Speed Scene Wiring TBI Harness Instillation Instructions

This Covers 1986 to 1995 - 4.3 5.0 5.7 7.4 TBI Engines

FAQ

Is it important to follow any particular order when installing my harness?

Yes. Starting at the engines intake manifold, install the Injector connectors and TPS, CTS, MAP.
This helps keep the harness in place while completing your installation. The order of installation of the non-engine connectors depends on your application.

FAQ

What happens if I have a short in the power supply?

The quick burn fuseable 30 amp link should protect the harness in the event of a short. You must confirm that is no short in your vehicle, before proceeding. Never jump or bypass around the fuseable link. This could damage your harness. Use proper diagnosis and repair techniques on the fuseable link. If you find that you are shorting out / blowing fuses check and make sure that you have not pinched a power wire to a ground.

FAQ

Where can I purchase the GM Service Manual?

You can order a service manual by calling Helm's at 800- 782-4356. They are the only source for the correct book.

FAQ

Where can I find professional help with my harness installation?

Speed Scene Wiring can normally assist you over the phone in the installation of your harness. Additionally, Speed Scene Wiring has superior knowledge dealing with the latest in fuel injection technology.

FAQ

Do you have technical assistance available?

Yes, technical assistance is available. Call Speed Scene Wiring at 210-651-1895.

FAQ

What should I do if I accidentally split or chafe a wire?

The wire need’s to be stripped back roughly 1/2in on each side, slide heat shrink over the wire, twist the copper wire together and apply solder. The next step will be to heat up the heat shrink, then close it up and call it a day or night.

FAQ

If I break a plug or connector, what should I do?

Call Speed Scene Wiring and we will be happy to supply you with the appropriate pigtail.

FAQ

How much Voltage should I have?

You should have 12-13 Volts of direct current, coming from the power supply.

FAQ

Do I need my old harness?

No, although its helpful to save the old connector ends, in case of accidental damage to your new harness.

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Welcome to the wonderful world of, wire harness installation. You have just purchased the best wire harness in the world, Speed Scene Wiring – Solid. This in not a complicated procedure, listed below is the steps to successfully install your harness. All of the acronyms, Example: TPS. Relate to the labels on the harness.

1) Place the wire harness through the intake. Route under the regulator,. On the intake, start connecting the Fuel Injectors; this will hold the wire harness in place.

2) Connect the TPS (Throttle Position Sensor) located in the side of the throttle body. This sensor has three wires, Black. Dk Blue. Gray. This will let the computer know how much throttle enrichment is used. Basically changing fuel mixture and ignition timing.

3) Connect the IACV (Idle Air Control Valve) Also located in the side of the throttle body. This sensor is a four wire connector. Light blue/black. Light blue/white. Green/Black. Green/White. A controlled vacuum leak to help the engine idle.

4) Connect the MAP sensor (Manifold Absolute Pressure) Location Varies; the connector has a green body with three wires. Green. Black. Gray. This sensor is designed to measure the pressure that is entering the intake, to determine load.

5) Connect the IAT Sensor (Intake Air Temp) Location is typically in the plenum on a TBI. This connector is Black, with two wires. Tan. Black. This sensor has the job of metering the incoming air temperature. The computer can fine tune the fuel if it knows the temperature.

7) Connect the Distributor connector. In the rear of the engine, center-most section, behind the plenum. This sensor has four wires and a black body. Purple/White. Tan/Black. White. Red/Black. The main job of this sensor is to report TDC and BDC. In conjunction will fire the injectors and coil drivers for spark.

8) Connect all Emissions connectors, if applicable to your application. EGR (Exhaust Gas Recirculation) This sensor requires two wires, Pink. Gray. The sensor connector is Black, located in the center of the plenum.

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CPP, (Canister Purge Pressure) this sensor requires two wires; Pink.& Dk Green/White. The connector is red with a gray or blue seal and is located on the intake or on top of the charcoal canister.

Air Pump: (California only) The last of the emissions will be the air pump. Two connectors, one Green and one White. The main function of the air pump is to turn HC (hydro carbons) Unburned gas, and CO (Carbon Monoxide) to water and Co2 (Carbon Dioxide).

