

Corvairation

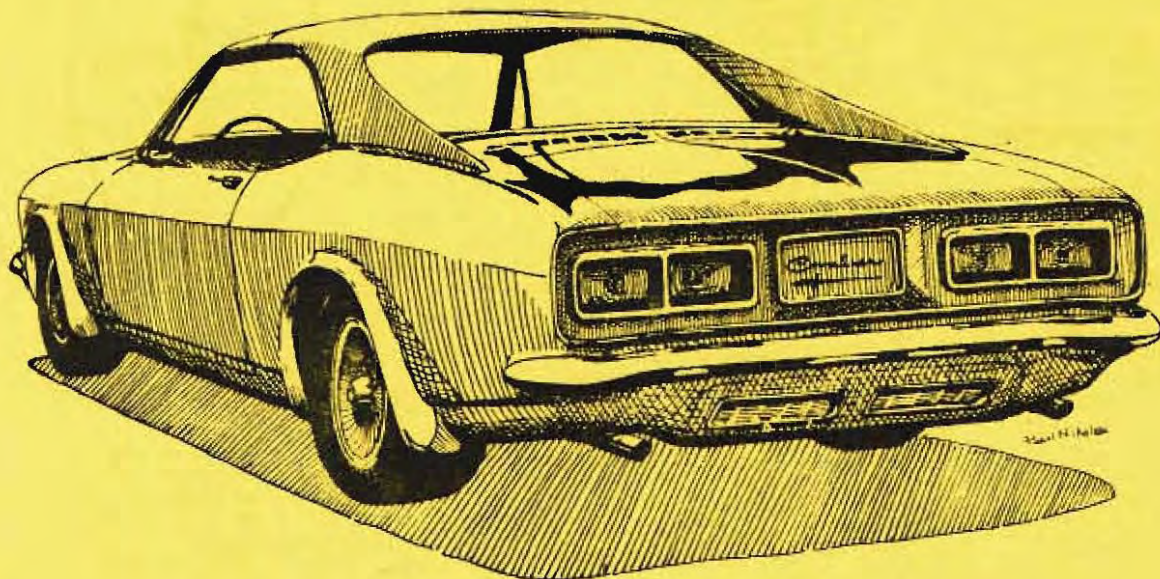
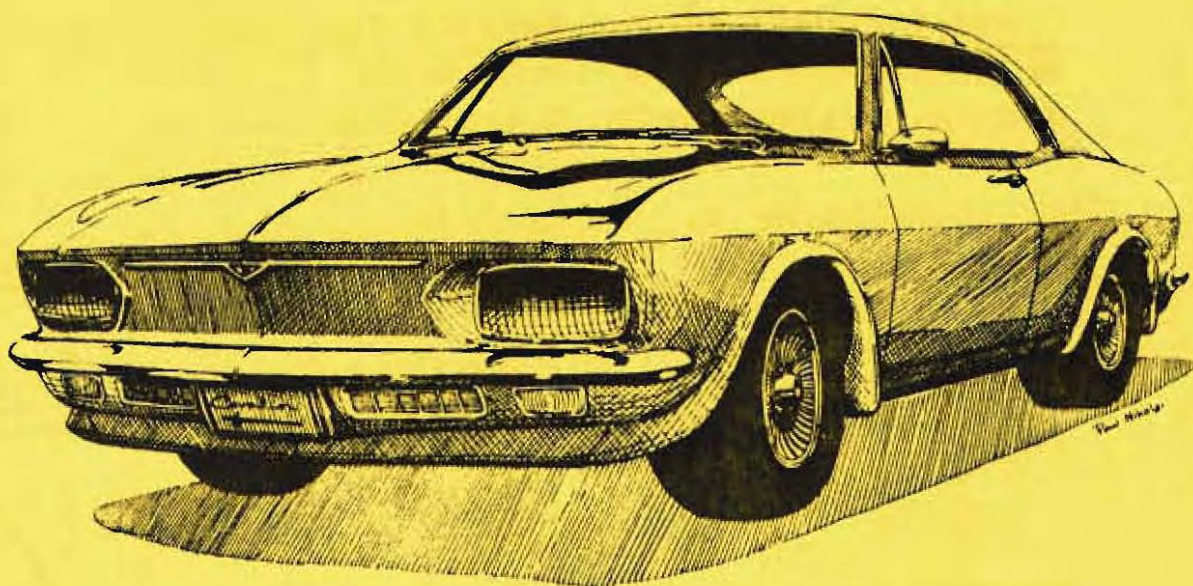
TUCSON CORVAIR ASSOCIATION

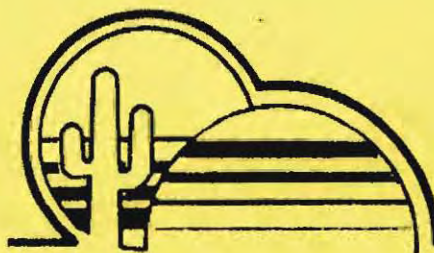
TUCSON, ARIZONA

VOLUME 14

NUMBER 11

FEBRUARY 1989





TUCSON CORVAIR ASSOCIATION

CORVAIRSATION is a monthly publication of the TUCSON CORVAIR ASSOCIATION, which is dedicated to the preservation of the Corvair model of the Chevrolet Motor Division. The Tucson Corvair association is a chartered member of the CORVAIR SOCIETY OF AMERICA (COSA).

