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2019 Ford E-350 Super Duty Service and Repair Manual

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		Sensor				
PCM (powertrain control module) DECHOKE (Crank fueling disabled)	YES/NO	PID	Yes (True)	No (False)	No (False)	No (False)
PCM (powertrain control module) DIST_AEIS (Distance Since Automatic Engine Idle Shutdown occurred) (km)	KM (MILES)	PID	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
PCM (powertrain control module) DIST_BRKOVDR (Distance Since Brake Override Accelerator Action occurred) (km)	KM (MILES)	PID	57.5 (35.73)	57.5 (35.73)	57.5 (35.73)	59.0 (36.66)
PCM (powertrain control module) DPFE_PRES (Differential Pressure Feedback EGR Sensor - Raw) (kPa)	kPa (PSI)	Differential Pressure Feedback EGR Sensor	0.22 (0.03)	0.22 (0.03)	1.68 (0.01)	6.20 (0.90)
PCM (powertrain control module) DPFE_V (Differential Pressure Feedback EGR (DPFE) Sensor Voltage) (V)	VOLTS	Differential Pressure Feedback EGR Sensor	1.51	1.51	1.57	1.79
PCM (powertrain control module) DTCCNT (DTC Count (includes those needing no action)) (Undefined / Not Used)	NUMERIC VALUE	PID	0	0	0	0
PCM (powertrain control module) DTCCNT_OBD (Number of confirmed emission-related DTCs stored) (Undefined / Not Used)	NUMERIC VALUE	PID	0	0	0	0

Recirculation A Duty Cycle or Position) (%)						
PCM (powertrain control module) EQ_RAT11 (Equivalence Ratio (Lambda) (Bank 1, Sensor 1)) (Undefined / Not Used)	RATIO	PID	0.00	1.01	1.04	0.98
PCM (powertrain control module) EQ_RAT21 (Equivalence Ratio (Lambda) (Bank 2, Sensor 1)) (Undefined / Not Used)	RATIO	PID	0.00	1.00	1.01	0.98
PCM (powertrain control module) ETC_ACT (Electronic Throttle Control Actual) (Deg)	DEG	PID	0.00	4.66	13.84	14.96
PCM (powertrain control module) ETC_TRIM (Learned Value of Throttle Angle Offset) (Deg)	DEG	PID	0.03 (E)	0.03 (E)	0.03 (E)	0.03 (E)
PCM (powertrain control module) ETC_[TAC_PCT] (Commanded Throttle Actuator Control) (%)	%	PID	9	5	17	18
PCM (powertrain control module) EVAP020C ((EVAP) Monitor 0.020 Leak Check Complete)	YES/NO	PID	No (False)	No (False)	No (False)	No (False)
PCM (powertrain control module) EVAPCP (Evaporative Emission Canister Purge Valve duty cycle) (%)	%	EVAPCP Valve	0	5	99	77
PCM (powertrain control module) EVAPCV	%	CANV Valve	0	0	0	0

PCM (powertrain control module) FP (Fuel pump) (%)	%	Fuel Pump Control Module	75	19	19	19
PCM (powertrain control module) FPM (Fuel pump monitor) (%)	%	PID	41	40	40	41
PCM (powertrain control module) FRP (Fuel Rail Pressure) (kPa)	kPa (PSI)	FRP Sensor	29,030 (4,210.45)	25,060 (3,634.65)	3,700 (536.64)	13,140 (1,905.80)
PCM (powertrain control module) FRP_DSD (Fuel Rail Pressure Desired) (kPa)	kPa (PSI)	PID	440 (63.82)	3,100 (449.62)	3,730 (540.99)	12,560 (1,821.67)
PCM (powertrain control module) FRP_V (Fuel Rail Pressure Sensor Voltage) (V)	VOLTS	FRP Sensor	3.82	3.36	0.92	2.00
PCM (powertrain control module) FTP_V (Fuel Tank Pressure Sensor Voltage) (V)	VOLTS	FTP Sensor	2.65	2.64	2.19	2.56
PCM (powertrain control module) FUELSYS_A_PCT_B1 (Fuel System A Use Percentage Bank 1 - Direct Injection) (%)	%	PID	0	0	36	71
PCM (powertrain control module) FUELSYS_A_PCT_B2 (Fuel System A Use Percentage Bank 2 - Direct Injection) (%)	%	PID	0	0	36	71
PCM (powertrain control module) FUELSYS_B_PCT_B1 (Fuel	%	PID	0	100	64	29

