

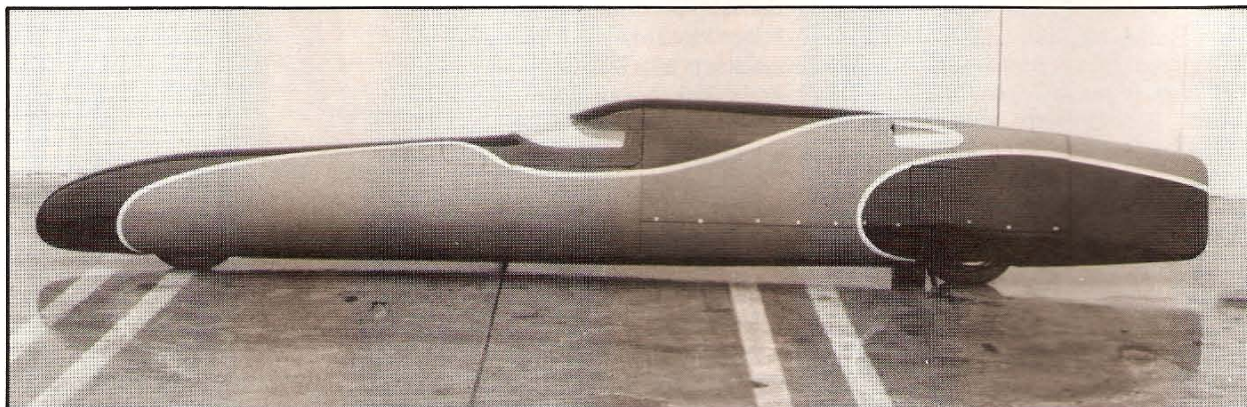
by Vance Breese

Editor's Note:

Have you ever gone faster than 200 mph on the ground? Not many people have, not many people really want to, and even fewer have ever given any thought to going faster than the speed limit. The motorcycle you see here — and it is a motorcycle, even by the strictest definition — is designed to exceed the existing land-speed record for two-wheelers.

THE VANCE BREESSE STREAMLINER

Bigger is not always better!



This is Mariah without her lettering. Low, long and loose, this may just be the next world record-holder (unlimited) for motorcycles at Bonneville.

Vance Breese is the owner of Santa Maria Harley-Davidson, in Santa Maria, California, and is a devoted speed freak. His motorcycle road racing habit evolved into the ultimate challenge: to go faster than anyone else in a two-wheeled, conventionally driven (rear-wheel-drive) vehicle. Vance hedged his bet a little by changing or rethinking many of the traditional concepts typically involved when designing or building a speed record machine.

Things are smaller, and possibly less complicated. The clutch has been eliminated entirely. An air shifter does the up and down shifting, with a neutral button for panic disengage situations.

The front steering mechanism is unique. No changes in trail or rake occur, despite suspension movement. The neckpost is mounted on the axle with universal center post steering, and is attached to the chassis via two stout arms.

A specially constructed frame with 36 degrees of neck rake built by Ken Holden Design keeps everything in its proper place.

The motor is a not-so-exotic, long-legged Sportster built by Duncan Keller, whose motor experience is well known in the San Jose area. A Ram Jett fuel injection handles the aspiration. Pistons are S&S, and the cams are a special Andrews set/grind for this application. Dyna-S is the ignition of choice.

With that background in place, Vance Breese personally writes about what it's like to take on the ultimate two-wheeled challenge. — Buck Lovell

Down the course at 201 mph, and thundering through the gears . . . on the return run (2nd half of record attempt) the wind literally rips my

look at the way others have failed.

All streamliners crash, and in the process destroy vital and sometimes expensive components. This is a given when racing for pure speed. Clutches, tires, wheel bearings, skids, motors, chains and electrical parts seem most often to be the culprits. Almost always, these items are asked to operate far beyond their design limits. Crashing or breaking parts, or just competing at Bonneville, can be very expensive and frustrating, creating a real danger of exhausting both money and the desire to go faster — not just fast, but faster.

With Mariah, the motorcycle pictured here, the object of the game is to be small, light, and slippery, to eliminate

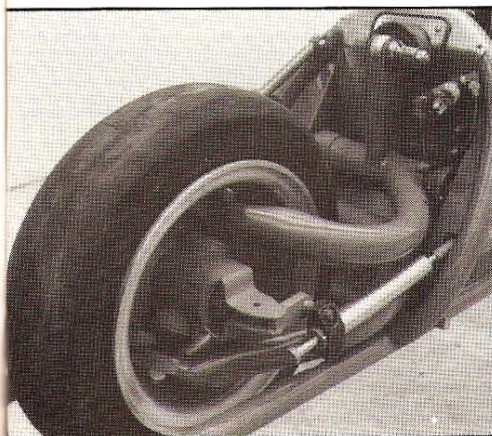
body off the nitro-burning Harley-Davidson. My legs are dangling, and one arm is useless behind. A Schwarzenegger-like effort, and I'm back on the bike, with the throttle twisted to the stops. The rear tire is clawing at the loose salt, while pushing the limits of man and machine through the 1/5-mile trap at 200-plus mph. The new record is 199.954. Years of sweat, frustration and expenses have been rewarded with ecstasy and an all-consuming thirst for more: to travel 322.16 mph, or 472 feet per second.

