Jaguar XK8 (Jaguar Codes X-103 and X-104) 2003-2006MY Rev K dated 09/18/18 by **Gary R. VanRemortel** vanremog@aol.com. Welcome to an in-depth review of the Jaguar XK8. I've tried to be complete, but concise. Parts diagrams are available at www.sngbarrattusa.com and www.terrysjag.com. Technical Service Bulletins often apply to more vehicles than Jaguar acknowledges.

The 2003-2006MY-XK8WorkshopManual.pdf available from JTIS as a 47MB CD covers **VIN A30645 to A48684**. Most routine maintenance items are simple DIY tasks, but others require specialized knowledge, proprietary tools and/or a lift. My XK8 is a 2005MY North American (Left Hand Drive) convertible with 128Kmi. Because changes made as model matured have led to errors and omissions in both Jaguar and aftermarket documentation, P/Ns should always be confirmed against your VIN prior to ordering.

Wheelbase / Width / Track / Length / Height: 102" / 71" / 61" / 187" / 50"
Fuel Capacity: 20gal
Curb / Gross Weight: 3993 lb / 4783 lb
Coefficient of Drag: 0.36
Stopping Distance (60 to 0mph): 118ft
Minimum Turning Radius: 18ft
Max Speed (ECM limited): 155mph
Acceleration (0 to 60mph): 6.3sec
Avg Fuel Consumption: 19mpg
Engine: AJ34 4.2L (4196cc [256CID]) DOHC aluminum alloy 32-valve 90° V8
Bore x Stroke / Compression Ratio: Ø86x90.3mm / 11:1
Max Power / Max Torque: 294hp SAE @ 6000rpm / 303 lb-ft SAE @ 4100rpm
Oil Circulation Volume @ Max Pressure: 10gpm @ 66psig
Alternator: 130A w/S6 Pulley
Transmission: ZF 6HP26 6-Speed Automatic
Brakes Front / Rear: Ø325x28mm vented slotted drilled disc / Ø305x20mm vented slotted drilled disc
Wheels Front / Rear: ALY59794U85 Ø19x8" / ALY59795U85 Ø19x9" Chrome Atlas w/35mm Offset
Lug Bolt Circle / Thread / Socket Size / Torque: Ø4.75" [Ø120.65mm] / ½"-20 / 7/8" / 75 lb-ft

Overview
The Jaguar XK8 is one of the most esthetically pleasing and superb GT cars in the world and can be a great daily driver. This modern classic always draws attention and a used one in great condition can be a bargain IF you can continue to maintain it. It is not an overly complicated car and lack of supercharger means easier access for engine maintenance than the XKR. Many owners don't put a lot of miles on their Jaguars, so they often suffer effects of time before effects of mileage.

Jaguar discontinues part support 10yr after a model ceases Production. Parts not common to other models become scarce in the supply chain and some repair shops install only OEM parts for liability reasons. Buying parts online and doing routine repairs/maintenance yourself is the way to go. Take digital photos during disassembly as needed and place small items and fasteners in Ziploc bags labeled for each subassembly. **Cover all openings as soon as they are exposed and DO NOT let fasteners and/or pieces of connectors fall into unseen areas.**

Be careful starting threaded fasteners into aluminum and do not over-torque, as you can easily cross-thread or strip metric threads. Thread engagement should be ≥3 times fastener diameter (twice that of fasteners into steel). Threaded insert repair kits are available from Helicoil. Unless otherwise stated, torque in factory literature is for dry threads. If I choose to apply anti-seize compound to structural bolts into steel (items having a propensity for rusting and/or seizing in situ), I reduce torque by ~30%.

When disconnecting Normaquick V2 RSS plastic pipe connectors, it helps if parts are warm or their retention features can crack. **Always remove O-rings/seals using a soft smooth non-marring tool and lube them prior to installation. I use Krytox RFE.**

A Sullivan Products Glow Fuel Bulb with a 6" length of RC fuel line is used to suck old fluid out of brake and power steering reservoirs. For safety always chock opposing wheel set and use well placed jack stands with your trolley jack. Six ton rated Blitz Rhino plastic ramps raise car 6". Ensure your tool kit (in boot beneath spare tire) contains a Towing Eye HJA4333AC (M20-2.5 righthand thread) often misplaced at initial dealer prep. The terms left/right used herein are relative to driver's seated position.

Clearing existing ECM Adaptations can expedite adaptive learning process for certain functions. Ref TSB 303-01.

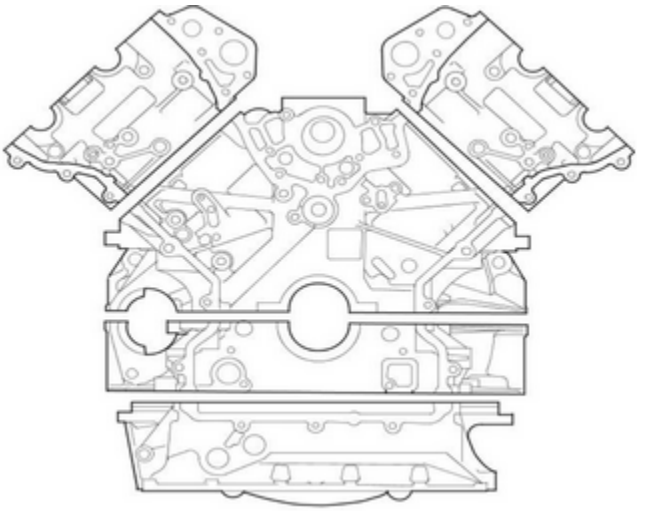
Body

These, the last steel bodied XKs, have high-strength steel members assuring a rigid body structure and crumple zones to absorb impact forces. US vehicles have damper type bumper mounts to meet low speed impact regulations. Inadequate room between bonnet and engine prevents fitting a proper cross brace, but triangulation braces run from firewall to towers. Convertibles add cross-bracing under engine bay, stiffening members in rocker panels and a reinforced windshield frame to reduce scuttle shake. Body-in-white sits on a modified XJS floor-pan that is both 25% stiffer and lighter, consisting of 30% fewer panels. High-strength steels are used in panels subject to highest loads (approximately 15% of body), including front longitudinal members, seatbelt anchors, suspension mounting points, bumper mounts and side impact door beams. Watch for paint cracking at joint in rocker panels, especially on convertibles, indicating possible structural damage.

Engine

The Jaguar designed and manufactured closed deck (no valley pan) AJV8 engine has 5 plain bearings, is compact, lightweight (441 lb) and strong running to its 6400rpm redline. Thrust washers are provided either side of center position and crankshaft is spheroidal graphite cast iron. A structural sump mates to bedplate, which mates to cylinder block providing exceptional rigidity, durability and refinement. Unlike the venerable Jaguar V12, the AJV8 torque curve rolls off noticeably below 2000rpm, but power delivery is strong and smooth. Krebsoge sinter-forged steel connecting rods are fracture-split.

The original AJ26 4.0L engine evolved into the AJ34 4.2L in 2003MY, improving performance, emissions and economy with the few remaining issues having easy DIY fixes. Nikasil cylinder problems in AJ26s (due to high sulfur fuel of the era, combined with excess moisture brought on by short trips) led a return to cast iron sleeves. BSFC is a very efficient 0.40 lb/hp/hr and warm cylinder compression is 190-210psig. Cold starting idle is ~1200rpm, dropping to 650rpm <45sec. Ref TSB 303-12.

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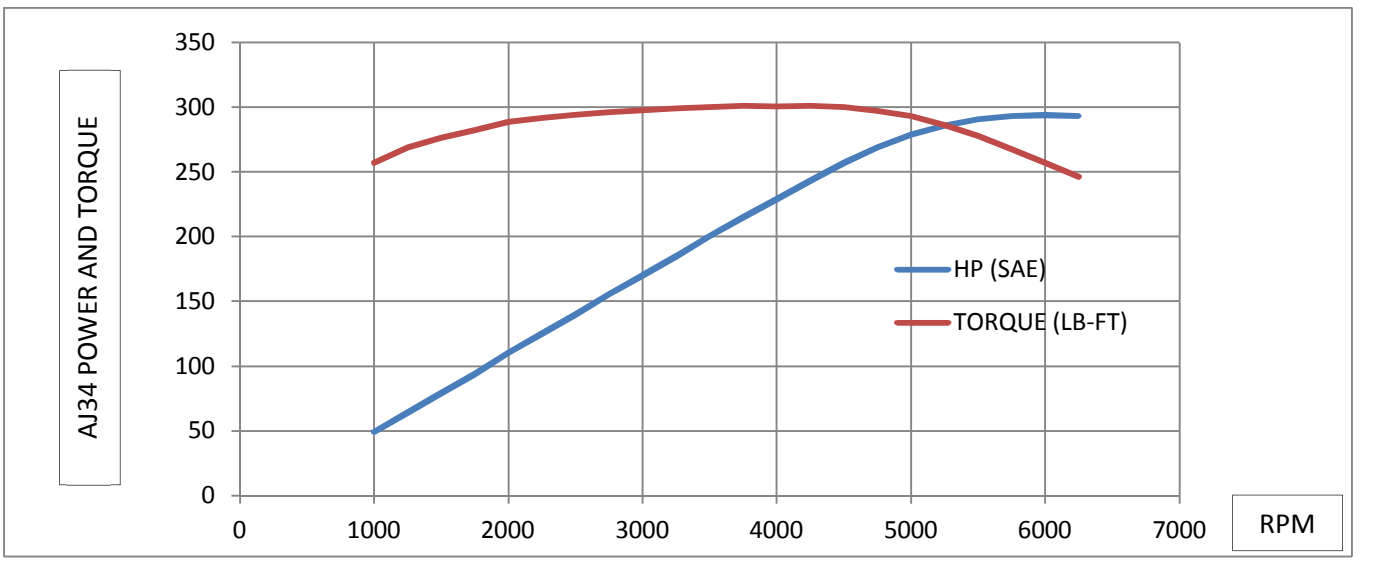

AJ34 POWER AND TORQUE
350
300
250
200
150
100
50
0
0
1000
2000
3000
4000
5000
6000
7000
HP (SAE)
TORQUE (LB-FT)
RPM

Valve Train
Morse Hy-Vo (inverted tooth) primary chains and aluminum-bodied chain tensioners now better handle abrupt torsional load reversals in the Variable Valve Timing (VVT) equipped engine. Intake cams rotate up to 48° in 0.7sec. Gun-drilled camshafts, shimmed-for-life inverted bucket lifters and light (Ø5mm) valve stems keep valve train mass and cam loads low. Intake and exhaust valve axes are 28° apart in the Cosworth designed pentroof heads. Valve lift is 9mm and clearances are .008" intake, .010" exhaust. Jaguar specifies Premium (91 RON) unleaded fuel.

Ignition
A Denso 32-Bit electronic management system fires Denso single bolt pencil coils (differing from those on the 4.0L). Starting 2003MY, cylinder designations meet ISO standards, Bank-1 (right side) being odd cylinders 1, 3, 5 and 7 and Bank-2 (left side) being even cylinders 2, 4, 6 and 8, front to back. Firing order is 1-2-7-3-4-5-6-8. Ref TSB 303-29. Any oil found within plug wells is either leaking from valve cover seals or plugs were not properly torqued. Changing plugs is an easy DIY job, taking ~45min.

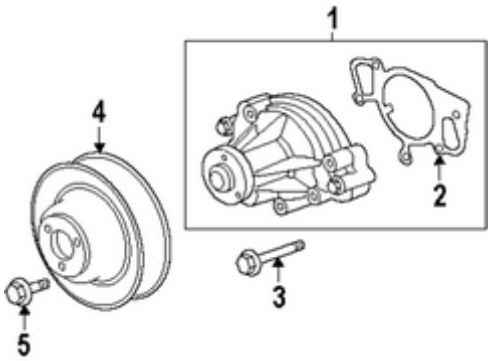
Loss of ignition due to coil or spark plug failure on any cylinder allows unburned fuel to enter potentially causing damage. If at any time you get a flashing MIL, stop immediately and isolate the problem. Disconnect fuel injector connectors one at a time with engine idling and check for rpm drop. Leave unresponsive cylinder(s) disconnected if needed to limp home on reduced power. 4-pin coils allegedly send firing confirmation signals back to ECM with the capability of shutting down fuel injection to protect catalyst, but I wouldn't tempt fate. There is an inverse relationship between plug gap and coil life, but for .040" plug gaps, coils should last 120Kmi. If one pencil coil has failed, others are about to.

Lubrication
I change oil and filter every 5Kmi, but IMO one could safely go 7.5Kmi. Pennzoil Platinum 5W-30 in 5qt jugs for $22 at Walmart and Mahle filter for $17 on Amazon. Cast-iron sleeves experience more oil loss than Nikasil bores. I use a FilterMag SS300 and a Fumoto F106SX (M14-1.5 thread) oil drain valve. Never let oil level get low — if LOW OIL lamp ever comes ON, STOP and top off immediately. Tracer Products sells a kit consisting of dye and black light if you develop leaks. 4.2L cars all have oil coolers. Oil hoses running from front of engine should be inspected regularly and replaced every 10yr. Ref TSB 303-S846.

Cooling
A low volume, split flow, high exchange rate cooling system allows reaching operating temperature (>190°F coolant temp) in <4min and block is claimed to vary <4°F corner to corner. Better thermal insulation than light aluminum shields should have been used to protect cabin from engine, catalysts and center silencer.

