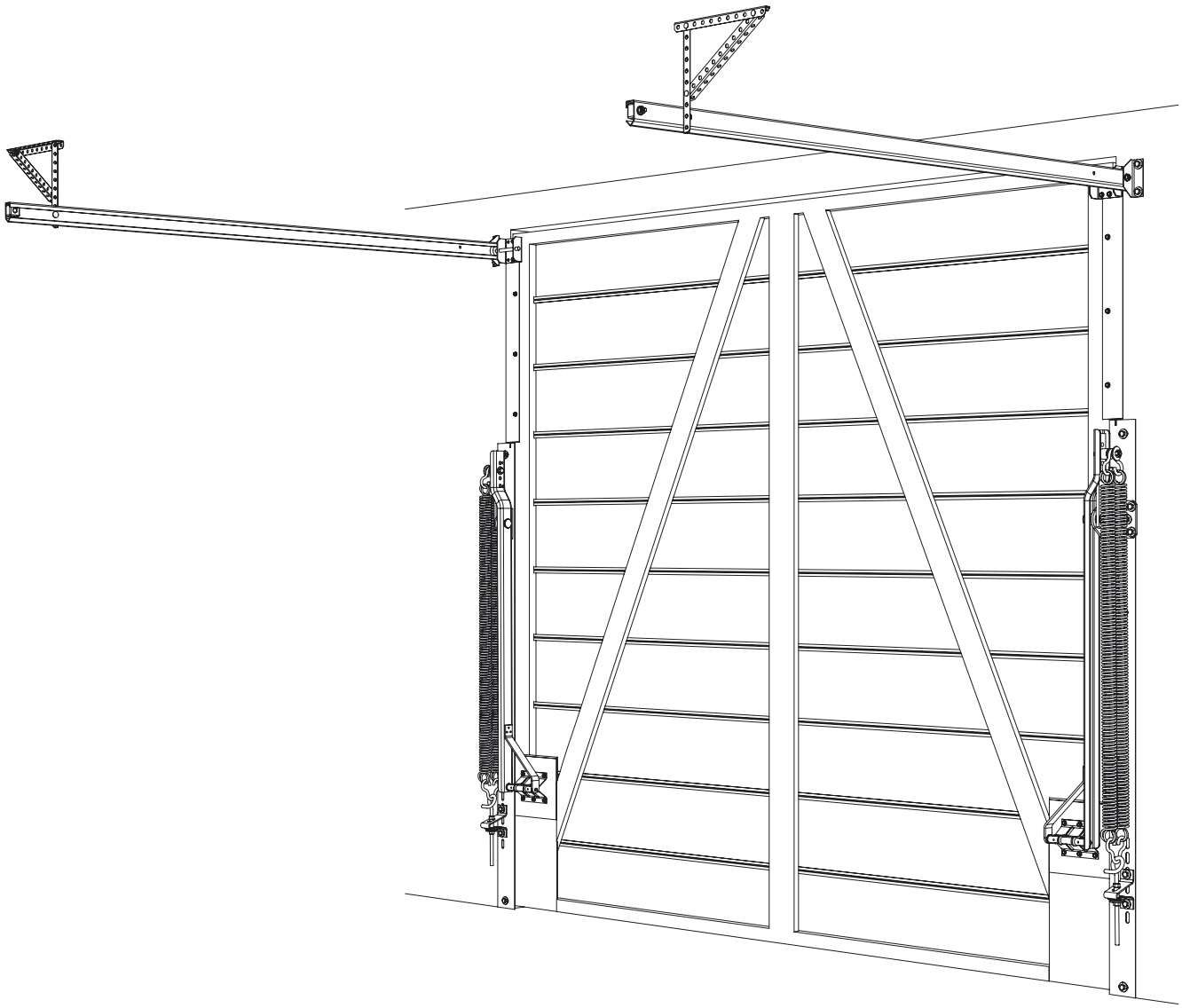
Tilt-A-Dor®

Fittings: Adjustable and **175-T** installation instructions



These instructions are intended for professional garage door installers and only apply to the fittings.
All references are taken from inside looking out.

DOC# 165037_00
RELEASED: 18/03/24

www.bnd.com.au

Contents

1.0 before you begin **3**

1.1 safety warnings 3

1.2 Fastener recommendations for fitting Tilt-A-Dor® 4

1.3 requirements before installation 5

1.4 tools 6

1.5 parts checklist 7

2.0 set up adjustable T-fittings kit **8**

2.1 confirm door height 8

2.2 trim top weather strips 8

2.3 set up adjustable power arms 9

3.0 installation **10**

3.1 install top weather strip and wheel 10

3.2 placing panel into position 11

3.3 installing tracks 11

3.3a redrilling of doorstop (for adjustable fittings) 12

3.4 installing bottom weather strip 15

3.5 positioning power arm on the bottom weather strip 16

3.6 spring assembly 17

3.7 adjusting the spring tension 18

3.8 final checks 19

3.9 troubleshooting 19

4.0 after installation care **20**

1.0 before you begin

1.1 safety warnings

B&D Tilt-A-Dor Fittings are designed and tested to provide security, attractive appearance and smooth, low effort operation provided it is installed and operated in strict accordance with the following safety warnings. Failure to comply with the following instructions may result in death, serious personal injury or property damage.

NOTE: No guarantee will be given or responsibility accepted by the manufacturers if these T-Fittings is not installed as instructed.



WARNING!

- **DO NOT PLACE FINGERS, HEAD OR LIMBS NEAR ANY MOVING PART OF MECHANISM ON EACH SIDE OF THE DOORWAY WHEN THE DOOR IS OPERATING EITHER AUTOMATICALLY OR MANUALLY.**

Crush injury from unsecured door

- Place a 2 metre exclusion zone around area under the garage opening while installing door. If sufficient area is not available DO NOT install door.
- Nobody should ever stand directly in the path of the door in its downward travel or walk through doorway while door is moving. Always use the door handle or pull rope to manually operate the door. If the door is automated, the pull down rope on the door must be removed.

Spring release of energy - risk of release of stored energy (striking person on the head or body)

- The spring is under tension at all times and may cause serious injury if interfered with by an inexperienced person. Adjustments and repairs should be carried out by professional door installers using proper tools.
- As the spring is at is greatest tension during the time the door is being opened or closed - correct fixings and correct fittings MUST be used during every installation. Including the number of bolts to be used, the equaliser plate, clover hooks, pigtailed bolt and spring anchor bracket.
- These have been specifically designed to ensure that the spring is held in place at all times.
- The correct sized door MUST be used for the recommended springs.
- The owner MUST be informed of maintenance requirements.



ELECTROCUTION!

- Check risk assessment for any highlighted electrical power concerns.
- Ensure power source is isolated prior to commencement of job.
- Turn off electricity to site when necessary.
- Ensure you check the substrate for electrical wiring prior to penetration.
- Wear rubber soled footwear.



LACERATION:

- Wear appropriate PPE (Dyneema cut off gloves) and keep hands well clear of pinch points.
- Follow instructions explicitly, particularly for the installation of some parts of the panel doors, as the unrolled cut out edges presents a very sharp edge.



CAUTION:

Muscular strain

- Practice correct lifting techniques when required.
- Use mechanical aids such as lifting devices, forklift and cranes where possible.
- Avoid twisting.

Fall from ladder

- Ensure ladder is the correct type for job.
- Ensure ladder is on flat firm ground that will take the weight without the legs sinking.
- Ensure user has 3 points of contact while on ladder.

Hand Tools

- Wear appropriate PPE and utilise operators manual of all tools.
- Use appropriate noise/hearing protection in the form of ear plugs or ear muffs.
- Ensure appropriate fire protection available and housekeeping to ensure that flammable liquids or materials are removed from the area of work.

Entanglement

- Keep hands and loose clothing clear of moving door and guides at all times.



TWO PERSON LIFT:

- Depending on the size of the door, this product may requires a two person lift. Use proper techniques and equipment to lift the door from the trailer and into position.

1.2 Fastener recommendations for fitting Tilt-A-Dor®

important notes

1. For installation to substrate the installer should seek expert advice from a qualified builder.
2. Seek specialist advice regarding pre-existing substrate material.
3. For fixings the Installer should seek expert advice.
4. Coach bolts/screws supplied with this product may not be suitable for fastening.
5. Fasteners for tilt door power arm brackets, spring brackets and track brackets in masonary should be at least 5/16" x 2.5" long or metric equivalent.
6. Correct and safe fastening to other materials may require different fasteners.
7. Where applicable, correct washers, fasteners and plugs must be used to attach fittings to substrate.



WARNING!

The installer must select and use fasteners appropriate to the material into which they are being fixed and ensure that it is correct for the load applied by the door to the substrate during operation.

1.3 requirements before installation

Before proceeding please check the opening measurements against the panel and ensure that the correct fitting has been obtained in regards to door weight.

structural suitability: Ensure the opening is strong enough to support the door. If unsure, consult a builder.

