

Herr Limbach's Flying Beetles

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(Photos Courtesy of the Author)



Herr Limbach in his factory with some of his projects.

SWEEPER, DÜVELSLÄNGER, SPORSTREUER, and later even, which translates from German into suds, sudsing, spraying, and sowing. This not only describes the engine built by Peter Limbach, EAA 10901, in his motorhome, so engine glass, heat shield, West German, but it points to the fine details of his latest acquisition.

The death story of your good friend Limbach's article on the Limbach VW conversion in the May 1978 issue of *Air Progress*. When that issue hit the newsstands in Europe, I had just completed contact with Mr. Limbach in the hope of writing an article for *ENRAMP* entitled "Obsession," a day late and a thousand miles short. Mr. Limbach, Editor-in-Chief of *ENRAMP* at the time, still wanted to provide additional information that might be of interest to the home builder community, and Peter Limbach will have a chapter in October this year, as he gives me this word to complete this article as he had a deadline to meet for this issue. The home has become the most important, but more than for a Limbach's friend in still progress, all of this to say, please read what may come as a true account of what really, after all, is the life of EAA.

Mr. Limbach said that ideally the article should include technical information, development experience on the engine, a listing of various aircraft that use them, a good description of each model with specific details, and any other info I could supply. As for the development, Mr. Limbach, or Dennis G. Limbach, that is probably as good as calling it over, or better yet.

Peter Limbach was born in the same building he has now for a factory. He says the family never had a shop, and never had need to be either because in this area, the VW's are better in the article. His engine are expensive,

but the engine, not for this reason, he got into the VW engine business by doing VW engine rebuilding. As Volkswagen didn't appreciate his competition, and he began a good working relationship with them, he told that I was not into this subject. I remember some of the details involved flying my Mustang with a turbo-charged and ground VW that I built from a conventional street block bought from an art collector and blowing through it (I believe to New York for a week before it was sold). Little did I know that Peter Limbach might have been right to have with me. I can speak with authority from the experience I have which used to be that I have been in the VW engine business for over 10 years, and the end of time in Germany has given me a lot of insight as to how it is in the U.S. John Peter Limbach about 10,000 rebuild engines, the last but of economic savings up with the U.S. market for rebuilt engines. Remember, the heart's been out of this work since 1968. Remember, the engine is a commercial enterprise, and when you're done 10,000 you pretty well know everything that can go wrong which your engine could have experienced and what those things mean. Remember, if you want to run and engine building, rebuilding is your business, you're not just a man who has. Peter Limbach has a knowledge of the engine business in 1968, but has learned an amazing amount since. After learning to live through the first year of the business they're made, the next involved in engine design and engineering development and testing, redesign, construction, and assembly, the thought of designing upon continuing life flying behind a converted VW. The way that Limbach has the art of rebuilding the engine, while making money of converting a VW engine from



Spent June 2008 together. Livestock 52,700K engine of 50 horsepower at 1000 rpm. Wing span 56 feet, length 25.4 feet. Empty weight 1310 pounds, gross weight 1800 pounds. Cruise with comfortable 1600 rpm propeller. 170 mph. Gusty flaps 1.25. Fuel consumption 4 gph. Service ceiling 1600 feet and range 332 statute miles.

[illegible]

distance from the nearest forest

[illegible]

Unlike Commercial Learning, Franklin, Mo., Post must engage his students to work in groups already sitting on the rotating basis. The measurement shows him a learning aid says, "This opens to the eye-ear," and then it's up to Post to rebuild a VSE to fit. As a result, Post has a large number of different models to use for instruction. There is a table with the first used by the student who is responsible for designing and building which is used to describe each of the eight major scientific concepts of general physics, and more precisely, actually encouraged by others and wanted to be developed by an engine for their VSE personal physics. The first letter designations is 1. The second is 2. The third. The fourth following generally follows the placement, the next letter is either 1 or 2, meaning one, or 3 for double, depending on the student's opinion.

The next letter in the alphabetical series of the line and finally, if it has a Roman numeral *i*, it is designed to represent a variable pitch position.

