

Sensor Installations

Tips, Tricks, and Examples!



Host:

Roger Caddell

AiM Sports - National Training Manager

Co-Host:

David Free

DFree Trackside Service

David Free

DFree Trackside Service
e erfsonation@outlook.com
484-889-8159



- 50 Years as a Mechanic, 47 Years Involved in Racing, 23 Years with Data
- Worked as a Crew, Crew Chief, Driver Coach, Data Guy, Shock Guy, Team Manager
- FF, FC, FA, Indy Lite, S2000, IMSA, CanAm, TransAm, MX5 Cup



DFree Trackside Service

David Free

Phone: 484 889 8159

Data Analysis Driver Coach
Race Car Setup and Alignment
Shock Testing and Service

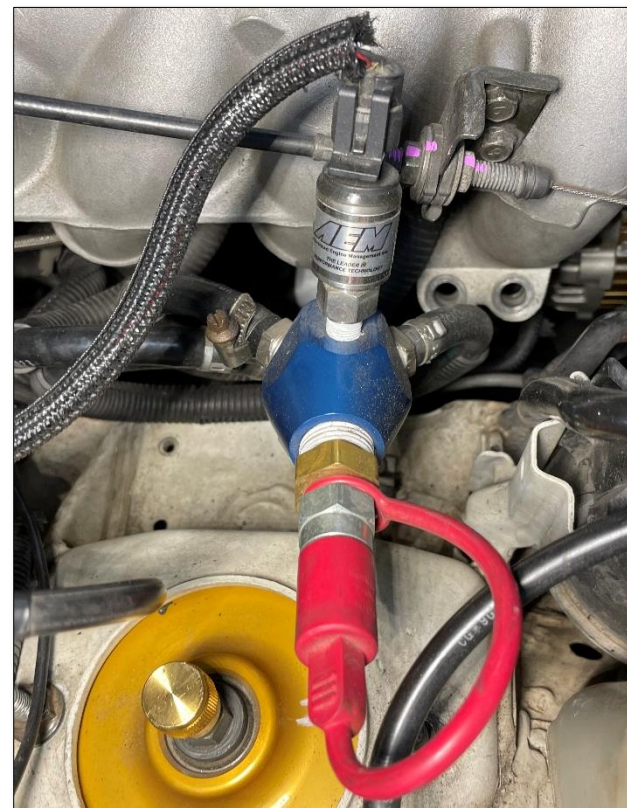
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Common Sensors In Race Cars



- Temperature and Pressure Sensors
- Brake Pressure Sensors
- Damper/Shock Sensors
- Steering Sensors
- Throttle Sensors
- Speed Sensors
- Almost Anything You Want!



