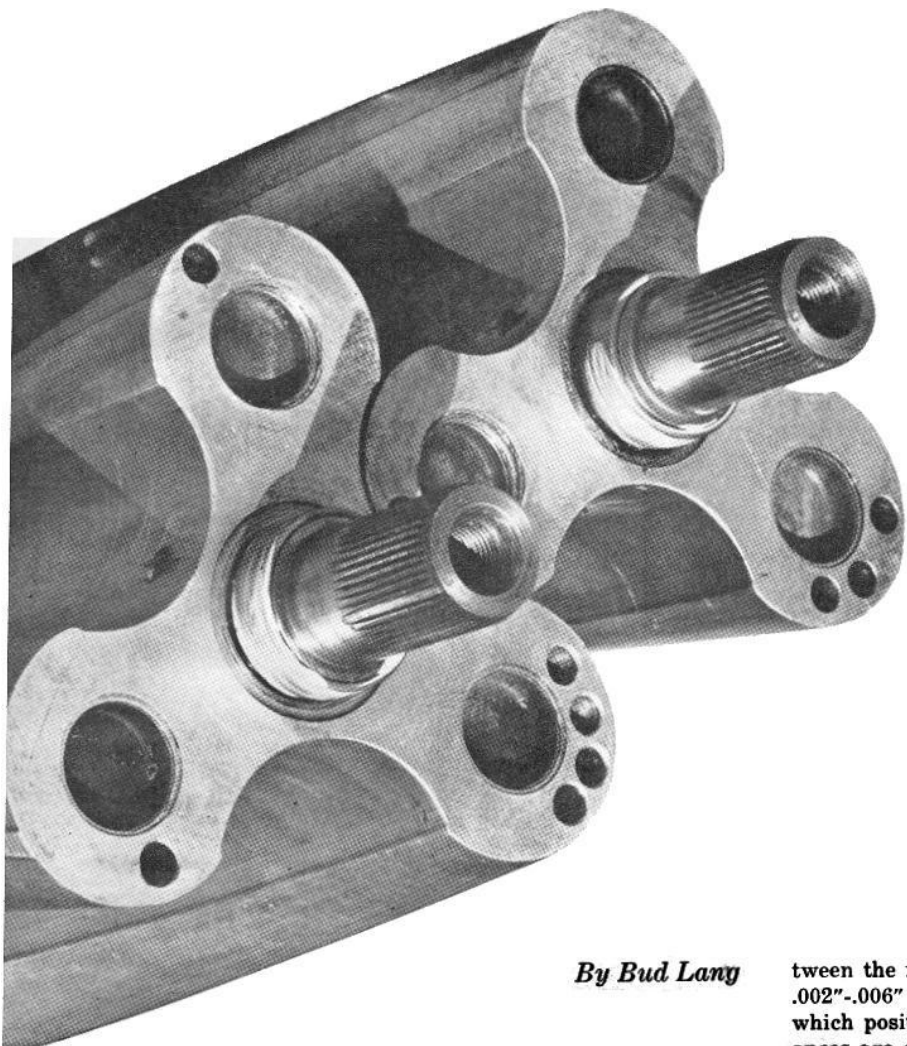


# How To Rebuild a Blower

I saved this from a magazine article and as you can see at the bottom it was back in 1965. The basics still apply. Enjoy.



## SUPERCHARGER SET-UP

Installing a blower can give the biggest horsepower gain of any single item. But if it isn't set up correctly, it can also cause the biggest headaches!

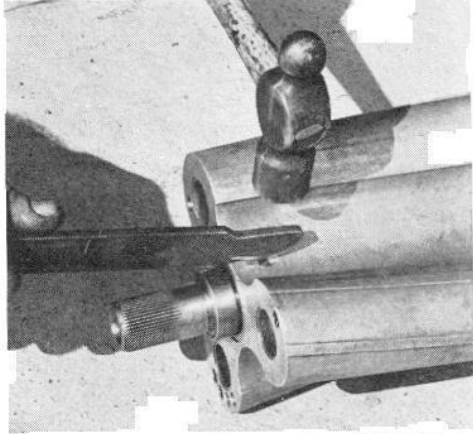
*By Bud Lang*

**A**NYTIME YOU GO into a GMC supercharger to replace bearings or seals, it is recommended that the unit be re-timed as it goes back together. Maintaining proper tolerances between the rotors, end plates and case are extremely important if the blower is to produce the performance expected of it with any degree of reliability. This especially pertains to a used blower that may have been picked up from a Gimmy dealer or another racer. If the unit is stock, it will most certainly have to be checked for timing.  
The reason for this is that normally the clearance be-

