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# Cat ET Overview — Updated 2018



ET

- What is Cat ET
- Demo



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# What Is Cat ET?

- Cat ET is a software based service tool which gives the service technician the capability to communicate and work with the electronic controls on Caterpillar products
- Connects to the Product's Data Link(s)
- Functions
  - Display Status Parameters
  - View Active Diagnostic Codes
  - View and Clear Logged Diagnostic Codes
  - Manipulate ECM Configuration
  - Record Machine Information over a period of time
  - Diagnostic Tests and Calibrations
  - Retrieve Machine Totals

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# Cat ET

- Cat ET releases three time a year
  - February, June, October
- Cat ET may have additional releases as needed



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# Required Hardware

538-5051 - Communications Adapter 3 Group

478-0235 Communication Adapter

370-4617 USB Cable

457-6114 Data Link Cable



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# Communications Adapter 3

- Three Data Links: ATA (J1708), Cat Data Link (CDL), J1939 (CAN)
- Up to 4 times faster flash with J1939
- Flash memory
- Requires Comm Adapter Tool Kit to flash adapter (included with Communication Adapter 3)



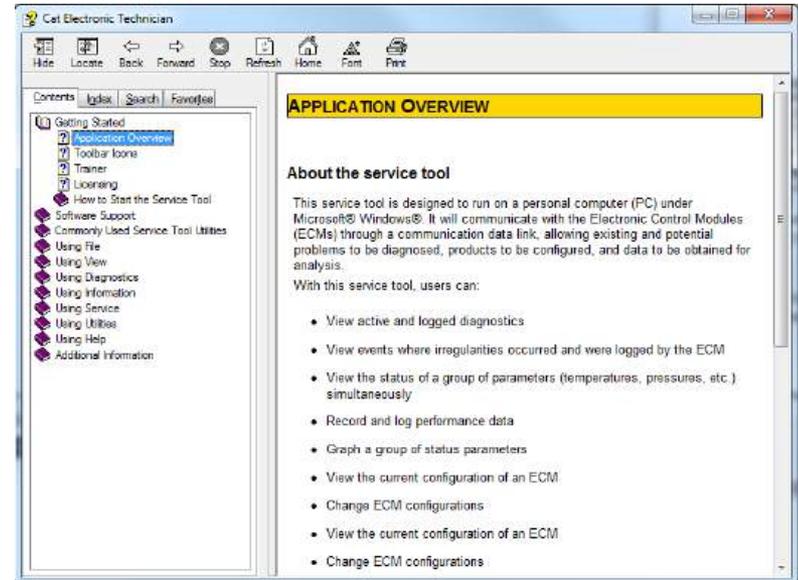
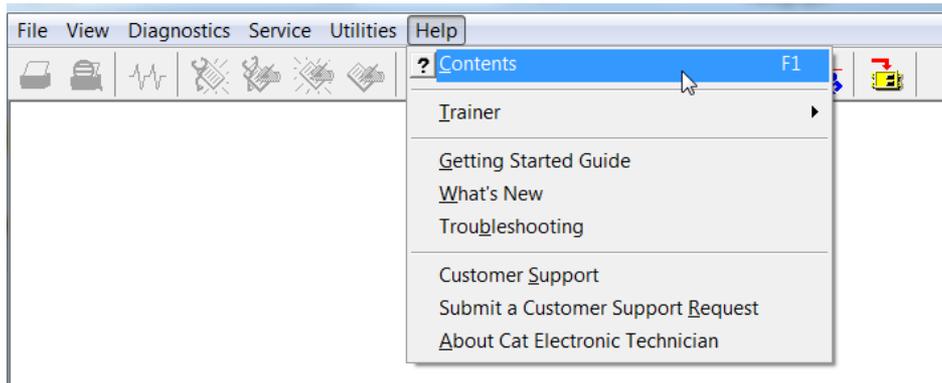
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# Cat ET Help Manual

- Software manual is contained within help menu of Cat ET
- Paper copy of manual is not available



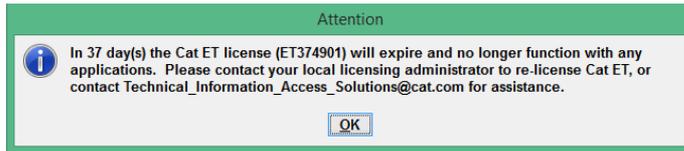
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# Customer Cat ET

- Cat ET can be downloaded or installed from a CD
- Licensing activates customer Cat ET for 365 days and alerts the user when their license is about to expire



- Customer Cat ET cannot:
  - Clear Events that require Factory Passwords
  - Turn On/Off Options activated by Factory Passwords
  - Generate Factory Passwords
  - Flash ECM's



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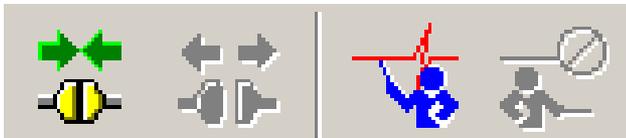
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# Cat ET Trainer

- Allows user to navigate and learn Cat ET without license
- 18 Training Choices



- Trainer is started with icons from the toolbar listed below



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# Status Screen

- Status screen allows the viewing of real time parameters by either using a predefined group or creating a custom group

The screenshot displays the 'Cat Electronic Technician 2015A v1.0 - Status - Trainer Active' window. The left-hand tree view shows the following structure:

- C9 D6T (THX00001)
  - General Data
  - Throttle
  - Fuel Delivery
  - Temperatures
  - Pressures
  - Engine Starting
  - Fan Control
  - Air Filter Restrictions
  - Air/Fuel Ratio Control
- Graphical Display BHL (LAY00001)
  - AccuGrade Laser Reference
- Cat Monitor System D6
  - Status Group #1
  - Status Group #2
  - Status Group #3
  - Status Group #4
  - EMS Component Status
  - Harness Code
- Powertrain D6 (LAY00001)
  - Service Brake
  - Service and Parking Brake
  - Transmission Lever
  - Transmission Clutch Solenoid Curre
  - Sneeds

The central data table displays the following parameters:

Description	Value	Unit	Min	Max	ECM
<b>General Data</b>					
Engine Speed	800	rpm	800	800	C9 D6T (THX00001)
Desired Engine Speed	800	rpm	800	800	C9 D6T (THX00001)
Delivered Fuel Volume	21.000	mm3	21.000	21.000	C9 D6T (THX00001)
Decelerator Position	0	%	0	0	C9 D6T (THX00001)
Fuel Position	50.0		50.0	50.0	C9 D6T (THX00001)
Boost Pressure	1	psi	1	1	C9 D6T (THX00001)
Engine Oil Pressure (absolute)	46	psi	46	46	C9 D6T (THX00001)
Engine Load Factor	1	%	1	1	C9 D6T (THX00001)
Engine Power Derate	0	%	0	0	C9 D6T (THX00001)
Fuel Rate Based Percent Engine Load Factor	6.9	%	6.9	6.9	C9 D6T (THX00001)

At the bottom of the window, there are buttons for 'Groups...', 'Full Screen', 'Zoom In', 'Hold', and 'Trigger Snapshot'. The status bar at the very bottom shows 'Active Codes [4]', 'Active Events [3]', and 'Status Flags [0]'. The current view is identified as 'General Data' for 'C9 D6T (THX00001)'.

