

# 721D Loader Service Manual 6-47283

## Table of Contents

| Description                                                   | Section No.  | Form No. |
|---------------------------------------------------------------|--------------|----------|
| <b>General</b>                                                | <b>Tab 1</b> |          |
| Section Index - General                                       |              | 6-47550  |
| Standard Torque Specifications                                | 1001         | 8-71603  |
| Fluids and Lubricants                                         | 1002         | 6-47451  |
| Metric Conversion Chart                                       | 1003         | 7-52950  |
| Loctite Product Chart                                         |              | 6-48640  |
| <b>Engines</b>                                                | <b>Tab 2</b> |          |
| Section Index - Engines                                       |              | 6-47560  |
| Engine and Radiator Removal and Installation                  | 2000         | 6-47570  |
| Stall Tests                                                   | 2002         | 6-47461  |
| After Cooler                                                  | 2003         | 6-49850  |
| For Engine Repair, See the Engine Service Manual              |              |          |
| <b>Fuel System</b>                                            | <b>Tab 3</b> |          |
| Section Index - Fuel System                                   |              | 6-47580  |
| For Fuel System Repair, See the Engine Service Manual         |              |          |
| <b>Electrical</b>                                             | <b>Tab 4</b> |          |
| Section Index - Electrical                                    |              | 6-47590  |
| Removal and Installation of Starter and Alternator            | 4001         | 6-47600  |
| Electrical Specifications and Troubleshooting                 | 4002         | 6-47470  |
| Batteries                                                     | 4003         | 6-42330  |
| Information and Diagnostic Center                             | 4005         | 6-47611  |
| <b>Steering</b>                                               | <b>Tab 5</b> |          |
| Section Index - Steering                                      |              | 6-47620  |
| Removal and Installation of Steering Components               | 5001         | 6-47630  |
| Steering Specifications, Pressure Checks, and Troubleshooting | 5002         | 6-47480  |
| Steering Control Valve                                        | 5003         | 6-47640  |
| Steering Priority Valve                                       | 5004         | 6-42400  |
| Steering Cylinders                                            | 5005         | 6-47650  |
| Center Pivot                                                  | 5006         | 6-47660  |
| Auxiliary Steering Motor and Pump                             | 5008         | 6-42430  |

# 721D Loader Service Manual 6-47283

## Table of Contents

| Description                                                       | Section No. | Form No. |
|-------------------------------------------------------------------|-------------|----------|
| <b>Power Train</b>                                                |             |          |
| Section Index - Power Train                                       |             | 6-47670  |
| Removal and Installation of Power Train Components                | 6001        | 6-47681  |
| Transmission Specifications, Pressure Checks, and Troubleshooting | 6002        | 6-47490  |
| Transmission                                                      | 6003        | 6-47690  |
| Front Axle                                                        | 6004        | 6-47700  |
| Rear Axle                                                         | 6004        | 6-47710  |
| Drive Shafts, Center Bearing, and Universal Joints                | 6005        | 6-47720  |
| Wheels and Tires                                                  | 6006        | 6-47730  |
| Transmission Control Valve                                        | 6007        | 6-42500  |
| <b>Brakes</b>                                                     |             |          |
| Section Index - Brakes                                            |             | 6-47740  |
| Removal and Installation of Brake Components                      | 7001        | 6-47750  |
| Hydraulic Brake Troubleshooting                                   | 7002        | 6-47501  |
| Brake Accumulators                                                | 7004        | 6-47761  |
| Parking Brake                                                     | 7008        | 6-44971  |
| <b>Hydraulics</b>                                                 |             |          |
| Section Index - Hydraulics                                        |             | 6-47770  |
| Removal and Installation of Hydraulic Components                  | 8001        | 6-47782  |
| Hydraulic Specifications, Troubleshooting, and Pressure Checks    | 8002        | 6-47512  |
| Cleaning the Hydraulic System                                     | 8003        | 7-49640  |
| Loader Control Valve                                              | 8005        | 6-47800  |
| Cylinders                                                         | 8006        | 6-47812  |
| Coupler Solenoid Locking Valve                                    | 8007        | 6-42600  |
| Pilot Pressure Accumulator and Ride Control Accumulator           | 8013        | 6-47830  |
| Ride Control Valve                                                | 8014        | 6-44751  |

