Defender™ 6000 Series Base Service Manual

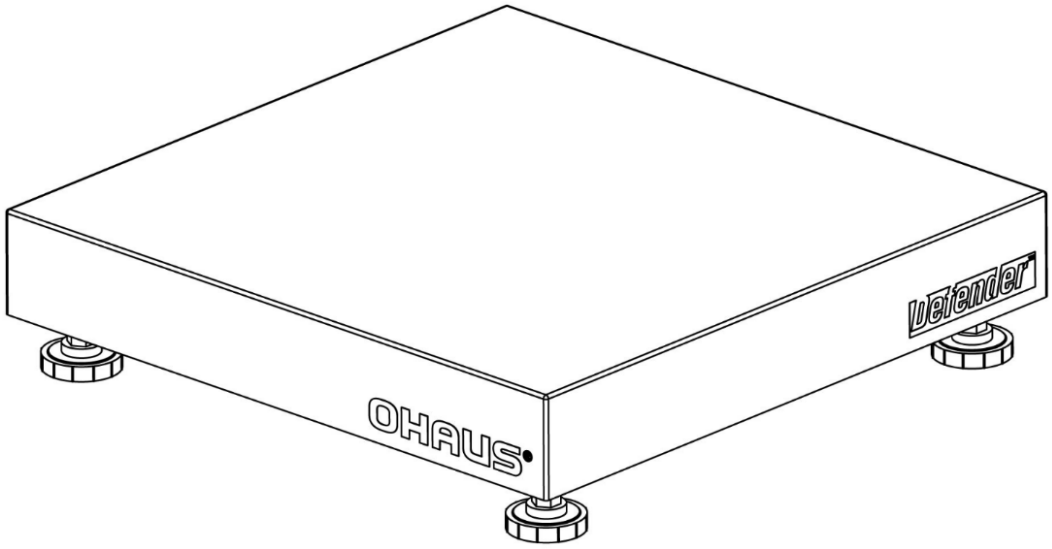


TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION 2
1.1 Introduction 2
1.2 Definition of Signal Warning and Symbols 2
1.3 Safety Precaution 3
1.4 Service Facilities 3
1.5 Tools and Test Equipment Required 4
1.6 Test Masses Required 4
1.7 Service Strategy 4
1.8 Specifications 5
1.10 How Load Cells Operate 8
1.11 Load Cell Connection 9
CHAPTER 2 TROUBLESHOOTING 11
2.1 Troubleshooting 11
2.1.1 Checking Load Cells for Trouble 11
CHAPTER 3 MAINTENANCE AND REPAIR PROCEDURES 12
3.1 Preventive Maintenance 12
3.1.1 Preventive Maintenance Checklist 12
3.2 Replacing the Load Cell 12
3.3 Overload Stop Adjustment 14
CHAPTER 4 TESTING 15
4.1 Testing 15
4.2 Load Cell Resistance Checks 15
4.3 Calibration with an External Indicator 16
4.4 Consistency Check 17
4.5 Performance Tests 17
4.5.1 Off Center Load (Shift) Test 18
4.5.2 Adjusting Off Center Load 19
4.5.3 Full Load Test 20
CHAPTER 5 PARTS IDENTIFICATION 21
5.1 Defender 6000 series Base: R, S Base 21
5.2 Defender 6000 series Base: L Base 22
5.3 Defender 6000 series Base: V Base 23
APPENDIX A. GLOSSARY 24

CHAPTER 1 INTRODUCTION

1.1 Introduction

This service manual contains the information needed for diagnosis and repair of Ohaus Defender series Bases. The contents of this manual are contained in five chapters:

Chapter 1 Introduction – Contains information regarding service facilities, tools and test equipment, test masses, specifications, service strategy, and the mechanical and electronic operation of the Base.

Chapter 2 Troubleshooting – Provides guidelines for evaluating the condition and performance of a Base unit, and a standard troubleshooting methodology to follow, as well as a diagnostic guide.

Chapter 3 Maintenance Procedures – Contains preventive maintenance procedures and disassembly, repair and replacement procedures.

Chapter 4 Testing – Contains guides for operational and performance tests and adjustments.

Chapter 5 Parts Identification – Contains exploded views of Defender series Bases and parts, identifying all serviceable components with parts lists.

Before servicing the Base, you should be familiar with the Instruction Manual which is packed with every base.

1.2 Definition of Signal Warning and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

Signal Words

WARNING	For a hazardous situation with medium risk, possibly resulting in injuries or death if not avoided.
CAUTION	For a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or injuries if not avoided.
Attention	For important information about the product.
Note	For useful information about the product.

Warning Symbols

 General Hazard

 Electrostatic discharge sensitive

 Electric Shock Hazard

1.3 Safety Precaution

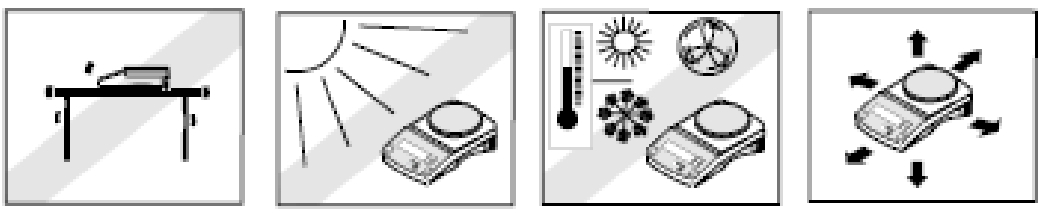
CAUTION: Read all safety warnings before installing, making connections, or servicing this equipment. Failure to comply with these warnings could result in personal injury and/or property damage. Retain all instructions for future reference.

