CORVETTE ISSUE! 8 FEATURES



The OCTANE Numbers Game

SEPT. 1975 \$1.00 K 48245

THE SLEEPER: Fuel Pump Problems?

STYLING TRIC

TOP SHOW CORVETTES

THE CORVETTE CHALLENGERS:

AMX-AVANTI-BRICKLIN-COBRA JAGUAR-THUNDERBIRD



In this first in a two-part series, we explore the evolution of the Corvette in racing from 1953 to 1967 BY GARY WITZENBURG HE FIRST CORVETTE as introduced in 1953 was anything but a racing machine. Its rather ordinary production components were enveloped in a handsome, even sexy, fiberglass body - but its triple-carbed 6-cylinder "Blue Flame" engine and Powerglide automatic transmission were barely capable of pushing the car from 0-60 in 11 seconds, according to Karl Ludvigsen in his book Corvette, America's Star Spangled Sports Car. But in 1955 the famous Chevy 265 CID V-8 was introduced to an appreciative world and changed the destinies of both the Chevrolet Motor Division of Belgian-born engineer Zora General Motors and a large number of competitive car Arkus-Duntov was the major builders, engine tweakers and racing drivers. Most force behind Corvette's performance reputation until his retirement just a year ago. Here he poses with the flyingimportant to Corvette fans, this most popular powerplant of all time (in all its dizzying assortment of displacements and applications) provided both the means mile record breaking Corvette in and the incentive for the development of the country's the page, Betty Skelton (left) and John Fitch flank Duntov's 150 mph 1956 Corvette at only real sports car into an honest racer. Along with the new engine and a sleeker, rounder new body style, the '56 Vette got some much-needed Daytona Beach. suspension and chassis improvements. Both high-speed

stability and steering response were improved, and the

early Corvette's tendencies to spin its inside rear wheel when cornering hard under power and to oversteer (go tail out) at the limit were reduced in the able hands of Belgian-born engineer/driver Zora Arkus-Duntov and his boss, Ed Cole, who was then Chevy's chief engineer and would much later become GM president.

Chevy realized that promoting the two-seater's performance capabilities would have a "rub-off" effect on the image and the sales of the division's more conventional cars, and Duntov worked hard to earn the respect of the racers and the performance-oriented public. The standard twin-4-bbl. engine put out some 225 hp and 270 lbs.-ft. of torque. Its intake manifold was aluminum, its distributor had dual points and a special Duntovdeveloped camshaft became available for street and track. The street "Duntov Cam" engine was rated at 240 hp.

The stock Corvette was now turning 0-60 in about 7.5

sec. and under-16-sec. quarter miles, while road race prepared versions could better those times by a full second or more. Duntov clocked an unofficial 163 mph with a specially-prepared car at GM's Phoenix, Ariz., Proving Ground and recorded a record 150.6 on the damp sands of Daytona Beach.

In March of 1956 a four-car team of Corvettes was entered at Sebring headed by veteran John Fitch. After the 12 hours of racing, one of them had finished 9th overall after suffering clutch problems throughout the race, and another came across 15th with only fourth gear intact. A dead stock private entry was 23rd. Not bad for a fledgling American race car in internationallevel endurance racing.

Meanwhile, Dr. Dick Thompson and Bill Pollack had their Vettes flying in SCCA (Sports Car Club of America) amateur national road racing and between them brought the marque its first National title in the

Don Yenko was the SCCA B-Production National Champ in 1962. Here he works out his 283 Corvette at Road America in Elkhart Lake, Wis.



The sleek, finned SR-2 created by Bill Mitchell's styling staff in the fall of 1956 was a show car in addition to seeing competition at Sebring, Daytona and Road America. Mitchell also drove it on the road between races and shows.



C-Production class. At that time the base Corvette sold for a modest \$3,120 and the Duntov Cam kit could be had for less than \$200. It was an affordable alternative to the exotic Jaguars, Porsches and Mercedes of the day and its popularity was beginning to soar along with its competition successes.