How does one build a successful streamliner without going broke or mad? There are many more ways to fail at land-speed record racing than there are to succeed, so one must first

most of the problems and expense associated with high-horsepower and exotic drive systems.

The first order of business was to minimize aerodynamic drag. A small, streamlined shape has less total drag than a large one, so the rider and motor were measured, and from that, the minimum dimensions were determined.

These dimensions were supplied to a very clever aerodynamicist named Kevin Cooper, who designed a shape 30 percent more efficient than any motorcycle ever run at Bonneville. A computer printout of the proposed body shell was supplied, and Ken Holden and I began the very difficult process of designing and fitting all

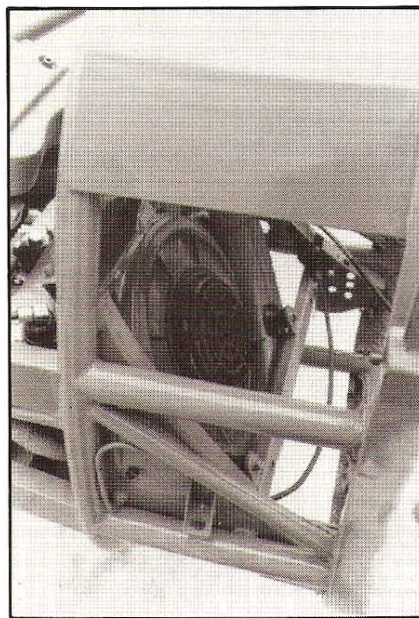


Unconventional steering was deemed necessary for this application. The neckpost is actually mounted on the front axle.

the necessary components inside this very small package.

Once the chassis was fabricated, it was delivered to Mike Corbin's shop, where the shell was fabricated from Kevlar. An additional transparent body was produced to aid in the critical placement of vital components.

Roger "Ram Jett" Chatalet provided many of the specially machined parts, with much of the final assembly performed at Santa Maria Software, Home of Conterman. The paint scheme was

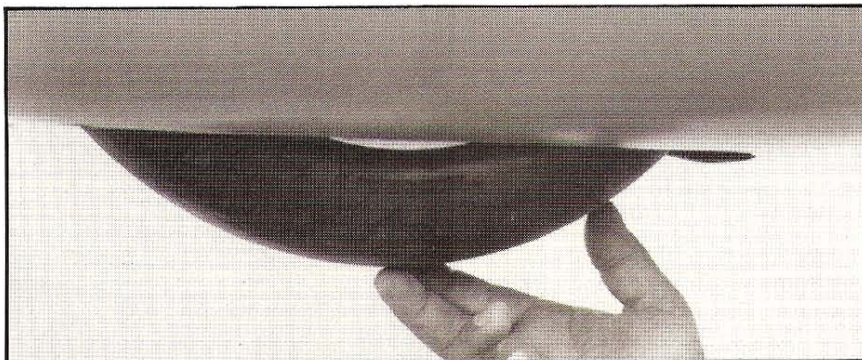


A "weed blower" motor supplies cooling air to the motor compartment. Does this constitute supercharging?

designed by the late Dean Hensley, an avid Bonneville fan. The actual application of the paint was done at Central Truck Service, in Santa Maria, California. Gil Valencourt of Works Performance produced a special set of shocks to deal with the specific demands of this high-speed application. In all,

more than 30 very talented individuals assisted in this project. The "need for speed" will not be denied.

Small doesn't come easy, and it caused the rethinking of traditional design parameters. Almost everything to be used in this project is unique. The front tire, originally intended for a jet, is only 16⁵/₈ inches tall, and is mounted on a 10-inch billet aluminum wheel. Normally, a small wheel would cause problems with wheel bearings, at least on a traditional center hub steering arrangement, so a new design was created. This unusual configura-



To give you a better idea of the front tire size, we photographed it with the hand of Roger Ram Jett.

tion has the neckpost mounted adjacent to the wheel, being connected to the chassis with two arms (on the left) using ball joints. The system does a better job of maintaining correct steering geometry than a contemporary design does. The front shock is mounted horizontally and operated off the top arm to conserve space. Steering is accomplished via a removeable handlebar and linkage with none of the typical "bump steer" associated with center hub steering.

