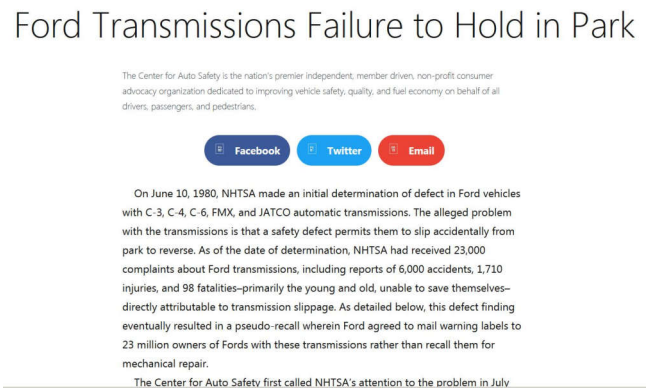
RAKO STUDIOS

Why Fords jump out of park

Ford vehicles in the 1970s and 80s would routinely jump, pop, or hop out of park. If the engine was running, it could kill you.

Many old Ford vehicles would jump out of park. Some of this was due to worn parts, but some was due to assembly problems. The Center for Auto Safety noted in 1980 that the NHTSA (National Highway Traffic Safety Administration) said that Fords had a defect. They further noted that the NHTSA said there were 23,000 complaints, 6,000 accidents, 1,710 injuries, and 98 fatalities.

Working in the Truck group in 1980, I asked a power-train engineer why we didn't just copy Chevy. He said, "Because that would admit we have a problem." I never understood that mentality. If there is a better way to do things, do it that way, there is no shame.


Ford Transmissions Failure to Hold in Park

The Center for Auto Safety is the nation's premier independent, member driven, non-profit consumer advocacy organization dedicated to improving vehicle safety, quality, and fuel economy on behalf of all drivers, passengers, and pedestrians.

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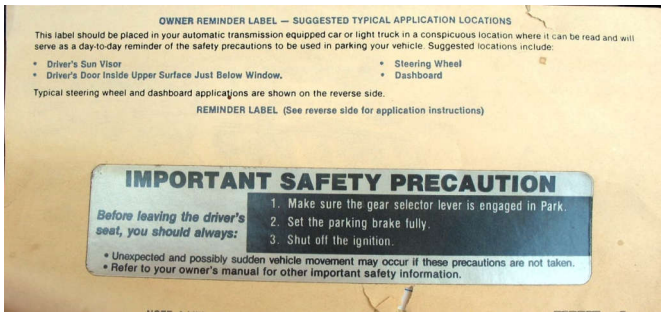
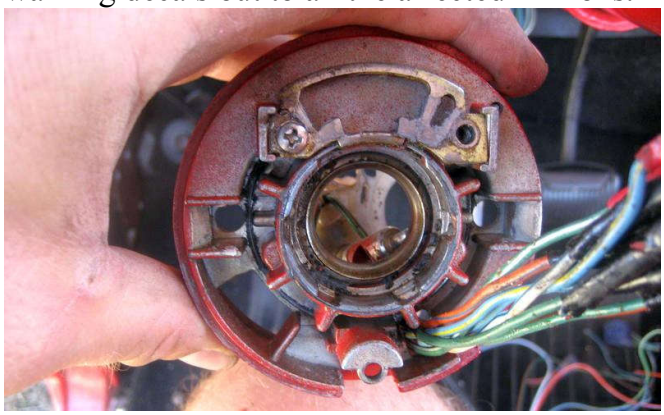
On June 10, 1980, NHTSA made an initial determination of defect in Ford vehicles with C-3, C-4, C-6, FMX, and JATCO automatic transmissions. The alleged problem with the transmissions is that a safety defect permits them to slip accidentally from park to reverse. As of the date of determination, NHTSA had received 23,000 complaints about Ford transmissions, including reports of 6,000 accidents, 1,710 injuries, and 98 fatalities–primarily the young and old, unable to save themselves–directly attributable to transmission slippage. As detailed below, this defect finding eventually resulted in a pseudo-recall wherein Ford agreed to mail warning labels to 23 million owners of Fords with these transmissions rather than recall them for mechanical repair.