tween the rotors in a stock supercharger is set at .016" and .002"-.006" on the inlet and outlet sides (depending upon which position the three-sided rotors are in when the clearances are checked). For drag race use, the larger clearance is too wide while the other is too shallow, making it possible for the rotors to touch one another and become galled as they expand from the heat of the compressing air. To acquire the correct information on checking and/or changing the timing in a GMC supercharger, a visit was paid to Roy Richter of Bell Auto Parts in Bell, California. In addition to manufacturing blower drive kits and manifolds, Bell also provides services for their customers which include timing the rotors in the supercharger and modifying case clearances where needed so the units can be used for competition purposes. The many pictures illustrating



A stock retaining pin, 7/8" from the rotor end, is backed up another pin in a different channel. A 1/4" hole is drilled, then reamed with a taper reamer until the pin will drop into the hole, allowing the head to protrude only 1/16 inch.

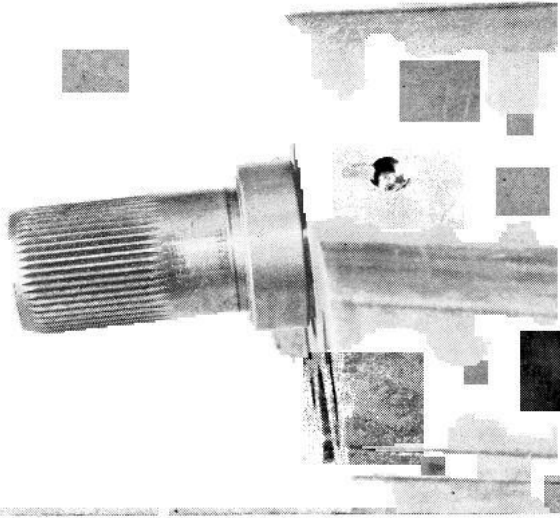


A couple of taps with a punch will "sink" the pin 1/8" below surface, providing an interference fit. Rotor is then "staked" to retain pin.

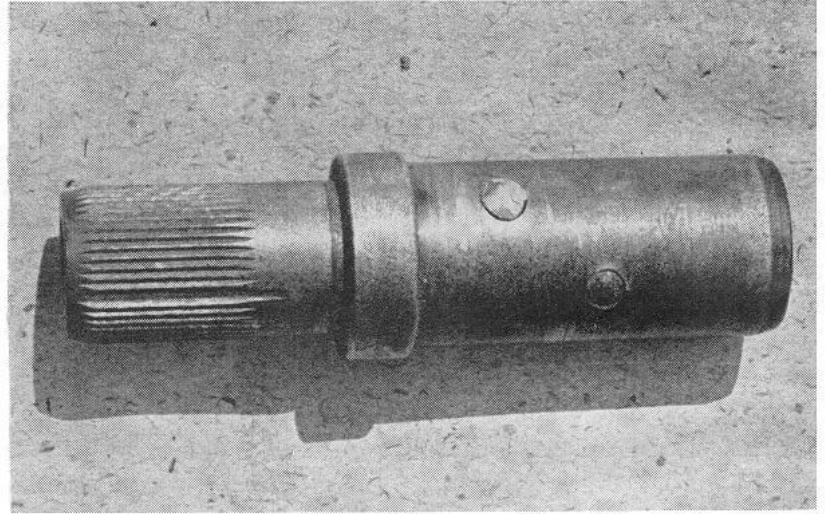
this article were all taken at Bell's machine shop and cover just about every step involved in timing a blower.

