I S TECHNOLOGY SOLUTIONS

BRAKE PRO TRANSIT™

AUTOMATIC SINGLE CAR TESTING DEVICE
FOR TRANSIT RAIL CARS

FOR TESTING AS REQUIRED BY
THE AMERICAN PUBLIC TRANSPORATION ASSOCIATION

OPERATING MANUAL

VERSION 2016-02

DESIGNED AND PRODUCED BY:

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Operating Instructions

Introduction

The Brake Pro Transit™ is an automated single car testing device that enables all operators to perform transit car brake testing to APTA standards. The BRAKE PRO TRANSIT™ does this by walking the operator through the test, and basing the testing parameters on the car type.

The Brake Pro Transit™ initially requires the operator to select the type of car to be tested, based on the car types provided by the Operating Authority. Once the car type is selected, the software will automatically formulate the correct parameters to test the brakes completely and accurately. Throughout the remainder of the test procedure all display screens are self-prompting for ease of use. Any required entries will be clearly prompted so the operator knows what to do next. In the case of PASS/FAIL questions asked of the operator, the passing option is shown in green and the failing option in red.

Charging the Brake Pro Transit™ and Tablet

The Brake Pro Transit™ single car testing device is equipped with an external GFCI charging cable. Please take precaution when charging the Brake Pro Transit™ in standing water or rain. Directly handling electrical cables when in direct contact with water is not suggested. To charge the Brake Pro Transit™, simply follow the steps below.

1. Insert the black GFCI plug into any 110V outlet.
2. To begin charging, push the RESET button located on the GFCI plug.
3. A red light will appear on the main face of the Brake Pro Transit™ indicating the unit has begun charging.
4. Once the unit has reached a full charge, the aforementioned light will change to green.
5. When fully charged, the Brake Pro Transit™is capable of running for up to 10 hours. If, however, the battery runs down to an unacceptable voltage, the Brake Pro Transit™ may experience difficulties communicating with the handheld tablet or operating the internal components. If communication problems are experienced, charging the Brake Pro Transit™ is recommended.

The Brake Pro Transit™ unit comes with a handheld tablet for operating the device. The tablet runs on a rechargeable battery that needs to be maintained in order to operate properly. To charge the tablet, follow the steps below.

1. Plug the black charger, included with the shipment, into any standard 110V outlet.
2. Plug the round end of the charger into the charging port. This is found underneath the tab on the left edge of the tablet.
3. The tablet will display a green light next to the battery icon on the right edge of the tablet if all connections are correct.

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Charging Port

Power Button

Lock Icon
(Slide Right)
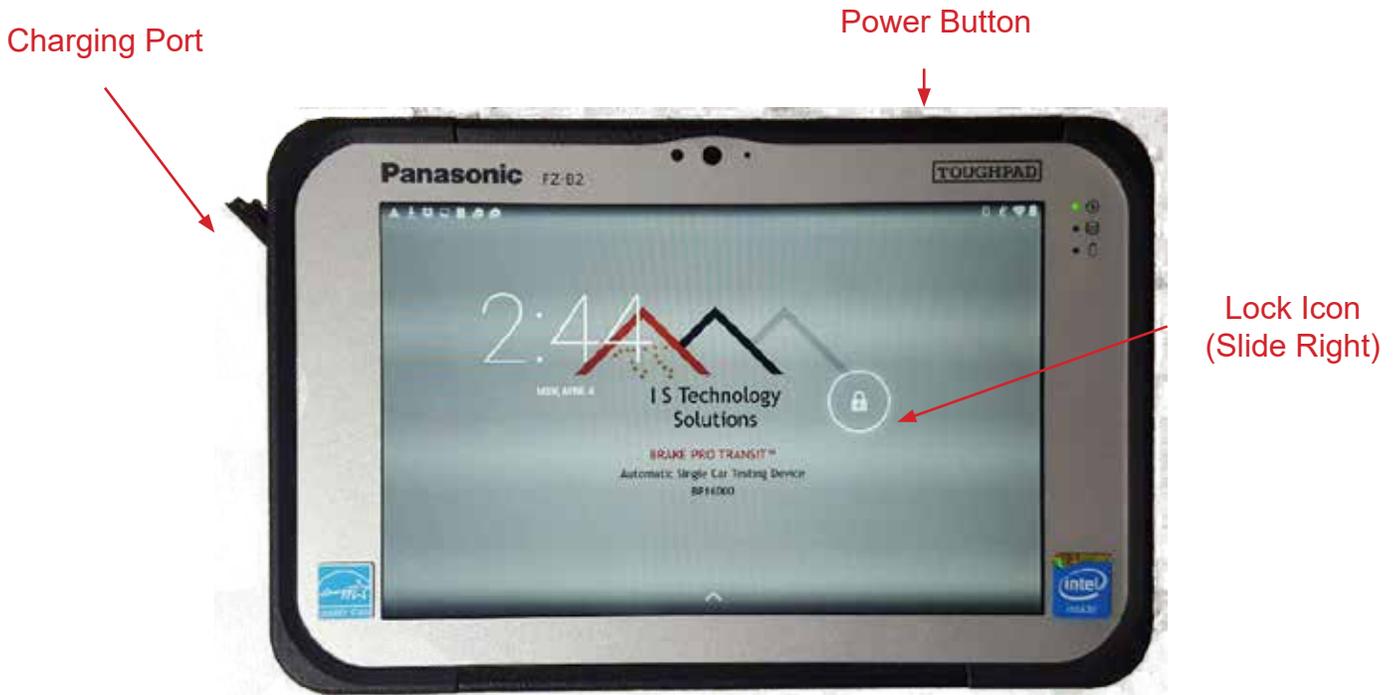
Panasonic ToughPad®

Additional Handheld Tablet Information

Turning Tablet On and Off

To put the tablet into Standby mode, press and quickly release the Power Button once. This will put the tablet into Standby morede, which turns off the screen, but does not shutdown the tablet. This can be used to temporarily preserve battery life.

