



MODEL  
S-TYPE  
X-TYPE  
XJ Range

DATE  
17 Jan 2007

NUMBER  
JTB00014

**SERVICE**

**TECHNICAL BULLETIN**

**SECTION: 413-01 – INSTRUMENT CLUSTER**

## **Additional Diagnostics for Instrument Cluster**

### **AFFECTED VEHICLE RANGE:**

S-TYPE	VIN: M45255 onward MY: 2003 onward
X-TYPE	VIN: C00344 onward MY: 2002 onward
XJ Range	VIN: G00442 onward MY: 2004 thru 2007

### **CONDITION SUMMARY:**

#### **ADDITIONAL DIAGNOSTIC PROCEDURES TO RESOLVE INSTRUMENT CLUSTER CONCERNS**

**Situation:** This information only bulletin is being issued to provide additional diagnostic procedures to resolve Instrument Cluster (IC) concerns. The additional diagnostic information is intended to reduce the number of components being returned under Warranty with no fault found (NFF).

**Action:** Should a customer express an Instrument Cluster concern, refer to the Repair Procedures detailed in this bulletin to diagnose and resolve the concern.

### **PARTS:**

No parts required. Diagnostic information only.

### **TOOLS:**

Integrated Diagnostic System (IDS)

### **WARRANTY:**

*Diagnostic information only. Normal warranty policy and procedures apply.*

**NOTE:** The information in Technical Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment required to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers." If you are not a Retailer, do not assume that a condition described affects your vehicle. Contact an authorized Jaguar service facility to determine whether the bulletin applies to a specific vehicle.

## REPAIR PROCEDURE

### DIAGNOSE INSTRUMENT CLUSTER CONCERNS USING ENGINEERING TEST MODE (ETM) AND INTEGRATED DIAGNOSTIC SYSTEM (IDS)

△ **NOTE:** The Instrument Cluster (IC) installed from the start VINs listed above contains a self-diagnostic feature known as Engineering Test Mode or ETM. The ETM can display the status of IC inputs as well as providing a number of other useful features.

When in ETM, the right-hand message center or the single LCD displays internal data that can be cycled through; the left-hand message center functionality remains unaffected, with some exceptions, during ETM.

△ **NOTE:** The information provided in this bulletin utilizes the ETM messages displayed for a specific model in conjunction with IDS to diagnose IC concerns. The information provided in this bulletin does not supersede or replace the IDS facility. If ETM is not available, IDS alone is to be used to diagnose the Instrument Cluster concerns.

△ **NOTE:** When activating ETM, the stalk trip cycle button must be released within 3 seconds after 'ENGINEERING TEST MODE' has been displayed or the IC will automatically exit ETM. ETM will also be deactivated when the ignition switch is turned to the 'OFF' position or low battery voltage is detected.

1. Refer to the '**Area of Issue**' and '**Notes**' listed in Table 1 that identify each of the customer concerns.
2. Perform each of the '**Actions**' listed for the identified '**Area of Issue**', in succession, referring to the relevant model's **ETM Table**, as required, to complete the '**ETM Test No.**' specified.
3. Before performing an ETM test, place the vehicle cluster in the self-diagnostic Engineering Test Mode (ETM) as follows:
  - Press and hold the stalk trip cycle button while turning the ignition from position '0' to position 'II' until 'ENGINEERING TEST MODE' is displayed on the RH message centre.
  - Release the stalk trip cycle button before 3 seconds has elapsed.
4. If ETM can not be accessed, repeat step 3 paying particular attention to sequence timing.
5. If ETM still can not be accessed, check for correct function of the stalk buttons.
6. If ETM still can not be accessed, use IDS to diagnose the IC.
7. Navigate forward through the ETM tests by pressing the trip computer 'MLS/KMS' button.
8. Navigate backward through the ETM tests by pressing the trip computer 'A/B' button.
9. After all tests have been completed, exit ETM by pressing the stalk trip cycle button for more than 3 seconds or by turning the ignition switch to the OFF position.

**Table 1 - All Models**

Area of Issue	Diagnostic Ref. No.	Actions	Notes
Warning lights	A-1	Perform cluster test: <b>S-TYPE:</b> ETM test 3. <b>X-TYPE/XJ Range:</b> ETM test 4.	<b>S-TYPE:</b> Frost/ice warning illuminated in mixed red and amber (color differs from other warning lamps). <b>All:</b> After test is completed, warning lamps currently required to be 'ON' will remain illuminated.
.	A-2	Use IDS to perform all warning lamp illumination check.	Using output state control, all warning lamps can be toggled 'ON' and 'OFF'.
Multiple warning lights 'ON'	B-1	Perform cluster test for DTCs related to identified vehicle systems: <b>S-TYPE:</b> ETM test 14. <b>X-TYPE/XJ Range:</b> ETM test 15.	.
.	B-2	Check with IDS for DTCs related to identified vehicle system(s).	.
.	B-3	Refer to circuit diagrams and check cluster battery and ignition wiring.	Specifically check continuity of Standard Corporate Protocol (SCP) and Controller Area Network (CAN) lines.
.	B-4	Check cluster grounds.	.
.	B-5	Check fuses in primary junction box.	.
.	B-6	Check for harness traps in fascia.	.
.	B-7	Perform cluster test: <b>S-TYPE:</b> ETM test 3. <b>X-TYPE/XJ Range:</b> ETM test 4.	<b>S-TYPE/XJ Range:</b> Frost/ice warning illuminated in mixed red and amber (color differs from other warning lamps). <b>All:</b> After test is completed, warning lamps currently required to be 'ON' will remain illuminated.
.	B-8	Use IDS to perform all warning lamp illumination ON/OFF check.	Using output state control all warning lamps (with the exception of the oil warning lamp, which remains illuminated) can be toggled 'ON' and 'OFF'.
.	B-9	Check for open circuit/shorts in wiring to related warning lamp trigger (module, sensor, switch).	.
.	B-10	<b>S-TYPE Only:</b> Perform TSB S413-02 (VIN Range M45255 - M70720).	.
Specific warning lamp 'ON'	C-1	Perform cluster test for DTCs related to identified vehicle systems: <b>S-TYPE:</b> ETM test 14. <b>X-TYPE/XJ Range:</b> ETM test 15.	.
.	C-2	Check with IDS for DTCs related to identified vehicle systems.	.



