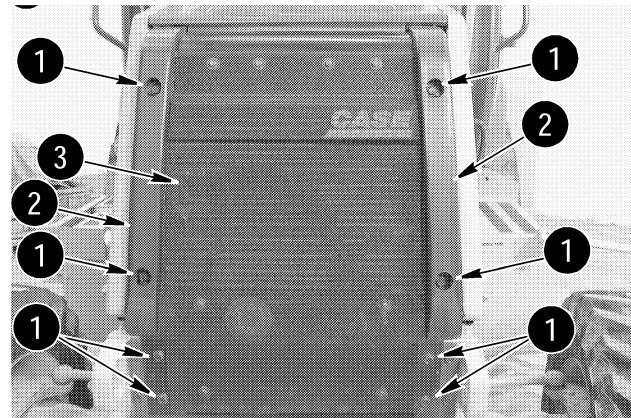
**NOTE:** *During installation fill the hydraulic reservoir with the oil specified in section 1002 of this manual.*

### STEP 5

If the machine is equipped with air conditioning. See Section 9004 and recover the coolant from the air conditioning system.

**NOTE:** *During installation see Section 9004 and recharge the air conditioning system.*

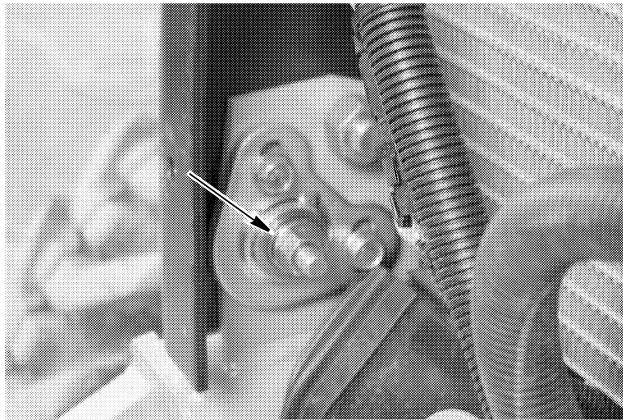
### STEP 6



BD01B356

Remove the bolts (1), bumpers (2), and the grille (3) from the front of the machine.

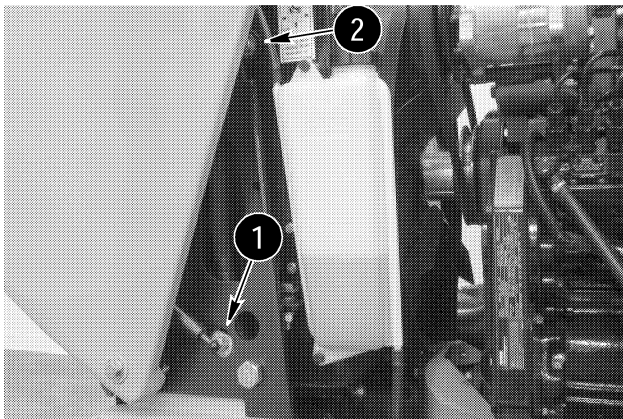
## STEP 7



BD01B311

Remove the bolts, washers, and nuts from the pivot point on the hood.

## STEP 8

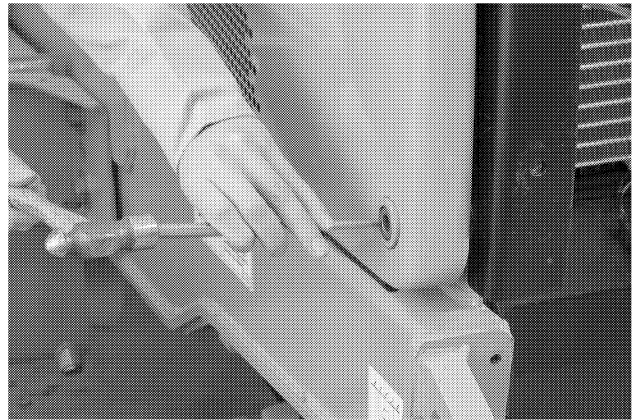


BD01B357

Do the following procedure to remove the hood.

- D. Remove the retainers from the hood struts (1) and disconnect the hood struts from the stud.
- E. Disconnect the hood cable (2) from the radiator shroud.
- F. Carefully lower the hood back to the closed position.

## STEP 9



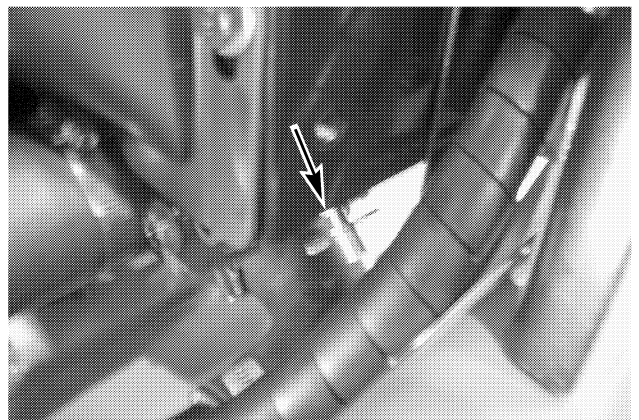
BD01B311

Drive the pivot tubes out of the hood pivot point.

## STEP 10

Use acceptable lifting equipment and remove the hood from the machine.

## STEP 11



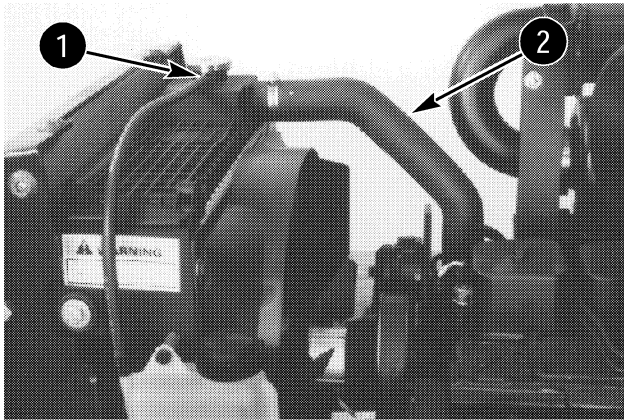
BD01B322

Slowly remove the radiator cap. Install a hose on the drain valve and drain the radiator into a clean container that holds approximately 17 litres (18 U.S. quarts).

