

Corvairisation

TUCSON CORVAIR ASSOCIATION

TUCSON, ARIZONA

VOLUME 14

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JANUARY 1989

CORVAIR 10700 SERIES AND R.P.O. L63 (4 x 1 CARBURETORS)

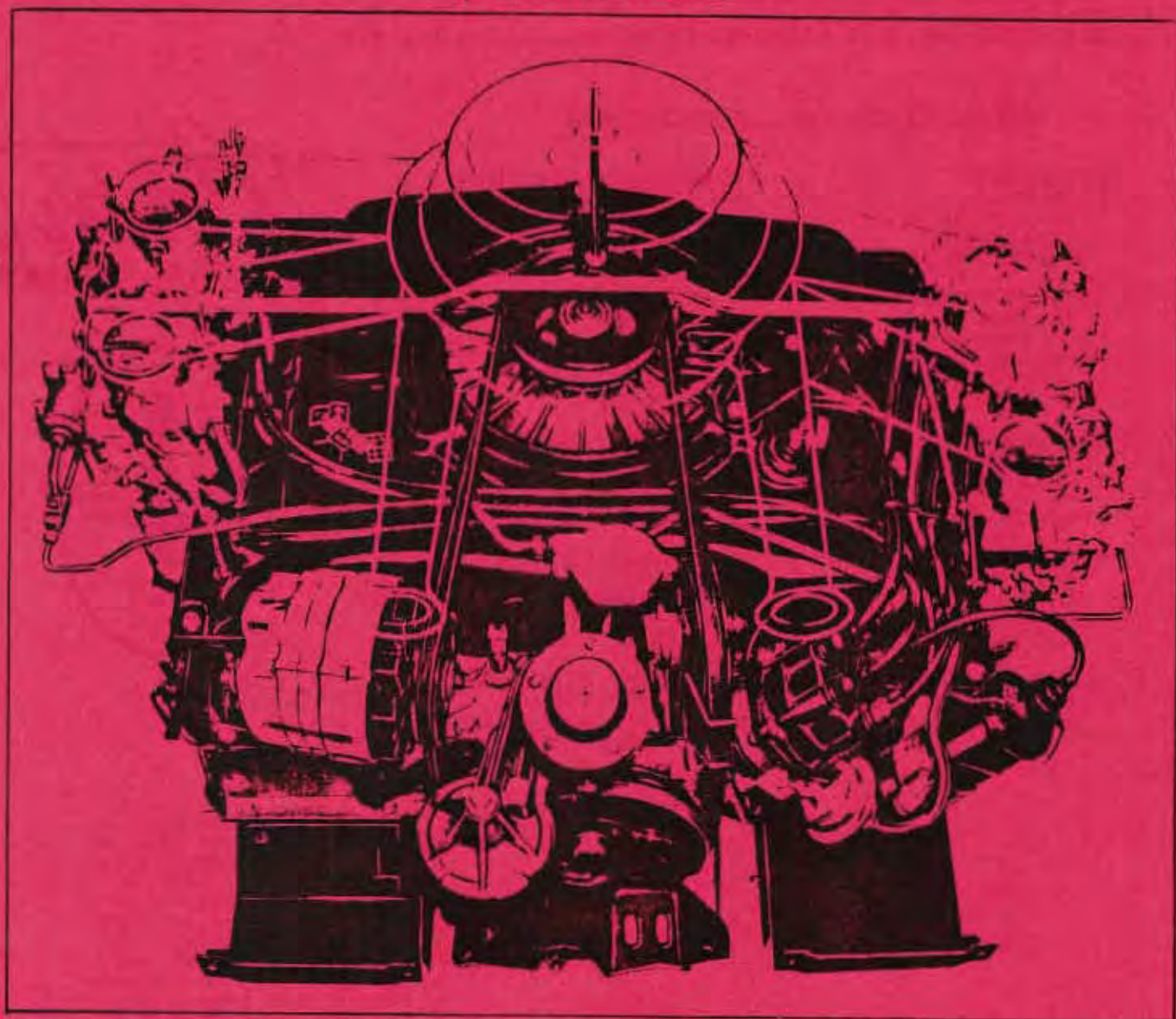


Fig. 127—Corvair Engine (4 x 1 Carburetor)



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.

