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## **Introduction**

The VIS-check has been designed to assist workshops, fleets and enforcement institutions in the total management of the vehicle system. The VIS-CHECK uses a software program written and developed by Vehicle Inspection Systems engineers to allow the end user to establish and maintain a database history on all vehicles tested on the roller section of the VIS-CHECK.

The standard VIS-CHECK full version module ( FVM ) consists of a hydraulic power pack, a roller section and shaker plates fitted into a robust frame. The roller section is fitted with four load cells that measure weight and two strain gauges that measure torque.

This manual takes the user on a brief tour through the world of brake testing while outlining the safety and operating aspects of the VIS-CHECK system.

Some of the information displayed in this manual can be cited in the following publications and sources.

- ❖ Australian Air Brake Code of Practice
- ❖ RTA Heavy Vehicle Inspection Manual

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## **VIS-CHECK Information / User Responsibilities**

The VIS-CHECK is built to highest quality standards and is totally Australian made. In order for this product to produce results that comply with the motor industry standard it is recommended that the equipment is calibrated on an annual basis. It is important to carry out regular preventative maintenance inspections in order to prevent equipment failure.

The VIS-CHECK is of a robust nature and can withstand relatively rough treatment however, given the number of electronic circuits that control the system, VIS recommends the user adhere to the following procedures in order to avoid unnecessary problems.

- ☞ Do not leave the hand controller exposed to direct sunlight
- ☞ When cleaning the machine do not spray water on the electrical cabinet, plugs, motor or hand controllers
- ☞ Do not weld on the machine under any circumstances - this will damage the strain gauges and load cells
- ☞ While the machine is under warranty contact Vehicle Inspection Systems before attempting any repairs

Vehicle Inspection Systems also recommends that once tests on the machine have been downloaded to a PC or laptop that the RAM card be cleared on a weekly basis

If there are any queries on the operation of the equipment please do not hesitate to contact Vehicle Inspection Systems Field Support and Service Department on one of the numbers displayed at the back of this manual

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## **Machine Installation**

The VIS-CHECK can be installed in different locations however it is important to note that certain procedures **must** be followed before using the machine.

### **Pit Installation**

When the machine is installed over a pit the jack must be supported underneath so that the bolts that hold the jack in position do not take the weight of the vehicle being lifted

*Contact the Customer Service Department for more information*

### **Standard Application ( Module & Trailer Version )**

The standard use of the VIS-CHECK is typically on a concrete floor that is as level as possible. The equipment can be used on a gravel base however it must be hard and level. This will ensure that the VIS-CHECK does not move excessively.

### **Ramps**

The ramps are laid out on either side of the VIS-CHECK with the smaller wedge shaped ramps positioned at the approach and exit of the equipment. To avoid serious injury caused by the ramps being slid out from under the vehicle wheel it is important to ensure that the ramp clamps are in position as indicated in fig ( ? )

When installing the ramps make sure that they are not positioned over electric cables or any other device that is used in the operation of the equipment.

### **Warning**

When lifting the equipment attach the lifting slings to the eye bolts situated on the module frame. Ensure that the machine is not put down hard as this may cause damage to the electronic components.

**Keep clear of the machine while it is being lifted**

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## Minimum Requirements

The minimum requirements are the basic acceptable standards that are set out by the national or state governments. These standards can vary, however it must be remembered that the minimum requirements are the lowest limits acceptable to the authorities. Therefore it is advisable that the minimum requirements be used purely as a bench mark and that the brakes on the vehicle be adjusted to the best possible efficiency

### The NSW RTA Requirements

☞	Brake Balance	70%
☞	Deceleration	3.0 m/s/s

Although there is no minimum requirement for **Rolling Resistance Ratio** it is still advisable to make sure that the rolling resistance ratio is kept down to an acceptable level. This kind of resistance in a wheel will increase fuel consumption because it means that there is constant excessive drag on that wheel when the vehicle is in motion

A acceptable **Rolling Resistance Ratio** level is +/- .05 m/s/s

### Note

The **Maximum Rolling Resistance** on a wheel is the amount of force required to keep a wheel turning whereas the **Rolling Resistance Ratio** is the amount of deceleration or drag in a wheel that will stop it turning without the brakes being applied

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## **Safe Operating Procedures**

The VIS-CHECK has a number of moving parts and the operator must ensure that special care is taken when using the equipment. The following are some common sense safety guidelines that should be followed before and during operation of the VIS-CHECK equipment.

### **Only trained personnel are authorized to operate the VIS-CHECK equipment**

- ☞ Check that the jack buzzer and both emergency stop buttons are functioning correctly
- ☞ To avoid serious injury do not lie or stand on any part of the equipment. This applies whether the equipment is in the on or off position
- ☞ To avoid serious injury do not work on a vehicle while it is positioned on the equipment
- ☞ To avoid serious injury the operator should be at least 1 meter clear of the jack and shaker plates when they are in operation. While doing a shaker test it is necessary for the operator to lie under the vehicle however at no time should the operator lie on the equipment
- ☞ To avoid serious injury make sure that all cables are laid out in such a manner so that they do not become a trip hazard
- ☞ To avoid serious injury it is important that there is clear communication between the operator and the driver of the vehicle at all times
- ☞ To avoid serious injury all personnel other than the operator and the driver of the vehicle should be a minimum of 2 meters clear of the equipment
- ☞ To avoid serious injury it is recommended that gloves are worn when moving the equipment or the ramps into position

**It is the responsibility of the operator to work safely at all times**

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## **How to start the VIS-CHECK**

When the hand controller is switched on it will proceed to scroll through a number of text filled screens. In basic terms this is known as 'warming up'

When the system has completed the 'warm up' the start screen will be displayed (*fig. 2*) It is important to note that the roller closest to the main electrical cabinet is known as the front roller and the roller furthest from the cabinet is known as the rear roller

### **First selection screen**

<p><b>Left Vehicle Tire On</b></p> <p>1. = <b>Front Roller</b></p> <p>2. = <b>Rear Roller</b></p> <p>3. = <b>4WD Mode</b> ( <i>Optional</i> )</p>
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This section determines which way the rollers will turn ensuring that the wheels turn in a anti-clockwise direction on the rollers. This replicates the vehicle driving in a forward motion as it would under normal driving conditions.

This direction selection will ensure that the results appear under the appropriate headings on the ticket printout

### **Second selection screen**

<p><b>About To Zero All Transducers....</b></p> <p>☞ <b>Clear Trailer</b></p> <p>☞ <b>Press the Enter key</b></p>
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*The transducers are the load cells, strain gauges, pedal transducer and air transducer. It is important that the equipment is clear of any force or weight before the enter key is pressed.*

### **Note**

If the pedal or air transducer are being used they should be plugged in before the transducer's are zeroed. Readings off the hand controller screen and computer program graphs will be incorrect if this procedure is not followed

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The screen will then display the following:

<b>Key 2 =</b>	<b>Brake Test</b>
<b>Key 5 =</b>	<b>Download to PC</b>

This is know as the start screen from which all test or hidden menu procedures are carried out. To return to this screen from a hidden menu simply press the **ESC** key on the hand control keypad until the start screen is displayed

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## **How to do a Brake test**

To do a brake test from the start screen complete the following procedure

☞ Press 2

*The hand control will display a number of screens that require the user to enter information as outlined in the procedure below*

### **Screen one**

**Enter tag/license plate  
Press Enter**

☞ Type in the registration or identification number of the vehicle using the hand control keypad

☞ Press enter

### **Screen two**

**Enter VIN  
Press Enter**

*This entry is optional therefore if you are not require to show the VIN of the vehicle press enter. If you are required to show the VIN follow the instructions below*

☞ Type in the VIN ( *Vehicle Identification Number* ) of the vehicle using the hand control keypad

☞ Press enter

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### Screen Three

**Enter Number of Main  
Vehicle Axles  
Press Enter**

- ☞ Type in the number of axles to be tested using the hand control keypad
- ☞ Press enter

### Screen Four

**Enter Odometer Reading  
Press Enter**

*This entry is optional therefore if you are not require to show the VIN of the vehicle press enter. If you are required to show the odometer number follow the instructions below*

- ☞ Type in the odometer reading using the hand control keypad
- ☞ Press enter

### Screen Five

**Position axle 1  
1 = Start Brake Test  
2 = Read System Pressure**

- ☞ Press 1

The rollers will start to turn and after approximately 10 seconds the screen will read **“ Slowly Apply the Brake ”**

The brakes of the vehicle are applied and the test will terminate. The screen will then scroll through the brake test results as set by the software defaults.

The following screen will then be displayed

**1 = End Test Axle 1**  
**2 = View test results**  
**3 = Repeat**  
**4 = Aux**

☞ Press 1

The screen will now read “ **Printing Test Report** ”

*If more than one axle was entered in screen three the following will be displayed*

**Position axle 2**  
**1 = Start Brake Test**  
**2 = Read System Pressure**

*If there was only one axle entered in screen three the following will be displayed*

**1 = End Test**  
**2 = View Test Results**  
**3 = Repeat**  
**4 = Aux**

☞ Press 1

*The screen will read*

☞ Printing test report

*Once the ticket has been printed the screen will display*

**1 = Continue**  
**2 = Download**  
**3 = Auto Download to PC**

☞ Press 1

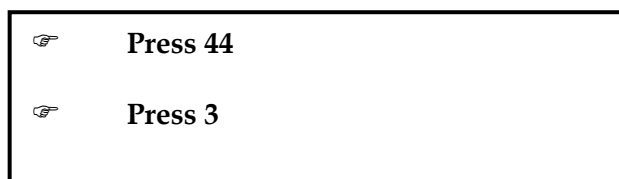
*The hand control will return to the start screen*

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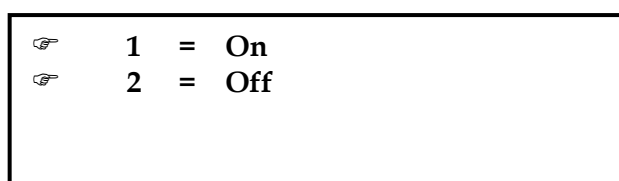
## Hand Control Features

### Inserting a heading on the ticket printout

The hand controller allows the user to add a heading to the ticket printout. For example if you would like to change the name of the customer name printed at the top of the ticket printout do the following



At the top of the screen the following will displayed



Press 1

Using the keypad type in the required heading

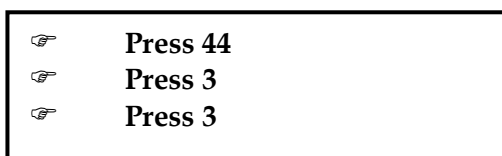
### Note

The system will allow up to three lines of text to be entered. Press enter at the end of each line in order for the cursor to move to the next line.

Once the heading is complete press ESC until the screen returns to the 'start screen'

### Clearing the RAM card

From the start screen



The following text will be displayed

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**Erase all saved test data**  
**9 = erase data**  
**Esc = Exit**

☞ Press 9

☞ Continue pressing ESC until the screen returns to the 'start screen'

### **Inserting a hidden inspector ID**      (*Optional*)

From the start screen

☞ **Press 44**  
☞ **Press 3**  
☞ **Press 3**  
☞ **Press 5**

Follow the instruction on the screen then complete the following

☞ Press enter

☞ Continue pressing ESC until the screen returns to the 'start screen'

### **Changing the time and date**

From the start screen

☞ **Press 44**  
☞ **Press 2 ( To change time and date)**  
☞ **Press 1 ( Change )**  
☞ **Press New Time**  
☞ **Press Enter**

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The screen will display the following:

**HH MM SS A/P** ( *This Will read either A or P* )

**Meaning:**

**Hrs Min Sec am/pm**

Once all the changes have been made complete the following

☞ Press enter

☞ Press new date

☞ Press Enter

The screen will display the following:

**MM DD YY**

**Meaning:**

**Mth Day Year**

Once all the changes have been made complete the following:

☞ Press Enter

☞ Continue pressing ESC until the screen returns to the 'start screen'

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## **Side Slip**

### **Read the side slip on the hand controller from the start screen**

By using this method we are only able to view the result on the hand control screen with no result on the ticket printout

- ☞ Press 33
- ☞ Press 2 ( Transducer inputs )
- ☞ Press 4 ( Side slip )

The screen will display the following:

**Measuring Side Slip**  
**Press Enter when finished**

- ☞ Drive the vehicle over the side slip tester
- ☞ Press Enter

The toe in or out will be displayed on the screen for approximately 10 seconds

### **Separate ticket printout for side slip**

This procedure will produce a separate ticket printout displaying the toe in or toe out of each wheel tested

- ☞ Press 8
- ☞ Enter tag ( Vehicle registration number )
- ☞ Enter number of axles
- ☞ Press 1 = start test
- ☞ Drive the wheel to be tested across the side slip tester
- ☞ Press Enter

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☞ Press 1 = end test

Once the test is ended the result is printed on the ticket and the same procedure is repeated for each axle listed.