1.3.1 measurements

headroom: a minimum of 50mm is required, 100mm if an automatic opener is installed Refer to Fig 1.3.1a.

sideroom: a minimum of 70mm is required for adjustable T-Fittings (90mm for Model 175-T).

backroom: as the door extends into the garage when opening refer to Fig 1.3.2 for measurements.

door width: as the door fits within the opening, there door should be 20mm less than the opening, allowing for a 10mm gap on each side. Refer to Fig. 1.3.1b

door height: to allow for optimal performance, the door should be a 27mm less than the opening, allowing for a 15mm gap from the lintel and 12mm gap from the ground. Refer to Fig. 1.3.1b

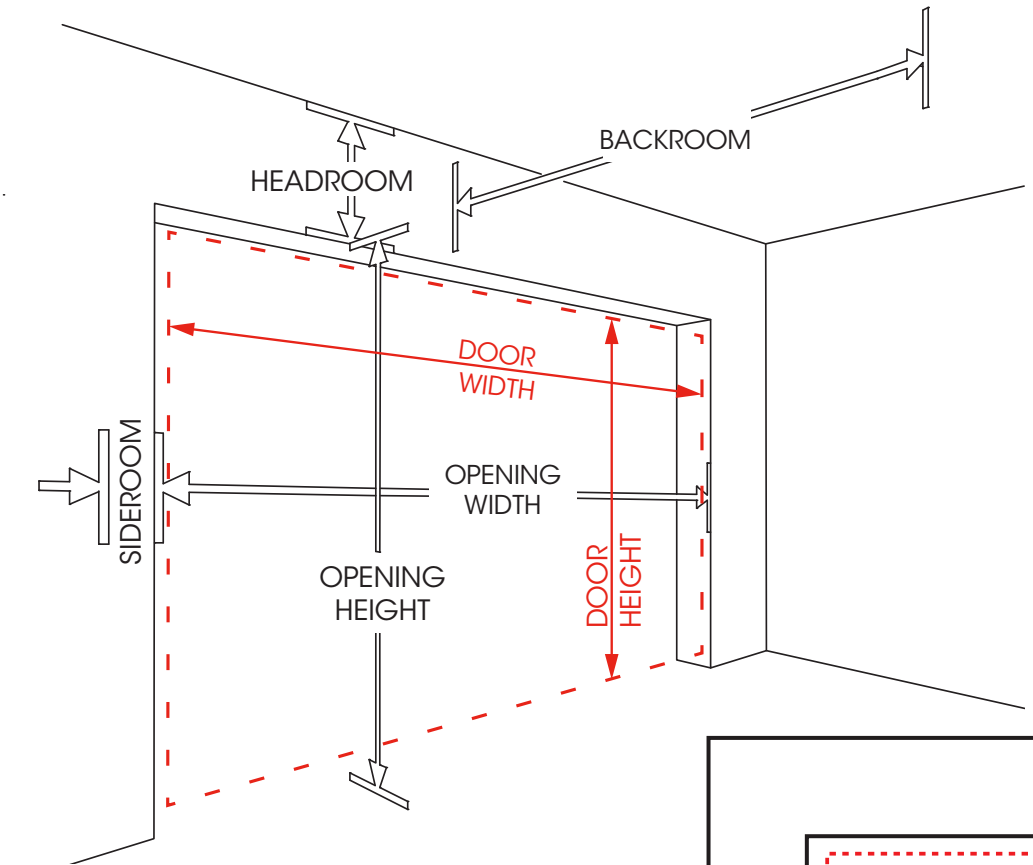


Fig: 1.3.1a

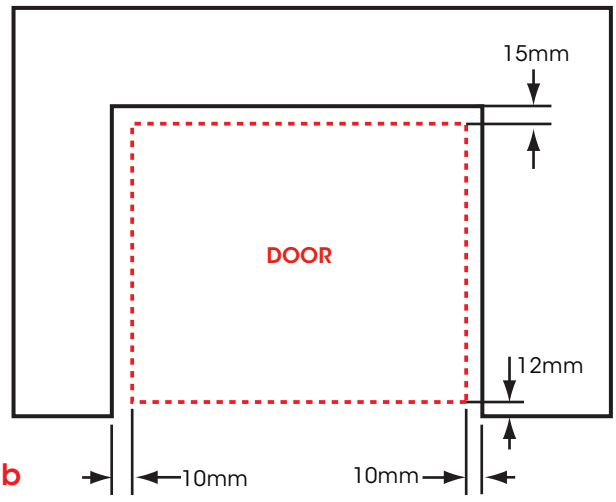


Fig: 1.3.1b

1.3.2 initial calculations

Measurement				
headroom				
manual operated doors	50mm			
sideroom				
adjustable T-Fittings	70mm			
175-T	90mm			
backroom				
door height +	100mm			
Automated doors rail + opener	**doors up to 2100 high**	**doors up to 2400 high**	**doors up to 2700 high**	**doors up to 3050 high**
backroom	2318mm	3374mm	3374mm	3988mm
headroom (min)	100mm	100mm	100mm	100mm

Fig: 1.3.2

1.3.3 check T-Fitting model

Check the T-Fitting against the door measurements and panel weight in Fig 1.3.3 to ensure that the correct fitting has been ordered.

Adjustable	
Single Spring per Side (30 to 100kg)	
Door Height (mm)	
2450 max 2251 min	**100-S2450-BD Brown Spring**
2250 max 1951 min	
1950 max 1800 min	
Door Weight (kg)	30 100

Adjustable	
Double Spring per Side (101 to 120kg)	
Door Height (mm)	
2700 max 2401 min	**120-D2700-BD Orange Spring**
2400 max 2101 min	**120-D2400-BD Brown Spring**
2100 max 1900 min	
Door Weight (kg)	101 120

175-T	
Double Spring per Side (121 to 175kg)	
Door Height (mm)	
3050 max 2701 min	**175-T-3050*** **Orange Spring** ***Special Order**
2700 max 2401 min	**175-T-2700 Orange Spring**
2400 max 2101 min	**175-T-2400 Brown Spring**
2100 max 1900 min	**175-T-2100 Brown Spring**
Door Weight (kg)	121 175

Fig: 1.3.3

NOTE: Single Spring and Double Spring T-Fittings Kits have different Height Breaks due to the addition of the Clover Hook for the double spring assemblies.

Spring Specifications			
Colour	**Wire Diameter**	**Spring OD**	**Active Length**
Brown	**5.6**	**41**	**539**
Orange	**5.6**	**41**	**695**

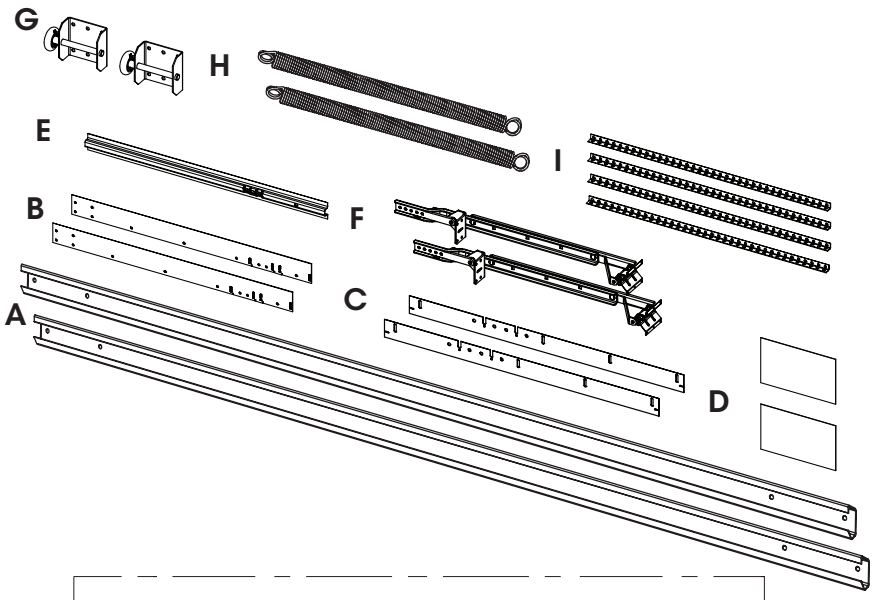
The Adjustable T-Fittings Kit needs to be adjusted and set up for the door height and panel weight. See section 2.0 set up Adjustable T-Fittings Kit.

1.4 tools

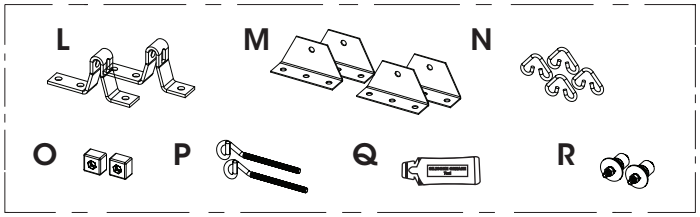
It is recommended that this door is installed by a professional door installer using a professional and specialised tool kit.

