

LSPI Lab Visit Notes
SwRI Intertek, 11/11/15

Notes on SwRI test stands #2 and #4

1. Add oil gallery out TC on oil filter housing
2. Update Post Intercooler tubing and sensor locations to match specification
3. Move Intake Air TC and pressure ports to post filter.
4. Where should we monitor fuel temp? – Tabled
 - a. Labs will try finding a way to mount Fuel TC as close to high pressure fuel pump without adding too much weight to the pump's intake port.
5. Front Mounting uses Ford escort and OHT mounting.
6. Change rear mount to marine (quick silver 6628) mounts.
 - a. Team needs to decide whether we are going to call out the rear mount part number or just a performance standard (durometer value).

Notes on Intertek Stands 60 and 62.

7. Add oil gallery out TC on oil filter housing, both 60 and 62
8. Turbo outlet or Intercooler inlet pressure is not being measured, needs to be included.
9. Exhaust back pressure probe on stand 60 needs to be moved to port nearer to exhaust manifold.
10. Exhaust probe/afr probes are not located as per Fig A2.8
11. Ground wire for PCM does not go back to engine and have a #2 cable going back to battery as per section 7.9(1)
12. Move Intake Air TC and pressure ports to post filter.
13. Fuel Temperature may need to be relocated, it is in the outlet of the heat exchanger approximately 3 feet from fuel pump inlet.
14. Stand 62 driveshaft angle is 2.6 degrees, should be 2 degrees

Notes on Lubrizol Stand 336. 8/11/15

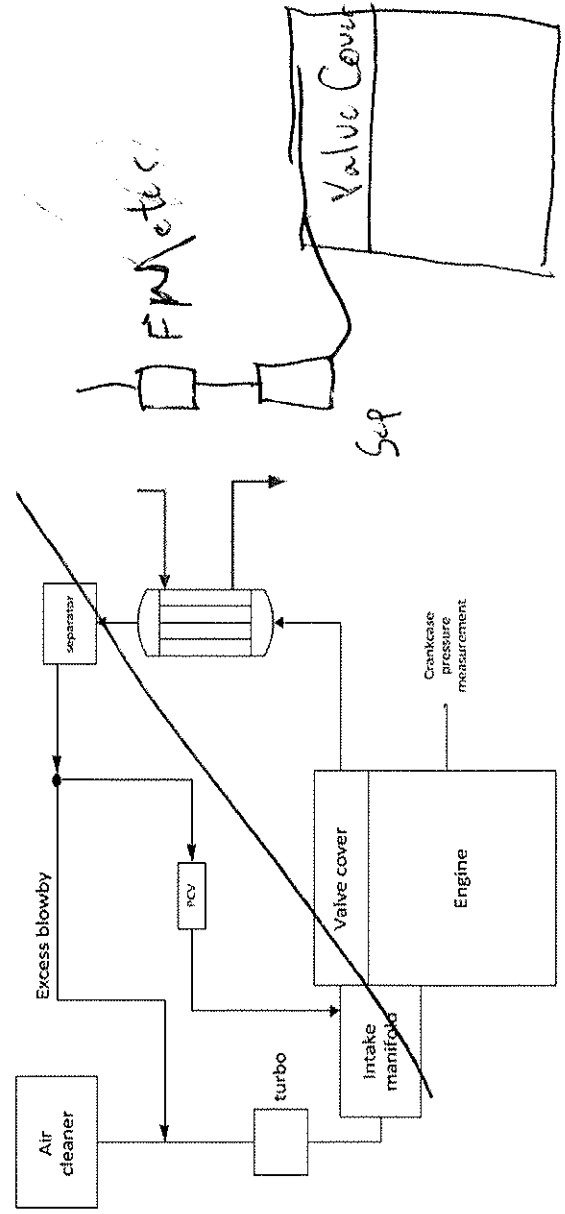
15. OHT coolant in and out adapters not installed.
16. Exhaust probe/afr probes are not located as per Fig A2.8
17. Turbo outlet or Intercooler inlet pressure is not being measured, needs to be included.
18. MAP connection at throttle body needs to be added.
19. Front Engine mount needs to match other labs and drive shaft angle will need to be adjusted to 2 degrees.
20. Factory vacuum connection harness/piping not utilized, turbo charger vacuum control and sensors connected with tygon tubing.

Crankcase Ventilation

Test Lab: LZ Test Stand #: 336 Date of Inspection: 8-11-15

Crankcase Ventilation System
Chain-Wear LSP

Does the system conform to the drawing below	Yes	No	Comments
Crankcase Ventilation			



Blowby cart connections not shown

Is the heat exchanger an ITT Heater Exchanger 5-160-02-008-002

Discuss

Crankcase Ventilation

Are the oil separators Moroso, Part Number 85487

Where is blowby gas temperature measured



Specified Equipment & Hardware

Test Lab: L-2

Test Stand #: 336

Date of Inspection: 8-11-15

Equipment and Other Hardware
 HHT LSP1

Parts	Yes	No	Comments
Part Description			Part Number
Flywheel bolts			1S72-6379-AA
Acc Belt Tensioner			AE50-6A228-AA
Belt			6PK1082
Starter			BB5Z-11002-A
Engine Mounts			6628-A
Intercooler			Type 5 or 52
Oil Separator			85485
HX for blowby			
Driveline			MSI-41/555-22
Inlet and Outlet water necks			
Flywheel			
Clutch w/ pressure plate			
Clutch spacer			
Bellhousing			