Coolant is Extended Service Life Organic Acid Technology (OAT) ethylene glycol (Dex-Cool colored orange, meeting WSS M97B44-D). Ref TSB 100-16. I pressure test system cold at 14.5psig (1bar) using a $70 Harbor Freight #69258 tester. ORANGE #5 adapter is a perfect fit without having to pinch off atmospheric recovery tank hose. Black #7 adapter can be used to pressure bleed brakes as long as reservoir fluid level is kept topped off. Radiator should be replaced around 180Kmi. Expansion tank is robust, but magnetic float sensor is pretty much toast by 90Kmi. To release sensor connector, push center of wire clip.

Check for coolant seepage between front and rear bearings and around gasket. A black nylon 6/6 impeller on original 4.0L pumps degraded in short order, leading to some overheated engines. Ref TSB 303-60. Impeller was changed first to black PolyPhenylene Sulfide (PPS) and then to white PPS. 4.2L engines all got good pumps, but since even PPS impellers have been known to spin on their shafts, aftermarket aluminum impeller equipped pumps became available. Pumps last for 120Kmi, should be supplied with a quality gasket and changing it is an easy 1hr DIY job. A vestigial O-ring between gasket and block shown in some literature is no longer required, but doesn't hurt. Change serpentine belt, thermostat, pump, check idler/tensioner pulley bearings and inspect Outlet Pipe Assembly at the same time. Jaguar recommends replacing pump pulley bolts AJ81256 (Find No. 5) because they Torque Turn to Tighten them. I used Loctite 242 and torqued them normally for their size (there's no way this is a critical structural fastening since the hub OD and centering disc take the entire axial load).



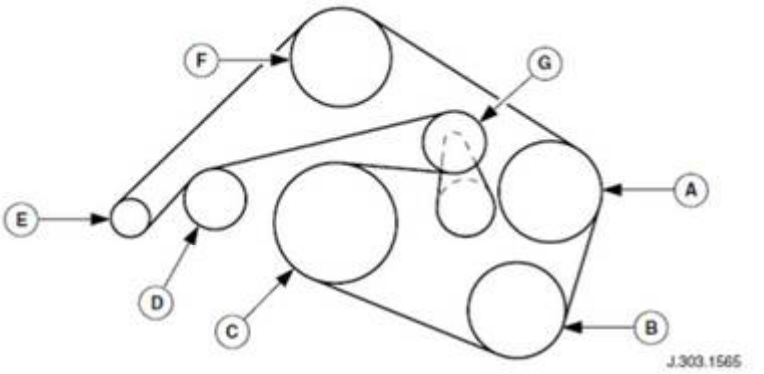
The new Outlet Pipe Assembly on 4.2L engines consists of three separate glass filled nylon moldings (Thermostat Cover, Pipe and Duct), a four-piece thermostat, temperature sensor and seals. Examine it for cracks regularly and replace every 60Kmi. There is no aluminum version of this new assembly. Remove intake manifold front plate to improve access to duct bolts and replace them with Torx C2C42062 to make future access easier. Upon reassembly, seat all bolts lightly to compress seals, torque four pipe assembly bolts, draw plastic bosses at top of pipe assembly and duct together with a spring clamp then torque duct bolts. Outlet Pipe Assembly replacement takes ~1hr. OEM "constant tension" spring steel hose clamps should always be replaced along with large radiator hoses.

A 14.5psig (1bar) capped expansion tank combined with an atmospheric recovery tank low in right front wheel arch ensures pressurized portion of system never has an air pocket which is important in Dex-Cool applications. Keep atmospheric recovery tank >¼ full or plastic "straw" can un-port (suck wind). If air is getting in, either there is no coolant in atmospheric recovery tank, "straw" has a leak, pressure cap is bad or there is a leak elsewhere that must be found and fixed. To make it easier to assess atmospheric recovery tank state of fill, a Ø2" hole can be cut in rear of wheel arch liner ~8" up from rocker panel and a removable plug installed. To inspect, remove plug and side repeater lamp, then shine a penlight in. An occasional slight glycol smell upon shutdown with this system doesn't necessarily mean you a have a coolant leak, since recovery tank is vented to atmosphere beneath chassis. If LOW COOLANT lamp ever comes ON, STOP immediately, top off and ensure recovery tank is >¼ full.

A plastic burp line runs from thermostat pipe to expansion tank and it sees substantial engine heat. I replaced it with 5/16" [8mm] ID reinforced silicone hose from Z1 Motorsports. Replace short hose segment connecting rear nipple of expansion tank to plastic tube going to atmospheric recovery tank with same hose, as OEM hose is prone to swelling and leaking here. Valley hoses supplying engine coolant to heater matrix via octopus hose run in hot V-space. Supply Hose runs right side and Return Hose on left. Replace small coolant lines to EGR valve and throttle body when you replace valley hoses. Knock sensors sit at edges of V-space and can be permanently damaged if immersed in coolant.

Main radiator is divided into coolant and transmission fluid portions. A thin A/C radiator core sits in front of main radiator. Low in front is a power steering fluid heat-exchanger. Radiator drain-plug Dorman 61138 is located at bottom of right end cap facing aft. It is molded black polyethylene with M10-1.5 threads and has a rubber seal and barbs to retain it in port when unscrewed. Two rather fiddly square head bolts hold top of fan shroud against radiator. Wedging a bit of foam rubber or double-stick tape between their heads and molded radiator slots can ensure they stay put when removing fan assembly.

Serpentine Belt
The 4.2L engine uses a single .82”Wx91”Lx6 rib serpentine belt. Spring tensioner pulley is released using a 3/8” square drive bar. Ref TSB 303-02. Replacement is an easy DIY job taking <30min. Tensioner and idler pulley bearings are good for 180Kmi.



A = Power Steering Pump
B = Air Conditioning Compressor
C = Crankshaft Pulley
D = Idler
E = Generator
F = Coolant Pump
G = Tensioner

Induction and Crankcase Ventilation Systems
Induction snorkel in right front quarter panel feeds into lower air box, up through filter, out upper air box w/integrated MAF sensor, into induction tube C2N1041 to rear throttle body. It is fairly restrictive due to bellows and turns. Reusable filters like K&N 33-2190 are available for stock air box and the Mina Gallery Cold Air Intake kit may be an improvement over stock arrangement. Clamp bosses on lower portion of OEM filter box XR823351 can crack from combined effects of clamp stress and engine heat. This portion of XK8 air box is unaltered since day one and used boxes can still be had for <$50 from salvage yards. The $30 M6-1 threaded Instrumount URO EAC8130 anchoring air box often tears/separates with age. If your air filter is doing its job, MAF sensor only needs cleaning every 90Kmi. Some owners have turned their fog lamp openings into ram air ports. Bonnet liner/insulator blanket sags in its fastenings over time and, if induction tube is not fully seated, bellows section can be damaged. Inside surface of intake manifold steel front cover can become pitted in seal contact area causing a vacuum leak.

All air going into modern engines must be metered, so ensure all plumbing and seals (including dipstick/breather pipe O-rings and oil filler) are tight and can hold vacuum. Cam covers have internal mesh filters, there are no longer restriction orifices in ports and the full and part load breather functions have been reversed from 4.0L engines. A 30” Norma V2 NW15 part load breather pipe AJ88622 on Bank-1 connects control valve AJ87773 to intake elbow, providing high vacuum at partial throttle. A 25.5” Norma V2 NW10 full load breather pipe AJ87221 on Bank-2 connects to induction tube providing vacuum at full throttle (32” AJ87222 and TBD” AJ87233 pipes fit XKR engines). OEM corrugated breather pipes embrittle in engine heat and Jaguar switched to heavier smooth bore pipe. I believe I bought the last smooth bore AJ88622 in the free world from Norway before I started making my own. E-mail me directly if you need replacement breather pipes using either corrugated or smooth wall PA12 tubing. My corrugated pipes are heavier wall than OEM, yet more flexible. I recommend smooth wall if you are incorporating a catch can, because rubber joiner hoses clamp to them more securely. I currently only have right angle Norma V2 NW15 connectors, but if your connector ends are in good condition, they can be reused.

Crankcase ventilation pulls suspended oil droplets into intake, making a mess and degrading combustion in the process. Most European cars have cyclonic devices to wring out this oil, but not our XKs. Corvette owners are keen on installing Mann Hummel Provent 200 oil catch cans, but they are much too large for our limited space. Smaller Provent 100 (P/N 3931070792) $80 from www.dieselfiltersonline.com is ideal if modified and connected as follows:

1. Remove stock coalescing filter
2. Fit a circle of expanded metal screen to create a sump in bottom cone
3. Place a stainless steel pot scrubber pad on top of screen
4. Defeat top vacuum shutoff valve by cutting center out
5. Seal up side pressure relief valve by preventing diaphragm from opening
6. Seal cap/cover permanently with High Temperature RTV
7. JB Weld a right angle ¼" barbed fitting into drain port facing aft
8. Run reinforced silicone hose out to a remote drain valve
9. Remove old OEM part load breather pipe AJ88622
10. If breather pipe is smooth bore, cut at rear bend to make two sections
11. If breather pipe is corrugated, make two custom smooth bore pipes using old connectors
12. Install Pegasus reinforced silicone ¾" ID hose joiners of the appropriate configuration
13. Mount unit to engine bay heat shield

I drain it while warm, trap ~2oz at each oil change and intake stays completely dry.

I like having a vacuum gauge port for taking general engine health readings (MAP + VAC = BARO for naturally aspirated engines). Cut booster pipe and graft in a capped ¼" barbed brass tee. **Just make absolutely certain that it can't leak or brake booster power will be lost and there is no vacuum accumulator in the XK8.** High temperature black silicone nipple caps are available in a wide range of sizes from www.034motorsport.com.

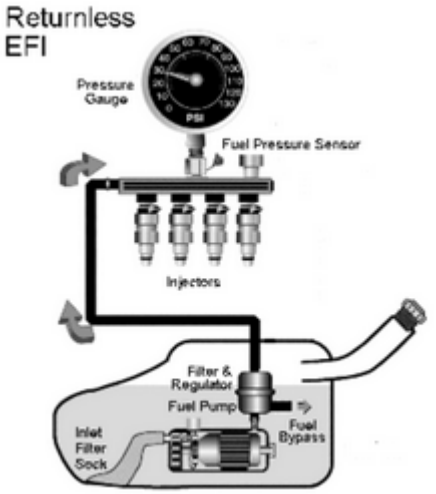
Booster pipe fitting C2S15816 at intake elbow consists of three pieces. Brass ferrule pressed into aluminum casting is best left alone unless obviously damaged, but both the black plastic locking insert and O-ring should be replaced every 90Kmi due to heat embrittlement. O-ring seals against plastic pipe OD and serves as a spring on which insert release tines bear. Embrittled parts can break up and get sucked through engine. Higher temperature 8.5mmIDx2.5mm Viton O-rings are available from McMaster-Carr. If throttle body is removed from elbow, booster pipe disconnected at passenger side firewall compartment and port inside intake elbow plugged with your finger, you can test for leakage at this fitting.

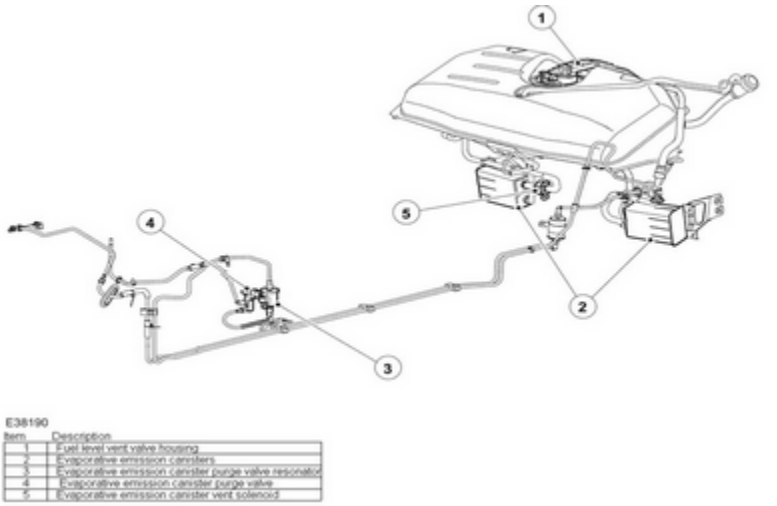
Intake manifold removal sequence is as follows:

1. Pull F5 in boot fuse box
2. Remove engine cover
3. Remove induction tube
4. Remove breather pipes
5. Unbolt coolant expansion tank
6. Disconnect sensor, fuel injector, EGR, throttle body and MAP connectors
7. Remove throttle body from intake elbow
8. Unbolt EGR valve from rear of intake elbow
9. Remove vapor recovery pipe
10. Disconnect fuel line at fuel rail
11. Disconnect booster and vapor recovery pipes from intake elbow
12. Unbolt and remove intake manifold w/fuel rail

Fuel System

Beginning in 2003MY a returnless fuel system was adopted from Ford and a new plastic jacketed vane pump C2N1146 with integral float sensor and particulate filter sock now sits in the tank. Submerged fuel pumps rely on fuel in tank for cooling, so ensure there is always plenty. Do not overfill tank or you may foul vapor canister system. Advantages of returnless systems are lower vapor loss, simpler fuel line routing with fewer opportunities for leaks. Reduction in circulated volume allows for a smaller inline filter but returnless systems are less resistant to vapor lock. Fuel Pump Module (FPM) tries to maintain 55psi, relative to MAP. Intake elbow has a spigot for a Norma NW8 pipe coming from vapor recovery canisters mounted behind rear axle. Expect exposed rubber hoses connecting canisters to crack and leak over time.