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BOARD OF DIRECTORS

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.....

Happy New Year!

I waited until today, Martin Luthur King Jr's birthday holiday, so that I could say something about the January activity held on January 14th. I was great! We met for breakfast at the Roundup--seventeen people were there for a great meal. Then we cruised down to the Rodeo Parade Museum, where we were met by Del Light and Ed Dryden for the tour. The Museum is centered around a typical western street with variuos shops and artifacts of the old west. The variety of old wagons and equipment dates back more than 100 years. The rodeo parade is February 23rd this year if you would like to see some of the vehicles in action. Also, the Museum is open untill Rodeo Days on Saturday and Sunday, 12 noon to 4 pm. Thanks to Del and Ed for this interesting tour.

We have received the new CORSA rosters and new golf shirts, which will be on display at the January meeting. Don't miss the big sale of late model door window "fuzzies" -- they are on sale at the January meeting for less than half price -- Seventy-five cents per foot in four and eight foot lengths.

The nominating committee will be presenting the slate of officers at the January meeting for the election at the February meeting. If you would like to serve, please contact Bob Thompson. We always need people like you!!

February's activity is an economy run to Bisbee - the Valentine's Run. Plan to run to Bisbee with a friend, spouse or best buddy. We'll leave from the Chevron station on Park and Benson Highway at 10:30 am on February 19th. First we will meet at the JB Restaurant (Park & Benson Hwy) for coffee, then top off the tanks at the Chevron station. We should arrive at Bisbee about 12:30, where we will gas up again, and proceed to the Copper Queen Hotel for lunch. Plan now to attend because we need a headcount at the January meeting, or call me not later than February 14th.

Cans...Cans...Cans!! Bring them to the January meeting. I will have the seats out of the van so we can haul all those cans to the recyclers.

See you the January 25th!

