

# TECHNICAL BULLETIN

**Number 1027**  
**Rev. 1**

**Subject:**           **Repair of Lower Liner Bores In**  
                          **825 Series Superior Cylinder Blocks**

## ***I. PREPARATION***

The block should be acid vatted, hand scraped (if need be) and steam cleaned prior to machining. If the machining process is to be performed on a vertical machine, the cylinder head studs must be removed. This is not required if the process is to be performed on a horizontal machine, but is recommended to prevent damaging the studs and/or block during handling.

## ***II. REPAIR SLEEVES***

Typically, the sleeves are machined from mild steel tubing (preferably seamless). The sleeves should be machined per drawing No. P-G-825-203. All surfaces are finish machined with the exception of the sleeve I.D. which is semi-finished at .015" to .020" undersize.

## ***III. MACHINING***

The cylinder block is placed onto the mill table with the block to bedplate gasket surface facing the boring head stock. The block must be adequately supported with adjustable supports. By traversing the mill table, dial indicate the block perpendicular to the head stock within .002" - .003". By raising and lowering the head stock, dial indicate the block to a true vertical position within .002" - .003".

Once the block is square to the head stock, clamp it to the mill table and recheck indicator readings. The boring bar must then be centered in the upper block bore for each hole to be machined.

***NOTE:*** *It is recommended that the liner flange gasket surface also be indicated at this point and skin cut if required.*

TECHNICAL SERVICE DEPT.  
300 West First  
Alice, Texas 78332 USA  
361.668.8311  
800.723.6396  
fax 361.668.3906  
www.endyn.com

Once the bar is centered the lower bore is finish machined to an I.D. of 11.374" - 11.375" concentric to upper liner flange bore within .002" T.I.R. and perpendicular within .001" T.I.R. A small shoulder (approx. .030") should be machined into the casting surrounding the bore until the machine tool cuts 360 degrees of the perimeter of the bore. This will aid in the installation of the repair sleeves and insure that the sleeve has a square edge at the point of entry into the block.

#### ***IV. INSTALL SLEEVES***

At room temperature, the block I.D. and the sleeve O.D. are coated with No. 271 Loctite or equal. Once the sleeve is started into the block a Port-A-Power and liner plate are used to draw the sleeve into place from the bottom side of the block. Draw the sleeve into the bore until the upper-end of the sleeve is flush with the casting edge on the water jacket side of the sleeve. (Interference between insert and block is .005"-.007")

#### ***V. FINISH MACHINING***

With all sleeves installed the boring bar is again centered in each bore and the sleeve I.D. bored to 11.1245" - 11.1255" concentric with upper liner flange bore within .002" T.I.R., perpendicular within .001" T.I.R., and 63 RMS finish. Any excess repair sleeve that protrudes below the casting on the bottom side should be faced off. The standard dimension from the lower block gasket surface to the bottom of the sleeve is 12-1/4". After machining is complete the sleeve bores are honed to a finished I.D. of 11.125" - 11.126".

