



the fifth wheel

JANUARY 2012

[HTTP://WWW.CORVAIR.ORG/CHAPTERS/LVCC](http://www.corvair.org/chapters/lvcc)

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ED COLE'S FIRST AIR-COOLED FLAT-SIX - And it wasn't a Chevy

Corvair buffs like to point out that Chevrolet Engineering mastered the art of designing air-cooled flat six engines before the rear-engine wizards at Porsche. It would have been so much easier to do a flat-four.

But nobody needed to convince Edward N. Cole, the father of the Corvair, that an air-cooled flat-six could be made to run just fine. He knew better. He knew others had done it before. He had seen it firsthand.

In 1950, at the beginning of the Korean war, the Army Ordnance Department asked the Cadillac Motor Division of General Motors Corporation to manufacture the new M41 Walker Bulldog tank. And Cadillac knew which of its employees could make this happen: Ed Cole.

This was several years after the end of World War II, and Cadillac had long-since converted its factories back to car production. There was no way Cadillac could add tanks, of all things, to its assembly lines in Detroit. And so, Cadillac and the Ordnance Department searched for a new location to manufacture the M41.

They came upon a bomber plant in Cleveland that had been mothballed after the end of World War II. None of the local airport runways were long enough to accommodate the new bombers that the Air Force was planning to produce, so it obsolete as far as bomber production was concerned. But it was just the right size for tank production. So Cadillac made a deal and leased the facility, which became known as the Cleveland Tank Plant.

Ed Cole and his staff took possession of the facility on August 14, 1950. Much to their surprise, they found it being used as a ware-

(Continued on page 2)



The Fifth Wheel is published monthly by the Lehigh Valley Corvair Club (LVCC), Inc. We accept articles of interest to Corvair owners for publication. Classified advertising of interest to Corvair owners is available free of charge to all persons. Commercial advertising is also available on a fee basis. Please contact our newsletter editors, Allan Lacki and Wesley Weiss, for details.

LVCC is one of the many regional chapters of the Corvair Society of America (CORSAs), a non-profit organization that was incorporated to satisfy the common needs of individuals interested in the preservation, restoration, and operation of the Chevrolet Corvair. LVCC caters to Corvair people who live in and around the Lehigh Valley Region of eastern Pennsylvania. This is a very special car club! LVCC dues are \$10 a year for CORSA members or \$15 a year for non-CORSA members.

(Continued from page 1)

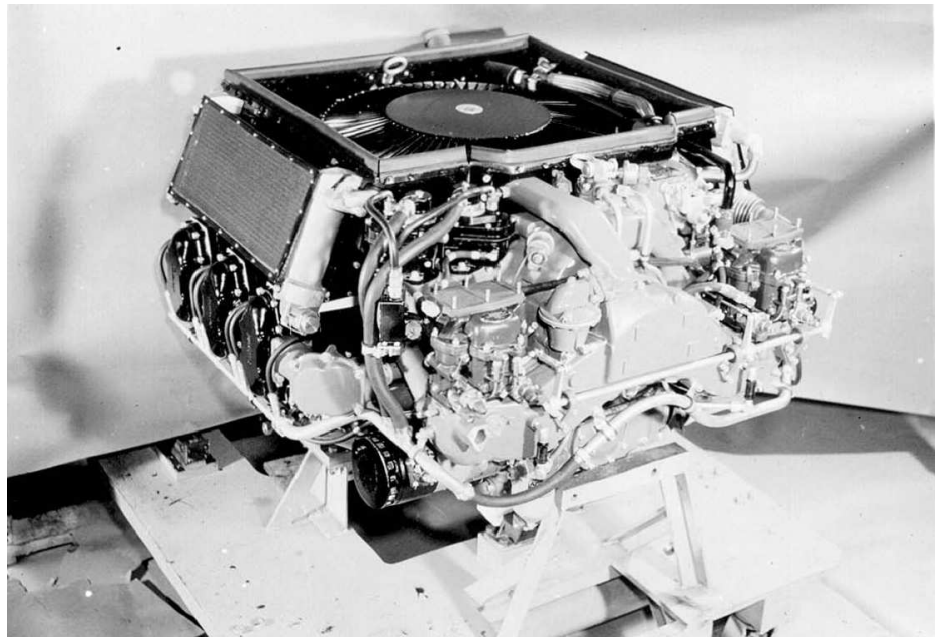
house for dried beans. Sacks of dried beans were stashed throughout the facility. Thirty-nine millions pounds of dried beans!