Sensor Installations

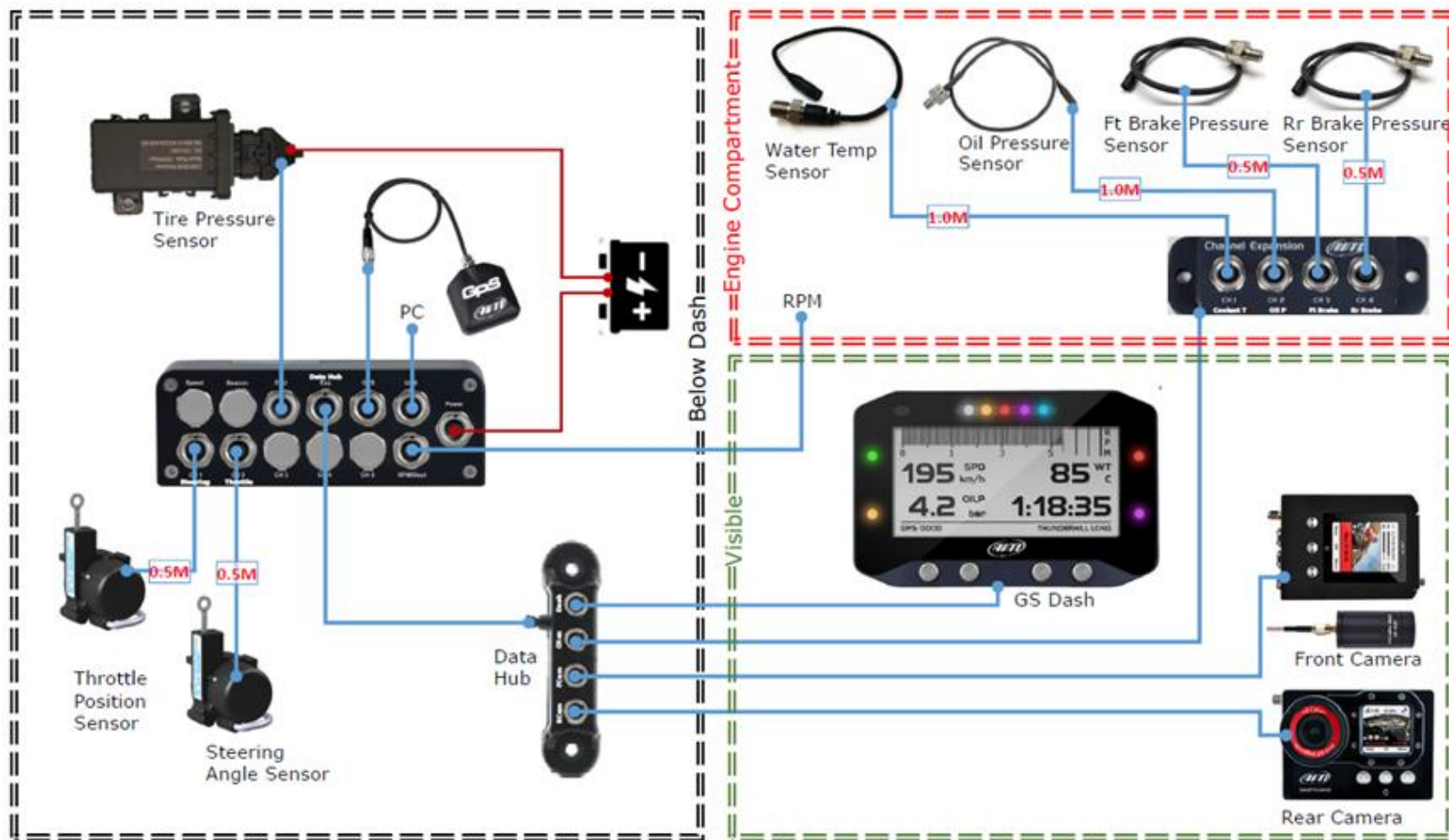
Common Sensors In Race Cars



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Sample System Schematic



AIM Sports Data System Schematic Courtesy of Jeff Hoover

Sensor Installations

Common Sensors In Race Cars

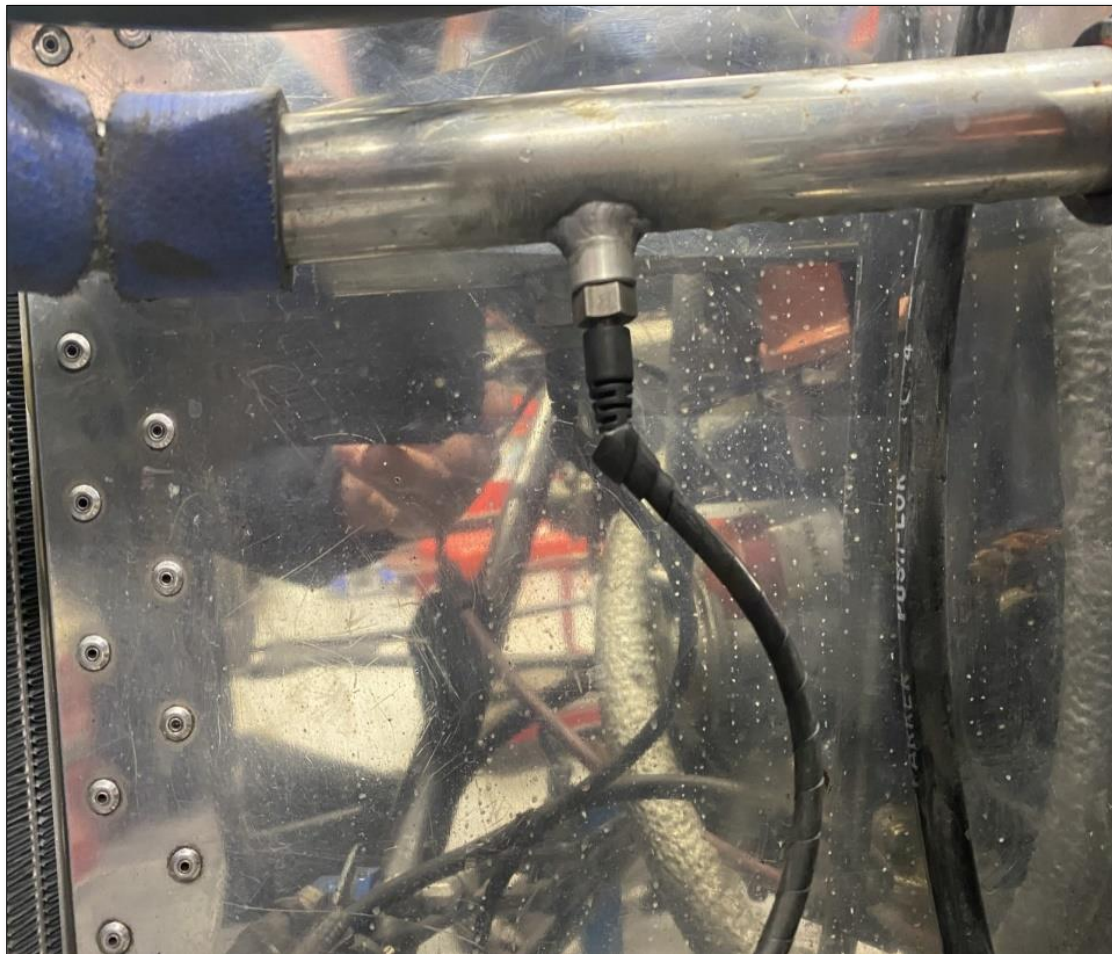


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Temperature Sensors

Water Temperature



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Water Temperature

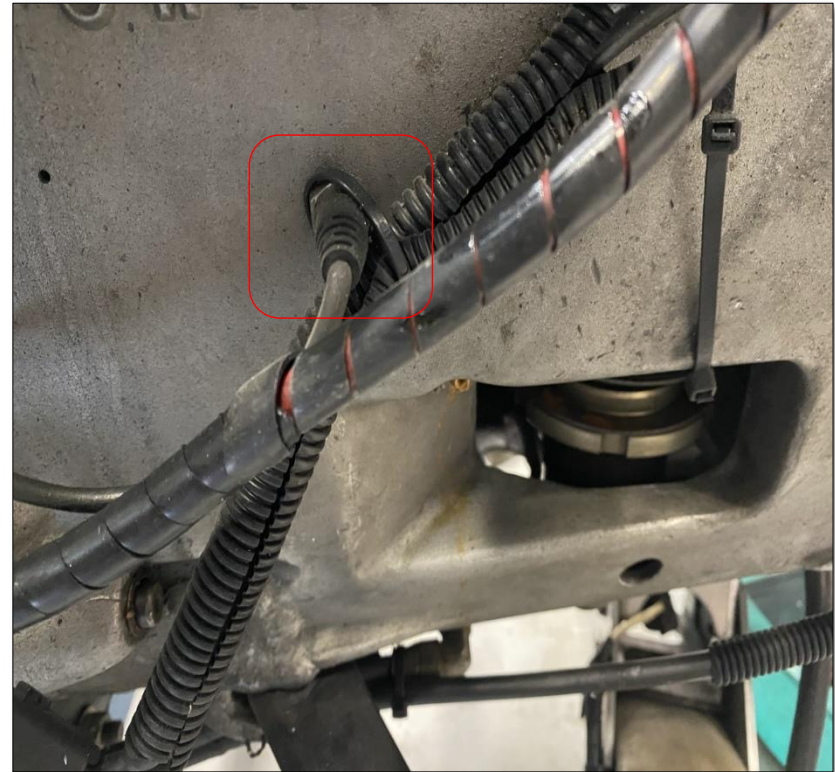


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Temperature Sensors

Oil Temperature



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Oil Temperature

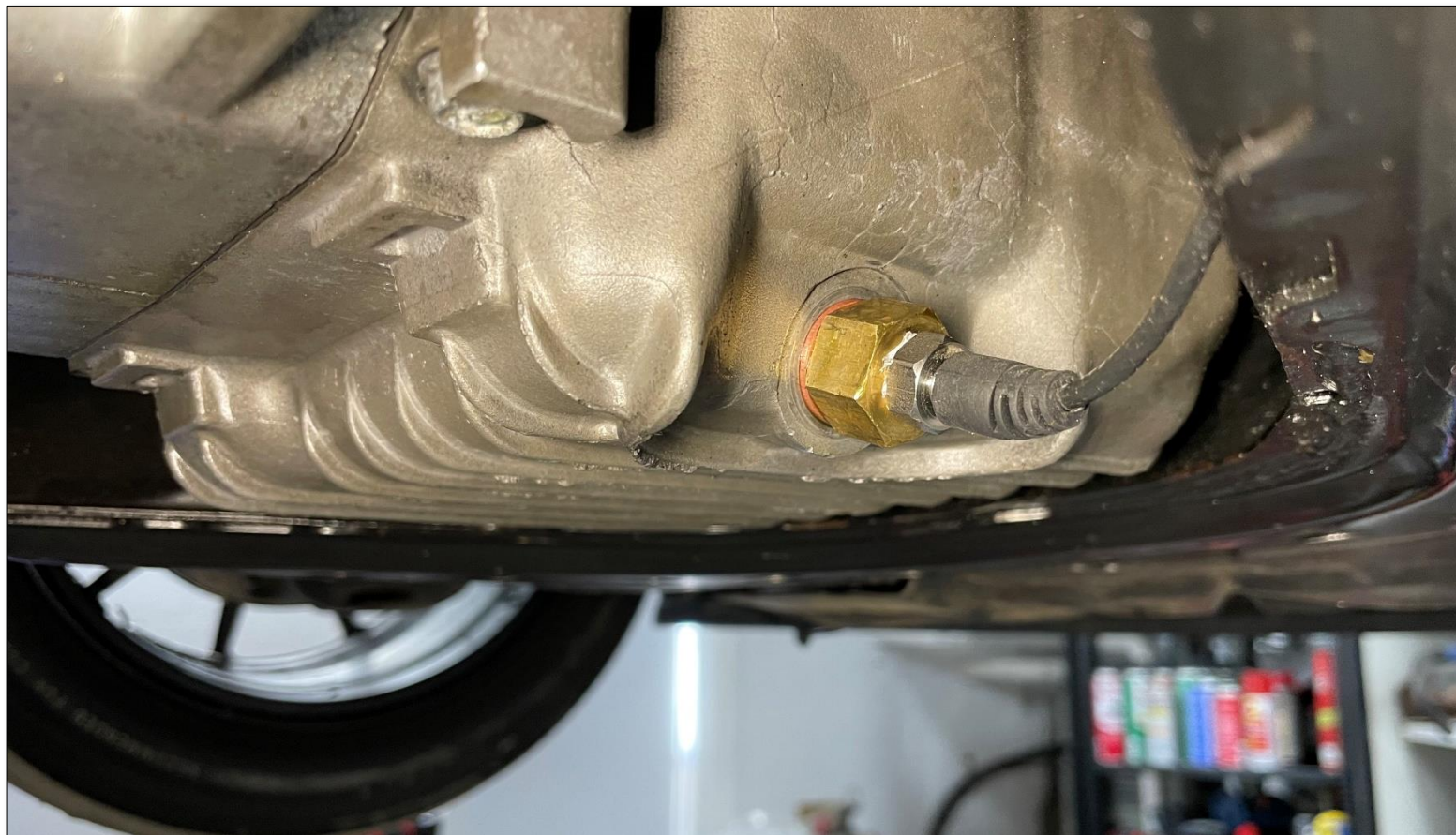


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Temperature Sensors

Oil Temperature



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Tire Temperatures



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Tire Temperatures

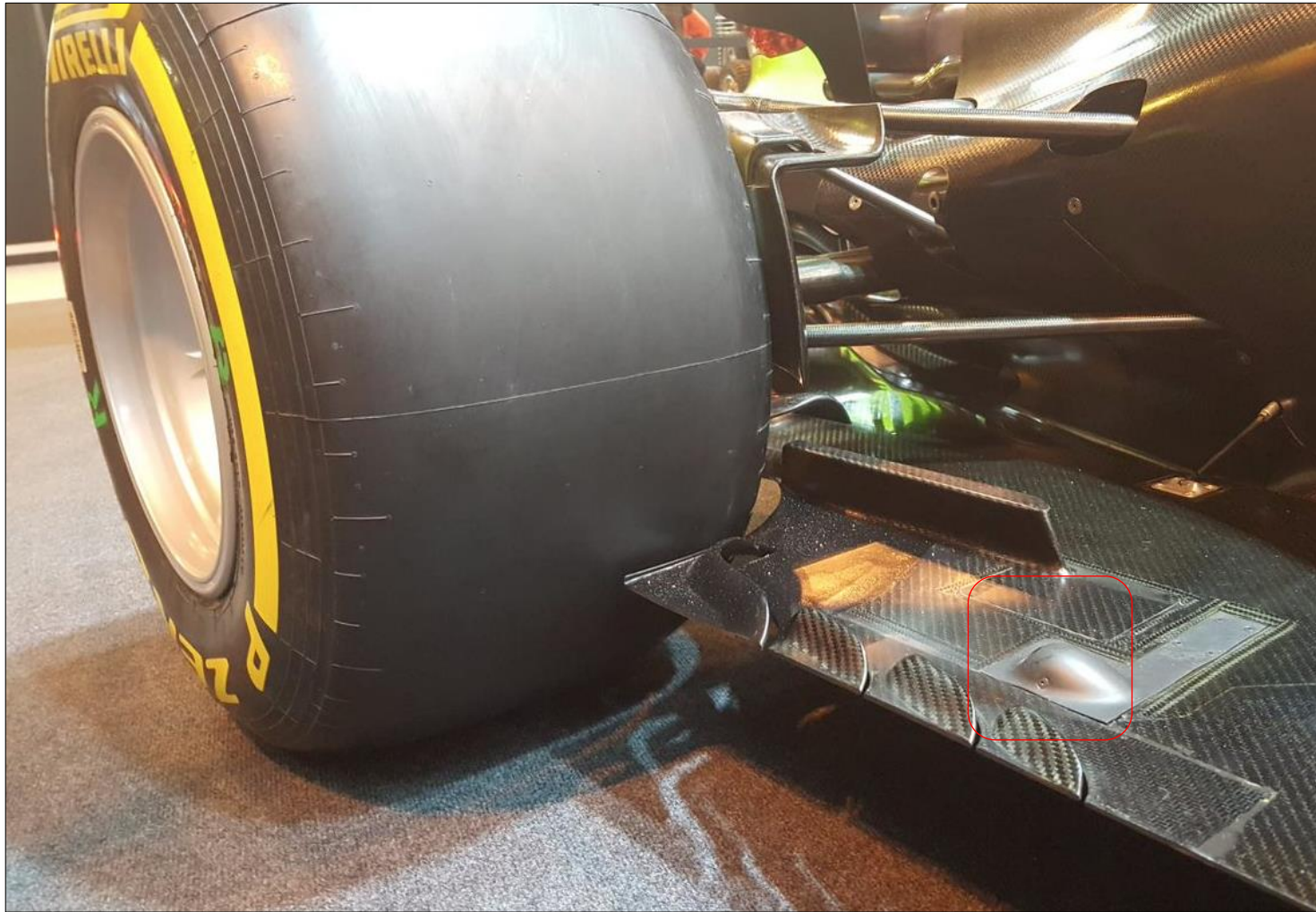


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Temperature Sensors

Tire Temperatures



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Tire Temperatures



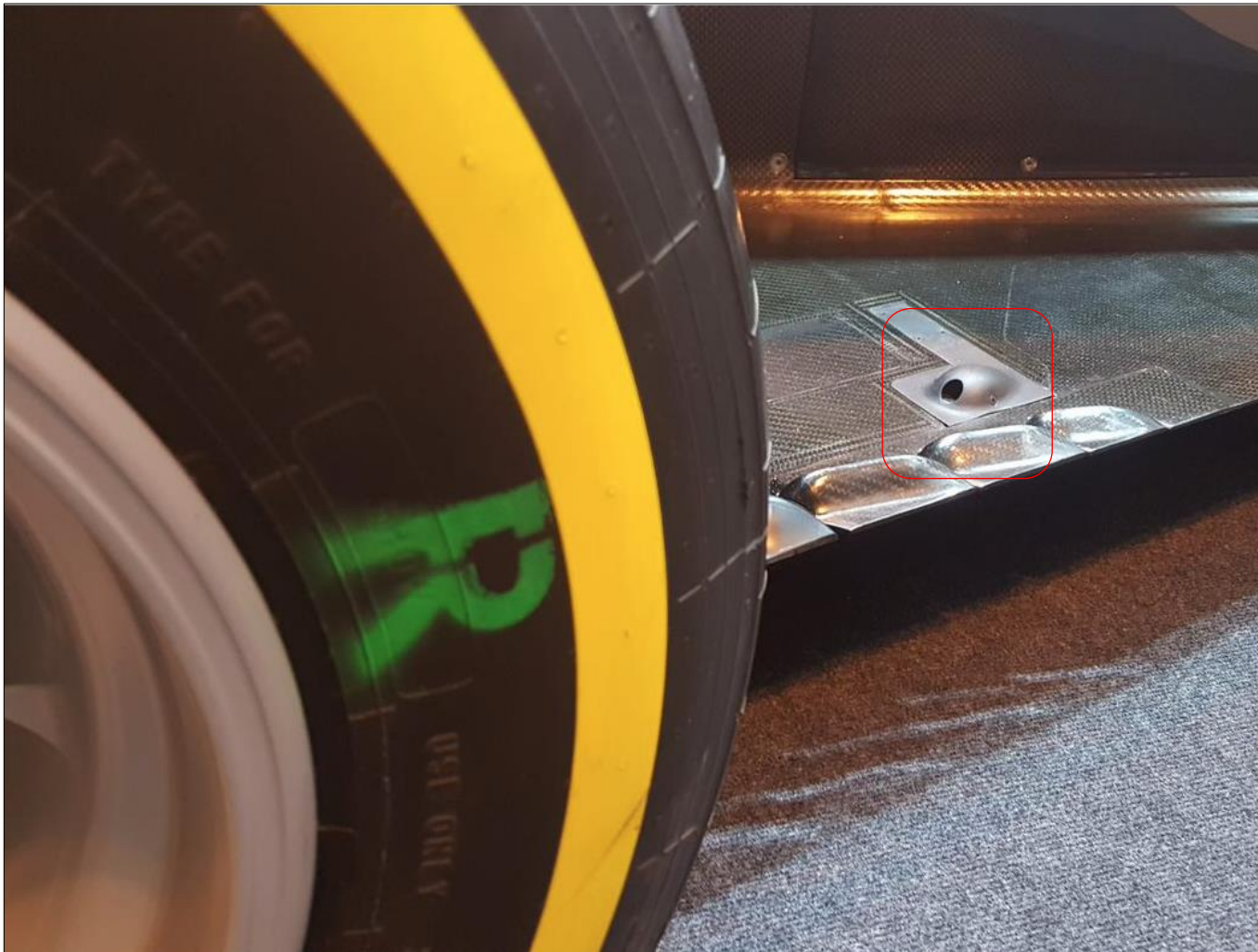
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Temperature Sensors