Exhaust Gas Oxygen Sensor Heater (bank 2, sensor 1))						
PCM (powertrain control module) HTR22 (Heated Exhaust Gas Oxygen Sensor Heater (bank 2, sensor 2))	ON/OFF	HO2S22 Sensor	Off	On	On	On
PCM (powertrain control module) HTRCM11 (Heater Current Monitor for Heated Exhaust Oxygen Sensor 11) (Amp)	mA	HO2S11 Sensor	0.00	0.00	0.00	0.00
PCM (powertrain control module) HTRCM12 (Heater Current Monitor for Heated Exhaust Oxygen Sensor 12) (Amp)	mA	HO2S12 Sensor	0.00	0.00	0.00	0.00
PCM (powertrain control module) HTRCM21 (Heater Current Monitor for Heated Exhaust Oxygen Sensor 21) (Amp)	mA	HO2S21 Sensor	0.00	0.00	0.00	0.00
PCM (powertrain control module) HTRCM22 (Heater Current Monitor for Heated Exhaust Oxygen Sensor 22) (Amp)	mA	HO2S22 Sensor	0.00	0.00	0.00	0.00
PCM (powertrain control module) IAT (Intake Air Temperature) (Deg C)	DEG C (DEG F)	IAT Sensor	53 (127.4)	52 (125.6)	45(113)	35 (95)
PCM (powertrain control module) IAT11 (Intake Air Temperature Bank 1 Sensor 1) (Deg C)	DEG C (DEG F)	IAT Sensor	53 (127.4)	52 (125.6)	45 (113)	35 (95)
PCM (powertrain control module) IAT12 (Intake Air	DEG C (DEG F)	IAT2 Sensor	53 (127.4)	52 (125.6)	50 (122)	44 (111.2)

Performance Counter) (Undefined / Not Used)						
PCM (powertrain control module) KNK_CNTR_CYL4 (Cylinder 4 Knock/Combustion Performance Counter) (Undefined / Not Used)	COUNT	PID	0	0	0	0
PCM (powertrain control module) KNK_CNTR_CYL5 (Cylinder 5 Knock/Combustion Performance Counter) (Undefined / Not Used)	COUNT	PID	0	0	0	0
PCM (powertrain control module) KNK_CNTR_CYL6 (Cylinder 6 Knock/Combustion Performance Counter) (Undefined / Not Used)	COUNT	PID	0	0	0	0
PCM (powertrain control module) KNOCK_1 (Knock sensor 1) (Undefined / Not Used)	COUNT	KS11 Sensor	999.00	74.00	60.00	58.00
PCM (powertrain control module) KNOCK_2 (Knock sensor 2) (Undefined / Not Used)	COUNT	KS12 Sensor	999.00	62.00	68.00	76.00
PCM (powertrain control module) KNOCK_3 (Knock sensor 3) (Undefined / Not Used)	COUNT	KS21 Sensor	999.00	84.00	64.00	62.00
PCM (powertrain control module) KNOCK_4 (Knock sensor 4) (Undefined / Not Used)	COUNT	KS22 Sensor	999.00	60.00	47.00	64.00

Latest Misfire Cycle) (Undefined / Not Used)						
PCM (powertrain control module) O2S11_CUR (Exhaust Gas Oxygen Sensor Current Bank 1 Sensor 1) (mA)	mA	HO2S11 Sensor	(A)	switching (C)	switching (C)	switching (C)
PCM (powertrain control module) O2S11_HTR (Commanded duty cycle for the (O2S11) heater output.) (%)	%	HO2S11 Sensor	20	73	25	24
PCM (powertrain control module) O2S11_IMPED ((O2S11) sensor impedance is expressed as a voltage.) (V)	VOLTS	HO2S11 Sensor	5.00	1.01	1.05	1.04
PCM (powertrain control module) O2S11_TR (Oxygen Sensor Trim Circuit Resistance 11 - NTK sensor) (Ohm)	Ohms	HO2S11 Sensor	0.00	101,000.00	101,000.00	101,000.00
PCM (powertrain control module) O2S12 (Heated Exhaust Gas Oxygen Sensor (bank 1, sensor 2)) (V)	VOLTS	HO2S12 Sensor	(A)	switching (D)	switching (D)	switching (D)
PCM (powertrain control module) O2S21_HTR (Commanded duty cycle for the (O2S21) heater output.) (%)	%	HO2S21 Sensor	20	73	25	24
PCM (powertrain control module) O2S21_IMPED ((O2S21) sensor impedance is expressed as a voltage.) (V)	VOLTS	HO2S21 Sensor	5.00	1.05	1.04	1.05

