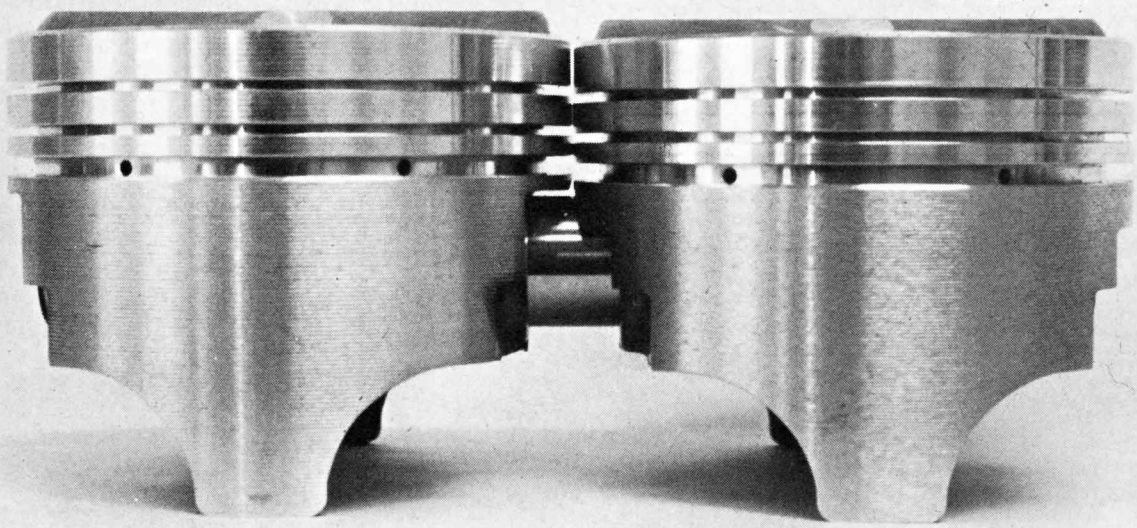
BUDGET STROKER KIT



a substitute for cubic money

A little trickery by the crank grinder and the right combination of inexpensive parts are all it takes to turn your 302-327-350 Chevy into a stormin' 369-cubic-inch "Rat" exterminator

BY A.B. SHUMAN

You've no doubt heard the old saw about "no substitute for cubic inches," probably dismissing it long ago with the mental aside that it was all well and good, but you weren't quite ready to go into hock for a $500 stroker kit. Well, if you own a 302, 327, or 350 Chevy, you can now give those thoughts of boosting its displacement some realistic consideration. Basically, all it takes is a bit of intra-engine parts swapping, a little expertise on the part of the crank grinder and a set of low cost TRW Powerforged pistons. The people who came up with this package are Joe Reath, well-known honcho of Reath Automotive in Long Beach, Calif., and Alan Reed, of TRW's Replacement Division. Actually, there are several variations that can be tried, but they're all based on the same concept.

The key to it all is the 350 crankshaft. Available in both forged steel and nodular iron versions, this crank has a 3.48" stroke, 2.10" rod journals and .245" mains. It slips right into '68-'69 302's and 327's, and can be made to fit the '67 302 and '62-7 327 by simply grinding the mains down to .230", making these engines "instant" 350's. Nothing too trick here, use the stock 350 rods and pistons, or perhaps 12.5:1 TRW L2252AF's for a little more "squeeze." The tricky part is using a little know-how to kick up those cubes a bit, all the way to 369 if you like.

Here's how it's done: As we said before, the 350 crank has 2.10" rod journals. The pre-'68 302 and 327 engines have 2.00" throws, so that .100" must be ground off the 250 journals to accommodate connecting rods from these mills. By doing this grinding off-center it is possible to increase – or decrease – the stroke slightly. Here, we chose to increase it, taking the majority of the material off the "back side" of the throw – the side nearest the crankshaft centerline. This results in a slight outward relocation of the center of the throw. In this case, after clean-up and clearancing, it comes to about .041". This gives a .082" stroke increase – the piston now moves .041" higher on the upstroke and .041" lower on the downstroke – making for an honest 3 9/16" total travel. To give an idea of cost, Reath charges $75 to grind the journals in this manner.

