Subaru AccessPORT

Firmware 1.6.4.0 - Monitor Updates and Definitions Guide

Contents

1. Release Notes

- Increased responsiveness of monitor list
- Expanded monitor list (see below)
- Alphabetized monitor list
- Added selected monitor name to Live Data display
- Added up/down button repeat when button is held
- Added selection wrap-around when top or bottom of list is encountered
- Added warning when more than 14 monitors are selected
- Increased map storage limit to 100

2. New Monitors

The following new monitors were added:

"A/F Correction 3"
"A/F Learning 3" [APPLICABLE 2.5L MODELS ONLY]
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"AT Fuel Cut Sw." [AUTOMATIC TRANSMISSIONS ONLY]
"AT Lock-up Sw." [AUTOMATIC TRANSMISSIONS ONLY]
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"Knock Sum Cyl 3" [09-10 FXT, 10 LGT, 09-11 WRX, 08-11 STI]
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"Roughness Cyl 1" [2.5L MODELS ONLY]
"Roughness Cyl 2" [2.5L MODELS ONLY]
"Roughness Cyl 3" [2.5L MODELS ONLY]
"Roughness Cyl 4" [2.5L MODELS ONLY]
"RPM Delta" [2.5L MODELS ONLY]
"Target Throttle" [2.5L MODELS ONLY]
"TD Boost Error"
"TD Burst" [02-05 WRX ONLY]
"TD Continuous" [02-05 WRX ONLY]
"TD Integral" [2.5L MODELS ONLY]
"TD Proportional" [2.5L MODELS ONLY]
"TGV Drive Sw."
"TGV Output Sw."
"TGV Volt. Left"
"TGV Volt. Right"
"Tip-in Enrich." [02-05 WRX ONLY]
"Tip-in Enrich." [2.5L MODELS ONLY]
"TPS Delta"
"VDC Ban Torq Sw" [APPLICABLE MODELS ONLY]

"VDC Req Torq Sw" [APPLICABLE MODELS ONLY]
"Warm-up Enrich."
"Wastegate Max"

3. Fully Distributed Monitors

The following monitors were already defined for some cars, but missing in others (where the monitors were still applicable). These were added to the specified cars in this release. The original monitor name is included if the name was changed for this release:

"A/F Learning 1 A" ("A/F Learning A") [04-10 FXT, 05-09 LGT, 07-08 LGT spec.B, 04-07 STI, 02-09 WRX]
"A/F Learning 1 B" ("A/F Learning B") [04-10 FXT, 05-09 LGT, 07-08 LGT spec.B, 04-07 STI, 02-09 WRX]
"A/F Learning 1 C" ("A/F Learning C") [04-10 FXT, 05-09 LGT, 07-08 LGT spec.B, 04-07 STI, 02-09 WRX]
"A/F Learning 1 D" ("A/F Learning D") [04-10 FXT, 05-09 LGT, 07-08 LGT spec.B, 04-07 STI, 02-09 WRX]
"Closed Loop Sw." ("Closed Loop") [04-10 FXT, 05-10 LGT, 07-08 LGT spec.B, 04-07 STI, 09-11 STI, 02-09 WRX]
"Cruise/Accel" ("Cruise Map Ratio") [09-10 FXT, 07-09 LGT MT/AT, 10 LGT, 07-09 LGT spec.B, 07 STI, 09-11 STI, 08 WRX MT/AT, 09 SGT, 09-11 WRX]
"Feedback Knock" ("Knock Correction") [02-05 WRX]
"Fine Knock Learn" ("Knock Learning") [02-05 WRX]
"Req. Torque" [04-10 FXT, 05-09 LGT, 07-08 LGT spec.B, 04-07 STI, 06-09 WRX]

4. Resolved Monitor Bugs and Errors

The following monitor bugs/errors were fixed:

- 10 LGT -> The monitors "AVCS Ex. (Left)" and "AVCS Ex. (Right)" do not apply to this vehicle and were removed.
- 02-05 WRX -> The monitor "TPS Voltage" was fixed to display the correct value.
- 02-05 WRX -> The monitors "Accel. Position", "APP Volt.", and "Throttle Duty" do not apply to this vehicle and were removed.