### Note

**Side slip is normally measured only on the steer axle of a Vehicle**

### Measuring side slip as part of a normal brake test procedure

The side slip is measured after the brake test is done and appears on the ticket printout along with all the brake results. Using this method the side slip is positioned on the exit side of the equipment.

☞ Once the brake test has ended press **Auxiliary**

☞ Press 4 = Side Slip

☞ Drive the wheel to be tested across the side slip tester and

☞ Press Enter

☞ The result will appear on the screen

☞ Press Enter

☞ Press 1 = End auxiliary test

☞ Press 1 = End axle test

Continue with the normal brake test procedure

### How to enter a new test number

Enter a new test number using the hand control from the start screen

☞ Press 44

☞ Press 3

☞ Press 3

The screen will display the following:

<p><b>Erase all saved test data</b> <b>9 = Erase</b> <b>ESC = Exit</b></p>
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☞ Press 8

The screen will display the following:

**Enter new test  
Number > 0 Esc = Exit**

☞ Type in a test number greater than 0 for the new database

☞ Press Enter

*Press ESC until the start screen is displayed*

### **Run Rollers Manually**

Run rollers manually using the hand controller from the start screen

☞ Press 33

☞ Press 1

☞ Press 1 ( *Rollers* )

☞ Select which roller the left wheel is on ( *1 or 2* )

The screen will display the following:

**1 = Run Rollers  
2 = Stop Rollers**

☞ Press the appropriate key

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## **Park Brake Test**

Once the service brake test is complete on an axle the hand control screen will pause for the next command. When this happens complete the following procedure.

☞ Press 4 ( *Aux* )

☞ Press 2

*The screen will indicate that the park must be applied*

☞ Apply the park brake

Once the test is terminated complete the following:

☞ Press 1 ( *End Aux test* )

☞ Press 1 ( *End axle test* )

## **Reading Air Pressure**

Reading air pressure using the hand controller from the start screen

☞ Plug the transducer into the dual hand controller

☞ Turn on the 12 volt power using the small green switch on the main cabinet

*Once the start up procedure is complete carry out the following*

☞ Press 33

☞ Press 2

☞ Press 2

The screen will display the brake force, air pressure, and pedal force

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## **Reading Pedal Force**

Reading pedal force using the hand controller from the start screen

- ☞ Plug the pedal transducer into the dual hand controller
- ☞ Turn on the 12 volt power using the small green switch on the main cabinet

*Once the start up procedure is complete carry out the following*

- ☞ Press 33
- ☞ Press 2
- ☞ Press 2

The screen will display brake force, air pressure and pedal force

*To return to the start screen press ESC continuously*

## **Downloaded to PC after each test is completed**

Downloading test data from the machine to a laptop or desk top computer using the hand controller from the start screen.

- ☞ Ensure that the download cable is connected to the serial port on the computer and the labeled four pin plug on the front of the machine cabinet
- ☞ Ensure that the machine is switched on and the start up screen is displayed on the hand control
- ☞ Press 5
- ☞ Press 9

*The screen will display “ **Ready to Communicate with PC** ”*

- ☞ Open the VIS software on the computer by double clicking the screen icon

When the VIS software opens it will automatically open the download window and minimize it. The test will then be transferred from the machine to the computer software.

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## **Download all tests to PC**

Downloading test data from the machine to a laptop or desk top computer using the hand controller from the start screen.

- ☞ Ensure that the download cable is connected to the serial port on the computer and the labeled four pin plug on the front of the machine cabinet
- ☞ Ensure that the machine is switched on and the start up screen is displayed on the hand control
- ☞ Open the VIS software on the computer by double clicking the icon on the screen
- ☞ Once the VIS software has opened up maximize the data transfer window by clicking on the “ **Data Transfer** ” tag at the bottom of the screen
- ☞ Once the data transfer window pops up click the cursor on the “ **Stop Data Transfer** ” button
- ☞ Select “ **Load All Tests from VIS** ”
- ☞ Press 5 on the hand controller
- ☞ Press 9 on the hand controller

*The screen will display “ **Ready to Communicate with PC** ”*

- ☞ Return to the computer and click the cursor on the “ **Start** ” button in the data transfer window

*A blue line will appear across the center of the screen indicating the data transferring from the machine to the computer. Once all tests have been downloaded reset the download window to auto download by completing the following procedure.*

- ☞ Click the cursor on the “ **Auto Download** ” button
- ☞ Minimize the data transfer window

*The download procedure is now complete*

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## **Installing a Paper Roll in the Ticket Printer**

### **Custom Printer**

The machine should remain switched on while this procedure takes place.

- ☞ Pull open the front cover flap on the actual printer
- ☞ Press the ribbon carriage button (*situated just under the ribbon carriage on the right*)
- ☞ Flip the printer carriage up until the paper entry is exposed
- ☞ Remove the existing paper roll core from the holder (*make sure that all paper is removed from the ribbon feeder carriage*)
- ☞ Insert new paper roll into the printer and feed through the ribbon feeder carriage (*as indicated on the inside of the front cover flap*)

Once the paper has fed through the feeder, clip the carriage back into position and close the cover flap

### **Citizen Printer**

The machine should remain switched on while this procedure takes place.

- ☞ Open the paper compartment on the printer
- ☞ Remove the existing paper roll core from the holder (*make sure that all paper is removed from the ribbon feeder carriage*)
- ☞ Place new paper roll in position and feed the paper into the ribbon feeder carriage (*this is situated below the ribbon and will feed automatically*)

*If the paper will not feed through press the little blue button on the front of the printer and the feeder motor will operate*

Once the paper has fed through the feeder, close the printer roll compartment

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## **Installing a Printer Ribbon**

### **Custom Printer**

The machine should remain switched on while this procedure takes place.

- ☞ Open the cover flap on the front of the printer and the ribbon is situated just above the paper roll holder.
- ☞ Push gently on the left side of the ribbon cartridge
- ☞ The ribbon cartridge will unclip and can be removed
- ☞ When inserting the new cartridge make sure that the paper is pulled through between the ribbon and the casing and not over the top of the ribbon.

### **Citizen Printer**

The machine should remain switched on while this procedure takes place.

- ☞ Open the ribbon cover that is situated across the front of the paper exit
- ☞ Push gently on the left side of the ribbon cartridge
- ☞ The ribbon cartridge will unclip and can be removed
- ☞ When inserting the new cartridge make sure that the paper is pulled through between the ribbon and the casing and not over the top of the ribbon.

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## **Shake Test Procedure**

The wheels of the vehicle are placed in the middle of the shaker plate ensuring that they are facing forward. It is important to note that the driver of the vehicle must hold the steering wheel of the vehicle firmly.

The operator will then jack up the vehicle until the jack holds the majority of the weight. At this point the tyres are just resting on the shaker plates and the testing procedure is as follows.

1. The driver applies the service brake
2. The operator will shake the plates in a forward and backward motion checking for wear on king pins, steering mechanism, engine mountings etc.
3. The driver will release the service brake
4. The operator will shake the plates in the side ways motion checking for wheel bearing wear

Once this procedure has been completed the jack is returned to the rest position and the vehicle is moved forward.

If the tyres of the vehicle are wet or worn it is important to either dry the shaker plates or allow the vehicle to rest heavier on the plates. This is done in order to avoid the tyres slipping on the plates and therefore not allowing the operator the opportunity to properly shake the suspension.

Some drive or trailer axles are difficult to jack up because of the positioning of differentials or plumbing. In these case simply leave the wheels resting on the plates when completing the shake test procedure. The weight of these axles is a lot less than the steer and therefore can be tested without using the jack.

### **Important**

*When lifting the vehicle with the jack make sure that the axle is placed in the center of the jack plate. This will reduce the risk of the vehicle slipping off the jack while the shaking procedure is being carried out*

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## **Understanding the Ticket Printout**

There are a number of readings that appear on the ticket printout and understanding the result of a test is crucial to the diagnosis of any brake problem that may occur. The following is a brief explanation of the ticket printout:

### **☞ Maximum Rolling Resistance**

During the initial 10 seconds of the brake test the machine samples the maximum amount of force that is required to keep the wheel turning without the brakes being applied. This is known as rolling resistance or wheel drag.

### **☞ Maximum Brake Force**

This is the maximum amount of force applied to the wheel during a brake test. It is important to note that in some cases where the wheel does not lock up during a test there is still enough force generated to stop the vehicle.

### **☞ Brake Balance %**

This is the percentage difference of the maximum brake force achieved between two wheels on the same axle.

### **☞ Maximum Deceleration**

This is the efficiency of the brake measured by dividing weight into force generated on each wheel of a tested axle.

### **☞ Rolling Resistance Ratio**

This is the amount of deceleration in a wheel that will stop the vehicle without the brakes being applied.

### **☞ Threshold Pressure**

This is the amount of air pressure required to activate the braking on a wheel and can be measured by inserting the air transducer into the control line at the coupling

## Table of Stopping Distances

Stopping Distances ( Meters ) From Given Initial Speed (kph)

m/s/s	30	50	70	80	90	100	110	130	140	160
2.8	12.64	35.11	68.82	89.89	113.77	140.46	169.95	237.37	275.29	359.57
3.0	11.80	32.77	64.23	83.9	106.18	131.09	158.62	221.51	296.94	335.58
3.2	11.06	30.72	60.22	78.66	99.55	122.9	148.71	207.70	240.88	314.62
3.4	10.41	28.92	56.68	74.03	93.69	115.67	139.96	195.48	226.71	296.11
3.6	9.83	27.31	53.53	69.92	88.49	109.24	132.18	184.62	214.12	279.66
3.8	9.31	25.87	50.71	66.24	83.83	103.49	125.23	174.90	202.85	264.94
4.0	8.85	24.58	48.18	62.92	79.64	98.32	118.97	166.16	192.70	251.70
4.2	8.43	23.41	45.88	59.93	75.85	93.64	113.3	158.25	183.53	239.71
4.4	8.04	22.35	43.80	57.20	72.40	89.38	108.15	151.05	175.19	228.81
4.6	7.69	21.37	41.89	54.72	69.25	85.49	103.45	144.49	167.57	218.87
4.8	7.37	20.48	40.15	52.44	66.37	81.93	99.14	138.47	160.59	209.75
5.0	7.08	19.66	38.54	50.34	63.71	78.66	95.17	132.93	154.16	201.36
5.2	6.81	18.91	37.06	48.4	61.26	75.63	91.51	127.81	148.23	193.61
5.4	6.55	18.21	35.69	46.61	58.99	72.83	88.12	123.08	142.74	186.44
5.6	6.32	17.56	34.41	44.95	56.88	70.23	84.98	118.68	137.65	179.78
5.8	6.10	16.95	33.22	43.40	54.92	67.81	82.05	114.59	132.90	173.58
6.0	5.90	16.39	32.12	41.95	53.09	65.55	79.31	110.77	128.47	167.80
6.2	5.71	15.88	31.08	40.60	51.38	63.43	76.75	107.20	124.33	162.38
6.4	5.53	15.36	30.41	39.33	49.77	61.45	74.35	103.85	120.44	157.31
6.6	5.36	14.90	29.20	38.14	48.27	59.59	72.10	100.70	116.79	152.54
6.8	5.21	14.46	28.34	37.01	46.85	57.83	69.98	97.74	113.36	148.06

### Example of how to read the table above:

A vehicle travelling at 100kph with a deceleration of 3.0 m/s/s has a stopping distance of approximately 131 meters.