On occasion a rodder will pick up a used Gimmy blower featuring a right hand drive. This means that when the blower is set on top of the engine, the drive rotor will be on the right side, rather than on the left. Since you want

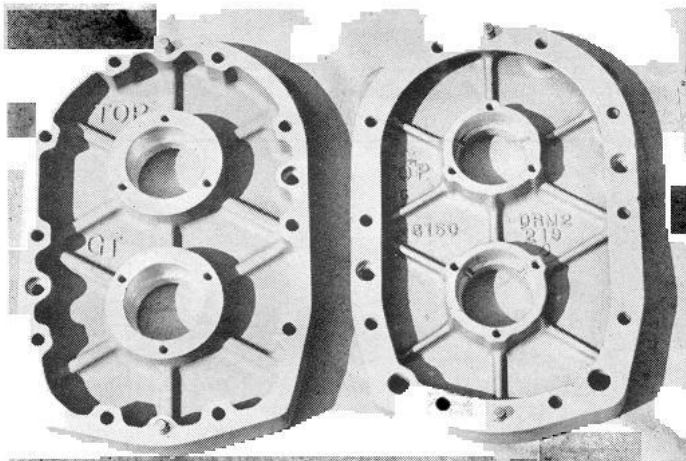
it to blow the air down, rather than up, something has to be changed. In this case the entire front bearing plate along with the two rotors can be removed in one section. Then the rear bearing plate can be removed and installed on the front of the case, prior to the case being turned end for end, so that this plate is again at the rear. Next  
*(continued on following page)*



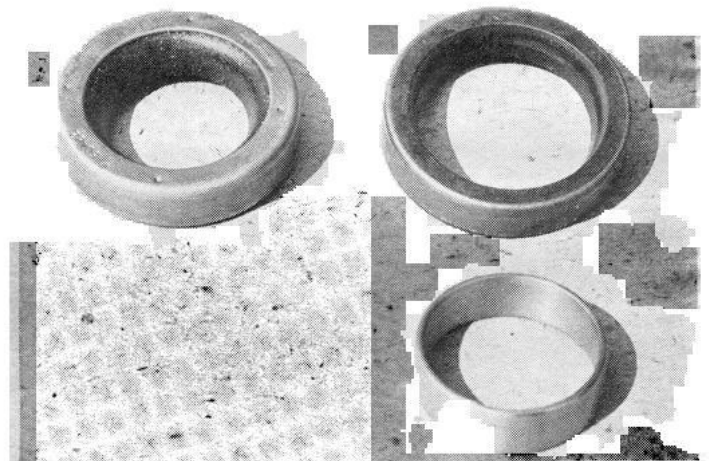
After "staking" the rotor, this is what it looks like. A small half-round file should be employed next to remove any burrs produced by the staking operation.



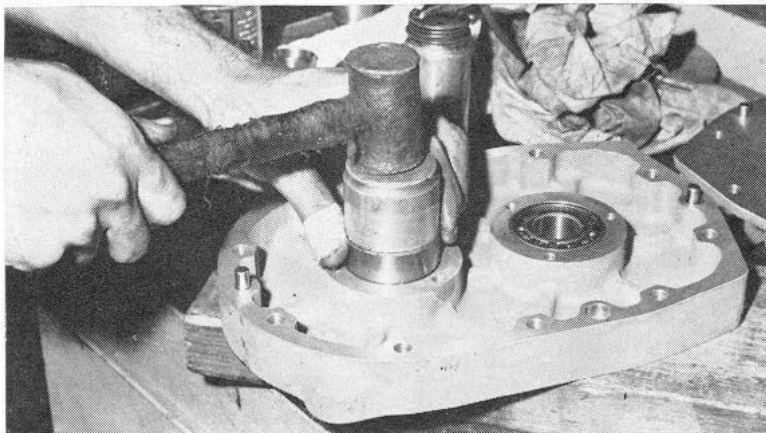
This rotor shaft from a GMC blower was double-pinned as described but the pins still sheared when backfiring occurred. However, Cragar's supercharger specialist, Don Ochampaugh, states more are saved than lost by this action.



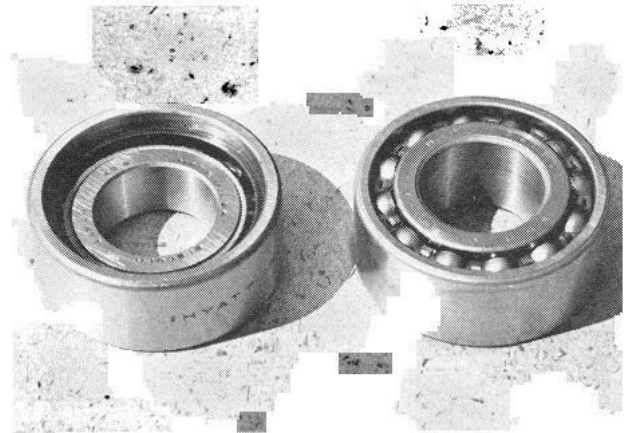
On the right is a stock GMC bearing end plate, to its left a Cragar GT end plate. The difference lies in the fact that the stock bolt holes are .030" from the bore, the GT is a good 1/8".



