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August 2020



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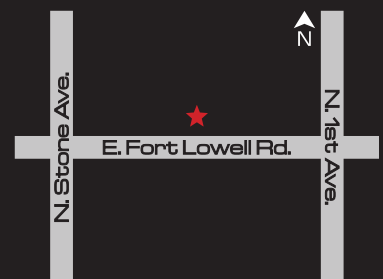
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ON THE COVER:
356 in Germany

Photo by Hal Tretbar

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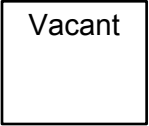
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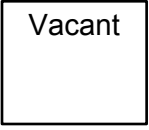
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President's Corner

By Pat Norris



Welcome to August! Really, it's already August. While it still seems like we haven't gotten through March, things are starting to look a little busier in the Southern Arizona Region.

Although we are still a long way from our normal activities, there are people in the region starting to plan events! We have a DE scheduled for September 26th (check the website and this issues for more information). People are planning for the Holiday Party. And there's another online general membership meeting coming up very fast.

The events are not going to look exactly as before, but they give us a chance to get out, see people (from a distance) and enjoy our Porsches.

For the folks who hung in there and attended our first online membership meeting, thank you. I hope you enjoyed Hal Tretbar's talk as much as I did. I was on the edge of my seat.

There have been photo submission contests on the region's Facebook page. It's great to see all the Porsches.

I hope you and yours are all safe, and I hope you've found a way to enjoy your Porsche in these trying times. I also hope you are looking forward to the events we do have coming as much as I am.

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Editor's Column

By Debi Norris

Is it hot enough for you? How many times do we ask ourselves that during the summer in Tucson? This year it seems like the summer is even longer and hotter than usual with no road trips to cooler climates to cool off!

This month's ZN is full of interesting articles thanks to two of our members. Our reliable Hal Tretbar contributed two Speed Bumps! One article tells of an interesting local day trip with unexpected consequences. The other shares some great old pictures from Hal's time in Germany. Enjoy!

Damon Osterhus also wrote a fascinating follow-up to his April column about his quest to decide if a Porsche Taycan was in his future. He did an incredible amount of research and I hope you enjoy his findings.

A big Thank You to both Gentlemen. During this time of COVID-19 Quarantine we have very few events to write about and your articles were very welcome!

We also have two upcoming events to inform you about. We will have another Virtual Membership Meeting in August and a Driver's Education event in September. Join us if you are able!

Unfortunately, it is looking like this virus is around for the long haul. I hope all of our Porsche family stays safe and healthy. I know I speak for a lot of us when I say "I hope to see you all soon!"



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Upcoming Events



August

04 - Virtual Membership

September

26 - Driver's Education at Musselman

October

17 - Tucson Classics Car Show

23 - Carrera Region - October Fiesta

December

12 - Holiday Party

All events subject to cancellation or postponement due to COVID-19 restrictions. Check our website at pcasar.com for up-to-date information.

Are you missing your Porsche friends?

They are missing you, too!

Since we still can't get together in person, let's have another

Virtual Membership Meeting!

Tuesday, August 4th

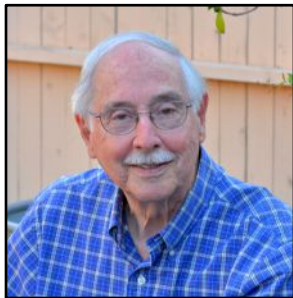
Check your email for more information about how to register so you can attend this virtual event!

Looking forward to "seeing" everyone!

Speed Bump

Slow Down For Some Automotive Tales - By Hal Tretbar

Sunnyside, Arizona



Porsche of Tucson tried to break my 2017 Macan S. One of their best drivers took it out for 100 miles of tough driving trying to

get a warning light to show on the dash. And nothing happened.

It was a different story three weeks before.

Sam Donnelly was a hell and brimstone preacher who left Tombstone to settle in a place where his followers could live together in peace. About 1885, while mining, he found a pleasant remote meadow on the west slopes of the Huachuca Mountains, east of present day Parker Canyon Lake. He called it Sunnyside.

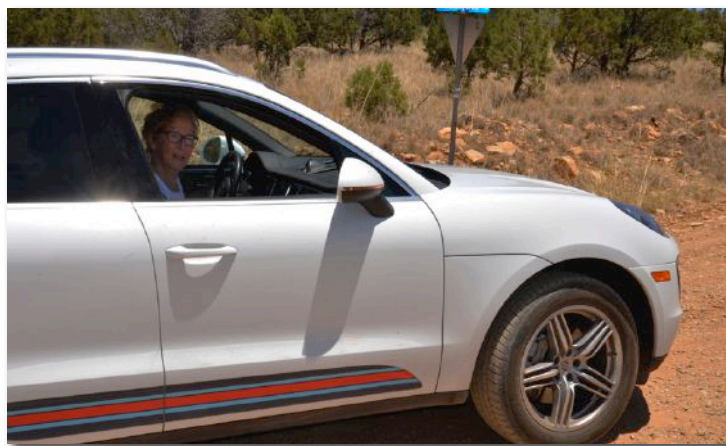
Donnelly died in 1901. The people of Sunnyside became known as Donnellites. There were 25-30 residents who lived and worked together in a true communal fashion. They tended to be workers with knowledge and different skills. The miners worked the Copper Glance Mine with the help of their scientist. The cattlemen raised hay for the cows. Laborers ran a saw mill and helped distant neighbors as needed. There was school house where the teacher also gave piano lessons. A post office was open from 1914 to 1934.

John and Anna McIntyre were the last residents of Sunnyside, Arizona. John was 3 years old when his folks came to Sunnyside. He married native Anna Langford. They moved to Bisbee when the mines closed in the 1930s but returned in 1965. While living in one of the old deteriorating houses they built a prefab home. They welcomed visitors and John would tell the history. John died in 1985 at age 94. Anna



moved to Tucson and passed on several years later. They were patients of our Tucson Clinic. Paul Duffey, a fellow internist, and I got to know them well.

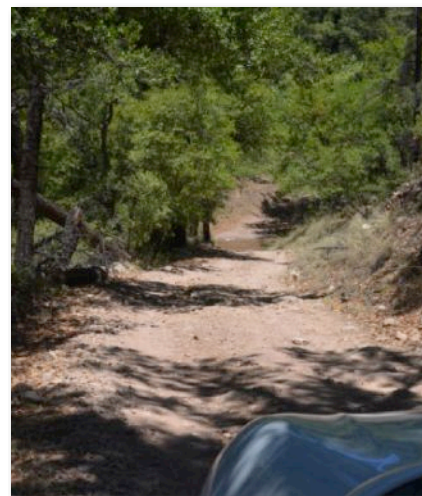
Recently I decided to visit Sunnyside again. I had been there many times but not in the last 10 years. Paul Duffey said he had been there a year ago. He gave us driving instructions and described how the roads had become rougher.



Karme Kientzler, Jim Wheelock, and I took off in high spirits. Yes, the gravelly roads were washboardy and narrower. Yes, the Macan did do well in Off Road mode.

That is until we missed a turn and ended up on a challenging trail. It was obvious we going the wrong direction. We found a flat wide spot where we could back up and turn around. That's when the warning light came on. It said we had lost reverse gear but could go forward.

