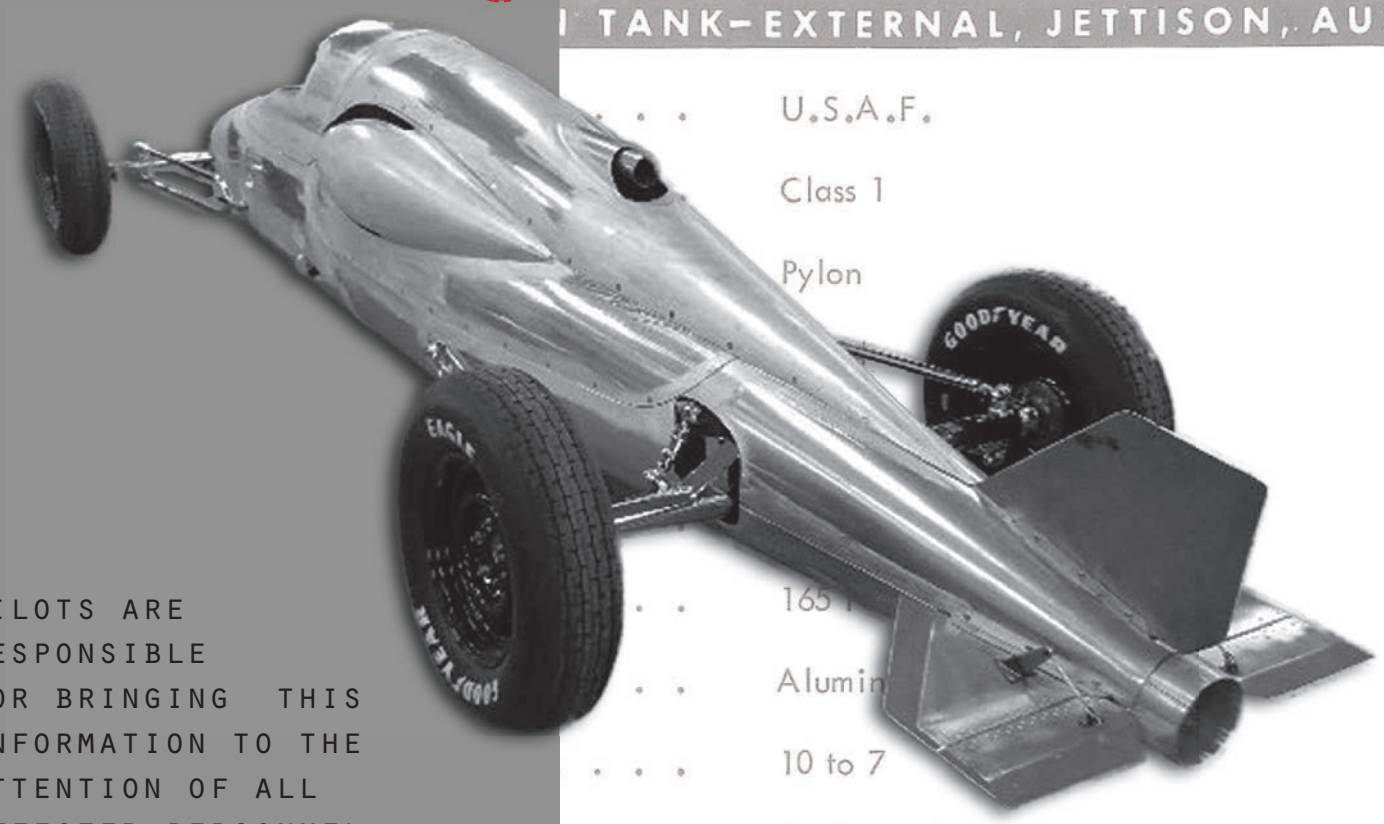
ASSEMBLY NO. . . • 20-200-48029

Operation and Flight Manual

LAND SPEED BELLY TANK LAKESTER: GERBER/TRACY SPECIAL CLASS 1459 F/GL

SYCLONE MOTORSPORTS

CLASSIFIED



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SYCLONE
Motorsports


ADVANCED PLATING
Est. 1962
Nashville, Tennessee
THE WORLD'S FINEST CHROME!

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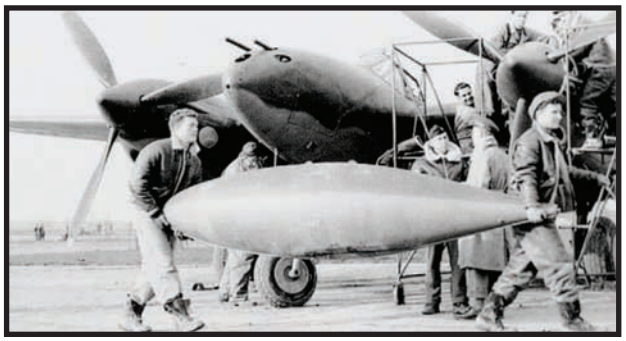
SECTION I INTRODUCTION & SPECIFICATIONS

Introduction to the Gerber/ Tracy Special 1459 Class F/GL

Drop Tank: a term used to describe the auxiliary fuel tanks externally carried on aircraft that can be jettisoned once empty. Commonly referred to as belly tank, wing tank, or external tank

After World War II, returning G.I.s used many of the skills the acquired while in the military to develop aftermarket speed equipment for the internal combustion gas engine. Many of them would personally test their products on the dry lake beds of El Mirage or at the Salt Flats of Bonneville. Most engines they tested their products on were in roadsters and jalopies, however a few innovators were taking jettisoned drop tanks and turning them into race cars commonly referred to as lakesters.

The lakester had a number of advantages including aerodynamics, affordability, and they were relatively easy to build. The lakester instantly became a staple at the Salt Flats and its presence can still be seen today. However, even today the



lakester still seems to have this stigma around it that it should look like it was from the post war period or 1950's. Nevertheless, there are so

many possibilities that can be achieved with a lakester and today's technology that it felt necessary to build a contemporary version of this legendary style of race car.