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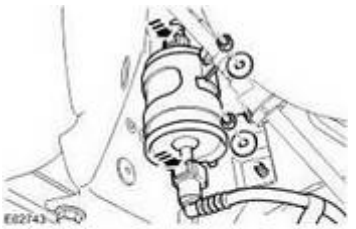
Item	Description
1	Fuel level vent valve housing
2	Evaporative emission canisters
3	Evaporative emission canister purge valve resonator
4	Evaporative emission canister purge valve
5	Evaporative emission canister vent solenoid

Anytime engine is shut down and started back up with insufficient time to cool, vapor can form in the dead-ended fuel rail. Winter blend fuels increase this tendency. Not much can be done to insulate steel fuel rail from conducted engine heat except to keep cooling air flowing through engine bay. If you get a lazy fuel injector, engine may start but idle poorly. A scan tool may show any DTCs P0301 through P0308 and, if it happens again over a short period of time, you might get a Malfunction Indicator Light (MIL or Check Engine Light) and DTC P0316. Injector cleaning and flow balancing may be called for.

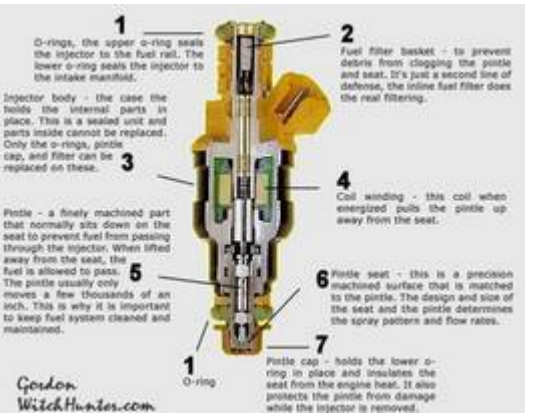
There is no longer a fuel pump relay. With ignition key ON, 12VDC is supplied via F5 in boot fuse box through Fuel Pump Module (FPM) to pump. Engine Control Module (ECM) polls pressure AJ87977 and temperature LRA1600BA sensors on right side of fuel rail and commands FPM to duty cycle ground circuit of fuel pump (between 5 and 50%) thereby regulating pressure.



Fuel filters for 2003-2005MY have changed substantially, although many parts suppliers haven't yet gotten word. Instead of threaded hex nut O-ring sealed ports, newer style filters have Ø5/16" [Ø8mm] straight tubes with raised circumferential ridges that capture radial spring clips of Norma-Quick quick release fittings. A plastic tool like Lisle 39410 must be driven firmly and deeply into fittings to release.

First pull F5 in boot fuse box and start car to reduce fuel line pressure. It helps immensely if you get back end of car up on jack stands and remove left rear wheel. Two 4" long ¼" square drive extensions snapped together are needed to reach 10mm headed nut holding filter bracket to underbody before releasing fittings. Fuel will not siphon out with filter disconnected, provided pump is powered down. A bit of fuel in forward line will blast out, but volume is small. Flow direction is shown on filter and rimmed end faces down and forward. Any supplementary plastic barbed fittings supplied with new fuel filter may be discarded. It's ~45min job, with reassembly being reverse of disassembly. Ensure quick disconnect fittings are snapped back together properly before you reinstall F5, re-pressurize system and check for leaks.

Near fuel rail is an inline Pulse Damper to smooth out pressure variations (pulses). Disconnect fuel line at rail by un-hooking safety clip and use a ½" fuel line tool (310-D005 or equivalent) to release quick-disconnect fitting. Ensure Schrader valve core on rail is well seated. Unplug sensor connectors and remove entire rail with injectors still attached. On the bench remove each clip and injector from fuel rail, marking them with cylinder numbers for reference.



2003-2006MY US market XK8s use orange Denso fuel injectors Jaguar AJ82353, Denso 195500-4280. These 20 lb/hr @ 43.5psig (3bar) injectors (also used by Land Rover, Ford and Mazda) have improved targeting and 12 teeny tiny orifices you must keep fastidiously clean. They are considered to be high impedance (13.6Ω) and take EV6 connectors. Injector orifices and pintles accumulate varnish over time and valve action can become sluggish. Inlet filters can be removed by chucking a #8 sheet metal screw in a vise, screwing injector over it and gently rocking back and forth to extract. www.mrinjector.us has new filters. If you suspect individual injector firing issues, a Noid light (Lisle 27800) or current limited LED can confirm that turn on pulses are being received from ECM.

When cleaning injectors, keep volatile solvents contained, ground all static sources, keep sparks away, use a safe/low TURN ON voltage and lower than 80% duty cycle to avoid overheating coils. When an injector shuts OFF, back EMF from collapsing flux field produces a sharp spike, so use a back biased (cathode to +V) catch diode such as 1N4005 in parallel with injector in any switched circuit as a discharge path. New pintle caps Injector-Rehab 2-252 should be seated and filters reinstalled using an arbor press. Replace 8mmIDx3.5mm upper and 9mmIDx3mm lower Viton O-rings. Reseat each injector individually into rail and reinstall retention clip before reattaching to intake manifold and final leak testing. There are many good injector cleaning services using ASNU or similar bench flow matching systems. WitchHunter, LinderTech, AUS Injector, MrInjector and Injector-Rehab all do reputable work.

Throttle

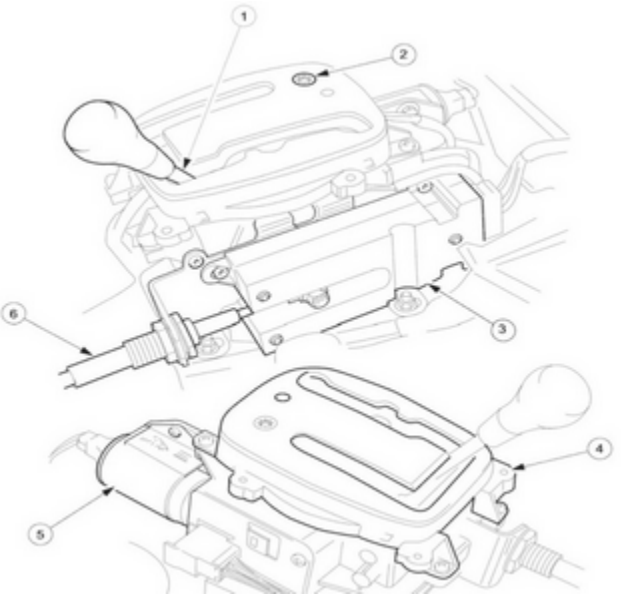
The 4.2L throttle body C2C20541 is all new, simplified and pretty trouble-free. Ensure you disconnect battery before cleaning throttle body with B-12 and ECM will automatically adjust for butterfly position once everything is powered back up. Electronic drive-by-wire throttle gives smooth accurate power delivery, although an overly robust pedal return spring continually fights you. There is a special tool and procedure in the XK8 Workshop Manual for adjusting cable tension from pedal up to sender. Upgraded custom pedal covers are available online from Ultimate Pedals.

Transmission

The ZF 6HP26 gear box is quite robust and has found its way into many brands of luxury sedans and sporting cars. A single planetary and dual planetary (Lepelletier) gear set provides six forward gears (ratios are 4.17, 2.34, 1.52, 1.14, .87 and .69) supporting engines up to 444 lb-ft of torque. This box incorporates Bosch Mechatronics and there is substantial shift lag. When placed in reverse (ratio 3.40) ECM limits maximum throttle body opening to 18°. Fluid and filter/pan should be changed every 60Kmi.

Like many modern transmissions, there is no dipstick, Jimmy. Always confirm you can loosen fill plug before you remove drain plug. Much less than full capacity is accessible during filter/pan drainage (balance being trapped in torque converter, lines and cooler). Refilling this way involves pumping fluid, while running engine, shifting through all gears, measuring fluid temperature, pumping more fluid, until fluid drips out, and then installing fill plug, all while working around hot exhaust pipes. Others claim a better result is achieved by flushing thru cooler lines. Each method has its pros and cons.

Original Torx T27 headed filter pan fasteners on these boxes often cammed out during their first filter change, so ZF switched to T40 driving recesses. If you still have T27s, buy 21 CTSC 0736 101 486 01 and install with anti-seize compound. Connector sleeve CTSC 0501 216 272 01 should also be changed at the same time. Examine magnets and filter/pan for swarf.



A screw/plug (Find No. 2) on shifter surround must be removed and shifter lockout defeated to limp home with a failed brake pedal position switch. After a time, gearshift interlock solenoid (Find No. 5) can slap against the housing, so I put a block of EPDM foam inside to soften pawl stop. Manual shifting made clunks in console, so I packed surround internally with ½" thick open cell urethane foam.

In Sport Mode (shifter surround button UP and lit) higher revs are achieved before hitting shift points to suit a more assertive driving style and J-Gate allows selecting a lower limiting gear for better engine braking in town or on mountain roads. Linear Switch Module (Find No. 3 above) begins to get intermittent in higher mileage vehicles and manifests as a non-operative Sport Mode (and no Sport Mode light), no J-Gate functionality (nor manual gear lights) and sluggish automatic shifting. It eventually resets itself after a few drive cycles and the situation is apparently caused by switch contacts sending confusing signals to TCM. If it becomes a chronic condition, LSM needs replacing. OEM shifter knobs are pretty pedestrian looking, relative to rest of cabin, so check out British Autowood's products. Knob just screws off lower jam collar. Put new one on using Loctite 242.

Driveline

The tubular steel driveline has a Guibo (above, also referred to as a Roto-Flex Coupling) at transmission end and a center stabilization bearing bolted to guard pan for refinement. Critical balancing of driveline must not be disturbed so mark all bolt positions, keep paired up with their specific nuts and don't allow anything to move until each item is restored to its original position. Study everything before disassembly and ensure you have it oriented correctly prior to reassembly. Coat it with DC4 to keep it from drying out.

Differential

There is no drain plug and ½" square drive fill plug is in a difficult to access location on this 3.06:1 differential. Prevailing opinion says when pinion seal starts to leak, replace it and fluid as well. Do this service at 120Kmi even if seal hasn't yet leaked. Unless you have a special installation, there were no Limited Slip Differentials installed in these cars. Jack up rear of car (to let half shafts rotate freely for easy access) yearly, grease Zerk fittings on four U-joints and they should last over 200Kmi. These joints have a tendency of throwing grease, so power-wash rear axle area periodically.

Exhaust

Exhaust manifolds are thin wall stainless steel, attached with heat shields, long bolts and spacers to maintain proper tension and compensate for different material thermal coefficients of expansion. This is a low thermal inertia system with closely coupled catalysts, but their exteriors rust badly. EGR valve was reintroduced in 2003MY for emissions compliance plumbed between intake elbow and Bank-1 exhaust manifold. Gaskets here can leak and EGR valve pintle sometimes sticks as it ages.

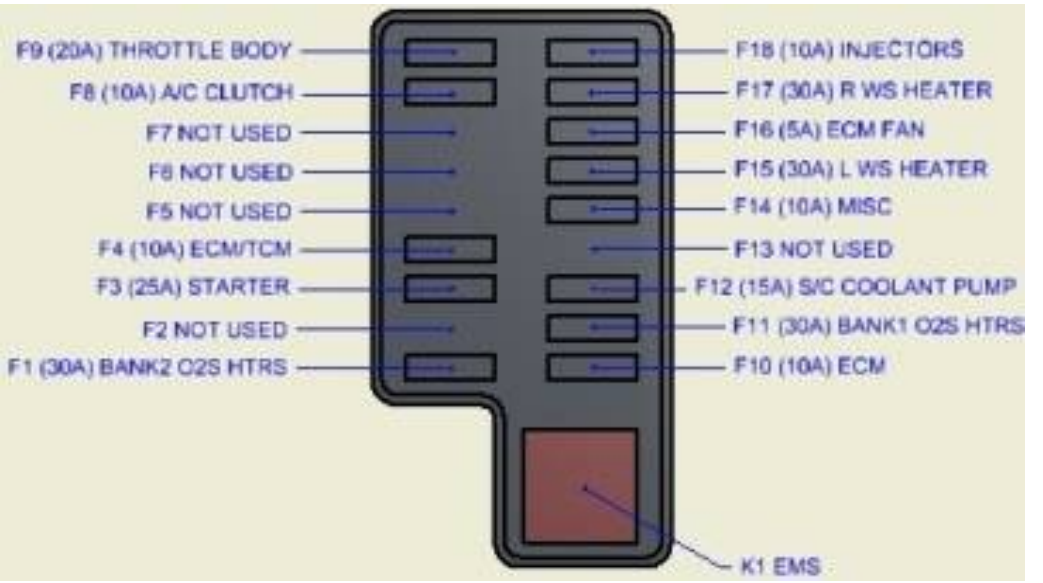
There are two wideband linear upstream air/fuel ratio sensors (left photo) and two conventional non-linear downstream O_2 sensors (right photo). Both are 4-wire heated types, their lifetime is typically ~120Kmi and they slowly degrade due to catalyst depletion. They start to report leaner mixtures to ECM enriching fuel trims in response, producing more carbon monoxide and hydrocarbons, resulting in poorer fuel economy. Connectors are mounted on tabs behind throttle body. Upstream sensors are accessible from above, but coolant expansion tank needs to be detached first. Downstream sensors must be accessed from underneath. Upstream have gray connectors, and downstream black. Lift each mated connector straight up off its metal mounting tab one at a time. They will release with a sustained upward force and then present enough cable slack to un-mate. Remove using a 7/8" [22mm] crowfoot socket, use copper anti-seize compound and torque to 33ft-lb.