Now what? We tried our cell phones in case we could not get back. Our T-Mobile signal welcomed us to



Mexico. So carefully we headed home. The transmission was very sluggish when shifting. Our water and oil temperature gauges were just above normal so we turned off the air conditioning. If at least we could get to Parker Canyon Lake, we could notify someone. Then, if we could only reach Sonoita. What a relief when we finally pulled into my garage.

I arranged for the Macan to be towed to Porsche of Tucson for resurrection. I asked the tow truck driver if we could push the car out and then winch it on. He said, "Let me try the car". So he got in, put it in reverse and backed out. "You don't need me," he said. "The reason you could not back out is because you didn't take the brake off." I thought, whoa, what a dummy he is and insisted he tow it.

Brian Herring, the Porsche garage service advisor, did a great job in keeping us informed as they evaluated the problem. Brian called a week later with a report. The computer evaluation showed that a differential had overheated. They found that a flap on the part of radiator that cooled the area was closed and everything was covered under my extended warranty. Then a test drive showed that everything was normal.

Brian said the car was ready to go and I could pick it up as soon as they washed it.

When we walked into Brian's office he and a mechanic looked at us with worried expressions on their faces. When they drove it out of the wash bay a warning light appeared on the dash. And, guess what? It said that the Macan had lost reverse gear!!

How interesting. Brian called the next day. This time the computer showed that a valve in the transmission was stuck shut. Did this mean damage that might mean a new transmission? "Don't worry; everything is covered by the warranty."

Another week passes. Brian reported that when they took things apart they found that a solenoid that controlled the valve was defective. They contacted Porsche tech support for advice and found out that parts had to be ordered.

Days later Brian called and told me that Porsche of Tucson had unsuccessfully tried to break my Macan S. He said, "Drive it as hard as you want and don't worry about anything. But call me if you need to."

In Memoriam

By Kathleen Kendler

Robert C. Dearing passed on June 7th, 2020. Robert was our technical advisor for many years. He and Vanessa supported the club through their donations to Cinco and the Holiday parties, and through participation of many events. Robert also was an avid autocrosser and driving events participant and volunteer. I enjoyed our outings to the track and many conversations on various topics. Robert showed me how to break down our Boxster engine when we blew it at ASR. I also had the privilege of cleaning all the parts we re-used before they were re-assembled.

Pat Vold, service provider at Porsche of Tucson, passed away in April from cancer. Pat serviced many of the club's vehicles over his 16 years at Porsche of Tucson.

He was a kind, gentle soul that Jim & I and many of you will miss intensely. He always provided good counsel on vehicles and was a great man to talk with.

Robert and Pat, I will miss you.



Porsche Taycan 4S

Can I Get There From Here?

Part 2, What a Pioneering Taycan Owner Needs to Know - By Damon Osterhus

OVERVIEW

This article concludes what has become a 6-month long effort to answer the *Can I Get There From Here* question. The question is part of my seeing if I want to continue to actively pursue the purchase of a Taycan 4S that I began in January 2020 or if I should wait a year or so. I am hoping that this and the first article will be of assistance to any of my fellow club members who are also considering buying a Porsche Taycan or any Electric Vehicle (EV).

I need to reemphasize that I am very taken with the Taycan's engineering and design. I have followed its development from the Mission E. I have had a recent demo ride and it was great. My personal issue with pressing on with buying it is I would have to sell my 2017 Porsche 991.2 Carrera Cabriolet to get one. The usefulness and fun factor of the 911 sets a high bar for the Taycan to reach.

Organization of the Article.

Part 2 begins with a summary of the range and charging time results I reported in the April 2020 edition of the *Zuffenhausen News (ZN)*. It is a refresher of what I found as of mid-March.

Section 1 reflects the results of my further research and refinement into estimating/proving the driving range of a Taycan. It reports on all aspects of charging. Specifically, it reports on both areas they are affected by the somewhat unique extreme temperatures we experience here in the desert Southwest in June, July, and August; i.e., 110-115F.

Section 2 summarizes my conversations and efforts with the three Arizona Porsche dealerships. One of these efforts was to see if they would conduct/sponsor a real-world range test during the hot summer months to prove or disprove my refined range and charging time estimates/predictions. The other was to get a demonstration of the Taycan's Navigation System's Charge Planner function to find out how it works, and what it would say about driving to Henderson/Las Vegas.

Section 3 discusses the results of my interactions with current Taycan and EV owners via the TaycanForum.com and Insight EVs websites. I detail some of the lessons learned and recommendations.

Section 4 is the story I created about what happens when one drives from Tucson to Henderson/Las Vegas in a Taycan (or really any EV) as if I did it today. It looks at what to do from my personal standpoint, and someone who is a more



adventurous "pioneer." It is a simulation that uses much of the research results obtained since publishing the original article in the April 2020 *ZN*. It provides the more practical evidence used in coming to the conclusions explained in Section 5.

Section 5 talks about the conclusions and ultimate decision I came to after all this research.

APRIL ZN REPORTED RESULTS SUMMARY.

In the April ZN, I laid out the results of my analysis to see if I could drive a new Taycan 4S from Tucson or Phoenix to Henderson/Las Vegas in the heat of the desert Southwest summer. The reason to include Henderson is twofold: it is where I stay when visiting Las Vegas, and there is a 50 kW charging station less than a mile away from where I stay.

My answer to the question at that point was NO. The reason for the NO was the apparent lack of an “anxiety free” estimated 250-mile range of the Taycan, associated with the lack of a 50kW or better charging station along the last 198-203-mile-long leg of the trip. This was needed to make up for the 190-mile estimated range of the Taycan 4S. This last leg was from the non-networked 50 kW charging station in Blythe CA to a 50 kW EVgo charging station at a Terrible Herbst gas station in Henderson or the 350 kW Electrify America (EA) charging stations at the Premium Outlets Mall in Las Vegas. Here’s what I used to determine the above.

The Car and the Estimated Range.

The car I was looking to buy was a Taycan 4S with the optional 93.4 kWh Performance Battery Plus. I used the Porsche.com Range Indicator [estimator/calculator] – Dubai (PRI-D) to get a basic estimate of 238 miles at a 100% State of Charge (SOC). This estimate was downgraded 20% to 190 miles to account for the desired starting 80% SOC. The 80% was driven by wanting to maximize range with a minimum of charging time. The PRI-D inputs were:

- Driving Profile: 40% 55-65 mph US/State highway driving, and 60% 70-75 mph Interstate driving
- Outside Temperature & air conditioning setting: 104F (40C) and 72F (22C)
- Wheels: 19 inch

“The Route” and Charging Locations.

The only feasible route given the currently available charging stations was: Tucson via I-10 to Blythe CA, and Blythe CA via US95/I-11/I-215 to Henderson/Las Vegas NV. This route is 466/471 miles long. The existing 50 kW or better charging stations, their listed charging capacities, and 5%-80% SOC Porsche spec’d charging times. These are:

- Electrify America (EA) 270kW in Buckeye AZ, 143 miles from Tucson; 22.5 minutes
- EV Connect now Non-networked 50kW in Blythe CA, 120 miles from Buckeye; 93 minutes
- EV go 50kW in Henderson NV, 198 miles from Blythe; 93 minutes or Electrify America 350kW in Las Vegas, 203 miles from Blythe; 22.5 minutes

1. RANGE ESTIMATE & CHARGING TIME REVISION

Since that initial assessment, I continued to examine more closely both the range estimate, and the expected charging times as they related to my *Can I Get There From Here* question. I revised both the range estimate from the PRI-D, and also found that I had to adjust the charging times.