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## Installing Vehicle Inspection Systems Software

Should any problems be experienced with the software installation please do not hesitate to contact our Customer Service Department.

### Getting Started

In addition to these installation notes please ensure that you have the following

- ☞ 1 X VIS software CD

You are now ready to commence the installation process.

### Step One

Place the Disk into the CD drive on the computer and double click the Icon on the screen titled “ **My Computer** ”

Once the window opens double click the Icon titled “ **d/ drive** ”

The folders that are now displayed are :

- ☞ Report FX
- ☞ Interbase
- ☞ Dprtruck
- ☞ Truck.gdb

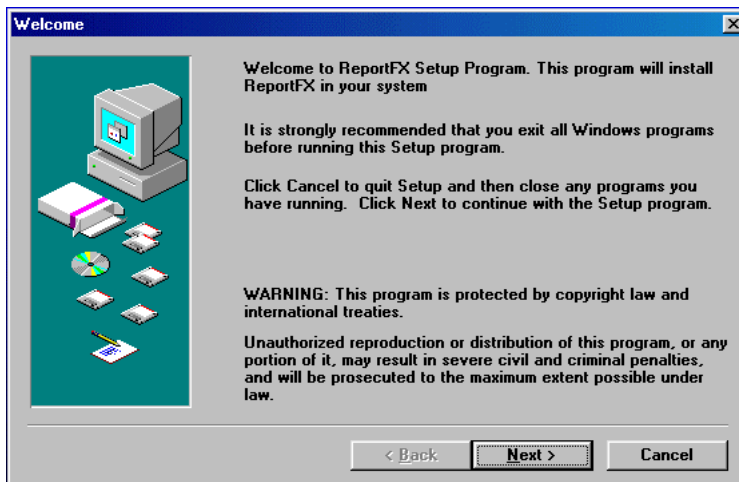
### Step Two ( *Installing Report FX* )

Open the **Report FX** folder and double click the Icon that is titled **Setup.exe**

### Step Three

The program will start the installation process and a window as indicated in fig. 1 on page 26 will be displayed, Click the next button.

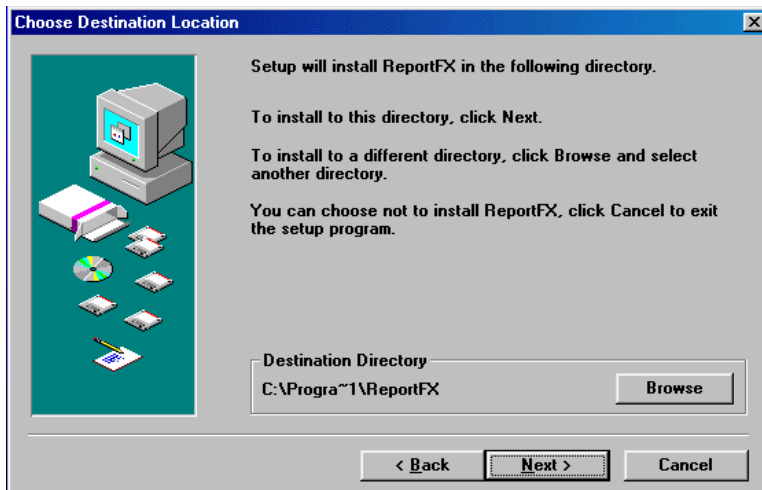
Fig 1



Step Four

The window in fig 2 will be displayed, click the "next" button

Fig 2

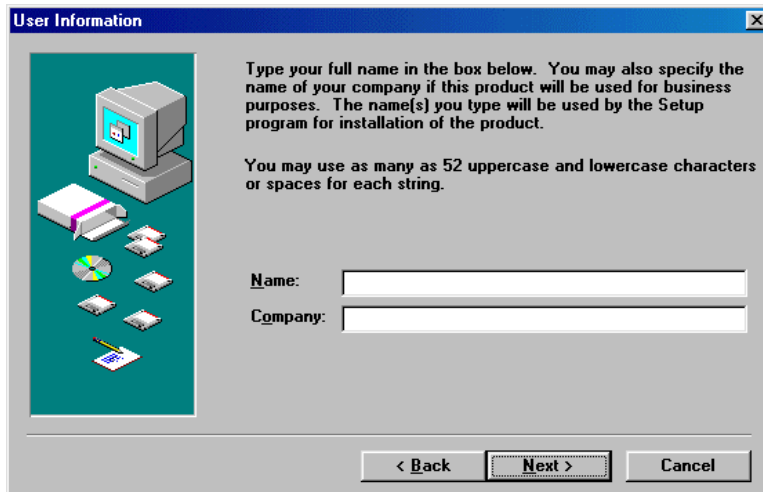


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### Step Five

The window indicated in fig 3 will be displayed , type in the required information and tick the “ next “ button

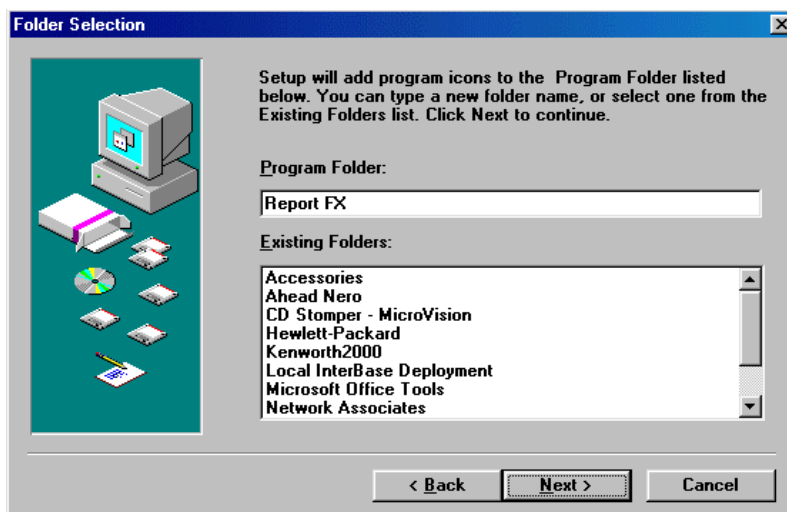
Fig 3



### Step Six

The window indicated in fig 4 will be displayed, click the “next” button

Fig 4

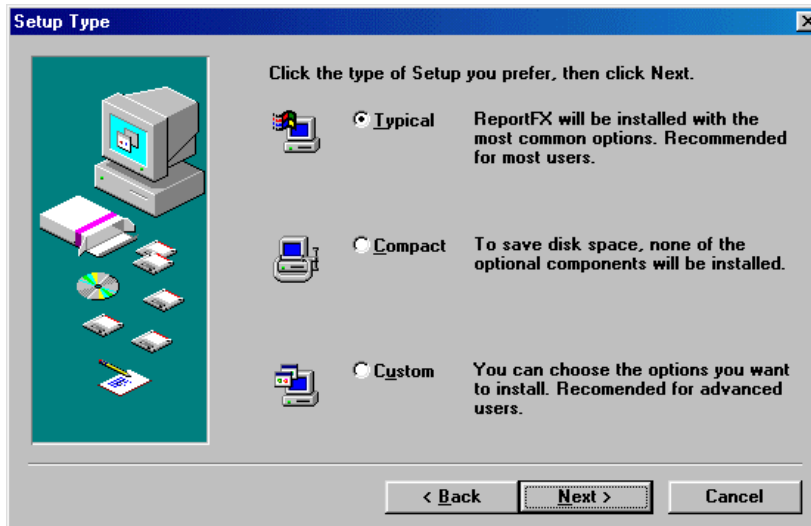


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### Step Seven

The window indicated in fig 5 will be displayed, click the “radio button” on typical and click the “next button”

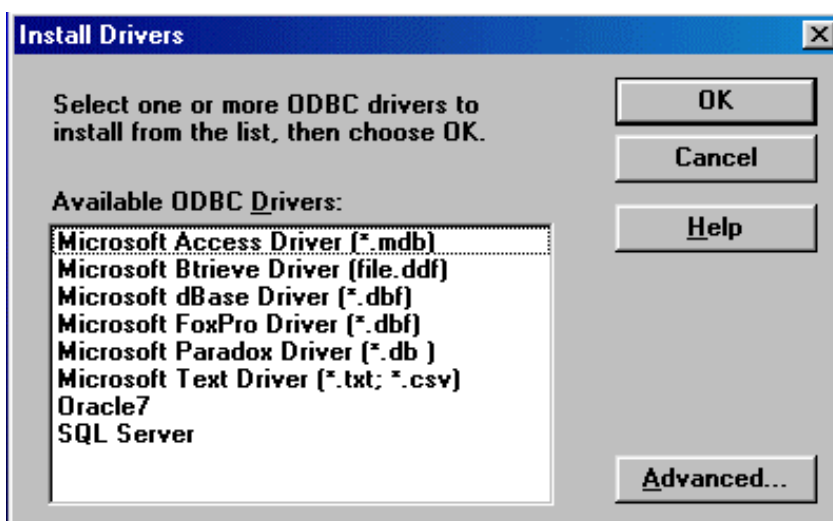
Fig 5



### Step Eight

The window indicated in fig 6 will be displayed, click the “OK” button

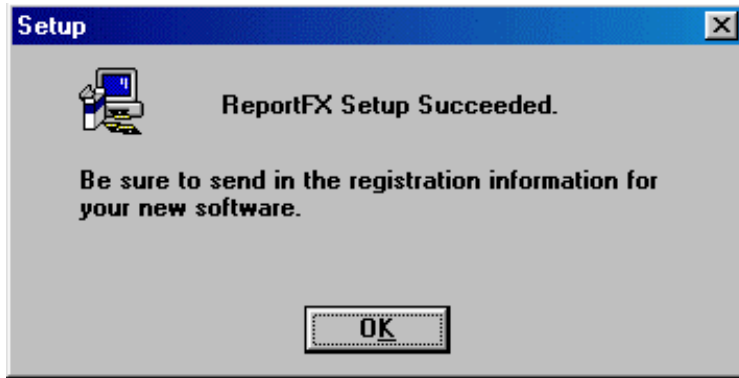
Fig 6



---

The last step is to click the “OK” button indicated in fig 7 below. The Report FX software is now installed. Close out of all screens that remain open on the computer and reboot.

