MGM Brakes
A Division of Indian Head Industries, Inc.
TECHNICAL BULLETIN

SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide

The e-Stroke Diagnostic Program (P/N 8091202) may be used to acquire the following e-Stroke System information:

- ECU / CCM Information: Software Version, Configuration, Serial Number

- Current Wheel Specific Brake, Lining & Disc Caliper Running Clearance Status

- Stored Brake Fault History

- System J1939 / J1708 Connection Status

**P/N 9090109 - RS-232 Diagnostic Program Kit Contents:**

- 8090091 – Diagnostic Program USB Drive

- 8290220 – 10 ft RS-232 Diagnostic / Programming Harness

- 8090090 – USB High Speed Serial Adapter Harness

- 9494005 – e-STROKE Bulletin – EB 11-001

- 8290561 – Carrying Case for All Above Diagnostic Components

  NOTE: P/N 9090109 kit is functional with SAE J1939 250 kbs. & 500 kbs. network speeds due to direct connection to ECU.

P/N 9090111 - SAE J1939 Diagnostic Program Kit Contents:

- 8090091 – Diagnostic Program USB Drive

- 8290304 – SAE J1939 Diagnostic Harness, 9-Pin

- 8090097 – USB / CAN Adapter

- 8290239 – Harness, SAE J1939 CAN Adapter

- 9494005 – e-STROKE Bulletin – EB 11-001

- 8290561 – Carrying Case for All Above Diagnostic Components

  NOTE: P/N 9090111 kit is functional with SAE J1939 250 kbs. network speeds ONLY due to diagnostic software limitations.
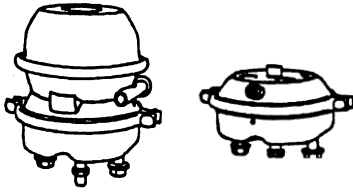
MGM **MGM Brakes**
A Division of Indian Head Industries, Inc.
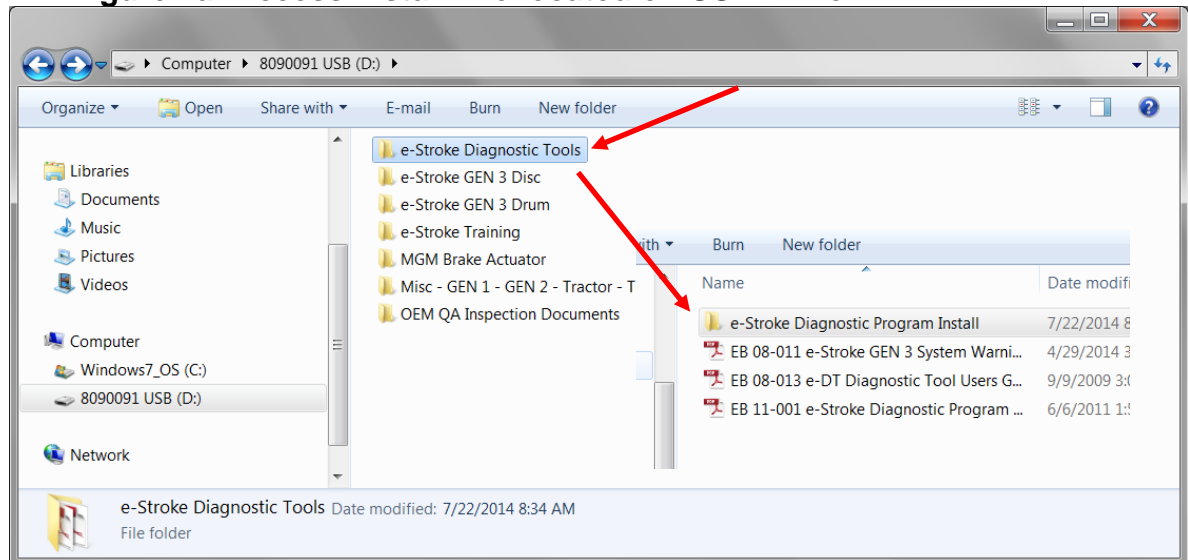# TECHNICAL BULLETIN

SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide
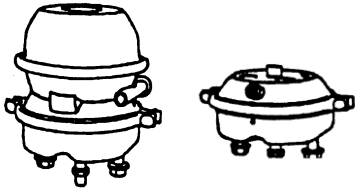