Range Estimate Revision.

I found out that the range of 190 miles on an 80% SOC was probably close. The estimate with an 80% SOC is more likely to be around 183 miles. My 190-mile range failed to take into account that the PRI-D driving profile was set at a 40% 55-65 average mph and 60% 70-75 average mph. When I looked at the 65-75 mph speed limits along I-10, and US95/I-11/I-215, and then considered that most folks really drive these roadways at 75-85 mph, I adjusted the Driving Profile to 100% Interstate. The 100% SOC range dropped to 229 miles, and the 80% SOC dropped it 20% to 183 miles. Note that the EPA range for a Taycan 4S is 203 miles.

As a result of some further research I found that our extremely high temperatures here may well have some effect on range; albeit, I could not estimate exactly how much. The Taycan lithium ion battery likes it warm. It needs to be 86F

(30C) to be most efficiently charged. The Taycan has to heat the battery to 68F (20C) – 86F (30C) when it's in a cold climate. It does this by using an installed heat pump. However, when the battery gets hot from sitting in a car in 110-115F heat, or gets hot by being driven in 110-115F heat, the on-board heat pump runs in the opposite direction to cool the battery. This battery cooling adds to the energy drain of the cabin air conditioning, the driving motors, and all other electric things in the car; less SOC, less range.

Other effects on range of extreme heat are:

- Max AC Cooling After Charging. There is a distinct possibility of having to use Max AC cooling after charging to get the cabin back down to a comfortable 72-75F. This also draws down the SOC more quickly than with the air conditioning at automatic and 72-75F.
- Limitation on Using Range Mode. The Driver's Manual says that the Range mode should not be used immediately after charging at high temperatures to "maximize" the cooling of the battery. The inability to use Range Mode does affect the range provided by a given SOC.

Charging Times Revision.

I discovered that the Porsche spec'd charging times were too low, particularly, when it was 110-115F. When its 110-115F charging times are longer than 22.5 minutes for a 350-kW charging station, and significantly more than 93 minutes for a 50 kW charging station. Note: Taycans can only be charged at a maximum of 270 kW, so the 350 kW charging stations only deliver a maximum of 270 kW.

As I mentioned in my summary above, the reason I initially chose an 80% SOC was to minimize the charging times while maximizing the range. It is also the recommended SOC when using DC Fast chargers (50 kW, 150 kW, 350 kW). I found out that it takes considerably more time to charge to 100% SOC. Any plan to stop and charge to 100% needs to factor in that it could take a considerably longer time to charge to that level. This is true for all the charging station types, but is particularly true, if the charging station is a Level 2 7-9 kW J-1772 (Level 2) one.

There are a lot of Level 2 AC charging stations along some parts of the route. However, they are equivalent to the 120 or 240 VAC chargers that folks install in their homes. They normally take 10.5 hours to charge from 0% to 100% SOC, BUT do take considerably longer in high heat. Here is why:

I was told by a sales person at one of the area dealerships that when he plugged in their Level 2 AC charging station to a Taycan that had been out in the 100+ degree sun, the charger did not start charging the battery even after 20 minutes; only the heat pump cooling functioned indicating that the battery had not yet cooled down enough to start its charging! This is why the Level 2 stations are really to be used only in an emergency.

Also, one needs to note that regardless of charging network, the charging rate actually decreases as the battery SOC increases. Taycan batteries resist charging as the SOC increases. In one video post I saw that a Taycan charging at a beginning rate of 270 kW and a 5% SOC, dropped to around half that rate at 60% SOC and continued to drop further as it approached 80%. Beyond 80%, the charging rate drops to less than 1/4 of the initial charging rate, and continues to decrease as the SOC approaches 100%. The recommendation is that to get the fastest charging time to 80% one needs to start at 5%.

When I consulted the *Taycan Good to Know Driver's Manual* there are also many things that affect charging time that need to happen while charging at temperatures of 110-115F. Specifically, there is a need to keep the batteries from overheating using its heat pump-based temperature management system. Then there is using the air conditioning system Precool/Preheat function to keep the cabin temperature from getting to over 100F during charging. Both these systems consume electricity while charging which, consequently, extends the charging times. Unfortunately, none of the Tucson/Phoenix area dealerships could find out how much longer. The manual just says charging time would be extended.

2. ARIZONA PORSCHE DEALERSHIP CONTACT EFFORT RESULTS

Since the publishing of the April ZN article I began contacting each of the three Arizona Porsche dealerships: Porsche of Tucson, Porsche of Chandler, and Porsche of North Scottsdale. I reported to them in two batches the details of the

issues I was uncovering about driving a Taycan 4S with the 93.4 kWh battery from Tucson or Phoenix to Henderson/Las Vegas. I focused on trying to get from them a real-world estimate of the Taycan 4S's range under the kind of conditions I was looking at. I also wanted to confirm some of the things associated with charging times. Finally, I wanted to actually see how the Navigation System's Charging Planner worked. Below are summaries of the results of those efforts

A "Real World" Range Road Test

I pursued with all three area Porsche dealerships the possibility of doing a 219-mile each way "real world" Taycan range road test on I-10. It would be between the EA charging stations at Buckeye CA and at Indio CA, when it was around 110-115F. By running the test each way, it would more accurately assess the range at Interstate speeds using an 80% and 100% SOC. It would also be able to determine the effect of extreme temperature on charging at a high capacity (aka Fast DC) charging stations. Alas, Porsche of North Scottsdale informed me that Porsche does not allow dealerships to participate or even sponsor such "tests".

Consequently, none of the dealerships would be willing to loan out for an independent test similar to the one mentioned in *Insight EVs* web-site posting of the YouTube video, "Porsche Taycan 4S Blows Away EPS Range By 40 Percent in This Test." Matt Farah of *The Smoking Tire* channel borrowed a Taycan 4S from a dealership and then drove from Mar Vista (Venice) CA to Palm Springs and back on a single 100% charge. It was done at no more than 70 mph, and temperatures not any hotter than 85. Amazingly he got 276 miles with 18 miles showing remaining. Alas, I was hoping to be able to do a similar real-world road test.

This left me with my PRI-D based range estimate of 229 miles at 100% SOC, and 183 miles at 80% SOC. When it comes to charging times I have only statements or anecdotal evidence as to how much charging times are actually increased by our extremes of heat.

Navigation System-Charge Planner Test.

Although I couldn't actually do a real-world range road test, Porsche of Chandler did give me the opportunity to see a demonstration of a Taycan's Navigation system – Charge Planner to see what it would say about driving to Henderson/Las Vegas from Tucson/Phoenix. I used the route and charging location stops listed in my original article. Porsche of Tucson offered as well but had to wait for their demo Taycan to be repaired.