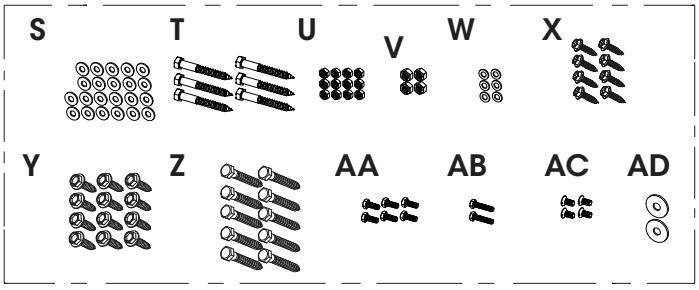
1.5 parts checklist

FITTINGS		ADJ	175-T
ITEM	DESCRIPTION	QTY	QTY
A	HORIZONTAL TRACK	2	2
B	TOP WEATHER STRIP	2	2
C	BOTTOM WEATHER STRIP	2	2
D	REINFORCING PLATE (300x1802mm)	2	2
E	TILT LOCK STRIP	1	-
F	TILT DOOR ADJUSTABLE POWER ARM	2	2
G	TOP HANGER	2	2
H	TILT DOOR SPRING	2-4	2-4
I	PERFORATED ANGLE (20x20x2mm)x900mm	4	4



FITTINGS		ADJ	175-T
ITEM	DESCRIPTION	QTY	QTY
	FASTENER BAG #1		
L	B&D ANCHOR BRACKET	2	2
M	TRACK BRACKET	4	4
N	DOUBLE SPRING HOOK	4	4
O	DOOR STOP	2	2
P	PIG-TAIL BOLT	2	2
Q	SILICONE GREASE SACHET	1	1
R	KICKER BOLT ASSY	2	2
	FASTENER BAG #2		
S	1/4 FLAT WASHER WIDE	22	16
T	HEX HEAD SCREW 3/8 - 3	6	12
U	M8 HEX NUT	12	22
V	M10 HEX NUT	4	4
W	WASHER	6	-
X	HEX HEAD SCREW 1/4 x 1	8	12
Y	HEX HEAD SCREW 1/4 x 2	12	14
Z	HEX HED SCREW 1/4 x 2.5	10	14
AA	HEX HEAD BOLT M8 x 20	6	8
AB	HEX HEAD BOLT M8 x 35	2	2
AC	CSK HEAD SCREW M8 x 16	4	8
AD	WASHER 10 x 25	2	2





2.0 set up adjustable T-fittings kit

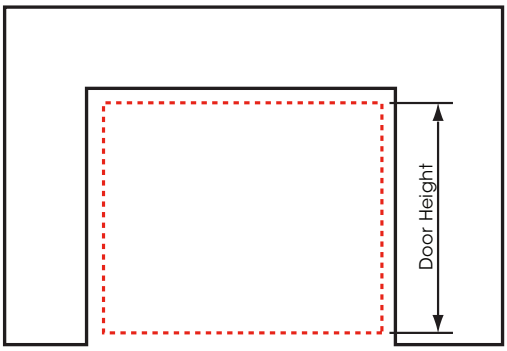
If you are using an older fixed kit such as the 50-T, 70-T, 100-T, 120-T or the heavy duty 175-T kit, skip this section and move on to section 3.0 installation.

2.1 confirm door height

Before proceeding enter the door height value into box (A) below.

Door Height

A =



2.2 trim top weather strips

Write the door height measurement (A) from above, into the correct table based on the panel weight and number of springs / side.

Single Spring / Side (30 to 100kg)		
Door Height	Height Range	Cut Line
	2450 max 2251 min	S2450/D2700
	2250 max 1951 min	S2250/D2400
	1950 max 1800 min	S1950/D2100

Double Spring / Side (101 to 120kg)		
Door Height	Height Range	Cut Line
	2700 max 2401 min	S2450/D2700
	2400 max 2101 min	S2250/D2400
	2100 max 1900 min	S1950/D2100

For example, where **(A)** = 2050mm **(B)** would equal **S2250/D2400**

a) Select the correct cut line from where the door height fits the height range and enter this value in box (B).

Cut Line

B =

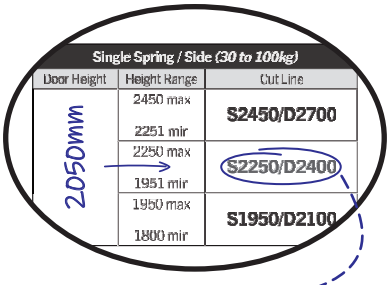
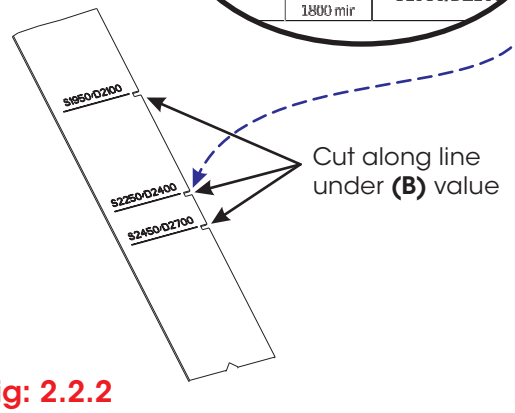


Fig: 2.2.1

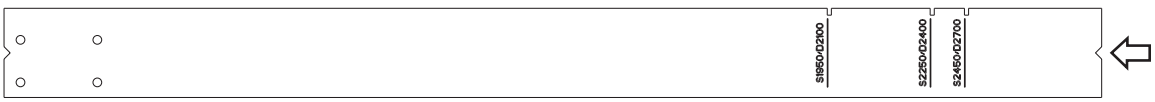
b) Use value **(B)** and cut the top weather strip in the correct place along the cut line as per Fig 2.2.1.

c) Cut along corresponding cut line for both top weather strips, one will be used for the Left Hand side and the other flipped for the Right Hand side of the door.



Use the off-cut notch in Fig 2.2.2 to re-mark the centre of the weatherstrip where you have cut to allow accurate placement on door panel.

Fig: 2.2.2



2.3 set up adjustable power arms

The Power Arms come assembled incorrectly for packaging only and must be adjusted as shown in Fig 2.3.1.

a) To assemble arms we use the first 4 numbers found in value (B) and enter this as (C).

b) The power arm (F) MUST be fixed in two positions as shown in **Fig 2.3.1**.

c) The bottom fixing hole must correspond with value (C) as per example this is 2250 see **Fig 2.3.1a**.

d) The two bolts and lock nuts on the foot bracket are pivot failur redundancies so should be loose see **Fig. 2.3.1b**. **DO NOT TIGHTEN**.

Power Arm Set Point

C =

For example, where **(B)** = **S2250/D2400** **(C)** would equal **2250**

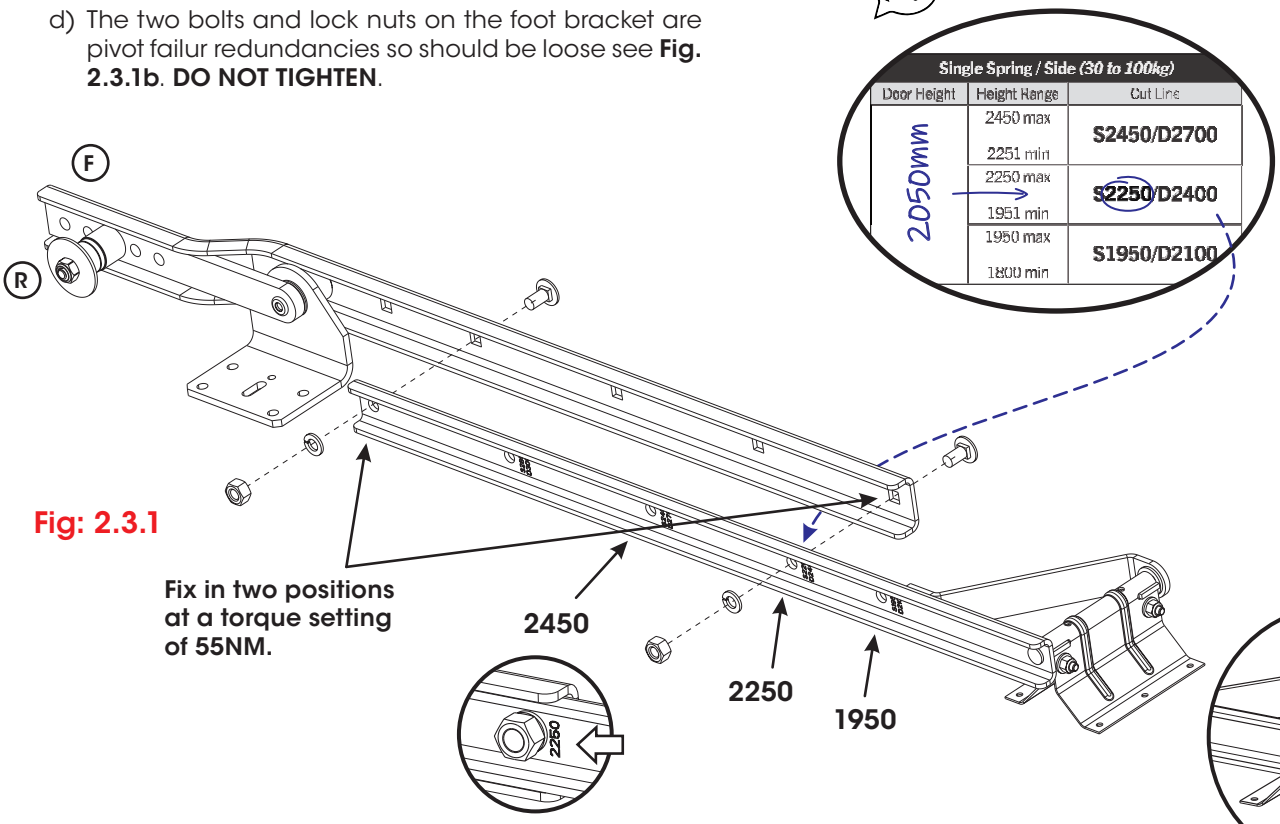


Fig: 2.3.1

Fig: 2.3.1a

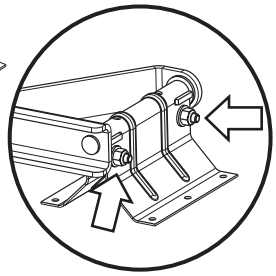


Fig: 2.3.1b

3.0 installation

3.1 install top weather strip and wheel

a) Calculate the position of the top weather strip by using the below formula.

D = Panel Thickness - 35mm

The dimension (D) is variable, depending on the panel thickness, with a minimum of 15mm.

b) Assemble the top strip (B) onto the panel using (A) as shown in Fig 3.1.1, before securing the top hanger (G) over the top strip using 4 x screws (X) .

