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## JAGUAR XJ6, SERIES III, 4.2 LITER NO START PROBLEM

## 1981 Jaguar Parts Technical Information part 3

November 2000  
By: Mike D. McNally  
(mcnally\_architect@hotmail.com)

I am not a Jaguar mechanic. I own two XJ6's a black '81, which I drive everyday, and a black '83 that I intend to restore. So not being a comprehensive Jaguar mechanic, I was baffled as to the cause of a deteriorating no-start problem. A problem, that I was to find out later, I had incorrectly diagnosed as a 'cold' start dilemma.

It should be mentioned here, I use a variety of sources for information, as does my fellow Jag enthusiast Darrell, to try and understand and correct various problems - some serious, some not so. I have a Haynes Repair Book, several Parts Supplier catalogs and use JagBits on the internet to read other owners solutions. Darrell and I have found and printed much info from the Internet as well, and he has some other parts catalogs that I dont, and has procured a genuine (though expensive \$49) manufacturers Repair Manual for this model. Between the two of us, we share information and by comparing written and visual repair descriptions, we are often able to figure most things out for ourselves. Sometimes, the local Jag dealers parts dept. can clear up a mystery by reviewing the diagrammatic and exploded assemblies (very useful tool).

It should also be mentioned here, we have found, through our personal experiences, that it is getting harder and harder to find knowledgeable people out there who know this model of Jag. Even a courtesy peek at the local dealers repair manual proved no better than my Haynes Repair Manual when trying to understand the window lift mechanism recently. In some cases, we find, we are becoming the local Jag experts unwillingly on some things. Its no wonder we see so many excellent condition XJ6s sitting and rotting away in Jaguar Heaven (a Jaguar Wrecking and Parts yard in Stockton, CA). Even a local Jaguar mechanic confirmed this, by saying the dealer does not charge flat rates on these models anymore. Its all hourly rates. Hopefully the mechanic is savvy enough in his diagnostic skills to track the problem(s) down without too much time having elapsed once your car is there!

Even with our resources, we most often find little or no information on some subjects and are forced to fend for ourselves. The window lift mechanism is a perfect and recent example. Our Haynes Manual was actually better at showing and describing the process, than was the dealers repair manual. However, both were extremely deficient in showing and describing what was necessary to remove and repair. This mechanism is virtually a Chinese Torture Puzzle of a contraption, that needs someone who has worked on it several times and knows the process and understands the rationale behind it without benefit of manuals.

With all that being said, I venture on with my no-start problem and our circuitous path to an eventual solution:

For a period of approximately a month, the engine became harder and harder to start, until one day, it wouldnt start at all. The engine would crank and eventually start at time though. Sometimes it seemed to start easier if I held the gas pedal down, half way while turning the ignition switch - the idea being, to get extra air into the mixture if it was a fuel rich problem, since we seemed to smell excess gasoline. This we later figured, was only a flooding problem, needing no additional air.

Initially, we checked the spark at the coil and found that the spark was sometimes absent. Thinking about this, we figured the problem was one of the five wires attached to the coil, and proceeded to clean, tighten and spray WD40 as well as replace some of the contacts with new ones. This seemed to work for a week or so and then the no-start problem returned just as before.

Still getting intermittent spark, we rightfully concluded there was perhaps shorted or broken wires that lead to the coil or other components that worked in relationship to this power source as being the fault. In other words, we assumed that we might have inadvertently restored contact in a wire by working on the coil contacts themselves.

Shorted or broken wires on this loom is not uncommon, as the locations of these few wires are located under the water manifold and right next to the engine. This is obviously a place where engine heat is trapped and can run very high. The Brits (still trying to get back at us for the Revolution), are very poor with their wire insulation and even worse at their artistic endeavor to provide a clean under-bonnet wiring at least in this vintage Jaguar. Incidentally, JagBits has a very nice article written about replacing XJ12 wiring that is also relative to other cars. Pictures too! As it turned out, once the pitiful cloth insulation was removed, many wires leading to the coil were cracked, with some hanging on by a few wire strands underneath. The plastic coating



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in almost all cases was hard and brittle. These were painstakingly and carefully replaced as far as I could safely do without replacing entire looms.