I found that the database in the Taycan was complete for our area, and actually listed all the 50 kW stations I had listed in the PlugShare.com developed listing. However, the first Taycan we demo'd the Charging Planner in had only a 51% SOC, around 130 mile indicated on the dash's range display. The Navigation System – Charge planner could not calculate any route to Las Vegas or even Blythe CA because Blythe CA was over 130 miles from the Chandler dealership. It was nice to see that the database was complete.

The second Taycan had a 91% SOC and 196 miles indicated on the dash display. It did provide a route and charge indications from the dealership to the non-networked 50 kW station in Blythe CA. It recommended an intermediate stop of a 7min recharge at the EA 350 kW station in Buckeye. Without it, the Taycan would get to Blythe with a 21% charge. It is 56 miles to the Buckeye Station, and 120 miles from the Buckeye station to the Blythe CA station; 176 miles total. I guess the Charging Planner didn't like the 21% SOC if one drove without the stop at Buckeye.

It should be noted that the Charging Planner once engaged takes over control of the energy consumption and restricts both the speed and air conditioning settings as it continues to monitor the SOC, the "burn" rate the SOC, and the known distance to the next charging station. That's so one gets to their input destination, albeit it more slowly and maybe less cool!

3. CURRENT TAYCAN OWNER LESSONS LEARNED OR WHAT A "PIONEERING" TAYCAN OWNER NEEDS TO KNOW

In order to find out what current owners of Taycans, and EV's, were experiencing, I joined and participated in the

TaycanForum.com web-site threads, and Insight EVs web-site discussions. Both provided me with the chance to have conversations with owners, and discuss long distance driving, and charging lessons learned. Below reflects what I discovered as a result of the above activities.

NOTE: I use the term “pioneering” when referring to current and prospective Taycan owners. As you will see in the paragraphs below, there is a bit of “pioneer” in the early adopters of EVs, particularly as it applies to those of us living in the desert Southwest. However, none of the folks I interacted with drove EVs or Taycans in our area. In talking to the area Porsche dealerships, they had no feedback from purchasers of Taycans relative to long distance travel. Most owners appear to only drive their Taycans locally.

Current Taycan Owners Range and Charging Lessons Learned and Recommendations

Here’s what I found out that a “pioneering (first EV)” Taycan owner needs to know! First time and even current EV owners are pioneers because of the things they need to take into consideration when they venture out beyond their local areas on long distance trips; i.e., beyond the initial 100% at-home charge. Things that those of us who currently drive internal combustion engine powered cars don’t normally have to care about. Below are some things associated with driving EV’s on long trips that should be considered.

Speed Kills Range. So does uphill terrain. Just like with gasoline, diesel, or even hybrid cars, the faster one drives the worse the mpg. The same thing happens when one has to climb hills/mountains. It appears to be even more so with an EV. The faster one drives, the more battery energy it takes in kilowatts per 100 miles (kW/100 miles). For an EV with regeneration, in general, uphill terrain kills range. The energy it takes to climb hills/mountains can’t be completely recovered with regeneration, unless one goes significantly further downhill after going uphill. Similarly, when going downhill all the regenerated SOC can quickly disappear when going back uphill.

So, according to those who drive long distances, the best way to drive in order to extend battery range and reduce the chance for range anxiety, is to not drive over 65 mph. This principle was mentioned by a gentleman who posted extensively to the TaycanForum.com thread, *Distance & Range Anxiety, How Far Have You Gone*. His experience when driving a Taycan is that one shouldn’t drive any faster than 65 mph and at times even 60 mph. Driving over 70 mph significantly reduces the range, and at 80 mph can reduce range to 140 miles. This is because drag increases exponentially with speed, and this drag is the major contributor to increased energy requirements above 65 mph.

This gentleman speaks from experience as he often drives from San Jose CA to Salt Lake City UT in his Taycan with an overnight stay in Reno NV. He drives Interstate-80 (I-80) most of the way and I-80 has 75 & 80 mph speed limits. Driving at 65 mph ensures he can make about 220 miles between charges. However, he has had to slow down to 60 mph sometimes to make it to an alternate charging station. In that light, he recommends that one drive more slowly when starting on a long distance between charging stations, and after a while speed up when the distance remaining display on the dash makes it comfortable to do so.

Advanced Charge Station Stop Planning is Critical. The gentleman from San Jose, and others, also posted several things about charging stop planning. Specifically, one needs to pay attention to the following:

- Don’t just trust the Taycan’s on-board Navigation System – Charge Planner. One should always use other sources of charging station locations. The on-board system database is sometimes out-of-date, and doesn’t contain all the charging stations available along the route. It only covers 50kW and better charging locations. It excludes the Level 2 7-9kW J-1772 AC chargers. These low capacity stations can be used in an emergency.
- Plan to use the maps and route planners available from PlugShare.com and the Apps from any of the charging location networks. One needs to locate all the stations that are along your intended route. Also, be able to consult these while travelling; i.e., be able to access them on your cell phone, or cellular data capable tablet. You may have to go back to stations you have passed if the one you planned to stop at is out of service.
- Plan to Go No Further Than 180 miles between charging stops, and have a plan B so you know where there

are alternate charging station locations. This is because charging stations aren't always dependable/reliable. There are a lot of current posts on TaycanForum.com complaining about charging stations having chargers being out of service, not working properly, or unable to deliver the posted charging capability. The Electrify America charging locations seem to draw a considerable amount of flak from Taycan owners for the lack of maintenance at their locations. This means it may well be necessary to drive on to another charging station, if possible.

Also, plan to charge up to 100% State of Charge (SOC) when the next charging station is 180 miles away. You will sometimes need the extra 40 mile "reserve" to make it to another station if necessary. If that alternate charging station is only a Level 2 7-9kW J-1772 (Level 2) AC capable one, one might have to just charge enough to get to a more capable station. However, it is important to note that can take up to 10 hours to get to 100% SOC at a Level 2 charging station. Finally, you might have to slow down considerably in order to conserve SOC to make it to the next charging station.

- Be a Member/Subscriber to Many Charging Station Networks. Since alternate charging stations often belong to different charging networks, it is a good idea to be a "member"/subscriber to many networks in order to expedite the process of charging at these networks. Some charging network stations do not take credit cards but require the user to be registered in advance with the network in order to use their charger, and they may require one to use their card to be able to charge. For Taycans buyers, one can get from Porsche Electrify America (EA) cards that allow the first 30 minutes of charging for free.

4. WHAT HAPPENS WHEN YOU DRIVE TO HENDERSON/LAS VEGAS FROM TUCSON/PHOENIX – THE STORY OF HOW I CAN GET THERE FROM HERE

This section reflects both the planning necessary and what one would expect to do/happen when making this trip. It uses research results about the Taycan itself, the charging station infrastructure and its status as it exists in the desert Southwest as of the 20th of July 2020.

In creating this story/simulation, I took the approach of playing as if I, and a more "pioneering" owner (PO), were going to drive the route tomorrow. It would start with some of the advanced planning suggested in the lessons learned section above. Then The Route is "driven" by looking at things that would be encountered between planned stops, and at planned charging stops on the way to Henderson/Las Vegas. The tale that is told is intended to give you, the reader, a realistic idea of what a Taycan owner or any EV owner would experience when attempting to make the drive to Las Vegas from Tucson given the current charging station infrastructure and the range of the Taycan at 80% or 100% SOC when it is 110-115F.