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Area of Issue	Diagnostic Ref. No.	Actions	Notes
.	C-3	Check for open circuit/shorts in wiring related to warning lamp circuit (module, sensor, switch) where appropriate.	.
.	C-4	Perform cluster test: <b>S-TYPE:</b> ETM test 3. <b>X-TYPE/XJ Range:</b> ETM test 4.	<b>S-TYPE/XJ Range:</b> Frost/ice warning illuminated in mixed red and amber (color differs from other warning lamps). <b>All:</b> When this test is ended, warning lamps currently required to be 'ON' will remain illuminated.
.	C-5	Use IDS to perform all warning lamp illumination ON/OFF check.	Only works on micro-controlled telltales, e.g. won't work for airbag warning telltale.
.	C-6	Check the specific vehicle system indicated by the warning lamp illuminated.	What is the warning lamp telling me? Does this check out with the DTC logged by the system indicating the fault?
.	C-7	For oil warning lamp, perform ETM test 36 to establish input state of oil pressure sensing circuit.	<u>Note:</u> When using IDS output state control for all warning lamps the oil warning light can not be toggled 'ON' and 'OFF'.
Fuel gauge operation	D-1	Perform cluster ETM test 2 'TEST GAUGES' gauge sweep, to prove out internal cluster function of fuel gauge. <u>Note:</u> fuel gauge may only sweep to 80% of full range.	.
.	D-2	Drive gauge with IDS to prove gauge function.	Use output state control to drive gauge to specific values.
.	D-3	Perform test to establish if fuel level input to cluster is out of range or invalid: <b>S-TYPE:</b> ETM tests 22 and 23. <b>X-TYPE:</b> ETM tests 20 and 21. <b>XJ Range:</b> ETM test 21 and 22.	0 - 9 = short circuit; gauge will show empty. 10 - 254 = normal range. 255 = open circuit; gauge will show empty. --- = missing signal; gauge will show empty.
.	D-4	Check gauge function vs. test data: <b>S-TYPE:</b> ETM test 26. <b>X-TYPE:</b> ETM test 24. <b>XJ Range:</b> ETM test 25.	0 = empty. 254 = full. 255 = invalid; gauge will show empty.
.	D-5	Check for open circuit/shorts in wiring between the Fuel Delivery Module, Jet Pump Module and Rear Electronic Module (REM).	.
Fuel gauge reading	E-1	Perform ETM test 2 'TEST GAUGES' gauge sweep to prove out internal cluster function of fuel gauge. <u>Note:</u> gauge only sweeps to 80% of full range.	.

Area of Issue	Diagnostic Ref. No.	Actions	Notes
.	E-2	Drive gauge to specific positions with IDS to prove gauge accuracy.	Use output state control to drive gauge to specific values.
.	E-3	Check gauge position as follows: <b>S-TYPE:</b> ETM test 26. <b>X-TYPE:</b> ETM test 24. <b>XJ Range:</b> ETM test 25.	0 = empty to 254 = full (255 invalid; gauge will show empty). Other values percentage of above range i.e. 127 = half.
.	E-4	Calculate percentage fuel level from figure obtained from tests and compare to IDS vehicle fuel percentage test: <b>S-TYPE:</b> ETM test 26. <b>X-TYPE:</b> ETM test 24. <b>XJ Range:</b> ETM test 25.	ETM fuel level percentage can be calculated as follows:  Value from ETM test 26 ÷ 254 x 100 = % shown on gauge.
.	E-5	Monitor values of test (during test drive) to establish if input drops out of range: <b>S-TYPE:</b> ETM tests 22 and 23. <b>X-TYPE:</b> ETM tests 20 and 21. <b>XJ Range:</b> ETM tests 21 and 22.	0 - 9 = short circuit; gauge will show empty. 10 - 254 = normal range. 255 = open circuit; gauge will show empty. --- = missing signal; gauge will show empty.
.	E-6	Monitor 'FUEL LEVEL' in IDS data logger (during test drive) to correlate gauge position to vehicle reported fuel level.	Gauge function is damped so will not follow rapidly changing Fuel Delivery Module values.
Temperature gauge operation	F-1	Perform ETM test 2 'TEST GAUGES' gauge sweep, to prove out internal cluster function of temp gauge. <u>Note:</u> gauge may only sweep to 80% of full range.	.
.	F-2	Drive gauge to specific gauge positions with IDS to prove gauge function.	Use output state control to drive gauge to specific temperature values.
.	F-3	Perform test to establish if temp gauge input to cluster is out of range or invalid: <b>S-TYPE:</b> ETM test 28. <b>X-TYPE:</b> ETM test 26. <b>XJ Range:</b> ETM test 27.	Displays last temperature gauge input value from CAN in 1/10 deg C, no decimal point shown. i.e. 51.5 deg C = display value of 515. Displays ---- or INV if message is not received or if received data is invalid.
.	F-4	Check for open circuit/shorts in wiring between temp sensor and Engine Control Module (ECM).	.
Temperature gauge reading	G-1	Perform ETM test 2 'TEST GAUGES' gauge sweep to prove out internal cluster function of temp gauge. <u>Note:</u> gauge may only sweep to 80% of full range.	.
.	G-2	Drive gauge to specific gauge positions with IDS to prove gauge function.	Use output state control to drive gauge to specific temperature values.

Area of Issue	Diagnostic Ref. No.	Actions	Notes
.	G-3	Monitor 'ENGINE COOLANT TEMPERATURE' in IDS data logger (during test drive) to correlate gauge position to vehicle reported engine temperature.	Need to check with IDS.
.	G-4	Monitor test data (during test drive) to establish if temperature gauge input to cluster may be out of range or invalid: <b>S-TYPE:</b> ETM test 28. <b>X-TYPE:</b> ETM test 26. <b>XJ Range:</b> ETM test 27.	Displays last temperature gauge input value from CAN in 1/10 deg C, no decimal point shown. i.e. 51.5 deg C = display value of 515. Displays ---- or INV if message is not received or if received data is invalid.
Speedometer operation	H-1	Perform ETM test 2 'TEST GAUGES' gauge sweep, to prove out internal cluster function of speedometer.	.
.	H-2	Drive speedometer with IDS to prove speedometer function.	Use output state control to drive speedometer to specific speed values.
.	H-3	Monitor test data (during test drive) to establish if vehicle speed input to cluster is out of range or invalid: <b>S-TYPE:</b> ETM test 17. <b>X-TYPE:</b> ETM test 15. <b>XJ Range:</b> ETM test 16.	Display speed input in 1/10 mph, no decimal point shown, and is compensated for tire size etc. Displays ---- or INV if message is not received or if received data is invalid.
Speedometer reading	I-1	Perform ETM test 2 'TEST GAUGES' gauge sweep, to prove out internal cluster function of speedometer.	.
.	I-2	Drive speedometer to specific positions with IDS to prove speedometer function.	Use output state control to drive speedometer to specific speed values.
.	I-3	During test drive, compare speedometer position to displayed value from test: <b>S-TYPE:</b> ETM test 17. <b>X-TYPE:</b> ETM test 15. <b>XJ Range:</b> ETM test 16.	ETM displayed speed figure will be approx 3% higher than speed indicated by speedometer. Allowed tolerance: - minus nothing/+ 10% + 2.5 mph.
.	I-4	Monitor test data (during test drive) to establish if vehicle speed input to cluster drops out of range or is invalid: <b>S-TYPE:</b> ETM test 17. <b>X-TYPE:</b> ETM test 15. <b>XJ Range:</b> ETM test 16.	Displays ---- if message is not received or if received data is invalid for 2 seconds or more.