5. Miscellaneous Monitor Changes

The following are miscellaneous monitor-related changes:

- The "Boost" monitor was changed to overcome the 22.3 psig limit inherent to the old monitor. The new monitor has no effective limit (boost reading will still be limited by the MAP sensor fitted to the car).
- The "Abs. Press." monitor, renamed "Man. Abs. Pressure", was changed to overcome the 37 psia limit inherent to the old monitor. The new monitor has no effective limit (boost reading will still be limited by the MAP sensor fitted to the car).
- The default data log list for all Subaru part numbers was changed to the following: "A/F Learning 1", "Boost", "Calculated Load", "Dyn. Adv. Mult", "Dynamic Adv.", "Feedback Knock", "Fine Knock Learn", "Ignition Timing", "MAF", "MAF Volt.", "RPM", "TD Boost Error", "Throttle Pos." and "Wastegate Duty".
- Some minor changes were made to some monitor conversions for slightly better accuracy when logging.

6. Monitor Name Changes

The following monitor names were changed for better consistency or to differentiate between newer monitors:

"A/F Learning A" -> "A/F Learning 1 A"
"A/F Learning B" -> "A/F Learning 1 B"
"A/F Learning C" -> "A/F Learning 1 C"
"A/F Learning D" -> "A/F Learning 1 D"
"Abs. Pressure" -> "Man. Abs. Press."
"Air/Fuel Ratio" -> "A/F Sens 1 Ratio"
"APP Volt." -> "Accel. Volt."
"AVCS Ex. (Left)" -> "AVCS Exh. Left"
"AVCS Ex. (Right)" -> "AVCS Exh. Right"
"AVCS In. (Left)" -> "AVCS In. Left"
"AVCS In. (Right)" -> "AVCS In. Right"
"Baro. Press." -> "Baro. Pressure"
"Closed Loop" -> "Closed Loop Sw."
"Cruise Map Ratio" -> "Cruise/Accel"
"Fuel Trim (Long)" -> "A/F Learning 1"
"Fuel Trim (Short)" -> "A/F Correction 1"
"Ignition Adv." -> "Ignition Timing"
"Knock Correction" -> "Feedback Knock"
"Knock Learning" -> "Fine Knock Learn"
"Learned Ign." -> "Dynamic Adv. Lrn"
"Mass Airflow" -> "MAF"

"Throttle Duty" -> "TPS Duty"
"Throttle Position" -> "Throttle Pos."
"Turbo Dynamics" -> "TD Boost Error"

7. Monitor definitions

The following is a comprehensive list of monitor definitions:

"A/F Correction 1" -> Short-term (immediate) fueling correction in closed loop based on input from the front oxygen sensor. This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed.

"A/F Correction 3" -> Short-term (immediate) fueling correction in closed loop based on input from the rear oxygen sensor. This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed.

"A/F Learning 1 A" -> Long-term (learned) fueling correction for airflow range "A" based on patterns of "A/F Correction 1". This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed. This value is determined and applied based on the first mass airflow range only.

"A/F Learning 1 B" -> Long-term (learned) fueling correction for airflow range "B" based on patterns of "A/F Correction 1". This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed. This value is determined and applied based on the second mass airflow range only.

"A/F Learning 1 C" -> Long-term (learned) fueling correction for airflow range "C" based on patterns of "A/F Correction 1". This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed. This value is determined and applied based on the third mass airflow range only.

"A/F Learning 1 D" -> Long-term (learned) fueling correction for airflow range "D" based on patterns of "A/F Correction 1". This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed. This value is determined and applied based on the fourth mass airflow range only.

"A/F Learning 1" -> Long-term (learned) fueling correction based on patterns of "A/F Correction 1" in closed loop, which is based on input from the front oxygen sensor. This is a percentage correction of the injector pulse width base. These values are determined and applied based on four separate mass airflow ranges. This value represents the current correction that is being applied. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed.

"A/F Learning 3" [APPLICABLE 2.5L MODELS ONLY] -> Long-term (learned) fueling correction based on patterns of "A/F Correction 3", which is based on input from the rear oxygen sensor. This is a percentage correction of the injector pulse width base. Positive values indicate fuel is being added as a result of the correction. Negative values indicate fuel is being removed.

"A/F Sens 1 Curr." -> Front oxygen sensor output current in milliamps (mA).

"A/F Sens 1 Ratio" -> Air/fuel ratio based on the front oxygen sensor.

"Accel. Position" [2.5L MODELS ONLY] -> Accelerator pedal opening angle percentage as determined by the accelerator position sensor.

"Accel. Volt." [2.5L MODELS ONLY] -> Main accelerator pedal position sensor output voltage.

