Valley Engineering, LLC
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CULVER PROPS

The Valley Engineering
Big Twin
Two-cycle Alternative.

WINNER OF THE ULTRALIGHT INNOVATION - CUSTOM POWER PLANT AWARD AT OSHKOSH, 2006

38 HP @ 3600 rpm (peak) **32 HP** (continuous)

117 lbs COMPLETE* (Fan Cooled, 1.98 to 1 PSRU, 70" X 40" prop. 250 lbs static thrust.)

*COMPLETE means weighed WET with oil, 20 amp alternator, starter, oil cooler, oil filter AND prop. In other words... READY TO FLY!!

The engine is a Four-Cycle, 990cc V-Twin developing 38 hp at 3600 rpm. With a Valley Engineering PSRU and Culver prop, it will do everything and more that the current smaller two-cylinder, two-cycle engines do. All this with the reliability, low rpms, smooth operation, fuel economy and throaty sound of a four-cycle engine.

Dimensions:

Height from bottom of engine to top: 19"
Height from bottom of engine to center of crank shaft: 6 1/2"
Height from bottom of engine to center of PSRU: 11"
Width: 17"
Depth from back of engine to back of prop flange: 15" (fan cooled)
Depth from back of engine to back of prop flange. 13 1/2" (free air)

Prices:

The premium package with engine, Valley engineering PSRU, custom manifold, Weber Carburetor, Valley Engineering custom automatic-carb-heat, electric fuel pump and custom cut Culver propeller designed for your particular aircraft's engine is ***$4995***. Your engine package come firewall-forward, ready-to-mount and fly! (or in a pusher configuration, firewall backwards.)

All the photos below are thumbnails, Just click on the thumbnail for a larger photo.
(Oshkosh '06 photos by Monty Graves of Iberia, MO.

 This view gives you a look at the custom-designed intake manifold. The original carburetor has been replaced with a Weber carburetor. Also visible is	 The Valley Engineering reduction for the Big Twin engines uses an automatic belt-tensioning /slip-clutch (idler pulley) on a Poly-V belt to act as a one-way	 You can see the pulse fuel pump is the little black box on top of the rocker cover. The white asbestos cloth tube covers the Valley Engineering automatic	 Here's a good shot of the automatic slack-side tensioner on the Poly-V belt. Also visible is the starter, oil cooler and oil filter.

the pulse fuel pump mounted on top of the right-hand cylinder.	clutch. This greatly reduces the torsional backlash resulting in a much smoother operation.	carburetor heat source..	
 When they first got the engine, they tested the Big Twin by mounting it on a dune buggy. Larry got it up to the 50 and 60 mph range up and down hill. The buggy weighs in the 900 pounds range.	 Then the serious testing started by mounting the engine on one of their WaterBug air boats and running it at full throttle for hours and hours on the Osage river. They hired high-school boys to do this and they all jumped at the chance.	 With the reliability of the engine proven, the guys mounted it on a highly modified Legal Eagle. This aircraft has Honcho wings and a wing span of 32 feet. They bought as a test aircraft platform. They tested many different props and PSRU ratios to arrive at just the right one.	 Here's another look at the automatic belt-tensioning slip-clutch. Also, the "piccolo" exhaust manifold that really smoothes out the engine sounds.
 The Big Twin made its Oshkosh debut with the new Back Yard Flyer UL. It was flown every day and at the end of the week, Gene Smith was awarded the Custom Power Plant award for his innovative new addition to the line up of power plants available for sport aircraft.	 This is a very compact engine with lots of features not found on other small engines. Every Big Twin engine package comes with a Valley Engineering custom PSRU and Culver prop custom-built for your specific plane.	 A starter, oil filter, oil cooler, alternator and Valley Engineering's exclusive auto carb heat feature are standard with the engine. Note the small size of the fuel tank. That's all you're going to need because the engine only sips 5 QUARTS of gas per hour..	 The Big Twin engine will virtually eliminate all the problems associated with two-cycle engines and still deliver the same performance. No oil to mix, much more reliable four-cycle performance, much less noise and much simpler maintenance.
 Sharon Starks stands with Larry Smith just after taking delivery of her Kolb Twinstar with its fan-cooled Big Twin engine package. No more Two Cycle woes here! The engine starts with a simple push of the button and fires right off. Very smooth idle at 750 rpm and very, very quiet.	 Dick Starks runs the Kolb down the runway at Liberty Landing International Airport. At just 2000 rpm, he was able to raise the tail. If it hadn't been raining, he'd have taken her around the patch. Flight tests will be started as soon as the weather breaks.	 Sharon Starks pops the Kolb off for the first time with the Big Twin purring away. They first did a new weight and balance to see if there was any change. (none). Then several "light on the gear" runs were made down the runway to just check out acceleration. (no difference there either.)	 Sharon Starks makes a low pass down the runway at Liberty Landing International Airport with the Big Twin put-putting away behind her at 2800 rpm. They were worried that the new location of the prop; 5"higher than it had been before would affect trim. It didn't. The plane flew just like it did before the engine change but with a LOT LESS vibration and a MUCH LOWER noise level.

Please note: While this set-up is built and designed for airboat use, as you can see, it can be easily adapted for use on Ultralight and some smaller Light Sport Aircraft.

Gene was interviewed right after Oshkosh by Roy Beisswenger for his online Ultralight Radio Show. Roy and Gene talked about the Big Twin engine package and about building props. It's a heck of a good listen! If you'd like to hear it, just CLICK HERE.

We are pleased to offer three short video clips of a **Kolb Twinstar MK-II** with a ***Big Twin Engine Package*** in action. We have a short taxi and take-off video, a touch and go video, and a slow fly-by video. Just click on the links below to view.

Taxi and Take-off	Touch and Go	Low and slow fly-by
		
PLAY Low Speed (28.8 Dial-up) DOWNLOAD	PLAY Low Speed (28.8 Dial-up) DOWNLOAD	PLAY Low Speed (28.8 Dial-up) DOWNLOAD
PLAY Medium Speed (56k or ISDN) DOWNLOAD	PLAY Medium Speed (56k or ISDN) DOWNLOAD	PLAY Medium Speed (56k or ISDN) DOWNLOAD
PLAY High Speed (Cable or DSL) DOWNLOAD	PLAY High Speed (Cable or DSL) DOWNLOAD	PLAY High Speed (Cable or DSL) DOWNLOAD

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