At left is a stock leather-lined seal while on the right is a rubber replacement seal with metal sleeve. The sleeve slips onto the stock shaft, improving sealing, since it is likely worn.



Gasket sealer should be applied to the outside diameter of the bearing seals when they are installed in the end plates. If a press is not to be had, drive the bearings into the end plate cautiously with a piece of brass. The Cragar GT plate features larger diameter bearing bosses.



The bearing on the left is a roller type for the rear. Double row ball bearings, right, are used in front end plates. SAE 30 engine oil is recommended for lubrication.

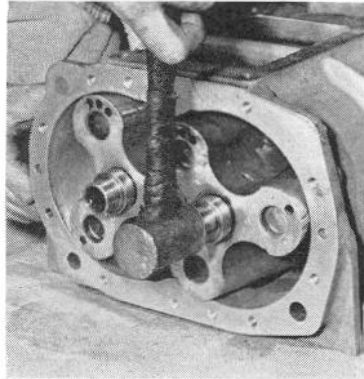
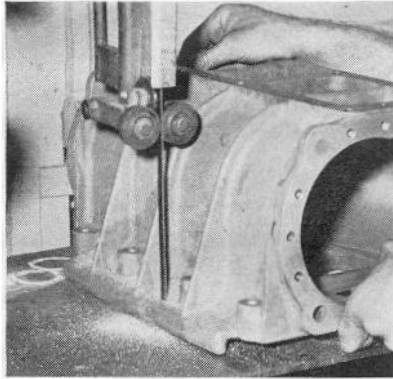
## SUPERCHARGER SET-UP

(continued)

the front bearing plate with the rotors still attached can be rolled over so the drive rotor will be on the left when the unit is again installed in the case.

These changeovers in themselves don't require too much skill but it's a sure bet that what clearances were present are now drastically changed. In instances like this where

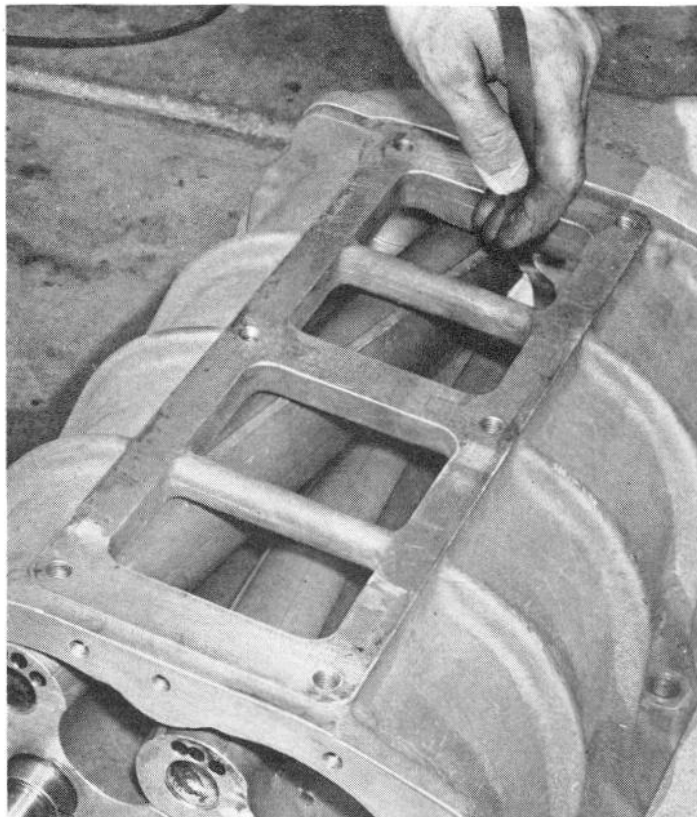
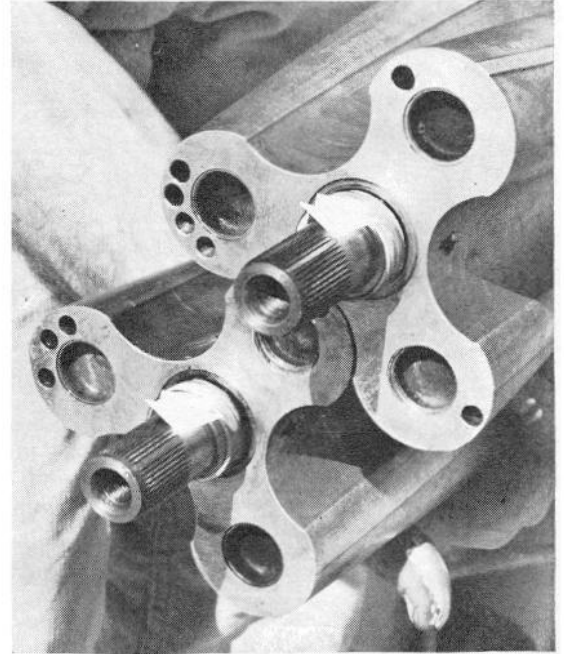
components are switched around it is especially important that everything be re-checked and adjusted. Just how this is performed is completely illustrated in the accompanying photo story. Along with demonstrating how to set the clearances (timing), we'll also show you how to double-pin the rotors and shafts as a secondary precaution against shearing. Rather than try to explain all of the steps in this text, we will present everything — in photo/caption sequence — as we proceed to avoid misinterpretation.



