



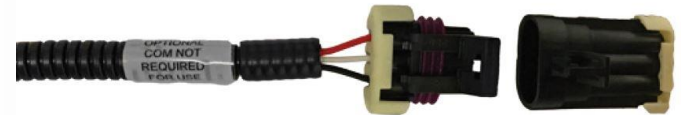
Powertrain Control Solutions.com
Engineering the future of driveline control

PCS TRANSMISSION TUNING

TCM2800 GUIDE

TCM Communication Cable

- TCM is accessed via a serial data interface and a Windows laptop
- Replacement is available from PCS. PN# TCM4180
- Comm issues, in “Device Manager” verify that the driver is installed and you are using com-port 5-15... Windows often defaults to com-3.



Labeled “OPTIONAL COM NOT REQUIRED FOR USE.”

When not in use cap is required.



What is this Applicable to?

- **Freewheeling / Overrun style Transmissions**
- GM 4L60/65/70/75 and GM 4L80/85
- Ford AODE, 4R70/75, E4OD, 4R100
- Mod-VB Dodge 46/47/48RE
- Others may be applicable...
- Clutch-to-clutch requires different tuning systems
 - 6L, 8L, 10L, 6R, 10R, 5/6/8HP...

Types of Configurable I / O

- **Analog Inputs**
 - Is a 0-5v steady signal. For throttle position, trans temp, pressure sensors, etc...
- **Analog Outputs**
 - **None on our system**, would be 0-5v or 0-12v steady output. OEM Gauge Drivers use these.
- **Digital Inputs**
 - Toggle or Momentary, 12v or Ground sensing, invert-able.
 - For Lever Position, Brake Input, switches, etc...
- **Digital Outputs**
 - Up to 1A, providing 12v or Ground. For non-pwm-solenoids, lights, relay-control...
- **Speed Inputs**
 - Programmable Trigger values and 1k pull-up. Zero crossing or absolute, square or sin waves.
- **Speed Outputs**
 - Zero crossing output, configurable pulses-per-mile. For gauge or module outputs.
- **PWM (Pulse Width Modulation) Outputs**
 - Up to 1A, providing 12v or Ground. Frequency adjustable.
 - For pwm-solenoids, lights, relay control...
- **CANBUS**
 - Two twisted wire communication link(s). Internal resistor, set to ON or OFF. Two available on TCM's.
 - Communication Protocols are GMLAN or J1939 based on other modules.
- **Serial Bus**
 - Three wire communication link. Communicates with Laptop USB.

What is required to wire?

- 12v Battery Power (fused at 5A)
- 12v Switched (Ignition) Power (fused at 10A)
- Ground (Battery negative or chassis)
- Throttle Position (0.5v to 4.5v Pedal Position, or via GMLAN)
- Brake Light Input (12v signal when applied)
- Transmission Main Connector
- Output Shaft Speed (Sensor, normally on extension-housing)

What is recommended to wire?

- **Engine RPM** (Square or sine wave, configurable pulses. Or GMLAN)
- **Input Shaft Speed** (Sensor, if equipped)
- While not required, a clean Tach & ISS signal will enable much better datalog / diagnostics, but Tach also will allow you to enable “WOT Mode” which shifts at a configurable “Redline” instead of TPS-vs-MPH.

What is optional to wire?

- **Option Connector** (PCS Paddle Shifters & Gear Indicators)
- **CAN Connector** (PCS Push Button Shifters, Datalogger, GMLAN or J1939 capable ECM's)
- **Speedometer Output** (Configurable pulsed output for dash)
- **PWM / Digital Outputs** (Configurable 12v or GND)
 - Check Transmission Light / DTC Indicator
 - Mode Light (Cancel Overdrive, Cal-B, Dyno, Manual-Mode, Redline...)
 - Relay Triggers (Trans Cooler Fan, Speed Interlock, Neutral Safety, Reverse Lights...)

What is optional to wire?

- Analog Inputs (0-5v for pressures and temps)
 - Trans Line Pressure (Sensor reading only, not for feedback loop)
 - Engine Coolant Temperature
 - Engine Oil Pressure
 - Boost Pressure / MAP
 - Air Temp
- Digital Inputs (Tunable 12v or GND, Toggle or Moment, Invertable)
 - True Manual Mode
 - Upshift / Downshift for custom paddles
 - Calibration-B, secondary shift-map and pressures
 - Cancel Overdrive
 - 4WD Low (for altered MPH ratio)
 - Dyno Mode
 - Snow Mode (Disables 1st gear)

Side Note: Paddle Shifters

- If you have PCS Paddles they should be hooked to the round-four-pin “Option Connector”.
- Pulling both PCS paddles puts you into temporary “Simple Manual” Mode. Hitting a toggle button (Digital Input) can be set up for forced “True Manual”
- If you are using custom paddles or an aftermarket such as the Lokar Bump Shifter series, you will need 3 digital inputs set for grounding. True, Up, & Down.

Side Note: Paddle Shifters

- If using PCS Paddles, start with the settings shown below.

Tap Upshift/Downshift Limits

1-2 Limit	40	MPH
2-3 Limit	60	MPH
3-4 Limit	80	MPH
4-5 Limit	0	MPH
5-6 Limit	0	MPH
2-1 Limit	5	MPH
3-2 Limit	20	MPH
4-3 Limit	30	MPH
5-4 Limit	0	MPH
6-5 Limit	0	MPH

Misc. Options

- ☐ Enable Auto Cal TPS Low voltage
- ☐ Enable Auto CAL TPS High Voltage
- ☐ Finish Shift Before N-D
- ☒ Prevent Skip Shifting
- ☒ Allow Multi-Tap with Skip
- ☐ Enter Tap Mode on shift request
- ☐ Allow Multi-Tap without Skip
- ☒ Exit Manual Mode When Exiting CAL B
- ☐ Use Automatic Gear Correction
- ☐ Use Ratio For Advanced Solenoid Selection
- ☐ Use 722.6 Input Speed Configuration
- ☐ Disable Speed Input Averaging
- ☒ Save Cal Changes on Power Down
- ☐ Clutch to Clutch Transmission
- ☐ Use 3d Torque Table For GMLAN
- ☒ Enable Calibration B by Range
- ☐ All Gears Available in All Forward Ranges
- ☐ Exit Manual mode on range change
- ☐ Never Exit Temp Tap in Cal B
- ☒ Use FNR shifter with Desired Range
- ☒ Return to Previous Commanded Gear on N-D Shift

Digital Inputs

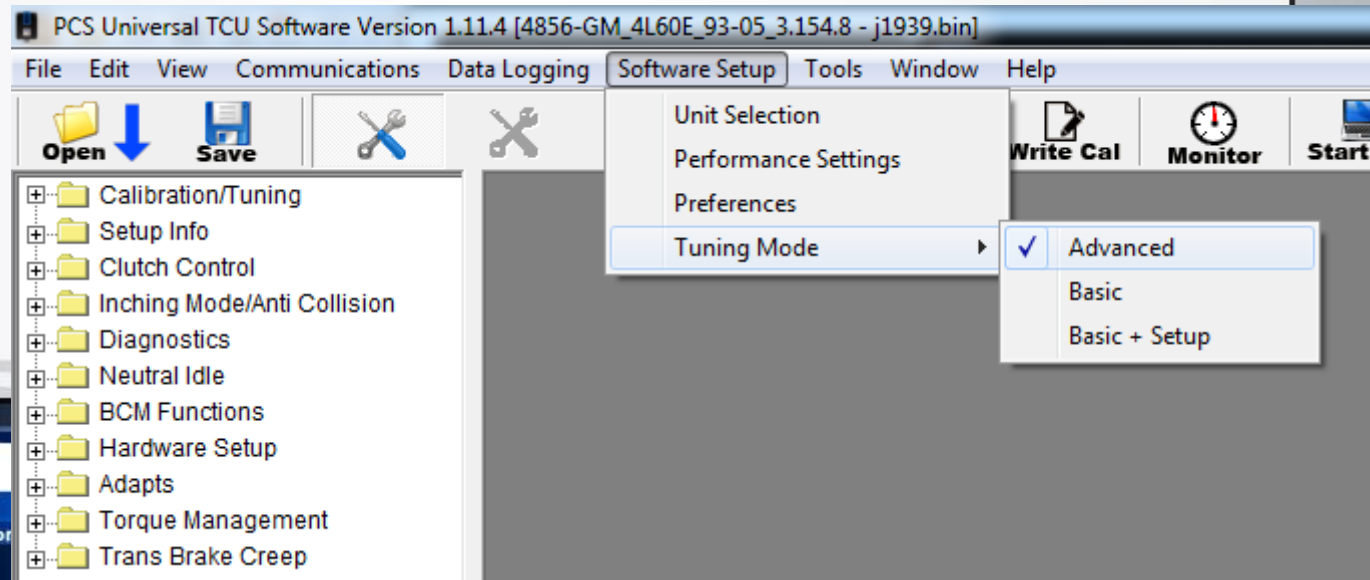
On	Off	Name	On	Off
☐	☐	Digital Input 1	☐	☐
☐	☐	Digital Input 2	☐	☐
☐	☐	Digital Input 3	☐	☐
☐	☐	Digital Input 4	☐	☐
☐	☐	Digital Input 5	☐	☐
☐	☐	Digital Input 6	☐	☐
☐	☐	Digital Input 7	☐	☐
☐	☐	Digital Input 8	☐	☐
☐	☐	Digital Input 9	☐	☐
☐	☐	Digital Input 10	☐	☐
☐	☐	Digital Input 11	☐	☐
☐	☐	Digital Input 12	☐	☐
☐	☐	Digital Input 13	☐	☐
☐	☐	Digital Input 14	☐	☐
☐	☐	Digital Input 15	☐	☐
☐	☐	Digital Input 16	☐	☐

Misc Mode Settings

- Gear to start dyno mode: 3
- Speed to lockup TCC: 50 MPH
- Range Position To enable CAL B: 3
- Tap Hold Exit Timer: 3 s
- Temp Tap Mode exit timer: 1 s
- TCU Mode: Default TCU Mode
- Line Pressure Mode: Standard 4 Speed

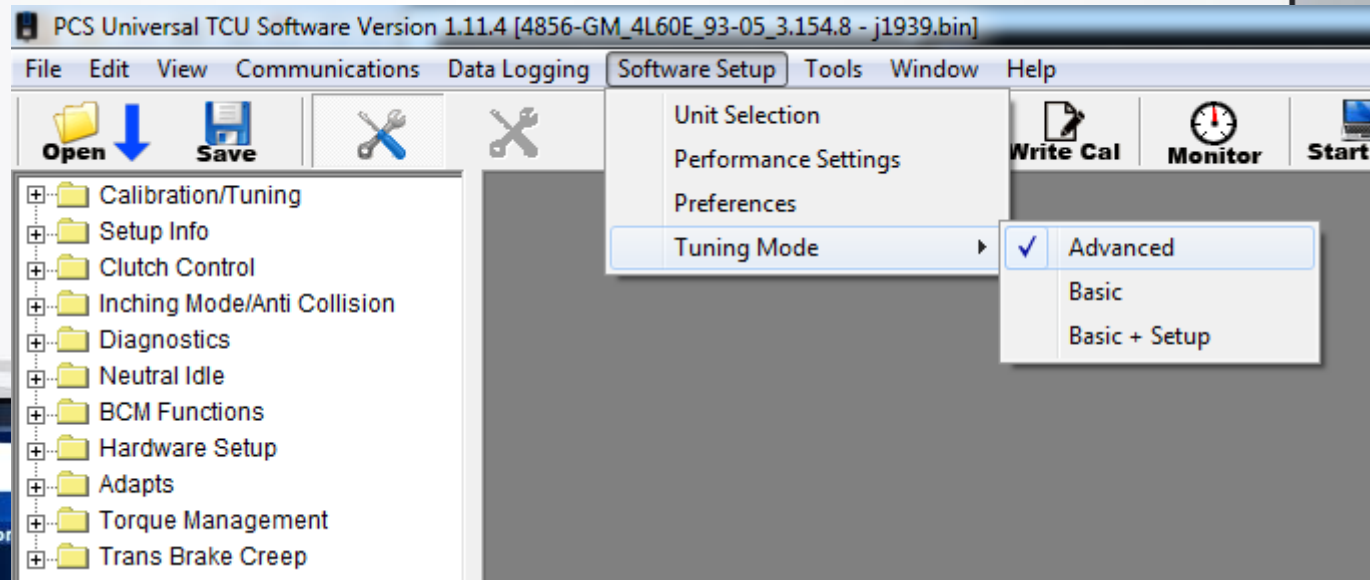
Tips for Tuning

- Always Save-Calibration-As for each tune change.
CYA to be able to go back if a prior version worked better!
- Need to be in “Advanced Tuning Mode”.
- Need to look at “2800 Datastream” Monitor.
- TCM is preloaded with your trans’ base-calibration.