To completely shutdown the tablet, press and hold the Power Button until prompted to confirm the shutdown of the device. This will completely power down the tablet. Powering down the tablet is recommended when it will not be used for prolonged periods to preserve battery life.

To unlock the tablet and access the applications, slide the Lock icon to the right.

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Preparing to Test

NOTE: A coalescing filter MUST be used when operating the Brake Pro Transit™. Failure to do so will increase the chance of contamination damaging the internal electronic components. Contamination is NOT covered by warranty.

IMPORTANT SAFETY NOTICE: Quick connect fittings must always be used in accordance with good practice and the instructions and regulations of the manufacturer and your employer. Always ensure connecting fittings are firmly and properly engaged, locked in place, and cannot accidentally become disengaged. An improperly installed fitting may be dangerous and could cause serious injury or death if it becomes disengaged while pressurized. I S Technology Solutions does not accept responsibility for the installation of improper fittings or the misuse of fittings.

Attaching Air Hoses for the Daily Test

To prepare for the Daily Test:

1. Connect the coalescing filter to the SUPPLY fitting on the Brake Pro Transit™.
2. Connect the shop air supply hose to the coalescing filter. Supply must be greater than the Operating pressure (90psi or 110psi).
3. Connect the **BLACK** Brake Pipe hose with Gladhand to the Brake Pipe fitting on the Brake Pro Transit™.
4. Connect the **BLACK** Brake Cylinder hose to the Brake Cylinder (P) fitting on the Brake Pro Transit™.
5. Connect the **BLUE** Relay Exhaust Hose to the Relay Exhaust fitting on the Brake Pro Transit™.
6. Connect the **GREEN** 10 Port Exhaust Hose to the 10 Port Exhaust fitting on the Brake Pro Transit™.
7. Connect the **RED** Main Reservoir Hose to the Main Reservoir fitting on the Brake Pro Transit™.
8. Insert the Dummy Coupling with Pressure Taps into the Brake Pipe Gladhand.
9. Connect the Brake Cylinder Hose, Relay Exhaust Hose, and 10 Port Exhaust Hose to the pressure taps on the dummy coupling.
10. Inser the L-Type dummy coupling into the Main Reservoir Hose Gladhand.
11. Run the Daily Test on the application.
12. When finished, disconnect the hoses from the dummy coupling pressure taps. Remove the dummy couplings from the Brake Pipe and Main Reservoir Gladhands.

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Attaching Air Hoses for the Single Car Test

To prepare for the Single Car Test:

1. Connect the coalescing filter to the SUPPLY fitting on the Brake Pro Transit™.
2. Connect the shop air supply hose to the coalescing filter. Supply must be greater than the Operating Pressure (90psi or 110psi).
3. Connect the **BLACK** Brake Pipe hose to the Brake Pipe fitting on the Brake Pro Transit™ and the F-Type gladhand to the gladhand of the car to be tested.
4. Connect the **BLACK** Brake Cylinder hose to Brake Cylinder (P) fitting on the Brake Pro Transit™ and the other end to the pressure tap on the car to be tested.
5. Connect the **BLUE** Relay Exhaust hose to the Relay Exhaust fitting on the Brake Pro Transit™ and the other end to the relay exhaust tap on the car to be tested.
6. Connect the **GREEN** 10 Port Exhaust hose to the 10 Port Exhaust fitting on the Brake Pro Transit™ and the other end to the 10 Port exhaust tap on the car to be tested.
7. Connect the **RED** Main Reservoir hose to the Main Reservoir fitting on the Brake Pro Transit™ and the L-Type gladhand to the gladhand of the car to be tested.
8. If applicable, connect the **YELLOW** Air Spring hose to the Air Spring fitting on the Brake Pro Transit™ and the other end to the Air Spring pressure tap on the car to be tested.
9. Do NOT yet install the Dummy coupling on the gladhands at the other end of the car. You will be instructed to do so by the application after starting the test and checking for Brake Pipe and Main Reservoir Pipe blockage.
10. Run the Single Car Test on the application.

Brake Pro Transit™ Home Screen

Brake Pro Transit™ App

Settings

All Apps

Back Button

Home Button

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Running the Brake Pro Transit™ Application

NOTE: It is important to turn on the Brake Pro Transit™ testing device BEFORE starting the Brake Pro Transit™ application. This will ensure that the devices pair and connect easily the first time.

Do NOT turn the Brake Pro Transit™ testing device on, or leave it on for long periods of time, without a supply of pressurized air to the device. Leaving the device on for long periods without a supply of pressurized air can permanently damage the electronic regulator.