MONTHLY MEETINGS are held on the fourth Wednesday of each month except December. One technical/social event is planned for every month except July and August.

MEMBERSHIP DUES are \$10 per year and are payable to the TUCSON CORVAIR ASSOCIATION through the Membership Chairman.

COSA MEMBERSHIP DUES are \$25 per year and include a subscription to the COSA Communique, a monthly publication. See a TCA Officer for a membership application.

CLASSIFIED ADS are FREE to a TCA Members and \$1.00 per line to all others. The deadline for materials submitted for publication is the 10th of the month for that month's issue. Mail or deliver all materials to the Corvairsation Editor. Articles are welcome for publication.

BUSINESS MAILING ADDRESS: P.O. Box 50401, Tucson, Arizona 85703.

WHEELS & SPOKES

PRESIDENT

Don Robinson
2044 W Shalimar Way
Tucson AZ 85704
(602) 297-1356

VICE PRESIDENT

Dave Baker
7041 Arrowhead Drive
Tucson AZ 85715
(602) 296-1392

TREASURER

Mike Hayden
6971 N Blue Sky Terrace
Tucson AZ 85741
(602) 297-6219

RECORDING SECRETARY

Beverly Baker
7041 Arrowhead Drive
Tucson AZ 85715
(602) 296-1392

BOARD MEMBER-AT-LARGE

Milt Evans
845 E Placita Leslie
Tucson AZ 85718
(602) 297-7566

MEMBERSHIP CHAIRMAN

(Dues & Change of Address)
Vic Howard
6270 N. Camino Arturo
Tucson AZ 85718
(602) 742-1823

LIBRARIAN

Dave Baker
7041 Arrowhead Drive
Tucson AZ 85715
(602) 296-1392

CORVAIRSATION EDITOR

Van Pershing
4842 W Paseo de las Colinas
Tucson AZ 85745
(602) 743-9185

ASSISTANT EDITOR

Alan Atwood
4287 N Limerlost Place
Tucson AZ 85705
(602) 888-4433

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Current TCA Officers, Al
Rivas, Vic Howard and the
Corvairsation Editor.



NON-MEMBERS:

We would like to invite you to join the Tucson Corvair Association. We will send you three complimentary issues of the Corvairsation and welcome you to attend all of our activities. This is a great chance to get to know us. No matter what your Corvair interests are, you'll find lots of good folks with similar interests in the Tucson Corvair Association. If you decide to join us, the dues are only \$10 per year.

From the President.....

As I write this it is only three days until the Valentine Economy Run to Bisbee. There are still a few adjustments and tweeks to make on the '65 coupe to ready it for the run..... maybe a new set of plugs too!

The February meeting is on the 22nd and it is election time. We have a full slate of officers for the election and nominations from the floor will be welcome. I hope you will be there to cast your vote and support for the incoming officers. Thanks to all for their willingness to serve and to the nominating committee for their work.

The latest CORSA Communique has several good tech tips in its Tech Time feature. Just in time for the March mid-month activity. Van Pershing will host the tech session at his home on Saturday, March 18th starting at 1:00 pm. The club will provide sodas; come and enjoy the tech chit-chat and a couple of detailed tech presentations on trannys. Bring along any tech questions you have on any subject. See directions to Pershing's home elsewhere in this Corvairsation.

Don Robinson

ELECTIONS !!

WEDNESDAY, Feb. 22nd.

BE THERE !!