1.0 Program Install Instructions:

> **Note: Follow Section 4 to verify the e-Stroke diagnostic program application file prior to installing.**

1.1. Access the contents of the P/N 8090091 USB Drive on the computer which the program is to be installed.

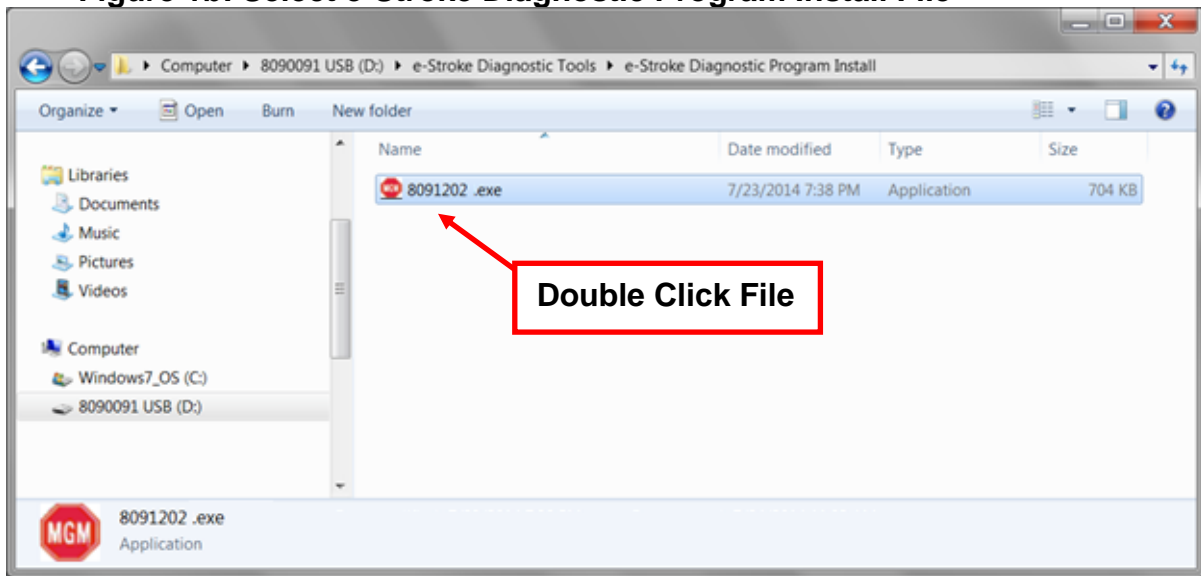**Figure 1a: Access Install File located on USB Drive**
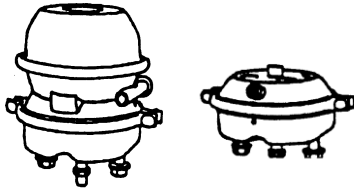
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1.2. Double (left) Click the **8091202** file to begin the installation.

Figure 1b: Select e-Stroke Diagnostic Program Install File
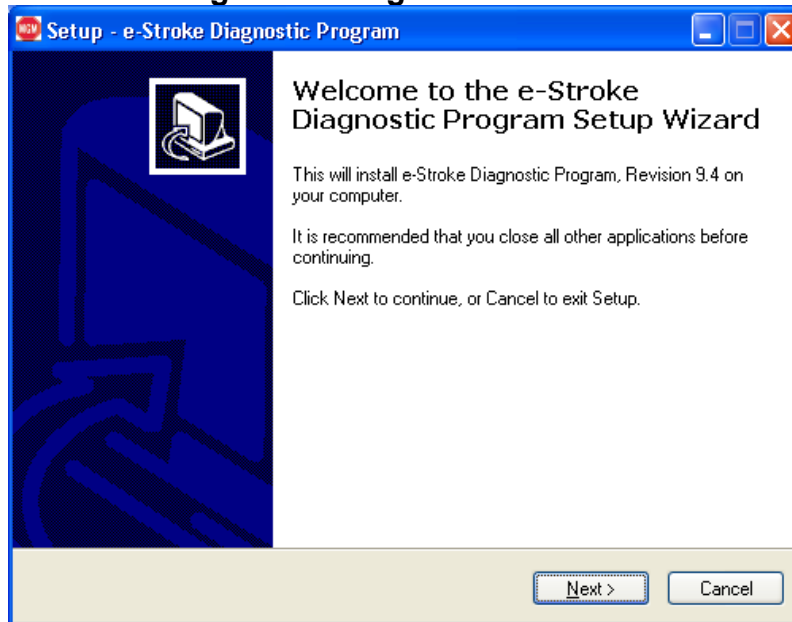