Tap the Brake Pro Transit™ icon on the home screen. The program will start and ask for your Operator ID. Enter what your company has chosen to use for Operator IDs, and the Main Menu will appear.
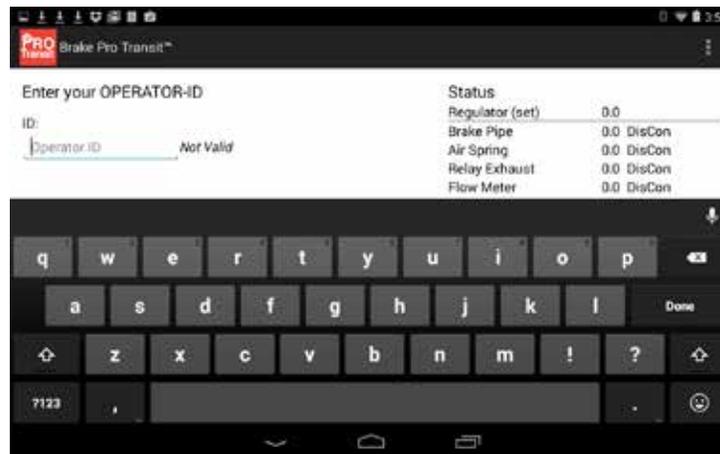
If the error screen entitled "Error - bluetooth disconnected" appears, it can usually be resolved by exiting; tap the home button in the bottom left of the screen, and restart the Brake Pro Transit™ app. If the problem persists, the tablet may need to be re-paired with the Brake Pro Transit™.
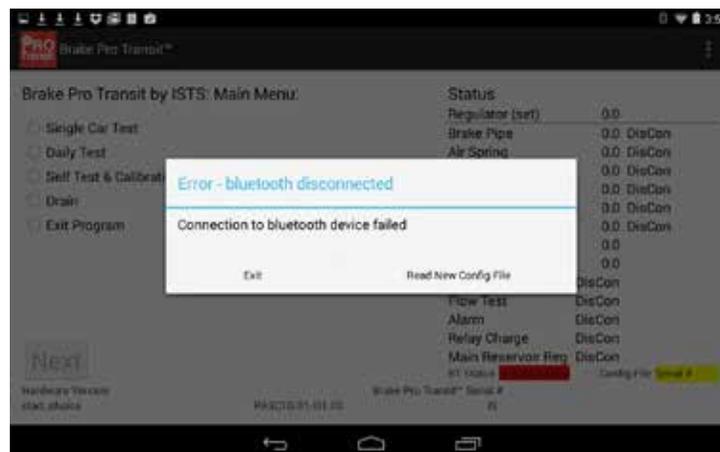
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Re-Pairing the Tablet

Every Brake Pro Transit™ is paired with its tablet and tested before shipping to the customer, but occasionally they may need to be re-paired. To re-pair, tap the menu button (3 vertical dots) in the upper right corner of the Brake Pro Transit™ application, and choose Restart Bluetooth. This should cause the application to re-pair with the Brake Pro Transit™.

If restarting the bluetooth from within the app does not solve the problem, check to see that both devices are paired in the Settings Menu.

To open Settings, tap the Settings app on the Home Screen.
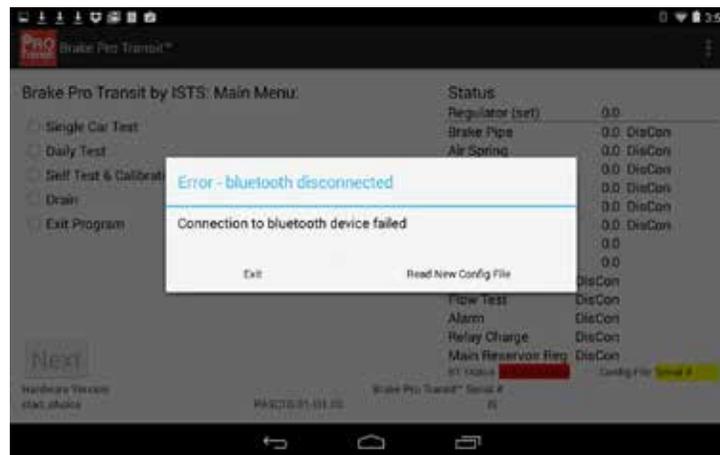
If the Brake Pro Transit™ Bluetooth name is shown as Paired, then repeat the previous steps, starting with loading the Brake Pro Transit™ application. If the Brake Pro Transit™ is not shown as paired, tap SEARCH FOR DEVICES in the upper right corner. Once the Brake Pro Transit™ appears in the list of Available Devices, tap it. It will ask you to enter a Passcode. The code is 1234. Once the devices have paired, return to the previous step and restart the Brake Pro Transit™ application.

If you cannot get the devices to pair and connect, contact I S Technology Solutions Customer Service at (855) 620-5200.

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Screen Brightness

Your tablet will come with Auto-Brightness selected to conserve battery life. To adjust the brightness, go to Settings, then Display, then Brightness and adjust as necessary.
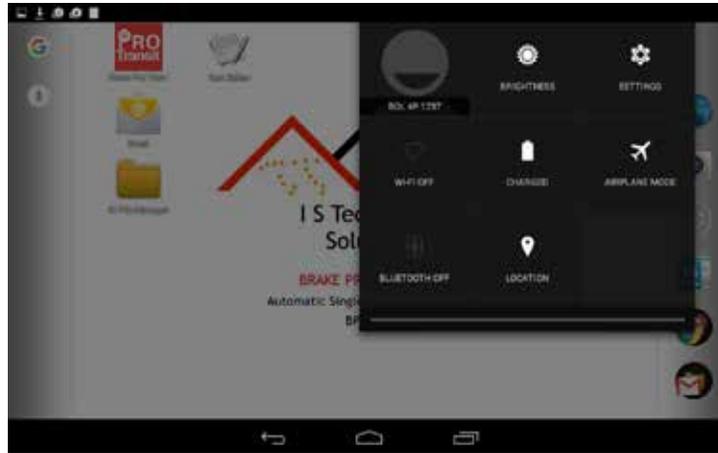
Once the Brake Pro Transit™ application has started and connected to the testing device, and an Operator ID has been entered, the Main Menu will appear. The Bluetooth Status in the lower right column will read Connected in green.

The Main Menu choices are:

Single Car Test: runs the APTA PR-M-S-005-98, Rev. 2.1 Single Car Test (will not run if the Daily Test has not been passed in the last 24 hours)

Daily Test: runs the Daily Test required to validate the machine before running the Single Car Test. A successful Daily Test is valid for 24 hours.

