888 EXCAVATOR

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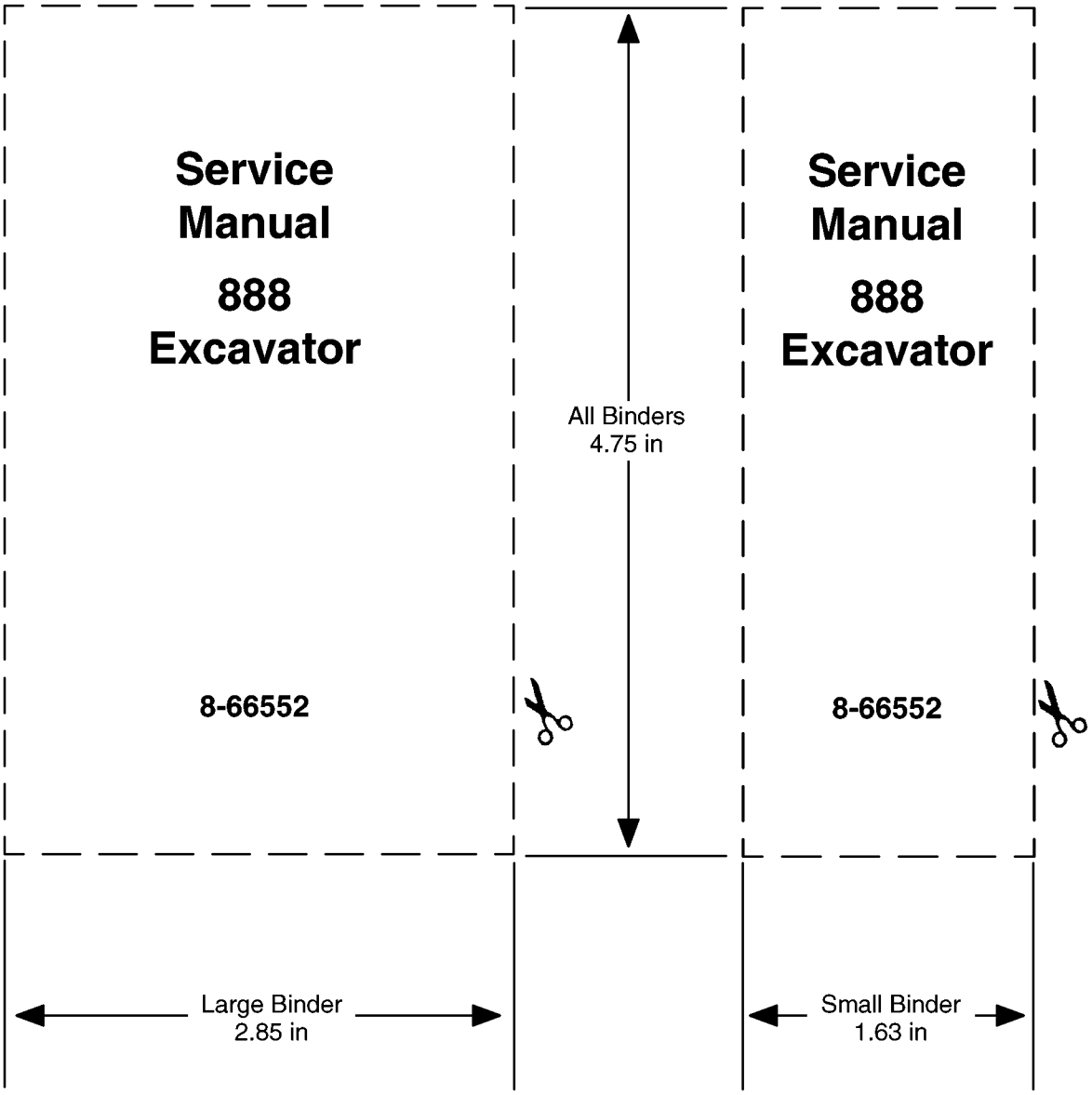
CASE CORPORATION

Printed in England
February 1991



Section

1001

SAFETY RULES, SERVICE MANUAL INTRODUCTION, AND TORQUE SPECIFICATIONS

CASE CORPORATION

Lep 8-67631

REPLACES FORM NO. Lep 8-67630

Printed in England

Issued May 1987, Revised June, 1988

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SAFETY RULES

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death. 1-1-C

NOTE: *To prevent injury on job, follow the Warning, Caution, and Danger notes in this section and other sections throughout this manual. Follow the instructions carefully.*

The procedures recommended and shown in this manual are good, effective service methods. However, all possible procedures and service hazards may not be covered. therefore, if you use a tool or procedure not recommended, you must make sure the method you select is a safe method.

Put the warning tag shown below on the key for the key switch when you are servicing or repairing this machine. One warning tag is on every new machine. You can buy additional warning tags, part number 331–4614, from Service Parts Supply.

WARNING

Read operator's manual to familiarize yourself with control lever functions.

Operate machine and equipment controls from the seat position only. Any other method could result in serious injury.

This is one man machine, no riders allowed.

Before starting engine, study operator's manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.

It is your responsibility to understand and follow manufacturer's instructions on machine operation, service, and to observe pertinent laws and regulations. Operator's and service manuals may be obtained from your J I Case dealer.

If you Wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.

When working in the area of the fan belt with the engine running, avoid loose clothing and use extreme caution.

When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.

When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure that all people are out of the way.

Use insulated gloves or mittens when working with hot parts.

SAFETY RULES

CAUTION

Lower all attachments to the ground or use stands to safety support the attachments before you do any maintenance or service.

Pin sized and smaller steams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. DO NOT use your hand to check for leaks; use a piece of cardboard or wood.

When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer.

When using a hammer to remove and install pivot pins or separate parts, using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors).

When servicing or repairing the machine, keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use an oil absorbing material and/or shop cloths as required. Use safe practices at all times.

Use suitable floor (service) jacks or chain hoists to raise wheels or track off the floor. Always block machine in place with suitable safety stands.

Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this service manual.

DANGER

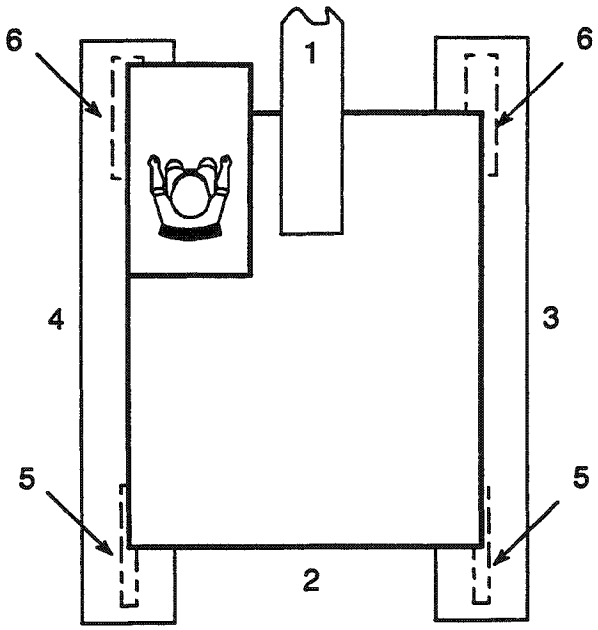
Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. If you do not have exhaust pipe extension, open the doors and get outside air into the area.

