

WELCOME TO THE AUTOPARK LIBRARY

Thanks for getting in contact with us. Hopefully, we can help you with whatever you may need to understand, troubleshoot, and repair your AutoPark system.

Since you have not as yet mentioned any specific problems you are having with your unit, we will send you a sort of general package that includes quite a bit of basic information and history. This package will be made up from individual write-ups we've done over time. As such, you will notice some duplication of content - - The same text, illustration or picture may appear in more than one of bulletins.

Please understand that this is only a fraction of the available material. We have so much information that is highly specific to certain problems, that there is no reasonable way for us to send it all at one time.

So if you have a particular issue with some component or some characteristic of performance, get back to us with the specifics of how it is behaving. We'll then proceed to the troubleshooting and repair of that problem.

We should mention that AutoPark exists in many different forms, versions, morphs or whatever. Even within a given year model, there may be significant differences. So in some cases, it may take a few tries to get us all "on the same page."

Most of our correspondence is handled through email. However, I do have unlimited long distance service, and if advisable we can arrange a phone conversation. I'll of course need your phone number, and some idea of when the timing will work for both of us.

We will send your initial "package" appended to this introduction. You may want to print it out and start your own reference file. After you've had a chance to look it over, feel free to send comments or questions. We'll do our best to help you with your AutoPark.

Roger – aka oldusedbear at the AutoPark Library

THE AUTOPARK LIBRARY MISSION STATEMENT

If your AutoPark is giving you trouble, or you're afraid that it might, we will try to give you some help.

The AutoPark Library is basically a collection of information. It consists of factory manuals, drawings, pictures, and papers we've written on various aspects of the system. We have some great assistance from four other forum members who help me with both general and specific problems. There is additionally a huge contribution made by many other forum members who have sent us all sorts of valuable information.

We are particularly anxious to help those who want to do their own repairs. On the other hand, if you are trying to just educate yourself, or prepare to deal with a service outlet, that's OK too. In either case, we'll do what we can. We would stress that we are in no way trying to compete with commercial repair outlets and have no financial interests in any part of the process.

In almost every case, we will need to exchange several emails to complete the diagnosis and repair. I usually check my email several times a day, so we normally respond pretty rapidly. It goes without saying that prompt replies on your part will speed up the process. Not ALL RV'ers are retired though, and we understand that many of you just can't drop everything to work on the motorhome.

We surely hope that our information is accurate, but can make no guarantees to that effect. Simply stated, we will do our best to help those who ask.

Obviously, anyone who undertakes their own repairs has the responsibility for the outcome - - including considerations of safety. For those who have reservations in this regard, we strongly suggest they utilize a competent commercial service.

Patience and persistence seem to be the key words in this process. Where people are willing to "keep looking and trying," our success rate is very high. Hopefully your case will be no exception.

We always welcome comments and questions.

We'll look forward to hearing from you and helping with your AutoPark problems.

**Roger - - At the AutoPark Library
c/o oldusedbear on the Open Roads Forum
(we are simply forum members - - this is not any official arm of the sponsor)**

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If you need some sort of help with your AutoPark, we usually organize our attack in three different phases:

First, we send you some information that is primarily background, basics, and history. This will help us to "get on the same page" with principles of operation, the names of the different components, and so forth.

This is typically followed by a preliminary diagnosis of your malfunction, which is based on the information you have provided us. Sometimes we can be pretty positive about what is wrong, other times we may need to propose a theory and then do some tests to see if we are correct.

Finally, we get into the nuts and bolts of diagnosis and repair. Once we are sure we've identified the problem, we will send material on the repair itself. This will usually include pictures, descriptions, and sources for parts if necessary.

The length of time involved in going thru these three phases, is pretty much determined by how well we can pass the information back and forth. I usually check my email several times each day, so can normally reply fairly promptly. If you are really stuck somewhere and time is a big factor, we can arrange a telephone call. I have unlimited long distance service so will be glad to phone you if it turns out to be worthwhile.