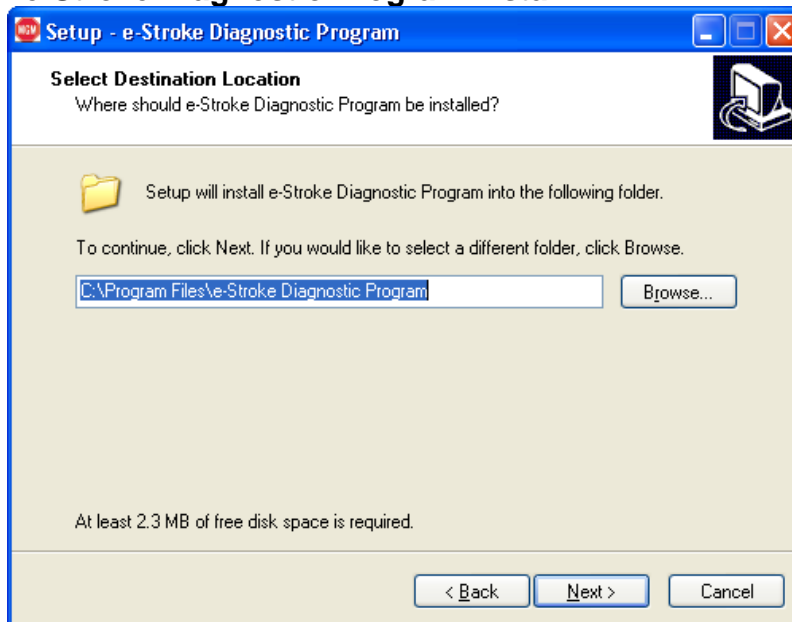**SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide**

1.3. Double (left) Click the *Next* button to Start the Install process.
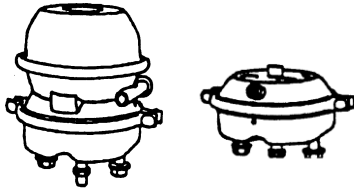
Figure 2: e-Stroke Diagnostic Program Install

1.4. Double (left) Click the *Next* button to accept the default Install Location.
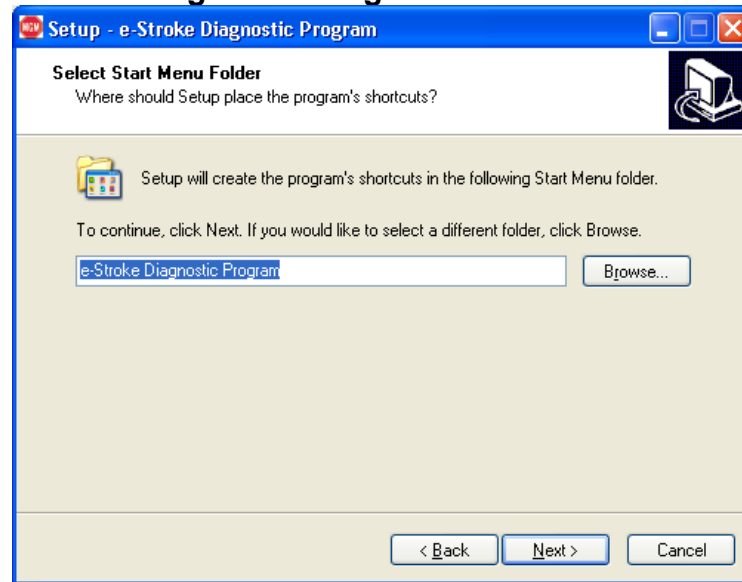
Figure 3: e-Stroke Diagnostic Program Install

