

Renault Engines

1970-71 RENAULT R-10 (R-1192) 4 CYLINDER

GENERAL SPECIFICATIONS										
Year	Displ.		Carburetor	HP at RPM	Torque (Ft. Lbs. at RPM)	Compr. Ratio	Bore		Stroke	
	cu. ins.	cc					in.	mm	in.	mm
1970-71 R-1192	78.6	1289	1x2-Bbl.	52@4800	72@2500	8.0-1	2.87	73	3.03	77

ENGINE IDENTIFICATION

Engine number and type are stamped on a plate riveted to right side of block, below cylinder head. First five digits indicate engine type.

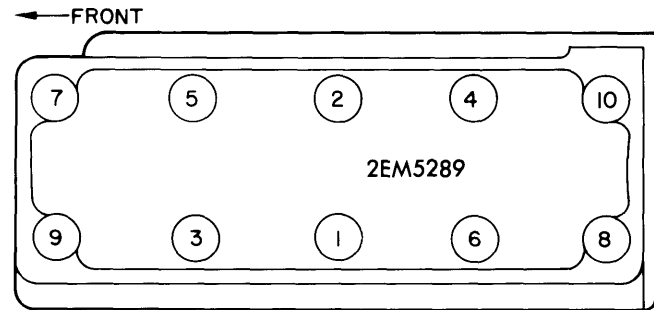
Model No.	Model Name	Engine Type
R-1192	R-10	810-04

ENGINE REMOVAL

- 1) Disconnect battery and drain cooling system. Remove air filter and hose. Disconnect all water hoses. Disconnect leads, at radiator, from terminal panel and remove screen panel.
- 2) Disconnect throttle linkage and fuel pump inlet line. Disconnect and mark, for reinstallation, all electrical leads.
- 3) Remove muffler, clutch plate, engine floor panels, starter and bell housing. *NOTE* — Upper bell housing bolts cannot be completely removed.
- 4) Attach suitable hoist to cylinder head and take weight of engine on hoist. Remove rear crossmember from mounting pads. Pull engine rearward and lift from vehicle.

CYLINDER HEAD REMOVAL

- 1) Remove valve cover, rocker arm shaft and push rods. Remove all bolts except center bolt on distributor side.
- 2) Last bolt is used as a hinge, because cylinder head must not be broken loose and immediately lifted straight up. To free cylinder head, tap lightly in a horizontal direction. Remove center bolt and cylinder head. To install reverse removal procedure and tighten all bolts to specification.



CYLINDER HEAD TIGHTENING SEQUENCE

VALVES							
Engine & Valve	Head Diam.	Face Angle	Seat Angle	Seat Width	Stem Diameter	Stem Clearance	Valve Lift
1970-71 R-1192							
Int.	1.319"	45°	45°	.....	.276"	.....	.....
Exh.	1.181"	45°	45°	.....	.276"	.....	.....

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E (front to rear).

VALVE GUIDE SERVICING

1) After removing cylinder head, place it on suitable thrust plate (Mot. 121). Press out worn guide, using suitable press mandrel. Check worn guide and measure its diameter. Standard size is .433", no index marks; first oversize is .437", one index mark; second oversize is .443", two index marks. Always replace worn guides with closest oversize.

2) Secure head on thrust plate. Using suitable tool (Mot. 132), ream guide bore to fit oversize guide. Press in new guide.

NOTE — After replacing valve guide, grind corresponding valve seat.

VALVE SPRING REMOVAL

Cylinder Head Removed — Using suitable valve spring compressor, compress valve spring. Remove retainers, spring seats, springs, and thrust washer. Springs can now be checked. To install, reverse removal procedure.

Cylinder Head Installed — Remove valve cover. Remove spark plug, rocker arm, and push rod corresponding to spring requiring maintenance. Insert suitable valve holder into spark plug hole to retain valve. Using suitable tool (Mot. 127), remove retainer, spring seat, spring, and thrust washer.

VALVE SPRING INSTALLED HEIGHT

See table below for correct installed height.

Application	Free Length	① Pressure (Lbs.)
R-1192	1.653"	80 @ .98425"

① — Intake and exhaust valve are same.

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ROCKER SHAFT ASSEMBLY

To disassemble, remove clips, springs, rocker arms, and bearings. **NOTE** — *Plugs in end of shaft are force fitted and cannot be removed for servicing. To reassemble, reverse removal procedure.* **NOTE** — *Bearing securing holes must be aligned with notches on shaft.*

VALVE CLEARANCE ADJUSTMENT

Adjust intake valve to .006" and exhaust valves to .008". Adjust valves with engine cold.