TECH SESSION

MARCH 18th

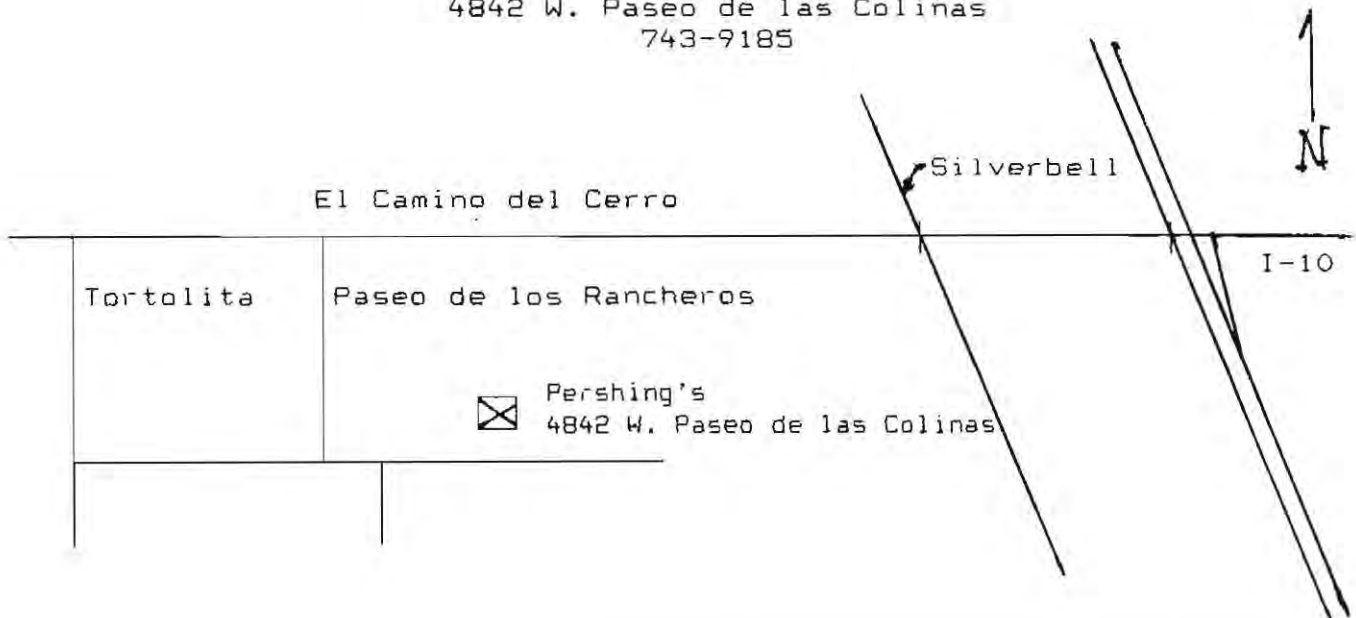
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Y O U A R E I N V I T E D T O O P E N H O U S E !!!

SUNDAY, FEBRUARY 26, 1989

1 p.m. - 5 p.m.

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Supercharged Corvair-Monza

CT&T recently tested a supercharged 1961 Corvair lent to us by Gorries and the net conclusion is that the Corvair is going to take some beating next season.

Basic changes in the Corvair for 1961 are relatively minor. The overall dimensions and appearance are identical to last year's models.

The engine has been modified to produce 98 horsepower and in this form is known as the Turbo-Air engine. Changes involve a simplified carburetor air intake system, minor carburetor changes, increased piston displacement and air cooling system revisions.

On stock models (supercharging is strictly optional and supplied by the dealer, not the factory) the tripod support, automatic choke and air cleaner over the engine cooling blower have been eliminated resulting in a lowering of engine height. Short, flat wedge-shaped ducts extend forward from each carburetor to separate air cleaning units which while smaller than previous models provide more efficient air filtration.

The carburetors themselves have been modified to reduce sensitivity to air intake restriction which in the past has tended to cause over-riching of the mixture. In the new carburetors, vent passage diameters have been increased and placed between the float bowl and the air horn.

The 1961 engine displaces 145 cubic inches as compared with 140 cu. ins. in the 1960 version and this is accomplished by increasing the bore to 3.4375 ins from 3.375 ins.

The racing version as offered by Gorries is fitted with the Super Turbo-Air engine which delivers 98 hp at

4600 rpm with a torque of 132 ft/lbs at 3000 rpm. The standard Turbo-Air unit delivers 80 hp at 4400 rpm with a torque of 128 ft/lbs at 2300 rpm. The increased power in the Super Turbo-Air unit is derived from carburetor adjustment and improved breathing.

This unit can be fitted with a single stage belt driven Paxton supercharger which fits snugly beneath the rear deck with no external body modifications necessary. With the Paxton fitted the engine should be red lined at 5800 rpm which allows a comfortable margin for accidental over-revving for valve float does not usually occur before 6200 rpm is reached. At 5800 rpm the Paxton raises the air pressure to the carburetor as much as 12 psi which is compensated for by modifying the fuel pump in order to

keep fuel pressure up. With the Paxton fitted the Corvair truly leaps away from standing starts like a young gazelle and slips nimbly through the gears to its maximum of a true 98 mph @ 5000 rpm. A maximum rpm of 5750 in each gear is recommended for the best results.

0-30 — 3.5 sec. 0-50 — 7.8 sec.
0-40 — 5.6 sec. 0-60 — 10.6 sec.