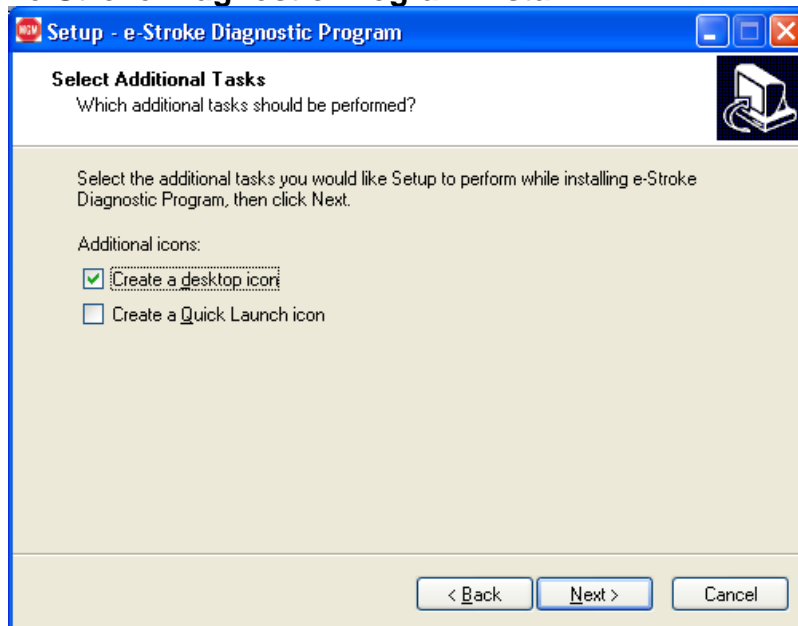**SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide**

1.5. Double (left) Click the *Next* button to accept the default Folder Name.

Figure 4: e-Stroke Diagnostic Program Install

1.6. Check the box next to *"Create a desktop icon"* and Double (left) Click the *Next* button to accept the Additional Task.

Figure 5: e-Stroke Diagnostic Program Install

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1.7. Double (left) Click the *Install* button to continue with the Installation.

Figure 6: e-Stroke Diagnostic Program Install
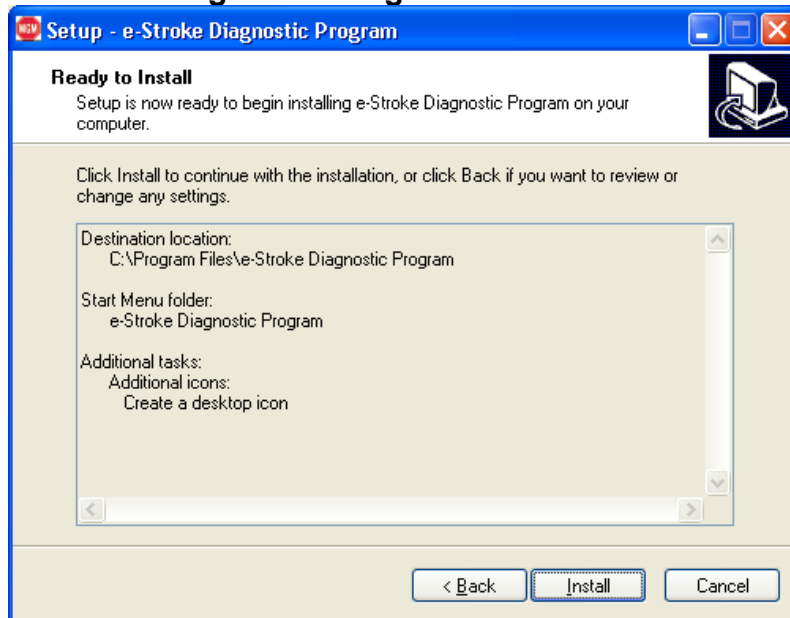
1.8. Double (left) Click the *Finish* button to complete the Install.