**721D Loader  
Service Manual  
6-47283**

**Table of Contents**

| Description                                                                                   | Section No.           | Form No.       |
|-----------------------------------------------------------------------------------------------|-----------------------|----------------|
| <b>Mounted Equipment</b>                                                                      | <b>Tab 9</b>          |                |
| Section Index - Mounted Equipment                                                             |                       | 6-47840        |
| Air Conditioning Troubleshooting and System Checks For Systems with HFC-134a Refrigerant      | 9002                  | 6-42650        |
| Air Conditioner System Service                                                                | 9003                  | 6-47850        |
| Removal and Installation of Air Conditioning Components For Systems with HFC-134a Refrigerant | 9004                  | 6-47860        |
| Loader                                                                                        | 9006                  | 6-47872        |
| ROPS Cab and ROPS Canopy                                                                      | 9007                  | 6-47880        |
| Cab Glass Installation                                                                        | 9010                  | 6-42710        |
| <b>Electrical Schematic Foldouts and Hydraulic Schematic Foldout</b>                          | <b>In Rear Pocket</b> | <b>6-47530</b> |

**NOTE:** CNH America LLC. 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.

**SECTION INDEX**

**GENERAL**

| <b>Section Title</b>                     | <b>Section Number</b> |
|------------------------------------------|-----------------------|
| Standard Torque Specifications . . . . . | 1001                  |
| Fluids and Lubricants . . . . .          | 1002                  |
| Metric Conversion Chart . . . . .        | 1003                  |
| Loctite Product Chart                    |                       |



# Section 1001

## GENERAL TORQUE SPECIFICATIONS

TABLE OF CONTENTS

TORQUE SPECIFICATIONS - DECIMAL HARDWARE ..... 3

TORQUE SPECIFICATIONS - METRIC HARDWARE ..... 4

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS ..... 5

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS ..... 6

## 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                                                                              | Pound-Inches | Newton metres |
| 1/4 inch                                                                          | 108 to 132   | 12 to 15      |
| 5/16 inch                                                                         | 204 to 252   | 23 to 28      |
| 3/8 inch                                                                          | 420 to 504   | 48 to 57      |
|                                                                                   |              |               |
| Size                                                                              | Pound-Feet   | Newton metres |
| 7/16 inch                                                                         | 54 to 64     | 73 to 87      |
| 1/2 inch                                                                          | 80 to 96     | 109 to 130    |
| 9/16 inch                                                                         | 110 to 132   | 149 to 179    |
| 5/8 inch                                                                          | 150 to 180   | 203 to 244    |
| 3/4 inch                                                                          | 270 to 324   | 366 to 439    |
| 7/8 inch                                                                          | 400 to 480   | 542 to 651    |
| 1.0 inch                                                                          | 580 to 696   | 787 to 944    |
| 1-1/8 inch                                                                        | 800 to 880   | 1085 to 1193  |
| 1-1/4 inch                                                                        | 1120 to 1240 | 1519 to 1681  |
| 1-3/8 inch                                                                        | 1460 to 1680 | 1980 to 2278  |
| 1-1/2 inch                                                                        | 1940 to 2200 | 2631 to 2983  |

| Grade 8 Bolts, Nuts, and Studs                                                      |              |               |
|-------------------------------------------------------------------------------------|--------------|---------------|
|  |              |               |
| Size                                                                                | Pound-Inches | Newton metres |
| 1/4 inch                                                                            | 144 to 180   | 16 to 20      |
| 5/16 inch                                                                           | 288 to 348   | 33 to 39      |
| 3/8 inch                                                                            | 540 to 648   | 61 to 73      |
|                                                                                     |              |               |
| Size                                                                                | Pound-Feet   | Newton metres |
| 7/16 inch                                                                           | 70 to 84     | 95 to 114     |
| 1/2 inch                                                                            | 110 to 132   | 149 to 179    |
| 9/16 inch                                                                           | 160 to 192   | 217 to 260    |
| 5/8 inch                                                                            | 220 to 264   | 298 to 358    |
| 3/4 inch                                                                            | 380 to 456   | 515 to 618    |
| 7/8 inch                                                                            | 600 to 720   | 814 to 976    |
| 1.0 inch                                                                            | 900 to 1080  | 1220 to 1465  |
| 1-1/8 inch                                                                          | 1280 to 1440 | 1736 to 1953  |
| 1-1/4 inch                                                                          | 1820 to 2000 | 2468 to 2712  |
| 1-3/8 inch                                                                          | 2380 to 2720 | 3227 to 3688  |
| 1-1/2 inch                                                                          | 3160 to 3560 | 4285 to 4827  |
| <b>NOTE:</b> Use thick nuts with Grade 8 bolts.                                     |              |               |



## TORQUE SPECIFICATIONS - METRIC HARDWARE

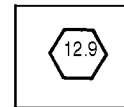
Use the following torques when specifications are not given.