"AT Fuel Cut Sw." [AUTOMATIC TRANSMISSIONS ONLY] -> Automatic transmission fuel cut request as relayed by the transmission control module.

"AT Retard Sw." [AUTOMATIC TRANSMISSIONS ONLY] -> Automatic transmission ignition retard request as relayed by the transmission control module.

"AT Torq. Per. Sw." [AUTOMATIC TRANSMISSIONS ONLY] -> Automatic transmission torque-down permission as relayed by the transmission control module.

"AVCS Ex. Left" [08-11 STI ONLY] -> Exhaust Active Valve Control System (AVCS) timing for the left bank based on the corresponding exhaust camshaft position sensor.

"AVCS Ex. Right" [08-11 STI ONLY] -> Exhaust Active Valve Control System (AVCS) timing for the right bank based on the corresponding exhaust camshaft position sensor.

"AVCS In. Left" [2.5L MODELS ONLY] -> Intake Active Valve Control System (AVCS) timing for the left bank based on the corresponding intake camshaft position sensor.

"AVCS In. Right" [2.5L MODELS ONLY] -> Intake Active Valve Control System (AVCS) timing for the right bank based on the corresponding intake camshaft position sensor.

"Baro. Pressure" -> Barometric pressure based on the barometric pressure sensor.

"Battery Volt." -> Battery voltage as determined by the battery voltage input to the ECU.

"Boost" -> Manifold pressure (relative) calculated from manifold absolute pressure and barometric pressure as follows: manifold absolute pressure - barometric pressure.

"Boost Target" -> This is the boost target after all boost target compensations have been applied. The underlying value is in absolute pressure with this relative value being calculated based on the assumption of sea level barometric pressure (14.7 psi).

"Calculated Load" -> Engine load, in grams per crankshaft revolution, as calculated by the ECU. This value is determined as follows: ("MAF" * 60) / RPM.

"Camshaft Sw." -> Camshaft position sensor output. Value is ON with camshaft rotation (i.e. when the engine is running).

"CL Fuel Target" -> Target fueling in closed loop after all compensations have been applied. The ECU will attempt to hit this target in closed loop based on feedback from the oxygen sensor(s).

"Closed Loop Sw." -> Closed/open loop fuel system status. Value is "On" in closed loop and "Off" in open loop. In closed loop, the ECU uses feedback from the oxygen sensor(s) to attempt to hit the closed loop fueling target. In open loop, this feedback is ignored.

"Clutch Sw." [MANUAL TRANSMISSIONS ONLY] -> Clutch switch output. Value is ON when the clutch pedal is pushed in.

"Comm Fuel Final" -> Final commanded fueling before the injector pulse width is calculated. This includes all corrections to fueling, including short-term and long-term fuel trims.

"Comm Fuel Map" -> Commanded open loop fueling as determined by the "Primary Fuel" table(s) with all direct compensations applied.

"Coolant Temp" -> Coolant temperature based on the engine coolant temperature sensor.

"Crankshaft Sw." -> Crankshaft position sensor output. Value is ON with crankshaft rotation (i.e. when the engine is running).

"Cruise/Accel" [APPLICABLE 07+ MODELS ONLY] -> Map ratio multiplier that determines the switching (and ramping) between tables with the cruise and accel. function. The final table value is calculated as follows: (accel table * map ratio) + (cruise table * (1.0 - map ratio)).

"Dyn. Adv. A Mult" [07-11 STI ONLY] -> Multiplier applied to the "Dynamic Advance A" adder map value to determine the portion (if any) of this adder that is applied to dynamic advance. This multiplier is determined by a number of factors which take into account the current knock condition and conditions that can potentially lead to knock.

"Dyn. Adv. B Mult" [07-11 STI ONLY] -> Multiplier applied to the "Dynamic Advance D" adder map value to determine the portion (if any) of this adder that is applied to dynamic advance. This multiplier is determined by a number of factors which take into account the current knock condition and conditions that can potentially lead to knock.

"Dyn. Adv. Adder" [04-06 STI ONLY] -> Multiplier applied to the "Dynamic Advance C" adder map value to determine the portion (if any) of this adder that is applied to dynamic advance. This multiplier is determined by a number of factors which take into account the current knock condition and conditions that can potentially lead to knock.

