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921C Loader
Service Manual 7-13502

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

Bur7-13502

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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.

SECTION INDEX - GENERAL

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Section

1001

STANDARD TORQUE SPECIFICATIONS

CASE CORPORATION
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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 graphites, 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 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	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-Inches**	**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

Tub 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
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	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

Tub 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
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 - O-RING FACE SEAL 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
-10	5/8 inch 15.9 mm	1-14	552 to 672	62 to 76	7/8-14	60 to 65	81 to 88
-12	3/4 inch 19.0 mm	1-3/16-12	65 to 80	90 to 110	1-1/16-12	85 to 90	115 to 122
-14	7/8 inch 22.2 mm	1-3/16-12	65 to 80	90 to 110	1-3/16-12	95 to 100	129 to 136
-16	1.0 inch 25.4 mm	1-7/16-12	92 to 105	125 to 140	1-5/16-12	115 to 125	156 to 169
-20	1-1/4 inch 31.8 mm	1-11/16-12	125 t0 140	170 to 190	1-5/8-12	150 to 160	203 to 217
-24	1-1/2 inch 38.1 mm	2-12	150 to 180	200 to 254	1-7/8-12	190 to 200	258 to 271

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.*

Section 1002

FLUIDS AND LUBRICANTS

CASE CORPORATION
700 State Street
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CAPACITIES AND LUBRICANTS

Engine oil
Capacity with filter change ..... 36.9 litres (39 U.S. quarts)
Type of oil ..... Case No. 1 Engine Oil - see engine oil recommendations on page 4

Engine cooling system
Capacity ..... 47.3 litres (50 U.S. quarts)
Type of coolant ..... Ethylene glycol and water mixed for lowest ambient temperature (at least 50/50 mix)

Fuel tank
Capacity ..... 394 litres (104 U.S. gallons)
Type of Fuel ..... See Diesel fuel specifications on page 5

Hydraulic system
Hydraulic reservoir refill capacity ..... 126 litres (33 U.S. gallons)
Total system (Early production) ..... 228 litres (60.25 U.S. gallons)
Total system (Late production) ..... 229.4 litres (60.6 U.S. gallons)
Type of oil ..... Hy-trans Ultra

Transmission
Refill capacity with filter change ..... 28.4 litres (7.5 U.S. gallons)
Total system capacity ..... 44 litres (46 U.S. quarts)
Type of oil ..... Hy-trans Ultra

Front and rear axles

Early production (GKN Axle)
Capacity of center bowl ..... 36.3 litres (38.4 U.S. quarts)
Capacity of each wheel end ..... 13.6 litres (3.6 U.S. gallons)
Type of lubricant ..... Case IH 135-H EP Gear Lubricant
Limited slip additive (each wheel end) 331-318

Late production (ZF Axle)
Capacity of front axle ..... 45.4 litres (12 U.S. gallons)
Capacity of rear axle ..... 51.1 litres (13.5 U.S. gallons)
Limited slip front and rear addition ..... 2.8 litres (3.0 U.S. quarts)
Type of Lubricant ..... Case 135H EP gear lubricant (SAE 85W-140)

Brake system
Type of fluid (same as hydraulic system) ..... Hy-trans 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 LUBRICATION

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.

Case Multi-Viscosity Engine Oil meets API engine oil services category CH-4.

