

The official newsletter
of: Revs Institute
Volunteers

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*Thank You to
this month's
contributors:*

- Tom Dussault
- Bob LaPorta
- Bill Vincent
- Larry Gleeson
- Todd Murvine
- Mark Koestner
- Whitney Herod
- Max Trullenque
- Joe Ryan
- Anna McDowell

TAPPET CLATTER



Volume 28.1

September 2022



Chairman's Notes

By Chip Halverson

When Eric reached out to me to remind me to prepare this letter for the September Tappet Clatter it was a welcome reminder that the beginning of our season is upon us. This season at Revs Institute promises to be an exciting one. We are already well underway with very interesting speakers for our volunteer meetings, new, exciting, training and membership programs, and much more. In this and subsequent communications you will be hearing much more about these programs.

For this issue I want to focus on guest satisfaction. We volunteers are a big part of the guest experience. Representing this incredible collection to our guests is a major responsibility. We are the human connection to one of the very best automotive museums in the world. Often, we talk about holding ourselves to a very high standard. How do we know if we are succeeding?

One way to measure ourselves is through the Trip Advisor website. ([link here](#)) The site provides travelers worldwide with information on food, lodging and "things to do" at various locations. The site relies heavily on user reviews. If you go to "things to do in Naples" you will find Revs Institute along with attractions like the Naples Botanical Garden, Corkscrew Swamp Sanctuary and others. What you will also find is that, based on customer reviews, Revs Institute has the highest rating in Naples. Pretty amazing in an outdoor oriented town.

(Continued on page 2)

Chairman's Notes....continued

(Continued from page 1)

Obviously, the collection is a huge driver of the positive ratings. As to the volunteers, if you dig a little deeper and read some of the reviews you will see comments (I am paraphrasing) like "the volunteers make the collection come alive", "the stories they tell really add to appreciation of the cars", "their knowledge and enthusiasm were most impressive". We are definitely making a positive impact on the guest experience.

I would encourage all of you to visit the site and return from time to time for an update. It's a challenge to all of us to maintain and improve these ratings. Looking forward to being with all of you this season.

All The Best! *Chip Halverson*

TAPPET TRIVIA

By Joe Ryan

This section is devoted to questions about the Miles Collier Collections cars or cars of the same period. Some of the questions might be a bit (very) obscure or (impossibly) tricky. Test your knowledge and *have fun!*

The theme for this month's questions is about the Miller 91 racecar and other Harry Miller motors and cars

1. Question: True or False: The 1927 Miller 91 Supercharged Straight 8 double overhead Cam Shaft was Developed by Harry Miller. The car was a standard rear-wheel drive.
2. Question: How many times did Harry Miller design cars win the Indianapolis 500?
3. Question: How many times did other cars with motors designed by Harry Miller-based Offenhauser win the Indianapolis 500?
4. Question: How many of the Harry Miller/Offenhauser cars won the National Championship?

The answers appear later in this issue

COORDINATOR'S CORNER

By Whitney Herod



It has been a busy summer with lots of activities. New volunteers were recruited and trained. Guests were treated to our wonderful volunteers and Revs Institute was well represented at Monterey and Pebble Beach. The Lime Rock Vintage Festival, Sept 1-5 will feature the Lotus 23 and Corvette Grand Sport driven by Dave Handy The Ferrari 400 SuperAmerica will be on display for the Concours.

The Revs Institute Learning program has been getting a lot of great attention lately! Mike B. finished the Teen Program for the summer and all participants left happy and more knowledgeable. In fact, three of them joined us as Volunteer Stewards! Take a look at what people are saying;

"I took the Engine 101 teen course and was amazed and learned a lot! The Teacher (Mike Barbone) made confusing concepts easier to understand."

"No matter how knowledgeable you may be, this class can teach you new things and give an amazing hands on experience."

The next class in the adventurous automotive program will focus on *Brakes 101*.

Revs Institute participated in the FGCU Fall Service Learning Fair. Tom Dussault and I attended.

(pictured below – Courtesy of Revs Institute)



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COORDINATOR'S *...continued* CORNER

(Continued from page 3)

Of course closure of the Museum cannot keep our Volunteers away as the picture below demonstrates. This is the Shady Bunch; the Tuesday morning get-together under the shade trees just off the parking lot in the grass. The weekly event started during the global pandemic shut-down that continues during closure for cleaning.