PISTONS, PINS, RINGS						
Engine	PISTONS Clearance	PINS		RINGS		
		Piston Fit	Rod Fit	Rings	End Gap	Side Clearance
1970-71 R-1192	①	②	.....	.....	.....

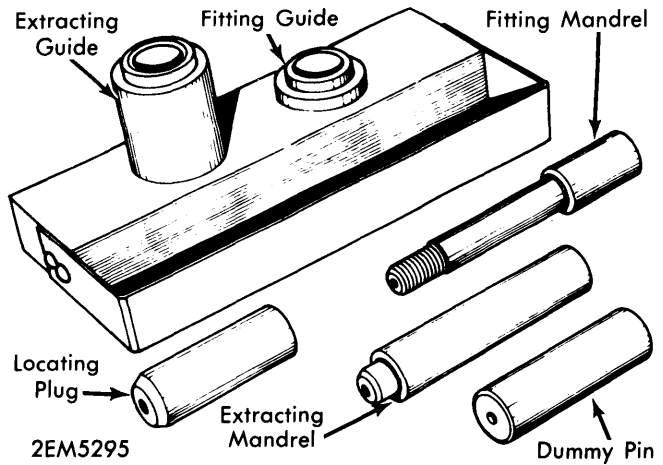
- ① — Hand push fit.
- ② — Press fit at 482°.

OIL PAN REMOVAL

Raise vehicle and drain crankcase. Remove oil pan and gasket. To install, position main bearing rubber gaskets first. Apply a suitable sealing compound to side gaskets and position them. Install oil pan and refill crankcase.

PISTON PIN REPLACEMENT

1) Using suitable tool (Mot. 122), as shown in illustration, piston pin can be removed. Extract pin using hydraulic press and adaptors. **NOTE** — *The extracting load is approximately 2,645 lbs.*

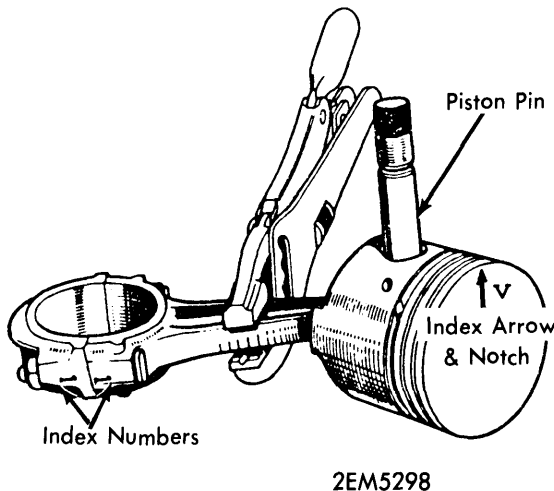


TOOL MOT. 122

- 2) Check connecting rod for wear or damage.
- 3) Heat connecting rod in water to boiling point or in an oven to 482°F.
- 4) At one end of pin bore, piston has a boss. Using a .020" chamfering tool, slightly chamfer boss. Ensure pin turns correctly in piston.
- 5) Slide new piston pin over installing mandrel and screw locating plug into place. Apply Molykote M55 to piston pin. Push mandrel guide pin through piston, by hand, until piston makes contact with connecting rod. Place assembly under hydraulic press and carefully seat pin into position. **NOTE** — *Seating load is approximately 2,650 lbs.*

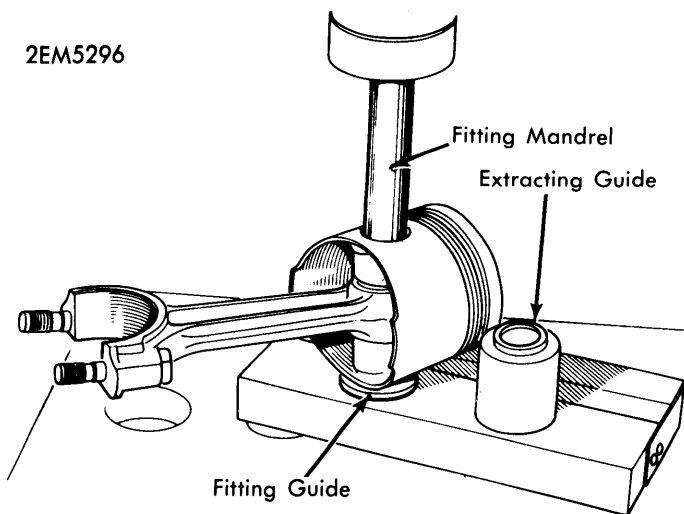
PISTON & ROD ASSEMBLY

Arrow on piston crown must face toward flywheel and number on connecting rod at clutch end. Liner projection above cylinder block must be .002-.0045". After correct projection is achieved, install liner retainer washers.