Equipment and reagents

Ultrasonic parts cleaner

Ultrasonic 7 soap

Specified Equipment & Hardware

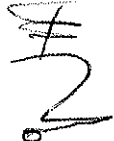
Ultrasonic B

Flexhone model GB33432 Bore Diam.: 95.25 mm (3.75 in.) Abrasive material: Silicon Carbide Grit 320

Westward, Model: 5ZL26G Reversible Air Drill, ½ HP, 500 RPM 90 psi/620 kPa max

Dyno Harness

OHT

A handwritten signature in black ink, appearing to be 'NJA', is written over the end of the first line of text.

Coolant System items

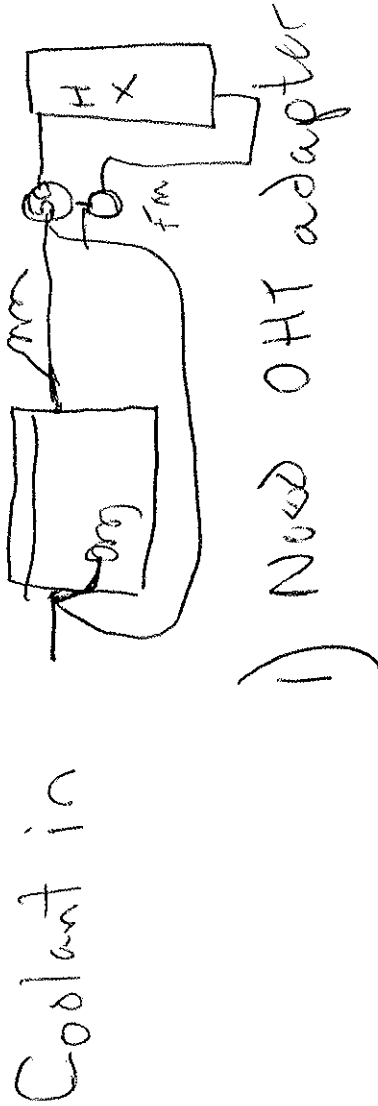
Test Lab: LZ Test Stand #: 336 Date of Inspection: 8-11-15

Cooling System
LSPI

Coolant System	Yes	No	Comments
Identify the coolant flow measurement device	✓		
Identify the location of the engine coolant outlet temperature sensor	✓		1/8" J
Is the coolant out temperature monitored with a Thermocouple Identify the size and type	✓		

What type of pump is used, identify horsepower, etc

Is a mixture of Shell Zone Dex-Cool concentrate mixed 50/50 with deionized water



Test Lab: LZ

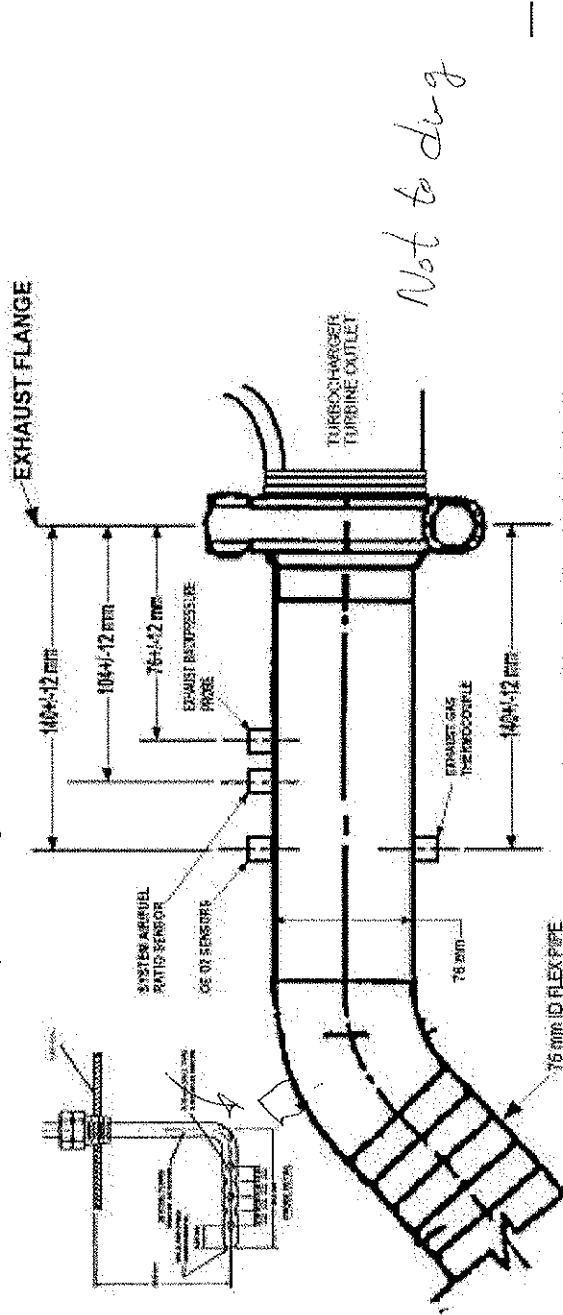
Test Stand #: 336

Date of Inspection: 8-11-15

Exhaust and Fuel System
LSP

Exhaust	Yes	No	Comments
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Are Exhaust sensors located as per drawing below.



