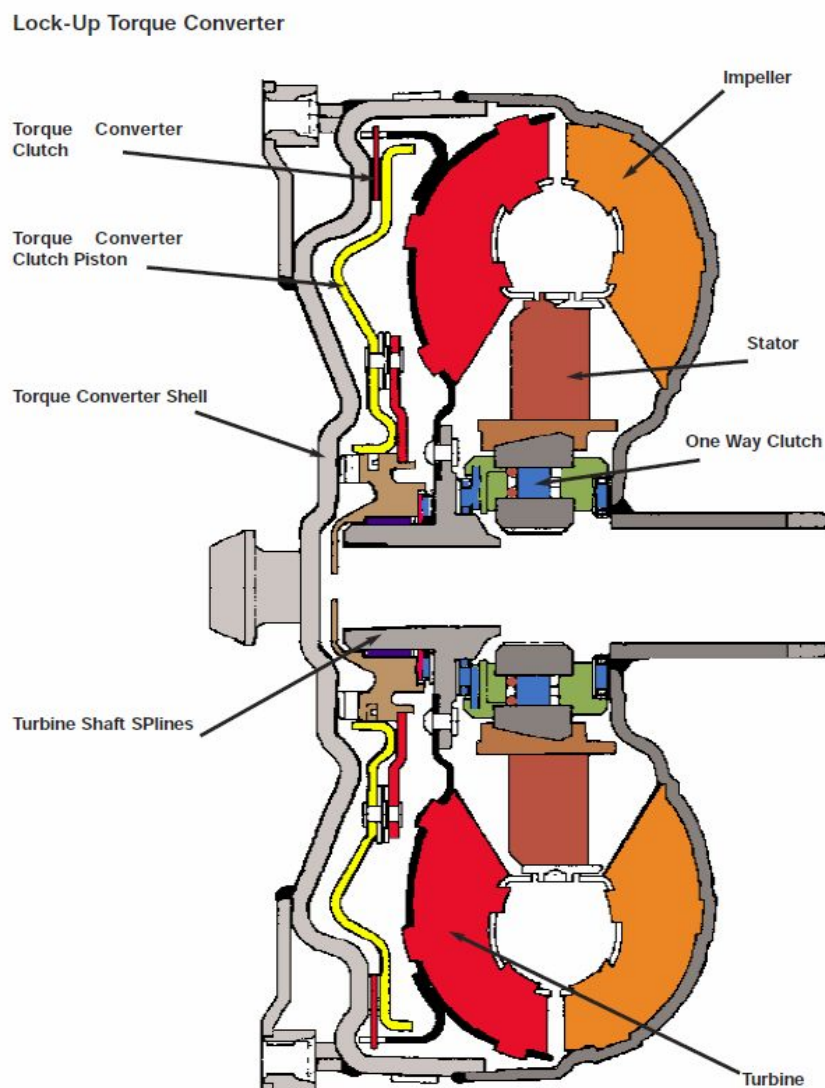


TCC Controller

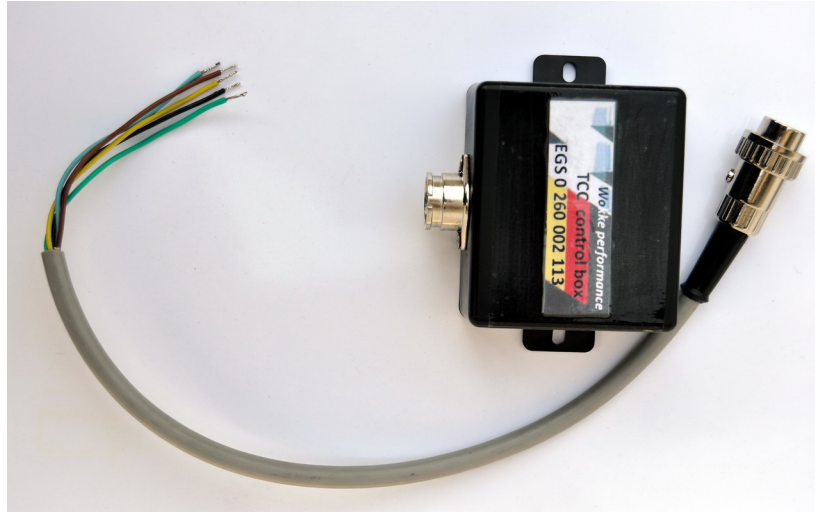
automatic transmission ZF model 4HP24

General information

The 4HP24 automatic transmission has a built in lock up clutch for the torque converter which eliminates the slip once engaged. The factory design is that it works only in 4th gear and above roughly 100km/h. This means, in all driving situations where this speed is not reached like city and highway driving the torque converter is wasting expensive energy all the time due to the slippage. The extra control unit takes over the control of the TCC (Torque Convert Clutch) and engages it already at the much lower speed of 40km/h. It also engages the TCC gradually and not with a “kick” like the factory EGS does it. This guarantees a much smoother operation and of course puts much less stress on all mechanical components. Once the speed decreases below 40km/h the TCC will open immediately.