Self Test & Calibration: for I S Technology Solutions use only

Drain: drains the Brake Pro Transit™ of pressurized air

Exit Program: exits the application
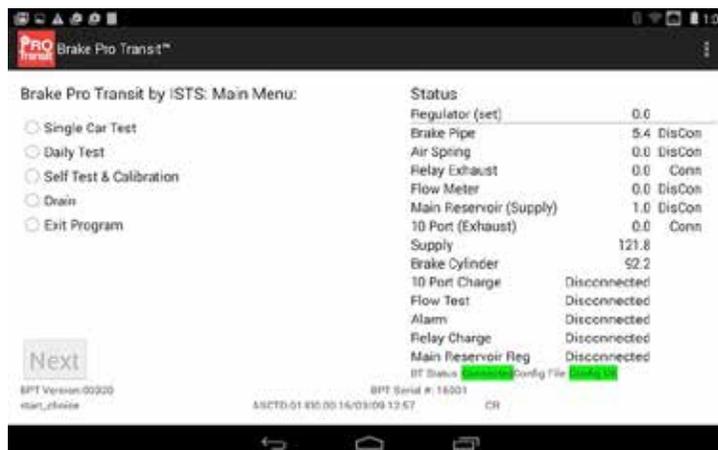
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Screen Layout

The tablet can be used in either landscape (horizontal) or portrait (vertical) mode to run the test. It CANNOT change between the two options during the test. Your tablet will come locked in landscape mode. If you would like to change to portrait, you can do so in Settings/Display/Auto-rotate screen.

The left side of the screen will give the operator step-by-step instructions. The right side is a column showing the various gauge readings and switch settings.

Running the Single Car Test
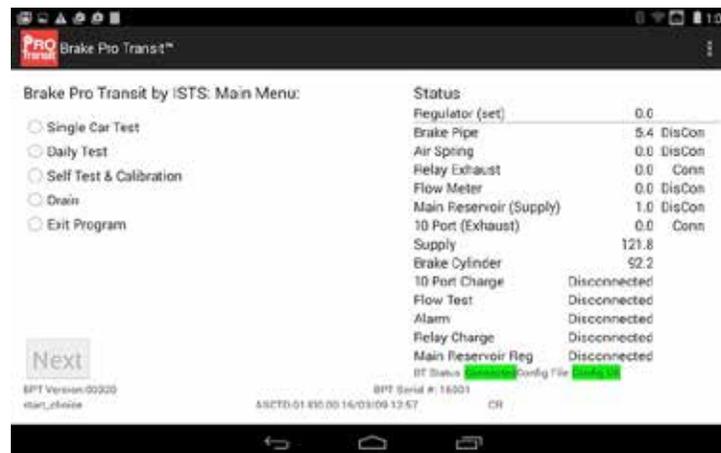
Select Single Car Test and press NEXT to continue.

The program will prompt the operator through a few setup steps.

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The Operator will then be prompted to enter the Car Model on the following screen.
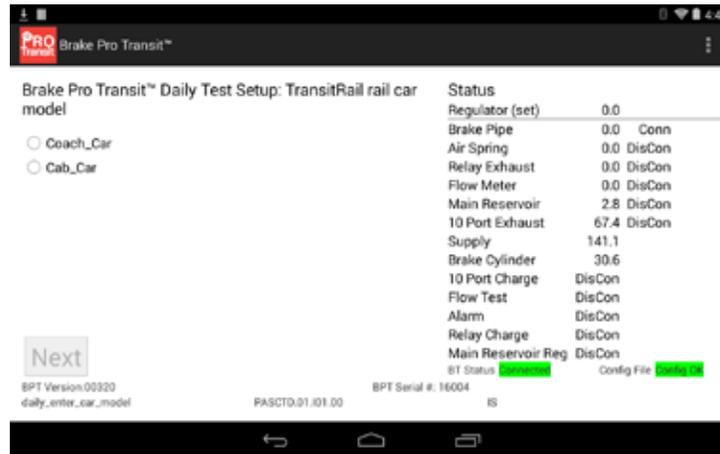
Once the car model has been selected, the program will guide the operator through setting up the device for the test, including making all hose connections.

The program checks to see if the Daily Test has been passed in the last 24 hours. If it has, it will allow the operator to continue with testing. If the Daily Test has not been passed, it will prompt the operator to run the Daily Test or return to the Main Menu.
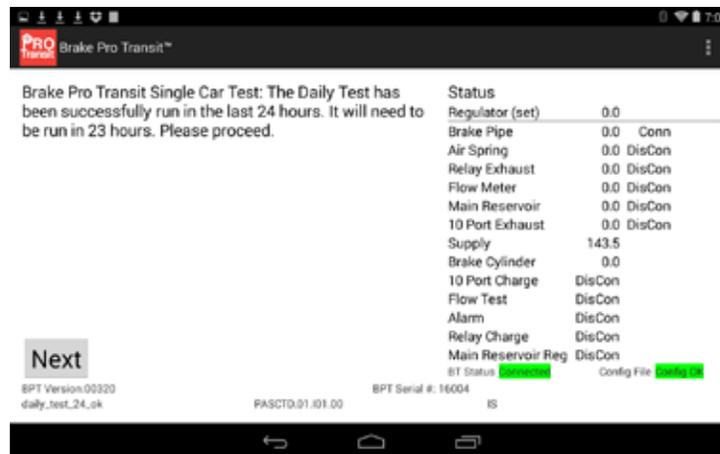
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The program will continue to the Car Setup Screen. Here the operator will need to enter the Car Serial Number. All other information will be populated from the parameters for the car model given by the operating authority.