Fig 7



Once the computer has rebooted the interbase installation procedure can begin

### Installing Interbase

#### Step One

Access the d:/drive using the same procedure indicated in step one on page 25. Open the “**Interbase**” folder and double click the icon titled “**Setup.exe**”

#### Step Two

The program will start the installation process and the window indicated in fig 8 will be displayed. Click the “**continue**” button

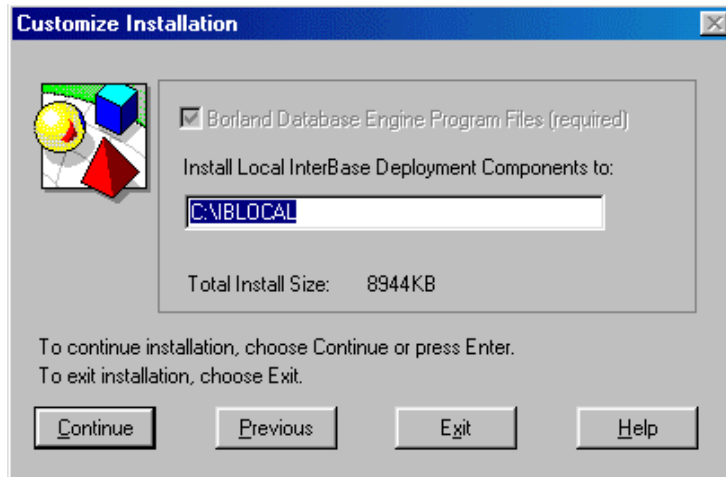
Fig 8



---

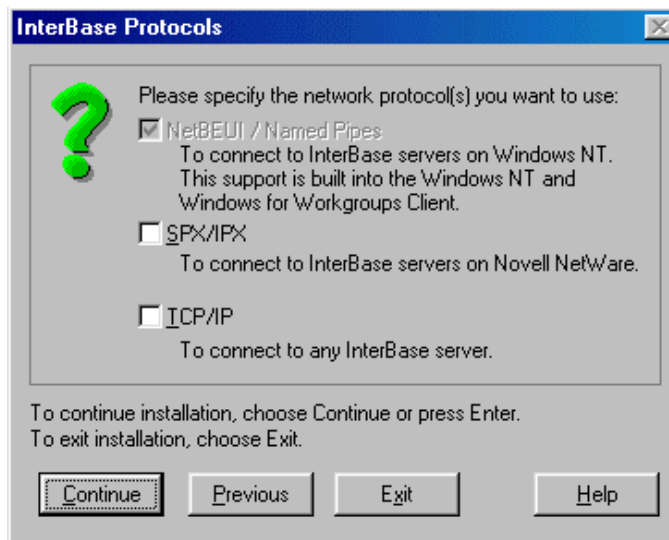
The window indicated in fig 9 will be displayed. Click the “Continue” button

Fig 9



The window indicated in fig 10 will be displayed. Click the “Continue” button

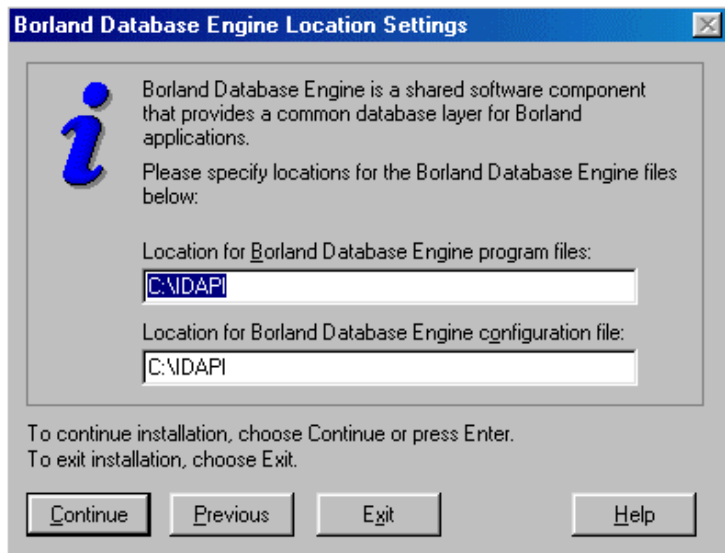
Fig 10



---

The window indicated in fig 11 will be displayed. Click the “**Continue**” button

Fig 11



The window indicated in fig 12 will be displayed. Click the “**Install**” button and the install process will begin.

Fig 12



---

There may be an occasion when there is another program on the computer that is using an interbase type setup. When this occurs the windows displayed in fig 13 and 14 will be displayed. Simply click the “Continue” button on each of them and the process will continue.

Fig 13

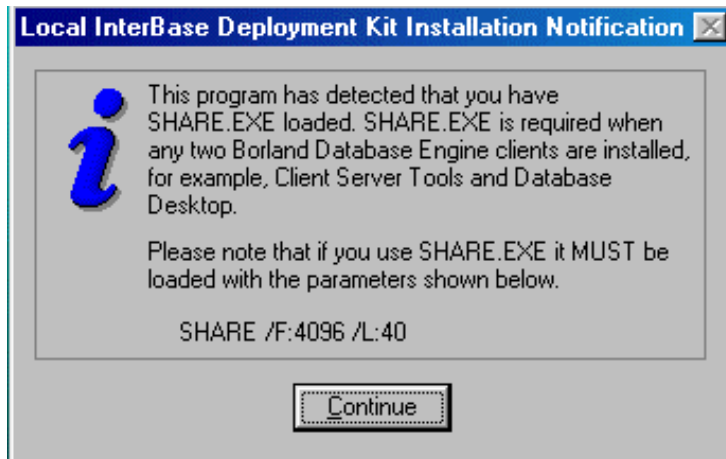
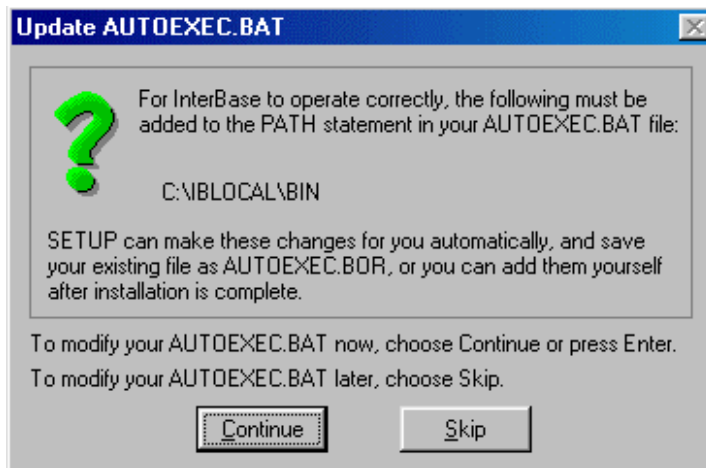


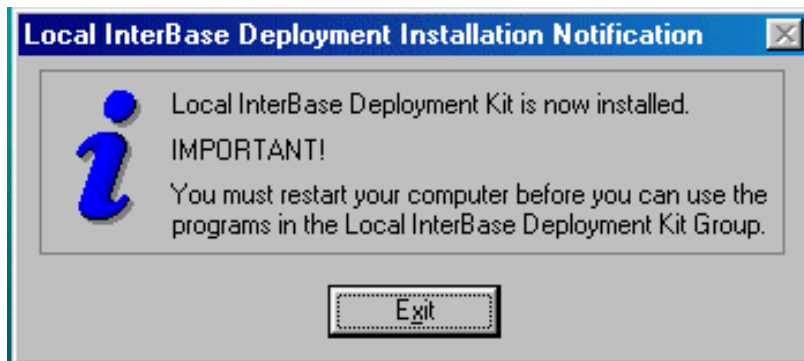
Fig 14



---

Once the installation process has been completed the window displayed in fig 15 will be displayed. Click the “Exit” button and close out of any windows that may still be open and reboot the computer

Fig 15



---

Now that the Report FX and Interbase programs have been installed we are ready to install the VIS Dptruck program. This is done by following the steps indicated below.

1. Make sure that installation CD is in the d/ drive of the computer
2. Create two folders on the "c/ drive" and name them "Database" & "Dptruck" respectively
3. Click on the icon " My Computer" and then double click "d/drive"
4. Double click the file titled "Install.bat"

The software will then install and once it has completed follow the instruction on the screen and click the enter key to continue. Close all windows still open and reboot the computer.

### Installing the Database

During the Dptruck installation a blank database is installed into the "Database" folder on the "c/ drive" . If it is necessary to install a database that has already been set up then follow the instructions below.

- ☞ Copy and paste the file on the CD titled "Truck.gdb" into the database folder on the "c/ drive" and reboot the computer.

*It is important to note that the Truck.gdb file must be converted from a "read only" file to an "archive file" . This is done by right clicking the file and selecting properties to change the file type*

### Creating an Icon

To create an icon that will be displayed on the desktop of the computer complete the following procedure.

1. Open the folder titled "Dptruck" on the c/ drive
2. Right click the icon next to the "Truckproj1.exe" file
3. Click the cursor on "Send to"
4. Click the cursor on "Desktop"
5. Close out of the screen and the icon will appear on the desktop (Screen) . To rename the icon right click and click on rename. Rename the icon to "VIS" and press the enter key.

---

## **VIS Diagnostic Software**

### **Introduction**

Once the installation procedure has been carried out the user can open the software by double clicking the VIS icon on the screen of the computer. The software will open onto a defaulted cover page that can be changed between two different versions depending on the requirements of the user.

The procedures detailed in this manual will allow the user to gain full access to all the features available in the VIS software package. The user is then able to customize the reports and information available in the software to suit their specific requirements.

The following is a list of features that are available in the VIS software:

1. Basic brake test results
2. Brake test results displayed in a graph format
3. Visual inspection default function
4. Test summary reports
5. Air testing and timing
6. Emissions testing results
7. Automatic download and print
8. 4WD test mode
9. Headlight test result input
10. Apply and release time graph

## Visual Entry Cover Page

The page indicated in *fig 16* below is one of two cover pages that are available in the software and is known as the visual entry cover page. All the relevant details of the tested vehicle are displayed at the top middle/right of the page. This information is inserted via the hand control before the test is carried out and then downloaded to the computer on completion of the test. It is important that this information is inserted correctly so that the user is able to recall tests in the future .

## Brake Test Results

These are displayed across the center of the page as indicated by the arrow. Each line indicates an axle which is numbered down the left hand side. The results in each column are under the headings of Weight ( left & right ), Deceleration (left & right), Balance, Brake Force (left & right) , side slip, and the overall result of the axle tested

Fig 16

Axle brake test results

The screenshot shows the 'Vehicle Inspection System Analysis Software' interface. At the top, there are fields for Test No. (56), VIS No. (19648), Plate No. (WZE4579), Location (Rocherlea), and Inspector (MB). Below these are fields for Licence Plate (srchRego), Test Date (16/05/02 09:16:47 AM), VIN No. (MN256341785), Speedometer (0.00), Calibration, and Odometer (246002). A table displays axle test results for three axles. The overall test result is 'Failed'. The Brake Test Evaluation is also 'Failed' with a remark 'Left hand front needs adjusting'. A detailed table below shows specific failure points: '1 Wheel bearing' (Failed) and '1 King Pin' (Failed).

Axle	Plate	WeightL	WeightR	DecelL	DecelR	Bal	BrFrL	BrFrR	SSlip	AxlePF
1		683	809	15.90	16.20	83	10908	13156	0.00	Passed
2		763	646	1.00	0.60	54	780	425	0.00	Failed
3		510	556	7.10	6.70	97	3667	3762	0.00	Passed

Overall Test Result: **Failed**

Brake Test Evaluation: **Failed**

Remarks: Left hand front needs adjusting

Ax	Description	Eval'n	Remark
1	Wheel bearing	Failed	Left hand front needs adjusting
1	King Pin	Failed	Replace Front right hand side

Overall test results

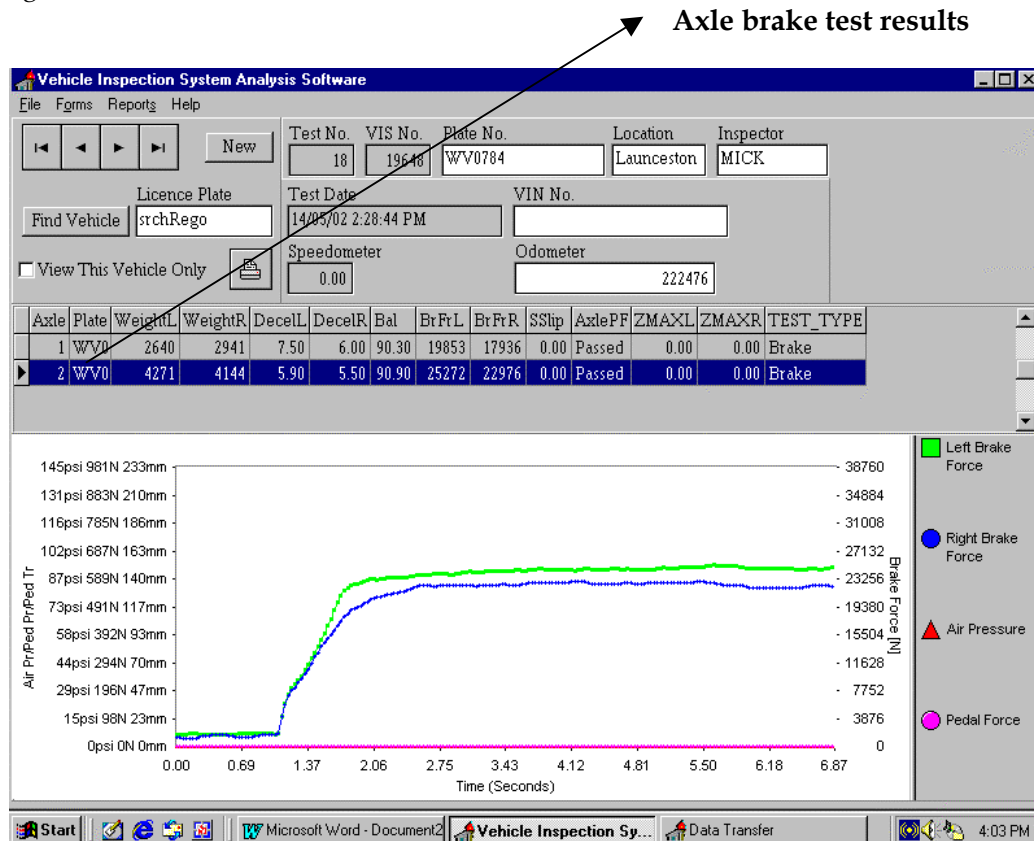
The “Overall Test Result” section (Fig 16 page 36) of the software cover page is used only for viewing emissions and head light test results. These are not standard features with the VIS software but can be added to the system at any stage.