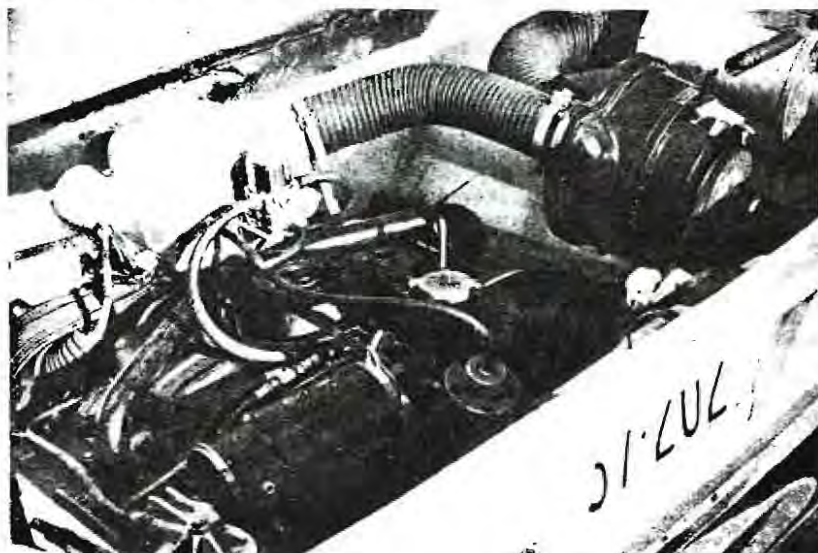
Speedometer Error:

30-29; 40-28; 50-48; 60-58; 70-68; 80-77; 90-86; 100-96.

Gorries are offering competition tuned 1961 Corvairs with and without superchargers at special prices to qualified racing drivers, an unprecedented move.

The 1961 Monza Coupe, with the 98 hp engine with heater, license, gas, 4-speed transmission sells for \$2556 net, to the competition driver. When prepared for racing which includes decambering, fitting of four adjustable competition shock absorbers and a stabilizer bar at the front, the price increases by \$83. Installation of the supercharger and necessary modifications brings the price up by \$350 to an overall \$2989.

Canadians will be pleased to learn that considerable attention has been paid to the heating system in the 1961 Corvairs, the gas heater being replaced by a direct air heating system using engine cooling air which was found to provide fast and efficient warming of the driving and passenger areas. The hot air is channelled into the car from the engine, blower assisted when necessary, through a series of ducts which introduce hot air at floor level through outlets at both front and rear seats. A simple control panel beneath the instrument panel carries controls for blower, defrost and heating. ♦♦



Exhaust-driven supercharger for Chevrolet Corvair Monza



MONZA SPYDER version of the rear-engined Chevrolet Corvair is shown here with the optional centre-lock wire wheels.

Rear-engined American Sports Two-seater Pioneers a New Trend

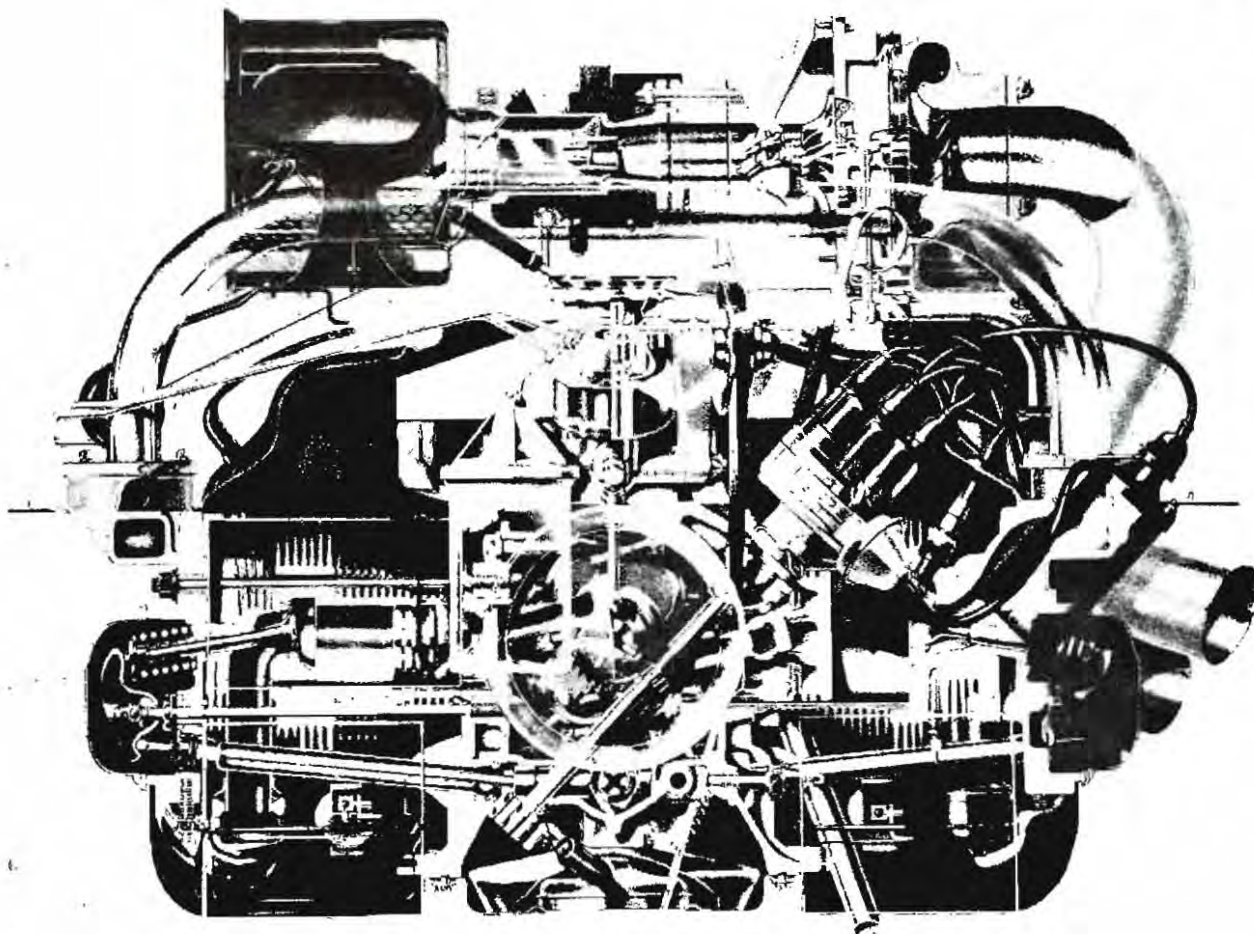
AS a means of increasing engine power or of improving performance at high altitudes, exhaust-driven superchargers have been familiar for many years on large diesel engines and on aircraft. Nobody has hitherto made serious use of an exhaust-driven supercharger on an ordinary private car, which poses very different problems, but last autumn the Oldsmobile Division of General Motors disclosed preliminary details of a turbo-supercharging project, and now the same Corporation's Chevrolet Division has got ahead