After the initial success of project "Gerber Special" a 1932 Ford Roadster 459 STR/C, which made over 40 runs at 200-plus mph, driver Steve Tracy and builder Chip Gerber decided to team up for a lakester project using a vintage drop tank. Only, this was going to be a modern interpretation of what a lakester is. Using the latest in speed equipment technology and contemporary design this would be a new twist on classic, but would still retain the iconic lakester look.

The following pages document the construction of project "Gerber/Tracy Special" a land speed lakester 1459 Class F/GL and shows how a vintage belly tank became a contemporary race car.

TECHNICAL SPECIFICATIONS

Gerber/Tracy Special 1459 Class F/GL
Owners: Chip Gerber, Gene Gerber, and Steve Tracy
Builder: Syclone Motorsports

BODY

Project started with a Sargent Fletcher drop tank off of a 1965 Phantom F-4 jet plane. Ended up with an entirely hand fabricated, scratch built, one-off aluminum body by Craig Naff of Woodstock, VA. Only original body pieces are the wings, which have been modified, and sections of the nose. Total weight 1629-lbs.

POWERTRAIN

Esslinger Engineering of El Monte, CA designed, machined, and built a one-off 182 cubic inch four-cylinder that produces 375 horsepower at 8200 rpm. The engine is backed by a 5-speed Jerico air shift transmission outfitted with Tilton 5-1/2" clutch.

SUSPENSION

The lakester is set up with a 162" wheelbase for an overall length of 224". The chassis/roll cage was constructed by Howards Custom Iron using 250' of 1-5/8" .090 tubing. The front suspension is setup with a one-off straight front axle with spindles and steering arms by Pete and Jakes. The wishbones are one-off arrow style. The rear-end is a Ford 9" with Currie axles that has been gusseted with air deflectors and is fit with a 2.91 gear weight relief that is lightweight, balanced, and blue printed. For braking, the suspension has been shod with Wilwood disc brakes featuring 11.5" rotors.

PAINT & PLATING

Various shades of purple paint by PPG, which was custom mixed and sprayed by Ernie Ball using a pearl silver base and applied with an eight color blend and fade. Paintwork also features sprayed lettering and logos by Ernie Ball. All chrome plating was done by Advanced Plating of Nashville, TN. The total number of chrome plated pieces was 609 and of that 482 were fasteners.

INTERIOR

Interior features handmade aluminum panels by Craig Naff, Kirkey seat upholstered in bombardier leather by Larry Sneed, one-off custom gauges by Classic Instruments, engine turned aluminum dash panel, Simpson seatbelts, and one-off programmable speed GPS.

SECTION II BODY FABRICATION & CONSTRUCTION

The Drop Tank

The first use of a drop tank was in the 1930's during the Spanish Civil War to allow aircraft to carry additional fuel for long range flight escorts. Prior to World War II the use of drop tanks on fighter aircraft was prohibited by the United States Army Air Corps. Once the US became involved with WWII, drop tanks were used liberally on military aircraft.

As one can imagine, drop tanks come in a variety of sizes from a number of manufacturers. Most notably, Sargent Fletcher is an aircraft equipment company which has manufactured refueling systems, external fuel tanks, and specialized pods

since 1940. When we started hunting for a drop tank to build a lakester out of, we had no idea whose tank we were going to use, but we knew approximately what size it needed to be. We finally arrived on a 300-gallon capacity tank that was manufactured by Sargent Fletcher.

Our drop tank could originally be found on a Phantom F-4 during the 1960's. According to the serial number from Sargent Fletcher it was manufactured in 1965. Therefore we were able to date our lakester as a 1965 Phantom F-4.

Starting Point

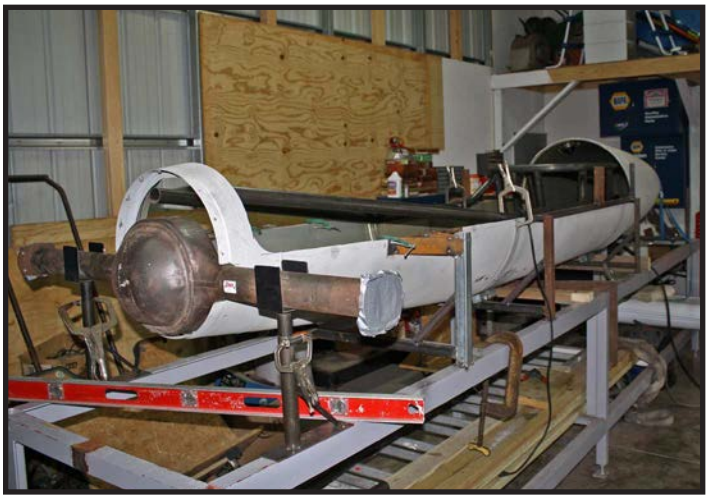
Once we had located the appropriate size tank and placed a date on it, it was time for the body to be constructed. Although the initial shape was there, it was going to need a lot of work and hand formed panels to achieve the look we were after.

The first thing was to split the body lengthwise to fit it with a combination chassis and inner structure to house the driver, engine, and suspension. Once these items were fabricated and mocked up, it was easier to see the direction the shape of the body was going to need to take. Additionally, we were able to acquire a newly designed canopy for top fuel dragsters that was being endorsed by driver Tony Schumacher.

Between the original dimensions of the tank, the chassis, and the canopy, this was largely going to dictate the design of the body.

INITAL BODY MOCK-UP

The images below show the initial body mock-up by Chip Gerber of Syclone Motorsports prior to formation of upper body panels.



SECTION II BODY FABRICATION & CONSTRUCTION

Body Fabrication

Once the drop tank had been split and mocked-up, it was time to turn the car over to the talented hands of Craig Naff in Woodstock, VA. For many years Craig has been the talented metal man behind a number of show stopping hot rods, customs, and classics. He has even recreated a few iconic race cars off of photographs alone. There was no question that he was the right man for job of forming the body of the lakester.

As mentioned previously, the design of the body was determined largely by the original dimensions of the tank, chassis, and canopy. Craig was comfortable with this and knew that he could create a dynamic design that would flow from end to end, all while incorporating the necessary components.

The transformation from nothing to something took Craig approximately 650 man hours and used up four sheets of 60-thousandths 3003 aluminum and one four foot by eight foot sheet of 90-thousandths 3003 aluminum.