Area of Issue	Diagnostic Ref. No.	Actions	Notes
.	I-5	Check that installed wheels and tires are standard Jaguar fitment.  Confirm wheel size in IDS, 'ADD REMOVE ACCESSORY' section.	Non-standard wheels and tires may lead to speed indication inaccuracy. Incorrectly set wheel size will result in speed indication inaccuracy. Trip and odometer distance accumulation will also be incorrect.
Tachometer operation	J-1	Perform ETM test 2 'TEST GAUGES' gauge sweep, to prove out internal cluster function of tachometer.	.
.	J-2	Drive tachometer with IDS to prove tachometer function.	Use output state control to drive tachometer to specific rpm values.
.	J-3	Perform test to establish if vehicle rpm input to cluster is out of range or invalid: <b>S-TYPE:</b> ETM test 20. <b>X-TYPE:</b> ETM test 18. <b>XJ Range:</b> ETM test 19.	Displays ---- or INV if message is not received or if received data is invalid.
Tachometer reading	K-1	Perform ETM test 2 'TEST GAUGES' gauge sweep, to prove out internal cluster function of tachometer.	.
.	K-2	Drive tachometer to specific positions with IDS to prove tachometer function.	Use output state control to drive tachometer to specific rpm values.
.	K-3	Check tachometer position versus displayed value of test: <b>S-TYPE:</b> ETM test 20. <b>X-TYPE:</b> ETM test 18. <b>XJ Range:</b> ETM test 19.	Tachometer accuracy +/- 100 rpm.
.	K-4	Monitor 'ENGINE RPM' in IDS data logger at constant engine rpm to compare tachometer indicated engine rpm to engine rpm reported by Engine Control Module (ECM).	Tachometer accuracy +/- 100 rpm.
.	K-5	Monitor test data (during test drive) to establish if input to cluster drops out of range or is invalid: <b>S-TYPE:</b> ETM test 20. <b>X-TYPE:</b> ETM test 18. <b>XJ Range:</b> ETM test 19.	Displays ---- or INV if message is not received or if received data is invalid.
Gauge judder	L-1	Perform cluster ETM test 2 'TEST GAUGES' gauge sweep, to prove out smooth gauge operation.	.
.	L-2	Drive gauges with IDS to prove smooth gauge operation.	Use output state control to drive gauges to specific values.
Gauge noise	M-1	Perform cluster ETM test 2 'TEST GAUGES' gauge sweep, with vehicle static and engine/systems OFF, to check for excessive noise.	.



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Area of Issue	Diagnostic Ref. No.	Actions	Notes
.	M-2	With vehicle static and engine/systems 'OFF', drive suspect gauge(s) between minimum and maximum with IDS, to check for excessive noise.	.
.	M-3	Perform cluster ETM test 2 'TEST GAUGES' gauge sweep, with vehicle static and engine/systems 'ON', to check for excessive noise.	.
.	M-4	With vehicle static and engine/systems 'ON', drive suspect gauge(s) between minimum and maximum with IDS, to check for excessive noise.	.
.	M-5	Perform vehicle road test. Gauges should not be audible during operation in drive cycle.	.
.	M-6	Benchmark noise against non-complaint vehicle.	.
Trip (fuel) computer	N-1	<b>S-TYPE Only prior to safe VIN N24605:</b> Perform FAQ 14661 – S-Type Instrument cluster trip Inop.	.
.	N-2	Check for consistent display (during test drive) of valid 'Rolling Odometer' count from test: <b>S-TYPE:</b> ETM test 30. <b>X-TYPE:</b> ETM test 28. <b>XJ Range:</b> ETM test 29.	Displays ----, INV or 255 if message is not received or if received data is invalid.
.	N-3	Check that installed wheels and tires are standard Jaguar fitment.  Confirm fitted wheel size in IDS, 'ADD REMOVE ACCESSORY' section.	Non-standard wheels and tires or incorrectly set wheel size may lead to odometer increment inaccuracies. This will impact the distance accumulators, which in turn affects the rolling average, fuel economy and range values. Trip distance accumulation will also be incorrect.
.	N-4	Consider noting odometer value and resetting fuel computer system. Advise customer to conduct brim-to-brim fuel tank test. Use collected information to determine if system is accurate.	.
Passive Anti-Theft System (PATS) indicator	O-1	Drive lamp with IDS to check for LED operation.	.
.	O-2	Check for loose connections/wiring continuity.	.
.	O-3	Check ignition switch for physical damage.	.



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Area of Issue	Diagnostic Ref. No.	Actions	Notes
.	O-4	If LED is dimly illuminated, may indicate issue with instrument cluster.	.
Cluster illumination	P-1	Check for loose connections/wiring continuity.	.
.	P-2	Perform test to verify that illumination and dimmer control value varies when dimmer adjusted: <b>S-TYPE:</b> ETM test 38. <b>X-TYPE:</b> ETM test 41. <b>XJ Range:</b> ETM test 38.	.
.	P-3	Check dimmer switch operation.	.
.	P-4	Check for loose connections/wiring continuity.	Check SCP lines. Cluster transmits dimmer status over SCP.
Cluster backlight operation	Q-1	Check if the backlight on other components is inoperative.	.
.	Q-2	Perform test to check if 'LCD' and 'BACK LIGHT' dimmer % pulse width modulation duty cycle (range 0 -100) varies with dimmer adjustment: <b>S-TYPE:</b> ETM test 37 and 38. <b>X-TYPE:</b> ETM test 41 and 42. <b>XJ Range:</b> ETM test 37 and 38.	.
.	Q-3	Check for loose connections/wiring continuity.	.
Chime/tone operation	R-1	Check vehicle configuration.	<u>Note:</u> Warning chime is not provided by instrument cluster.
.	R-2	Utilize lights ON, ignition OFF, door open warning to verify chime operation.	.
.	R-3	Check appropriate sensing circuit.	.
Continuous chime/tone	S-1	Check appropriate sensing circuit.	<u>Note:</u> Warning chime is not provided by instrument cluster.
Unexpected chime operation	T-1	Check vehicle configuration.	<u>Note:</u> Warning chime is not provided by instrument cluster.
Message center LCD blank	U-1	<b>S-TYPE Only prior to safe VIN N24605:</b> perform FAQ 14661 – S-Type Instrument cluster trip Inop.	.
Message center LCD illumination	V-1	Check if the backlight is 'ON' and other components dim.	.
.	V-2	Check if the lighting level of other components changes when dimmer is adjusted.	.
.	V-3	Perform test to verify that LCD illumination and dimmer control value varies when dimmer adjusted: <b>S-TYPE:</b> ETM test 37. <b>X-TYPE:</b> ETM test 42. <b>XJ Range:</b> ETM test 37.	.