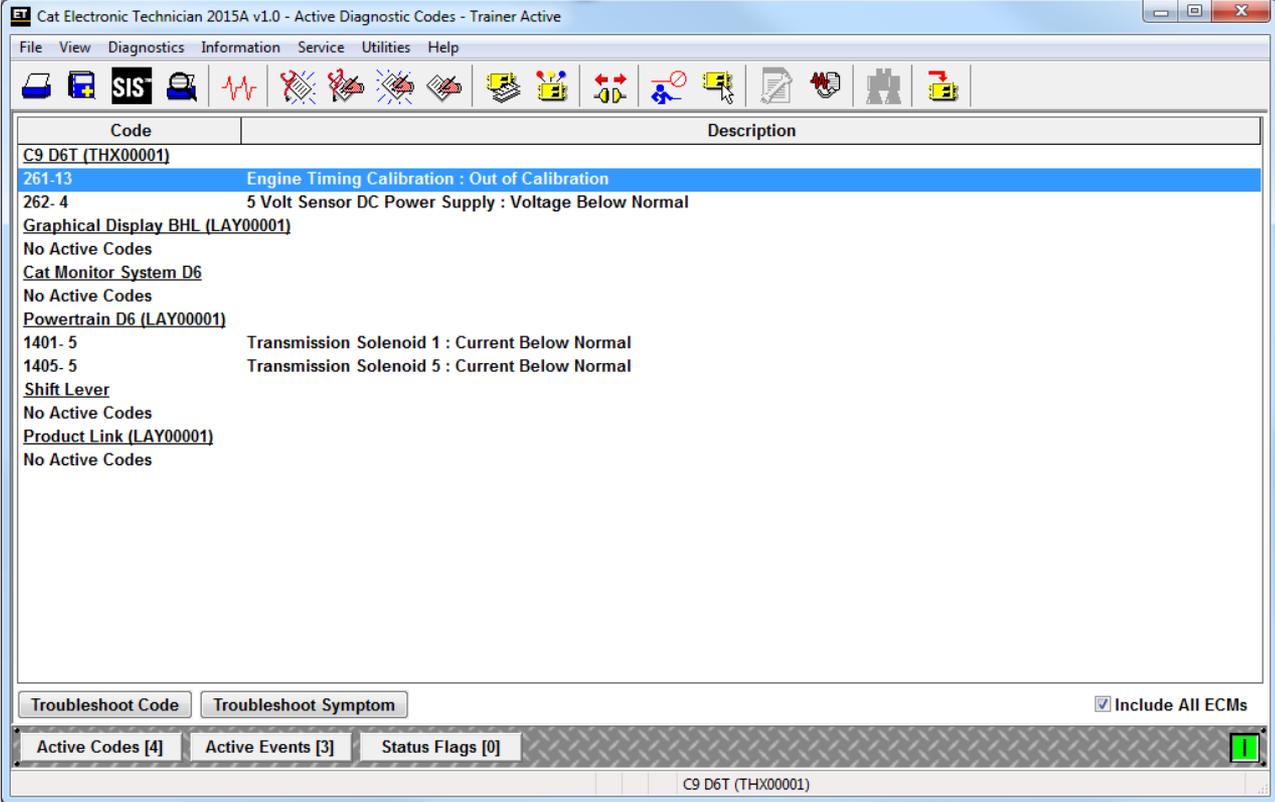
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# Active Diagnostic Codes

-  The Active Diagnostic Codes function provides information to warn the vehicle operator of potential problems, and indicates the nature of the problem to the service technician
- The codes that are displayed on this screen are active (occurring as you view them)



The screenshot shows the 'Cat Electronic Technician 2015A v1.0 - Active Diagnostic Codes - Trainer Active' window. The interface includes a menu bar (File, View, Diagnostics, Information, Service, Utilities, Help) and a toolbar with various diagnostic icons. The main display area is a table with two columns: 'Code' and 'Description'. The table lists several diagnostic codes, with the first one, '261-13 Engine Timing Calibration : Out of Calibration', highlighted in blue. Other codes include '262-4 5 Volt Sensor DC Power Supply : Voltage Below Normal', '1401-5 Transmission Solenoid 1 : Current Below Normal', and '1405-5 Transmission Solenoid 5 : Current Below Normal'. The interface also features buttons for 'Troubleshoot Code' and 'Troubleshoot Symptom', a checkbox for 'Include All ECMs', and a status bar at the bottom showing 'Active Codes [4]', 'Active Events [3]', and 'Status Flags [0]'. The current code being viewed is 'C9 D6T (THX00001)'.

Code	Description
<u>C9 D6T (THX00001)</u>	
261-13	Engine Timing Calibration : Out of Calibration
262-4	5 Volt Sensor DC Power Supply : Voltage Below Normal
<u>Graphical Display BHL (LAY00001)</u>	
No Active Codes	
<u>Cat Monitor System D6</u>	
No Active Codes	
<u>Powertrain D6 (LAY00001)</u>	
1401-5	Transmission Solenoid 1 : Current Below Normal
1405-5	Transmission Solenoid 5 : Current Below Normal
<u>Shift Lever</u>	
No Active Codes	
<u>Product Link (LAY00001)</u>	
No Active Codes	

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# Logged Diagnostic Codes

- The Logged Diagnostic Codes function provides a list of diagnostic codes logged by the ECM
- These codes are similar to the active diagnostic codes except that they are logged over time

Code	Description	Occ.	First	Last
<u>C9 D6T (THX00001) - Diagnostic Clock = 1117 hours</u>				
262- 4	5 Volt Sensor DC Power Supply : Voltage Below Normal	2	91	91
274- 3	Atmospheric Pressure Sensor : Voltage Above Normal	14	36	36
<u>Powertrain D6 (LAY00001) - Diagnostic Clock = 1117 hours</u>				
673- 2	Transmission Output Speed Sensor #2 : Erratic, Intermittent, or Incorrect	1	621	621
1401- 5	Transmission Solenoid 1 : Current Below Normal	4	555	621
1960- 9	Ignition Key Reader : Abnormal Update Rate	1	22	22
<u>Product Link (LAY00001) - Diagnostic Clock = 1050 hours</u>				
No Logged Diagnostic Codes				
<u>Cat Monitor System D6 - Diagnostic Clock = 1117 hours</u>				
No Logged Diagnostic Codes				
<u>Shift Lever - Diagnostic Clock = 65535 hours</u>				
No Logged Diagnostic Codes				
<u>Graphical Display BHL (LAY00001) - Diagnostic Clock = 884 hours</u>				
No Logged Diagnostic Codes				

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# Logged Event Codes

- The Logged Event Codes function provides a list of event codes logged by the ECM
- These codes are similar to the logged diagnostic codes, except that the event represents the symptom of the operational problem
- These codes indicate to the manager or technician how the machine/equipment is being operated

Code	Description	Occ.	First	Last
<b>C9 D6T (THX00001) - Diagnostic Clock = 1117 hours</b>				
E194 (3)	High Exhaust Temperature	1	621	621
E362 (2)	Engine Overspeed	5	2	2
<b>Graphical Display BHL (LAY00001) - Diagnostic Clock = 884 hours</b>				
No Logged Events				
<b>Cat Monitor System D6 - Diagnostic Clock = 1117 hours</b>				
No Logged Events				
<b>Powertrain D6 (LAY00001) - Diagnostic Clock = 1117 hours</b>				
E116 (5)	Powertrain Filter Bypass Switch Closed	1	1358	1358
E030	High Transmission Oil Temperature Warning	2	265	281
<b>Product Link (LAY00001)</b>				
No Logged Events				

Buttons: Clear, View Histogram, Troubleshoot Code

Include All ECMs

C9 D6T (THX00001)