The bottom right hand corner of the cover page is for information that is collected from a visual inspection of the vehicle. This section is dealt with in detail from pages 44 - 51

### Brake test graph Cover Page

The page indicated in fig 17 below is the second cover page available in the software and is known as the brake test graph cover page. The information at the top of the page is displayed in the same format as the visual entry cover page however the bottom section has a graph displaying each axle highlighted in the axle brake test results area

Fig 17

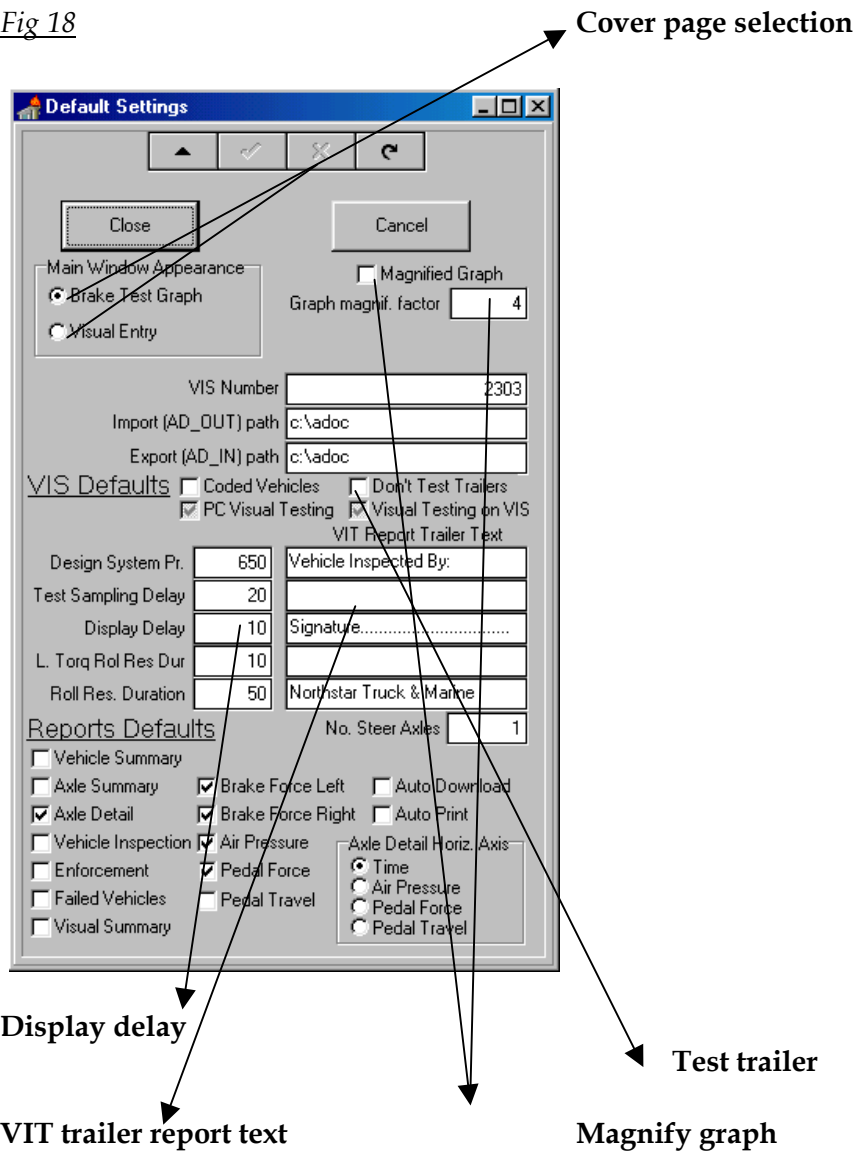


## How to change between cover pages

In order to change between the two available cover pages complete the following procedure.

1. Click on forms at the top of the page
2. Click on set defaults and the page indicated in *fig 18* below will be displayed

Fig 18



3. Select the cover page required

4. Click close to exit the window

The selected cover page will be displayed.

---

The default setting window (*fig 18 page 38*) has many different functions that can be downloaded to the RBT. These are as follows:

- ☞ Magnify the graph on the Axle Test Result (*fig 17 page 37*) by inserting a value into the Graph Magnification Factor box and then ticking the Magnified Graph box.
- ☞ Set auto download and auto print. This means that as the test is completed the results will automatically be downloaded to the computer and the pages that are defaulted will be printed immediately.
- ☞ The information that is displayed at the bottom of the ticket printout can be altered to suit the needs of the customer. This is done in the VIT Report Trailer Text window simply by clicking the cursor in the box, deleting the existing text and typing in the new one.
- ☞ Changing the Display Delay which affects the time lapse between each test result displayed on the hand control. The number displayed is to the power ten which means that 10 = 1 second 20 = 2 seconds etc.
- ☞ Remove the Test Trailer feature from the hand control data entry simply by ticking or unticking the box. When using this feature the trailer is placed in separate section. It is recommended that a trailer be tested as a separate vehicle rather than a trailer.
- ☞ Set report defaults which determines the full report pages displayed when that section is accessed.

### **Data transfer window**

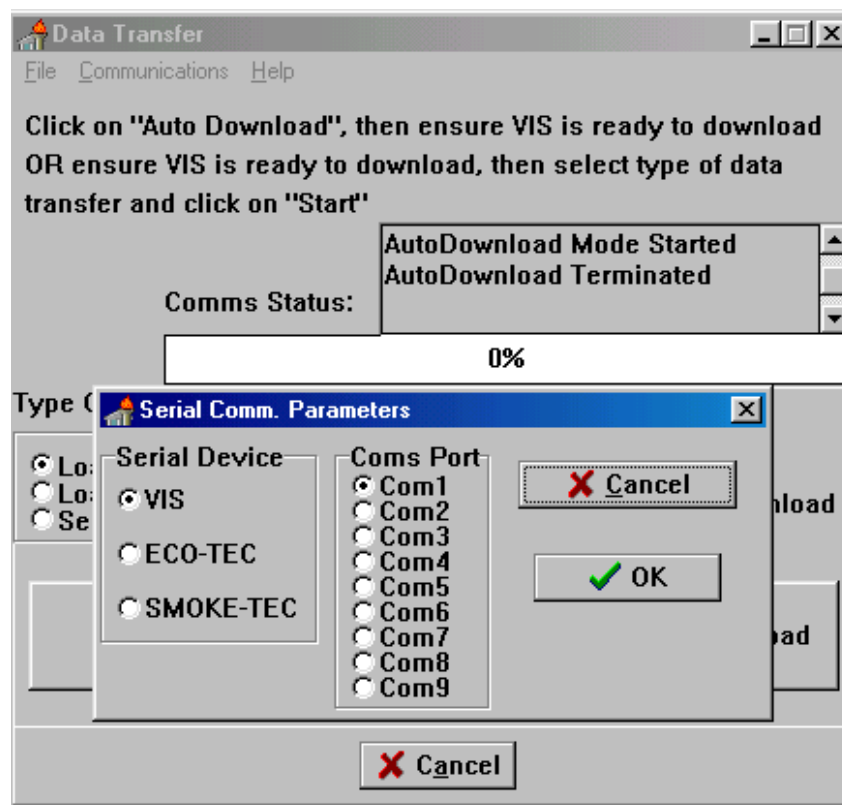
The data transfer window (*fig 19 page 40*) is used for a number of settings that are required when setting up the transfer of data from the machine to the computer or vice versa. In order to set up the correct communications we need to set up the comm's ports so that there is a line of communication between the computer and the machine.

---

To bring up the **Serial Comm Parameter** window which is part of the main data transfer window complete the following instructions:

1. Click forms
2. Click data transfer and the window in *fig 19* will be displayed

Fig 19



3. Click communications at the top of the page
4. Setup will scroll down
5. Click **Serial Comm Parameter** window will be displayed
6. If there is no emissions testing equipment linked to the VIS then make sure all ports are set at **Comm 1**. Do this by clicking the radio button next to each serial device and clicking on Comm 1.
7. Click **OK** and close all windows until returning to the cover page

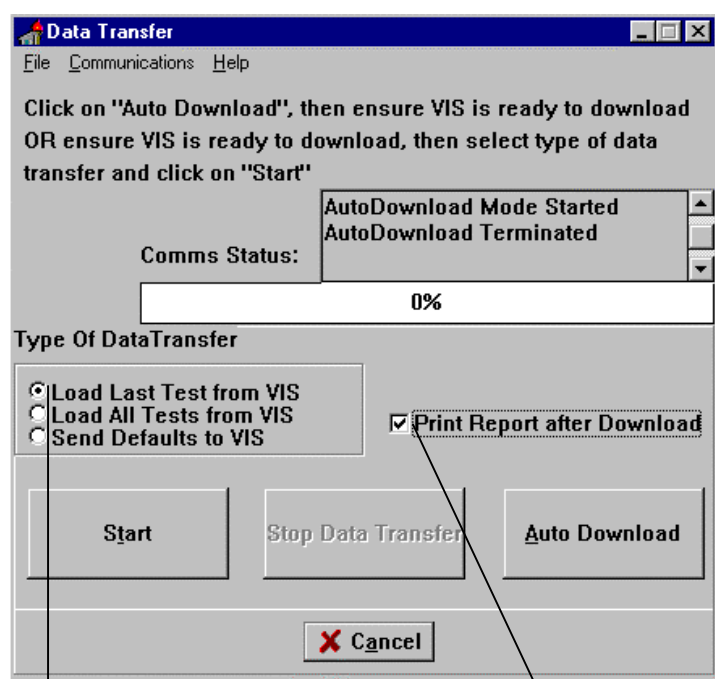
Once the communication ports have been setup correctly we can then either send defaults settings to the machine or download tests from the machine. In order to do this the hand control must be set in the correct mode. This is done by pressing key 5 and then key 9 on the hand control key pad ( *From the main menu* ) after which the screen will display “**Ready To Communicate With PC**” .

We should now choose which type of data transfer we wish to perform and we do this by clicking the cursor in the **Radio Button** ( *circular window* ) next to the functions that read:

- ☞ **Load Last Test From VIT**
- ☞ **Load All Tests From VIT**
- ☞ **Send Defaults To VIT**

( *Indicated in fig 20 below* )

Fig 20



**Radio button**

**Print after download**

Once this task is complete make sure that the download cable is connected to the computer and the hand control is correctly set , then press the start button. A blue line will slowly creep across the **Comms Status** box in the center of the window .