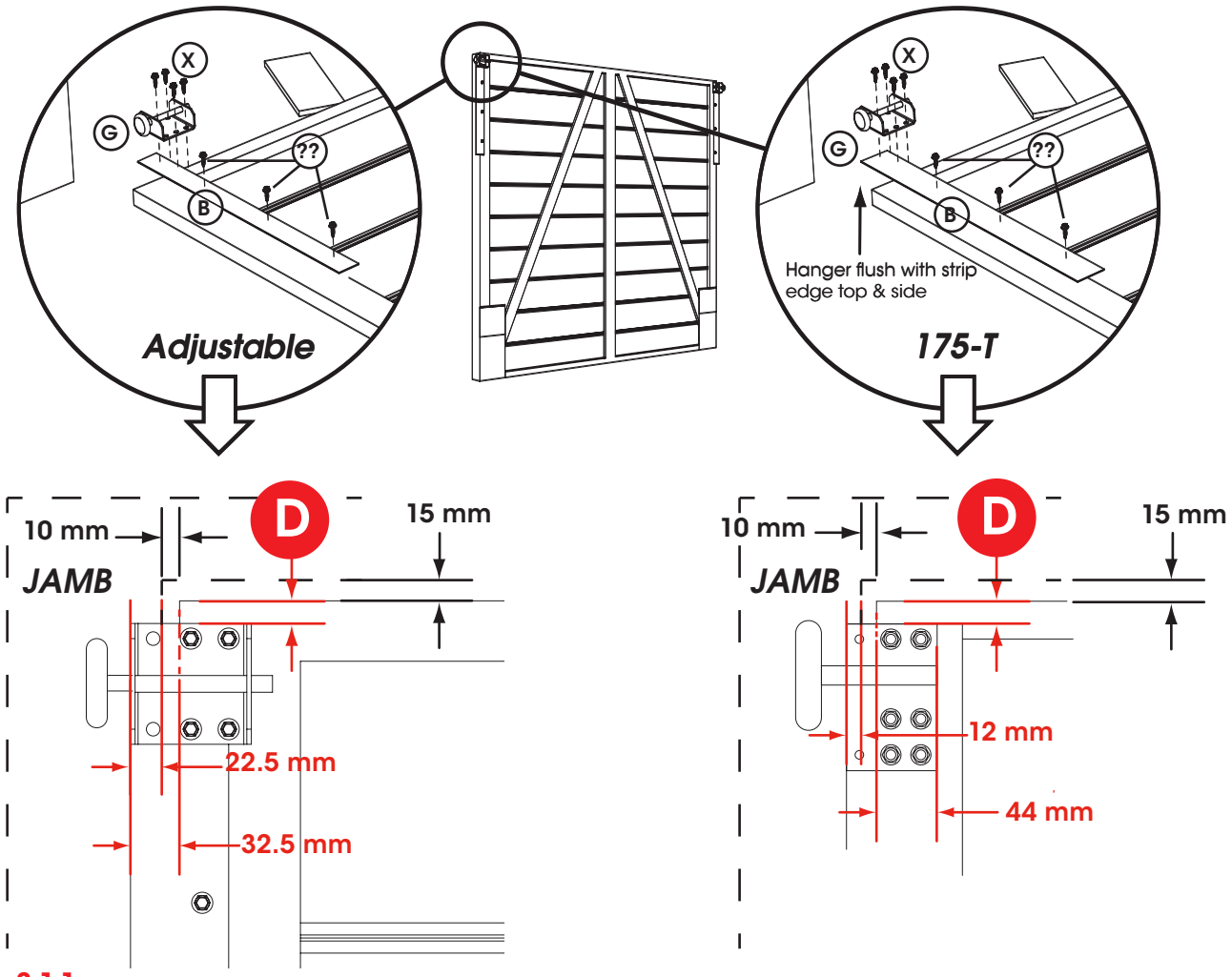


Fig: 3.1.1

c) Add a 5° bend approximately 15mm from the bottom of each weather strip for smooth operation against the jamb as per **Fig 3.1.2**.

Use a bench vice prior to fixing to the door or vice grips afterwards.

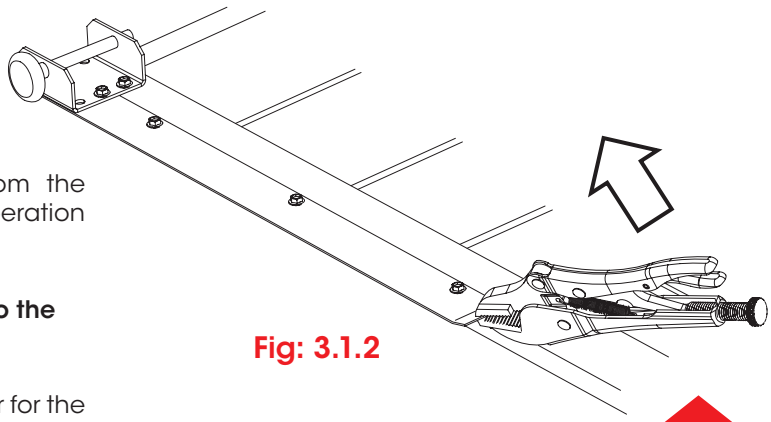


Fig: 3.1.2

d) This should be done prior to closing the door for the first time.

3.2 placing panel into position

a) Place some 12mm spacers at the opening and lift the panel into position as shown in Fig 3.2.1a.

b) Ensure that the top weatherstrip overlaps the jamb on the side and is flush with the wall, taking note of the gaps required on the side and top in Fig 3.2.1b.

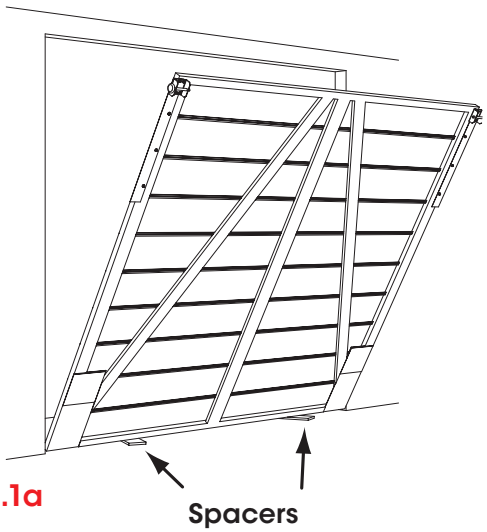


Fig: 3.2.1a

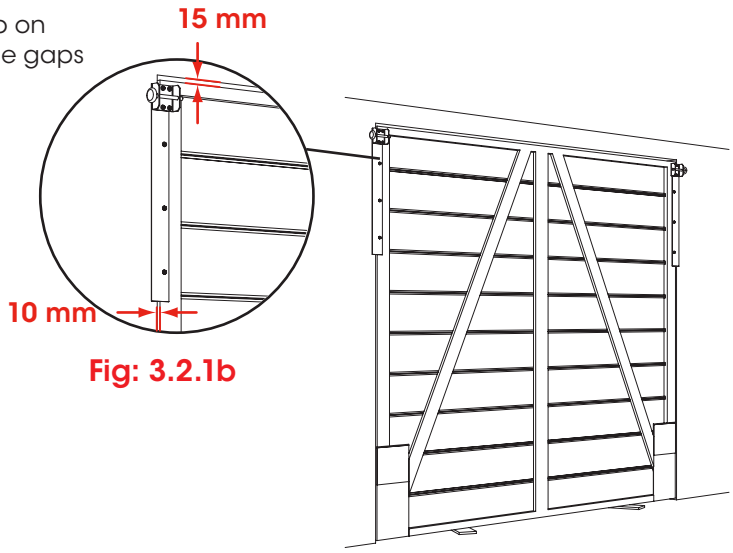


Fig: 3.2.1b

3.3 installing tracks

a) Secure the panel into place, either temporarily fastening to the door jamb, or having a an additional person hold it in place whilst completing this stage see **Fig 3.3.1**.

b) Assemble the track bracket onto the track, allowing the track to pivot.

c) Slip over the wheel axle and affix onto the wall using appropriate fasteners, as shown in **Fig 3.3.1a**.

d) Connect the stop at back of the track with screw and nut as shown in **Fig 3.3.1b**.

WARNING! The safety stop must be installed. Failure to do so may cause serious personal injury or damage to property.