The beans were removed in short order and Cadillac began to procure the necessary tooling to create an assembly line. Surplus machines from the last war were brought out of storage and reconditioned. The industrial engineering staff worked on plant layout to maximize production efficiency. Millwrights and electricians hooked up the machines and conveyors.

Cadillac also had to hire and train a workforce for the Cleveland Tank Plant. Ed Coles' initial staff consisted of only 55 men who had previous experience in war time production. But the City of Cleveland had an ample supply of laborers. By the time production began in late 1951, the plant had 6,500 employees.

The Cadillac Motor Company didn't manufacture M41 tanks all by itself. Up to 2,300 vendors supplied pieces, parts and services to the Cleveland Tank Plant. Ed Cole and his staff had to establish a follow-up organization to ensure that parts and sub-assemblies would be made on time.

But that was not all. Other departments



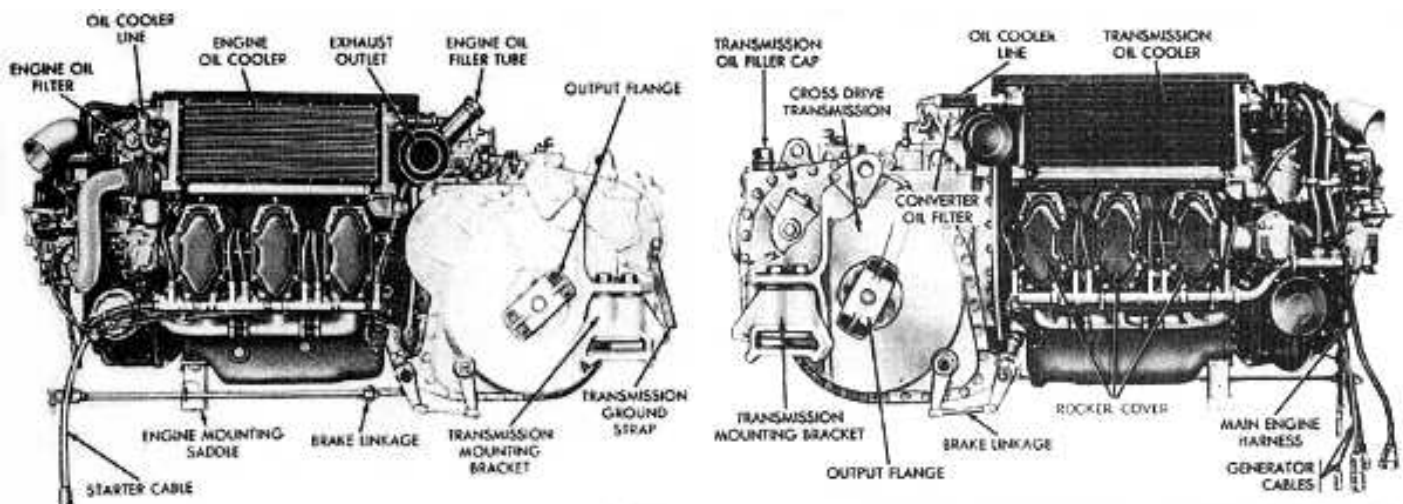
Continental AOS-895-3 engine. Supercharged, air-cooled flat-six gasoline engine. That's the cooling blower on top! Look familiar?

were created to write manuals, stock spare parts, and more. The plant even made its own boxes for storing spares: For every 100 M41 tanks assembled, the Army required Cadillac to make 33,000 corrugated paper boxes in 624 different sizes for the spare parts. They had their own on-site assembly line just to make cardboard boxes!

And despite the vast complexity of this project, Ed Cole and his staff got the new plant into full production three

months ahead of schedule. There were good reasons why GM promoted Ed Cole fast and often.