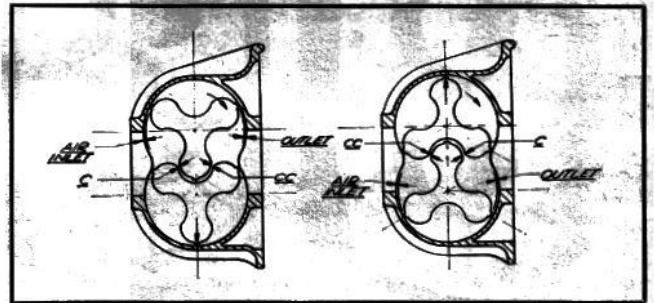
Stock GMC supercharger cases feature a small lip on their upper side (they mount on edge normally). With many manifolds, including the Cragar, sawing the lip off is a necessity. A band saw will do the job very efficiently.

Right—Rotors are marked upper and lower, should be "stacked" with omitted serrations pointing toward the "lip" side of the blower case, when being installed. If rotors have end plugs, remove to release shavings from drilling.

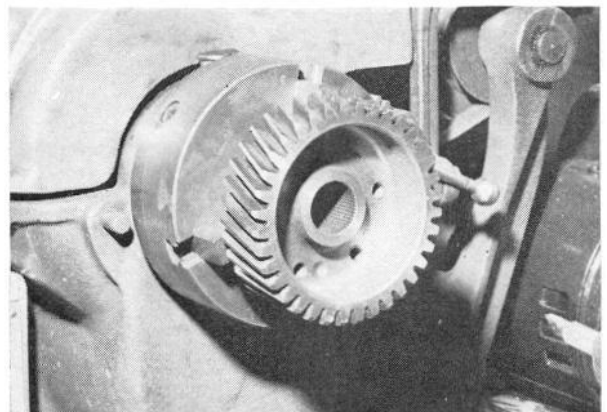
After cleaning out the blower case, install the front bearing cover plate. With the rotors positioned correctly, slip them into the case, through the seals, and into bearings. Drive rotors in gently (above) with brass mallet.



After rear bearing plate is on, take a trial check of end clearance between rotors and plates. The drive gears pull rotors towards the front, tightly. As the rotors expand from heat, they tend to move to rear of case. This is why double-row ball bearings are used up front, and roller bearings at the rear; to allow for rotor movement.



Cragar offers schematics giving specs for all GMC blowers. On the 6-71 they time them at a minimum .007" at front end, .014" minimum at rear, .012" at "C," and a .010" minimum at "CC." Minimum clearance on inlet side is .016", .004" at outlet.