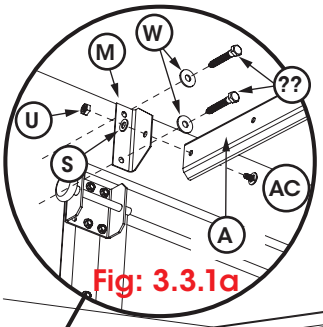


Fig: 3.3.1a

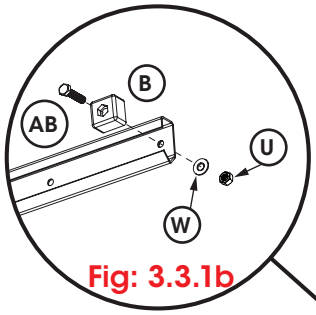


Fig: 3.3.1b

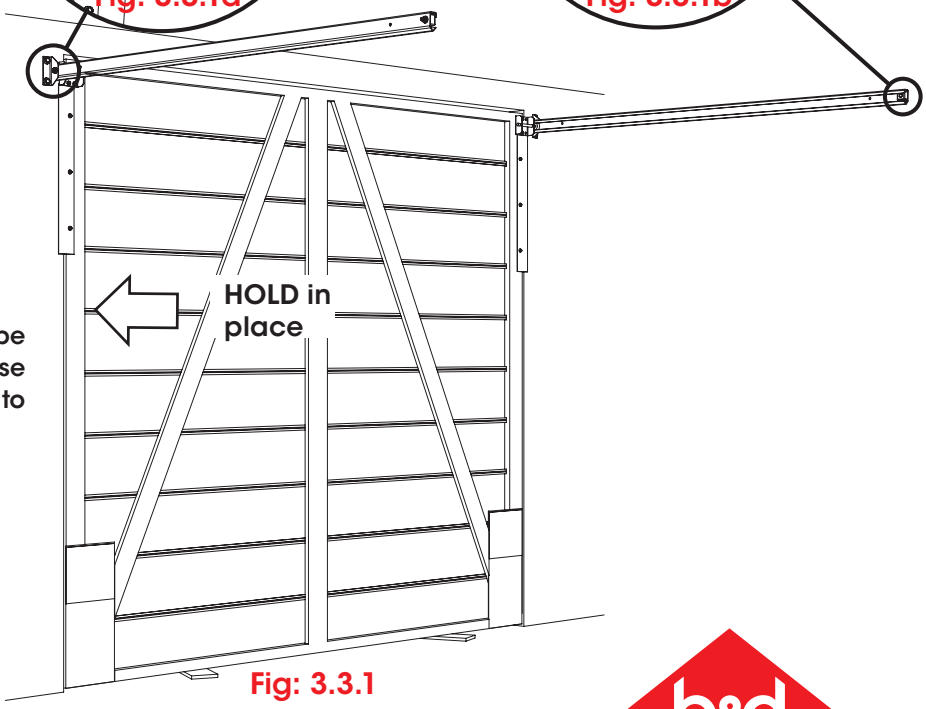
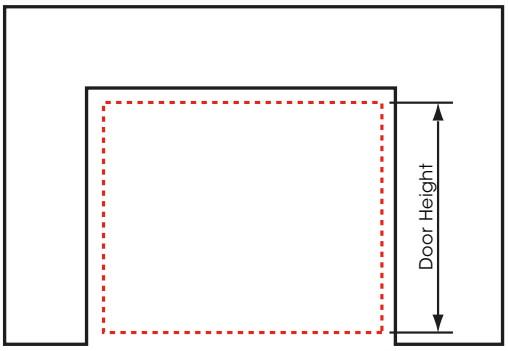


Fig: 3.3.1

3.3a redrilling of doorstop (for adjustable fittings)

confirm door height

Before proceeding enter the door height value into box (A) below.



Door Height

A =

Single Spring / Side (30 to 100kg)			
Door Height	Height Range	Back of Track Cut Line	Hole Position (mm from end of door)
	2450 max 2251 min	2190	2173
	2250 max 1951 min	1890	1873
	1950 max 1800 min	1710	1693

Select the correct cut line from where the door height fits the height range and enter this value in box (B).

Track Cut Line

B =

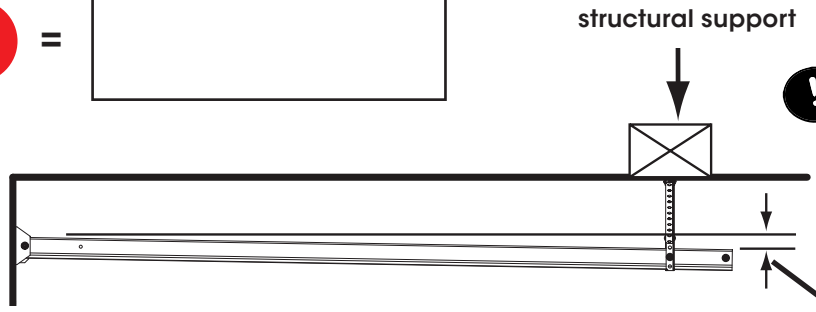


Fig: 3.3.1a

tip The tracks must be equal and slope down to the end, before securing the bracing.

33mm (Adjustable)
50mm (175-T)

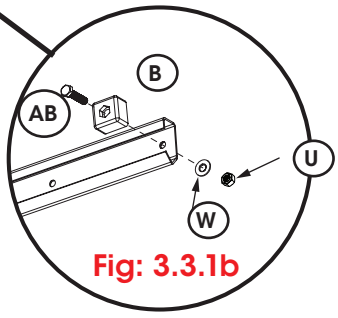


Fig: 3.3.1b

WARNING! if the tracks are cut, the stop at the back of the track MUST be re-installed by drilling new track holes at the nominated position. Failure to do so may cause serious personal injury or damage to property.

Before bracing the horizontal tracks, ensure that they are square to the opening and level. To check whether your diagonals are equal as per **Fig 3.3.2**:

a) Measure from the track bracket to the end of the horizontal track on the other side.

b) Check both sides.

c) Adjust if necessary.

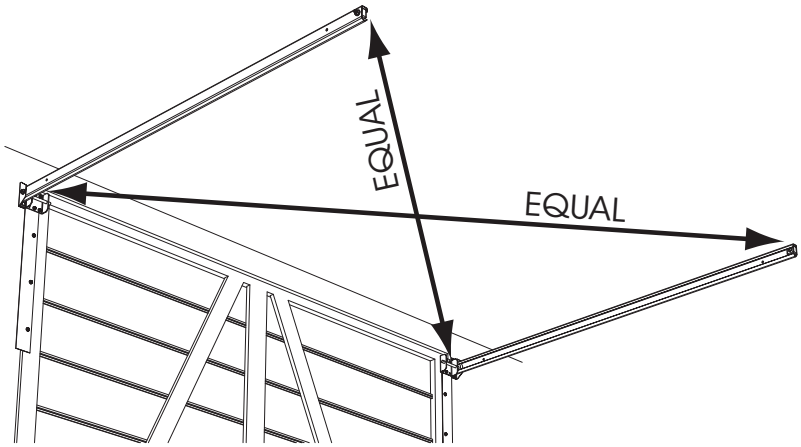
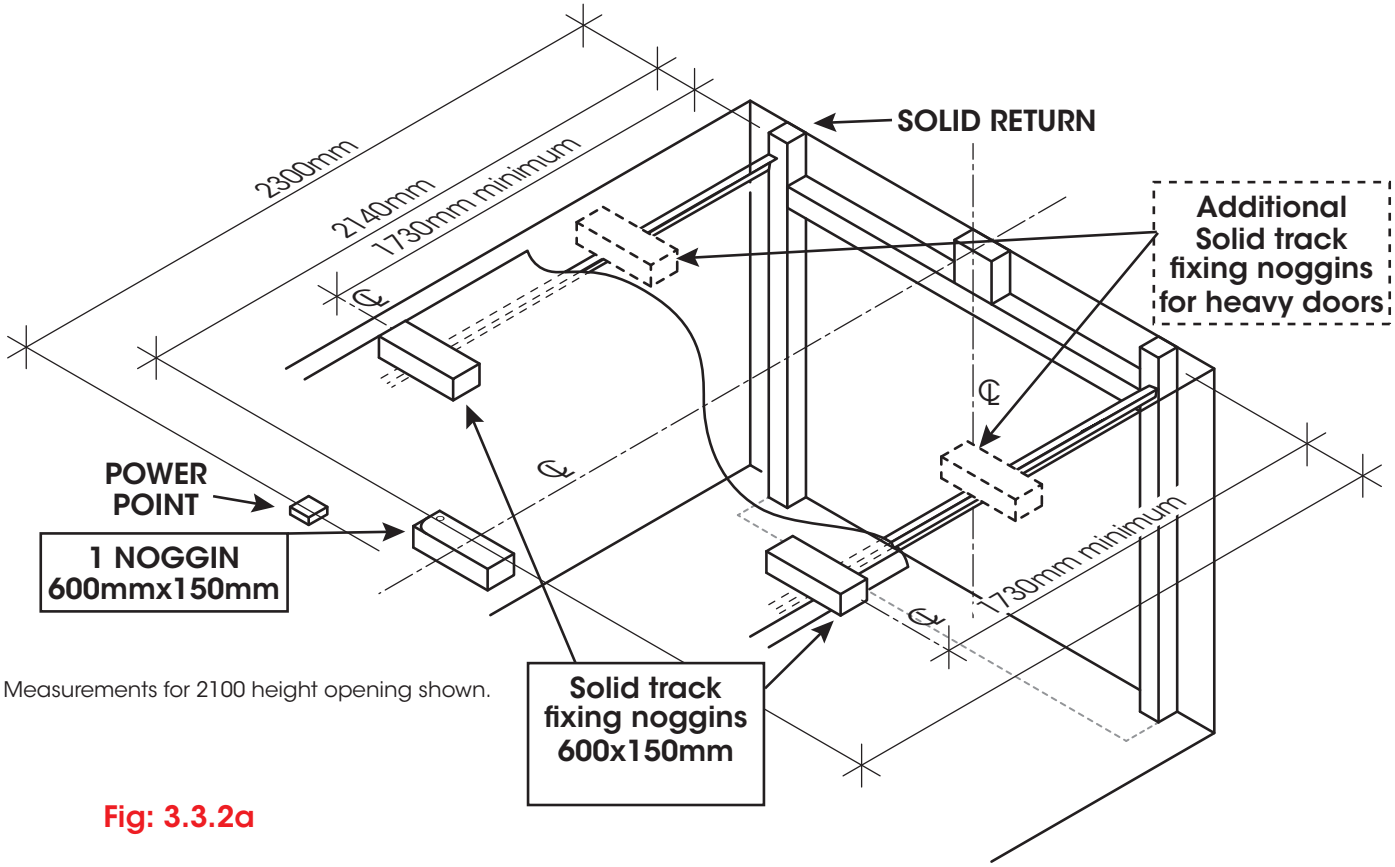


Fig: 3.3.2

The track support must be located along the horizontal track in solid fixings. Use Fig 3.3.2a as a reference. Please note that sites may vary.