Figure 7: e-Stroke Diagnostic Program Install

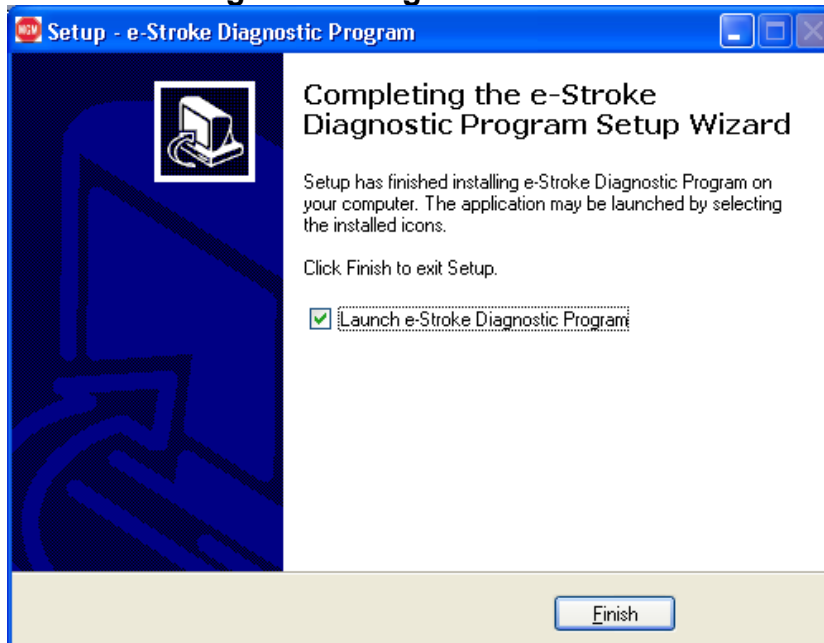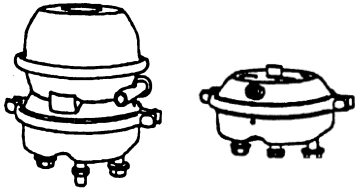**SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide**

2.0 Harness Connections:

   2.1. RS-232 Diagnostic Connection:

      Diagnostic Harness P/N 8290220 connects the computer to the e-Stroke ECU. Plug the White 4-Pin connector into the ECU *P2* connector. Connect the DB9 connector into the computer's serial COM port. See Figure 8 below.

      2.1.1. If a serial COM port is not available, then the USB High Speed Serial Adapter Harness P/N 8090090 must be used. Simply plug the DB9 connectors together, and then plug the adapter harness USB connector into a USB receptacle on the computer.

      2.1.2. P/N 8090090 Follow the manufacturers' instructions to install and configure the Adapter.

Figure 8: RS-232 Diagnostic Harness Connections
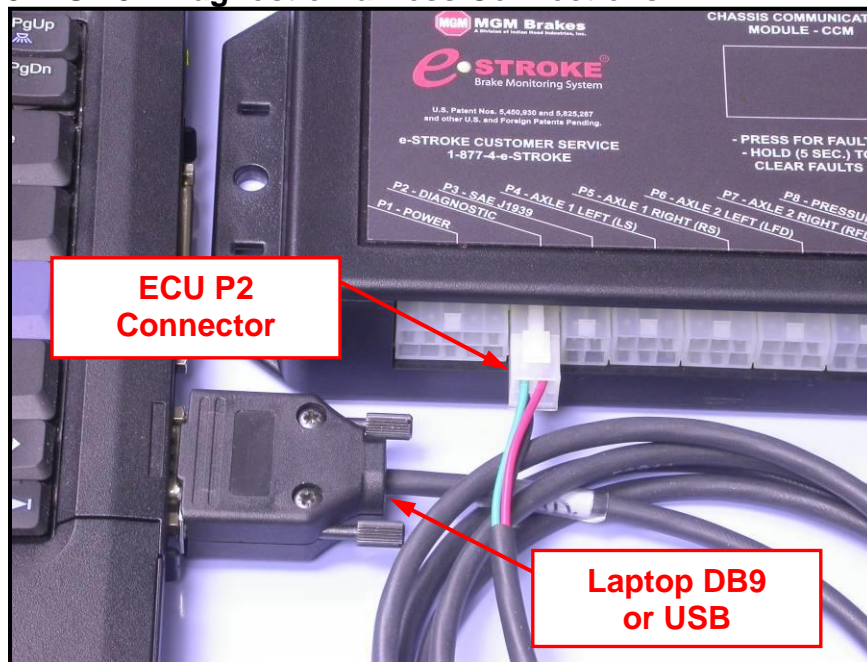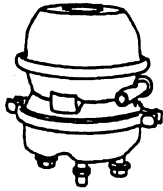
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2.2. SAE J1939 Diagnostic Connection:

Diagnostic Harness P/N 8290304 and Adapter Harness P/N 8090097 connect the computer to the vehicle J1939 Diagnostic Port.

