

PRODUCT BULLETIN

PB NO. 102
rev. 1

Subject: **Camshaft Lobe Wear**
Superior 510 & 825 (Inline-Vee) Series Engines

PROBLEM Premature Camshaft Lobe Wear Caused by
Inadequate Pin to Roller Lubrication

- I. **Background:** For years now the OEM, specialty repair companies, and users have been fighting camshaft lobe wear problems on both Superior Inline and Vee engines. In the past five years this problem has become so prevalent that, with no solution, several companies have developed split lobes for the convenience of quick lobe replacement. Most OEM user supported repair companies are now refusing to recondition Superior camshafts.

EnDyn has been working on the solution to the problem for over three years and our 1987 extensive 825 engine lobe/roller assembly test uncovered the cause of lobe wear (see attached Product Bulletin No.102) - inadequate lubrication between the roller and pin resulting in galling, causing the roller to hang-up and skid across the lobe.

- II. **Tests:** Laboratory test of an Inline 825 consisted of installation of eight (8) design and material variations with the objective to: (A) find out why we had premature camshaft lobe wear, (B) find out if we had adequate lubrication between the roller and lobe and between the roller and pin and, (C) which design/material combination solves the problem. The procedure included prelube with standard engine hand priming pump, maximum initial run time of six (6) hours, disassembly inspection replacement of scuffed parts and re-assembly.

After promising design variations proved satisfactory in standard splash lube environment each improved design was tested with extended one (1) week continuous runs with a guard to reduce splash lubrication to zero (lobe, roller and pin were lubricated with only oil running down push rods from head) and repeating the above disassembly, inspection, replacement and assembly procedure. Clear plastic side cover doors were used to visually observe time required for adequate prelube as well as running splash lubrication.

MARKETING DEPT.
300 West First
Alice, Texas 78332 USA
361.668.8311
800.723.6396
fax 361.668.3906

II. Tests: Cont'd.

Laboratory test results were as follows:

- 1 The required pressure for adequate prelube, using 40 weight oil @ 85 F, and the standard hand priming point is 5 to 7 PSIG and a minimum of 1-1/2 to 2 minutes of pumping is required to reach this pressure plus 3 minutes continuous pumping is required to adequately prelube of the lobe and guide assembly.
2. Lubrified guides, rollers and lobes reduce start-up galling and scuffing.
3. Splash lubrication adequately lubricates the roller to lobe contact surface. No material or design problems were noted with the standard **PowerParts**[®] lobe.
4. The new **PowerParts**[®] design prelubes the roller-pin area by filling the pin top groove and through hole to the load side of the pin.
5. All standard available designs showed roller to pin galling after as low as 1-1/2 hours of operation in splash environment. No roller to pin galling was present in the new **PowerParts**[®] design in one (1) week continuous run with zero splash lubrication.

