Installation of High-Compression and Oversized Pistons & Liners in Renault engines

Memo to Install piston-liner kits in Renault engines:

- 66 cc Dauglane kit
- 1200 cc 6S-800 kit
- 1300 cc 6S-810 kit
- 1150 cc RS Cordini R-117A kit
- 1500 cc -
- 1300 cc -
- 1400 cc -
- 1600 cc 8S Cordini R-117B kit

1289 cc 6S RN 100 RGP KIT

Liners: should protrude beyond head gasket line as specified by Renault shop manual with liners strongly pushed down on the liner seals which are available in different thicknesses in order to adjust protrusion.

Pistons: clearance at skirt is pre-set by manufacturer of kit. Pistons and liners not purchased as a set, clearance should be:
- 1.25 to 1.30 for Cast pistons
- 1.00 to 1.05 for forged pistons

Rings:
- Top ring: compression - 4.0 to 4.5 mm (.12 to .15)
- Second ring: axial gap .04 mm (.0016"
- Guide ring: (if engines over 7,500/3,000 rpm, increase clearance or if no break in period allowed) SCRAPER if not U-Flex type

Piston ring: must be free enough that you can push it through the piston with one finger, without any effort. In some engines, the pin is stopped with clips, the opening of which should be up. In other engines, there are no clips and the pin is a press-fit in the con rod. Do not to burr the metal when installing pin, which should move freely in piston.

Alignment of rods, crankshaft, pistons: must be checked entirely in engine itself without piston rings before final installation. Never rely on a previous alignment or on an alignment performed outside the engine.

Lubrication of rods and pistons is not recommended, except if fitting rods with special reinforced bolts (see FAX 7/73)

Piston Markings: Arrows towards Flywheel or towards rotation of engine depending piston manufacturers.

Some racing engines are fitted with copper shims instead of paper, and/or external liner wall flat rubber seals (available from FAX 7/73).

For Recent Renault engines (since 1976) model 865/8641 with 78mm pistons have no shims, only O-ring seal.

High Compression Racing Pistons: Due to their higher domed head, these pistons should never be installed without checking valve/piston clearance, which can be ascertained by installing cylinder head without any head gasket and turning engine by hand. If engine gets stuck or encounters excessive resistance, use high spot blue to locate contact points. Also note that, when installing larger than stock valves, you can have contacts between valve edge and liner or/and valve relief on piston dome. In some cases, like for installation of 1000cc High Compression Conical pistons, it is necessary to modify combustion chamber configuration to avoid contacts or excessive compression ratios. We always supply the proper instructions and drawings when selling such pistons or equipment. There are also some application such as for the S65/85 competition engine (1861 or 1905cc) where the guide angles have to be modified in order to clear the valves between themselves where special care should be exerted to avoid contacts. The same applies when using cylinder heads which have been ground beyond the manufacturer's authorized limit. However, such heads should be replaced since the design of Renault combustion chambers prohibits their use when more than .005" under/maximum authorised by manufacturer (.010""). Increase in compression ratio in RENAULT engines is achieved by higher domed pistons exclusively. The more the cylinder head will be milled, the more the engine will lose its efficiency and power (up to 25%).
CYLINDER-HEADS TIGHTENING

When removing nuts, and position screws, always follow these procedures, for example, with the primary screws, and the secondary screws; first remove the cylinder heads, and then the secondary screws. When removing the cylinder head, and the secondary screws, first remove the cylinder head, and then the secondary screws.

VALVES TIGHTENING

Before tightening the valve, always follow these procedures. First, remove the valve cover, and then the valve. Then, check if the valve seats are good, and take care of any leaks or damage to the valve. If necessary, replace the valve, and then the valve cover. Before finishing the assembly, always follow these procedures. First, remove the valve cover, and then the valve. Then, check if the valve seats are good, and take care of any leaks or damage to the valve. If necessary, replace the valve, and then the valve cover.

PISTON RINGS TIGHTENING

We recommend you to see a circular sheet for the pistons.

FINISHING INSTRUCTIONS

(If you are not satisfied with the finish of the engine, please refer to the manufacturer's instructions.)
FITTING THE GUDGEON PINS

The gudgeon pin bore on the 841-11 engine is 12 mm (.472") diameter instead of 13 mm (.512") as on the 821 engine.

The inserting mandrel (1) from the Mot.255 tooling must be modified as per drawing before fitting the gudgeon pins to the pistons.

Diameter D = 11.6 + 0 - 0.1 mm (.457" + .004")

This modified mandrel may also be ordered from C.S.S. quoting the Part No. Mot.255-02.

CHECKING LINER PROTRUSION

An increase in the liner bore has led to:
- modification of the liner bottom locating diameter (D) in the cylinder block: 84 mm (3.307") instead of 82.5 mm (3.248")
- fitting of rubber 'O' ring liner base seals (J) instead of Excelinyl seals.
These new seals ensure sealing only.

Liner protrusion, therefore, is no longer dependent on the insertion of base seals of various thicknesses between the line locating flange and the cylinder block.

As the liner locates directly on the block, the protrusion is achieved by the respective manufacturing dimensions of the two components concerned: liner and cylinder block.
697-821-441 FLAT HEAD ENGINE

POSITION OF GUIDES

Position of the valve guide with reference to the valve seat:

\[ A = 29 \text{ mm} (1.142") \]

Place the cylinder head on the Mot. 355 block.

Press out the valve guide using the mandrel (!).

Check whether the valve guide is standard size or whether it has been changed before.

<table>
<thead>
<tr>
<th>Standard size</th>
<th>13 mm</th>
<th>(.512&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair sizes</td>
<td>1 groove</td>
<td>13,10 mm</td>
</tr>
<tr>
<td></td>
<td>2 grooves</td>
<td>13,25 mm</td>
</tr>
</tbody>
</table>

Please note that all guides come only in 13.10mm and 13.25mm O.D.

All bronze guides are oversized in length and have to be cut to your engine specs.

For high lift camshafts, it might be necessary of further reducing the guides on top of 2mm.
Illustration Only. Drawing not to scale.

Dimensions:
- Length: 6.625"
- Width: 1.475"
- Thickness: 0.480"
- Hole Dia.: 3/16", hole location: 306 cm from edge

Material: Steel

Material: Length 0.145" Width: 3.50" Thickness: 0.030"

Block Measuring Linear Renualt