TOYOTA 86 M150 ADAPTOR LOOM

The M150 Toyota 86 Adaptor Loom connects the M150 ECU to the stock harness without need of rewiring, and uses the original sensors and fuel system. The loom is wired to work with the 23004 – TOYOTA 86 2012 FA20D PACKAGE, which is a fully programmable replacement for the factory-fitted ECU.

The loom is compatible with Toyota 86, Subaru BRZ and Scion FR-S models from 2012 onward. All original functions are maintained.

INSTALLATION

Install as follows:

- Unplug 4 harness connectors from the original equipment Engine ECU (located in the passenger foot well under the glove compartment).
- Plug the 4 harness connectors into the adaptor loom.
- Plug the adaptor loom into the M150 ECU.
- If GPS or LTC are supplied, plug these into the designated DTM 4 pin female plugs.
- If other options are required, fit these to a DTM 12 pin male plug, and connect to the DTM 12 pin female plug labelled **Breakout**.

M150 86 PINOUT

M150 Connector A – 34 Way

Pin Number	Designation	Full Name	OE Pin	Function
A01	AT5	Analogue Temperature Input 5	F02	Gearbox Temperature (optional)
A02	AT6	Analogue Temperature Input 6	A33-30	CCS (future option)
A03	AV15	Analogue Voltage Input 15	Not Used	
A04	AV16	Analogue Voltage Input 16	Not Used	
A05	AV17	Analogue Voltage Input 17	Not Used	
A06	IGN_LS9	Low Side Ignition 9	A34-32	FPD
A07	IGN_LS10	Low Side Ignition 10	A35-19	FPC
A08	IGN_LS11	Low Side Ignition 11	A35-18	ALT
A09	IGN_LS12	Low Side Ignition 12	F03	Pit Switch (optional)
A10	SEN_5V0_C1	Sensor 5.0V C	A35-22, A35-21	Sensor Supply Analog
A11	LA_NB1	Lambda Narrow Input 1	Not Used	
A12	LA_NB2	Lambda Narrow Input 2	Not Used	
A13	KNOCK3	Knock Input 3	Not Used	
A14	KNOCK4	Knock Input 4	Not Used	
A15	DIG2	Digital Input 2	Not Used	
A16	DIG3	Digital Input 3	Not Used	
A17	DIG4	Digital Input 4	Not Used	
A18	SEN_5V0_C2	Sensor 5.0V C	G04	GPS Supply
A19	SEN_5V0_B2	Sensor 5.0V B	F11	Sensor Supply Options Connector
A20	LIN	LIN Bus	Not Used	
A21	RS232_RX	RS232 Receive	G02	GPS Receive
A22	RS232_TX	RS232 Transmit	Not Used	
A23	DIG1	Digital Input 1	Not Used	
A24	BAT_NEG3	Battery Negative	A34-01	Power Ground
A25	BAT_NEG4	Battery Negative	A34-02	Power Ground
A26	SEN_0V_C1	Sensor 0V C	A35-20, A35-29, A34-29	Sensor Zero Volts Analog
A27	SEN_0V_C2	Sensor 0V C	G01	GPS Zero Volts
A28	CAN3_HI	CAN Bus 3 High	Not Used	
A29	CAN3_LO	CAN Bus 3 Low	Not Used	
A30	CAN2_HI	CAN Bus 2 High	A33-19	500k CAN to Vehicle
A31	CAN2_LO	CAN Bus 2 Low	A33-18	500k CAN to Vehicle
A32	BAT_NEG5	Battery Negative	A34-03	Power Ground
A33	SEN_0V_B1	Sensor 0V B	A36-29, A33-29, A33-28	Sensor Zero Volts Analog
A34	SEN_0V_A1	Sensor 0V A	A34-34, A34-27, A34-35	Sensor Zero Volts Analog