---

There are also features such as **Print Report After Download** and **Auto Download** that can be set up and controlled from this window.

### **Print After Download**

This feature allows us to print the required reports immediately after the test has been downloaded to the computer. Once this is enabled the software will repeat this process every time until we disable it. In order to enable the **Print After Download** function simply tick the box indicated in *fig 20 page 41*

### **Test Summary Report**

This window allows the user to search the software for a summary of tests done between specified dates. Once the month and year have been set by means of the drop down windows click on the dates you require in the **Start Date** and **End Date** calendars and all the vehicles that have failed a test on any critical parameter such as Maximum Deceleration , Brake Balance , Visual Inspection or Gas / Headlight Test will be listed in the window indicated in *fig 21 page 43* .

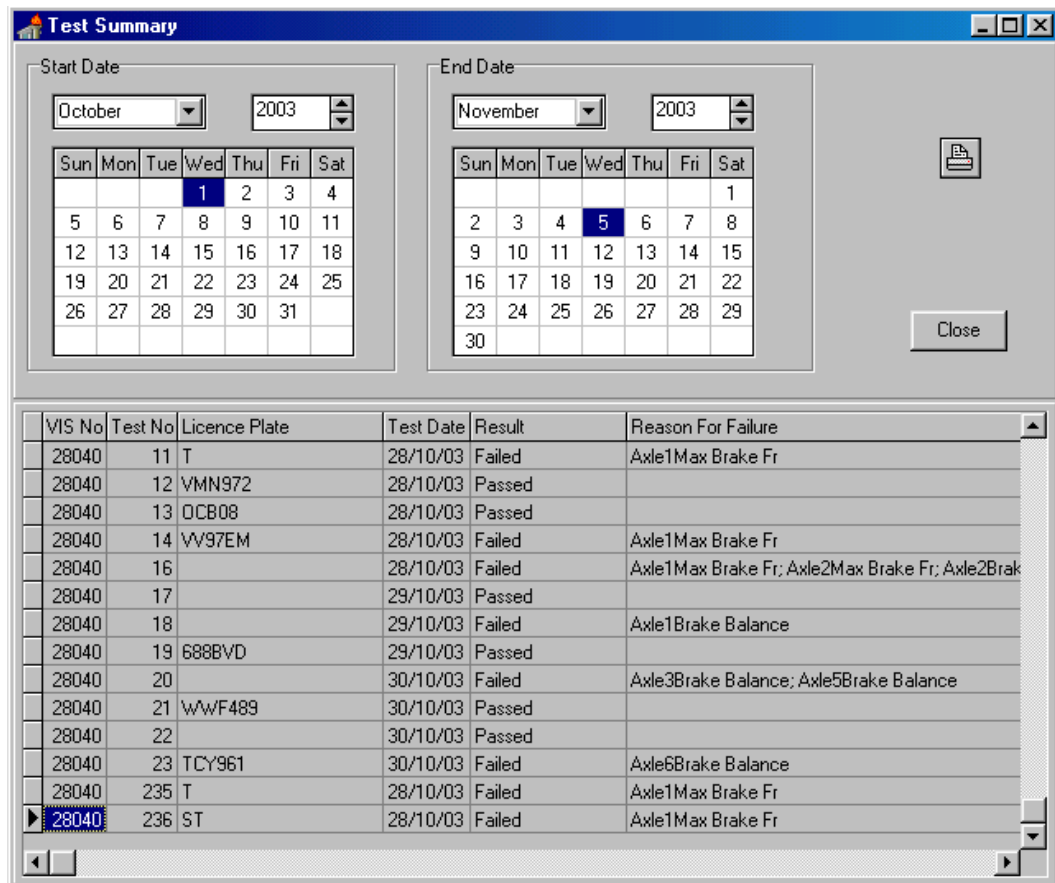
To access the window complete the following steps:

- ☞ Click on **Reports**
- ☞ Click on **Test Summary**

This report page is designed for quick access to a summary of tests done of a specific period indicating whether the vehicle passed or failed , reasons for failure, test number, test date and licence number.

It can also be used to track whether vehicles are being tested on a regular basis and that repairs if any are carried out.

Fig 21



### Comments

Vehicle tests can be searched for using either the test number or registration number. Using the test summary page it is possible to search for test that was done on a specific day but may have not had a registration number inserted. Simply find the date tested and then access the test details via the test number show on the test summary page.

## Vehicle Summary Report

The **Vehicle Summary** page indicated in *fig 22* below lists both visual and downloaded data. Displayed at the top of the page is the information that is displayed on all of the report pages. This information consists of the following:

- ☞ **Test number**
- ☞ **Test Date**
- ☞ **Test Time**
- ☞ **Machine Serial Number**

The next line of information consists of the following:

- ☞ **The vehicle license or registration number**
- ☞ **The number of axles tested**
- ☞ **Emissions test results ( optional)**
- ☞ **Headlight and Speedometer test results ( optional)**

Fig 22

Vehicle Summary														
Test No.	56		Test Date	16/05/2		Calibration								
VIS No.	19,648		Test Time	09:16:47 AM		Test Result		Failed						
Lic. Plate	WZE4579													
No. Axles														
Speedo Test					"30 kph" Speedometer		0.00							
Exhaust Test			CO %		HC ppm		Opacity K							
Headlight Test			High Beam %		Low Beam %		Fog H/L %							
Brake Test	Failed													
Axle No.	Weight		Max. Service Brake Force		Max. Decel.			Max. Park Decel.		Roll. Res. Ratio		Sideslip mm	Evaluation	
	L	R	L	R	B	L	R	A	L	R	L			R
1	683	809	10,908	13,156	82	15.89	16.20	16.10	6.30	0.80	1.62	0.43	0.00	Passed
2	763	646	780	425	54	1.00	0.60	0.80	1.20	0.80	0.93	0.43	0.00	Failed
3	510	556	3,667	3,762	97	7.09	6.69	6.90	1.10	0.89	0.63	0.37	0.00	Passed
Visual Test														
Axle	Inspection Item				Initial Insp.	Work	Remark				Evaluation			
1	Wheel bearing				Service/Adjust		Left hand front needs adjusting				Failed			
1	King Pin				Repair/Replace		Replace Front right hand side				Failed			



---

The brake test results displayed in *fig 22 page 44* appear under the following headings:

- ☞ **Axle Number**
- ☞ **Weight** (*left and right hand side*)
- ☞ **Maximum Service Brake Force** (*Left and Right hand side*)
- ☞ **Displayed under the letter “ B ” is the brake balance**
- ☞ **Maximum Deceleration** (*left and right hand side*)
- ☞ **Maximum park brake deceleration** (*left and right hand side*)
- ☞ **Rolling resistance ratio** (*left and right hand side*)
- ☞ **Side Slip**
- ☞ **Evaluation of the axle**

The results of each axle are displayed next to the number on the left side of the page indicating the axle displayed.

### **Visual Inspection**

The visual inspection information that is displayed on the page is inserted into the report page by the user of the equipment once a complete inspection of the vehicle has been carried out. The defects are then displayed across the page under the headings:

- ☞ **Axle**
- ☞ **Work**
- ☞ **Remarks**
- ☞ **Evaluation**

These remarks and results are inserted into the software via the **Visual Entry Cover Page**. The following section of this manual deals with the construction of the **Visual Inspection** page and the method by which the information is inserted into the **Visual Summary Page** .

---

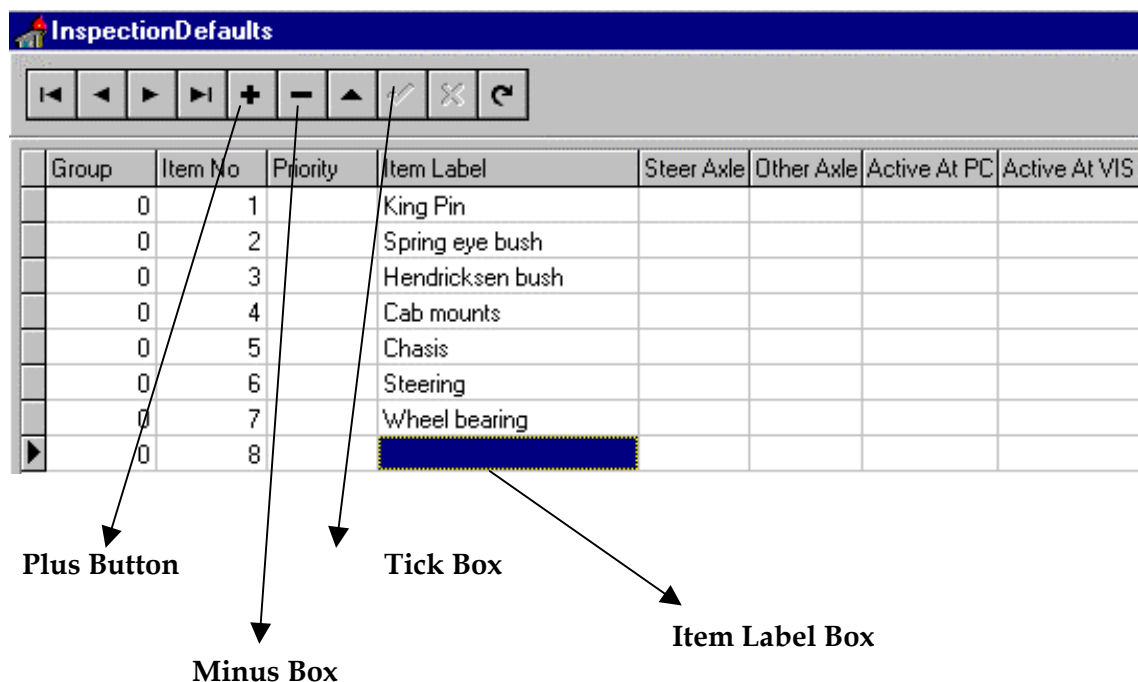
## Visual Inspection Defaults Construction Page

To open this window in the software hold the **Ctrl** key down and press the **F3** key on the computer keyboard. Once the window is displayed release the keys. The item labels displayed can be added to or removed depending on the customer requirements. To add another line and label complete the following procedure.

1. Click the **Plus ( + ) Button** on the tool bar
2. Another line will appear with the **Item Label** box highlighted
3. Type in the required item label
4. Click the tick box on the tool bar

Up to 40 items can be inserted this way into the inspection defaults page. Once all the required item labels have been inserted close out of the page.

Fig24

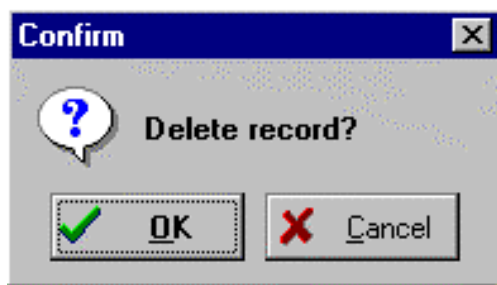


---

If you wish to delete a line in the **Inspection Defaults** complete the following procedure.

1. Click on the **Item Label** box
2. Click on the **Minus ( - ) Button** on the tool bar
3. The **Confirm** window indicated in *fig 25* will be displayed
4. Click on the **OK** button and the line will be removed

Fig 25



*Once the page setup is complete close the window and return to the cover page*

The information will remain in the **Visual Inspection Default** page and can be inserted onto **Visual Inspection Report** page after each brake test and inspection . These items are added onto the report page manually and are not automatically down loaded from the machine like the brake test results. The visual inspection relies on the person inspecting the vehicle to check each item listed in the **Visual Inspection Defaults** page and insert them into the report page.