Tips for Tuning

- Only mess with:
 - Calibration / Tuning
 - Setup Info
 - Diagnostics
 - Hardware Setup



Setting Up Vehicle Speed (OSS)

- Input the Final Drive Ratio (Rear Diff ratio).
- Under “Tools” there is a Tire Size Calc. Fill in Driven Tire Dia.
- Unless E4OD, your OSS / Drive-Shaft-RPM Pulses will be preset.
- Ignore anything in this whole adventure regarding Gears 5 & 6.

The screenshot displays a software interface for vehicle calibration, specifically focusing on speed input and gear ratios. The left sidebar shows a tree view of settings, with 'Speed Input Trigger Levels' selected. The main area contains several panels:

- Gear Ratios and Tire Size:** Displays gear ratios for Gears 1 through 6, Final Drive Ratio (3.703), 4WD Low Ratio (3.504), and Driven Tire Diameter (27.030).
- Speed Input Selection:** Configures speed inputs for Engine RPM, Turbine Speed 1, Drive Shaft RPM, Driven Wheel Speed, Non-Driven Wheel Speed, and Turbine Speed 2.
- Speed Input Pulses:** Sets pulses per revolution for Speed Input 1 through 4.
- Speed Input Trigger Levels:** Configures trigger level speeds for Speed Input 1 through 4.
- Speed Input Options:** Includes checkboxes for 'Enable Frequency Range', 'Enable Missing Tooth Detection on Speed Input 1', and 'Disable Speed Input Averaging'.
- Tire Size Calculator:** A sub-panel for calculating tire diameter based on width, ratio, and rim size.

The 'Speed Input Trigger Levels' panel shows the following values:

Speed Input	Trigger Level Speed
Speed Input 1	0.94
Speed Input 2	0.94
Speed Input 3	0.94
Speed Input 4	0.94

Setting Up Engine RPM

- If hardwired, verify the Speed Input, normally *Speed-1*.
- Will need to research or trial-error adjust the Pulses-Per-Revolution.
- Verify the setting for flywheel or tone-wheel with/without missing teeth.
- Trigger Level is the voltage that registers as a pulse. Make the *Speed-1* voltage as low as possible before it does not register at idle.

The screenshot displays a vehicle calibration software interface with a sidebar on the left and several configuration windows on the right.

Sidebar (Left):

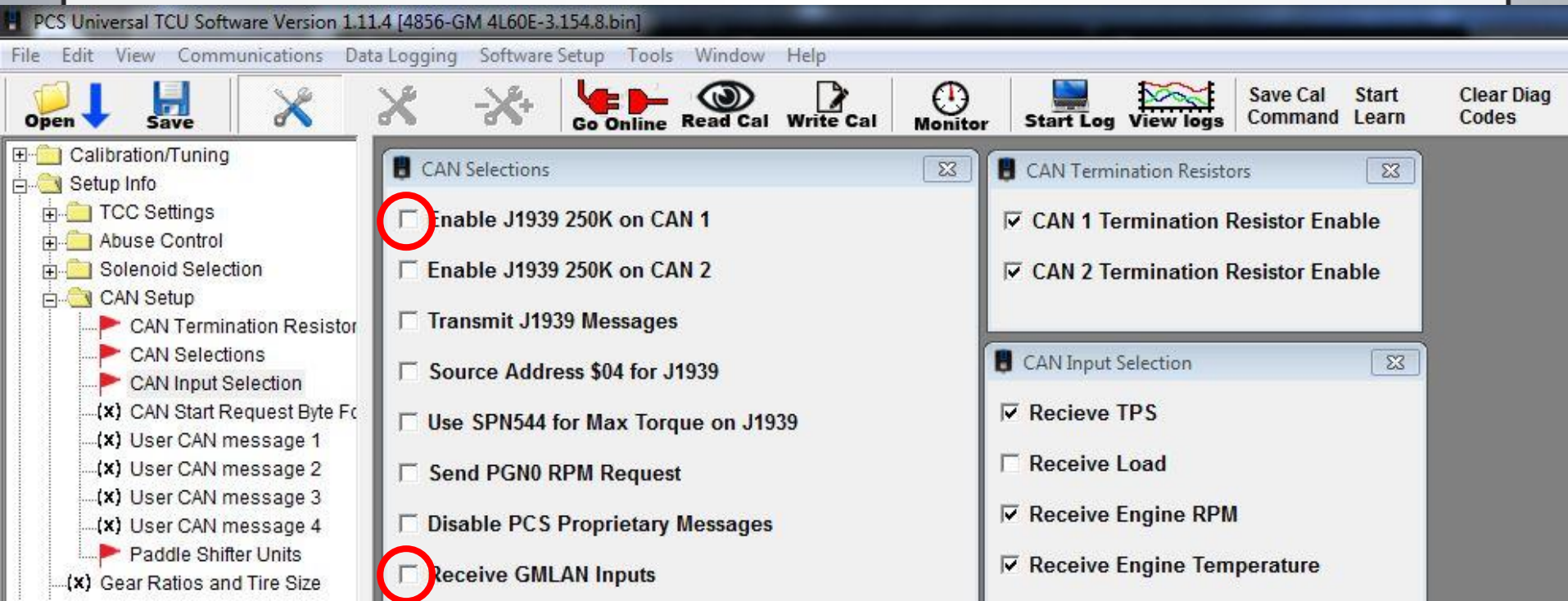
- Calibration/Tuning
 - Setup Info
 - TCC Settings
 - Abuse Control
 - Solenoid Selection
 - CAN Setup
 - (x) Gear Ratios and Tire Size
 - (x) Gear Correction Windows
 - (x) Password
 - (x) Shift Timers
 - (x) Breakpoint Selection
 - (x) 8 Point Breakpoints
 - (x) 16 Point Breakpoints
 - Misc. Options
 - (x) Misc Mode Settings
 - (x) Internal Odometer Pulses/Mile
 - (x) Calibration ID/Part Number
 - Clutch Control
 - Inching Mode/Anti Collision
 - Diagnostics
 - Neutral Idle
 - BCM Functions
 - Hardware Setup
 - Analog Inputs
 - Speeds
 - (x) Speed Input Trigger Levels

Configuration Windows (Right):

- Gear Ratios and Tire Size:**
 - Gear 1: 3.082
 - Gear 2: 1.639
 - Gear 3: 1.001
 - Gear 4: 0.829
 - Gear 5: 1.001
 - Gear 6: 1.001
 - Final Drive Ratio: 3.703
 - 4WD Low Ratio: 3.504
 - Driven Tire Diameter: 27.030
- Speed Input Selection:**
 - Engine RPM: Speed Input 1
 - Turbine Speed 1: Calculated Torque Converter RPM
 - Drive Shaft RPM: Speed Input 2
 - Driven Wheel Speed: Calculated Vehicle Speed
 - Non-Driven Wheel Speed: Disabled
 - Turbine Speed 2: Disabled
- Tire Size Calculator:**
 - Tire Size
 - Width (mm): 245 / Ratio(%): 50 Rim Size (in): R 16
 - Calculate Tire Diameter
 - Tire size in Inches: []
- Speed Input Pulses:**
 - Speed Input 1 Pulses Per Revolution: 2.0
 - Speed Input 2 Pulses Per Revolution: 40.0
 - Speed Input 3 Pulses Per Revolution: 30.0
 - Speed Input 4 Pulses Per Revolution: 30.0
- Speed Input Trigger Levels:**
 - Trigger Level Speed 1: 0.94
 - Trigger Level Speed 2: 0.94
 - Trigger Level Speed 3: 0.94
 - Trigger Level Speed 4: 0.94
- Speed Input Options:**
 - ☐ Enable Frequency Range
 - ☒ Enable Missing Tooth Detection on Speed Input 1
 - ☐ Disable Speed Input Averaging

Setting Up J1939 or GMLAN

- If CANBUS, remember only 2 resistors should be in the twisted-pair of wires. If 2 already exist, disable the internal resistors on the TCM2800.
- For GMLAN or J1939 protocols, the main goal is to get TPS and RPM.
- DO NOT FORGET to Disable the hardwired inputs for these, if using CAN.
- Do a full Battery-Disconnect after changing and saving any CAN settings.



Setting Up Digital Inputs

PCS Universal TCU Software Version 1.11.4 [4856-GM_4L60E_93-05_3.154.8 - j1939.bin]

File Edit View Communications Data Logging Software Setup Tools Window Help

Open Save [Icons] Go Online Read Cal Write Cal Monitor Start Log View logs Save Cal Command Start Learn Clear Diag Codes

Left Panel (Tree View):

- Calibration/Tuning
- Setup Info
- Clutch Control
- Inching Mode/Anti Collision
- Diagnostics
- Neutral Idle
- BCM Functions
- Hardware Setup
 - Analog Inputs
 - Speeds
 - Digital Inputs
 - Digital Range Logic
 - (x) Digital Input Function Assignment
 - Digital Input Active Level
 - Button Type
 - Invert Button Logic
 - (x) Debouce
- PWM / Digital Outputs
- Adapts
- Torque Management
- Trans Brake Creep

Main Panel (Digital Input Configuration):