The next year brought a return to the Sebring 12-Hour, where Dick Thompson and Gaston Andrey drove to 12th overall and a "GT" class win, and a second team car placed a respectable 15th. Dr. Dick, who was quickly earning the nickname "the flying dentist," also took that year's SCCA B-Production National Championship even though the Vette had been bumped up to B-P from the slower C-P category. It was the first of an eight-year string of National B-P titles for the "fiberglass flyers" from Detroit. Also in 1957 stock car driver Buck Baker (father of Buddy) drove an official flying mile at 152.9 mph in GM styling chief Bill Mitchell's show/go

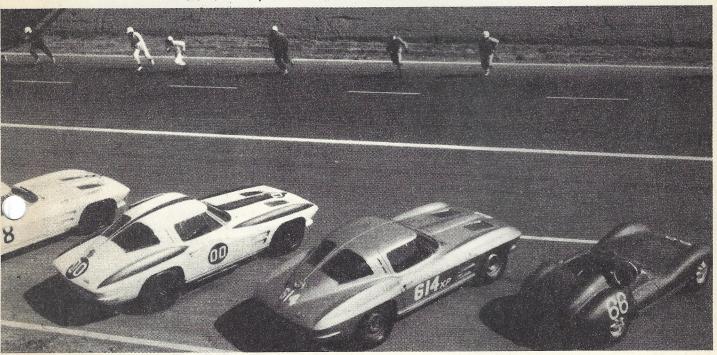
SR-2 Corvette special.

By this time the street Vettes, even with the standard 3-speed transmission, were good for 6.8-sec. 0-60 times and 15-sec. quarters with a 3.55-to-1 rear end, while the new '57 fuel-injected 4-speed version could clock about a second faster both ways with a 411 ratio.

Serious work had begun at Chevrolet Engineering on a very special lightweight all-out Corvette racer dubbed the "SS". Class wins and championships were just fine, but the exotic SS was intended to bring a Chevy home in front of the best long-distance racing Jags, Ferraris, Mercedes, Maseratis, etc. that Europe had to offer.

The first SS arrived at the '57 Sebring race barely in time for the start and relatively untried. It showed great potential but suffered both brake and ignition problems and finally succumbed to terminal suspension failure just 23 laps into the race. John Fitch and Italy's Piero Taruffi were sharing the driving. Chevrolet planned to

The all-independent suspension '63 Sting Ray made its racing debut at Riverside, Calif., in October, 1962. Dave McDonald sprints for the #00 car and Bob Bondurant heads for #614 at the start of the three-hour enduro.



Bob Mouat campaigned his '57 Vette at Watkins Glen as late as 1963.



29



Doug Hooper drove #119 Sting Ray to victory in the October Riverside race over the other Vettes and the equally new Shelby Cobra. Hopper's car was prepared by hot-rodder and off-road racer Mickey Thompson.

follow its first effort with a trio of SS cars at the LeMans 24-Hour later in the season, but GM's corporate axe fell suddenly and heavily on the division's ambitious plans. It was the first year of the corporation's infamous ban on factory-sanctioned competition.

N 1960 the team of sportsman Briggs Cunningham entered three new Corvettes in the French LeMans race and a fourth car was brought over by Lloyd Casner's Camoradi team. The car driven by John Fitch and Bob Grossman finished an impressive 8th overall, but a second Cunningham car blew its engine late in the race and the third car was crashed in the early going. The Camoradi Corvette actually finished 10th but was disqualified for a rules infraction.

That same year GM styling boss Bill Mitchell was waging his own privately-financed campaign back in the states with his "Sting Ray Special," which was based on one of the SS chassis from the aborted 1957 program. Dr. Dick Thompson did most of the driving and usually managed to place impressively. The car was classed by SCCA as a C-Modified since it was in no way a "production" model, and Thompson managed several major U.S. victories with it plus the C-Modpoints Championship before it was retired to become a show car and the basis for the all-new Sting Ray body style introduced in

the fall of 1962.

While the 283 Corvette was still dominating B-Production by 1962, the new 327 CID version was picking up its first SSCA title in the faster A-Production class, driven by (you guessed it) Dr. Dick the flying dentist. Don Yenko was the B-P champ that year.

