#132127

ERL MAINTENANCE SUPPORT SDN BHD

(Company No. 498574-T)

E-MAS

Effective Railway Operations; Reliable System Maintenance

PROJECT & ENGINEERING DEPARTMENT

TRACK 11 WEIGHING TRACK PROCEDURE

Ref. No. G00.OMD.M12980.PE.1005.A

Release

Released:	Ham Mow Wai	Maintenance	9/8/2016	
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Amendments or additions to this procedure must be indicated with a vertical black line in the adjacent left margin.

Change Record and Configuration Control

Revision	Date	Modification	Name
A	11-July-16	New	Amir Nordin

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1 Purpose

The purpose of this procedure is to provide an overview and guideline for operating and maintenance of the track 11 weighing track.

2 Scope, Distribution & Access

This procedure is applicable to all RST who are responsible to carry out the train load test. The distribution and access shall be available to all RST and PNE staff via Electronic Document Management System (EDMS) and through E-MAS portal.

3 Track 11 Weighing Track

The track 11 weighing track is to measure the load of train. The load will be measured by placed the each axle on the load cell. There four main components consist in this weighing track:

1. Load Cell (MWP Load Cell)
2. Weighing Indicator (Flintec FT – 10MB)
3. Programmable Logic Control (Fatek FBs – 10 MCT)
4. Desktop Computer.

AC - DC converter is used to convert 240VAC to 12VDC to supply power for PLC, and weighing indicator.

3.1 Wiring Diagram

There are three wiring diagrams for this weighing track:

1. FT – 10 Back Side Termination
2. Fatek Termination & Communication Cable
3. Line Power Diagram

The said wiring diagrams reference number is (G00.OMD.M12980.PE.1002.A).

3.2 System Structure

The following structure is shown how the system works.

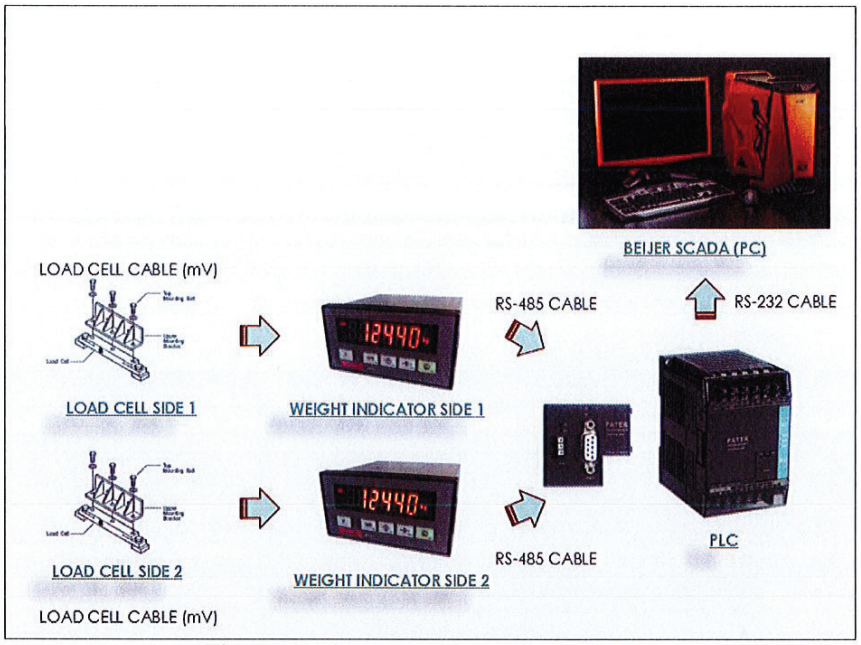


Figure 3.2 Track 11 System Structure

4 Software

The track 11 weighing track software is created by using Beijer software. On the back side of Dekstop Computer, there is one dongle for this Beijer software license. The Beijer software shall operate together with dongle.