**NOTE:** During installation, fill the radiator and coolant reservoir completely with coolant. See Section 1002 for coolant specifications. Start and run the engine until the coolant is at operating temperature. Stop the engine and check for leakage. When the coolant is cold, check the coolant reservoir level. Add coolant as required.

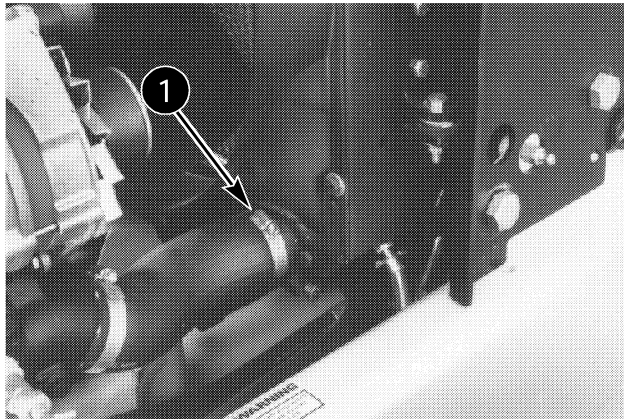
2000-8

## STEP 12



Disconnect the overflow hose (1) from the radiator neck. Loosen the clamp and disconnect the upper radiator hose (2).

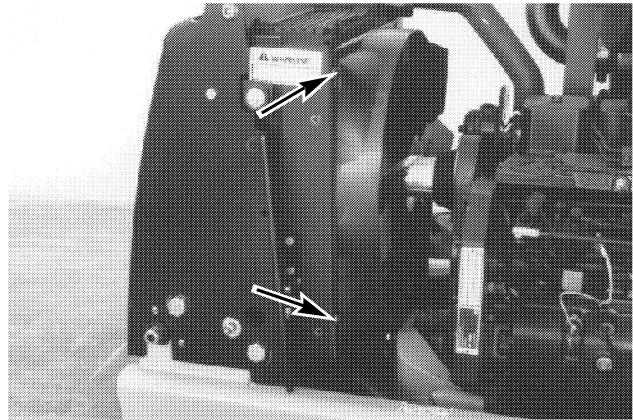
## STEP 13



Loosen the clamp (1) and disconnect the lower radiator hose.

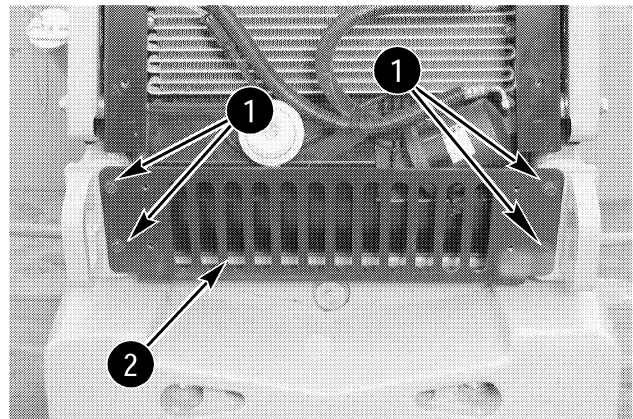
**NOTE:** The following photo shows the coolant reservoir removed from the machine. It is not necessary to remove the coolant reservoir from the machine.

## STEP 14



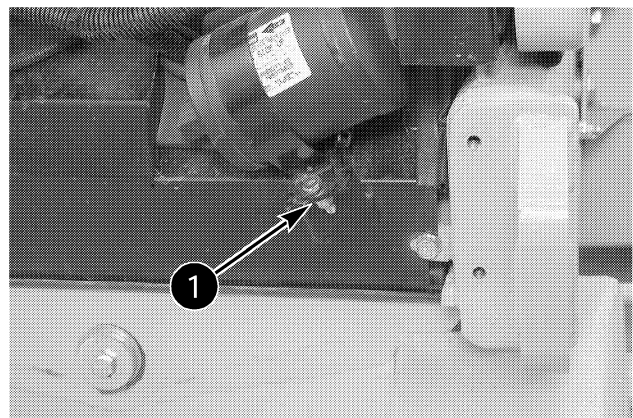
Remove the hardware from the fan shroud. Move the fan shroud away from the radiator.

## STEP 15



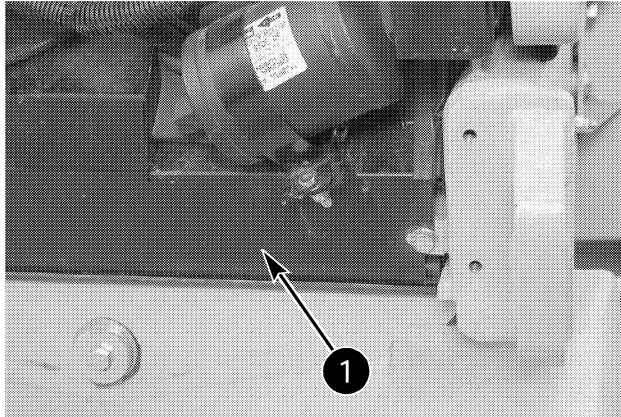
Remove the bolts (1) and pump guard (2) from the machine.

## STEP 16



If the machine is equipped with air conditioning. Remove the self-locking nut and clamp from the drier.