HE FORMIDABLE all-independent suspension '63 Sting Ray made its racings debut at Riverside, Cal., in October of 1962 and won its first time out. Doug Hooper won the 3-hour enduro in a car prepared by hot-rodder and off-road racer Mickey Thompson, but only after the Dave MacDonald car lost a wheel and both Bob Bondurant and Jerry Grant blew their motors.

Failing to finish in its simultaneous debut was the very first racing Cobra driven by Paul Krause, but from that point on the super-light, super-fast, English AC-bodied, Ford-powered Cobras built by Texan Carroll Shelby whould erode away the mighty Vette's domination in both A-P and B-P categories and would give the Chevy boys fits for several years to come. The heavier, mass-produced, street-based Corvettes were simply no match for Shelby's 289 and 427 Cobras on the fast and twisty road racing courses.

Chevrolet, however, was not quite ready to sit still for (Continued on page 68)



A youthful Roger Penske looks over his flared and vented GS Sting Ray on the grid at Nassau late in 1963. The lightweight John Mecom GSs were impressive there as driven by Penske, Augie Pabst, Dick Thompson, Jim Hall and John Cannon.

few minutes. They're great for mild hop-up jobs, with or without oversize fuel lines.

The next step would be to use this type of diaphragm pump, but in conjunction with the oversize 3/8-in. i.d. fuel line (or as mentioned, 1/2-in. for allout street or competition machines). This combination should be adequate for medium to hot street jobs, with engines up to 500 hp. A steady 500 hp on gasoline fuel would represent a fuel flow of roughly 60 gph, or a bit less. You would want a fuel pump capacity in the range of 60 to 80 gph to give some reserve margin here.

There are also a number of electric fuel pumps available in this range of 60 to 80 gph, either the diaphragm or rotary type. These would include models from Holley, Carter, DuPree, Borg-Warner, Auto-Pulse, Stewart-Warner, etc. The big advantage of an electric pump, of course, is that it can be mounted in the rear of the car near the fuel tank. This is the answer if you're having any problems with "vapor lock," due to overheating of the fuel lines somewhere on the chassis or in the engine compartment. It's obvious that when your fuel pump is on the engine the fuel in the lines between the tank and engine is under suction, or a negative pressure, as it is drawn forward. This reduces the boiling point of the fuel and causes it to vaporize easily in the lines. And then of course the engine sputters and cuts out. The answer is to merely mount an electric pump in the rear, near the tank, and pump the fuel forward under pressure. No more vapor lock problems. You can retain the enginemounted mechanical pump, letting the rear electric pump work through it, or you can remove the engine pump and route the fuel directly from the rear pump to the carburetor.

As mentioned, the majority of these popular electric pumps have capacities of 60 to 80 gph, and are adequate for very strong street engines over 500 hp. You can use them with a standard fuel line up to 300 hp or so but any more should have the 3/8-in. i.d. stuff. If you route the fuel through an enginedriven mechanical pump, it should have about the same capacity as the rear electric pump. This would call for one of the special high-capacity mechanical pumps from Holley, Carter, etc.

For all-out street and competition engines up to 1000 hp you would need one or two of the big jumbo electric pumps in the range of 110-120 gph—as available from Holley and Mr. Gasket. These pumps are rated at only around 4 psi pressure for their maximum flow but they can pump 70-80 gph at 9-10 psi, which is adequate for the big competition engines. If you need more, mount two of them in parallel. The idea of all this flow and

pressure capacity is to assure a pressure of 6-7 psi at the carburetor when there is 3 to 5 psi of pressure drop between the tank and carb because of line restriction and inertia back-pressure. A rear pump has got to be able to handle 10 to 15 psi to assure 6 psi at the carb, against these losses.

The Holley "Max" pump is pre-set for an output pressure of 14 psi. Then you use a separate pressure regulator near the carb (supplied with the kit) to control the pressure to the needle valve at 6-7 psi. The Mr. Gasket pump has a built-in screw adjustment to set pressure at 5 to 10 psi, depending on the loss between the pump and carb. In either case you should use 1/2-inch i.d. fuel pipe for these kind of flow rates.

Good pumping!

