



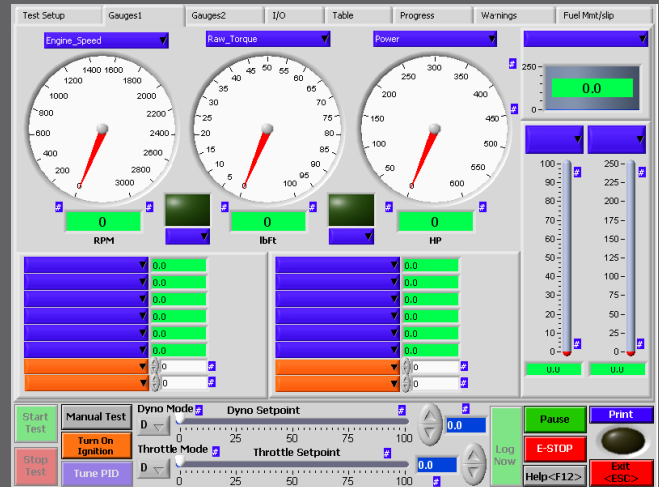
# DynPro

The Ultimate in Instrumentation

INSTRUMENTATION

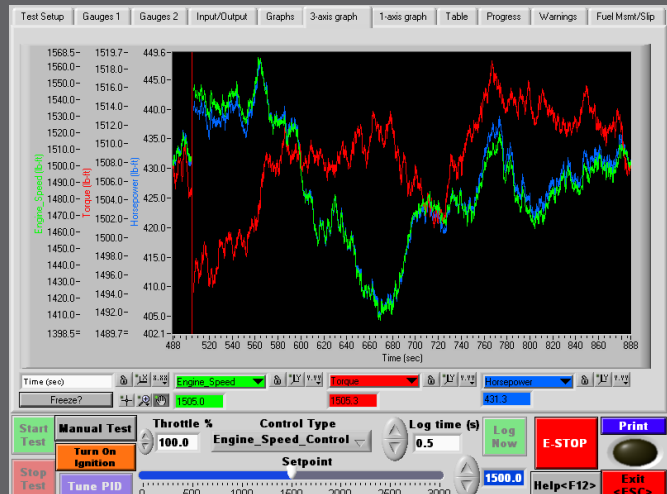
## Flexibility And Control

The heart of Taylor's instrumentation is the DynPro dynamometer control and data acquisition system. DynPro gives the operator complete control of the dynamometer functions and provides comprehensive data acquisition. DynPro controls and acquires the data from the many accessories that complement Taylor's DynPro system including the Smoke Opacity Meter, the Emissions Gas Analyzer, the Engine Instrumentation Unit (for pressure and temperature channels), the Heavy Duty Electronic Interface (for ECM channels) and the Fuel Measurement Unit.



Sample Gauge Screen — Operator Selects Gauge Settings

DynPro is a PC based system and operates in a Windows™ environment. It encompasses the features of a lab grade control system and still delivers an operator friendly point and click interface. DynPro has an optional industrial grade console cabinet with a fan filter system, power management system and surge protector available. The durable yet functional console cabinet provides the flexibility of locating DynPro either in the harsh environment of the dynamometer test room or in the comfort of an operators control room.



DynPro Run Screen 3 Axis Graph



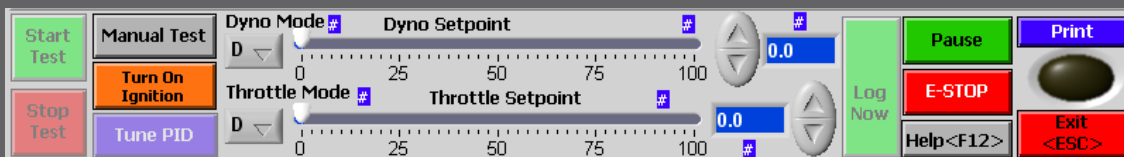
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## Control, Control, Control

With DynPro you are in control. DynPro has a wide choice of selectable control modes. For engine dynamometer applications, the standard selectable engine and throttle (closed loop) control modes include engine speed, engine torque, and engine horsepower all available in either a manual or automatic mode. The system also provides a bumpless transfer capability between control modes so that you can easily change while running your test. You can even create a custom control mode to control to any available parameter if desired.

For chassis dynamometer applications, the standard selectable control modes include engine speed, vehicle speed, vehicle horsepower, and vehicle torque all available in either a manual or automatic mode. The bumpless transfer and ability to create custom control modes is provided for chassis dynamometer applications as well.



