Rotating Assembly

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Rod Ratios subject again dominates my thinking. My assumption may well be wrong. According to *Hot Rod* (June 2005), the difference for a street machine is not worthy of the expense. Passe is the word for my rod-ratio position. Now the talk is big bore/short stroke (oversquare) versus small bore/long stroke (undersquare). Long stroke for low end torque and short for top end hp is all the buzz. *Hot Rod* created two big block Chevys to test --- a 4.560x3.766 (492ci) with 6.135 short rod and 4.280x4.250 (489ci) with 6.535 long rod yielding 1.63 and 1.54 ratios. The two performed as expected but the difference was very minor --- 7 lb and 12 hp at most. One interesting finding was the long stroke liked 39 degree total timing versus 44 for short stroke. The latter demands more time for the slower piston speed. Another point was that the big bore/short stroke needed 4 hp more for its own mass. So, regardless, select less weight using higher compression height and less piston skirt. Note stock car engines running 8-10,000 rpm like short stroke for longevity. Larger bore engine added 15cfm to the head flows on the *Hot Rod* test.

Today's engine design favor small bore long stroke for efficiency using OHC and small multi-valve feedings. Those not opting for a modern swap, invest your money on the heads, intake, and cam. Leave the bottom end alone or let the flow numbers determine the required displacement (stroke). Be sure to go for the lightest assembly you can get.

Gondola event is upon us. Send your check to Bob Singer, please. We must commit to a set number of guests through our payment so help by signing up now. I promise not to sing in an effort to encourage attendance.

Events from below need to be logged into your calendar. Your participation helps the club. So, fill your calendar today. Finally, won't you plan an event for next year to your favorite spot? How about a ride, then lunch? Missing this year is the annual Superbowl Party. Our perennial host is attending a LeGrand event unless another host steps up, we will miss it this year.

Reminders: from rkunishige@hotmail.com. Everyone with an interest in DeTomaso cars is always welcome.

Dec 27 ***Gondola Ride*** another Bob Singer special so practice your favorite Opera aria and join the singing. Boat leaves promptly at 5:30 so be sure to wear very warm clothing (or not). We must send money early so write your $20 check to Bob now. Wine, cheese and bread are traditionally provided for all. A Fajitas buffet ($21) will be at El Toritos, 2nd & PCH after the ride.

Jan 14 ***TPOC Mtg*** 7pm Mel's Drive-in 12241 Seal Bch Blvd, Seal Beach 563 431-7951.

Feb 11 ***TPOC Mtg*** 7pm Mel's Drive-in 12241 Seal Bch Blvd, Seal Beach 563 431-7951.

Mar 7-8 ***Willow Springs Open Track*** by Jim & Cherie Saxton's West Coast Racing 626 285-2024 features both Pantera and Ferrari clubs. In recent years, professional racing teams have joined the sessions to exercise their skills. This offers a learning experience by trailing their line. Our Panteras have sufficient power and suspension to at least remain on the same lap as Larry Stock proved last year. What we need is simply both the desire and the funds to prep our cars. The average "Joe" in his street car can choose from the other three classes as well as take advantage of the many instructors who freely donate their time to ride with you or even drive your car to show how they'd approach the racing line. Car control is what you gain as a result. Give a ride to anyone carrying a helmet printed with "Rod" --- he loves it.

Mar 11 ***TPOC Mtg*** 7pm Mel's Drive-in 12241 Seal Bch Blvd, Seal Beach 563 431-7951.

Jun 10-14 ***POCA Fun Rally*** held in Reno, NV for the first time. Plan to join fellow members on our ride to the rally.

TPOC logo items may be ordered including blue denim long sleeve shirts, white polo shirts and white hats. Sign up at the next meeting or call Dave Rudderow (714) 969-1301. Price is near break-even to encourage displaying our chapter logo with pride.

Badges make this writer look smart. Help my failing memory problem by requesting your free badge and pin it to a prominent place for me to read.

Cleveland vs Windsor November 28, 2007, Rod Kunishige

Before addressing this continuous topic, let's dismiss the Modified block known as 351M/400M. They share many of the same features of its predecessor, our 351C open chamber2V, yet they stand 1.1 inch taller, use a different motor mount, and demand a big block Ford (429/460) bellhousing pattern.