It was very instructive to me as it focused all the information and data I had collected over this past few months into something more real than just a bunch of information.

Advanced Planning

I used the PlugShare.com, the Electrify America (EA), EV Go, and EV Connect cell phone apps, plus my computer Chrome and Google maps to look at all the charging locations between my house in Tucson to charging stations in Henderson and Las Vegas. This included Level 2 charging stations within a mile or two along the Route. I looked at the distances to and back to (aka from) the primary and potential alternate charging stations. I also even looked at the elevations of the stops and sometimes between stops to get a sense of any significant terrain regeneration effects. Additionally, I read the *Taycan Good to Know Driver's Manual* sections on charging the Taycan, the air conditioning system settings, Range and Normal driving modes, and Regeneration settings.

The Drive Story

Looking at the charging station data results and their distances I pretended that I, and a pioneering owner (PO) driving another Taycan 4S, henceforth known as WE when both acting the same, drove the route and determined what I and PO would do. PO acts more "pioneeringly" than I; i.e. PO will accept taking longer than I to complete the trip, and is willing to/having to use Level 2 7 kW charging locations. I will report what I found when WE did this advanced planning

along the Tucson-Buckeye-Blythe-Henderson/Las Vegas route and then simulated the drive.

Overall Tucson to Henderson/Las Vegas Route

- The Drive and Recharge Plan. The original plan was to drive from the Tucson house the 143 miles on I-10 to the EA Charging location in Buckeye AZ and recharge to an 80% SOC there using one of its 3 ea. 350 kW stations, then driving the 120 mile I-10 leg to the Hampton Inn charging location in Blythe CA, recharging to 80% there using its lone 50 kW charging station to charge to 100%, and finally driving the 198 miles to the EV Go charging location in Henderson, recharging at its 50 kW charging station OR driving the 203 miles to the EA Charging Station in Las Vegas, recharging at one of its 4 ea. 150 kW or 2 ea. 350 kW stations.
- The Planning Pre-Check -The Fatal Flaw. The trip killer for me would be if the lone 50 kW charging station in Blythe is out of service. The length of time it would take to charge to 100% using the EV Connect's 7 kW station when it is 110-115F probably exceeds 10 hours if in fact it can be done at all given the charging example mentioned in Section 2. This would possibly dictate staying overnight at the hotel and leaving the next morning, or driving at night along desolate desert roads for almost 200 miles. So it is critical to do a Pre-Check to see if the 50 kW charging station at Blythe is operational before departing on the trip.

The problem is that PlugShare shows that only the Level 2 7 kW station is now an EV Connect networked one, the 50-kW station is not networked; i.e., it is not associated with any known charging network. PlugShare shows it is operational. However, a call to the Hampton Inn in Blythe and to the EV Connect customer support revealed that neither one can report whether or not the 50-kW charger is currently working. The only way one can tell if it is currently operational is if it has been reported to PlugShare. The last Check In report posted to PlugShare about the 50-kW station was made on May 26, 2020.

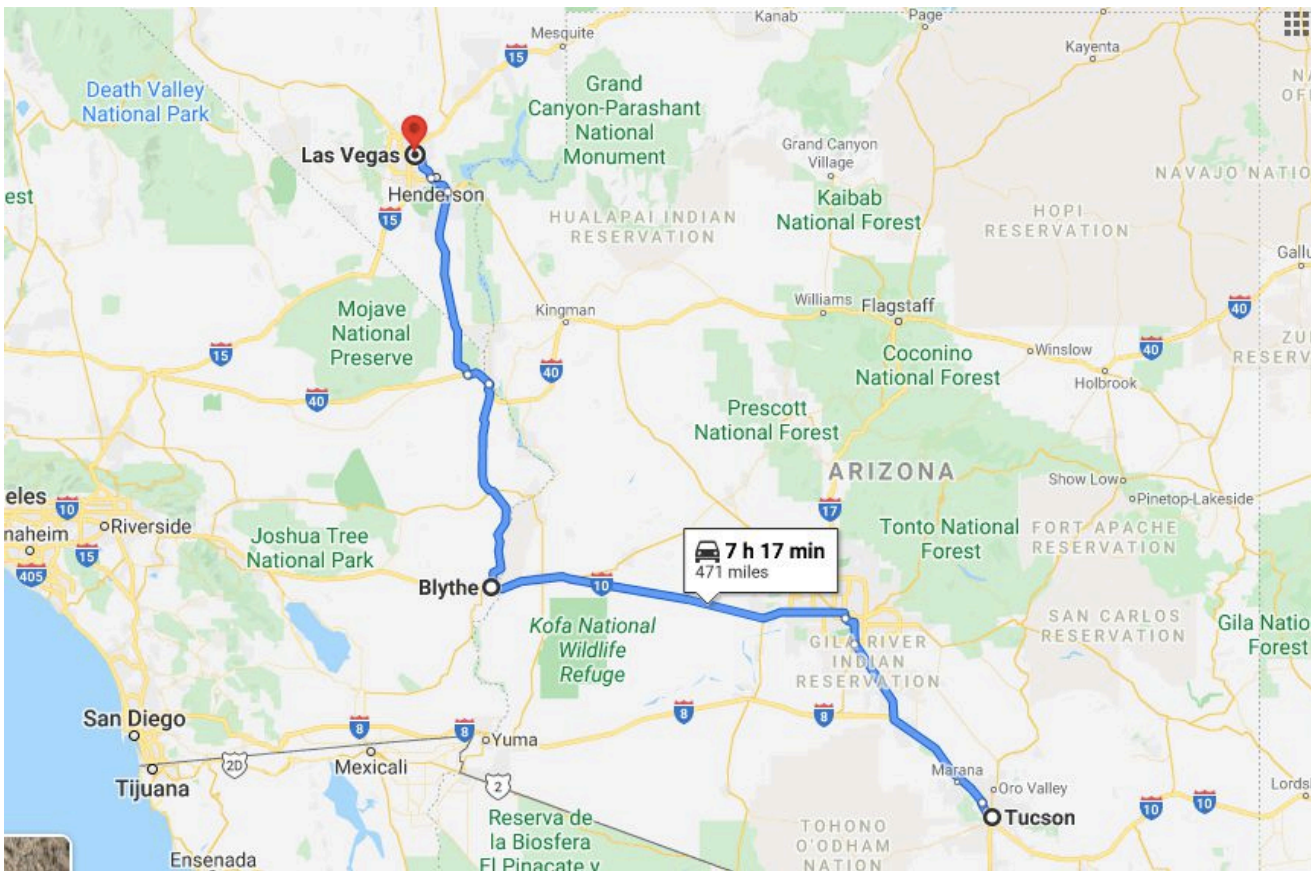
- A Show Stopper. For me this risk of being unable to determine if the 50 kW station is operational at Blythe on the day of travel would normally be a show stopper, but for sake of completing the drive simulation and looking at all aspects of driving The Route, I continued to do the simulation.

What follows are the results of driving each leg of The Route. It assumes that the 50-kW station in Blythe is determined to be operational when the trip is started. It is assumed to be operational up until WE arrive there in person when its true operational status is determined.