Using a Yoder Power Hammer and a Pullmax Forming Machine, Craig meticulously hand crafted the panels required to style the body of the lakester. During this process he ended up building a wood buck to shape the rear section, which would cover the driveline. When he constructed the setup for the canopy, he chose to use the 90-thousandths thick aluminum for the body panels around the canopy for added safety.

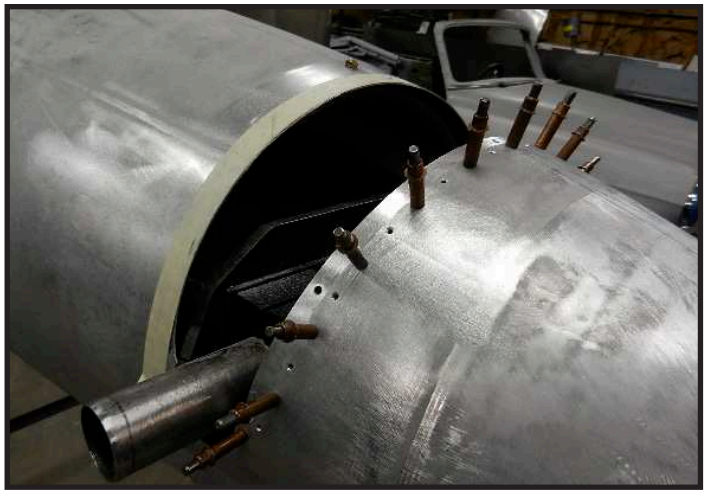
A number of the panels were welded together with an oxy acetylene torch and were smoothed out by hand to make the transitions unnoticeable. If the panels were to mate and needed to be removable, Craig used A and N aircraft rivets on edge doublers. It took approximately 275 rivets for the whole body and Criag hand hammered all of them.

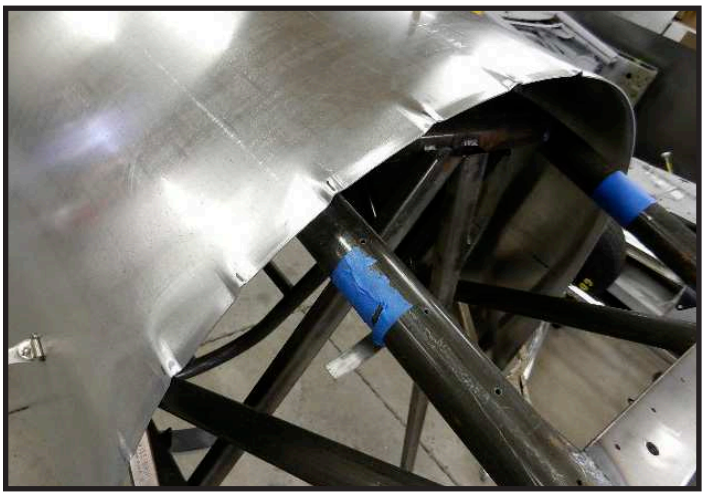
One of the many areas that Craig drastically improved was the tail section. Originally the horizontal tailfins were fixed at the rear of the drop tank. Craig took the original magnesium tailfins and modified them so they could be adjustable. This way during runs at the Salt Flats the crew could adjust the downforce on the rear of the lakester and see how it affected the top speed.

In the end Craig practically scratch built a whole new body, using a minimal amount of the actual drop tank. Some of the original lower half from mockup that we thought would be useable ended up being replaced. Although much of the original drop tank may not be in the final product, it is still true to original dimension and look of what a lakester should be. Not to mention that now it is a true work of art.

BODY FABRICATION

The following images document the transformation of the underbelly and the nose of the lakester by Craig Naff.





SECTION II BODY FABRICATION & CONSTRUCTION

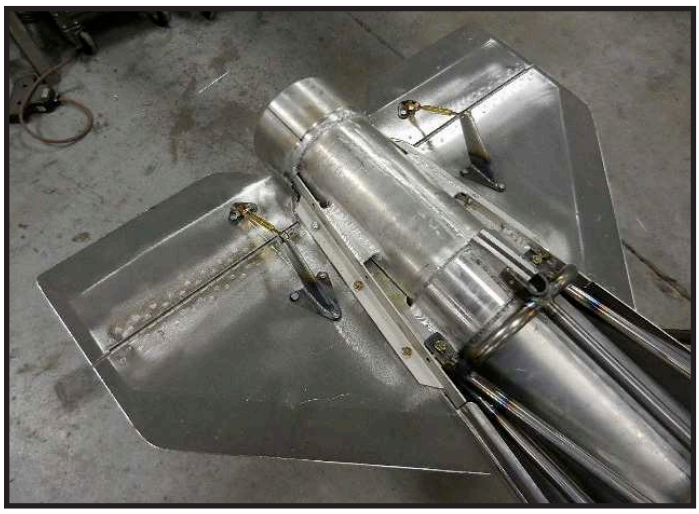
Once the underbelly was fabricated, the car was set upright and Craig started modifying the nose and fabricating the topside