- For AC mains powered models:
- - Verify that the local AC power supply is within the input voltage range printed on the equipment's data label. - Only connect the AC power cord to a compatible grounded electrical outlet.
- For AC adapter powered models:
- - Verify that the local AC power supply is within the input voltage range printed on the AC adapter's data label. - Only connect the AC adapter to a compatible grounded electrical outlet.
- Do not position the scale such that it is difficult to disconnect the power cord from the power receptacle.
- This equipment is intended for indoor use and should only be operated in dry locations.
- Operate the equipment only under ambient conditions specified in the user instructions.
- Do not operate the equipment in hazardous or unstable environments.
- Disconnect power from the equipment before cleaning or servicing the equipment.
- Service should only be performed by authorized personnel.
- Use electrostatic protection measures when handling the printed circuit board.
- Only use original replacement parts and accessories.

1.4 Service Facilities

To service a scale Base, the service area should meet the following requirements:

- Clean and level environment.
- Away from magnetic fields such as motors or large transformers.
- Free of vibrations such as fork lift trucks close by, large motors, etc.
- Stable and level work surface.
- Not exposed to direct sunlight or radiating heat sources.



1.5 Tools and Test Equipment Required

1. Common hand tools
2. Standard electronics tool kit
3. Digital Voltmeter (DVM) capable of reading from 1 mv to 50 V dc.)
4. Megohmeter (50 Volt dc maximum test voltage)
5. Desk magnifier on a stand
6. Ohaus Indicator: Defender 6000, or equivalent commercial indicator
7. A calibrated Torque Wrench N.m. – Ft/Lbs

1.6 Test Masses Required

The masses required to test the Ohaus Defender series Bases when connected to an Indicator must meet the requirements of ASTM Class or OIML. Mass values 3kg to 600kg, depending on the Base model. The full scale rated capacity of the Base should be used for Span calibration.

1.7 Service Strategy

The Load Cells used in Ohaus Bases are non-repairable. The repair method for the Base is direct replacement of Load Cells with connecting cable and hardware.

The Defender series Base contains the following basic replaceable assemblies: Platform, Load Cell with Connecting Cable, and Down Stop and mounting hardware. There is an exploded view drawing of the Base and associated parts list in Chapter 5. This service manual contains sufficient information to isolate the problem, replace the component, test and restore the Base to its original factory specifications.

1.8 Specifications

The technical data is valid under the following ambient conditions:

Operating temperature: -10ºC to +40 ºC (14 °F to 104 °F)

Relative humidity: 10% to 90% relative humidity, non-condensing

Altitude: Up to 2,000m

Note: Not all models may be available in your area. Check with your local OHAUS representative.

TABLE 1-1. SPECIFICATIONS FOR DEFENDER SERIES BASES

MODEL	**i-D3K1S**	**i-D6K1S**	**i-D15K1R**	**i-D30K1R**	**i-D60K1L**	**i-D150K1L**
Capacity	3 kg	6 kg	15 kg	30 kg	60 kg	150 kg
Approved Resolution	OIML 3000e					
Safe Overload Capacity	150% of capacity					
Pan Dimensions	254 x 254 mm 10 x 10 in		305 x 305 mm 12 x 12 in		400 x 500 mm 15.7 x 19.6 in	
Base Construction	Stainless Steel platform with stainless steel frame and rubber leveling feet					
Repeatability (std.deviation)	2d					
Linearity	±2d					
Load Cell Capacity	10 kg	10 kg	20 kg	50 kg	100 kg	200 kg
Load Cell Cable	1 m L x 6-wire				2 m L x 6-wire	
Load Cell Type	350 Ohm, SST, single point					
Load Cell Excitation	3.3-15V DC/AC					
Load Cell Rated Output	2mV/V					
Load Cell Protection	IP69K					
Net Weight	6 kg / 13.2 lb		7.5 kg / 16.5 lb		16 kg / 35.3 lb	
Shipping Weight	7 kg / 15.4 lb		8.5 kg / 18.7 lb		18 kg / 39.7 lb	

MODEL	**i-D5K1S**	**i-D12K1R**	**i-D25K1R**	**i-D50K1L**	**i-D150K1L**
Capacity	10 lb	25 lb	50 lb	100 lb	300 lb
Approved Resolution	NTEP 5000				NTEP 3000
Safe Overload Capacity	150% of capacity				
Pan Dimensions	254 x 254 mm 10 x 10 in	305 x 305 mm 12 x 12 in		400 x 500 mm 15.7 x 19.6 in	
Base Construction	Stainless Steel platform with stainless steel frame and rubber leveling feet				
Repeatability (std.deviation)	2d				
Linearity	±2d				
Load Cell Capacity	10 kg	20 kg	50 kg	100 kg	200 kg
Load Cell Cable	1 m L x 6-wire			2 m L x 6-wire	
Load Cell Type	350 Ohm, SST, single point				
Load Cell Excitation	3.3-15V DC/AC				
Load Cell Rated Output	2mV/V				
Load Cell Protection	IP69K				
Net Weight	6 kg / 13.2 lb	7.5 kg / 16.5 lb		16 kg / 35.3 lb	
Shipping Weight	7 kg / 15.4 lb	8.5 kg / 18.7 lb		18 kg / 39.7 lb	

MODEL	i-D3K1SZH	i-D6K1SZH	i-D15K1RZH	i-D30K1RZH	i-D60K1LZH	i-D150K1LZH	i-D300K1VZH	i-D600K1VZH
Capacity	3 kg	6 kg	15 kg	30 kg	60 kg	150 kg	300 kg	600 kg
Resolution	n= 3000							
Safe Overload Capacity	150% of capacity							
Pan Dimensions	254x 254 mm		305 x 305 mm		400 x 500 mm		600 x 800 mm	
Base Construction	Stainless Steel platform with stainless steel frame and rubber leveling feet							
Load Cell Capacity	10 kg	10 kg	20 kg	50 kg	100kg	3000kg	500 kg	1000 kg
Load Cell Cable	1 m L x 6-wire				2 m L x 6-wire			
Load Cell Type	350 Ohm, SST, single point							
Load Cell Excitation	5-15V DC/AC							
Load Cell Protection	2mV/V							
Load Cell Protection	IP69K							
Net Weight	6 kg		7.5 kg		16 kg		37 kg	
Shipping Weight	7 kg		8.5 kg		18 kg		41 kg	

1.10 How Load Cells Operate

Load Cells convert force into a signal. The Defender Series Bases have a Strain Gauge Load Cell, which is made from a metal beam with holes drilled in it. Strain gauges are affixed to the beam at the top and bottom to measure changes in the beam due to deflection. The gauges are bonded very securely to the metal, where they sense very small deflections in the metal caused by the load being applied to the cell. Because the signal levels are very small, the circuit is protected from all outside influences such as moisture, physical damage, or electrical interference.