Identify the location of the Fuel pressure sensor

A + B above = 890 +/- 150 mm ✓

X + y above = 865 +/- 150 mm

X+Z = 305 +/- 25 mm

Inlet pressure probe 305 mm from MAPT Sensor

- 1) Intake air - turbo out Pressure needs to be added
- 2) map to be moved to TB connection

Engine Mounting and Driveline

Test Lab: LZ

Test Stand #: 336

Date of Inspection: 8-11-15

Engine Mounting, Driveline Speed and Load control
LSP1

Yes No Comments

Is the engine mounted using 4 quicksilver 6628-A mounts, 2 front two on the sides 2 front 1 rear

is the drive shaft angle 2 degrees

Is the flywheel part number 05184438AB?

Is a driveshaft with 1410 u joints and a collapsed length of 21.5 in. utilized?

What type of dyno is utilized, make and model?

Does the stand make use of dyno harness with a pedal actuator?

What type of load cell is used, make model rating

Mw 1014A

SSM AJ 500

Need to remount using front factory mount +
4 quicksilver + recify D/S @ 2 degrees
after

Test Lab:

SwRI

Test Stand #:

Z

Induction System

Date of Inspection:

11-11-15

Induction System LSPI

Induction

	Yes	No	Comments
Is air intercooler a type 5 or 52 from interboost	/		
Does the laboratory tubing to an from intercooler match schematic in A2.13		/	
Is the maps sensor located in the intake	/		
Are both pressure probes located per schematic		/	
Is a 2012 explorer intake pipe utilized with MAF	/		
Do the vacuum connections match A2.19		/	

Intake air pressure & Temp on
pre filter side

PCM and simulator

Test Lab: *SwRI*

Test Stand #: *2*

Date of Inspection: *11-17-03*

PCM LSPI

Coolant System

	Yes	No	Comments
Is a PCM with calibration U502-HBBJO-V1-7-VEP-371 utilized	<input checked="" type="checkbox"/>		
Is the pcm connected to a battery or power supply providing 13.5 +/- 1.5 volts	<input checked="" type="checkbox"/>		
Is the PCM grounded to the engine	<input checked="" type="checkbox"/>		
Is there a 2 gage wire going from the ground point to the battery	<input checked="" type="checkbox"/>		
Does the stand utilize a pedal position simulator wired as per figure 2	<input checked="" type="checkbox"/>		

Specified Equipment & Hardware

Test Lab: SwRI

Test Stand #: Z

Date of Inspection: 11-1-15

Equipment and Other Hardware
 MH L3PI

Parts	Vendor	Part Number	Yes	No	Comments
Flywheel bolts	Dayco	1S72-6379-AA	/		
Acc Belt Tensioner	Ford	AE50-6A228-AA	/		
Belt	Dayco	6PK1082		/	
Starter	Ford	BB5Z-11002-A		/	
Engine Mounts	Quicksilver	6628-A	/		
Intercooler	www.frozenboost.com	Type 5 or 52	/		
Oil Separator	Moroso	85485		/	
HX for blowby				/	
Driveline	Machine Services Inc.	MSI-41/555-22		/	
Inlet and Outlet water necks	OHT			/	
Flywheel	OHT			/	
Clutch w/ pressure plate	OHT			/	
Clutch spacer	OHT			/	
Bellhousing	OHT			/	

Equipment and reagents

Ultrasonic parts cleaner

Ultrasonic 7 soap

Specified Equipment & Hardware

Ultrasonic B

Flexhone model GB33432 Bore Diam.: 95.25 mm (3.75 in.) Abrasive material: Silicon Carbide Grit 320

Westward, Model: 5ZL26G Reversible Air Drill, ½ HP, 500 RPM 90 psi/620 kPa max

Dyno Harness

OHT

Test Lab: *SuRI*

Test Stand #: *2*

Date of Inspection: *11.11.15*

Coolant System items

Cooling System
LSPI

Coolant System	Yes	No	Comments
Identify the coolant flow measurement device does it have an accuracy of 1%	<i>/</i>		
Identify the location of the engine coolant outlet temperature sensor	<i>/</i>		<i>Bacco</i>
Is the coolant out temperature monitored with a Thermocouple	<i>/</i>		
Identify the size and type	<i>1/8" J</i>		
Are the thermo couples located in the OHT adapters as per A2.2 and 2.3	<i>/</i>		
Do the line lengths match a 2.3	<i>NA</i>		
Is the water pump drive configured as per Figure 6			