These values apply to fasteners with coarse 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.

| Grade 8.8 Bolts, Nuts, and Studs                                                  |              |               |
|-----------------------------------------------------------------------------------|--------------|---------------|
|  |              |               |
| Size                                                                              | Pound-Inches | Newton metres |
| M4                                                                                | 24 to 36     | 3 to 4        |
| M5                                                                                | 60 to 72     | 7 to 8        |
| M6                                                                                | 96 to 108    | 11 to 12      |
| M8                                                                                | 228 to 276   | 26 to 31      |
| M10                                                                               | 456 to 540   | 52 to 61      |
|                                                                                   |              |               |
| Size                                                                              | Pound-Feet   | Newton metres |
| M12                                                                               | 66 to 79     | 90 to 107     |
| M14                                                                               | 106 to 127   | 144 to 172    |
| M16                                                                               | 160 to 200   | 217 to 271    |
| M20                                                                               | 320 to 380   | 434 to 515    |
| M24                                                                               | 500 to 600   | 675 to 815    |
| M30                                                                               | 920 to 1100  | 1250 to 1500  |
| M36                                                                               | 1600 to 1950 | 2175 to 2600  |

| Grade 10.9 Bolts, Nuts, and Studs                                                   |              |               |
|-------------------------------------------------------------------------------------|--------------|---------------|
|  |              |               |
| Size                                                                                | Pound-Inches | Newton metres |
| M4                                                                                  | 36 to 48     | 4 to 5        |
| M5                                                                                  | 84 to 96     | 9 to 11       |
| M6                                                                                  | 132 to 156   | 15 to 18      |
| M8                                                                                  | 324 to 384   | 37 to 43      |
|                                                                                     |              |               |
| Size                                                                                | Pound-Feet   | Newton metres |
| M10                                                                                 | 54 to 64     | 73 to 87      |
| M12                                                                                 | 93 to 112    | 125 to 150    |
| M14                                                                                 | 149 to 179   | 200 to 245    |
| M16                                                                                 | 230 to 280   | 310 to 380    |
| M20                                                                                 | 450 to 540   | 610 to 730    |
| M24                                                                                 | 780 to 940   | 1050 to 1275  |
| M30                                                                                 | 1470 to 1770 | 2000 to 2400  |
| M36                                                                                 | 2580 to 3090 | 3500 to 4200  |

### 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

| Tube OD<br>Hose ID             | Thread<br>Size | Pound-<br>Inches | Newton<br>metres |
|--------------------------------|----------------|------------------|------------------|
| <b>37 Degree Flare Fitting</b> |                |                  |                  |
| 1/4 inch<br>6.4 mm             | 7/16-20        | 72 to 144        | 8 to 16          |
| 5/16 inch<br>7.9 mm            | 1/2-20         | 96 to 192        | 11 to 22         |
| 3/8 inch<br>9.5 mm             | 9/16-18        | 120 to 300       | 14 to 34         |
| 1/2 inch<br>12.7 mm            | 3/4-16         | 180 to 504       | 20 to 57         |
| 5/8 inch<br>15.9 mm            | 7/8-14         | 300 to 696       | 34 to 79         |
|                                |                |                  |                  |
| Tube OD<br>Hose ID             | Thread<br>Size | Pound-<br>Feet   | Newton<br>metres |
| 3/4 inch<br>19.0 mm            | 1-1/16-12      | 40 to 80         | 54 to 108        |
| 7/8 inch<br>22.2 mm            | 1-3/16-12      | 60 to 100        | 81 to 135        |
| 1.0 inch<br>25.4 mm            | 1-5/16-12      | 75 to 117        | 102 to 158       |
| 1-1/4 inch<br>31.8 mm          | 1-5/8-12       | 125 to 165       | 169 to 223       |
| 1-1/2 inch<br>38.1 mm          | 1-7/8-12       | 210 to 250       | 285 to 338       |