Digital Input Function Assignment	Digital Input Active Level	Button Type	Invert Button Logic
Input 1: Gear Select 1	Input 1: ☒ Low ☐ High	Input 1: ☐ Momentary ☒ Toggle	☐ Input 1 Invert
Input 2: Gear Select 2	Input 2: ☒ Low ☐ High	Input 2: ☐ Momentary ☒ Toggle	☐ Input 2 Invert
Input 3: Gear Select 3	Input 3: ☒ Low ☐ High	Input 3: ☐ Momentary ☒ Toggle	☐ Input 3 Invert
Input 4: Disabled	Input 4: ☐ Low ☒ High	Input 4: ☐ Momentary ☒ Toggle	☐ Input 4 Invert
Input 5: Disabled	Input 5: ☒ Low ☐ High	Input 5: ☐ Momentary ☒ Toggle	☐ Input 5 Invert
Input 6: Disabled	Input 6: ☐ Low ☒ High	Input 6: ☐ Momentary ☒ Toggle	☐ Input 6 Invert
Input 7: Disabled	Input 7: ☒ Low ☐ High	Input 7: ☐ Momentary ☒ Toggle	☐ Input 7 Invert
Input 8: Disabled	Input 8: ☒ Low ☐ High	Input 8: ☐ Momentary ☒ Toggle	☐ Input 8 Invert
Input 9: Brake Light	Input 9: ☐ Low ☒ High	Input 9: ☐ Momentary ☒ Toggle	☐ Input 9 Invert
Input 10: True Manual Mode	Input 10: ☒ Low ☐ High	Input 10: ☐ Momentary ☒ Toggle	☐ Input 10 Invert
Input 11: Upshift	Input 11: ☒ Low ☐ High	Input 11: ☐ Momentary ☒ Toggle	☐ Input 11 Invert
Input 12: Downshift	Input 12: ☒ Low ☐ High	Input 12: ☐ Momentary ☒ Toggle	☐ Input 12 Invert
Input 13: Calibration B	Input 13: ☒ Low ☐ High	Input 13: ☐ Momentary ☒ Toggle	☐ Input 13 Invert
Input 14: Cancel Overdrive	Input 14: ☐ Low ☒ High	Input 14: ☐ Momentary ☒ Toggle	☐ Input 14 Invert
Input 15: 4WD Low	Input 15: ☒ Low ☐ High	Input 15: ☐ Momentary ☒ Toggle	☐ Input 15 Invert
Input 16: Dyno Mode	Input 16: ☒ Low ☐ High	Input 16: ☐ Momentary ☒ Toggle	☐ Input 16 Invert

Setting Up PWM Outputs

PCS Universal TCU Software Version 1.11.4 [4856-GM_4L60E_93-05_3.154.8 - j1939.bin]

File Edit View Communications Data Logging Software Setup Tools Window Help

Open Save Undo Redo Read Cal Write Cal Monitor Start Log View logs Save Cal Command Start Learn Clear Diag Codes

Calibration/Tuning
Setup Info
Clutch Control
Inching Mode/Anti Collision
Diagnostics
Neutral Idle
BCM Functions
Hardware Setup
Analog Inputs
Speeds
Speed Input Trigger Levels
Speed Input Filter Values
Speed Input Selection
Speed Input Pulses
Speed Input Options
Frequency Range Switch
Speed Output Settings
Digital Inputs
PWM / Digital Outputs
PWM Frequency Selection
PWM Shift Solenoid Slope
PWM Output 1
PWM Output 2
PWM Output 3
PWM Output 4
PWM Output 5
PWM Output 6
PWM 7 / Digital 1 Output
PWM 8 / Digital 2 Output
PWM 9 / Digital 3 Output
Digital Output 4
Digital Output 5
Digital Output 6
PWM / Digital Output Type
PWM Clock Select
PWM 1-6 Frequency
PWM 7,8,9 Frequency
Current Measurement Off

PWM Output 4
Function Diagnostic Light Output

Put a check next to the code to enable it

☒ 21 - Throttle Position High	☐ 58 - System Voltage High	☐ 79 - Transmission Fluid Overtemp
☒ 22 - Throttle Position Low	☐ 59 - Trans Temp Low or TFT Circuit High	☒ 81 - 2-3 Shift Solenoid Circuit Fault
☒ 24 - Output Speed Sensor	☐ 63 - RESERVED	☐ 82 - 1-2 Shift Solenoid Circuit Fault
☐ 28 - Range Pressure Switch	☐ 68 - Component Slipping	☒ 83 - TCC Solenoid Circuit Fault
☐ 37 - Brake Switch Stuck On	☐ 69 - TCC Stuck On	☐ 85 - Undefined Ratio Error
☒ 38 - Brake Switch Stuck Off	☐ 71 - Engine Speed Circuit Low	☐ 86 - Low Ratio Error
☒ 39 - TCC Stuck OFF	☐ 72 - Intermittent Output Shaft Speed	☐ 87 - High ratio error
☐ 51 - Transmission Control Module	☒ 73 - Pressure Control Circuit	☐ 91 - Non-Idle inch
☐ 52 - System Voltage High Long	☐ 74 - Input Speed Sensor Circuit	☐ 92 - Movement not commanded
☐ 53 - System Voltage High	☒ 75 - System Voltage Low	☐ 93 - Inching past target

PWM Output 5
Function PWM On/Off vs. Fluid Temp 1

Duty Cycles
On Duty Cycle 100 %
Off Duty Cycle 0 %

Increasing
PWM ON 1 171 °F
PWM OFF 1 309 °F

Decreasing
PWM ON 2 300 °F
PWM OFF 2 160 °F

When values are decreasing the output runs at the off duty cycle until the value equals On 2 then uses the on duty cycle until it reaches the value of Off 2 at which point it returns to the off duty cycle.

When values are increasing the output runs at the off duty cycle until the value equals On 1 then uses the on duty cycle until it reaches the value of Off 1 at which point it returns to the off duty cycle.

PWM / Digital Output Type

PWM 1
☐ Ground ☒ 12 Volts

PWM 2
☐ Ground ☒ 12 Volts

PWM 3
☐ Ground ☒ 12 Volts

PWM 4
☐ Ground ☒ 12 Volts

PWM 5
☐ Ground ☒ 12 Volts

PWM 6
☐ Ground ☒ 12 Volts

PWM 7 / Digital 1
☐ Ground ☒ 12 Volts

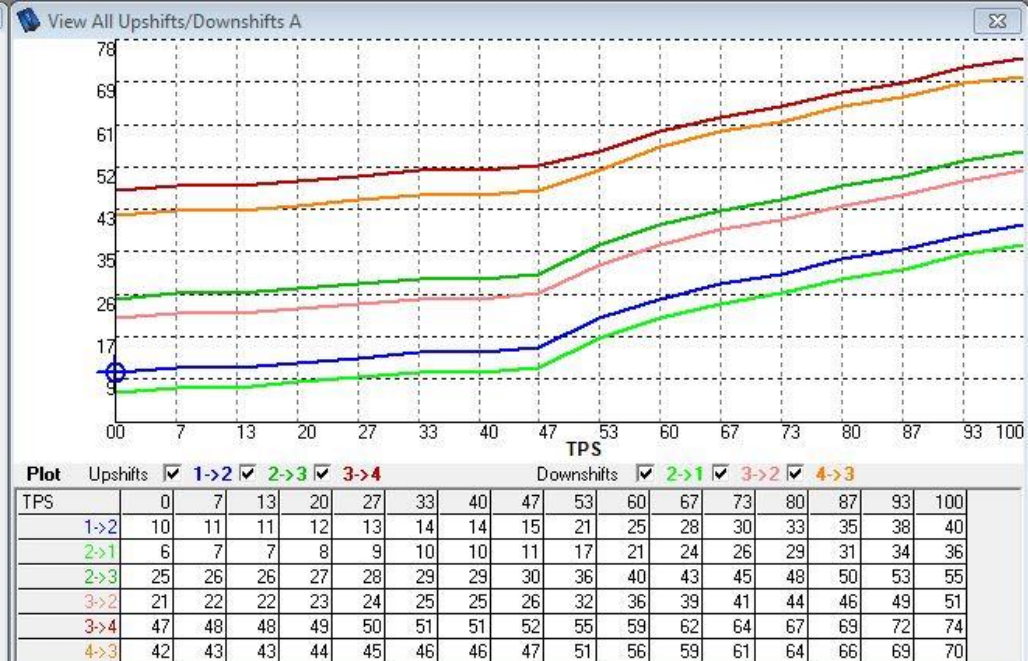
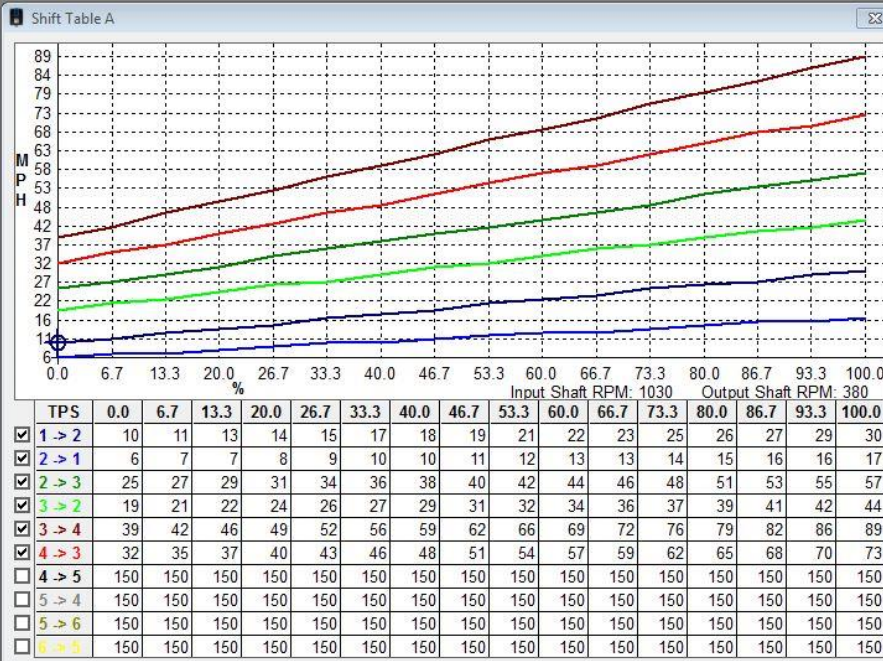
PWM 8 / Digital 2
☐ Ground ☒ 12 Volts