9) Connect the O2 sensor. The right (Passenger) side sensor shares the same description but differs in wire color, its Purple. Optional: Full length headers require a heated o2. This can be supplied by Speed Scene Wiring. The main job of the o2 sensor is to aid the computer program, in closed loop. Allowing the engine to run properly, when the computer is running on the SET program.

10) Connect the CTS sensor (Coolant Temperature Sensor) Located in the water neck of the water pump or on the front of the intake. This sensor has a black body with a blue seal. Two wires, Black and Yellow. The main job of the CTS is to inform the engine- water-temperature, directly correcting fuel, thus changing the fuel consumption.

11) Connect the VSS sensor (Vehicle Speed Sensor) Located on the output shaft of the transmission or the transfer case. Two types, small and large. The colors are Yellow, and Purple. Or Purple/White. Green/Black. The main job of the VSS is to inform the computer how fast it is going. This engages emission; fuel saving modes embedded in the programming, Speed Scene Wiring can disengage these features to run off road if requested

The VSS is a pulse counter type input that informs the PCM how fast the vehicle is being driven. The VSS system uses an inductive sensor mounted in the tail housing of the transmission and a 40-toothed reluctor wheel on the tail shaft. As the reluctor rotates, the teeth alternately interfere with the magnetic field of the sensor creating an induced

If applicable, at the same time connect the 4L60E connector. This is a round, Gray bodied connector, with 12 to 13 pins / wires located inside.

12) If applicable, Connect the 700R4 connector. Located on the same trunk as the VSS sporting a four pin connector, with only three wires used. Purple. Tan. Light Blue. Controls the transmission lockup.

13) Connect the blue Battery power wire, with the ring terminal, to the Battery power, on the starter lug.

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14) Connect the ground lug located on the driver side, rear. The lug has three black or Black/White wires. It's always good to clean the surface before you mount the lug to the head. You will also benefit by connecting a separate ground strap, from the block to the chassis.

15) Connect the OPS switch (Oil Pressure Switch) to the Switch located on the left rear of the engine.

16) We are now under you dash, where we are to find the ignition power supply.

You will need a Digital Volt Meter for the next test. If you don't have one, go to Radio Shack and get one. It's the best 16.50 you will ever spend.

17) Locate the ignition power supply wires, on your vehicle.
Typically located after the fuse block. On some fuse panels (aftermarket) there will be outputs for you to place the wires / probes into. Switch the digital multi meter on.

18) Place the selector to Volts DC. This will look like a V_-_-_-_.

19) Place the red probe on to the ignition power supply wires. Most After market fuse panels have multiple fused outputs, located on the fuse block. Connect the Black probe to a good ground source. Crank the engine over and make sure you have at least 11.5 Volts of ignition power, even while cranking. This is the norm, if your vehicle differs, call Speed Scene Wiring and explain the situation.

You should have an adequate power supply = 12 Volts or better of ignition power. This is the switched power from the vehicle ignition switch.
In some cases, Cars that were originally equipped with points will read 8.5 Volts at crank. You will need a power supply that is adequate of supplying the power requirement of 11.5plus Volts, while cranking. 8.5 will not work for fuel injection computers.

20) After you have found the ignition power in you vehicle. Connect the Pink and Pink/Black wires labeled, Connect to ignition power. This will be to the source you have found, either in the fuse block (Aftermarket) or the wires after the fuse.

21) Connect the Purple wire labeled Brake Switch. (Only if you have a 700R4). This will need to be spliced to the switch above the brake. Connect to the pole that supplies 12 Volts, while not-pressed. And zero (0) Volts while braking. Speed Scene Wiring sells a conversion kit if your vehicle differs.

22) Connect the white wire labeled TACH to the cluster, where your TACH resides.

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23) Connect the Dk Green wire labeled A/C Compressor. To the wire that originally powered the old compressor. This will engage the idle up feature, under load.

24) Connect the large Pink or Red wire to ignition power. Labeled connect to ignition power for Coil. This will power the gray side (small dist) and or Brown connector (Large HEI) connector of the coil.

25) Connect the Gray wire, labeled connect to fuel pump. This is the 12+Volt supply from the relay. The wire is for the pump +, physically on the pump. All you will need to do is supply the ground to the pump, off of the frame.

26) Connect the tan wire label connect to a 500 OHM ¼ watt resistor and then place to ignition power. What this does is supply the adequate power to the rectifier bridge, allowing the alternator to start charging. You can also use a 12 Volt dash bulb, instead of a resistor. This wire must be connected to run the engine.