With Car Serial# selected, press NEXT to enter the number. The program will validate the number. Valid numbers include 2-4 alpha characters followed by 4-6 numerals with no space in between.
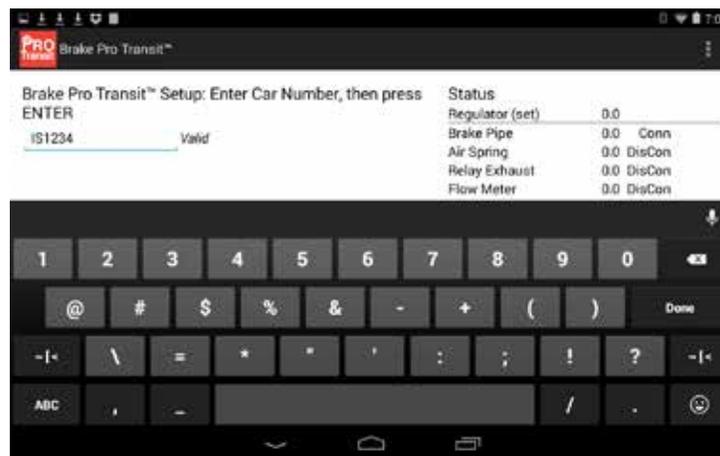
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Next the program will prompt the operator for the testing reason, COT&S or End Date.
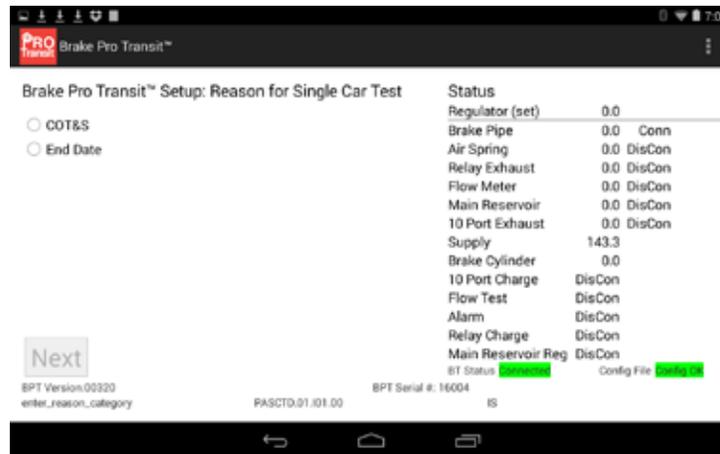
Once all necessary information has been entered, it will have the operator review the information before proceeding. Select All Correct and press NEXT to continue.
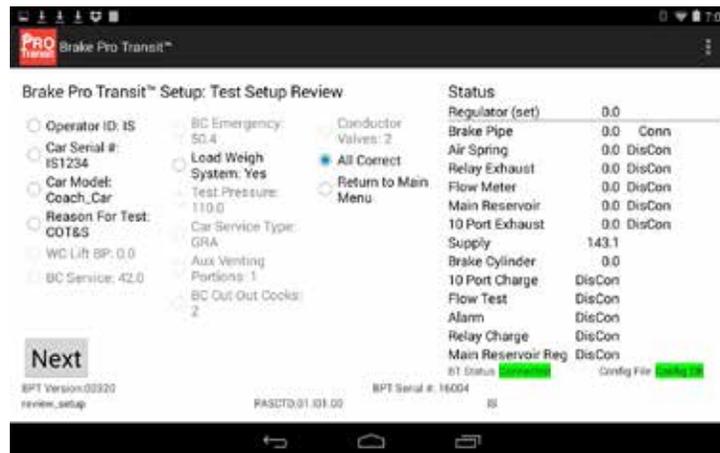
The Single Car Test Menu will now appear. The operator can Run All Tests in Order or enter a specific section of the test.

Once the operator has made a selection, press NEXT to continue with testing.

NOTE: The order of the initial steps is slightly different than the manual testing version. This has been done to save the operator time walking to other end of the car and back.

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Manual Control Program

The Brake Pro Transit™ can be completely manually controlled. You can access this by pressing the menu button (3 vertical dots) in the upper right of the screen. When the dropdown menu appears, select Manual Control.


Manual Control Functionality:

Valves: to turn solenoids on and off, touch the appropriate On/Off button next to the desired valve

Regulator: to set the regulator to a specific pressure, enter the pressure and press GO

Rate Curve: to run a rate curve, select the desired reduction rate, enter the ending pressure, and select GO

Press Previous to exit Manual Control

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Connecting the Tablet to a WiFi Network

Open the Settings Menu by clicking the Settings app on the Home Screen. Click Wi-Fi.

Make sure that Wi-Fi is set to ON. Click the network you would like to join in the right hand column. If a password is required, a popup menu will appear and prompt you for a password. Enter the password and the tablet will connect to the Wi-Fi network.

Printing and Transferring Reports

At the conclusion of each Daily Test and Single Car Test a .txt report file is generated with the results. Daily Tests are appended onto the existing file, while Single Car Test Reports are put into files by car number. A car with existing tests will have those reports appended to the existing file.

To find the report, open the OI File Manager app found on the home screen.
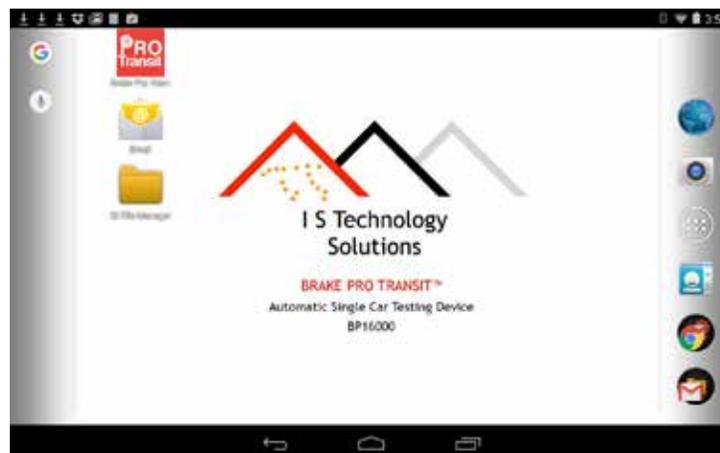
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The app will open to the SD Card directory. Under SD Card you will see a Download folder.

