

721D Loader Service Manual 6-47283

Table of Contents

Description	Section No.	Form No.
General	Tab 1	
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
Engines	Tab 2	
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		
Fuel System	Tab 3	
Section Index - Fuel System		6-47580
For Fuel System Repair, See the Engine Service Manual		
Electrical	Tab 4	
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
Steering	Tab 5	
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.
Power Train		
Tab 6		
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
Brakes		
Tab 7		
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
Hydraulics		
Tab 8		
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.
Mounted Equipment	Tab 9	
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
Electrical Schematic Foldouts and Hydraulic Schematic Foldout	In Rear Pocket	6-47530

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.

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manual**

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SECTION INDEX

GENERAL

Section Title	Section Number
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
NOTE: Use thick nuts with Grade 8 bolts.		

TORQUE SPECIFICATIONS - METRIC HARDWARE

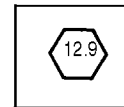
Use the following torques when specifications are not given.

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

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

Split Flange Mounting Bolts		
Size	Pound- Inches	Newton 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- Feet	Newton 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. SAE Dash Size	Tube OD	Thread Size	Pound- Inches	Newton metres	Thread Size	Pound- Inches	Newton metres
O-ring Face Seal End					O-ring Boss End Fitting or Lock Nut		
-4	1/4 inch 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 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 12.7 mm	13/16-16	384 to 480	43 to 54	3/4-16	540 to 600	61 to 68
					Thread Size	Pound- Feet	Newton metres
-10	5/8 inch 15.9 mm	1-14	552 to 672	62 to 76	7/8-14	60 to 65	81 to 88
Nom. SAE Dash Size	Tube OD	Thread Size	Pound- Feet	Newton 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 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 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 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 31.8 mm	1-11/16-12	125 to 140	170 to 190			
-24	1-1/2 inch 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.



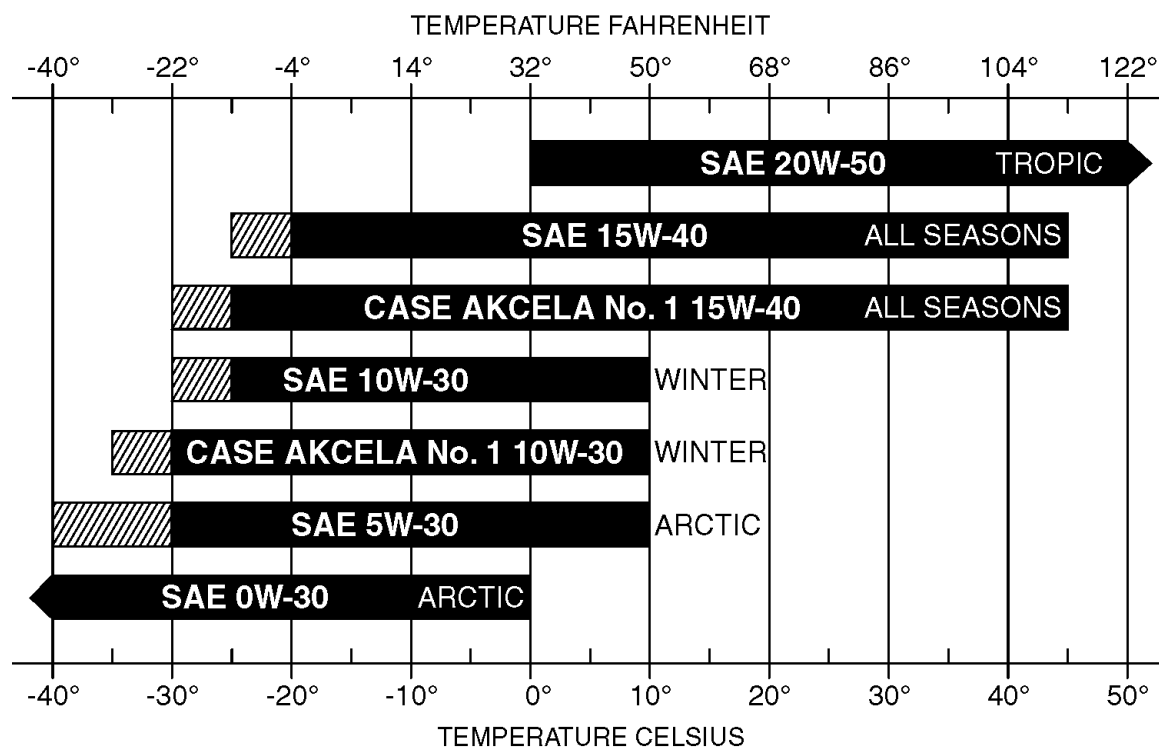
RH99K130

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.

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.

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%

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