"Dyn. Adv. Mult" -> This is a learned correction applied to dynamic advance. The dynamic advance multiplier (DAM) is one of three knock responses. When conditions dictate that a change to the DAM is to occur, the current knock signal is referenced and the DAM is set to an initial value. If a knock event has occurred, the DAM will decrease. If there's no knock event, the DAM will increase (if no knock over a delay period). The DAM is reset to an initial value after an ECU reset or after a reflash. For the 02-05 WRX, the DAM ranges from 0 to 16 and its application to dynamic advance can be calculated as follows: dynamic advance map value * (DAM/16). For all other ECUs, the DAM ranges from 0 to 1 (decimal value) and is applied as follows: dynamic advance map value * DAM.

"Dyn. Adv. Ratio" [04-06 STI ONLY] -> Map ratio multiplier that determines the map switching (or blending) between the "B" and "C" versions of the "Dynamic Advance" tables. The final primary dynamic advance is determined as follows: (B table * ratio) + (C table * (1.0 - ratio)). This multiplier is determined by a number of factors which take into account the current knock condition and conditions that can potentially lead to knock.

"Dynamic Adv." -> Dynamic advance map value with the following knock corrections applied: dynamic advance multiplier (DAM), feedback knock correction, and fine knock learning correction. This is the final dynamic advance that makes up a portion of total timing.

"Dynamic Adv. Lrn" [SELECT 07+ MODELS ONLY] -> Dynamic advance map value with only the following learned knock corrections applied: dynamic advance multiplier (DAM) and fine knock learning correction. This value does not include feedback knock correction.

"Exh. Gas Temp" [APPLICABLE MODELS ONLY] -> Exhaust gas temperature (EGT) based on the EGT sensor located in the uppipe.

"Feedback Knock" -> This is a correction applied to dynamic advance based on knock. Feedback knock correction is the default correction of the three knock responses. When conditions dictate that changes to the dynamic advance multiplier or fine knock learning are not called for, feedback knock correction will be active (within specific RPM and load ranges). When a knock event occurs, feedback knock correction will decrease from its initial value of zero. The correction will be held until there's no knock event over a delay period after which the correction value will increase by a specific value (and the process repeats until the value ramps back to zero). If there is a knock event over the delay period, the value will decrease further.

"Fine Knock Learn" -> This is a learned correction applied to dynamic advance. Fine knock learning is one of three knock responses. Its values are stored and applied based on specific load and RPM ranges. When conditions dictate that changes to fine knock learning are to occur, the current knock signal is referenced. If a knock event has occurred, the learned value in the current load/RPM cell will decrease. If no knock event has occurred over a delay period for that cell, the learned value will increase. Limits are placed on positive fine knock learning depending on the current dynamic advance multiplier (DAM).

"Fuel Economy" -> AccessPORT's calculation of current fuel economy based on "A/F Sens 1 Ratio", "Vehicle Speed" and "MAF".

"Fuel Level" [APPLICABLE MODELS ONLY] -> Fuel level sensor output voltage.

"Fuel Pump Duty" -> Necessary fuel pump duty ratio as determined by the ECU.

"Fuel Temp" -> Fuel temperature based on the fuel temperature sensor.

"Gear Position" -> Current estimated gear position as determined by the ECU. This value is estimated based on RPM and vehicle speed.

"Hot-Restart Enr." [2.5L MODELS ONLY] -> Post-start hot-restart decay enrichment fuel adder (EQ ratio). This value begins decaying after engine start to provide post-start enrichment during hot-restart conditions. Higher values indicate greater enrichment.

"Idle Airflow" [2.5L MODELS ONLY] -> Mass airflow target in idle mode as determined by the ECU. This is used as a more proactive means to determine an idle throttle opening based on an estimated airflow target. Higher values indicate a potentially greater throttle opening.

"Idle Mode Sw." -> Idle mode status as determined by the ECU. Value is ON when idle mode is active. Idle mode is primarily determined by throttle position for drive-by-cable cars and requested torque for drive-by-wire cars.

"Idle SCV Duty" [02-05 WRX ONLY] -> Idle speed control valve duty cycle as determined by the ECU. This value is primarily manipulated in order to hit an idle RPM target.

"Idle Spd Target" [2.5L MODELS ONLY] -> Idle RPM target as determined by the ECU.

"Idle Speed Error" [2.5L MODELS ONLY] -> Current idle RPM delta calculated as follows: RPM w/ smoothing - idle speed target.

"Ignition Sw." -> Ignition switch status. Value is ON when the ignition switch is on.

"Ignition Timing" -> Total ignition timing for cylinder #1. This includes all compensations and corrections.

"Inj. Duty Cycle" -> AccessPORT's calculation of the injector duty cycle percentage, based on "Inj. Pulse Width" and "RPM". This is determined as follows: Inj. Pulse Width * RPM / 1200.