Exhaust and Fuel System

Test Lab: SURI

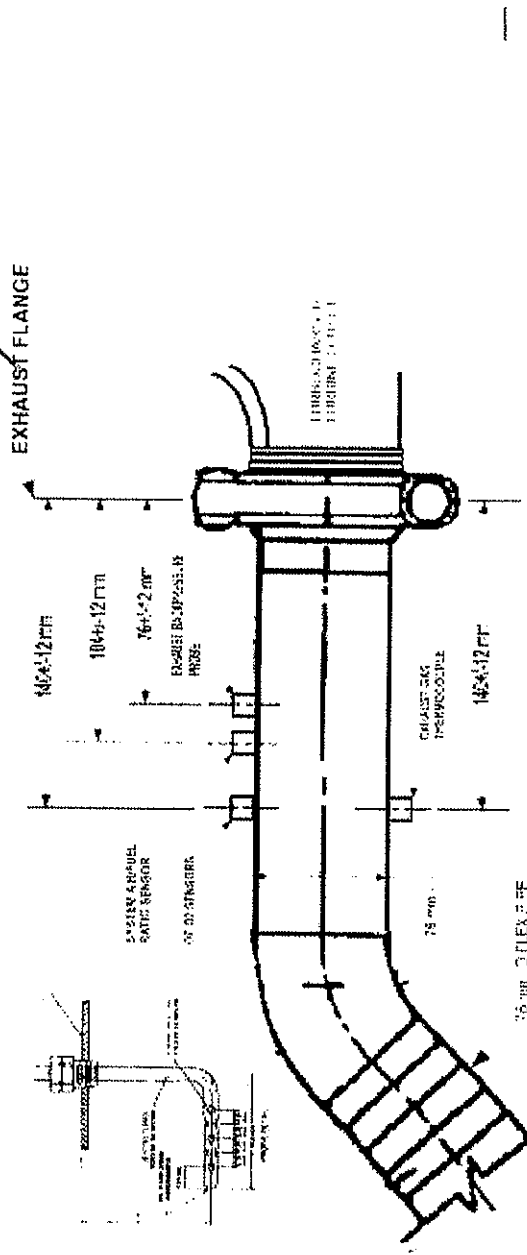
Test Stand #: Z

Date of Inspection: 11-11-15

Exhaust and Fuel System
LSP1

Exhaust

Are Exhaust sensors located as per drawing below.	Yes	No	Comments
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Identify the location of the Fuel pressure sensor

Does the fuel system conform to figure 1

Exhaust and Fuel System

Micromotion

What device is used for fuel flow measurement
Are motorcraft CYFS-12-Y2 plugs used

Engine Mounting and Driveline

Test Lab:

Test Stand #:

Date of Inspection:

Engine Mounting, Driveline Speed and Load control
LSP1

	Yes	No	Comments
Is the engine mounted using 3 quicksilver 6628-A mounts, 2 from two on the sides		<input checked="" type="checkbox"/>	
is the drive shaft angle 2 degrees		<input checked="" type="checkbox"/>	1.7
Is the flywheel part number 05184438AB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a driveshaft with 1410 u joints and a installed length of 595+/-13 mm utilized?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
What type of dyno is utilized, make and model?			MW 1014A
Does the stand make use of dyno harness with a pedal actuator?			
What type of load cell is used, make model rating			

Specified Equipment & Hardware

Test Lab: *SwRI*

Test Stand #: *4*

Date of Inspection: *11-11-15*

Equipment and Other Hardware
IIIH

Parts	Yes	No	Comments
Part Description			
Flywheel bolts	✓		
Acc Belt Tensioner			
Belt			
Starter			
Engine Mounts			
Intercooler			
Oil Separator			
HX for blowby			
Driveline			
Inlet and Outlet water necks			
Flywheel			
Clutch w/ pressure plate			
Clutch spacer			
Bellhousing			
Equipment and reagents			
Ultrasonic parts cleaner			
Ultrasonic 7 soap			

Vendor	Part Number
Dayco	1S72-6379-AA
Ford	AE50-6A228-AA
Dayco	6PK1082
Ford	BB5Z-11002-A
Quicksilver	6628-A
www.frozenboost.com	Type 5 or 52
Moroso	85485
Machine Services Inc.	MSI-41/555-22
OHT	
OHT	
OHT	
OHT	
OHT	

Specified Equipment & Hardware

Ultrasonic B

Flexhone model GB33432 Bore Diam.: 95.25 mm (3.75 in.) Abrasive material: Silicon Carbide Grit 320

Westward, Model: 5ZL26G Reversible Air Drill, ½ HP, 500 RPM 90 psi/620 kPa max

Dyno Harness

OHT

Coolant System items

Test Lab: SwRI

Test Stand #: 4

Date of Inspection: 11-11-15

Cooling System
LSPI

	Yes	No	Comments
Identify the coolant flow measurement device does it have an accuracy of 1%	<input checked="" type="checkbox"/>		Base - 0
Identify the location of the engine coolant outlet temperature sensor	<input checked="" type="checkbox"/>		
Is the coolant out temperature monitored with a Thermocouple Identify the size and type	<input checked="" type="checkbox"/>		1/8" J
Are the thermo couples located in the OHT adapters as per A2.2 and 2.3	<input checked="" type="checkbox"/>		
Do the line lengths match a 2.3	<input checked="" type="checkbox"/>		NA
Is the water pump drive configured as per Figure 6			