| Tube OD<br>Hose ID                  | Thread<br>Size | Pound-<br>Inches | Newton<br>metres |
|-------------------------------------|----------------|------------------|------------------|
| <b>Straight Threads with O-ring</b> |                |                  |                  |
| 1/4 inch<br>6.4 mm                  | 7/16-20        | 144 to 228       | 16 to 26         |
| 5/16 inch<br>7.9 mm                 | 1/2-20         | 192 to 300       | 22 to 34         |
| 3/8 inch<br>9.5 mm                  | 9/16-18        | 300 to 480       | 34 to 54         |
| 1/2 inch<br>12.7 mm                 | 3/4-16         | 540 to 804       | 57 to 91         |
|                                     |                |                  |                  |
| Tube OD<br>Hose ID                  | Thread<br>Size | Pound-<br>Feet   | Newton<br>metres |
| 5/8 inch<br>15.9 mm                 | 7/8-14         | 58 to 92         | 79 to 124        |
| 3/4 inch<br>19.0 mm                 | 1-1/16-12      | 80 to 128        | 108 to 174       |
| 7/8 inch<br>22.2 mm                 | 1-3/16-12      | 100 to 160       | 136 to 216       |
| 1.0 inch<br>25.4 mm                 | 1-5/16-12      | 117 to 187       | 159 to 253       |
| 1-1/4 inch<br>31.8 mm               | 1-5/8-12       | 165 to 264       | 224 to 357       |
| 1-1/2 inch<br>38.1 mm               | 1-7/8-12       | 250 to 400       | 339 to 542       |

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

## TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

| Nom.<br>SAE<br>Dash<br>Size | Tube OD               | Thread<br>Size | Pound-<br>Inches | Newton<br>metres | Thread<br>Size                                 | Pound-<br>Inches | Newton<br>metres |
|-----------------------------|-----------------------|----------------|------------------|------------------|------------------------------------------------|------------------|------------------|
| <b>O-ring Face Seal End</b> |                       |                |                  |                  | <b>O-ring Boss End<br/>Fitting or Lock Nut</b> |                  |                  |
| -4                          | 1/4 inch<br>6.4 mm    | 9/16-18        | 120 to 144       | 14 to 16         | 7/16-20                                        | 204 to 240       | 23 to 27         |
| -6                          | 3/8 inch<br>9.5 mm    | 11/16-16       | 216 to 240       | 24 to 27         | 9/16-18                                        | 300 to 360       | 34 to 41         |
| -8                          | 1/2 inch<br>12.7 mm   | 13/16-16       | 384 to 480       | 43 to 54         | 3/4-16                                         | 540 to 600       | 61 to 68         |
|                             |                       |                |                  |                  |                                                |                  |                  |
|                             |                       |                |                  |                  | Thread<br>Size                                 | Pound-<br>Feet   | Newton<br>metres |
| -10                         | 5/8 inch<br>15.9 mm   | 1-14           | 552 to 672       | 62 to 76         | 7/8-14                                         | 60 to 65         | 81 to 88         |
|                             |                       |                |                  |                  |                                                |                  |                  |
| Nom.<br>SAE<br>Dash<br>Size | Tube OD               | Thread<br>Size | Pound-<br>Feet   | Newton<br>metres | 1-1/16-12                                      | 85 to 90         | 115 to 122       |
|                             |                       |                |                  |                  | 1-3/16-12                                      | 95 to 100        | 129 to 136       |
| -12                         | 3/4 inch<br>19.0 mm   | 1-3/16-12      | 65 to 80         | 90 to 110        | 1-5/16-12                                      | 115 to 125       | 156 to 169       |
| -14                         | 7/8 inch<br>22.2 mm   | 1-3/16-12      | 65 to 80         | 90 to 110        | 1-5/8-12                                       | 150 to 160       | 203 to 217       |
| -16                         | 1.0 inch<br>25.4 mm   | 1-7/16-12      | 92 to 105        | 125 to 140       | 1-7/8-12                                       | 190 to 200       | 258 to 271       |
| -20                         | 1-1/4 inch<br>31.8 mm | 1-11/16-12     | 125 to 140       | 170 to 190       |                                                |                  |                  |
| -24                         | 1-1/2 inch<br>38.1 mm | 2-12           | 150 to 180       | 200 to 254       |                                                |                  |                  |

