821C Loader
Service Manual

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Reprinted

CASE CORPORATION
700 State Street
Racine, WI 53404 U.S.A.

Bur 7-13053

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821C Loader
Service Manual

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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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Section Title

Section Number

CASE CORPORATION
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CASE CANADA CORPORATION
3350 SOUTH SERVICE ROAD
BURLINGTON, ON L7N 3M6 CANADA

Bur 7-13060

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Section

1001

STANDARD TORQUE SPECIFICATIONS

CASE CORPORATION
700 State Street
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3350 South Service Road
Burlington, ON L7N 3M6 CANADA

Rac 8-71601

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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	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.*

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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-Inches	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-Inches	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-Inches	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-Inches	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			

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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Section

1002

FLUIDS AND LUBRICANTS

CASE CORPORATION
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BURLINGTON, ON L7N 3M6 CANADA

Bur 7-13071

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CAPACITIES AND LUBRICANTS

Engine oil
- Capacity with filter change ..... 20.8 litres (22 U.S. quarts)
- Type of oil ..... Case No. 1 Engine Oil - see engine oil recommendations on page 3

Engine cooling system
- Capacity ..... 32.1 litres (34 U.S. quarts)
- Type of coolant ..... Ethylene glycol and water mixed for lowest ambient temperature (at least 50/50 mix)

Fuel tank
- Capacity ..... 268 litres (70.8 U.S. gallons)
- Type of fuel ..... See diesel fuel specifications on page 4

Hydraulic system
- Hydraulic reservoir refill capacity ..... 90 litres (95.2 U.S. quarts)
- Total system ..... 174 litres (184 U.S. quarts)

Type of oil ..... MS-1209 Hy-Tran Ultra®

Transmission
- Refill capacity with filter change ..... 12.3 litres (13 U.S. quarts)
- Total system capacity ..... 26.5 litres (28 U.S. quarts)

Type of oil ..... Case No. 1 Engine Oil (15W-40)

Axles
- Capacity of center bowl
  - Front ..... 18.9 litres (20 quarts) 135H EP Plus 1.9 litres (4 pints) B91246
  - Rear ..... 13.7 litres (14.5 quarts) 135H EP Plus 1.4 litres (3 pints) B91246
- Capacity of planetary (each)
  - Front ..... 6.0 litres (6.5 quarts) 135H EP
  - Rear ..... 5.5 litres (6 quarts) 135H EP
- Type of lubricant ..... Case (MS1316) 135H EP (SAE 85W-140)
- Limited slip additive ..... Case B91246

Brake system
- Type of fluid (same as hydraulic system) ..... MS-1209 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.*

Conversion Formulas

Imperial quart = litres x 0.879877
Imperial gallons = litres x 0.219969

ENGINE OIL RECOMMENDATIONS

Engine Oil Selection

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

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

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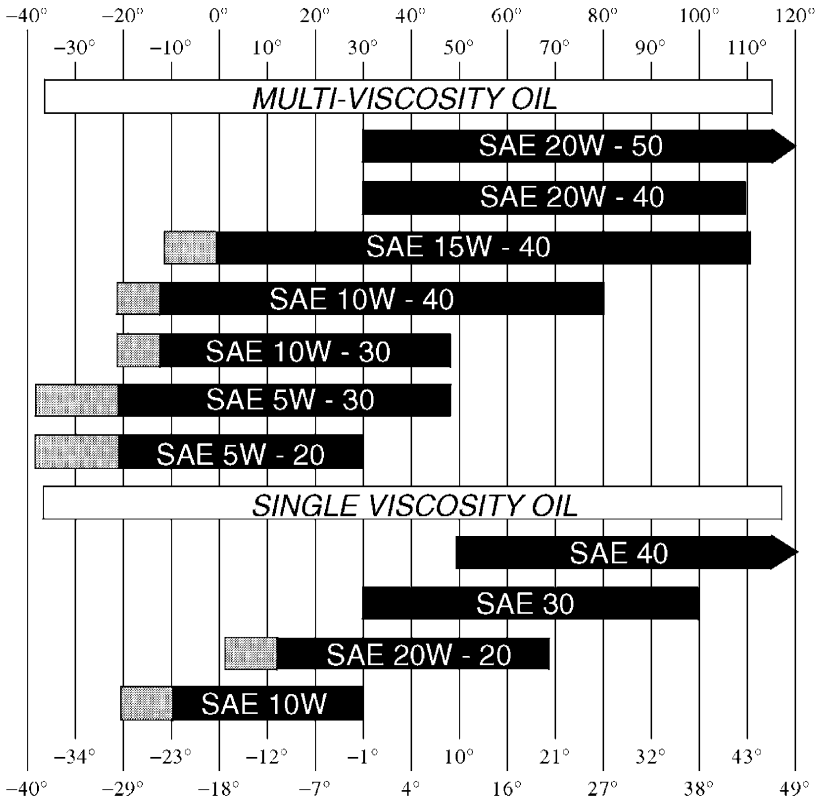
See the chart below for recommended viscosity at ambient air temperature ranges.