**NOTE:** During installation tighten the self-locking nut to a torque of 26 to 31 Nm (19 to 23 pound-feet).

**STEP 17**

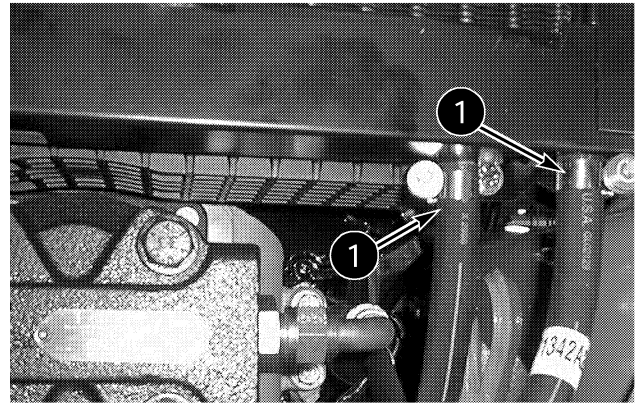
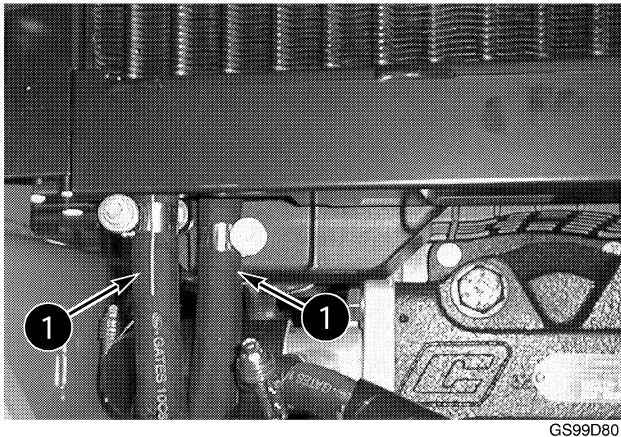
Disconnect the wires from the horn on the baffle plate (1). Loosen and remove the hardware that fastens the baffle plate (1) to the front of the machine. Remove the baffle plate (1) from the machine.

**STEP 18**

If the machine is equipped with air conditioning. Disconnect the electrical connector for the drier. Disconnect the hoses from the drier. Remove the drier from the machine.

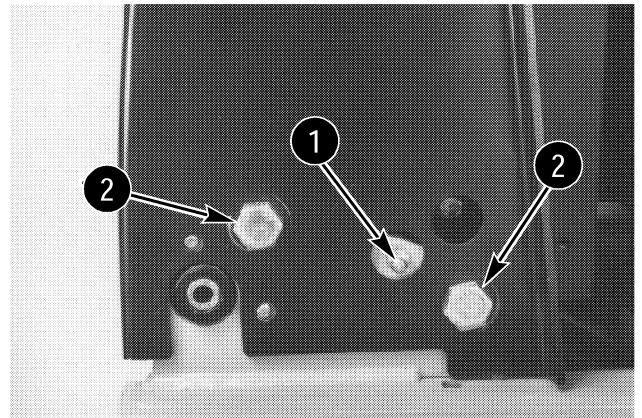
**STEP 19**

If your machine is equipped with air conditioning disconnect the electrical connector for the high pressure cut-out switch.

**STEP 20**

1. OIL COOLER HOSES

Disconnect the hoses from both sides of the hydraulic oil cooler. Identify each hose with its location of removal. Cap the fittings and plug the hoses.

**STEP 21**

Remove the studs (1). Remove the bolts (2) and nuts that fasten the radiator shroud to the frame.

**NOTE:** During installation tighten the studs (1) to a torque of 52 to 61 Nm (38 to 45 pound-feet). Tighten the bolts (2) to a torque of 434 to 515 Nm (320 to 380 pound-feet).

**STEP 22**

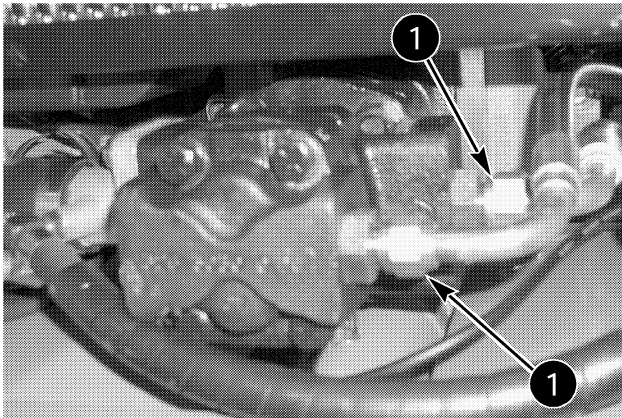
Remove the radiator shroud, radiator, oil coolers and if equipped with air conditioning the condenser as an assembly.

**STEP 23**

Remove the fan shroud from the fan.

2000-10

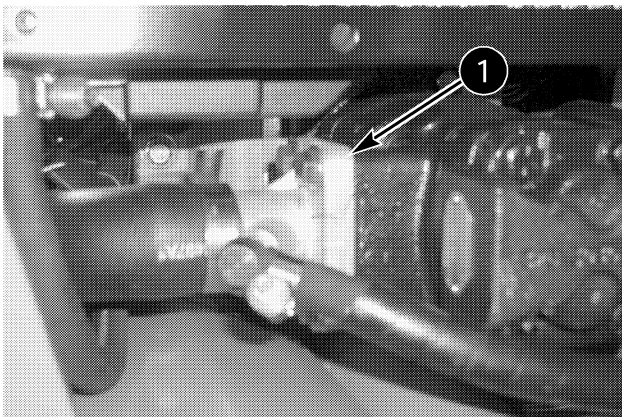
## STEP 24



BD01B314

Disconnect the hoses (1) from the LH side of the pump.

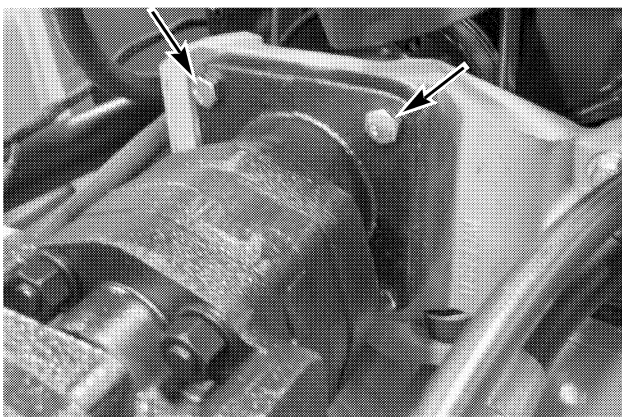
## STEP 25



BD01B315

Remove the bolts and lock washers that fasten the fitting (1) on the RH side of the pump.