PCM (powertrain control module) SHRTFT1 (Short term fuel trim 1) (%)	%	PID	0.00 (A)	-10 TO +10	-10 TO +10	-10 TO +10
PCM (powertrain control module) SHRTFT2 (Short term fuel trim 2) (%)	%	PID	0.00 (A)	-10 TO +10	-10 TO +10	-10 TO +10
PCM (powertrain control module) SPARKADV (Spark Advance) (Deg)	DEG	PID	7.00	-3.50	17.50	30.00
PCM (powertrain control module) SYNC ((CMP) and (CKP) Synchronized)	YES/NO	PID	No (False)	No (False)	YES (True)	YES (True)
PCM (powertrain control module) TCBP (Measured Boost at Throttle Inlet Pressure Sensor) (kPa)	kPa (PSI)	TCBP Sensor	98.4 (14.27)	98.4 (14.27)	99.5 (14.43)	101.6 (14.74)
PCM (powertrain control module) TCBP_V (Throttle Inlet Pressure Sensor Voltage) (V)	VOLTS	TCBP Sensor	1.41	1.41	1.43	1.45
PCM (powertrain control module) TP1_LRN_TRIM (Throttle Position Sensor 1 Learned Offset) (Deg)	DEG	ETBTPS	10.13	10.13	10.13	10.13
PCM (powertrain control module) TP1_PER (Throttle Position Sensor 1) (%)	%	ETBTPS	17	17	16	17
PCM (powertrain control module) TP2_LRN_TRIM (Throttle Position Sensor 2 Learned Offset) (Deg)	DEG	ETBTPS	0.00	0.00	0.00	0.00
PCM (powertrain control module) TP_REL (Relative Throttle Position) (%)	VOLTS	PID	7.1	7.1	5.5	7.5

PCM (powertrain control module) VCT_EXH_DIF2 (Exhaust B Camshaft Desired Minus Actual Bank 2) (Deg)	DEG	PID	0.00	-0.06	-2.13	5.25
PCM (powertrain control module) VCT_INT_ACT1 (Actual Intake A Camshaft Position Bank 1) (Deg)	DEG	PID	0.00	0.19	0.00	-0.13
PCM (powertrain control module) VCT_INT_ACT2 (Actual Intake A Camshaft Position Bank 2) (Deg)	DEG	PID	0.00	0.13	-0.06	0.06
PCM (powertrain control module) VCT_INT_DC1 (Intake A Camshaft Position Duty Cycle Bank 1) (%)	%	VCT11 Solenoid	0	0	0	0
PCM (powertrain control module) VCT_INT_DC2 (Intake A Camshaft Position Duty Cycle Bank 2) (%)	%	VCT21 Solenoid	0	0	0	0
PCM (powertrain control module) VCT_INT_DIF1 (Intake A Camshaft Desired Minus Actual Bank 1) (Deg)	DEG	PID	0.00	-0.31	0.06	0.13
PCM (powertrain control module) VCT_INT_DIF2 (Intake A Camshaft Desired Minus Actual Bank 2) (Deg)	DEG	PID	0.00	-0.13	0.00	-0.06
PCM (powertrain control module) VPWR (Module Supply Voltage) (V)	VOLTS	PID	13.19	14.40	14.35	14.32
PCM (powertrain control module) VREF (Reference Voltage) (V)	VOLTS	PID	5.01	5.01	5.01	5.01

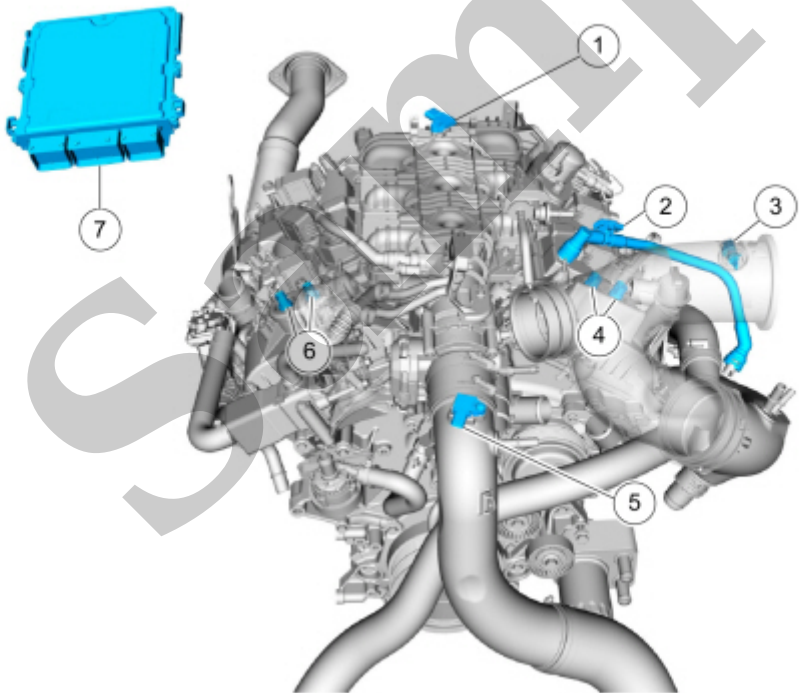


Electronic Engine Controls - Component Location

303-14E Electronic Engine Controls - 3.5L V6 PowerBoost (CN)	2022 F-150
Description and Operation	Procedure revision date: 03/29/2022

Electronic Engine Controls - Component Location

Electronic Engine Controls- Front



E331956

Item	Description
1	MAPT (manifold absolute pressure and temperature) sensor
2	Crankcase Pressure Sensor