Leg 1. Tucson House to the EA Charging Location at the Walmart Supercenter in Buckeye AZ.

- Number of Passengers: Two adults both in the front seats. (myself and my wife)
- Plan A: Driving Plan, Recharging Plan, Pre-Departure Checks and Food/Beverage & Rest Rooms.
 - Driving Plan: The plan is that WE start out at the house and then drive a 143-mile "anxiety free" drive to Buckeye.
 - Recharging Plan & Pre-Departure Checks: WE plan a rest stop and take advantage of some recharging at the EA Charging Location at the Arizona Mills Mall, Tempe AZ; 103 miles away. It has 2 ea. 350 kW and 6 ea. 150 kW stations. The PlugShare says the location is "under repair"; but doesn't say which stations are out of service. So a check using the EA app reveals that there are 4 ea. 150 kW stations "ready" and 1 ea 350 kW station "ready". So WE will give it a shot, and charge as much as we can in 30 minutes. That should bring us up to 80% or better. The Buckeye EA location is reported on the EA app as having 2 ea. 350 kW, and 1 ea. 150 kW stations "ready". So there should be no problem when WE arrive there to do a DC Fast Charge (150-270 kW). There is no cover over the charging stations at the Arizona Mills Mall in Tempe so during charging one will have to seek shelter in the mall.
 - Food/Beverage and Rest Rooms: The plan is to bring a cooler with water and beverages and some snacks, and to do lunch while charging at the station in Buckeye. The stops at the Arizona Mills Mall and Buckeye both provide Rest Room opportunities.

- Execution of The Plan A.
 - Driving Mode and Speed Limit Settings: WE agree to set the driving mode at RANGE with the limit adjusted to 75 mph which WE can override when necessary to pass slower semi-trucks. The Active Cruise Control (ACC) would also be set at 75 mph. WE select this because it is helpful to conserve some charge so as to charge as close to 100% at Buckeye as WE can in the minimum time. There are no charging locations at all between Buckeye and Blythe. This satisfies my desire to at least “look somewhat Porsche” while driving along the 75-mph speed limit I-10 to Buckeye; i.e., not drive 65 mph on 75 mph speed limit roadways.
 - Air conditioning settings: ECO, and 72F. Again, WE agree to some conservation of SOC. Since there aren't any rear seat passengers, ECO will help limit the air conditioning to just the front seat passengers, saving some additional SOC.
 - Terrain and Regeneration Setting: Fortunately, there is some energy benefit from the terrain since it is all downhill from Tucson's 2400 ft. elevation through Phoenix's 1086 ft. elevation on to Buckeye's 869 ft. elevation. It probably isn't severe enough to benefit from any regeneration over the 143 miles, but just in case there is, Regeneration would be set to Auto, and not OFF.
- Departure Time, Temperature, and SOC: 8am, 85F, 100% SOC



Leg 2. EA Charging Location in Buckeye AZ to the Non-networked Charging Location at the Hampton Inn in Blythe CA.

- Estimated Arrival Time, Temperature, and SOC: 10:40am (2 hr 40 min includes 30 minutes stop in Tempe), 105F, 75%
- Plan A: Recharging, Pre-Departure Checks, Food/Beverage & Rest Rooms, and Driving Plan.
 - *Recharging Plan:* The plan is to recharge here up to as close as WE can get to 100% using the EA 350 kW station. Blythe has only one 50 kW charging station and WE will need to try to have the most remaining SOC when we arrive there so we can get a shortened recharge time to 100% there. WE figure it will take around 1 to 1.25 hours to charge to 100% SOC. The battery is already at 75% SOC and even with the 350-kW station capable of delivery of 270 kW that is only at 5% starting SOC. At a 75% SOC one can figure that the charge rate will be ¼ the 270 kW; i.e. start at 90 kW. The 105-110F temperature will require both battery air

conditioning and the 1-hour Pre-cooling for the cabin while charging. This will extend the charging time. The charging stations here are not under any cover and so during charging one needs to find someplace cool to stay. It's a good time for an early 30-minute lunch.

- *Pre-Departure Checks*: Since a check was made of the operational status of the 50-kW station in Blythe before departing in the morning, WE assume that it is still operational.
- *Driving Plan*: There is no change from the original. WE drive the 120 miles on I-10 to Blythe without stopping.
- *Food & Beverage and Rest Rooms*: In addition to what is in the cooler, there are food & beverages in the Walmart Supercenter. There are a lot of fast food places within walking distances from the charging station and rest rooms are plentiful.
- Executing Plan A.
 - Driving mode and air conditioning settings while driving would remain the same as the first leg, EXCEPT when starting out. This because the Pre-cool cabin temperature was to be set at 85F in order to cool the cabin but not at 72F so as not to additionally extend the charging of the battery any further than necessary. WE agree to use MAX AC for 10-15 minutes to cool the cabin down to 75-78F, before setting it at ECO. The SOC will take a hit for doing this.
 - RANGE Mode & its maximum speed limit and ACC Settings. WE agree to continue to use RANGE Mode but PO and I disagree on its maximum speed limit. PO wants to dial back the maximum Range mode speed limit to 70 mph and set the ACC also at 70 mph. This is to save as much SOC as possible. On the other hand, I want to keep the maximum Range mode speed limit at 75 mph, and keep the ACC at 75 mph. I again want to be able to override the 75 mph at times. This is because I-10 beyond Buckeye is becoming mostly semi-truck traffic who go at least 70-75 mph. It's a matter of safety, and not wanting to drive less than the speed limit in my Porsche!

IMPORTANT NOTE ABOUT USING RANGE MODE: Because WE have been charging at temperatures over 86F using a 350-kW charging station, WE cannot start out from Buckeye with the driving mode set at RANGE. The Driver's Manual says WE have to drive for a while in NORMAL mode to "maximize battery cooling." WE need to check to see when the battery temperature drops to around 90F before switching to RANGE mode. Again, the extremely high outside temperature has affected our SOC.
 - *Terrain and Regeneration Setting*. Again, the leg from Buckeye AZ to Blythe CA is downhill. Blythe is 272 ft. elevation, 597 ft. lower than Buckeye. Regeneration would not be a significant contributor to SOC. Still WE would leave the Regeneration set to Auto.
- Estimated Departure Time, Temperature, SOC: 12:10pm (1 hr. 30 min.), 110F, 100%

Leg 3. Non-networked Charging Location in Blythe CA to the EV Go Charging Location at the Terrible Herbst Gas Station in Henderson NV OR the EA Charging Location at the Premium Outlet Mall in Las Vegas NV.