SECTION II BODY FABRICATION & CONSTRUCTION

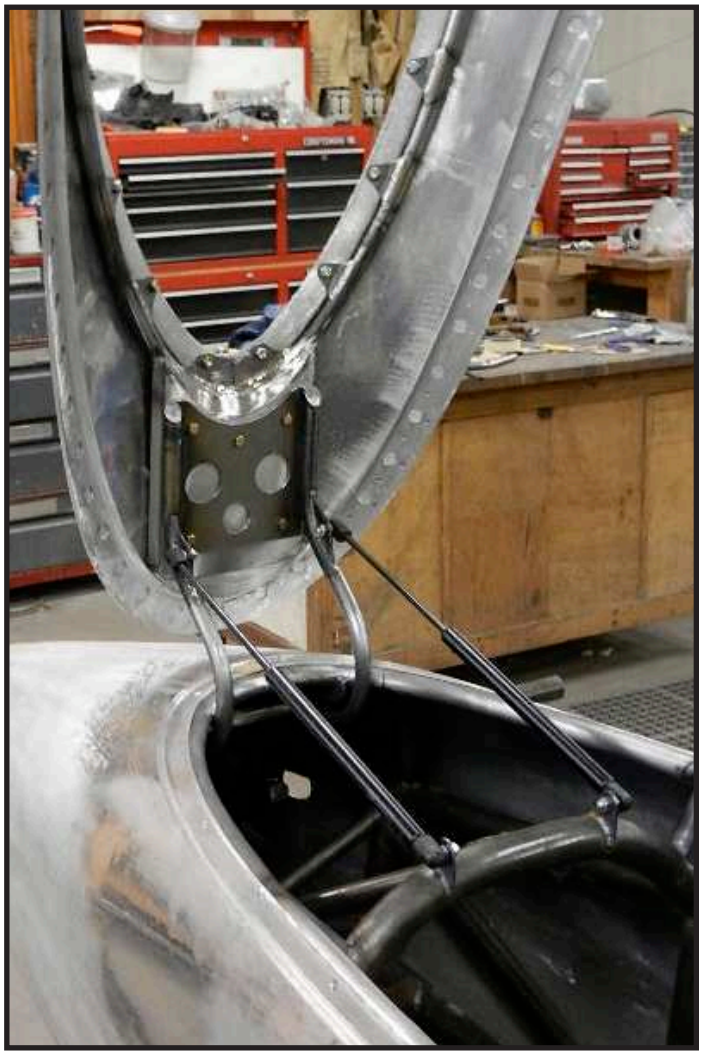
After the area around the canopy and part of the tail had been formed, the next step was to construct the panels that would cover the drive-train and bridge the gap from canopy to tail.

SECTION II BODY FABRICATION & CONSTRUCTION

Now that the majority of the upper panels had been shaped, the tailfins were modified and refined for adjusting downforce.

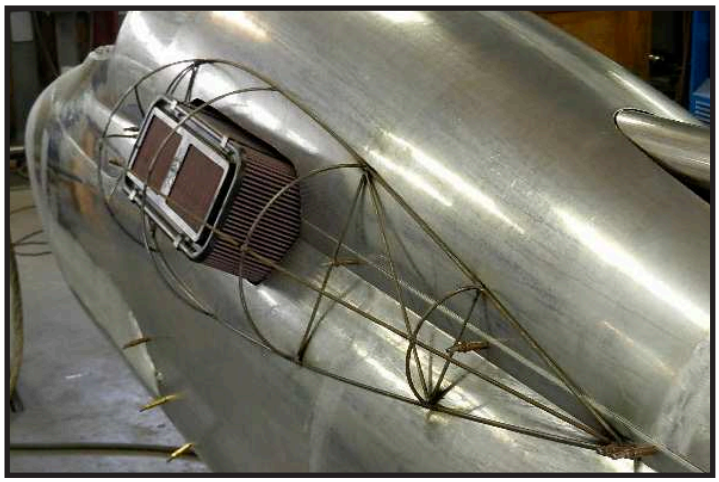


Even though the canopy is produced for top fuel dragsters, they are sold without bracketry since each application has its own parameters for how it can be mounted. This left Craig with the task of figuring out how to make the canopy open and close effortlessly. This resulted in Craig having to build the bracketry and mechanisms from scratch, along with figuring out all the geometry associated with making it work.



SECTION II BODY FABRICATION & CONSTRUCTION

Last but not least, Craig had to construct blisters for the side of the engine compartment for cooling. At this time he also had to address the area around the exhaust as well.



FINISHED METALWORK

The culmination of approximately 650 hours of skilled labor and countless hours of planning it out in his mind, Craig Naff completed all of the metalwork on February 20, 2014.

SECTION III POWERTRAIN & CHASSIS

Powertrain

Many people may not realize this, but even after Ford came out with V-8 engine many hot rodders and race car drivers still chose the four-cylinder as their engine of choice over the v-eight. A lot of this was to do with how familiar many of them were with four-cylinder and how much aftermarket speed equipment was available for them. As everyone kept working on refining the power that could be achieved with a v-eight, many kept on using the four-cylinder.

Today the four-cylinder is just as popular on the salt as it has ever been. There are even a number of four-cylinders putting up record numbers at the Salt Flats year after year.

When it came time to choose an engine for the lakester, it didn't take us long to arrive on a four-cylinder. Only thing was, this wasn't going to be any ordinary four-cylinder. We were going to use the latest in horsepower technology for our four-cylinder.

We got connected with Esslinger Engineering in El Monte, CA who have practically refined and perfected the four-cylinder. For over thirty years now they have been a dominating force in the Ford four-cylinder performance products business. A number of their engines can be found in off-road trucks, midgets, and mini stocks. They were without question the right guys for the job.

At Esslinger they design, cast, and machine their own blocks, heads, and crank along with almost every other piece of the engine. All said and done, an Esslinger engine is a one-off symphony of performance engineering.

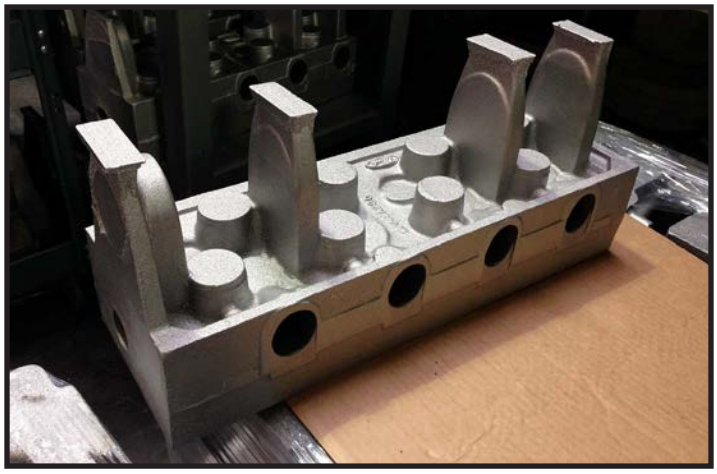
Here is a quick look at the four-cylinder that Esslinger put together for the "Gerber/Tracy Special".