27) Make sure you were supplied the Fuel Pump Relay. The relay has four wires. Orange. Gray. Dk Green/White. Pink. When connected to the relay, at startup, you should hear the pump prime. If the pump does not check the power source on the (A) pin of the fuel pump relay, Orange wire. You will read 12+ Volts of battery power, if you do not check the OPS switch and make sure you have it connected. Note: If the OPS is not connected you should still have 12+ Volts on the A terminal. The OPS backs the fuel pump up with power at start up. If the engine fails to produce Oil pressure, the fuel pump looses its back up power, the engine dies.

28) Mount the ALDL in an accessible area.

29) You are now ready to check your Fuel pressure and start the engine. Do your self a favor and have the injectors cleaned before you start the engine.

You can do this test. Pressure up the rail, Connect a gauge. Grab a ground wire. Grab a Battery power wire. Touch the blades located inside the Injector. Watch the pressure drop. Count to a three. What you are looking for is consistency. All of the Injectors should be the same. If you have an Injector that does not move that is the clogged one. Get it cleaned.

30) To set timing, disconnect the small, single pin tan/black, metripac connector. Located on the passenger side, trunk. Start the vehicle.

30) By this time your engine should be running. Set the timing at 6 to 8 Degrees and haul ASS.

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1992-95 350 / 4L80E

PCM Connector and Driveability Symptoms Identification

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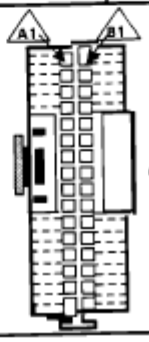
The "B + " symbol indicates a nominal system voltage of 12-14 volts.

THE FOLLOWING CONDITIONS MUST BE MET BEFORE TESTING:

• Engine at operating temperature • "Closed Loop" • Engine idling (for "Engine Operating" column)
• Test terminal not grounded • Scan tool not installed

PIN	PIN FUNCTION	CKT #	WIRE COLOR	COMPONENT CONNECTOR	NORMAL VOLTAGE		DTC(s) AFFECTED	SYMPTOMS
					IGNITION "ON"	ENGINE OPERATING		
A1	SYSTEM GROUND	450	BLK/WHT	ENGINE BLOCK	0*	0*	NONE	NO CHANGE
A2	SYSTEM GROUND	551	TAN/WHT	ENGINE BLOCK	0*	0*	NONE	NO CHANGE
A3	IAC "A" HIGH	441	LT BLU/WHT	IAC VALVE	NOT USABLE	NOT USABLE	NONE	OPERATION UNSTABLE
A4	IC REF HIGH	430	PPL/WHT	DISTRIBUTOR	0*	1.3V	NONE	NO RESTART
A5	IC REF LOW	453	BLK/RED	DISTRIBUTOR	0*	0*	NONE	NO CHANGE
A6	IAC "A" LOW	442	LT BLU/BLK	IAC VALVE	NOT USABLE	NOT USABLE	NONE	OPERATION UNSTABLE
A7	IAC "B" LOW	444	LT GRN/BLK	IAC VALVE	NOT USABLE	NOT USABLE	NONE	OPERATION UNSTABLE
A8	IAC "B" HIGH	443	LT GRN/WHT	IAC VALVE	NOT USABLE	NOT USABLE	NONE	OPERATION UNSTABLE
A9	INJECTOR CONTROL "2"	468	DK GRN	INJECTOR	B +	B +	NONE	POOR PERFORMANCE
A10	O2S SIGNAL	412	PPL	OXYGEN SENSOR	(1)	(1)	13 44	EXHAUST ODOR, POOR PERFORMANCE
A11	NOT USED	-	-	-	-	-	-	-
A12	O2S GROUND	413	TAN	ENGINE BLOCK	0*	0*	13 44	FIXED O2
A13	NOT USED	-	-	-	-	-	-	-
A14	DIAGNOSTIC TEST	451	WHT/BLK	DATA LINK CONNECTOR	5V	5V	NONE	NO CHANGE
A15	TP SIGNAL	417	DK BLU	TP	.6 (2)	.6 (2)	22	POOR PERFORMANCE, HARSH TRANSMISSION SHIFTS
A16	INJECTOR CONTROL "1"	467	DK BLU	INJECTOR	B +	B +	NONE	POOR PERFORMANCE

(1) VARIES.
(2) VARIES WITH THROTTLE MOVEMENT.
* LESS THAN .5 VOLT (500 mV).