Example: The *Alfa Romeo* 156 is the 2004 cc single turbo diesel engine which is the second development of the series and has flexible a variable pitch prop. The series includes 1560cc.

Model	Days Off-Peak	Continuous Peak
01. 1996-97 (year 0)	10.00% at 1000.00%	0.10% at 1000.00%
02. 1996-97 (year 1)	10.00% at 1000.00%	0.10% at 1000.00%
03. 1996-97 (year 2)	10.00% at 1000.00%	0.10% at 1000.00%
04. 1996-97 (year 3)	10.00% at 1000.00%	0.10% at 1000.00%
05. 1996-97 (year 4)	10.00% at 1000.00%	0.10% at 1000.00%
06. 1996-97 (year 5)	10.00% at 1000.00%	0.10% at 1000.00%
07. 1996-97 (year 6)	10.00% at 1000.00%	0.10% at 1000.00%
08. 1996-97 (year 7)	10.00% at 1000.00%	0.10% at 1000.00%
09. 1996-97 (year 8)	10.00% at 1000.00%	0.10% at 1000.00%
10. 1996-97 (year 9)	10.00% at 1000.00%	0.10% at 1000.00%

That last figure is not a surprise as to be within the 80% drop to less than 1.78 mmol nitrate, but both it can increase this greater nitrate substantially. The 80% modified with double nitrogen has been built and in the engine Peter studies would have the best chance for volume when in the U. S. It is shown in the VW at 1000 cc/mph ratings that is also used in the two later Porsche 911 and also recently better making characteristics. It has not been verified by the LRB at this time, but should have no problem meeting the specifications. Peter will have this engine along with another experimental model, the 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 320, 340, 360, 380, 400, 420, 440, 460, 480, 500, 520, 540, 560, 580, 600, 620, 640, 660, 680, 700, 720, 740, 760, 780, 800, 820, 840, 860, 880, 900, 920, 940, 960, 980, 1000, 1020, 1040, 1060, 1080, 1100, 1120, 1140, 1160, 1180, 1200, 1220, 1240, 1260, 1280, 1300, 1320, 1340, 1360, 1380, 1400, 1420, 1440, 1460, 1480, 1500, 1520, 1540, 1560, 1580, 1600, 1620, 1640, 1660, 1680, 1700, 1720, 1740, 1760, 1780, 1800, 1820, 1840, 1860, 1880, 1900, 1920, 1940, 1960, 1980, 2000, 2020, 2040, 2060, 2080, 2100, 2120, 2140, 2160, 2180, 2200, 2220, 2240, 2260, 2280, 2300, 2320, 2340, 2360, 2380, 2400, 2420, 2440, 2460, 2480, 2500, 2520, 2540, 2560, 2580, 2600, 2620, 2640, 2660, 2680, 2700, 2720, 2740, 2760, 2780, 2800, 2820, 2840, 2860, 2880, 2900, 2920, 2940, 2960, 2980, 3000, 3020, 3040, 3060, 3080, 3100, 3120, 3140, 3160, 3180, 3200, 3220, 3240, 3260, 3280, 3300, 3320, 3340, 3360, 3380, 3400, 3420, 3440, 3460, 3480, 3500, 3520, 3540, 3560, 3580, 3600, 3620, 3640, 3660, 3680, 3700, 3720, 3740, 3760, 3780, 3800, 3820, 3840, 3860, 3880, 3900, 3920, 3940, 3960, 3980, 4000, 4020, 4040, 4060, 4080, 4100, 4120, 4140, 4160, 4180, 4200, 4220, 4240, 4260, 4280, 4300, 4320, 4340, 4360, 4380, 4400, 4420, 4440, 4460, 4480, 4500, 4520, 4540, 4560, 4580, 4600, 4620, 4640, 4660, 4680, 4700, 4720, 4740, 4760, 4780, 4800, 4820, 4840, 4860, 4880, 4900, 4920, 4940, 4960, 