Area of Issue	Diagnostic Ref. No.	Actions	Notes
Message center display issue	W-1	Perform ETM test 3 to prove out LCD display function. <b>S-TYPE</b> note: some S-TYPE feature negative mode LCD where characters are clear on dark background. Cluster is not faulty.	<b>X-TYPE</b> High series: Activates lower 'pixels' of dot matrix display. <b>X-TYPE</b> Low series: Activates all segments of the LCD display.
Message center missing lines	X-1	Perform ETM test 3 to prove out LCD display function.	<b>X-TYPE</b> High series: Activates lower 'pixels' of dot matrix display. <b>X-TYPE</b> Low series: Activates all segments of the LCD display.
Message center incorrect message	Y-1	What is the message?	.
.	Y-2	Check for open circuit/shorts in wiring to related warning light trigger (module, sensor, switch).	.
Cluster/ connectivity	Z-1	Check cluster battery and ignition wiring.	.
.	Z-2	Check cluster grounds.	.
.	Z-3	Disconnect/reconnect cluster.	.
.	Z-4	Attempt to enter ETM to prove cluster response to inputs.	.
No crank	AA-1	Check with IDS for presence of related DTCs.	.
.	AA-2	Check if there is a Passive Anti-Theft System (PATS) flash code.	.
.	AA-3	Check if the other key cranks.	.
.	AA-4	Tried a new key?	.
.	AA-5	Check battery voltage.	.
.	AA-6	Diagnose no-start condition with IDS.	.
.	AA-7	Attempt PATS key erase and re-learn.	.
Crank but no-start	AB-1	Diagnose no-start condition with IDS.	Not usually caused by cluster issue.
Incorrect configuration	AC-1	Attempt to configure cluster.	.
.	AC-2	Ensure battery voltage is maintained above 12.1 volts if cluster re-configured.	.

## S-TYPE ETM Table

S-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
1 - Self-diagnostic entry	ENGINEERING TEST MODE	.	N/A	Establishes Self-Diagnostic mode.
2 - Gauge sweep	TEST GAUGES	Tachometer, speedometer, temperature and fuel.  Gauges display current values after test.	N/A	All gauges go through a full up/down pointer sweep smoothness check. <u>Note:</u> For some variants fuel and temp gauge will only sweep to approx. 80% of maximum. If error suspected, drive with IDS to prove out gauge fully.
3 - Warning lamp LED's – RH Message Center LCD	Message Center Test Pattern/TEST LEDS	All internally controlled lamps/LEDs regardless of software configuration.  Upper area of RH message center LCD.	N/A	Illuminates all the LED warning indicators that are controlled by the instrument cluster. When this test is exited, current vehicle warning lamps will remain illuminated. <u>Note:</u> Frost/ice warning illuminated in mixed red and amber (color differs from other warning lamps). Applies checkered test pattern to upper area of RH message center.
4 - ROM level	ROM XXXX/FAIL	Instrument cluster Read Only Memory (ROM)	N/A	Displays the instrument cluster ROM level or ROM checksum fault.
5 - NVM level	NVM ROM XXXX	ROM level (most significant bit) and type (least significant bit) as stored in Non-Volatile Memory (NVM)	N/A	Displays hexadecimal coding of ROM level or checksum fault.
6 - EEPROM level	EEPROM XX / FAIL	Electrically Erasable Programmable Read Only Memory (EEPROM) level	N/A	Displays hexadecimal coding of EEPROM level or checksum fault.
7 - MFG date	DATE XXXX	Final manufacturing test date	N/A	Displays hexadecimal coding of final manufacturing test date.
8 - VIN	VIN: XX	Vehicle VIN	N/A	Displays last two digits of the VIN as stored in the cluster.
9 - Tire size	TIRE SIZE XXXX	Tire Size Compensation Value	N/A	Displays hexadecimal coding of two byte Tire Size Compensation Value
10 - Cluster configuration 1	CONFIG 1 XX	Cluster configuration settings (byte 1)	N/A	Displays hexadecimal coding of cluster configuration settings (byte 1).
11 - Cluster configuration 2	CONFIG 2 XX	Cluster language configuration (byte 2)	N/A	Displays hexadecimal coding of cluster configuration settings (byte 2).



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S-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
12 - Cluster configuration 3	CONFIG 3 XXX	Cluster configuration settings (byte 3)	N/A	Displays hexadecimal coding of cluster configuration settings (byte 3).
13 - Cluster configuration 4	CONFIG 4 XX	Cluster language configuration (byte 4)	00 – 15	00 UK. 01 US. 02 French. 03 Spanish. 04 German. 05 Italian. 06 Dutch. 07 Brazilian Portuguese. 08 Swedish. 09 Finnish. 10-15 Japanese.
14 - Cluster configuration 5	CONFIG 5 XXXX	Cluster configuration settings (byte 5)	N/A	Displays hexadecimal coding of cluster configuration settings (byte 5).
15 - Diagnostic Trouble Code (DTC)	DTC XXXX XXXX XXXX	DTCs	DTC or --- (dashes)	Displays up to 3 DTCs on one page. Next button press will display the next three (if present). Display's '----' if no DTCs present. Displays hexadecimal coding of DTCs detected in continuous operation not during self test. Refer to IDS to diagnose the instrument Cluster.
16 - CAN Bus	BUS X Cnt XXX	CAN bus status	N/A	.
17 - Vehicle speed (mph)	SPEED MPH X or SPEED ENG X	Speedometer	---- to 4072	Displays speed input value after compensation in tenths of mph, no decimal point shown. Speedometer will indicate present speed. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
18 - Vehicle speed (kph)	SPEED KPH X	Speedometer	---- to 6553	Displays speed input value after compensation in tenths of kph, no decimal point shown. Speedometer will indicate present speed. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
19 - Speedometer driver	SPEEDO DRIVER XXXX	Speedometer	.	Displays speedometer driver gauge counts in decimal.
20 - Engine speed	TACHO RPM IN X	Tachometer	---- to 6383	Displays tach input value in RPM. Tach will indicate present RPM. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
21 - Tachometer driver	TACHO DRIVER XXXX	Tachometer	.	Displays Tachometer driver gauge counts in decimal.



