



J.I. Case

Service Manual

450C & 455C

Crawlers

Volume 1 of 3

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CA-S-450C CLR+

Service Manual

450C/455C CRAWLERS Service Manual

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SAFETY RULES SERVICE MANUAL INTRODUCTION AND TORQUE SPECIFICATIONS

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MAINTENANCE AND LUBRICATION

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2000

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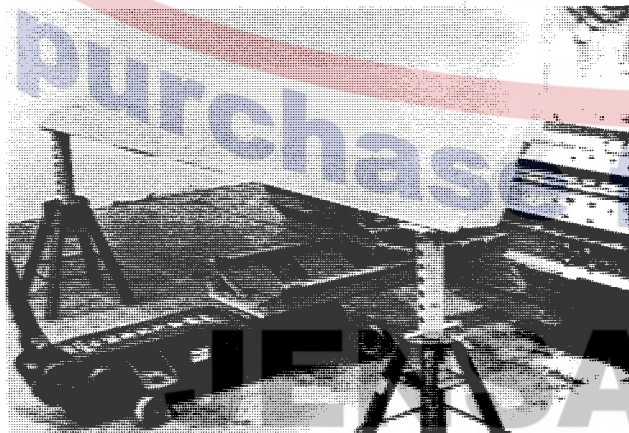
ENGINE REMOVAL

In this procedure the engine and torque converter are removed as an assembly.

1. Park the machine on a level surface.
2. Lower rear mounted equipment to the floor.
3. Raise the blade and use acceptable supports to hold the blade in place.

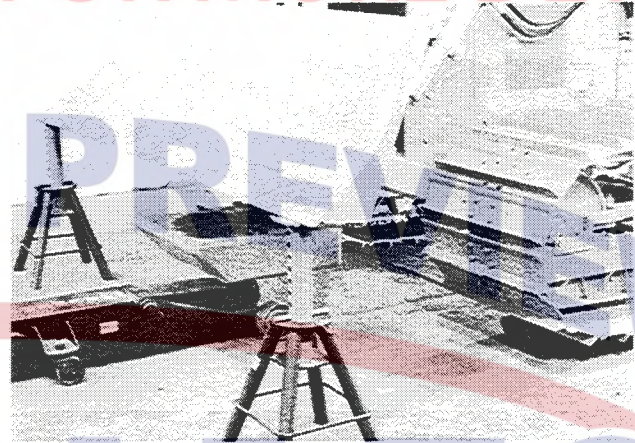


4. The weight of the rear guard is approximately 60 pounds (27 kg). Use a floor jack and remove the rear guard.

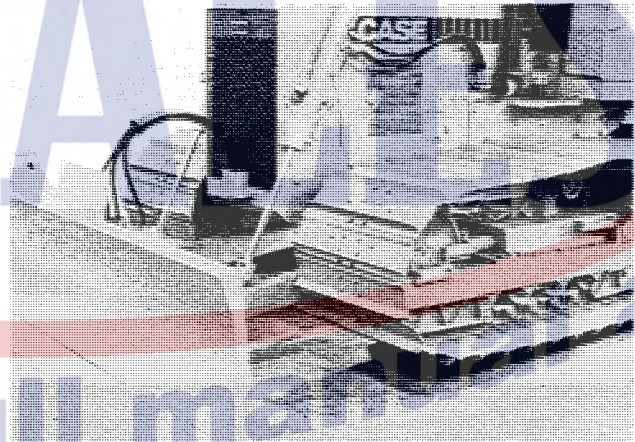


5. The weight of the front guard is approximately 30 pounds (15 kg). Use a floor jack and remove the front guard.

6. If the machine has a front counterweight, the weight of the front counterweight is approximately 930 pounds (421 kg). Use the floor jack and remove the counterweight.



7. Lower the blade to the floor.



8. Remove the engine side panels.



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IDENTIFICATION MARKS

Letter G = Thermostat passage in cylinder did not need to be machined.

Letter M = Thermostat passage in cylinder head was machined.

Letter V = Valve seats have been machined.

Letter X = The cylinders in the cylinder block have been bored oversize. Use a head gasket with oversize cylinder holes (one notch).

Letter XX = The cylinder block has been refaced and up to 0.25 mm has been removed. Use a thicker head gasket (two notches).

Letter XXX = The cylinder block has been refaced and up to 0.50 mm has been removed. Use a thicker head gasket (three notches).