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 lubricants.*

Oil Viscosity / Temperature Ranges

Temperature Fahrenheit



Temperature Celsius

NOTE: *Use of an engine oil pan heater or an engine coolant heater is required when operating temperatures are in the shaded area.*

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 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	140°F (60°C)
Cloud point (wax appearance point), maximum	-5°F (-20°C) See Note above
Pour point, maximum	-15°F (-26°C) See Note above
Distillation temperature, 90% point	540 to 640°F (282 to 338°C)
Viscosity, at 100°F (38°C)	
Centistokes	2.0 to 4.3
Saybolt seconds universal	32 to 40
Cetane number, minimum	43 (45 to 55 for winter or high altitudes)
Water and sediment, by volume, maximum	0.05 of 1%
Sulphur, by weight, maximum	0.5 of 1%
Copper strip corrosion, maximum	No. 2
Ash, by weight, maximum	0.01 of 1%

MAINTENANCE SCHEDULE
Model 821C
Instructions

AS REQUIRED

22 SERVICE THE AIR CLEANER IF THE AIR CLEANER WARNING LAMP ILLUMINATES ..... SEE OPERATORS MANUAL
37 SERVICE AIR CLEANER PRECLEANER ..... SEE OPERATORS MANUAL
30 REPLACE THE TRANSMISSION FILTER
IF THE TRANSMISSION FILTER RESTRICTION WARNING LAMP ILLUMINATES ..... USE CASE FILTER
19 CHECK THE RADIATOR COOLANT LEVEL IF THE WARNING LAMP ILLUMINATES ..... SEE OPERATORS MANUAL
6 REPLACE THE HYDRAULIC FILTERS IF THE HYDRAULIC FILTER WARNING LAMP ILLUMINATES ..... USE CASE FILTERS
20 CHECK THE FAN BELT CONDITION ..... REPLACE AS REQUIRED
CHECK THE AIR CONDITIONING DRIVE TENSION (IF EQUIPPED) NOT SHOWN ..... ADJUST AS REQUIRED

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

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

EVERY 50 HOURS OF OPERATION

1 CHECK THE COOLANT RESERVOIR FLUID LEVEL ..... ETHYLENE GLYCOL AND WATER
29 CHECK THE TRANSMISSION OIL LEVEL (ENGINE RUNNING AND OIL WARM) ..... SEE OPERATORS MANUAL
5 CHECK THE HYDRAULIC RESERVOIR FLUID LEVEL ..... SEE OPERATORS MANUAL
15 LUBRICATE THE REAR AXLE TRUNNION PIVOTS (2 FITTINGS) ..... CASE MOLYDISULFIDE GREASE
27 LUBRICATE THE CENTER DRIVE SHAFT SLIP JOINT (1 FITTING) ..... CASE MOLYDISULFIDE GREASE

EVERY 100 HOURS OF OPERATION

10 LUBRICATE THE BUCKET PIVOT POINTS (3 FITTINGS) ..... CASE MOLYDISULFIDE GREASE
7 LUBRICATE THE STEERING CYLINDER PIVOTS - ROD AND CLOSED END (4 FITTINGS) ..... CASE MOLYDISULFIDE GREASE
9 LUBRICATE THE LOADER PIVOT POINTS (10 FITTINGS) ..... CASE MOLYDISULFIDE GREASE
26 LUBRICATE THE FRONT DRIVE SHAFT SUPPPORT BEARING (1 FITTING) ..... CASE MOLYDISULFIDE GREASE
32 LUBRICATE THE REAR DRIVE SHAFT SLIP JOINT (1 FITTING) ..... CASE MOLYDISULFIDE GREASE
35 LUBRICATE THE REAR DRIVE SHAFT SLIP JOINT (1) FITTING) ..... CASE MOLYDISULFIDE GREASE

EVERY 250 HOURS OF OPERATION

19 CHECK THE RADIATOR COOLANT LEVEL ..... ETHYLENE GLYCOL AND WATER
2 CHANGE THE ENGINE OIL AND REPLACE THE ENGINE OIL FILTER ..... SEE OPERATORS MANUAL
34 CHECK THE BATTERY FLUID LEVEL ..... SEE OPERATORS MANUAL
36 CHECK THE TIRE CONDITION AND AIR PRESSURE ..... SEE OPERATORS MANUAL
12 CLEAN THE CAB AIR FILTERS (IF EQUIPPED) ..... SEE OPERATORS MANUAL
25 REPLACE ENGINE COOLING SYSTEM FILTER ..... USE CASE FILTER

EVERY 500 HOURS OF OPERATION

3 REPLACE THE FUEL FILTERS ..... USE CASE FILTERS
33 DRAIN WATER AND SEDIMENT FROM THE FUEL TANK ..... SEE OPERATORS MANUAL
14 REPLACE THE IN-LINE FUEL FILTER ..... USE CASE FILTERS