And here is where our story gets really interesting. The M41 was equipped with equipped with a Continental AOS-895-3 engine. That's right, an engine designed and manufactured by Continental Motors, not General Motors. And the AOS-895-3 was an air-cooled boxer-six.



Continental AOS-895-3 engine coupled to the Allison cross-drive transmission. The original Uni-Pack.



When the Army Ordnance Dept. turned over the Cleveland WWII bomber factory to Ed Cole in 1950, it was filled with 39 million pounds of dried beans! A few months later, it was cranking out new M41 tanks.

It was a big engine, too. The AOS-895 displaced 895.9 cubic inches and delivered 500 gross horse power at 2400 rpm.

The AOS-895 engine was bolted directly to an Allison cross-drive unit which served as transmission, differential, and steering gear for the tank. And it was located at the rear of the M-41 tank, too. In effect, the engine-drive assembly was a single unit, a precursor to the Corvair "Uni-Pack" power train.

You may be wondering why Cadillac did not manufacture its own engines for the M41. After all, in World War II, flathead Cadillac V8s power thousands of American tanks. But during and after World War II, Ordnance had engaged in a program with industry to develop major components for tanks. Continental Motors had done considerable developmental work on a new series of air-cooled engines. And so Continental, not GM, was selected as the engine supplier for the M41.

There is no doubt that Ed Cole knew all about the technical features of the M41, including its drive train. After all, he wrote the book: Walker Bulldog, Its Design and Production, by Edward M. Cole and Harold G. Warner, Cleveland Tank Plant, October 1951.

Sources:

Walker Bulldog, Its Design and Production, by Edward M. Cole and Harold G. Warner, Cleveland Tank Plant, October 1951. Currently available from the Society of Automotive Engineers (SAE).

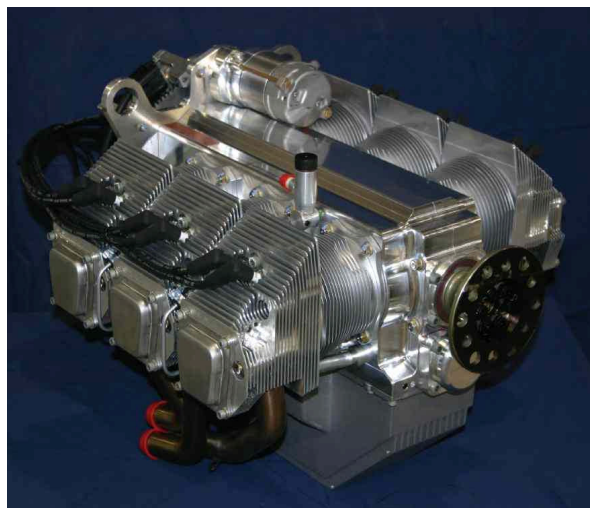
M41 Light Tank (Walker Bulldog) by Robert J. Icks, Colonel A.U.S. Retired. Profile Publications, Ltd, Windsor, Berks. SL31EB, UK. Reproduced on the internet at <http://www.scribd.com/doc/62315677/M103-Heavy-Tank-M41-Light-Tank-AFV-Weapons-Profile-No-41-Icks-RJ-1972>

US M41 Light Tank "Walker Bulldog" webpage. Website of Lou and Erwin Peters Zutendaal (Belgium). <http://www.ww2vehicles-and-meetings.be/monument.htm>

AIRPLANE ENGINE FOR YOUR CORVAIR?

Ha! We always hear about do-it-yourself airplane builders adapting Corvair engines for aeronautic service. They've been doing it ever since the Corvair arrived on the scene back in 1960. Well, have you ever thought about dropping an airplane engine into your Corvair?

Oooh, the Jabiru 3300 is a beautiful little engine! And it's just the right size for a Corvair: 200 cubic inches, 120 horsepower, and only 180 pounds fully-



The Jabiru 3300 200 CID air-cooled flat-six airplane engine.

equipped. It's lighter and smaller than a Corvair engine and oh-so pretty!