Sample Gauge Screen—Operator Selects Gauge Settings

## Manual Mode

In the Manual Mode, the operator simply chooses the method of control by clicking on the Control Type drop down screen and adjusting the slide bar to the desired Setpoint. Data can be logged automatically by setting the Log Time interval or at any time by pressing the Log Now button.

## Automatic Mode

Save time and achieve consistent and repeatable results by using the Automatic Mode for dynamometer control. DynPro's Automatic Mode Profile Editor easily steps the operator through the creation of simple to complex Multiple Setpoint Tests that can be saved and retrieved for future tests.

Once again, DynPro offers unparalleled flexibility and sophistication with Automatic Mode. Some of the advanced features include varying the Control Mode, changing the Throttle Position or altering the Stabilization Time from step to step in a Multiple Setpoint Test. During a Multiple Setpoint Test the operator can track the status of the test via the Progress Screen. The Progress Screen displays the Multiple Setpoint Test, identifies the current Step in progress, tracks the total time expired and the time expired in the current Step. Data is logged at the time intervals established with the Profile Editor.

Step #	Duration (sec)	Dyno Control_Mode	Start Set_Point	End Set_Point	Ramp Time (sec)	Engine Control_Mode	Start Set_Point	End Set_Point	Ramp Time (sec)	Check Time Log Interval (sec)	Sweep Test
1	300.00	Engine_Speed_Control	2100.00	2100.00	0.00	Direct_Control	100.00	100.00	0.00	301.00	No
2	180.00	Engine_Speed_Control	2100.00	1900.00	0.00	Direct_Control	0.00	0.00	0.00	30.00	No
3	300.00	Engine_Speed_Control	1900.00	1500.00	300.00	Direct_Control	0.00	0.00	0.00	0.00	Yes
4	60.00	Engine_Speed_Control	1500.00	1500.00	0.00	Direct_Control	0.00	0.00	0.00	61.00	No
5	300.00	Engine_Speed_Control	1500.00	1900.00	300.00	Direct_Control	0.00	0.00	0.00	0.00	Yes
6	60.00	Engine_Speed_Control	1900.00	1900.00	0.00	Direct_Control	0.00	0.00	0.00	61.00	No
7	60.00	Engine_Speed_Control	1900.00	2100.00	0.00	Direct_Control	0.00	0.00	0.00	61.00	No
8	60.00	Engine_Speed_Control	2100.00	2100.00	0.00	Direct_Control	0.00	0.00	0.00	61.00	No
9	300.00	Engine_Speed_Control	2100.00	2100.00	0.00	Direct_Control	0.00	0.00	0.00	301.00	No

Automatic Mode Profile Editor  
Sample Multiple Setpoint Test

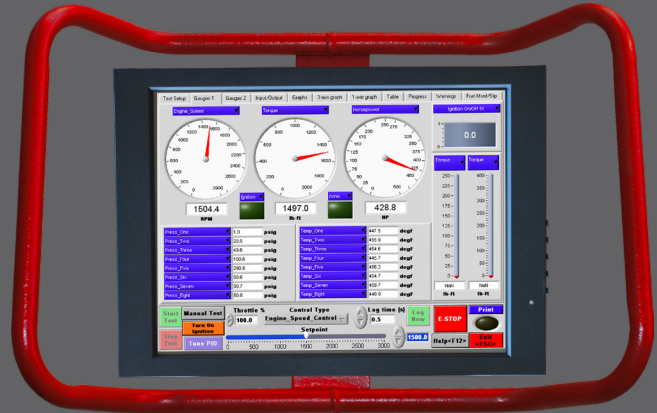


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## Hold On, You're In Control

For Chassis dynamometer applications, DynPro includes a Hand-Held Pendant for easy and complete dynamometer control from the cab of the vehicle. The Hand-Held Pendant provides the dynamometer operator with a color display touch screen graphical user interface. All the screens, all the functions and all the capabilities of DynPro are equally accessible through the PC or the Hand-Held Pendant. The only difference is that the Hand-Held Pendant incorporates a touch screen interface versus the traditional point and click (or keyboard) of a PC. For engine dynamometer applications, the Hand-Held Pendant is an optional accessory.



Hand-Held Pendant With Color Touch Screen

## You View What You Want

The DynPro screens are easily customized to your preferences. Once established, the screen configuration can be saved and retrieved. Each indicator has a drop down screen with every channel displayed and available. Clicking on them and entering a new number can change the upper and lower ranges of the gauges.

