shankle automotive engineering

15451 E Cabrito Rd. Van Nuys, California, 91406 (213) 988-5190

SHANKLETTER III 1 June, 1975

GENERAL

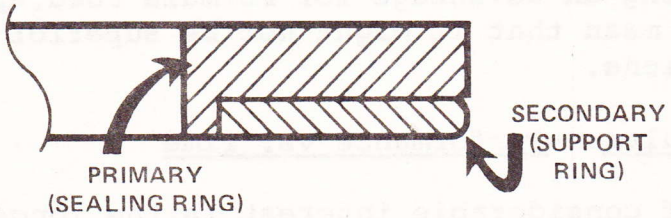
Prices

As you well know, prices have continually been going up. Our suppliers are no exception...the telephone company, the gas company, the water & power company, our landlord, and Ford Motor Company. Right down the line. We have resisted increasing our prices as long as we could. As racers ourselves, we appreciate the high cost of fielding a race car. But now we have to do it. We are however doing it at the least possible increase. We have enclosed a revised price sheet with this newsletter. Please discard the price sheet dated May 5, 1975. If you compare these newest prices to our most recent price sheet, you'll see an average increase of 10%. If you compare our prices to other sources, you'll see that we are still competitive. That's the name of the game both in our business and in your racing.

TECH NOTES

Test Results---Total Seal Piston Rings

Considerable interest has been expressed in Total Seal piston rings. The unique feature of these rings is the top compression ring, which is made from two pieces; a conventional iron compression ring machined to accomodate a chrome-faced oil ring rail on the bottom side as shown in the drawing.



The second compression ring and oil rings are conventional. Several advantages are claimed, among which is the fact that there is no end gap exposed if the ring gaps of the two-piece ring are offset.

The Total Seal rings were tested by us recently as follows: 1) an Uprated Formula Ford engine was installed on the dynamometer and run in, ignition timing optimized, fuel flow checked and power measured from 4400-6600 RPM; 2) the cylinder head was removed, the Total Seal rings were removed and replaced by our standard piston ring set with top moly-faced ring; 3) the engine was run in again as closely as possible to the first run, but no changes were made to ignition timing or carburetion; 4) the power was measured over the same RPM range. The power curves were almost identical, with the Shankle ring set showing a slight gain at higher RPM. The percentage difference in power is as follows, using the Total Seal piston rings as a base line:

SAE vs. Total Seal
Piston Rings

RPM	Power Difference (%)
4500	0.0%
5000	+0.3%
5500	+0.2%
6000	+0.9%
6500	+1.1%

As you can see, the change is small. In both tests, several power curves were run to make sure that break-in was complete. Our conclusion is that there is little difference in performance of the two ring types. The tests showed that the Shankle rings yielded slightly more power at higher RPM, but this is almost within the realm of experimental error. The Shankle moly top ring has considerably greater resistance to wear that the iron Total Seal rings and we would anticipate longer life. One disadvantage of the Total Seal rings is the higher price ($40.00 vs. $29.00). We do not consider the Total Seal piston ring an advantage for Formula Ford application. This does not mean that it might not be superior in other engine applications.

Test Results---Performance vs. Time

Of considerable interest is the longevity of power for the Formula Ford engines. We have been keeping close track of the engine currently being run by Chuck Pittenger and Klaus Holthaus. Below is a summary of operations performed:

shankle automotive engineering
15451-F Cabrito Rd. Van Nuys, California, 91406 (213) 988-5190

Engine fresh after Holtville Race

1) dyno test
2) Las Vegas race (1st place)
3) practice Willow Springs
4) fresh head installed---Pittenger reports no improvement in power---old head looked fresh---qualifying and race Willow Springs (1st place)
5) dyno test---no loss in power
6) Phoenix practice, qualifying and race (1st place)
7) dyno test---no loss in power
8) rod bearings changed---very slight wear---mains not changed

The results so far are gratifying. We feel the that the factors which contribute to the continued top performance of this engine are; 1) air filter; 2) adequate oil and water cooling with no overheating; 3) good oil pressure; 4) 6500 RPM max. , 6000-6100 shift, 6400-6500 top gear.