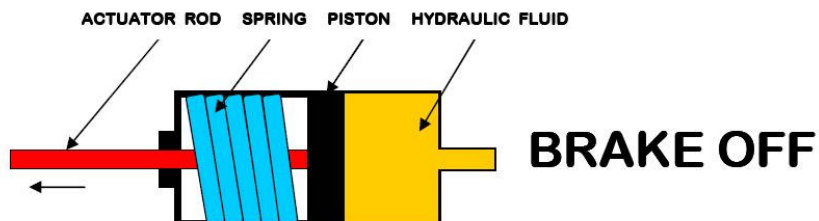
We typically send out a LOT of material, and may need to refer to it several times during the process. You may want to print out everything and start your own AutoPark file.

Questions and comments are always appreciated. We know that some of you have lots of wrenching experience and background, whereas others are newcomers. We can work with most everybody on these projects, but hope you all understand this is a "best effort"

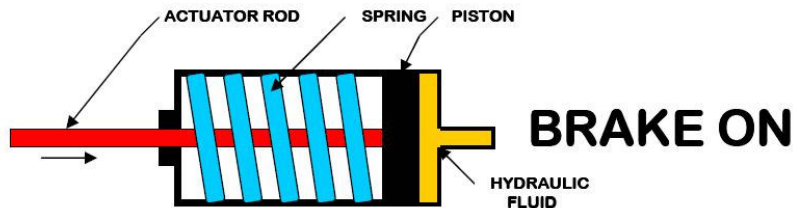
process. If you don't feel competent or safe doing this work, by all means seek out some professional assistance - - an individual or service outlet you can trust.

We have a really high success rate with AutoPark problems, but would still emphasize that free advice is sometimes worth just what you pay for it. No guarantees beyond our best effort.

AUTOPARK ACTUATOR



This drawing depicts the AutoPark actuator with hydraulic pressure applied. In this condition, the brake is **RELEASED**. The piston is forced to the left by the hydraulic fluid, and the actuator rod has relaxed the tension on the cable to the brake assembly.



This drawing depicts the AutoPark actuator with no hydraulic pressure on it. In this condition, the brake is **APPLIED**. The piston is forced to the right by the heavy spring, and the actuator rod is putting tension on a cable connected to the brake assembly.

The actuator is the heart of the AutoPark system. It is a hydraulic cylinder which applies or releases a drum brake on the driveline. It is also important to remember that hydraulic pressure **RELEASES** the brake, and that lack of pressure **APPLIES** the brake. As such, **BRAKE APPLIED** is the default condition for most malfunctions of the AutoPark system.

In real life, it is of course more complicated than this. There are pumps, motors, switches and so forth. But if you understand the essentials of these illustrations, you know what makes AutoPark work in principle.

THE AUTOPARK STORY UMPTIETH REVISION

The following is an attempt to explain the evolution of the AutoPark thru the different versions. Please understand I've only owned and worked on one of them- - A P30, 1994 Southwind.

All versions are somewhat complicated. My opinion is that the initial concept was an attempt by Chev to make people think they were driving the family car - - stick it in "Park" and walk away - - even though mechanically, an entirely different thing was happening than what happens in the family car.

Earlier versions of AutoPark used hydraulic pressure from the power steering to make it work. The same pressure was also used for service brake boost (instead of vacuum) - - think they call that "Hydroboost" or something like that. **Later edit concerning early version- - We always thought AutoPark only appeared on motorhomes OVER 16000 lbs and took the place of the locking pawl in the tranny. It now appears that there are some out there weighing LESS than 16000 lbs, and these have BOTH AutoPark as well as a tranny pawl.**

The next generation is similar in that it still had a PARK position on the gear shift lever, and it also had the foot pedal brake like the earlier version. However, this second general version does not use the power steering pump for hydraulic pressure. It has its own, dedicated pump and fluid reservoir.

Then - -

The third generation has both the PARK position on the gear shift lever, and also a yellow button on the dashboard to activate, or deactivate the parking brake. There is NO foot actuated parking brake on this version. **On this system, to release the brake, you must take the shift lever out of park, AND push the button in. To apply the brake, you can either place the shift lever into PARK,**

OR pull the button out. Haven't figured out why they have done this - - yet. This is called the J 71 system.