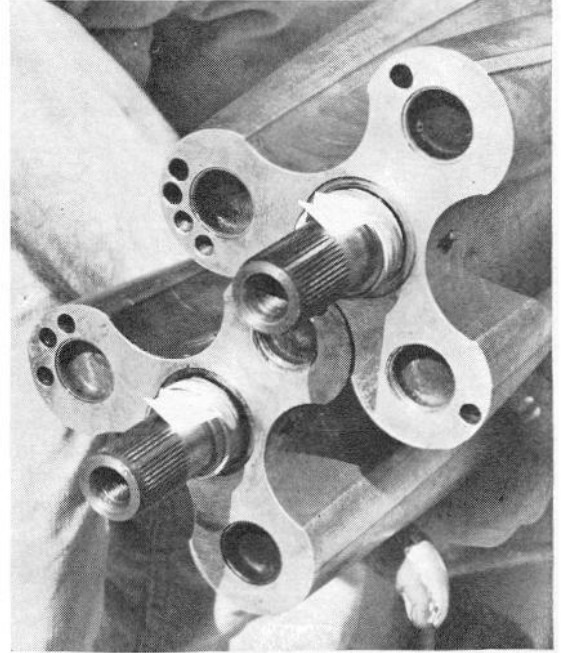
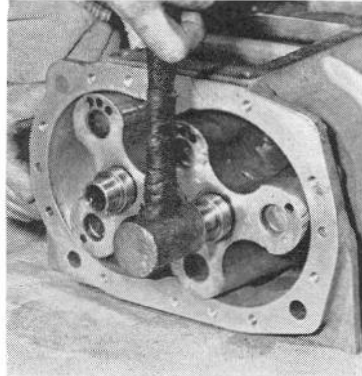
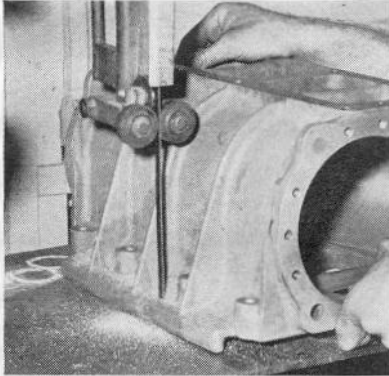
GT bearing plates feature larger circumference retainer bolt circles, so gears must be machined on the inside radius. Use steel gears with a 19° helix rather than cast iron gears of 45°. Steel is stronger and reduces rotor, bearing end load.