2.2.1. Connect P/N 8290304 Diagnostic Harness to the vehicle 9-Pin Diagnostic Port.

2.2.2. Note: Some vehicles have multiple SAE J1939 networks and may require an adapter. If the Select Port Window does not "*Gray* Out" when connected to the vehicle 9-Pin (Fig. 10-B) then the P/N 8290239 Adapter may be required.

2.2.3. Connect P/N 8290304 Diagnostic Harness to P/N 8090097 Adapter Harness.

2.2.4. Connect P/N 8090097 Adapter Harness to Computer USB Port.

2.2.5. P/N 8090097 Follow the manufacturers' instructions to install and configure the Adapter.

NOTE: The SAE J1939 PCAN diagnostic connection to the Laptop Based Diagnostic Program will NOT be functional for ECU firmware versions 3.26 and higher with 500 kbs. configurations installed in the ECU. In this case, the direct RS-232 connection to the ECU must be used.

3.0 Diagnostic Program Operation:

3.1. Double (left) Click the *e-Stroke Diagnostic Program Desktop Icon* to start the program.

Figure 9: e-Stroke Diagnostic Program Desktop Icon
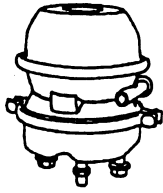
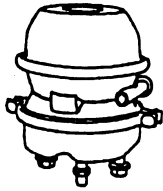**SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide**

3.2. The appropriate COM port must be selected using the *Select Port* drop down window. See Figure 10-A.

  3.2.1. The computer DB9 / Serial connector will typically operate as COM 1 where equipped. Typically, COM 1 for "Tough Book" applications.

  3.2.2. P/N 8090090 USB High Speed Serial Adapter will be assigned a COM port number when connected to the computer. The COM port assigned to the USB Adapter Harness can be looked up in the Device Manager.

  3.2.3. The COM port does not need to be selected when the J1939 connection is used. The *Select Port* drop down window will "Gray Out" when the J1939 connection is active. See Figure 10-B.

Finding COM Port with the Device Manager:

To locate the Computers Device Manager, follow these steps with the USB device plugged in to the computer.

Note: This instruction applies to most Windows applications.

1. Select the **Start Button,** then **Settings**, and then **Control Panel**.
2. Once the Control Panel Window is open select the **System Icon**.
3. Once the System Properties Window is open select the **Device Manager and or Hardware Tab**.
4. With the **Device Manager** open, locate the **Ports (COM & LPT)** item.
5. Left Click the **+ (Cross)** next to "Ports (COM & LPT)".
6. All of the active COM ports will now be displayed with number assignments.
7. Find the COM port which lists the USB Adapter and note the COM number.
8. Reassign COM port number if USB adapter is not assigned COM 1-10.

3.3. **_Update Brake Data_**: **_Press_** the **_Update Brake Data Button_** to acquire and update the brake data. See Figure 10-E.

- Note that each time **_the Update Brake Data Button_** is **_Pressed_** the brake data is refreshed and replaces the previously displayed data.

- The displayed data must be saved if a record is required. Use the slider on the right of the window to navigate the report.

- Service Brake application must be held until Data Update is completed to display Pressure Value.

3.4. **_Clear Brake Data_**: **_Press_** the **_Clear Brake Data Button_** to clear the stored fault code history from the ECU. See Figure 10-F.

3.5. **_Save Report: Press_** the **_Save_** button to save a text report of the brake data. See Figure 10-C.

3.6. **_Print Report:_** The displayed brake data can also be printed by **_Pressing_** the **_Print_** button. See Figure 10-D.

