

The Radar They Replaced for Nothing

A brand-new radar came out of the box eight degrees off, and the one before it probably had too.

REED FARRAR · BRAND SPECIALIST, AIRPRO DIAGNOSTICS

SUMMARY

A shop replaced the front radar on a Hyundai Palisade after months of a persistent obstruction warning they could not clear. AirPro Brand Specialist Reed Farrar found the new radar sitting eight degrees out of aim before calibration, refused a passing result that was still outside specification, and established that the original radar had likely never been aimed at all.



AIRPRO'S *AUGGIE AIR* DIGITAL TARGETING DEVICE, MOUNTED ON THE WINDSHIELD AHEAD OF A CALIBRATION

AT A GLANCE

SERVICE	Static Forward Radar Calibration
VEHICLE	Hyundai Palisade
REPAIR HISTORY	Extensive front-end work on a prior visit; radar calibrated and passed, but the vehicle repeatedly reported an obstruction on the road. Bumper removed, sensor cleaned, cover replaced. Radar eventually replaced.
AIRPRO BRAND SPECIALIST	Reed Farrar
CALL DURATION	About 19 minutes
FINDING ON THE NEW RADAR	Physically aimed eight degrees down, straight out of the box, before any calibration was attempted
FIRST CALIBRATION RESULT	Passed, while still outside the manufacturer's vertical window
FINAL RESULT	Adjusted, recalibrated, verified with the bumper reinstalled, and confirmed across repeated key cycles
OUTCOME	Radar correctly aimed and calibrated; likely root cause of the original complaint identified

The Question I Ask on Every New Radar

I picked up a Palisade with a brand-new front radar installed and gave the technician the target measurements so he could get set up. Then I asked him the question I ask every time a radar is new: did you aim it?

He had not. No adjustments at all. The part went on the way it came out of the box.

That is not carelessness, and I want to be clear about that, because most people do the same thing. A new part feels like a correct part. It is clean, it is undamaged, it is the right part number. The assumption that it therefore arrives pointing the right direction is completely natural.

It is also wrong often enough to matter.

Eight Degrees

We ran it and it came back with an inspection failure, specifically on the vertical direction.

I told him what the requirement is. The vehicle has to be on level ground, and the radar module itself needs to sit within a narrow vertical window, from level to about two degrees. Not a lot of room.

He did not have anything to measure the angle with, which is a common problem in a busy shop. I suggested he use one of the angle apps on his phone, which is not ideal but is much better than eyeballing it.

He measured it and came back with eight degrees, aimed down. Eight. Against a window of about two. On a part that had come out of a sealed box that afternoon.

He started adjusting. It moves slowly. He cranked the screw ten times and it came down about two degrees. He worked it to four, then to two, and then went a little further to be safe.

The requirement. Level ground, and the radar module inside a narrow vertical window: from level to about two degrees.

The Pass I Wouldn't Take

We shot it with the bumper still off, since removing it takes seconds and leaving it off would not change the result. It passed, and the vertical angle came back at 2.4.

It passed, and it was still outside the window. That sentence is the entire reason this case study exists.

I told him it needed to come down further, under two, and to keep going. He was worried he had bottomed out the adjustment screw, but there was enough thread left.

Second attempt: 0.9 vertical, 0.5 horizontal. That is where it should live.

Then I asked him to put the bumper back on and let me shoot it once more, because I wanted to see the result in the configuration the vehicle would actually leave in. Horizontal moved by a tenth. Everything else held. Then I cycled the key several times to make sure nothing shook loose in the variant coding.

That is a finished job.

It passed, and it was still outside the window. That sentence is the entire reason this case study exists.

Why I Would Not Accept 2.4

I learned this the hard way, years ago, working at a dealership.

We would calibrate radars, they would pass, and the vehicle would go out. Then it would come back. The customer would drive it, the system would start misbehaving, and the vehicle would ask for the alignment again, because it had never really been right, it had just been close enough for the procedure to accept it on a stationary car in a quiet bay.

A radar calibration is performed under ideal conditions. The road is not ideal conditions. A sensor sitting at the very edge of tolerance in a bay has no margin left once the vehicle is moving, loaded, going over bumps, and looking at real traffic.

So when that first attempt came back at 2.4, I already knew what would happen. It might have gone through. It would probably not have stayed through.

What This Vehicle Had Already Been Through

While the bumper was going back on, the technician told me why the radar had been replaced at all, and this is the part I would most like other shops to read.

On an earlier visit, this Palisade had significant front-end work. The sport bar and a good deal of the surrounding structure were replaced. The radar itself was not replaced. It was reused.

They calibrated it. It passed. And then every time the vehicle drove off the lot, it reported an obstruction.

So they chased it. They pulled the bumper off. They cleaned the sensor. They replaced the cover in front of it. They did everything you would do for an obstruction complaint, because that is what the vehicle was telling them was wrong.

Eventually they replaced the radar. I asked him the obvious question: back then, when you calibrated the original one, was it aimed?

He was honest with me. He did not think he had.

Every symptom they chased was real. Every fix they attempted was reasonable. None of them addressed a radar that was pointing at the ground.

The Part That Probably Did Not Need Replacing

I cannot prove what the original radar was doing, because it is gone. But look at what we know.

A brand-new radar, on this same vehicle, on this same mounting, came out of the box at eight degrees down. There is no reason to think the previous one sat any better, and the previous one went in after major structural work in that area, which is exactly when mounting deviations happen.

It was calibrated. It passed. And then it complained on the road, over and over, in precisely the way a misaimed radar complains. Every symptom they chased was real. Every fix they attempted was reasonable. None of them addressed a radar that was pointing at the ground.

What that cost: a bumper off and on repeatedly, a sensor cleaned, a cover replaced, an expensive radar module bought and fitted, and months of a customer complaint that would not go away.

The step that would have caught it takes a few minutes and an angle gauge.

Why This Is Different

Nothing here required unusual equipment. The shop had the target, the vehicle, and the tools. What it required was somebody asking whether the radar had been physically aimed before anything else happened, and then refusing to accept a pass that was still out of specification.

A calibration tells you the vehicle accepted the sensor's position. It does not tell you the sensor is where the manufacturer wants it. Those are two different questions and only one of them survives contact with a road.

On every AirPro assist, a US-based Brand Specialist runs the procedure alongside the shop's technician and confirms the result against the OEM position statement.

REED'S NOTES

What I'd Tell Another Shop

- 01 A new radar is not an aimed radar.** They come out of the box wherever they come out of the box. This one was eight degrees off. Measure every single time.
- 02 Aim before you calibrate, not after it fails.** The measurement takes minutes. The calibration attempt, the failure, the teardown, and the retry take an afternoon.
- 03 A pass inside the procedure is not a pass inside the specification.** If the reported angle is at the edge of the window, adjust it. A sensor with no margin in a quiet bay has no margin at all on the road.
- 04 Get an angle gauge.** If you don't have one, a phone app helps. But buy the gauge.
- 05 When a vehicle keeps reporting an obstruction after a calibration passed, check the aim.** An obstruction complaint is what a misaimed forward radar frequently looks like from the driver's seat.
- 06 Verify in the configuration the car leaves in.** Shoot it with the bumper off if that is easier, then confirm it again with the bumper on.
- 07 Before you buy the part, rule out the mounting.** Replacing a sensor that was never aimed just gives you a new sensor that is not aimed.



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