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# ECM Summary



- The ECM Summary screen allows user to view all of the useful ECM information
- All available ECMs are retrieved and their information displayed on the screen
- When reporting problems or are requesting help for the service tool, you need to give the information that is displayed on the ECM Summary screen

Description	Value
<b>C9 D6T (THX00001)</b>	
Equipment ID	LAY0000151
Engine Serial Number	THX00001
ECM Serial Number	00000001JL
Personality Module Part Number	3111901-00
Personality Module Release Date	MAR07
Personality Module Description	TTT-D6T
<b>Graphical Display BHL (LAY00001)</b>	
Product ID	LAY00001
ECM Serial Number	0000B001HX
Software Group Part Number	3026388-00
Software Group Release Date	DEC06
Software Group Description	AccuGrade System
<b>Cat Monitor System D6</b>	
ECM Part Number	2524501-01
Software Group Part Number	3231271-00
Software Group Release Date	DEC07
Mon Sys Harness Code	42
<b>Powertrain D6 (LAY00001)</b>	
Product ID	LAY00001
Equipment ID	LAY0000151
ECM Part Number	2621408-01
ECM Serial Number	00000001JT
Software Group Part Number	3339326-00
Software Group Release Date	AUG2008

Active Codes [4] Active Events [3] Status Flags [0]

C9 D6T (THX00001)

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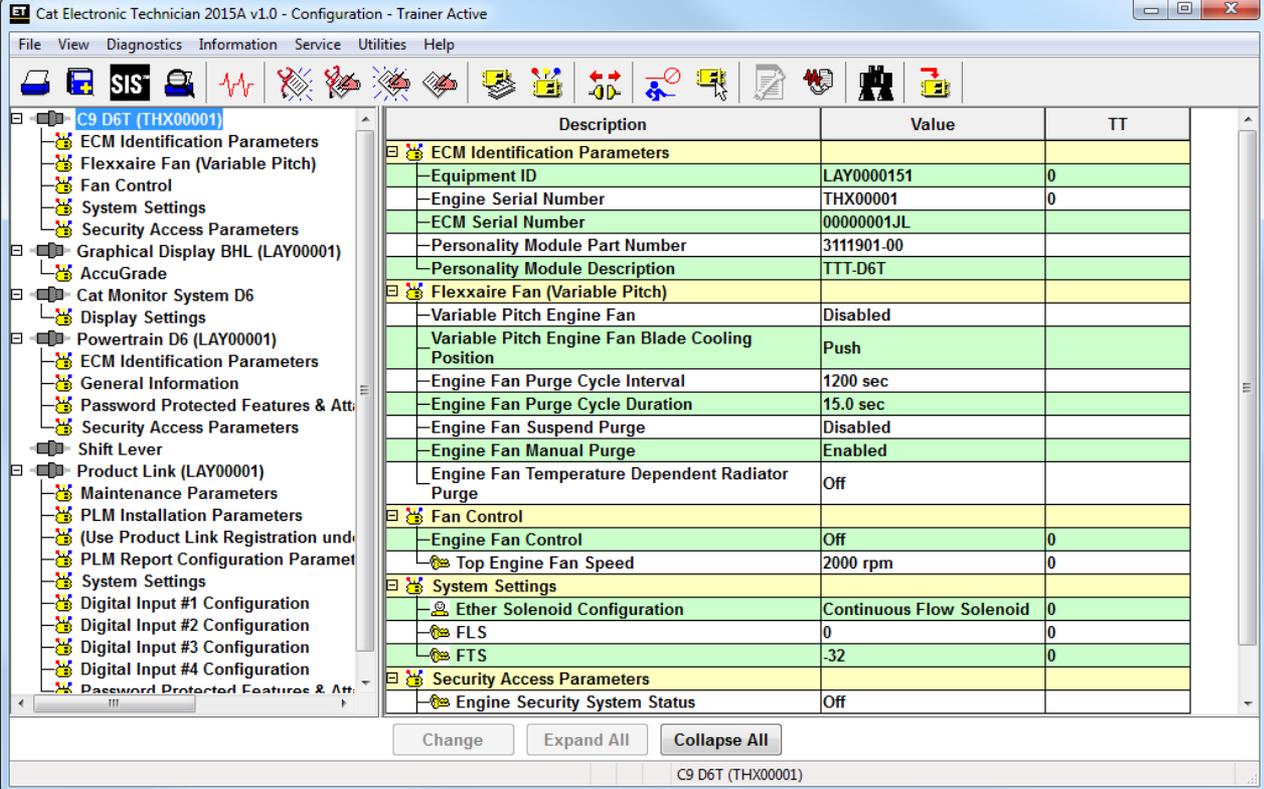


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# Configuration

- The Configuration function allows user to view and change configurable information on an ECM. All available ECMs are retrieved and their information displayed on the screen

- The Find function allows the user to search for a parameter or any word in a parameter (for example speed) in the Configuration screen



The screenshot shows the 'Cat Electronic Technician 2015A v1.0 - Configuration - Trainer Active' window. The left pane displays a tree view of configuration categories for 'C9 D6T (THX00001)'. The right pane displays a table of parameters with columns for Description, Value, and TT.

Description	Value	TT
ECM Identification Parameters		
Equipment ID	LAY0000151	0
Engine Serial Number	THX00001	0
ECM Serial Number	00000001JL	
Personality Module Part Number	3111901-00	
Personality Module Description	TTT-D6T	
Flexxaire Fan (Variable Pitch)		
Variable Pitch Engine Fan	Disabled	
Variable Pitch Engine Fan Blade Cooling Position	Push	
Engine Fan Purge Cycle Interval	1200 sec	
Engine Fan Purge Cycle Duration	15.0 sec	
Engine Fan Suspend Purge	Disabled	
Engine Fan Manual Purge	Enabled	
Engine Fan Temperature Dependent Radiator Purge	Off	
Fan Control		
Engine Fan Control	Off	0
Top Engine Fan Speed	2000 rpm	0
System Settings		
Ether Solenoid Configuration	Continuous Flow Solenoid	0
FLS	0	0
FTS	-32	0
Security Access Parameters		
Engine Security System Status	Off	

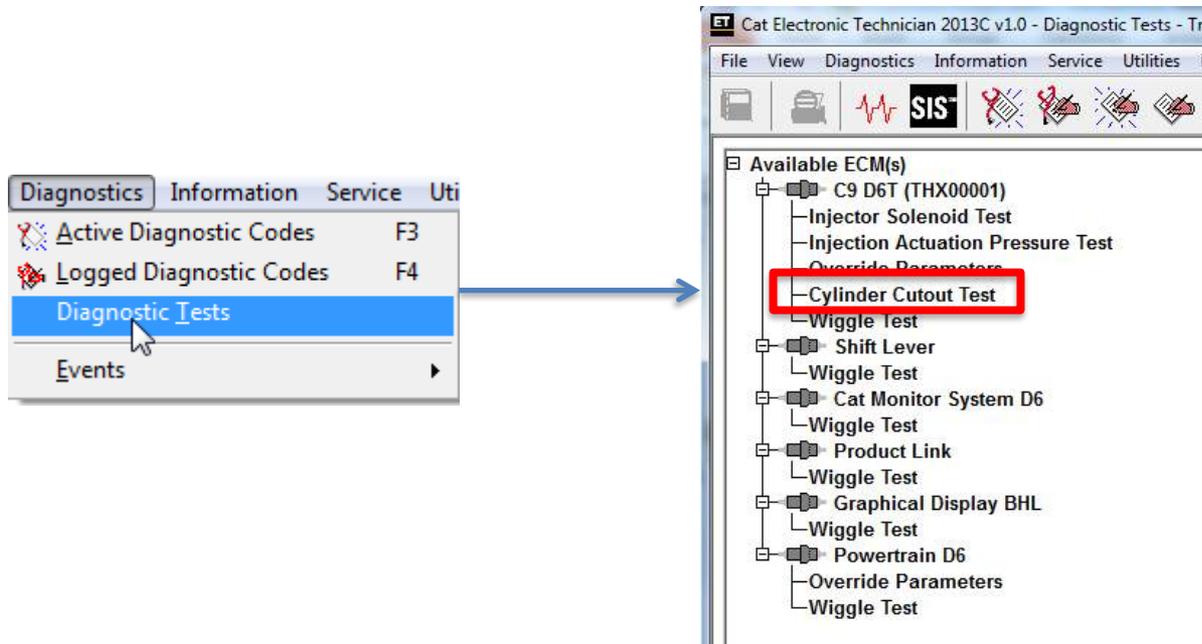
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# Automatic Cylinder Cutout Test