The *Summer Volunteer BBQ* is Sept 30, 12:00 pm to 2:00 pm, Revs Institute lobby. RSVP Whitney by Sept 20.

I look forward to seeing everyone when we reopen!

.....

Whitney



Revs Institute Learning

The goal of Revs Institute Learning is to help car enthusiasts, automobile historians, the academic community and the public develop a new level of knowledge and respect for the automobile. Revs Institute Learning is an advocate of the automobile as an archaeological artifact, technological device, art object, and an agent for social and economic change.



Contact Us

Registration open for Automotive Engines 102 Class
Sept 13, 15, 20, 22- T/TH – 6:00 pm to 8:00 pm – \$199.95

Membership Report

By Tom Dussault

Since our last report in April, the Membership Committee has welcomed four new Station Guides and two new Stewards to our volunteer organization. Each new member attended our Orientation Program that includes a presentation about the legacy of the Collier family, the history of the Miles Collier Collections and Revs Institute as well as a detailed overview of volunteer guidelines, responsibilities, and benefits. Finally, Larry Gleeson lead a behind-the-scenes tour of the museum, library, and shop facilities to help familiarize our new members with the many facets of Revs Institute.

We are very pleased that Christopher and Thomas are joining our membership as Stewards and Hugo, Craig, Dan, Tommy and Anthony as Station Guides. Please welcome our new members when you meet them in the galleries. They are excited to be joining our membership organization and working alongside side and learning from our fellow members.

In July, Whitney Herod, Jayne Gresch and I attended the FGCU Summer Community Partner Workshop in Ft. Myers. This is a half day of presentations and discussion facilitated by FGCU for non-profit organizations in Southwest Florida. It highlights the interests and needs of FGCU students intending to fulfill their 80-hour public service graduation requirement. The workshop helped us to fine tune our efforts to reach out to potential volunteers.

Whitney and I also took part in the FGCU Fall Service Learning Fair on August 29. We spoke personally with about forty students who were interested in the volunteer opportunities at Revs Institute. We hope to bring a number of them on board as Stewards this fall. It was gratifying to meet these enthusiastic and accomplished young people.

All Photos Courtesy of Revs Institute

Anthony Maniscalco

Joined August 2022



Originally from New Jersey, he earned his degree from Quinnipiac University in Connecticut, and has an extensive background in social work. In his mid-twenties, he entered the sales and business world, working with BMW North America, Hewlett-Packard Enterprise, and various British-based technology/marketing organizations. Anthony has founded/chaired several volunteer organizations within previous organizations, always looking for an outlet to give back to the community.

His first word was actually "car," so he has always had an inherent interest in anything on four or even two wheels. An avid follower of motorsports such as Formula 1, World Endurance, and MotoGP. He has appreciated classic automobiles, *from the art-deco* style of vehicles from the turn of the 20th century to the unusual (occasionally offbeat) styles that followed in the 100 years since.

Anthony is excited about the opportunity to not only learn from Revs Institute but to have the chance to give back to those of all ages and backgrounds who visit our museum.

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Membership Report...continued



Tommy Daniels

Joined June 2022

Tommy is a full time resident and manages a company that manufactures medical equipment. He has an impressive background as a machinist, including running a business making racing cams and other products for NASCAR. Although his availability is limited, Tommy has already completed Station Guide training and looks forward to researching and writing about our cars as well as volunteering in the library and workshop.



Craig Kunkle

Joined July 2022

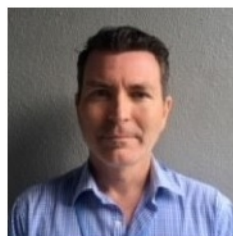
Craig and his wife Kim made Naples their home in 2017. Originally from Wisconsin where Craig owned and operated a municipal engineering consulting firm for 25-years before merging with a California firm in 2010. Craig has previously owned many sports cars including Porsches, Jaguars, MG's and a Triumph and currently drives an '89 Ferrari 328. Craig has been a disciple of Revs Institute since first reading about the unique automobile collection in Excellence magazine. Craig completed his Collection training with his mentor and is eager to serve as a Station Guide.