In an early incidence, trying to ascertain my no-start problem, I found the Temperature Sensor on the top of the water manifold to have a defective connection. While the car was running, I fiddled with various wire connections to see if a bad electrical connection elsewhere was the culprit. When I touched this rubber boot connection, the engine threatened to quit. Very carefully, with a sharp, straight edged razor, I cut away the brittle, now hard as plastic, rubber boot that protected the top of the connector. There are two wires leading into this connector. After carefully removing the spring retaining clip, I lifted the connector slowly, causing the engine to cease. This leads me to believe that ALL electrical wires and components MUST be connected and properly grounded in order for the total computerized system to properly work. To continue, I discovered that one of the two wires was hanging on to its contact by two strands. You can repair these connections by releasing the contact pin (flimsy formed sheet metal box-like pin connector), from the underside of the connector. Using a very thin, pronged-ended and flat, thin tool (we made out of a short piece of coat hanger wire on a grinder), to release the retaining tang or tab inside the connector. The individual connector slides out the top, where a new wire can be soldered back on to it. Make sure you careful grind down the excess solder so that the wire/connector will be able to re-fit back to the socket slot from whence it came. Also clean both male and female connectors prior to refitting. My friend uses WD40 for everything except sex (I hope), which is what we used here. I think a good electrical parts spray is also good for cleaning, followed by a douche of WD. We feel it improves the contact and minimizes future corrosion (besides, we both like the smell). Sometimes, Q-Tips are indispensable in tight areas for cleaning as well as compressed air spray, judiciously applied.

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Still not having corrected by initial problem, I replaced the following parts using those available from the 83 sitting alongside the 81 in my garage: the Temperature Sensor, Ignition Amplifier, three Fuel Injection Relays mounted on the firewall; the Diode Unit, the Cold Start Relay and the Fuel Pump Relay, the Fuel Injector Ballast Resistor and the Coil itself. I also went as far as to remove all of the air intake system down to the large air plenum, so that I could get at and check, the Throttle Switch located underneath the Throttle Valve Housing. Since the 83 ran extremely well prior to dismantling, I assumed that all of these parts were and still are functional.

The advantage of removing the entire air intake system (though as it turned out, unnecessary), was to check on the worthiness of the Throttle Switch (easy to check w/ a voltmeter in-place or off). Replace the hard and brittle rubber sleeve that connects the cast aluminum elbow to the Throttle Valve Housing, replace the corrugated rubber connector between the metal elbow and the Mass Airflow Sensor (MAS). And (to my friends dismay) highly polish the entire MAS as well as paint the MAS mount and replace the three rubber vibration isolators. While on this subject, let me say a few things in this area we have discovered. At a truck supply house, you can purchase a same I.D., fuel resistant, heavier walled rubber sleeve to replace the 2.5 tall rubber one currently used for a fraction of the cost of the replacement Jag part. I believe its used for diesel truck air-intake manifolds. You can purchase a 14 length for the same cost as the replacement \$26 of lesser quality rubber just 2 long. Cut it to length and provide your friends with replacement pieces from whats left! Also, Harley Davidson Motorcycles has a great 1.5 long rubber isolator for \$2 apiece where Jaguars part is \$12-14 each. You will need to purchase spacer washers, lock washers and nuts for each (18 of each total). The stud is vulcanized into the rubber, so no stud is necessary. Polishing the MAS was simply a matter of lots of elbow grease to clean first, then polish using a combination of and 'Scotch Brite' scouring pads first, then 4000 steel wool in conjunction with 'Mothers' aluminum polishing paste. After painting both the elbow and MAS mount w/ matte black heat resistant spray paint and polishing the MAS, it looks really smart now. Also, while having these components out, I was able to clean and polish the metal side panels on the fender which, unless corroded, are of the same paint quality as the exterior surfaces and clean / polish nicely (another good article in JagBits about this). I checked my K&N air filter while off as well and cleaned the big cylinder all around.

Once these components were replaced, we were still baffled by our no-start problem and felt we were no closer to solving the mystery. We did notice, while cranking the engine, a surge of fuel pressure, in the short fuel injector rubber supply line just before the engine almost started. This led us to believe, that we had a possible no-fuel problem perhaps caused by the fuel pump located in the rear. Once again, I cannibalized that part from the 83 (easily followed Haynes directions on this and total time maybe 30 mins. for both) and swapped it out with the 81. No difference! Hmmm and Grrrrrr!