PWM 9 / Digital 3
☐ Ground ☒ 12 Volts

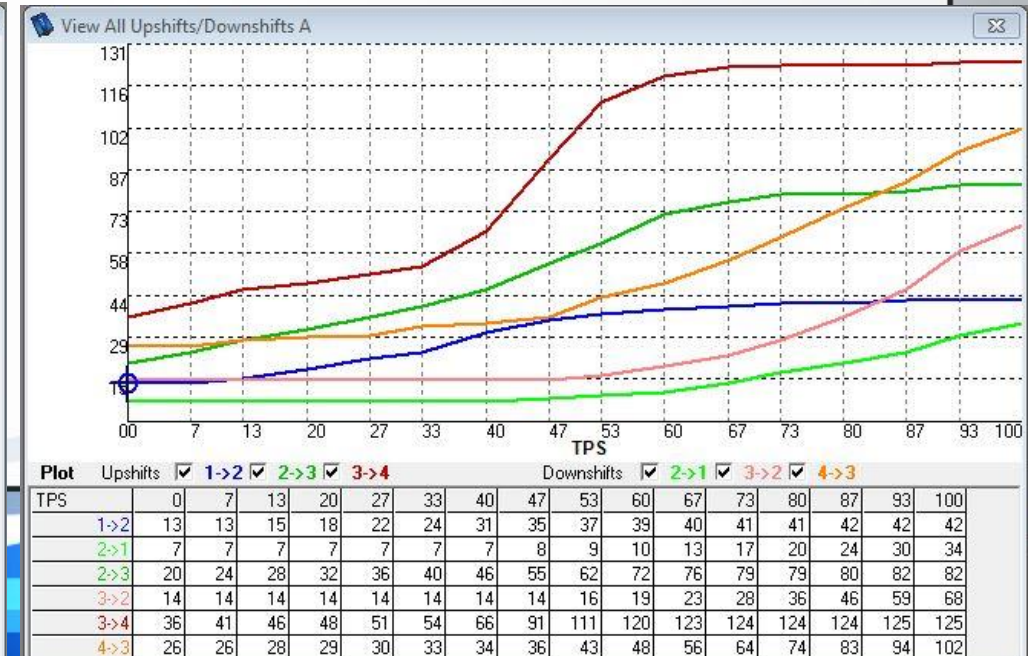
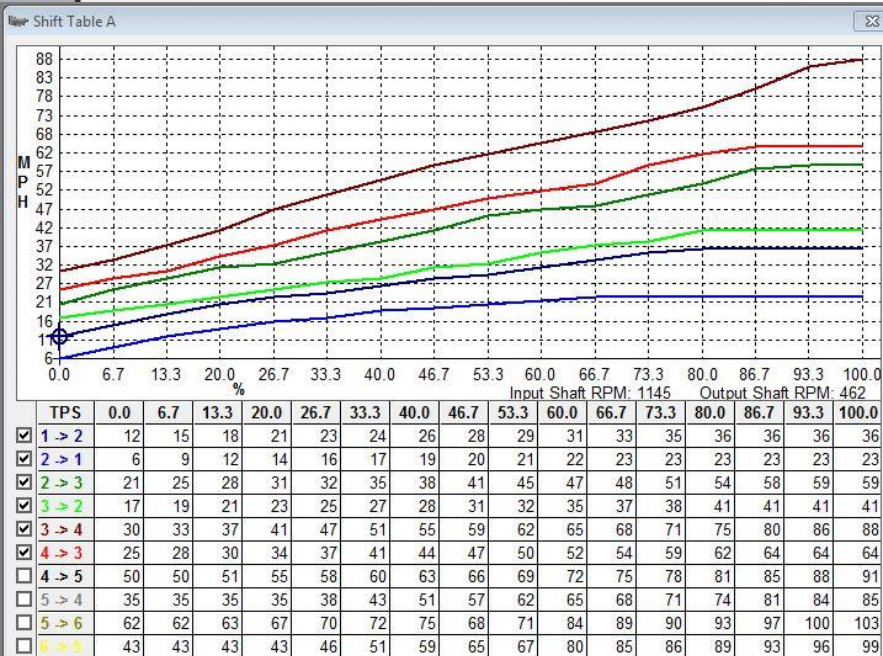
Digital 4
☐ Ground ☒ 12 Volts

Digital 5
☐ Ground ☒ 12 Volts

Digital 6
☐ Ground ☒ 12 Volts

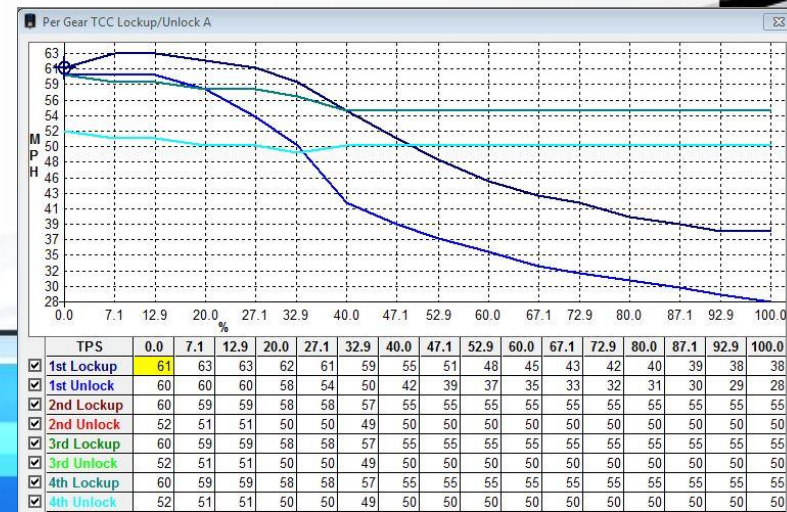


- When setting the shift tables, upshift and downshift lines normally do not overlap.



Setting the Converter Tables

- Lockup and Unlock lines cannot overlap
- Place them after either the 2-3 or 3-4 shifts.
- Most Gas lockup after 4th, diesel after 3rd.
- Standard, addition of Lockup-disabling after a certain throttle position.
 - Per-gear unlock-disabling with increased throttle (some diesels)



What do I set after it's wired up?

- Start with a key-on, engine-on is not necessary
- Set all of your optional inputs under “Hardware Setup”.
- Verify each input works using the Monitor “TCM2600/2800 Datastream”.
- Verify each optional output works on the vehicle.

Verifying Throttle (Pedal) Position

- Analog-1 should be set to TPS for ALL standard non-CAN applications.
- Set your Failure Values to 0.1 and 4.9 as shown.
- Key-on (engine off), write down and input the TPS for Idle and WOT (Wide-Open-Throttle).
- If you have Tach and want WOT-Mode, set your desired percent. If no Tach, set WOT Mode to 0%.
- You must disconnect the battery after adjusting TPS, this is the only function that it is necessary for.

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File Edit View Communications Data Logging Software Setup Tools Window Help

Open Save [Icons] Go Online Read Cal Write Cal Monitor Start Log View logs Save Cal Command Start Learn Clear Diag Codes

Calibration/Tuning

- Setup Info
- Clutch Control
- Inching Mode/Anti Collision
- Diagnostics
- Neutral Idle
- BCM Functions
- Hardware Setup
 - Analog Inputs
 - Analog Input 1
 - (x) Analog Input 1 Function
 - (x) Analog Input 1 Failure
 - Analog Input 2
 - Analog Input 3
 - Analog Input 4
 - Analog Input 5
 - Analog Input 6
 - Enable/Disable Analog Range
 - (x) TPS Calibration
 - Speeds
 - Digital Inputs
 - PWM / Digital Outputs

Analog Input 1 Function

Function: TPS

Analog Input 1 Failure Values

Failure Value High (0-5 Volts): 4.90
Failure Value Low (0-5 Volts): 0.10
Voltage To Assume On Failure: 3.80

TPS Calibration

TPS Voltage Closed Throttle: 0.50
TPS Voltage Full Throttle: 4.50
% Throttle for WOT Mode: 85.1 %
Increasing Throttle Hold Threshold: 255

Instrument Cluster

TPS, CHT, Trans, Bat. V gauges

PWM Out	Gear Info	Misc	Voltages
PWM 1: 0.0	Commanded Gear: 0	LP Actual: 0.00	TPS Voltage: 0.00
PWM 2: 0.0	Desired Gear: 0	LP Target: 0.00	TPS Min: 0.00
PWM 3: 0.0	Lever Pos: 0	CAL ID: 0	TPS Max: 0.00
PWM 4: 0.0	Gear Ratio: 0.00	Odometer: 0.0	

Verifying Vehicle Speed (OSS)

- When drivable, compare speed using a GPS at 20/40/60 MPH to your monitor screen as shown below. Scale *Tire Dia* until you are within a couple MPH of the GPS indicator.
- Speed may not read on the laptop until 5-10 MPH. This is normal.

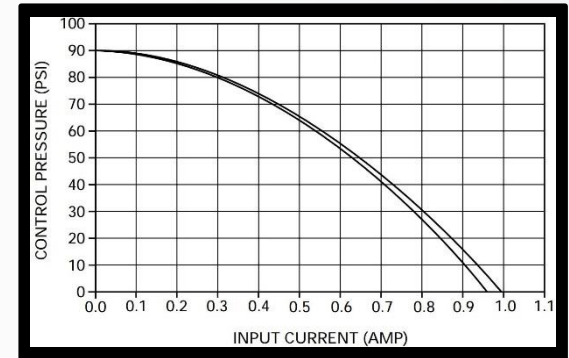
The screenshot displays a vehicle monitoring software interface. On the left is a tree view of settings categories: Calibration/Tuning, Setup Info, TCC Settings, Abuse Control, Solenoid Selection, CAN Setup, Gear Ratios and Tire Size (selected), Gear Correction Windows, Password, Shift Timers, Breakpoint Selection, 8 Point Breakpoints, 16 Point Breakpoints, Misc. Options, Misc Mode Settings, Internal Odometer Pulses/Mile, Calibration ID/Part Number, Clutch Control, Inching Mode/Anti Collision, Diagnostics, Neutral Idle, BCM Functions, Hardware Setup, Analog Inputs, Speeds, and Speed Input Trigger Levels. The main display area features a large speedometer with a red needle pointing to 0 and a digital display showing 0 MPH. Above the speedometer is a 'Lever' indicator showing 0. Below it is a 'Gear' indicator showing 0. To the left of the speedometer is a 'Gear Ratios and Tire Size' window with the following data: Gear 1: 3.082, Gear 2: 1.639, Gear 3: 1.001, Gear 4: 0.829, Gear 5: 1.001, Gear 6: 1.001, Final Drive Ratio: 3.703, 4WD Low Ratio: 3.504, and Driven Tire Diameter: 27.030. To the right of the speedometer is a 'Speed Input Selection' window with the following data: Engine RPM: Speed Input 1, Turbine Speed 1: Calculated Torque, Drive Shaft RPM: Speed Input 2, Driven Wheel Speed: Calculated Vehicle, Non-Driven Wheel Speed: Disabled, and Turbine Speed 2: Disabled. Below the speedometer is a 'Tire Size Calculator' window with the following data: Tire Size: Width (mm) 245 / Ratio(%) 50 R / Rim Size (in) 16, Calculate Tire Diameter button, and Tire size in Inches input field.

Category	Sub-category	Value
Gear Ratios and Tire Size	Gear 1	3.082
	Gear 2	1.639
	Gear 3	1.001
	Gear 4	0.829
	Gear 5	1.001
	Gear 6	1.001
	Final Drive Ratio	3.703
	4WD Low Ratio	3.504
	Driven Tire Diameter	27.030
	Speed Input Selection	Engine RPM
Turbine Speed 1		Calculated Torque
Drive Shaft RPM		Speed Input 2
Driven Wheel Speed		Calculated Vehicle
Non-Driven Wheel Speed		Disabled
Turbine Speed 2		Disabled

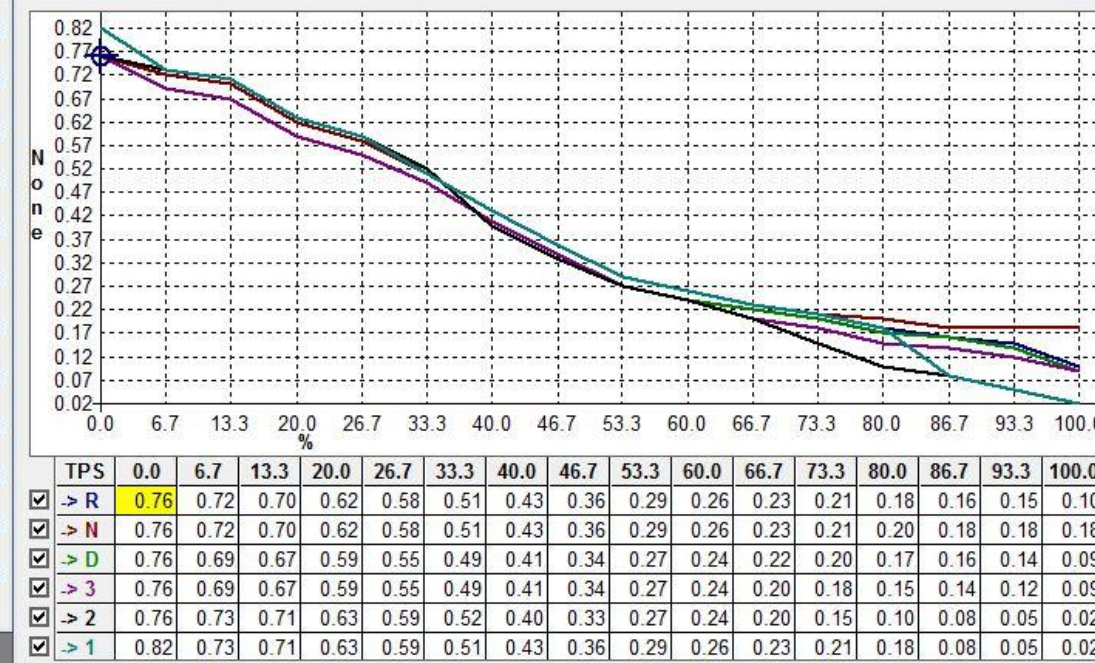
Adjusting Line Pressure

**If you are not confident in this procedure, we recommend hiring a tuner!
Base Calibrations are a great starting point!**