M150 Connector B – 26 Way

Pin Number	Designation	Full Name	OE Pin	Function
B01	OUT_HB9	Half Bridge Output 9	Not Used	
B02	OUT_HB10	Half Bridge Output 10	Not Used	
B03	UDIG8	Universal Digital Input 8	A34-13	FPF
B04	UDIG9	Universal Digital Input 9	A33-27	IGSW
B05	UDIG10	Universal Digital Input 10	A33-15	CLSW
B06	UDIG11	Universal Digital Input 11	A33-03	ST1-
B07	UDIG12	Universal Digital Input 12	A33-07	STP
B08	INJ_LS5	Low Side Injector 5	A35-13	SSHUT EFI Relays
B09	INJ_LS3	Low Side Injector 3	A35-12	FAN1
B10	AV9	Analogue Voltage Input 9	F08	Oil Pressure (optional)
B11	AV10	Analogue Voltage Input 10	F09	Gearbox Position (optional)
B12	AV11	Analogue Voltage Input 11	F10	Gear Shift Force (optional)
B13	BAT_POS	Battery Positive	A34-06	Switched Supply
B14	INJ_LS6	Low Side Injector 6	A35-26	STA Starter Relay
B15	INJ_LS4	Low Side Injector 4	A35-11	FAN2
B16	AV12	Analogue Voltage Input 12	F04	Boost Trim Switch (optional)
B17	AV13	Analogue Voltage Input 13	F05	TC Trim Switch (optional)
B18	AV14	Analogue Voltage Input 14	A33-08	ACP Air Conditioner Refrigerant Switch
B19	BAT_POS	Battery Positive	A35-07	Switched Supply
B20	OUT_HB7	Half Bridge Output 7	A36-11	PRG
B21	OUT_HB8	Half Bridge Output 8	Not Used	
B22	INJ_PH9	Peak Hold Injector 9	Not Used	
B23	INJ_PH10	Peak Hold Injector 10	Not Used	
B24	INJ_PH11	Peak Hold Injector 11	Not Used	
B25	INJ_PH12	Peak Hold Injector 12	Not Used	
B26	SEN_5V0_A	Sensor 5.0V A	Not Used	Sensor Supply Analog

M150 Connector C – 34 Way

Pin Number	Designation	Full Name	OE Pin	Function
C01	OUT_HB2	Half Bridge Output 2	A36-01	Throttle Servo Motor –
C02	SEN_5V0_A	Sensor 5.0V A	F12	Sensor Supply Options Connector
C03	IGN_LS1	Low Side Ignition 1	A36-21	Ignition.Cylinder 1.Output
C04	IGN_LS2	Low Side Ignition 2	A36-10	Ignition.Cylinder 2.Output
C05	IGN_LS3	Low Side Ignition 3	A36-31	Ignition.Cylinder 3.Output
C06	IGN_LS4	Low Side Ignition 4	A36-08	Ignition.Cylinder 4.Output
C07	IGN_LS5	Low Side Ignition 5	A36-14	#1 Direct Injector
C08	IGN_LS6	Low Side Ignition 6	A36-25	#2 Direct Injector

Pin Number	Designation	Full Name	OE Pin	Function
C09	SEN_5V0_B	Sensor 5.0V B	A36-19	Sensor Supply Analog
C10	BAT_NEG1	Battery Negative	A36-03	Power Ground
C11	BAT_NEG2	Battery Negative	A36-04, L01	Power Ground, LTC Ground
C12	IGN_LS7	Low Side Ignition 7	A36-24	#3 Direct Injector
C13	IGN_LS8	Low Side Ignition 8	A36-23	#4 Direct Injector
C14	AV1	Analogue Voltage Input 1	A36-18	VTA1 Throttle Servo Position Main
C15	AV2	Analogue Voltage Input 2	A34-20	PIM Inlet Manifold Pressure
C16	AV3	Analogue Voltage Input 3	A36-28	VTA2 Throttle Servo Position Tracking
C17	AV4	Analogue Voltage Input 4	A35-23	VPA Throttle Pedal Main
C18	OUT_HB1	Half Bridge Output 1	A36-02	Throttle Servo Motor +
C19	INJ_PH1	Peak Hold Injector 1	A36-12	#10 Port Injector
C20	INJ_PH2	Peak Hold Injector 2	A36-22	#20 Port Injector
C21	INJ_PH3	Peak Hold Injector 3	A36-32	#30 Port Injector
C22	INJ_PH4	Peak Hold Injector 4	A36-13	#40 Port Injector
C23	INJ_LS1	Low Side Injector 1	A35-05	IREL
C24	INJ_LS2	Low Side Injector 2	A35-17	MCR
C25	AV5	Analogue Voltage Input 5	A35-31	VPA2 Throttle Pedal Tracking
C26	BAT_POS	Battery Positive	A33-01	Switched Supply
C27	INJ_PH5	Peak Hold Injector 5	A35-10	DI Fuel Pump Enable
C28	INJ_PH6	Peak Hold Injector 6	A33-20	HB Blower Motor Relay
C29	INJ_PH7	Peak Hold Injector 7	A35-35	AC Air Conditioner Heater Relay
C30	INJ_PH8	Peak Hold Injector 8	Not Used	
C31	OUT_HB3	Half Bridge Output 3	A36-17	OC1 Inlet Camshaft Bank 1 Actuator
C32	OUT_HB4	Half Bridge Output 4	A36-07	OE1 Exhaust Camshaft Bank 1 Actuator
C33	OUT_HB5	Half Bridge Output 5	A36-16	OC2 Inlet Camshaft Bank 2 Actuator
C34	OUT_HB6	Half Bridge Output 6	A36-05	OE2 Exhaust Camshaft Bank 2 Actuator