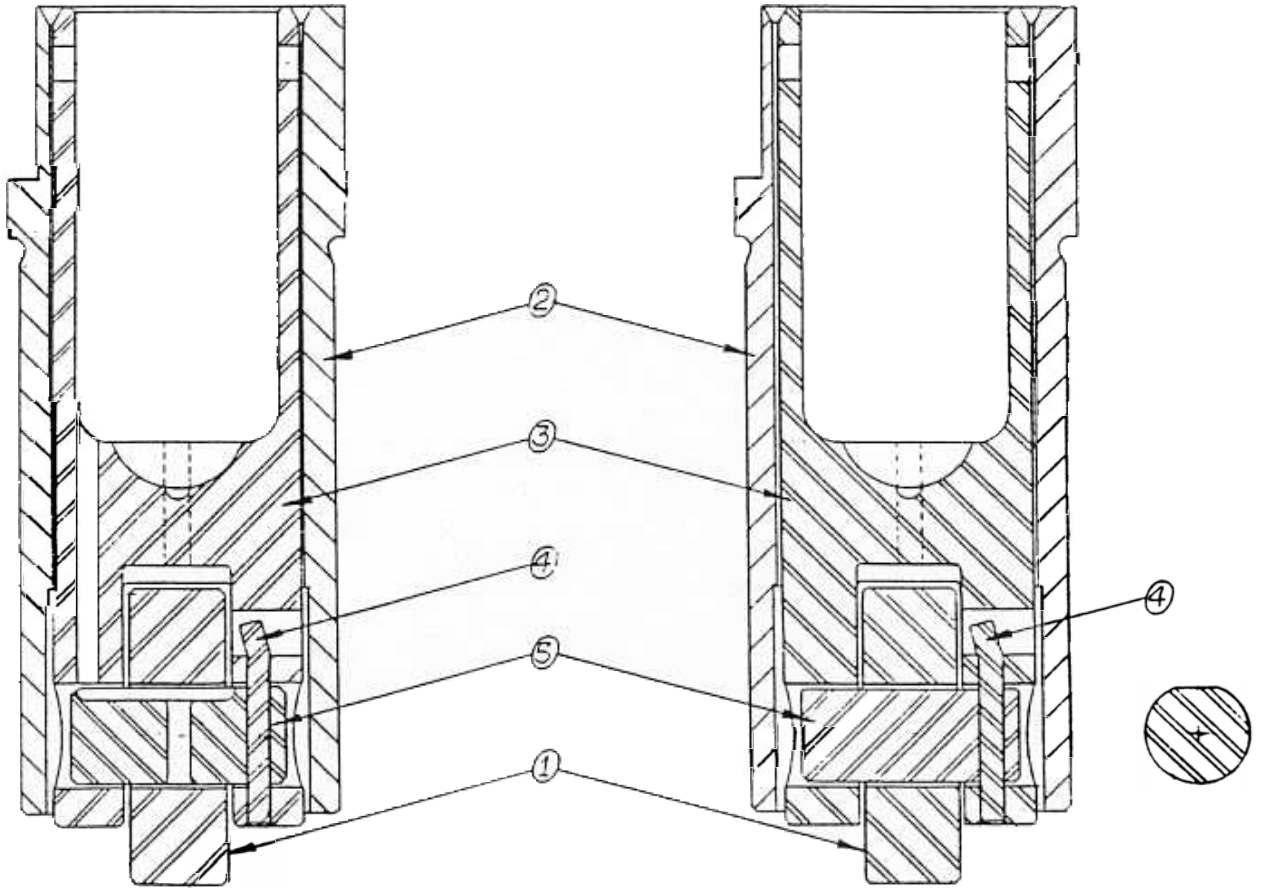
Field Test Results Were As Follows:

The new **PowerParts**[®] design was next field tested on an Inline 825 engine. Procedure included hand pump prelube, maximum continuous initial run time of 70 days and repeating the above disassembly, inspection and re-assembly procedure. We are pleased to report that field tests indicated no pin galling and no roller/lobe galling or wear.

III. Solution: The solution to the above problems a new **PowerParts**[®] cam follower assembly with the state of the art materials and a design which increases the roller to pin lubrication over 10 times. The attached cross sections, compares the OEM and **PowerParts**[®] assemblies and indicates the design changes which result in proper pin to roller lubrication.

For further information, price and availability, please contact your local **PowerParts**[®] Distributor or **EnDyn's** Sales Department direct.

CAM FOLLOWER ASSEMBLY
— FOR MODEL 510 SUPERIOR ENGINES —



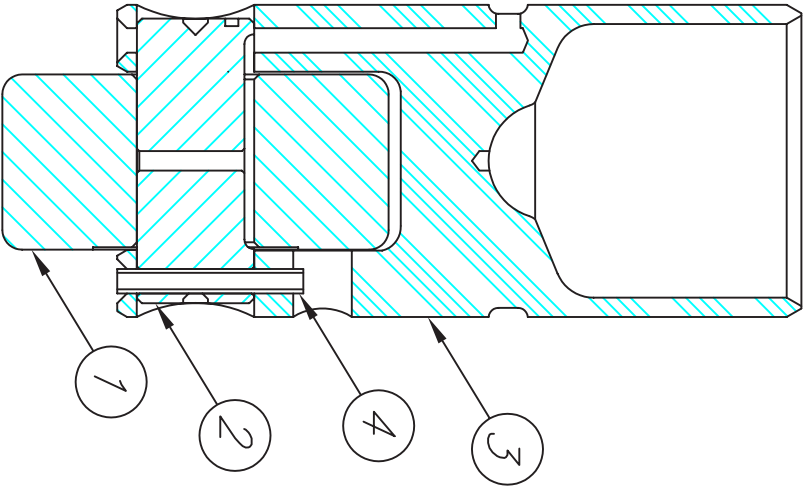
F-YG-668-D-X
POWERPARTS®

YG-668-D
Q.E.M.

