

The Radiator

December 2023

Official Publication of the Corvallis Historic Auto Club



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President's Message

I would like to say Merry Christmas and Happy New Year to you and your families. Here's wishing you health and prosperity in twenty twenty-four!

As the year comes to a close, I am reminded that I have many blessings. This club has brought me new friends. This club has taught me new ways, brought me new experiences and taken me to new places.

I'm proud to say "I'm a member" of such a noble group like the Corvallis Historic Auto Club.

I have received more than I deserve. I have felt this way since joining this club nine years ago. My first outing was with my (now) longtime friend DJ Freeman. Patty and I, along with a handful of members and their vehicles, took our '55 Chevy over a few covered bridges on a wonderful tour he had arranged. Being new to the area, it was a fabulous treat. The conclusion was a picnic lunch where we all got to know each other better.

Think back on your year. Think about something that you have done with this club that has brought you joy, new experience, or a sense of belonging. Was it our recent Christmas Party? The Swap and Show? Hold that thought and realize that it would not be possible without the effort put forth by others in this fine club.

I'm grateful for how long this club has been around due to the efforts of the "leaders" and "doers" before me. Look around and acknowledge those individuals that are still part of this club. Without them, we would fail. With their commitment, we have continued. Consider taking on a leadership role with this group. Without your help, we will sputter and quit functioning.

I would guess that most of us (guys) like a challenge. Like to fix things, appreciate old technology, want to get it running, shine it up. Drive it!

Like an engine, we have spark, fuel (am I supplying the compression?) Who will be next to turn the key? We know this club runs. It just needs you to be the new pilot.

-Peter

'Tis the Season

Thanks to all who were able to make it to this year's Christmas Dinner and "Yankee Santa" grab bag event at Johnny Carino's Italian Restaurant, in Albany. The holiday event was very well-attended. There was no shortage of good food, good friends, good conversation, and some fun and funny gifts were exchanged.

Thanks to Sebastian for doing such a great job of capturing the festivities. See many more photos on our website.



The Trabant Hycomat

How East German Ingenuity Made Driving More Accessible

By Sebastian Heiduschke

Last time, I shared with you information about my car, the Trabant 601 Universal. The Trabant only came with a manual transmission – but what about people without two functioning legs? This was sadly not uncommon after World War II. Enter East German engineering ingenuity – here comes the story of the Hycomat.

The Hycomat was an automatic clutch operation system available for the Trabant 601 directly from the factory. Vehicles equipped with the Hycomat were known as the Trabant 601 Hycomat, designated as the Trabant 601-H model. Initially employing hydraulic systems, the automatic clutch operation later transitioned to an electrohydraulic setup.

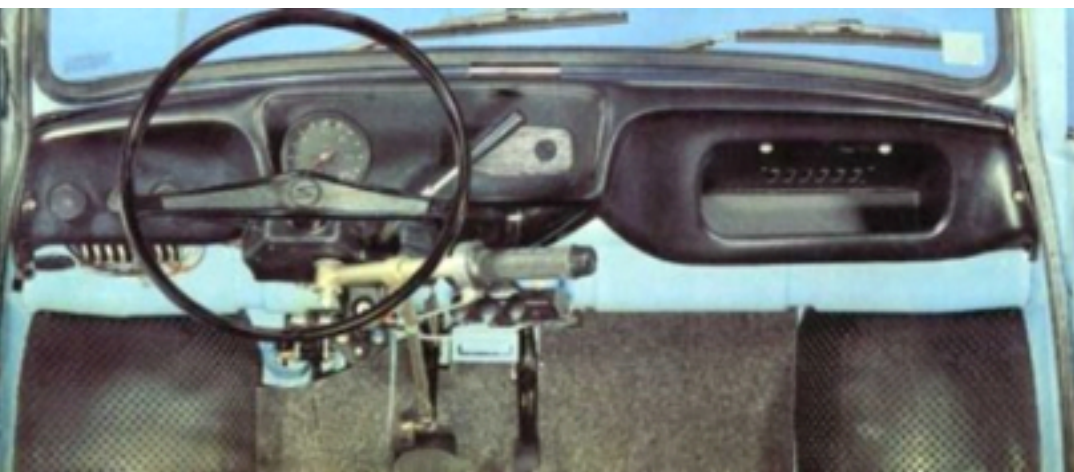
As explained in the vehicle's manual, the Hycomat served as an automated mechanism for engaging and disengaging the clutch, rendering the traditional foot pedal unnecessary. The hydraulic activation of the clutch depended on the engine speed, or was achieved through contact release from the gear lever. In place of the conventional clutch pedal, a "park lock" was integrated.