Dan McGovern

Joined August 2022

Dan is from Massachusetts. As a teenager he enjoyed repairing his own cars. Dan worked in mechanical engineering for several large manufacturing companies and taught at a vocational high school. He eventually moved to Cape Cod and began working at the Woods Hole Oceanographic Institute. Dan has owned several MGs over the years. He moved to Naples in retirement full time. His lifelong love of cars led him to visit Revs and he was hooked. Dan looks forward to spending more time at the museum and meeting people.



Hugo Pereira

Joined June 2022

Hugo is a radiation technician in the healthcare industry. He has an active life with his children and coaches youth soccer. Hugo has always been a car guy and restored a 1964 ½ Mustang. He is very personable and is fluent in Portuguese and Spanish. Hugo looks forward to meeting his fellow volunteers as well as welcoming our guests.



Thomas Nunez

Joined August 2022

Thomas is a sophomore at First Baptist Academy in Naples. Thomas completed *Engines 101 and 102* here at Revs Institute and was quite enthusiastic about the experience. I hope that for the classes are offered in the future. Thomas looks forward to volunteering as a Steward on weekends beginning this fall.



Christopher Araujo

Joined April 2022

Christopher is beginning his freshman year as a high school student in Naples. Christopher took *Engines 101 and 102* classes and thoroughly the experience. He is looking forward to volunteering because of his passion for cars and car engineering. Christopher is fluent in Spanish and we look forward to him interacting with our Spanish speaking guests to make their experience even more enjoyable.

Cruise to Gypsy Isles

By Eric Jensen



On a warm summer afternoon about 40 Revs Institute Volunteers gathered at a parking lot off Collier Boulevard near Tamiami trail. The goal; A leisurely drive to the Island Gypsy Cafe for lunch. Yes, we do schedule outings when the snowbirds are away. Mark Koestner organized the trip and the cafe set aside four large tables for our auspicious group.

Mother Nature decided when many of should leave with the arrival of the mid-afternoon showers putting an end to a delightful gathering of Volunteers and their guests.



Photos Courtesy of Mark Koestner

A Flock of Eagles

By Bill Vincent

Ah, racing at Road America.... Can a weekend be any better? Communing with the WeatherTech International Challenge, with Brian Redman, at *America's National Park of Speed*. I'd be hard pressed to think otherwise. To make this July weekend even better was the representation of Revs Institute at this event, one of the country's biggest vintage sports car sports car competitions. Heck, that is why I volunteered to help!

Every year an automotive mark is celebrated and this year it was the All American Racer's Gurney Eagles. Revs Institute had both the 1974 Jorgensen Eagle Indycar, the 1967 AAR Gurney Westlake Mk1 / F1 Eagle and the rest of Eagles on display (right).



The Volunteers had a strong presence from the Revs Institute. Included were Diane and Doug Johnson helping tend to the cars. Chip Halverson competing in a classic Chevron Sports Racer, for his "Team Owner", Patty (left)

Maybe (*definitely... Ed.*) most important was Chuck Shapiro acting as the Chief Steward for this race weekend. Keeping everything running smoothly for everyone, overseeing a wall of TV screens, making sure everyone was safe throughout the event (below).

Activities actually got off to a start on that Thursday, which was listed as a "test day" for all the race groups. Friday was the first qualifying session for everyone but Mother Nature threw a wrench in the works with rain. Saturday, the weather got steadily better throughout the day, as did the activity around the Miles Collier Collections Eagles. I'm pretty convinced the 1967 F1 Eagle was the most photographed car there!

What I wasn't prepared for was how emotional many people were at seeing that car "in person"! Be it the car, the memory of Dan Gurney, or a combination of both, I was taken aback by how many people were actually weepy eyed, at the opportunity to be that close to the actual 1967 Spa winning car.



Photos Courtesy of Bill Vincent

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A Flock of Eagles ...continued

(Continued from page 8)

I can't count how many people wanted to thank the Revs Institute for bringing the cars up and out for that weekend! And how many raved about their experience in visiting the museum, and the lasting memories they have of it! As the crowds thinned out, towards the end of the day Saturday, we were greeted by three handsome lads that really capped off an already great day.

Danny, Justin, and Alex Gurney all popped in (below), to catch up with "the" Eagle (left).



We rolled the car out into the sunlight and Pedro Vela then gave them all an "up close and personal" visit to a car I'm sure they're most familiar with. The 1967 Eagle Indy car was also rolled out to bookend the three sons with part of their father's legacy.