# **Section 1002**

**1002**

## **FLUIDS AND LUBRICANTS**

TABLE OF CONTENTS

CAPACITIES AND LUBRICANTS ..... 3

ENGINE OIL RECOMMENDATIONS ..... 4

DIESEL FUEL SYSTEM ..... 5

    Fuel Storage ..... 5

    Specifications for Acceptable No. 2 Diesel Fuel ..... 5

MAINTENANCE SCHEDULE ..... 6

    Model 721D ..... 6

## CAPACITIES AND LUBRICANTS

### Engine Oil

Capacity with Filter Change ..... 14.2 liters (15 U.S. quarts)  
 Type of oil ..... Case AKCELA No. 1 engine oil - see engine oil recommendations on page 4

### Engine Cooling System

Capacity ..... 25.5 liters (6.75 U.S. Gallons)  
 Type of Coolant ..... 50% water and 50% Ethylene Glycol

### Fuel Tank

Capacity ..... 246 liters (65 U.S. Gallons)  
 Type of Fuel ..... See Diesel fuel specifications on page 5

### Hydraulic System

Hydraulic Reservoir Refill Capacity with Filter Change ..... 123 liters (32.5 U.S. Gallons)  
 Total System Capacity ..... 193 liters (51 U.S. Gallons)  
 Type of Oil ..... Case AKCELA Hy-Tran Ultra®

### Transmission

Refill Capacity with Filter Change ..... 25.5 litres (27 U.S. Quarts)  
 Total System Capacity ..... 39.7 litres (42 U.S. Quarts)  
 Type of Oil ..... Case AKCELA No. 1 15W-40

### Axles

Capacity  
     Front ..... 30.2 litres (32 U.S. Quarts)  
     Rear ..... 27.4 litres (29 U.S. Quarts)  
 Type of Lubricant ..... Case AKCELA Transaxle Fluid

### Brake System

Type of Fluid (Same as Hydraulic System) ..... Case AKCELA Hy-Tran Ultra®

**NOTE:** *DO NOT use an alternate oil in the axles. The brake components in the axles could be damaged as a result of using an alternate oil.*

## ENGINE OIL RECOMMENDATIONS

Case AKCELA No. 1 Engine oil is recommended for use in your Case engine. Case AKCELA No. 1 Engine Oil will lubricate your engine correctly under all operating conditions.

If Case AKCELA No. 1 Multi-Viscosity Oil is not available, use only oil meeting API engine oil service category CH-4 (preferred) or CG-4.