Tire Temperatures



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Tire Temperatures



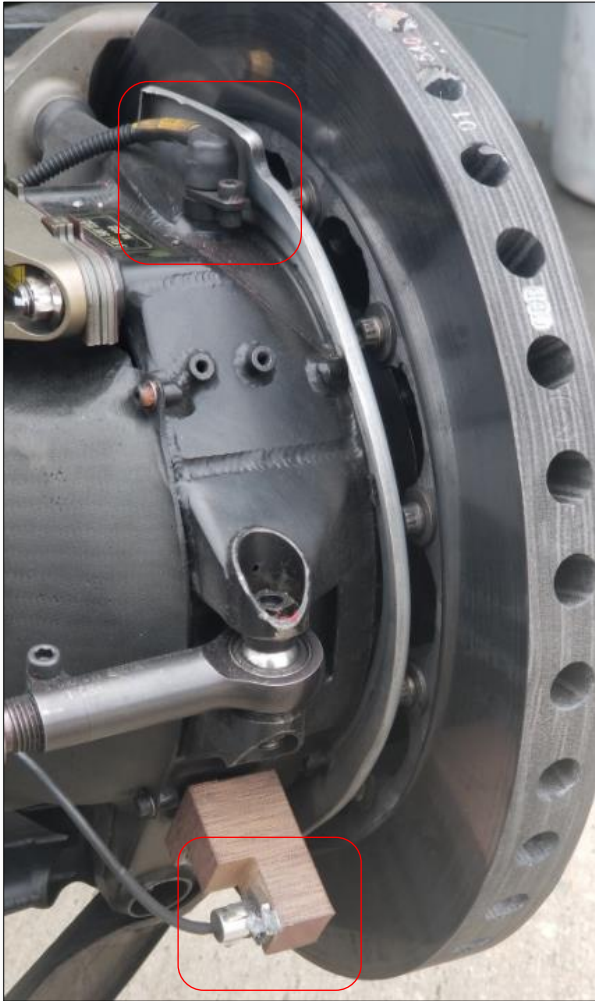
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Temperature Sensors