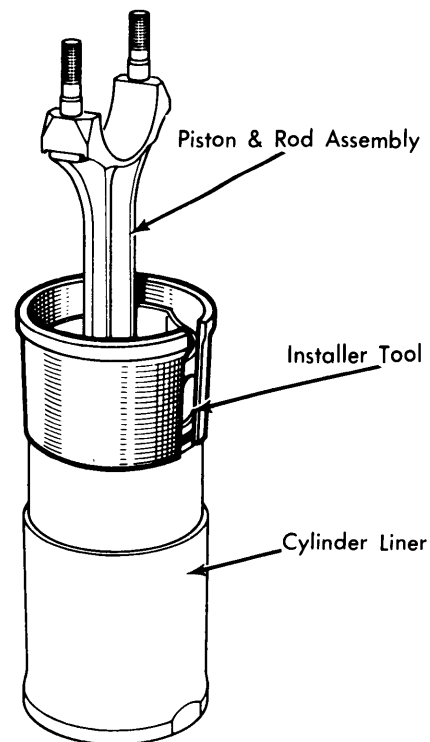
CORRECT POSITION — PISTON ASSEMBLY

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REMOVING PISTON PIN

2EM5296



FITTING PISTON TO LINER

2EM5297

FITTING PISTONS

Piston must be assembled with reference arrow on piston facing upward and number on connecting rod facing left, when piston crown is viewed from front. Install rings to piston and ensure gaps are 180° to each other. Rings are index marked for correct installation. Fit piston to liner.

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam.	Clearance	Thrust Bearing	Crankshaft Endplay	Journal Diam.	Clearance	Sideplay
1970-71 R-1192	1.811"	.....	.....	.002-.006"	1.731"	.....	.....

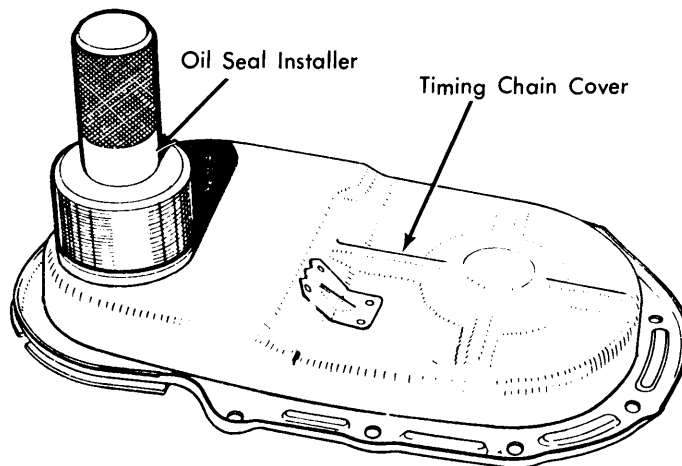
MAIN BEARING SERVICE

1) Remove connecting rod caps and bearings, keeping them in order. Mark main bearing relationship to cylinder block and remove main bearings. Remove crankshaft and endplay adjusting flanges.

2) Clean crankshaft and oil passages. Replace bronze pilot bushing (if necessary).

3) Check crankshaft main and connecting rod journal diameters. If necessary, crankshaft may be reground to fit .010" or .020" undersize bearings at any journal. To install, reverse removal procedure.

NOTE – Do not reuse lock washers.



2EM5294

INSTALLING OIL SEAL

TIMING CHAIN COVER & OIL SEAL

Engine Removed – Remove crankshaft pulley and timing cover. Carefully punch out oil seal and replace. Replace timing cover gasket and install timing cover.

TIMING CHAIN COVER OIL SEAL

Engine Installed – 1) Loosen fan belt, remove crankshaft pulley by pushing engine rearward with lever. Remove oil seal.