Mariah was designed in 1982, and Harley-Davidsons have since gotten an inch wider. Because this would have made a very unaerodynamic bump on the left side of the body, the clutch was eliminated. Tow starting is used, and an air shifter makes the gear changes, with a neutral between each. An integral cush drive in the rear hub enables the transmission to survive.

Power is from a Yankee Engineuity (Duncan Keller) built 1991 Sportster motor. The bore is 3.8125 inches and the stroke is 4.5 inches, for a displacement of 102 cubic inches. Carl Morrow "magic" heads and a very special John Andrews cam are used.

A unique injector design saves space and is set up to run heavy concentrations of nitro. The fuel pump drive was designed by Art Lamgley and fits in the generator hole. An extra oil pump and a sophisticated breather system

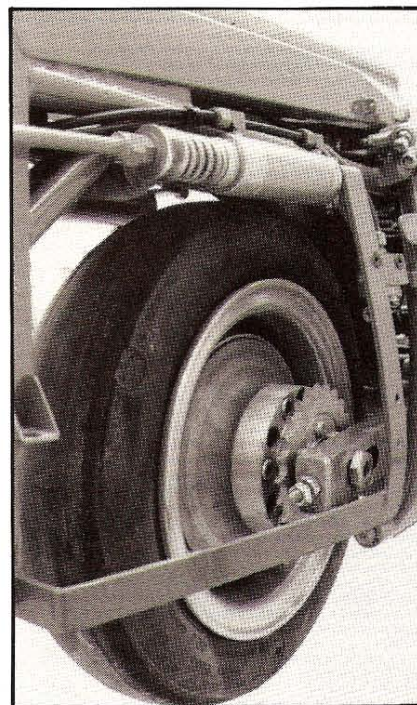
aid the internal pump in keeping the sump dry. Final drive is handled by a 520 chain with an overall gear ratio of 1-to-1.

As difficult as it is to design and build a streamlined, record-setting vehicle, actually setting the record is even harder. The current record-holder hit the Salt in 1976 and set the record in 1990, for a total of 14 years of trial and error before the ecstasy.

The *Easyriders* liner is 24 feet long and weighs more than 2,400 pounds; it has an aerodynamic factor or CDA of .864. By comparison, Mariah is a

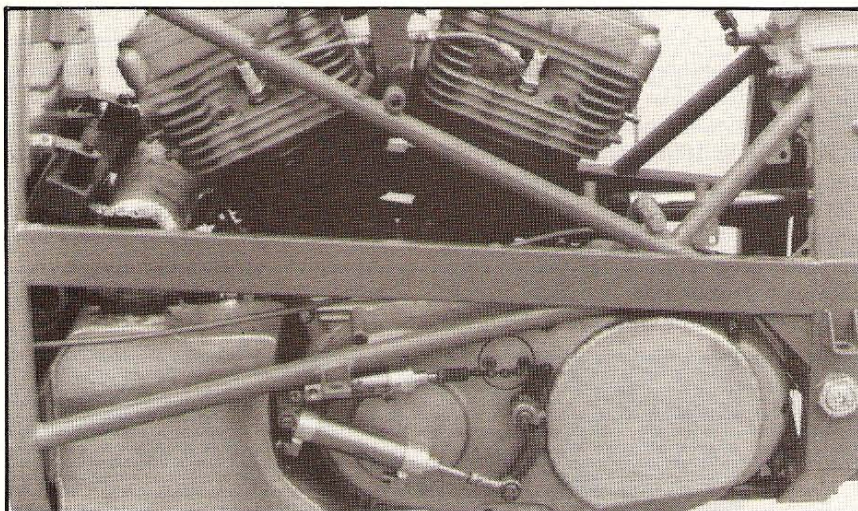
mere 15 feet long, weighs in at 600 pounds, and has a CDA of only .287. This, in theory, means she should be able to go as fast as the current record-holder, with only one-third the horsepower.

Just for fun, let us imagine what it is like to make a high-speed pass in



That very small sprocket is part of the very tall 1-to-1 gear ratio to be used for the land-speed record attempt.