SERVICE MANUAL INTRODUCTION

This service manual has been prepared with the latest service information available. Trouble-shooting, removal, disassembly, inspection and installation procedures, and complete specifications and tightening references can be found in most sections. Some sections have drawings but no written procedure because the job is so easily done. This service manual is one of the most important tools available to the service technician.

Right, Left, Front, and Rear

The terms right-hand and left-hand and front and rear as used in this manual indicate the right and left sides, and front and rear of the machine as seen from the operator's seat with the cab over the idler wheels.



1. *Front*
2. *Rear*
3. *Right Side*
4. *Left Side*
5. *Drive Sprocket*
6. *Idler Wheel*

Table of Contents

A Table of Contents is in the front of this manual. The Table of Contents shows the main divisions and the sections that are in each division. The individual sections also have a Table of Contents.

Page Numbers

All page numbers are made of two numbers separated by a dash, such as 4002-9. The number before the dash is the section number. The number following the dash is the page number in that section. Page numbers will be found at the upper right or left of each page.

Illustrations

Illustrations are put as near as possible to the text and are to be used as part of the text.

Clear and Simple English

This manual is written in C.A.S.E. (Clear and Simple English). C.A.S.E. is easier to read than "regular" English because C.A.S.E. uses a small number of common words and has special rules for writing.

Special Tools

Special tools are needed to remove and install, disassemble and assemble, check and adjust some component parts of this machine. Some special tools can be easily made locally and the necessary information to make the tools is in this service manual. Other special tools are more difficult to make locally and are available from Service Tools in the U.S. and from Jobborn Manufacturing in Canada. Use these tools according to the instructions in this service manual for your personal safety and to do the job correctly.

Order special tools from either of the following companies.

Service Tools
P.O. Box 314
Owatanna, Minnesota 55060

Jobborn Manufacturing Co.
97 Frid Street
Hamilton, Ontario L8P 4M3
Canada

TORQUE SPECIFICATIONS

Torque specifications of bolts mounted with thick washers unless indicated otherwise. These torque specifications do not concern the engines and hydraulic components.

TORQUE SPECIFICATIONS ± 10%									
	Grade 8.8			Grade 10.9			Grade 12.9		
Size	Pound–Feet	Newton Metres	Kilogram Metres	Pound–Feet	Newton Metres	Kilogram Metres	Pound–Feet	Newton Metres	Kilogram Metres
M5 0.19 in	4	5.5	0.56	5.5	7.5	0.76	6.6	9	0.92
M6 0.23 in	6.6	9	0.92	9.2	12.5	1.27	11	15	1.53
M8 0.31 in	16.5	22.5	2.3	23	31.5	3.2	26.5	36	3.67
M10 0.39 in	32	44	4.5	45	62	6.3	55	75	7.65
M12 0.46 in	57	77.5	7.9	81	110	11.2	95	130	13.2
M14 0.55 in	88	120	12.2	125	170	17.3	155	210	21.4
M16 0.62 in	140	190	19.4	195	265	27	236	320	32.6
M18 0.70 in	192	260	26.5	269	365	37.2	320	435	44.3
M20 0.78 in	273	370	37.7	383	520	53	457	620	63.2
M22 0.86 in	369	500	51	516	700	71.4	619	840	85.6
M24 0.94 in	471	640	65.2	665	900	92	796	1080	110
M27 1.06 in	702	950	97	996	1350	137.7	1195	1620	165.2
M30 1.17 in	955	1300	132.5	1328	1800	183.6	1593	2160	220.3

TORQUES FOR HYDRAULIC FITTINGS

Conditions to be observed before tightening

-Connections must be clean, free from any spots of dirt or first signs of oxidization.
-Lubricate the threads and sealing rings.
-Make sure that the parts are well mounted, without forcing.

Precautions to be taken when tightening

-Torques must be applied at a constant speed. Avoid tightening up at high speed or with sudden stoppages.
-So as not to modify the torque, in the case of a connection between two parts (such as a union and a piping nut,) use a wrench to maintain in position the union which has already been tightened , and apply the torque to the other part (the piping nut.)

TORQUE SPECIFICATIONS ± 10 %

Unions, Connections and Plugs

Ø x PITCH	Pound–feet	Newton/metres	Kilogram/metres
M10 x1	14.5	20	2
M12 x1.5	26	35	3.6
M14 x1.5	33.2	45	4.6
M16 x1.5	44	60	6.1
M18 x1.5	51	70	7.1
M22 x1.5	73	100	10.2
M27 x2	147	200	20.4
M33 x2	207	280	28.6
M42 x2	281	380	38.8

Nuts for Pipes and Hoses

Ø nominal	Ø x PITCH	Pound–feet	Newton/metres	Kilogram/metres
8	M16 x1.5	14.5	20	2
10	M18 x1.5	26	35	3.6
12	M20 x1.5	33.2	45	4.6
14	M24 x1.5	44	60	6.1

Flanges (Bolts CHc, Grade 10.9)

Ø x PITCH	Pound–feet	Newton/metres	Kilogram/metres
M 8 x1.5	21	28	2.9
M10 x1.5	41	55	5.6
M12 x1.75	67	90	9.2
M14 x2	107	145	14.8
M16 x2	170	230	23.5

1010

GENERAL ENGINE SPECIFICATIONS

IMPORTANT: *This engine was made using the metric measurement system. All measurments and checks must be made with metric tools to make sure of an accurate reading when inspecting parts.*

CASE CORPORATION

8-69380

Printed in U.S.A.
Issued August 1987

ENGINE SPECIFICATIONS

General

Type	6 Cylinder, 4 Stroke Cycle, Valve-In-Head
Firing Order	1,5,3,6,2,4
Bore	102 mm
Stroke	120 mm
Piston Displacement	5.88 Litres
Compression Ratio	17.0 to 1
No Load Governed Speed	2080 to 2200 RPM
Rated Engine Speed	2040 to 2070 RPM
Engine Idle Speed	750 to 800 RPM
Valve Tappet Clearance (Exhaust) (Cold)	0.508 mm
(Intake) (Cold)	0.254 mm
Thermostat Operating Range	181° F to 203° F (83° C to 95° C)

Piston and Connecting Rods

Rings Per Piston	3
Number of Compession Rings	2
Numer of Oil Rings (two piece)	1
Type of Pins	Full Float
Type Bearings	Steel Back Leaded Bronze

Main Bearings

Number of Bearings	7
Type of Bearings	Replaceable

Engine Lubricating System

Oil Pressure	42 to 54 PSI (290 to 372 kPa) (2.90 to 3.72 bar) with Engine Warm at Rated Engine Speed
Type of System	Pressure and Spray Lubrication
Oil Pump	Rotor Type
Oil Filter	Full Flow Turn on Type
Oil Capacity (with filter)	16 Quarts (15 litres)
(without filter)	15 Quarts (14.3 litres)

