

# Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

## 2019 Ford Transit-350 HD Service and Repair Manual

[Go to manual page](#)

PCM (powertrain control module) EQ_RAT11 (Equivalence Ratio (Lambda) (Bank 1, Sensor 1)) (Undefined / Not Used)	RATIO	PID	0.00	1.00	1.01	1.02
PCM (powertrain control module) EQ_RAT21 (Equivalence Ratio (Lambda) (Bank 2, Sensor 1)) (Undefined / Not Used)	RATIO	PID	0.00	1.00	1.00	0.90
PCM (powertrain control module) ETC_ACT (Electronic Throttle Control Actual) (Deg)	DEG	PID	8.13	1.88	15.52	10.84
PCM (powertrain control module) ETC_TRIM (Learned Value of Throttle Angle Offset) (Deg)	DEG	PID	0.31 (E)	0.31 (E)	0.31 (E)	0.31 (E)
PCM (powertrain control module) ETC_[TAC_PCT] (Commanded Throttle Actuator Control) (%)	%	PID	9	2	19	13
PCM (powertrain control module) EVAP020C ((EVAP) Monitor 0.020 Leak Check Complete)	YES/NO	PID	NO	NO	NO	NO
PCM (powertrain control module) EVAPCP (Evaporative Emission Canister Purge Valve duty cycle) (%)	%	EVAPCP Valve	0	16	80	18
PCM (powertrain control module) EVAPCV	%	CANV Valve	0	0	0	0

PCM (powertrain control module) FP (Fuel pump) (%)	%	Fuel Pump Control Module	75	17	18	16
PCM (powertrain control module) FPM (Fuel pump monitor) (%)	%	PID	40	40	41	41
PCM (powertrain control module) FRP (Fuel Rail Pressure) (kPa)	kPa (PSI)	FRP Sensor	10,310 (1,495.34)	9,690 (1,405.42)	6,170 (894.88)	9,680 (1,403.9)
PCM (powertrain control module) FRP_DSD (Fuel Rail Pressure Desired) (kPa)	kPa (PSI)	PID	540 (78.32)	2,060 (298.78)	2,060 (298.78)	2,060 (298.78)
PCM (powertrain control module) FRP_V (Fuel Rail Pressure Sensor Voltage) (V)	VOLTS	FRP Sensor	1.63	1.55	1.08	1.55
PCM (powertrain control module) FRT_A_RAW (Fuel Temperature -A- Raw) (Deg C)	DEG C (DEG F)	FRPT Sensor	48 (118.4)	47 (116.6)	50 (122)	50 (122)
PCM (powertrain control module) FRT_V (Fuel Rail Temperature Sensor Voltage) (V)	VOLTS	FRT Sensor	1.57	1.60	1.50	1.50
PCM (powertrain control module) FTP_V (Fuel Tank Pressure Sensor Voltage) (V)	VOLTS	FTP Sensor	2.62	2.38	2.38	2.28
PCM (powertrain control module) FUELSYS_A_PCT_B1 (Fuel System A Use Percentage)	%	PID	0	0	0	0

Full Stroke) - Commanded) (%)						
PCM (powertrain control module) HTR11 (Heated Exhaust Gas Oxygen Sensor Heater (bank 1, sensor 1))	ON/OFF	HO2S11 Sensor	OFF	ON	ON	ON
PCM (powertrain control module) HTR12 (Heated Exhaust Gas Oxygen Sensor Heater (bank 1, sensor 2))	ON/OFF	HO2S12 Sensor	OFF	ON	ON	ON
PCM (powertrain control module) HTR21 (Heated Exhaust Gas Oxygen Sensor Heater (bank 2, sensor 1))	ON/OFF	HO2S21 Sensor	OFF	ON	ON	ON
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) INJPWR_M (Injector Power Monitor) (V)	VOLTS	PID	12.80	14.57	14.54	14.54
PCM (powertrain control module) KNK_CNTR_CYL1 (Cylinder 1 Knock/Combustion Performance Counter) (Undefined / Not Used)	COUNT	PID	0	0	0	0
PCM (powertrain control module) KNK_CNTR_CYL2 (Cylinder 2 Knock/Combustion Performance Counter) (Undefined / Not Used)	COUNT	PID	0	0	0	0
PCM (powertrain control module) KNK_CNTR_CYL3 (Cylinder 3 Knock/Combustion Performance Counter) (Undefined / Not Used)	COUNT	PID	0	0	0	0
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	COUNT	PID	0	0	0	0