Jabiru (pronounced "jab-uh-roo") engines are designed to be manufactured in Australia in small batch quantities using the very latest Computer Numerically Controlled (CNC) machine tools. This engine is a machinist's dream!

The crankcase halves, cylinder heads, starter motor housings, gearbox cover (the gearbox powers the distributor rotors) and coil mounts, together with many smaller components, are machined from billets of aluminum alloy that are traceable back to the source foundries to meet ISO 9001 traceability requirements.

Cylinder barrels, crankshafts and rods are also CNC-machined, but they are fabricated from steel rather than aluminum alloys. For example, the cylinder barrels and crankshafts are machined from solid bar 4140 chrome molybdenum alloy steel. Journals are precision ground prior to being Magna flux inspected. Con rods are machined from 4130 alloy steel.

The engines contain some automotive-type components. Big end bearings are of the automotive slipper type. Pistons are General Motors aftermarket parts made in Australia. They are re-machined to include a piston pin cir-clip groove. Valves are purpose-manufactured specifically for the Jabiru engine in England.

From outward appearances, the Jabiru engine will seem familiar to the average Corvair mechanic but a couple of things will become immediately apparent. For one thing, the Jabiru's cylinder banks have more offset. This is necessary to accommodate the seven main bearings inside. Also, each cylinder barrel is topped by its own individual head with twin spark plugs, as is typical of aero engine design.



Individual cylinder head for each cylinder barrel. Dual spark plugs for each cylinder. Huge cooling fins. Push rods with rockers.

The heads are not cross-flow. The intake and exhaust ports share the bottom sides of the heads. And the intake runners are routed through a deep oil sump, presumably to keep the fuel-air charge from icing after being mixed in the engine's single centrally-mounted Bing carburetor. Unlike Corvair YH carbs, the Bing does not cut out in high-G turns. It can even operate upside-down, which may be an advantage for you folks who flip your Corvairs now and then! ('Just kidding!)

The valve train is a conventional push-rod design quite similar to the Corvair engine except that rocker arms are mounted on mounted on bushed shafts rather than ball studs. Valve guides are manufactured from an aluminum-bronze alloy. Replaceable valve seats are of nickel steel and are shrunk into the aluminum cylinder heads.

As you might imagine, an aircraft propeller eliminates the need for any cooling blower, and so the Jabiru engine



The Jubira 3300. The entire crankcase is CNC-machined aluminum! 7-main bearings. Camshaft rides in the crankcase like a Corvair.

has none. But as can be seen from the photos, the cylinder head cooling fins are absolutely huge, and that is something all us air-cooled engine enthusiasts can all appreciate.

Current Pricing (as of March 1, 2011)
Jabiru 3300 Aircraft Engine....\$18,500.
Ouch!

Sources:

Jabiru Engines webpage. Website of Jabiru Aircraft Pty. Ltd. <http://www.jabiru.net.au/engines/summary>.

Jabiru 6 Cylinder Engine. Website of Jabiru Aircraft Pty. Ltd. <http://www.jabiru.net.au/engines/6-cylinder>

Sales brochure published by Jabiru USA Sport Aircraft, LLC. <http://www.usjabiru.com/uploads/Engine-FWFBrochure.pdf>

Anatomy of the Jabiru 3300 web page. Website of Gilles Thésée. http://contrails.free.fr/engine_jab_inside_en.php

WELCOME LARRY LEWIS!

We have a new member! The Lehigh Valley Corvair Club welcomes Larry L. Lewis of Hellertown, PA. We look forward to meeting Larry soon!

CHAPTER NEWS!

Dick's 13" Tire Preservation Plan.

Everybody knows that Dick Weidner drives his Corvairs everywhere all year long. Dick writes, "This year I put studded snow tires on my Corvair. It's the first time since I retired. I usually don't go out in bad weather and the Corvair can handle all kinds of weather with all season tires. 'Not that I am expecting a bad winter. But with 13 inch tires becoming hard to find, I can help save my regular tires and use up the three sets of studded snow tires I have."

Jerry and Mike's New Toys.