EVERY 1000 HOURS OF OPERATION

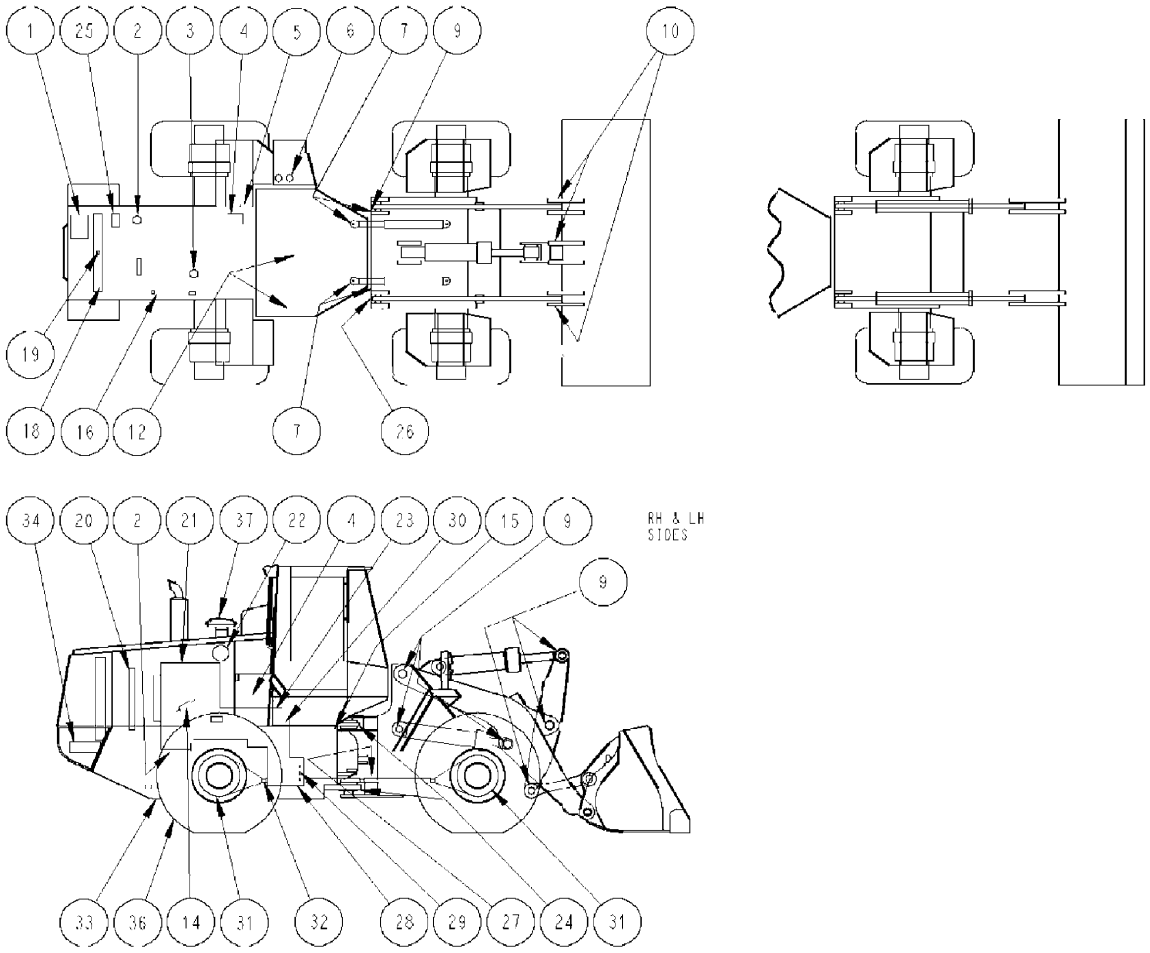
21 CHECK THE ENGINE VALVE CLEARANCES ..... SEE SERVICE MANUAL
6 REPLACE THE HYDRAULIC FILTERS ..... USE CASE FILTERS
30 REPLACE THE TRANSMISSION OIL FILTER ..... USE CASE FILTERS
28 CHANGE THE TRANSMISSION OIL ..... SEE OPERATORS MANUAL
23 CLEAN THE TRANSMISSION BREATHER ..... CLEAN WITH SOLVENT
24 LUBRICATE THE UPPER AND LOWER CHASSIS PIVOTS (2 FITTINGS) ..... CASE MOLYDISULFIDE GREASE
31 CHANGE THE FRONT/REAR AXLE DIFFERENTIAL AND PLANETARY OIL ..... SEE OPERATORS MANUAL

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

4 CHANGE THE HYDRAULIC OIL AND CLEAN THE SCREEN ..... SEE OPERATORS MANUAL
18 DRAIN, FLUSH AND REFILL THE ENGINE COOLING SYSTEM ..... ETHYLENE GLYCOL AND WATER
22 REPLACE THE AIR CLEANER ELEMENTS ..... USE CASE FILTERS

NOTE: *When you drain, flush and refill the engine cooling system, add one container (0.5L) of Case cooling system treatment, and replace the cooling filter.*

MAINTENANCE SCHEDULE
Model 821C



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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 System Guard 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.

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SECTION INDEX - ENGINE

Section Title

Section Number

For Engine Repair, See the Engine Service Manual.

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2000

Section

2000

ENGINE AND RADIATOR REMOVAL AND INSTALLATION

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