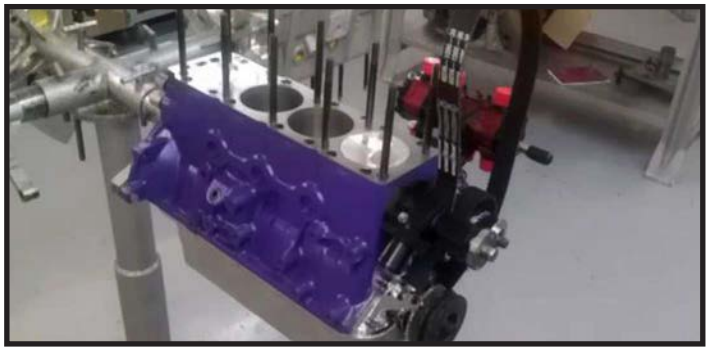
Engine Specifications

Builder: Esslinger Engineering
Power: 375 hp at 8200 rpm
275ft lbs at 6200 rpm
Displacement: 182 cu in / 2988 cc
Block: Esslinger 9" HD with billet main caps and 3.934" bore
Crank: Esslinger billet 4340 3.750" stroke
Rods: Crower Maxi-Lite 6"
Pistons: Esslinger/JE Pistons 15:1 compression
Rings: Esslinger/Total Seal AP Gapless
Head: Esslinger XT w/2.1" & 1.550" Del West Titanium valves
Cam: Esslinger Tool Steel Roller with 5 bearings
Intake Manifold: Esslinger Billet Injector with 2-7/16" butterflies
Dry Sump: Esslinger/Barnes 4-Stage
Electronics: Advanced Engine Mgmt.
Mil-Spec Wiring: Esslinger/Brian Dague Racing
Fasteners: ARP

MACHINING THE ENGINE

Here is an inside look at how Esslinger Engineering machined and assembled the engine for the lakester.

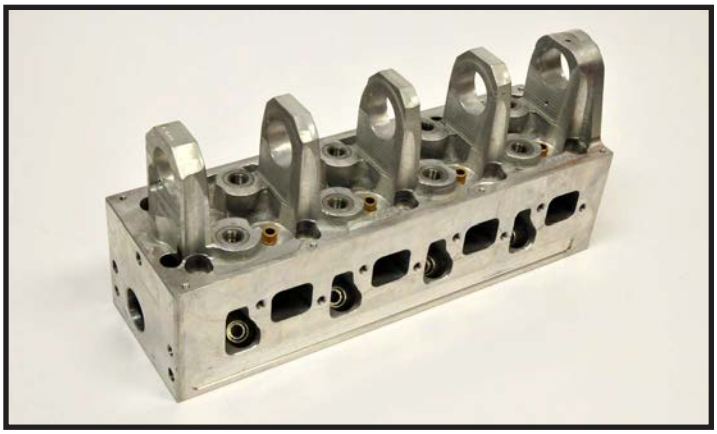


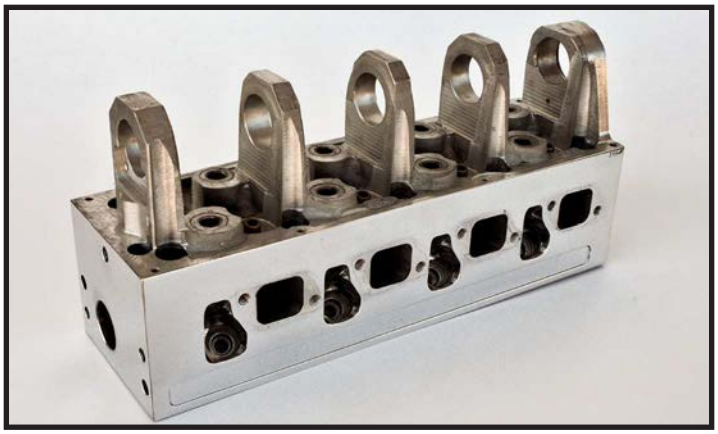


SECTION III POWERTRAIN & CHASSIS

During the engine build some of the machined aluminum pieces were sent to Advanced Plating in Nashville, TN for polishing before installation.

Above is the intake in raw with the polished version on the right.

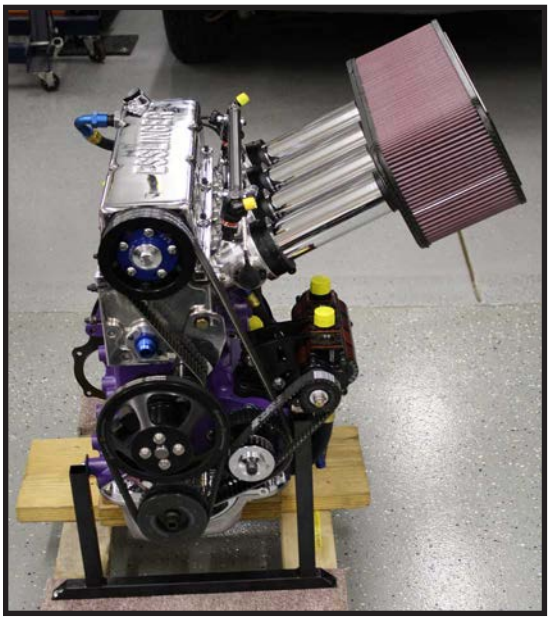




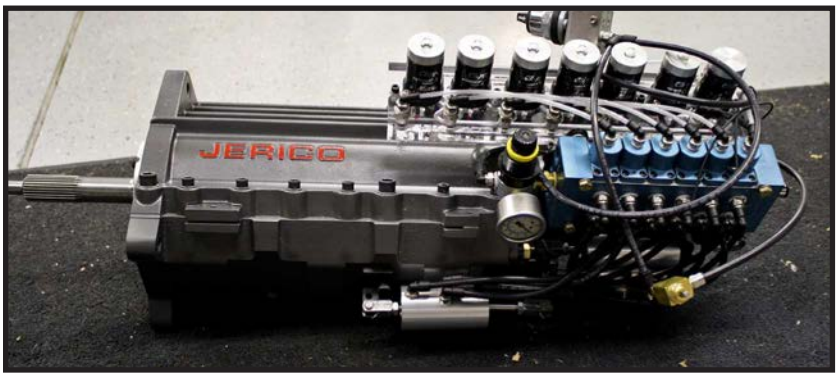
The above images show the head before (left) and after (right) polishing.