Don Robinson

THE CORVAIR'S GRANDDADDY

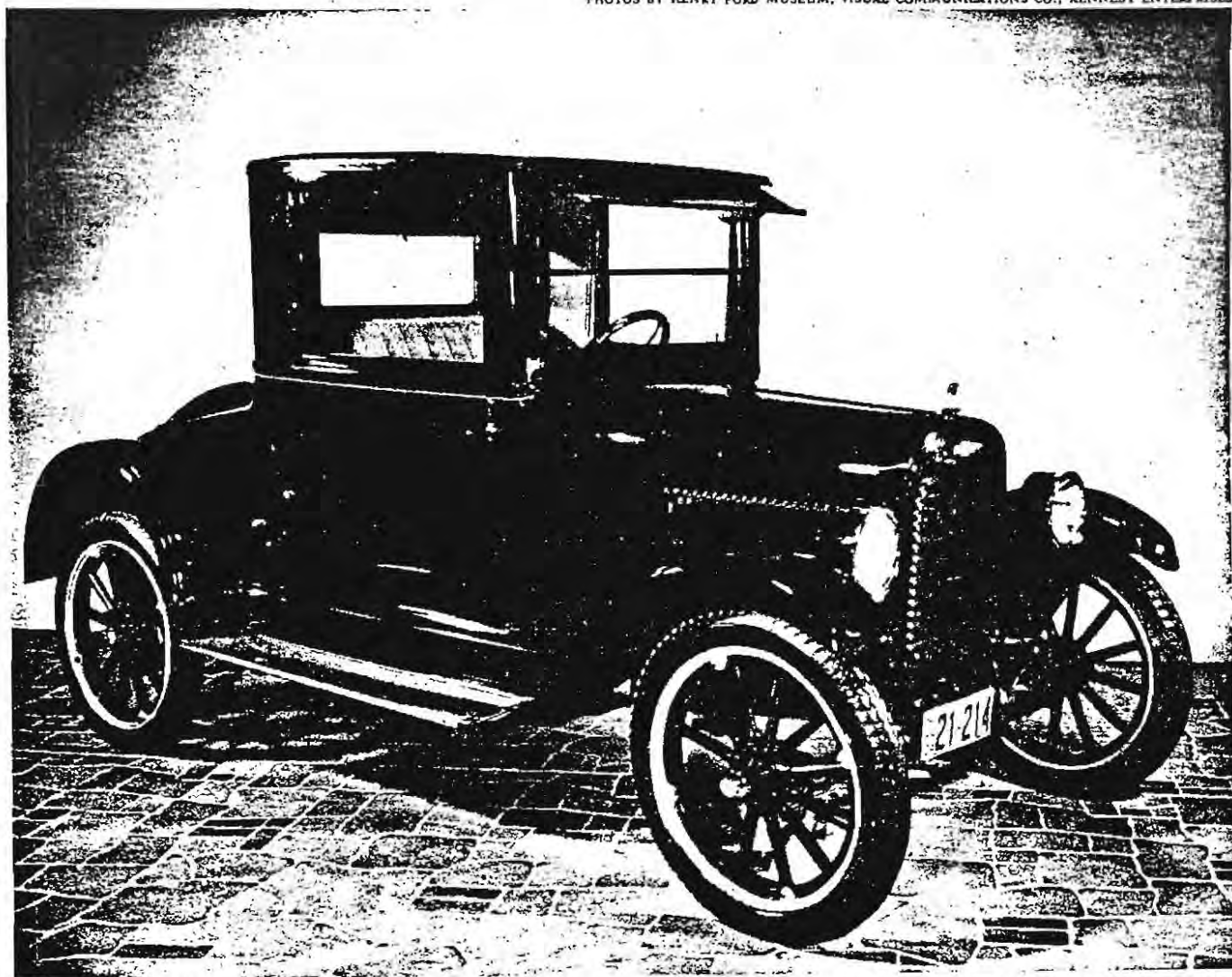
*Copper-Cooled Chevrolet of 1922-23
was an air-breathing ancestor of
today's popular Chevy compact*

CAR BUFFS nowadays think the Corvair has the only air-cooled engine Chevrolet has ever built. But who remembers that other air-cooled Chevy? In December of 1922, General Motors surprised the motoring public (not to mention the auto industry) with a sensational announcement that the Chevrolet "Copper-Cooled" car was ready for production.

Several hundred other makers had been offering air-cooled engines ranging from one to eight cylinders — with varying success. So the basic idea wasn't new even then. Cylinders with integral cast fins were a production problem, and some manufacturers tried the very expensive process of machining fins from solid blocks. Others screwed studs into the tapped cylinder or wrapped the barrel with sheet-metal flanges. Most of these designs made for a longitudinal air flow through the fins, leaving the area between the cylinders very much under-cooled. Cylinders warped and the pistons often stuck.

The successful air-cooled Franklin engine of this period was designed for downdraft cooling through circumferentially closed vertical fins. The cylinders were made by placing flanged copper fins in the foundry molds and casting the barrel so the fins were imbedded in the iron. But old-timers remember that the Franklin wasn't a cheap car, and the company made them in very limited numbers.

PHOTOS BY HENRY FORD MUSEUM, VISUAL COMMUNICATIONS CO., KENNEDY ENTERPRISES



ONE OF THE TWO REMAINING COPPER-COOLED CHEVYS NOW RESTS IN HENRY FORD MUSEUM. CAR HAD NO RADIATOR, ONLY A LOUVERED GRILLE.

So the Chevrolet announcement came as good news. Here was an air-cooled car that everyone could buy. This new engine was to be an alternate choice in the famous Chevrolet Superior models. Outwardly, the only difference between Copper-Cooled versions and standard Chevys was a louvered, sheet-metal grille instead of the exposed radiator core.