Exhaust and Fuel System

SwRI

Test Stand #: 4

Date of Inspection: 11-16-15

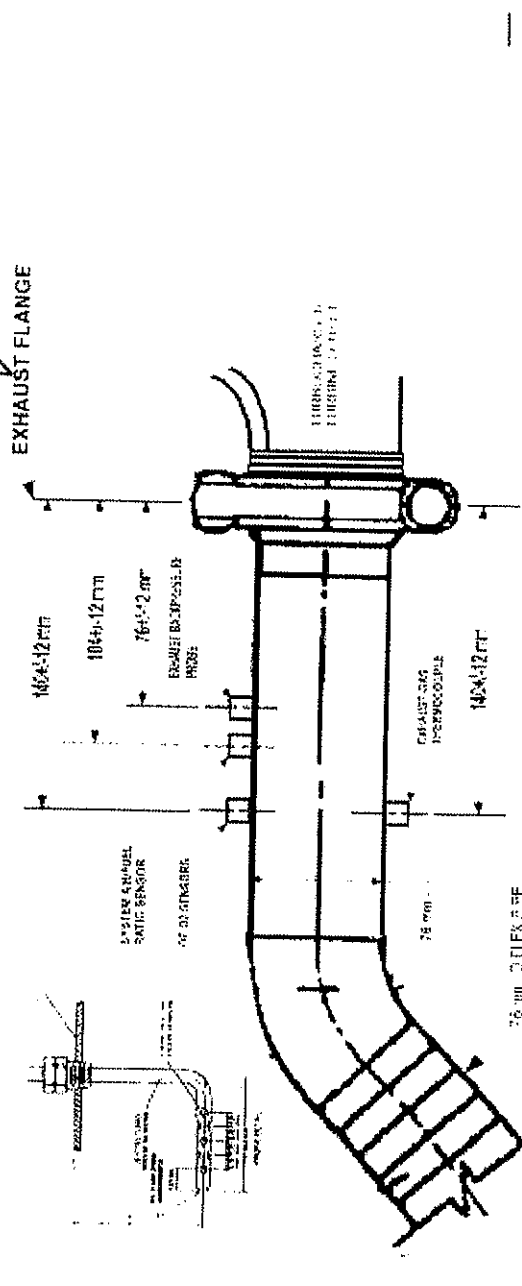
Exhaust and Fuel System
LSP1

Exhaust

Are Exhaust sensors located as per drawing below.

Yes No

Comments



Identify the location of the Fuel pressure sensor

Does the fuel system conform to figure 1

Exhaust and Fuel System

Micro Motion

What device is used for fuel flow measurement
Are motorcraft CYFS-12-Y2 plugs used

Engine oil and AVL settings

Test Lab: SWA

Test Stand #: 4

Date of Inspection: 11-11-13

Engine Oil, AVL and Crank case ventilation
LSPJ

	Yes	No	Comments
Is the oil cooler mounted as Per A2.15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is oil gallery pressure measured with appropriate device at proper location.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is if out temperature measured with modified housing as per A2.16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Verify AVL Settings are configured as per Appendix C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is Crankcase ventilated to atmosphere	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is crank case pressure measured at the dummy pcv connection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>What type of load cell is used, make model rating</u>			

Test Lab: *SURI*

Test Stand #: *4*

Date of Inspection: *11-11-15*

PCM and simulator

PCM LSPI

Coolant System

	Yes	No	Comments
Is a PCM with calibration U502-HBBJO-V1-7-VEP-371 utilized	<input checked="" type="checkbox"/>		
Is the pcm connected to a battery or power supply providing 13.5 +/- 1.5 volts	<input checked="" type="checkbox"/>		
Is the PCM grounded to the engine	<input checked="" type="checkbox"/>		
Is there a 2 gage wire going from the ground point to the battery	<input checked="" type="checkbox"/>		
Does the stand utilize a pedal position simulator wired as per figure 2			

Test Lab: SWRI

Test Stand #: 4

Induction System

Pre = Diameter = $\frac{6.4}{11}$

Date of Inspection:

Post. " 6.4/11

Induction System
LSPI

11-11-15

Induction

Is air intercooler a type 5 or 52 from interboost

Does the laboratory tubing to an from intercooler match schematic in A2.13

Is the maps sensor located in the intake

Are both pressure probes located per schematic

Is a 2012 explorer intake pipe utilized with MAF

Do the vacuum connections match A2.19

Yes No

Comments

Pre-Press tap 16"

Pre temp - 19"

Post int - 16" to MAPT

Map T 13" to TC/pTap

Engine Mounting and Driveline

Test Lab: SWR1

Test Stand #: 4

Date of Inspection: 11-16

Engine Mounting, Driveline Speed and Load control
LSP1

Is the engine mounted using 3 quicksilver 6628-A mounts, 2 from two on the sides

Yes

No

Comments

is the drive shaft angle 2 degrees

Is the flywheel part number 05184438AB?

Is a driveshaft with 1410 u joints and a installed length of 595+/-13 mm utilized?

What type of dyno is utilized, make and model?

Does the stand make use of dyno harness with a pedal actuator?

What type of load cell is used, make model rating

YAW / D1A

- 1. Scope
- TBD
- 2. Referenced Documents
- TBD
- 3. Terminology
- TBD
- 4. Summary of Test Method
- TBD
- 5. Significance of Use
- TBD
- 6. Apparatus (General Description)

6.1 The test engine is a Ford, spark ignition, four stroke, 4-cylinder gasoline turbocharged direct injection (GTDI) engine with a displacement of 2.0L. Features of this engine include variable camshaft timing, dual overhead camshafts driven by a timing chain, four valves per cylinder and electronic direct fuel injection. It is based on the Ford Motor Co. 2012 Explorer engine with a displacement of 2.0L.