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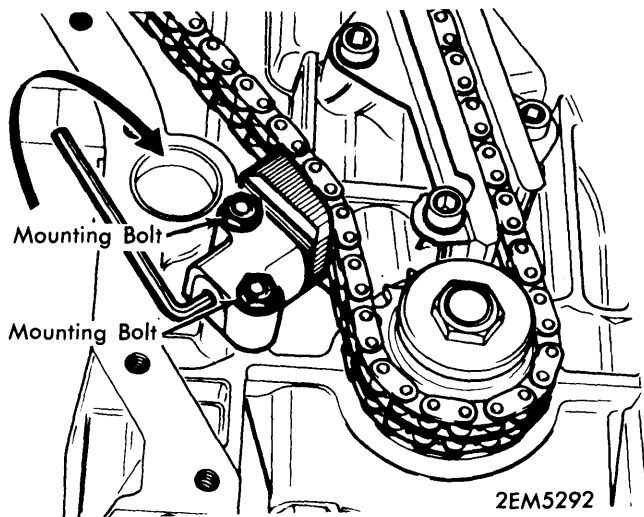
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2) To install, place seal on locating sleeve of suitable tool (Mot. 525) and put assembly against timing chain cover. Draw seal up until sleeve just touches crankshaft. Install crankshaft pulley, tensioner and fan belt.

CAMSHAFT			
Engine	Journal Diam.	Clearance	Lobe Lift
1970-71 R-1192

CAMSHAFT REMOVAL

1) Remove crankshaft pulley, timing cover and chain tensioner. To disengage chain tensioner, remove cylinder retaining bolt, insert an Allen wrench into cylinder and turn wrench until pad support is not under tension. Remove tensioner with thrust plate.



2EM5292
DISENGAGING CHAIN TENSIONER

2) Remove camshaft sprocket and chain. Remove camshaft flange bolts and carefully remove camshaft. To install, reverse removal procedure. **NOTE** — Install sprocket with index "A" facing outward.

CAMSHAFT ENDPLAY

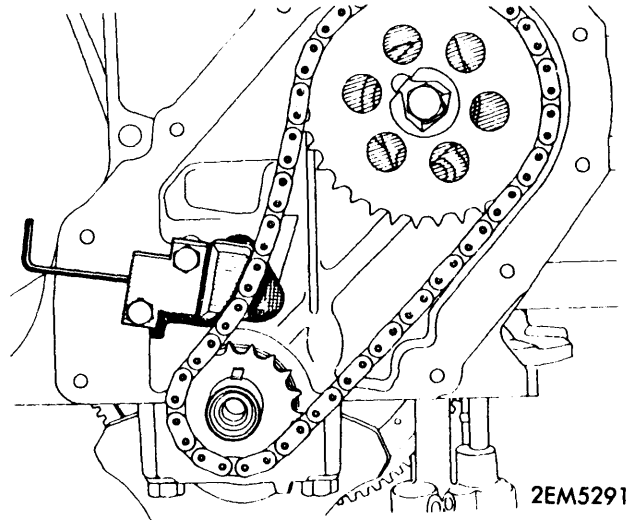
After fitting sprocket, tighten bolt to 15 ft. lbs., and check endplay at camshaft flange. Camshaft endplay should not exceed .005". Endplay cannot be altered. If found out of tolerance, flange must be replaced.

VALVE TIMING				
Engine	INTAKE		EXHAUST	
	Open (BTDC)	Close (ABDC)	Open (BBDC)	Close (ATDC)
1970-71 R-1192	10°	42°	46°	10°

TIMING CHAIN REPLACEMENT

1) Remove crankshaft pulley, timing cover, chain tensioner, camshaft sprocket and timing chain. **NOTE** — For further information, See Camshaft Removal.