Here is a view of the fabricated (left) stainless steel exhaust and the exhaust after the welds were smoothed and the pipes polished out (right).

ASSEMBLED ENGINE & DYNO



Once the engine was all assembled and selected parts had been polished, the engine was ran on the dyno and the numbers showed that it generated 375 hp at 8200 rpm. To direct all this power in the right direction, a Jerico air shift 5-speed transmission was selected to back the engine.



SECTION III POWERTRAIN & CHASSIS

The Chassis and Suspension

When building a car whose main purpose is racing, a chassis is no longer just a means for the cars suspension. It is a multitude of things including a structure support, a roll cage, protection for the driver, and yes a chassis. A lot of thought has to be put into how this structure will fit inside of the body and provide the best protection for the driver. It also requires a lot of planning to figure out the best way to fit the suspension and provide the optimal wheelbase and weight ratio for the car

The difficult task of tackling this element of project "Gerber/Tracy Special" was handed over to Howard's Custom Iron. Not only did they have a certain level of expertise in this area, they are also the ones who constructed the roll cage for Syclone Motorsports previous car "The Gerber Special".

Howards used approximately 250 feet of 1-5/8" .090 tubing to construct the impressive structure for the lakester. It took Howard's right around 160 hours to create the chassis and once you see the chassis, it is almost hard to believe it could have been built in such a short amount of time.

After the chassis was created, Syclone Motorsports took on the task of fitting the chassis with all the necessary suspension components. They started out by fitting the front end with a one-off straight front axle connected to spindles and steering arms from Pete and Jakes. The steering arms are directed by a stiletto billet steering rack and the front suspension is further controlled by one-off arrow wishbones.

At the back end of the car the suspension is setup with a Ford 9" rear-end that has been gusseted with air deflectors. The rear-end has been stuffed with Currie axles and a 2.91 gear weight relief that is lightweight, balanced, and blue printed. Furthermore, a slight cushion is given to the whole suspension with rigid shocks and 15" x 5" Mooneyes wheels wrapped with 28 x 4.5/15 Goodyear Eagle Racing Special tires.

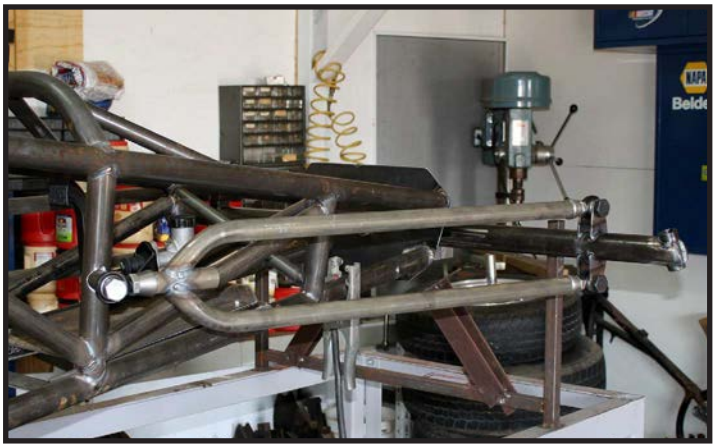
Stopping power is given to the lakester by way of a Wilwood brake system with 11.5" rotors. Additional stopping power is provided by a parachute by DJ Safety.

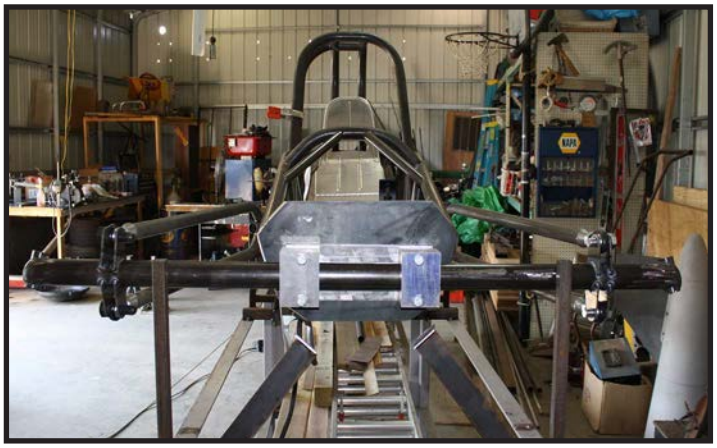
Providing the finishing touches to the chassis, Bill Matthews Autobody and Powder Coating in Springfield, IL, powder coated the chassis gloss black, while all the suspension components and fasteners were sent to Advanced Plating in Nashville, TN for chrome plating. Not forgetting about safety, hand fabricated bracketry by Syclone Motorsports attaches a fire suppression system to the chassis also.