The copy of Beijer software can be downloading from www.beijerelectronics.com/ftp with download code "ixruntime".

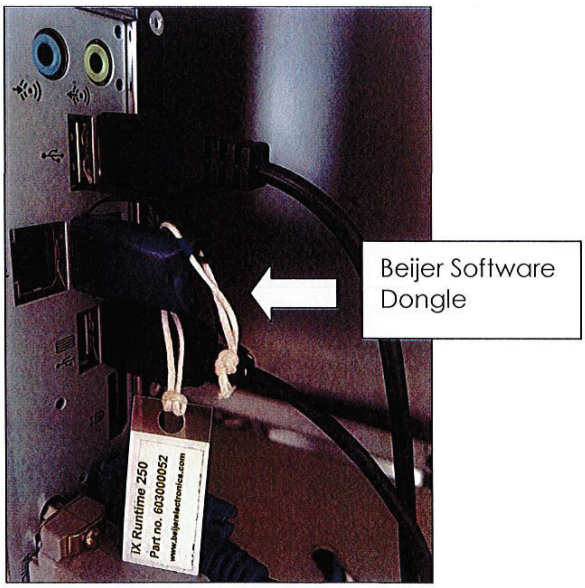


Figure 4.0 Beijer Dongle

4.1 Software Installation

There are 4 main folders for the software, the folders are listed below:

1. Klia_Express_Runtime
2. Wheel_Load_Tester_Print_Screen
3. Wheel_Load_Tester_Report
4. Klia_Express_1680x1024

The point number 1 to 3 shall be copy together to operate the software. Point number 4, is used to edit the software.

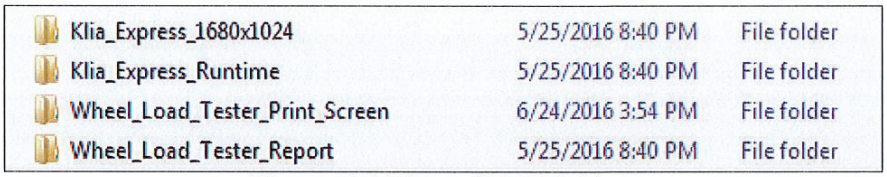


Figure. 4.1 The software folders

Create a new folder and paste point number 1, 2 and 3 together in the folder. To create shortcut for running the application, click Klia_Express_Runtime klia_express > Klia_Express(application) and paste at the desktop.

The data loggers can be discover at Klia_Express_Runtime > klia_express > Project Files > DatabaseExport > Data Loggers.

4.2 Software and Report Keeping

The end user is recommended to back up the operating software and measurement data for safe keeping. It shall be kept in separate location or system as backup.

5 Operating Instructions

Users may refer to the training slide (doc number: G00.OMD.M12980.PE.1003.A) prior operating the machine. Below are the instructions for operating the machine as depicted in said training slide with detail explanation.

5.1 Step 1 – Log in

Open the software by double click at the load tester icon. Click to the login icon 

. The username and password are shown below:

	Username	Password
1	user	klia123
2	administrator	erladmin

Figure 5.1.1 The main display

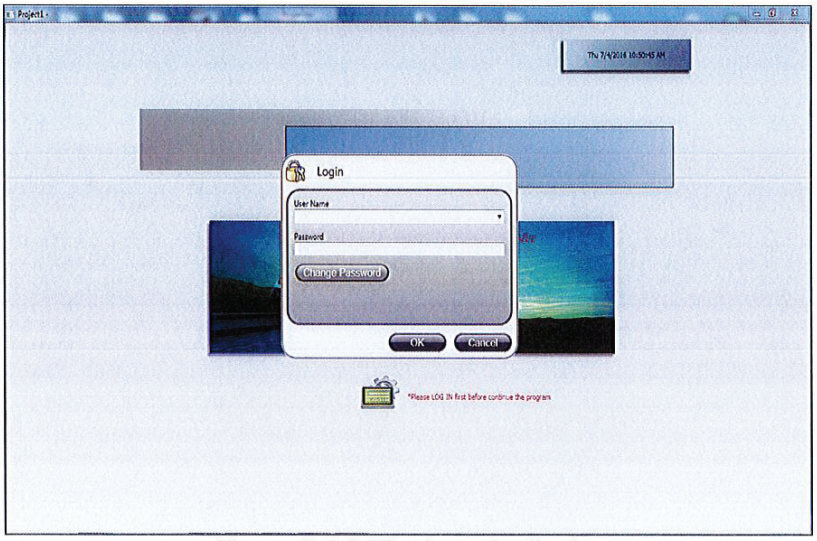


Figure 5.1.2 The log – in display

5.2 Step 2 – Choose Option & Key in the Details

Two options can be selected either two load cells function or four load cell function. The software will request to the user to write the details (eg. Load Test with Air or Load Test without Air) and the train number. Once the detail has been filled, press ENTER.