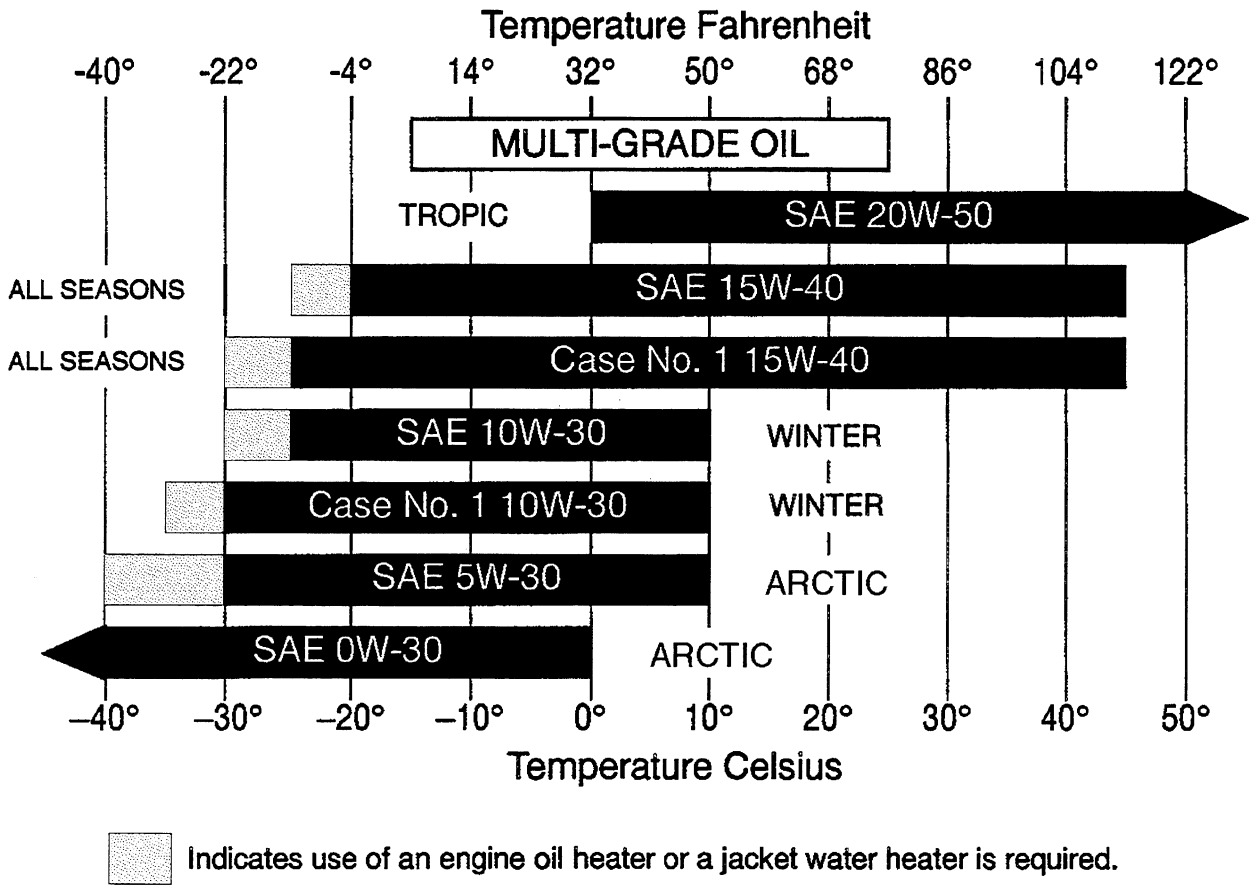
RH99K130

See the chart below for recommended viscosity at ambient 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.*

BS00H001

Oil Viscosity/Temperature Ranges



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

BS99N019

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	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 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%

921C MAINTENANCE SCHEDULE

AS REQUIRED

22 SERVICE THE AIR CLEANER IF THE AIR CLEANER 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
37 SERVICE AIR CLEANER PRECLEANER .....SEE OPERATORS MANUAL
17 CHECK THE ALTERNATOR DRIVE BELT CONDITION ..... REPLACE AS REQUIRED
19 CHECK THE AIR CONDITIONING DRIVE TENSION (IF EQUIPPED).....ADJUST AS REQUIRED
30 REPLACE THE TRANSMISSION FILTERS IF THE TRANSMISSION FILTER RESTRICTION WARNING LAMP ILLUMINATES..... USE CASE FILTERS
1 CHECK THE RADIATOR COOLANT LEVEL IF THE WARNING LAMP ILLUMINATES .....SEE OPERATORS MANUAL

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

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

EVERY 50 HOURS OF OPERATION

1 CHECK THE RADIATOR COOLANT LEVEL .....ETHYLENE GLYCOL AND WATER
29 CHECK THE TRANSMISSION OIL LEVEL (ENGINE RUNNING AND OIL WARM).....SEE OPERATORS MANUAL
10 LUBRICATE THE BUCKET (3 FITTINGS)..... CASE MOLYDISULFIDE GREASE
5 CHECK THE HYDRAULIC RESERVOIR FLUID LEVEL ..... CASE TCH FLUID
15 LUBRICATE THE REAR AXLE TRUNNION PIVOTS (2 FITTINGS) ..... CASE MOLYDISULFIDE GREASE
35 LUBRICATE THE REAR DRIVE SHAFT SLIP JOINT (1 FITTING)..... CASE MOLYDISULFIDE GREASE
27 LUBRICATE THE CENTER DRIVE SHAFT SLIP JOINT (1 FITTING)..... CASE MOLYDISULFIDE GREASE
26 LUBRICATE THE FRONT DRIVE SHAFT SUPPORT BEARING (1 FITTING) ..... CASE MOLYDISULFIDE GREASE