Fuel System

Fuel Injection Pump	Bosch
Pump Timing	Top Dead Center
Fuel Injectors	Bosch 17 mm Opening Pressure (New) 3190 to 3310 PSI (21 994 to 22 821 kPa) (220 to 228 Bar)
Governor	Variable Speed, a Part of the Injection Pump
First Stage Fuel Filter	Turn on Type
Second Stage Fuel Filter	Turn on Type
Lift Pump	5 to 7 PSI (34 to 48 kPa) (0.34 to 0.48 Bar)

Section

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SPECIFICATION DETAILS

Written In *Clear And Simple English*

IMPORTANT: *This engine was made using the metric measurement system. All measurements and checks must be made with metric tools to make sure of an accurate reading when inspecting parts.*

CASE CORPORATION

Rac 8-26061

Printed in U.S.A
October, 1984 (Revised March, 1985)

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RUN-IN INSTRUCTIONS

Engine Lubrication

Fill the 6-590 engine crankcase with CC or CD service classification oil that has the correct viscosity rating for the ambient air temperature. Install new oil filters, after the engine has been rebuilt.

Fill the 6T-590 and the 6TA-590 engine crankcase with CD service classification oil that has the correct viscosity rating for the ambient air temperature. Install new oil filters, after the engine has been rebuilt.

Run-In Procedure For Rebuilt Engine

Step 1 Disconnect the wire to the electric shut-off on the injection pump so that the engine will not start. Crank the engine for 30 seconds until there is oil pressure, then reconnect the wire.

Step 2 Remove the air from the cooling system at the temperature sending unit for the 6-590 and 6T-590 engine. Loosen the upper plug on the aftercooler to remove the air from the cooling system for the 6TA-590 engine.

Step 3 Run the engine at 1000 RPM minimum load for 5 minutes and check for oil leaks.

Step 4 During the Run-In, continue to check the oil pressure, coolant level, and coolant temperature.

Run-In Procedure For Rebuilt Engines (With A Dynamometer)

The following procedure must be followed when using a PTO dynamometer to Run-In the engine. The dynamometer will control the engine load at each speed and will remove stress on new parts during Run-In.

During the Run-In, continue to check the oil pressure, coolant level and coolant temperature.

STEP	TIME	ENGINE SPEED	DYNAMOMETER SCALE LOAD
1	5 Minutes	1000 RPM	50
2	5 Minutes	1100 RPM	1/2
3	5 Minutes	2200 RPM	Full

Run-In Procedure for Rebuilt Engines (Without A Dynamometer)

STEP	TIME	ENGINE SPEED	LOAD
1	5 Minutes	1000 RPM	No Load
2	5 Minutes	1100 RPM	Light Load
3	5 Minutes	2200 RPM	Full

Run-In Procedure (Agriculture Tractors)

For the first 8 hours of field operation stay one gear lower than normal. For the next 12 hours DO NOT "lug" the engine. Prevent "lugging" by moving the lever to a lower gear. The engine must not be "lugged" below the rated engine RPM during early hours of life.

Run-In Procedure (Construction Equipment)

For the first 8 hours, operate the engine at full throttle maintaining a normal load. DO NOT "baby" the engine, but avoid converter or hydraulic stall. The engine must not be "lugged" below the Rated Engine RPM (Do not stall the engine more than 10 seconds).

ENGINE SPECIFICATION DETAILS

Cylinder Block

	Metric Value
Type	Non-Sleeved
Material	Cast Iron
ID of Cylinder	102.00 to 102.04 mm
Maximum Service Limit	102.116 mm
Cylinder Out of Round (Maximum)	0.038 mm
Cylinder Taper (Maximum)	0.076 mm
0.5 mm Oversize Piston	
Machine Cylinder Bore to	102.40 to 102.44 mm
Hone Cylinder Bore to	102.50 to 102.54 mm
1.00 mm Oversize Piston	
Machine Cylinder Bore to	102.900 to 102.960 mm
Hone Cylinder Bore to	103.00 to 103.04 mm

Service Cylinder Sleeve

Type	Dry, Can Be Replaced
Material	Cast Iron
Machine Cylinder Block Bore to	104.485 to 104.515 mm
Installation	Press Fit
Hone Cylinder Bore to	102.00 to 102.10 mm

Piston

Type	Cam Ground
Material	Aluminum alloy
OD at 12 mm From the Bottom, 90 Degrees From Piston Pin	
Standard Size Piston	101.873 to 101.887 mm
Minimum Service Limit	101.823 mm
0.5 mm Oversize Piston	102.373 to 102.387 mm
Minimum Service Limit	102.323 mm
1.0 mm Oversize Piston	102.873 to 102.887 mm
Minimum Service Limit	102.823 mm
ID of Piston Pin Bore	40.006 to 40.012 mm
Maximum Service Limit	40.025 mm
Width of 1st Ring Groove (Top)	2.465 to 2.485 mm
Width of 2nd Ring Groove (Intermediate)	2.425 to 2.445 mm
Width of 3rd Ring Groove (Oil Ring)	4.040 to 4.060 mm
Protrusion Above Cylinder Block (Maximum)	0.660 mm

Piston Pin

Type	Full Float
OD of Pin	39.997 to 40.003 mm
Minimum Service Limit	39.990 mm

Piston Rings

No. 1 Compression (6T-590 and 6TA-590 Engine)	Key Stone Type (Barrel Face)
End Gap in 102.02 ID	0.40 to 0.70 mm
No. 1 Compression 6-590 Engine	Rectangular Type (Barrel Face)
End Gap in 102.02 ID	0.25 to 0.55 mm
Maximum Service Limit	0.806 mm
Side Clearance	0.075 to 0.120 mm
Maximum Service Limit	0.15 mm
No. 2 Compression	Rectangular Type (Taper Face)
End Gap in 102.02 ID	0.25 to 0.55 mm
Maximum Service Limit	0.806 mm
Side Clearance	0.075 to 0.120 mm
Maximum Service Limit	0.15 mm
No. 3 Oil Control Rings	Two Piece
End Gap in 102.02 ID	0.25 to 0.55 mm
Maximum Service Limit	0.806 mm
Side Clearance	0.130 mm

Cylinder Head

Warpage (Maximum)	0.20 mm

Lifters

Material	Hardened Iron
OD of Lifter	15.961 to 15.977 mm
Minimum Service Limit	15.960 mm
Bore Diameter in Block	16.000 to 16.030 mm
Maximum Service Limit	16.055 mm