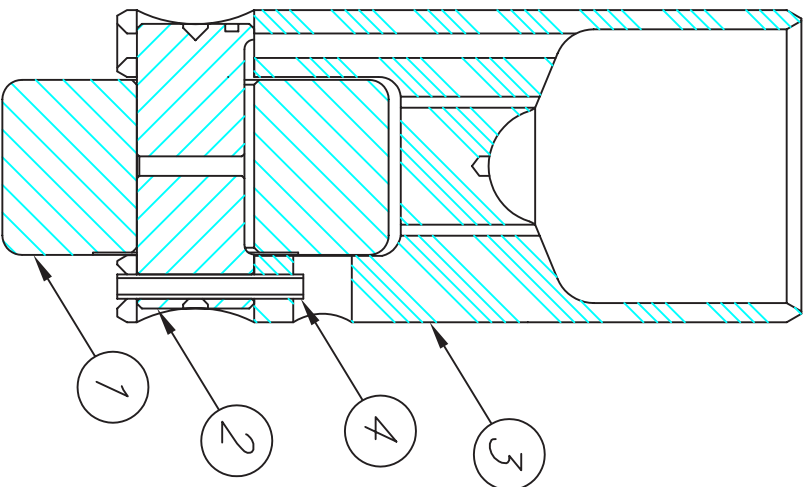
<u>ITEM NO.</u>	<u>ENDYN PART NO.</u>	<u>O.E.M. PART NO.</u>
1	F-C-2033-B	C-2033-B
2	P-C-2034-A-1	C-2034-A-1
3	P-OC-2036-E-X	OC-2036-B
4	P-C-2342	C-2342
5	F-C-2365-X	C-2365

CAM FOLLOWER ASSEMBLY
-FOR MODEL 825 SUPERIOR ENGINES-

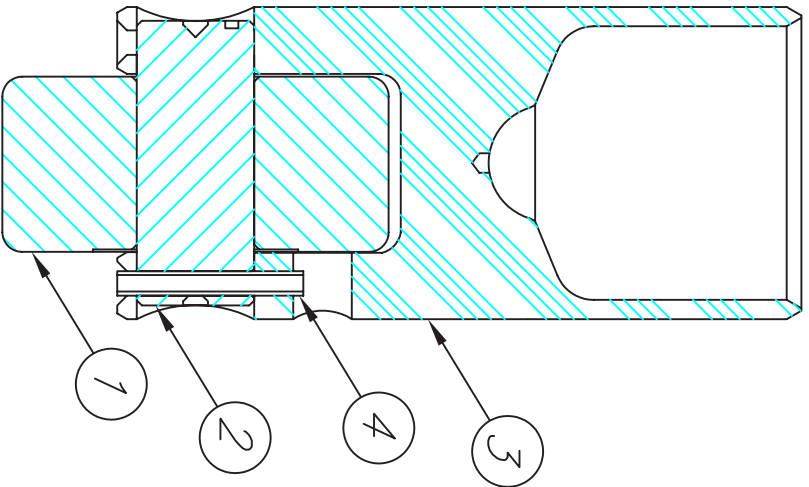
Endyn
VEE Engine
P-026-889-003



Endyn
Inline Engine
P-026-889-X



OEM Style



- VEE
- 1) P-032-498
 - 2) P-019-528-X-1
 - 3) P-014-842-002
 - 4) P-01RP102200

- Inline
- 1) P-001-071-X
 - 2) P-019-528-X-1
 - 3) P-014-842-X
 - 4) P-01RP102200

OEM-Inline