"Inj. Pulse Width" -> Final calculated injector pulse width for injector #1, as determined by the ECU.

"Inj. Latency" -> Injector latency (dead-time) as determined by the "Fuel Injector Latency" table.

"Inj. PW Base" [2.5L MODELS ONLY] -> Final injector pulse width before individual fuel injector trims are applied.

"Intake Temp" -> Intake temperature based on the intake air temperature sensor.

"Knock Active Sw." -> Knock activity status as determined by the ECU with input from the knock sensor. Value is ON when knock is detected (as perceived by the ECU). Note: Because this switch is immediately cleared when no knock is occurring (as perceived by the ECU), it can be difficult to catch knock events when monitoring. This is because the time scale of a single knock event is small.

"Knock Sum Cyl 1" [09-10 FXT, 10 LGT, 09-11 WRX, 08-11 STI] -> Counter which is incremented when a non-consecutive knock event, as perceived by the ECU, occurs in cylinder #1. This value may be reset to zero when a certain threshold is reached. Note: This counter is incremented even at idle and low RPM where false knock is a greater probability.

"Knock Sum Cyl 2" [09-10 FXT, 10 LGT, 09-11 WRX, 08-11 STI] -> Counter which is incremented when a non-consecutive knock event, as perceived by the ECU, occurs in cylinder #2. This value may be reset to zero when a certain threshold is reached. Note: This counter is incremented even at idle and low RPM where false knock is a greater probability.

"Knock Sum Cyl 3" [09-10 FXT, 10 LGT, 09-11 WRX, 08-11 STI] -> Counter which is incremented when a non-consecutive knock event, as perceived by the ECU, occurs in cylinder #3. This value may be reset to zero when a certain threshold is reached. Note: This counter is incremented even at idle and low RPM where false knock is a greater probability.

"Knock Sum Cyl 4" [09-10 FXT, 10 LGT, 09-11 WRX, 08-11 STI] -> Counter which is incremented when a non-consecutive knock event, as perceived by the ECU, occurs in cylinder #4. This value may be reset to zero when a certain threshold is reached. Note: This counter is incremented even at idle and low RPM where false knock is a greater probability.

"Knock Sum" [ALL 2.5L MODELS EXCEPT 09-10 FXT, 10 LGT, 09-11 WRX, 04-06 STI, 08-11 STI] -> Counter which is incremented when a non-consecutive knock event, as perceived by the ECU, occurs. This value may be reset to zero when a certain threshold is reached. Note: This counter is incremented even at idle and low load/RPM where false knock detection is a greater probability.

"Man. Abs. Press." -> Manifold pressure (absolute) based on the manifold absolute pressure sensor.

"MAF Volt." -> Mass airflow sensor output voltage.

"MAF" -> Final mass airflow (in grams per second), as determined by the ECU, based on the "MAF Calibration" table with limits/compensations applied.

"Neutral Pos. Sw." -> Transmission neutral status as determined by the neutral position sensor. Value is ON when gearshift is in neutral for manual transmissions or neutral or park for automatic transmissions.

"Post-Start HS" -> Post-start high speed decay fuel adder (EQ ratio). This value begins decaying after engine start to provide post-start enrichment. Higher values indicate greater enrichment.

"Post-Start LS" -> Post-start low speed decay fuel adder (EQ ratio). This value begins decaying after engine start to provide post-start enrichment. Higher values indicate greater enrichment.

"Primary Ign." -> Primary ignition timing advance as determined by the "Primary Ignition" table(s).

"Rad. Fan 1 Sw." -> Radiator fan relay #1 status as determined by the ECU. Value is ON when the ECU determines that the relay should be on.

"Rad. Fan 2 Sw." -> Radiator fan relay #2 status as determined by the ECU. Value is ON when the ECU determines that the relay should be on.

"Req. Torq. Ratio" [APPLICABLE 2.5L MODELS ONLY] -> Requested Torque Ratio as used as an input to the "Target Throttle Angle..." tables. This value is calculated as follows: requested torque / requested torque ratio. The requested torque ratio is determined by the "Requested Torque Ratio..." table.

"Req. Torque" [2.5L MODELS ONLY] -> Requested torque as determined by the "Requested Torque" table(s) and used as an input to the "Target Throttle Angle..." table(s) to determine the target throttle angle.

"Roughness Cyl 1" [2.5L MODELS ONLY] -> Misfire count for cylinder #1 as determined by the ECU.