Exhaust system is a five box stainless steel design. Pipes tuck up far above rear axle, making restrictive bends. Replacing just aft boxes with aftermarket straight through pipes can get you a more aggressive sound but some can produce irritating drones at certain rpms. There are also full "Cat Back" systems but they are spendy.

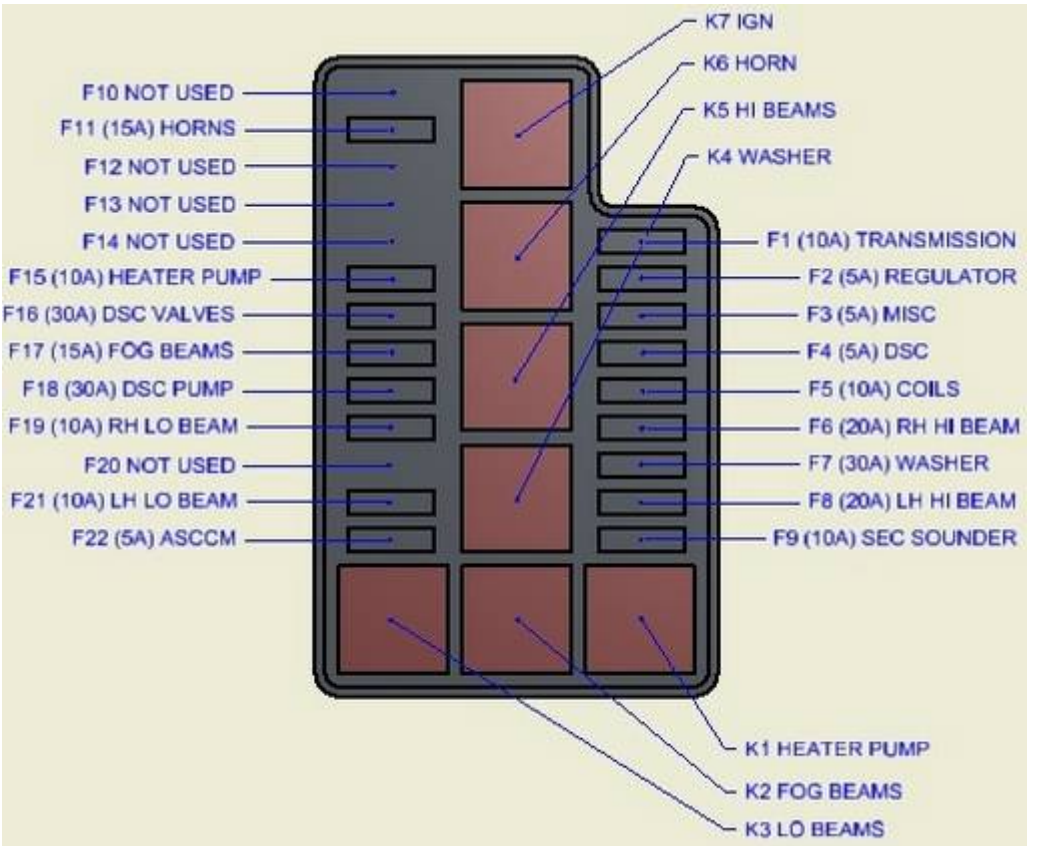
Electrical

Multiplexed electronics control various vehicle functions over a network of interconnected electronic modules operated by differential low current switching. Control commands are encoded at each output device to be utilized at a specific destination. This coding technique (in computer terms, a communications protocol) enables many messages to travel over a single pair of wires. Communication between various electronic control modules enables the transmission shift program to be altered when traction control system is activated, helping maintain control under slippery conditions. When driver switches on rear window defogger the message is acted on not only by appropriate heating coil control circuits, but also noted by engine management system. In this way engine idle is adjusted to compensate for increased drag on alternator. Many control modules require special programming by the dealership if they ever need replacement.

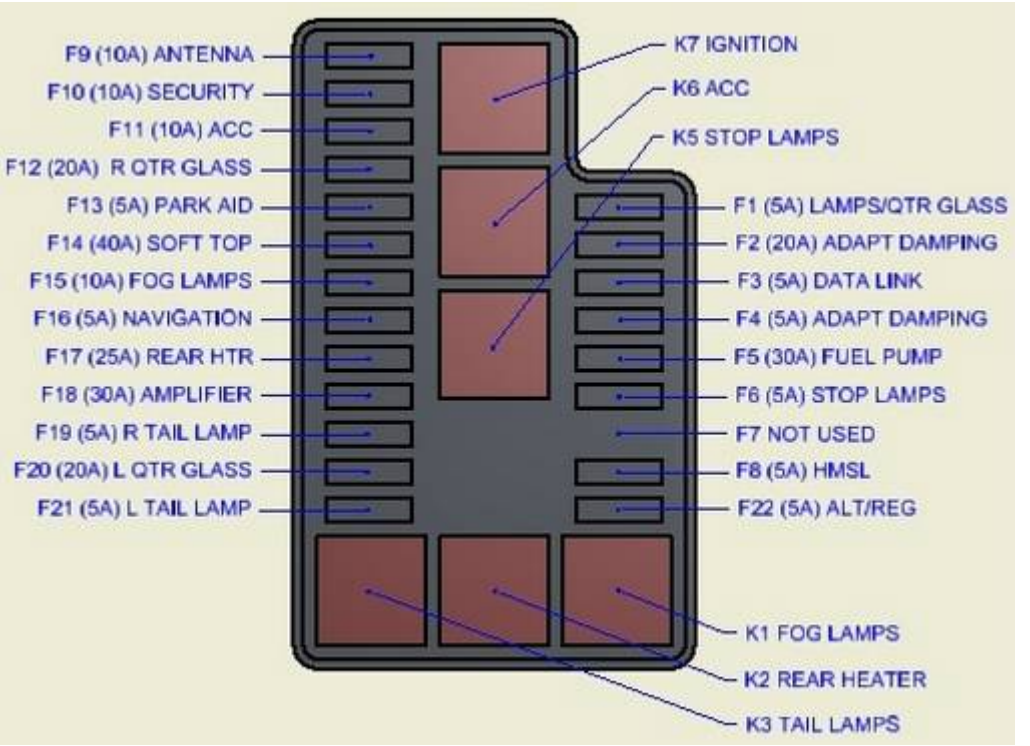
Jaguar electrical diagrams are conventional and easy to follow. With age the potential for simple component failures becomes rather high. If you can follow diagrams, you are well on your way to defining the problem, and a problem well defined is half solved. All relay coils and other similar inductive loads have internal protection to reduce switch contact pitting. Having a knowledge of which relay does what may help in a roadside emergency, allowing you to trade a failed relay in a critical circuit for a working one from somewhere else. Referring to wiring colors, I found a few relays in my car placed on wrong mounts, so I restored them to agree with Jaguar documentation. Brown SPST relays are most commonly used. Notched/cutaway corner of fuse boxes indicates F1.



Engine Management (Right Firewall)



Engine Compartment (near DSC)



In Boot (near Battery)

Windows are frameless, and to ensure a quiet interior at speed, they are designed to drop slightly upon door opening and bump back up into rubber seal upon door closing. Jaguar recommends disconnecting battery before beginning work and reconnecting upon completion as many circuits remain energized key OFF. Allow more than 30sec between disconnect and reconnect. Anytime battery power is interrupted and restored, window positions need to be retaught. Sit inside, close both doors, ignition key ON, lower a window and hold until you hear a click (a second or so after fully open), then raise window and hold for another few seconds until you hear another click. Confirm window drop upon opening door and window rise upon closing. Do this for both windows/doors. **If loss of BOTH window limits keeps occurring, either battery is at end of life or there is a problem in charging system.**

Ensure car is unlocked, windows down and keys in your pocket anytime you intend to disconnect battery. **Before you do, verify that seldom-used manual boot lid key mechanism hidden in right rear badge still works, in case you mistakenly close boot lid and need to reopen it manually. Another way to unlock is to connect an external 12V source across Engine Compartment Fuse Box Power Tap and Chassis.**

There is a tube for venting battery outside. Alternator C2C19630 contains a replaceable internal rectifier/regulator JLM20187 cooled by forced-air through a fixed tubular C-shaped plastic tube and removable flared plastic duct HJA4477AD (retained by a single M5 bolt) underneath. This duct blocks oil filter, is usually first item removed, last reinstalled and often misplaced by careless service personnel. It tucks up above tubular duct at rear (it is split on aft end to allow center portion to get captured inside the tube) and then clips into radiator cross bar up front before bolting in. If yours is MIA, you should replace it. Every 20°F cooler you can keep rectifier diodes, theoretically doubles their life.

Molded plastic end retainer tabs on side marker lights (and other similar polystyrene or polycarbonate lamp fixtures) stress crack over time. Take them out, fill gap between tab and body with a small piece of rubber channel and reinstall to substantially extend their life. A little EPDM sponge placed under fuse box cover latches can restore their mojo.

Key remotes take CR2032 battery and directions for replacement are in Driver's Handbook. Changing it DOES NOT require reprogramming, provided you don't push any buttons while battery is out. Remote is LJE2610AC purchased from www.keylessentryremotefob.com and new programming steps are:

1. OPEN driver's door
2. PULL high beam stalk AFT and HOLD
3. Key ignition ON (Position II)
4. RELEASE high beam stalk
5. PULL and RELEASE high beam stalk 4 times (you will hear a chime)
6. Press LOCK on remote to program
7. Key ignition OFF (Position I)
8. TEST remote functions

An Inertia Cutoff Switch tucked up behind plastic panel just forward of bonnet release shuts off fuel and opens door locks during an impact sufficient to trip it. Reset only when it is safe to do so. Expect driver side systems to wear out before passenger side due to higher usage.

When you need to replace a power antenna mast, it is A068 $20 from www.antennamastsrus.com. Chrome antenna nut has very small flats down in rubber grommet for a wrench and plastic track teeth face aft.

Turn signal sounds and other chimes are produced by a 2.5" 65Ω speaker LXF2280AA on side of steering column facing right. Top down on a sunny day turn signal sound level is too soft to be heard and indicator lights too dim to be seen. I found a larger 35Ω rectangular speaker and relocated it behind Adaptive Speed Control and Valet switch holes on knee bolster to better direct sound at driver. Use a new Aspirator Grille GJA6100AA___ (add interior color code) to fill empty Valet switch hole. I still wish I could get more volume, but I've found it too load sensitive to add an amplifier stage without oscillating.

Inevitably, as your Jaguar piles up miles, you will get a "Check Rear Lights" alert. If this is the only message you get, check rear lamps IN THE DARK to ensure that they are ALL working, including middle redundant tail lamps. If you get both "Check Rear Lights" and "Cruise [Control] not Available" alerts, cause is more likely a faulty Brake Pedal Position (BPP) Switch. You can replace internal micro switches for much less money, IF you can find them. They are Cherry DK1G-SND1. Micro switches start to get flakey as they age and their irrational outputs confuse ECM. Cherry claims an electrical life of 100,000 operations. Ref TSB 206-07.

BPP assembly consists of a switch module attached to a steel bracket. To access it, remove driver's seat, dash under-scuttle and lie on your back. Keep fasteners, but discard new bracket if existing is in good condition. Leave original bracket attached to firewall (loosening mounting nuts inside firewall compartment may be helpful, but DO NOT remove them or you will spend most of your day trying to get bracket back in its mounting holes). Ensure that ratcheting self-adjuster on new switch module is cocked so inner plastic pawl (6:30 position in photo below) rests against its stop. You need a short handled ¼" drive ratchet, 8mm socket and dykes.

1. Reach up through insulation blanket
2. Find and unplug cable connector
3. Cut zip tie
4. Remove lower nut
5. Depress and hold brake pedal (starting engine can get pedal to initially go lower)
6. Lift plastic module clear of lower stud
7. Slide it forward, down and out of top mount
8. Again depress and hold brake pedal
9. Fit new switch module into bracket top mount and over lower stud
10. Release and pull brake pedal all the way to stop to allow ratchet to self-adjust
11. Install lower nut and tighten
12. Install zip tie and plug in connector.

Soldered connections can become unreliable due to both poor initial build quality and/or removal of Lead (Pb) from solder as a result of Restriction of Hazardous Substances (RoHS) efforts worldwide. Pb made soft soldered joints ductile and less prone to cyclic stress fatigue. Pure Tin (Sn) solder joints are made at temperatures 60°F greater than eutectic solders and can fail abruptly when mechanically overstressed. This is not generally a problem for most protected modules in cabin, but those in tough thermal and vibration environments (like engine bay) are more at risk.