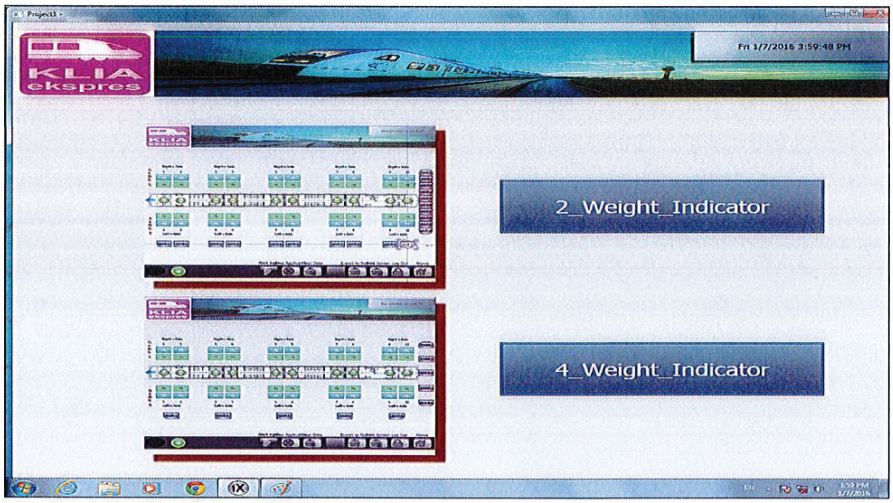


Figure 5.2.1 Selected Options

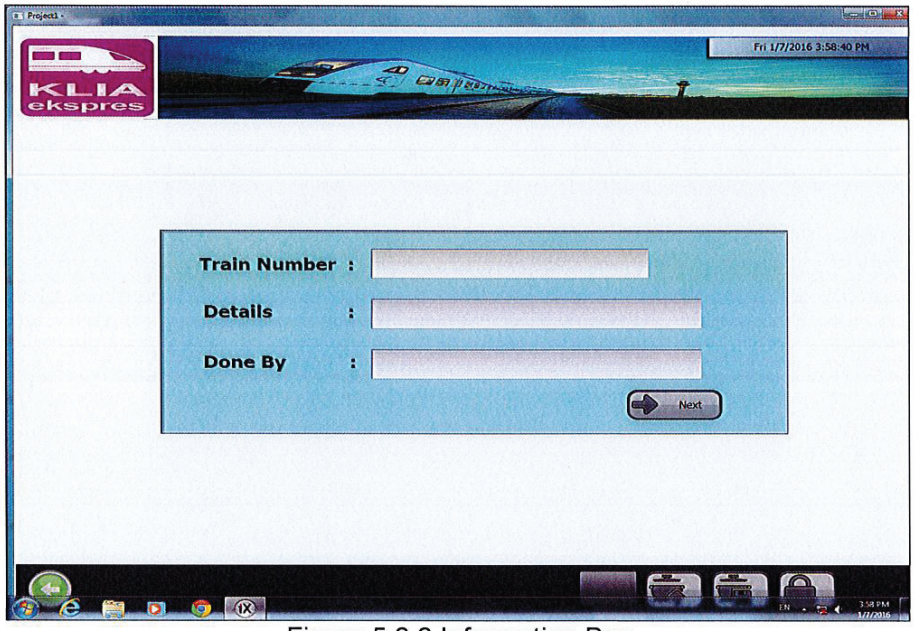
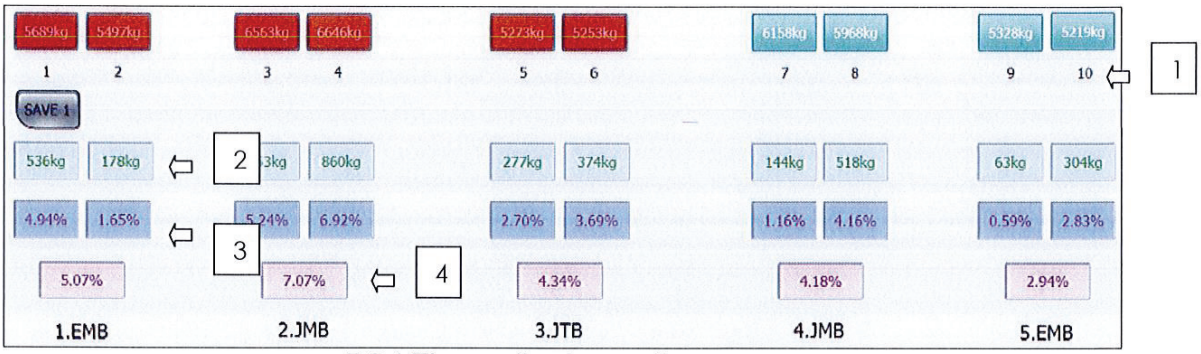


Figure 5.2.2 Information Box

5.3 Step 3 – Measuring the Load of Axle

Place the selected train axle on the load by aligning the train using shunting vehicle. The weight indicator panels (Flintec FT – 10Mb) and green box on computer screen will show the actual axle load value. The user need to click save button, the recorded value from the green box will transfer into blue box. The blue box will turn to red for indicate which side is heavier.



5.3.1 The reading box on the screen

No.	Details
1	Axle Number
2	Weight difference between side 1 and side 2
3	Percentage reading for axle
4	Percentage reading for bogie
5	EMB – End Motor Bogie JMB – Jacob Motor Bogie JTB – Jacob Trailer Bogie