Out on track, Chip had a good day. He got out of the car smiling ear to ear after avoiding all the chaos around him to bring the Chevron home intact. Which I think put a smile on "Team Owner" Patty, too!

Sunday morning was an early and busy one. I arrived at 7:00 am, just as the track gates opened. Then everyone connected to the Eagles rolled up their sleeves and we got all the Eagles "in formation", lined up in rows of threes - with the two museum's Eagles front and center. A moment not soon to be repeated, included a "team photo" with many of the AAR team members (right) that were in attendance (right).

The rest of the day was a sunnier version of the day before with a constant flow of people wanting to thank the Revs Institute for bringing the cars out and how important it was for them to be able to see them "in the flesh"! Sadly it was over all too soon and the time came to load the Eagles up for their ride home.

I wish I could have seen more of the grounds, as the parking lot is often as interesting as the cars on track. Chip had another drive of the day storming from 17th to 7th, in the Group 5 Historic Sports Racer / Can-Am / Prototype class, with us all cheering him on! As expected, another fabulous race weekend at Road America made all the more special by the Revs Institute's involvement - and a special *Flock of Eagles!*



Porsche 550-01

By Larry Gleeson

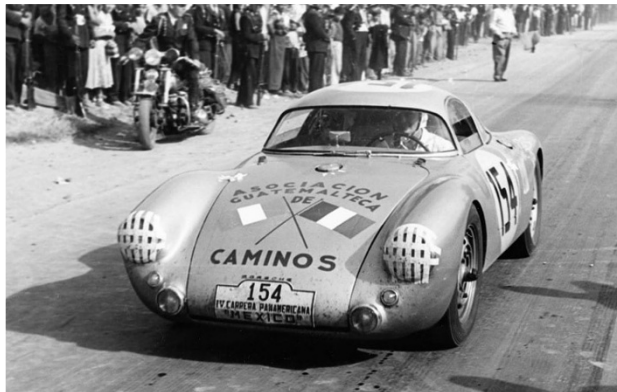
The first 550 series cars were based on Frankfurt Volkswagen dealer Walter Glöckler's specials. Ferry Porsche used this design as a starting point. The early cars debuted on May 21, 1953 at Nurburgring's Eiffel sprint race weekend. They set a new class record and won.

After appearances at Le Mans (1&2 in class), Sarthe, Avus, Nurburgring, and the Freiburg Hillclimb in August, the two cars were brought back to Zuffenhausen, and refurbished.

They were then shipped to Guatemala for the Czech expatriate, Jaroslav Juhan, who operated a garage in that country. (He was also the Porsche distributor there.) He raced them in the 1953 (4th) Carrera Pan Americana. 550-01 didn't finish, but 02 was 1st in class. From there the two went to Argentina for the Buenos Aires 1000 kms event, where Juhan was 1st in class (9th overall) and 02 was 13th overall.



*Glöckler Porsche #3 in 1952
Photo Courtesy of Revs Institute,
Rodolfo Mailander Photograph Collection*



*Porsche 550-01
Photo Courtesy of Revs Institute*

At this point 550-02 was seen no more. 550-01, interestingly, went to the 1954 Sebring 12 hour race. The OSCA in the Vitesse Gallery won the race outright that year, but 550-01 finished 4th in class and 10th overall.

It was then sold to Salvador Lopez Chavez. The La Canada Shoe Company owner raced it in the last Carrera Pan Americana in November, 1954. The shoe Barron took 5th in class, one hour faster than the 550 the year before. The 550-04

car was 1st in class. The car was raced for some time in Mexico but with lackluster results.

Thereafter, little was heard of both cars. In 1997, 550-01 was sold to an Australian collector who engaged Joe Cavaglieri of Sherman Oaks, California to restore the car. Shortly thereafter the car was sold to the Miles Collier Collection. He also restored 550-03 for Jerry Seinfeld and 550-04 which is now in the Porsche Factory Museum.

We rarely mentioned that there were 89 550's built. We mention Jerry Seinfeld and the 03 car, but he also owned 550-60 until 2016, when he sold it for \$5.3 million.

