ACL TECH TALK

Cylinder Head Shims

ACL cylinder head shims have been manufactured to save you money. They are used to compensate for excess removal of stock from the cylinder head and/or cylinder block, thus:

* restoring compression ratio
* reduce the likelihood of valve heads contacting piston crowns
* restore overhead camshaft timing to its correct geometry

Please Note:
(a) A head shim is not a cure-all. Shims are available in thickness ranging from 0.8mm to 1.5mm, but it may still not be enough to remedy the above conditions. The cylinder head may have been machined beyond its reclaimable life.
(b) Cylinder head shims will only last for a very short period of time if the engine coolant is or becomes corrosive. Therefore, it is absolutely essential that the coolant used is manufacture from demineralised or distilled water mixed with a good quality corrosion inhibitor and changed twice per year.

FITTING INSTRUCTIONS
ACL shims are manufactured to suit the shape and bore size of ACL cylinder head gaskets. To ensure reliable service, only use an ACL cylinder head gasket with this shim, and do not re-use cylinder head shims.
To ensure performance and durability of the installation of an ACL head saver shim the following assembly instructions should be adhered to:

CLEANLINESS:
Head and block surfaces should be thoroughly cleaned and degreased.

FLATNESS:
Head and block faces should be checked with a straight edge and feeler gauge. At any point gap should not exceed 0.08mm (.002 inches) longitudinally and transversely.

SURFACE FINISH:
Recommended surface finish range is from 1.0 to 2.5 micro metres CLA (40-100 micro inches).

SEALANT:
Hylomar is recommended as a sealant between the head shim and engine surfaces. If a Monotorque gasket is to be used only apply the sealant between head shim and engine block {except BR520SS}. If a standard gasket is used, the sealant should be used on both surfaces of the shim. (For BR520SS use sealant between head shim and cylinder head).

HARDWARE:
Bolts, threads, washers and nuts should be clean and undamaged.

LUBRICATE:
Apply a light film of engine oil to friction surface of bolt heads (underside) and to bolt threads before assembly. If bolt runs through to coolant passages in block apply Hylomar or engine manufacturers recommended stud sealant to threads.

FITTING:
Install shim to engine block side of head gasket. (Note: BR520SS is installed between cylinder head and head gasket.)

TORQUE SETTINGS:
Engine manufacturer's torque sequences and settings should be adhered to, or refer to details supplied with Monotorque gaskets.

RE-TORQUE:
The use of a sealant causes relaxation of the assembly and it is therefore essential to re-torque the cylinder head after the engine has run for at least 60 minutes.

Once the engine has been run for approximately 60 minutes the method of retorque is as follows:-

1. Ensure engine is cold.

2. Remove radiator cap to equalise coolant pressure.

3. Replace radiator cap.

4. RE-TORQUE
   Crack open and re-torque bolts one at a time.

FOR EA/EB FALCON:

4. Crack open bolt No. 1 (refer diagram below), then torque to 40 Nm (29 ft lb), then tighten a further 90° of rotation.

5. Crack open bolt No. 2, torque to 40 Nm (29 ft 1b), then tighten a further a 90° of rotation.

6. Continue this procedure for the remaining 12 bolts.

Torque sequence:

13 9 5 1 4 8 12
14 10 6 2 3 7 11
Front