- Based on Throttle Position
- Too Low – Clutches slip & burn
 - Shifting Into Gear vs Steady State
- Too High – **Hard** shifts & premature part wear
- Transmissions with ISS's are able to see "Actual Gear Ratio" in datalogs to confirm the clutches are not slipping. Transmissions without just need to go off of "feel" while test driving.
- Pump is capable of 300+ PSI
- Clutches normally take 54-193 PSI steady state

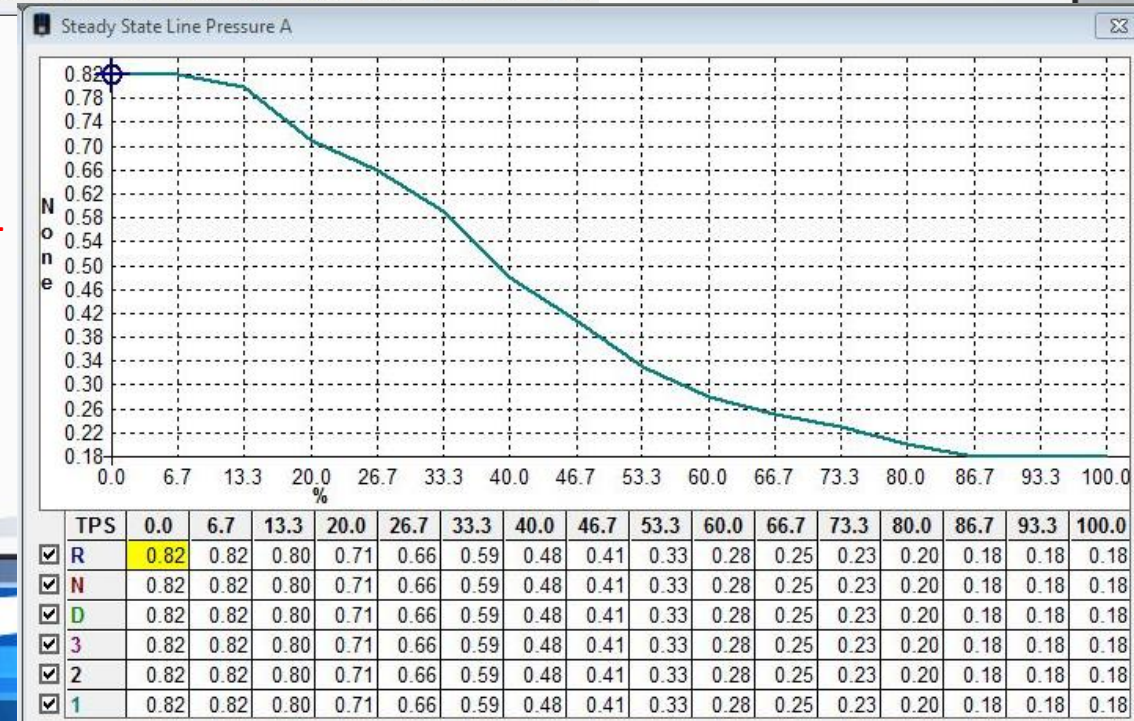


1st-2nd	794.6	ms
2nd-3rd	499.7	ms
3rd-4th	499.7	ms
4th-5th	99.4	ms
5th-6th	99.4	ms
6th-5th	99.4	ms
5th-4th	99.4	ms
4th-3rd	200.7	ms
3rd-2nd	200.7	ms
2nd-1st	200.7	ms
N-D or D-N	196.6	ms
N-R or R-N	499.7	ms

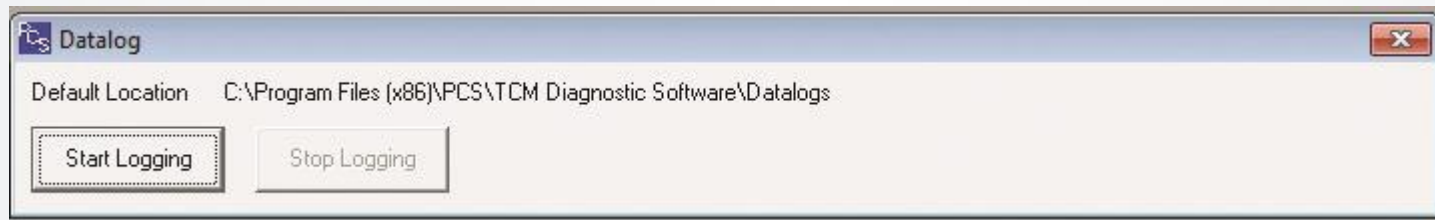
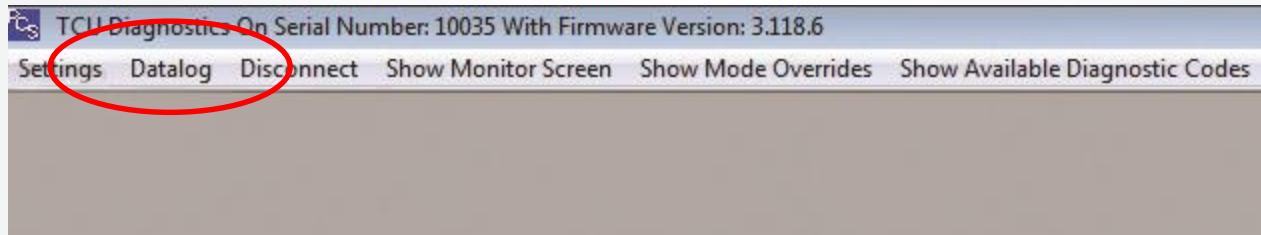


Adjusting Line Pressure

DECREASING PRESSURE CONTROL BECOMES INCREASING LINE PRESSURE



Data Log

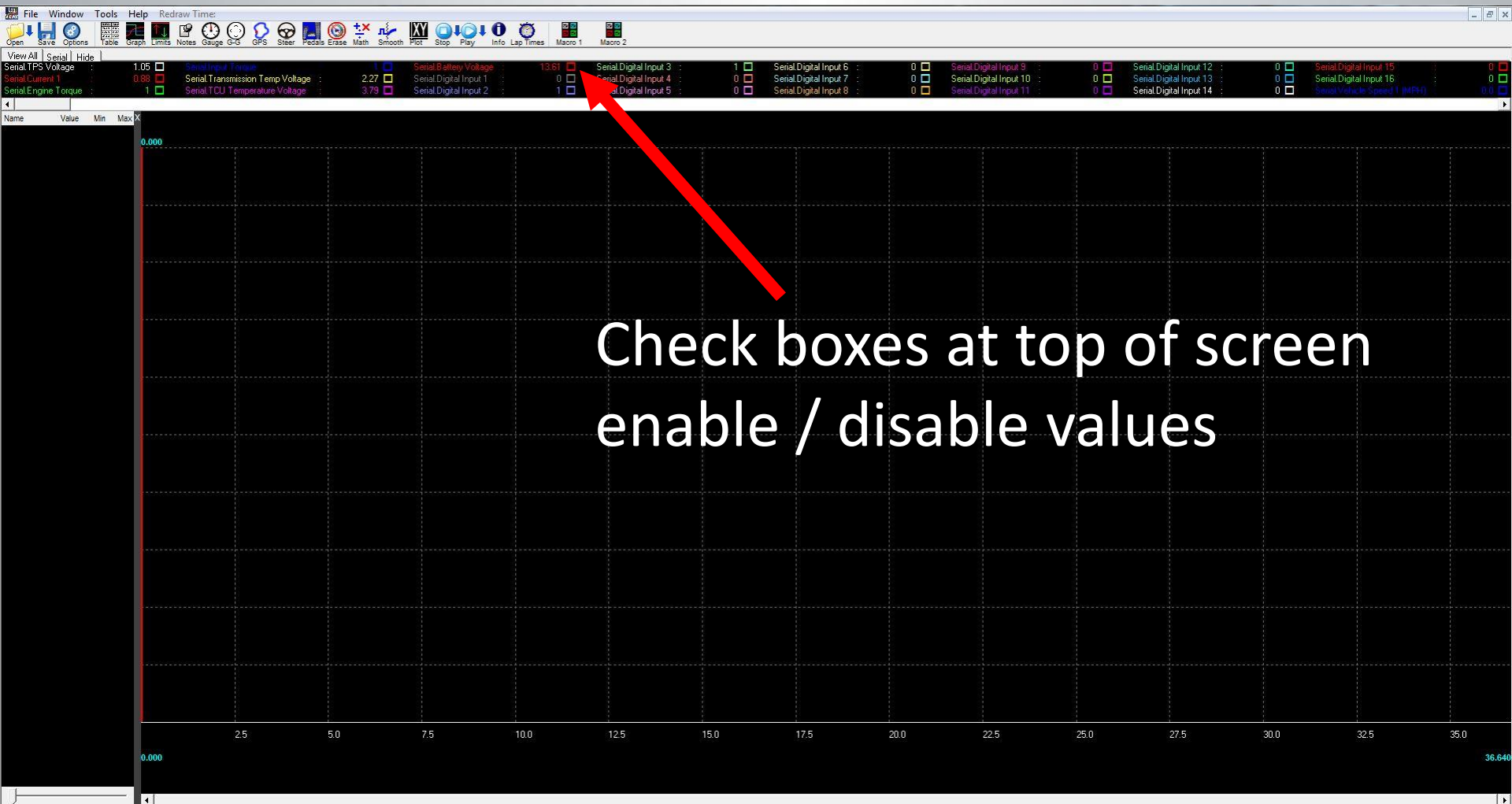


- Note the file location to find the file later for review and email.
- Default path is Documents folder.
- **SOFTWARE MUST BE IN 2800 DATASTREAM MONITOR!!**

What to Log / Save?