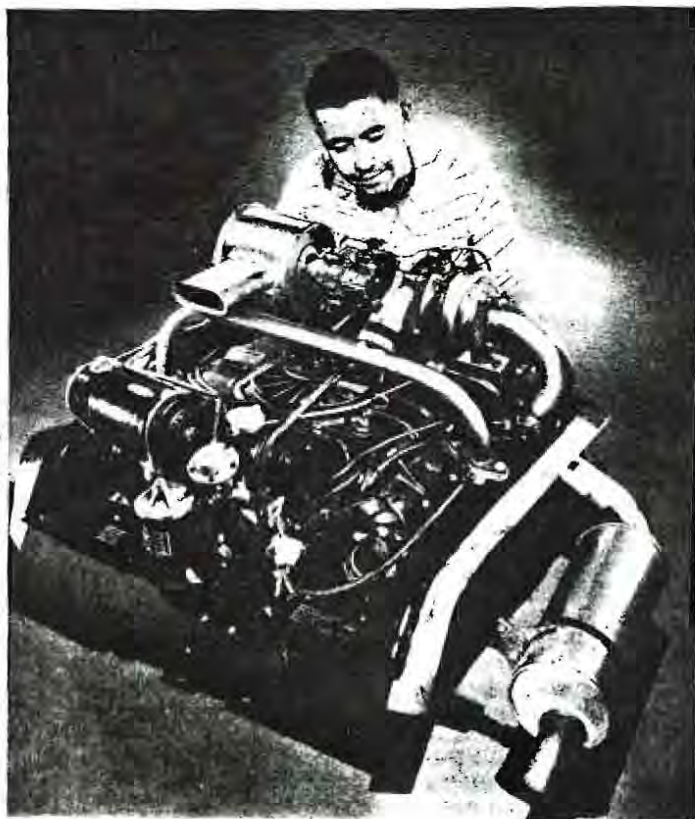
by putting an exhaust-supercharged Corvair "Monza Spyder" sports car into production.

A photograph on the next page shows a delightfully neat and simple-looking supercharged engine, which develops 150 b.h.p. at 4,400 r.p.m. in comparison with the same engine's 80 b.h.p. at 4,400 r.p.m. in normal form or 102 b.h.p. at the same speed with special camshaft and other modifications. The installation is almost as simple as it looks, all exhaust gas being led through a single-stage turbine, which drives a centrifugal supercharger acting as a pump to draw mixture from the carburettor and force it into the inlet manifold. In effect, there is only one extra moving part added to the engine, the turbine and compressor being back-to-back on a single shaft.

If nearly 50% more power can be wrung out of an engine

CROSS-SECTION of the flat-six Chevrolet engine in its new 150 b.h.p. form shows the exhaust turbine above the right-hand bank of cylinders, driving a centrifugal supercharger to the intake of which a triple-venturi horizontal carburettor is bolted.





NEATNESS of the turbo-charger installation is shown in this photograph. A new lightweight engine cooling fan of plastic reduces belt loadings during fierce acceleration.

by adding one moving part, why doesn't everybody do it? Maybe if the General Motors applications of turbo supercharging prove successful, the idea will spread rapidly. But there have been very real problems to solve in getting quick response to "snap" throttle opening, and in adding reliability to the extra power.