Brake Temperatures



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Brake Temperatures

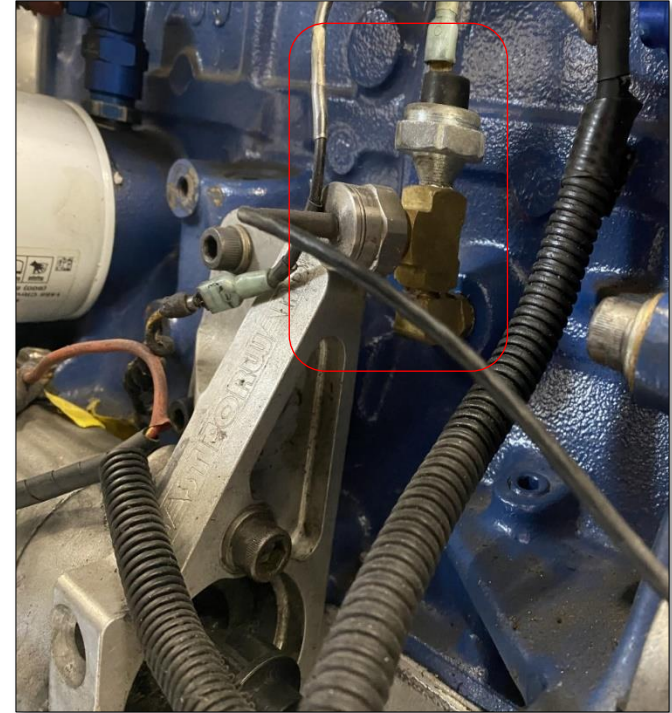


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Pressure Sensors

Oil Pressure



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Oil Pressure

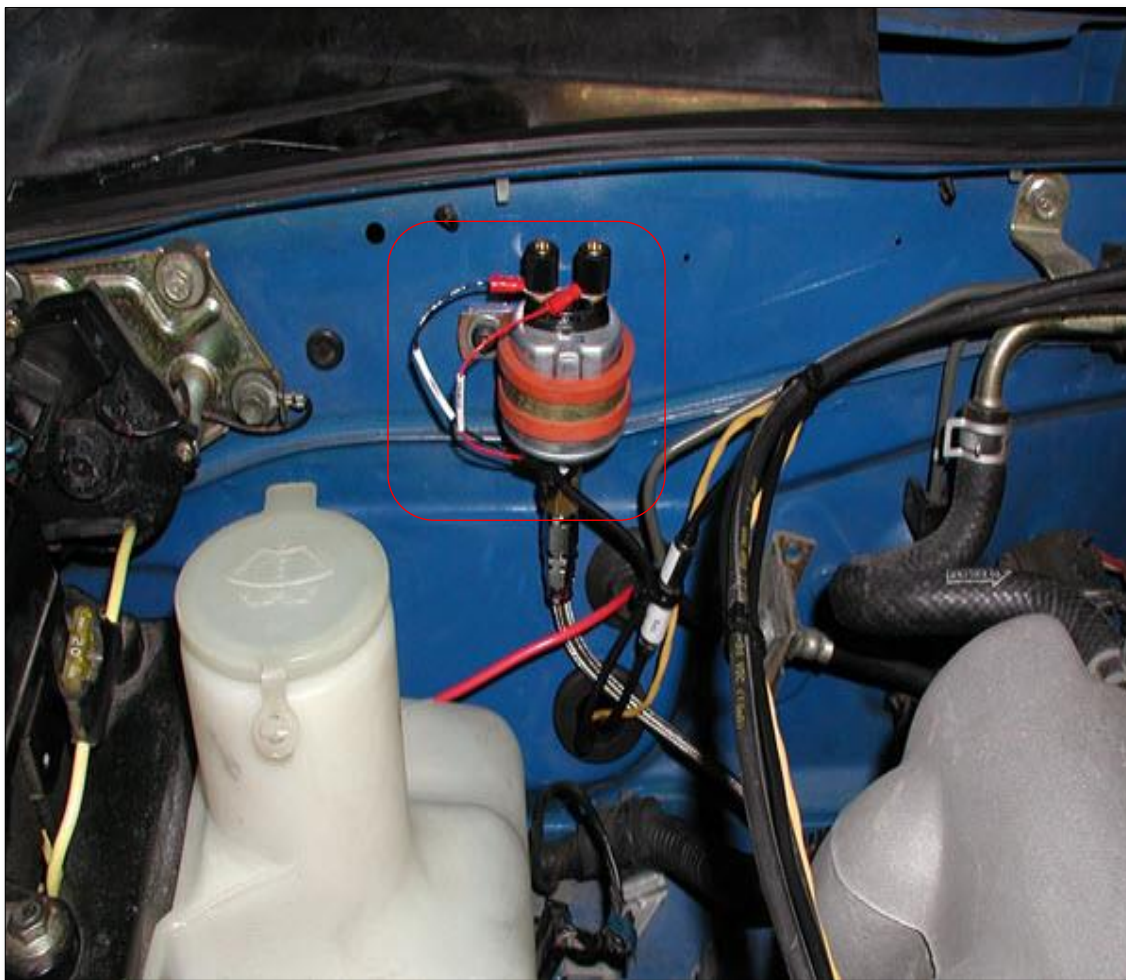


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Pressure Sensors

Oil Pressure



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Oil Pressure

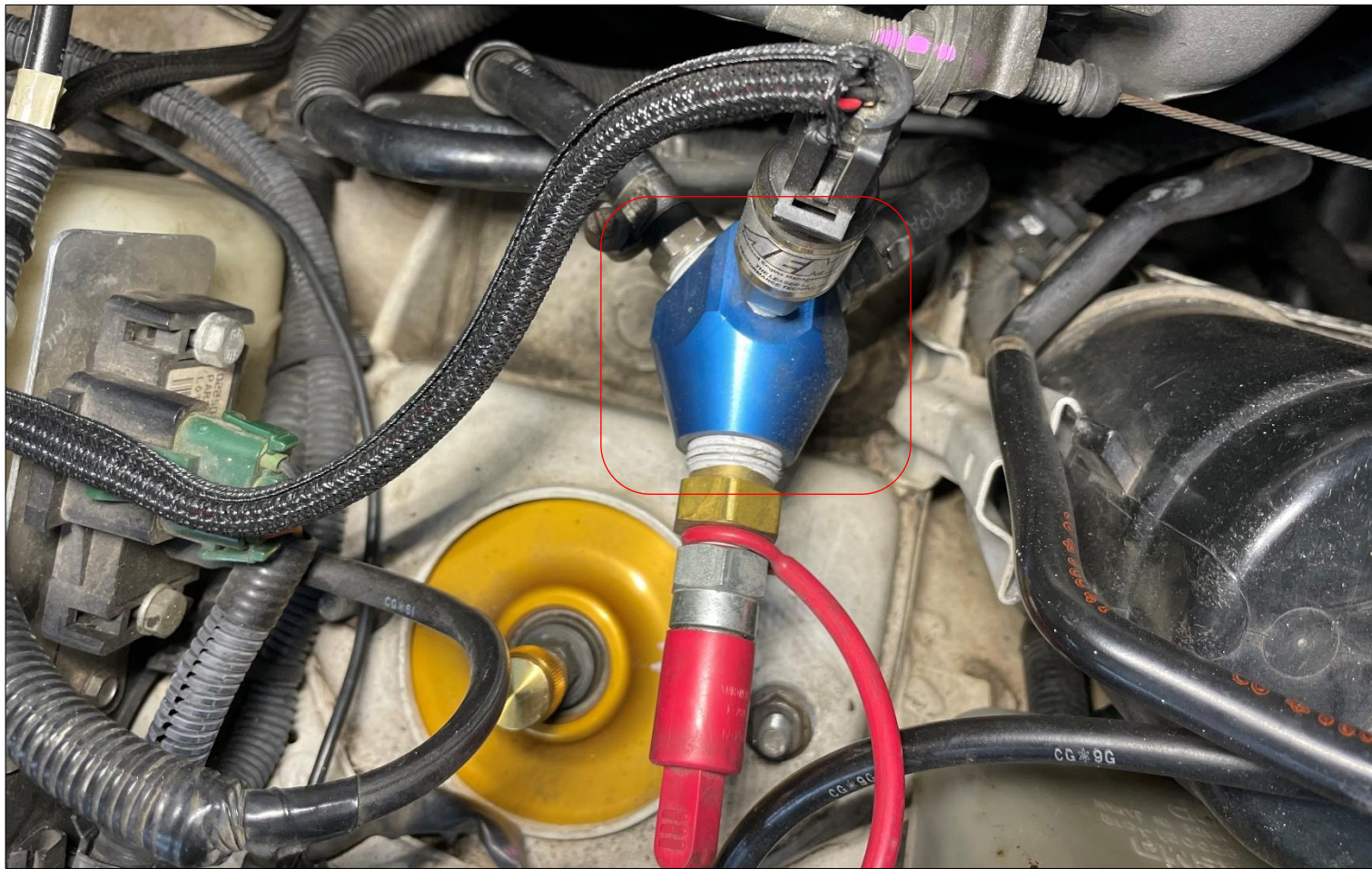


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Pressure Sensors

Fuel Pressure



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Fuel Pressure

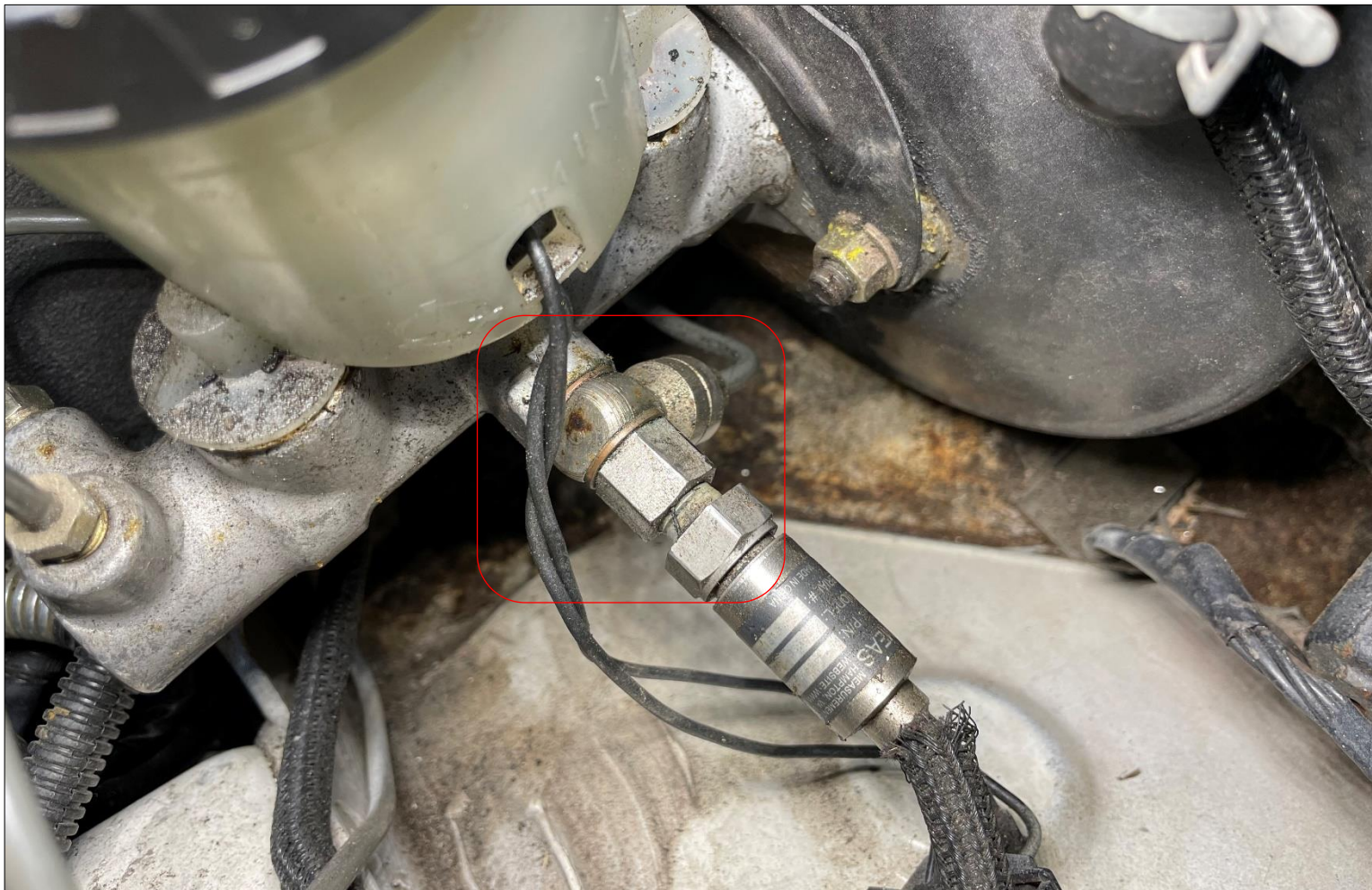


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Pressure Sensors

Brake Pressure Line Install



Sensor Installations

Brake Pressure Line Install



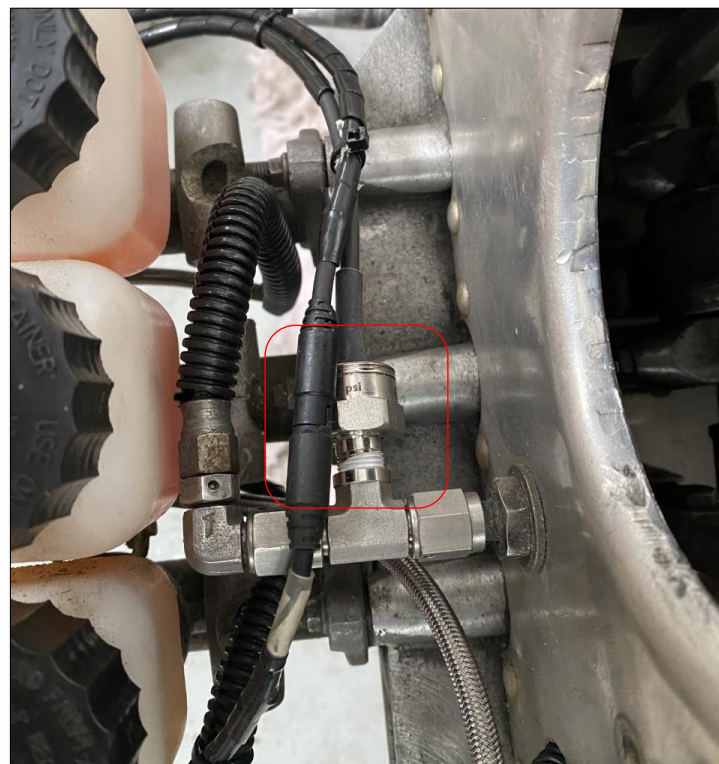
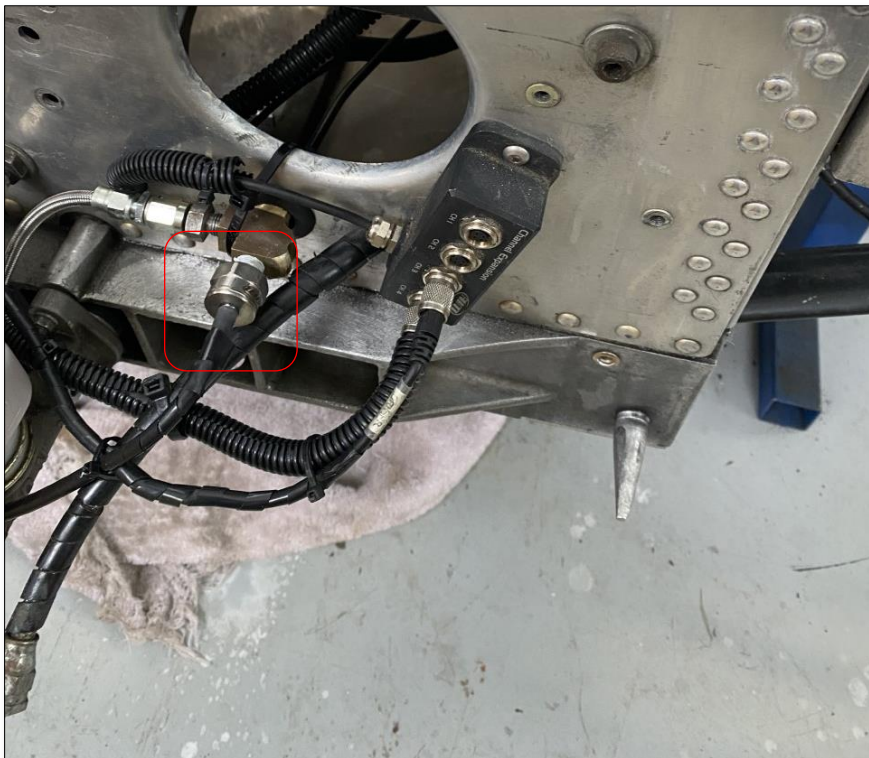
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Brake Pressure – Sports 2000 - Dual Master Setup



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Brake Pressure Line Install



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Pressure Sensors

Brake Bias Dash Display



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Brake Bias Dash Display

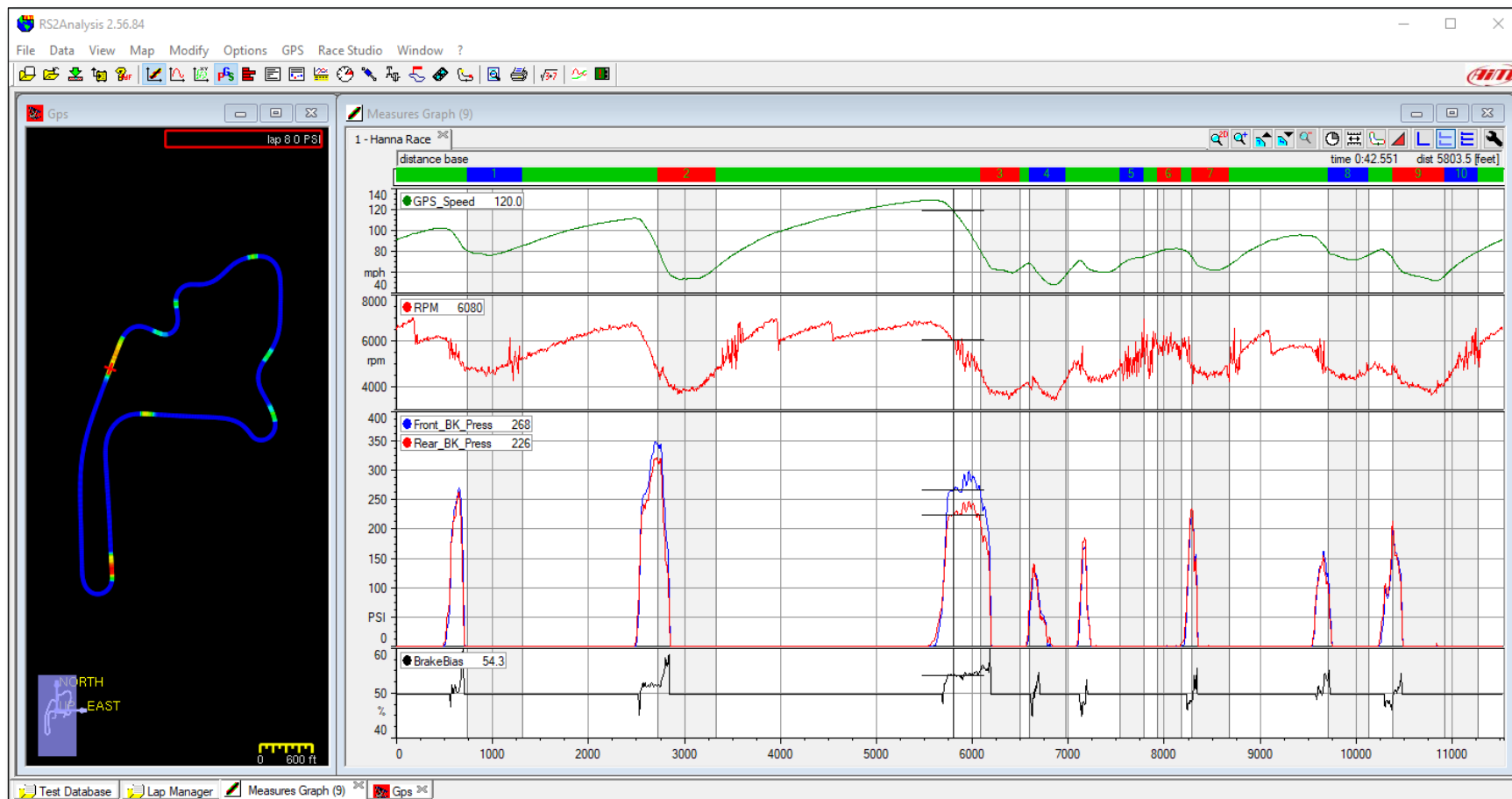


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Pressure Sensors

Brake Pressure Analysis – Swift Sports 2000



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Brake Pressure Analysis

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Damper/Shock Position Sensors