## DynPro Does The Organizing For You

A database file is automatically created and stored with every test. All files are saved and stored as tab-delimited text files. What does this mean? The files can be easily imported into many common word processing or spreadsheet programs.

DynPro's Search Utility allows the dynamometer operator to quickly search through all data files by Keyword. Examples of Keywords include Customer Name, Vehicle Serial Number, Vehicle Plate Number, Engine ID Number, Work Order Number, Dynamometer Operator and more.

## Let's Talk And Talk

DynPro communicates with electronic engines using either the J1708 or J1939 bus protocols. This feature is included for chassis dynamometers and is optional for engine dynamometers. Standard channel configurations can be created, saved, and retrieved with the Bus Communication System Setup. Alternatively, the operator can query the engine and will be able to view and select the channels to log, display, or print.

ECM

Bus Setup File: B:\C:\DynPro 4.x\Config\Setup Files\Bus config\Electronic ECM

Speed Control:  Use Bus Engine Speed for control

Communication Settings

COM Port: COM4 J1708 Settings

Bus Protocol: J1708 Baud Rate: 9600

MID/DA: 30 Checksum Option: Full Automatic

Enabled	PID/PGN	Parameter Name	Log	Display	Alarm	Low Fail	Low Warn	High Warn	High Fail	Pre-Fault	Fault	Action
OFF	2	e_Transmitter_Sys_Stat	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	3	e_Transmitter_Sys_Diag	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	74	e_Max_Road_Spd_Limit	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	84	e_Road_Spd	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	86	e_Cruise_Control_Set_Spd	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	87	e_Cruise_Control_High_Set_Limit_S	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	88	e_Cruise_Control_Low_Set_Limit_S	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	91	e_Percent_Accel_Pedal	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	92	e_Percent_Engine_Load	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	100	e_Eng_Oil_Press	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	102	e_Boost_Press	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	105	e_Int_Mid_Temp	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	108	e_Barometric_Press	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	110	e_Eng_Coolant_Temp	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
ON	166	e_Rated_Horsepower	ON	ON	OFF	0.0	0.0	0.0	0.0	0	E	T
OFF	168	e_Volts_Battery	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	T

Load <F1> Save <F2> New PID/PGN List <F3> Print <F10> Help <F12> Exit <Esc>

j1708/j1939 Setup Screen



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## Quality Counts

DynPro's Calibration Utility will meet the most demanding of Quality Programs, including ISO. Calibration options include Calibration from Manufacturer's Data Sheet, Calibration via Regression and a quick and easy Calibration Check. DynPro's Calibration History feature stores up to 15 entries per channel in a printable report format.

**History of Calibration File for**  
Torque DE400 lbFt WeidMod

**Calibration Information**

Transducer Name: \_\_\_\_\_ Serial Number: \_\_\_\_\_  
 Transducer Filename: Torque DE400 lbFt WeidMod V001.cal Calibrated by: \_\_\_\_\_  
 Current Location: \_\_\_\_\_  
 Last Calibration Date: 2/10/2009 10:58 AM Next Calibration Date: 2/5/2010 10:58 AM  
 Excitation Voltage: \_\_\_\_\_ Vendor/Model: \_\_\_\_\_  
 Units: lbFt Low Range: 0.00 High Range: 10.00 Chan Type: Voltage

Equipment used to Calibrate Transducer: \_\_\_\_\_  
 Specification Sheet Volts per Eng. Unit: 1338.2  
 Transducer Range: 13382.015 lbFt Resolution of Transducer: \_\_\_\_\_

Comments:  
 Load cell-HBM make 1000 Kg  
 Cal Arm length 815.77 mm = 2.676403 Ft  
 Torque  
 5000 lb \* 2.676403 Ft = 13382.015 lbFt

Select a Type:  Use Simulated Data?

Print Calibration History View Calibration History **Analog Input / Frequency** Calibrate & Save Save & Exit Cancel & Exit Help

## Safety First

All channels have Low Warn, High Warn, Low Fail, and High Fail alarm ranges. If outside the Warning range, a warning will be logged and displayed. If outside the Fail range, DynPro will perform the predefined shutdown actions.