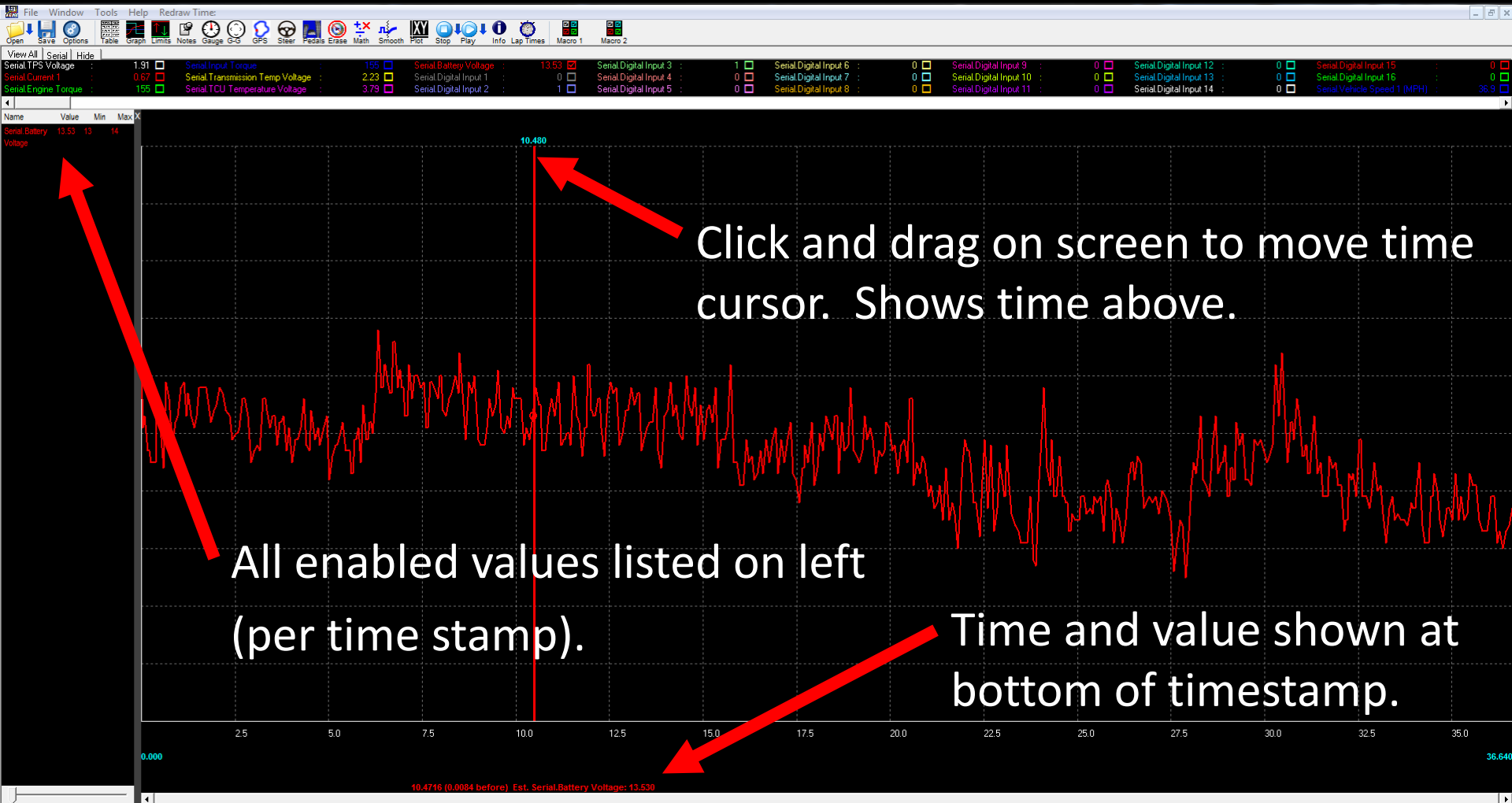
- Key the vehicle on.
- Start / Save Datalog. **2800 Datastream Monitor.**
- Start the engine.
- Either drive up through the gears and down to a stop, end datalog. Should be ~30-60 sec.
- Or drive the vehicle in the manner that an issue is occurring. End datalog after issue so the “time of issue” is known.