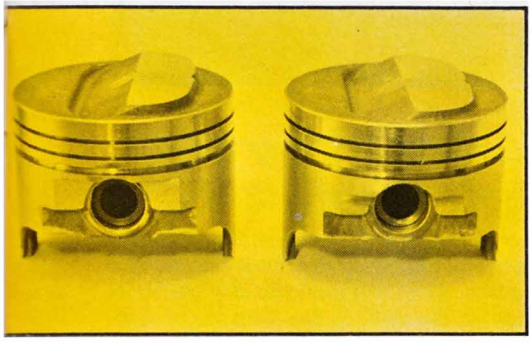
The best crank to use for this modification is the forged steel one (Chevrolet part number 3941184), such as came in the '68 350/Chevy II, though for most applications the nodular iron

302-327-350 Chevrolet Budget Stroker Combinations

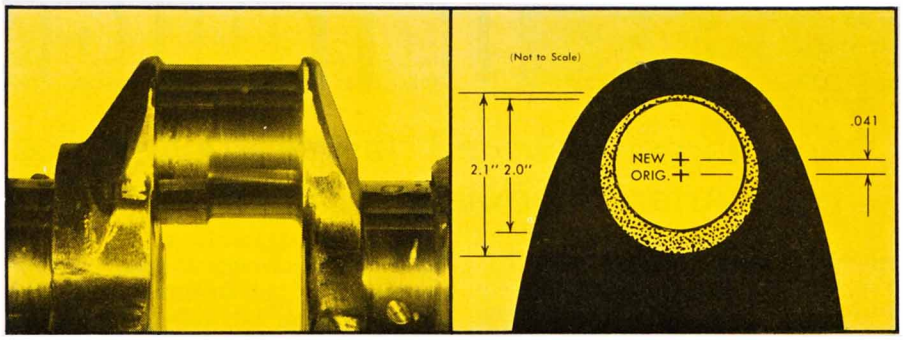
engine	crankshaft/rods	TRW pistons/rings	remarks
1967 302	Forged steel or nodular iron 350 crank with '67 302 connecting rod	L2278F/T9034MM	358 cu. in.
		L2278F+.030/T9034MM +.030	363 cu. in.
		L2278F+.060/T9034MM +.060	369 cu. in.
			Grind rod journals to 2.00" diameter, mains to 2.3009"
1962-7 327	Forged steel or nodular iron 350 crank with '62-7 327 or '67 302 rod	Same as above	Grind rod journals to 2.00" diameter, mains to 2.3004"
1967-9 350 1968-9 302 & 327*	Same as above	Same as above	Grind rod journals to 2.00" diameter. No change to mains required.

Part Numbers: '67-9 Forged Steel 350 Crankshaft – #3941184
'67 302 Connecting Rod #3927145

*NOTE: Some late lower hp 327's come with 2.0" rod journals; these rods can be used with this combination



TRW L2252AF piston, left, is used with stock 350 crank, while L2278F is stroker version. Each gives 12.5:1 compression.



Unfinished journal and drawing show how stroke of 350 crank is increased to 3 9/16" by off-center grinding. Journal diameter is reduced .100" to accept early 302/327 connecting rods. Cost of machine is about $75, or $125 if mains are ground too.

crankshaft should be quite satisfactory. One thing to remember about the forged cranks is that grinding removes the Tuff-triding, the very thin, very hard surface finish. Tuff-triding isn't absolutely essential, but it does contribute to crankshaft strength, and retreating (at a cost of about $40) should be considered if hard usage is envisioned. As for connecting rods, the pre-'68 327's all fill the bill, though there is an alternate for high performance engines: the shot-peened and magnafluxed '67 302 rod (Chevrolet part number 3927145). The cost of turning down the main journal diameters to 2.30" for use of this crank in the earlier 302 and 327's is another $50, bringing the total to $125 for basic machine work. Balancing, of course, is an absolute must.

Just as important as the correct crankshaft preparation are the pistons. As you can readily see, if a stock piston were to be used with this setup, even just the .041" increase in upward travel would probably result in a collision between the piston and the head. For this reason "stroker" pistons must be used. In these pistons, the wrist pin location is "moved up," so that the distance between the top of the piston and the pin is reduced. The piston still has the same up and down travel, but it does not come excessively high in the cylinder. Stroker pistons – especially forged ones – are generally expensive, but TRW produces a special 350 Chevy slug just for this package which is readily available and reasonably priced. Referred to as their L2278F, it is specifically made for a 3 9/16" stroke 350 and comes in three bore sizes: 4", 4.030" and 4.060". These are all forged aluminum and all have a 12.5:1 compression ratio, based on a .025" deck height and 64cc combustion chamber. The matching rings are T9034MM, moly-filled nodular iron, which are virtually unbreakable. The first and second rings are 1/16" wide and the third is 1/8" wide. The pistons utilize full floating pins and are grouped in sets according to weight simplifying balancing.

Whether you start with a 302, 327 or 350, the final cubic inch counts come out the same for the three bore options – 358 with the stock 4" bore, 363 from .030-over and 369 from .060-over. As a final note, it is also possible to grind the journal in the opposite direction so as to decrease the stroke to 3 7/16", should you desire a 342 cubic inch combination for a certain class break, but TRW does not have "destroker" pistons for this at present.