Select Diagnostic Tests from the Diagnostic menu, then choose Cylinder Cutout test from the next screen



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# Automatic Cylinder Cutout Test

- The Cylinder Cutout function allows user to perform an automated one, four, or five cylinder cutout test to verify that the injectors are working
- This process involves cutting out and re-powering a particular cylinder. It also monitors the other cylinders to see if their fuel position increases, as it should
- If the fuel position does not increase, then the cut out cylinder was not working before cutting it out.
- *Note: Not all automated tests are available for all products.*

The screenshot shows the Caterpillar Electronic Technician 2009A v1.0 software interface. The title bar reads "Caterpillar Electronic Technician 2009A v1.0 - Cylinder Cutout - Trainer Active". The menu bar includes File, View, Diagnostics, Information, Service, Utilities, and Help. The toolbar contains various icons for file operations, diagnostics, and help. The main window is divided into a table and a right-hand panel.

Cylinder	Mode	Fuel Position [ mm ]
Cylinder 1	Powered	
Cylinder 2	Powered	
Cylinder 3	Powered	
Cylinder 4	Powered	
Cylinder 5	Powered	
Cylinder 6	Powered	

On the right-hand panel, the following engine parameters are displayed:

- Engine Speed: 1212 RPM
- Fuel Position: 11.50 mm
- Engine Coolant Temperature: 230 Deg F
- Cooling Fan: On

At the bottom of the interface, there are buttons for "Change", "Power All", "Start", and "Results". Below these buttons, there are two status indicators: "Active Codes [6]" and "Status Flags [1]". The bottom right corner shows the vehicle identification "3406E Truck (6NZ84307)".

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# Automatic Cylinder Cutout Test

Select the  
Cutout test that  
needs to be  
performed and  
click continue

The screenshot shows the 'Caterpillar Electronic Technician 2009A v1.0 - Cylinder Cutout - Trainer Active' window. The interface includes a menu bar (File, View, Diagnostics, Information, Service, Utilities, Help) and a toolbar with various diagnostic icons. The main area is titled 'Select Cylinder Cutout Test' and contains two radio button options:

- 4 - Cylinder Cutout Test (default)  
[primary test for troubleshooting]
- 1 - Cylinder Cutout Test  
[used when diagnosing a rough running engine]

On the right side, there are four data boxes:

- Engine Speed: 1212 RPM
- Fuel Position: 11.50 mm
- Engine Coolant Temperature: 230 Deg F
- Cooling Fan: On

Below the selection area, a text prompt reads: 'Click the Continue button to proceed with the test.' At the bottom, there are two buttons: '<< Back' and 'Continue >>'. A status bar at the very bottom shows 'Active Codes [6]', 'Status Flags [1]', and a green indicator light. The vehicle information '3406E Truck (6NZ84307)' is displayed in the bottom right corner.

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# Automatic Cylinder Cutout Test

- The test proceeds to display a list of test conditions. These conditions must be met before and during the automatic cylinder cutout test
- Cat ET will not allow the test to be run if the test conditions are not met or maintained
- *Note: Test conditions may vary for each test*

The screenshot shows the Caterpillar Electronic Technician (ET) software interface. The title bar reads "Caterpillar Electronic Technician 2009A v1.0 - 4 Cylinder Cutout - Trainer Active". The menu bar includes File, View, Diagnostics, Information, Service, Utilities, and Help. The toolbar contains various icons for navigation and diagnostics. The main display area is titled "4 Cylinder Cutout Test Conditions" and lists the following conditions:

The following conditions must be met for the automatic Cylinder Cutout Test:

- 1) Engine Speed must be between 980 RPM and 1020 RPM
- 2) Engine Coolant Temperature must be 149 Deg F or higher
- 3) No engine performance related active diagnostic codes are allowed

If at any time any of these conditions are not met, the test will automatically be aborted.

Note: Fan cycling on and off, or engine load change, will invalidate this test.  
1) If the fan is not controlled by the engine ECM, please enable the fan if possible.  
WARNING: Please make sure the compression brake is in the off position. During the test the compression brake operating will make the engine surge.

Click the Continue button to begin test.

Navigation buttons: << Back, Continue >>

Status indicators: Active Codes [6], Status Flags [1]

Bottom status bar: 3406E Truck (6NZ84307)

Right-hand side data panel:

Engine Speed	1212 RPM
Fuel Position	11.50 mm
Engine Coolant Temperature	230 Deg F
Cooling Fan	On

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# Automatic Cylinder Cutout Test

- This screen is the automatic Cylinder Cutout test in progress
- Also present in this automated test is a progress indicator bar that represents the percent completion of the test
- In addition to the progress bar, Cat ET status bar indicates the current test number and current cylinder being tested

The screenshot shows the Caterpillar Electronic Technician (ET) software interface for a 4-cylinder cutout test. The window title is "Caterpillar Electronic Technician 2009A v1.0 - 4 Cylinder Cutout". The interface includes a menu bar (File, View, Diagnostics, Information, Service, Utilities, Help) and a toolbar with various diagnostic icons. The main display area is divided into a table and several status panels.

Cylinder	Mode	Fuel Position ( mm )
Cylinder 1	Cutout	waiting
Cylinder 2	Powered	
Cylinder 3	Powered	
Cylinder 4	Cutout	
Cylinder 5	Cutout	
Cylinder 6	Cutout	

Engine Speed: 1016 RPM

Fuel Position: 0.00 mm

Engine Coolant Temperature: 217 Deg F

Cooling Fan: Fan Off

Buttons: Change, Power All, Stop, Results

Active Codes [0] Status Flags [0]

C-12 Truck (ABCDEFGH)

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# Automatic Cylinder Cutout Test

- Upon completion of the cylinder cutout test, a results screen will appear letting the user know the injector's status and the results of the test
- The user can also view more specific and detailed test results from this screen by selecting the 'Show Details' push-button

Cylinder	Status
Cylinder 1	OK
Cylinder 2	OK
Cylinder 3	OK
Cylinder 4	OK
Cylinder 5	OK
Cylinder 6	OK

Run this test before and after repairing a cylinder to confirm a successful repair. Include printed or electronic copies of the test results with any injectors that are returned to the factory. Mark injectors with the cylinder number from which they were removed.