The strain gauges are wired into a Wheatstone Bridge Circuit. (See Figure 1-1.)

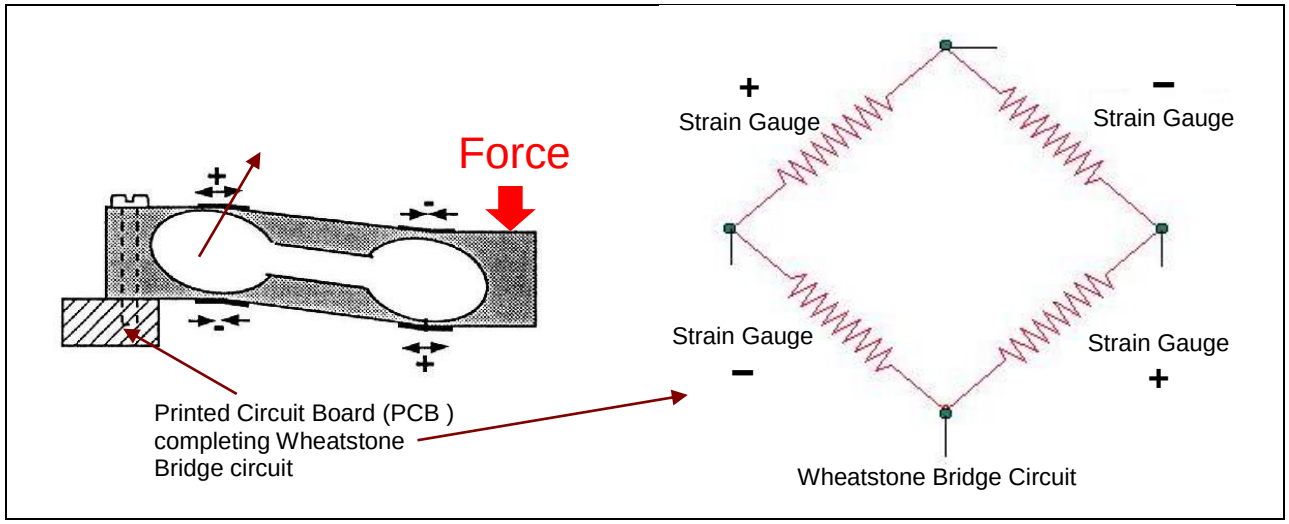


Figure 1-1. Downward force on the Platform bends the beam, causing two gauges to stretch and two to compress in opposition, changing the electrical resistance of the circuit.

At zero load, all strain gauges are unstressed. Weight placed on the Platform bends the beam, causing two gauges to stretch and two to compress in opposition, changing the electrical resistance of the circuit.

The difference in the output signal before and after the mass was placed on the platform is measured, interpreted and displayed.

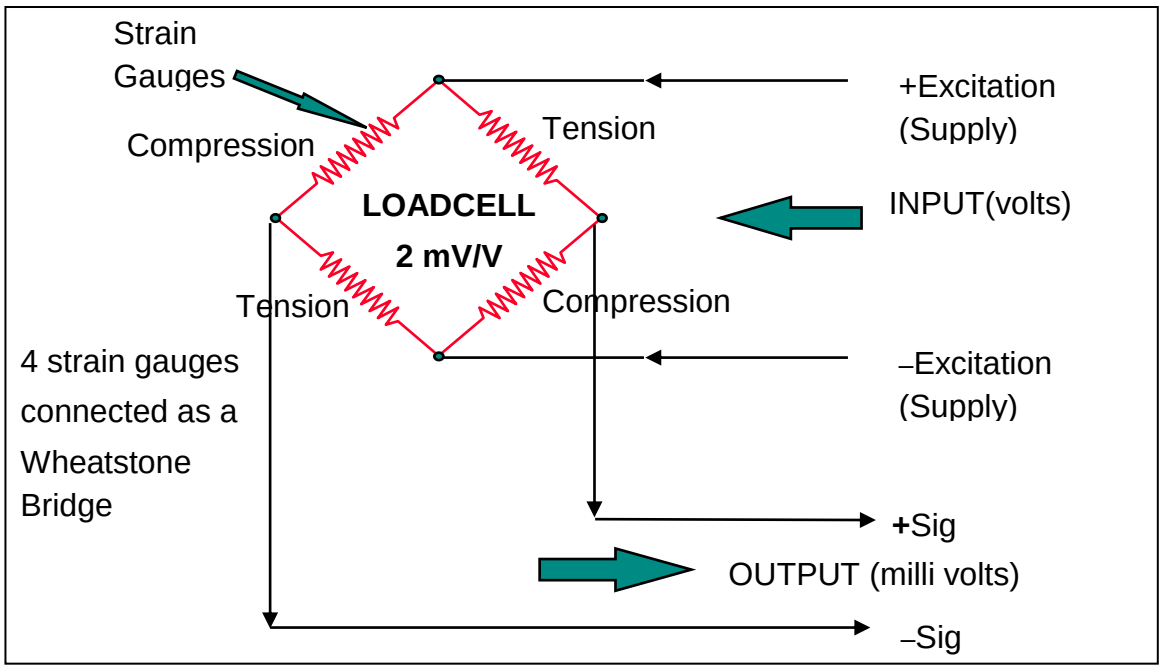


Figure 1-3. Route of electrical Load Cell input and output through Wheatstone Bridge circuit.

A Load Cell is a force sensor, which receives a voltage (excitation) from a regulated power source in the Indicator, and sends back a low-voltage milli-volt (mV) relative to the force applied. The Load Cell signal is read by the Indicator, which converts it to a numeric value and shows it visually. This output value increases as weight is loaded to the Load Cell.