The earliest units (circa 1989) have a valve mechanism hooked directly to the gear shift linkage. This valve controls the hydraulic pressure which is applied or removed from the AutoPark actuator. These valves have been known to give trouble - - Somewhat expensive to replace but you can buy (online) a rebuild kit for them at a reasonable price, or send them in to be rebuilt - - also more reasonable than new price.

Later units (appearing circa 1994) do not have this valve, but instead have a microswitch which in turn actuates a solenoid valve - - sorta does the same thing as the earlier, but quite differently configured.

We have pictures and diagrams of both of these setups - - the valve and the microswitch. On the third version, the position switch is relocated to the side of the transmission.

The second and third generation units have had some trouble with the microswitch assembly linked to the gear shift mechanism, that senses the position of the gear shift lever. Malfunction or maladjustment of the switch can either fail to apply the brake, OR apply the brake when you don't want it to. Failure of the hydraulic pressure on ALL versions of AutoPark can prevent release of the brake. There are lots of reports of having the brake locked on, and no way to release it (from the driver's seat). There are relatively fewer reports of failure with the version which runs off the power steering system. Most of the reported problems are concerning either the shift lever actuated valve, or just lack of proper adjustment of brake mechanism - - i.e. brake shoes or linkage.

Later versions, which have a separate hydraulic pump for AutoPark, and do NOT use the power steering pump for AutoPark pressure, have had some problems with the microswitch on the shift lever, but more importantly have also had many failures of the switch assembly on the electric motor for the hydraulic pump. This seems to be the *most frequently reported cause of failure* in any of the units that utilize the separate pump and

reservoir. We have dubbed this switch The Rotten Green Switch, (it IS green), but it is more properly referred to as either the pressure maintenance switch, or the pump motor switch. It is known to fail in two stages - - Both stages apparently due to the seepage of hydraulic oil into the workings of the switch. In the first stage, it usually locks the contacts in the ON position. This results in having the pump continue to run and produce even higher pressures. At some point, the switch mechanically ruptures allowing some, or all of the oil to escape the system. *This in turn*, results in default application of the parking brake - - a potentially dangerous situation.

Over time, we have come across some examples of what *we* call a "hybrid" version. We've documented a few cases (built in 91 and 92) where the system is still running off the power steering pump, BUT there is no foot applied parking brake, and they have the yellow knob on the dashboard along with the PARK position on the shift lever - - an interesting combo of the oldest and newest versions.

WE really appreciate additions and corrections to this information - - No particular expertise is claimed here - - just trying to learn what we can and share it with others. I no longer have a P30, but feel for those who have fought these problems.

SOME HOPEFULLY USEFUL INFORMATION ABOUT AUTO-PARK - - Version I

Disclaimer: I'm not a retired mechanic or any kind of expert on brakes. I had a '94 Southwind with auto park, which gave me some trouble - - Local Chev people didn't *seem* to know a lot about it so I decided to learn what I could. A lot of this info is my opinion and should be taken as such. If you have any doubts about a procedure, or your own ability to work on these things, you should hire someone licensed, and bonded to do the work for you.

The same day I bought my Southwind (I have since sold it and bought a DP), we discovered that it rolled down minor slopes even with the brake on. I *incorrectly* assumed that the locking pawl in the tranny was busted -

- took it to tranny shop. Guy there sez there is *no* pawl in the tranny - - after a certain gross weight (which we believe to be 16000 lbs), they are not used because they just won't hold. (Edit note: Since originally writing this, we have learned that apparently some rigs weighing LESS than 16000 lbs, did come with both a tranny pawl lock system as well as AutoPark). He shows me the Auto Park brake and said he didn't know much about it - - my adventure starts:

In my not so humble opinion, I question whether Auto Park has always utilized the best collection of ideas in the parking brake world. I *THINK* that it was conceived for people who were used to sticking the shift lever in park, and assuming the rig would not roll. When working properly, it more or less does just that. However, as mentioned above, it really has nothing much to do with the tranny. My explanation goes more like this: Behind the tranny, there is a good sized drum brake - - fastened to, and part of the driveline. This brake can be applied two ways on the early versions - - one, with the parking brake foot pedal, or two, by putting the shift lever into the PARK position. On the newer versions, it may be applied with the shift lever (PARK position), or by pulling the yellow knob on the dashboard.