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S-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
22 - Fuel system 1	RAW FUEL 1 X	Fuel indication system	000 – 009. 10 - 254. 255 ---.	Displays present received fuel level input 1 in decimal, fuel gauge will indicate present filtered level. 000 – 009 = Short Circuit (below empty). 10 – 254 = Normal range. 255 = Open Circuit (over full) --- = Missing.
23 - Fuel system 2	RAW FUEL 2 X	Fuel indication system	000 – 009. 10 – 254. 255 ---.	Displays present received fuel level input 2 in decimal, fuel gauge will indicate present filtered level. 000 – 009 = Short Circuit (below empty). 10 – 254 = Normal range. 255 = Open Circuit (over full). --- = Missing.
24 - Fuel system 3	FILTER FUEL 1 XXX	Fuel indication system	000 – 254. 255.	000 – 254 = Normal range. 255 = Open/short detected.
25 - Fuel system 4	FILTER FUEL 1 XXX	Fuel indication system	000 – 254. 255.	000 – 254 = Normal range. 255 = Open/short detected.
26 - Fuel gauge 1	FUEL PERCENT XXX	Fuel gauge	000 – 254. 255.	Displays present damped total fuel level percent status in decimal. 000 – 254 = Normal range. 255 = Open/short detected.
27 - Fuel gauge 2	FUEL DRIVER XXXX	Fuel gauge	N/A	Displays fuel gauge driver counts in decimal.
28 - Engine coolant temperature	ENGINE TEMP IN XXXX	Temperature gauge	---- 369.5	Displays last temp gauge input value from CAN in 1/10 deg C, no decimal point shown. Temp gauge will indicate present filtered temperature. Displays '----' if message is not received or if received data is invalid.
29 - Temp gauge driver	TEMP DRIVER XXXX	Temperature gauge	N/A	Displays temperature gauge driver counts in decimal.
30 - Odometer count	ROLLING ODO XXX	Odometer	----. 0 – 254. 255.	Displays the odometer input value received via CAN in decimal, value is a rolling count. ---- = Message is not received or if received data is invalid. 0 – 254 = Valid odometer increment. 255 = Invalid data.
31 - ACC	ACC STATUS XX XXXX XXXX	Cluster configuration	N/A	Displays coding of Active Cruise Control (ACC) configuration settings.
32 - PCM	PCM XX XXXX XX	Cluster configuration	N/A	Displays coding of Powertrain Control Module (PCM) configuration settings.
33 - TCM	TCM XX XX	Cluster configuration	N/A	Displays coding of Transmission Control Module (TCM) configuration settings.



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S-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
34 - DSC	DSC XX	Cluster configuration	N/A	Displays coding of DSC configuration settings.
35 - Battery voltage	BATT XXXX	Battery voltage	N/A	Displays present battery input voltage.
36 - Oil pressure	OIL X	Oil pressure	-L. -O.	Displays Oil pressure input. -L = Good oil pressure (open). -O = Low oil pressure (ground).
37 - LCD Illumination	LCD XXXX	LCD illumination	0-100	Displays LCD illumination duty cycle.
38 - Cluster illumination	BACK LIGHT XXX	Cluster illumination	0-100	Displays cluster backlight dimming duty cycle.
39 - Engine run/start	CRANK X	Ignition status	-B. -O.	RUN/START sense circuit check. -B = Input is high. -O = Input is low (open).
40 - Accessory circuit	ACCESSORY X	Accessory circuit	-B. -O.	RUN/ACC sense circuit check. -B = Input is high (B+). -O = Input is low (open).
41 - Autolamps	AUTOLAMP X	Autolamp circuit status	N/A	Autolamp decoded state check.
42 - Park switch	PARK SW X	Automatic transmission J-Gate park switch circuit	-B. -O.	J-Gate park switch circuit check. -B = J-Gate lever in Park. -O = J-Gate lever not in Park.
43 - Key-in switch	DOOR -X	Door ajar Standard Corporate Protocol (SCP) input status	-B. -O.	KEY-IN switch circuit check. -B = Key-in. -O = Key-out.
44 - Seatbelt/airbag chime	SBELT AB X	Seatbelt and airbag chime circuit	-B. -O.	Seatbelt and airbag chime sense circuit check. -B = Belt unbuckled. -O = Belt buckled.
45 - Auxiliary switch pack	SW PAC XXX	Auxiliary switch pack status	N/A	Displays coding of auxiliary switch pack status.
46 - Coolant level	L COOL X	Coolant level sense circuit	-B. -O.	Displays input status of the low coolant level switch. -B = Coolant level low (open). -O = Coolant level ok (ground).
47 - PATS	PATS XX	Passive Anti-Theft System (PATS) status	0-FF	Displays hexadecimal coding of PATS status byte.
48 to 54 - Not required	PORT A XX to PORT T XX	.	N/A	Not required.
55 to 70 - Not required	A/D 0- RAW: XXX RATIO: XXX to A/D 15- RAW: XXX RATIO: XXX	.	N/A	Not required.
71 - Back to test 2	TEST GAUGES	Tachometer, speedometer, temperature and fuel.	N/A	Repeats display cycle from test 2.

## X-TYPE ETM Table

<b>X-TYPE ETM Test No.</b>	<b>RH Message Center Display</b>	<b>Gauge/Indicator/ Display Tested</b>	<b>Range</b>	<b>Description</b>
1 - Self-diagnostic entry	TEST	.	N/A	Establishes Self-Diagnostic mode.
2 - Gauge sweep	GAUGES	Tachometer, speedometer, temperature and fuel rewind test. Gauges display current values after test.	N/A	All gauges perform a rewind to pointer stop.
3 - RH Message Center LCD	Lower dot matrix 'pixels' activated or all segments activated.	RH message center LCD. LCD trip/odometer display.	N/A	LCD function, prove out. High series: Activates lower 'pixels' of dot matrix display. Low series: Activates all segments of the LCD display.
4 - Warning lamp LED's	BULB	All internally controlled lamps/LED's regardless of software configuration.	N/A	Illuminates all the LED warning indicators that are controlled by the instrument cluster. When this test is exited, current vehicle warning lamps will remain illuminated.
5 - ROM level	ROM XXXX/FAIL	Instrument cluster Read Only Memory (ROM).	N/A	Displays the instrument cluster ROM level or ROM checksum fault.
6 - NVM level	NR XXXX	ROM level (most significant bit) and type (least significant bit) as stored in Non-Volatile Memory (NVM).	N/A	Displays hexadecimal coding of ROM level or checksum fault.
7 - EEPROM level	EE XX/FAIL	Electrically Erasable Programmable Read Only Memory (EEPROM) level.	N/A	Displays hexadecimal coding of EEPROM level or checksum fault.
8 - Manufacturing date	DT XXXX	Final manufacturing test date.	N/A	Displays hexadecimal coding of final manufacturing test date.
9 - Cluster configuration 1	CF 1 XX	Cluster configuration settings (byte 1).	N/A	Displays hexadecimal coding of cluster config settings (byte 1).
10 - Cluster configuration 2	CF 2 XX	Cluster configuration settings (byte 2).	N/A	Displays hexadecimal coding of cluster config settings (byte 2).
11 - Cluster configuration 3	CF 3 XXX	Cluster configuration settings (byte 3).	N/A	Displays hexadecimal coding of cluster config settings (byte 3).