BACK VIEW OF CONNECTOR

32 PIN A-B CONNECTOR (RED)

5-5-93
PS 17854

92-95 350 / 4L80E

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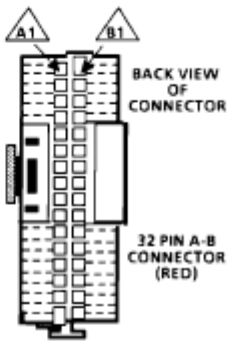
					IGNITION "ON"	ENGINE OPERATING		
B1	NOT USED	-	-	-	-	-	-	-
B2	IC BYPASS	424	TAN/BLK	DISTRIBUTOR	0*	4.5V	42	FIXED TIMING, LACK OF POWER
B3	SENSOR GROUND	452	BLK	TP, ECT	0*	0*	14, 15, 21	HIGH IDLE
B4	SENSOR GROUND MAP, EGR TRANSMISSION	455	PPL	MAP TRANSMISSION LINEAR EGR	0*	0*	58, 59, 33, 32	IDLE SURGE, TRANSMISSION, EXHAUST ODOR
B5	TFT SIGNAL	1227	BLK/YEL	TRANSMISSION	3.5V	2.8V	58, 59, 33	EARLY TCC
B6	NOT USED	-	-	-	-	-	-	-
B7	NOT USED	-	-	-	-	-	-	-
B8	ECT SIGNAL	410	YEL	ECT	(4) 2.0 3.4V	(4) 2.0 3.0V	14, 15	POOR PERFORMANCE
B9	NOT USED	-	-	-	-	-	-	-
B10	NOT USED	-	-	-	-	-	-	-
B11	NOT USED	-	-	-	-	-	-	-
B12	FUEL PUMP SIGNAL	120	GRY	INLINE FUSE	0* (1)	B +	54	NO CHANGE
B13	MAP SIGNAL	432	LT GRN	MAP	4.9V	1.46V (3)	33, 34	POOR PERFORMANCE
B14	NOT USED	-	-	-	-	-	-	-
B15	KNOCK SIGNAL	496	DK BLU	KNOCK SENSOR	2.4V	2.4V	43	KNOCK RETARD
B16	EGR PINTLE POSITION	1456	BRN	EGR	(2) .85	(2) .85	32	EGR INOP

(1) BATTERY VOLTAGE FOR FIRST TWO SECONDS.
(2) VARIES WITH EGR MOVEMENT.
(3) VARIES WITH MANIFOLD VACUUM.
(4) VARIES WITH TEMPERATURE.
* LESS THAN .5 VOLT (500 mV).



5-5-93
PS 17855

PCM Connector and Driveability Symptoms Identification

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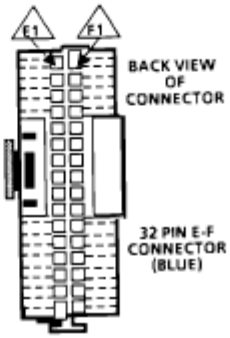
PIN	PIN FUNCTION	CKT #	WIRE COLOR	COMPONENT CONNECTOR	NORMAL VOLTAGE		DTC(s) AFFECTED	POSSIBLE SYMPTOMS
					IGNITION "ON"	ENGINE OPERATING		
E1	EGR CONTROL	435	GRY	EGR	B +	B +	32	DETONATION
E2	NOT USED	-	-	-	-	-	-	-
E3	NOT USED		-	-	-	-	-	-
E4	RANGE SIGNAL "B"	1225	DK BLU	TRANSMISSION	0*	0*	28	ERRATIC MANUAL DOWNSHIFTS
E5	RANGE SIGNAL "C"	1226	RED	TRANSMISSION	"B"	B +	28	ERRATIC MANUAL DOWNSHIFTS
E6	MIL	419	BRN/WHT	I/P	0*	B +	NONE	MIL INOP
E7	NOT USED		-	-	-	-	-	-
E8	2-3 SHIFT SOLENOID CONTROL	1223	YEL/BLK	TRANSMISSION	B +	.4V	81	INCORRECT GEAR STATE
E9	1-2 SHIFT SOLENOID CONTROL	1222	LT GRN	TRANSMISSION	B +	.4V	82	INCORRECT GEAR STATE
E10	IDLE SPEED ACTUATOR CONTROL	534	DK GRN	IDLE SPEED ACTUATOR CONTROL SOLENOID	B +	B +	36	HIGH WARM IDLE
E11	TCC SOLENOID CONTROL	1350	DK BLU	TRANSMISSION	-	-	-	-
E12	A/C SIGNAL	59	DK/GRN	A/C SWITCH	0* (1)	0* (1)	NONE	INCORRECT IDLE
E13	BRAKE SIGNAL	420	PPL	SPLICE	B + (2)	B + (2)	37, 38	NO TCC
E14	MAP, LINEAR EGR REFERENCE	474	GRY	MAP	5V	5V	34, 32	POOR PERFORMANCE ROUGH IDLE
E15	IGNITION FEED	439	PNK/BLK	SPLICE	B +	B +	NONE	NO START MIL INOP
E16	BATTERY FEED	440	ORN	SPLICE	B +	B +	NONE	NO START MIL INOP