Exhaust-driven superchargers take advantage of the fact that when an engine's exhaust valves open, considerable pressure remaining in the cylinders goes to waste. A turbine, which is precisely suited to handling big volumes of gas at a modest pressure is ideal for using this waste energy, just as the piston in its cylinder is ideal for handling the initial expansion of high-pressure gas before its volume becomes inconveniently huge. On a supercharged engine, extra air pumped into the cylinders reappears as extra exhaust gas from which to recover energy. But if, instead of giving exhaust gas a free escape, you impose back-pressure with a turbine, extra heat will be kept inside the engine, which must be built to withstand this heat.

In aeroplanes, exhaust gas turbines have sometimes been arranged close to the cylinders so that the initial pulse of gas as each exhaust valve opens gives maximum energy to the turbine. On the Chevrolet Corvair practical considerations have demanded a slightly less efficient layout, exhaust gas from two manifolds underneath the "flat 6" Corvair's two banks of

cylinders entering a single pipe which runs up ahead of the right-hand cylinder block to the turbine.

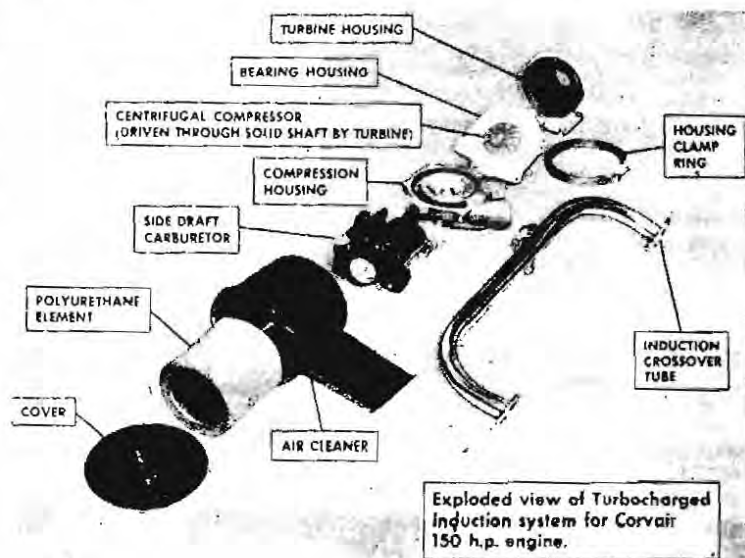
Aircraft engineers have often controlled exhaust turbines by having a sort of "cut out" in the exhaust system which was opened to give hot gas a direct escape route to the atmosphere when supercharging was not required. Chevrolet pass their exhaust gas through the turbine all the time, and whilst this may impair fuel economy during low-speed touring, it will keep the turbine running at a high enough speed for some supercharge to be available as soon as the accelerator is depressed. Beyond the turbine, exhaust piping of 2½-in. diameter takes gas from the 2,372 c.c. engine into a four-chamber silencer and on to the atmosphere.

Turbine and Compressor

The exhaust gas turbine is an inward-flow design, with gas blown tangentially on to the periphery of its 11-blade, single-sided rotor and emerging from its eye. The centrifugal back-pressure which increases with speed makes this inward-flow design of turbine very stable, accelerating well from low speeds yet having a minimum tendency to overspeed at other times. Only 2.97 in. in diameter, the impeller can run up to as much as 70,000 r.p.m. and is made of a heat-resistant cobalt-base alloy.

On the opposite end of a short shaft to the turbine, the centrifugal supercharger has a 14-blade impeller die cast in aluminium alloy, of 3-in. diameter. Fuel/air mixture enters the centre of this impeller, and leaves its rim where a snail-shaped casing turns its velocity energy into pressure. It is stated that whereas resistances to air flow through the carburettor restrict inlet manifold pressures in a conventional engine to something below atmospheric, this supercharged Corvair Spyder engine shows 1 lb./sq. in. "boost" at 2,500 r.p.m., rising to 2 lb./sq. in. at 2,750 r.p.m. Unsupercharged Corvairs have two downdraught carburettors (one per bank of three cylinders) but this engine needs only a single horizontal carburettor, which feeds directly into the supercharger; a cross-pipe takes mixture from the supercharger to the two halves of the horizontally opposed engine. In quest of good carburation over a wide range of air flows, the carburettor chosen has three venturis of diminishing size working in series, the outlet of the smallest being at the throat of the intermediate which in turn discharges at the throat of the main venturi.

Cooler running sparking plugs (AC type 44FF in place of 46FF) are used on the supercharged engine in conjunction with an ignition coil of 20% greater output. A complete change is made in the ignition timing arrangements, a control to retard the ignition when supercharge pressure rises above atmospheric replacing the mechanically similar device otherwise used to advance a normal engine's ignition timing during part-throttle motoring. An initial spark setting of 24° before top



EXTRA components for the supercharged engine are the compressor and turbine, one carburettor and air cleaner replacing two, and a cross-pipe feeding mixture to two banks of horizontally opposed cylinders.

Exploded view of Turbocharged Induction system for Corvair 150 h.p. engine.