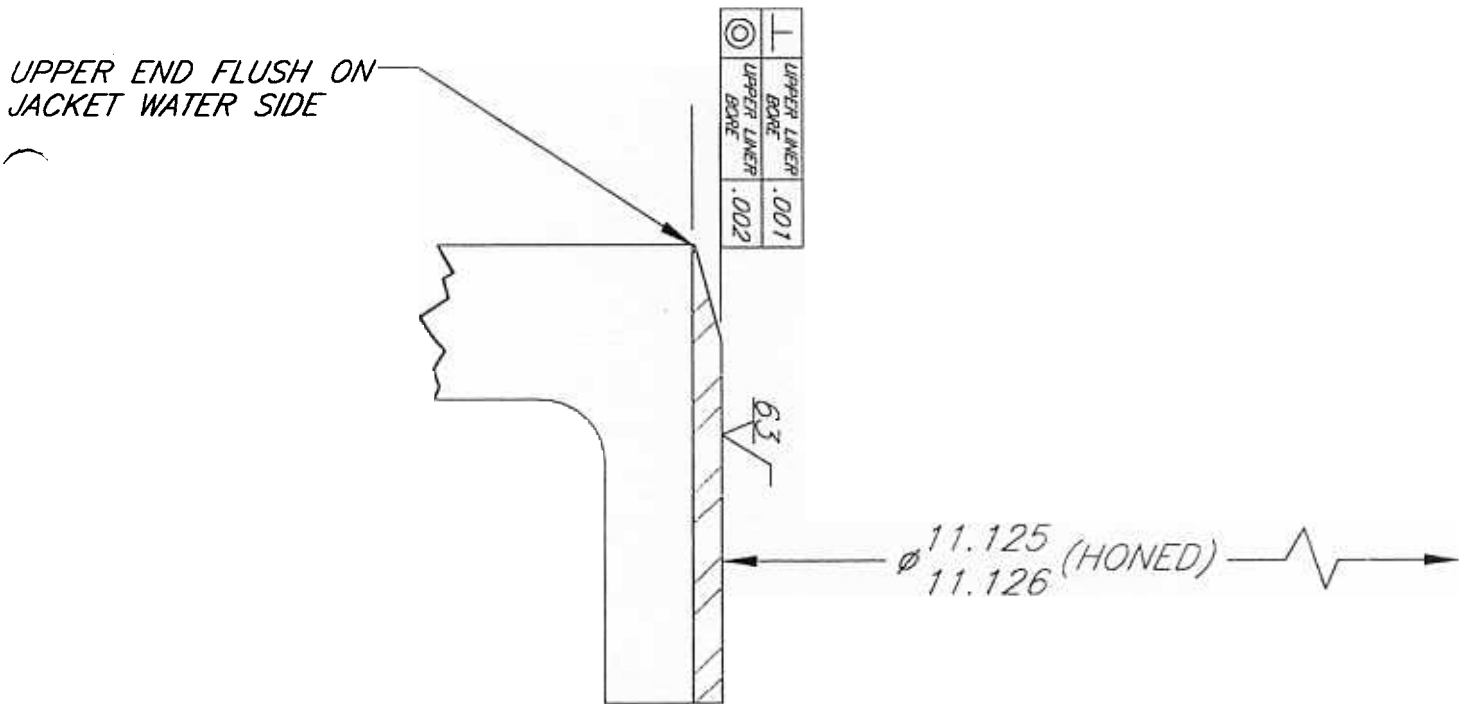
***NOTE:*** *When finish machining inserts, extreme care should be given to feed, depth of cut, and speed as too much heat could distort inserts.*

Consult **EnDyn's** Technical Service Department (1-800-723-6396) if you have any questions or require additional information or your local authorized **PowerParts®** Distributor.

4/6/01

INSTALLATION INSTRUCTIONS

- A) BORE CYLINDER BLOCK LINER O-RING AREA TO 11.374"/11.375". THIS BORE MUST BE CONCENTRIC TO UPPER LINER FLANGE BORE WITHIN .002" T.I.R. AND PERPENDICULAR WITHIN .001" T.I.R.
- B) SLEEVE AT ROOM TEMP. COAT BLOCK SURFACE WITH LOC-TITE #271, & PRESS INSERTS INTO PLACE.
- C) BORE INSERTS 11.1245/11.1255 DIA. & CONCENTRIC WITH UPPER LINER FLANGE BORE WITHIN .002" T.I.R. FINISH 63 RMS. HONE SLEEVE BORES TO 11.125"/11.126" AFTER MACHINING.
- D) SEE TECHNICAL BULLETIN #1027, "REPAIR OF LOWER LINER BORES IN 825 SERIES SUPERIOR CYLINDER BLOCKS," (ATTACHED) FOR MORE INFORMATION.



FINISHED INSERT