EVERY 100 HOURS OF OPERATION

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

EVERY 250 HOURS OF OPERATION

19 CHECK AIR CONDITIONING COMPRESSOR DRIVE BELT TENSION.....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
3 REPLACE THE FUEL FILTER ..... USE CASE FILTER
12 CLEAN THE CAB AIR FILTERS (IF EQUIPPED).....SEE OPERATORS MANUAL
25 REPLACE ENGINE COOLING SYSTEM FILTER ..... USE CASE FILTER
20 CHECK FAN BELT TENSION .....SEE OPERATORS MANUAL
17 CHECK THE ALTERNATOR DRIVE BELT TENSION.....SEE OPERATORS MANUAL

EVERY 500 HOURS OF OPERATION

33 DRAIN WATER AND SEDIMENT FROM THE FUEL TANK .....SEE OPERATORS MANUAL
CHECK ROPS AND SEAT BELT MOUNTING BOLTS (NOT SHOWN) .....SEE OPERATORS MANUAL

EVERY 1000 HOURS OF OPERATION

6 REPLACE THE HYDRAULIC FILTERS..... USE CASE FILTERS
30 REPLACE THE TRANSMISSION OIL FILTER ..... USE CASE FILTERS
31 CHANGE THE FRONT/REAR AXLE DIFFERENTIAL AND PLANETARY OIL .....SEE OPERATORS MANUAL
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