Bluetooth or Old School? 😊



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Damper/Shock Position



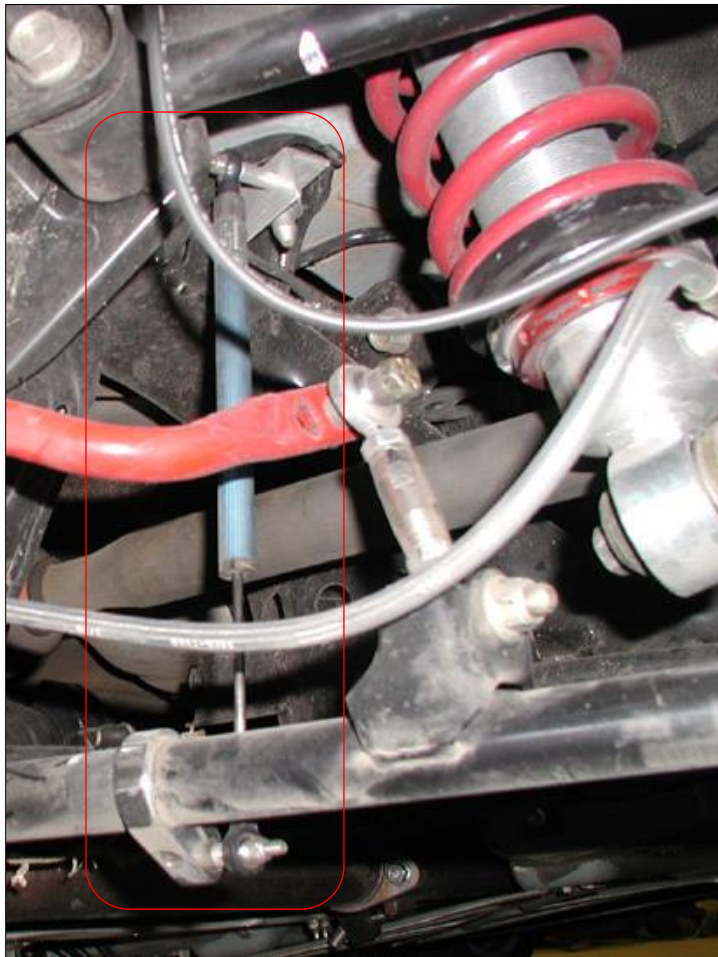
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Damper/Shock Position Sensors



Mazda MX5 Cup & Stock Car



Sensor Installations

Damper/Shock Position



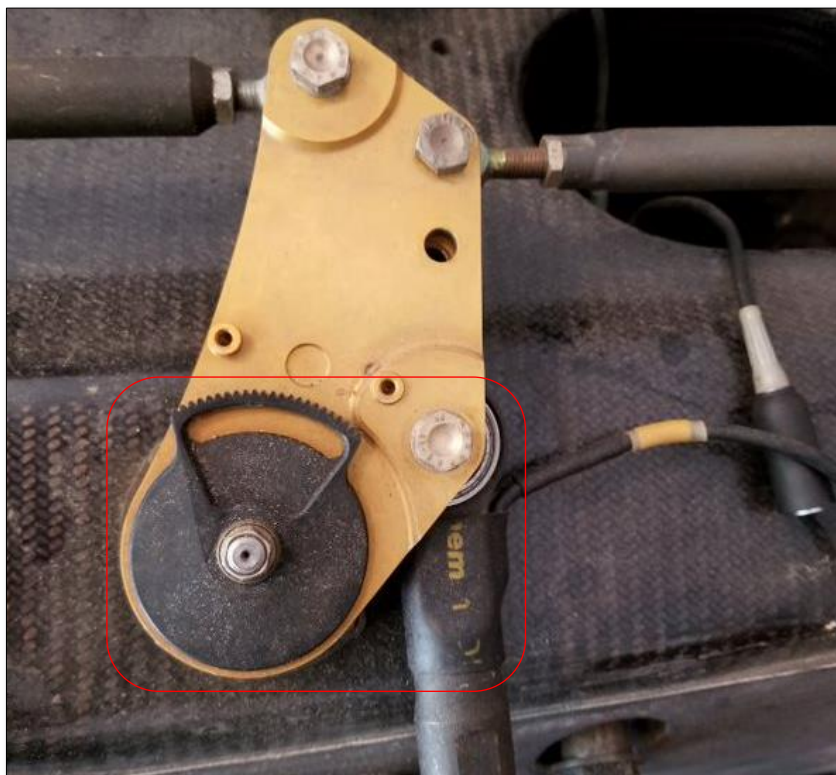
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Damper/Shock Position Sensors



Formula Car



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Damper/Shock Position



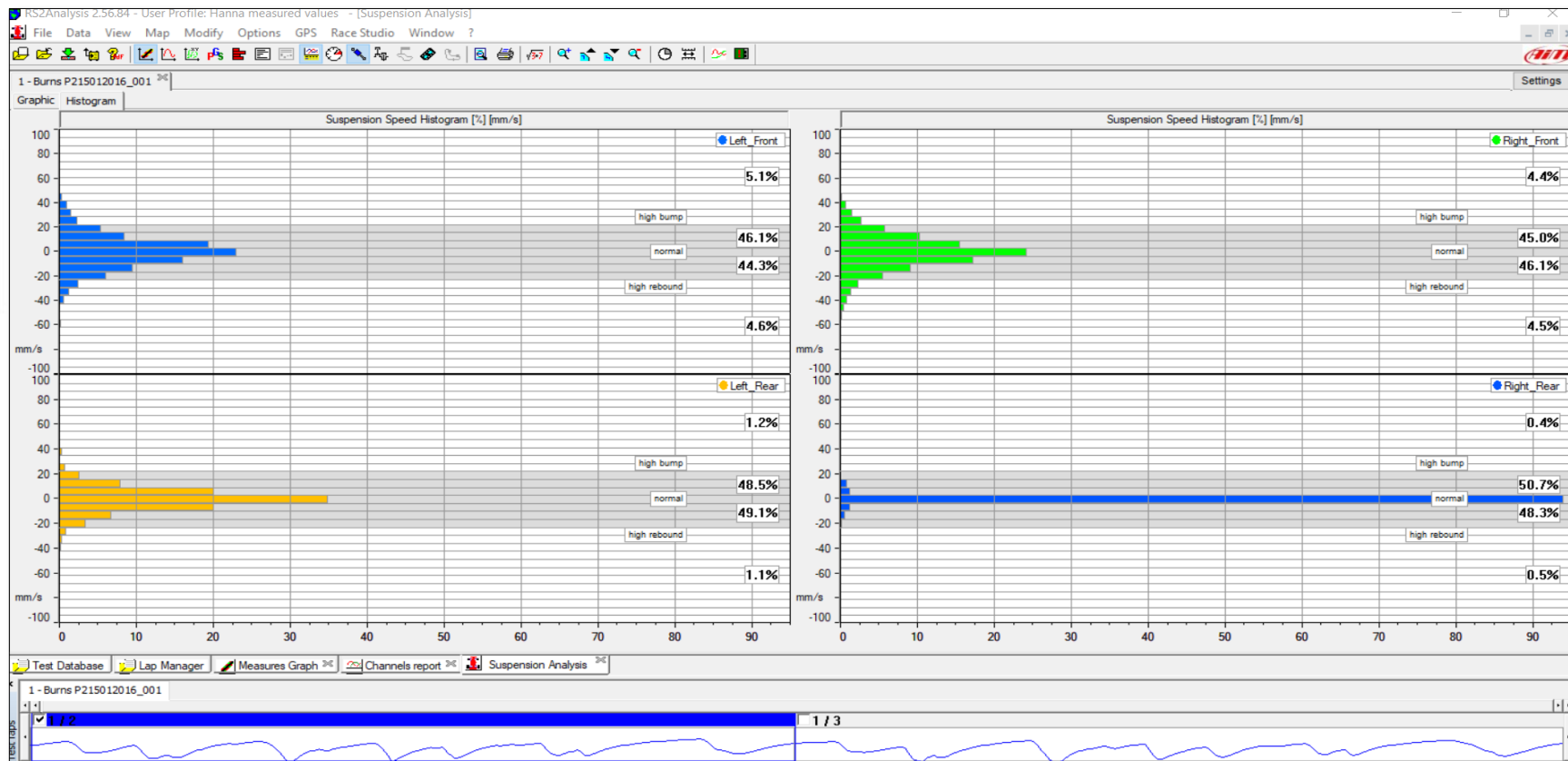
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Damper/Shock Position Sensors



Suspension Sensor Data Analysis



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Suspension Sensor Data Analysis

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Steering Position Sensors

Rotary Potentiometer



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Steering Position - Rotary

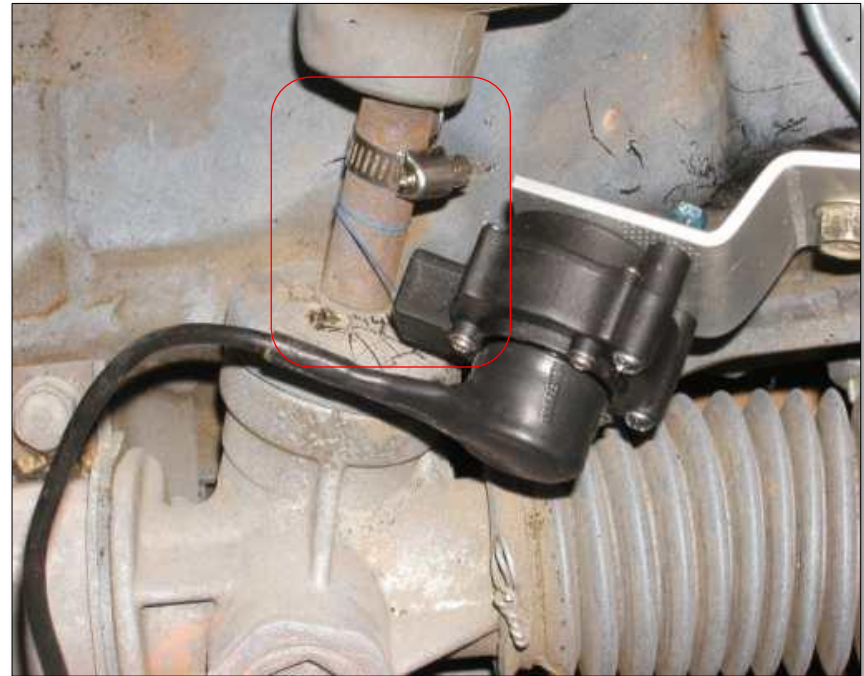
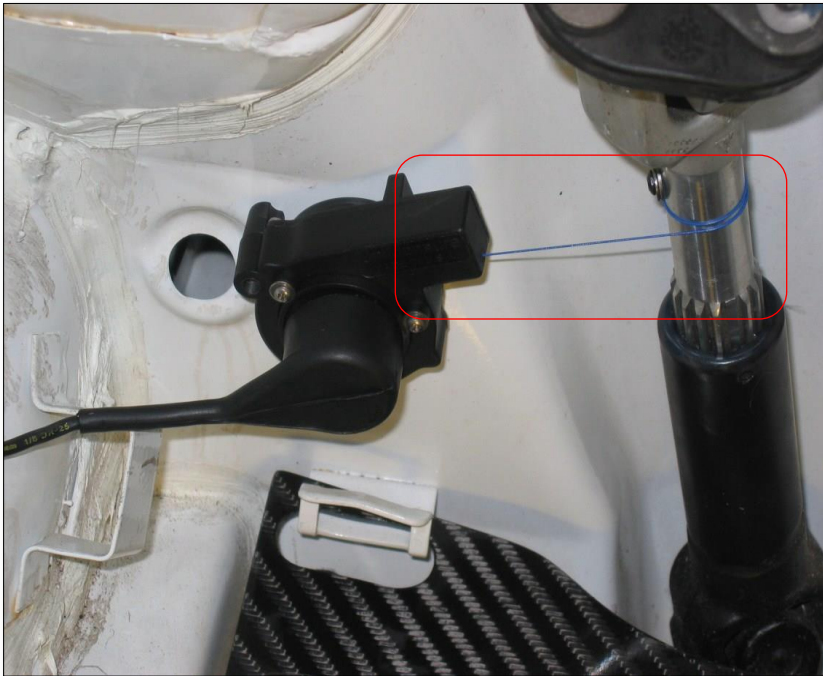