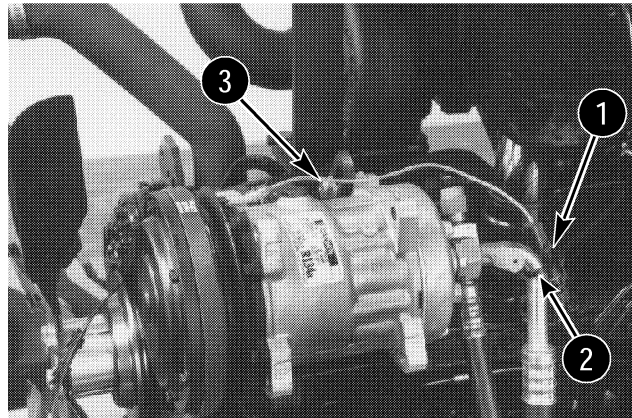
## STEP 26



BD01B328

Loosen and remove the bolts that fasten the equipment pump to the pump mounting bracket. Remove the equipment pump from the machine.

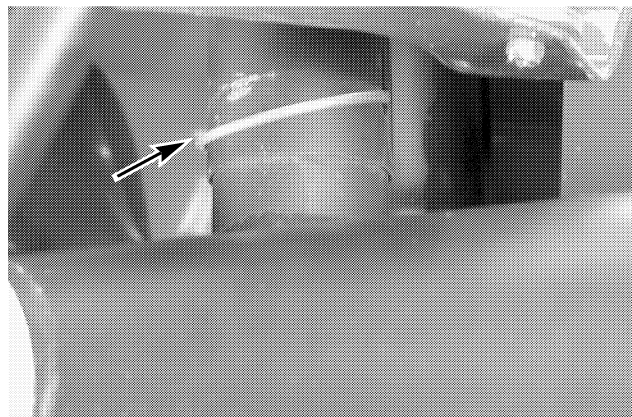
## STEP 27



BP9503116

If the machine is equipped with air conditioning, disconnect the electrical connector (1). Remove the tie strap (2). Disconnect the hoses from the compressor.

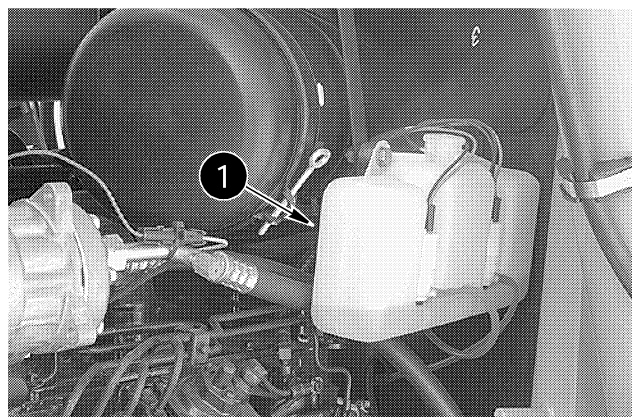
## STEP 28



BD01B306

Loosen the clip for the exhaust pipe at the muffler. Remove the exhaust pipe from the muffler.

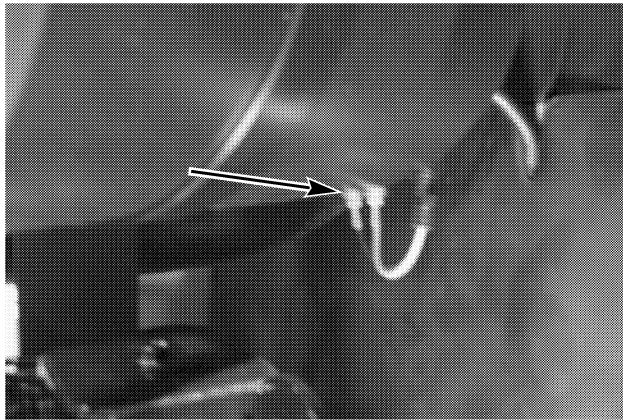
## STEP 29



BK97K213

Remove the windshield washer reservoir (1).

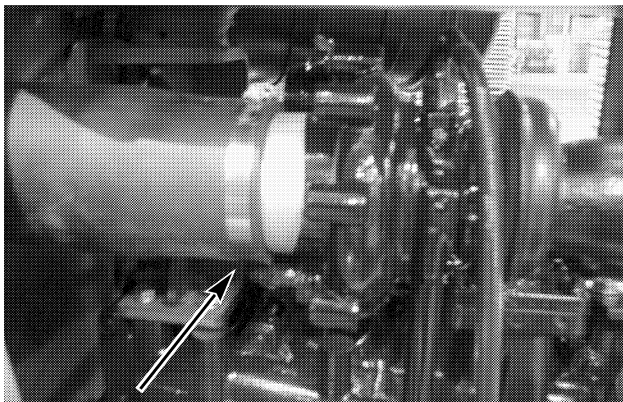
## STEP 30



BD01B324

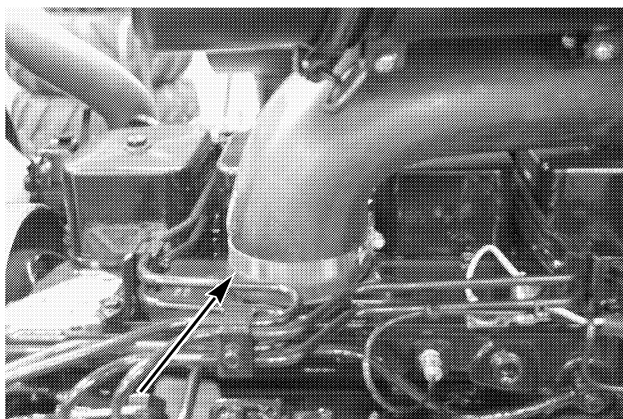
Remove the tie strap. Disconnect the electrical connectors for the air restriction indicator.

## STEP 31



BD01B323

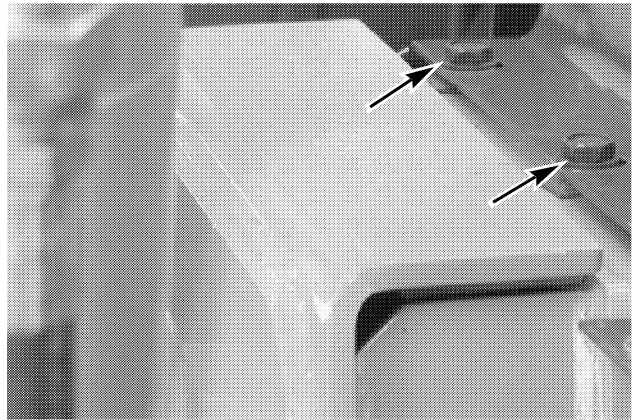
If the machine is equipped with turbocharger, loosen the clamp on the air cleaner hose at the turbocharger. Disconnect the air cleaner hose from the turbocharger.