The foot pedal system is actually quite independent of the Park position system. This independence is gained thru incorporation of a "mechanical relay" mechanism, which allows the AutoPark OR the foot pedal to operate the driveline brake, but at the same time there is no interaction between the foot pedal and AutoPark. The foot pedal is pretty much directly and mechanically linked to the drum brake. It is adjustable and can be tightened or loosened to a degree (cable adjustment) - - without any affect on what the PARK mechanism does.

The PARK mechanism is more complicated. The power steering mechanism and the pump it uses, takes some of its pressure to provide boost for the service (wheels) brake system (instead of vacuum like lots of cars use), and this same hydraulic pressure is used for making the auto park system work - - this is true only of the earlier versions. Newer versions have their own separate pump and reservoir.

Slightly off to one side of the driveshaft/park brake drum assembly (passenger side on MY rig anyhow), is a fair sized hydraulic cylinder (actuator) dedicated to auto park. This cylinder, when pressurized, COLLAPSES a very heavy coil spring. This heavy spring, when RELEASED, applies pressure to the brake shoes in the parking brake drum. So the brake is ON, when the hydraulic pressure is removed from the cylinder. When the hydraulic pressure is released, the brake goes ON. THIS IS A LITTLE BACKWARDS FROM WHAT YOU MIGHT THINK, SO DON'T OVERLOOK THIS DETAIL.

A fairly common occurrence with this system, is that FOR ONE OF SEVERAL REASONS, the pressure is not getting to this cylinder, and the brake is locked on - - irrespective of the position of the shift lever. This may find you in a campground, your driveway, or the fast lane of the freeway - - PARKING BRAKE LOCKED AND WON'T RELEASE. You either have to somehow get the pressure restored, or mechanically disengage the brake from the auto park system in order to move the vehicle - - OR, have a tow truck lift the whole back end of the rig off the ground to tow it. The other option would be to remove the driveline or at least disconnect one end of it.

The other common malfunction is that you put it in PARK, and the puppy still rolls. This basically boils down to either the park brake lining is worn out and needs replaced, or far more likely, just an adjustment of the linkage between the auto park mechanism, and the brake drum assembly OR, the brake shoes themselves can be adjusted with the traditional "star wheel" on the backing plate for the drum brake. IF it is worn out lining, the foot pedal parking brake isn't gonna work either, so this is the first thing to check. If you can get the foot brake pedal to hold you from rolling, that tells you that the lining must still be OK - - same brake in both cases. If the foot brake doesn't hold, it could still be just an adjustment problem - - separate from the auto park adjustment problem. Of course, if the lining is shot, neither system is going to work regardless.

NOTE: Some people have become so unhappy with the auto park problems, that they have disconnected the whole autopark part of the mechanism from the drum brake and rely SOLELY on the foot pedal. This would have to be a personal decision, but obviously you run the danger of someone sticking the shift lever in PARK, and getting out of the driver's seat - - sort of a poor choice if parked on any kind of slope. Results not much different from having auto park hooked up, but failing to work. The one thing about totally disabling the system tho, is that you aren't going to have it lock up on its own - - as mentioned earlier. One method of disabling the mechanism is to "cage" the big spring - - We have several approaches for doing this if anyone is interested.

Sooooo, to the other problem of having it roll when you don't want it to (as opposed to NOT rolling when you DO want it to), assuming that the brake drum and lining are still good (a fairly good assumption - - should last a long time unless it has been dragging, or unless it maybe got oil on it from a bad tranny seal or something like that), then you are simply down to a matter of adjustment.