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Steering Position Sensors

String Potentiometer



Sensor Installations

Steering Position - String



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Steering Position Sensors

Linear Potentiometer



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Steering Position - Linear

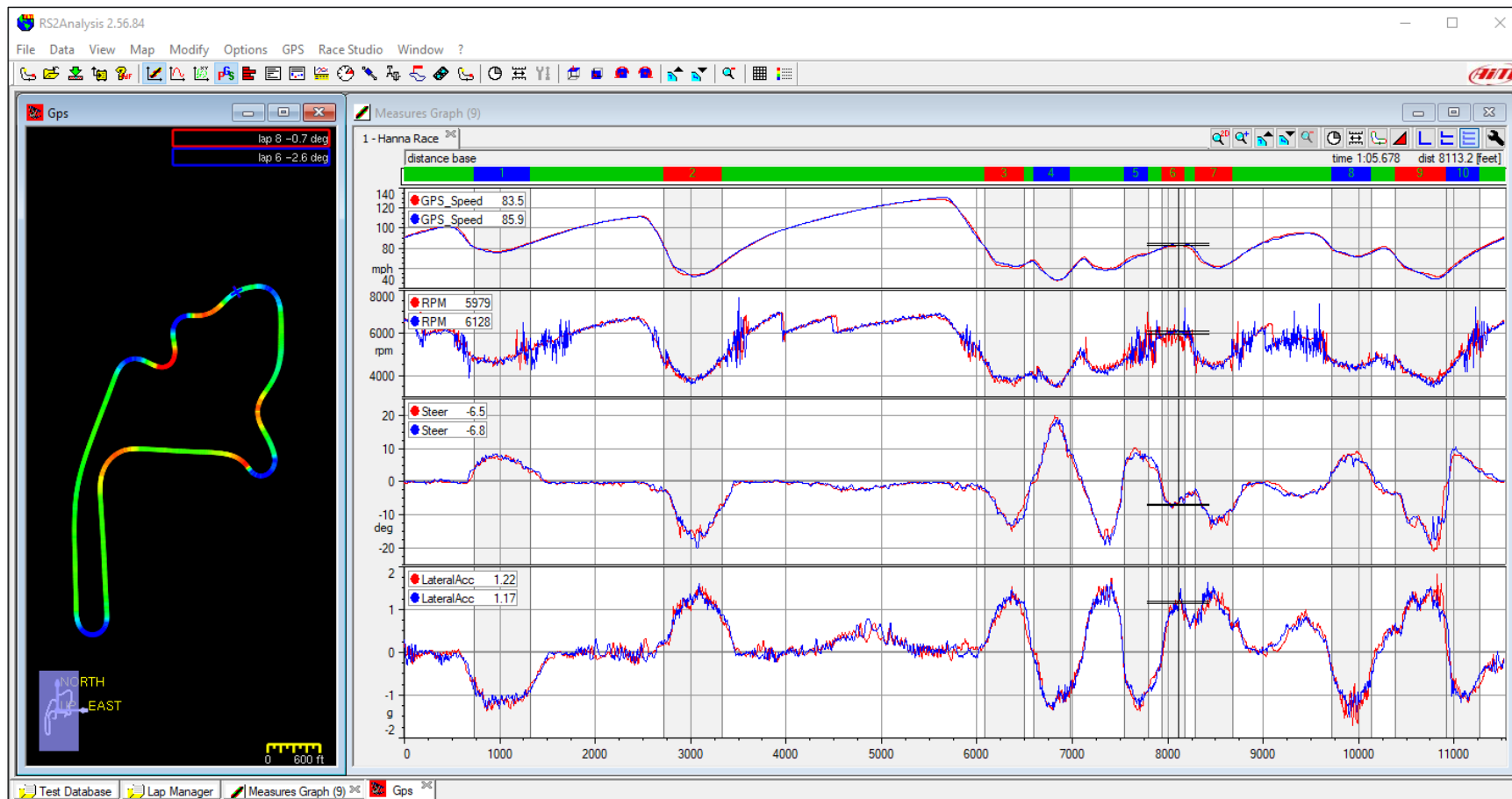


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Steering Position Sensors

Steering Sensor Data Analysis



Sensor Installations

Steering Sensor Data Analysis

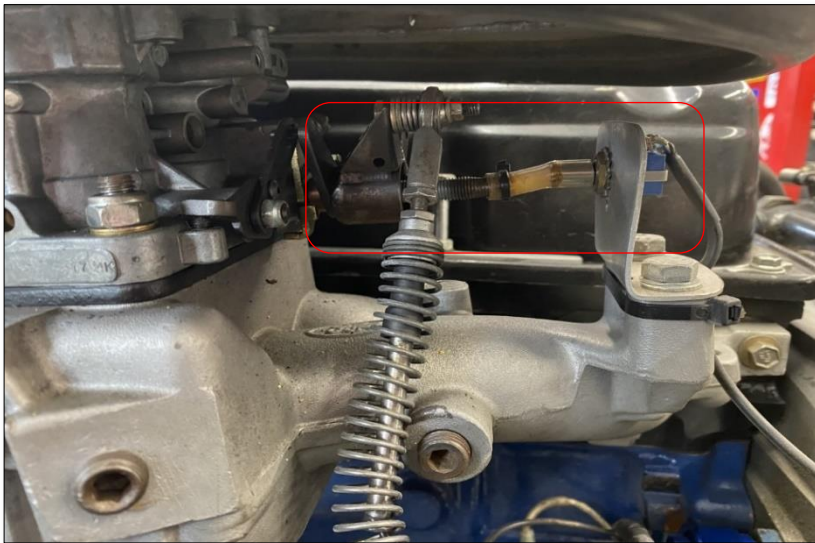
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Throttle Position Sensors

Rotary Potentiometer



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Throttle Position - Rotary



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Throttle Position Sensors

Rotary Potentiometer - Porsche



Sensor Installations

Throttle Position - Rotary

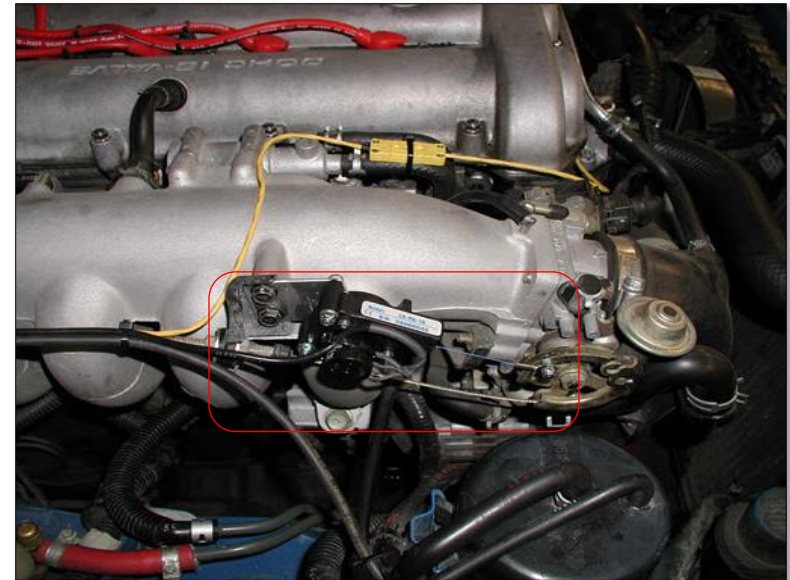
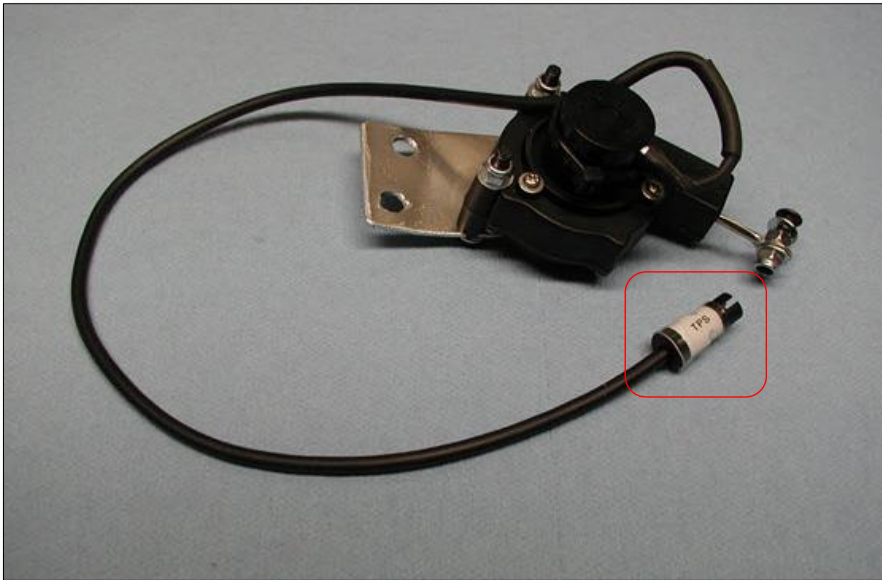


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Throttle Position Sensors

String Potentiometer – Spec Miata



Sensor Installations

Throttle Position - String

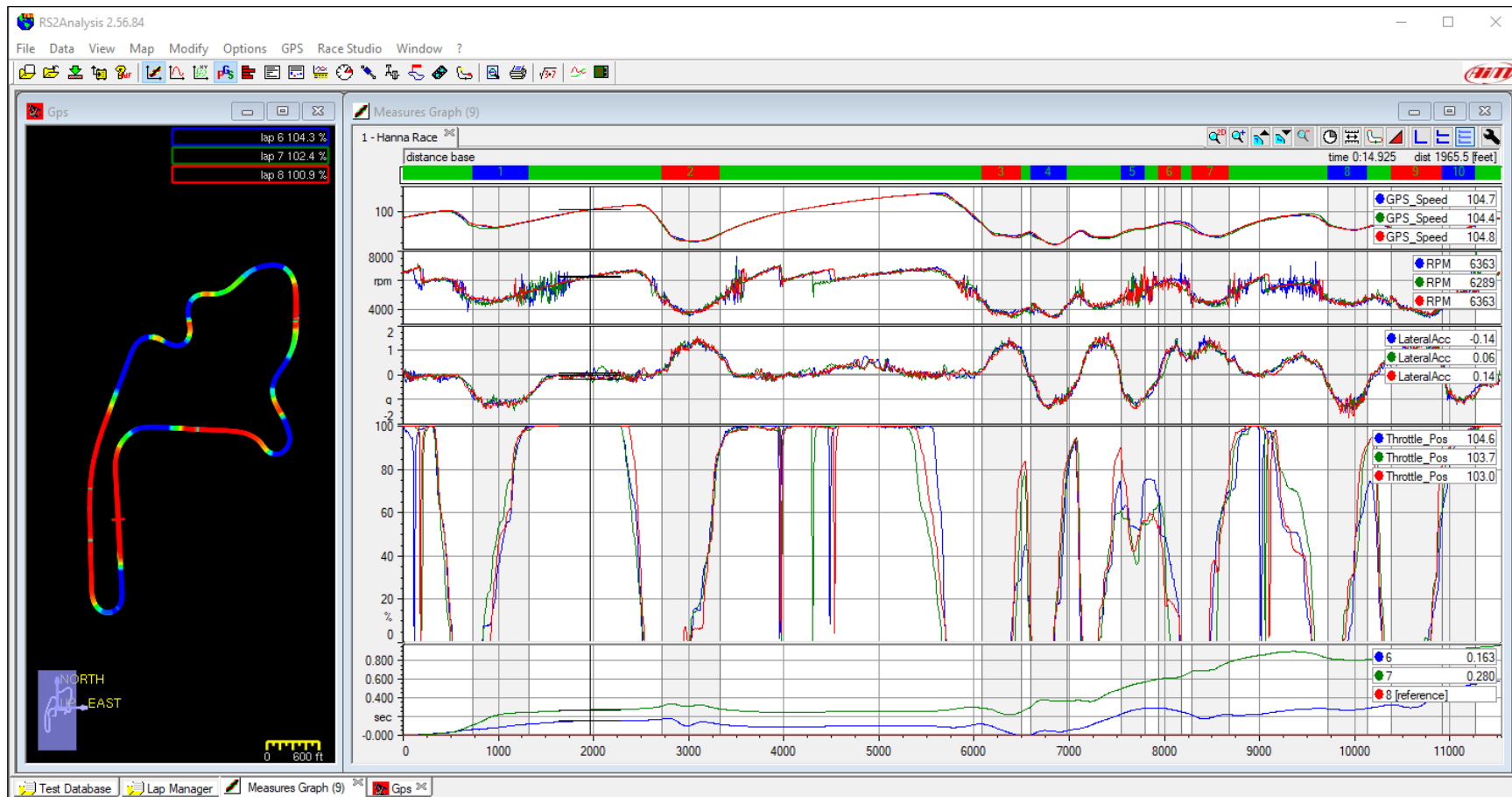


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Throttle Position Sensors

Throttle Position Sensor Data Analysis



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Throttle Sensor Data Analysis