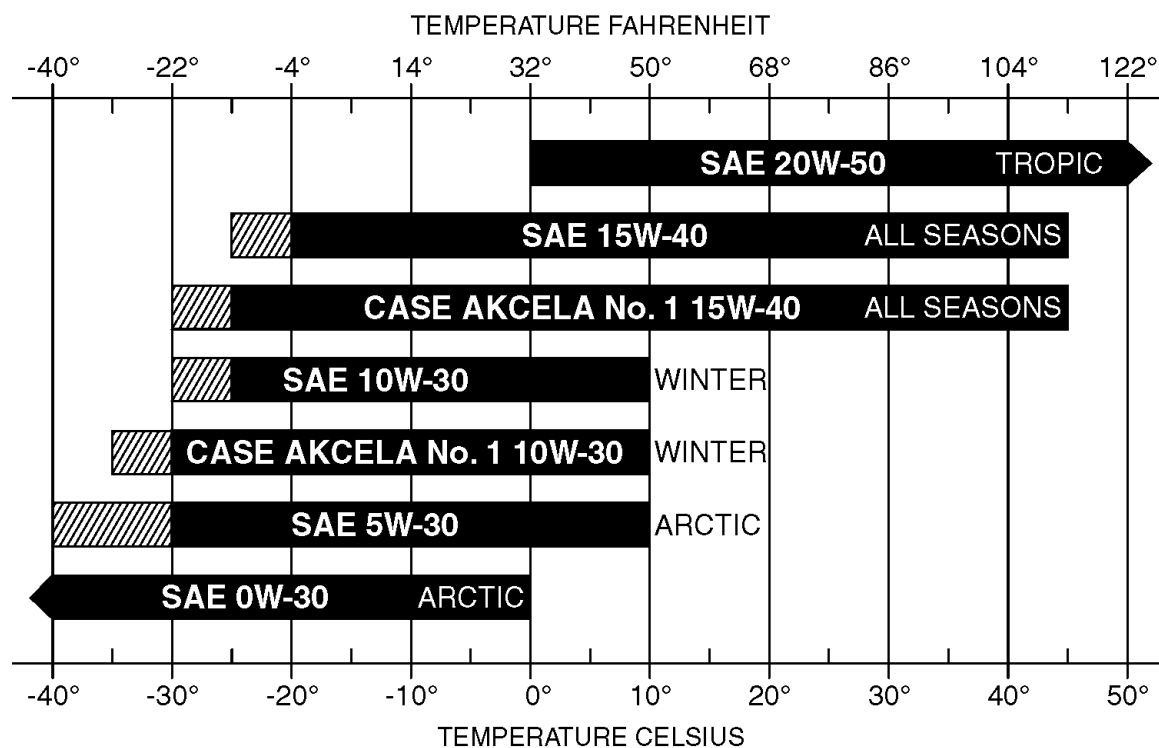
RH99K130

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

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



BD03A102



Indicates the use of an Engine Oil Heater or a Jacket Water Heater is required.

BC02N250

## DIESEL FUEL SYSTEM

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 lowers below the cloud point (wax appearance point), wax crystals in the fuel will restrict the fuel filter and cause the engine to lose power or not start.

The diesel fuel used in this machine must meet the specifications as shown below in, "Specifications for Acceptable No. 2 Diesel Fuel", or "Specification D975-81" of the American Society for Testing and Materials.

### 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               |
| Distillation temperature, 90% point .....         | 282 to 338°C (540 to 640°F)                |
| Viscosity, at 38°C (100°F)                        |                                            |
| Centistokes .....                                 | 2.0 to 4.3                                 |
| Cetane number, minimum .....                      | 43 (45 to 55 for winter or high altitudes) |
| Water and sediment, by volume, maximum .....      | 0.05%                                      |

### 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.

Fill the fuel tank at the end of the daily operating period to prevent condensation in the fuel tank.



# MAINTENANCE SCHEDULE

## Model 721D

### AS REQUIRED

SERVICE THE AIR CLEANER IF THE AIR CLEANER WARNING LAMP ILLUMINATES ..... SEE OPERATORS MANUAL  
 REPLACE THE TRANSMISSION FILTER

IF THE TRANSMISSION FILTER RESTRICTION WARNING LAMP ILLUMINATES ..... USE CASE FILTER  
 CHECK THE RADIATOR COOLANT LEVEL IF THE WARNING LAMP ILLUMINATES ..... SEE OPERATORS MANUAL  
 REPLACE THE HYDRAULIC FILTER IF THE HYDRAULIC FILTER WARNING LAMP ILLUMINATES ..... USE CASE FILTER  
 CHECK ALTERNATOR AND AIR CONDITIONING DRIVE BELT ..... SEE OPERATORS MANUAL

### EVERY 10 HOURS OF OPERATION OR EACH DAY - WHICHEVER OCCURS FIRST

CHECK THE ENGINE OIL LEVEL ..... SEE OPERATORS MANUAL

### EVERY 50 HOURS OF OPERATION

CHECK THE TRANSMISSION OIL LEVEL (ENGINE RUNNING AND OIL WARM) ..... SEE OPERATORS MANUAL  
 CHECK THE HYDRAULIC RESERVOIR FLUID LEVEL ..... SEE OPERATORS MANUAL  
 CHECK THE ENGINE COOLANT SURGE BOTTLE ..... SEE OPERATORS MANUAL  
 LUBRICATE THE BUCKET AND BELLCRANK PIVOT POINTS (10 FITTINGS) XT ..... CASE AKCELA MOLYDISULFIDE GREASE  
 LUBRICATE THE BELLCRANK AND BUCKET PIVOTS (6 FITTINGS) Z-BAR ..... CASE AKCELA MOLYDISULFIDE GREASE  
 LUBRICATE THE FRONT DRIVE SHAFT SUPPORT BEARING ..... CASE AKCELA MOLYDISULFIDE GREASE