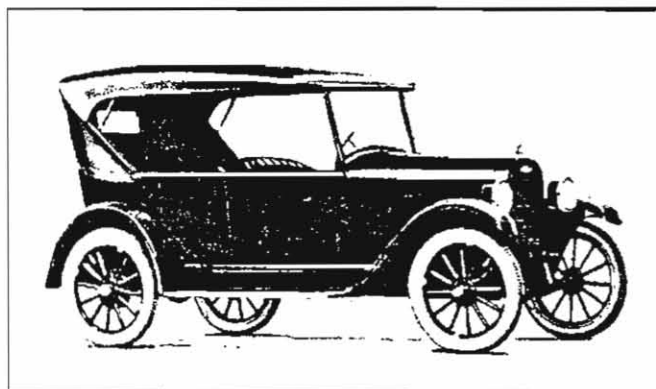
As in most air-cooled engines, the cylinders were individually produced. They were machined both inside and out to get uniform wall thickness. The vertical, sheet-copper fins formed loops around the cylinder and were fused to the iron to give quick heat transfer to the radiating surfaces.

The cylinders were mounted on the crankcase in pairs, capped by two pairs of overhead-valve assemblies. The fins between the adjacent pairs were necessarily short and consequently had less cooling capacity. To offset this, the intake valves were placed above the short-finned sides. The exhaust valves were thus toward the outside ends in each pair, where cooling was a bit more effective.

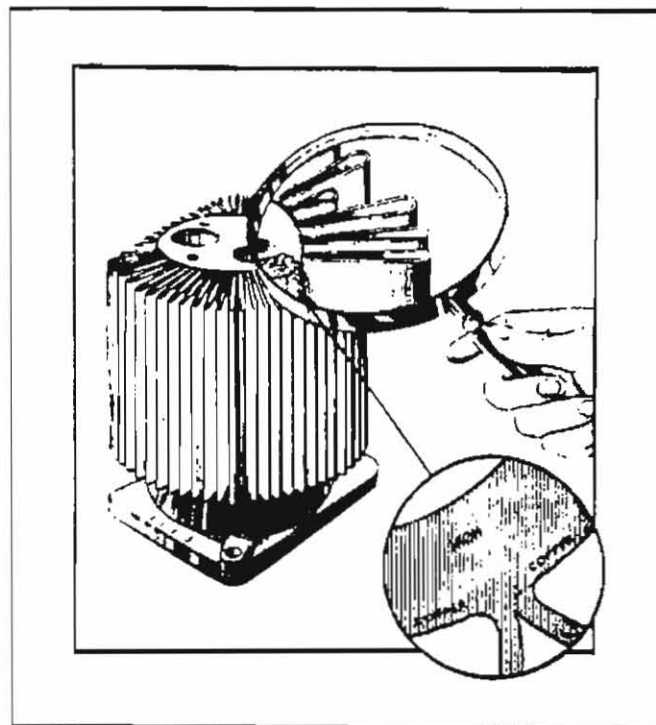
These fins were enclosed by a large sheet-metal housing, and this was open at the front and bottom. Above the engine, a large, pressed-metal air duct, with a valve access door, blew out the hot air being drawn up and forward. It was expelled by a large squirrel-cage blower. The axis of this fan was at the top of the engine and was driven by a V-belt from the crankshaft. Other items that made this engine radical for its day were an automatic spark advance and a belt-driven generator.

The engine was a square Four, with a bore and stroke of 3.5 inches. This gave a displacement of 134.6 cubic inches. (It was the smallest engine Chevrolet ever produced.) With a 4-to-1 compression ratio, it developed a maximum of 22 hp at 1750 rpm. The touring car, for example, on a wheel-base of 103 inches, weighed 1670 pounds. That's a power-to-weight ratio (with five passengers) of some 111.5 to 1. Price was \$725 minus accessories. Base prices began some \$200 higher than models with regular water-cooled engines. There was a full range of roadsters, coupes, sedans, and a sedanette as well as the touring models.