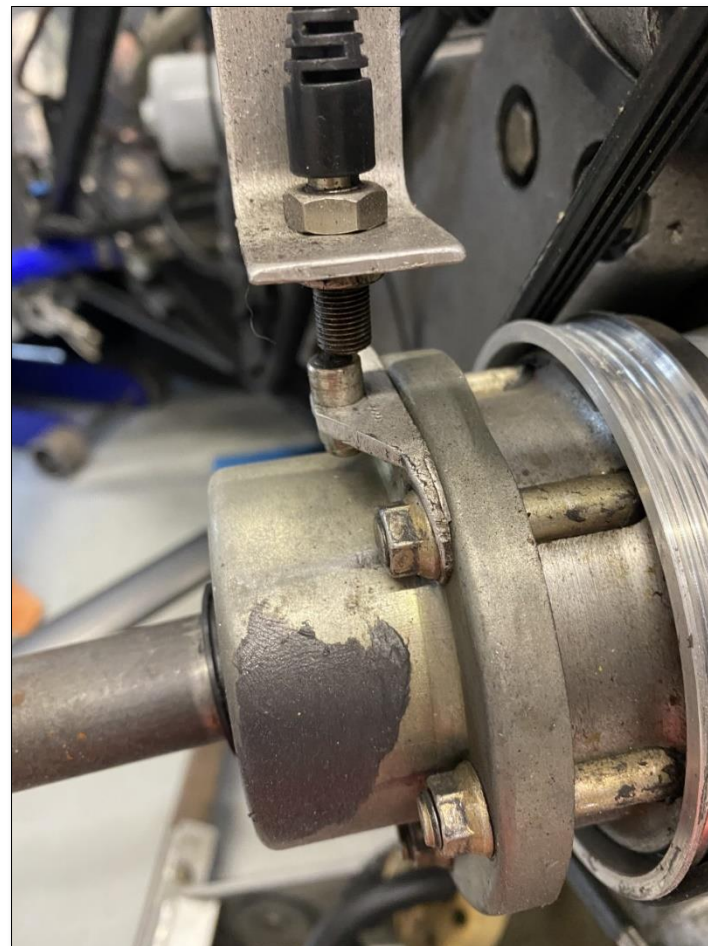
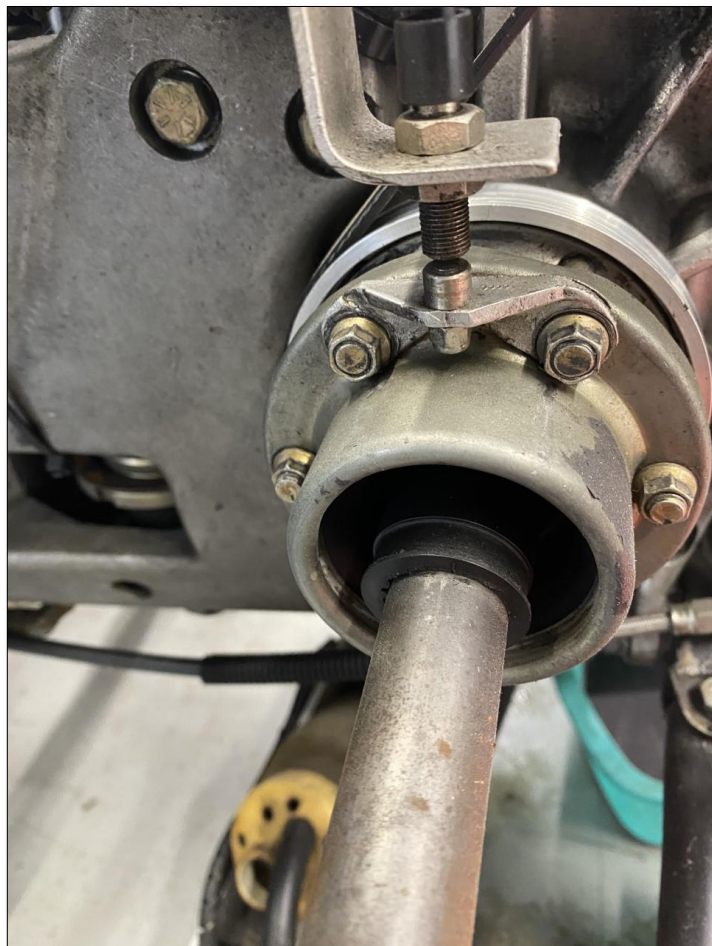
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Speed Sensors