BD01B366

If the machine is not equipped with turbocharger, loosen the clamp on the air cleaner hose at the intake manifold. Disconnect the air cleaner hose from the intake manifold.

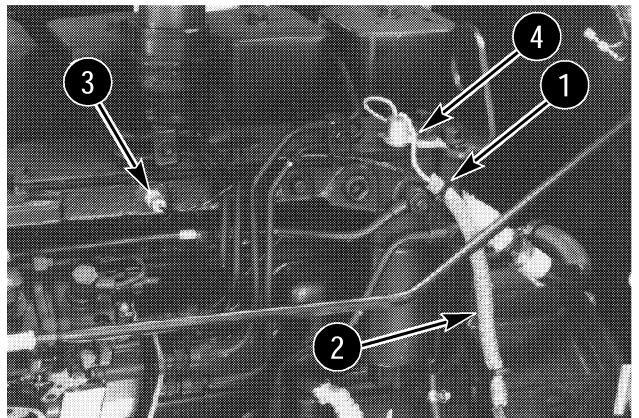
## STEP 32



BD01B307

Remove the bolts and flat washers that fasten the cover to uprights. Remove the cover and air cleaner as an assembly.

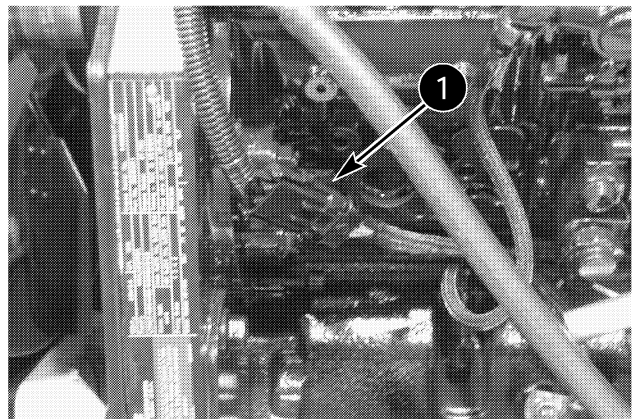
## STEP 33



BP9502303

If the machine has ether injection, remove the tie straps (1) and sleeve (2) from the tube (3) and wire (4). Disconnect the tube (3) and the wire (4).

## STEP 34

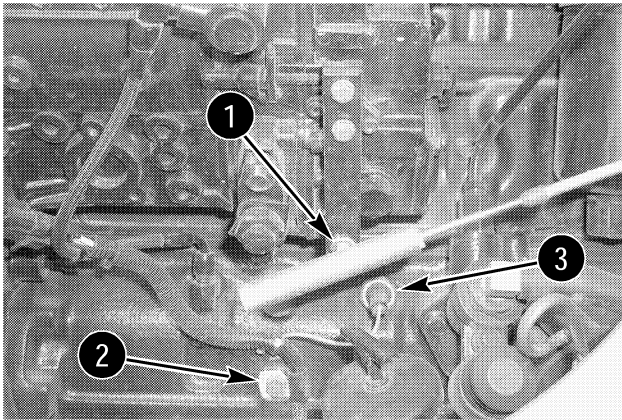


BD01B365

Disconnect the electrical connector for the fuel injection pump (1).

2000-12

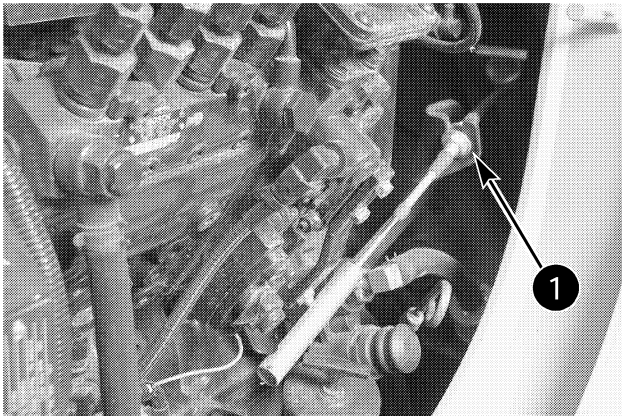
### STEP 35



BD01B375

Disconnect the throttle rod (1). Disconnect the wiring clamp (2). Disconnect the wire from the oil pressure sender (3).

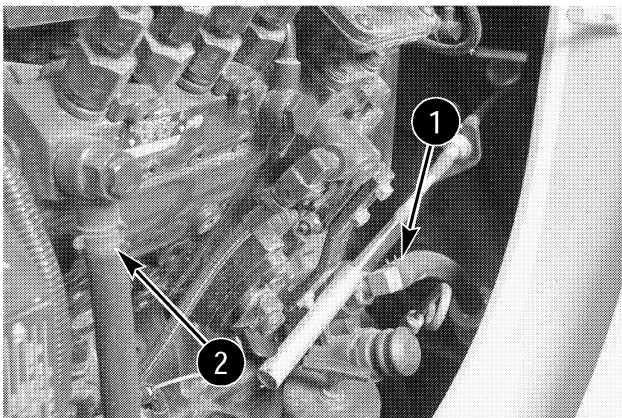
### STEP 36



BD01B377

Disconnect the throttle cable from the mounting bracket (1).

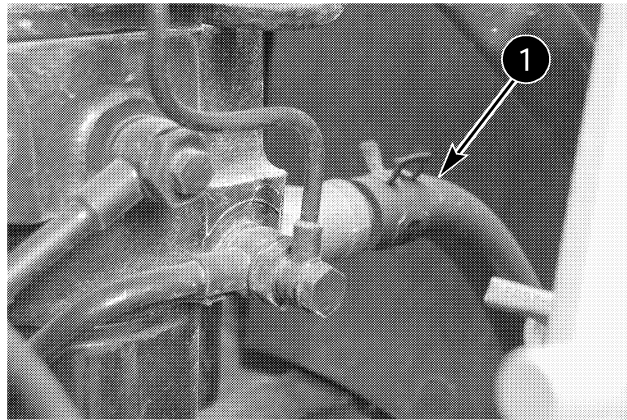
### STEP 37



BD01B377

Disconnect the fuel lines (1) and (2).