1931 Blower Bentley – The One W.O. Did Not Want to Build ***By Todd Murvine***

W.O. Bentley (1888–1971) began his career in railroads. He worked as an apprentice engineer with the Great Northern Railway before deciding in 1912 to form Bentley and Bentley along with his brother, Horace Millner Bentley. The purpose of their enterprise was to sell Doriot, Flandrin and Parant cars, a French manufacturer. Doriot, Flandrin and Parant was formed in



Peter Harholdt Photo, Courtesy of Revs Institute

France in 1906 and survived until 1926. DFP started to make their own engines in 1912. The 2-litre 12/15 was used by W. O. Bentley in a tuned version with aluminum alloy pistons to race at Brooklands. The aluminum pistons were fitted to some 12/40 hp production cars from 1914. This car also had an electric starter early in 1914. W.O. was probably the first to use aluminum pistons in modifications to the DFP engines. He was successful in racing those modified DFPs with wins at Brooklands. During the First World War, W.O. applied the aluminum piston idea to aircraft engines. At the end of the war, in 1919, he and his brother formed Bentley Motors, Ltd., in Cricklewood, Northwest London. Their first Bentley for sale, a three liter coupe, was delivered in 1921 to Noel Van Raalte. Mr. Van Raalte (1888–1940) was a wealthy playboy and race car driver whose family owned Brownsea Island, the largest of the islands in Poole Harbor, Dorset. He raced in the 1915 Indianapolis 500, finishing 10th. Van Raalte paid £1350 for the car, at least £57,000 in 2017 currency.

The three liter turned out to be a very successful car winning Le Mans in 1924, and subsequent models such as the naturally aspirated 4.5 liter and the Speed Six, winning in 1927, 1928, 1929, and 1930. By then the Bentley Boys, as the racing team was known, were prominent throughout the racing world.

However, as often happens with engineering and design geniuses, W.O. was not a good businessman and by the late 1920's, he had financial difficulties. Bentley, like others such as Lancia and Maserati, was a fine engineer, but not as good at the business side. By 1929 Bentley needed financial help. Through the efforts of two Bentley Boys, Woolf Barnato and Sir Tim Birkin, Bentley was given a new, if short lived, independent life. Woolf Barnato purchased the assets of the company and became its chairman.

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1931 Blower Bentleycontinued

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Bentley, however, was still in financial trouble when he was approached by Dorothy Paget, one of the wealthiest women in England, to produce a supercharged Bentley. Dorothy Paget was a colorful character. Her father was Lord Queenborough and her mother was Pauline Whitney, American heiress to the Whitney fortune. At an early age she inherited enough money that she would never have to work while still leading an extravagant lifestyle.

Bentley was well known for his opposition to supercharging an engine to achieve an increase in horsepower due to its adverse effect on the engine. But he was unable to turn down Paget's offer to support him if he would supercharge the 4.5 liter engine. It was agreed that Paget would purchase a shop in Welwyn Garden City near London to build the new supercharged cars operated and managed by Birkin.



Peter Harholdt Photo, Courtesy of Revs Institute

Amherst Villiers (1900-1991) was the designer of the supercharger used on the Bentleys. Villiers was an automotive, aeronautical and astronautic engineer. He was lured into the project by Tim Birkin. Although Birkin had wealth, it was Paget's and Barnato's money that financed the venture.

Villiers designed the Roots type supercharger to be quiet, unlike the SSK's screamer. The fins which are so prominent are strictly for aesthetics as additional cooling was not needed.

When Barnato took over Bentley Motors in 1926 he immediately devalued the stock from £ 1 to 1 shilling and infused the firm with his own cash. However, he ultimately lost £90,000 while operating the business,

The chassis and engine numbering system are confusing for the Blower Bentleys. The SM prefix was used from April 1930 to June 1931 on chassis models SM3901 to SM3921 with engines SM3904 to SM3924. Engines and chassis did not have matching numbers. Also interspersed were engines with other letter combinations. Beginning in April 1931 all cars had MS for both engine and chassis in this series and the engine and transmission occasionally had the same number. The collection's car appears to be number 41 of the 50 homologated cars. As of 1974, all five of the Le Mans Bentleys (for the Bentley Boys) still exist as well as 40 of the fifty homologated versions. MS3941, the collection's car, is one of 34 Vanden Plas bodied cars. Of those, twenty-six were the four seat tourer style like the one in Miles Collier Collections.

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1931 Blower Bentleycontinued

(Continued from page 12)

Bentley MS3941, according to a copy of the original sales agreement, was originally ordered by Ms. Nora Hardy MacCaw on March 2, 1930, "color to order", in this case black with red leather, from Jack Barkley Bentley, London. Jack Barkley is still in business, residing at 18 Berkeley Square, London W1J 6AE.

