

# Instruction Sheet for Part Numbers 14-4005 and 14-4006 Rack-and-Pinion Power Steering Kit, XK-140 and XK-150

## **Mechanical Modifications:**

Place car on a firm, level surface, raise the front end and properly support on jack stands. (Never work on a car supported only by a jack!) Remove front wheels, disconnect battery cables and drain the radiator. Remove fan, but re-fit bolts in water pump pulley. Remove generator and mount, radiator, original steering rack (including rubber mounting blocks), crankshaft pulley and lower steering column.

Replace generator mount with new bracket provided. Cut away rear leg of left hand steering rack mounting flush with chassis. Fit the new double pulley to the crankshaft damper. Bolt the short, double-ended feed and long, single-ended return pipes into their respective outlets on the rack turret. (The hole closest to rack center-line is the return to the reservoir; the top hole is the feed from the pump.) Orient the lines so that they exit toward the left side of the car.

Loosely bolt new rack mounts to the front holes in original mounting points, offer up the steering rack and push the socket-headed bolts through the mountings and rack, then drill through the chassis front member using the mounting holes as a guide, making sure that the mountings are parallel to each other and square with the chassis. Bolt the mountings up tight and fit the small rack support bracket to the right rear rack mounting points on the chassis. Bolt the rack tight, using the spacer washers provided to take up the gap between the rack and the small rack support bracket. Ensure that the hydraulic lines do not hit the chassis. Route the pipes around the left suspension tower and secure so that they will not be trapped or chafed by the suspension arms.

Set the rack to its mid point (about 1.5 turns from either end) and centralize the steering wheel. On XK-150s, push the large grey spacer over the end of the upper steering shaft, if one is not already fitted. Fit the new lower steering shaft and top universal joint. It is recommended that Loctite be applied to the splines. Make sure all fasteners are tight. On XK-140s, join the new half coupling supplied in the kit to the upper half of the original coupling, using the Hardy-Spicer joint provided.

Fit the new fluid pump drive belt. Connect the metal-ended feed hose to the pump outlet, making sure not to displace the sealing washer. Fit the alternator tensioner support to the two top holes in the water pump, with the spacers to the rear so that the top hole is offset to the left. Fit the alternator, belt and tensioning bar with its slotted end toward the alternator and one washer between support and bar to give correct clearance. Adjust the belt tension.

Secure the reservoir on the bulkhead adjacent to the brake and clutch fluid containers. Connect the feed and return pipes to the reservoir and pump; secure them to the inner fender, well away from the exhaust.

Fit the new track rod ends and re-install the road wheels. Re-install the radiator and associated hoses; note that the left hand radiator top stay will have to be altered to clear the alternator. Re-fill the radiator with coolant.

### **Electrical Modifications**

Tape back or trim off the yellow and yellow/green wires originally connected to the generator. Disconnect and remove the voltage regulator. Tape back or trim off the yellow/green and the thick yellow wires. Carefully insulate the brown/white wire and re-attach any ground wires to the firewall. Using the loom provided, connect the brown and yellow/green spade-ended wires to the alternator. Route the loom around the inner fender and firewall (to the area of the fuse box), keeping it well clear of the exhaust and sharp edges. Connect the brown wires to the battery side of the starter solenoid and the yellow/green wire to the thin yellow wire removed from the control box. As it is necessary to change the polarity of the electrical system, it is advisable at this point to check if any accessories fitted to the vehicle, i.e. clock, radio, etc., are polarity dependant and need to be converted to negative ground.

Reverse the battery terminals so that the negative (-) terminal connects to earth and the positive (+) connects to the starter solenoid.

It is recommended that the standard ammeter should be replaced with a voltmeter. If it is preferred to retain the use of an ammeter, (not recommended) make sure the ammeter will handle at least 45 amperes; if it cannot, a new unit should be obtained. The two brown wires must then be wired straight to the ammeter, not through the starter solenoid.

### **Final assembly**

The power steering rack precludes fitment of the engine-driven fan, so a suitable electric cooling fan should be installed as per the manufacturer's instructions.

Re-connect the battery and start the engine. While the front wheels are still clear of the ground, gently turn the steering wheel from lock to lock to expel any air that may be trapped in the system, then check for leaks. Lower the car to the ground and check the front wheel alignment (1/8 toe in). It is also recommended that the suspension geometry is checked at this stage.