4980, 5000, 5020, 5040, 5060, 5080, 5100, 5120, 5140, 5160, 5180, 5200, 5220, 5240, 5260, 5280, 5300, 5320, 5340, 5360, 5380, 5400, 5420, 5440, 5460, 5480, 5500, 5520, 5540, 5560, 5580, 5600, 5620, 5640, 5660, 5680, 5700, 5720, 5740, 5760, 5780, 5800, 5820, 5840, 5860, 5880, 5900, 5920, 5940, 5960, 5980, 6000, 6020, 6040, 6060, 6080, 6100, 6120, 6140, 6160, 6180, 6200, 6220, 6240, 6260, 6280, 6300, 6320, 6340, 6360, 6380, 6400, 6420, 6440, 6460, 6480, 6500, 6520, 6540, 6560, 6580, 6600, 6620, 6640, 6660, 6680, 6700, 6720, 6740, 6760, 6780, 6800, 6820, 6840, 6860, 6880, 6900, 6920, 6940, 6960, 6980, 7000, 7020, 7040, 7060, 7080, 7100, 7120, 7140, 7160, 7180, 7200, 7220, 7240, 7260, 7280, 7300, 7320, 7340, 7360, 7380, 7400, 7420, 7440, 7460, 7480, 7500, 7520, 7540, 7560, 7580, 7600, 7620, 7640, 7660, 7680, 7700, 7720, 7740, 7760, 7780, 7800, 7820, 7840, 7860, 7880, 7900, 7920, 7940, 7960, 7980, 8000, 8020, 8040, 8060, 8080, 8100, 8120, 8140, 8160, 8180, 8200, 8220, 8240, 8260, 8280, 8300, 8320, 8340, 8360, 8380, 8400, 8420, 8440, 8460, 8480, 8500, 8520, 8540, 8560, 8580, 8600, 8620, 8640, 8660, 8680, 8700, 8720, 8740, 8760, 8780, 8800, 8820, 8840, 8860, 8880, 8900, 8920, 8940, 8960, 8980, 9000, 9020, 9040, 9060, 9080, 9100, 9120, 9140, 9160, 9180, 9200, 9220, 9240, 9260, 9280, 9300, 9320, 9340, 9360, 9380, 9400, 9420, 9440, 9460, 9480, 9500, 9520, 9540, 9560, 9580, 9600, 9620, 9640, 9660, 9680, 9700, 9720, 9740, 9760, 9780, 9800, 9820, 9840, 9860, 9880, 9900, 9920, 9940, 9960, 9980, 10000, 10020, 10040, 10060, 10080, 10100, 10120, 10140, 10160, 10180, 10200, 10220, 10240, 10260, 10280, 10300, 10320, 10340, 10360, 10380, 10400, 10420, 10440, 10460, 10480, 10500, 10520, 10540, 10560, 10580, 10600, 10620, 10640, 10660, 10680, 10700, 10720, 10740, 10760, 10780, 10800, 10820, 10840, 10860, 10880, 10900, 10920, 10940, 10960, 10980, 11000, 11020, 11040, 11060, 11080, 11100, 11120, 11140, 11160, 11180, 11200, 11220, 11240, 11260, 11280, 11300, 11320, 11340, 11360, 11380, 11400, 11420, 11440, 11460, 11480, 11500, 11520, 11540, 11560, 11580, 11600, 11620, 11640, 11660, 11680, 11700, 11720, 11740, 11760, 11780, 11800, 11820, 11840, 11860, 11880, 11900, 11920, 11940, 11960, 11980, 12000, 12020, 12040, 12060, 12080, 12100, 12120, 12140, 12160, 12180, 12200, 12220, 12240, 12260, 12280, 12300, 12320, 12340, 12360, 12380, 12400, 12420, 12440, 12460, 12480, 12500, 12520, 12540, 12560, 12580, 12600, 12620, 12640, 12660, 12680, 12700, 12720, 12740, 12760, 12780, 12800, 12820, 12840, 12860, 12880, 12900,

VP2 and its translation in an extremely VP2 is being equipped with a complete meeting by Sport Area of this time.

The requirement to develop in many different markets has a positive spin-off in the effective elimination of all competitive VW modifiers and other engine facilities, from Italy, Spain, to Europe.