Speed Sensor Mount – CV Joint

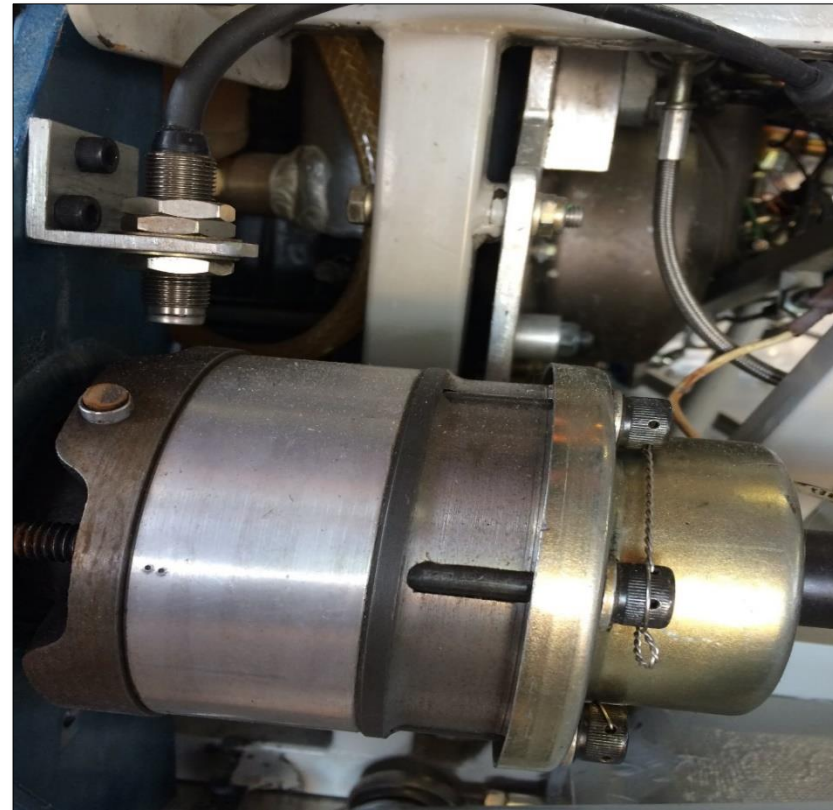


Sensor Installations

Speed Sensor Mount

Speed Sensors

Speed Sensor Mount – CV Joint



Sensor Installations

Speed Sensor Mount – CV Joint

Speed Sensors

Speed Sensor Mount – Driveshaft



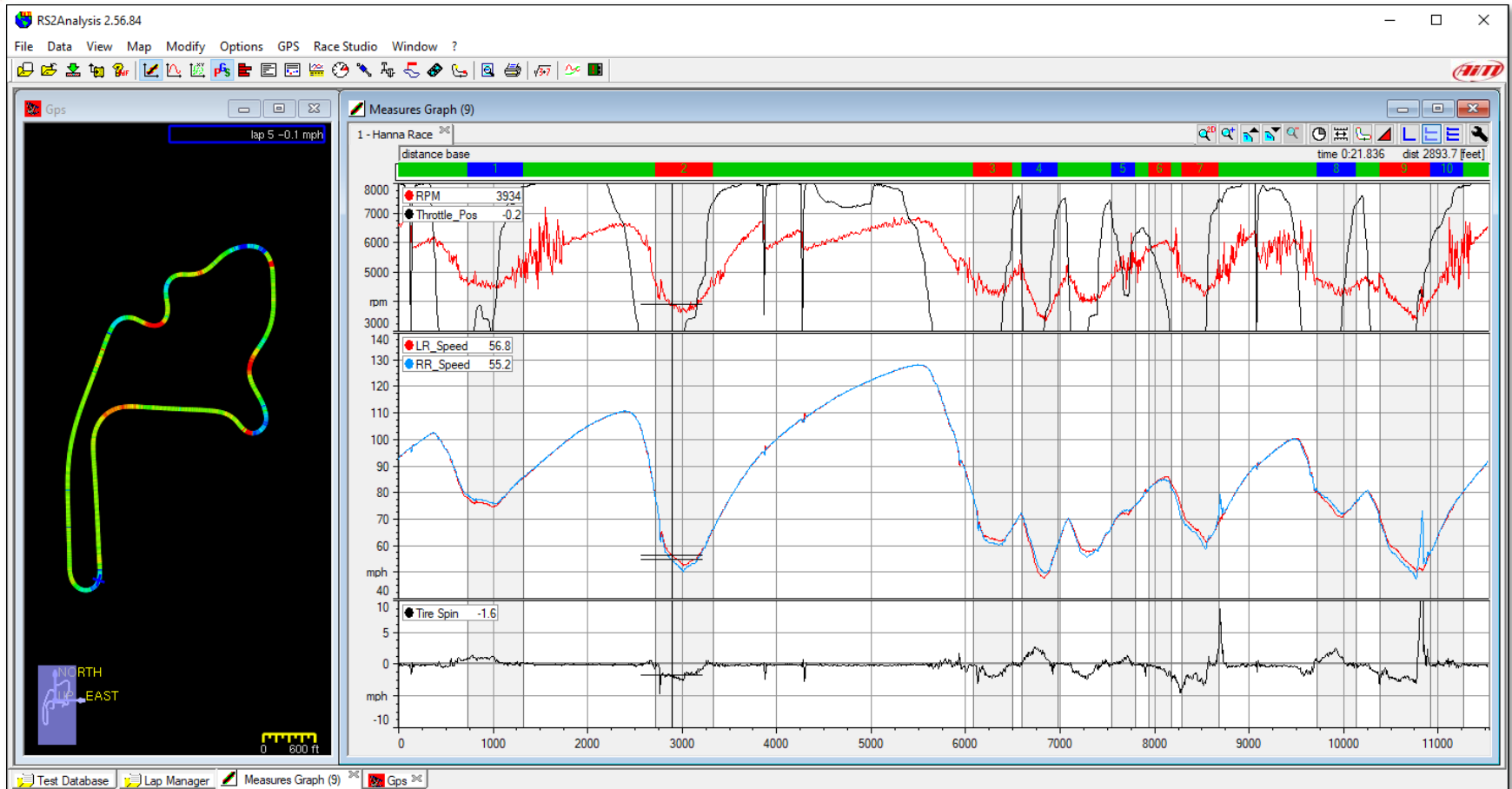
Sensor Installations

Speed Sensor Mount – Driveshaft

Speed Sensors



2 Speed Sensor Data Analysis Tips



Tire Spin Math Channel = $RR_Speed - LR_Speed$

Sensor Installations

Speed Sensor Data Analysis

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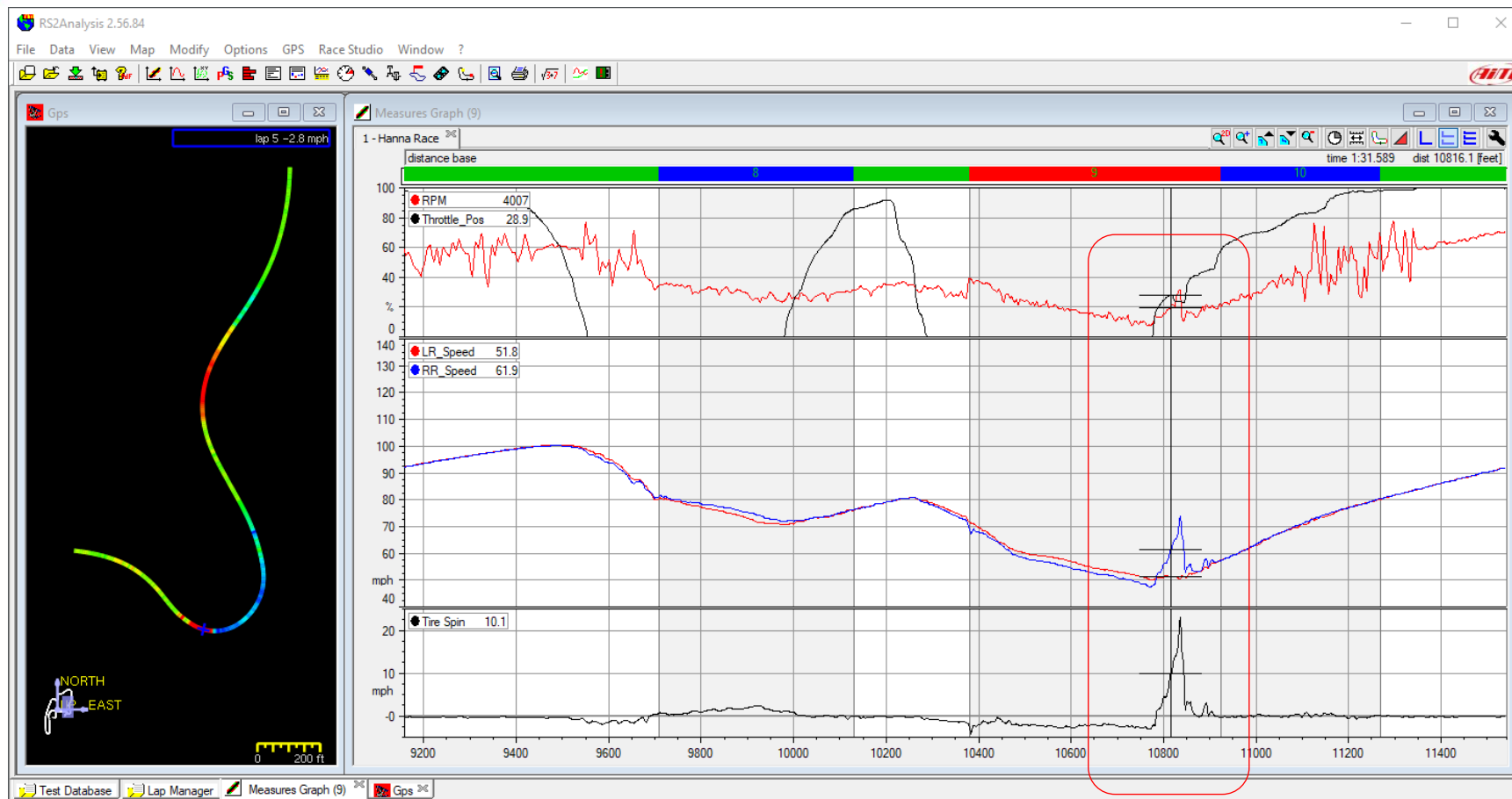


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Speed Sensors



2 Speed Sensor Data Analysis Tips – Tire Spin



Tire Spin Math Channel = $RR_Speed - LR_Speed$

Sensor Installations

Speed Sensor Data Analysis

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AiM Sports Sensor Webpage

Valuable Information and Links



POSITION SENSORS

1G Steering potentiometer			X05SNST01G		Datasheet		
10G Car/bike rotary potentiometer			X05SNST10G		Datasheet	RS3 conf	RS2 conf
Accelerator/brake pedal		MyChron Expansion kit	X05SNAFME0		Datasheet	Web page	
		eBox Extreme kit	X05SNAFEE0				
Car/bike linear potentiometer 9.5 (steering angle set up)		75 mm	X05SNPJ075		Datasheet	RS3 conf	RS2 conf
		150 mm	X05SNPJ150				
Car/bike linear potentiometer 13 (steering angle set up)		50 mm	X05LPAIM050		Datasheet	RS3 conf	RS2 conf
		75 mm	X05LPAIM075				
		100 mm	X05LPAIM100				
		150 mm	X05LPAIM150				
Car/bike linear potentiometer 9.5 (suspension set up)		75 mm	X05SNPJ075		Datasheet	RS3 conf	RS2 conf
		150 mm	X05SNPJ150				
Car/bike linear potentiometer 13 (suspension set up)		50 mm	X05LPAIM050		Datasheet	RS3 conf	RS2 conf
		75 mm	X05LPAIM075				
		100 mm	X05LPAIM100				
		150 mm	X05LPAIM150				
Car/bike throttle potentiometer			X05SNRP972		Datasheet	RS3 conf	RS2 conf
Exhaust gas power valve		MyChron Expansion kit	X08PWV00R		Datasheet	Web page	

<http://www.aimsports.com/en/products/sensors/index.htm>

Information on; Temp, Pressure, Position, Speed, Beacon, and RPM Sensors
Part Number's, Connectors, Images, Datasheets, and Configuration Info

Sensor Installations

AiM Sports Sensor Webpage

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LearnFast™ E-Training Videos



Currently 147 Videos and Growing

YouTube www.youtube.com/aimdata

Sensor Installations
Tips, Tricks, and Examples!

Host:
Roger Caddell
AIM Sports - National Training Manager

Co-Host:
David Free
DFree Trackside Service

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Tuesday Feb 23rd, 2021
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We Have Answers!
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Race Studio 3 Analysis
Software Release - Update #7

Host:
Roger Caddell
AIM Sports - National Training Manager

Co-Host:
Emiliano Bina
AIM Sports - Software Developer

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Tuesday Feb 16th, 2021
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Webinar Series
Bringing Data Support and Training to You

Data Download Options
In Race Studio 3

March 31st, 2020

www.aimsports.com
1.800.718.9090

- All New 2020 - 21 Webinar Videos
 - Software Updates with Race Studio 3
 - Pre-Calculated Gear Position Function
 - Configuring WiFi Communication
 - Customizing AiM Device Logos
 - Race Studio 3 Basic Configuration - Part 1
 - Race Studio 3 Basic Configuration - Part 2
 - **I Have Downloaded my Data, Now What - Part 1*
 - **I Have Downloaded my Data, Now What - Part 2*
 - GPS Lap Insert
 - Data Views
 - Measure Units
 - Sort Channels
 - Test Properties
 - Per Lap Color
 - Export Tests
 - Channel Reports
 - Setting Time
 - Track Mapping
 - Selection Criteria
 - Sensor Calibration
 - Conditional Alarms
 - Gear Position
 - Firmware Update
 - Solo Configuration
 - Transmit Tracks
 - Gps Manager Overview
 - New GPS Track
 - Webinars
- * Most Popular and Recommended*

Additional Materials

LearnFast™ E-Training Videos

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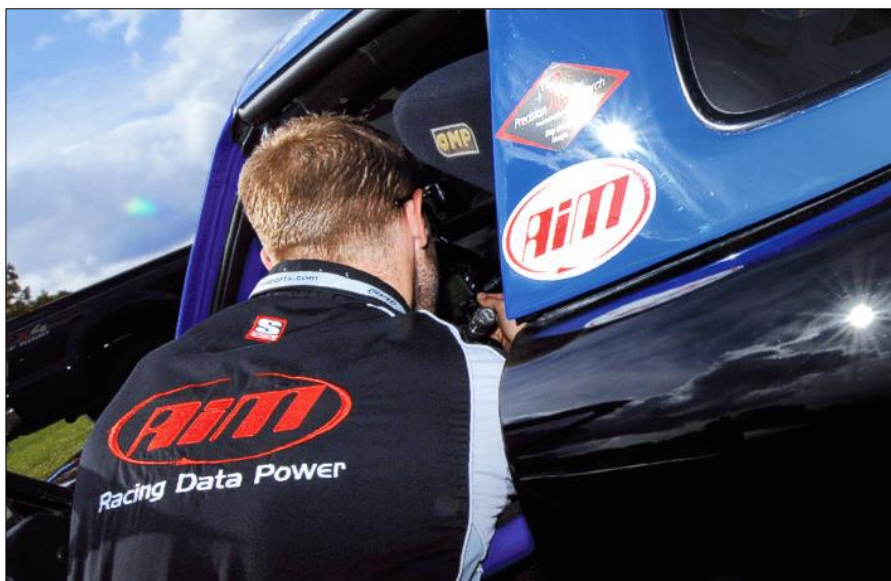
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Customer Support



AiM Sports Technical Support Staff Regularly
Attend Races and Other Events

Look For Us At An Event Near You
Or Call Us At **800.718.9090**



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At An Event Near You!

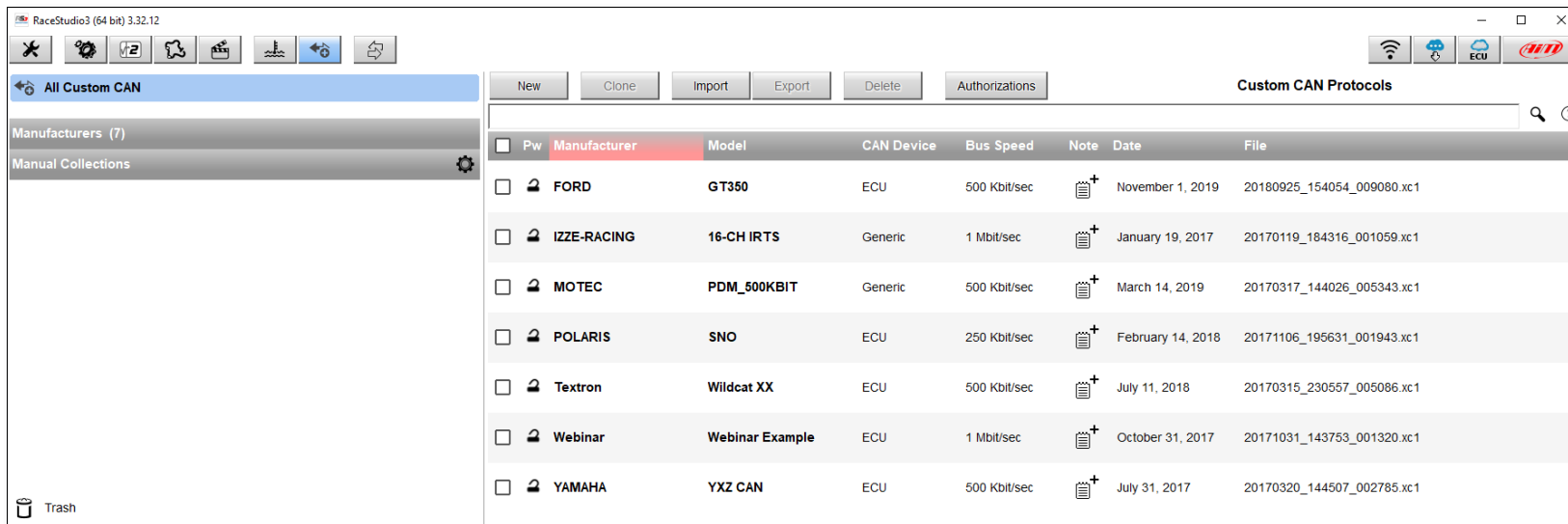


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Practical CANbus Basics

In The AiM Sports Universe



Host:

Roger Caddell

AiM Sports - National Training Manager

Co-Host:

Jeff Wasilko

Spec Miata Racer

Co-Host:

Robbie Yeoman

AiM Sports Technician

Next Webinar: Tuesday March 2nd, 2021 - 10:00am Pac/1:00pm East

Next Webinar Topic

Practical CANbus Basics



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