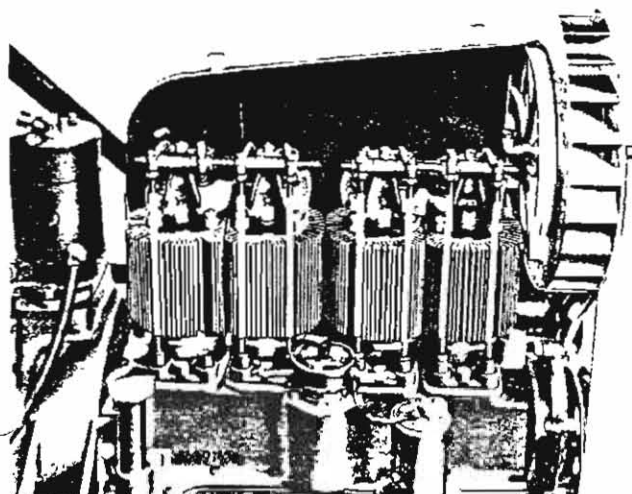
After less than 300 of these cars were built, they were called back to the factory without explanation. One rumor has it that the recalled cars were loaded onto barges and dumped into Oakland Bay outside San Francisco. At least two now rest in U.S. museums. One (much like a lamb among wolves) is owned by the Henry Ford Museum in Dearborn, Michigan. So it took some 37 years before an American company would again produce an economical air-cooled automobile. Ironically it was again Chevy. /MT



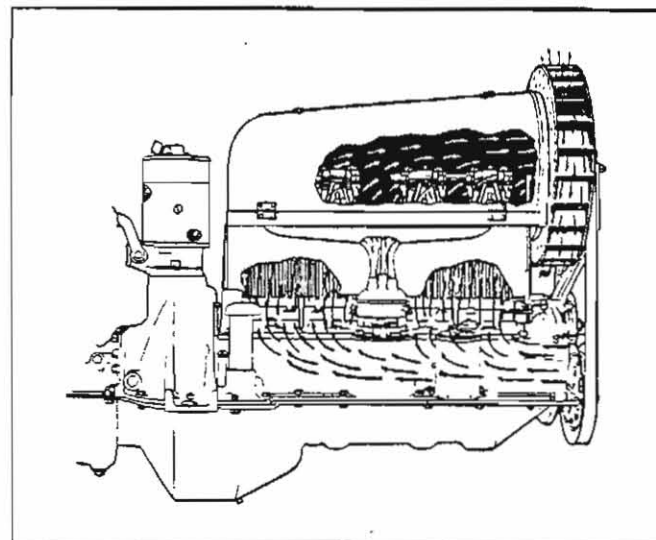
Five-passenger touring car of 1923 sold for \$725 f.o.b. Flint, Michigan. Air-cooled engine was widely hailed by the public.



Continuous copper fins were fused into cast-iron cylinders to give maximum cooling. Exhaust valves stood toward outer fins.



Overhead valves were activated by exposed pushrods and rocker arms. Starter motor pointed downward from top of the flywheel.



Air-flow diagram shows how cooling draft entered through the bottom of metal shroud, was driven out by big squirrel-cage fan.

FOUR CARBS ON A SIX-BANGER

by John Wipff

I think people began experimenting with four carbs on a Corvair almost as soon as the first '60 models hit the street. Bill Thomas was one of the first non-factory surgeons but Duntov is rumored to have had one ready for the first "power pak" if the cam and other assorted goodies didn't work in 1960.

So when Chevy announced the 140 hp engine for 1965, there was little surprise. In fact, many Corvair fans wondered why Chevy had waited so long.

The probable reason was valve seats. As almost all 140-philes know, they fall out regularly, a problem that does not bother other Corvair engines, including turbos.

I have heard many casues for this fall-out, including lugging the engine too much (supposedly not letting the fan cool enough because of low engine speed, jets too small (letting the engine run hotter (air leaks again, causing combustion chamber over-heating), and rear tires too large (making the engine run slower but pull harder, causing over-heating). Which would tend to mean the seats fall out because they over-heat, whatever the cause, a good reason for GM to be a little skeptical of introducing them. Most shade tree hot-rodders did not increase the size of the valves, as GM did, so few had the fall-out problem.