Tapping the Download folder will reveal the ISTechSol folder.

Tapping the ISTechSol folder will show all of the available reports.
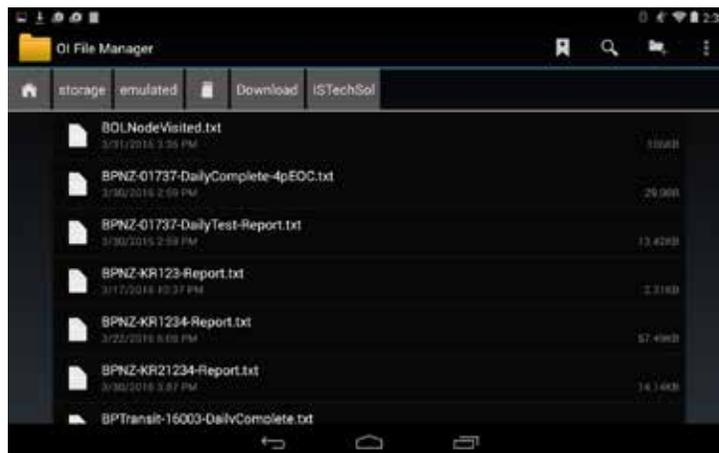
Tapping the name of the file will bring up a menu. Selecting HTML Viewer will allow you to see it on the screen. When you are done, tap the back arrow in the lower left corner of the screen to close the report.

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Transferring Reports

Transferring reports from the tablet to the office network can be done in several manners.

Email Transfer

Each tablet is shipped with a Google Gmail account set up. To email a report, the tablet must be connected to a WiFi network. To send a report:

1. Locate the file in the OI File Manager app as described above.
2. Press and hold the name of the file. A menu will appear across the top.
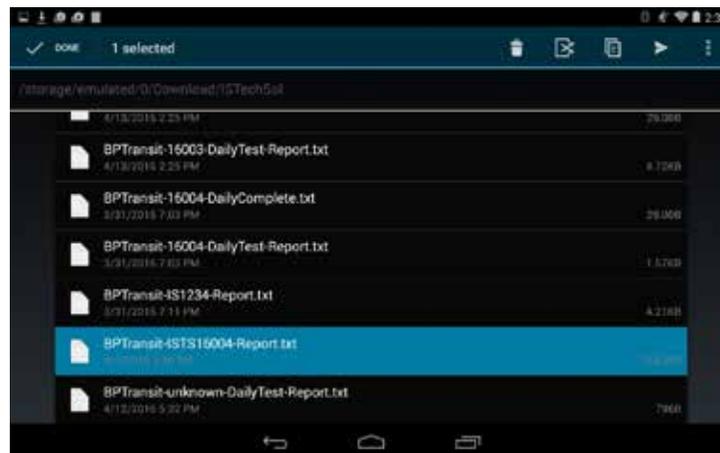
3. Tap the Send (airplane) icon in the upper right corner. Another popup menu will appear. Select Email.
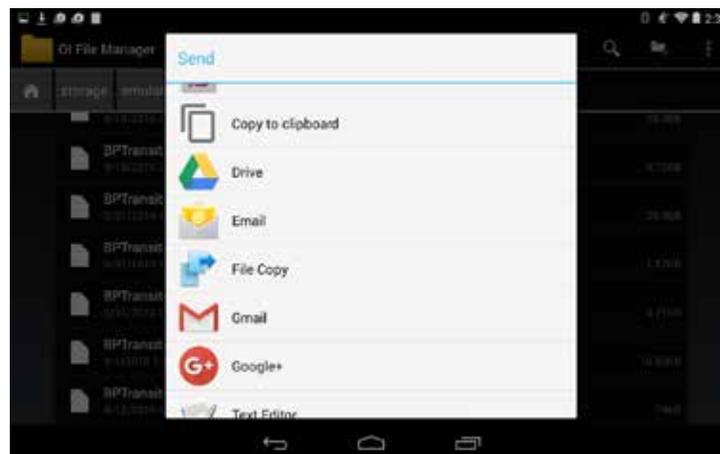
4. Gmail will create an email with the selected reports as the attachment. Type in the recipient's email address, and click SEND in the upper right corner. Email addresses will be remembered, so that when the operator begins typing in future emails, the app will show available addresses.

Automatic Emailing

You can also set up your preferences to automatically send an email upon completion of the test. This will send an email with the test to the same email address.

1. In the Brake Pro Transit™ program, tap the menu button (3 vertical dots in upper right corner)
2. Tap Preferences on the drop-down menu.
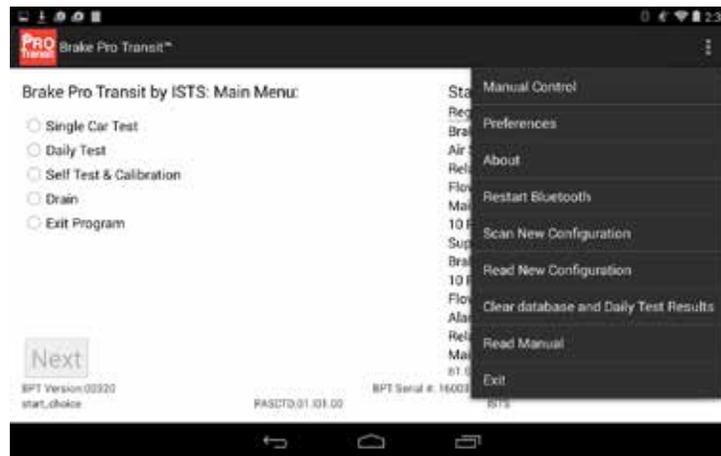
3. Tap the Email Address button that appears.