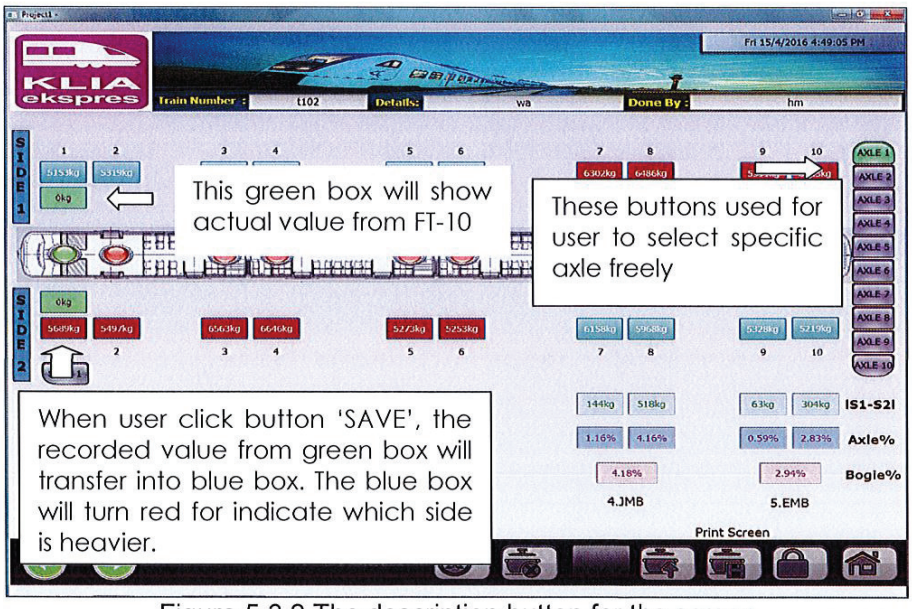


Figure 5.3.2 The description button for the screen

5.4 Step 4 – Data Tabulated

Once the entire axle's load measurement being recorded, below table will be tabulated. A red box appearance will indicate that the recorded value is out of range. There are two types of table:

1. Table for Axle Load
2. Table for Bogie Load

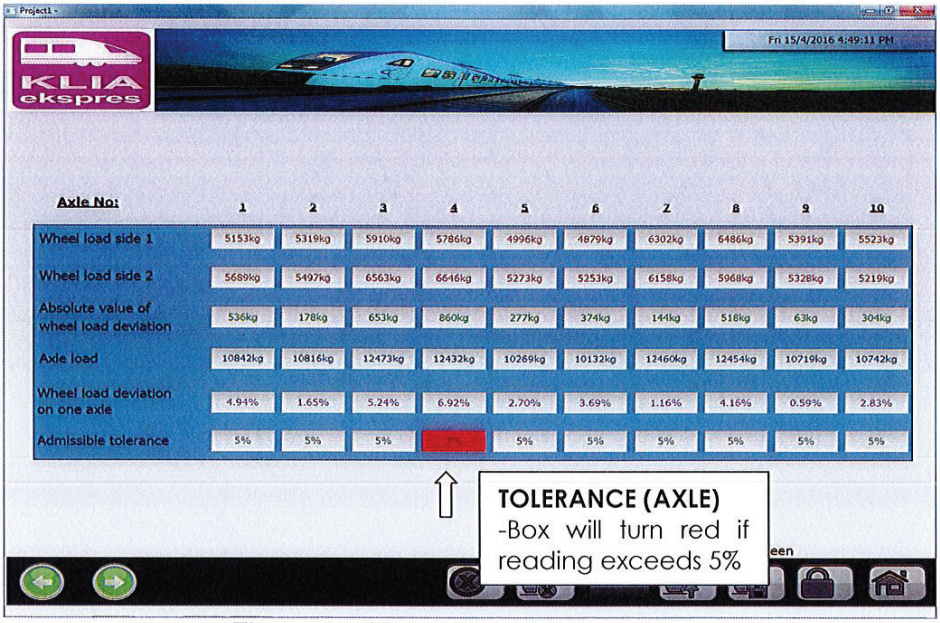
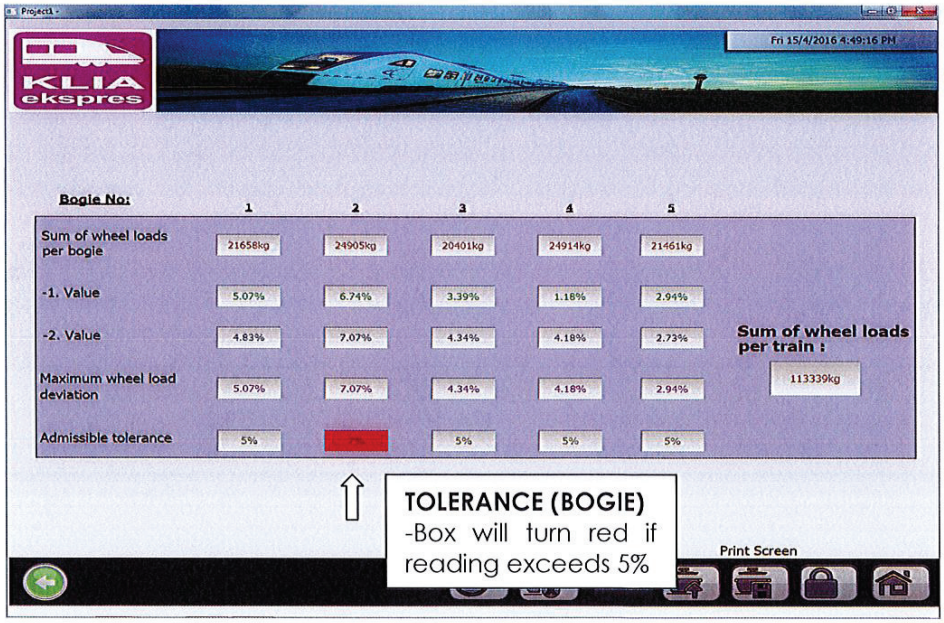