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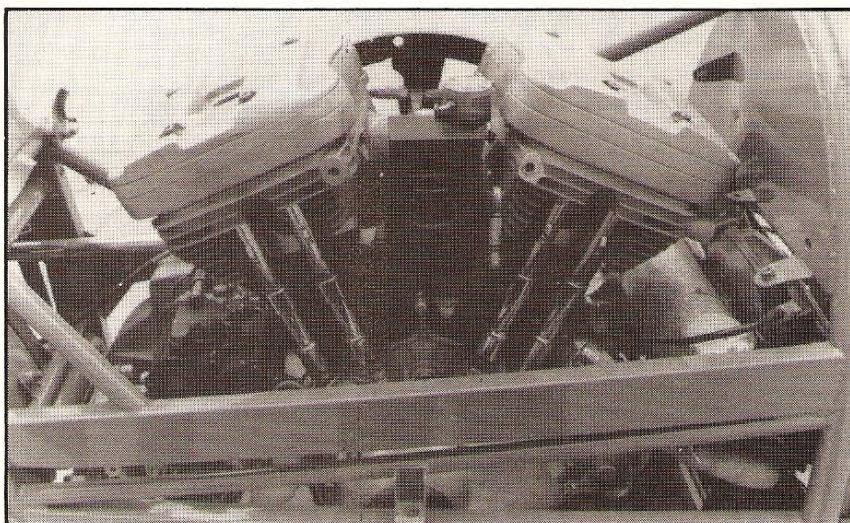


With the clutch eliminated, so are the problems associated with that device, namely slippage and breakage! The motor/transmission package is narrower, also.

the motorcycle named Mariah. First, you climb into your custom-designed, five-layer fire suit by Deist, slip on your Nomex Baclava, and don your helmet. You are then shoehorned into the narrow confines of the operator's compartment. You are strapped in tightly with a nine-point harness complete with arm restraints. Your eyes are so low to the ground that your vision is restricted to a short 75 feet.

Push the starter button, and the motor coughs to life with a series of violent explosions, and vibration is everywhere.

As the tow car slowly moves ahead, you are riding the brake to keep the slack out of the tow line. At approximately 45 mph, you drop her into gear. Release the tow, and lift the skids. Accelerate gently — the rear tire may spin with excessive throttle up to about 150 mph. After about one-third of a mile, shift into 2nd gear at 123



The motor from the right appears conventional with the exception of the compact nitro injector system. This "long-legged" motor has reliability, as well as horsepower, built in.

mph. The 3rd gear shift is made at 170 (½-mile elapsed distance); the tach reads 6,000 rpm. Scan the gauges now, because soon you will be going

too fast to take your eyes off the black line that defines the race course. At 1.2 miles and 230 mph, the 4th gear shift is made, and sooner than expected (two-mile marker), the change to 5th is performed. Now you are cooking. From here to the five-mile marker, the track seems very narrow due to our 500 feet-per-second rate of speed. At this rate, vision is restricted to 1/6 of a second, so the future must be predicted based on the past.

As the five-mile marker flashes past, you activate the high-speed chute, and are violently thrown forward against your harness with a force twice your body weight.

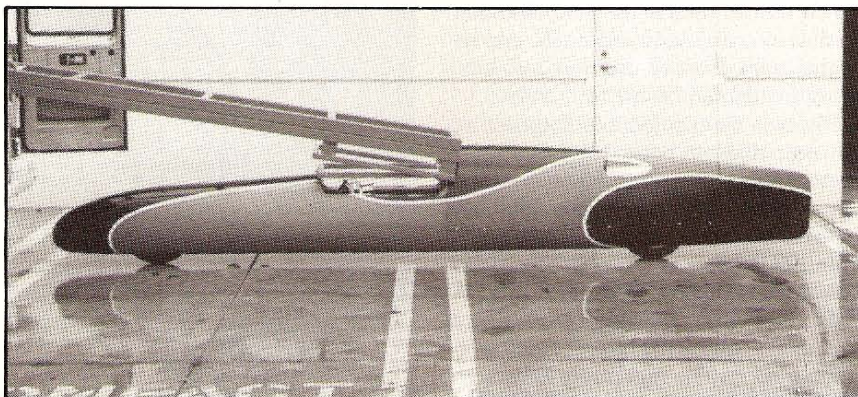
As things settle down, you shut off the fuel, kill the ignition and shift

into neutral. Things are suddenly very, very quiet.

After a long six seconds, you release the low-speed chute (approximately 180 mph), and as the motorcycle slows to 100 mph, the brakes can be applied with finesse. In less than a mile, you are going slowly enough to lower the skids and slide to a gentle stop.

Now take a breath — it seems as if you had held your breathing in check. It seems a long while until your very excited pit crew arrives to announce your qualification for a return record attempt run.

This is Bonneville racing, and it can be very addictive. All the members of the team share the elation of success and the frustration of failures equally, but the pilot gets the speed rush. See you at Bonneville, we hope!! 🏍️



Mariah is transported in a long wheelbase Dodge van and is loaded and unloaded via a boom. This procedure typically requires a minimum of two people, but it is much more convenient than a trailer arrangement.