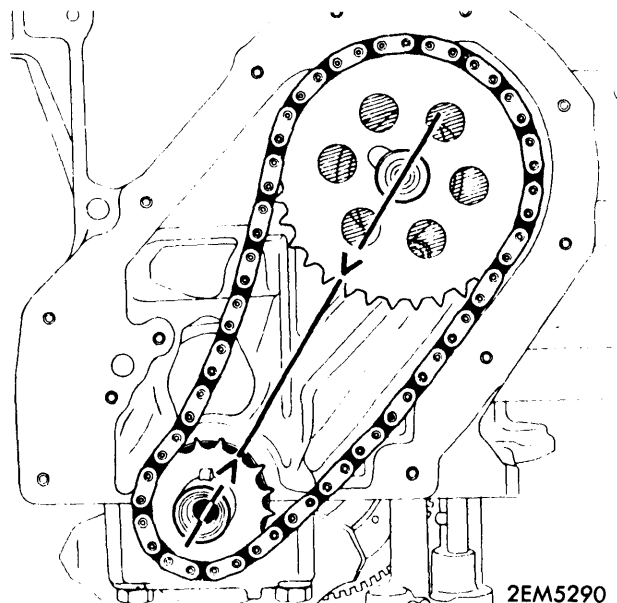
2) To install, fit chain to camshaft sprocket and position both camshaft and crankshaft sprockets so index marks "A" are opposite each other. Install lock washer and tighten camshaft sprocket bolt. Position timing chain tensioner and tighten tensioner against chain.



2EM5291
CHAIN TENSIONER — PROPER ADJUSTMENT

VALVE TIMING

Ensure index marks "A" on both crankshaft and camshaft are aligned as shown in illustration. Check that chain tensioner is properly adjusted.



2EM5290
CORRECT POSITION — VALVE TIMING

1970-71 RENAULT R-10 (R-1192) 4 CYLINDER (Cont.)

ENGINE OILING

ENGINE OILING SYSTEM

Pressure lubrication provided by a gear type oil pump.

Crankcase Capacity – 2 1/2 quarts (approximate).

Oil Filter – Lockheed type oil filter. Filter cannot be disassembled but, should be replaced every 6,000 miles.

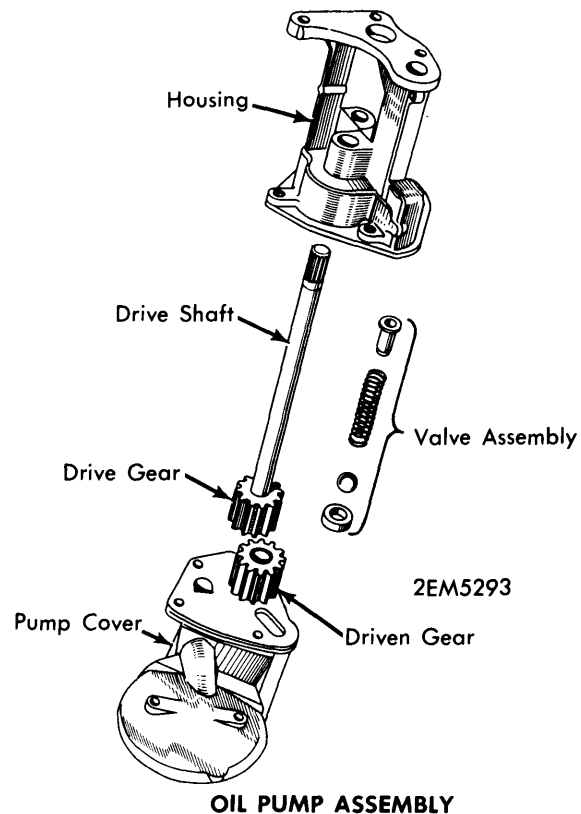
Normal Oil Pressure – 10 psi at 600 RPM and 50 psi at 4000 RPM.

OIL PUMP

1) Raise vehicle. Remove oil pan and three pump mounting bolts. Lift pump from crankcase.

2) To disassemble, remove cover bolts and take out drive gear and shaft. *NOTE* – Stop ball seat, ball, and pressure relief spring from falling.

3) Clean all parts, noting condition of drive shaft, seat, and pressure relief spring. Replace spring if pressure is consistently low. Check clearance between gears and pump body. If any clearance is beyond .008", replace gears. To reassemble, reverse removal procedure.



ENGINE COOLING

WATER PUMP

Disconnect battery. Drain cooling system. Disconnect air filter, upper and lower radiator hoses. Loosen screen panel, disconnect wiring and tilt panel rearward its maximum. Remove fan, pulley, belt, and generator adjusting bolt. Disconnect heater hoses and remove pump.

NOTE – If pump cannot be freed by hand, tap it lightly with a plastic hammer.

Thermostat – All models 180°F.

Cooling System Capacity – 6 quarts (approximate).

TIGHTENING SPECIFICATIONS

Application	Torque (Ft. Lbs.)
Main Bearings	45
Connecting Rod Bearings	25
Cylinder Head Bolts	45
Flywheel	35
Camshaft Sprocket Bolt	15