The Trabant 601 H model was designed to cater to individuals with and without disabilities, explicitly accommodating those without two fully functional legs. At that time, approximately 10 percent of the

population, including war veterans, faced physical disabilities. VEB Sachsenring Automobilwerke Zwickau, the manufacturer, stood out in the 1960s as one of the few automakers producing vehicles tailored for individuals with disabilities directly from the factory!

Manufactured from 1965 to 1990, the Trabant 601 H,

available in both sedan and estate versions, marked a noteworthy development within the 26-year production history of the Trabant 601. Remarkably, this vehicle is considered the sole model in East Germany to feature a



standard automatic clutch. Its inception dates back to 1964, with completion in 1965, followed by full-scale production. One of the last instances of the Hycomat is believed to have rolled off the assembly line in 1990 at the Sachsenring Automobilwerke plant.



hydraulic pump, is then transmitted through a pressure line to the clutch cylinder. The clutch cylinder, in response, influences a clutch lever, engaging it as the pressure rises. This intricate system ensures swift engagement at high RPMs or during spirited driving, while the process is deliberately slower at lower RPMs. Notably, if the driver shifts gears promptly, a smooth transition can be achieved without lifting off the throttle. An overpressure valve serves to prevent an excessive pressure build-up, and a disengagement spring on the clutch lever ensures that the engine stays disengaged when idling.

The dependency of engagement on the engine speed is regulated by a throttle nozzle located in a connecting line between the intake and pressure lines. To expedite disengagement, an electric contact is integrated into the shift linkage. Activating the gear lever causes this contact to release the clutch cylinder's pressure via a control valve in the pressure line, resulting in immediate disengagement. Releasing the gear lever after a shift rebuilds pressure in the line, automatically engaging the selected gear. This setup allows for smooth downshifting without the need to release the throttle.

For safety under the hood, a hydraulic clutch safety switch is present. This switch acts as a fail-safe against unintended automatic engagement in the transmission.

The Hycomat distinguishes itself from other versions of the P 601 by its automatic hydraulic clutch. This difference is generally attributed to the use of the following components:

- Hydraulic pump (gear pump)
- Control valve with electromagnet
- Clutch cylinder
- Gear lever with touch contact on the shift linkage
- Parking brake or emergency pedal

A direct connection exists between the engine's crankshaft and the hydraulic pump (a gear-type oil pump) through a shaft. This linkage results in a pressure directly proportional to the engine speed. The pressure, generated by the



Hydraulic pump

With the hood open, the vehicle is prevented from moving or getting blocked during, for example, a repair due to a malfunction.

Idle is ensured by touching the gear lever with the engine running, engaging the hydraulic clutch, or engaging the parking brake, through mechanical coupling. Once the engine is started, the accelerator pedal must be released, allowing the engine to continue running at its idle speed. Subsequently, the first gear and the reverse gear can be engaged by operating the gear lever. Then, by pressing the accelerator pedal, the engine speed is increased, and the hydraulic clutch automatically engages, enabling the vehicle to start moving.

On an incline, the handbrake should only be released when the vehicle noticeably starts to pull.

When the gear lever is touched, the internal contact activates, causing the relay to interrupt the power to the electromagnet. A control slide moves to the neutral position through the force of a compression spring. This immediately releases the hydraulic oil from the clutch cylinder into the hydraulic tank, retracting the disengagement lever. Simultaneously, the slide blocks the pressure line from the pump, and excess pressure is discharged through the pressure relief valve. The clutch is disengaged, allowing for gear shifting. Releasing the gear lever repeats the starting process.



Hycomat Transmission



The vehicle can be brought to a stop either by applying the brake through the brake pedal or by coasting to a halt. As the speed decreases to the idle speed, at that moment, the automatic clutch disengages on its own. Stalling the engine is not possible.

To enhance the parking functionality, the Hycomat incorporates a parking lock. Positioned where the clutch pedal would typically be, the locking lever's pawl engages the disengagement spring through a cable when in the locked position. After selecting first gear, a single press of the pawl releases the locking lever, relaxing the disengagement spring. This action allows the clutch to engage, establishing traction. In case of a failed engine start, the parking lock can serve as a manually operated clutch. With

the lock disengaged and a gear engaged, the vehicle can be push-started. This manual clutch operation becomes handy if the automatic clutch malfunctions.