---

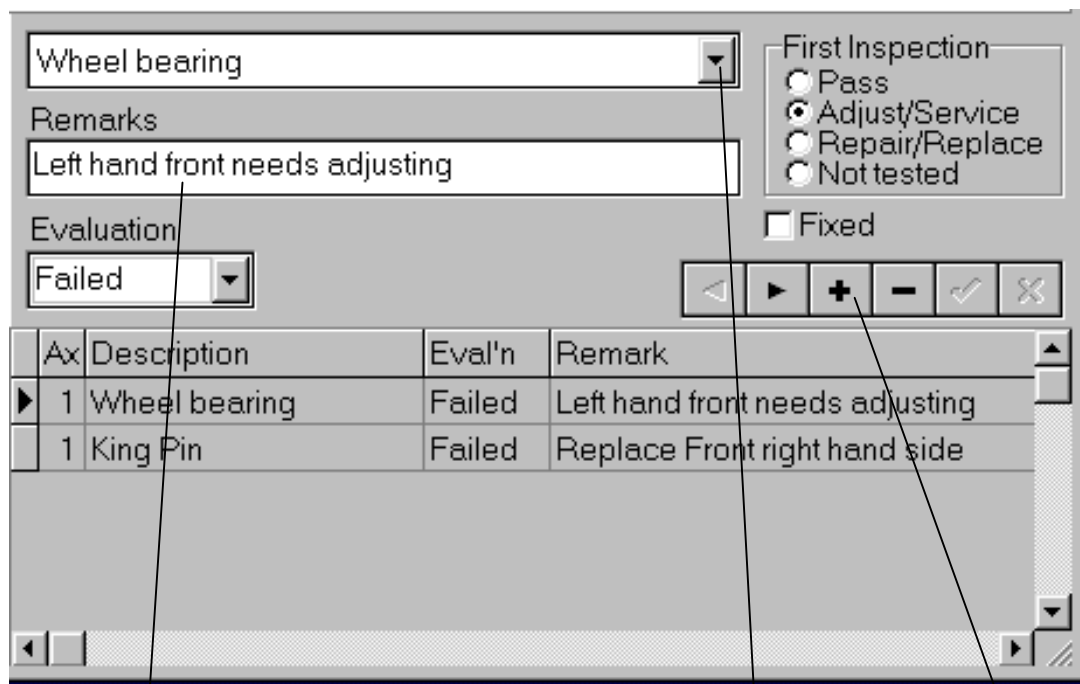
### Inserting Visual Inspection Items

Once the visual inspection defaults have been setup the user is then able to do the necessary inspection and enter the results into the report page.

To enter information complete the following procedure

1. Click the **Plus ( + ) Box** on the tool bar ( *fig 26 below* )
2. Click the **Item Drop Down Arrow** indicated in *fig 26* below
3. Select the item being entered by clicking on it. The item will then be highlighted and entered. ( *fig 27 page 50* )

Fig 26

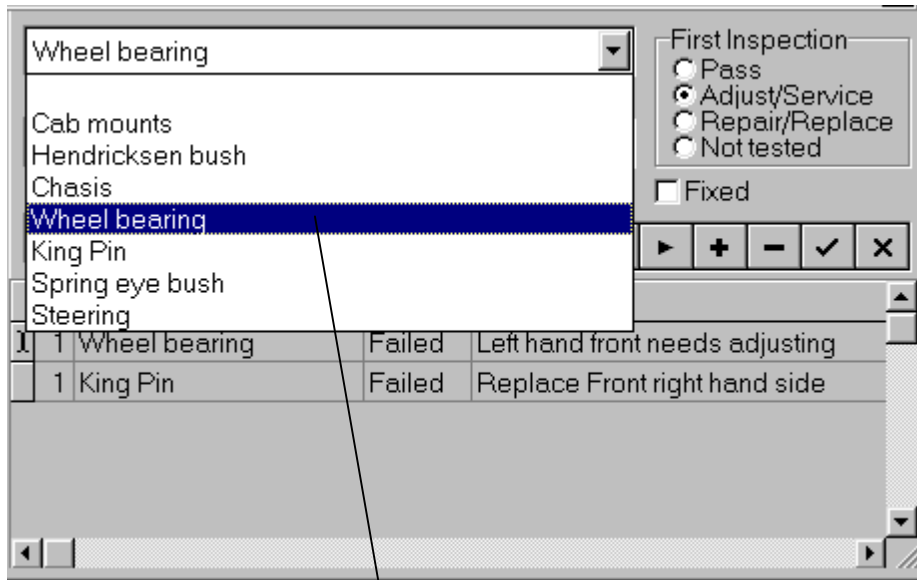


Remarks Window

Item Drop Down Arrow

Plus Box

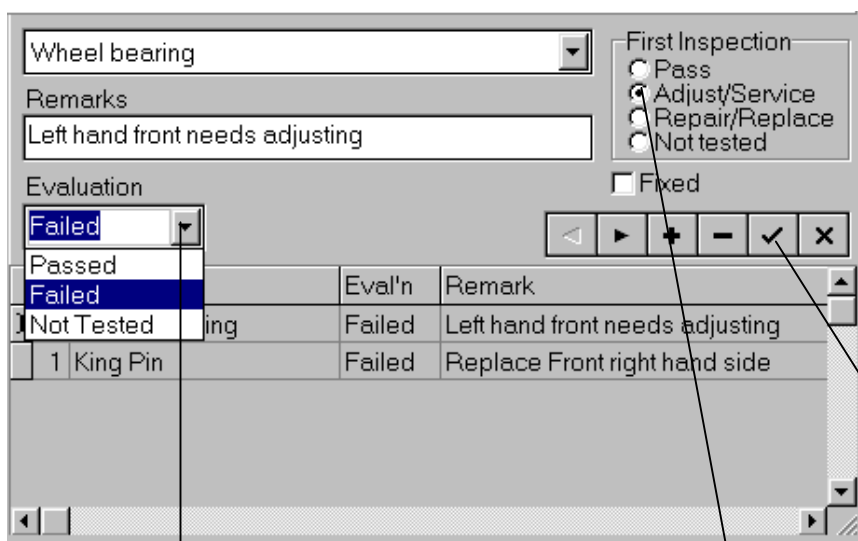
Fig27



**Selected Item**

- Any remarks on the item can be entered into the remarks window indicated *fig 26* page 49
- Click on the **Evaluation Drop Down Window** indicated in *fig 28* below and choose one of the three listed evaluations.

Fig 28



**Evaluation Drop Down Window Arrow**

**Radio Button**

**Tick Box**

- 
6. The evaluation will then automatically be inserted into the new line created
  7. Choose one of the **First Inspection** comments by clicking the **Radio Button** indicated in *fig 28 page 50*
  8. Click the cursor on the **Tick Box** on the tool bar indicated in *fig 28 page 50* and the line will be entered into the report page.

*Once the vehicle has been repaired tick the fixed box and it will be indicated on the **Vehicle Summary** report page that the vehicle has been repaired*

### **Available Report Pages**

There are four report pages available although not all are as detailed as the Vehicle Summary Report they are designed to suit the various needs of a wide spectrum of customers. It is best to select the report (s) that cover your specific requirements instead of printing out all the available pages.

The following four reports are available:

1. Vehicle Summary Report           (*fig 22 page 44*)
2. Axle Test Summary Report       (*fig 29 page 52*)
3. Axle Test Results               (*fig 30 page 53*)
4. Enforcement Report             (*fig 31 page 54*)

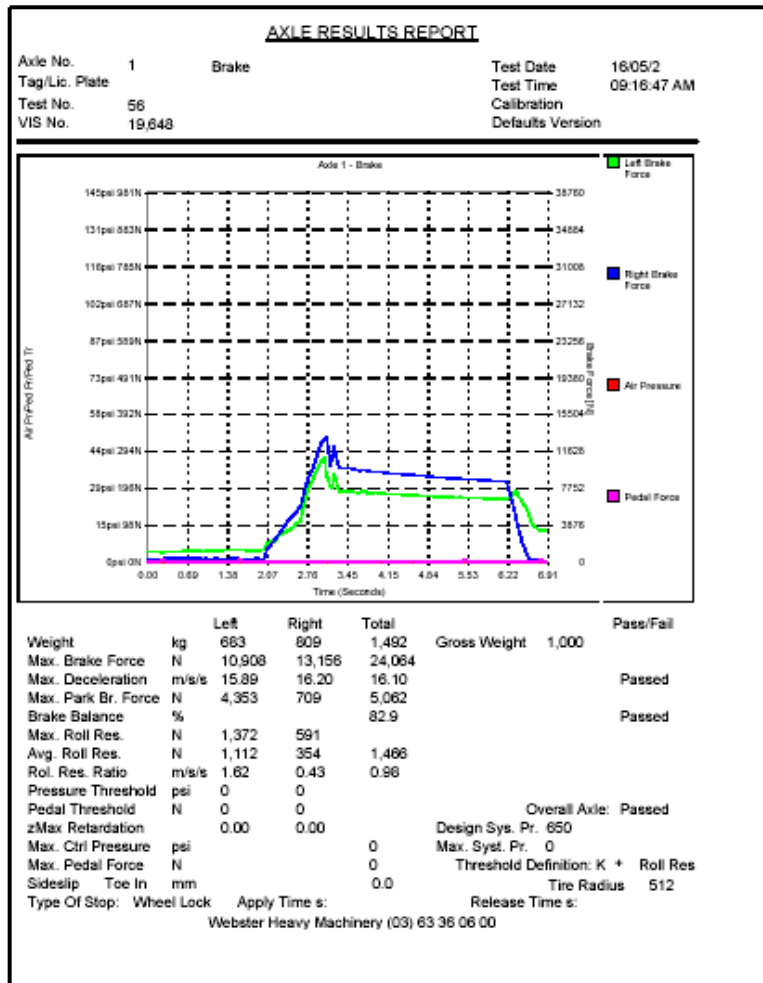
Fig 29

Axle Summary 1																	
Test No.		56		Test Date		16/05/2		Test Time		09:16:47 AM		Calibration		Defaults Version			
VIT No.		19,848		MV Tag/Licence													
Axle No.	Weight			Max. Service Brake Force			Max. Park Brake Force			Max. Decel.			Pres. Thresh.		Pedal Thresh.		
	L	R	T	L	R	B	L	R	B	L	R	A	L	R	L	R	
M	1	883	809	1,402	10,208	13,156	0.82	4,353	709	0.16	15.89	16.24	16.04	0	0	0	0
a	2	763	646	1,409	780	425	0.54	922	544	0.59	1.00	0.80	0.80	0	0	0	0
i	3	510	556	1,066	3,867	3,762	0.97	567	544	0.95	7.09	8.89	8.89	0	0	9	0
n																	
V																	
e																	
h																	
-																	
	Mem	1,565	2,011	3,987	15,355	17,343	0.88	5,842	1,797	0.30							
T																	
r																	
a																	
i																	
l																	
e																	
r																	
1																	
T																	
r																	
a																	
i																	
l																	
e																	
r																	
2																	
T																	
r																	
a																	
i																	
l																	
e																	
r																	
3																	

Webster Heavy Machinery (03) 63 36 06 00

The results displayed in the report page indicated above in fig 29 show trailers as well as the vehicle tested. The trailers are only indicated if they are tested separately. This report is normally used only for the trailer display feature.

Fig 30



The report page displayed above in *fig 30* displays all the brake test results beneath a graph of the brake test. Some of the results displayed are also shown on the ticket printout. The graph displayed is also shown on the **Brake Test Graph Cover Page**.