For example, a 500kg Load Cell with 2mV/V output and 5V excitation would have a change of 0.02mV per kg change in the load, that is, 10mV/500=0.02mV per kg. At a load of 250kg the signal voltage would thus increase by 5mV from the value measured at no load.

1.11 Load Cell Connection

Type1. For models i-D3K1S, i-D6K1S, i-D15K1R, i-D30K1R, i-D60K1L bases

FUNCTION	WIRE COLOR
+ Excitation	Blue
- Excitation	Black
+ Signal	White
- Signal	Red
+ Sense	Green
- Sense	Grey
Shield	Yellow

Type2. For models i-D150K1L, i-D300K1VZH, i-D600K1VZH bases

FUNCTION	**WIRE COLOR**
+ Excitation	Green
- Excitation	Black
+ Signal	White
- Signal	Red
+ Sense	Light Yellow
- Sense	Blue
Shield	Deep Yellow

CHAPTER 2 TROUBLESHOOTING

Aside from installing components and leveling adjustments, the Defender Series Base does not require any other adjustments as shipped from the factory.

Operational difficulties that may be encountered can often be traced to simple causes such as:

- Loose or incorrect wiring connections
- Failure to remove the shipping spacers
- Obstructions to the base frame
- Unstable environments
- Incorrect calibration or setup of the indicator

2.1 Troubleshooting

This section of the manual provides guidelines for evaluating the condition and performance of a Base unit, and a standard troubleshooting methodology to follow.

2.1.1 Checking Load Cells for Trouble

Visual Check: Examine the Load Cell for signs of bending, twisting or corrosion.

- Clean the unit before evaluating any mechanical problems. In some cases, debris may have accumulated inside the Base Housing. Make sure there is no buildup of any foreign material.
- Examine the Base Housing for dents, bent Platform or signs of physical abuse that could cause the Base to malfunction. Make sure that the proper Platform is supplied with the Base. Replace all damaged parts. See Chapter 5 for parts list.
- Remove the Platform from the Base. Check that the Overload Stops are not touching the Top Plate. This would restrict movement, causing improper operation of the Base. If the Overload Stops are improperly set, adjust them. (See Section 3.3.)
- Check the metal surfaces of the Platform. All surfaces should be parallel. If the platform is deformed, it should be replaced.
- Check the cables leading to the Load Cell for cuts, abrasions or other signs of excessive wear and tear.
- Check for a bent or twisted Load Cell: Place the top surface and then each of the sides of the Load Cell on a flat surface, to see if it rests flat and even. A gap indicates a bent or twisted Load Cell.
- Examine the Load Cell for corrosion due to high humidity or exposure to chemicals.
- A Load Cell that is even slightly bent or corroded should be replaced.

Perform a Resistance Test, to determine if the Load Cell is severely damaged or a short circuit to the frame has occurred. (See Chapter 4 for details.)

Perform an Output Voltage Test: Measure the no load, 50% load and full load output. The reading should meet the Load Cell specifications. (See Chapter 4.)

- The Load Cell output should be very close to linear over its capacity range.

CHAPTER 3 MAINTENANCE AND REPAIR PROCEDURES

3.1 Preventive Maintenance

Ohaus bases should be carefully handled, stored in a clean, dry area, and cleaned periodically. Follow these precautionary steps:

- When a base has had chemicals or liquids spilled on it, all exterior surfaces should be cleaned as soon as possible with warm water on a damp cloth.
- Do not leave a mass on the base when it is not in use.
- Allow time for the base to stabilize after moving it from an area which is at a different temperature than the area where it is to be operated. Allow one hour for each 5°F (2.7°C) temperature change before using the base.

3.1.1 Preventive Maintenance Checklist

The scale should be inspected and checked regularly, as follows:

1. Clean the base.
2. Remove the Platform to inspect and clean the area beneath the Platform.

CAUTION: DO NOT USE CHEMICAL CLEANERS OR SOLVENTS OF ANY TYPE. SOME CLEANERS ARE ABRASIVE AND MAY AFFECT THE BASE'S FINISH.

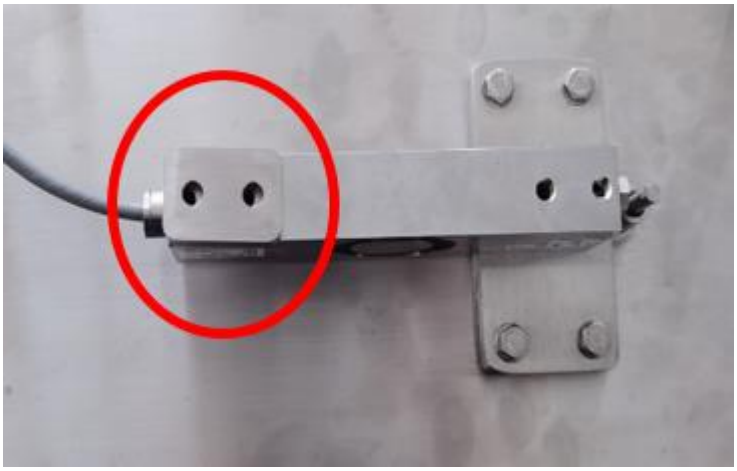
3. Check the Load Cell cable for broken or damaged insulation.
4. Make a visual inspection as detailed in Chapter 2.

3.2 Replacing the Load Cell

A Load Cell that is even slightly bent or corroded should be replaced. The Load Cell may also need to be replaced because of instability, or because the scale does not calibrate or repeat, or because it is physically broken. Picture shown below is the S Base.

1. Disconnect the Base from the Indicator.
2. Remove the Load Cell Mounting Bolts and washers that secure the Bottom Frame to the Load Cell.

3. Set the Bottom Frame and the Load Cell Spacer aside.



4. Remove the Top Load Cell Mounting Bolts, washers and spacer. The Load Cell assembly can now be removed from the Top Frame.