CHEVY

(Continued from page 10)

a deductible business expense. That means that if you have a good year and do a lot of winning you'll probably break even, with today's high traveling costs, maintenance, replacement parts, etc. If you're like everyone else, your expenses will outweight your winnings and give you a tax break, because on a Sub S (Small business) corporation, any profits or losses are passed on personally to the stockholders (in this case you). I'm sure there are other ways, but this is the most common. Check with your accountant first though, to be sure you're doing it right.

Q. I read in another magazine that your company sold the Motion Camaro race car and that it was "on its way to Hawaii to become an outrigger canoe." I've seen the car run and it was the most impressive modified car I've ever seen. Can you tell me why they said that and how can I buy your next car when you get ready to sell it.

William Sullivan

Gulfport, Miss.

A. Unfortunately, I can't control comments by other magazines. The writer of that article obviously took too much editorial license. It is true the car has been sold to one of our very good customers. The last run the car made here set a new NHRA national record, which still stands to the day of this writing. The car has held at least one or more NHRA world's since 1970. It is true the car has seen a lot of action, but every year it was completely updated. That is why it went so far, set so many records and was so popular. Why someone else would want to convert it into "an outrigger canoe" is beyond me. I'm sure that isn't his intention. We have another car

now, and although it just won a big meet at York, it has yet to run as fast as the old one. We've got great hopes for it, though. Watch for it. The driver is still Dennis Ferrara, although the same magazine did an article on the car before the Motion lettering was on it and didn't mention us at all. I can only hope the new owner maintains our old car properly because it is extremely essential when running such a fast car that everything be done just right. Lack of proper maintenance, overheating the engine and many other things can have a disastrous effect on a professional race car. At any rate he has availed himself of our services and we are going to fly one of our best people to him to show him the correct way to do things. We offer this service to anyone across the world. We have flown mechanics to many other countries to show people how to maintain their cars properly. Hopefully in the future other editors will be more careful when writing about our cars, especially when they are the fastest modified in the world. I understand they are going to do something to clarify their comments. Lets hope so.

CORVETTE - 1953-1967

(Continued from page 30)

such wholesale humiliation for long in spite of the parent company's racing ban, and it was not long before work was begun on a second generation lightweight Corvette racer deep within the black holes of Chevrolet Engineering. Dubbed the "Grand Sport," this very trick chassis was designed with such figures as 600 hp and 1900 lbs. firmly in mind and was to be built and sold in quantity enough to be recognized as a production sports car by the SCCA. The GS engine was to have a 16-plug aluminum head with hemispherical combustion chambers and was intended to put the hurt on anything Mr. Shelby and Ford could come up with.

But once again GM executives squelched the project that could have put Chevy right back on top of the racing heap as soon as they got wind of it, and only two completed GS chassis managed to slip out the back door when the axe fell - and they were powered by the regular 360-hp fuelinjected 327 racing motor instead of the exotic but unfinished 600-hp GS job. Dr. Dick campaigned one of these in the C-Mod class in 1963 and had fair success with it against frontengined Chaparrals and Scarabs and the like, including one outright victory at Watkins Glen, N.Y.

Later in the year, John Mecom bought the two original GS Vettes, somehow got ahold of a third and shipped the lot over to Nassau along

68 • CARS

with a collection of lead-footed drivers to challenge the Cobra hold on the production category there. They were now fitted with special 377 CID engines that were supposedly good for some 485 hp, plus hood scoops, engine side vents, fender flares and other body modifications for engine and brake cooling and to accomodate the new 11-in. wide wheels and tires.

The Mecom GSs quickly proved faster than the Cobras (and a GTO Ferrari) in qualifying and placed 3rd overall (Roger Penske), 4th (Augie Pabst, the beer heir) and 6th (Dr. Dick) in the first race of the meet. The best Cobra to finish was 8th. Then in the feature race a mysterious madlady caused the GS hoods to come loose at speed, which required an unplanned pit stop for each car to have them taped down. A.J. Foyt took the overall victory in a Chevy-powered Scarab, and Thompson placed his GS 4th overall in spite of the hood problem. Jim Hall in a second car had mechnical problems and failed to finish, but John Cannon brought the third GS in 8th, just behind the highest-placing Cobra.