- Note: Saved and Printed Brake Data will include a Date and Time Stamp at the beginning of the report.
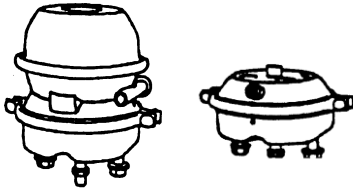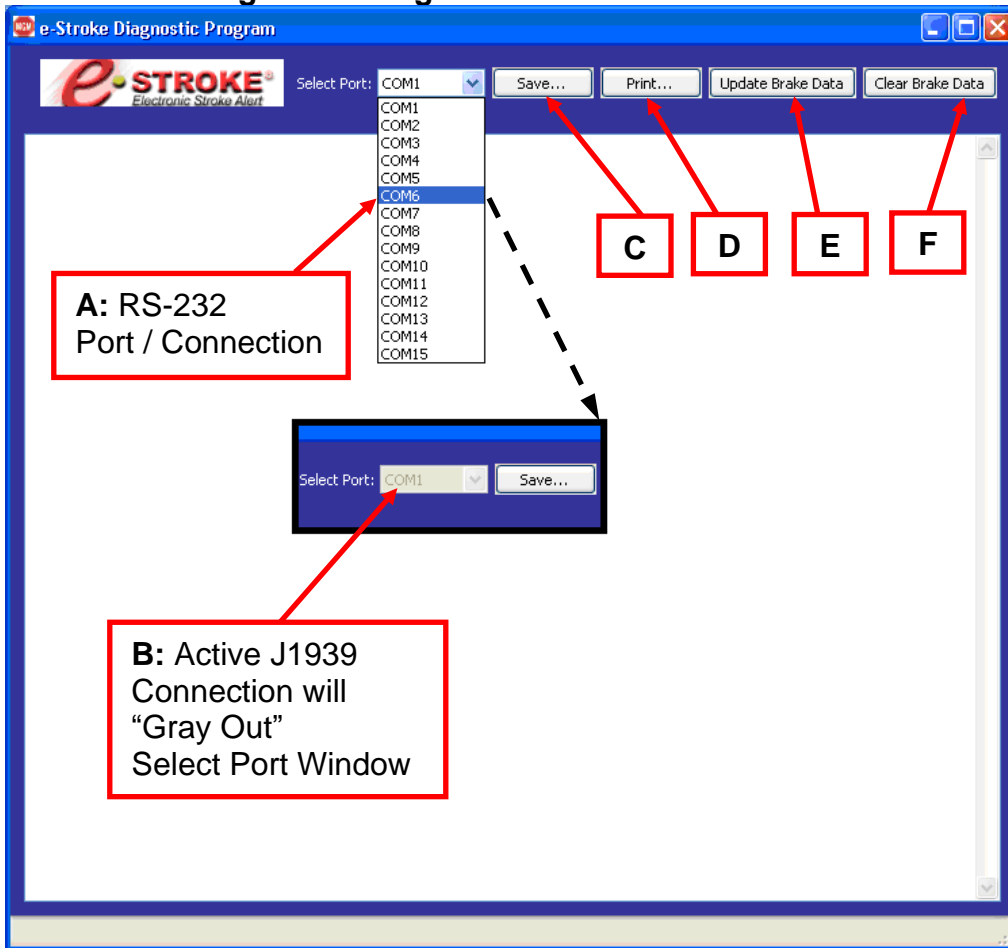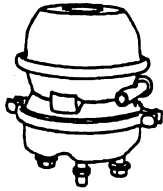
SUBJECT: EB 11-001 e-Stroke Diagnostic Program Users Guide

Figure 10: e-Stroke Diagnostic Program Interface

A: RS-232 Port / Connection

B: Active J1939 Connection will "Gray Out" Select Port Window
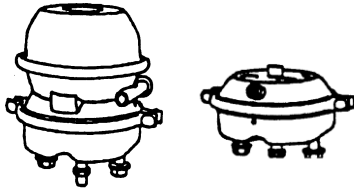
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3.7. The e-Stroke Diagnostic Program has only one display window which provides the following e-Stroke Brake & System information. See Figures 11, 12.

- **ECU / System Information -** *ECU Serial Number, Software Version Number, ECU Type, Pressure Scale.*

- **System Configuration -** *Axles with Brake Stroke Sensors, Axles with Lining Wear Sensors (Drum / Disc).*

- **Active Brake Status** – *Displays Current Active Brake Status & Disc Caliper Lining Clearance Status (Over-Tightened Lining).*

- **Stored Brake Fault History** – *Displays Non-Current Stored Fault Counts for Brake Status.*

- **Active Lining Wear Status** *- Displays Current Active Lining Status.*

- **Stored Lining Wear Fault History** – *Displays Non-Current Stored Fault Counts for Lining Sensors*

- **Brake Application Pressure** *- Displays Current Brake Application Pressure which is present as the data is updated.*

- **Stored Pressure Transducer Fault History** – *Displays Non-Current Stored Fault Counts for Pressure Transducer.*

- **SAE J1708 / J1939 Status** – Displays status of SAE J1708 and J1939 connections when RS-232 connection is used.

