

Jaguar XJ manual heater control  
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Parts List

U1	LM741 Op-amp
U2	L78L05 +5V Regulator
U3, U4	PC817 Opto-coupler
U5	L293B Motor driver
R1	100 Ohm ½ Watt (Brown, Black, Brown)
R8, R9	1k Ohm ¼ Watt (Brown, Black, Red)
R3, 4, 6	10k Ohm ¼ Watt (Brown, Black, Orange)
R5	2.2k Ohm ¼ Watt (Red, Red, Red)
R7	100 Ohm 1/4 Watt (Brown, Black, Brown)
R2, R10	4.7k Ohm 1/4Watt (Yellow, Violet, Red)
C1	100 mf electrolytic
C2	10 mf
C3	.01 mf
D1, 2	5.1V Zener
D3	LED Green
D4	LED Blue
D5	LED Red
F1	1 Amp Max

Short leg of LED is the cathode (-) lead and goes in the square solder pad.  
Push all components tight against the board when soldering.

Wire color codes are standard British: Brown (N), Yellow (Y), White (W), Green (G), Blue (U), Red ( R ), Black (B), Orange (O).

**IMPORTANT:** Use a fuse no larger than 1 Amp in the fuse holder on the board.  
with the L293. Currents larger than 1 Amp will damage the L293.

It is a good idea to install and test the power supplies before adding any other parts. The solder pads for the 7805 regulator are very close together and easy to bridge when soldering.

The first supply is made up of R1, D1, and D2.

The second is U2 and C2 and C3.

Apply +12V to the Brown (N) pad and Ground to the Black (B) pad on the side of the board.

To test supply 1. Using ground as a reference, there should be ~5V on the cathode of D2 and ~10V on the cathode of D1. (This is a simple voltage divider to provide a +/- 5V supply for the op-amp. If you reference it to the connection between the diodes you will get the +/- 5V. Voltages will not be exact, but will be close.)

Supply 2 can be checked on pins 1 or 9 on U5