4. A popup window will appear. Enter the email address where you want test reports sent and press OK. The device will now automatically generate an email to that address at the conclusion of every test.
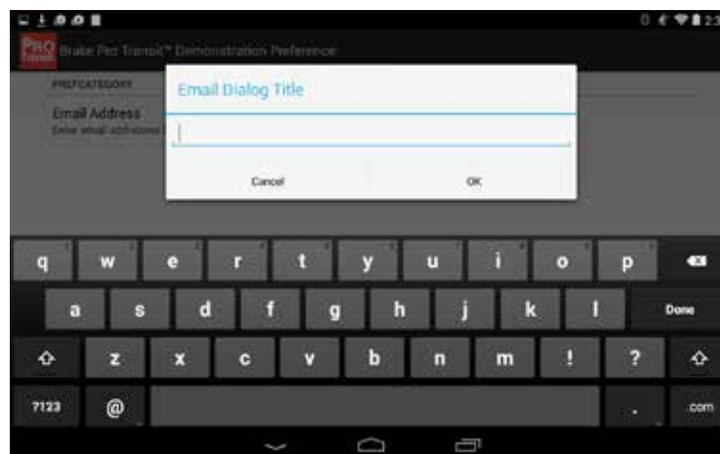
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USB Transfer

On the right edge of the tablet, underneath a tab, is a USB port. A flex drive can be plugged into this drive for file transfer. Plug a flex drive into the port, then navigate to the appropriate report in OI File Manager, then press and hold the name of the file. An icon for Copy will appear at the top.
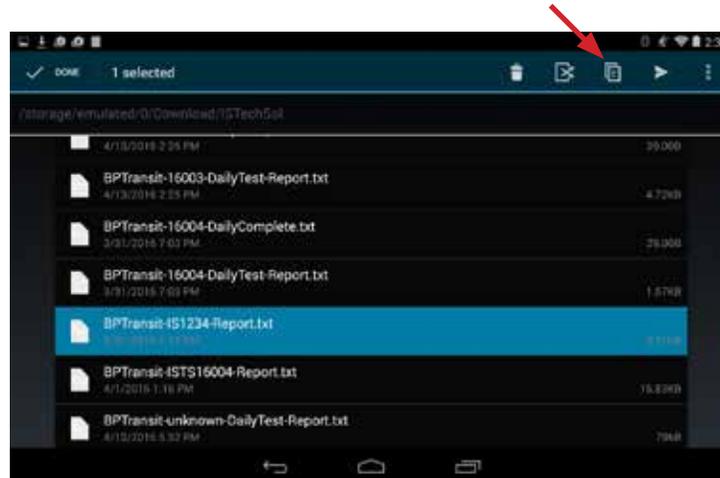
Navigate to the Storage\USB 1 location and select PASTE. The report is now copied to the flex drive. The flex drive can be removed from the tablet and plugged into a computer to complete the file transfer.

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Viewing the Manual on the Device

This functionality has not yet been included for the Brake Pro Transit™.

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Warranty

The following warranty information is the total of the liability that IS TECHNOLOGY SOLUTIONS accepts for the Brake Pro Transit™ and its use. Please read the following carefully, as it is the only agreement between IS TECHNOLOGY SOLUTIONS and the Buyer in connection with warranty claims. The buyer agrees with the terms of this document by placing the device into service and using it in production. If the Buyer does not accept the terms, the device should not be placed into service.

1. Soundness of design and construction. IS TECHNOLOGY SOLUTIONS, an Illinois corporation, conceives, designs, assembles and distributes computer-controlled systems (SYSTEM) for testing railway braking apparatus on rail vehicles. It is not intended for use on any vehicles other than railway vehicles. Using it on any other vehicle or installation may void this warranty, and IS TECHNOLOGY SOLUTIONS accepts no responsibility for the safety or the performance of the testing or the results thereof or the suitability for the task.
2. The sequencing of the events of the tests and the test limits have been described and formulated by others, including the APTA, the individual railroads and repair facilities where our apparatus might be used and governmental regulating bodies having jurisdiction of such activities. IS TECHNOLOGY SOLUTIONS has designed a system and provided operating software that conforms to these standards and lacks the authority to do otherwise.
3. The equipment delivered by IS TECHNOLOGY SOLUTIONS conforms to these standards as of the time of its delivery and thereafter only if the condition and adjustment of the system remains as it was when delivered. Tampering, adjusting or negligent use and handling might cause these adjustments to vary, and IS TECHNOLOGY SOLUTIONS accepts no responsibility for such variations or deviations. IS TECHNOLOGY SOLUTIONS provides the facility for checking and verifying these adjustments and requires that they be used as specified in order that this warranty remains in effect. Certain instructions are included in the operating manual and on the visible enclosures. Failure to follow these instructions may result in voiding or lapsing of this warranty.
4. This SYSTEM includes products and equipment manufactured by third parties that are not under the control of IS TECHNOLOGY SOLUTIONS. Some of these items may contain warranties that are the work of these third parties, and separately determine the warranty responsibilities for these parts and components. The warranty periods of these third parties may be shorter than the warranty period set by IS TECHNOLOGY SOLUTIONS and shall take precedence over IS TECHNOLOGY SOLUTIONS' warranty responsibilities. Notwithstanding the fact that third party warranty periods may be shorter than those of IS TECHNOLOGY SOLUTIONS, IS TECHNOLOGY SOLUTIONS agrees to work diligently toward negotiating with the third parties for extended warranty coverage in cases where no negligence or mishandling are evident.
5. IS TECHNOLOGY SOLUTIONS' warranty does not extend to the braking equipment or the vehicles. Our apparatus can only determine that as of the time it was used, the condition of the brake equipment was as found by the IS TECHNOLOGY SOLUTIONS system, subsequent deterioration, abuse, maladjustment or wear and tear may cause this to change. IS TECHNOLOGY SOLUTIONS makes no warranties that the condition of the brake equipment as found shall remain so. Due diligence is required of the owner or custodian of the SYSTEM to ensure that its conditions of accuracy and adjustment remain substantially comparable to the condition as originally shipped by IS TECHNOLOGY SOLUTIONS.