The Center for Auto Safety first called NHTSA's attention to the problem in July

It turns out the popping out of park was a wicked combination of design, assembly, tolerance, and wear-out problems. This is still an issue, there was a 2017 recall for Fords with the same problem. Getting a lever in the cab to rotate a lever in the tranny is hard.



To show how lame auto regulation can be, Ford convinced NHTSA to not recall the trucks. Instead, all they had to do was send little warning decals out to all the affected millions.



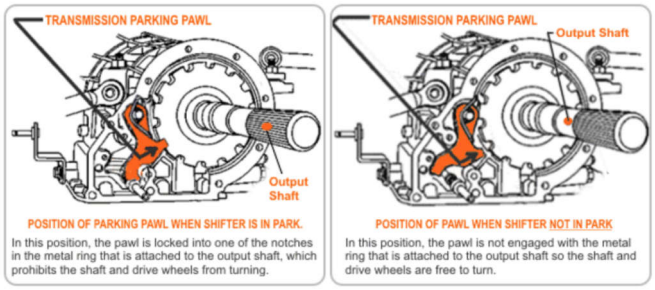
One wear-out failure was caused by this little plate in the steering column. It is why you have to pull the lever back to shift out of park. If the web between the two cutouts broke, the truck or car would jump out of park.

A new aftermarket indent plate. A rumor in 1980 was there was a car plate and a truck plate, color coded. They were late shipping, so we told them to skip the paint. I think it was the Louisville plant that built both cars and trucks, and the plates were in the wrong column. This only affected a few hundred trucks, and it might just be an engineering urban legend.

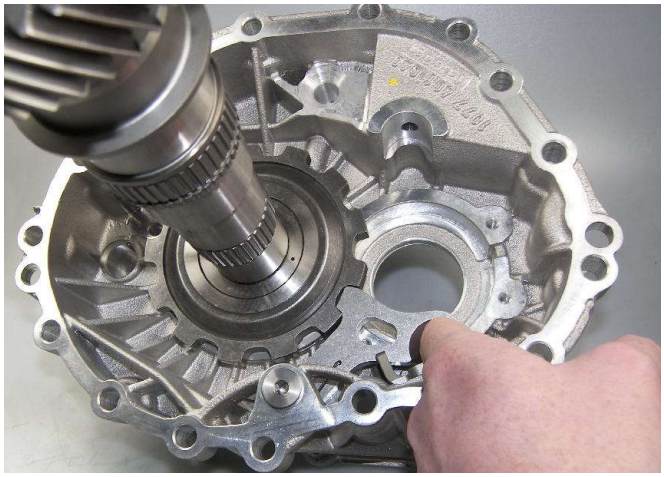
Here is a Ford OEM (original equipment manufacturer) version of the indent plate. They are getting hard to find OEM, but I suspect the aftermarket has come to the rescue. If you park on a hill, and feel the car roll forward or back, it can jam up the shift lever a bit. You really have to tug the lever to get it to move back so you can get it out of park. This pressure creates wear and that is what eats up these plates.

A related wear-out mechanism is the end of the column shift lever that drops into the slots on that plate. The protruding boss on the column can wear just like the plate. Replacing the plate is easy, but it is getting hard to find column levers in good shape.

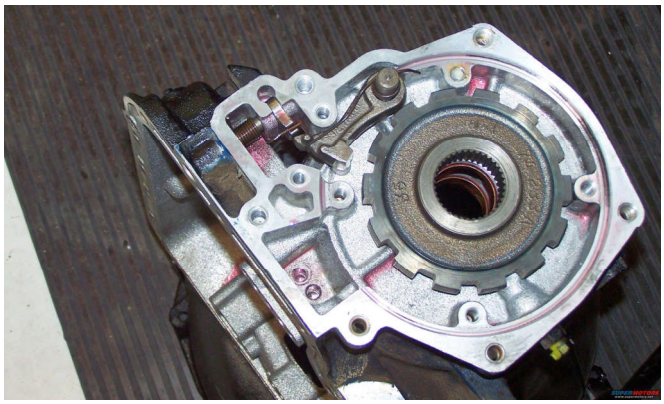
Some folks are taking a file to the boss on the lever, so it fits more securely, but that is a dangerous patch, at best.