Connecting Rod

Bushing	Steel Backed Leaded Bronze
Bushing ID Installed (Ream to Size)	40.053 to 40.067 mm
Maximum Service Limit	40.092 mm
Bearing Liners	Replaceable
Journal ID Without Bearing Liners	72.987 to 73.013 mm
Bearing Oil Clearance	0.038 to 0.116 mm
Maximum Service Limit	0.129 mm
Side Clearance	0.100 to 0.300 mm
Maximum Service Limit	0.330 mm
Connecting Rod Bend (Maximum)	
Without Bushing	0.200 mm
With Bushing	0.150 mm
Connecting Rod Twist (Maximum)	
Without Bushing	0.500 mm
With Bushing	0.300 mm

Crankshaft

Type	Hardened Steel, Balanced
Main Bearing Liners	Replaceable
Crankshaft End Clearance	0.137 to 0.264 mm
Center Main Bearing Thrust Surface Thickness	2.50 mm
Connecting Rod Journal	
OD, Standard	68.987 to 69.013 mm
Maximum Service Limit	68.962 mm
0.25 mm OD Undersize, Grind to	68.737 to 68.763 mm
Maximum Service Limit	68.712 mm
0.50 mm OD Undersize, Grind to	68.487 to 68.513 mm
Maximum Service Limit	68.462 mm
0.75 mm OD Undersize, Grind to	68.237 to 68.263 mm
Maximum Service Limit	68.212 mm
1.00 mm OD Undersize, Grind to	67.987 to 68.013 mm
Maximum Service Limit	67.962 mm
Connecting Rod Journal Maximum Taper	0.013 mm
Journals Out of Round Maximum	0.050 mm
Undersize Main Bearing Liners For Service	0.25, 0.50, 0.75 and 1.00 mm
Main Bearing Oil Clearance	0.041 to 0.119 mm
Maximum Service Limit	0.140 mm
Main Bearing Journal	
OD, Standard	82.987 to 83.013 mm
Maximum Service Limit	82.962 mm
0.25 mm OD Undersize, Grind to	82.737 to 82.763 mm
Maximum Service Limit	82.712 mm
0.50 mm OD Undersize, Grind to	82.487 to 82.513 mm
Maximum Service Limit	82.462 mm
0.75 mm OD Undersize, Grind to	82.237 to 82.263 mm
Maximum Service Limit	82.212 mm
1.00 mm OD Undersize, Grind to	81.987 to 82.013 mm
Maximum Service Limit	81.962 mm
Main Bearing Journal Bore ID No Liners	87.982 to 88.018 mm
Maximum Service Limit	88.031 mm
Main Journal Width:	
1st, 2nd, 3rd, 5th and 6th	37.424 to 37.576 mm
4th	37.475 to 37.525 mm
Connecting Rod Journals Width	38.950 to 39.050 mm

Camshaft

Type	Hardened Iron
Bushing (Front Only)	1, Replaceable
Bushing Lubrication:	
Front Bushing	Pressure Lubricated
Intermediate	Pressure Lubricated
Rear	Pressure Lubricated
Oil Clearance	0.076 to 0.152 mm
ID of No. 1 Bushing (Installed)	54.107 to 54.133 mm
Maximum Service Limit	54.146 mm
ID of No. 1 Oversize (57.36 to 57.40 mm OD) Service Bushing	54.107 to 54.133 mm
Maximum Service Limit	54.146 mm
ID of No. 2, 3, 4, 5 and 6 Service Bushing	54.107 to 54.133 mm
Maximum Service Limit	54.146 mm
Width of No. 1 Bushing	25.15 to 25.65 mm
Width of No. 2, 3, 4, 5 and 6 Service Bushing	17.75 to 18.25 mm
Camshaft Bushing Journal OD	53.987 to 54.013 mm
Minimum Serviceable Limit	53.962 mm
Camshaft Bore Diameter in Block	
No. 1 Bushing	57.222 to 57.258 mm
No. 1 Oversize Bushing, Machine to	57.722 to 57.758 mm
No. 2, 3, 4, 5 and 6 Less Bushings	54.107 to 54.133 mm
No. 2, 3, 4, 5 and 6 Oversize for Bushings, Machine to	57.222 to 57.258 mm
Camshaft Thrust Thickness	9.42 to 9.58 mm
Minimum Service Limit	9.34 mm
Camshaft Thrust Clearance	0.130 to 0.340 mm
Maximum Service Limit	0.470 mm

Turbocharger

Horizontal Travel of Turbine Shaft	0.10 to 0.16 mm

Gear Train

Backlash:	
Crankshaft Gear to Camshaft Gear	0.08 to 0.33 mm
Crankshaft Gear to Idler Gear	0.08 to 0.33 mm
Camshaft to Fuel Pump Gear	0.08 to 0.33 mm
Idler Gear to Oil Pump	0.08 to 0.33 mm
Camshaft to Auxiliary	0.08 to 0.33 mm
Maximum Service Limit (All Gears)	0.45 mm

Rocker Arm Assembly

OD of Shaft	18.963 to 18.975 mm
Minimum Service Limit	18.938 mm
ID of Arm Bore	19.000 to 19.026 mm
Maximum Service Limit	19.051 mm
Lubrication	Pressure From Oil Gallery

Intake Valve

Tappet Clearance (Cold)	0.254 mm
Face Angle	29 Degrees
Face Run-Out	0.038 mm
Valve Head Edge Thickness, Minimum	1.50 mm
Length	128.84 to 129.46 mm
OD of Stem	7.960 to 7.980 mm
Minimum Service Limit	7.940 mm
OD of Head	44.870 to 45.130 mm
Seat Angle	30 Degrees
Seat Contact Width	1.32 to 1.92 mm
Seat Run-Out	0.10 mm
Insert Height	6.84 to 6.96 mm
OD of Insert	47.063 to 47.089 mm
ID of Insert	Tapered
Valve Recession Below Head Surface	0.99 to 1.52 mm
Maximum Service Limit	1.52 mm
ID of Valve Guide Bore	8.019 to 8.039 mm
Maximum Service Limit	8.089 mm

Exhaust Valve

Tappet Clearance (Cold)	0.508 mm
Face Angle	44 Degrees
Face Run-Out	0.038 mm
Valve Head Edge Thickness, Minimum	1.50 mm
OD of Head	41.870 to 42.130 mm
OD of Stem	7.960 to 7.980 mm
Minimum Service Limit	7.940 mm
Length	128.74 to 129.36 mm
Insert Seat Angle	45 Degrees
Seat Contact Width	1.47 to 2.07 mm
Seat Run-Out	0.10 mm
Insert Height	6.65 to 6.77 mm
OD of Insert	43.713 to 43.739 mm
ID of Insert	Tapered
Valve Recession Below Head Surface	0.99 to 1.52 mm
Maximum Service Limit	1.52 mm
ID of Valve Guide Bore	8.019 to 8.039 mm
Maximum Service Limit	8.089 mm

Valve Springs

Free Length	55.63 mm
Total Coils	7.25
Wire Diameter	4.830 to 4.930 mm
Compressed to 38.53 mm	(Valve Open) 785 to 839 N
Maximum Service Limit	765 N
Compressed to 49.25 mm	(Valve Closed) 285 to 321 N
Minimum Service Limit	270 N