<< Back Show Details

Active Codes [0] Status Flags [0]

C-12 Truck (ABCDEFGH)

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# Automatic Cylinder Cutout Test

Selecting the 'Show Details' push-button displays the cylinder cutout test sheet in electronic form.

Cylinder	Cycle #1	Cycle #2	Average	Status
Cylinder 1	0.00	0.00	0.00	OK
Cylinder 2	0.00	0.00	0.00	OK
Cylinder 3	0.00	0.00	0.00	OK
Cylinder 4	0.00	0.00	0.00	OK
Cylinder 5	0.00	0.00	0.00	OK
Cylinder 6	0.00	0.00	0.00	OK

Run this test before and after repairing a cylinder to confirm a successful repair. Include printed or electronic copies of the test results with any injectors that are returned to the factory. Mark injectors with the cylinder number from which they were removed.

<< Back   Hide Details

Active Codes [0]   Status Flags [0]

C-12 Truck (ABCDEFGH)

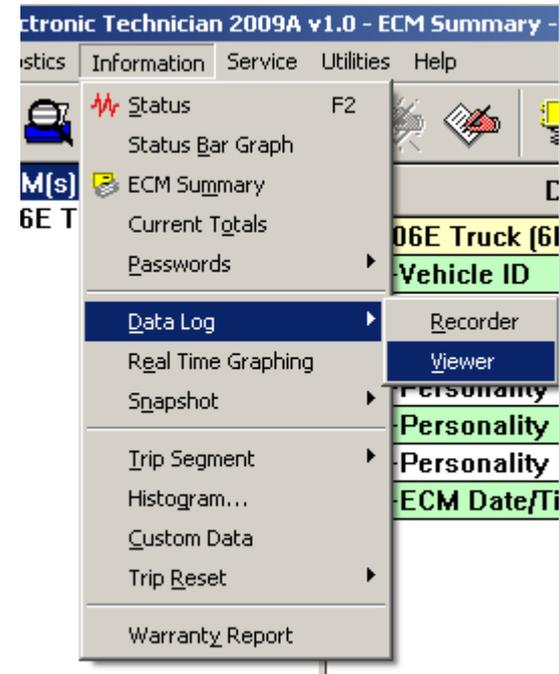
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# Cat ET Data Logger

- Data Logger:
  - Is available for all Cat ET applications.
  - Allows you to record real time data (as it occurs) of parameters you have selected from the ECM.
- To use Data Logger:
- Select Data Logger from the Information menu.



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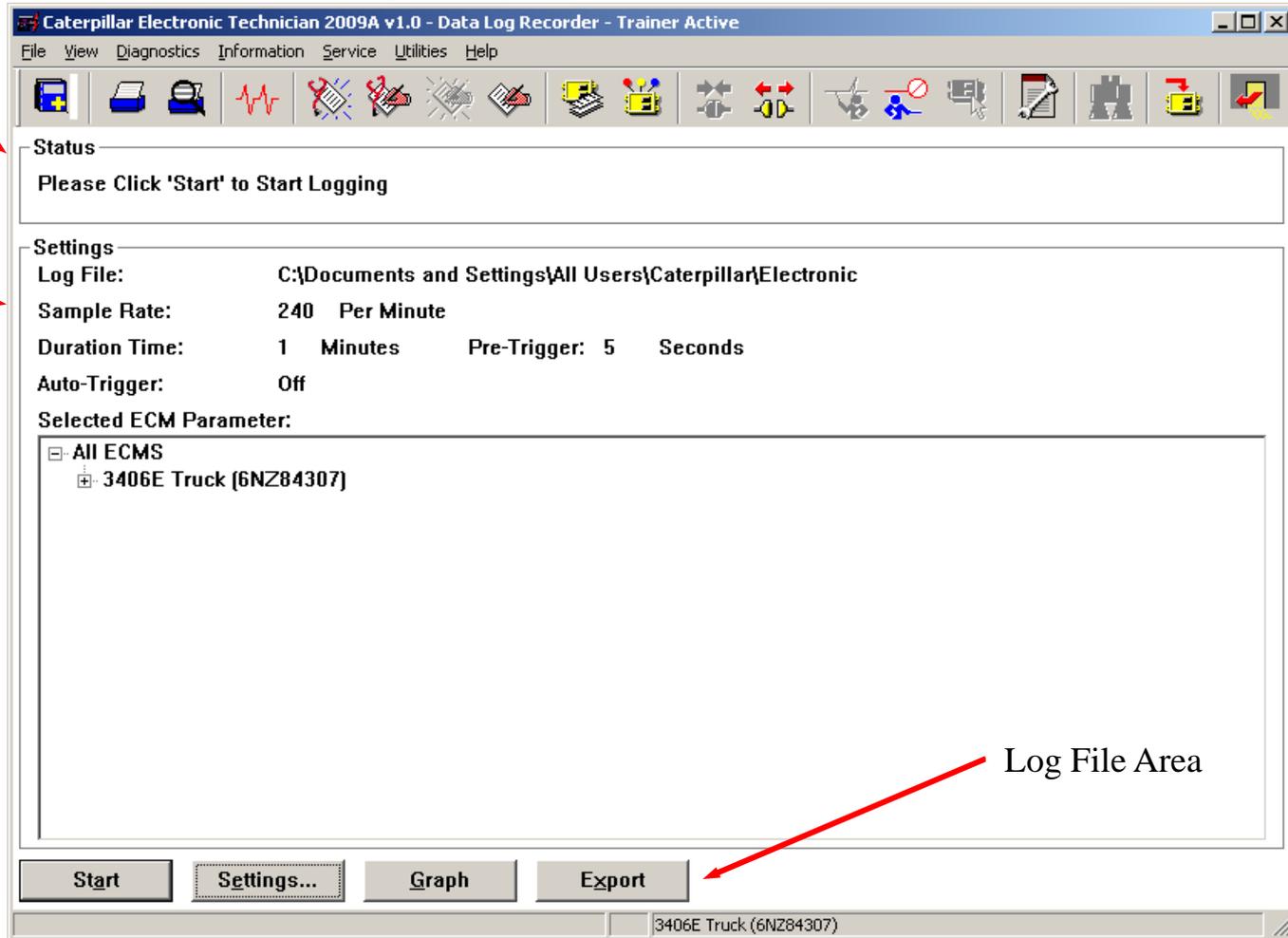
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# Cat ET Data Logger