EVERY 1500 HOURS OF OPERATION

21 ADJUST THE ENGINE VALVE CLEARANCE ..... SEE SERVICE MANUAL
13 ADJUST INJECTORS..... CONTACT YOUR CASE DEALER

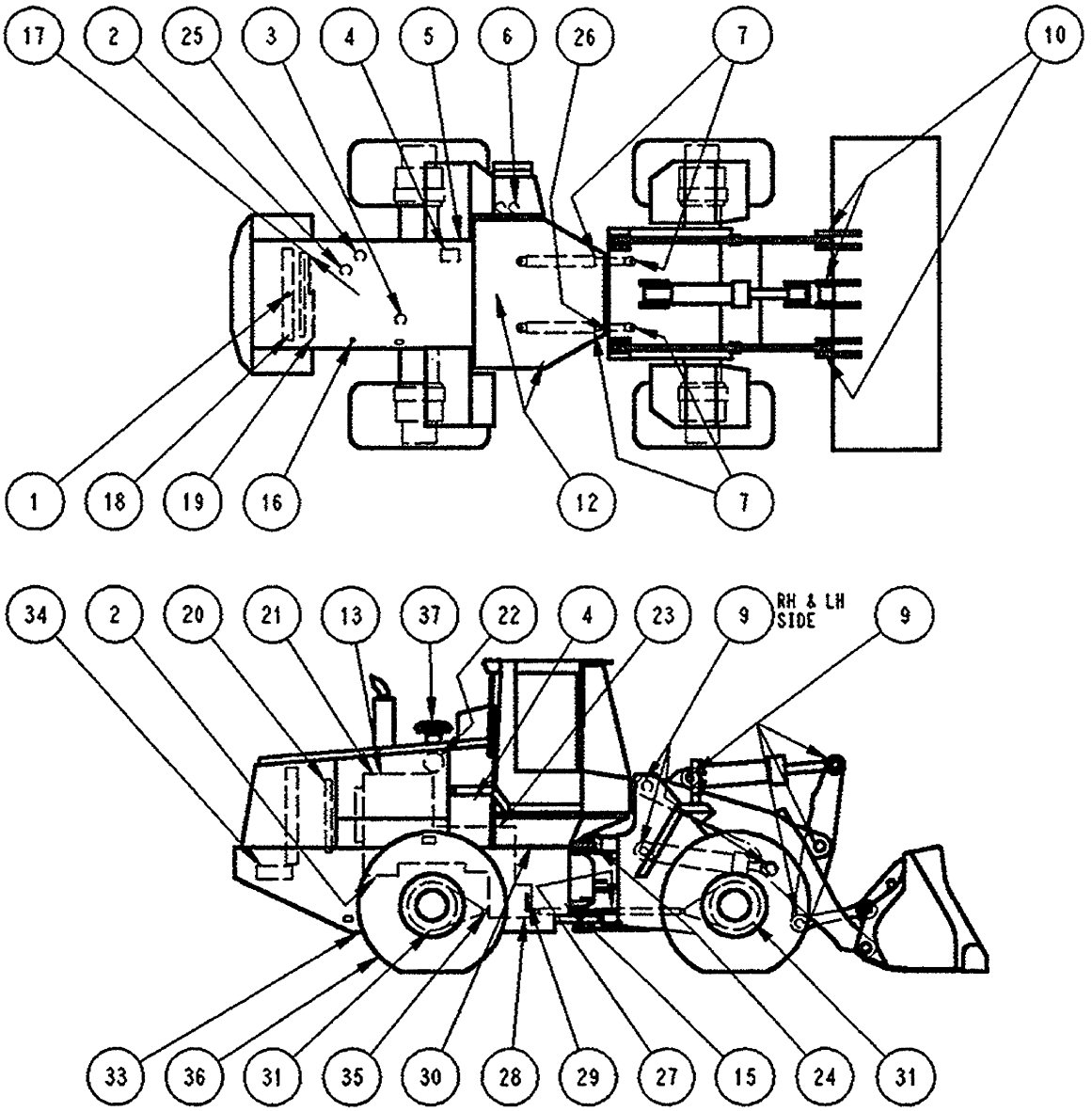
EVERY 2000 HOURS OF OPERATION OR EACH YEAR - WHICHEVER OCCURS FIRST

4 CHANGE THE HYDRAULIC OIL AND CLEAN THE SCREEN.....SEE OPERATORS MANUL
18 DRAIN, FLUSH AND REFILL THE ENGINE COOLING SYSTEM .....ETHYLENE GLYCOL AND WATER
22 REPLACE THE AIR CLEANER ELEMENTS..... USE CASE FILTERS
CHECK TORQUE ON TURBOCHARGER MOUNTING BOLTS (NOT SHOWN)

EVERY 6000 HOURS OF OPERATION

13 CLEAN AND CALIBRATE ENGINE INJECTORS, FUEL PUMP.....CONTACT YOUR CASE DEALER

921C MAINTENANCE SCHEDULE



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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.

NOTE: *The Case Company 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.*

NOTE: *When you drain, flush and refill the engine cooling system, replace the coolant filter with an A77659 coolant filter.*