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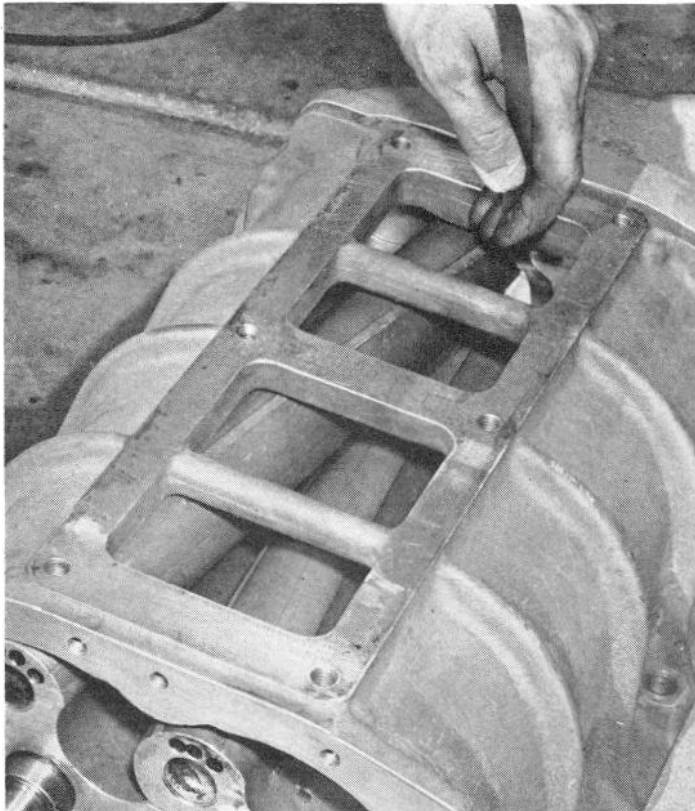
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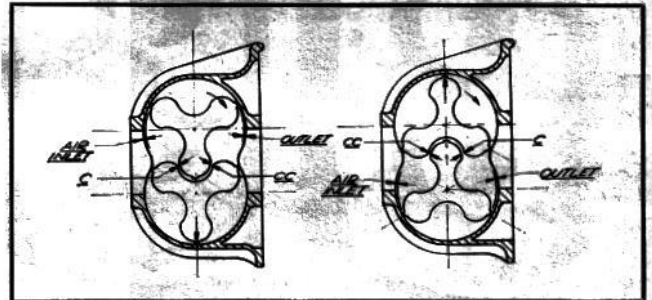
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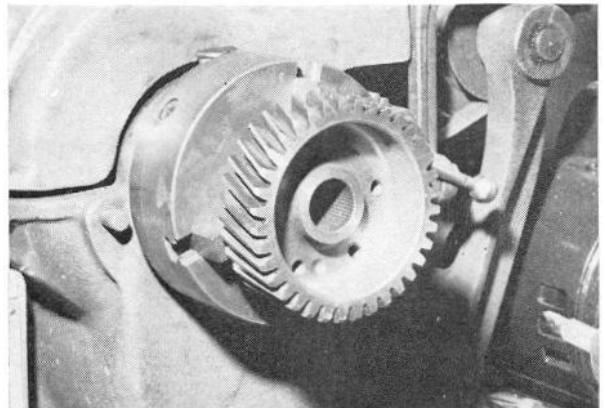
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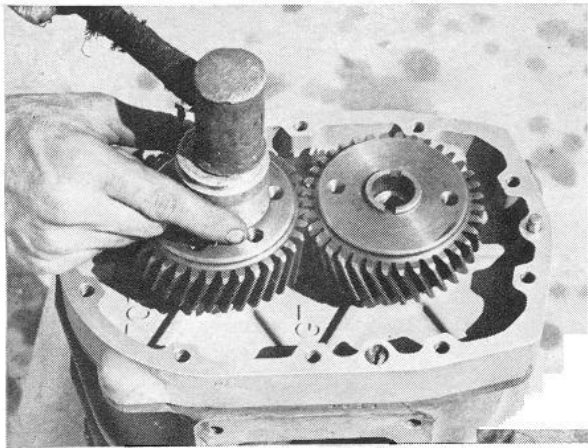
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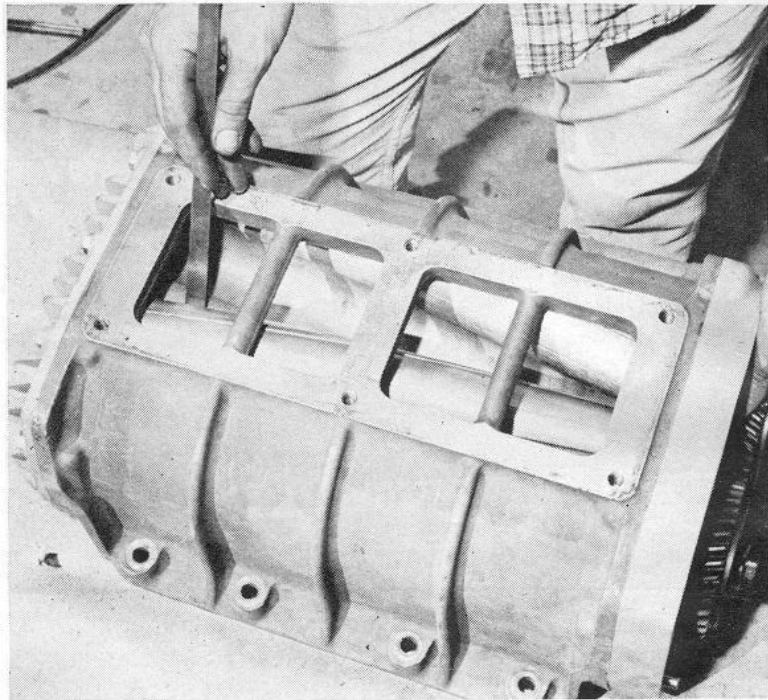


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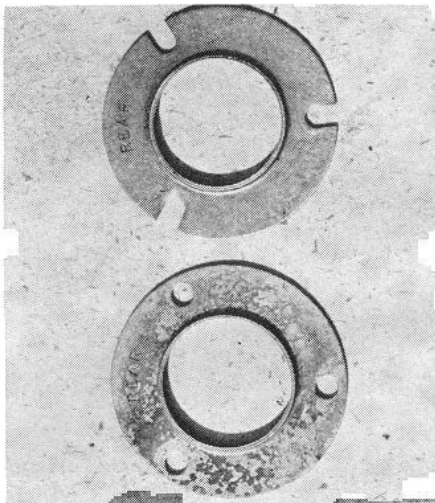


When gears are installed on rotor shafts, guarantee the omitted splines line up on both. Tap each gear lightly, alternating, as they go onto shafts due to gear helix. Gasket cement between end plates and case stops leaks.