Ms. MacCaw inherited her fortune from her father who, in the late 1800's, was a manager and agent for jute mills in India where she was born. In May of 1931, Ms. MacCaw took delivery of her new Bentley. She traded in her 1930 4 ½ Liter Bentley Open Sports Tourer. She was familiar with Bentleys, having owned five others. She paid £1575 less her trade-in of £875, about \$105,300 in 2017 dollars. She also bought the matching luggage option for £17.

MacCaw did not own the Blower Bentley for long, trading it back to Barkley about a year later. Drayton Cochran of New York then purchased it, in October of 1932 for £773; pretty serious depreciation. Then again, it was the depth of the Depression. Cochran added a radiator thermometer, headlamp switch, chrome bumpers, and front pneumatic seat cushions. I have not had the opportunity to evaluate the ride of the Bentley, so I cannot comment on the wisdom of Cochran's addition of pneumatic seats. They appear to be comfortable enough for whatever trips this car will make.

Cochran owned MS3941 until 1949. To complete his collection of Bentleys, Briggs Cunningham sought to have one each of the available engine sizes. So, he traded Cochran a 1949 Sunbeam motorcycle. A 1949 Sunbeam motorcycle in 2017 was worth about \$8,000. I would say Cunningham got the better of the deal.

Miles Collier Collections acquired MS3941 in 1988 from Cunningham, the fourth owner. Therefore, the reference to ownership by the Packard Company is confusing as well as unimportant. The explanation is in a letter from the W.O. Bentley Memorial Foundation to Andy Butcher at Revs. There is discussion of Packard owning MS3942 instead. Lastly, Briggs Cunningham's own notes, from Revs Institute's files and a copy of his California auto registration, confirm Cunningham purchased the car from Cochran. Thus, the gallery text panel seems to be in error.

According to notes in the files, the first restoration was done in 1950 and then it was repainted and reupholstered in the mid 1970's. The current condition is a result of that last refit.

John Bentley and Sons, (engineers), West Yorks, U.K., drove this Bentley to review its condition. They suggested a radiator cooling fan be installed since the car has none. Probably not needed in 1930's London. This vehicle was driven to 80 mph and was found to be "a wonderful original."

The McLaren F1 Influences from Tochigi

By Bill Vincent

Inspiration comes from many different places. Something seen, something heard, or in this case, something experienced.

As we know, the McLaren F1 (left) is considered by many the ultimate expression of a driver's car and rightfully so. It's an exquisite work of automotive engineering art. What was some of the inspiration for this masterpiece? I'm sure there's *a lot* to that story, but there is one part that I find interesting.



Peter Harholdt Photo, Courtesy of Revs Institute

The Honda/Acura NSX:

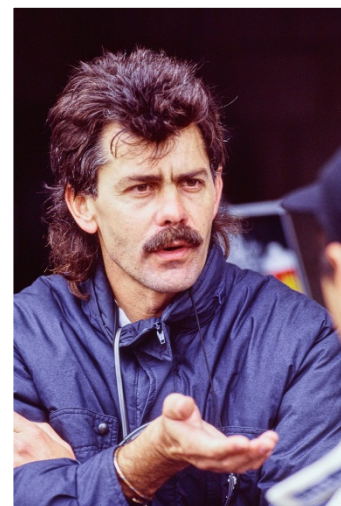
Now full disclosure; The author owns a 1993 Gen-1 NSX, which I absolutely love and would be hard pressed to think of anything I'd replace it with! Oh - and Tochigi, Japan was the special plant where Honda produced the 1st Gen NSX.

But back to our story...



*Geoffrey Hewitt Photograph Collection
Courtesy of Revs Institute*

So, at the time, Honda was McLaren's Formula 1 engine supplier (left) and a GREAT one at that. As an engine supplier, Honda won the Formula 1 Constructors' Championship every year from 1986 to 1991 before withdrawing at the end of the 1992 season. Gordon Murray (below) was McLaren's Technical Director and was charged with developing McLaren's first road car since Bruce McLaren's attempt in the late '60s.



*John Blakemore Photograph Collection
Courtesy of Revs Institute*

It was to be a *no expense spared* expression of what could be done with the minimum of restrictions.