5. Remove the Mounting Block Bolts from the Load Cell.

6. Install the new Load Cell following steps 1 through 5 in reverse order.

3.3 Overload Stop Adjustment

The Overload Stop gaps must be checked and reset if the Load Cell is replaced.

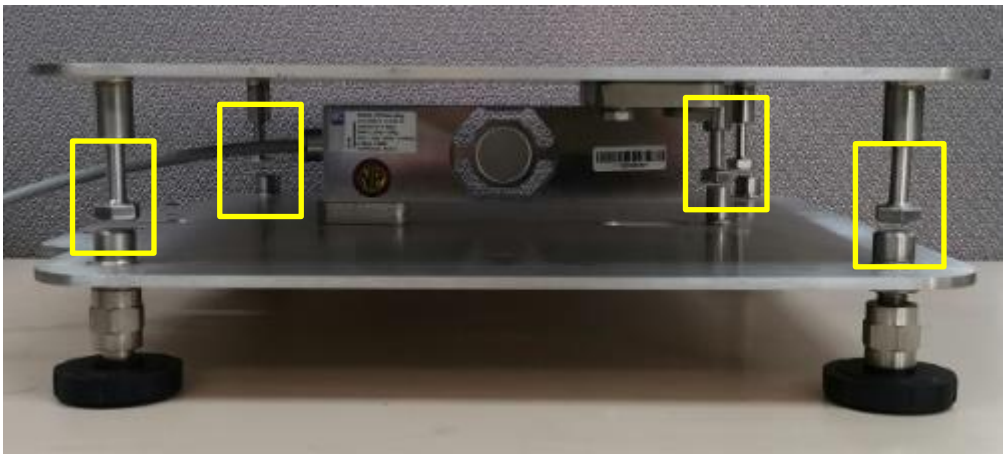


Figure 3-1. Overload Stops on Defender series Base

1. Remove the Platform and loosen the Jam Nuts.
2. Use the appropriate size feeler gauge in the Gap (see Table 3-1), and turn the screws until a slight drag is felt on the feeler gauge.
3. Tighten the Jam Nut and re-check the Gap.
4. Re-adjust if necessary.
5. Cover the Platform and check for full capacity. (See Table 3-1 for Gap settings.)

TABLE 3-1. OVERLOAD GAP SETTINGS FOR DEFENDER SERIES BASES

Base Model	Base Capacity (kg)	Pan size (mm)	Overload Stop Center (mm)	Overload Stop Corner (mm)
i-D2K1S	3	254 x 254 10" x 10"	1.0	1.0
i-D3K1S	3		1.0	1.0
i-D5K1S	5		1.0	1.0
i-D6K1S	6		1.0	1.0
i-D12K1R	12.5	305 x 305 12" x 12"	2.3	1.2
i-D15K1R	15		2.3	1.2
i-D25K1R	25		3.5	2.0
i-D30K1R	30		3.5	2.0
i-D50K1L	50	400 x 500 15.7" x 19.6"	N/A	3.5
i-D60K1L	60		N/A	3.5
i-D125K1L	125			
i-D150K1L	200		N/A	6.0
i-D300K1V	300	600 x 800 23.6" x 31.5"	N/A	N/A
i-D600K1V	600		N/A	N/A

CHAPTER 4 TESTING

4.1 Testing

Before and after servicing a Defender series Base, conduct Load Cell Resistance Checks, Calibration using an external Indicator, and Performance Tests to confirm that the base meets specifications. Allow time for the base to stabilize after moving it from an area which is at a different temperature than the area where it is to be operated. Allow one hour for each 5°F (2.7°C) temperature change before using the base.

The following tests require a Digital Multimeter, an Indicator and hand tools. The Digital DC Voltmeter should have a reading range from 1 mV to 50 V full-scale. It should be capable of reading differences of one micro-volt per increment. The indicator can be either the Ohaus
Defender 3000 series, or an equivalent commercial indicator.

ARTTENTION: Make sure the test area is free from drafts and that the base rests on a level and vibration-free surface.

4.2 Load Cell Resistance Checks

Use an ohm-meter to measure across each pair of wires in turn, and compare the results with Table 4-1. The Load Cell must be completely disconnected from the Indicator and at no load when these tests are made.

In addition to the four resistance elements which make up the Wheatstone Bridge, there are commonly one or two resistors in the excitation lines. The resistance across the excitation wires is usually the highest resistance measured across any two wires.

If the resistance readings are in the range specified, skip to the next section. If they are incorrect – for example, outside the expected range, open circuit or short-circuit across any two wires – the likely causes are a damaged or faulty Load Cell or incorrect or faulty wiring. If the Load Cell is defective, replace it. (See Chapter 3.)

TABLE 4-1. LOAD CELL RESISTANCE READINGS (in Ohms)

LC Models	**E+ to E–**	**S+ to S–**
PW15AH 	381 ± 4	350 ± 1
SSH 	380 ± 15	350 ± 10

4.3 Calibration with an External Indicator

1. Install the Load Cell in position. (See Section 3.2.)
2. Connect the excitation, signal shield and sensing wires (if provided), to the Indicator. Calibrate the Indicator to read the load in the units required, for example, kilograms or grams. (Consult the Indicator instruction manual for calibration procedures.) For calibration mass weights, see Table 1-1, in Chapter 1.
3. Check that the Indicator is reading correctly over a range of values.

4.4 Consistency Check

To check the system prior to installation, make the following measurements. (Also make these checks if the Indicator will not calibrate, or if the Indicator does not read correctly, or is giving unstable readings.)

1. Using a voltmeter, measure and record the excitation voltage supplied by the Indicator. Most Ohaus indicators supply 5 volts dc for the excitation voltage.

2. Using an mV meter, measure and record the signal voltage with no load on the base.

   CAUTION: IN THE NEXT STEP, DO NOT OVERLOAD THE BASE BEYOND FULL CAPACITY RATING.

3. Using an mV meter, measure and record the signal voltage.

4. Obtain the mV/V output figure from the Load Cell data supplied with the Load Cell, and compare the signal changes seen with the theoretical values from the Load Cell data. (See Table 4-2.)