Installation of the external TCC control box



REQUIRED TOOLS:

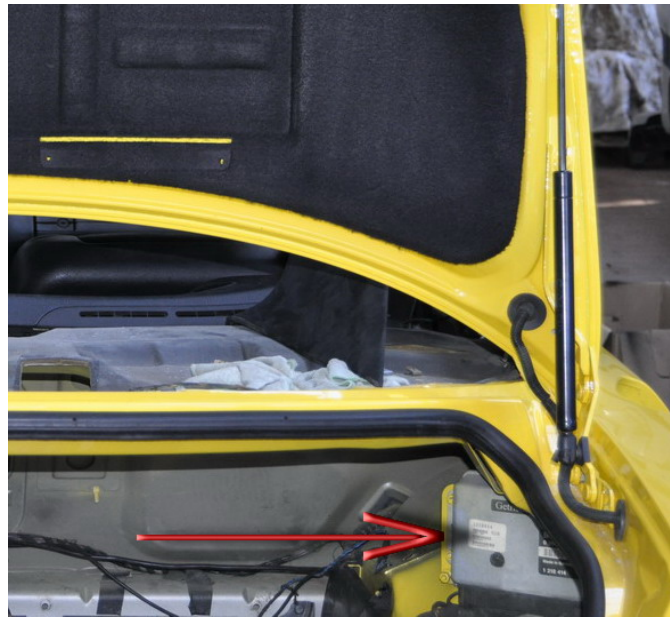
- Small ratchet with an extension and a 10mm socket
- Philips head screwdriver medium size
- Soldering iron

The TCC controller needs four electrical connections:

1. 12V blue wire PIN 35 EGS main connector
2. Ground brown wire PIN 05 EGS main connector
3. Drive shaft speed yellow/green wire PIN 08 EGS main connector
4. TCC-EGS output black wire PIN 25 EGS main connector

First Step

Locate the EGS (**E**lektronische **G**etriebe **S**teuerung = Automatic Transmission ECU) on the inner right rear wheel arche inside the trunk.



Second Step

Unscrew the 10mm nuts which hold the EGS in place and the single 10mm nut connecting the ground wire to the chassis.

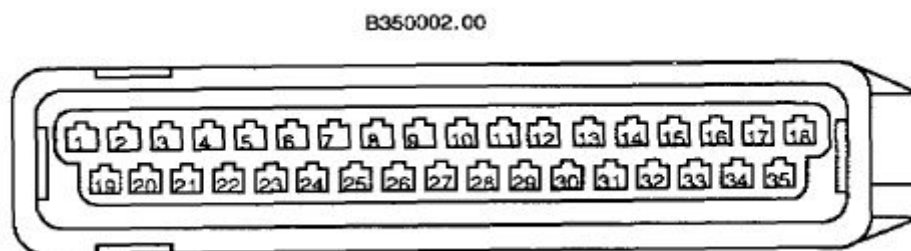
Third Step

Disconnect the EGS from the main connector (X8500) by flipping the silver handle upwards and then removing the connector from the EGS. Put it aside so it's out of your way.

Forth Step

Open the big connector using a Philips head screwdriver. One screw on the side with the silver handle and two screws holding a small cap on the side where the cable comes out.

“Uncover” the actual connector so you can get to all the small cables inside. Watch the rubber seal inside the connector housing.



*This drawing shows the connector side of X8500 which goes on to the EGS unit.
The cables are on the opposite side.*

Fifth Step

Connect the grey TCC control box cable with the X8500 connector according to the below table.

1. 12V	red wire	TCC control box cable,	PIN 35 EGS main connector
2. 12V	green wire	TCC control box cable,	PIN 35 EGS main connector
3. Ground	brown wire	TCC control box cable,	PIN 05 EGS main connector
4. Drive shaft speed	yellow wire	TCC control box cable,	PIN 08 EGS main connector
5. TCC-EGS output	black wire	TCC control box cable,	PIN 25 EGS main connector

All wires can be soldered directly to the X8500 pins with a very fine soldering iron tip.

Last Step

Reassemble everything, connect the EGS and mount the TCC control box to an appropriate location. After that just enjoy your increased gas mileage.



A picture showing a completed installation:

Options

If you want to make the TCC control box switchable run the brown wire (ground) via a on/off switch. For an optical control an LED (not a normal 12V lamp!!!) can be connected parallel to PIN 35 (+12V) and PIN 25 (ground if TCC is in operation). Below pictures show as a sample the setup in my own 850.