NOTES

LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Farenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
#3	Dark Brown					24 hr	N/A	Form a Gasket (works with oil, fuel or grease) Pliable
80	Yellow					Fast	N/A	Weatherstrip Adhesive
123	Clear					N/A	N/A	Parts Cleaner Fluid
220	Blue	290	0.003	57/143 in lbs	-65 to +250	6 min/24 hrs	747	Wicking Threadlocker
221	Purple	222	0.005	75/44 in lbs	-65 to +300	2 min/24 hrs	747	Low Strength Threadlocker
222	Purple		0.005	53/30 in lbs	-65 to +300	20 min/24 hrs	764	Low Strength Threadlocker (Small Screws)
225	Brown	222	0.010	45/25 in lbs	-65 to +300	7 min/24 hrs	747	Low Strength Threadlocker
242	Blue		0.005	80/50 in lbs	-65 to +300	10 min/24 hrs	764	Medium Strength Threadlocker
262	Red	271	0.005	160/190 in lbs	-65 to +300	5 min/24 hrs	747	High Strength Threadlocker
270	Green	271	0.007	160/320 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
271	Red	262	0.007	160/320 in lbs	-65 to +300	10 min/24 hrs	764	High Strength Threadlocker
272	Red	620	0.007	180/220 in lbs	-65 to +450	30 min/24 hrs	764	High Temperature, High Strength
276	Green	277	0.010	210/300 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
277	Red		0.010	225/300 in lbs	-65 to +300	60 min/24 hrs	764	High Strength Threadlocker
290	Green		0.003	85/350 in lbs	-65 to +300	6 min/24 hrs	764	Wicking Threadlocker
*404	Clear	495	0.006	3200 psi	-65 to +180	30 sec/24 hrs	NA	Instant Adhesive
*406	Clear		0.004	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Adhesive
*409	Clear	454	0.008	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gel Instant Adhesive
*414	Clear		0.006	2500 psi	-65 to +180	30 sec/24 hr	N/A	Instant Adhesive
*415	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Metals)
*416	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Plastics)
*420	Clear		0.002	2500 psi	-65 to +180	15 sec/24 hrs	N/A	Wicking Instant Adhesive
*422	Clear	454	0.020	2800 psi	-65 to +180	60 sec/24 hrs	N/A	Gap Filling Instant Adhesive
*430	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
*445	White/Black		0.250	2000 psi	-65 to +180	5 min/24 hrs	N/A	Fast Setting 2 Part Epoxy
*454	Clear		0.010	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Gen Instant Adhesive
*495	Clear		0.004	2500 psi	-65 to +180	20 sec/24 hrs	N/A	General Purpose Instant Adhesive
*496	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
504	Brt Orange	515	0.030	750 psi	-65 to +300	90 min/24 hrs	None	Rigid Gasket Eilminator
509	Light Blue		0.020	750 psi	-65 to +320	6 hr/72 hrs	764	Flange Sealant
510	Red		0.020	1000 psi	-65 to +400	30 min/24 hrs	764	High Temperature, GAsket Eliminator
515	Purple		0.010	750 psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 515

Rac 8-98902

* Products 404-496 (except for #445) are all instant adhesives (super glues) they differ mostly in viscosity

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LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Farenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
518	Red	515	0.030	500psi	-65 to +300	1hr/24 hrs	764	Gasket Eliminator 518 for Aluminum
542	Brown	569	N/A	132/92 in lbs	-65 to +300	2 hr/24 hrs	747	Hydraulic Sealant
545	Purple		N/A	25/20 in lbs	-65 to +300	4 hr/24 hrs	747	Low Strength Pneumatic/Hydraulic Sealant
549	Orange	504	0.020	2500 psi	-65 to +300	2 hr/24 hrs	747	Instant Seal Plastic Gasket
554	Red	277	0.015	240/240 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Refrigerant Sealant
567	White	592	N/A	500 psi	-65 to +400	4 hrs/24 hrs	764	Pipe Sealant for Stainless Steel
568	Orange	277	0.015	2500 psi	-65 to +300	12 hrs/24 hrs	764	Plastic Gasket
569	Brown	545	0.010	40/25 in lbs	-65 to +300	1 hr/24 hrs	764	Hydraulic Sealant
570	Brown	592	N/A	25/40 in lbs	-65 to +300	6 hrs/72 hrs	764	Steam Sealant
571	Brown	592	0.015	40/20 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Pipe Sealant
572	White	578.575	N/A	80/27 in lbs	-65 to +300	24 hrs/72 hrs	None	Gasketing
592	White		0.020	500 psi	-65 to +400	4 hrs/72 hrs	736	Pipe Sealant with Teflon
593	Black		0.250	400 psi	-95 to +400	30 min/24 hrs	N/A	RTV Silicone
601	Green	609	0.005	3000 psi	-65 to +300	10 min/24 hrs	764	Current PIN #609
609	Green		0.005	3000 psi	-65 to +300	10 min/24 hrs	764	General Purpose Retaining Compound
620	Green	640	0.015	3000 psi	-65 to +450	30 min/24 hrs	747	High Temperature Retaining Compound
635	Green	680	0.010	4000 psi	-65 to +300	1 hr/24 hrs	747	High Strength Retaining Compound
638	Green	680	0.015	4100 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
640	Green	620	0.007	3000 psi	-65 to +400	1 hr/24 hrs	747	High Temperature Retaining Compound
660	Silver		0.020	3000 psi	-65 to +300	20 min/24 hrs	764	Quick Metal
675	Green	609	0.005	3000 psi	-65 to +300	20 min/24 hrs	747	General Purpose Retaining Compound
680	Green	635	0.015	4000 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
706	Clear	755	N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
707	Amber		N/A	N/A	N/A	N/A	N/A	Activaitor for Structural Adhesives
736	Amber		N/A	N/A	N/A	N/A	N/A	Primer NF
738	Amber		N/A	N/A	N/A	N/A	N/A	Depend Activator
747	Yellow	N/A	N/A	N/A	N/A	N/A	N/A	Primer T
751	Clear		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
755	Clear		N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
764	Green		N/A	N/A	N/A	N/A	N/A	Primer N
767	Silver		N/A	N/A	-65 to +1600	N/A	N/A	Anti-Seize Lubricant