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6. I S TECHNOLOGY SOLUTIONS warrants that the intellectual contribution made to the system (commonly referred to as "software") fairly tests said brake equipment and evaluates it to the standards published by the entities listed above in paragraph 2. If any findings to the contrary are found within three years from delivery by the Buyer, then I S TECHNOLOGY SOLUTIONS will correct or replace the defective section or part at no further cost to Buyer. In the case of software found defective or incorrect, I S TECHNOLOGY SOLUTIONS shall deliver to buyer within a reasonable time, a corrected section of the software to the place where it will be used, and provide instructions for its installation and use.

7. If any mechanical or electrical part or component is found to be defective because of manufacture or design within one year from date of shipment by I S TECHNOLOGY SOLUTIONS, then I S TECHNOLOGY SOLUTIONS agrees to provide repair or replacement of said part at no cost to buyer. This is offered even though some of the original manufacturers of parts and components might have lesser warranty terms. Abuse or negligent handling or exposure to climatic extremes may void this section of the warranty. Expendable parts, such as gaskets, fuses, handles, knobs and other vulnerable components are exempted from this warranty.

8. The period between the end of the first and third years shall be called "The First Extended Warranty Period" or FEW Period. Failure of any component or part during this period from normal wear and tear shall be covered by the terms of FEW, as follows. "Parts or components that fail to perform during FEW are subject to repair or replacement by I S TECHNOLOGY SOLUTIONS on a pro rata basis. The FEW period has a duration of 24 months, and any part that fails in month 1 shall be repaired or replaced for 10% of the value of a new part, and pro-rata through the period, until one day before the end of month 24, shall be repaired or replaced for 90% of current new value. The repairs or replacement shall be done at I S TECHNOLOGY SOLUTIONS' facilities f.o.b I S TECHNOLOGY SOLUTIONS facility.

9. I S TECHNOLOGY SOLUTIONS cannot accept claims for consequential loss or damage. Our liability is limited to the value of the property or part thereof as explained herein.

10. The foregoing states our full liability and no employee or officer of I S TECHNOLOGY SOLUTIONS is authorized to modify or amend this policy, except for a general letter to all customers, signed by a principal officer of I S TECHNOLOGY SOLUTIONS.

11. The warranty terms and obligations stated herein are valid only if payment for the device at the time the claim is made is not delinquent as defined in I S TECHNOLOGY SOLUTIONS quotations and invoices. If the quotation and invoice are at variance, the invoice will be considered the applicable document.

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Please call I S Technology Solutions at (855) 620-5200 with any inquiries. If calling for service or assistance, be prepared to provide the serial number of the device, and a complete description of any difficulty or suspected malfunction.

<div align="center">

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Intellectual Property Notice

The products and systems described in this manual and delivered by I S Technology Solutions are proprietary products, designs and creations of:

I S TECHNOLOGY SOLUTIONS
5410 W. Roosevelt Road, Suite #209
Chicago IL 60644, USA

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As a purchaser or Lessee of the equipment, your rights are limited as described herein. While the Buyer has acquired ownership of the hardware, I S TECHNOLOGY SOLUTIONS does not convey ownership of any intellectual property. Th buyer is licensed to use the software created by I S Technology Solutions as the operating system of the device. Any attempt to modify this software immediately voids the license and warranty. Any attempt to commercially transfer any part of this property to third parties will be deemed a copyright violation and subject to penalties and prosecution according to US Federal regulations. These restrictions extend to all software written or created by I S Technology Solutions and all engineering designs, including circuits and circuit designs along with the physical boards in which they may be installed. Copying or attempting to copy or assisting others in copying this software for use in any computer or system not acquired from I S TECHNOLOGY SOLUTIONS for any purpose other than testing railway brakes within the confines of property owned and controlled by the Buyer, will be deemed a copyright violation and therefore forbidden under by law.

I S Technology Solutions' copyrights cover all written material, including but not limited to this manual, all original software, and all engineering designs used in the manufacture and execution of the product for railway brake testing.

The name "Brake Pro Transit™" and "I S TECHNOLOGY SOLUTIONS" as used for brake testing are copyrighted and may not be used by anyone in a manner that is contrary to the interests of I S Technology Solutions.

Any wish to use the designs of I S Technology Solutions as a developer of other equipment and systems will require a separate license agreement.

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Air Connections

Use male brake pipe fitting found on BP CAR for ¾" glad hand hose. Use male quick connect fitting to connect to Supply line filter. Use own quick connect shut off type fitting on supply line.

ATTENTION! If not using these fittings on Brake Pipe connection do not use quick connect fitting less than .46" with straight through flow for Brake Pipe fitting on device.

IMPORTANT! A quick connect with shut-off is required at pressure supply side, 1/2" supply line recommended.

Attach coalescing filter at or near supply connection to avoid contaminants. Use clean, dry air that is free of any oil.

Brake Cylinder fitting is the same as the industry standard.

If desired, call I S Technology Solutions for fittings and tubing. I S Technology Solutions can supply 1/4" tubing with 1/8" I.D. up to 100' to measure Brake Cylinder pressure.

There are no user serviceable parts inside device. Do not open.