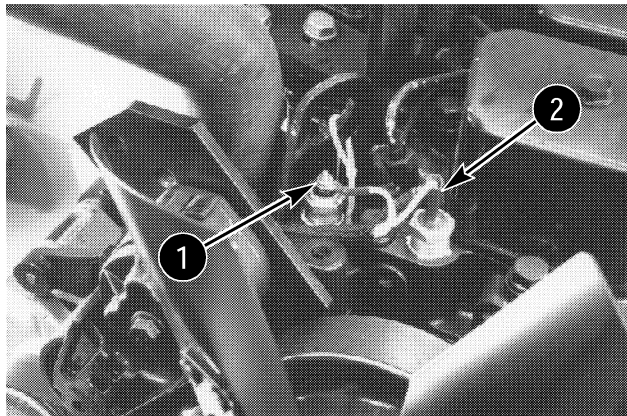
### STEP 38



BD01B378

Disconnect the heater hose (1), if equipped.

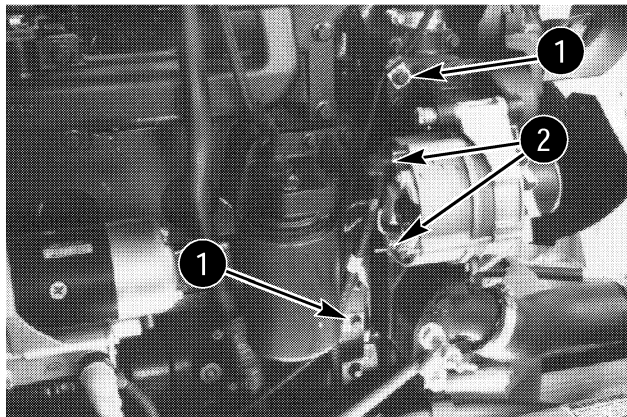
### STEP 39



BP9502298

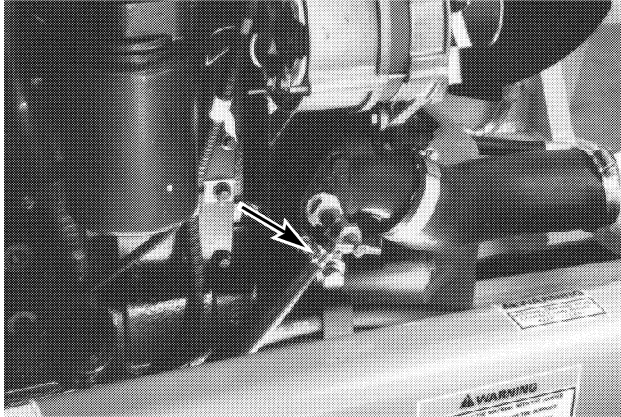
Disconnect the coolant temperature sender (1) and coolant temperature switch (2).

### STEP 40



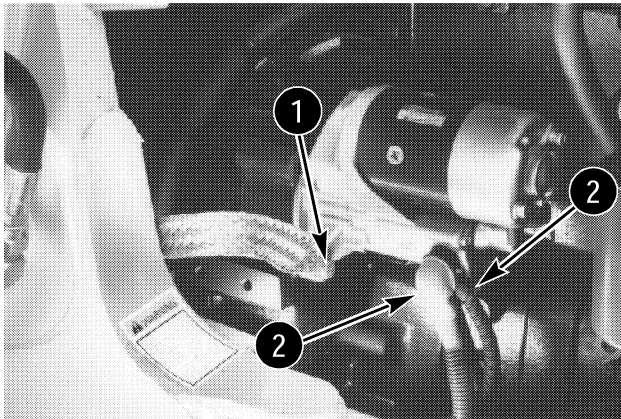
BP9502296

Remove the harness clamps (1). Disconnect the wires (2) from the alternator.

**STEP 41**

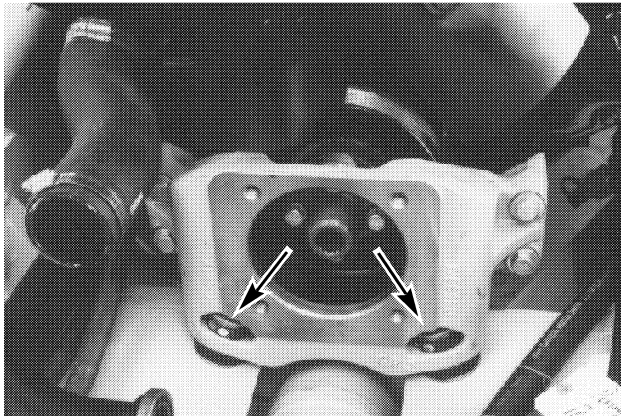
BP9502297

Loosen the clamp and disconnect the heater hose, if equipped.

**STEP 42**

BP9502316

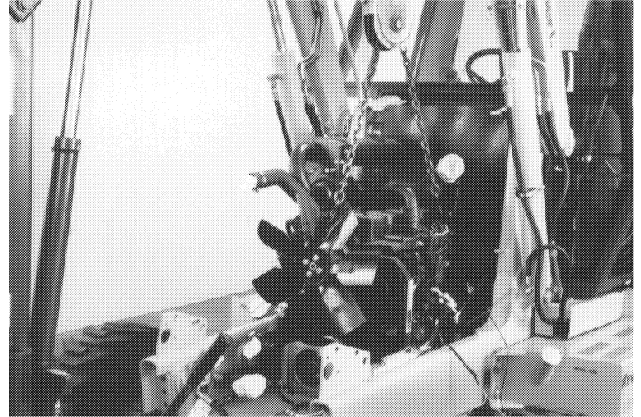
Disconnect the ground strap (1). Disconnect the wires (2) from the starter.

**STEP 43**

BP9502310

Remove the bolts, flat washers, and nuts from the front engine mount.

**NOTE:** During installation, tighten the self-locking nuts to 70 to 90 Nm (51 to 66 pound-feet). See the illustration on page 19 for correct installation.