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SECTION INDEX - ENGINE

Section Title	Section Number
Engine and Radiator Removal and Installation	2000
Stall Test	2002

For Engine Repair, See Your Cummins Engine Service Center.

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April, 1999

2000

Section

2000

ENGINE AND RADIATOR REMOVAL AND INSTALLATION

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SPECIFICATIONS

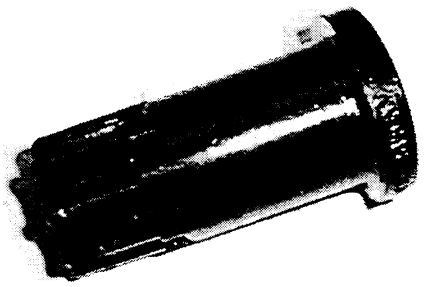
Special torques

Rear engine support bracket to rear chassis mounting bolts	386 to 434 Nm (285 to 320 pound-feet)
Transmission to flywheel housing bolts	45 to 50 Nm (396 to 444 pound-inches)
Flex plate to flywheel bolts	45 to 53 Nm (396 to 469 pound-inches)
Fan mounting bolts	45 to 50 Nm (396 to 444 pound-inches)

Air conditioning drive belt tension

New Belt	45 kg (100 pounds)
Used Belt	41 kg (90 pounds)