Numbers = RH rear corner of cylinder head indicates the amount of material removed from the cylinder head.

SPECIFICATIONS

ENGINES MANUFACTURED IN U.S.A.

Prior to Engine Serial Number 45511034	Injector Nozzle 9 mm
Engine Serial Number 45511034 and After	Injector Nozzle 7 mm

ENGINES MANUFACTURED IN DARLINGTON ENGLAND

Prior to Engine Serial Number 21092870	Injector Nozzle 9 mm
Engine Serial Number 21092870 and After	Injector Nozzle 7 mm

ENGINES MANUFACTURED IN NEUSS GERMANY

Prior to Engine Number 52107489	Injector Nozzle 9 mm
Engine Serial Number 52107489 and After	Injector Nozzle 7 mm

CYLINDER HEAD

Maximum Warpage	0.010 mm in any 50 mm diameter area or more than 0.075 mm overall end to end or side to side.
Maximum amount of material that can be removed during resurfacing	1.0 mm
Minimum total height of cylinder head	93.75 to 94.25 mm

CYLINDER HEAD MACHINING IDENTIFICATION MARKS

Total thickness of cylinder head material removed	See Page 12
X on head indicates block resurfacing	See Page 27
V on head indicates valves have been ground	See Page 27
G on head indicates thermostat bore inspected	See Page 40
M on head indicates thermostat bore machined	See Page 40

14 MM REPLACEMENT VALVE GUIDE

Valve guide OD	14.026 to 14.038 mm
Bore cylinder head to	13.987 to 14.013 mm
Press fit	0.013 to 0.051 mm
Installed height above top of valve guide boss on cylinder head	11.25 to 11.75 mm

11 MM REPLACEMENT VALVE GUIDE

Valve guide OD	11.150 to 11.163 mm
Bore cylinder head to	11.112 to 11.138 mm
Press fit	0.012 to 0.051 mm
Installed height above top of valve guide boss on cylinder head	11.25 to 11.75 mm

EXHAUST VALVE INSERT

Diameter of insert	43.713 to 43.739 mm
Diameter of bore	43.647 to 43.663 mm
Depth of bore	10.10 to 10.30 mm
Press fit	0.05 to 0.092 mm

INTAKE VALVE INSERT

Diameter of insert	47.063 to 47.089 mm
Diameter of bore	46.987 to 47.013 mm
Depth of bore	10.30 to 10.50 mm
Press fit	0.05 to 0.102 mm

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SPECIFICATIONS

Oil Pressure		
New Engine	at Low or 800 rpm	1.9 to 3.0 Bar
	at 1700 rpm	2.8 to 3.4 Bar
	at High Idle or 2400 rpm	3.0 to 3.7 Bar
		28 to 43 PSI
		40 to 50 PSI
		43 to 54 PSI
Used Engine		
Low Idle (minimum)	0.7 Bar	10 PSI
	2.1 Bar	30 PSI
Oil Pump Idler Gear to Crankshaft Gear Backlash		
		0.450 mm
Oil Pump Rotor Clearance		
		0.178 mm
Oil Pump Relief Valve Spring Specification (For 2 Hole Relief Valves)		
Free Length		55.83 mm
Outside Diameter		14.02 mm
Assembled Height:		
Compress to 44.98 mm		63 to 79 N
Spring Load Height:		
Compress to 39.98 mm		95 to 113 N
Oil Pump Relief Valve Spring Specification (For 4 Hole Relief Valves)		
Free Length		64.0 mm
Outside Diameter		14.7 mm
Assembled Height:		
Compress to 44.5 mm		87 N
Spring Load Height:		
Compress to 41.25 mm		104.7 N

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	Metric Value
Turbine Wheel Horizontal Movement	0.10 to 0.16 mm

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3001

FUEL LINES, FUEL TANKS, AND ENGINE CONTROLS

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SAFETY RULES



THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

M171B



When testing or adjusting diesel fuel injectors, do not place your hands, arms, or any other part of your body into the fuel injector spray.

Fuel spray from an injector has sufficient velocity to penetrate the skin and cause serious infection or other reactions. If injured by fuel penetration, see your doctor immediately.

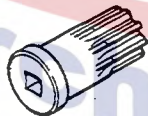
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Wash the injured part with boric acid solution, support the injured finger or hand with a splint and sling so the injured part will remain absolutely at rest until a physician can examine it.