But while that was happening in England, on the other side of the world another group of inspired automotive talent was hard at work on their own "ultimate driver's car" ... and that was Honda. Looking to capitalize on their success in F1 with McLaren, they had come up with their own recipe.

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The McLaren F1 Influences...continued

(Continued from page 14)

It's been said that at one of the McLaren race team tests in Japan, Honda showed a new NSX prototype to McLaren F1 driver, Ayrton Senna, and he did some test laps. It was also here that the NSX caught Gordon Murray's eye and he also took a turn behind the wheel. It seemed that at this point there was a significant change in the direction of the McLaren F1 road car development. The NSX had apparently made an impression.

As noted by Road & Track's Chris Perkins, who in 2016 stated:

You can thank the original Acura NSX for a lot of things:

It put Acura on the map in the U.S.; it forced Ferrari to clean up its act with the F355; it started the VTEC thing, and the list goes on.

The NSX also apparently had a profound effect on one Gordon Murray, the mastermind behind the McLaren F1 road car.

So if you're a fan of the F1—you should probably thank the NSX.



Bill Vincent Photo

Gordon Murray first professed his love for the NSX, in an article posted to Honda's Japanese website, that has been translated into English:

Before the NSX, Murray said the closest car to what he wanted to build was the Porsche 911, but he wasn't too keen on its rear engine layout. The 911 was daily drive-able, but the engine mounted aft of the rear axle gave it "a weakness in its

handling stability." The NSX combined the 911's usability with a superior mid-engined layout."

"The moment I drove the NSX, all the benchmark cars—Ferrari, Porsche, Lamborghini—I had been using as references in the development of my car vanished from my mind," said Murray. "Of course the car we would create, the McLaren F1, needed to be faster than the NSX, but the NSX's ride quality and handling would become our new design target."

Mr Perkins added:

Engineering documents shown in the BBC documentary How to Go Faster and Influence People: The Gordon Murray F1 Story, reveal that the Ferrari F40, Lamborghini Countach, BMW M1, Porsche 959, and the Bugatti EB110 among others were benchmarked for the F1. That the NSX stood head and shoulders above the others is high praise for the Honda.

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The McLaren F1 Influences...continued

(Continued from page 15)

Murray said the NSX's aluminum suspension and drive-by-wire throttle were especially great, the latter of which he copied for the F1. He also had great things to say about the driving position and hilariously, the NSX's air conditioning. Murray says he owned an NSX for a number of years, but like many, he wishes it had more power.

While the NSX and the F1 are tackling the same “problem” from two different directions, there’s still a lot they share. Each was meant to be used as a daily driver; comfortable, engaging, and fast. There was a point where McLaren even wanted Honda to build the engine for the F1, but Honda apparently didn't want to make that investment. Instead, McLaren turned to BMW Motorsport for that fantastic V12.

So it seems there's a fair bit of NSX in the McLaren F1 DNA. Each car could, and should, be appreciated for the way they “raised the bar” at their respective releases.

Now... Unfortunately I'm not in a tax bracket to have that McLaren F1 in my garage, but when my garage door goes up... I do count myself lucky to have the next best thing. My NSX. I'm also lucky to know I can get my McLaren F1 “fix” at Revs Institute!



TAPPET RIVIA

By Joe Ryan

And now, the Answers.....

1. Q: True or False: The 1927 Miller 91 Supercharged Straight 8 double overhead Cam Shaft was Developed by Harry Miller. The car was a standard rear-wheel drive.
Answer: False, The Miller 91 was a front-wheel drive car
2. Q: How many times did Harry Miller design cars win the Indianapolis 500? *Answer:* Harry Miller designed cars won the Indianapolis 500 TEN times.
3. Q: How many times did other cars with motors designed by Harry Miller-based Offenhauser won the Indianapolis 500? *Answer:* Miller/Offenhauser engines won Indianapolis 500 29 times.
4. Q: How many of the Harry Miller/Offenhauser cars won the National Championship? *Answer:* The Harry Miller Cars/ Miller/Offenhauser motors won 43 National Championships

The origin of the Miller's successful Drake/Offenhauser motor? The motor was designed by Ernest Henry! The mastermind of the motor in the Miles Collier Collections 1913 Peugeot.

Thanks to John Wharton for this month's questions.