**STEP 44**

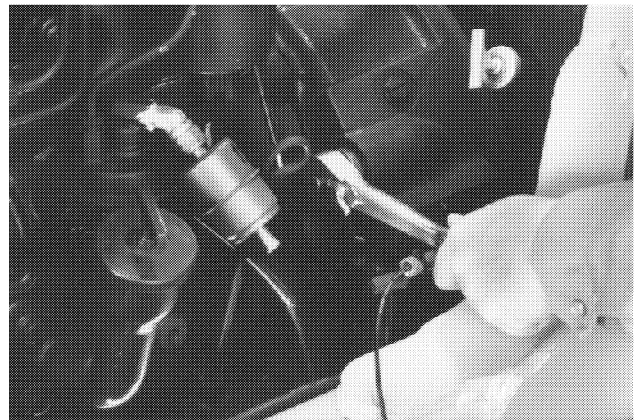
BP9502305

Connect lifting equipment to the lifting eyes on the engine to hold the engine in place.

**NOTE:** For machines with a standard (Carraro) transmission, there are six bolts with lock washers that fasten the flywheel to the torque converter. For machines with a powershift (Clark) transmission, there are eight bolts that fasten the flywheel to the flex plate. The engine must be rotated to align each bolt with the access hole in the flywheel housing at the left side of the engine.

**STEP 45**

Remove the plastic plug from the flywheel housing. Remove the hose from the bracket and remove the cover and gasket from the access hole for the bolts.

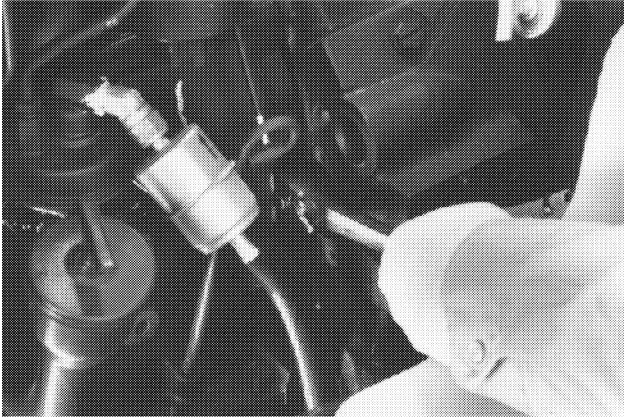
**STEP 46**

BP9502299

Install the CAS-1690A tool to turn the flywheel for access to the bolts.

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## STEP 47



For machines equipped with a standard (Carraro) transmission, loosen and remove all six bolts and lock washers that fasten the flywheel to the torque converter. For machines equipped with a powershift (Clark) transmission, loosen and remove all eight bolts that fasten the flywheel to the flex plate.

**NOTE:** Be careful during installation when installing the bolts and if equipped lock washers. Tighten the bolts to 52 to 57 Nm (38 to 42 pound-feet) for the standard (Carraro) transmission or the powershift (Clark) transmission.

## STEP 48

Loosen and remove the 12 bolts and flat washers that fasten the transmission to the engine. Move the heater hose and clamps out of the way.

## STEP 49

Move the engine forward and raise the engine. Remove the engine from the machine.

**IMPORTANT:** For machines with a powershift (Clark) transmission make sure that the flex plate/converter assembly stays in place on the transmission. If the engine will be separated from the transmission for an extended period of time fasten the flex plate/converter assembly in place on the transmission.

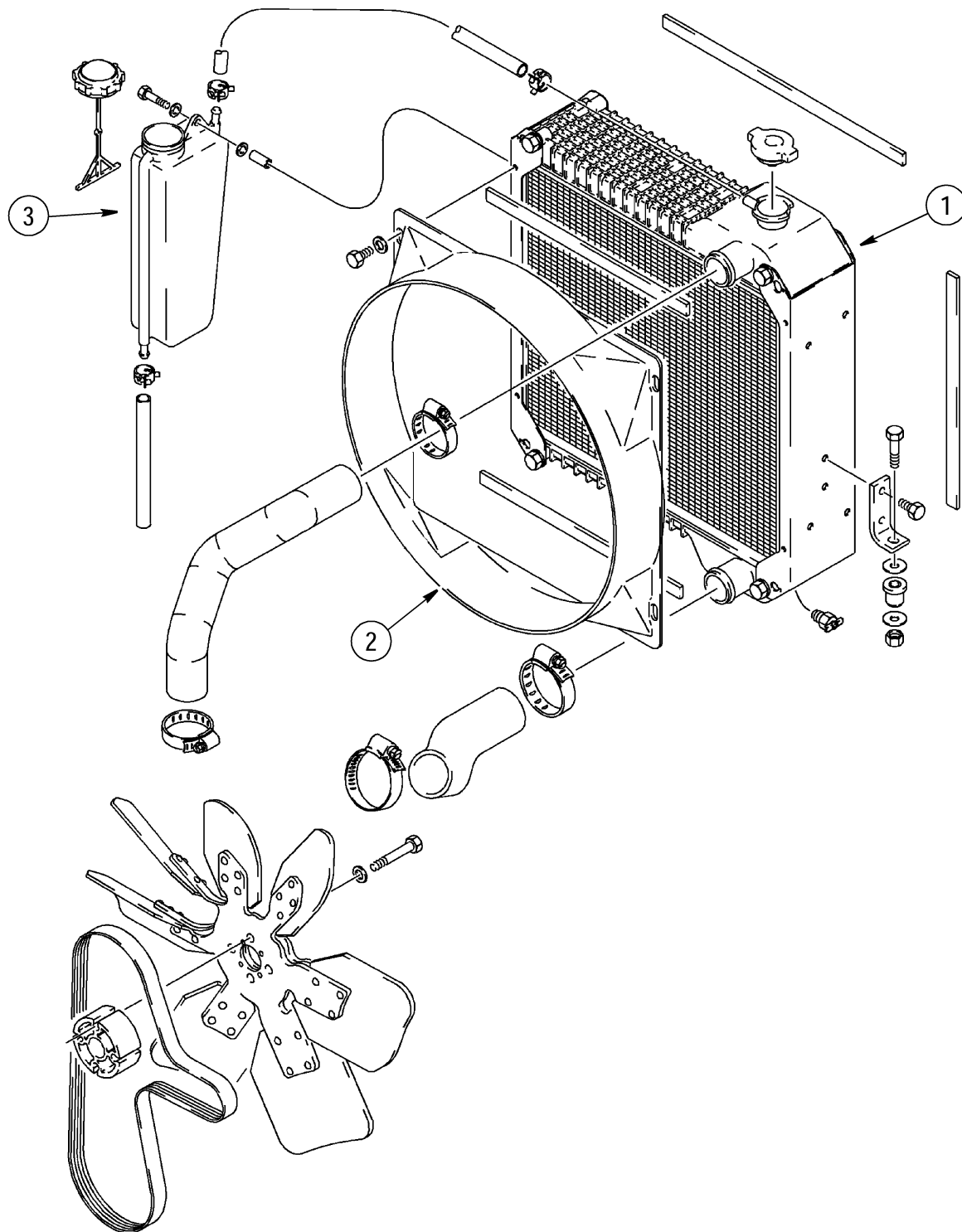
**NOTE:** Installation of the engine is the reverse of removal.