A friend and mechanic also came over and pointed out, once again, our intermittent no-spark situation at the coil. He then took a short piece of wire and placed it between the positive terminal on the battery and the positive terminal on the coil while I turned the ignition switch to the start position. This bypasses the Starter Relay on the firewall, and you can hear it click each time the wire is touched to the battery terminal in that relay. Guess what? IT STARTED! Though I was to find out later, this was only a mere coincidence.

With this knowledge in hand, I now assumed I definitely had a shorted or severed wire in one of the two wires coming off the positive terminal of the coil. At this point, with the engine nicely running, I was very optimistic about solving my no-start problem! In replacing these two wires, I decided, that I would repair or replace entirely (where possible), all five wires coming into the coil, thinking that it was prudent, given their cracked appearance, etc. However, I was loath to enter into and / or replace the small loom that collects in the right front of the engine just before it separates to the front (Alternator and A/C Compressor) and goes back underneath the water manifold to a much larger loom and 9-pin connector. I did remove, clean and WD this 9-pin connector at the rear, while there, being ever so careful as to not upset the delicate British wiring monstrosities nearby. While I'm sure these repaired wires were beneficial in the overall scheme of things, it still did not solve my problem.

Note: A 'trickle' charger to recharge your depleted battery from numerous attempts at starting, doesn't hurt having here!

Incidentally, manual wiring diagrams we found concerning these five wires and where they go, are hard at best to discern and non-existent at worst, to find all five wire functions / directions. To complicate this, later model

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And I believe all coils on this model have five wires never the less. Between Darrell and I, we do have five Series III engines to compare and discover directions. There are three wires on the negative inboard side. We accept credit cards. Ignition Amplifier, one wire to the Ignition Amplifier, one wire to the front loom that leads to the Alternator. That leaves the two wires on the positive terminal. One is (W) to the Ignition Amplifier and the other is to the front harness leading to the Ignition Switch. Since my car is old and has been worked on before, I'm not positive of all the color coded wires and I don't want to truly match those noted in the manual's smallish wiring diagram.

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Tip: Take to photocopy shop and have enlarged the bigger the better.

Having done this, the car still wouldn't start. I once again tried to show my friend Darrell how the other friend bypassed the relay and directly hot-wired the positive battery terminal to the coils positive terminal and thus started the car. Before when I showed him this, it had failed to start as it easily had done before. No clicking sounds in the cold start relay either. Now, a second time, with him behind the wheel, it did click and did start up as before. He noticed, as I had early in the process, the diagnostic lights on the dashboard came on just before it started. At times they did not. Also, I had earlier noticed, that the car wanted to start just at the point I was releasing the grip on the ignition key, letting the spring mechanism inside the switch return itself to the on position. At this point, we began to feel the problem all along, just might be the Ignition Switch itself. We purchased the electrical unit from the local dealer (\$65), fairly easily installed it (Albeit with Houdini positions) and it immediately started!

Lastly, the car ran rough for about 20 or so miles while driving it at high speeds. Upon checking all of the plugs, we found the number 1 plug to be discolored. We cleaned and swapped no.1 w/ no.4 plug and ran again at high speeds. Eventually, the engine smoothed out and ran better than it has in years. The roughness we suspected was caused perhaps by a sticky or gummed up injector on no.1, due to all the unburned gas and two weeks of sitting idle. Not as we had first surmised was either a bad spark plug wire or plug. I am using newly installed Bosch Premium wires and NGK plugs. I also have a fairly new distributor cap and points, which we also double-checked in our laborious process. Once again, I am enjoying my black beauty!

#### Postscript:

After numerous attempts at starting the engine n running gasoline through, etc., the car ran extremely rough for at first. We took it into the countryside and put at least 10 high-speed miles on it, before it smoothed out. It seemed to run very smooth afterwards, except for an occasional and short-lived roughness (like running on five cylinders). I have put a bottle of 'fuel injector cleaner' into the tank and hope, that by the time I have driven a tank's worth, my suspected 'sticky' fuel injector will be okay. A blue film on the rear bumper chrome makes me suspect it is running too rich. Any ideas? I am going to try and add the capacitor I have read about in Jag Bits and see if that removes some roughness. The car is now 20 years old!

Jagbits Note: The capacitor mod which Mike refers to is from the Jag Lovers discussion group. The mod, along with many others, is available for free and is described in detail at the [Jag Lovers web site](#).

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