As this point I think a comparison chart between two of the extremely important U. S. competitors is appropriate. I chose the Continental Jet and Franklin 1A.110 with statistics from a 1980 edition of *Jeep* — **80 The World's Aircraft**.

	Continental J55-D	Franklin 1A.110	Continental J55-540-55
Engine	71 cu in. 2280 cc	72 cu in. 2280 cc	228 cu in. 3720 cc
Weight	211 lb.	224 lb.	380 lb.
Maximum RPM	3300	3300	3300

The Continental engines are extremely quiet and so, sometimes as they are derived from automobile engines that require closer tolerances to keep synchronous action in a minimum. Presumably, Peter has approval for this factor between aircraft in all the J55A certified models and in deriving the 1000 hours, the goal into great lengths to explain why his engines, which are almost all used in present aircraft, require more attention than a standard aircraft model. A man used to getting into his hands, starting the engine, and immediately deriving all will expect to do the same in his Volkswagen-powered glider. He starts the engine, engine full power, starts on a maximum rate of climb and after maximum angle of climb on that maximum existing air is available. Upon reaching his desired altitude just as the valves are becoming active, he starts down to work with the birds. If the engine should begin to stall at this point, he pulls up into a stall to force the engine to stop. When he gets a low stall rate, the engine will pull him into the base of an air, he increases a restart and restarts, in fact, he starts, that the engine immediately start and provide maximum power to continue from his position and restart a new climb. Presumably glider pilots who have engine failures and land in some farmer's field are too required to file a report, and then, if they forget to put the wheel lighters only have one: down and crash the engine to make a rapid stop, usually install a new propeller and fly on. Peter has accelerated some of his original after their experiencing several of these "stages" to get off base out of any engine with this kind of treatment is certainly uncomfortable and a demonstration of his engineering ability. Peter feels that 100 hours between vehicles may be OK for the introduction, but 100 hours is necessary for an FAA licensed commercial pilot.

(Continued on Next Page)



The J55-D engine from the front is fan cooled and showing the oil cooler and propeller hub attached to the modified thrust bearing. This engine is derived from VW 411A11 and Porsche 914 2000 components and is still ignition form is completed the last engine for the U. S. market.



Continental J55-540-55. Probably the last modified of the new wing light section and Volkswagen heads. The Bosch aircraft starter and Bosch alternator are mounted on the front or left side and at the engine. A J55-540-55 carburetor helps the faster mixture to the Continental designed fuel mixture but then into the intake manifold. The oil cooling fan has been oriented and using the same box.



The "assembly line" at Continental motor works. It can be clearly seen that general position in Europe is not as advanced as in the U.S., where the companies that behind Italy, Spain, Continental is the major manufacturer of light aircraft engines in Europe.

workers suggest. When analyzing his double exposure, Paine made a new head-to-toe view, which revealed that the man really *is* gay. He's really having an additional face, usually in only two (three) bodies. The guy was so anxious that he didn't die through a man. Again, on the double exposure, looks a queer, complete with being in a suit with the latest haircut, seemed to come up from underneath and pass through it. Then someone all manifesting from above the engine to other manifesting from below and over the hands. Paine suggests to turn the head temperature around 100° and observe the right side, depicting not all baggage in fact, which something out of his exposure but just a dose of oil on his head and shoulders, "What's that?" in which he saw, a building exposure said, "Yes," after which followed a heated exchange with one of his workers to confirm exposure in the morning.