**IMPORTANT:** Before starting the engine do the following.

1. See section 1002 Fluids and Lubricants in this manual for the correct type and quantities needed to replace lost or drained fluids and lubricants before starting the engine.
2. The turbocharger must be filled with oil. Disconnect the wire from the fuel shutoff solenoid. Actuate the starter for 10 to 20 seconds to fill the turbocharger with oil. Connect the wire to the fuel shutoff solenoid.
3. The hydraulic pump **must** be filled with oil. Do the following procedure to fill the hydraulic pump with oil:
  - A. Fill the hydraulic reservoir Make sure the oil level in the hydraulic reservoir is correct.
  - B. Remove the cap from the hydraulic reservoir.
  - C. Use a nozzle and shop air to pressurize the hydraulic reservoir. Wrap a shop cloth around the end of the hose at the nozzle.

**NOTE:** 34.5 kPa (5 psi) to 69.0 kPa (10 psi) is all that is required to move the oil. Pressure above 69.0 kPa (10 psi) can damage the hydraulic reservoir.

- D. Have another person start and run the engine at low idle while shop air is being applied to the hydraulic reservoir.



1. RADIATOR

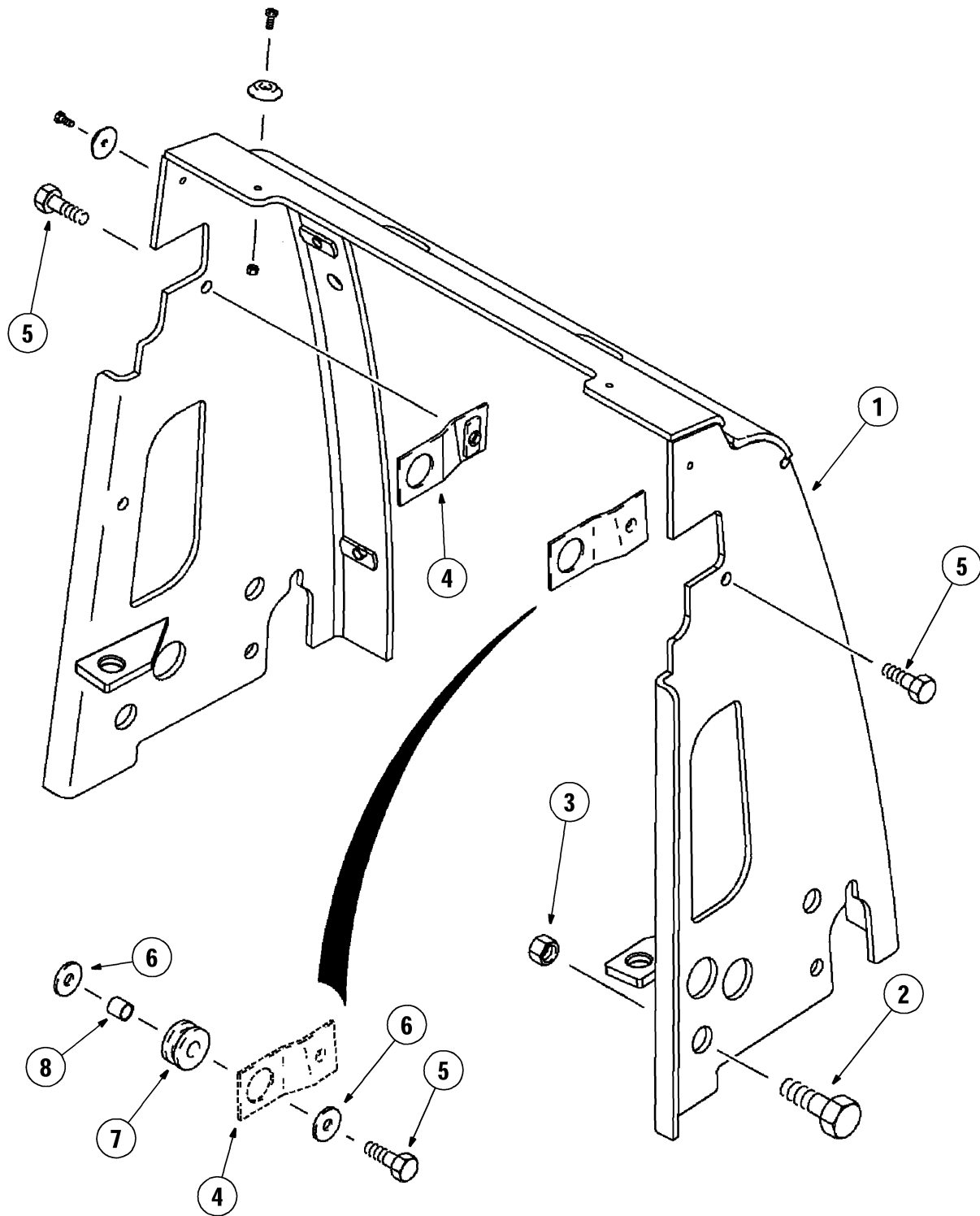
2. FAN SHROUD

3. COOLANT RECOVERY BOTTLE

**RADIATOR INSTALLATION**

BS01B237

2000-16



BS01B240

- 1. RADIATOR SHROUD
- 2. BOLT, RADIATOR SHROUD TO CHASSIS FRAME

- 3. NUT
- 4. BRACKET, RADIATOR SHROUD TO RADIATOR

- 5. CAP SCREW
- 6. FLAT WASHER, SPECIAL

- 7. GROMMET
- 8. SPACER

# **RADIATOR SHROUD**

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