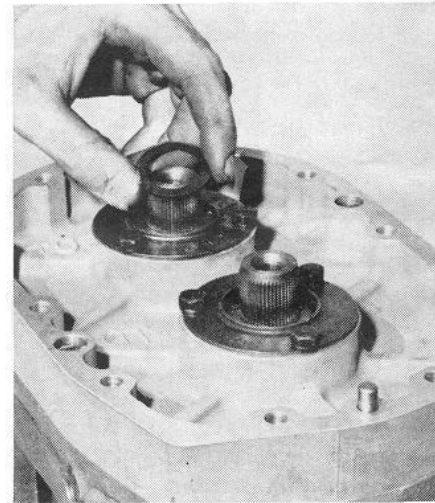
With end plates and gears installed, check the rotor to rotor clearances (right) with a long feeler gauge. The "C" clearance on the air inlet side is being checked out here, with Cragar recommending it be held to a minimum of .012". Shims between gears and bearing will both pull gear away from case and rotate rotor, change clearances.



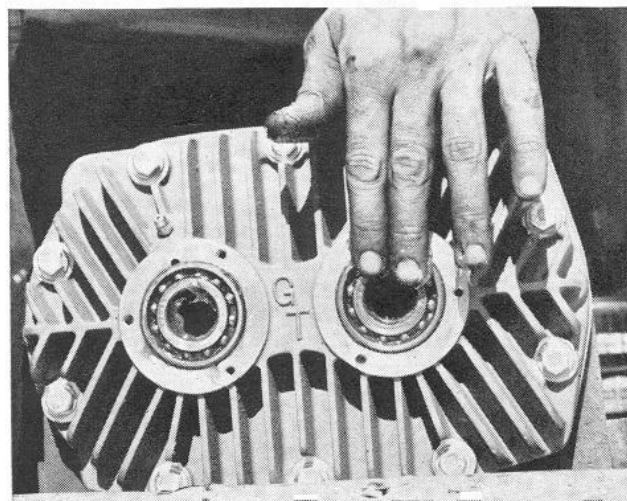
Cragar made up a couple of simple pullers to be used on the blowers. Gears are pulled a fraction of an inch at a time until both are off. Helix cut of teeth demand this action. Rag prevents rotor movement.



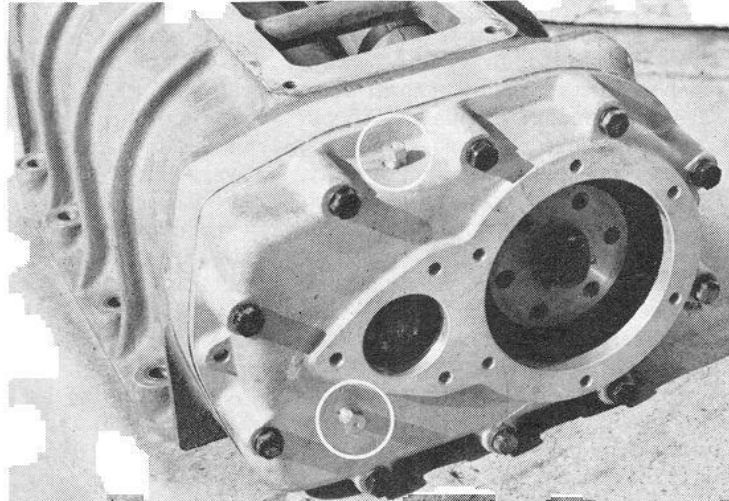
As mentioned earlier, the Cragar heavy-duty GT bearing plate features a larger bolt pattern. Use bearing retainers marked rear (they are stronger) and slot the holes as shown for larger circumference.



If rotor clearances are off, pull gears and slip one GMC gear shim under a gear, thus elevating it. Due to the helix cut of the gear teeth, that rotor will turn slightly as the gears seat, moving timing.



Don always applies a layer of bearing grease on the rear end plate bearings before capping them. This is a safety precaution since the chance is present the owner may forget to lube the two grease fittings prior to installation.



After the rotors are properly timed, rear bearings are buttoned up, and the front cover is in place, Cragar delivers the blower to its owner. When front drive is in place, remove the two plugs (circled) and add SAE 30 engine oil through top 'til it reaches lower plug hole.