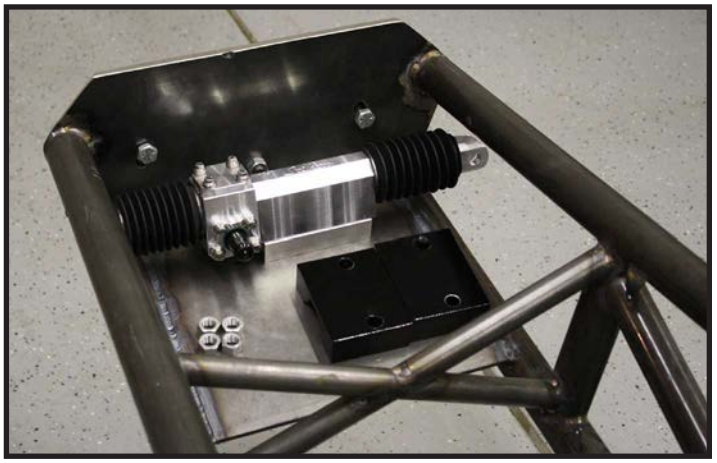
CHASSIS CONSTRUCTION

SECTION III POWERTRAIN & CHASSIS

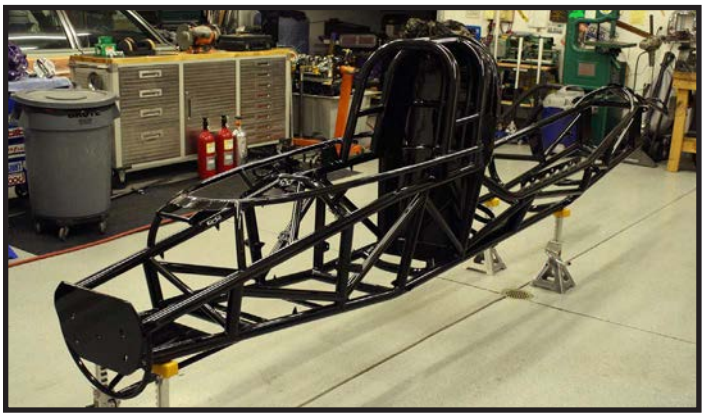
Once the initial framework was constructed by Howards Custom Iron, Syclone Motorsports took on the task of setting up the front and rear suspension. The overall wheelbase ended up being 162"

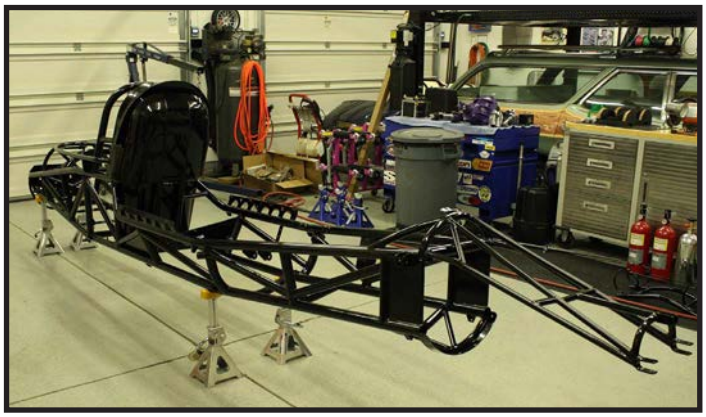


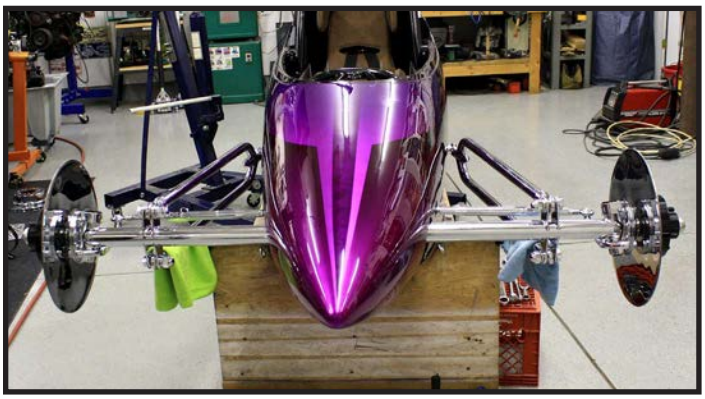




Next the suspension was disassembled and the chassis was sent to Bill Matthews Autobody and Powder Coating for gloss black powder coat, while suspension and hardware was sent to Advanced Plating in Nashville, TN for chrome plating.







SECTION IV FINISHES - PAINT, PLATING, INTERIOR

The Paint

While it was almost a shame to put paint on the beautiful metalwork that Craig Naff had done, it was also a chance to really accentuate the incredible form that he had shaped. Knowing full well that paint was the sort of thing that could make or break a car, we turned the body and all adjoining panels over to Ernie Ball of Springfield, IL, for his expertise.

Using PPG paint, Ernie went above and beyond the call of duty by laying down a paint job that utilized eight colors and featured an assortment of amazing blends and fades. Each color was custom mixed and sprayed out by Ernie himself and a pearl silver base was applied at

the beginning for added color depth. Furthermore, he also sprayed out the logos of Syclone Motorsports and Advanced Plating on the body along with names and various other lettering. It was all an incredible feat when you consider that Ernie accomplished the whole job in approximately 360-hours and that he didn't get any of the body panels until mid-February of 2014.

APPLICATION OF COLOR

SECTION IV FINISHES - PAINT, PLATING, INTERIOR

Chrome Plating

Ironically enough, the durability of chrome is tested through a salt spray test over a number of hours. This really intrigued Steve Tracy, who is not only partner on the lakester with Chip Gerber of Syclone Motorsports, but also the owner of Advanced Plating in Nashville, TN. He figured what better way to test the durability of his chrome than on a salt flat lakester. So the decision was made and anything that could be chrome plated, would be chrome plated including all of the suspension

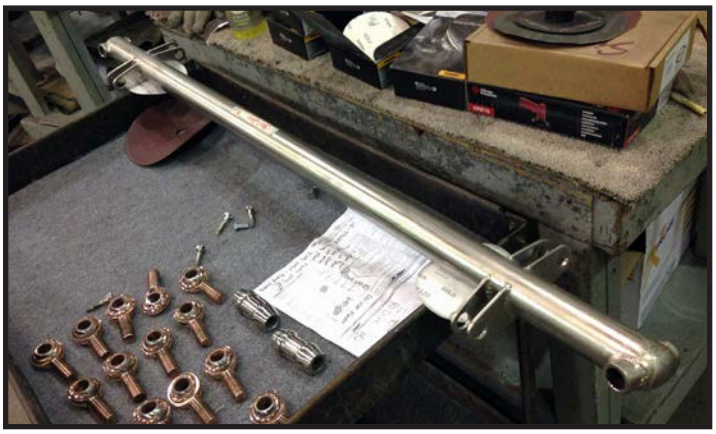
During the build a total of 609 parts and pieces consisting of suspension parts, select engine components, and all fasteners were taken to Advanced Plating for polishing and chrome plating. Of the 609 parts 482 of them were fasteners alone. If any of the fasteners had markings or casting lines on them, they were all polished flat and smooth for a cleaner look.