On adjustments: The different versions have different requirements, so we will not address that at length here. If you need to adjust the shoes or

cables, we can provide some information SPECIFIC to the version you have. In general however, it is very important to remember that this is a "static" brake. Unless something is wrong, or has been wrong, there is no reason for the linings to wear to any measurable extent. Any real amount of wear, or need for adjustment would indicate that the brake *has been* dragging. This in turn, could well mean that AutoPark has been applied while the vehicle was moving (A very common problem!) Several different conditions (malfunctions) can cause this to happen - - all of them potentially leading to serious problems. So - - IF AUTOPARK DOESN'T HOLD, OR IF THE FOOT BRAKE DOESN'T HOLD, IT IS MOST LIKELY BECAUSE THE BRAKE SHOES ARE WORN AS A RESULT OF DRAGGING. THIS IS A SERIOUS SYMPTOM AND SHOULD BE INVESTIGATED IN EVERY CASE.

Regarding the other failure - - Parking brake won't release. Again, this is not a problem I have had, but we can comment on the "ingredients." If for some reason, you can't get hydraulic pressure to the park brake cylinder, you WON'T be able to compress the spring and the brake will be APPLIED. On the earlier versions, this could be because your power steering pump has a problem - - IF THIS IS THE CASE THO, YOU HAVE PROBLEMS WITH POWER STEERING, POWER BRAKE BOOST, AND, THE AUTO PARK - - This applies only to the earlier versions which utilize the power steering system for pressure - - Later versions have their own dedicated pump and reservoir - - These later versions with their own pump and reservoir can also have the same problem of applying the brake when you DON'T want it ON. Perhaps an advantage of the earlier system is that if your power steering conks out on you, you're gonna know it for sure! Remember, you'll feel it not only in the steering wheel, but the service brakes as well - - At that point, AutoPark may be the least of your worries!

The failure of the newer pump/reservoir systems may be more insidious. They may go on and off intermittently while you are going down the road. Sometimes, and especially at higher road speeds, you might not feel the additional drag - - some have reported just seeing the brake warning or AutoPark warning lites blink occasionally - - NOT SOMETHING TO BE IGNORED!

Again, let me caution that this is a collection of ideas from my not-so-good memory. Comments are appreciated and I'll try to make useful additions or corrections as we go along

We will try to revise all these versions as we learn more about them. Feel free to make comments or ask specific questions - - will help if I can.

TESTING YOUR AUTOPARK

Sometime circa '95 or '96, Chevrolet discontinued the practice of powering AutoPark with the power steering system. The new system utilized a dedicated electric motor driven pump to provide the hydraulic pressure necessary for operation of AutoPark. The subject of this paper is to describe a simple method for checking these newer systems - - roughly 1995 thru present versions.

This test should be done on level ground with wheels chocked. On models that have the foot applied park brake, it should be applied (if working).

The AutoPark pump can usually be heard from the driver's seat IF the engine is NOT running. So, the test should be performed with ignition ON, but engine NOT RUNNING. If you have the yellow knob on your dashboard, it should be pushed IN.

With the gear shift lever in PARK position, ignition ON, the AutoPark lite on the dashboard should be ON. The pump should NOT be running.

If you shift out of PARK into neutral or reverse, the AutoPark lite should stay on for maybe 10 or 15 seconds and you should hear the pump running. Both the lite and the pump should shut off in 10 to 15 seconds.

If the lite stays on or the pump keeps running (or both), you PROBABLY HAVE A MALFUNCTION. That pump is supposed to go ON at about 1200 psi in the AutoPark system, and OFF at about 1600 psi.

If the pump doesn't run at all when you shift out of PARK, that also indicates a problem.

Any failure which results in the loss of hydraulic pressure is going to APPLY the AutoPark brake. This could leave you with the brake ON - - anywhere - - even going down the road.

So make the above test - - listen for the pump and watch the AutoPark warning lite on the dashboard.

If something doesn't look or sound right, feel free to contact me for help with the next step or repair information.

This concludes our introductory package of AutoPark information. In the very likely event that you have more questions, be sure and get back to us. We will do our best to reply promptly.

Roger

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