System complexity coupled with a lack of trained diagnostic personnel has led to a module replacement mentality (at high cost to consumer) vs replacement of just failed component(s). You can send some modules to specialists like www.modulemaster.com for repair or as core credit. If you can do basic troubleshooting, inspection, rework and soldering, you can potentially save big bucks by repairing obvious damage to module(s) yourself.

Some modern auto wiring has Soy-based insulation as part of Global Green Initiatives and rodents can dine on it. Some forum posts indicate this is a potential issue for all newer cars including ours. Color coding is abbreviated as follows in diagrams and manuals.

B is Black	G is Green	K is pinK
LG is Light Green	N is browN	O is Orange
P is Purple	R is Red	S is Slate
U is blUe	W is White	Y is Yellow

A browN wire with a White tracer would be abbreviated NW. More info can be found at www.jcna.com/library/tech/tech0014.html

Molded plastic automotive connector housings degrade due to heat and age, eventually need replacement, particularly those nearest engine and top of engine bay. If you have release tools and know how to unpin them, you can replace just housings without having to cut and graft pre-wired pigtails into harnesses. Molded latches on housings often break but contacts are fine. Not all housings have easily identifiable contact well numbering, so ensure you identify Position #1 and/or take a photo prior to disassembly. There are two basic types used in engine bay. For bi-color connectors release any locking tabs while pulling different colored locking face (which also retains a rubber seal) straight out, tease aside each molded contact locking barb from front with a dental pick as you pull wired contact w/seal out back. Single colored connectors usually have barbs on contacts themselves that need to be defeated with a toolset inserted from front as contacts are extracted out back. Magnification and good lighting are key here, otherwise you WILL break locking barbs. www.bmotorsports.com sells housings w/contacts or you can often find pigtails more easily and just unpin them.

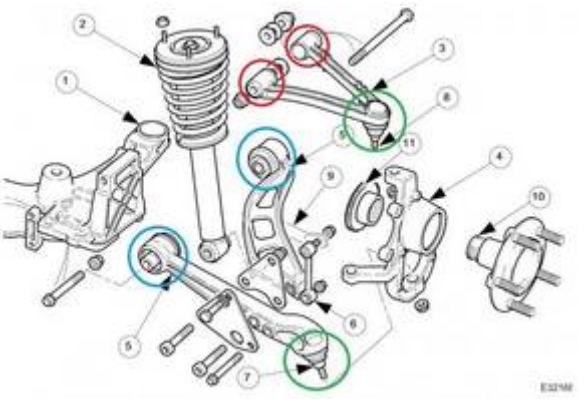
Suspension

Jaguar's independent suspension design has long been among the most prized of the marque's traits. The system relies on double wishbones up front and a control-arm layout at rear. To prevent road surface noise and vibration from reaching cabin, suspension components are not attached directly to body. Inboard ends of upper and lower wishbones attach to a very light but rigid cast aluminum front cross-member. Suspension arm bushings are tuned to provide a proper degree of compliance when subjected to cornering loads. Forward portion of engine's weight is carried by tuned hydraulic (oil filled) motor mounts attached directly to a cross-member. Bolts attaching rubber mounted cross-member to frame can seize in situ after years of galvanic action and if you do manage to get them out, they will need to be replaced and anti-seize compound applied prior to reassembly.

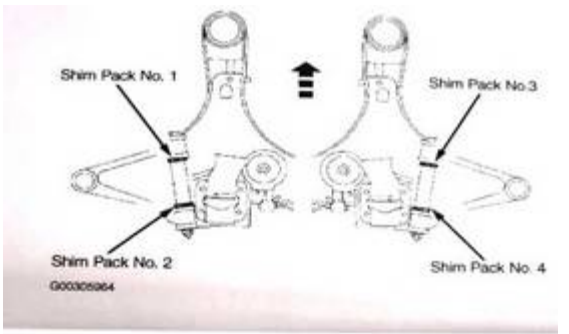
Despite good design and progressive springs up front, low speeds produce a harsh ride over road surfaces such as brick or cobblestone and more so as components age. Anti-roll bar bushings are simple to replace from above, taking ~30min. I use Powerflex anti-roll bar and upper wishbone bushings lubed well with Prothane Super Grease or they are guaranteed to squeak. Ref TSB 204-16.

Caster is always positive, Camber always negative and Toe always in. Pay close attention to Caster adjustment shims when changing upper wishbone bushings. Default shim location from Jaguar is shown below. Positive Caster tips vertical link axis backwards (like a motorcycle fork) for stability and Jaguar suggests a nominal +6.6º left and +7.3º right for North America. If your car drifts off low side of sloped road surfaces and your toe is set correctly you need more Caster that side.

Four Stepped Washers CAC3533, two .063" [1.6mm] Blue Shims MJA1467AA and two .035" [0.9mm] Red Shims MJA1467BA are used each side but are arranged differently. Blue shims affect Caster by 0.4º and Red shims by 0.2º. If you install new bushings without inset ends like OEMs, only two stepped washers should be used in the center flipped so greater surface bears against bushings and large flat washers at bolt head and nut. Wheel speed link mounts foul large washers during bolt removal and should be bent down or kissed off slightly to clear. Upper wishbones theoretically provide fixed ~1º Camber, but an eccentric bolt JZB100086 is available for lower aft wishbone if needed. A radial ridge on bolt head skirt indicates peak of eccentric lobe. To change out this bolt, steering rack must be dropped slightly. Camber check can be made using a smartphone running a Clinometer app with car parked on any fairly level surface. My right front had excessive Camber and was wearing tire inside edge, so I installed the eccentric bolt. Total Toe should nominally be 0.25º.



Upper front shock mounts have rubber isolator doughnuts that dry out and take a compression set over time. Improved OEM parts are around $190 a pair and Welsh makes a nice urethane version. Ensure you can get upper shock shaft end nut loose using a Great Neck 25284 socket. This portion of the shaft can just twist off if original nuts were over-torqued and a carbide disc is needed to slice nut. Changing out a front coil-over takes ~90min. You will need a set of spring compressors, some ratchet straps and a bench vise to further compress and stabilize shock while working on it. Nut covers omitted on later cars are NJA3975AB large and NJD3975AB small. Shaft bump stops rot out and need replacement. Front Shocks are Bilstein new P/N 24-067263.

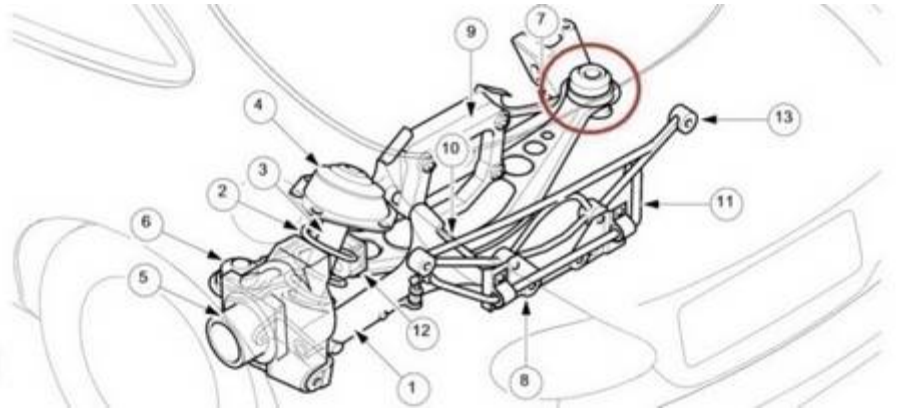


Shim Pack Application (1)

Application (2)	Contents
Shim Pack No. 1, Left Front	2 Thick, 1 Thin Shim
Shim Pack No. 2, Left Rear	1 Thin Shim
Shim Pack No. 3, Right Front	1 Thin Shim
Shim Pack No. 4, Right Rear	2 Thick, 1 Thin Shim

Front wheel bearings are a robust sealed double cartridge type, greased for life. DIY replacement is possible although most replace vertical links (Find No. 4 in above line drawing) rather than wrestle bearings out. A YouTube video shows front end job being easily done with common tools.

The rear suspension reduces natural tendency to squat under acceleration, utilizing a control-arm design. Springs are seated directly on transverse lower wishbone, not shocks, which reduces friction for better ride comfort and noise isolation. Half-shafts serve as upper suspension links. Jaguar sets rear Camber of ~1º and a nominal Toe of 0.16º each side. Rear Camber is adjusted by changing half-shaft spacer/shim, with each 0.5mm change being ~0.1°. P/Ns are in the form CBC480635 with last two digits denoting thickness. Measure what you have and adjust accordingly. Shims from 3.5mm to 7.5mm are available in 0.5mm increments for ~$50 each. Rear Shocks are Bilstein new P/N 24-067270.



Entire rear suspension sits on a stamped steel cross-member, bolted to body through elastomeric bushings tuned to isolate road harshness. In addition, lower control arm pivots allow some rearward deflection when subjected to sharp impact like a pothole or bump. Anti-roll bar bushings are simple to replace from underneath, taking ~30min. Due to limited space, a slim spring compressor like Sir Tools ST9050 is needed to remove rear shocks. Rear wheel outer and inner bearings are not sealed and likely need replacement before 200Kmi.

I prefer to jack each front corner by positioning jack cup over side brace bolt just behind front wheel arch, although front end can be safely raised bearing on steel cross beam directly beneath radiator. Place a 2”x4”x18” wood block on jack cup to provide bearing surface. Rear end can be safely raised bearing on bolt heads at rear center cross brace anchor points.

Steering

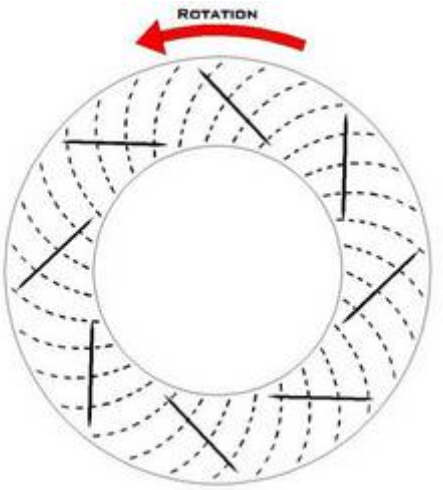
Power assisted rack and pinion steering uses ZF Servotronic components. Jaguar's system has speed-sensitive variable power assist and variable rack ratio, delivering full hydraulic boost at low speeds for easy parking with assist lessening as speed rises to give a well-weighted, confident feel to at highway speeds. Due to high assist at low speeds and wide front tires, driving slowly on scalloped road surfaces results in a bit of tramlining, but you can’t have it both ways. While less sophisticated systems provide variable assist by cutting flow of fluid to steering rack itself, their effectiveness is hampered by a need to maintain sufficient flow for emergency evasive maneuvers at high speeds. To further refine steering feel during straight-ahead highway driving, steering gear valve incorporates a positive center feel torsion bar. As name implies, a torsion bar twists a slight amount in operation, effectively programming an on-center position at small steering angles, improving stability in conditions such as crosswinds. When steering wheel angle exceeds a predetermined amount, torsion bar reaches end of its travel and control of assist levels is assumed by Servotronic system. Steering rack is designed so that rate of road wheel movement quickens as extremes of wheel travel left and right are approached. This makes parking less tedious yet provides appropriate levels of assist — not overly sensitive to slight steering wheel movement — for good stability at highway speeds.

Column tilt/reach motors don’t always cycle properly and noise from them indicates need for light lithium grease. Motors are driven to their programmed positions or to stall limits with controller sensing this and powering them down. My memory positions are set full out/full down. Reach drive uses a short cable (like drives headrests) to turn a threaded shaft in and out and it eventually snaps due to age if you always drive to limit. It is available from Coventry West as JLM12187cable. Here is what has worked best for me to get them to cycle as best they can:

1. Drop dash bolster from under steering column to access lower reach motor
2. Cut White/blUe wire, solder in a 2.7KΩ series resistor and sleeve/tape
3. Reassemble and set column movement switch ON
4. Hit memory buttons to reactivate circuit and reset memory positions
5. There will now be a sequenced lift, then retract

Brakes

Ate (Continental/Teves) MK25 4-channel Dynamic Stability Control (DSC) unit in a split front-rear arrangement is used along with their tandem servo/booster 03.7848-1801.4 and calipers. The system is equipped with Emergency Brake Assist (EBA) so, if in an emergency driver has not applied maximum braking effort, system will assist. Even with all of this capability, I still find this particular system too anemic for a two-ton car and I will likely retrofit an uprated big brake kit soon. I currently use Centric Power Stop drilled slotted discs with their ceramic pads and Goodridge braided fluid lines. Limits on rotor wear are 26mm front, 18.5mm rear. Re-lube caliper pins with high temperature ceramic grease or silicone paste. The system takes DOT4 fluid and I pressure bleed in accordance with JTIS recommended LF, RF, LR, RR sequence. If you have directional rotors, ensure internal vanes face correct direction, drawing air in from hub and exhausting it at periphery.



Wheel speed sensors are conventional variable reluctance types connected to main harness by short link cables, each having a different length and wire colors. Front link cables get flakey because steering flexes them so much. I could feel a shudder in the brake pedal and the system threw DTCs C1155 and C1233 when left front link cable became intermittent at 100Kmi. The right one went shortly thereafter.