<b>X-TYPE ETM Test No.</b>	<b>RH Message Center Display</b>	<b>Gauge/Indicator/ Display Tested</b>	<b>Range</b>	<b>Description</b>
12 - Cluster configuration 4	CF 4 XX	Cluster language configuration (byte 4).	00	= Default language. 01 English UK. 02 French. 03 Finnish. 04 English US. 05 Italian. 06 Portuguese. 07 German. 08 Spanish. 09 Dutch. 10 Swedish. 11 Japanese. FF Not known.
13 - Cluster configuration 5	CF 5 XXXX	Cluster configuration settings (byte 5).	N/A	Displays hexadecimal coding of cluster config settings (byte 5).
14 - Diagnostic Trouble Code (DTC)	DTC XXXX	DTCs	Alternating flashes of 'DTC' and actual DTC value or DTC/NONE.	Displays hexadecimal coding of DTCs detected in continuous operation, not during self test. If DTCs are logged, each button press will cause the next DTC to be displayed until all unique DTCs have been displayed. Displays DTC/NONE if no DTC present. Refer to IDS to diagnose the IC.
15 - Vehicle speed (mph)	E XXXX	Speedometer	---- to 4072	Displays speed input value after compensation in tenths of mph, no decimal point shown. Speedo will indicate present speed. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
16 - Vehicle speed (kph)	XXXX	Speedometer	---- to 6553	Displays speed input value after compensation in tenths of kph, no decimal point shown. Speedo will indicate present speed. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
17 - Speedometer driver	SG XXXX	Speedometer	.	Displays speedometer driver gauge counts in decimal.
18 - Engine speed	T XXXX	Tachometer	---- to 6383	Displays tach input value in rpm. Tach will indicate present rpm. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
19 - Tachometer driver	TG XXXX	Tachometer	.	Displays tachometer driver gauge counts in decimal.

X-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
20 - Fuel system 1	F1 XXX	Fuel indication system	000 - 009. 10 - 254. 255. ---	Displays present received fuel level input 1 in decimal, fuel gauge will indicate present filtered level. 000 – 009 = Short Circuit (below empty). 10 – 254 = Normal range. 255 = Open Circuit (over full). --- = Missing.
21 - Fuel system 2	F2 XXX	Fuel indication system	000 - 009. 10 - 254. 255. ---	Displays present received fuel level input 2 in decimal, fuel gauge will indicate present filtered level. 000 – 009 = Short Circuit (below empty). 10 – 254 = Normal range. 255 = Open Circuit (over full). --- = Missing.
22 - Fuel system 3	FP1 XXX	Fuel indication system	000 – 254. 255.	Displays present filtered Fuel level percent status from sender 1 in decimal. 000 – 254 = Normal range. 255 = Open/Short detected.
23 - Fuel system 4	FP2 XXX	Fuel indication system	000 – 254. 255. NC.	Displays present filtered Fuel level percent status from sender 2 in decimal. 000 – 254 = Normal range. 255 = Open/Short detected. NC = Not configured/option not present.
24 - Fuel gauge 1	FP XXX	Fuel gauge	000 – 254. 255.	Displays present damped total fuel level percent status in decimal. 000 – 254 = Normal range. 255 = Open/Short detected.
25 - Fuel gauge 2	FG XXXX	Fuel gauge	N/A	Displays fuel gauge driver counts in decimal.
26 - Engine coolant temperature	XXXX C	Temperature gauge	----. 369. 5.	Displays last temperature gauge input value from CAN in 1/10 deg C, no decimal point shown. Temperature gauge will indicate present filtered temperature. Displays '----' if message is not received or if received data is invalid.
27 - Temperature gauge driver	CG XXXX	Temperature gauge	N/A	Displays temperature gauge driver counts in decimal.
28 - Odometer count	ODO XXX	Odometer	----. 0 – 254. 2550.	Displays the odometer input value received via CAN in decimal, value is a rolling count. ---- = Message is not received or if received data is invalid. 0 – 254 = Valid odometer increment. 2550 = Invalid data.

X-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
29 - VAP	VAP XXX	Variable assisted power steering status	0 – 511. S-B. S-G. OL. FLt. EE. NC.	S-B = Short to battery. S-G = Short to ground. OL = Open load. FLt = No comms fault. EE = NVM checksum failure. NC = Not configured/option not present.
30 - Cruise control	CRC –X	Cruise control status	-0. -1. -3. -7. NC. --.	-0 = Cruise off. -1 = Cruise enabled, no function. -3 = Cruise resuming. -7 = Cruise on. NC = Not configured/option not present. -- = CAN message not received or invalid.
31 - Adaptive Cruise Control	ACC XX	Adaptive cruise control status. Low series only.	N/A	Not configured. <u>Note:</u> Test in low series only.
32 - Powertrain check	PTC XX	Powertrain check status	0 - ff	Bit 0 = MIL. Bits 1 - 3 = Red throttle malfunction. Bits 4 – 5 = Amber throttle malfunction. CAN message not received or invalid.
33 - Transmission check	TRN –X	Transmission check status	0. 1. --.	0 = Trans. function normal. 1 = Trans. fault. -- = CAN message not received or invalid.
34 - Interactive vehicle dynamics	IVD XX	Interactive Vehicle Dynamics status	0 – ff. NC. --.	0 = No faults. Bit 0 = ABS/TCS fault. Bit 1 = Brake intervention fault. Bit 3 = Engine intervention fault. Bit 4 = EBD fault. Bit 5 = YAW/IVD fault. C = Not configured/Option not present. -- = CAN message not received or invalid.
35 - Battery voltage	BATT XX.X	Battery voltage	N/A	Displays present battery input voltage.
36 - Oil pressure	OIL -X	Oil pressure input status.	-O. -G.	-O = Good oil pressure (open). -G = Low oil pressure (ground).
37 - Brake fluid	BF –X	Brake fluid level input status	-O. -G.	-O = Good fluid level (open). -G = Low fluid level (ground).
38 - Handbrake	HB –X	Handbrake input status	-O. -G.	-O = Brake off (open). -G = Brake on (ground).
39 - Dipped beam	DB –X	Dipped beam input status	-B. -O.	-B = Exterior lights OFF or side lights ON. -O = Head lights ON (dipped or main beam).