TABLE 4-2. LOAD CELL OUTPUT READINGS
(in mV with 5V Excitation)

Zero Load	50% Load	100% Load
±0.1mv	4-6mv	9-11mv

4.5 Performance Tests

Accurate performance of the Defender series Bases is determined by two performance tests. The displayed readings are compared with the tolerances listed in Table 1-1.

NOTE: The following performance tests are used to evaluate base operation before and after repairs. The base must meet the requirements specified in each test. Before proceeding with the following tests, the base should be attached to an indicator and calibrated.
(See Section 4.3.)

4.5.1 Off Center Load (Shift) Test

The Off Center Load (Shift) Test is made before and after a Base has had the Load Cell replaced and adjustments have been made that affect its performance. The Off Center Load Test verifies that all sections of the Base weigh within specified tolerance.

If the Base does not pass the Off Center Load Test, verify that the Overload Stops are properly set. (See Section 3.1.)

If the Off Center Load Test cannot be passed, the Load Cell must be adjusted or replaced.

Prior to starting this test, the Base must be connected to a properly functioning Indicator, with capacity and readability values set according to the specifications for the Base under test.

1. Place test weights equal to one third of the Base's capacity sequentially at each of the positions A, B, C, and D, as shown in Figure 4-1. Note the Indicator reading at each position. Base capacity, see Table 1-1.

2. Check the variation between mass weights and indicator reading against specified Shift Tolerance ±4d for maintenance (±2d for the new product), For Base readability, see Table 4-3.)

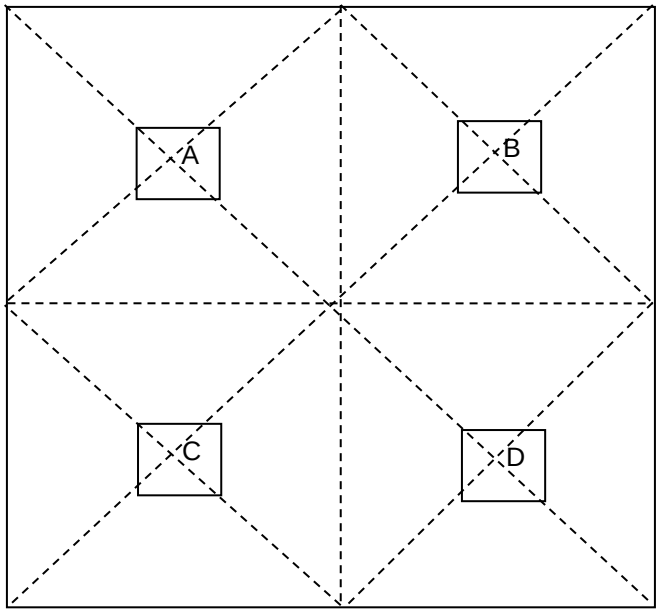


Figure 4-1. Positions A, B, C and D are centered at each quarter of the base platform.

4.5.2 Adjusting Off Center Load

If the Off Center Load (Shift) is excessive, perform adjustment as follows:

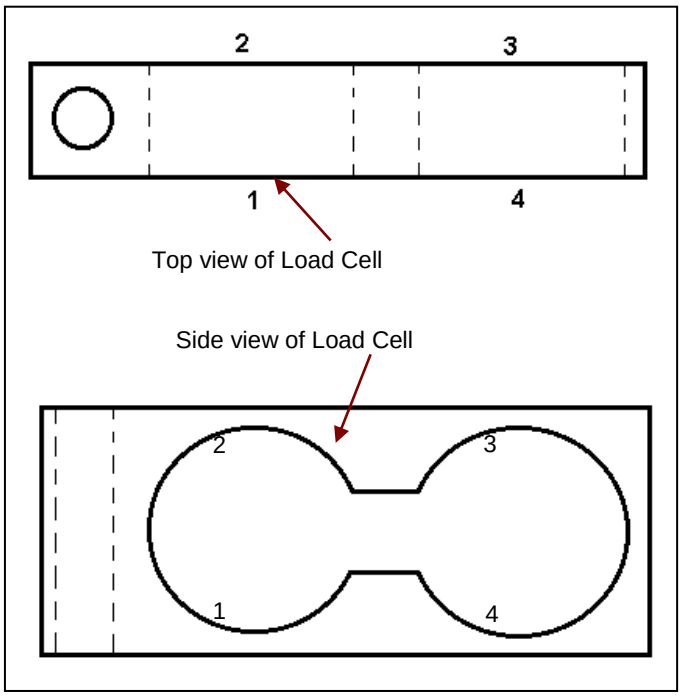


Figure 4-2. Off Center Load adjustment points.

1. Place the test weight in the center of the Platform.
2. Tare the indicator.
3. Move the weight to point A and record the reading.
4. Move the weight to point B and record the reading.
5. Move the weight to point C and record the reading.
6. Move the weight to point D and record the reading.
7. If the reading at point A is negative, file at points 1 and 4 AT AN ANGLE.
8. If the reading at point B is negative, file at points 1 and 2 STRAIGHT ACROSS.
9. If the reading at point C is negative, file at points 2 and 3 AT AN ANGLE.
10. If the reading at point D is negative, file at points 3 and 4 STRAIGHT ACROSS.

Note: It is not recommended that you try to adjust more than –5 counts if the beam has been filed already. If the beam has not been filed previously, you can adjust –10 counts. Remember, when filing you are weakening the beam. File a little at a time.

4.5.3 Full Load Test

1. After the Off Center Load Test has been passed, test the Base's full capacity according to the Specification Table 1-1. The Base must meet all specifications as listed.

2. If the Base fails the Full Load Test, check and set the Down Stops. (See Section 3.3.)

ATTENTION: In all cases where a part is replaced, the base must be thoroughly checked after the replacement is made. The base **MUST** meet the parameters of all applicable specifications in this manual.