PCM (powertrain control module) MIL_DIS (The distance travelled since the (MIL) was activated.) (km)	KM (MILES)	PID	0 (0)	0 (0)	0 (0)	0 (0)
PCM (powertrain control module) MIL_OBD (Malfunction Indicator Lamp Status)	ON/OFF	PID	OFF	OFF	OFF	OFF
PCM (powertrain control module) MISFIRE (Engine Misfire currently detected)	TRUE/FALSE	PID	FALSE	FALSE	FALSE	FALSE
PCM (powertrain control module) MP_LRN (Misfire Profile Correction Learned)	TRUE/FALSE	PID	TRUE	TRUE	TRUE	TRUE
PCM (powertrain control module) NUM_MISFIRE (Misfire Events During Latest Misfire Cycle) (Undefined / Not Used)	COUNT	PID	0	0	2	2
PCM (powertrain control module) O2S11_CUR (Exhaust Gas Oxygen Sensor Current Bank 1 Sensor 1) (mA)	mA/uA	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	25	29	27
PCM (powertrain control module) O2S11_IMPEDI ((O2S11) sensor impedance is expressed as a voltage.) (V)	VOLTS	HO2S11 Sensor	5.00	1.05	1.04	1.05

Sensor Trim Circuit Resistance 21 - NTK sensor) (Ohm)						
PCM (powertrain control module) O2S22 (Heated Exhaust Gas Oxygen Sensor (bank 2, sensor 2)) (V)	VOLTS	HO2S12 Sensor	(A)	switching (D)	switching (D)	switching (D)
PCM (powertrain control module) O2_DS_DISBL (Downstream Oxygen Sensor Fuel Control Disabled.)	TRUE/FALSE	PID	TRUE	FALSE	FALSE	FALSE
PCM (powertrain control module) OCTADJ_R_LRND (Learned Relative Octane Adjustment) (Undefined / Not Used)	%	PID	0.00	0.00	0.00	0.00
PCM (powertrain control module) OSS_RAW (Output Shaft Speed - Raw) (Rpm)	RPM	OSS Sensor	0	0	1094	2013
PCM (powertrain control module) PATSENABL (PATS System Status - Enable Status)	ENABLED / DISABLED	PID	ENABLED	ENABLED	ENABLED	ENABLED
PCM (powertrain control module) RO2FT1 (Rear O2 Fuel Trim - Bank 1) (%)	%	PID	0.00	0.01	0.00	0.00
PCM (powertrain control module) RO2FT2 (Rear O2 Fuel Trim - Bank 2) (%)	%	PID	0.00	0.01	0.00	0.00
PCM (powertrain control module) RPM (Engine	RPM	CKP Sensor	0	667	1314	1446

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	7.8	1.6	12.9	11.0
PCM (powertrain control module) TURBO_BP1_STAT (Turbocharger Bypass 1 Status)	FAULT/NO FAULT	TCBY Valve	NO FAULT	NO FAULT	NO FAULT	NO FAULT
PCM (powertrain control module) TURBO_BPASS (Turbocharger Bypass Valve 1) (%)	%	TCBY Valve	0	0	0	0
PCM (powertrain control module) TURBO_WGATE (Turbocharger Wastegate) (%)	%	Turbocharger Wastegate Control	0	0	0	0
PCM (powertrain control module) VCTSYS ((VCT) System status (open/closed loop))	ENABLED / DISABLED	PID	DISABLED	ENABLED	ENABLED	ENABLED
PCM (powertrain control module) VCT_EXH_ACT1 (Actual Exhaust B Camshaft Position Bank 1) (Deg)	DEG	PID	0.00	-0.06	14.94	10.06
PCM (powertrain control module) VCT_EXH_ACT2 (Actual Exhaust B Camshaft Position Bank 2) (Deg)	DEG	PID	0.00	0.00	15.19	10.13
PCM (powertrain control module) VCT_EXH_DC1	%	VCT12 Solenoid	0	0	44	40