Nevertheless, the 140 **was** introduced and became such a hit that when GM tried to drop it in '67, in deference to the Camaro, prospective customers complained so much that it was reinstated as a COPO (Central Office Production Option) instead of an RPO (Regular Production Option), until Corvair's demise, in 1969.

The engine was originally used with the High Performance cam (PN 3839891 *) on both standard transmission and Powerglide models. However, apparently idle and low speed problems prompted the change to the same cam as the low-perofrmance engine (PN 3839889) for the Powerglide models, early in the model run. These cams were used until 1969, when emission controls were tightened and all engines used the low-performance cam.

Compared to the 110 or 95 hp engine, the 140 was really designed, in theory at least, to be a better engine. The top piston ring had an insert of molybdenum in a ring of ductile iron. Ductile iron is very flexible and can withstand lots of spark knock. The turbo engine had the same kind of top ring, but the 95 and 110 engines had chrome-plated cast iron, which provided satisfactory performance, since it was assumed there would not be the type of service required of these "bread-and-butter" engines, as would be in the 140..

The 140 also received a 12-plate oil cooler as did the turbo and A/C models, however the same crank was used in all models.

These differences aside, the biggest differences involved the carburetors, the size of the valves, and the distributor advance curve.

The carburetors were: two primaries (PN 7025023) the same as used on the 95 and 110 hp engines without A/C, and two secondaries (PN 7025226) similar to the primaries but without idle systems or chokes. The 1965 shop manual lists the main jets as .051 for primaries and .050 for secondaries. However, this must have been for early models,

* This H.P. cam was later changed to PN 38 72304.

because all I have ever seen in the little buggers is .050 for primaries and .046 for the secondaries, the same as the specs in the '66 shop manual.

The linkage was changed from an "I hope it closes when I release the gas pedal" type to a spring-loaded type that wouldn't let the secondaries open until the chokes warmed up, thereby keeping the engine from being over-carbureted when cold. And in 1966 the secondaries were given idle circuits, since the '65's tended to stop up if not used regularly.

The valves were 1.72" intake and 1.36" exhaust, the intakes being much larger and allowing up to 60% more airflow than a standard 95 or 110 intake valve, yet allowing as smooth an idle as the lower performance engine.

The distributor used in 1965 for both manual and Powerglide transmissions was PN 1110330, with an advance of 18° at 2800 rpm. This was found to have a flat spot during acceleration with Powerglide models, so in '66 the Powerglide models received distributor PN 1110339 with an advance of 18° at 3200 rpm, peaking farther up the torque range and eliminating the flat spot.

All 140 models received a larger cross-section exhaust manifold set, with larger exhaust tubes feeding into it. There was also a dual muffler set-up, giving the 4-carb engine a very different sound from either the turbo or the single muffler units.

The Powerglide units coupled to the 140 engines had governors (140 PN 3878298; others PN 6256327) and valve bodies (140 PN 3870368; others PN 3847298) different from the standard units, allowing the 140's to wind higher before shifting from low to high.

A word about air conditioning and the 140 engine. In 1965, a condensor of the type used previously in the '62-'64 models was used. This condensor sat on the engine where the air cleaner usually resided, necessitating the use of dual air filters as used with the early models. And since the 140 engine had four carburetors instead of two, it was just easier, I suppose, to disallow air conditioning with the 140 engine. However, with the introduction of the 1966 models, the condensor was mounted forward of the engine, leaving the usual air cleaner space free for the air cleaners. Even so, few 140 engines were ordered with air, making those that were, worth a premium price over those that were not.

While putting the condensor away from the top of the engine made it easier to work on the engine, it meant that all the hot air from the condensor went into the engine compartment not just into the engine. It also meant that hotter air went through the carbs producing less horsepower and that all seals around shrouds had to be tight. And there was a mercury switch on the engine compartment lid that cut off the compressor if the lid were raised. Few people knew of this, and many heads were scratched while trying to figure out why the compressor didn't run when the lid was up, but did when it was down.