A suction throttle is positioned in the suction line (between the pump and the reservoir), purposely restricting the pump's impact when dealing with thick oil. This precaution prevents overly aggressive clutch engagement in cold conditions. The engine attains its normal idle state only after reaching a specific temperature. Facilitating this process involves accelerating the engine in the disengaged state, a maneuver easily achieved by touching the gear lever and pressing the accelerator pedal.

The official East German test report lauded the Trabant Hycomat for its rapid and efficient shifting, asserting that it held its own in performance compared to manually operated clutches. Notably, it was highlighted for enabling quick gear changes without the need to lift off the gas pedal, proving particularly advantageous in congested urban traffic. The system received acclaim for facilitating a

remarkably smooth starting process. However, some critique was directed at the less-than-seamless engagement during downshifting at low RPMs. Recognized as well-suited for individuals with disabilities, the Hycomat was praised for potentially obviating the need for intricate modifications to accommodate such drivers. The report emphasized that the user-friendly design of the Hycomat not only appealed to those with disabilities and less experienced drivers but also provided a genuine operational simplification for experienced drivers without compromising performance. Although the test vehicle's Hycomat displayed some minor issues, it was anticipated that these could be easily rectified in the production version.

I have never even driven a 601 H, but I would love to have one in my collection. What a smart approach to a common problem.

Next time, I will tell you about the Trabant Kübelwagen and some prototypes that were never built. 🏠

Learn more about the Trabant Hycomat with these videos:

Learn how to add auto-generated English subtitles to any of the non-English language videos: <https://www.youtube.com/watch?v=g02pYW3ZXjA&pp=ygUgYXV0byBnZW5lcmF0ZSBzdWJ0aXRzZXMGZW91dHViZSA%3D>

Ride along to see how the shifting works: <https://youtu.be/yrY4H9sfl3M?feature=shared>

A detailed explanation of the hycomat in German: https://www.youtube.com/watch?v=5BmSg9S_ZbY



Buyer Beware - Part 2

They Say That Rust Never Sleeps, But It Sure Can Hide

By Dave Snell

One of the lasting lessons I learned early on in my restoring adventures is the cost of repairing body rust. What sometimes looks like a rust free candidate for restoration can end up being a rusty mess once you disassemble the vehicle and get a good look into the sections that are hidden. This can get expensive especially if there are no reproduction parts available. If, for instance, you are doing a Mustang or Camaro you can always get the reproduction parts you need but they do lighten your wallet.

The first AMX I restored looked OK from the outside but when I removed parts like the fenders, interior, trunk mats and glass trims...OH BOY!! The channels around the windshield and rear glass were very rusty. One of the fenderwell gussets was totally rusted out and when I got the rocker assemblies exposed I could see daylight through them. This is a major issue with a unibody car like the AMX because these sections are structural. There is no full length frame under the body so the

Clockwise, from upper right: The rusted out driver-side rocker panel, a donor floor and rocker panels, a closeup of the donor rocker panel, and the donor rocker completed installation. Done well, this work involves either a lot of skill or a lot of money. Or both.





rockers, floors, trunk and fender wells are what hold the car together.

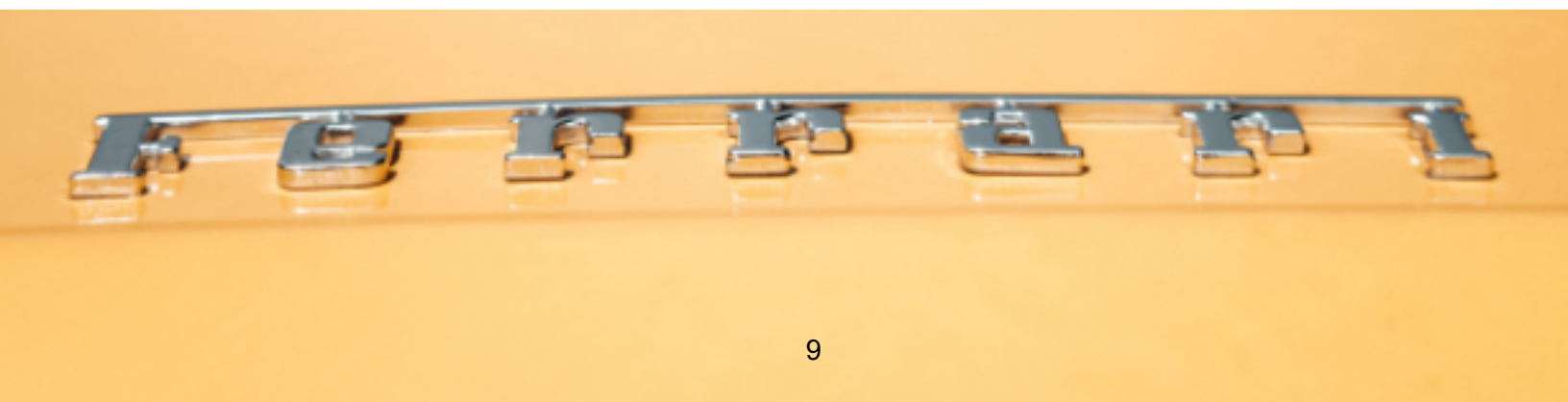
Since there are no reproduction parts available for these cars, there were only two options. Find a rust free donor or have a restoration shop fabricate the parts (OUCH!). After years with the car sitting in my shop, I got lucky. A guy just twenty five miles away listed a rust free parts car on Craigslist that was missing almost everything but the critical body sections I needed.