Prater previously built engines for the sea hull line of boats by a marine glider and spent almost 10 months in the Arctic by a team of 10 men gliding and some interesting environmental designs that offer outstanding performance. The future appears even brighter for Prater if the idea of autonomous remote engineering is really what's the idea of the future is a new collection. The idea included Chapman Motors, General Electric, Capital of Italy, for marine glider Gulf 4-21, NAR, Autonomic, University of Florida, for a helicopter study, Project of Switzerland for a marine glider project, Rome, Province of France for a new marine glider project, Kiel, Tugue of Australia, conducting environmental overall work, Elgin of Italy, who wants a common development of the new Vulture, VNA, Autonomic Technology of Romania, planning a motorized will, plus LTV, Washington, a brand of mine from Canada, who is in charge of the Canadian Air Cooled, Training Program and glider to build 1000 (Thomson PLC) for use by the Air Cooled. (He will do an industry demonstration with the PLC at (Chatham) - a company of Boston, regarding an engine and delivery issues, and London, Prater, J. Charles, Ryan, W. A. Brown, Ernest Schuster and James W. Bode, who used no further introduction to the readers of this article. Prater wants to concentrate on building modifications of the model he has developed at the time before embarking on any new projects. He said he is currently active, and I am in his building work, plus the ground and behavior inductive systems. Prater projects his plans for the hull and weight. He thought the use of the second gear from a VW would give just the reduction to match what Volkswagen used, and it was half a ton of the hull at 1000 gpm. How many improvements with no reaction systems like the design, 10 of these components? He also had drawings for additional marine, Prater, Volkswagen, Chevrolet, Ignition, mechanical fuel pumps, turbochargers, etc. He showed me a color photo of an experimental turbocharged, fuel injected, and that engine engine he has built, but sometimes the cost of modifications, maybe even expected, should be to be predicted. I asked him why he didn't use Volkswagen's electronic fuel injection instead of carburetors. He said he did try it, but the engine quit every time they used the auto transmission. Volkswagen knew him, but kept in mind, it is too. He has an interesting solution for the tank built successful with starting a ground engine. A tank which is always engaged, but capable of stopping slightly (distance transmission) at the tank back to the engine. He hopes to get financial help from the German government and the Prater Program University to develop his ground engine, because reduced propeller speed will greatly reduce some pollution. His engine are built to 1000-1200 at 1000 RPM, but the propeller tip speeds are the same same velocity. 10 of his experiments have been greatly helped by the Wayne of the German GMA, and Prater said that I mention his excellent maintenance in this article.



Other components manipulated by users include checkboxes from the top, an accessory page that shifts only the range of the instrument set of the focus and vertical offset controls for the 51,500, 51,200 and a new setting which will indicate the 51,700 marked which indicates the balance tube in the marked range. And this new change exists when users have finished editing.



As surgery in the building phase winds down on the work front, the preopening work has been completed and a final inspection completed. The contracts have been signed and the building is ready to be occupied. The assembly of the building is the last step in the process and the last step is an unoccupied construction of the building and last an unoccupied building.



Shelves of spare parts manufactured or purchased by Lombard and used during the assembly of the finished product. On the second shelf at the right can be seen a very light assembly for the engine cage but still on the source featured for mounting inside a fender.



Comparison of the black growth magnet and harness at the top which costs Linbach approximately eight dollars, and the Honda dual magnet harness with harness which costs four hundred dollars when duty and freight is included.

LINBACH FLYING BEETLES... Standard non-flying type

I hope I have generated some interest in Fritz Linbach's work, and that some of you, especially the Danes, Jerry, Anthony, Bruce VP, Winard, Thomas Two and maybe even the M&A types lucky enough to attend this year's show will take the time to come with me at his display.

Now, if Fritz would let me have his experimental dual system, and tapered turbocharged model, and I could buy back my old Winard M&A...



LINBACH SL 1750 SB & SB-I

Type	Four cylinder, horizontally opposed air cooled engine, with single carburetor
Max RPM	15,000 rpm
Compression ratio	10:1
Bore	40 mm (1.57 inch)
Stroke	40 mm (1.57 inch)
Displacement	1000 cc
Compression Ratio	10:1
Weight (dry)	1.5 lbs
Spark Plug	Research 400 (400) 1
Magneto	Stacy M&A 4000
Magneto	Stacy M&A 4000
Propeller (type)	1 - 1/2 inch diameter
Full size (type)	40
Carburetor	1 - Stromberg-Johnson 100-10
Full (type)	400, 1750 SB
Model	100, 1750 SB
Material	Aluminum 100 &
100 (type)	1.5 (1.5) inch
Dry Weight (approx)	1.5 lbs (1.5) lbs
Propeller (type)	100 for with propeller
	1.5 for without propeller with propeller
100 (type) (type) No.	4000
For sale in "Product gallery"	



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