At the complete other side of the parking mechanism, is this big pawl that drops into a square-cut wheel at the back of the transmission.

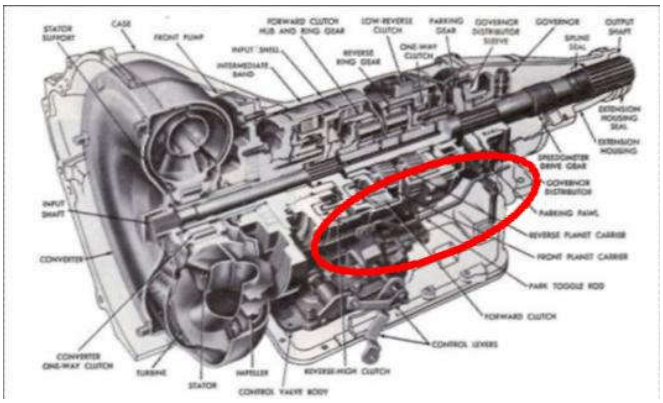


Here is a view with the pawl engaged into the wheel.



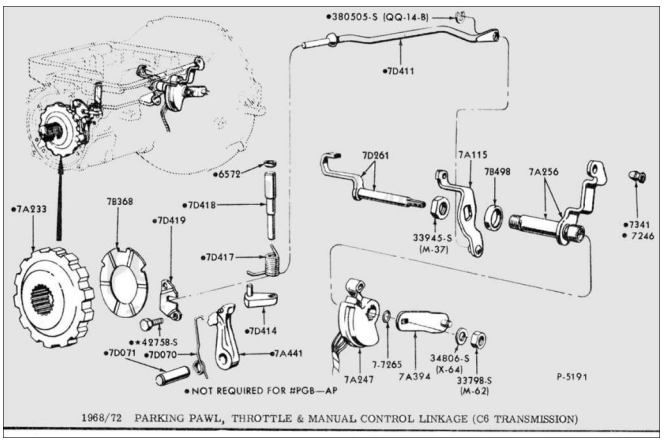
Here is a view of the parking pawl retracted.

What they don't explain very well is what happens if you shift into part and the pawl is not right over a groove. It stops on the outer diameter of the wheel. So the mechanism that operates the pawl has to have a spring-loaded compliance. That way, if the vehicle rolls a but, the pawl can then fall into a groove.



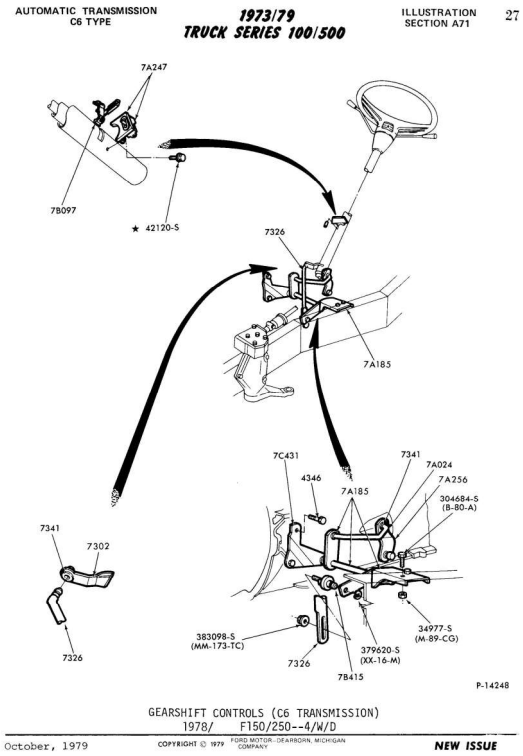
The actual parking pawl is a rock-solid design. You can break it if you shift into park while rolling, but that is understandable. The problem comes in that compliance in the internal linkage that allows the pawl to stop on the outside of the wheel, before falling into a groove.

The spring-loaded mechanism is operated by a thin rod that goes from the external levers on the side of the transmission, inside back to parking pawl mechanism at the back of the transmission.