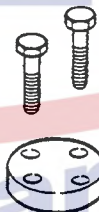
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SPECIAL TOOLS



CAS-1690 ENGINE TURN OVER TOOL
FIRST USED ON PAGE 5



CAS-1691 A GEAR PULLER
FIRST USED ON PAGE 5

SPECIAL TORQUES

Injection Pump Mounting Bolts	21 to 27 Nm
Injection Pump Nut	59 to 71 Nm
Fuel Line Inlet Bolt	22 to 28 Nm
Fuel Shutoff Solenoid.....	14 Nm
Leak Off Fitting	13 to 17 Nm
Injection Pump Lock Bolt (Lock Position)	7 Nm
Injection Pump Lock Bolt (Unlock Position)	20 Nm

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SPECIAL TOOLS



CAS-1690 ENGINE TURNOVER TOOL



CAS-1691A GEAR PULLER

SPECIAL TORQUES

Injection Pump Mounting Bolts	21 to 27 Nm
Injection Pump Nut	59 to 71 Nm
Fuel Line Inlet Bolt	22 to 28 Nm
Fuel Shut-off Solenoid	43 Nm
Leak Off Fitting	13 to 17 Nm
Injection Pump Lock Bolt, Lock Position	27 to 33 Nm
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NOTE: The 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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Rated output	14 volts at 65 amperes
Resistance of rotor winding	2.52 to 3.08 ohms
Maximum runout for slip rings	0.05 mm (0.002 inch)
Minimum diameter of slip rings.....	26.8 mm (1.055 inch)
Resistance of stator coils.....	0.09 to 0.11 ohms
Minimum length of brushes	7 mm (0.27 inch)
Torque for nut for pulley	60 to 70 Nm (44 to 55 pound-feet)

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SPECIFICATIONS

Lubricant.....	Case Gear Lube
Amount.....	9.8 U.S. fluid ounces (290 mL)
End travel for shaft.....	0.044 to 0.058 inch (1.13 to 1.47 mm)
Special torques	
Cap screws for retainer.....	432 pound-inches (49 Nm)
Cap screws for end cap.....	432 pound-inches (49 Nm)
Nut for bolt that holds carrier roller.....	80 to 96 pound-feet (109 to 130 Nm)

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SPECIFICATIONS

Lubricant.....	Case Gear Lube
Amount.....	7.4 U.S. fluid ounces (219 mL)
End travel for shaft.....	0.012 to 0.035 inch (0.3 to 0.9 mm)
Special torque	
Nuts for bolts that hold track rollers	150 to 180 pound-feet (203 to 244 Nm)

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Rotating torque for sprocket shaft without face seal and bull gear installed	35 to 40 lb in (4 to 4.5 Nm)
Rotating torque for input shaft (bevel gear)	35 to 40 lb in (4 to 4.5 Nm)
Backlash for ring and pinion	0.006 to 0.012 inch (0.15 to 0.30 mm)
Capacity for final drive 450E and 550E Models	7.5 U.S. quarts (7.0 litres)
Capacity for final drive 850E and 855E Models	6.0 U.S. quarts (5.7 litres)
Lubricant	Case 135H EP gear lubricant
Special torques	
Cap screws, main frame and seat frame to final drive. All threads cleaned with Loctite Primer T. Use 242 Loctite on threads and bottom of head on cap screws. Tighten to 180 lb ft (244 Nm) and then tighten 1/4 turn.	
Self-locking nuts, final drive to transmission	86 to 98 lb ft (116 to 132 Nm)
Cap screws, retainer on input shaft	86 to 98 lb ft (116 to 132 Nm)
Cap screws, retainer on sprocket shaft	124 to 139 lb ft (170 to 190 Nm)
Ferry head screws, cover for input and sprocket shafts	76 to 98 lb ft (102 to 132 Nm)
Ferry head screws, bottom cover	76 to 98 lb ft (102 to 132 Nm)

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1. Park the machine on a level surface.
2. Lower the front and rear mounted equipment to the floor.
3. Stop the engine and apply the parking brake.
4. Move the control levers in all directions to release any pressure from the hydraulic system.
5. Loosen and remove the cap screws and lock washers that fasten the access door to the right side of the machine. Remove the access door.



6. Loosen the cap screws that fasten the front cover in place. Remove the bottom cap screw.



7. Remove the front cover.



8. Disconnect the control lever linkage from the spools.



9. Disconnect the tubes and hoses from the fittings in the equipment control valve. Install plugs in the tubes and hoses. Install caps on the fittings.



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