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X-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
40 - Side lights	SLP -X	Side light input status	-B. -O.	-B = Side lights ON (B+). -O = Side lights OFF (open).
41 - Cluster illumination	IL XXX	Cluster illumination input	0 - 1000	Displays instrument panel illumination duty cycle. With vehicle lights on, value will change when dimmer adjusted. Static display of last value when lights turned off. % Pulse Width Modulated (PWM) duty cycle in 0.1 steps.
42 - LCD Illumination	LC XXXX	LCD illumination input	0 - 1000	Displays LCD illumination duty cycle. With vehicle lights on, value will change when dimmer operated. Static display of last value when lights turned off. % Pulse Width Modulated (PWM) duty cycle in 0.1 steps.
43- Step dimming	STXXXX	Step dimming input	0 - 1000	.
44 - Door ajar	DOOR -X	Door ajar Standard Corporate Protocol (SCP) input status	-F. -N.	-F = Door ajar. -N = Doors closed. Wagon liftgate not linked to door ajar input.
45 - Seatbelt	STBT -X	Safety belt Standard Corporate Protocol (SCP) input status	-F. -F.	-F = Safety belt warning message OFF. -F = Safety belt warning message ON.
46 - Engine run/start	CR- X	Ignition status	-B. -O.	-B = Input is high (B+). -O = Input is low (open). Should always be seen as -O.
47 - Accessory circuit	AC -X	Accessory circuit status	-B. -O.	-B = Input is high (B+). -O = Input is low (open).
48 - Auxiliary switch pack	PAC XXX	Auxiliary switch pack status	0-255. NC.	0-255 = Displays auxiliary switch pack status. NC = Not configured (low series).
49 - Vehicle inertia switch	VIS -X	Vehicle inertia switch input status	-O. -G.	-O = Switch OK (open). -G = Switch tripped (ground).
50 - Washer level	LF -X	Washer fluid sense circuit	-O. -G.	-O = Coolant level OK (open). -G = Coolant level low (ground).
51 - Reverse switch	RE -X	Reverse switch sense circuit	-B. -O. NC.	-B = Reverse switch engaged/on (B+). -O = Reverse switch disengaged/off (open). NC = Not configured.

X-TYPE ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
52 - PATS	PATS XX	Passive Anti-Theft System (PATS) status	0-FF	Displays hexadecimal coding of PATS status byte. 0 = No Diag Byte. 1 = Bad Diag Byte. 2 = Start Byte Received. 3 = Key Read Complete. 4 = Key Is Programmed. 5 = Bad Read Address. 6 = Signature Matches.
53 - TFB	TFB -XX	?	0-FF	High series only.
54 - EVOL	EVOLUME -XX	?	0-FF	High series only.
55 to 59 - Not required	PA -XX to PT -XX	.	N/A	Not required.
60 to 63 - Not required	AD0 -XXX to AD4 -XxX	.	N/A	Not required.
64 to 65 - Not required	AP0 -XX to AP1 -XX	.	N/A	Not required.
66 - Back to test 2	GAGE	Tachometer, speedometer, temperature and fuel	N/A	Repeats display cycle from test 2.

## XJ Range ETM Table

XJ Range ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
1 - Self-diagnostic entry	TEST MODE (After button release)	.	.	Establishes Self-Diagnostic mode. Note: TEST MODE is only displayed after the mode button is released.
2 - Gauge sweep	TEST GAUGES	Tachometer, speedometer, temperature and fuel rewind test. Gauges display current values after test.	Not Applicable (N/A).	All gauges perform a rewind to pointer stop.
3 - RH Message Center LCD.	Lower dot matrix 'pixels' activated.	Message center LCD.	N/A	Activates lower 'pixels' of dot matrix display.
4 - Warning lamp LED's	TEST LEDS	All internally controlled lamps/LED's regardless of software configuration.	N/A	Illuminates all the LED warning indicators that are controlled by the instrument cluster. When this test is exited, current vehicle warning lamps will remain illuminated.
5 - ROM level	ROM XXXX/FAIL	Instrument cluster Read Only Memory (ROM).	N/A	Displays the IC ROM level or ROM checksum fault.
6 - NVM level	NVM ROM XXXX	ROM level (most significant bit) and type (least significant bit) as stored in Non-Volatile Memory (NVM).	N/A	Displays hexadecimal coding of ROM level or checksum fault.
7 - EEPROM level	EEPROM XX/FAIL	Electrically Erasable Programmable Read Only Memory (EEPROM) level.	N/A	Displays hexadecimal coding of EEPROM level or checksum fault.
8 - Manufacturing date	DATE XXXX	Final manufacturing test date.	N/A	Displays hexadecimal coding of final manufacturing test date.
9 - VIN	VIN: XXXXXX	Vehicle VIN.	N/A	Displays last two digits of the VIN as stored in the cluster.
10 - Cluster configuration 1	CONFIG 1 XX	Cluster configuration settings (byte 1).	N/A	Displays hexadecimal coding of cluster config settings (byte 1).
11 - Cluster configuration 2	CONFIG 2 XX	Cluster configuration settings (byte 2).	N/A	Displays hexadecimal coding of cluster config settings (byte 2).
12 - Cluster configuration 3	CONFIG 3 XXX	Cluster configuration settings (byte 3).	N/A	Displays hexadecimal coding of cluster config settings (byte 3).



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XJ Range ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
13 - Cluster configuration 4	CF 4 XX	Cluster language configuration (byte 4).	00 - 15	00=UK. 01=US. 02=French. 03=Spanish. 04=German. 05=Italian. 06=Dutch. 07=Brazilian, Portuguese. 08=Swedish. 09=Finnish. 10-15=Japanese.
14 - Cluster configuration 5	CF 5 XXXX	Cluster configuration settings (byte 5).	N/A	Displays hexadecimal coding of cluster config. settings (byte 5).
15 - Diagnostic Trouble Code (DTC)	DTC XXXX	DTCs	DTC or NONE (dashes)	Displays hexadecimal coding of DTCs detected in continuous operation not during self test. If DTCs are logged, each button press will cause the next DTC to be displayed until all unique DTCs have been displayed. Display's DTC/NONE if no DTCs present. Refer to IDS to diagnose the IC.
16 - Vehicle speed (mph)	ENG SPEED XXXX	Speedometer	---- to 4072	Displays speed input value after compensation in tenths of mph, no decimal point shown. Speedometer will indicate present speed. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
17 - Vehicle speed (kph)	MET SPEED X	Speedometer	---- to 6553	Displays speed input value after compensation in tenths of kph, no decimal point shown. Speedometer will indicate present speed. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
18 - Speedometer driver	SPEEDO DRIVER XXXX	Speedometer	.	Displays speedometer driver gauge counts in decimal.
19 - Engine speed	TACHO IN XXXX	Tachometer	---- to 6383	Displays tach input value in RPM. Tach will indicate present RPM. Displays '----' if message is not received or if received data is invalid for 2 seconds or more.
20 - Tachometer driver	TACHO DRIVER XXXX	Tachometer	.	Displays tachometer driver gauge counts in decimal.