SPECIAL TORQUES

	U.S. Value	Metric Value
Aftercooler Bolts	18 lb ft	24 Nm (2.4 kgm)
Air Crossover Elbow to Intake Aftercooler	18 lb ft	24 Nm (2.4 kgm)
Alternator Bracket Bolts (Lower)	18 lb ft	24 Nm (2.4 kgm)
Alternator Bracket Bolts (Upper)	18 lb ft	24 Nm (2.4 kgm)
Alternator Retaining Bolt	18 lb ft	24 Nm (2.4 kgm)
Belt Tensioner Bracket Bolts	18 lb ft	24 Nm (2.4 kgm)
Belt Tensioner Retaining Bolt	32 lb ft	43 Nm (4.3 kgm)
Camshaft Retaining Bolts	18 lb ft	24 Nm (2.4 kgm)
Connecting Rod Bolts (Lubricate Threads With Engine Oil)	74 lb ft	100 Nm (10.0 kgm)
Exhaust Manifold Bolts	32 lb ft	43 Nm (4.3 kgm)
Fan Pulley Bracket Bolts	18 lb ft	24 Nm (2.4 kgm)
Fan Pulley Bolts (Grade 8.8)	18 lb ft	24 Nm (2.4 kgm)
Fan Pulley Bolts (Grade 10.9)	25 lb ft	34 Nm (3.4 kgm)
Flywheel Housing Bolts	45 lb ft	60 Nm (6.0 kgm)
Flywheel Retaining Bolts	101 lb ft	137 Nm (13.7 kgm)
Flywheel Housing Cover Bolts	18 lb ft	24 Nm (2.4 kgm)
Fuel Filter Inlet Bolt	24 lb ft	32 Nm (3.2 kgm)
Fuel Air Removal Bolt	4 lb ft	6 Nm (0.6 kgm)
Fuel Filter Inlet Nut	24 lb ft	32 Nm (3.2 kgm)
Fuel Line Fitting (High Pressure)	18 lb ft	24 Nm (2.4 kgm)
Fuel Line Fitting (Low Pressure)	18 lb ft	24 Nm (2.4 kgm)
Fuel Pump Plug with Bronze Washer	17 lb ft	23 Nm (2.3 kgm)
Front Cover Bolts	18 lb ft	24 Nm (2.4 kgm)
Front Housing Bolts	18 lb ft	24 Nm (2.4 kgm)

SPECIAL TORQUES (CONT'D)

	U.S. Value	Metric Value
Crankshaft Dampener Pulley	101 lb ft	137 Nm (13.7 kgm)
Cylinder Head Bolts	93 lb ft	126 Nm (12.6 kgm)
Injection Pump Drive Gear Nut	48 lb ft	65 Nm (6.5 kgm)
Injection Pump Lock Bolt	22 lb ft	30 Nm (3.0 kgm)
Injection Pump Retaining Nuts	18 lb ft	24 Nm (2.4 kgm)
Injection Pump Bracket Bolts	18 lb ft	24 Nm (2.4 kgm)
Injector Leak off Bolt	11 lb ft	15 Nm (1.5 kgm)
Injector Retaining Nut	44 lb ft	60 Nm (6.0 kgm)
Intake Manifold Bolts	18 lb ft	24 Nm (2.4 kgm)
Intake Manifold Plug	92 lb ft	125 Nm (12.5 kgm)
Engine Lift Bracket Bolts (Rear)	57 lb ft	77 Nm (7.7 kgm)
Main Bearing Bolts (Lubricate The Threads With Engine Oil)	129 lb ft	175 Nm (17.5 kgm)
Oil Fill Tube Bolts	32 lb ft	43 Nm (4.3 kgm)
Oil Pan Drain Plug	55 lb ft	75 Nm (7.5 kgm)
Oil Pan Heater Plug	90 lb ft	122 Nm (12.2 kgm)
Oil Pan Retaining Bolts	18 lb ft	24 Nm (2.4 kgm)
Oil Pump Retaining Bolts	18 lb ft	24 Nm (2.4 kgm)
Oil Inlet Tube Bolts	18 lb ft	24 Nm (2.4 kgm)
Oil Inlet Tube Brace	18 lb ft	24 Nm (2.4 kgm)
Oil Filter Housing Bolts	18 lb ft	24 Nm (2.4 kgm)
Rear Seal Retaining Bolts	7 lb ft	9 Nm (0.9 kgm)
Rocker Arm Bolts	18 lb ft	24 Nm (2.4 kgm)
Starter Retaining Bolts	32 lb ft	43 Nm (4.3 kgm)

SPECIAL TORQUES (CONT'D)

	U.S. Value	Metric Value
Tachometer Drive Retaining Bolts	2 lb ft	3 Nm (0.3 kgm)
Lifter Cover Bolts	18 lb ft	24 Nm (2.4 kgm)
Thermostat Housing Bolts	18 lb ft	24 Nm (2.4 kgm)
Timing Pin Retaining Bolts	4 lb ft	5 Nm (0.5 kgm)
Fuel Shutoff Solenoid	10 lb ft	15 Nm (1.5 kgm)
Turbocharger Mounting Bolts	24 lb ft	32 Nm (3.2 kgm)
Turbocharger Drain Tube Bolts	18 lb ft	24 Nm (2.4 kgm)
Turbocharger Oil Supply (Both Ends)	13 lb ft	17 Nm (1.7 kgm)
Turbine Housing Bolts	96 lb inch	11 Nm (1.1 kgm)
Center Housing to Back Plate Bolts	48 lb inch	6 Nm (0.6 kgm)
Compressor Housing Bolts	48 lb inch	6 Nm (0.6 kgm)
Compressor Lock Nut	120 lb inch	14 Nm (1.4 kgm)
Thrust Bearing Screws (Torx Head)	36 lb inch	5 Nm (0.5 kgm)
Water Pump Mounting Bolts	18 lb ft	24 Nm (2.4 kgm)
Coolant Inlet Bolts	32 lb ft	43 Nm (4.3 kgm)
Valve Cover Bolts	18 lb ft	24 Nm (2.4 kgm)

Section

1210

GENERAL MACHINE SPECIFICATIONS

CASE CORPORATION

Lep 8-69391

Printed in England

REPLACES FORM NO. Lep 8-69390 Issued August 1987, Revised June, 1988

TABLE OF CONTENTS

ENGINE

Make and model	Case 6T–590, turbocharged
Number of cylinders	6
Bore and stroke	4.01 inches x 4.72 inches (102 mm x 120 mm)
Displacement	359 cu. in (588 cm^3)
Fuel induction	Injectors (6)
Fuel filter	Renewable cartridge
Air cleaner	Dual stage dry type
Oil filter	Renewable cartridge
Lubrication	Positive pressure
Cooling system	Pressurized radiator

Horsepower

*Gross (SAE)	143 at 2000 rpm (107 kw at 2000 r/mn)
SAE net	128 at 2000 rpm (95 kw at 2000 r/mn)

Specifications valid to an altitude of 9843 feet (3000 m) at a temperature of 68°F (20°C).