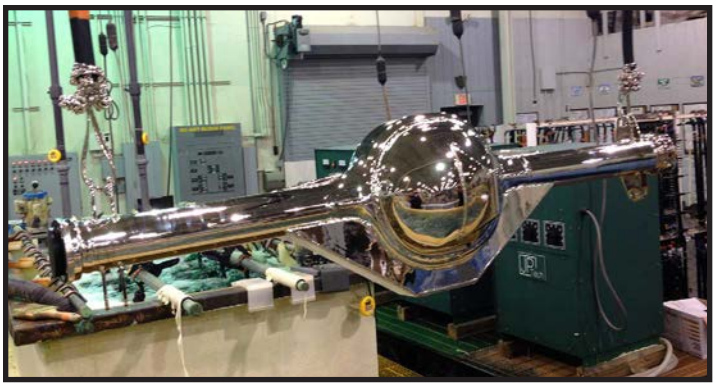
The same treatment given to the fasteners was also applied the suspension and engine parts. This also meant that any welds were dressed or smoothed, but not ground to avoid the risk of damaging the structural integrity of the parts. Furthermore, any welds that needed to be smoothed, but were unable to be smoothed in order to comply with SCTA-BNI rules,

were covered with lead solder. The lead solder was then blended and smoothed to make the welds disappear, but retain the strength of the welds and comply with the rules.

Like all parts that go through the plating process at Advanced Plating, all pieces received copper, nickel, and chrome, with a copper buff, to ensure a show quality finish. One thing is for sure, if the paint accented the metal work that Craig Naff did, the chrome definitely accents the paint work that Ernie Ball did. Together, all components combine for a dynamic appearance.

CHROME PLATING





SECTION IV FINISHES - PAINT, PLATING, INTERIOR

Interior Components

It definitely might seem odd to talk about an interior in a race car, but the "Gerber/Tracy Special" actually has some interior components worth discussing. Yes, it might not be the kind of interior you would find in a typical show car, but for a competition car it has some very noteworthy furnishings.

The centerpiece for any interior is without question the dash. Since this car is fairly narrow, it leaves little room for an elaborate dash, but it was just enough room for a machine turned aluminum panel fitted with one-off custom gauges by Classic Instruments.

The custom gauges were created just for this car and feature the "1459 F/GL" lettering on the face of them. As the car was coming together, personal friend John McLeod of Classic Instruments even came in to help and

participated in the build by wiring the gauges and mounting them in the dash panel.

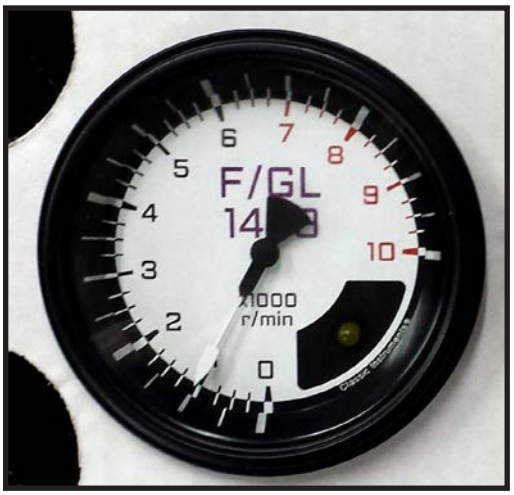
Continuing through the cockpit, you will find that the interior has been fitted with one-off aluminum panels. These panels were hand formed by Craig Naff and feature diamond rolled inserts to resemble the patterns that you might find on the door panels of a vintage hot rod. These panels not only dress up the interior, but help conceal the inner structure and add a finished look to the cockpit.

Finishing off the interior you will find a Kirkey seat that has been upholstered in bombardier leather by Larry Sneed of Louisville, KY. After all, it seemed only appropriate that a competition car built from the drop tank off of a fighter jet should be upholstered with leather that looks like a bomber jacket.

Initially the seat itself was stripped down and the aluminum was powder coated gloss black to match the rest of the chassis and inner structure. After it was covered with the leather upholstery, it was fitted with a set of Simpson safety restraints to keep the driver locked in and safe.

Other interior features include a steering wheel by Speedway Motors, adjustable one-off track pedals by Wilwood Brakes, a programmable speed tracking GPS system with one-off trim bezel by Classic Instruments, and a Simpson helmet that has been chrome plated by Advanced Plating.

INTERIOR COMPONENTS



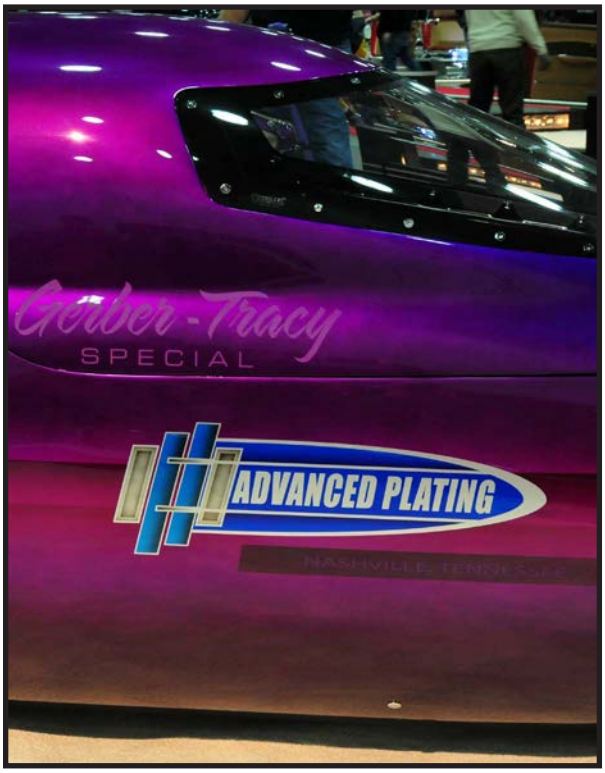
SECTION V

THE END RESULT - A DETROIT DEBUT

Mission Accomplished

A lot of hard work, round the clock labor, and sleepless nights finally paid off when the Gerber-Tracy Special made its debut at the Detroit Autorama March 7-9 of 2014. This team effort was the result of a number of great friends and industry professionals coming together and working toward the same cause. We could not have been happier with the end result.

TAKING THE STAGE



SECTION VI ACKNOWLEDGEMENTS

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