Meanwhile, back in Warren, Mich., Duntov's boys were at it again, this time working on a pair of aerodynamic GS roadsters for the 1964 Daytona 24-Hour. But the corporate sleuths caught on again and that program too

was quashed in its infancy.

The three ex-Mecom coupes were campaigned privately at that year's Sebring event, however, and the one co-driven by Penske and Hall led from the start until it was passed by a trio of prototype Ferraris. It then enchanged positions several times with the Cobra coupe of Dan Gurney and Bob Johnson until it suffered a rear axle failure at the halfway point. The final six hours was spent frantically borrowing an axle from the car of a co-operative spectator and nursing the GS home to an 18th place finish. The other two had numerous problems but both managed to finish far down in the field.

By that time the front engine machinery was being decisively blown off the first of the new mid-engine sports cars which would eventually evolve into the fire-breathing CanAm Cars of recent memory. But Hall, Penske and Hap Sharp still managed an excellent third place at one Road America event, and Penske later took one back to Nassau and won the preliminary race with it there. After that running of the Nassau contests, Penske announced his retirement from driving and sold his GS to George Wintersteen. who proceeded to take it to a 14th overall finish in the 1965 Sebring event.

ORVETTE BECAME the first U.S. car with 4-wheel disc brakes in 1965 and a year later was turning

sub-five-second 0-60s and solid 13second quarter miles with the mighty 425-hp big-block Mark IV engine. Also in '66 came the fabulous L-88, the most balls-out racing mill ever offered in the Vette. GM was still officially out of racing and Chevy was still restrained from campaigning a factory team - but that didn't mean they couldn't develop the necessary "heavy duty" pieces and make them available to successful competitors.

A Penske-prepared, Sunocosponsored GS couple finished 12th in the Daytona 24-Hour early in 1966, handily winning its "GT" class with Dick Guldstrand, George Wintersteen and Ben Moore driving. The same car

scored another GT win at Sebring with an impressive 9th overall in the hands of Wintersteen and Moore.

Penske also had bought the two mothballed GS roadsters, had sold one to Wintersteen and had retained Guldstrand to prepare the other with a 427 wedged into it for U.S. modified class events. Guldstrand and Dick Thompson campaigned the Penske car while Wintersteen ran the eastern races with his, but they proved no match for the rapidly-improving mid-engine machinery.

Four Sting Rays were entered in the 1967 Sebring event, and the Don Yenko/Dave Morgan car won the GT category with a fine 10th overall



Wheels and accessories by pacific-italia

Small-car owner! Roll with Pacific-Italia, innovator of one of the most desired selection of custom wheels on the market.

Whether you drive a domestic or an import, there's a special wheel for you in this beautifully styled, finely crafted group.

Pacific-Italia mag and chrome wheels are precision

engineered, elegantly finished and rigidly tested to meet the exacting requirements of the most discriminating enthusiast.

Harmonious accessories from Pacific-Italia will add that final, custom touch.

Send fifty cents for Catalog Kit/Prices (refundable with order). All merchandise shipped to you Freight Prepaid.





placing — even after it jammed itself firmly into a dirt bank and spent the last several minutes of the race in frustrated immobility. Also that year, Guldstrand and Bondurant took an L-88 coupe to Lemans and led the GT cars with ease until the motor came apart about halfway through the 24-hour contest. They were clocked at 171 mph on LeMans' famous Mulsanne straightaway

(Next Month: Back in the Winners Circle, 1968 to 1975 with the Modern Corvette and the Fabulous John Greenwood Machine.)

PONTIAC

(Continued from page 12)

A. The 455 SD parts are interchangeable with your 455 HO. You'll wind up with a stronger engine as a result of the swap. The only problem is that you might have difficulty locating the 455 SD parts. I'd also recommend that you use either the Super Duty or Ram Air IV oil pump for adequate lubrication.

Q. I would appreciate your help in selecting a set of higher compression heads for my 1974 Formula 400 Firebird. Would a set of '69 or '70 Ram Air 400 heads be the best choice? If I installed these heads, would I be able to fit a set of headers on the car?



