

CHEAP ELECTRONIC SHIFT IMPROVER FOR AUTOMATIC TRANSMISSIONS

BY WWW.FRKNLO.COM

PURPOSE

INSTEAD OF BUYING A ELECTRONIC SHIFT IMPROVER YOU CAN MAKE YOUR OWN USING RESISTORS.

HOW IT WORKS

HERES A QUOTE FROM THE GM SERVICE MANUAL FOR A 4L60E AUTOMATIC TRANSMISSION.

THE TRANSMISSION PRESSURE CONTROL SOLENOID (PCS) IS AN ELECTRONIC PRESSURE REGULATOR THAT CONTROLS PRESSURE BASED ON THE CURRENT FLOW THROUGH ITS COIL WINDING. THE MAGNETIC FIELD PRODUCED BY THE COIL MOVES THE SOLENOID'S INTERNAL VALVE WHICH VARIES PRESSURE TO THE PRESSURE REGULATOR VALVE.

THUS, THE PCM CONTROLS THE PRESSURE CONTROL SOLENOID BY COMMANDING CURRENT BETWEEN 0.1 AND 1.1 AMPS. THIS CHANGES THE DUTY CYCLE OF THE SOLENOID, WHICH CAN RANGE BETWEEN 5% AND 95% (TYPICALLY LESS THAN 60%). HIGH AMPERAGE (1.1 AMPS) CORRESPONDS TO MINIMUM LINE PRESSURE, AND LOW AMPERAGE (0.1 AMP) CORRESPONDS TO MAXIMUM LINE PRESSURE (IF THE SOLENOID LOSES POWER, THE TRANSMISSION DEFAULTS TO MAXIMUM LINE PRESSURE).

THE PCM COMMANDS THE LINE PRESSURE VALUES, USING INPUTS SUCH AS ENGINE SPEED AND THROTTLE POSITION SENSOR VOLTAGE. THE PRESSURE CONTROL SOLENOID TAKES THE PLACE OF THE THROTTLE VALVE OR THE VACUUM MODULATOR THAT WAS USED ON PAST MODEL TRANSMISSIONS

WHAT THE ELECTRONIC SHIFT IMPROVER CONTROLS IS LINE PRESSURE BY VARYING THE AMOUNT OF AMPERAGE GOING TO THE PCS. THE WAY THIS IS DONE IS BY SHUNTING A RESISTOR TO GROUND (PARALLEL RESISTOR TO SOLENOID). WHAT OCCURS IS MORE AMPERAGE GO THROUGH THE RESISTOR AND LESS TO THE PCS (SOLENOID), IN EFFECT BRING THE LINE PRESSURE UP WHICH CORRESPONDES TO FIRMER SHIFTING..... MY BROTHER AND I TRIED IT AND IT WORKED BY USING A SIMPLE PASSIVE ELEMENT, A RESISTOR.

MATERIALS

1. VARIOUS RESISTORS RANGING FROM 2-3 OHMS TO 100 OHMS. THE LOWER THE RESISTOR VALUE => FIRMER SHIFTING.
2. WIRES; SAME GAUGE AS COMPUTER WIRE. MAYBE 14-18 GAUGE.
3. 2 SPLICES; SAME GAUGE AS COMPUTER WIRE.
4. MALE/FEMALE CONNECTORS (TO ALLOW CHANGING VARIOUS RESISTORS)

SKILLS REQUIRED

BASIC UNDERSTANDING OF ELECTRICAL CIRCUITS; MECHANICALLY-CLINED INDIVIDUAL.

METHOD

WARNING: WE DID NOT DO ANY LONG-TERM TESTING AND THUS WE WON'T BE RELIABLE FOR A NY SHIT THAT GOES WRONG IN THE LONG RUN. THERE'S ALSO MORE DEBATE ON THE WEAR AND TEAR OF THE CLUTCH DUE TO THE HIGH LINE PRESSURE FOR A FIRMER SHIFT. FROM THE NUMEROUS DEBATES, THE BEST WAY TO INCREASE SHIFTING PERFORMANCE IS BY UPGRADING THE VALVE BODY, NOT ELECTRONICALLY. UPGRADES VIA VALVE BODY IS AVAILABLE FROM B&M, JET PERFORMANCE AND TRANSGO).

1.0 COMPUTER AND TRANSMISSION INTERFACE

1.1 LOCATED ON THE PASSENGER SIDE OF THE ENGINE BAY; MOUNTED DIRECTLY TO THE INNER FENDER WHEELS. BEFORE PROCEEDING FURTHER, DETACH THE NEGATIVE (-) WIRE FROM THE TRUCK'S 12V BATTERY.

1.2 LOCATE THE EPC SOLENOID GROUND & EPC SOLENOID POSITIVE WIRES.

CHECK OUT WWW.TRANSONLINE.COM FOR SPECIFIC INFORMATION FOR YOUR YEAR AND MODEL OF TRANSMISSION.

WARNING: PROCEED WITH CAUTION WHEN WORKING UNDER A TRUCK AND NEAR EXHUAUST PIPING OR OTHER HOT SOURCES.

ANOTHER WAY TO FIND THE WIRES IS TO LOCATE THE TWO WIRES THAT IS DIRECTLY CONNECTED TO THE AUTOMATIC TRANSMISSIONS; THEN FIND THE SAME COLORED WIRES AT THE COMPUTER'S OUTPUT WIRES.

NOTE: CHECK CONTINUITY TO ENSURE THE CORRECT WIRES.

2.0 SHUNT RESISTOR(S)

2.1 SPLICE THE TWO EPC SOLENOID GROUND / POSITIVE WIRES USING THE SPLICE

2.2 ATTACH RESISTOR(S). CHECK PARAGRAH 3.0 FOR FINE TUNING.

2.3 RE-ATTACH NEGATIVE WIRE TO BATTERY.

2.4 TEST TRUCK IN A SAFE MANNER.

3.0 FINE TUNING

3.1 LOW RESISTANCE (1 - 50 OHMS) => FIRMER SHIFTING; RACE SETTING

HIGH RESISTANCE (50+ OHMS) => STAGE 1, 2 SETTING

3.2 FIRMER SHIFTING WITH EXISTING RESISTOR: ADD RESISTORS IN PARALLEL. FOR EXAMPLE, CONNECT 1 AND 3 TOGETHER, AND 2 AND 4 TOGETHER. THIS LOWERS THE RESISTANCE OF THE RESISTORS:

1 ----WWWW----- 2

3 ----WWWW----- 4

3.3 DE-FIRMER SHIFTING WITH EXISTING RESISTOR: ADD RESISTORS IN SERIES. FOR EXAMPLE, CONNECT 2 AND 3.

1 -----WWWW-----2 --- 3 ----WWWW----- 4