The Data Logger screen displays

Status Area

Setup Area



Log File Area

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# Cat ET Data Logger

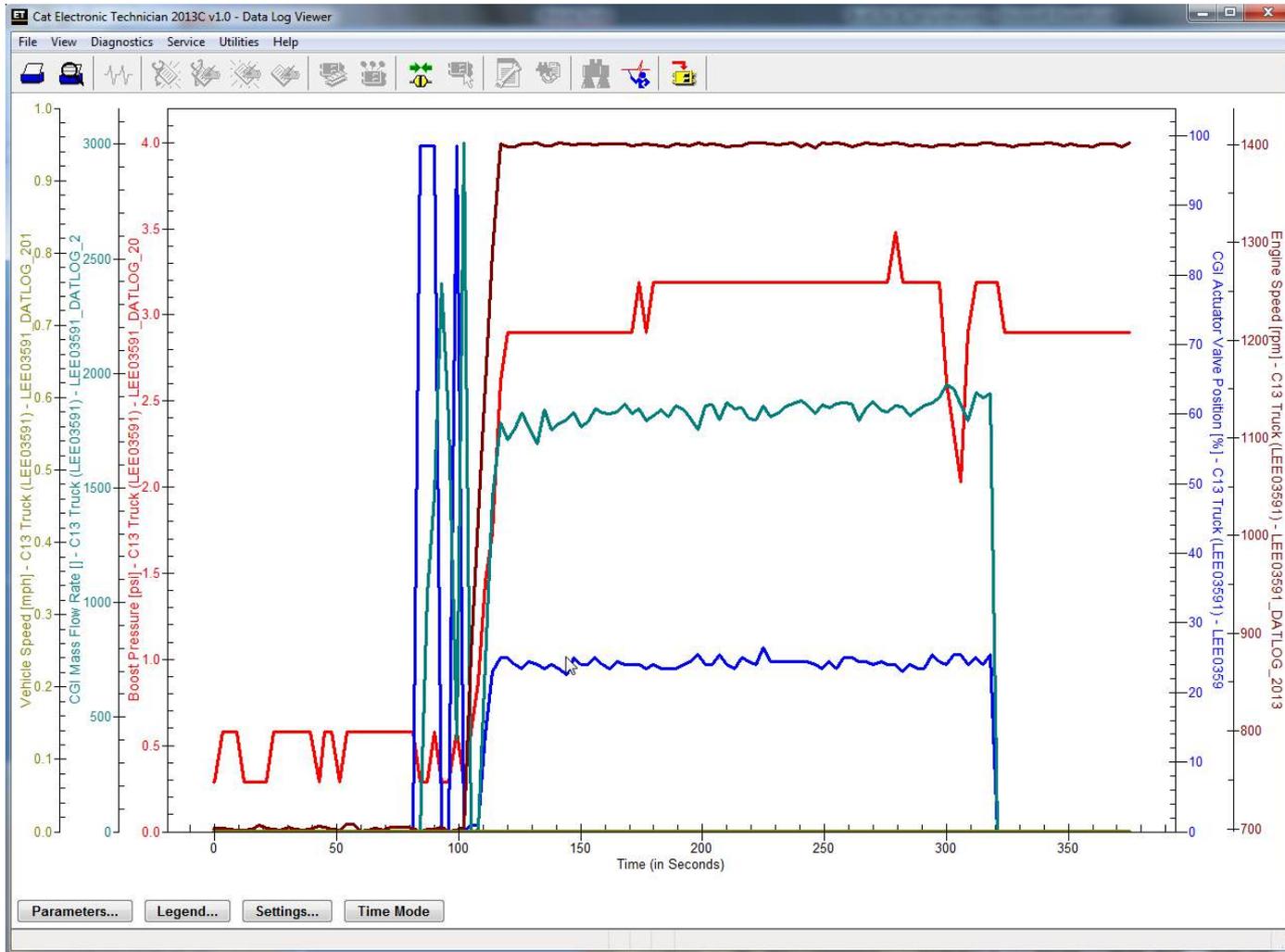
- The range that data can be collected is from four samples per second down to five an hour
- When the logging is complete, Cat ET will automatically shut down the data logging function
- Data logging takes place within Cat ET, so the program needs to be running at all times during the logging process
- Data Logger will work in the background, making it possible for other functions of Cat ET to be used
  - However, if a rate faster than 20 samples per minute is chosen, a dialog will appear preventing the user from leaving the 'Data Logger' tool until logging is complete or the 'Stop Log' push-button is selected

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# Cat ET Data Log Viewer



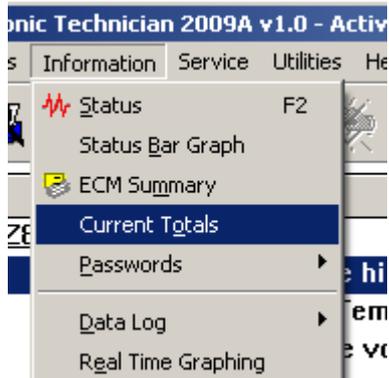
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# Current Totals

- From the Information dropdown select Current Totals



A screenshot of the 'Current Totals' window in the Caterpillar Electronic Technician software. The window title is 'Caterpillar Electronic Technician 2009A v1.0 - Current Totals - Trainer Active'. The menu bar includes File, View, Diagnostics, Information, Service, Utilities, and Help. The toolbar contains various icons for navigation and data management. The main area displays a table with the following data:

Description	Value	Unit
Total Time	5:00	hours
Total PTO Time	9:00	hours
Total Idle Time	4:00	hours
Total Distance	28354	Miles
Total Fuel	121	Gal
Total PTO Fuel	5	Gal
Total Idle Fuel	2	Gal
Total Max Fuel	158	Gal
Average Load Factor	76	%

At the bottom of the window, there is a 'Change' button and a status bar displaying '3406E Truck (6N284307)'.

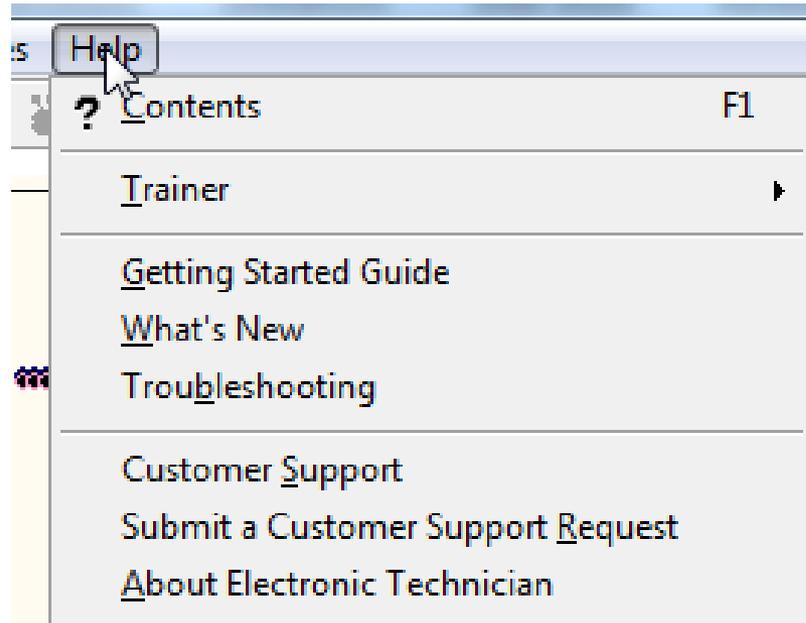
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# Troubleshooting Guide

- From the help dropdown menu, select Troubleshooting
- This is for troubleshooting Cat ET, not equipment issues