M150 Connector D – 26 way

Pin Number	Designation	Full Name	OE Pin	Function
D01	UDIG1	Universal Digital Input 1	A34-16	NE+ Engine Speed
D02	UDIG2	Universal Digital Input 2	A34-26	VV1+ Inlet Camshaft Bank 1 Position
D03	AT1	Analogue Temperature Input 1	A33-12	THA Inlet Manifold Temperature
D04	AT2	Analogue Temperature Input 2	A36-30	THW Coolant Temperature
D05	AT3	Analogue Temperature Input 3	A36-20	OT Engine Oil Temperature
D06	AT4	Analogue Temperature Input 4	A33-24	THB Battery Temperature
D07	KNOCK1	Knock Input 1	A34-28	KNK1 Ignition Knock Sensor Bank 1
D08	UDIG3	Universal Digital Input 3	A34-14	EV1+ Exhaust Camshaft Bank 1 Position
D09	UDIG4	Universal Digital Input 4	A34-15	VV2+ Inlet Camshaft Bank 2 Position
D10	UDIG5	Universal Digital Input 5	A34-25	EV2+ Exhaust Camshaft Bank 1 Position

Pin Number	Designation	Full Name	OE Pin	Function
D11	UDIG6	Universal Digital Input 6	A34-11	IJF1
D12	BAT_BAK	Battery Backup	A33-02	Keep Alive Memory Power
D13	KNOCK2	Knock Input 2	A34-17	KNK2 Ignition Knock Sensor Bank 2
D14	UDIG7	Universal Digital Input 7	A34-31	IJF2
D15	SEN_0V_A	Sensor 0V A	F01	Sensor Zero Volts Options Connector
D16	SEN_0V_B	Sensor 0V B	F02	Sensor Zero Volts Options Connector
D17	CAN1_HI	CAN Bus 1 High	L03	1M CAN Bus to LTC
D18	CAN1_LO	CAN Bus 1 Low	L02	1M CAN Bus to LTC
D19	SEN_6V3	Sensor 6.3V		Internal Use
D20	AV6	Analogue Voltage Input 6	A34-09	PR
D21	AV7	Analogue Voltage Input 7	A33-22	VG Mass Air Flow
D22	AV8	Analogue Voltage Input 8	F07	Fuel Lift Pressure (optional)
D23	ETH_TX+	Ethernet Transmit+	Ethernet Green/White	
D24	ETH_TX-	Ethernet Transmit-	Ethernet Green	
D25	ETH_RX+	Ethernet Receive+	Ethernet Orange/White	
D26	ETH_RX-	Ethernet Receive-	Ethernet	

M150 Breakout Connector F – 12 way

Pin Number	Designation	Full Name	M150 Pin	Function
F01	SEN_0V_A	Sensor 0V A	D15	
F02	SEN_0V_B	Sensor 0V B	D16	
F03	IGN_LS12	Low Side Ignition 12	A09	Pit Switch
F04	AV12	Analogue Voltage Input 12	B16	Boost Trim Switch
F05	AV13	Analogue Voltage Input 13	B17	TC Trim Switch
F06	AT5	Analogue Temperature Input 5	A01	Gearbox Temperature
F07	AV8	Analogue Voltage Input 8	D22	Fuel Lift Pressure
F08	AV9	Analogue Voltage Input 9	B10	Oil Pressure
F09	AV10	Analogue Voltage Input 10	B11	Gearbox Position
F10	AV11	Analogue Voltage Input 11	B12	Gear Shift Force
F11	SEN_5V0_B2	Sensor 5.0V B2	A19	
F12	SEN_5V0_A	Sensor 5.0V A	C02	

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