**Entry and Calculated Channels**

Frequency Config File: Default AI-config.efd  
 Phys. Chan Config File: Default AI-config.efd

Use the slider on the left to scroll through the channels

Channel Name	Loa	Dis: play	Low Alarm	Low Fail	High Warn	High Fail	Pred sion	Units	Fault Action High	Fault Action Low
Engine_Displacement	OFF	CN	OFF	0.0	0.0	0.0	0.0	1 cu. in.	N	N
	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	E
	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	E
	OFF	OFF	OFF	0.0	0.0	0.0	0.0	0	E	E

Channel Name	Loa	Dis: play	Low Alarm	Low Fail	High Warn	High Fail	Pred sion	Units	Equation
isoCorrected_Power	CN	CN	OFF	0.0	0.0	0.0	0	HP	Power * isoInlet_Temp_CF_ATAAC
T_Ambient	OFF	CN	OFF	0.0	0.0	0.0	0	degF	T_Three
Actual_Density	OFF	CN	OFF	0.0	0.0	0.0	5	lbs/ft^3	0.07513*((528/460+
Actual_Flow	CN	CN	OFF	0.0	0.0	0.0	0	ACFM	1096.7*0.349*sqrt((Mass_Flow/

Load <F1> Save <F2> New <F3> Print <F10> Edit Equations <F4> Help <F12> Exit <Esc>

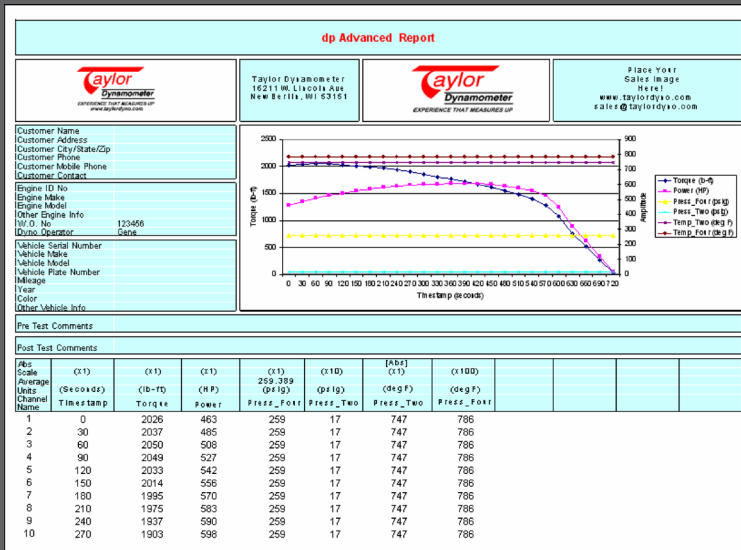


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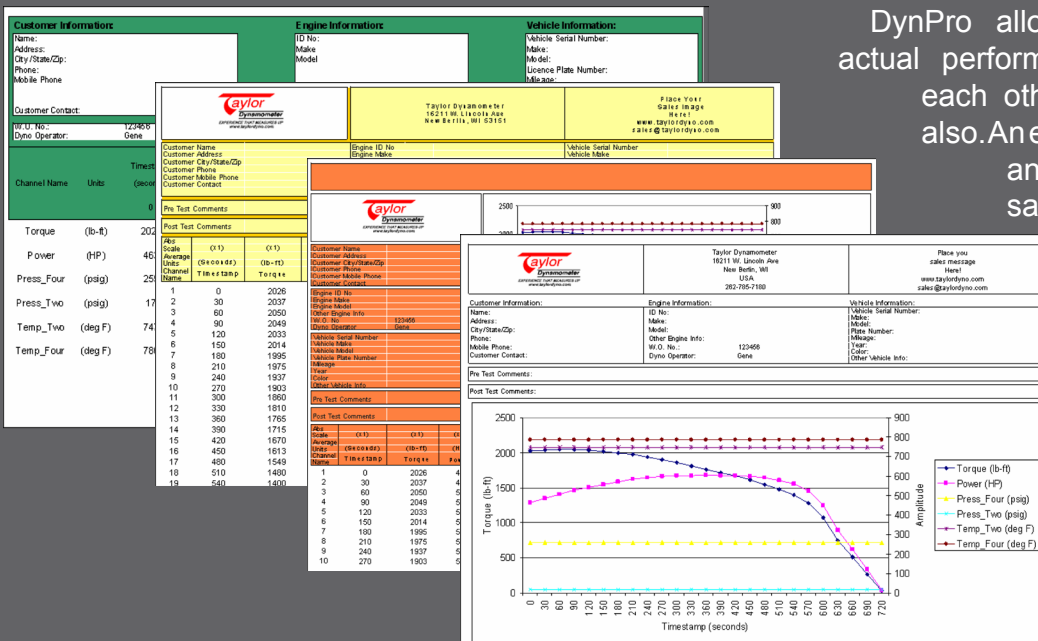
## What About Reports?