Fig 31

**Webster Heavy Machinery (03) 63 36 06 00**
Page 1 of 2

Date: 16/05/2	VIN Serial No.: 16548
Time: 09:15:47 AM	Calibration:
Test No.: 55	Location: Rochester

Vehicle VIN No.:	Prime Mover
Vehicle ID Tag:	

Axle 1 Steer		LHS	RHS	Total	Outcome
Avg Roll Res.	N	1,112	354	1,466	
Max. Brake Force	N	10,308	13,156	24,064	
Weight	kg	883	809	1,492	
Max. Deceleration	m/s <sup>2</sup>	15.89	16.20	16.10	Passed
Balance	%			82.9	Passed
Max. Park Br. Force	N	4,353	709	5,062	
Axle Summary Passed					

Axle 2		LHS	RHS	Total	Outcome
Avg Roll Res.	N	709	283	992	
Max. Brake Force	N	780	425	1,205	
Weight	kg	753	846	1,409	
Max. Deceleration	m/s <sup>2</sup>	1.00	0.80	0.90	Failed
Balance	%			54.4	Failed
Max. Park Br. Force	N	922	544	1,466	
Axle Summary Failed					

Axle 3		LHS	RHS	Total	Outcome
Avg Roll Res.	N	331	212	543	
Max. Brake Force	N	3,557	3,752	7,209	
Weight	kg	510	556	1,066	
Max. Deceleration	m/s <sup>2</sup>	7.09	6.89	6.99	Passed
Balance	%			97.4	Passed
Max. Park Br. Force	N	567	544	1,111	
Axle Summary Passed					

Axle 4		LHS	RHS	Total	Outcome
Avg Roll Res.	N				
Max. Brake Force	N				
Weight	kg				
Max. Deceleration	m/s <sup>2</sup>				
Balance	%				
Max. Park Br. Force	N				
Axle Summary					

Vehicle Summary		LHS	RHS	Total	Outcome
Max. Brake Force	N	15,365	17,543	32,698	
Weight	kg	1,956	2,011	3,967	
Max. Deceleration	m/s <sup>2</sup>	7.84	8.62	8.23	
Max. Park Br. Force	N	5,842	1,797	7,639	
Vehicle Summary Failed					

Webster Heavy Machinery (03) 63 36 06 00

The enforcement report displayed above in *fig 31* lists the axle results in separate boxes showing the basic pass / fail parameters only. This report is normally used for a basic report for enforcement purposes.

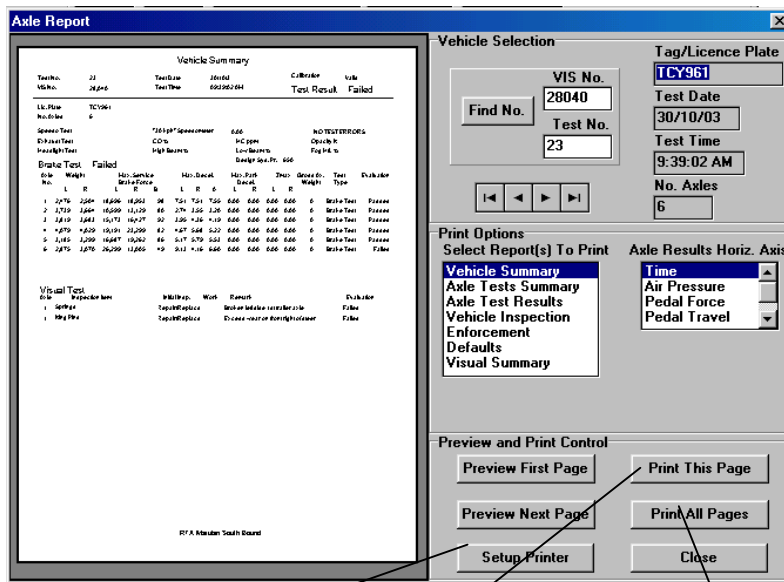
Vehicle Inspection Systems Pty Ltd v1.41 54

## Printing a Test Report

In order to print a selected test report complete the following procedure:

1. Open the axle report page indicated in *fig 32* below (*Procedure indicated on page 45*)
2. Select the report required (*Procedure indicated on page 45*)
3. To print one page of the report select the page required and click the **Print Button** indicated in *fig 32* Below. If you require all pages to be printed click the **Print All Pages** button indicated in *fig 32* below.

*Fig 32*



**Printer Setup**

**Print this page**

**Print all pages**

**Printer Setup** button indicated in *fig 32* above is used for defaulting different printers that may be set up on the computer.

*This procedure must be followed to print each report*

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## View Axle To Graph

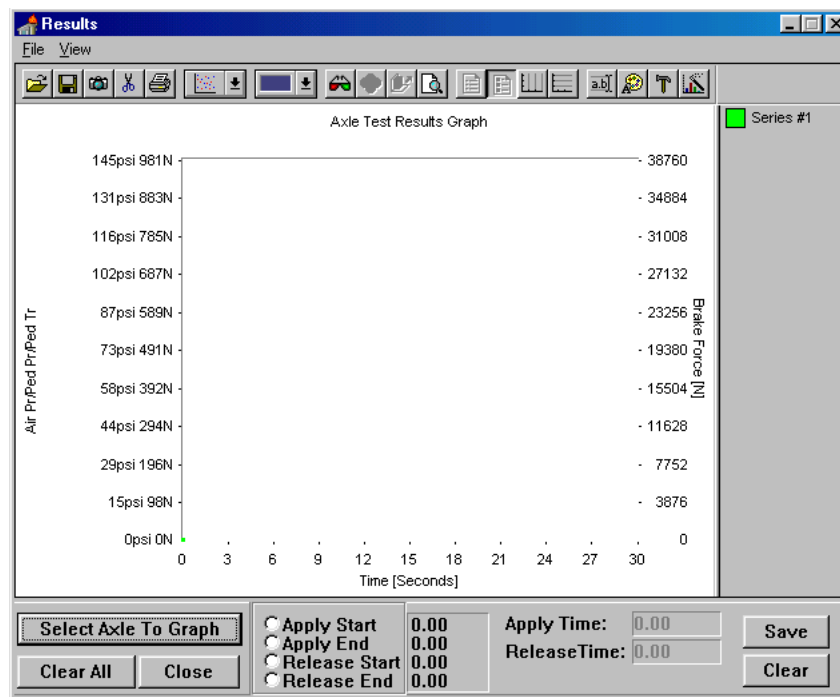
This procedure allows the user to view the graph on a selected axle and plot the following:

1. Application time between air and brake
2. Application time between pedal and brake
3. Release time between air and brake
4. Release time between pedal and brake

To access the axle to graph section complete the following procedure:

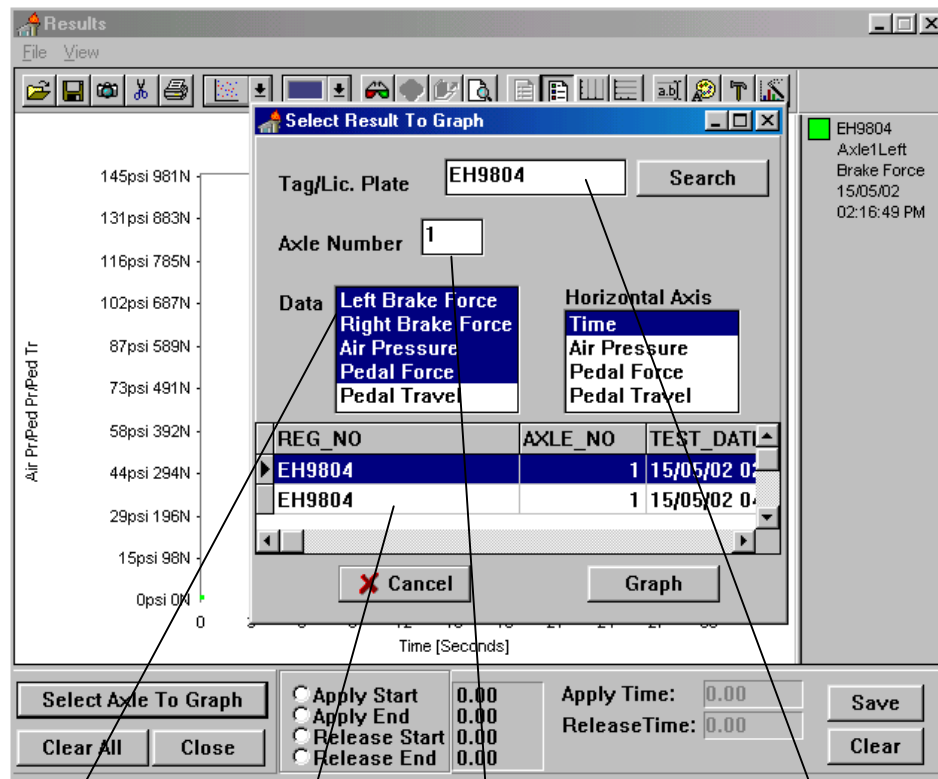
1. Click on **Forms** at the top of the cover page
2. Click on **View Graphs** and the window indicated in *fig 33* will be displayed

Fig 33



3. Click on **Select Axle To Graph** button and the window in *fig 34 page 57* will be displayed.

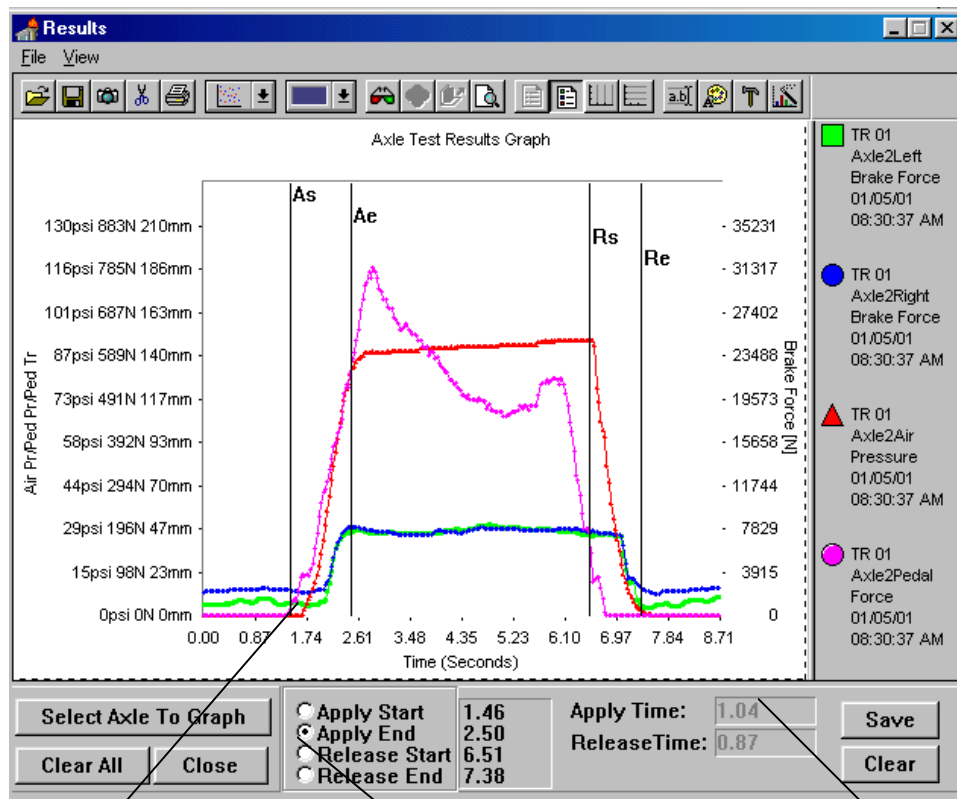
Fig 34



Data Window      Base      Axle Number Window      Tag / Lic. Window

4. Enter the vehicle registration into the **Tag / Lic. Plate** window and the axle number into the **Axle Number** window indicated in *fig 34* above
5. Make sure that the **Left Brake Force, Right Brake Force, Air Pressure and Pedal Force** are highlighted in the **Data** window indicated in *fig 34* above
6. Highlight the test number in the **Base** window indicated in *fig 22* above
7. Click on the graph button and the graph as indicated in *fig 35 page 58* will be displayed

Fig 35



Apply Start Display

Apply & Release Items

Apply & Release Time

8. Click on **Apply Start** and place the cursor at the point where either the start of the pedal or air pressure occurs indicated in *fig 35* above
9. Right click the mouse and the axis line with the heading **As** will be displayed as indicated in *fig 35* above
10. The same procedure is repeated for the **Apply End**, **Release Start** and **Release End**. To change between the various **Apply** and **Release** items click the cursor on the radio button indicated in *fig 35* above.
11. Once all the axes have been placed in position we are able to read the application and release times from the **Apply & Release Times** display.

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## **Customer Service Contact**

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## Notes