Would I like a '66 or '67 4-door Monza 140 with air and Powerglide? Try me and see!!!

FEBRUARY MID-MONTH EVENT
THE VALENTINE ECONOMY
RUN

FEBRUARY 19, 1989

Meet at JB's Restaurant
Park & Benson Highway

10:00 AM

Top off gas tanks
at Chevron Service,
Park & Benson Highway
Run Starts promptly at 10:30 am

Lunch at the Copper Queen Hotel
in Bisbee

Questions? Don Robinson 297-1356

HOW TO WIN AN ECONOMY RUN

This article will briefly cover the many areas that effect your vehicles fuel economy, and what you can do to turn your Corvair into a real economy car.

ROLLING RESISTANCE: If a car had zero rolling resistance, once started in motion it would literally roll forever, or until an outside force acted upon it. Zero rolling resistance is, of course, impossible, but the lower you can get it, the less the engine need to work to propel the vehicle, and the less fuel used. All four wheel bearing should be packed with fresh grease and adjusted toward the loose end of the factory specs. Brakes should be adjusted for minimal drag. Radial tires really do roll easier than bias-ply tires and will easily add to mileage figures. Inflating the tires harder than normal will help slightly with bias-ply tires, but has been proven to be of little value with radials. Avoid excessively wide tires - the more rubber on the ground, the greater the rolling resistance.

AERODYNAMIC DRAG: The Corvair, particularly the early models, is one of the most aerodynamically clean cars ever produced in Detroit. Lowering the car, especially the front end, will allow it to slip through the air even easier. A front spoiler, or air dam, directs the air flow smoothly around the vehicle and away from obstructions underneath. Studies have shown that a convertible the size of a Corvair, driving with the top down, increases the wind drag by 17%. Driving with the windows up also reduces drag considerably.

WEIGHT: Compared to "new" cars of similar dimensions, the Corvair is a very heavy car. If you really want to win an economy run, bring your "500" coupe and leave home your convertible or wagon. The latter two are about 250 pounds heavier. Studies have shown that for each 100 pounds of weight you can shed, gas mileage increases by 1%. Better take the 50 pound tool box and spare axles out of the trunk too.

ENGINE AND DRIVE LINE: Contrary to popular belief, there is not much difference in fuel economy attained with low performance or high performance (non-turbo) Corvair engines. Early engines are usually more economical but the difference is usually due to carburetion and smaller displacement. 1965 and newer carburetors have a power enrichment circuit that significantly richens the mixture under high speed/high load conditions. Placing properly jetted 1964 or earlier carburetors on a late model would help fuel economy. 140 h.p. engines when driven with a light foot can give a little better economy because the larger valves tend to allow better breathing.

EDITOR'S NOTE: I don't know who wrote this article, but it's been in folder for a long, long time. I wasn't finished and I added a little. If the true author would be stand up, we'll recognize him/her!

Vairs 'n Spares

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: '64 2-DOOR, complete except no motor, body in fair shape, interior rough, good parts car or project car. Best offer. Ben Meeks (602) 883-8890. 1/89

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. Is anybody home? 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, 1/2 price; New main bearing set, std, \$15; New rod bearing set, +.010, \$20; '64 & '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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TREASURER'S REPORT

Balance December 1, 1988.....\$1,161.28

Income

Christmas party.....\$112.55

Total Income.....\$112.55

Expenses

Corvairsation.....228.57

Mechandice..... 60.00

Christmas party.....457.41

Total Expenses.....\$805.98

Balance December 31, 1988.....\$467.85

Mike Hayden



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PROPRIETORS

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

February 19: Economy Run and Lunch to Bisbee.

Meet at JBs on Park and Benson Highway

Fill up and leave at 10:30 am at Chevron
station at Park and Benson Highway.

(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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