WARNING! For all insulated or cladded panels two (2) ceiling supports must be fitted per horizontal track for all doors over 2400mm x 3000mm.



Measurements for 2100 height opening shown.

Fig: 3.3.2a

NOTES: Tracks fixing to be as per height of door.
up to 2100 height opening = 1730 track fixing noggins
up to 2450 height opening = 1900 track fixing noggins (*3198 opener noggin, 3350 power point)
up to 2700 height opening = 2250 track fixing noggins (*3198 opener noggin, 3350 power point)
up to 3050 height opening = 2560 track fixing noggins (*3988 opener noggin, 4050 power point)

* opener would require 3160 C-rail
** opener would require 3160 C-rail + rail extension

For heavy doors double support and heavier angle may be required in place of the perforated variety.

a) Measure along the horizontal track to the desired position and find a structurally sound location to fix your support to the ceiling or side wall. Fig 3.3.2b and Fig 3.3.2c.

b) Each installation must be assessed individually for ceiling fixing requirements.

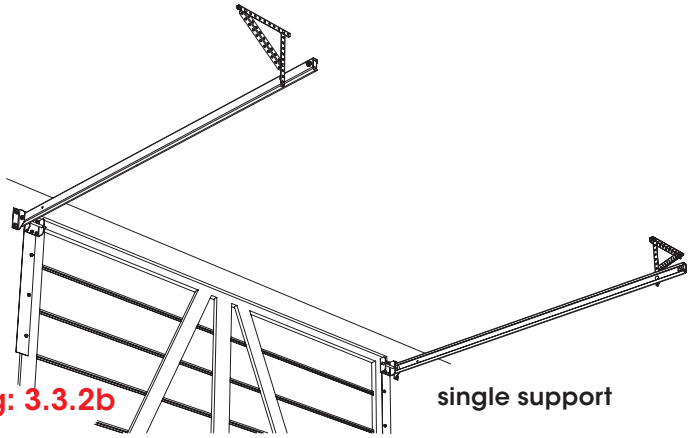


Fig: 3.3.2b single support

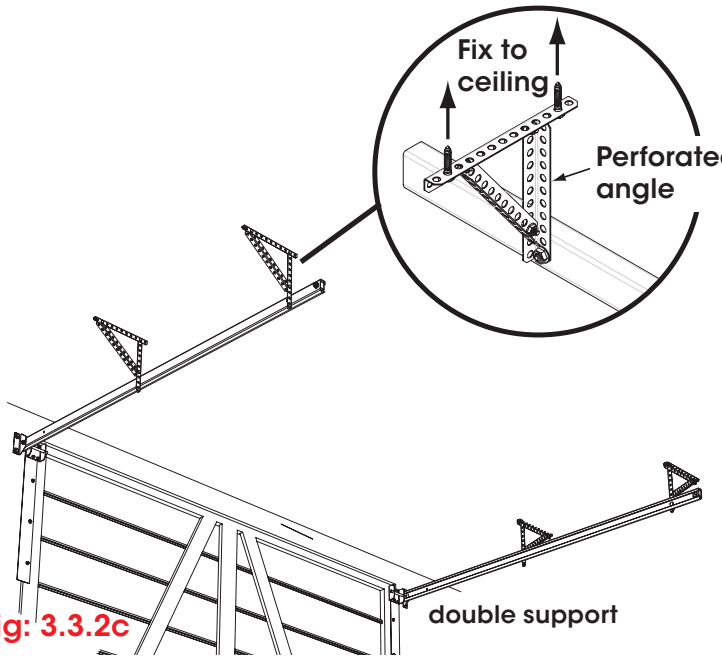


Fig: 3.3.2c double support

WARNING! It is the installers responsibility to provide any additional perforated angles needed and ensure they are fixed into structural supports and bracing methods are adequate.



Fig: 3.3.2d

tip The tracks must be equal and slope down to the end, before securing the bracing.

c) Before securing the tracks to the perforated angle, ensure that they slope down from front to rear as per Fig 3.3.2d.

d) Depending on the height of the door, it may be preferable to cut off the excess track length.

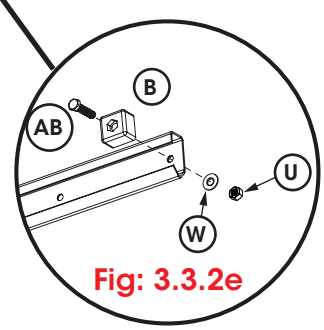


Fig: 3.3.2e

WARNING! If the tracks are cut, the stop at the back of the track MUST be re-installed by drilling new track holes at the end Fig 3.3.2e. Failure to do so may cause serious personal injury or damage to property.

3.4 installing bottom weather strip

a) Measure the distance from the bottom of the top weather strip down to the floor.

b) Transfer this measurement to the bottom weather strip, reduce it by 3mm to allow for gap between (see Fig 3.4.1a) and cut down accordingly as per Fig 3.4.1b.

c) Align the vertical slot in the top of the bottom weather strip with the jamb edge as shown in Fig 3.4.1a.

d) Use appropriate fasteners to secure to the jamb.

tip

For Adjustable T-Fittings, double check you have cut the top strip at the correct line, based on door height etc in Section 2.2, before you cut the bottom weather strip.

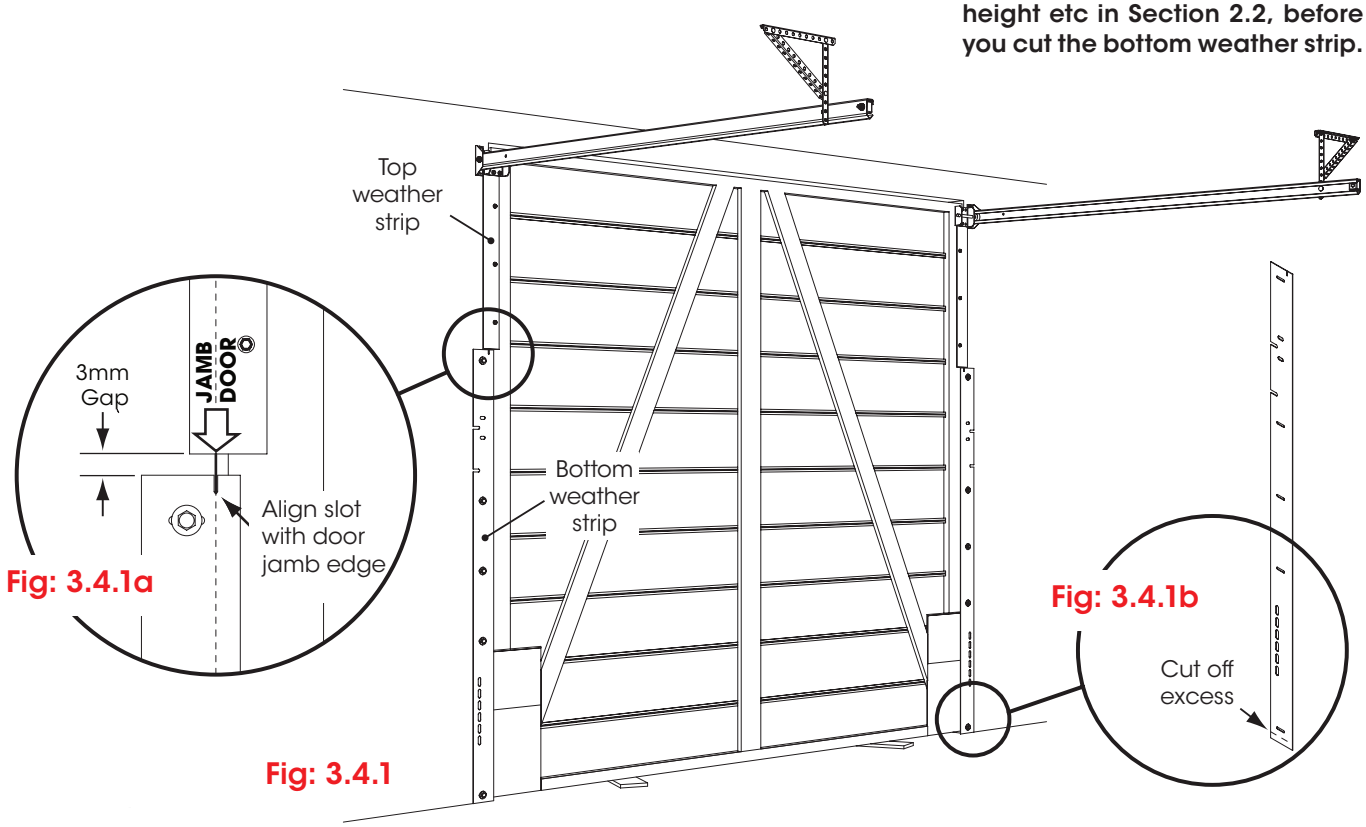


Fig: 3.4.1a

Fig: 3.4.1b

Fig: 3.4.1

3.5 positioning power arm on the bottom weather strip

Note: Position selection is not required for 175-T.This selection is not required for 175-T

a) The power arms needs to be positioned correctly on the bottom weather strip to ensure proper operation. The cut line for value (B) in **Section 2.2** determines the dimension of E or F. Use the table to indicate which slot to align power to in **Fig.3.5.1.**

Power Arm Position		
Cut Line (Value B)	Position	Dimension
S2450/D2700	E	400mm
S2250/D2400	F	280mm
S1950/D2100	F	280mm

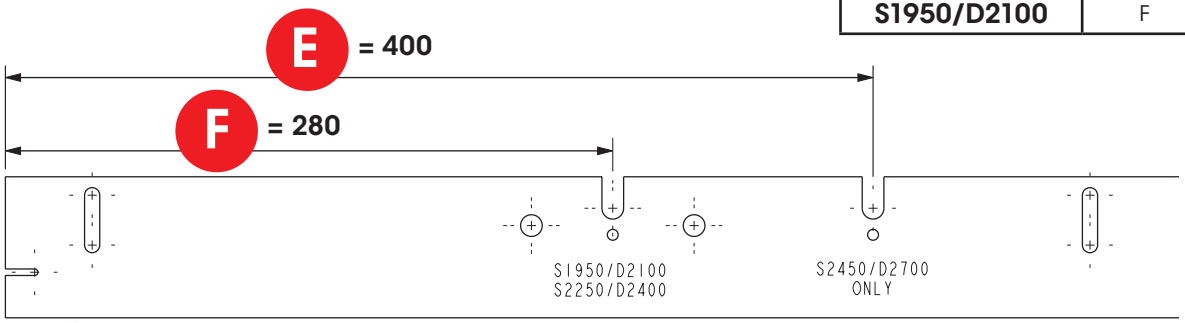


Fig: 3.5.1

b) Position the power arm onto the bottom weather strip to determine the location of the equaliser plate on each side of the door in Fig 3.5.2a.

