

# No Start Condition XC90 V8

I acquired a 2010 XC90 V8 Executive Edition with 122K. You always wonder why a vehicle is sold and this was no exception. I secured a Carfax report to review the vehicle's service history. It spent 5 years traversing New Jersey roads and another 5 as a mom mobile in Raleigh. In addition to the usual maintenance (brakes, rotors, and oil changes), I noticed it was on its third starter, the most recent installed the week before I acquired it. A red flag, but the price was right.

## The Saga Begins

It was very low on fuel and I pulled up in line waiting for a Costco pump. As the vehicle ahead cleared the pump, I hit the starter and NOTHING. Click.. click went the solenoid. Another click and it cranked, pulled up to the pump, turned the motor off and proceeded to fill the tank. Upon entering the car, I turned the key and heard the familiar solenoid click..click..click.. The service attendant and I pushed it into the parking lot.

I returned a few hours later, attempted a start and heard the familiar click..click..click. After some fiddling with the wires to the solenoid and starter, it cranked. Once home, I removed all the cables and cleaned the salt induced corrosion from the connectors as well as the ground from the engine to the frame. The battery voltage was 12.5 and the connectors and posts were clean.

I recalled the seller stating the battery had been checked and it was good. Hum... she must have been experiencing the no start problem subsequent to the installation of the third starter. Yes the cables and connectors were corroded, but this was not the entire problem.

I acquired a remanufactured starter for \$232 and installed starter #4, an 8 hour task. The rebuilt starter I'd replaced was in the vehicle 10 days.

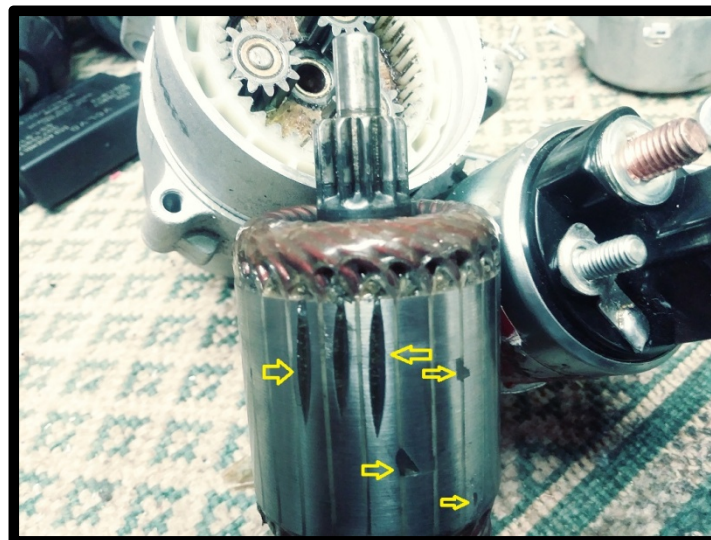
During the following week, I drove the vehicle 900 miles without problem. So, logic suggests the no start condition was related in large part to the starter with the corroded connectors a contributing factor.

## Forensic Analysis

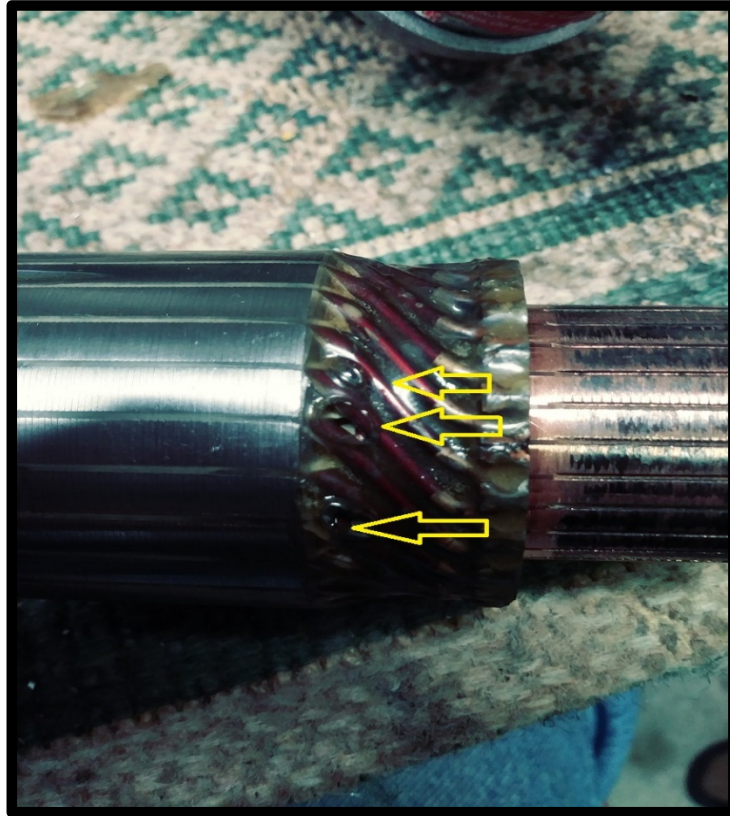
An examination of starter #3 disclosed wire bits in the armature housing and planetary gear assembly. Clearly, the windings were disintegrating.



Using a multimeter, the armature windings were tested, most were shorted and the armature windings had several gouges where the winding integrity had been compromised.



Heat Blistered Epoxy Insulation - high current load caused the wires to overheat.



#### Conclusion

The remanufactured starter was defective. The armature used in the rebuild should have been discarded. In my opinion, the Asian rebuilder's quality control was nonexistent.

The lowest price rebuild may not be an economic bargain, but it could be. Rebuilt electric components must be bench tested before leaving the parts store. This is why I insist the auto parts vendor test a rebuilt starter or alternator to verify worthiness and do not purchase these items online. Run 10 or more consecutive tests to bring the device to operating temperature. If it successfully completes 10 or more cycles, the likelihood it will function as intended.

## Epilogue

The starter was returned to the vendor who in turn sent it to the rebuilder. I'd plainly labeled the unit as defective so if it was returned to stock and sold to someone else, the defect notice would be clearly visible to the purchaser.



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He'll respond pleasantly to questions about your Volvo.