SPECIAL TOOLS



BD98J200

CAS-1690 Tool used to rotate the flywheel

ENGINE

Removal

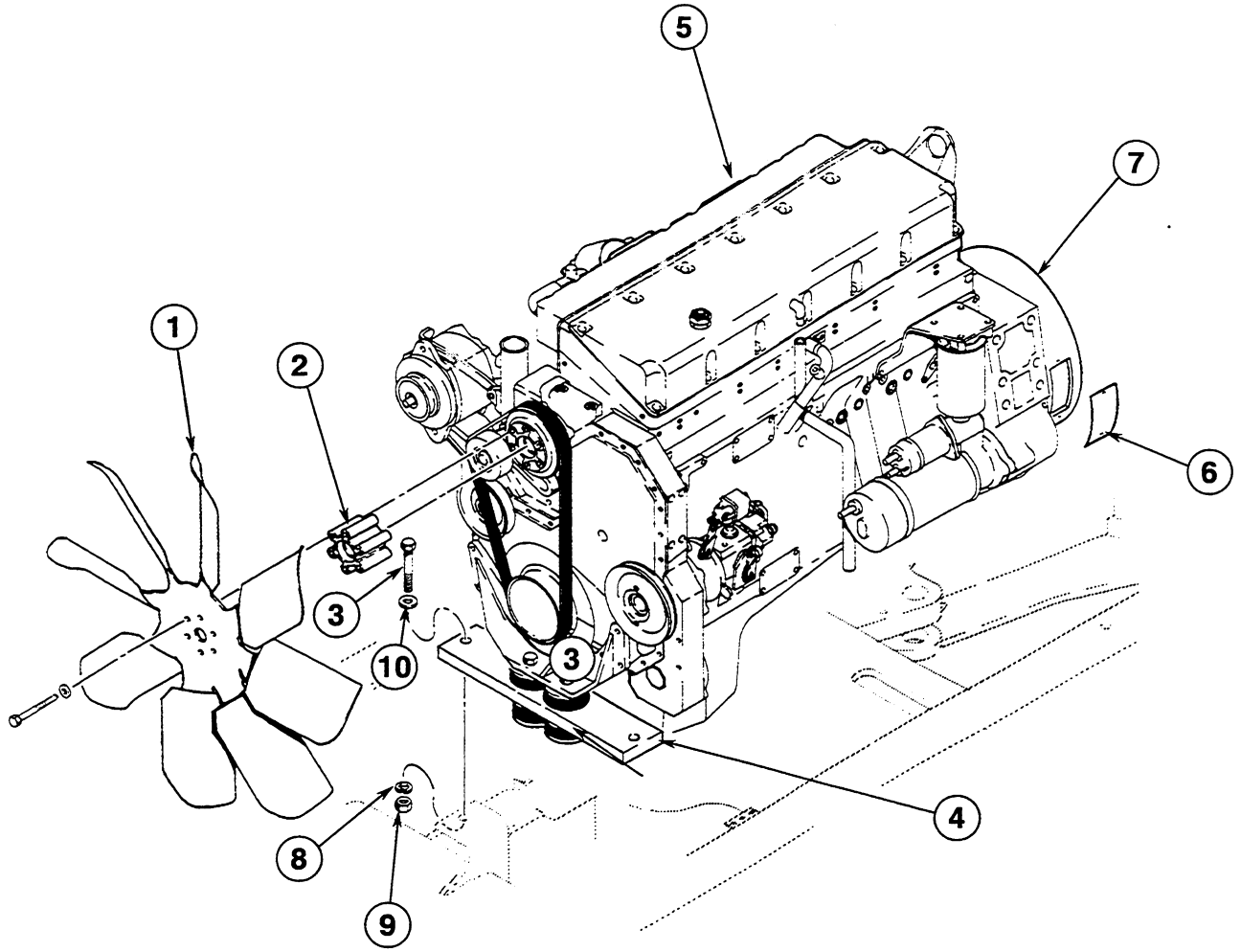
1. Park the machine on a level surface and lower the loader bucket to the floor.
2. Turn the master disconnect switch to OFF.
3. Disconnect the negative (-) battery cable first and disconnect the positive (+) battery cable last.
4. Remove the air intake cap and remove the hood.
5. Disconnect the air cleaner hose from the turbocharger and remove the air cleaner assembly from the machine.
6. Remove the fan guards, fan, and spacer. Have a container that has the capacity of 42.6 litres (11.25 U.S. gallons) and drain the cooling system.
7. Remove the radiator hoses and radiator shroud.
8. If the machine is equipped with air conditioning, do not disconnect any of the lines in that system.
9. Disconnect the component parts of the air conditioning system and move to the side.
10. Put tags on all wires and lines that are attached to the engine (5), refer to Figure 1.
11. Clean the engine (5) and flywheel housing (7).
12. Disconnect all wires and lines from the engine (5).
13. Remove the mounting bolts from the relay mounting plate on the right side of the machine. Move the relay mounting plate to the side.
14. Fasten a suitable hoist to the engine. The engine assembly has a weight of 907 kg (2000 pounds).
15. Remove the inspection cover from the right side of the flywheel housing (7).
16. Install the CAS-1690 tool and rotate the flywheel to align the Allen head screw with the hole below.
17. Remove the flex plate to flywheel mounting bolts. You can rotate the engine using a breaker bar and socket on the air conditioning pulley. The air conditioning pulley is on the right rear of the engine.
18. Remove the engine mounting bolts (3), lock washers (8), washers (10) and nuts (9) and the rear engine mounting plate (4).

NOTE: *Make sure the torque converter stays with the transmission.*

19. Use the hoist and move the engine forward to clear the transmission. Remove the engine from the machine.

Installation

1. Installation of the engine is the reverse of removal.
2. See Section 1002 for the correct engine oil and coolant.
3. Make sure that the engine to be installed has new filters.



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1. FAN
2. SPACER
3. ENGINE MOUNTING BOLT - REAR
4. ENGINE MOUNTING PLATE - REAR
5. ENGINE
6. INSPECTION COVER
7. FLYWHEEL HOUSING
8. LOCK WASHER
9. NUT
10. WASHER