Fuses F4, F16 and F18 in Engine Compartment Fuse Box supplying power to DSC unit are covered with orange plastic caps to prevent their mistaken removal leading to a braking/safety issue. All connections from DSC unit to hydraulic block are inductive, so it just unscrews, but XK8 hard lines are formed downwards making it impossible to remove box without draining and undoing them. Harness connector has a sliding plastic latch that needs to be pried out from end to disconnect.

DSC requires all wheel sensors and pressure switches to be functional or system shuts down and turns on ABS warning light. Circuit board solder joint fractures of the DSC box have occurred, with system throwing DTC C1095. The problem is easily rectified by sawing a Ø1” hole into notched corner of cover to gain access to large pin solder joints most prone to stress cracking and resoldering using 63Tin(Sn)/37Lead(Pb) solder. Then just RTV a plastic plug in hole.

DSC reduces torque to wheels by controlling throttle position, ignition timing and fuel supply. An optional TRAction Control (TRAC) system adds brake intervention to slow a spinning wheel. Wheel spin is detected by anti-lock brake sensors after comparing information supplied by all four wheels. Both systems may be manually canceled by pressing a switch above center console to power out of deep snow or when using tire chains. Automatic Stability Control (ASC) is operational at all speeds to enhance traction in slippery conditions. When wheel spin is detected, anti-lock electronic control module calculates engine torque that won’t cause tires to slip, based on information from vehicle's Controller Area Network (CAN). First, throttle angle is reduced, but because effect is not instantaneous, ignition timing is retarded and fuel to cylinders cut off until proper throttle position is reached.

Wheels/Tires
Jaguar should have Zinc plated wheel hubs, as they become quite a rusty mess after only a few years of trapped moisture. I did the first brake job at 100Kmi, but it would have been better done sooner. Use WD40 Rust Penetrant spray and a rotor puller as needed. Before reassembly, hit hubs with a wire brush and give them a light coat of Rustoleum or Noxudol. Wheels are hub-centric so grease centering bosses to keep them from sticking to hubs and put a drop of oil on studs. Two-piece lug nuts (nut with crimped-on dress cap) can spin or come apart, so ensure you can get them off when you need to.

Extra room for wider tires and/or wheels with greater offset is provided in wheel arches. Once you have settled on wheels and tires you like, you should optimize track. Increasing track improves both handling and aerodynamics. 20mm thick H&R 4085738 hub centric wheel spacers work well and won't noticeably affect tramlining, unless your ball joints are worn out.

OEM chrome wheels can experience plating separation over time, leading to slow escape of air from tire bead seating area. Ref TSB 204-06. You need your tire guy to inspect plating in this area during tire mounting and advise you, **however this is a bad time to find out you need a new wheel**. Another way of assessing their condition is to examine perimeter of center growler cap. If you see chrome separating (a raised area) in this region, then chrome in tire bead seating area is likely compromised. Newer plated wheels do not have this problem and may be recognized by gray epoxy paint instead of chrome plating in bead seating areas. I run 32psig in all four tires. Balance weight adhesive residue and crap from your wheels need to be removed especially during rebalancing or new weights may not adhere well. A toothbrush and Coleman Lantern Fluid (Naphtha) will do the trick. Also ensure that they pay attention to red and/or yellow dot markings on tires. Ref TSB 204-18. Be aware that Lead (Pb) wheel weights were discontinued in 2011 as part of Global Green Initiatives, now taking three times as many Iron/Steel (Fe) or Zinc (Zn) weights to do the same job as before.

OEM wheel center caps supplied on my car looked pretty cheesy. I bought nicer looking replacements MNA6249AB and there are other colors if you prefer.

I like Michelin Super Sport PS4 tires much better than Pirelli or Hankook. Whatever you put on, the rear set will get you ~20Kmi and front set twice that. Low profile tires make wheels prone to curb rash if you are careless. If you need to buy new wheels many are still available from Keystone. Remote pressure sensing devices are available to retrofit to your wheels, but there are also inexpensive direct indicating caps.

Windscreen, Washers/Wipers
Both wipers are 21" and have tubing running to arm mounted nozzles. Passenger wiper arm shaft is in an area where bonnet trailing edge creates lift (like blowing across an open bottle). The faster you drive (>90mph) and the longer you drive fast, the more it wants to suck plastic cap GJA8966AB off, so use a little Gorilla Glue on it. Nut and shaft will rust due to trapped moisture and wiper arm should really have a drain hole. Give the area a shot of Noxudol and replace steel nut with stainless steel. I use PIAA Aero Vogue silicone wiper blade assemblies and refills.

Windshield undertray attaches with 8 screws and little black plastic shoulder washers that fall out from underneath and get lost. I use black nylon countersunk washers as suitable topside replacements. Ensure that rubber drain pipes are retained by their hooks and wiper shaft rubber seals are in place. At front of undertray runs a transverse piece of weather stripping bonnet seals against that loses adhesion over time.

The windshield GJF8801BC (Fuyao FW02363 GTN) on my car has both rain and light sensors. Twelve 70mm GJB8812AA and two 35mm GJB8812BA plastic glazing strips are needed as they get incorporated in adhesive. Sensor lens and eight plastic windshield tray anchor nuts XR82312 require replacement. Ensure rearview mirror is tightly secured so you don't get image jiggle. Also check for any status panel alert indicating light sensor has been damaged or blocked.

Washer fluid system lower filler neck-to-reservoir joint is a poor fit and can leak as rubber grommet dries out over time.

1. Remove unit from left front wheel arch
2. Disassemble reservoir to filler neck joint
3. Remove large rubber grommet
4. Clean everything in vicinity of joint well with Isopropyl Alcohol
5. Butter up grommet outside and inside with silicone aquarium adhesive/sealant
6. Reassemble grommet, neck and reservoir
7. Reinstall in car to cure in situ.

Washer fluid not containing sufficient alcohol (Methanol was removed from some to render them less toxic) can foster bacteria growth in warm to hot conditions and specifically Legionella bacteria can be spread as mixture is aerosolized during use. Always add 2 to 3 cups of isopropyl or denatured alcohol per gallon to all to fortify it, cut road grime better and improve resistance to freezing during winter. More alcohol does everything better but may degrade blades and paint.

Convertible Soft Top

Soft top fabric and liner are attached to a folding aluminum framework engineered to provide a low stack height. Due to rear space needed for stowage of soft top and actuating mechanism, rear seat can barely hold a small dog. Operation requires pressing and holding a momentary rocker switch on center console while traveling <10mph. Latching, unlatching and window operation are all automatically sequenced, but you must hold button down continuously for entire erection cycle (including door windows) to complete. When using door key method to operate top, door windows are driven fully down. Benign creaking noises come from soft top latching sockets as body flexes over bumps.

Erection cylinders are located outboard of rear seat back behind reinforcing bars and speakers. Right-side cylinder has actuating/limit switches and it's possible for control system to get hopelessly confused if it doesn't get switched levels in the correct sequence. Some have had top brackets work loose from cylinders.

Use only Pentosin CHF11S (green synthetic fluid) in hydraulic pump and if you have anything else (early models used a brown fluid that gelled in lines over time), it must be completely purged/flushed and replaced with CHF11S or bad things will happen. Soft Top hydraulics are driven by a PowerPacker brand pump spiking to 1600psig. Two methods of lowering system peak pressure have emerged attempting to solve the problem of bursting hoses; the two 0.1Ω 50W series resistors voltage dropping method and the LSI pressure relief valve method. Even if you do lower peak pressure, it is inevitable that the crappy OEM hoses will degrade, leading to a "Jaguar Green Shower". Black PVC hose exterior deteriorates resulting in end fitting crimp failure. It is not a matter of IF, just a matter of WHEN, and heat your car sees over its life is a major factor. A drop of fluid hanging from overhead console grating signals a need to take immediate action.

Hoses rated for >20,000psig are available from www.tophydraulicsinc.com. Hose replacement is tedious, but not difficult, taking ~8hrs (I did it over a few days) to get interior items apart, hoses unclipped/routed and everything reassembled. DIY will save you BIG bucks. You will need to replace left door tread plate fascia and top off fluid, but pretty much everything else is reused.

www.jagwrangler.com has a spiffy modification installed in driver's door allowing remote control of soft top using headlamp button on your remote. My understanding is that replacing soft top liner is a one man-day job. For supply and rebuilding of soft top components including latch and cylinders, contact www.tophydraulicsinc.com.

Interior

Separate headrest OEM seats were a poor choice for this car and, though adequate to the task of driving, they fail big time in cornering. Seat bolsters are not shaped to cup your bum or upper body, so you end up slip-sliding from side to side. There is a fix that adds clips on seat risers to reduce end float. Ref TSB 910-07a. Seat control modules mount under front of seat base, and after years of seat flexing, their plastic lids crack. A replacement lid/cover C2N3565 is available. Ref TSB 419-17. When replacing these, it may be a good idea to put rubber washers between lid and bracket, use Loctite 222 on studs and only tighten nuts snug. Transfer label containing programming info from old cover to case. Range of seat motion is limited for long legged drivers and can only go back as far as rear seat bolster allows. There is just enough room in foot wells for my size 12½s. With top up, there is little headroom and I'm 6' - 2" with an extra lumbar vertebra. I have seat base all the way down both front and back and seat back well reclined.

Headrest drive cables can be troublesome, but fellow Pastafarian Reverend Sam, has made TSB 501-58 into a YouTube video, describing shortening drive cable sheath to allow cable to fully engage drive spindles. Pull internal cable out and use a Dremel type tool with a carbide cutting disc to girdle sheath center and use a good quality Ø.50" semi-rigid heat shrink tubing having a meltable adhesive inner wall (M23053/4-105-0) to rejoin it (don't use duct tape) and this fix will last the life of the car. An alternative is to get longer tach drive cables.

Headrest drop is controlled by a micro switch on each seat frame. Seat side release lever allows seat back to tilt forward, releasing micro switch to trigger headrest retraction. When seat back returns to its normal position, headrest should resume its pre-programmed position. These micro switches are snapped onto seat frames facing driveshaft tunnel and can be easily knocked out of alignment during vacuuming of interior. Micro switch leaf needs to squarely contact frame edge to actuate. Floppy seat back engagement can be improved by pressing some .594"IDx.750"OD black Nylon tubing (from Amazon) onto latch pin shanks. Just **make absolutely sure** latch fully engages and locks on now slightly greater diameter shanks. Driver's seat lumbar bladder was positioned wrong for my back, easily remedied by changing zip tied height of bladder relative to its rubber mounting web.

The cup holder is completely laughable and easily broken, but a rebuild kit GNA7692AB is available. Ref TSB 501-06. Center console armrest cover foam gets compressed, leather starts to ripple and begins to look shoddy. Better (crosslinked high density) Ethafoam is probably called for. Sam's got this and some other DIY activities covered in YouTube videos too.

Weather stripping around doors can split where window glass exits at front just above side mirror and at rear just above door latch. Replacement cost is significant and installation laborious. At front, trim off split sharp corner and smooth it into a more rounded shape with a Dremel tool sanding drum. For aft split, get Permatex 80338 Black Rubber Sealant and thin it with Toluene as necessary. Clean and scrub repair area well using Acetone, a Scotchbrite pad or Dremel tool to get any release agents off and give surface some key/tooth. Tape back side of any split areas together before you start. Using an acid brush or airbrush, apply sealant in multiple thin wet coats. Reapply as necessary until satisfied with the result.

There are small “rubber edging” bumpers keeping door glass from rattling and they wear out over time. Window track adjustment screws are accessible without removing door panels (they are hidden behind puddle lamps and speaker grilles). Rear quarter glass adjustments are far less accessible and should only be made after front glass has been set correctly. Rear quarter glass leading edge rubber doesn’t always seal well with trailing edge of door glass, leading to a bit of wind noise. Ref TSB 501-52. Lube window tracks with 3M Silicone Paste as needed. Door card plastic upper casing brackets often break as a result of slammed doors and are easily replaced. Ref TSB 501-57. Door latch internal micro switch contacts degrade over time. If only one of your doors repeatedly fails to bump glass up upon door closure and you know your battery is strong, it may be time for a new switch C2N1908. Ref TSB 501-54. If both doors start doing this, then it is more likely your battery is weak. Weak batteries tend to show up more in winter.

Door handle gaskets JLM12035KIT (one pair) may crack due to years of UV exposure. Replacement is a ~45min job each side. There are two 7mm hex headed bolts retaining assembly from inside. Pawl/arm is a snap fit on lower ball mount. Door check arm attachment to body shell can shear back and forth creating a snapping sound. Remove bolt, reinstall using Loctite 242 and torque ~5ft-lb [60in-lb].

I like dash mats in my cars and Cover King makes a nice velour one. Having a dash mat fly up in your face on a convertible at speed would be bad, so use Gorilla Glue to bond Velcro anchors down. Vanity mirror lamps are not wired through their hinges, so they only work with visors stowed in their clips.

Restraints
Number of blinks SRS light makes before steady ON indicates problem code (one blink, pause, then three blinks is 13, it then repeats).