Jerry Moyer and his son Mike made a big score in Phoenix City, Alabama. They purchased two Greenbriars, one Rampside, one Spyder, and a stash of parts from a Corvair guy who is liquidating his collection. Mike's buddy bought the Spyder and already has it back on the street. It came with a set of Kelsey Hayes wire wheels, which Jerry kept for his own collection. They are cleaning up nicely. All of the vehicles are quite restorable, and Jerry and Mike will be keeping them safe in the family's garage at the Moyer compound in Florida. Incidentally, the man in Phoenix City has two Corvair Corsas for sale. Jerry and Mike didn't clear him out completely!

Dennis Buys and Sells!

We are happy to announce that two of the cars in our Classified Ads have been sold! And in both cases, the buyer and seller were the very same person; our VP, Dennis Stamm!

You may recall that Dennis listed a lovely, solid 1965 Corvair 500 in our classified ads last month. He had bought the car a few months before. Although it was a low mileage car, it had no engine. So, Dennis installed one of his spare Corvair power-trains, did some detailing on the body, and put the car on the market by listing it right here with us. Within a month or two, he found a happy buyer from Lancaster.

But Dennis didn't reduce the size of his fleet. Instead, he went out and bought another Corvair; the 1963 140 Powerglide Monza that Al Lacki listed here a few months ago. The '63 had been abandoned in a service station in Reading, PA. Dennis took a trip to Reading, checked it out, and like what he saw.

Like the '65, Dennis intends to fix up the '63 coupe and get it back on the road. And so, another Corvair will be saved from the crusher.

LVCC MEETING IN JANUARY

Don't forget our next club meeting, scheduled for Wednesday, January 25, 2012 at the LANTA center in Allentown. Are you working on a new Corvair project? Bring in some Corvair parts for show-and-tell! Also, we will be having elections for President, Vice President, Secretary-Treasurer, and Publicity VP. Nominations are still being accepted!

LINDA WANTS A CORVAIR!

Linda Lerch of Lehigh County would like to buy a Corvair for herself. She writes, "I am looking for a Corvair, automatic, convertible if possible. I want a car that I can drive to car shows, parades, etc. Although I'd prefer a convertible, a nice two door coupe would be OK, but I'm not looking for a four doors model. I have funds available and I am willing to negotiate price for the right car. If you have any leads please contact me. Linda"

Do you have a convertible or coupe for sale? Here is Linda's contact info:

Linda Lerch

linda.conradlerch@rcn.net

(610) 791-3642



LVCC Classified Ads!

WANTED: Parade-quality Corvair. Convertible or two-door coupe. Powerglide automatic. I am looking for a Corvair, automatic, convertible if possible. I want a car that I can drive to car shows, parades, etc. Although I'd prefer a convertible, a nice two door coupe would be OK, but I'm not looking for a four doors model. I have funds available and I am willing to negotiate price for the right car. If you have any leads please contact me. Linda Lerch, Lehigh Valley. (610) 791-3642. Email linda.conradlerch at rcn dot com

FOR SALE: 1965 Corvair Corsa. Project car. This Corsa has a 140 engine which was resealed, telescopic steering column, AM/FM radio, new clutch, flywheel, and pressure plate. It also has all new bushings in rear suspension, new coil springs and new shocks in the rear. In addition, the front cross-member was rebuilt with all new bushings and ball joints. Needs very little body work, but needs paint and much tender loving care. \$2000.00 as-is. Dennis Stamm, Mohrsville. (610) 926-4723. Email dmstamm at comcast dot com



FOR SALE: 1963 Corvair Monza M900 Coupe. 102 hp. Unrestored survivor. Runs perfectly. Never in a body shop or driven in snow. All service records since new. 50,000 miles. Needs nothing. Tinted glass. Day-night mirror. Pushbutton AM radio. Factory seat belts. Asking \$7,000 or serious offers only. Dave Riddle. (610) 264-7155. Dariddle at verizon dot net

Next Membership Meeting: Wednesday, January 25, 2012

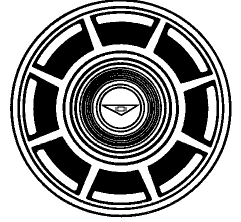
LVCC Merchandise for Sale!