Enabling Values

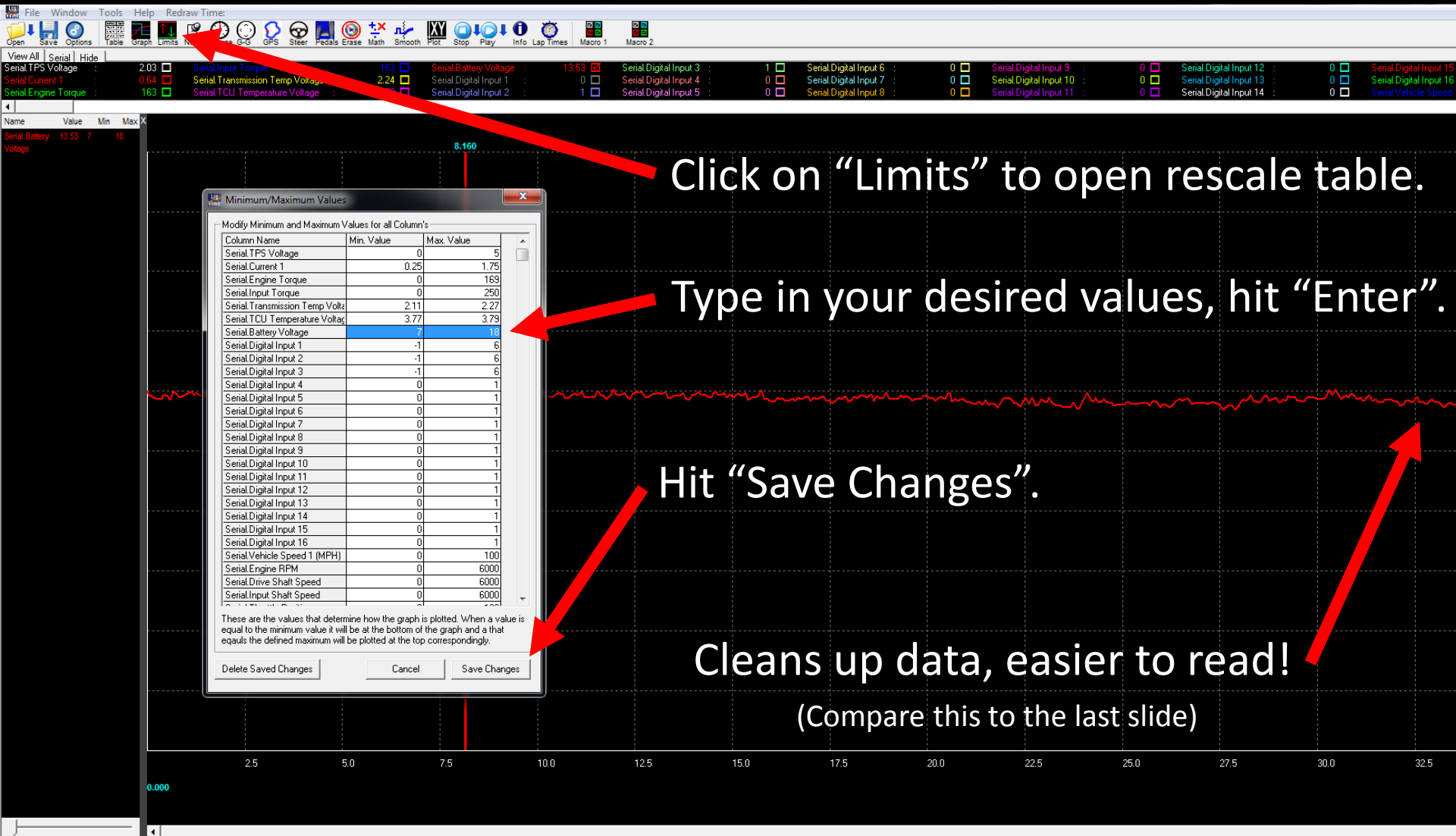


Check boxes at top of screen
enable / disable values

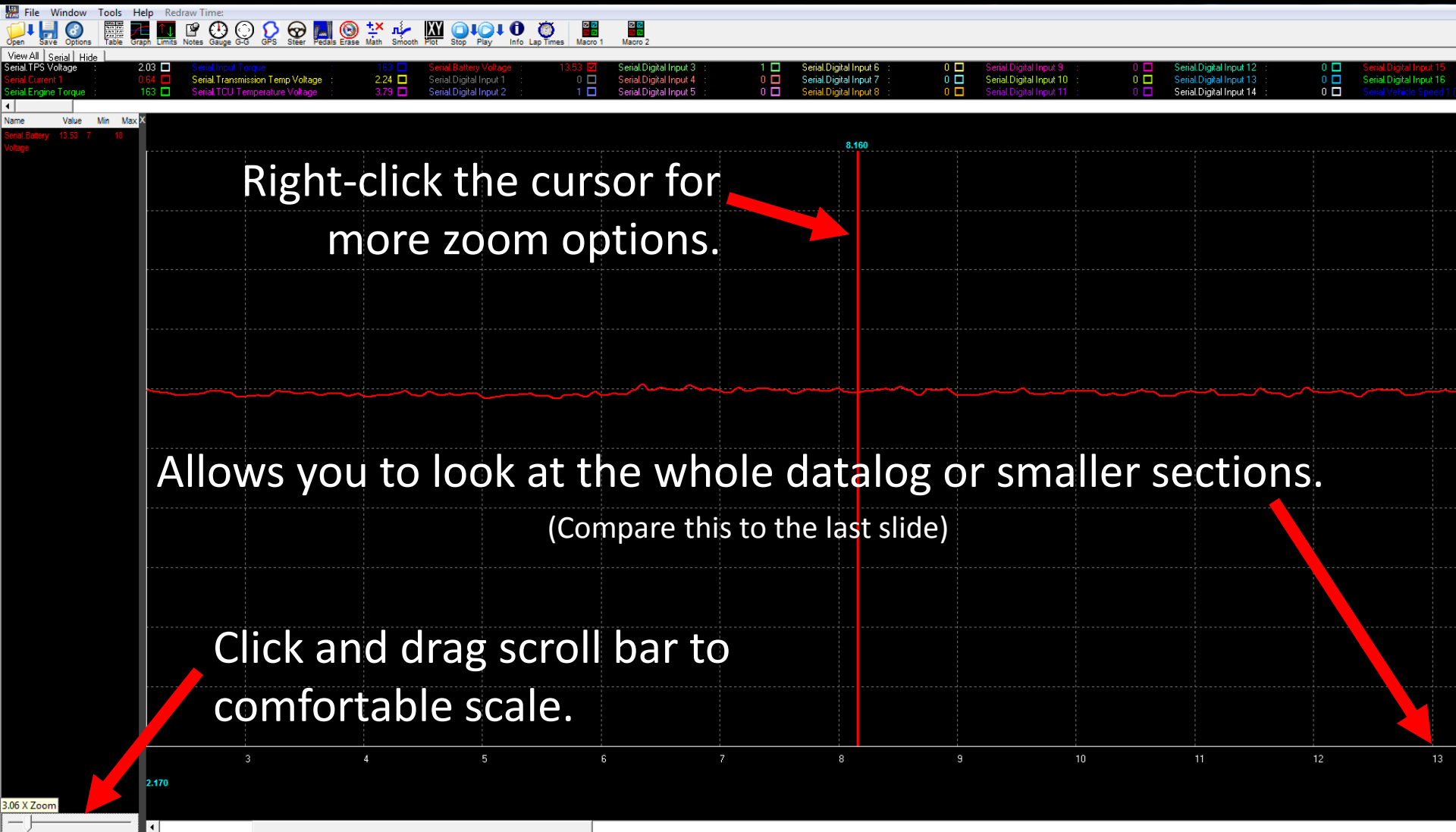
Reading Values



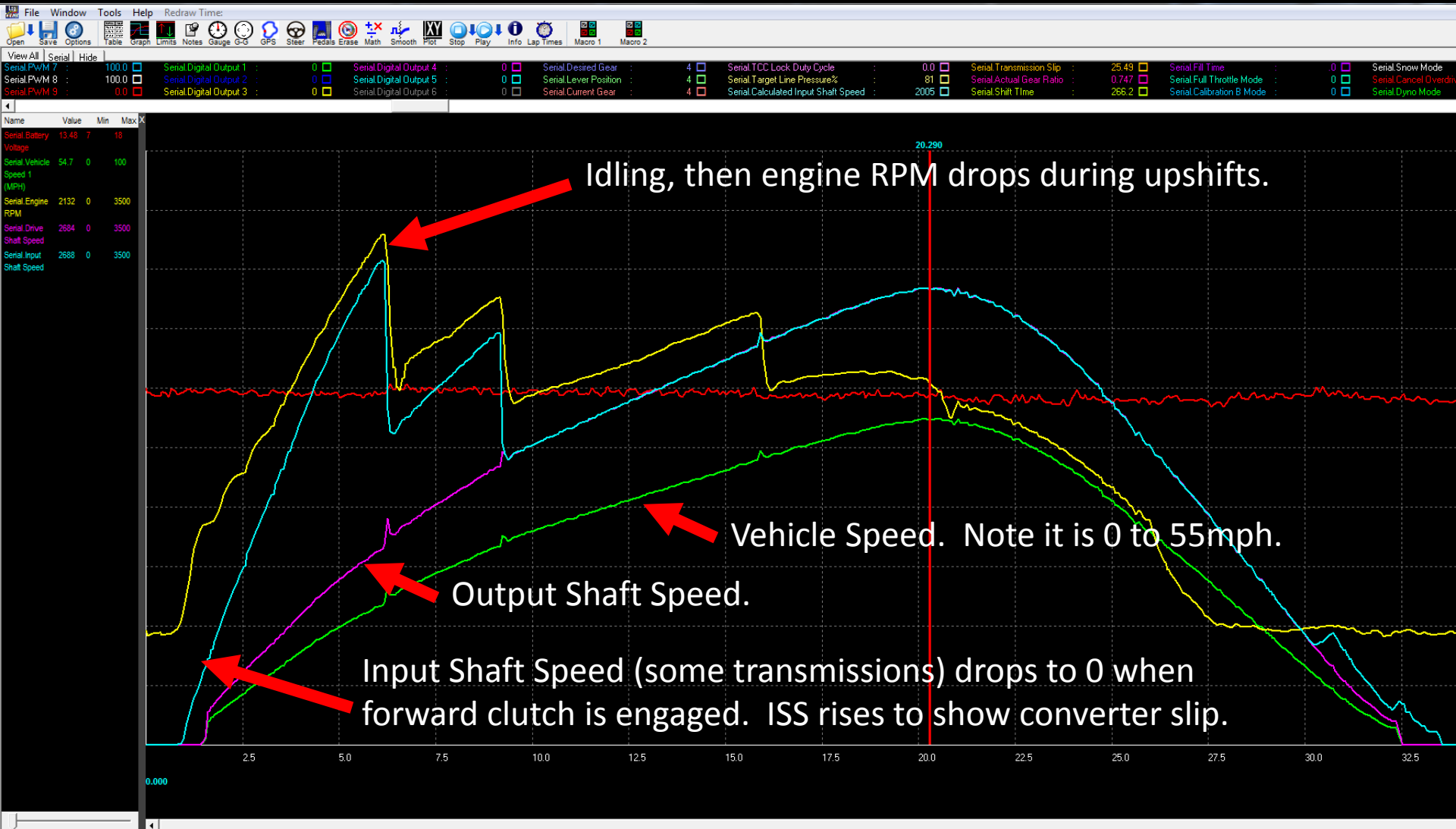
Re-Scaling Values



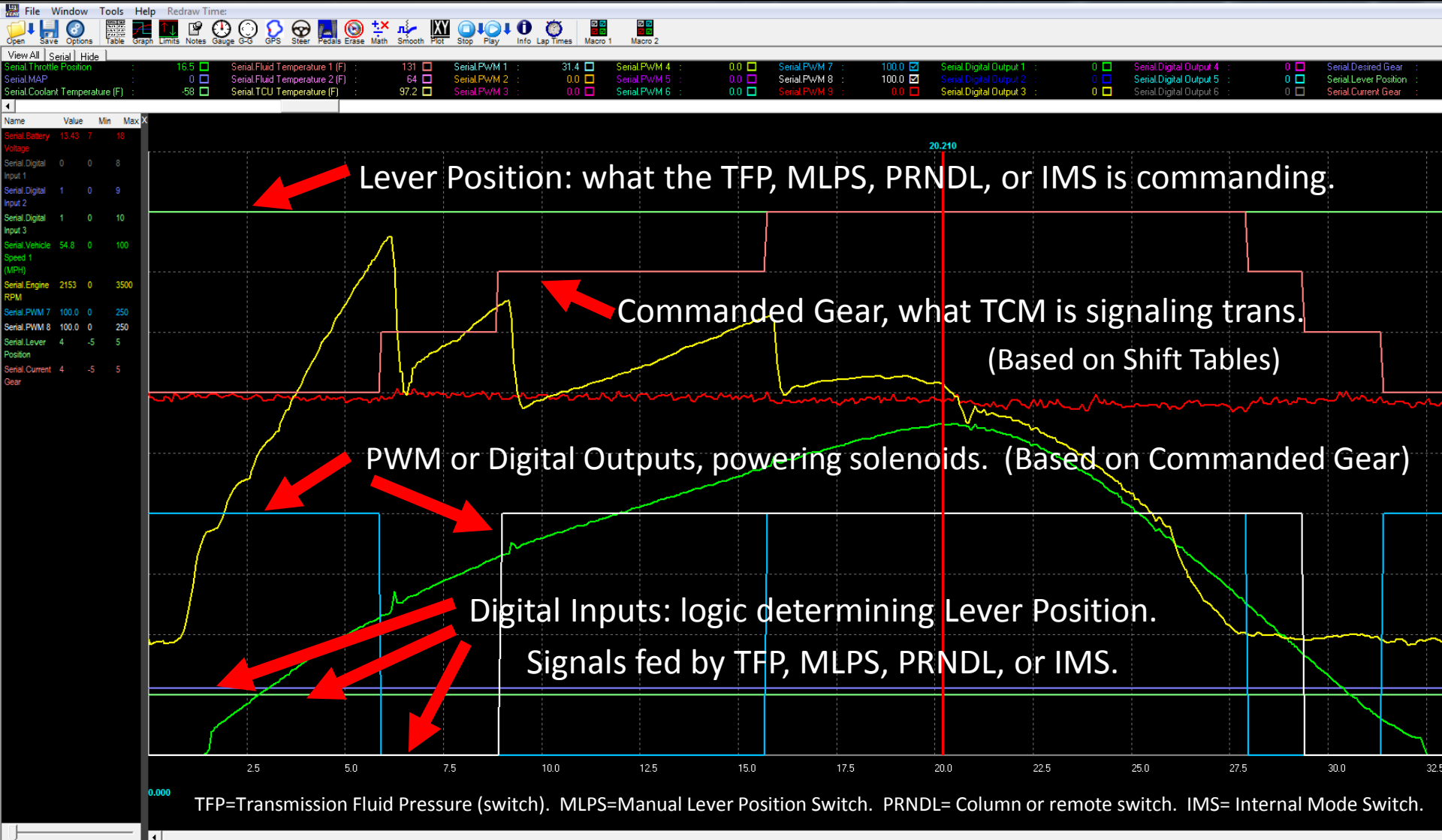
Re-Scaling Timeline



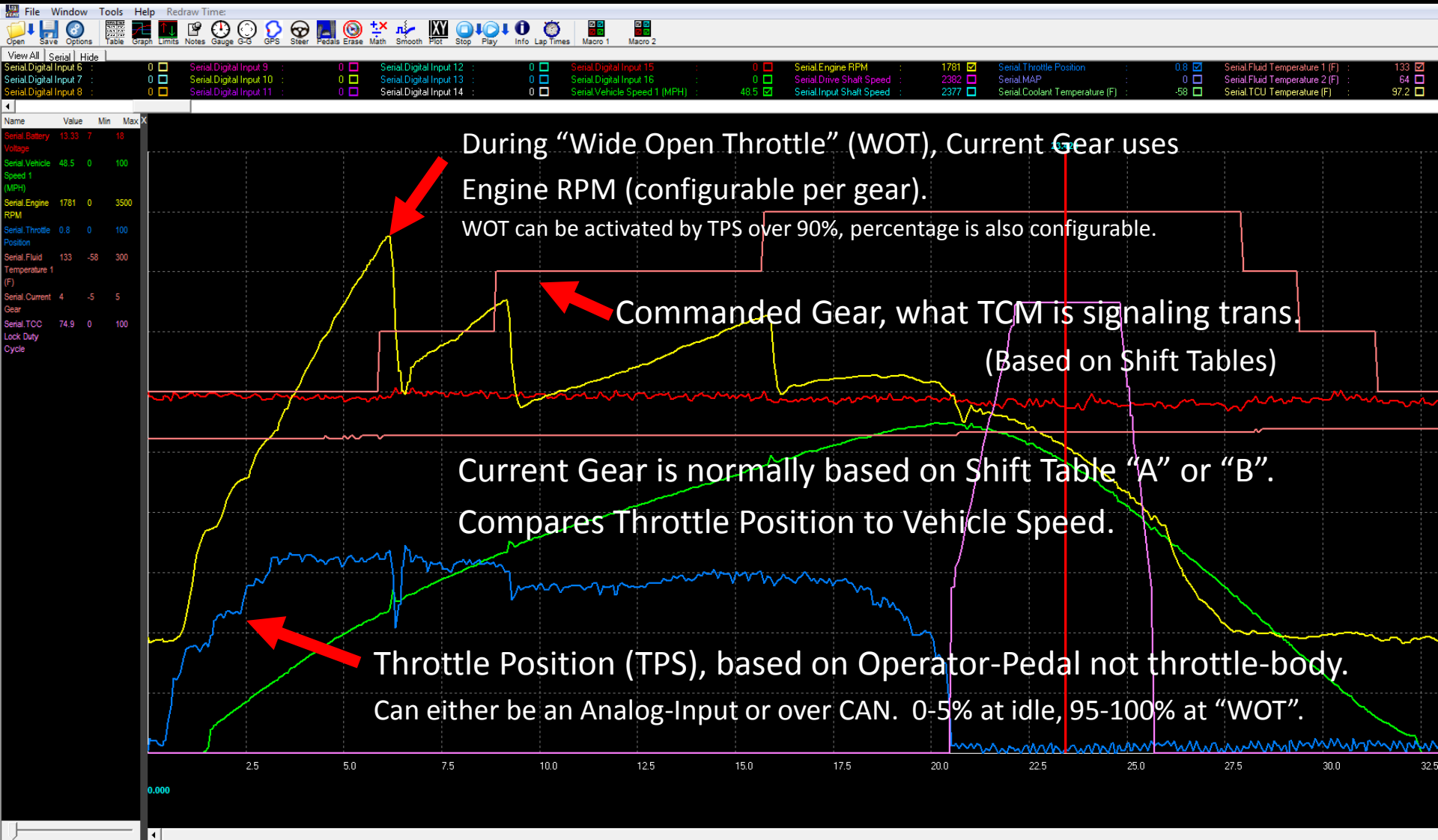