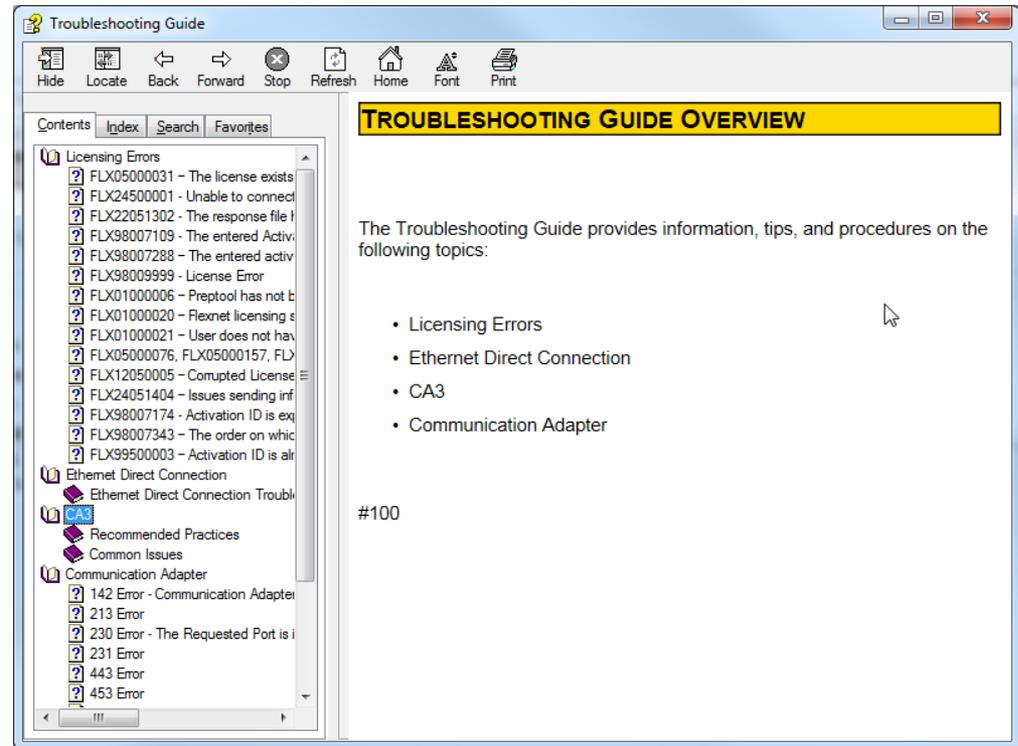
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# Troubleshooting Guide

- Displays most common issues associated with Cat ET
- Opens in a separate window
- Clicking on related error takes you to troubleshooting steps to fix the problem



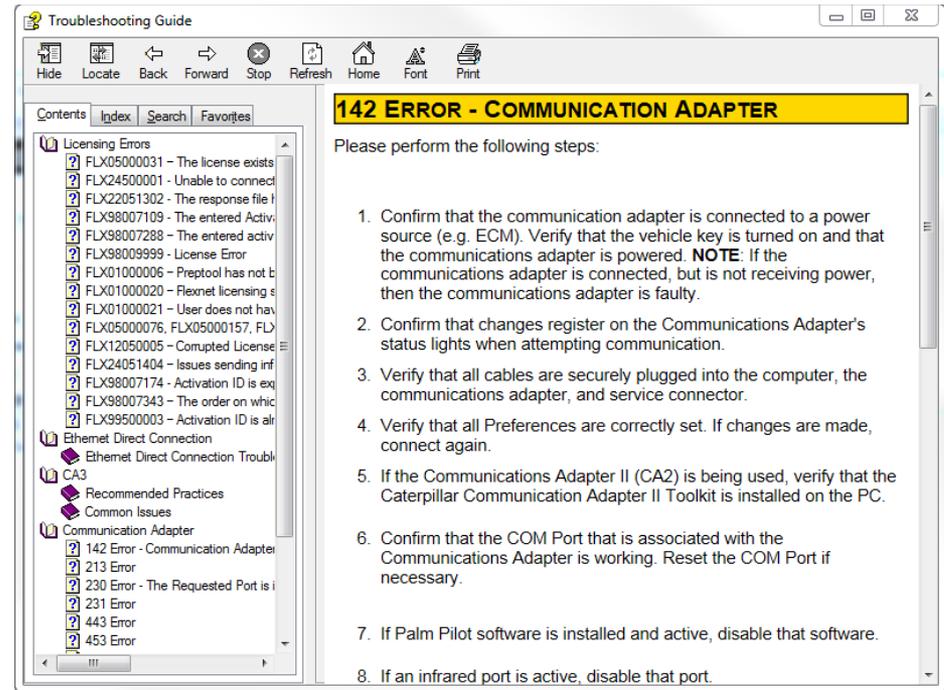
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# Troubleshooting Guide

- The procedures in the Troubleshooting Guide are identical to the procedures utilized by the support center when you call in for assistance



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# Full Screen Status

- Enables User to view screen from a distance
  - Access from Status Screen
  - Choose up to six parameters to view
  - Select Full Screen from the Status page

The screenshot displays the 'Cat Electronic Technician 2007B v1.0-D1 (2007-04-16) - Status - Trainer Active' window. The interface includes a menu bar (File, View, Diagnostics, Information, Service, Utilities, Help) and a toolbar with various icons. On the left, a tree view shows the hierarchy: Transmission 777, Brake 777, and 3508 777 (2GR54321). Under Transmission 777, 'Status Group #1' is selected. The main area shows a table of parameters with columns: Description, Value, Unit, Min, Max, and ECM. The 'Full Screen' button at the bottom is highlighted with a red box. The status bar at the bottom shows 'Active Codes [11]', 'Status Flags [2]', and 'Transmission 777'.

Description	Value	Unit	Min	Max	ECM
Gear Lever	3		3	3	Transmiss 777
Gear	3		3	3	Transmiss 777
Transmission Output Speed	773	RPM	773	773	Transmiss 777
Hold	Off				Transmiss 777
Body Raise	Off				Transmiss 777
Body Up	Off				Transmiss 777
Parking Brake	Disengaged				Transmiss 777
Service Brake	On				Transmiss 777
Starter Relay	Off				Transmiss 777

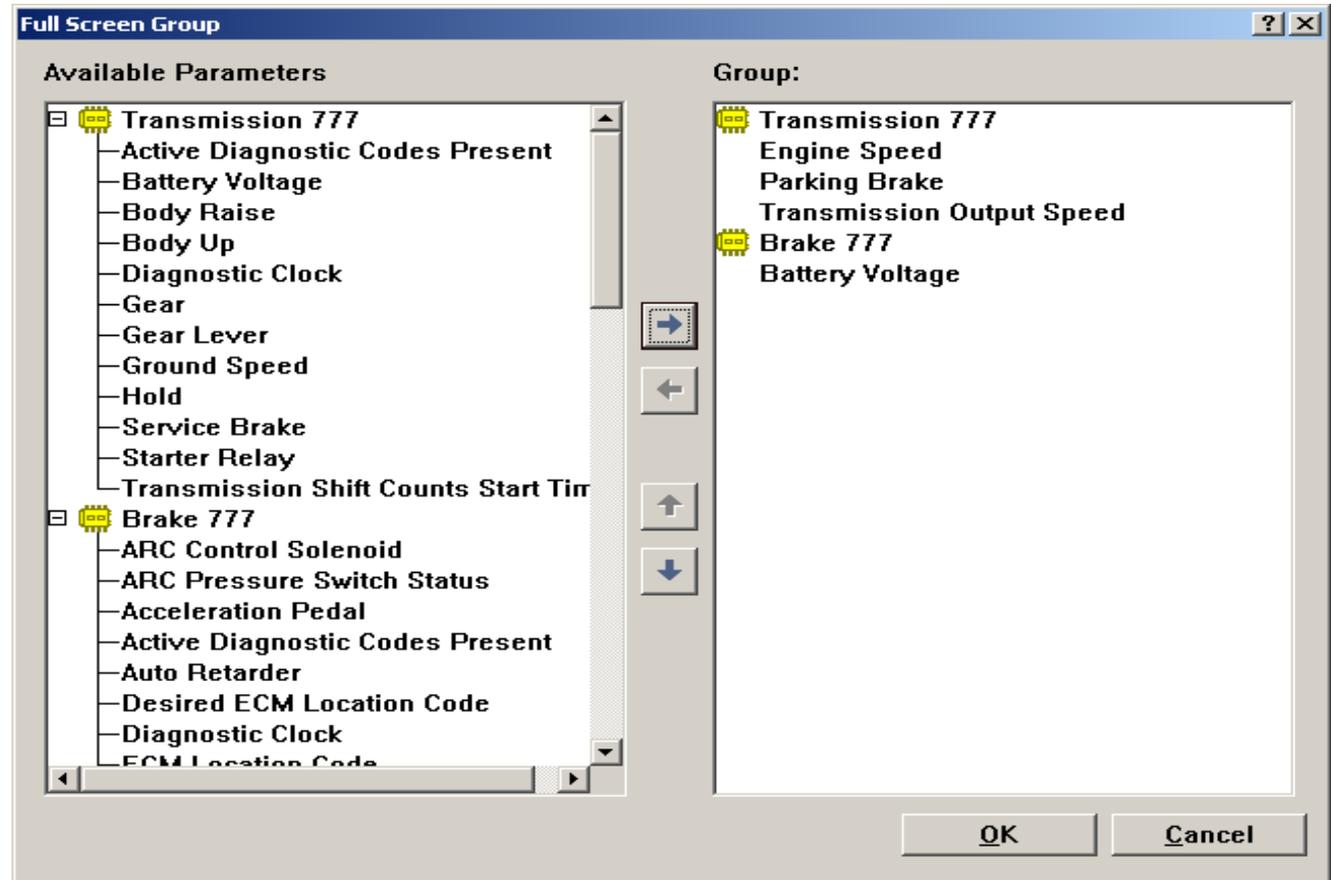
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# Full Screen Status