*Gross engine horsepower per SAE J1349 specifications.

ELECTRICAL

Electrical system voltage	24 volts, negative ground
Batteries	(2) 12 volt
Alternator	45 amperes

Replacement bulbs

Working lamps	P140555
Flood lamp (on boom)	P340501
Dome lamp	P40565
Control panel lamps	P40506

Replacement fuses – The colors on the fuses can change. Check the amperage.

5 amperes – violet	P841297
8 amperes – blue	P841296
10 amperes – green	P841295
16 amperes – yellow	P841294
30 amperes – white	P1241265

CAPACITIES

Fuel tank	58 U.S. gallons (220 litres)
Hydraulic reservoir	26.4 gallons (100 litres)
Hydraulic system complete	46.2 gallons (175 litres)
Final drive transmission (each)	1.6 quarts (1.5 litres)
Engine oil capacity (with filter change)	16 quarts (15.4 litres)
Engine cooling system (with heater)	9.5 gallons (36 litres)
Swing reducer	3.7 quarts (3.5 litres)

WEIGHTS

Operating weight	35471 pounds (16100 kg)
Counterweight	7605 pounds (3450 kg)

NOTE : *Machine is equipped with 24 inch (610 mm) pads, 15 feet 9 inch (4.80 m) boom, 6 feet 10 inch (2.1 m) arm, 30 inch (762 mm) bucket, and counterweight.*

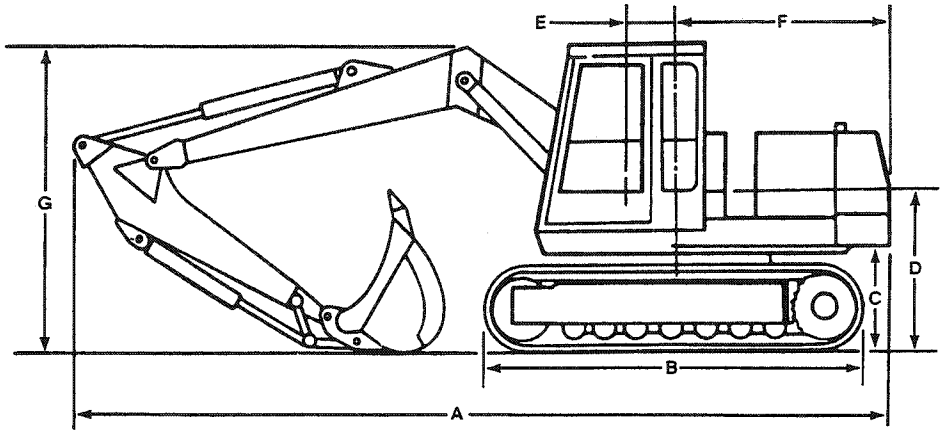
BUCKETS

Width	Heaped Capacity
24 inches (610 mm)	0.56 yd^3 (0.43 m^3)
30 inches (762 mm)	0.75 yd^3 (0.57 m^3)
34 inches (864 mm)	0.87 yd^3 (0.66 m^3)
35 inches (890 mm)	1.00 yd^3 (0.76 m^3)
39 inches (991 mm)	1.25 yd^3 (0.95 m^3)
45 inches (1143 mm)	1.45 yd^3 (1.12 m^3)
51 inches (1295 mm)	1.65 yd^3 (1.27 m^3)

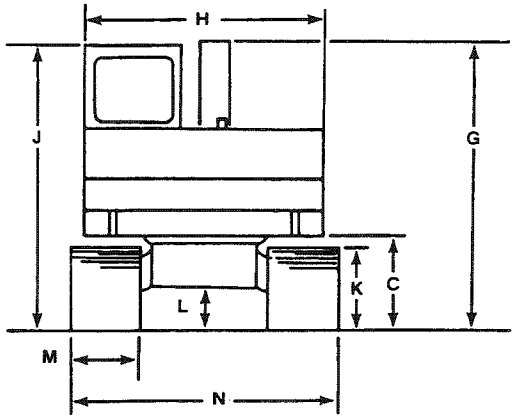
TRAVEL SPEED

Maximum	1.7 mph (2.7 km/h)

GENERAL DIMENSIONS



A	Overall length – TRANSPORT position – 6 ft 10 in (2.1 m) arm	28 ft 6 in (8.70 m)
A	Overall length – TRANSPORT position – 8 ft 10 in (2.7 m) arm	28 ft 5 in (8.65 m)
B	Overall length of crawler	12 ft 6 in (3.81 m)
C	Clearance – counterweight to grade	3 ft 6 in (1.06 m)
D	Height of boom pivot above grade	5 ft 2 in (1.57 m)
E	Boom pivot to center of turnable	1 ft 8 in (508 mm)
F	Swing clearance	8 ft 10 in (2.40 m)
G	Overall height – TRANSPORT position – 6 ft 10 in (2.1 m) arm	10 ft 2 in (3.10 m)
G	Overall height – TRANSPORT position – 8 ft 10 in (2.7 m) arm	10 ft 10 in (3.30 m)



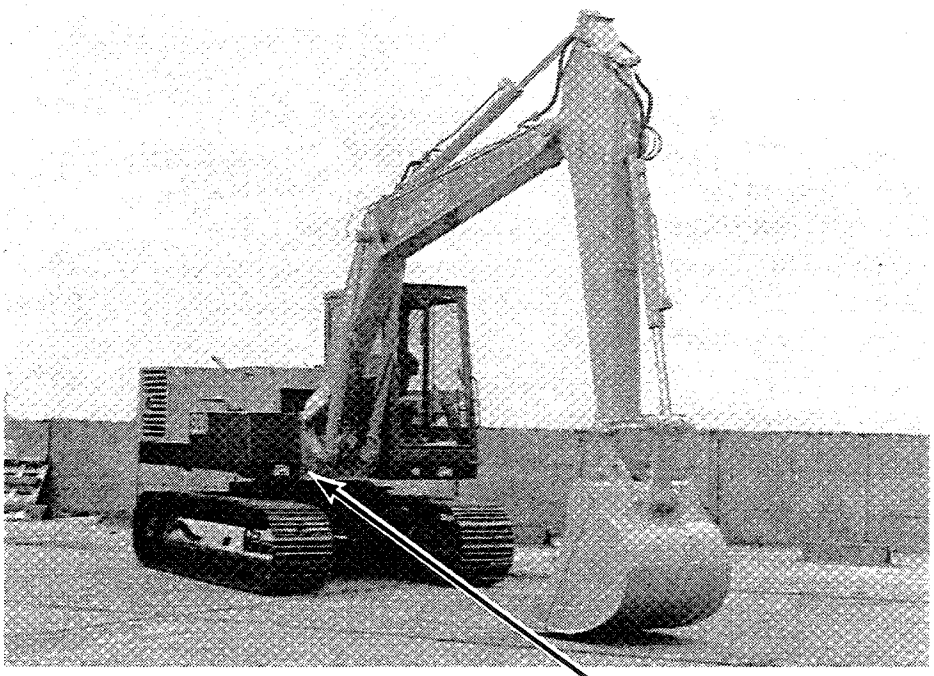
H	Width of upper structure	8 ft (2.44 m)
J	Height of cab above grade	9 ft 7 in (2.91 m)
K	Track height	2ft 8 in (813 mm)
L	Ground clearance	1 ft 6 in (457 mm)
M	Track width	24 inches (610 mm)
N	Overall width – with 24 in (610 mm) pads	9 ft (2.75 m)

PRODUCT INDENTIFICATION AND SERIAL NUMBER

Write your machine Model number, Product Identification Number (P.I.N), and serial number on the lines provided. If needed, give these numbers to your Case dealer when you need parts or information for your machine.