If further technical information is needed, please contact an authorized Ohaus Service Agent. For Service assistance in the United States, call toll-free 1-800-526-0659 between 8:00 AM and 5:00 PM Eastern Standard Time. An Ohaus Product Service Specialist will be available to assist you. Outside the USA, please visit our website www.ohaus.com to locate the Ohaus office nearest you.

CHAPTER 5 PARTS IDENTIFICATION

This section of the manual contains exploded views for the Defender 6000 Bases. The exploded view drawings are designed to identify the parts which can be serviced in the field.

5.1 Defender 6000 series Base: R, S Base

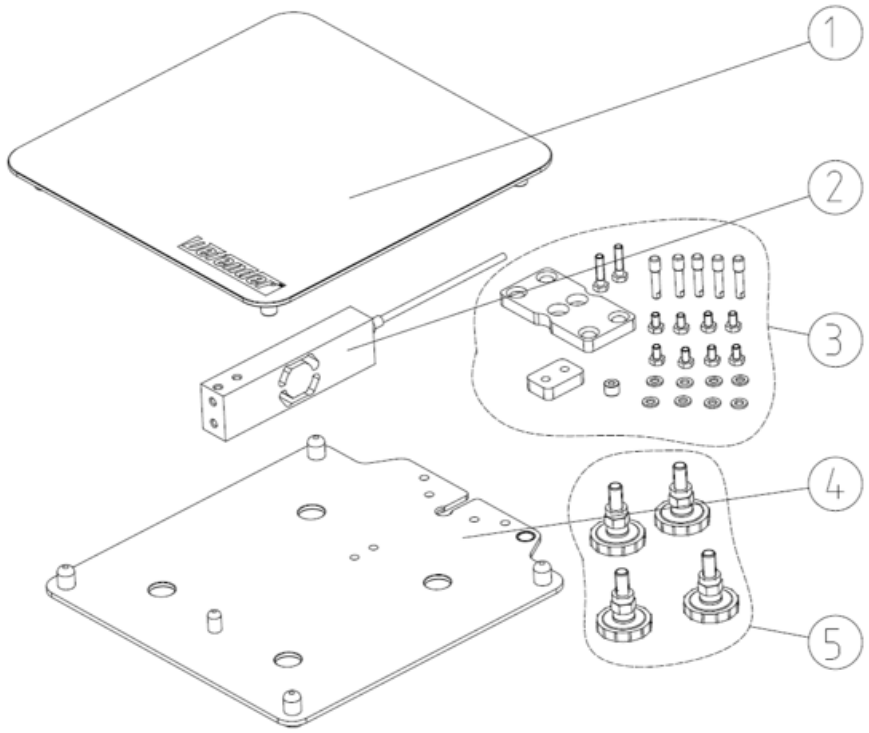


Figure 5-1. Defender 6000 series Base: R, S Base

Drawing Item	Description	Comments
1	Plate S Base i-DT61	
	Plate R Base i-DT61	
2	Loadcell 1-PW15AHC3/10KG-1	i-D3K1S, i-D5K1S, i-D6K1S, i-D3K1SZH, i-D6K1SZH
	Loadcell 1-PW15AHC3/20KG-1	i-D12K1R, i-D15K1R, i-D15K1RZH
	Loadcell 1-PW15AHC3/50KG-1	i-D25K1R, i-D30K1R, i-D30K1RZH
3	Hardware Kit S R Base i-DT61	
4	Bottom Plate S Base i-DT61	
	Bottom Plate R Base i-DT61	
5	Foot (4) S R L base i-DT61	
NS	Box S R D52	S and R models
NS	Box Complete S i-DT61	
NS	Box Complete R i-DT61	

5.2 Defender 6000 series Base: L Base

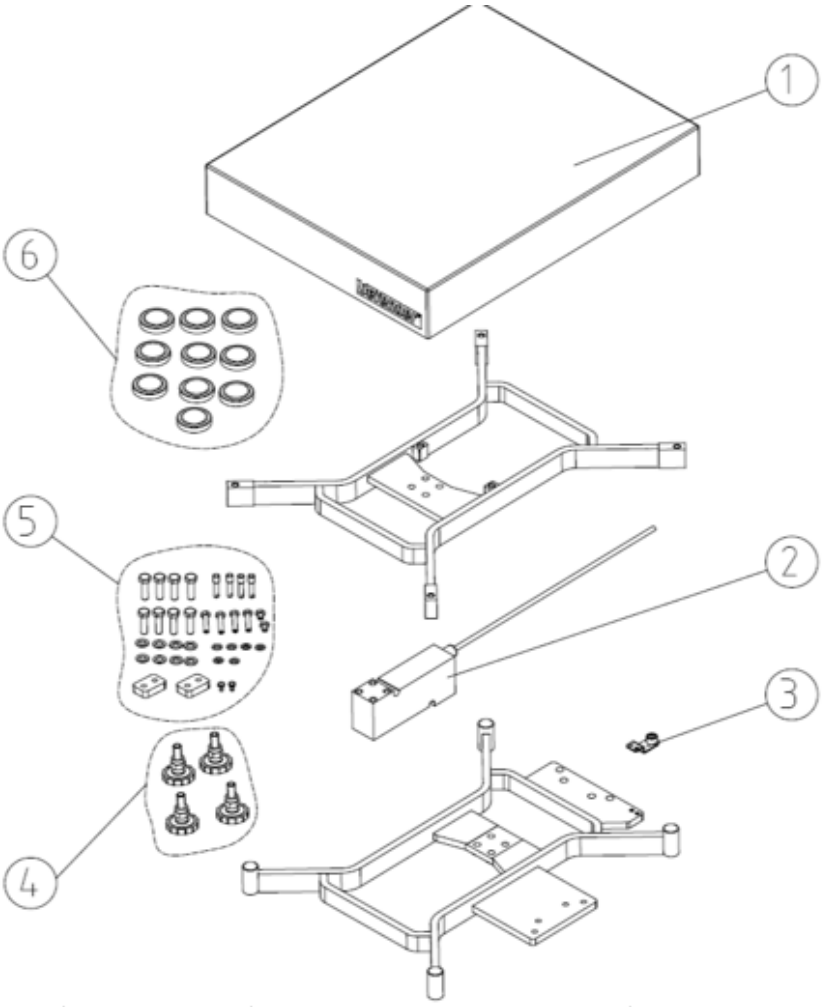


Figure 5-2. Defender 6000 series Base: L Base

Drawing Item	Description	Comments
1	Pan 400x500 SUS316 i-DT61	
2	Loadcell 1-PW15AHC3/100KG-1	i-D50K1L, i-D60K1L, i-D60K1LZH
	Loadcell SSH-200kg 2.5m	i-D150K1L
	Loadcell SSH-300kg 2.5m	i-D150K1LZH
3	Level Kit D52 SST Base	
4	Foot (4) S R L base i-DT61	
5	Hardware Kit L Base i-DT61	
6	Rubber Support SST Base i-DT61	
NS	Box L D52	
NS	Box Complete L D52	