13 - Crash data memory full
16 - Seat weight sensor CAN fault – passenger seat
17 - Spatial sensor CAN fault – passenger seat
18 - Airbag deactivate lamp circuit fault – passenger seat
19 - Airbag circuit status fault – driver side
21 - Airbag circuit status fault – passenger side
22 - Side Airbag circuit fault – driver side
23 - Side Airbag circuit fault – passenger side
33 - Seat Belt Pretension fault – driver side
34 - Seat Belt Pretension fault – passenger side
42 - Impact sensor circuit fault – front
43 - Impact sensor circuit fault – driver side
44 - Impact sensor circuit fault – passenger side
51 - Seat belt switch circuit fault – driver side
52 - Seat belt switch circuit fault – passenger side
53 - Airbag audible warning circuit fault
54 - RCM configuration failure

Onboard active restraint system constantly assesses cabin occupancy to optimize deployment of airbags. Dual seat bolster airbags for both driver and passenger are provided, along with MP853A type seatbelt pre-tensioners to take up slack at impact. The mostly black w/yellow insert connectors used on airbags and clock-springs are available from www.myairbags.com for a few bucks.

Climate Control

The heater matrix (octopus) hose is a common source of leaks. This hose directs a portion of coolant flow to heater core via a Control Valve and Aux Electric Pump. Check Valves (one in octopus hose and one in heater core outlet line) prevent back-flow. IMO Jaguar engineers should not have located the Norma Push and Seal R20 plastic connector on supply hose where they did, as it broils between heat from Bank-1 catalyst and EGR pipe, degrading internal seal. Initially an occasional coolant drip just boils away on catalytic converter leaving no trace. You may smell coolant when you shut down engine, but never find a puddle. Pressure testing cold at 14.5psig (1bar) for several hours with a clean dry shop towel placed under connector can identify this problem. The internal O-ring seal is an odd French R-16 size (19.8mmIDx3.6mm) if hose and connector are otherwise in good condition.

Releasing Norma connectors is not complicated, but if you break either of them, the ~$160 octopus hose will require several tedious hours to replace. Engine heat causes them to get brittle. Working with a slightly warm engine, place a large plastic tub under area. For supply hose connector merely push down on ribbed tab, rock it slightly back and forth and slide entire tab and sleeve TOWARD hose. Once it is fully retracted, grip hose, rock it firmly back and forth, pulling until it releases from outlet pipe AJ83928. While you have it apart, ensure pipe is absolutely clean and smooth or IT WILL LEAK. A short piece of blue fire-sleeve 7569K16 from McMaster-Carr placed over hose before reassembly will provide some future protection. Bright green shipping collar on new hose connector is discarded after mating. Return hose Norma connector requires prying two barbs apart and separating. Heater outlet hose is intentionally flattened in the sharp bend.

Service life of Auxiliary Pump brushes is around 120Kmi as it runs anytime ignition is ON. Binding of impeller against divider plate can occur and motor rotation doesn't necessarily mean magnetically coupled impeller is actually pumping. Impeller axle should be longer than impeller to prevent binding. Eurton Electric 33E brushes fit if you shorten them by .150". YELLOW wire is +12VDC. There is just enough room to remove firewall shock-isolator mounted valve and pump bracket from engine bay. Two nuts and two bolts underneath and two nuts at top need to be removed first. As long as you have motor apart, verify diode has >10:1 front to back ratio. Heater core should be back-flushed with fresh water at a safe 14.5psig (1bar). Heater core outlet is the shorter tube. When power is applied to control valve, it closes.

Climate Control System has an internal diagnostic mode. Begin with Key IN, Ignition OFF:

1. Press/Hold RECIRC and AUTO buttons as you switch Ignition ON and START engine, then release. Display will flash. Verify all display elements are functional.
2. Press AUTO button and read code. If Zero, there are no stored fault codes. For a listing of fault codes refer to Jaguar Forum.
3. Press FACE button to scroll through any remaining codes.
4. Press FACE and HEATED READ WINDOW buttons together to clear each fault code in turn.
5. Press RECIRC to perform actuator check.
6. Press FAN/OFF button to exit diagnostic mode.

The most common fault is 11. On driver's dash under-scuttle, close to console is a little plastic grille behind which sits a thermistor and aspirator/fan for climate control system to reference. When this gets crudded up it can't accurately sense temperature. While it's apart, this would be good time to power up fan with 12VDC to ensure it still works. Clean thermistor with Isopropyl Alcohol and reassemble.

A/C is conventional and low pressure charging port is up near firewall. Always hold refrigerant can upright (and turn sideways briefly to agitate) to introduce just R134a vapor/gas into line (not liquid) or you can damage compressor seals. Newer non-piercing auto-shut-off cans require a DVA1 adapter.

Engine Bay Heat Soak

There is barely room to access system components because engine bay is largely full of, well…engine. Heat degrades most things including electronic components and needs to be forcibly ejected. Engine bay runs slightly above ambient temperature during driving but quickly rises above 200°F at shutdown, staying quite high for almost an hour. Surrounding structures including fuel rail, wiring bundles, hoses, plastic and rubber parts absorb this heat. Since heat rises, greater thermal damage is expected in items nearest engine and top of engine bay. In my opinion all bonnets should have been louvered like the XKR and an electric pump and fan set to run for several minutes after shutdown to help combat heat trapping tendency. When engine is first started cold, fans don't run at all, run slowly (electrically connected in series) when coolant temperature reaches 190°F and run at full speed (electrically connected in parallel) around 204°F.

Cleaning/Protection

Keep all hoses, and for that matter all rubber items (except serpentine belt), well coated with a good silicone oil spray for longest life. I recommend using industrial food grade low viscosity spray CRC 03040 (Fastenal carries it) for large area coverage and Easy Rider RT630A (paint ball aficionados use it) for coating small bushings, because it is thicker and clings better.

If your car is a daily freeway driver, XPel protective film should be applied to protect front end and from road FOD. Chrome exterior mirror cover finishers are available since the painted ones suffer road rash. I never liked the bucky beaver teeth covering bumper energy absorbing aluminum extrusions or chrome splitter vane in grille opening, so I removed them.

Trough along left side of engine bay, plastic rocker panel covers where they undershoot wheel arches and front splash guard all tend to fill with road debris and should be power washed regularly.

I use Armorall leather wipes to clean, then Surf City Garage Voodoo Blend Rejuvenator to treat leather. Outboard cording on driver's seat bolster and the surrounding area will get rubbed raw by your bum long before any other leather surface wear is evident. Leather Colourant restorative dye from Furniture Clinic can fix surface flaws and worn areas. New seat skins are available from GAHH and www.topsonline.com.

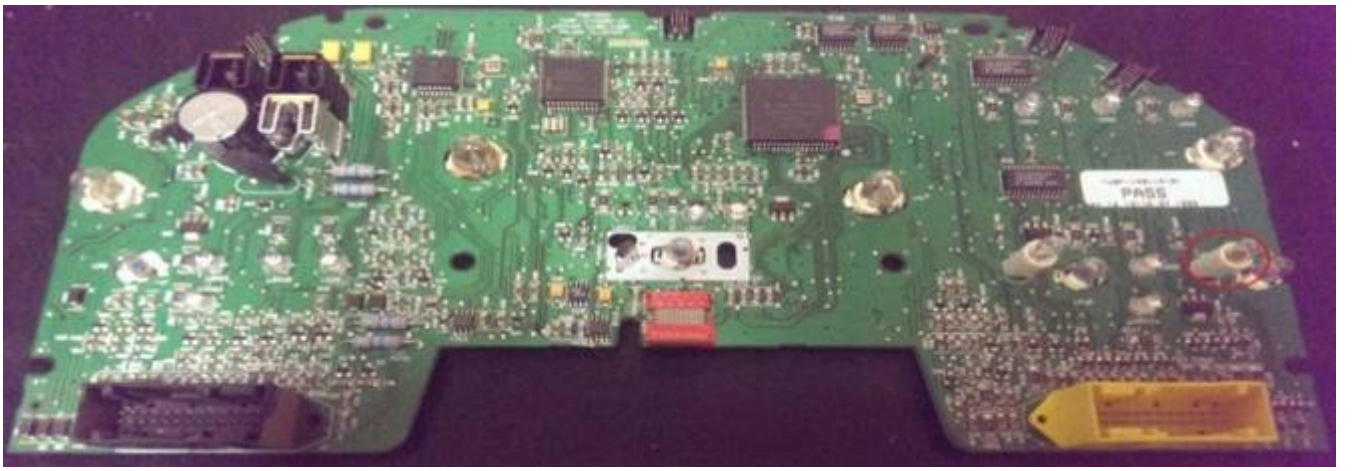
Noxudol 750 anti-corrosion cavity wax should be applied on and/or into all places subject to moisture ingress you can get to with included snaky hose. Remove plastic front wheel arch liners for access and apply wax in these areas too. If you can get car up on a lift, look for lower areas prone to road salt or rusting and apply it (just don't get it on braking surfaces or items that must move freely without binding).

Steering linkage U-joint knuckle in particular has a tendency to rust badly, so wax it regularly. Other protectants may be needed depending on prevailing climate and how your XK8 is stored.

For soft top external cleaning and protection, I use Raggtopp once a year. I use a Paasche airbrush and little foam ended makeup/touchup brushes to fill paint dings and a Meguiar's K2000 Mirror Glaze Unigrit sanding block to dress and level. Before using, soak sanding block in water for a day until it sinks. Instead of clay, I use a Mother's synthetic pad, a Porter Cable 7424XP for cutting, P21S wax and a rotary buffer for final polishing. For tires, I use Lemon Pledge.

Lighting

My car has halogen headlamps and they are fine. Headlamp lenses are non-safety glass, quite sharp when shattered and prone to road FOD damage. Use XPel protective film or you may soon be buying a $260 lens (left LJA4651BA, right LJA4650BA).



Halogen lamps are available in various versions and should always be used in pairs so color and intensity of beams on both sides match. Many lamps are available from Sylvania as Long Life (LL suffix) incandescents or from other manufacturers in LED equivalents. Some have found LED versions of interior lamps to be inferior and/or un-dimmable. Large bulb assemblies in instrument cluster provide gauge illumination and small bulb assemblies are turn signal, message center and high beam indicator lamps. Small bulbs also fit lighted switches above climate control and door switch panels. Instrument cluster airbag and headlight indicators are PCB mounted bulbs and remaining instrument cluster indicators are PCB mounted LEDs. It was nice of Jaguar to provide a redundant tail lamp in center position of rear fixtures running only the 5W filament. In a pinch this bulb can be swapped for a failed stop lamp in outside position.

Position	Ref P/N	Description
• Back Up (2)	1057F/7506	21W (Bayonet)
• Door Puddle (2)	2825	5W (T2 Wedge)
• Door/Window Switch Panels (2)	LNA5180CA	1.25W blue (PCB)
• Front Fog (2) lower	H1	55W Halogen (STR)
• Front Hi (Main) Beams (2) inner	9005	65W Halogen (RA)
• Front Lo (Dip) Beams (2) outer	H1	55W Halogen (STR)
• Front Running (2)	2825	5W (T2 Wedge)
• Front Side Marker (2)	2825	5W (T2 Wedge)
• Front Turn Signal (2 YEL)	1056F/7507A	Y21W (Bayonet)
• Glove Box (1)	3893	4W (Bayonet)
• Instrument Cluster Large (4) upper	LJA4390BA	3W blue (PCB)
• Instrument Cluster Small (4) lower	LNA5180CA	1.25W blue (PCB)
• Interior Foot-well (2)	2825	5W (T2 Wedge)
• Interior Map (2)	2825	5W (T2 Wedge)
• License (2)	2825	5W (T2 Wedge)
• Rear Fog (2) inner	1057F/7506	21W (Bayonet)
• Rear Redundant Tail (2) center	1077/7528	21W/5W (Bayonet)
• Rear Side Marker (2)	2825	5W (T2 Wedge)
• Rear Turn Signal (2 YEL)	1056F/7507A	Y21W (Bayonet)
• Stop and Rear Running (2) outer	1077/7528	21W/5W (Bayonet)
• Trunk (2)	6418	5W (Festoon)
• Vanity Mirror (2)	Norman 6439	3W (PLX Festoon)

OBD2

OBD2 will log Diagnostic Trouble Code (DTC) P1111 when all systems are “in the green”. If you have reset the system and not driven it long enough for all tests to complete, you may get P1000. Get a good list of Generic and Jaguar specific DTCs, so when your car throws a DTC, you can have a rough idea of what the system is telling you. JTIS Workshop Manual has applicable DTC listings at the beginning of some chapters. Scan tools vary widely in sophistication and auto manufacturers are keen to keep much of their OBD2 details proprietary. I have an **Innova 3160e scanner** capable of capturing and graphing 12min of live data. Smartphone apps like Torque Pro and Bluetooth Adapters like Carly allow for cordless monitoring of some parameters.

Baseline scan your car’s systems Key-ON Engine-OFF (KOEO) and capture live data while driving at varying speeds when things are running right, so you will be able to recognize normal range readings. Don’t start replacing things on a single throw of a given DTC, but do use OBD2 to periodically monitor your car’s systems and track trends over time. Develop a good diagnostic sense, progressing in a logical manner to pinpoint malfunctioning item. There are a number of YouTube videos to help you hone good troubleshooting skills.

Systems depend on each component doing their job(s) correctly and consistently. Attempt to correlate or isolate problem(s) to a single component or module. The simplest answer to a problem is usually correct, generally a failed sensor/module or a bad connection. Don’t break other things while fixing your initial problem. Modern cars are designed and built for ease of assembly, not ease of repair.