Make a record of the numbers. Keep the record and your Manufacturer's Statement of Origin in a safe place. If the machine is stolen, report the numbers to your local law enforcement agency.

Machine



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Model Number _____

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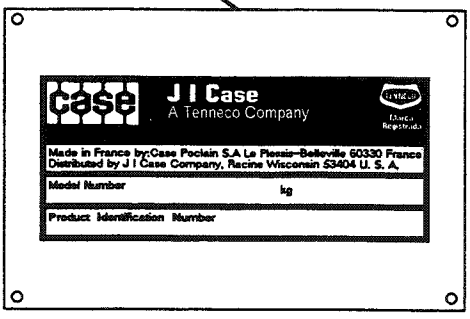
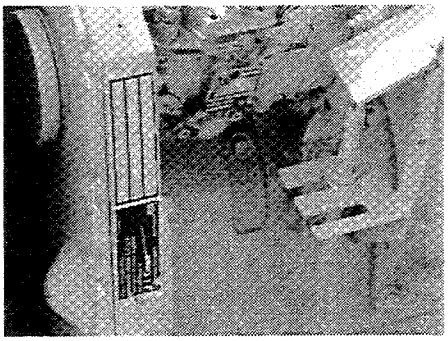
Product Identification Number



Diesel Engine



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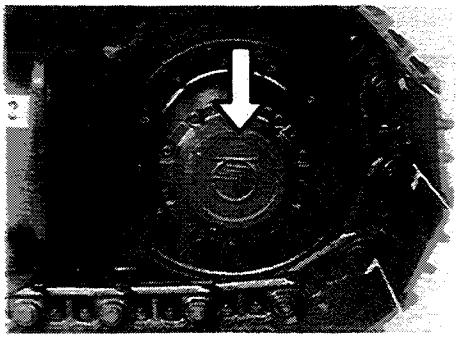
Model and Serial Number

Final Drives



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Left–Hand Serial Number

Right–Hand Serial Number

In addition to the engine and final drives, all pumps, valves, and motors on this machine have model and serial number plates. Make a record of these numbers also.

1212

MAINTENANCE AND LUBRICATION

TABLE OF CONTENTS

CASE CORPORATION

8-69400

Printed in U.S.A.
Issued August 1987

FLUIDS AND LUBRICANTS CHART

Fuel tank
- Capacity ..... 58.1 U.S. gallons (220 litres)
- Specifications ..... See 1212-3

Engine crankcase
- Capacity - With filter change ..... 16 U.S. quarts (15.4 litres)
- Specifications ..... See page 1212-4

Engine cooling system
- Capacity - With heater ..... 9.5 gallons (36 litres)
- Type of coolant ..... ethylene glycol antifreeze and water mixed 50% ethylene glycol and 50% water

Hydraulic system
- Capacity - Reservoir ..... 26.4 U.S. gallons (100 litres)
- Complete system ..... 46 U.S. gallons (175 litres)
- Specifications ..... MS1230 Hydraulic Fluid Case part number B17639 (5 U.S. gallons, 19 litres)

Final drive transmission
- Capacity - each ..... 1.6 U.S. quarts (1.5 litres)
- Specifications ..... CaseIH Gear Lube (85w-140)
- Alternate ..... SAE 85/140 API GL-5

Swing reducer
- Capacity ..... 3.7 U.S.quarts (3.5 litres)
- Specifications ..... CaseIH Gear Lube (85w-140)
- Alternate ..... SAE 85/140 API GL-5

Batteries
- Specifications ..... drinking or distilled water

Grease fittings
- Specifications ..... CaseIH molydisulfide grease

DIESEL FUEL

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

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

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

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

Fuel Storage

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

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

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	05 of 1%
Sulfur, by weight, maximum	50 of 1%
Copper strip corrosion, maximum	No 2
Ash, by weight, maximum	01 of 1%

Engine fuel is flammable and can cause a fire or an explosion. Do not fill the fuel tank or service the fuel system near open flame, welding, burning cigars, cigarettes, etc. 84-100-A

ENGINE OIL RECOMMENDATIONS

Case IH No. 1 Engine Oil is recommended for use in your Case engine. To select the correct grade oil, determine the temperature range between now and the next oil change. See the oil grade chart below.

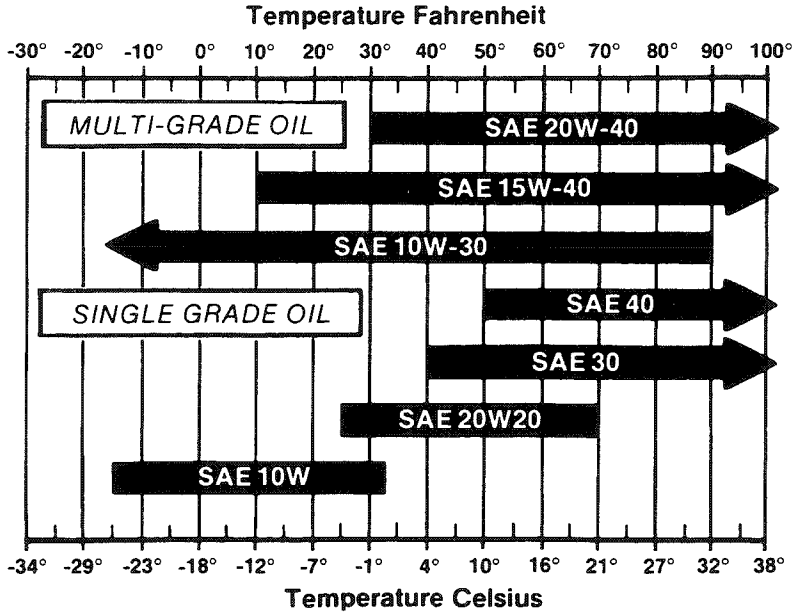
If Case IH multi-grade oil is not available, Case IH single grade engine oil can be used.

API Classifications

Engines with turbochargers use API CC/CD or CD oil.

NOTE: *Do not put "Performance Additives" or other oil additive products in the engine crankcase. The oil change interval given in this manual is according to tests with Case lubricants. It is recommended that you use the Case Systemgard™ Lubricant analysis system. See page 1212-5.*

Recommended Engine Oil Grades



SYSTEMGARD™ LUBRICANT ANALYSIS SERVICE

830752

Through this service your machine lubricants are tested in a laboratory. The results of these tests show lubricant contamination and component wear rates. You will get service recommendations to increase the life of your machine. See your Case dealer for more information.