5.3 Defender 6000 series Base: V Base

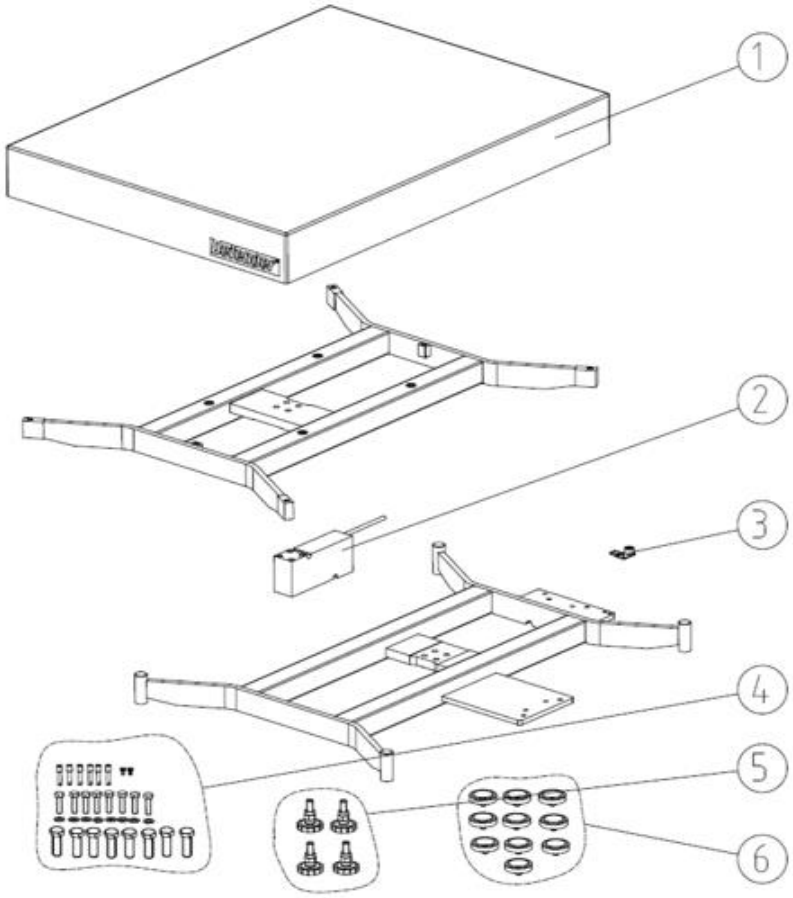


Figure 5-3. Defender 6000 series Base: V Base

Drawing Item	Description	Comments
1	Pan 600x800 SST D52	
2	Loadcell SSH-500kg 2.5m	i-D300K1VZH
	Loadcell SSH-1t 2.5m	i-D600K1VZH
3	Level Kit D52 SST Base	
4	Hardware Kit V Base i-DT61	
5	Foot (4) S R L base i-DT61	
6	Rubber Support SST Base i-DT61	
NS	Box V D52	
NS	Box Complete V D52	

NOTE: When replacement parts are needed, refer to the spare part list for the model you are servicing. Parts lists are available from your local Ohaus office. To locate your nearest office, visit www.Ohaus.com.

APPENDIX A. GLOSSARY

Ohaus Load Cells contain a specification label on the Load Cell itself.

Compensated Temperature Range

The range of temperatures over which the output from the cell is compensated. If used outside this range the output cannot be guaranteed to follow the specifications.

Environmental Protection

IP rating against moisture and dust, for example, IP 65.

Excitation

Voltage applied to the Exe+ and Exe– leads of the load cell.

Input Resistance

The resistance measured across Exe+ and Exe– with load cell disconnected and no load.

Insulation Resistance

Normally measured at 50 V dc, this is the minimal resistance between the metal body of the load cell and any of its electrical connections.

Mechanical Failure

The load at which the cell is likely to fail mechanically, that is, break or deform.

mV/V

Usually the output from a load cell will be approximately 0m V at zero load, though typically there may be a small offset voltage at zero load. Over the full rated capacity of the load cell, the mV output will change. The amount by which it changes depends upon the resistance change in the cell and on the excitation voltage applied. Since the load cell manufacturer does not know what excitation voltage will be applied to the cell, rather than quote the V output over full range, they will quote the milli-Volt output per volt of excitation, or in its short form, mv/V. Most Ohaus Indicators provide an excitation voltage of 5 Volts dc.

Output Resistance

The resistance measured across S+ plus and S– with load cell disconnected and no load.

Overload Capacity

The maximum load that can be applied without permanent damage. Loads in excess of maximum capacity will cause damage to the load cell.

Rated Capacity

The maximum load over which the load cell will operate within its specifications.

Rated Output

The nominal mV/V output of the load cell.

Ultimate Capacity

This is a percentage setting, usually 300% of full capacity.

Zero Balance

The output of the load cell at no load, normally quoted as a percentage of full load. Also known as zero offset.

OHAUS Corporation
7 Campus Drive
Suite 310
Parsippany, NJ 07054 USA
Tel: +1 973 377 9000
Fax: +1 973 944 7177

With offices worldwide

www.ohaus.com

30655626

P/N 30655626A