Figure 5.4.1 The tabulated data for axle



6 Calibration and Adjustment

A verification or calibration process is proposed to be executed annually as to ensure the system accuracy within 2% tolerance. These processes shall be documented.

Only Zero Adjustment can be executed as necessary and no recording required. However, if zero drift is beyond 50kg it this recommended that verification to be executed immediately.

6.1 Flintec Indicator Adjustment

All instructions for the Flintec Indicator can be found at **FT – 10 Technical Manual, Rev 2.1** (doc number: G00.OMD.M12980.PE.1001.A). The basic meaning of the button keys on the indicator is shown as below:

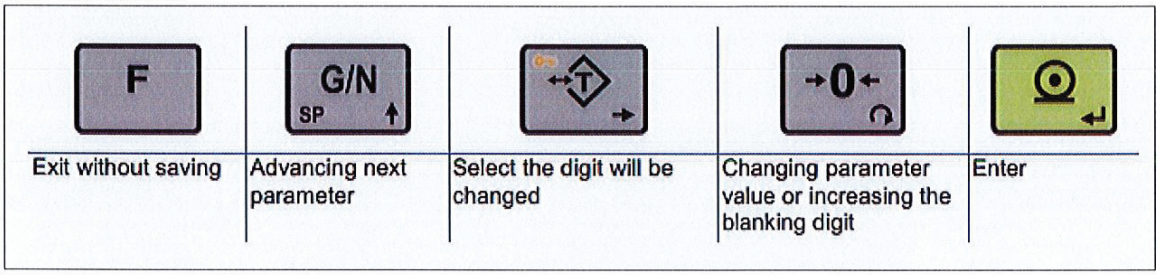


Figure 6.1.1 The Flintec Indicator Button Description

6.1.1 Fast Access Adjustment

The below steps is for the fast access to the calibration function. On the sub – block, the maintenance can perform either [310] zero adjustment or [311] span adjustment.

Display	Operation
[123.456 kg]	Press F key until [PASSWr] prompts seen.
[PASSWr]	Press →0← + →0← + →0← keys sequentially.
[---]	Press ↵ key for confirm.
[310]	Zero Adjustment parameter.
"Calibration"	Press ↵ key to start zero adjustment. Or press G/N key to access span calibration without zero adjustment.

Figure 6.1.1.1 Steps for Flintec Indicator Adjustment

6.1.2 [310] Zero Adjustment

The zero adjustment is used to set position of the scale to prevent wrong weighing due to zero drifts. This is required if the indicated value is deviate from reading "0kg" during no load being applied onto the load cell. Follow the steps below:

1. Press ⊙↵ at the [**310**] prompt to start the zero adjustment.
2. At the [**ZEro.CA**] prompt, remove any weight on the platform, then press ⊙↵.
3. The terminal automatically starts to capture zero and the [**WAit**] message indicating the operation is in progress.
4. At the [**SAvE**] prompt press ⊙↵ key to continue to the next parameter or press F key to exit without saving the calibration.