RUN-IN PERIOD

During the first 20 hours of operation for a new machine, or a machine with a rebuilt engine, make sure you do the following:

1. Operate the machine with normal bucket loads for the first 8 hours.
2. Keep the engine at normal operating temperatures.
3. Do not run the engine at idle speeds for long periods of time.
4. See the Run-In Maintenance Schedule below for additional information.
5. After the first 20 hours of machine operation, have your Case dealer do the After Delivery Check at the back of this manual.

RUN-IN MAINTENANCE SCHEDULE

The following items are to be done during the Run-In Period and are in addition to the items in the Maintenance Schedule on the following page.

AFTER FIRST 20 HOURS OF OPERATION

Have your Case dealer do the After Delivery Check . See Operators Manual

Check torque of track shoe bolts ..... Section 5503

AFTER FIRST 100 HOURS OF OPERATION

Check torque of track shoe bolts ..... Section 5503

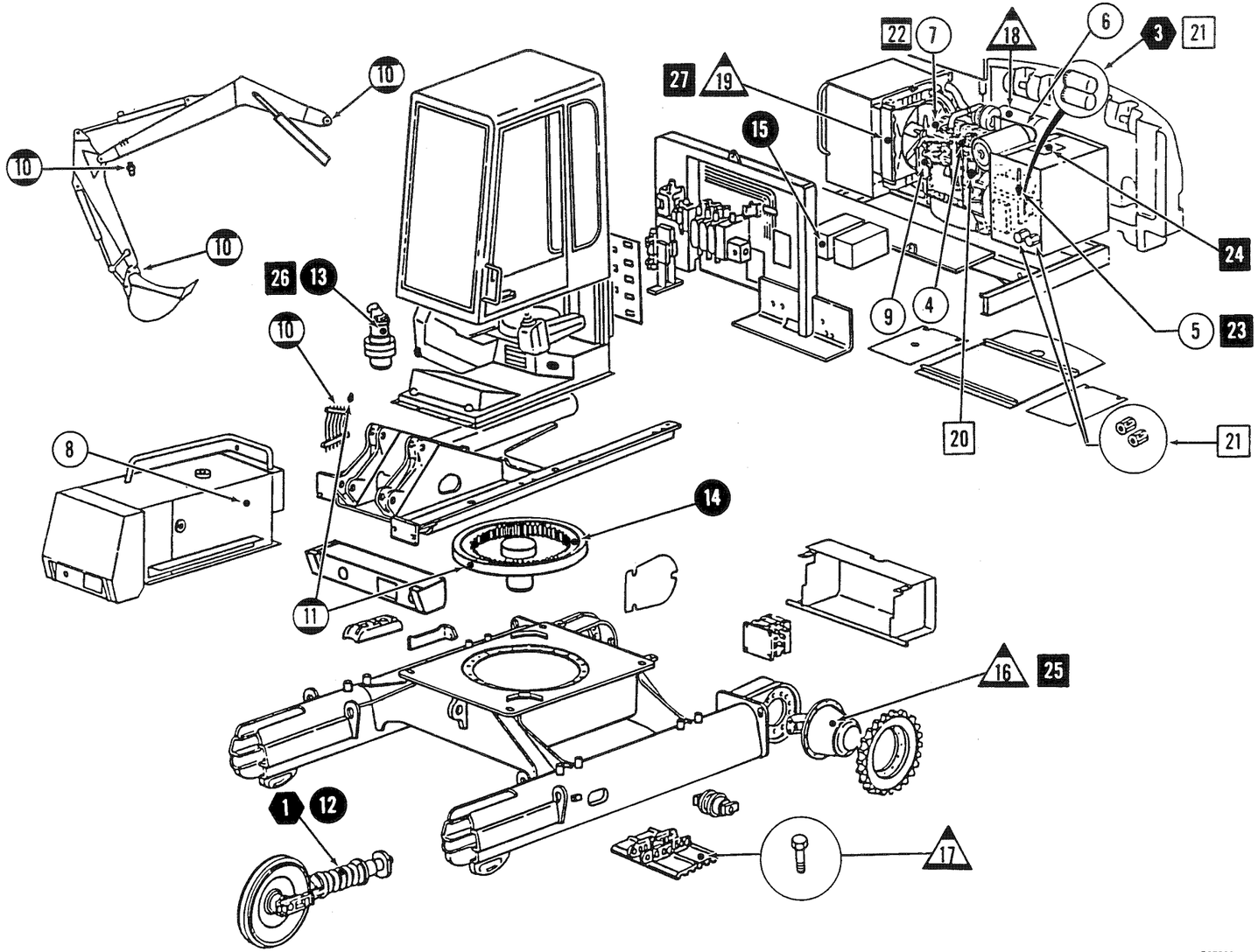
MAINTENANCE SCHEDULE

REF NUMBER	SERVICE POINTS	NO OF POINTS	LUBRICATE	CHECK	CLEAN	CHANGE	PAGE NUMBER	FREQUENCY
1	Track Tension	2		▒			5503	As Required
2	Air Cleaner*	1			▒		2001	
3	Hydraulic Filters**	2				▒	8201	
4	Engine Oil Level	1		▒				10 Hours
5	Hydraulic Reservoir Level	1		▒			8201	
6	Air Cleaner Dust Valve	1			▒		2001	
7	Drive Belt	1		▒				
8	Drain Water From Fuel Tank and Fuel Filter	1		▒				
9	Coolant Level	1		▒				
10	Boom, Arm, and Bucket Pivot Points	19	▒				1212	50 Hours***
11	Turntable Ring Gear and Bearing	4	▒				1212	
12	Track Tension	2		▒			5503	100 Hours
13	Oil Level in Swing Reducer	1		▒			6001	
14	Swing System Ring Gear	1			▒		1212	
15	Fluid Level in Batteries	2		▒			4005	
16	Oil Level in Final Drive Transmission	2		▒			6001	250 Hours
17	Track Shoe Mounting Bolt Torque	2		▒			5503	
18	Engine Oil and Filter	2				▒		
19	Radiator Fins				▒			
20	Engine Fuel Filter	2				▒	3410	500 Hours
21	Hydraulic Filters	5				▒	8201	
22	Drive Belt	1				▒	4000	1000Hours
23	Oil in the Hydraulic Reservoir	1				▒	8201	2000 Hours
24	Hydraulic Reservoir Breather	1				▒	8201	
25	Oil in the Final Drive Transmissions	1				▒	6001	
26	Oil in the Swing Reducer	1				▒	6001	
27	Engine Coolant	1				▒		

*Service the air cleaner when the warning lamp illuminates.

**Replace the hydraulic filter elements when the warning lamp illuminates.

***If you are operating the machine under severe conditions, lubricate the machine more frequently.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