"Roughness Cyl 2" [2.5L MODELS ONLY] -> Misfire count for cylinder #2 as determined by the ECU.

"Roughness Cyl 3" [2.5L MODELS ONLY] -> Misfire count for cylinder #3 as determined by the ECU.

"Roughness Cyl 4" [2.5L MODELS ONLY] -> Misfire count for cylinder #4 as determined by the ECU.

"RPM" -> Engine speed in crankshaft revolutions per minute based on the crankshaft position sensor.

"RPM Delta" [2.5L MODELS ONLY] -> Current RPM delta calculated (generally) as follows: current RPM - previous RPM.

"Target Throttle" [2.5L MODELS ONLY] -> Target throttle plate opening position during non-idle conditions. This value is determined by requested torque and RPM.

"TGV Drive Sw." -> Tumble generator valves (TGV) position as determined by the ECU. Value is ON when the TGVs are open.

"TGV Output Sw." -> Tumble generator valve output status as determined by the ECU. Value is ON when ECU intends to change the position of the TGVs.

"TGV Volt. Left" -> Tumble generator valve (TGV) output voltage as determined by the TGV position sensor in the left bank.

"TGV Volt. Right" -> Tumble generator valve (TGV) output voltage as determined by the TGV position sensor in the right bank.

"Throttle Pos." -> Throttle plate opening percentage based on the throttle position sensor.

"Tip-in Enrich." [2.5L MODELS ONLY] -> The last applied injector pulse width for tip-in enrichment after all compensations have been applied. Tip-in enrichment temporarily overrides current fueling based on abrupt changes in throttle in a positive direction. Note: This value is not cleared when tip-in enrichment is inactive.

"Tip-in Enrich." [02-05 WRX ONLY] -> The last calculated injector pulse width for tip-in enrichment after all compensations have been applied. Tip-in enrichment temporarily overrides current fueling based on abrupt changes in throttle in a positive direction. Note: This value is not necessarily applied as it is a calculation before thresholds are checked for activation. This value is also not cleared when tip-in enrichment is inactive.

"TPS Delta" -> Change in throttle position, as determined by the ECU. This value is calculated as follows: current throttle position - previous throttle position. Positive values indicate that the throttle has changed in a positive direction.

"TPS Duty" [2.5L MODELS ONLY] -> Throttle motor duty as determined by the ECU. This value is manipulated in order to hit a throttle target.

"TPS Voltage" [2.5L MODELS ONLY] -> Main throttle position sensor output voltage.

"TPS Voltage" [02-05 WRX ONLY] -> Throttle position sensor output voltage.

"TD Boost Error" -> This is the difference between the current boost target and actual boost calculated as follows: boost target - actual boost.

"TD Burst" [02-05 WRX ONLY] -> Current correction (absolute) to wastegate duty based on the "Turbo Dynamics Burst" table. This correction is generally active when boost error immediately swings from positive to negative (or vice versa).

"TD Continuous" [02-05 WRX ONLY] -> Current correction (absolute) to wastegate duty based on the "Turbo Dynamics Continuous" table. This correction is generally active when boost error is non-zero.

"TD Integral" [2.5L MODELS ONLY] -> Current total correction (absolute) to wastegate duty based on the "Turbo Dynamics Integral..." tables. This value accumulates generally over a short period of time based on minimum RPM and boost target thresholds.

"TD Proportional" [2.5L MODELS ONLY] -> Current correction (absolute) to wastegate duty based on the "Turbo Dynamics Proportional" table.

"VDC Ban Torq Sw." [APPLICABLE MODELS ONLY] -> Ban of torque-down as determined by the ECU to be transmitted to the Vehicle Dynamics Control (VDC) module.

"VDC Req Torq Sw." [APPLICABLE MODELS ONLY] -> Request for torque-down to the ECU as determined by the Vehicle Dynamics Control (VDC) module.

"Vehicle Speed" -> Vehicle speed based on the vehicle speed sensor (VSS).

"Warm-Up Enrich." -> Warm-up enrichment fuel adder (EQ ratio). This adder provides warm-up enrichment based on coolant temperature. Higher values indicate greater enrichment.

"Wastegate Duty" -> Final wastegate duty cycle as determined by the ECU's boost control logic. This value is manipulated in order to hit the boost target.

"Wastegate Max" -> Maximum wastegate duty limit as determined by the "Wastegate Duty Cycles (High)" table(s) with all wastegate compensations and limits applied.