The Cleveland stands alone but it does have some interesting variants. It comes in two basic flavors of canted valve heads: 2V and 4V are named for the production two and four barrel carbs they carried. Each require their own intake and exhaust manifolds. The first variant is the famous Boss 351C. It uses the 4V heads but with adjustable valves. The second is the Australian heads. These feature a 2V design with smaller chambers and slightly larger intake valves (2.065int/1.655exh vs. 2.03/1.67) to give us both excellent flow and burn characteristics; whereas, the 4V and BOSS 351 have large 2.19/1.71.

Windsors come from the early 60s through the 80s sized as 221ci, 260, 289 302 and 351W. They share the same cylinder-head bolt pattern, bore spacing, motor mounts, and bellhousing with the Cleveland. Heads, intakes, exhaust manifolds, fuel pumps and most bolt-ons do not interchange. A variant worth considering is the BOSS 302. Here a 302W was mated with the canted head that is the forefather of the Cleveland head. It boasted the canted intake valves of 2.23 reduced to 2.19 in 1970.

Now here's the head-flow (CFM) comparison. Let's assume the same bottom end, matched cam/heads, rocker arms and 10:1 compression:

				CFM	
	Port	Valve	0.5	0.6	.70 lift
Cleveland					
2V stock	int	2.030	196.5	198.5	
	exh	1.670	159.6	162.7	
2V ported	int	2.030	272.4	247.0	
	exh	1.670	204.6	221.5	225.8
2V Australian	int	2.065	206.0	204.9	206.0
	exh	1.655	154.2	168.1	174.2
2V Edelbrock	int	2.070	253.9	255.1	257.0
pn61626	exh	1.600	161.7	168.1	169.2
4V stock,	int	2.190	271.4	295.7	309.5
BOSS 351	exh	1.710	171.7	181.3	184.4
Windsor					
5.0L	int	1.700	156.0	156.0	
	exh	1.450	116.0	117.0	
351W	int	1.840	183.0	185.0	186.0
	exh	1.540	118.0	118.0	117.0
AFR 165*	int	1.900	243.0	245.0	
* 289/302	exh	1.600	190.0	191.0	
AFR 195	int	2.020	267.0	277.0	
	exh	1.600	185.0	191.0	

*Note: AFR 165 is better for smaller 289-302ci but AFR 195 approaches our stock 4Vs.

The table clearly shows that breathing has always been a problem area for the Windsor. New head design or hand porting open the full potential of these engines. Porting the 351 2V yields gains worthy of the effort. The stock 351 4V can regain some low end with some flooring and direct flow work.then add lift not normally placed on our street Panteras. It would be wise to lighten and internally balance the rotating assemblies regardless of engine choice in order to push the revs to or above 7,000 rpm.

The winner for me is the 4V. Some head work and careful valve overlap planning should draw air well while singing in the high revs. Even the 2V shows impressive numbers when ported correctly. Windsor, consider buying the AFR 195. (Keeping my 4V & 2V.)

Source: *Hot Rod* January 2008 issue page 142.

Head flow numbers support using 4V heads for those of you who have them. 2V owners are best served by porting them or simply buying Edelbrock 351C 2V #61626. A distant runner up would be to hunt down an Australian 2V set. Of course, those BOSS 351 heads are for the guys who love to adjust mechanical valves a couple of times a year or after each track day.

There is more to do for those of us with the low compression engine. The stock 2V heads stall out around .4 lift and its 77cc open chambers suffer against Edelbrock's 60cc. The later brings your compression to about 9:1. Be sure to dump the Performer for a higher reving RPM Air-Gap 351C 2V giving you revs to 6,500 rpm. Swap out the cam for 230/236 degree at .050 (Comp XE27H 32-346-4) with 1.73:1 rockers. Strive for 10:1 to get the best low end power by either measuring the head gasket spacing or selecting the proper pistons.

Measure the valves at maximum lift to verify that they will not touch piston tops. Valve float have managed to cause some unexpected booms. These are often followed a call to a local tow truck.