- Select the parameters you would like to monitor
- Remember, only six can be displayed at any given time
- Once Full Screen Status is displayed, any keystroke or mouse click will return to Cat ET

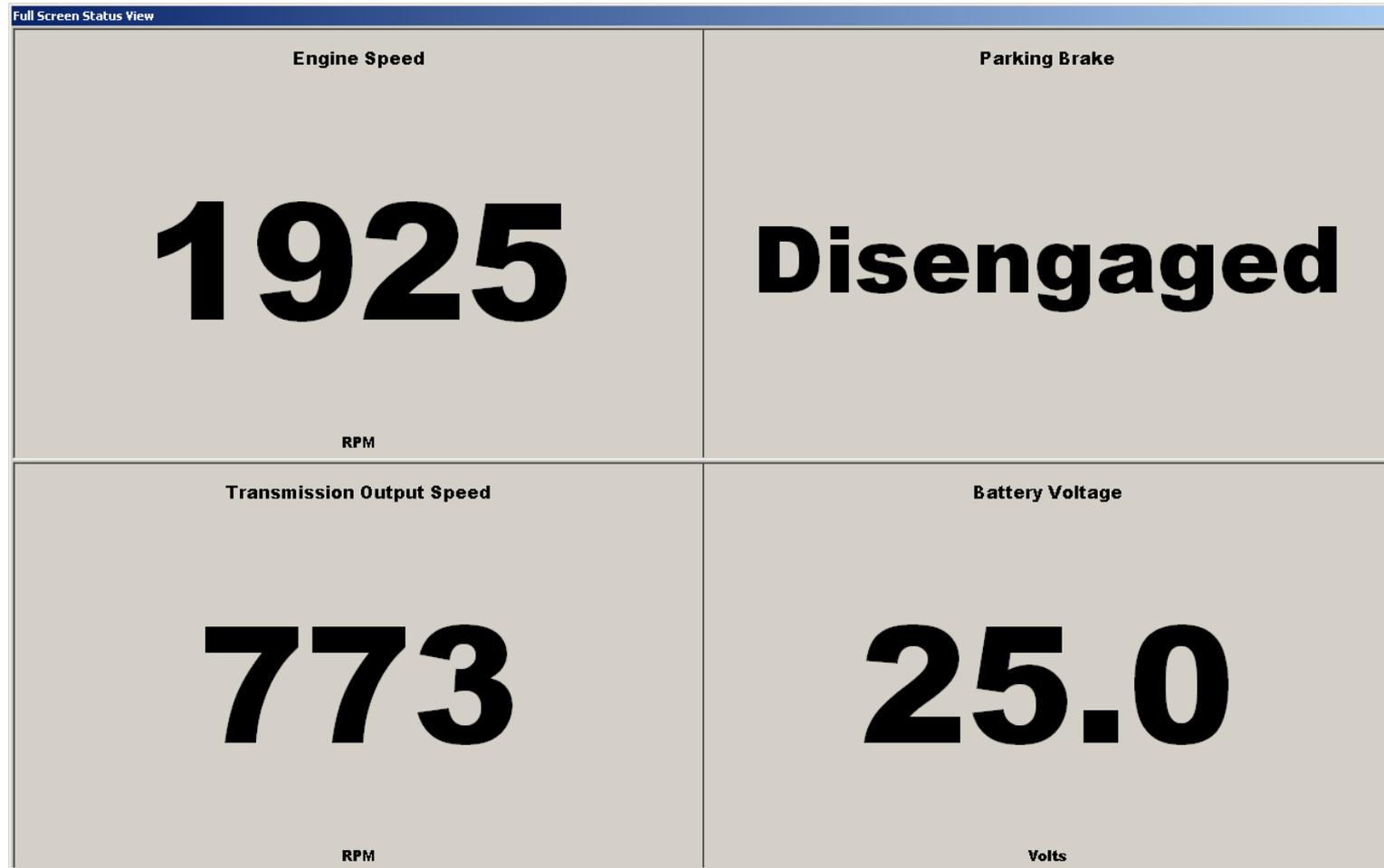


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# Full Screen Status



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# Questions?

- For any questions that you may have please contact your local Cat Dealer or.....
- Contact the Cat ET Support desk at:

eBusiness Enterprise Service Center Contact Information		
Email	Ebiz_Apps_Support@Cat.com	
Location	Phone Number	Languages: Hours Available (Time Zone)
US and Canada	(309) 578-6789 Toll-Free: (855) 391-1778	English: 24x7
Mexico	+52 8183 192847	Spanish: 11:00PM Sun – 11:00PM Fri (Central) English: 24x7
Brazil	+55 1921 061048	Brazilian Portuguese: 6:00AM – 10:00PM Mon-Sat (Brasilia) Spanish: 11:00PM Sun – 11:00PM Fri (Central) English: 24x7
UK	+44 19210 61402	English: 24x7 French: 11:00PM Sun – 11:00PM Fri (Central European) German: 7:30AM – 4:00PM Mon-Fri (Central European) Italian: 9:00AM – 5:00PM Mon-Fri (Central European)
Belgium	+32 7125 1603	French: 11:00PM Sun – 11:00PM Fri (Central European) German: 7:30AM – 4:00PM Mon-Fri (Central European) English: 24x7
Germany	+49 4023 803025	German: 7:30AM – 4:00PM Mon-Fri (Central European) English: 24x7
Italy	+39 0248 422626	Italian: 9:00AM – 5:00PM Mon-Fri (Central European) English: 24x7
Spain	+34 954 418708	Spanish: 11:00PM Sun – 11:00PM Fri (Central US) Brazilian Portuguese: 6:00AM – 10:00PM Mon-Sat (Brasilia) English: 24x7
China	+86 2258 096140	English: 24x7 Mandarin: 8:00AM – 5:00PM Mon-Fri (Chinese Standard)
Australia	+61 7332 98277	
Singapore	+65 6801 2237	
Thailand	+66 2105 5197	
Indonesia	+62 2182 39805	
Bangalore	+91 80 3350 3940	
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