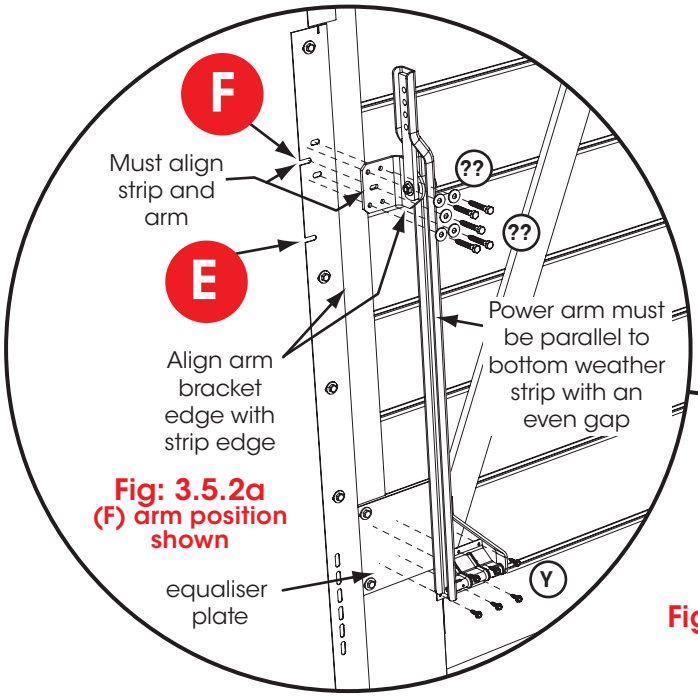


Fig: 3.5.2a
(F) arm position shown

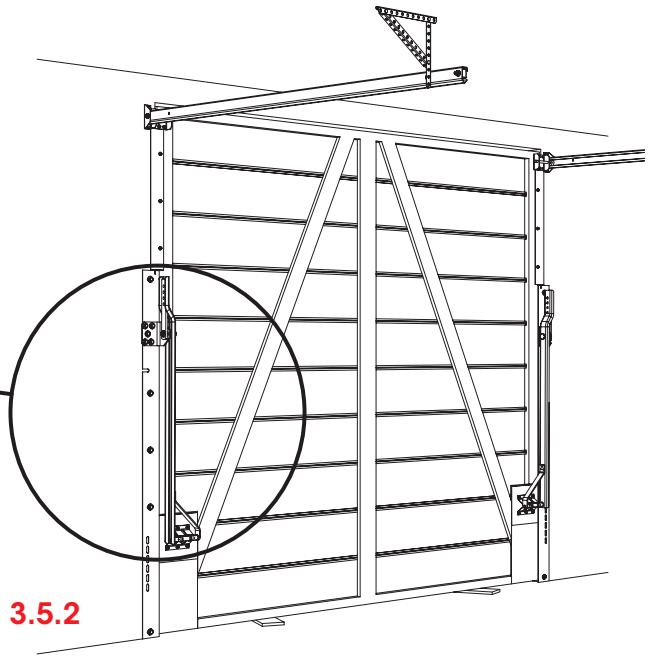


Fig: 3.5.2

c) Secure the equaliser plate to both sides of the door with suitable fasteners, then use power arm plate as a template to pre-drill holes.

d) Assemble the power arm on both sides to the bottom weather strip as shown in Fig 3.5.2 ensuring the arm is parallel to the bottom weather strip with an even gap down the arm.

3.6 spring assembly

a) Prop up the door using a solid wooden beam of suitable strength as shown in Fig 3.6.1.

WARNING! For additional safety, use multi-grips or G-clamps as shown to secure both wheels in tracks before proceeding.

b) Assemble the spring with the kicker bolt parts as shown in **Fig 3.6.2a** or **3.6.3a**, through the 3rd hole in the power arm.

tip **For Double Spring Kits, the clover hook needs to be assembled onto the kicker bolt assembly and pigtail hook as shown in Fig 3.6.3.**

c) Locate and secure the spring anchor bracket in position so that when the pig tail hook is installed the nut can just be screwed on. See **Fig 3.6.2b** or **3.6.3b**.

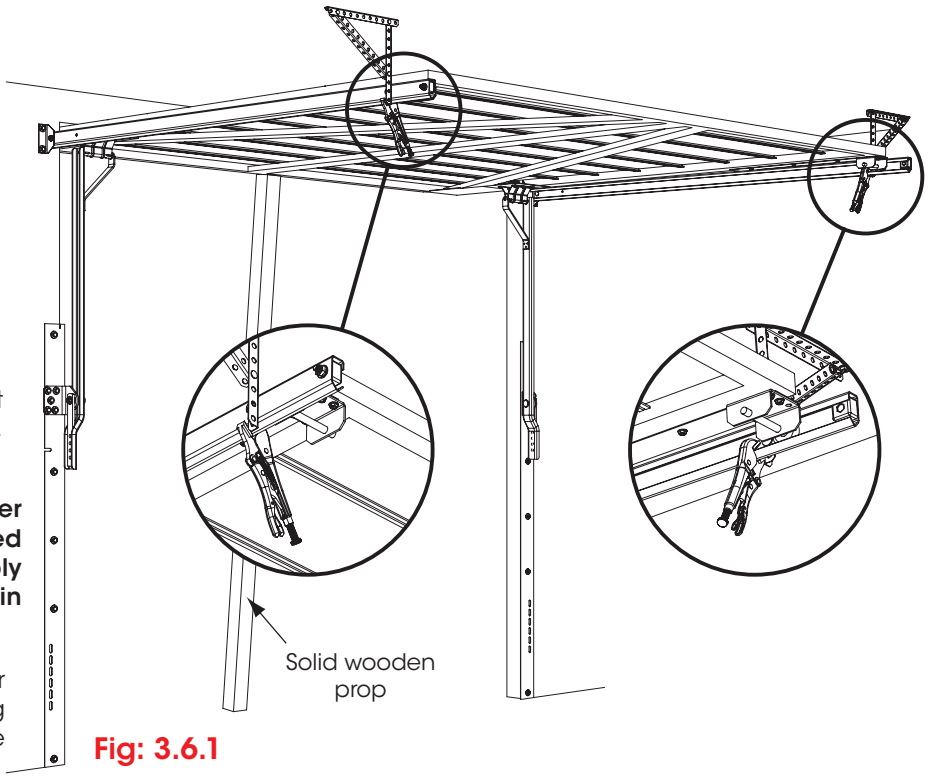


Fig: 3.6.1

tip **When the screw is tightened the spring should be stretched by approx. 50mm.**

WARNING! Keep hands clear of pinch points on spring at all times. Correct fixings and fittings MUST be used during every installation. Including the number of bolts to be used, the reinforcing plate, clover hooks, pigtailed bolt and spring anchor bracket.

Single Spring Kit
100kg or less

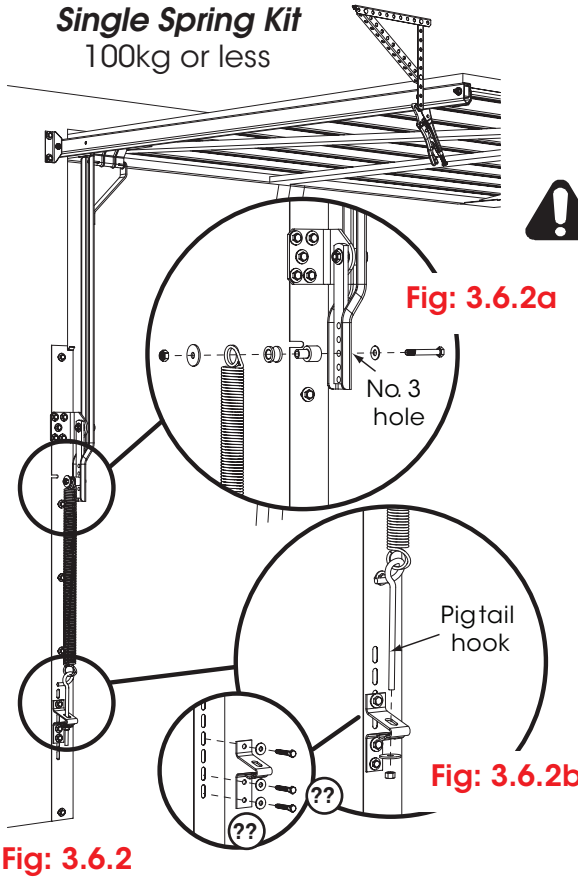


Fig: 3.6.2a

Fig: 3.6.2b

Fig: 3.6.2

WARNING! Grease between the kicker body and wheel to ensure smooth operation.