6.2 Configure the test stand to accept a Ford 2.0L GTDI engine. All special equipment necessary for conducting this test is listed herein.

6.3 Use the appropriate air conditioning apparatus to control the temperature, pressure, and humidity of the Inlet air to meet the requirements in Table 4.

6.4 Use an appropriate fuel supply system (Figure 1 Error! Reference source not found.).

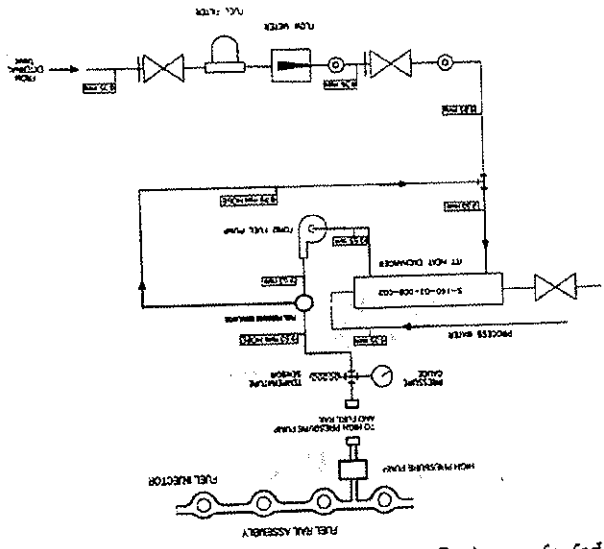


Figure 1. Fuel Supply System

- 6.5 The control and data acquisition system shall meet the requirements listed in Annex A3.
- 6.6 Coolant Conditioning Equipment
- 6.7 Engine cooling system – Use coolant inlet and outlet from the supplier shown in A9.2. Plumb the external coolant system as shown in Figures A2.2 and A2.3. Use coolant flow meter with and accuracy of +1%.
- 6.8 Oil System Components—All oil system components in the engine are production configuration with the exception of the modified oil pan, shown in figure A2
- 6.9 Oil Temperature Control – Oil temperature is controlled using the production oil cooler. Process water is run through water side of the oil cooler. Oil temperature thermocouples locations are shown in figure A2.15 and A2.16
- 6.10 Dynamometer
- 6.12
- 6.13 Instrumentation
- 6.14 The control and data acquisition system shall meet the requirements listed in Annex 3.

PCM and simulator

Test Lab: EG

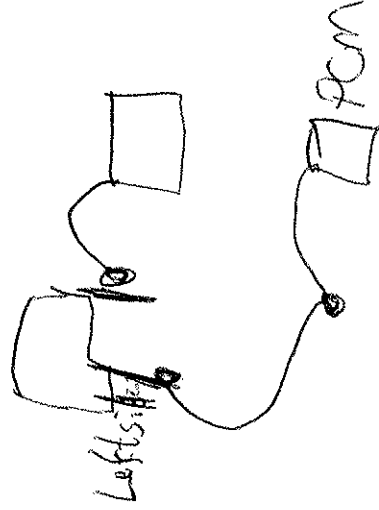
Test Stand #: 66

Date of Inspection: 11-11-15

PCM LSPI

Coolant System

	Yes	No	Comments
Is a PCM with calibration U502-HBBJO-V1-7-VEP-371 utilized	<input checked="" type="checkbox"/>		371 only
Is the pcm connected to a battery or power supply providing 13.5 +/- 1.5 volts	<input checked="" type="checkbox"/>		
Is the PCM grounded to the engine		<input checked="" type="checkbox"/>	No - to Stand
Is there a 2 gage wire going from the ground point to the battery		<input checked="" type="checkbox"/>	Stand
Does the stand utilize a pedal position simulator wired as per figure 2	<input checked="" type="checkbox"/>		



Engine oil and AVL settings

Test Lab: EG

Test Stand #: 60

Date of Inspection: 11-11-15

Engine Oil, AVL and Crank case ventilation
LSP1

	Yes	No	Comments
Is the oil cooler mounted as Per A2.15	<input checked="" type="checkbox"/>		
Is oil gallery pressure measured with appropriate device at proper location.	<input checked="" type="checkbox"/>		
Is it out temperature measured with modified housing as per A2.16			
Verify AVL Settings are configured as per Appendix C			
Is Crankcase ventilated to atmosphere	<input checked="" type="checkbox"/>		through 5 gallon Paik and
Is crank case pressure measured at the dummy pcv connection	<input checked="" type="checkbox"/>		Moroso Spectator
What type of load cell is used, make model rating			

Specified Equipment & Hardware

Test Lab: EG Test Stand #: 60 Date of Inspection: 11-11-15

Equipment and Other Hardware
~~HT~~ LSP

Part Description	Vendor	Part Number	Yes	No	Comments
Flywheel bolts	Dayco	1S72-6379-AA	✓		
Acc Belt Tensioner	Ford	AE50-6A228-AA	✓		
Belt	Dayco	6PK1082	✓		
Starter	Ford	BB5Z-11002-A	✓		
Engine Mounts	Quicksilver	6628-A	✓		
Intercooler	www.frozenboost.com	Type 5 or 52	✓		
Oil Separator	Moroso	85485	✓		
HX for blowby					Can't verify
Driveline	Machine Services Inc.	MSI-41/555-22	✓		
Inlet and Outlet water necks	OHT				
Flywheel	OHT				
Clutch w/ pressure plate	OHT				
Clutch spacer	OHT				
Bellhousing	OHT				