Supercharged Chevrolet Corvair



FACIA PANEL of the Monza Spyder carries a full set of instruments; a red sector on the tachometer starts at 5,000 r.p.m., the boost gauge reads up to 30 in. hg. (approx. 15 lb./sq. in.) above atmospheric and a thermometer scale for fan-cooled cylinder heads reads to 600°F.

dead centre is retarded by 9° as the boost pressure rises from 1 lb. to 2 lb./sq. in., as a precaution against detonation, but maximum boost is not quoted; the centrifugal timing control also has exceptional characteristics, in that an extra 12° of advance comes in only as engine speed rises from 3,900 r.p.m. to 4,500 r.p.m. This supercharged Corvair has the same 8/1 compression ratio as have unsupercharged examples, but with ingoing mixture heated and pressurized by the supercharger it requires 100-octane petrol instead of the American regular-grade (93-octane approx.) petrol.

Specification

ENGINE (rear mounted)

Cylinders ..	6, horizontally-opposed with 4-bearing crank-shaft.
Bore and stroke ..	87.312 mm. x 66.04 mm. (3.437 in. x 2.6 in.).
Cubic capacity ..	2,372 c.c. (145 cu. in.).
Piston area ..	55.5 sq. in.
Compression ratio ..	8/1.
Valvegear ..	Pushrod-operated o.h.v.
Supercharger ..	Exhaust-driven centrifugal; 14-blade impeller of 3 in. dia. driven at up to 70,000 r.p.m. by inward-flow exhaust turbine with 11-blade rotor of 2.97 in. dia.
Carburation ..	Triple-venturi horizontal single-barrel carburettor, fed by mechanical pump.
Ignition ..	Coil ignition with centrifugal timing control, and retard by above-atmospheric manifold pressures.
Cooling ..	Air cooling by vertical-spindle fan of moulded plastic.
Maximum power ..	(S.A.E. gross rating.) 150 b.h.p. at 4,400 r.p.m., equivalent to 187 lb./sq. in. b.m.e.p. at 1,910 ft./min. piston speed and 2.7 b.h.p. per sq. in. of piston area.
Maximum torque ..	210 lb. ft. at 3,200-3,400 r.p.m., equivalent to 219 lb./sq. in. b.m.e.p. at 1,390-1,470 ft./min. piston speed.

TRANSMISSION

Clutch ..	9.1-in. single dry plate.
Gearbox ..	4-speed, with synchromesh on all ratios.

All the modifications listed so far have been for the purpose of getting extra power, but associated with them are a whole series of further changes designed to provide reliability when running supercharged. The modified camshaft, valve springs and other parts which can lift an unsupercharged Corvair's output from 80 to 102 b.h.p. are used, and many more special parts also. Exhaust valves of two-piece welded construction combine heat-resistant heads of Nimonic 80a nickel-base alloy and scuff-resistant stems of nickel-silicon steel alloy; the exhaust valve guides are of a nickel-bearing aluminium-bronze alloy which provides good heat conductivity and a satisfactory high-temperature bearing surface. Chrome-plated top piston rings are used, special connecting rods have increased cross-sectional area in the shank, and the crankshaft is made of nickel-silicon steel instead of from carbon steel to secure more uniform hardenability and increased toughness.

Plastic Fan

It may be recalled that the Corvair has a vertical-spindle fan set horizontally above its engine, driven by a belt which turns round idler pulleys, to circulate air round the finned cylinders. For the Spyder engine a fan made of acetal resin plastic has been introduced, and the low weight of this is claimed to reduce peak acceleration loads on the fan-and-dynamo belt by 40%. Transmission details associated with the turbo-supercharged engine include a thicker clutch pressure plate with 16% greater spring loading, and the spin-limiting differential already offered on Corvairs is particularly advised for this model. Wire wheels with knock-off hubs are becoming available as an optional alternative to bolt-on disc wheels.

Photographs show the trim lines of the Monza Spyder, and the full instrumentation provided in its cockpit. Four-speed synchromesh gearing is used on this model, with a 3.55:1 top gear, and central "stick shift" lever, extra-firm springs and sintered metallic brake linings being other special features of this sporting model. Light and compact by American standards, this fast rear-engined model will add considerable new interest to the transatlantic sporting scene.

Overall ratios ..	3.556, 5.12, 8.36 and 12.98; rev. 12.98.
Propeller shaft ..	None (rear-mounted engine).
Final drive ..	9/32 hypoid bevel.

CHASSIS

Brakes ..	Drum type, 9 in. dia. x 1½ in. wide, with sintered metal linings.
Front suspension ..	Independent by transverse wishbones and coil springs.
Rear suspension ..	Independent by semi-trailing arms and coil springs.
Wheels and tyres ..	Bolt-on disc wheels (centre-lock wire wheels optional) and 6.50-13 tyres.
Steering ..	Saginaw recirculating ball.

DIMENSIONS

Length ..	Overall 15 ft.; wheelbase 9 ft.
Width ..	Overall 5 ft. 7 in.; track 4 ft. 6 in.
Kerb weight ..	Approx. 23½ cwt. (without fuel but with oil, tools, spare wheel, etc.).