Vehicle Speed & RPM Values



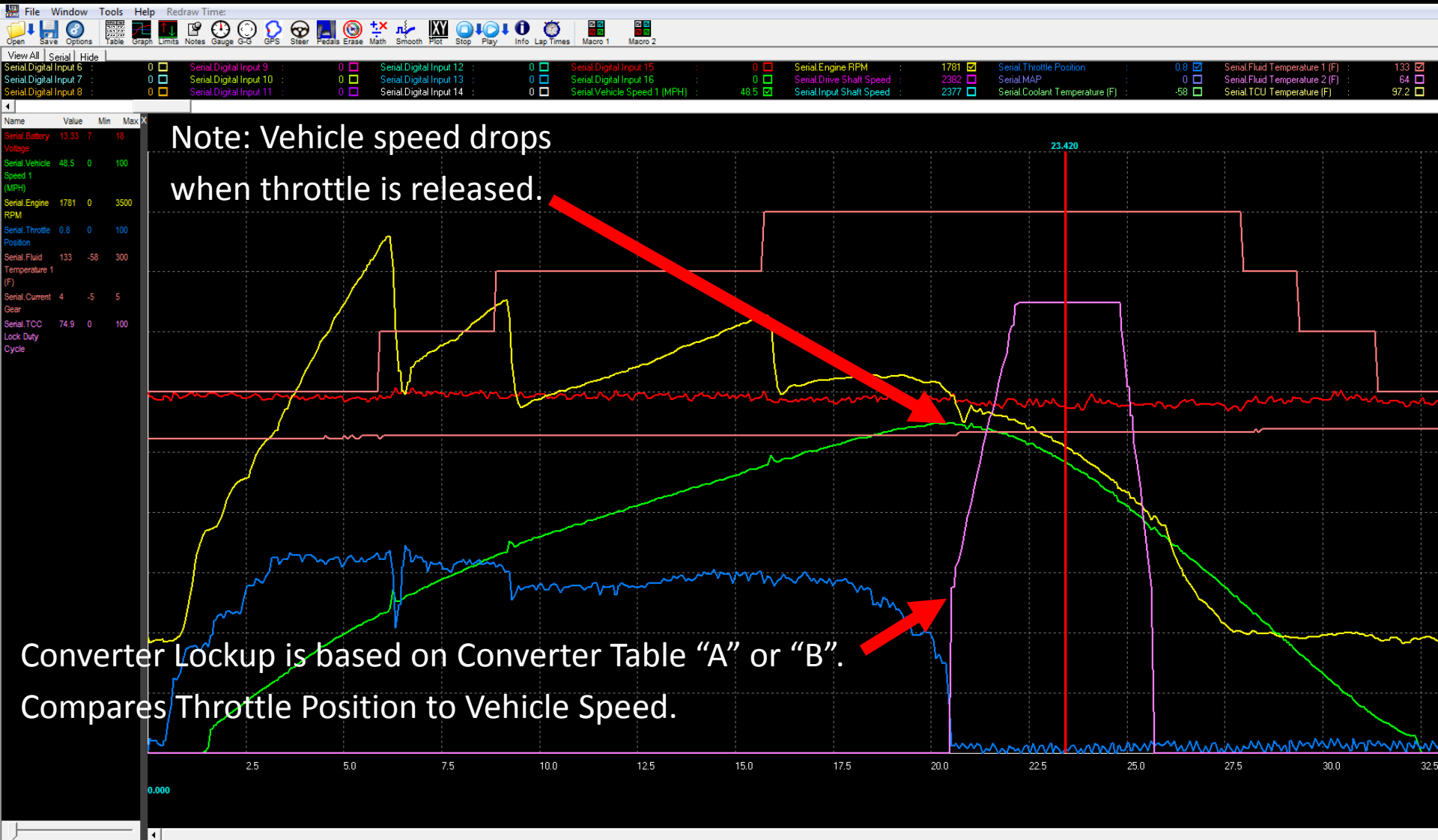
Range Values



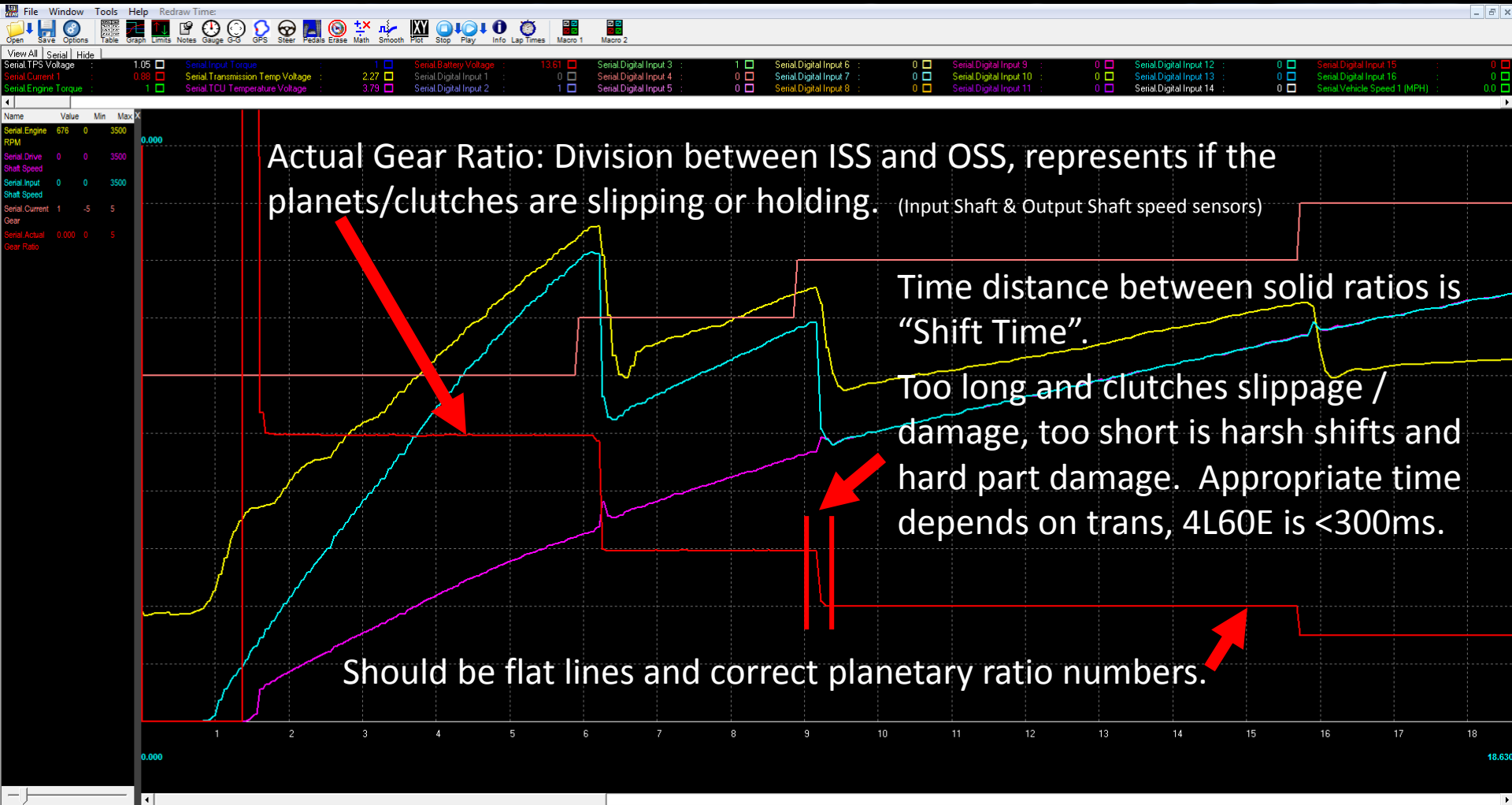
Shift & Converter Tables



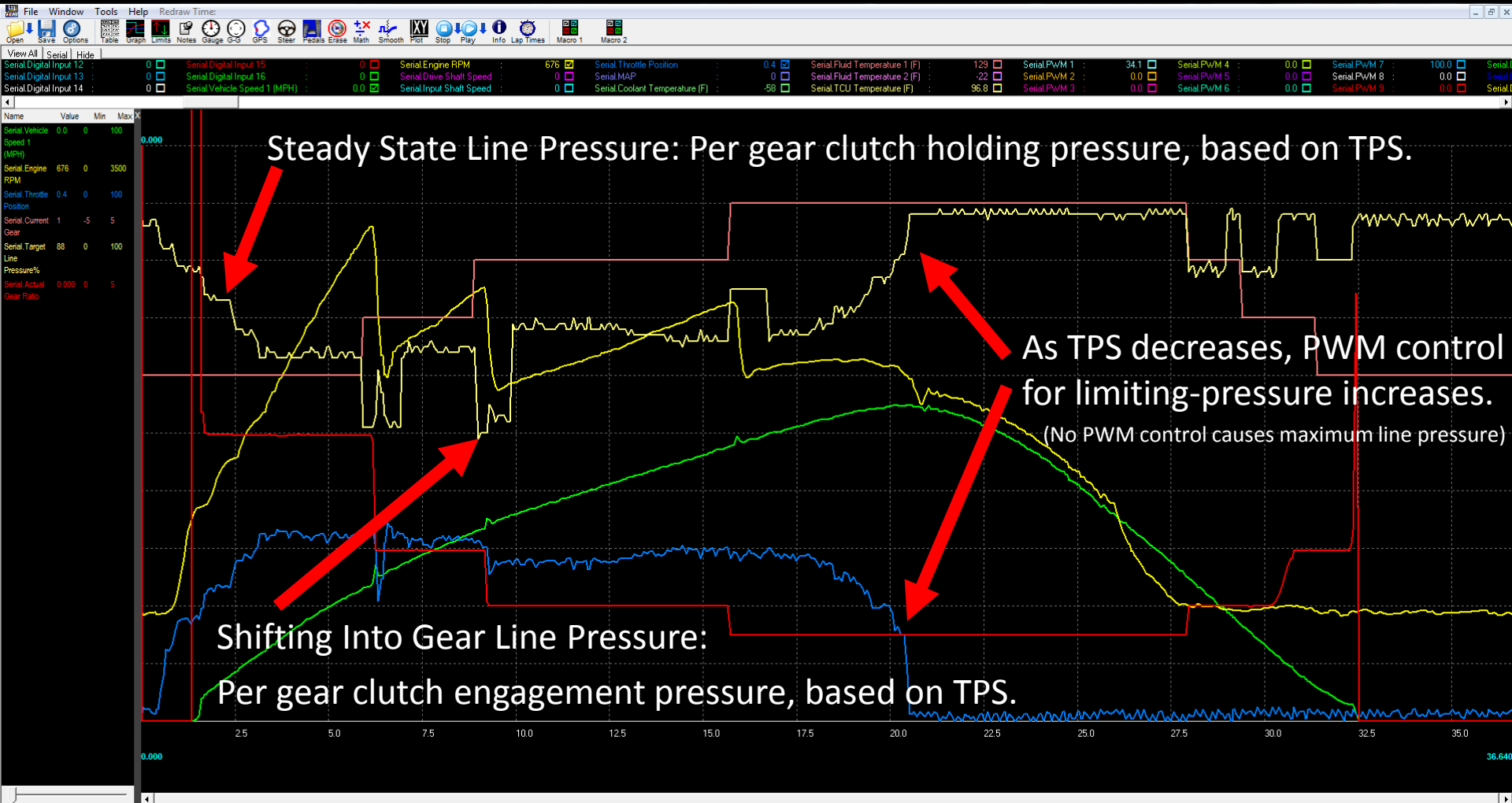
Shift & Converter Tables, Pt-2



Actual Gear Ratio



Line Pressure Control



Current & Stored Codes