Equipment and reagents
 Ultrasonic parts cleaner
 Ultrasonic 7 soap

Engine Mounting and Driveline

EG

Test Lab:

Test Stand #: 60

Date of Inspection: 11-11-15

Engine Mounting, Driveline Speed and Load control
LSP

	Yes	No	Comments
Is the engine mounted using 3 quicksilver 6628-A mounts, 2 from two on the sides	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
is the drive shaft angle 2 degrees	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is the flywheel part number 05184438AB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	couldn't verify
Is a driveshaft with 1410 u joints and a installed length of 595+/-13 mm utilized?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	23 5/8" 600mm
What type of dyno is utilized, make and model?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1014A
Does the stand make use of dyno harness with a pedal actuator?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
What type of load cell is used, make model rating	<input type="checkbox"/>	<input type="checkbox"/>	

Coolant System items

Test Lab: EG Test Stand #: 60 Date of Inspection: 11-11-15

Cooling System
LSP1

Coolant System	Yes	No	Comments
Identify the coolant flow measurement device does it have an accuracy of 1%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	BWCD
Identify the location of the engine coolant outlet temperature sensor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is the coolant out temperature monitored with a Thermocouple Identify the size and type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/8" J
Are the thermo couples located in the OHT adapters as per A2.2 and 2.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Do the line lengths match a 2.3	<input type="checkbox"/>	<input type="checkbox"/>	N.A
Is the water pump drive configured as per Figure 6	<input type="checkbox"/>	<input type="checkbox"/>	

Exhaust and Fuel System

What device is used for fuel flow measurement
Are motorcraft CYFS-12-Y2 plugs used

Induction System

Test Lab:

Test Stand #:

Date of Inspection:

Induction System
LSP1

Induction

	Yes	No	Comments
Is air intercooler a type 5 or 52 from interboost	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Does the laboratory tubing to an from intercooler match schematic in A2.13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Post turbo Pressure
Is the maps sensor located in the intake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are both pressure probes located per schematic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a 2012 explorer intake pipe utilized with MAF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tube is 5 44"
Do the vacuum connections match A2.19	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Specified Equipment & Hardware

Ultrasonic B

Flexhone model GB33432 Bore Diam.: 95.25 mm (3.75 in.) Abrasive material: Silicon Carbide Grit 320

Westward, Model: 5ZL26G Reversible Air Drill, ½ HP, 500 RPM 90 psi/620 kPa max

Dyno Harness

OHT

PCM and simulator

Test Lab: Intectek

Test Stand #: 62

Date of Inspection: 11-11-15

PCM LSPI

Coolant System

	Yes	No	Comments
Is a PCM with calibration U502-HBBJO-V1-7-VEP-371 utilized	✓		371 only
Is the pcm connected to a battery or power supply providing 13.5 +/- 1.5 volts	✓		
Is the PCM grounded to the engine			Couldnt locate
is there a 2 gage wire going from the ground point to the battery			
Does the stand utilize a pedal position simulator wired as per figure 2			

Engine oil and AVL settings

Test Lab: Intertek

Test Stand #: 62

Date of Inspection: 11-11-15

Engine Oil, AVL and Crank case ventilation
LSP1

	Yes	No	Comments
Is the oil cooler mounted as Per A2.15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is oil gallery pressure measured with appropriate device at proper location.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is il out temperature measured with modified housing as per A2.16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Verify AVL Settings are configured as per Appendix C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is Crankcase ventilated to atomosphere	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is crank case pressure measured at the dummy pcv connection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
What type of load cell is used, make model rating	<input type="checkbox"/>	<input type="checkbox"/>	

Specified Equipment & Hardware

17624

Test Stand #: 62

Date of Inspection: 11/11/15

Test Lab:

Equipment and Other Hardware
IIIH

Parts	Yes	No	Comments
Part Description			
Flywheel bolts			
Acc Belt Tensioner			
Belt			
Starter			
Engine Mounts			
Intercooler			
Oil Separator			
HX for blowby			
Driveline			
Inlet and Outlet water necks			
Flywheel			
Clutch w/ pressure plate			
Clutch spacer			
Bellhousing			
Equipment and reagents			
Ultrasonic parts cleaner			
Ultrasonic 7 soap			

Vendor	Part Number
Dayco	1S72-6379-AA
Ford	AE50-6A228-AA
Dayco	6PK1082
Ford	BB5Z-11002-A
Quicksilver	6628-A
www.frozenboost.com	Type 5 or 52
Moroso	85485
Machine Services Inc.	MSI-41/555-22

couldn't verify

Specified Equipment & Hardware

Ultrasonic B

Flexhone model GB33432 Bore Diam.: 95.25 mm (3.75 in.) Abrasive material: Silicon Carbide Grit 320