### EVERY 100 HOURS OF OPERATION

LUBRICATE THE STEERING CYLINDER PIVOTS - ROD AND CLOSED END (4 FITTINGS) ..... CASE AKCELA MOLYDISULFIDE GREASE  
 LUBRICATE THE LOADER LIFT ARM AND CYLINDER PIVOTS (7 FITTINGS) Z-BAR ..... CASE AKCELA MOLYDISULFIDE GREASE

### EVERY 250 HOURS OF OPERATION

CHECK THE ALTERNATOR, AC BELT ..... SEE OPERATORS MANUAL  
 CHECK THE TIRE CONDITION AND AIR PRESSURE ..... SEE OPERATORS MANUAL  
 CLEAN THE CAB AIR FILTERS (IF EQUIPPED) ..... SEE OPERATORS MANUAL

### EVERY 500 HOURS OF OPERATION

CHANGE THE ENGINE OIL AND REPLACE THE ENGINE OIL FILTER ..... SEE OPERATORS MANUAL  
 REPLACE THE FUEL FILTER ..... SEE OPERATORS MANUAL  
 CHECK THE BATTERY FLUID LEVEL ..... SEE OPERATORS MANUAL  
 DRAIN WATER AND SEDIMENT FROM THE FUEL TANK ..... SEE OPERATORS MANUAL  
 CHECK THE AXLE OIL LEVEL FRONT AND REAR ..... SEE OPERATORS MANUAL  
 CHECK ROPS AND SEAT BELT MOUNTING BOLTS ..... SEE OPERATORS MANUAL  
 ENGINE CRANCKCASE OIL BREATHER ..... SEE ENGINE SERVICE MANUAL

### EVERY 1000 HOURS OF OPERATION

REPLACE THE HYDRAULIC FILTER ..... USE CASE FILTER  
 REPLACE WATER SEPARATOR ..... USE CASE FILTER  
 REPLACE THE TRANSMISSION OIL FILTER ..... USE CASE FILTER  
 CHANGE THE TRANSMISSION OIL ..... SEE OPERATORS MANUAL  
 CLEAN THE TRANSMISSION BREATHER ..... CLEAN WITH SOLVENT  
 LUBRICATE THE UPPER AND LOWER CHASSIS PIVOTS (2 FITTINGS) ..... CASE AKCELA MOLYDISULFIDE GREASE  
 CHANGE THE FRONT/REAR AXLE OIL ..... SEE OPERATORS MANUAL  
 LUBRICATE CENTER DRIVE SHAFT SLIP JOINT ..... CASE AKCELA MOLYDISULFIDE GREASE

### EVERY 2000 HOURS OF OPERATION OR EACH YEAR - WHICHEVER OCCURS FIRST

CHANGE THE HYDRAULIC OIL ..... SEE OPERATORS MANUAL  
 DRAIN, FLUSH AND REFILL THE ENGINE COOLING SYSTEM ..... ETHYLENE GLYCOL AND WATER  
 REPLACE THE AIR CLEANER ELEMENTS ..... USE CASE FILTERS  
 CHECK THE ENGINE VALVE CLEARANCES ..... SEE ENGINE SERVICE MANUAL  
 CHECK TURBOCHARGER MOUNTING BOLTS ..... SEE ENGINE SERVICE MANUAL

If you operate the machine in severe conditions, lubricate and service the machine more frequently. It is recommended that you see your Case dealer for information on the Systemgard Lubrication Analysis System.

See your Operators manual for maintenance of safety related items and for detailed information of the service items on this chart. Operators and service manuals are available for this machine from your Case dealer.

# **Section**

# **1003**

**1003**

## **METRIC CONVERSION CHART**

TABLE OF CONTENTS

CONVERSION FACTORS ..... 3

    Metric to U.S. .... 3

    U.S. to Metric ..... 4

## CONVERSION FACTORS

### Metric to U.S.

|                     | <u>MULTIPLY</u>                                                                                  | <u>BY</u>                                                                                            | <u>TO OBTAIN</u>                                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <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

|                     | <u>MULTIPLY</u>                                                                                                                          | <u>BY</u>                                                                                            | <u>TO OBTAIN</u>                                                                                 |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <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**

| <b>Section Title</b>                                   | <b>Section Number</b> |
|--------------------------------------------------------|-----------------------|
| 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



Click on the image link below for the full  
version of the service manual