EFFECTIVE GEARING

Top gear ratio ..	19.8 m.p.h. at 1,000 r.p.m. and 45.7 m.p.h. at 1,000 ft./min. piston speed.
Maximum torque ..	3,200-3,400 r.p.m. corresponds to approx. 63-67 m.p.h. in top gear.
Maximum power ..	4,400 r.p.m. corresponds to approx. 87 m.p.h. in top gear.

Insurance and Sports Cars

THE difficulty of insuring sports cars adequately and economically has already been discussed in this column in recent weeks. The usual exclusions applied to a sports-car policy are in respect of personal accident benefits and legal liability to passengers.

Although a passenger must prove actual negligence at law to succeed in a

claim against a driver, the award, if successful, is usually quite substantial. Some underwriters are prepared to grant this cover but the premium is not likely to be less than £5 a seat. The owner's conscience will dictate whether this cover is necessary.

Personal accident insurance is usually quite a simple matter to arrange by taking

an annual personal accident policy providing £1,000 capital benefits and £10 per week for temporary total disablement at a premium of as little as £2 15s. a year according to occupation.

As the average underwriter makes these exclusions when effecting a sports car policy, then it is reasonable to argue that it is most important for the sports car owner/driver to arrange the cover if he can. John E. Good, A.C.I.I.

Vairo 'n Spares

WANTED: CORVAN or GREEN-BRIER, 4-speed, 110hp. Prefer a reliable runner. Contact Floyd Maillard, 7749 Elk Trail, Yucca Valley, CA 92284 2/89

FOR SALE: '60 CORVAIR, 4-door, original owner, best offer. Call John Little (602) 795-2175. 1/89

FOR SALE: '61 LAKEWOOD, white, nice appearance, automatic, runs good daily. \$3,000 - will talk! C.G. Turner (602) 326-7203. 1/89

FOR SALE OR TRADE: 64 CORVAIR HP, complete, needs work and my Corvair sandrail frame for one or two good running dirt or enduro motorcycles, or make offer. Ben Meeks (602) 883-8890. 2/89

FOR SALE: '62 MONZA, 2-door, automatic, runs, ready for resoration, complete - some spares. \$850. Call Jeff (602) 790-9450. 1/89

FOR SALE: '66 CORVAIR 4-door, AT, rough but runs. \$500. Price includes a vast array of Corvair engine parts. Call Bob Graves 883-0143, or leave name and number at 798-1246. 11/88

FOR SALE: '61 700 4-DOOR automatic, ready to go anywhere, rust free body w/ new paint, interior good, needs only headliner, excellent tires & new battery. A \$1500 value can be bought for \$1000 - negotiable. Call Gordon Cauble 299-1122. 5/88

FOR SALE/TRADE: '61 LAKEWOOD, 110/auto, bright yellow, wire wheel covers. Nice inside and out. Make me an offer!! Asking \$1,500 or trade for a 2-door Monza of similar value. Call Van at 743-9185. 4/88

FOR THE DO-IT-YOURSELFER: Mag ignition wires & long rotors, plus all regular ignition items. Wrapped fan belts, air & oil filters plus viton o-rings and oil cooler seals. Call Gordon Cauble 299-1122.

FOR SALE: New and Good Used Parts. New '65-69 front molded carpet, red, \$75; Late model NOS gas door guard, \$17.50; Used windshields for early & late model cars, ½ price; New main bearing set, std, \$15; New rod bearing set, +.010, \$20; '63 & '65 turbo distributors, \$40 ea; and many other new and good used parts. Call Gordon Cauble @ 299-1122.

FOR SALE: '65 MONZA CONVERTIBLE, 110/automatic, light blue w/ blue interior & white top, engine completely rebuilt & body ready to paint. New trim ready to mount. New top installed, new Clark's interior mounted-ready to install, new carpet. Car is driveable. Asking \$3250 OBO. Call Gordon Cauble 299-1122.

FOR SALE: '65 MONZA 2-DOOR, 4-speed. Rough but running. \$450 Del Light (602) 883-6794. 12/88

FOR SALE: '64 MONZA, 2-DOOR, Automatic transmission - not running - complete. Call Del Light (602) 883-6794. 12/88



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TUCSON CORVAIR ASSOCIATION REGULAR MONTHLY MEETING

FOURTH WEDNESDAY of each month
Piccadilly Cafeteria, 6767 E. Broadway, Tucson

6:30 pm: Parking Lot Bull Session
7:00 pm: Dinner (Optional)
7:40 pm: Meeting Starts

COMING EVENTS

March 18: Tech Session

1:00pm at Pershing's, 4842 W. Paseo de las
Colinas. (see details inside)

February 22: Regular Monthly TCA Meeting

March 1: TCA Board Meeting 7:30 at JBs, Oracle & Limberlost

Tucson Corvair Association
P.O. Box 50401
Tucson Arizona 85703



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