Figure 6.1.2.1 Steps for Zero Adjustment

6.1.3 [311] Span Adjustment

The span adjustment is required to synchronize the load on the load cell with the indicator reading. Due to the limitation of calibration / verification equipment capability, the span adjustment load to be applied are between 2000kg to 5000kg and the steps are listed below:

1. Assemble the jigs, tools and instrument according to Figure 6.1.3.1.
2. Impose some load to the assembly by pumping the hydraulic piston.
3. Keep on adjusting the imposed load to nearly 5000kg by referring to reference load cell.
4. Proceed with the process depicted in Figure 6.1.3.2 for span adjustment on Flintec indicator.

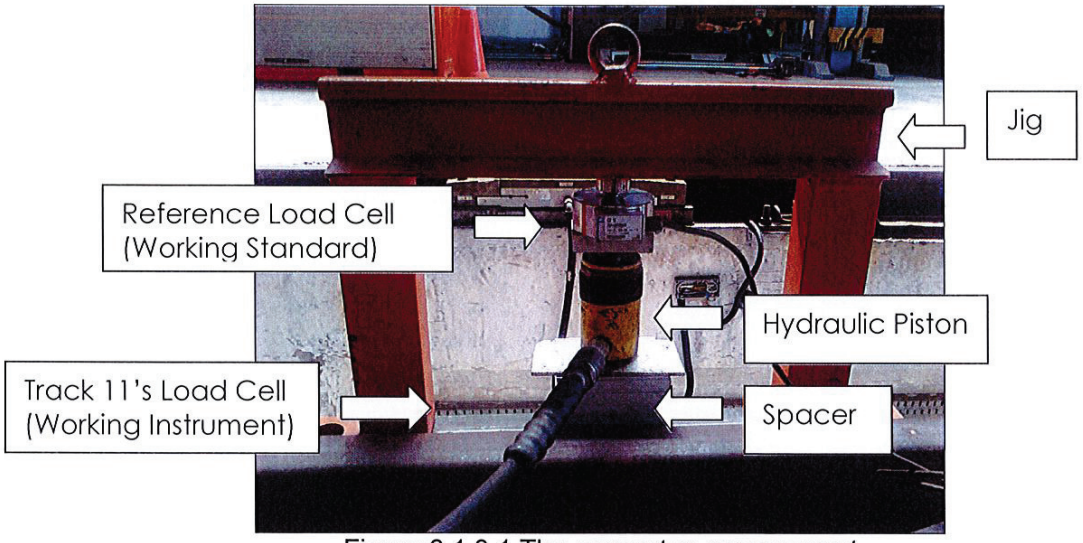


Figure 6.1.3.1 The apparatus arrangement

1. Press < ⊙↵ > at the [**311**] prompt to start the span adjustment.
2. At the [**XXXXXX**] prompt, the test weight value will be used for the calibration seen on the display. If the value of the test weights that will be used is different from the value shown on the display, type the new value via tare and zero keys. A minimum of 20% of scale capacity is necessary for calibration; FLINTEC recommends 50 to 100%. A calibration error will result if insufficient weight is used.
3. Place the test weights or another practical weight on the scale.
4. Press ⊙↵ to start span calibration. [**WAit**] message will be shown on the display 10 s while span calibration is being performed.
5. At the [**SAvE**] prompt press ⊙↵ key to continue to the next parameter or press F key to exit without saving the calibration.

Figure 6.1.3.2 Steps for Span Adjustment

6.1.4 Exiting the Calibration

The below steps is to perform exit from the calibration.

If you press F key on which parameter you are, you will get out of the active sub-block and reach the next sub-block. If you press F key again, you will get out of the active block and reach the next main block. If you press F key once again, the [**SAvE**] message appears on the display.

- Here you can press ⊙↵ key to save the changes into the memory,
- or you can press ◇ key to store the changes until the power goes off,
- or you can press F key to abort changes.

[Wait] message will be seen on the display for a little while, and automatically get back to weighing mode. Especially for legal metrological usage, please don't forget to turn the power off and "OFF" position the calibration DIP switch to start operation.

Figure 6.1.4.1 Steps for Exiting the Calibration