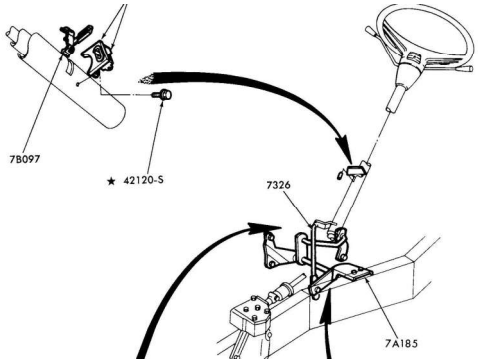


An exploded view of the parking mechanism shows just how complicated it is putting in that compliance, so the parking pawl can stop at the outside of the wheel, but have a spring pressure to make it drop into the wheel if the vehicle roll a little bit.

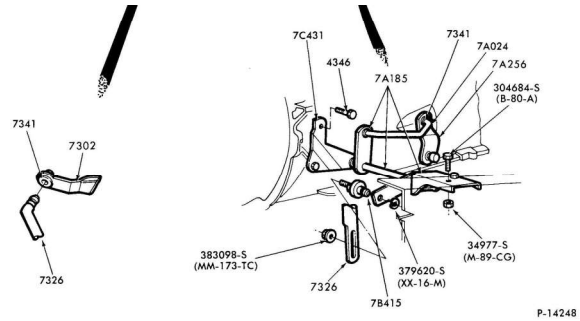
All these levers and rods have a tolerance, and if they don't advance the rod far enough, the parking pawl will not drop into the wheel, despite the lever on the column being parked.



The mechanism inside the transmission is fairly precise, but the linkage that operates the lever on the side of the transmission is much less so. This exploded view shows how many rods and bushings and lings are used to get the rotation of the lever on the steering column transferred to the lever on the side of the transmission.



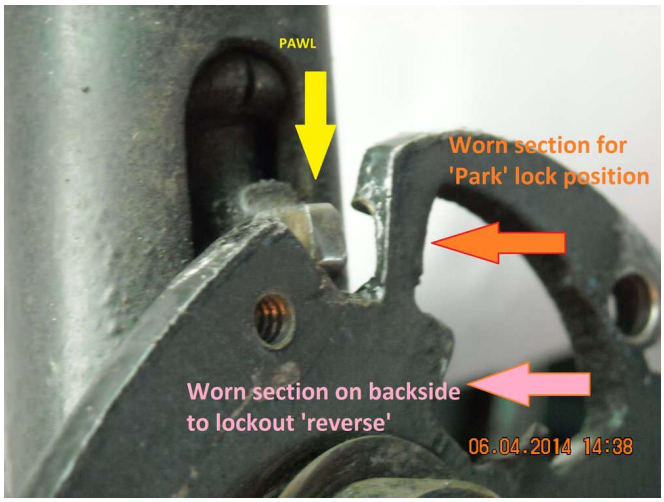
Here is one close-up of the linkage. This causes two problems. A wear-out situation where shifting the column into park does not move the lever on the transmission far enough. It also is a manufacturing tolerance problem, if the parts are not made exactly right, the same thing happens, column in park, but not the tranny.



Another close-up of the service diagram. There were different links depending on the model of the truck, engine and transmission combinations. So now you have the wear and tolerance problems, plus the fact that the wrong parts might get put on the truck.

Here is a truck steering column. You can see how a bad plate or lever will make the lever at the bottom rotate out of park. I wondered if a cable might not have been better. Links are way more reliable, but you can see how we had to have a lot of linkage to accommodate the movement of the transmission and the cab body as you went over rough roads. The clutch often has a similar intermediate mechanism, to decouple the movement of the cab and engine from the operation of the clutch itself. All this adds up to a lot of things that can go wrong.

This is the reverse switch on the column.



This 1957 Ford has the indent plate outside the column. They wear out too..

So jumping out of park can be a design problem, as well as an assembly problem, as well as a tolerance stack problem. On top of all that, the mechanism will wear out and only make things worse. Don't always count on "Park" being parked. Use the E-brake.