I am not skilled enough to do rust repair nor do I have the tools and equipment. So, I had a body shop cut out all the rusty areas, remove the clean sections from the donor and weld them in. Just the metal work alone cost more than a low grade driver quality AMX at the time. Lesson learned. I can live with restoring the driveline and the interior but taking on a swiss cheese rust job is something I have avoided ever since. 🛠️

Left: this is the donor fenderwell gusset that was on the shell located on Craigslist.

Lower left: the existing driver-side gusset had almost completely rusted out.

Bottom: the donor gusset installed.





DODGE BROTHERS TOURING CAR

100 Years Ago...

John and Horace Dodge made engines for Ford when it launched in 1903. Ford gave them a 1/10th interest in the company, which the brothers later sold for \$27M. They used that money to start their own car company, Dodge Brothers, in 1914.

The 1923 Dodge Series 116 was equipped with a 35hp, 212ci inline 4-cylinder engine. Production totaled 171,421.

In city traffic or on the open road, this new touring car impresses you instantly with its exceptional riding comfort.

The seats are deeper and lower. The body has been lengthened to afford more leg-room. Its low-swung design reduces side sway and increases the car's stability at all speeds.

The front springs are wider, and built of more and thinner leaves; the rear springs—now under-slung—have been materially increased in length.

In fact, the comfort of the car is comparable in every way with its good looks and the well known character of its performance.

The price is \$880 f. o. b. Detroit



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The Corvallis Historic Auto Club, a nonprofit organization, was organized over 57 YEARS AGO in Corvallis, Oregon for the encouragement of interest in historical cars, their preservation & restoration, the extension of knowledge concerning them, & related activities.

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Event Calendar:

Below is a partial list of upcoming events. See an updated list on our website calendar: corvallishistoricaclub.org.

Friday, December 29

Covered Bridge Cafe Cars and Coffee, 8:00AM

Free, Every Friday

510 N. 3rd Avenue, Stayton

Saturday, December 30

Portland Cars and Coffee, 8:00AM

Free, Every Saturday

21650 SW Langer Farm Parkway, Sherwood

<https://portlandcarsandcoffee.com/>

Sunday, December 31

Albany Cars and Coffee, 10:00AM

Free, Every Sunday

1393 Clay Street, SE

Monday, January 22

C.H.A.C. Membership Meeting. 7:00-8:30PM

Shepherd of The Valley Lutheran Church, 2650 NW Highland Dr, Corvallis

Saturday and Sunday, March 2-3

18th Annual Salem Roadster Show. All Day Event

Oregon State Fairgrounds

\$15 admission, 15 and under free

<https://salemroadstershow.com/>

Friday-Sunday, March 15-17

68th Annual Portland Roadster Show

Portland Expo Center

\$20 admission, 12 and under free

<https://portlandroadstershow.com/>

On The Cover: AC Cobra

AC Cobras were first produced by the British company AC Cars, in 1962. Carroll Shelby began producing V8 versions in the US later that year. Since the late 1980s, Shelby-authorized "Continuation Cars" have been produced, retaining the general style and appearance, but including modern amenities.

Tell Us Your Stories:

We're always looking for content. Tell your fellow members about your first or favorite car, the one that got away, a hard-to-find part that you sourced, made or refurbished, a memorable road trip, your personal tips for storing your car for the winter, or something else.