Westward, Model: 5ZL26G Reversible Air Drill, ½ HP, 500 RPM 90 psi/620 kPa max

Dyno Harness

OHT

Engine Mounting and Driveline

Test Lab: Intertek

Test Stand #: 62

Date of Inspection: 11-11-15

Engine Mounting, Driveline Speed and Load control
LSP1

	Yes	No	Comments
Is the engine mounted using 3 quicksilver 6628-A mounts, 2 from two on the sides	<input checked="" type="checkbox"/>		
is the drive shaft angle 2 degrees			2.6 need 2 ± 0.5
Is the flywheel part number 05184438AB?	<input checked="" type="checkbox"/>		24
Is a driveshaft with 1410 u joints and a installed length of 595+/-13 mm utilized?	<input checked="" type="checkbox"/>		
What type of dyno is utilized, make and model?			Midwest 1012A
Does the stand make use of dyno harness with a pedal actuator?			
What type of load cell is used, make model rating			

Coolant System items

Test Lab: Intel

Test Stand #: C2

Date of Inspection: 11-11-15

Cooling System
LSP1

Coolant System

	Yes	No	Comments
Identify the coolant flow measurement device does it have an accuracy of 1%	<input checked="" type="checkbox"/>		Basic
Identify the location of the engine coolant outlet temperature sensor	<input checked="" type="checkbox"/>		1/8" I.D.
Is the coolant out temperature monitored with a Thermocouple	<input checked="" type="checkbox"/>		
Identify the size and type	<input checked="" type="checkbox"/>		
Are the thermo couples located in the OHT adapters as per A2.2 and 2.3	<input checked="" type="checkbox"/>		
Do the line lengths match a 2.3	<input checked="" type="checkbox"/>		W/A
Is the water pump drive configured as per Figure 6	<input checked="" type="checkbox"/>		

Exhaust and Fuel System

Test Lab: *Intertek*

Test Stand #: *62*

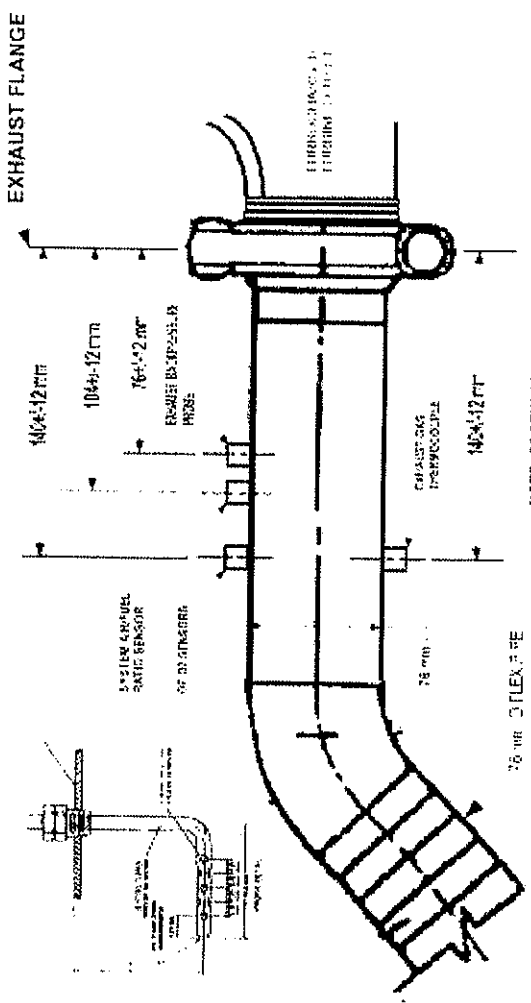
Date of Inspection: *11-11-15*

Exhaust and Fuel System
LSP1

Exhaust

Are Exhaust sensors located as per drawing below.

Yes No Comments



NOTE: O2 SENSORS MUST BE FROM 9 TO 10 O'CLOCK. RADIAL ORIENTATION OF THE EXHAUST BACKPRESSURE SENSOR TO BE WHATEVER IS CONVENIENT

Identify the location of the Fuel pressure sensor

Does the fuel system conform to figure 1

Exhaust and Fuel System

What device is used for fuel flow measurement
Are motorcraft CYFS-12-Y2 plugs used

MM CFMS 10

Induction System

Test Lab: *Intertek*

Test Stand #: *62*

Date of Inspection: *11/15/15*

Induction System
LSPI

Induction	Yes	No	Comments
Is air intercooler a type 5 or 52 from interboost	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Does the laboratory tubing to an from intercooler match schematic in A2.13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is the maps sensor located in the intake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are both pressure probes located per schematic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a 2012 explorer intake pipe utilized with MAF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Do the vacuum connections match A2.19	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Need Mig on dug and post boost in skid

ENGINE TO DYNO ALIGNMENT CHECKLIST

- 1. Check Engine Side-to-Side Degree and Record 0.2°
- 2. Check Driveline Degree and Record 1.9°
- 3. Check Engine/Dyno Face-to-Face Distance and Record 2.378"
- 4. Check Engine Flywheel Degree and Record 89.8°
- 5. Protractor Serial Number 808 DP1

TEST STAND 60
INITIAL P.B.
DATE 6-17-15

ENGINE TO DYNO ALIGNMENT CHECKLIST

1. Check Engine Side-to-Side Degree and Record 0.0° (90°)
 2. Check Driveline Degree and Record 2.4°
 3. Check Engine/Dyno Face-to-Face Distance and Record 23 3/4"
 4. Check Engine Flywheel Degree and Record 90°
 5. Protractor Serial Number DP1
- TEST STAND 60
- INITIAL P.B.
- DATE 4-28-15