LVCC license plates and hat pins: \$3.00 each. LVCC T-Shirts: \$6.00 each.
Call or email LVCC Secretary/Treasurer Richard Weidner at 610) 502-1414 rcwvair@rcn.com

LVCC Membership Roster

***Do you see any errors? If so, contact Dick Weidner or Al Lacki.
Email addresses use "at" and "dot" to prevent spamming.***



Name	Street	Town	St	Zip	Phone	Email
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Sorry internet readers! We redact our members' personal information from newsletters published on the web.

LVCC Calendar of Events!

January 20-22, 2012 :::: Auto-Mania 2012

Allentown, PA - Auto-Mania 2012, 22nd Annual Indoor Automotive Parts & Memorabilia Flea Market and Car Corral at the Agricultural Hall Allentown Fairgrounds. PA's Largest HEATED Indoor (NOW 50% Larger) Automotive Parts & Memorabilia Swap Meet and ALL NEW indoor & out door Car Corral (limited Car Corral Space so call ahead!) Admission \$7.00, Friday 12:00 noon - 9:00 pm, Saturday 9:00 am - 6:00 pm, Sunday 9:00 am - 3:00 pm., P.S. This Event Does Not Cancel For ANY Reason! e-mail: tonyabilliii@yahoo.com or <http://www.automaniashows.com>

Wednesday, January 25, 2012 :::: LVCC Membership Meeting.

Time 7:30 PM. Place: LANTA Community Center, 2nd Floor Meeting Room, 1060 Lehigh Street, Allentown, PA 18103. All LVCC members are encouraged to attend. Feel free to bring a guest.

January 26 - 29 2012 :::: Pennsylvania Auto & Boat Show

Harrisburg, PA - Motor Trend Auto Show Pennsylvania Auto & Boat Show, At the Pennsylvania State Farm Show Complex. Located at 2301 N. Cameron Street corner of Cameron and Maclay Streets, Exit 23 off of I-81. Event Hours:

Wednesday - Thursday 1:00 pm - 9:00 pm

Friday - Saturday 10:00 am - 9:00 pm

Sunday 10:00 am - 5:00 pm

Admission: Adults \$8.00 Senior Citizens (62+) - Active Military (w/ID) - Students (w/id) \$5.00 Children 7-12 \$3.00.

e-mail: Shaun.Foley@sorc.com or <http://www.motortrendautoshow.com/home.jsp> or www.AutoShowHarrisburg.com

January 29 – February 5, 2012 :::: Philadelphia International Auto Show

Philadelphia, PA - Philadelphia International Auto Show at the Pennsylvania Convention Center at the NE & NW corners of 12th and Arch Streets.

Saturday, January 28: 9 am – 10 pm

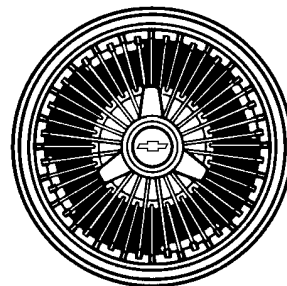
Sunday, January 29: 9 am – 8 pm

Monday, January 30 – Friday, February 3: 12 noon – 10 pm

Saturday, February 4: 9 am – 10 pm

Sunday, February 5: 9 am – 6 pm

<http://www.phillyautoshow.com/>



Saturday, February 2, 2012 :::: Annual NJACE Parts Auction

This is the annual Corvair parts auction conducted by the New Jersey Association of Corvair Enthusiasts. Details will be posted on the NJACE website as they become available. <http://www.corvair.org/chapters/njace/>

July 25 2012 to July 28 2012 :::: 2012 CORSA Convention

The Northeast Corvair Council (NECC), of which LVCC is a part, has been awarded the 2012 international convention for the Corvair Society of America (CORSA), to take place in Sturbridge, Massachusetts. The dates are July 25 2012 thru July 28 2012. Plan on being in colonial Sturbridge, Massachusetts, in July of 2012! See the convention website for details: <http://www.corvair.org/chapters/necc/convention>



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