  Note: When SAE J1939 is used for the diagnostic program connection, it is assumed that J1939 is operational, and this status is not displayed.

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Figure 11: Diagnostic Information Display

e-Stroke Diagnostic Program

e-STROKE
Electronic Stroke Alert   Select Port: COM6   Save...   Print...   Update Brake Data   Clear Brake Data

```
Serial Number                                    3330003233
Software Version Number                          3.25
Axles with drum brake stroke sensors             None
Axles with disc brake stroke sensors             1, 2,
Axles with wire loop brake lining wear sensors   None
CCM Type                                         Truck / Bus
Pressure Scale                                   100 PSI

Brake actuator stroke status:
    Brake Stroke Axle 1 Left        Over-Stroke
    Brake Stroke Axle 1 Right       OK (Normal Operation)
    Brake Stroke Axle 2 Left        OK (Normal Operation)
    Brake Stroke Axle 2 Right       OK (Normal Operation)

Brake stroke fault occurrence counts:
    Brake Stroke Axle 1 Left
        Overstroke (FMI 0)          1
        Non-functioning (FMI 1)  0
        Sensor Error (FMI 4)        0
        Dragging Brake (FMI 7)  0
        Low Lining Clearance (FMI 13)  0
    Brake Stroke Axle 1 Right
        Overstroke (FMI 0)          0
        Non-functioning (FMI 1)  0
        Sensor Error (FMI 4)        0
        Dragging Brake (FMI 7)  0
        Low Lining Clearance (FMI 13)  0
    Brake Stroke Axle 2 Left
        Overstroke (FMI 0)          0
        Non-functioning (FMI 1)  0
        Sensor Error (FMI 4)        0
        Dragging Brake (FMI 7)  0
        Low Lining Clearance (FMI 13)  0
    Brake Stroke Axle 2 Right
        Overstroke (FMI 0)          0
        Non-functioning (FMI 1)  0
        Sensor Error (FMI 4)        0
        Dragging Brake (FMI 7)  0
        Low Lining Clearance (FMI 13)  0
```
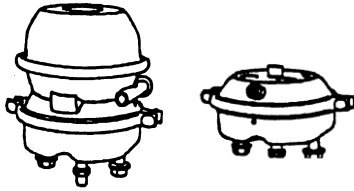
ECU / System / Configuration Information

Active Brake and Caliper Lining Clearance Status

Stored Brake Fault History

PCAN Adapter Initialized
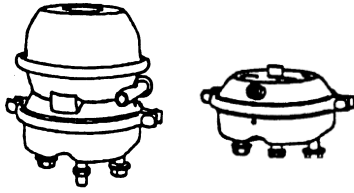
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Figure 12: Diagnostic Information Display

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4.0 Diagnostic Program HASH File Check Instruction:

4.1. The e-Stroke diagnostic program application file should be verified to ensure it has not been altered by checking the HASH file number prior to installing.

4.2. Download the file to a location on your disk drive ie.. c:\temp\

4.3. Open a command prompt and enter the following commands:

Type   →   ***cd c:\temp***   →   *then press Enter*

Type / Copy →

certutil -hashfile "8091202 rev. 03 v10.293.exe" sha512

→   *then press Enter*

4.4. The command prompt will provide a HASH output number as shown in Figure 13.

4.5. Verify that the HASH number provided in the command prompt matches the following number for "8091202 rev. 03v10.29.exe"

***3334e2c13bd4b65d92b50321cd8e22792122bb303360c4316f2405c74d27d
30f4a748990f802de3ca473b8f64f9c365c076cfd4519501272706da3333ee2f
4390***

**HASH NUMBER
NEEDS TO MATCH**

Figure 13: Command Prompt HASH Example

```
Command Prompt                                              —   □   ×
c:\Temp>cd c:\deployment

c:\deployment>cd c:\temp

c:\Temp>certutil -hashfile "8091202 rev. 03 v10.293.exe" sha512
SHA512 hash of 8091202 rev. 03 v10.293.exe:
334e2c13bd4b65d92b50321cd8e22792122bb303360c4316f2405c74d27d30f4a748990f802de3ca473b8f64f9c365c076cfd4519501272706da3333ee2f4390
CertUtil: -hashfile command completed successfully.

c:\Temp>
```