I would also like to install a different intake system. Which set up would be best for max mid-range rpm? Would you recommend using the Ram Air engine cam in my car or would it be too hard on my automatic transmission? Thank you very much for your help.

Keith Perkins West Union, Ill.

A. The heads that I recommend you use are the Ram Air III of 1969 or '70 vintage. You will have no problem bolting up a set of headers if you use JR #2470. The right breathing set up for your engine should include the stock manifold that goes with the head that you select and a reworked Quadrajet. I can't recommend the correct camshaft for your application because you haven't given me enough information — like whether your car has air conditioning, what rear-end ratio you're running and what size tires your Poncho's wearing.

Q. I own a 1967 Firebird equipped with a stock 400 cid mill, Muncie aluminum case 4-speed, 4.10 gears, Accel dual point distributor, a set of Hooker headers and Edelbrock Hi-rise with a Holley 650 cfm double pumper. Will my performance improve by installing a cam with a 302 duration and 483 lift instead of the cam (268 duration, 450 lift) that I already have? I read you column every time I have money left over from buying high performance parts for my Poncho.

Victor Sais Long Beach, Calif.

A. Save your money Vic, and stick with the cam you already have. Just think of all the CARS magazines you can buy.

OMEGA V8

(Continued from page 58)

Looks are truly deceiving and the Omega is a prime example of what we're talking about. It doesn't look like the kind of car that can be tossed around on the skid pad or thundered down twisty roads which at one time posted signs like, "Reserved for Sports Cars Only." The variable ratio power steering is good, as it's fast yet offers excellent road fell. It's not of the marshmallow variety which can really get you in trouble. We would have liked wider wheels and fatter radials than the optional 6-inch styled steel jobs with FR78 steel-belted radials, but they're not available yet. Because of its high roll stiffness characteristics, the radials really have their work cut out. The Super/Stock wheels are trick looking, but not wide enough for maximum performance and eyeappeal. The overall ride evaluation is beefy, but not beefy enough to drive the average buyer away from going for the handling package. It's just right.

Performance-wise the 350 Omega rates as a strong street machine considering what's available on the market. Fortunately the Omegas we drove were fitted with the 3.08 rears and not the more common mid-two series econo-rears. It makes a big difference. Initial throttle response is excellent and we were able to run between 9.1 and 9.4 seconds with a four-door, loaded Salon on the standing start 0 to 60 mph test. In box stock shape that very same car toured the GM quartermile in 17.0 to 17.3 seconds at speeds of 79 to 81 mph. That's without tuning and with all emission equipment hooked up. The potential is obvious. The economy range was 12 to 16 mpg of unleaded fuel.

The Omega Salon package, which is similar to the package offered on intermediates, consists of reclining front buckets finished in velour or perforated vinyl, a column-mounted directional lever with a built in headlight dimming switch, center console and a special steering wheel. The beefy suspension goodies come with the package. The buckets are neatly contoured for a comfortable driving position, but as with most domestic buckets, lack the lateral support for hard cornering conditions. The velour buckets have an advantage over the vinyl ones in hard cornering situations, as they offer more friction to reduce driver and passenger movement.

Unlike the Mercedes which offers four wheel discs, the Omega gets a best-effort rating with its front power discs and finned iron rear drums. The finned drums help dissipate heat more rapidly than in previous models fitted with solid drums. For the enthusiast who is really into a lot of hard stopping, there's always the heavy-duty brake parts that Chevrolet dealers sell for special Novas equipped for police use. Semi-metallic front pads and rear linings are available on a do-it-yourself basis

Considering Oldsmobile's involvement in police cruiser engineering and its marketing of full-size highway patrol cars, it wouldn't surprise us a bit if Lansing started offering police cars based on the Omega. Chevrolet is doing it with the Nova, so obviously the ground work has already been done. All Oldsmobile really needs are some optional cooling and braking goodies, high-speed-rated radials and wider opening rear doors for more convenient operation. And, for special applications I'm sure Oldsmobile Engineering could always stuff 455 inches under the hood. That's the way