- Estimated Arrival Time, Temperature, and SOC: 2:00pm (1 hr 50 min drive time), 110F, 50%
- Plan A: Recharging Plan, Pre-Departure Checks, Driving Plan, Food/Beverage and Rest Rooms.
 - Recharging Plan: WE must recharge to 100% here using only the 50 kW non-networked charging station at the Hampton Inn in Blythe CA. It is 198 miles to the EV Go location in Henderson NV, and 203 miles to the EA location in Las Vegas. There are no other 50 kW stations along this leg of The Route. And again because of the extreme heat, we would have to possibly take up to 2 hours to charge to 100% from 50% using just the 50-kW station. Beginning at a 50% SOC, it too will be affected to some extent by the battery pushing back against the charging. Again, WE will use the 1-hour Pre-cooling air conditioning function to cool the cabin temperature down before departure. And it and the battery heat pump cooling will extend the time to get to 100%. NOTE: The charging station here is uncovered and the Hampton Inn is the only place to stay cool while charging.
 - Pre-Departure Checks: Using the EV go app, the SHANE charging station at the Terrible Herbst gas station on Wigwam Parkway in Henderson NV was shown as "Available to charge." Checking the stations at the Premium Outlet Mall in Las Vegas, there was 1 ea. 150 kW station, and 2 ea. 350 kW stations showing

“Ready,” 3 of the 4 150 kW stations were not “Ready.” Again, PlugShare showed that the location had 4 ea 150 kW stations and 2 ea. 350 kW stations, but the status of any of them was “Unknown” and recent charging check-ins only reported on 150 kW stations.

NOTE ABOUT PLUG SHARE AND TAYCAN CHARGE PLANNER: PlugShare seems good at identifying stations and their locations but isn’t good at telling which ones are operational; neither does the Taycan’s Navigation System – Charging Planner. Only the specific charging network cell phone apps tell the status of their charging stations.

- Driving Plan: The original plan was to drive the 198/203-mile-long leg US95/I-11/I-215 to Henderson/Las Vegas. The plan now adds a rest stop in Needles CA, 96 miles from Blythe, and 103 miles to the charging location in Henderson or 110 miles to the charging station in Las Vegas.
- Food/Beverage and Rest Rooms: As mentioned in Recharging, the only place to stay cool is the Hampton Inn itself. The Hampton Inn does have a “store” of sorts that does supply drinks and snacks. Rest Rooms are available there as well.

- Executing Plan A.

MY CONCERN: It is that here I have a real concern about making it to Henderson or Las Vegas on a single 100% charge while driving at normal traffic speeds of 70-75 mph along US95/I-11/I-215. I do not think that this can be done without at least having to do some sort of recharging along the way. And as suggested in Section 3, it may well entail driving at 60 mph to start with and then, if the SOC and remaining mileage estimate is good enough, upping the speed to 65 mph. This current Drive Plan is also a particular concern given that my 229-mile PRI-D based 100% down to 0% range estimate has to be reduced to under 200 miles with the need to use of MAX AC to lower the cabin temperature at the start of this leg, having to use NORMAL mode for a while after departing in order to cool the battery before using RANGE mode, and the hit on the SOC of just keeping the battery and cabin cool when the outside temperatures approach 115F. I would prefer not to attempt to drive this remaining leg.

The PO suggests the following Plan B.

- PO Alternative Plan B. Recharging Plan, Pre-Departure Checks, and Drive Plan.
 - Recharging Plan: Keep the recharge here to 100%, but add alternative Level 2 7 kW AC charging stations at the City Hall in Needles CA (4 stations), 96 miles from Blythe, and at the Best Western Hoover Dam in Boulder City NV stations (2) or City of Boulder stations (3), both 92 & 93 miles respectively from Needles and 18/19 miles to the Terrible Herbst-SHANE 50 kW charging station in Henderson and 23/24 miles to the EA charging stations at the Premium Outlet Mall in Las Vegas. The Level 2 7 kW charging stations can add around 16 miles per hour of charging.
 - Pre-Departure Checks: All the Level 2 charging stations are non-networked and so the only way to find out if they are currently operational is to call the City of Needles, Best Western Hoover Dam or Boulder City. Since there are multiple stations in each location it is likely that at least one is operational. So no Pre-Departure checking is required.
 - Driving Plan: Keep the first part of Plan A except instead of a rest stop in Needles it is now a recharge stop. Added to the second part of Plan A would be a stop in Boulder City, if necessary, to recharge enough to get to Henderson or Las Vegas.
 - Food/Beverage and Rest Rooms: Since the driving plan will leave US95 to go into Needles, there is a McDonald’s near the Needles City hall that can be used. Also, in Searchlight NV, 53 miles along the route from Needles there is also another McDonald’s and a Denny’s, plus some casinos.
- Executing Plan B.

The following speeds and settings are necessary in order to ensure the Taycan would not find itself with an SOC under 10%. At this point the Taycan starts shutting down the air conditioning. At 5% it will shut down the air conditioning to conserve SOC. At some point it will go into limp mode, slowing down to a speed and accessory settings it calculates will get it to the next populated area. Also, US 95 between Blythe and Needles, and Needles and Boulder City is fairly desolate country with few populated areas and areas of no cell phone service. For example, between Needles and Boulder City, there is the town of Searchlight NV, 53 miles from Blythe CA, and 40

miles from Boulder City. It has cell phone service, but no charging stations except plugging into a gas station's, casino's, or resident's 110 AC service.

- Driving Mode, Speed limits and ACC setting: After the initial NORMAL mode to cool the battery, RANGE mode with a maximum of 65 mph is implemented. The driving speed and ACC would be 60 mph from Blythe to Needles. The SOC and remaining miles would be checked at Needles to determine how long the battery would need to be charged. It needs to be charged to at least get to Boulder City with more than a 10% SOC remaining to keep the air conditioning running. Best guess is 1 hour at each. It is hoped that the battery would be cool enough when stopping at Needles City Hall so that it would actually start to be charged and not have just the battery heat pump operating to cool the battery. After Needles and after satisfactory charging, the ACC could be set to 65 mph.
- Air Conditioning Settings: After the initial Max AC setting, the air conditioning would be set to ECO PLUS mode and 75F once in RANGE mode.
- Terrain and Regeneration Setting: From Blythe to Needles the terrain raises slightly from 272 ft. to 495 ft. From Needles to Boulder City, the terrain climbs to 3,547 ft. around Searchlight and then down to 2,510 ft. in Boulder City. Boulder City to Henderson drops to 1857 or drops to Las Vegas at 2001 ft. Essentially, Regeneration will have no positive effect on SOC except for braking when coming into Needles, when slowing down coming into Searchlight, going downhill from Searchlight into Boulder City and going down into Henderson/Las Vegas. Leaving it in Auto would be fine.
- Estimated Departure Time, Temperature, and SOC: 4pm, 115F, 100%
- Plan B Estimated Arrival Time, Temperature and SOC:
 - Henderson: 9:30 pm (3 hrs. 30 min. driving + 2 hrs. charging), 105F, 15-20%
 - Las Vegas: 9:45 pm (3 hrs. 45 min. driving + 2 hrs. charging), 105F, 15-20%

Total Trip Statistics (Leg 1 Plan A, Leg 2 Plan A, Leg 3 Plan B)

- Total Distance Driven: Henderson: 472; Las Vegas 477 miles
- Total Elapsed Time: 8am – 9:30/9:45pm, Henderson: 13hrs30 min; Las Vegas: 13 hrs45min
- Total Estimated Charging Time: 5 hrs30min

NOTE: The Drive Story in Reverse is actually worse. On the leg from Las Vegas/Henderson to Blythe, after the Level 2 7 kW charging stations in Needles, there are no charging stations at all until Blythe. That means the last 96 miles from Needles to Blythe has to be completed with sufficient SOC to get to Blythe with at least a 10% SOC, if not a 25% SOC. The 25% SOC is needed in order to use Pre-cool when starting charging. Also, the issue of finding out if the 50 kW station at the Hampton Inn is even operational before departing comes into play.