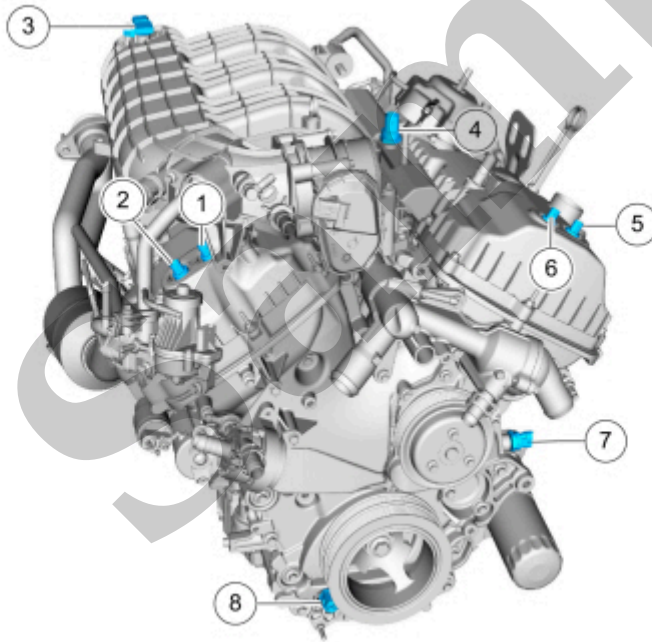
PCM (powertrain control module) VCT_INT_DIF1 (Intake A Camshaft Desired Minus Actual Bank 1) (Deg)	DEG	PID	0.00	0.19	0.25	-0.31
PCM (powertrain control module) VCT_INT_DIF2 (Intake A Camshaft Desired Minus Actual Bank 2) (Deg)	DEG	PID	0.00	0.13	0.06	0.00
PCM (powertrain control module) VPWR (Module Supply Voltage) (V)	VOLTS	PID	12.64	14.35	14.29	14.24
PCM (powertrain control module) VREF (Reference Voltage) (V)	VOLTS	PID	5.01	5.01	5.01	5.01
PCM (powertrain control module) VSS (Vehicle Speed) (Kph)	km/h (MPH)	PID	0 (0)	0 (0)	48 km/h (30 MPH)	89 km/h (55 MPH)
PCM (powertrain control module) WGATE_A_POS_PCT (Turbocharger/Supercharger Wastegate Position Sensor - A- Position - Corrected) (% Open)	%	Turbocharger Wastegate Motor 1	33.27	0.32	50.87	51.01
PCM (powertrain control module) WGATE_A_V (Turbocharger/Supercharger Wastegate Position Sensor - A- Input Voltage) (V)	VOLTS	Wastegate Position Sensor	2.21	1.28	2.70	2.72
PCM (powertrain control module) WGATE_B_POS_PCT (Turbocharger/Supercharger Wastegate Position Sensor -	%	Turbocharger Wastegate Motor 2	33.27	0.32	50.87	50.92

## Electronic Engine Controls - Component Location

<b>303-14B Electronic Engine Controls - 3.3L Duratec-V6</b>	<b>2022 F-150</b>
<b>Description and Operation</b>	<b>Procedure revision date: 05/28/2020</b>

### Electronic Engine Controls - Component Location

#### Electronic Engine Controls- Front



E264918

Item	Description
1	RH (right-hand) intake VCT (variable camshaft timing) oil control solenoid
2	RH (right-hand) exhaust VCT (variable camshaft timing) oil control solenoid