TAPPET TECH

Friction Shock Absorbers

or “Racin’ is Rubbin”

By Eric Jensen

People say that racing improves the cars we drive. This is true in so many ways not readily apparent to the naked eye. Rear-view mirrors have been credited as an idea born from racing. Shock absorbers, or dampers, of any kind, fall into that realm as well. The Revs 1902 Moors has pneumatic dampers that helped control the 70 mph speeds that far exceeded the passenger cars of the day. Why did it need those dampers?

Shock absorbers were created to solve the trouble that comes from the bumps in the road. As the car drives, it hits bumps. The springs absorb the bumps, but like a rubber ball, the spring bounces back, or rebounds. The faster you go, the more bumps you hit and the more rebound you get. At some point, your tires are spending more time in the air than they are on the ground. You can't go faster or turn corners with your tires in the air. The body is also bucking like a bronco at this point, greatly upsetting your riding mechanic who is hanging on for dear life!



Friction Dampers (or shock absorbers) - Eric Jensen Photo

That's where shock absorbers, or dampers, come in. They slow (or damp) the incoming bump and the outgoing rebound so your tires stay on the ground so the tires can grip the road. Like the racing cars of the era, passenger cars were also getting faster and faster, so dampers became an important addition. The dampers smooth the ride and control the tires, making those higher speeds less dangerous. Plus, your passengers are no longer screaming at you to slow down.

Which brings us to the friction shock absorber. The friction shock absorber is positioned between the axle and the chassis and uses friction to provide the damping to absorb the bumps.

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TAPPET TECH

Friction Shock Absorbers

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The 1905 patent at right shows an early example of such a device.

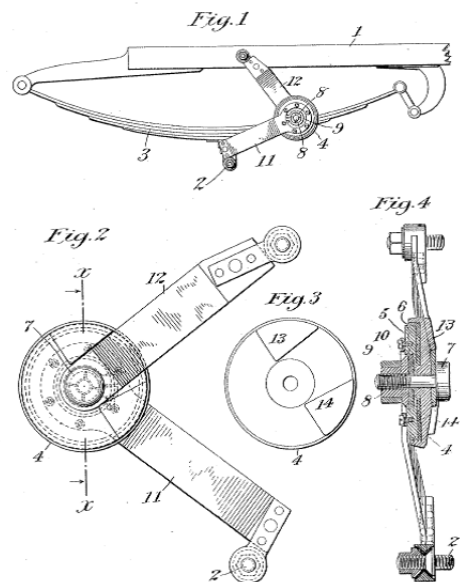
In the 1905 patent, the chassis side has an arm attached to a round plate [12], a second arm and plate attached to the axle [11]. Between the two round plates is a friction disk [6] made of leather, fiber, rubber or other material to act much like a clutch. A bolt [7] through the middle clamps the parts together. As the wheel hits a bump, the round portion of the damper twists and rubs the disk. The energy from that rubbing produces heat (and a little wear) as it smooths out the bumps and keeps the wheels on the ground. If you find the need for more damping, you can tighten the bolt. As your friction shock wears, you can also tighten the bolt to compensate for the friction disk wear.

If you find you need more damping than tightening the bolt can provide, you can add more plates and disks. A finger-spring under the bolt helps maintain consistent friction without constant adjustment. In Figure 4 of this 1915 patent drawing, you can see three plates and two friction disks.

The mountings of the springs to the chassis also have similar friction plates and disks. The most graphic example of this would be the 1931 Blower Bentley. The Bentley has three distinct friction damper plate and disk stacks for each friction shock on each side of the front axle.

Friction shocks were an early attempt to maintain the ride and handling demanded by faster and more luxurious cars. But technology moved ahead as well. Friction dampers had many disadvantages. They needed constant adjustments to offset wear plus they offered inconsistent performance due to the weather; wet, cold or hot friction disks varied the amount of damping provided. If you had a chauffeur to adjust them before taking the car out, all was well. If not, they were a constant annoyance. They also didn't really smooth out the bumps very well. There had to be a better way. By the late 1910s, friction shocks were being replaced by a better technology; one that did not need constant adjustment and provided a better ride: Fluid filled dampers.

No. 808,589. PATENTED NOV. 7, 1905.
E. V. HARTFORD.
ANTIVIBRATION DEVICE FOR VEHICLES.
APPLICATION FILED OCT. 1, 1904.



Adopt-A-Car Program

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To adopt a car or engine, contact: Brian Lanoway, Adopt-A-Car Chair blanoway@shaw.ca

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