Normal range OBD2 PIDs:
Fuel 1 (Open Loop KOEO, Closed Loop KOER after warm up)
Fuel 2 (Open Loop KOEO, Closed Loop KOER after warm up)
Load (0% KOEO, 0 to 100% KOER)
ECT (-30 to 230°F)
STFT B1 (0 ± 10%) lost at key OFF
LTFT B1 (0 ± 10%) retained at key OFF
STFT B2 (0 ± 10%) lost at key OFF
LTFT B2 (0 ± 10%) retained at key OFF
FP (54 to 70psi relative to MAP)
MAP at Idle (>20inHg)
RPM (0 to 6400rpm)
Speed (0 to 155mph)
Advance (0 to 45°BTDC)
IAT (0 to 130°F)
MAF (0 to 40 lb/min)
TP (0 to 100%)
O_2 Sensor B1 S2 (cycles from 0 to 1V KOER)
O_2 Sensor B2 S2 (cycles from 0 to 1V KOER)
MIL (OFF)
Lambda B1 S1 Equivalency Ratio (1 ± .1 KOER)
Lambda Current B1 S1 (0 ± 5mA KOER) + = lean, - = rich
Lambda B2 S1 Equivalency Ratio (1 ± .1 KOER)
Lambda Current B2 S1 (0 ± 5mA KOER) + = lean, - = rich

Used XK8 Buyer Advice
After reading and understanding information presented in this article, the following items should be included in your condition inspection. You should also line up a competent Jaguar mechanic to go over target vehicle prior to money changing hands. Be aware that first owner costs are highest because of depreciation. Second and third owner costs will be significantly less, provided you are able to care for the car yourself. Having a Jaguar is a bit like being married to a supermodel, in that you must be attentive to their needs or bad things will happen.

1. Overall Condition and Mileage. Look at driver's seat leather, cup holder/center armrest and pedal rubber. Does car look reasonably clean and well cared for? The car should have no more than 125Kmi to be a good candidate and it helps your pocketbook immensely if you can troubleshoot problems and do most of your own repairs. Look for coolant-free oil and oil-free coolant. Ensure body panel colors match, body is free of dents/scratches and there are no unpleasant odors.

2. Service History and Seller Evaluation. Don't buy used Jaguars from dorks. Look for either parts receipts and labor invoices or seller mechanical knowledge and ability. Always speak to whoever maintained car and do a reality check on any claims made (trust but verify).

3. Cooling Systems. Check coolant color (orange) and level. Pressurize cooling system when cold for several hours at 14.5psig (1bar) to check for leaks. Start car and observe exhaust during initial start and warm-up. Inspect fans, radiator fins and hoses for good condition and proper operation. Does engine come up to temperature in five minutes in middle of gauge range and stay there? Fans should cycle from OFF when cold, to Series (Slow) when warm and to Parallel (Fast) when hot or A/C turned ON.

4. Engine Condition, Fluid Leaks and Noises. Look for all conditions indicating neglect or incomplete maintenance. Remove plastic covers and disconnect each coil in turn for a few seconds to observe rpm drop. Engine should crank and start readily. Perform a compression check on all cylinders (~200psig). Use an endoscope to inspect cylinder walls and piston crowns. Check manifold absolute pressure with OBD2 scanner at idle. It should be around 12inHg on a healthy engine at MSL. Listen for unusual tappet or primary chain noises. Check oil level and condition.

5. Engine Bay. Look for cleanliness and attention to detail. Are all fittings and parts OEM equivalents? Remove each firewall compartment cover and examine. Look for evidence of plugged drains or standing water in compartments. Ensure covers are intact with two tabs and retainer. Check brake and power steering fluid levels and condition. Look for proper engine mount condition with a quick stab of throttle.

6. Drivetrain. Look for Guibo condition and leaking seals.

7. Suspension. Bounce on each quarter panel to observe damper compression and rebound authority.

8. Steering and Brakes. Look for centering tendency, absence of slop and good braking authority. Look under car to ensure there are no caliper leaks. If you can get each wheel up in turn, check ball joints, bearings and observe smooth rotation.

9. Wheels and Tires. Visually evaluate tire type and tread, check for curb rash and condition.

10. Electrical and Lighting. Ensure all systems operate to spec both day and night. With engine running, check charging voltage at battery B+ (it should be ~14.5VDC at idle and greater than 12.35VDC engine OFF). With key ON, ensure that all Instrument Cluster indicator lamps are ON and that they all go out shortly after engine start. Check to see that dimmer circuit works. Check battery condition and ensure terminals are free of corrosion.

11. Entertainment Center and Instruments. Ensure all items operate to spec and radio antenna extends, retracts and stops. Operate all panel buttons and steering stalk functions both sides.

12. Soft Top. Cycle soft top and observe action. Pump should not sound labored and top should close/open in <20sec. Check for proper window sequencing. Check external fabric, headliner condition and ensure soft top cover is available. Ensure any dash mat is well attached.

13. Interior and Seats. Inspect for leather condition, seat and steering column movement/position memory, lumbar inflation function and ensure headrests drop as seats are drawn forward and restore upon return. Ensure floor mats have plastic retention hooks. Verify that glove box lid closes properly and locks.

14. Body, Paint and Corrosion. Operate all doors, boot, bonnet, fuel filler door and all locks both manual and remotely operated via key fob. Look for nicks and overall finish condition. Inspect rocker panel welded joints.

15. Glazing. All Jaguar windshields will have a degree of pitting, but ensure glazing is otherwise in good condition with no chips or cracks. Check for window drop as each door is opened and rise as it is closed. Ensure windows roll all the way up, all the way down and rear window heater is functional.

16. Plastic and Rubber. Look at all plastic and rubber items in engine bay, under car and window and door seals.

17. Missing Items. Ensure alternator cooling scoop is in place under car and passenger side wiper arm pivot cap is not missing. Ensure there are two sets of black driver keys, a single green valet key, tool kit and compact spare tire in good condition.

18. Smog Reports. Review for trends. Check miles per gallon on dash display and see if it makes sense. Ensure there are no alert lamps illuminated and no squawks on panel message center. Check exhaust tips for excessive carbon buildup.

19. OBD2 Scan. With your scanner attached, drive car somewhere and shut it down for a few minutes. Start it up and drive it back. It may take multiple events before OBD2 system logs a code. Capture 15min of live scanner data at speed. Look particularly at coolant temperature, long term fuel trims, O_2 sensor readings and readings indicating catalyst condition.

20. Test Drive. Engine should idle smoothly and take throttle readily. Low end torque should be apparent and steering should be neutral and not twitchy. At low speed, suspension should be firm and at freeway speeds (and up) car should be well under control regardless of road conditions. It should corner as though on rails with virtually no lean. Shift into manual (J gate) under a variety of conditions and observe results. There should be smooth shifting and exhaust note should remain a low burble with no popping even under aggressive downshifting conditions. Engage and disengage cruise control and sport mode functions. Note all gauge readings and recheck miles per gallon on dash computer display.

Jaguar XK8 Service	Every	Or
Change Oil, Filter and drain Catch Can	5Kmi	4-6mo
Add Berryman's B-12 to Full Fuel Tank	5Kmi	
Inspect Wiper Blades (21") and fill Washer Fluid	5Kmi	
Inspect Tire Tread and Pressure (32 psig Cold)	5Kmi	
Inspect Engine Cooling Fans (Off/Slow/Fast)	5Kmi	
Inspect Brake Pads, Rotors and Hand Brake	5Kmi	
Inspect Rubber Boots for Damage	5Kmi	
Inspect Mirrors and Central Locking System	5Kmi	
Inspect Seats, Headrests and Safety Restraints	5Kmi	
Inspect Horn, Headlamps, Fog Lamps and Hazard Flasher	5Kmi	
Inspect Turn Signals, Brake Lamps and Interior Controls	5Kmi	
Inspect Air Conditioning, Heating and Rear Defogger	5Kmi	
Replace Brake and Power Steering Fluids	30Kmi	2-3yr
Lubricate Hinge Points and Door Locks	30Kmi	
Silicone Spray Rubber and Noxudol Rust Prone Areas	30Kmi	
Grease Rear Half-Shaft U-Joints	30Kmi	
Clean/Replace Air Filter	30Kmi	
Replace Transmission Filter Pan and Fluid	60Kmi	4-6yr
Replace Expansion Tank and Cap	60Kmi	
Replace Thermostat and Outlet Pipe Assy	60Kmi	
Replace Spark Plugs	60Kmi	
Replace Fuel Filter	60Kmi	
Replace Battery	60Kmi	
Replace Coolant	60Kmi	
Replace Coolant Pump	90Kmi	6-9yr
Replace Serpentine Belt	90Kmi	
Replace Upper and Lower Coolant Hoses	90Kmi	
Replace Engine Side Oil Cooler Hoses	90Kmi	
Replace Upper Front Shock Mounts	90Kmi	
Replace Upper Control Arm Bushings	90Kmi	
Replace Front Wheel Speed Sensor Cables	90Kmi	
Clean Fuel Injectors and Mass Air Flow Sensor	90Kmi	
Replace Brake Pedal Position Switch	90Kmi	
Replace Starter Relay	90Kmi	
Replace Anti-Roll Bar Bushings	120Kmi	8-12yr
Replace Upstream Air/Fuel Ratio Sensors	120Kmi	
Replace Crankcase Breather Pipes	120Kmi	
Check Throttle Body Elbow pipe fittings for leaks	120Kmi	
Replace Soft Top Hydraulic Hoses	120Kmi	
Replace Front Shocks	120Kmi	
Replace Valley Hoses	120Kmi	
Replace Heater Pump and Octopus Hose	120Kmi	
Replace Differential Fluid	120Kmi	
Replace Ignition Coils	120Kmi	
Replace Cam Position Sensors	150Kmi	10-15yr
Replace Guibo	150Kmi	
Replace Radiator	180Kmi	12-18yr
Replace all Ball Joints and Track Arm Bushings	180Kmi	
Replace Power Steering Hoses and Rod Boots	180Kmi	
Replace Rear Shocks	180Kmi	

Engine Bay Harness Connectors

Cam Position Sensor (2 Socket Black Plug) (2)	Intermotor S1263
Coolant Temp Sensor (2 Socket Gray Plug)	Intermotor S2034
Crank Position Sensor (2 Socket Black Plug)	Intermotor S824
Fuel Injector (2 Socket Black Plug EV6)	CNKF DJ7061B-0.7-21
Fuel Pressure Sensor (3 Socket Black Plug)	Intermotor S821
Fuel Temp Sensor (2 Socket Gray Plug)	Intermotor S2034
MAF Sensor (5 Socket Black Plug)	Yazaki 7283-1057-30
MAP Sensor (4 Socket Black Plug)	Ford EPC WPT1339
Oil Pressure Sensor (1 Socket Plug)	Intermotor S940
VVT Solenoid (2 Socket Black Plug)	Airtex/Wells 1P1792

Common Replacement Parts

Bank-1 Cam Sensor	LRA1646BC-C2
Bank-2 Cam Sensor	AJ84290
Battery	Duralast H8-DLG
Brake Pedal Position Switch	LJB6420BB
Coil (8)	Intermotor UF-519
Heater Control Valve	MNA6711AC
Coolant Outlet Pipe Assembly	AJ89486
Coolant Pump	AJ88912/X
Downstream O_2 Sensor (2)	Denso 234-4798
EGR Valve Coolant Hose	AJ88513
Expansion Tank w/Cap	MJD4400AB
Front Shock Shaft Bumper (2)	MJA2150BA
Front Wheel Bearing (2)	SKF BAH0028
Fuel Filter	Mahle KL83
Guibo	CBC8996
Half-Shaft U-joint (4)	JLM1388
Heater Aux Pump	MJA6710AA
Knock Sensor (2)	AJ85676
Left Front ABS Harness	LJG3410FC
Linear Switch Module	C2N2467
Lower Radiator Coolant Hose	C2N1173
MAF Sensor	C2S2670
MAP Sensor	Intermotor AS388
Octopus Hose	MJA6728AC
Oil Filter	Mahle OC602
Reach Motor Drive Cable	Coventry West JLM12187cable
Rear Inner Bearing and Race (2)	JLM21053
Rear Outer Bearing and Race (2)	CAC6333
Relay (15)	LJA6703AA
Right Front ABS Harness	LJG3410AC
Serpentine Belt	Dayco 6PK2310
Spark Plugs / Gap / Torque (8)	NGK IFR5N-10 Iridium / .040” / 20 lb-ft
Tensioner/Idler Pulley Bearing (2)	Timken 6203-2RS
Throttle Body Coolant Hose	AJ88519
Throttle Body to EGR Valve Hose	AJ88092
Tires Front / Rear	P245/40ZR19 / P255/40ZR19
Transmission Filter/Pan	C2C38963
Upper Front Shock Mount (2)	MJA2170BD
Upper Radiator Coolant Hose	C2N1174
Upstream Air / Fuel Ratio Sensor (2)	Denso 234-9029
Valley Hoses	AJ86326 and NNE3946CA

Fluids

Brake	Motul RBF600
Coolant/DI Water 50/50	10qt Dex-Cool (Orange)
Differential	2qt 75W-90 Redline Synthetic
Oil	8qt Pennzoil Platinum 5W-30
Power Steering and Soft Top	Pentosin CHF11S
Transmission	Redline D6