XJ Range ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
21 - Fuel system 1	RAW FUEL 1 XXXX	Fuel indication system	000 - 009. 10 - 254. 255. ---	Displays present received fuel level input 1 in decimal, fuel gauge will indicate present filtered level. 000 – 009 = Short Circuit (below empty). 10 – 254 = Normal range. 255 = Open Circuit (over full). --- = Missing.
22 - Fuel system 2	RAW FUEL 2 X	Fuel indication system	000 - 009. 10 - 254. 255. ---	Displays present received fuel level input 2 in decimal, fuel gauge will indicate present filtered level. 000 – 009 = Short Circuit (below empty). 10 – 254 = Normal range. 255 = Open Circuit (over full). --- = Missing.
23 - Fuel system 3	FILTER FUEL 1 XXX	Fuel indication system	000 – 254. 255.	Displays present filtered fuel level percent status from sender 1 in decimal. 000 – 254 = Normal range. 255 = Open/Short detected.
24 - Fuel system 4	FILTER FUEL 2 XXX	Fuel indication system	000 – 254. 255.	Displays present filtered fuel level percent status from sender 2 in decimal. 000 – 254 = Normal range. 255 = Open/Short detected.
25 - Fuel gauge 1	FUEL PERCENT XXX	Fuel gauge	000 – 254. 255.	Displays present damped total fuel level percent status in decimal. 000 – 254 = Normal range. 255 = Open/Short detected.
26 - Fuel gauge 2	FUEL DRIVER XXXX	Fuel gauge	N/A	Displays fuel gauge driver counts in decimal.
27 - Engine coolant temperature	TEMP IN XXXX	Temperature gauge	----. 369.5.	Displays last temp gauge input value from CAN in 1/10 deg C, no decimal point shown. Temp gauge will indicate present filtered temp. Displays '----' if message is not received or if received data is invalid.
28 - Temperature gauge driver	TEMP DRIVER XXXX	Temperature gauge.	N/A	Displays temperature gauge driver counts in decimal.
29 - Odometer count	ODO XXX	Odometer.	----. 0 – 254. 255.	Displays the odometer input value received via CAN in decimal, value is a rolling count. ---- = Message is not received or if received data is invalid. 0 – 254 = Valid odometer increment. 255 = Invalid data.

XJ Range ETM Test No.	RH Message Center Display	Gauge/Indicator/ Display Tested	Range	Description
30 - VAP	VAPSXXX	Variable assisted power steering status	0 – 511. S-B. S-G. OL. FLt. EE.	S-B = Short to battery. S-G = Short to ground. OL = Open load. FLt = No comms fault. EE = NVM checksum failure.
31 - ACC	A CRUISE CNTRL -X	Adaptive cruise control status	-0. -1. NC.	-0 = ACC off. -1=ACC on. NC=Option not present.
32 -PCM	PCM XX	Cluster configuration	N/A	Displays coding of PCM configuration settings.
33 - TCM	TCM XX XX	Traction control status	-0. -1. --.	-0 = Transmission Control Module (TCM) functioning normally. -1 = TCM fault. -- = Message not received or invalid
34 - IUD	IUD XX	Cluster configuration	N/A	Displays coding of IUD configuration settings.
35 - Battery voltage	BATT XXXX	Battery voltage	N/A	Displays present battery input voltage in tenths of volts.
36 - Oil pressure	OIL -X	Oil pressure input status	-0. -G.	Displays Oil pressure input. -0 = Good oil pressure (open). -G = Low oil pressure (ground).
37 - LCD Illumination	LCD XXXX	LCD illumination	0-100.	Displays LCD illumination duty cycle Lights off value?
38 - Cluster illumination	BACK LIGHT XXX	Cluster illumination	0-100.	Displays cluster backlight dimming duty cycle Lights off value?
39 - Brake pad wear	BRAKE PW	Brake pad wear system status. <u>Note:</u> Unused feature.	-O.	Brake pad wear feature not implemented on vehicle. -O = Default value (open).
40 - Accessory circuit	ACCESSORY - X	Accessory circuit	-B. -O.	RUN/ACC sense circuit check. -B = Input is high (B+). -O = Input is low (open).
41 - Autolamps	AUTOLAMP -X	Autolamp circuit status	-D. -O	Autolamp decoded state check. -D = Autolamp is day time. -O = Autolamp is night time.
42 - Park switch	PARK SW X	Automatic transmission J-Gate park switch circuit	-B. -O.	J-Gate park switch circuit check. -B = J-Gate lever in Park. -O = J-Gate lever is not in Park.
43 - Key-in switch	KEY IN X	Ignition key sense circuit	-B. -O.	KEY-IN switch circuit check. -B = Key-in/high (B+). -O = Key-out/low (open).
44- Seatbelt/airbag chime	SBELT AB X	Seatbelt and airbag chime circuit	-B. -O.	Seatbelt and airbag chime sense circuit check. -B = Belt unbuckled/high (B+). -O = Belt buckled/low (open).
45 - Auxiliary switch pack	SW PAC XXX	Auxiliary switch pack status	N/A	Displays coding of auxiliary switch pack status.



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<b>XJ Range ETM Test No.</b>	<b>RH Message Center Display</b>	<b>Gauge/Indicator/ Display Tested</b>	<b>Range</b>	<b>Description</b>
46 - Coolant level	L COOL X	Coolant level sense circuit	-O. -G.	Displays input status of the low coolant level switch. -O = Coolant level low (open). -G = Coolant level OK (ground).
47 - PATS	PATS XX	Passive Anti-Theft System (PATS) status	0-FF.	Displays hexadecimal coding of PATS status byte.
48 to 53- Not required	PORT A -XX to PORT T -XX	.	N/A	Not required.
54 to 69 - Not required	A/D 0- XX to A/D17- XX	.	N/A	Not required.
70 - Back to test 2	TEST GAUGES	Tachometer, speedometer, temperature and fuel	N/A	Repeats display cycle from test 2.