5. THE ANSWER TO THE CAN I GET THERE FROM HERE QUESTION AND MY DECISION TO BUY OR NOT TO BUY AT THIS TIME

The Answer to the Can I Get There From Here Question

Based on the results of my research and the writing of The Drive Story above, my answer to my *Can I Get Here From There* question is:

It all depends who the "I" is.

For me, the answer is NO, not at this time. When I look at all the things I would have to do and the compromises I would have to make in order to make this drive, it would not be fun for me to do so in a car as lovely as a Porsche Taycan. The car deserves to be driven at traffic flow highway speeds. And when driving it one shouldn't compromise on using all its accessories to the fullest particularly when it is as hot as it is here in the desert Southwest in June, July, and August.

The real killers were: the lack of adequate numbers of at least 50 kW, if not 150 kW & 350 kW charging stations, particularly in Blythe, and Needles. Also uncomfortable for me is the lack of being able to even check on the operational status of such a critical charging station as the one in Blythe. It was very disconcerting to me that no one

could tell what the status was of this only 50 kW station; particularly before one would commit to the trip at all. Although not mentioned in this article, but in my April 2020 one, Electrify America (EA) has been saying for almost a year that a station in Quartzite with 4 ea. charging stations is “Coming Soon.” Unfortunately, as of July 8, 2020 it is still just some markings on the ground.

Finally, without any real proof that the Taycan 4S with the 93.4 kWh battery can go further than 190-200 miles on a 100% charge, the only conclusion is that one must spend a lot of time charging to 100%, and not the recommended 80%. If only Porsche would conduct, or allow to be conducted, a real-world test to prove that a Taycan can get 230-250 miles on an 80% charge by their Tucson/Phoenix area dealerships. This too would help in moving my answer to at least a maybe. This 230-250 range and the EA charging station at Quartzite would definitely move my answer to yes. A 250-mile range would make it a comfortable drive to Henderson/Las Vegas, and lower the total charging times. It would also make it possible to go to Phoenix and back from Tucson without having to recharge on the way back.

Obviously, a Pioneering Owner (PO) would say: Yes. Because the PO is willing to put up with such things as:

- Driving a Porsche on highways with 65-75 mph speed limits at 60 and 65 mph
- Routinely use Level 2 charging stations despite their excessive charging times, and
- Taking 5 ½ hours of charge time on a 7-hour driving time 470-mile trip when maybe only 2 ½ to 3 hours would be possible with more and more powerful charging stations along the route.

My Decision Whether to Continue to Pursue Buying At This Time

It is not the time for me to continue to pursue buying. I suspect it will be a few years before someone does prove that the Taycan 4S has a range of 230-250 miles at a starting SOC of 80% when its 110-115F, and that there are dependable multiple DC Fast charging stations at Blythe/Quartzite, and Needles, and maybe even Kingman. Until then I am joining those “potential EV buyers” that are being deterred due to the “woefully lacking” infrastructure of charging as mentioned in the May 2020 edition of the *Panorama* magazine (See page 30).

Willkommen, Bonjour, Glad to Meet You

By Kathleen Kendler – Membership Chair

These are unprecedented times. We haven’t had a general meeting since March, we are social distancing, and many of us do not venture out to far. Not out of fear but out of respect for one another. I would like to see you all on the other side of this COVID-19 pandemic.

Here are the membership changes as of July 20th, 2020,

a. New to SAR area are:

Robert Dantini, Nat Rial, and Zhiheng Xu

b. New members to the local club are:

Terry Houlahan, Linda Guillis, and Ray Craft

c. Transferred in:

Eugene & Tracy Noble: They have transferred in from the Potomac (POT) region..

d. Test drive participants:

Steve Siwik

I miss my Porsche family. I hope to see you in the near future. In the meantime, please stay safe and healthy.

I can be reached at: membership@pcasar.com

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Saturday, September 26th

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The most track time for a one-day event in the Tucson Area!
All makes of vehicles are welcome.
Because of COVID this event is for experienced drivers only.**

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Registration Fee: \$145.

Registration is limited to 30 drivers so sign-up early.

No registration at the track.

New requirements as follows:

***We now have minimum track entry requirements and a Corona Virus
Mitigation Plan you MUST read, download and sign.***

- *Do not come if you are sick or show any symptoms*
- *Face mask and cell phone are required for entry*
- *Must read & sign the Corona Virus Mitigation Plan*
- *2 people maximum per vehicle entry... Exception for parents with children*
- *Driver/rider and 1 guest: no spectators allowed*
- *Maximum participants allowed is 49*
- *No Pets*
- *When you leave your area (Bubble/Pit Box) you must wear a protective mask*

Sign-up at <https://pcasar.motorsportreg.com/events/pca-sar-robert-dearing-memorial-de-musselman-honda-circuit-southern-arizona-388683>



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PORSCHE CLUB OF AMERICA

Speed Bump 2

Slow Down For Another Automotive Tale - By Hal Tretbar

The Porsche Factory

Finding long lost negatives is almost as satisfying as finding long lost relatives. I have been going through a box of 120 negatives from my three years in the Army in Germany. I shot a ton of both black and white and Agfa Color with my Rolleiflex. Here are some images that are like locating two favorite children.



Dorothy and I drove our Renault Dauphine from Bad Nauheim north of Frankfurt to Zuffenhausen to take factory delivery of our 1959 Porsche 356A Coupe.

The photo was taken from a balcony over the assembly area. There is only natural light. Close inspection shows blurred arm movement and a shallow depth of field, probably because the image was shot with the lens wide open at $f\ 3.5$ and about $1/8^{\text{th}}$ second on 100 ASA film.

There is no automation in this assembly line. The Reutter bodies are on dollies. The transmissions and axles are on the lower left with the tire rack just above. There is a toolbox beside each car. The workers look like they are on a rest break. One is leaning on the open door on the right and someone in a polo shirt is pointing while smoking. As I recall, there wasn't much noise and I think someone had a beer.

The 356A was produced from 1955 to '59. The 356B was introduced at the end of the year. There were three basic models in 1959: The Coupe, Cabriolet and Convertible D. A total of 7,012 were built of which 4,063 were coupes. The Cab had a padded folding top. A hardtop was available from '57-'59. And then there was the Convertible D.

The Convertible D body was built by Drauz in nearby Heilbronn. It was the successor to the Speedster. It had many of the attributes of the Speedster but more of the amenities of the Cabriolet such as roll-up windows. Only 1331 were built in its one-year of production and has become the pot of gold at the end of a Porsche collector's rainbow.



Here is another shot from the same trip of the engine assembly.

And, finally, here is the another long-lost favorite photo. Somewhere in the Alps and remembering the song:

Happy Wanderer (4th verse)

Oh may I go a-wandering ...

Until the day I die ...

Oh may I always laugh and sing ...

Beneath God's clear blue sky.

*Valderi, valdera, valderi, Valde ha ha ha
ha ha ha.*



(Editor's Note: Reading this song brought back some happy memories for me as well. My Father and I were avid hikers when I was a child and this was our favorite song to sing during our roaming!)



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