In all cases, the dynamometer operator chooses what data to log, what data to view, and what data to print or graph. All of these choices including the type of test (Automatic Mode) can be preconfigured. Both Tabular and Graphical report formats are available. Screen captures can be printed at any time. Reports can include your LOGO and up to three custom sales messages. A few different graphing options are provided in the reports that allow parameters to be scaled and plotted as you desire. We provide a selection of preconfigured report formats for you to choose from of you may create your own. The data is very easy to work with in most common word processing or spreadsheet programs.



Have you ever wanted to provide your customer with a report showing the OEM's rated curves and the "as-run" curves from the dynamometer test on their engine?

DynPro allows you to create reference datafiles using manufacturers data for comparative purposes. You could create an OEM performance curve for each engine model you test and then plot the test data and the reference data on a graph to show the customer how the engine compares.



DynPro allows you to compare actual performance curves against each other on a single graph also. An example would be to test an engine before rebuild, save the performance graph, then test the engine after rebuild and have the before & after curves printed on the same graph.



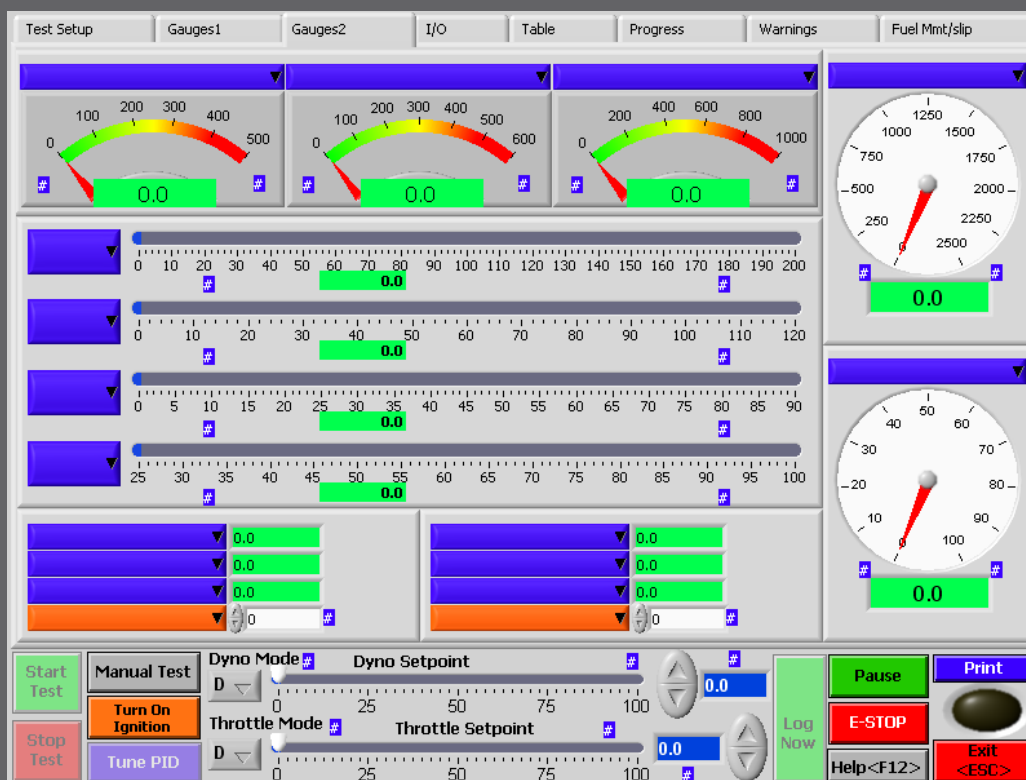
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## It's So Easy

Initially, a number of features will need to be configured to your specific preferences and requirements. Examples include: screen displays (gauges), and Automatic Mode Multiple Setpoint Tests. The configuration process is straight forward, simple, and similar for each feature.

What's next? The operator either retrieves and loads the customer file or enters the information for a new customer. A test and setup file must then be selected. From there, the operator will select manual or automatic mode and run the test. No need to panic! Help is a click away. Each DynPro screen is equipped with a Help Button that provides online access to the DynPro Users Manual.



## Come One Come All

Any make, any manufacturer, any model, any style of dynamometer for testing engines in or out of the frame of the vehicle and DynPro will work for you. DynPro works equally well with waterbrake style dynamometers, eddy current dynamometers, DC dynamometers and AC dynamometers. With DynPro you can simplify your engine testing and standardize your training, operations, and procedures by using one and only one instrumentation system.

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