(1) 0 VOLTS A/C "OFF" B + "ON."

(2) B + BRAKE NOT APPLIED 0 VOLTS BRAKE APPLIED.

* LESS THAN .5 VOLTS (500 mV)



4-15-93
MS 10038

PCM Connector and Driveability Symptoms Identification

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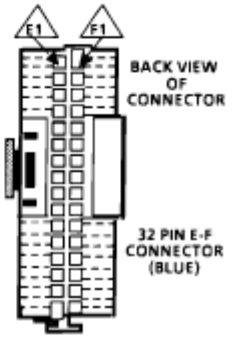
					IGNITION "ON"	ENGINE OPERATING		
F1	RANGE SIGNAL "A"	1224	PNK	TRANSMISSION	B +	B +	28	ERRATIC MANUAL DOWNSHIFTS
F2	NOT USED	-	-	-	-	-	-	-
F3	NOT USED	-	-	-	-	-	-	-
F4	NOT USED	-	-	-	-	-	-	-
F5	NOT USED	-	-	-	-	-	-	-
F6	FUEL PUMP RELAY CONTROL	465	DK GRN/ WHT	FUEL PUMP RELAY	0* (2)	B +	54	LONG CRANK TIME BEFORE STARTING
F7	PCS "LOW"	1229	DK BLU/ WHT	TRANSMISSION	0*	1.5V	73	POOR SHIFT QUALITY
F8	4WD SWITCH	1493	DK BLU	4WD INDICATOR	B + (3)	B + (3)	NONE	ERRATIC SHIFT PATTERNS
F9	SERIAL DATA	1061	ORN/BLK	DATA LINK CONNECTOR	5V	5V	NONE	NO SERIAL DATA
F10	PCS "HIGH"	1228	RED/BLK	TRANSMISSION	0*	7.0V	73	POOR SHIFT QUALITY
F11	IC SIGNAL	423	WHT	DISTRIBUTOR	0*	1.2V	42	RESTART FIXED TIMING
F12	TRANSMISSION OUTPUT SPEED	437	BRN	VSS BUFFER	0* (1)	0* (1)	72, 24	ERRATIC SHIFT PATTERNS, POOR SHIFT QUALITY
F13	VSS SIGNAL	1716	DK BLU	VSS BUFFER	0* (1)	0* (1)	16	FUEL CUTOFF
F14	TP REFERENCE	416	GRY	TP	5V	5V	22	LACK OF POWER HARSH SHIFTS
F15	IGNITION FEED	439	PNK/BLK	SPLICE	B +	B +	NONE	NONE
F16	PURGE CONTROL	1428	DK GRN	PURGE SOLENOID	B +	B +	NONE	PURGE INOP

(1) VARIES FROM 0 TO 5 VOLTS, DEPENDING ON POSITION OF DRIVE WHEELS.
(2) BATTERY VOLTAGE 1ST 2 SECONDS.
(3) 0 VOLTS IN 4WD.
* LESS THAN .5 VOLT (500 mV).



4-15-93
MS 13414