Figure 1. ENGINE

RADIATOR

Removal

1. Park the machine on a level surface and lower the loader bucket to the floor.

2. Stop the engine and turn the master disconnect switch to OFF.

3. Have a container that has the capacity of 42.6 litres (11.25 U.S. gallons). Drain the cooling system.

4. Remove the air cleaner cap and remove the hood.

5. Remove the fan guard (4), fan, and spacer, refer to Figure 2.

6. Remove the radiator hoses and remove the radiator shroud (3).

7. Fasten a hoist to the radiator (1). The radiator has a weight of 114 kg (252 pounds).

8. Remove the radiator mounting bolts, turn the radiator (1) and remove.

Installation

1. Installation of the radiator is the reverse of removal.

2. See Section 1002 for the correct coolant.

3. A new coolant filter must be used if new coolant is installed in the machine.

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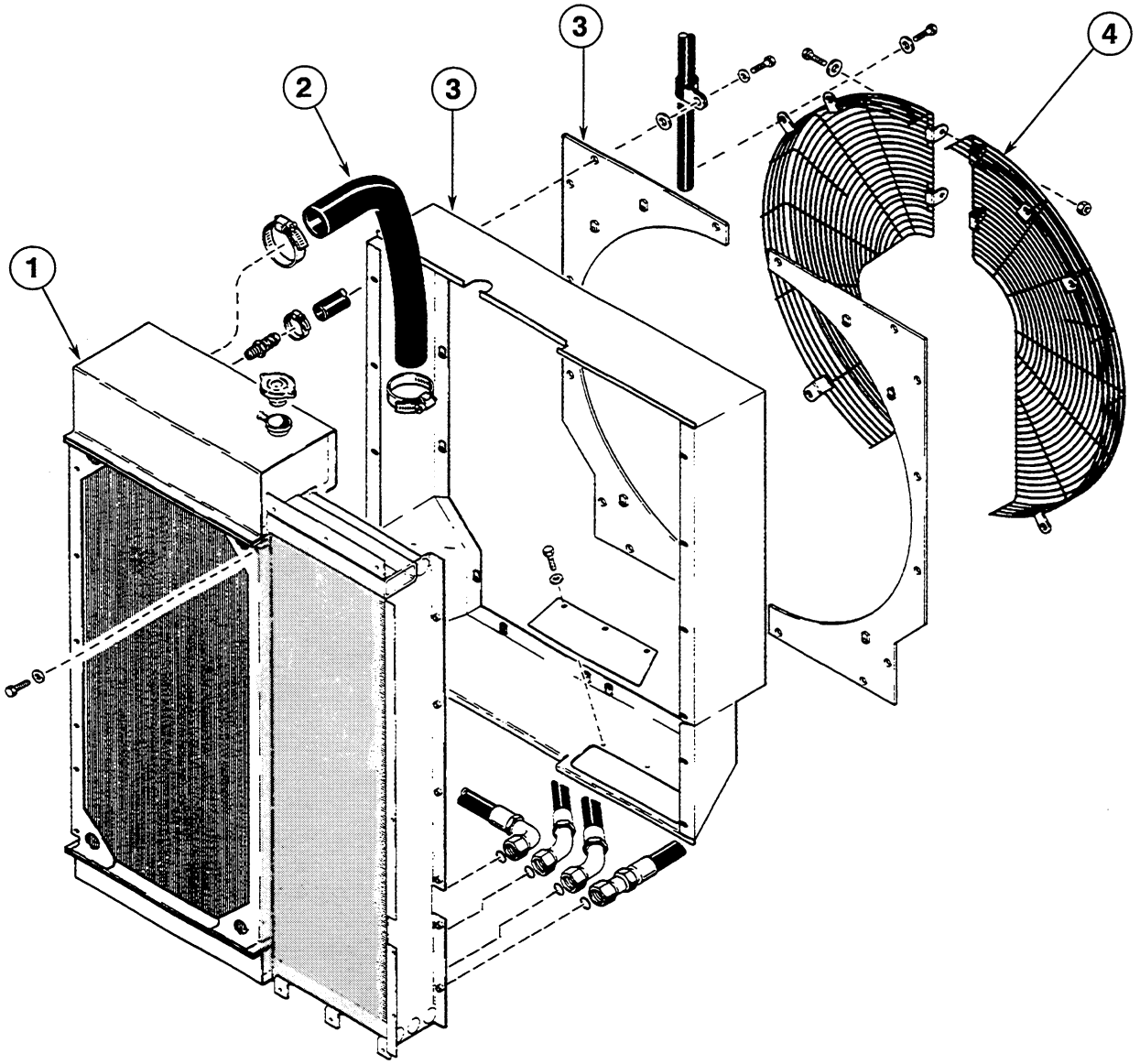

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1. RADIATOR
2. UPPER RADIATOR HOSE
3. RADIATOR SHROUD
4. FAN GUARD

Figure 2. RADIATOR

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