

HOWELL ENGINE DEVELOPMENTS

SUPPLEMENTARY INSTALLATION AND PARTS LIST FOR MONTE CARLO, EL CAMINO, CAPRICE HARNESS DESIGN

The following list of components are typical of what is required to complete the installation of our TPI wiring harness using a TPI from model year 1985-1989 GM vehicles:

ECM (Computer) PN 1227165, (Paper label on ECM).

Hem-Cal for 350 PN 16068654, (88 Model year) PN 16134193 (89 Model year). For 305 PN 16071115, (88 Model year) PN 16133467 (89 model year).

Mass Air Flow Sensor (MAF) PN 14094712. (PN's 14081243 and 10055877 will work equally well).

Electronic Spark Control Module (ESC), PN 16052391 or 16052401.

Fuel Pump Relay, PN 14089936.

MAF Power Relay, PN 14089936.

MAF Burn-off Relay, PN 14089936.

Oxygen Sensor, PN 8990741 or 25103901.

Knock (Detonation) sensor, PN 1997699. (Mts in RH block drain.)

NOTE: GM eliminated the cold start injector in 1989, so you can tape back or clip off the starter solenoid lead, thermo-time switch, and cold-start injector leads. This means, also, that you must run a 1989 mem-cal which, contains the cold start enrichment fuel. All 1989 TPI vehicles had a vehicle anti-theft system (VATS). This prevents your using a stock 1989 mem-cal. We have mem-cals with the VATS disabled, or a VATS decoder that can be wired into your harness. Both are \$45. Contact us if needed.

Most or all of the above may have been salvaged from the vehicle your TPI is from. If not, they are standard Chevy parts, available from any GM dealer. We also stock ECM's, mem-cals, and used MAF sensors.

In addition to the above, the following parts are mounted on your TPI manifold. In case you need replacements, the part numbers are also listed:

Connecting duct, Throttle body to MAF, PN 14094720 or 14081891. Several other ducts are available, 88-89 Pontiacs used a 90 deg duct Coolant Temp Sensor, PN 25036979 (lower front of manifold.)

Cold Start thermo-time switch, PN 14084318 (next to coolant sensor) NOTE: 1989 engine eliminated the cold start injector, so there is no thermo-time switch in 1989 or 1990 manifolds.

Throttle Position Sensor, PN 17111606 (Rt end of throttle shaft.)

Idle Air Control motor, PN 17111288 (lower Rt of throttle body.)

Manifold Air Temp Sens, PN 25036979 (under side of plenum.)

MAT sensor jumper, from sensor to harness, PN 12029463.

Distributor, (coil in cap design) PN 10497134, (remote coil design) PN 1103749, Coil PN 1985473, Connector wire, PN 12073286.

Recommended fuses: Battery Power-20Amp, Fuel Pump-15Amp, Sw 12Y-10Amp.