Double Spring Kit
over 100kg

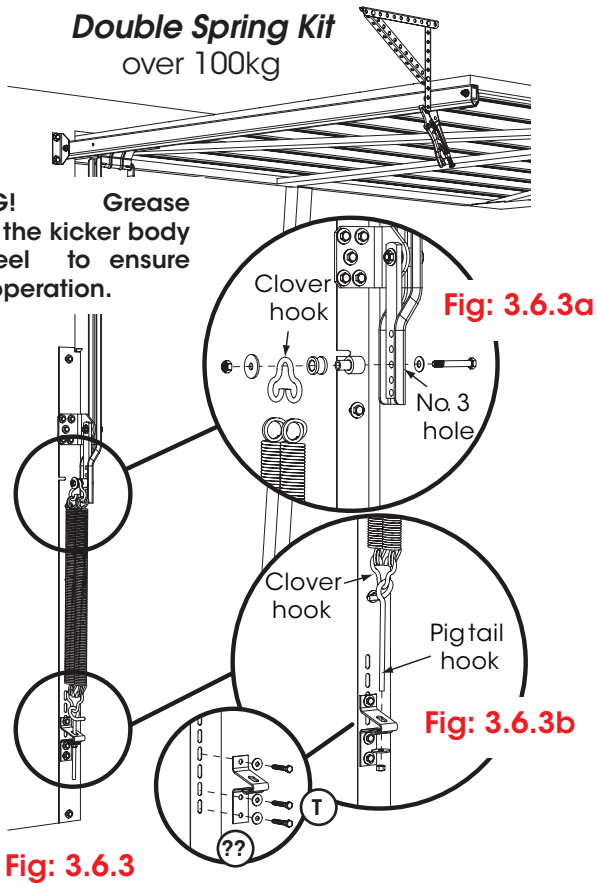


Fig: 3.6.3a

Fig: 3.6.3b

Fig: 3.6.3

tip **In some installations the Pigtail bolt might need to be cut down.**

3.7 adjusting the spring tension

WARNING! Springs can cause serious injury. DO NOT underestimate the tension in the spring.

WARNING! Keep hands clear of the spring at all times.

Before making any adjustments to the springs be sure to secure the door in place.

a) Prop up the door using a solid wooden beam of suitable strength and multi-grips as shown in Fig 3.7.1.

WARNING! For additional safety, use multi-grips or G-clamps as shown to secure both wheels in tracks before proceeding.

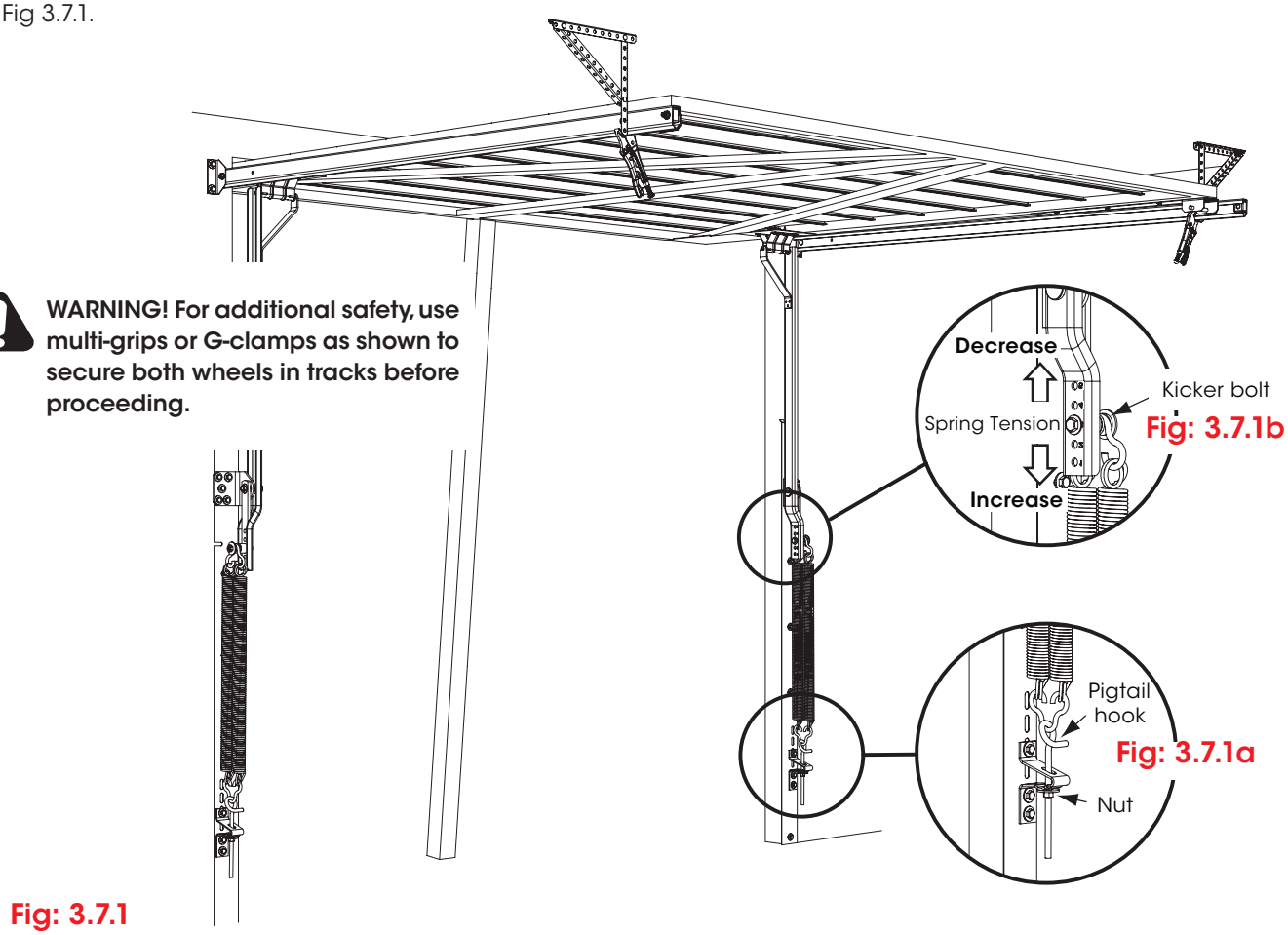


Fig: 3.7.1

To INCREASE tension

a) tighten up the nut on the pigtail bolt (Fig 3.7.1a) or;

b) loosen the nut on the pigtail bolt to relieve tension on the spring. Then move the kicker bolt one hole down as per Fig 3.7.1b.

To DECREASE tension

a) loosen the nut on the pigtail bolt (Fig 3.7.1a) or;

b) loosen the nut on the pigtail bolt to relieve tension on the spring. Then move the kicker bolt one hole up as per Fig 3.7.1b.

3.8 final checks

For optimal performance the door needs to operate efficiently.

a) Check that the clearance gaps are all even on the open door and that the power arms are square in both the open and closed position.

b) Manually move the door up and down, the door should move freely without binding or sticking.

c) The maximum force required to move the door should not exceed 20kg.

d) Once satisfied that the operation of the door is as near perfect as possible, check that all nuts and bolts are tight.

e) Bend the inside of the tab on the bottom weather strip as shown in Fig 3.8.1

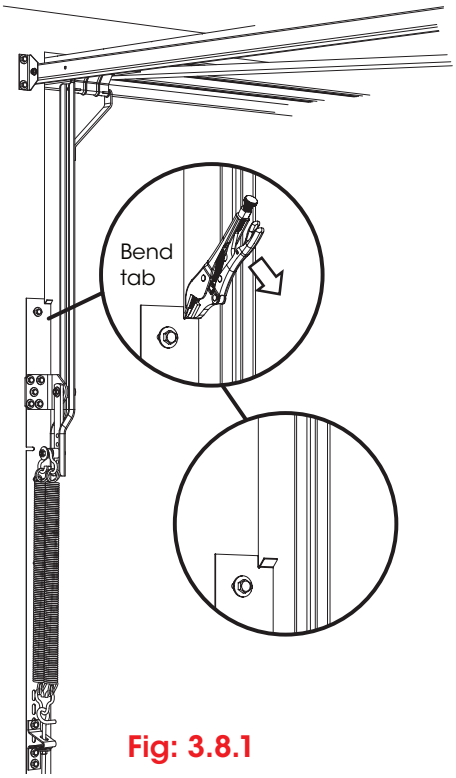


Fig: 3.8.1

3.9 troubleshooting

symptom	possible cause	remedy
door comes down too easily	spring is under tensioned.	Increase the tension of the spring. Refer to section 3.7 for adjusting spring.
Door is hard to pull down	spring is over tensioned.	Reduce the tension of the spring. Refer to section 3.7 for adjusting spring.
door rubs against the jamb	power arm bracket is too close to jamb	loosen the fasteners on the power arm bracket (just enough that the bracket can shift only), open door carefully then pivot the power arm away from the jamb concerned, before retightening fasteners.
	horizontal tracks are not square	Follow section 3.6 to prop up the door, then recheck that the horizontal tracks are square to the opening by measureing diagonal and adjust bracing accordingly as per Section 3.3 installing tracks.

4.0 after installation care

regular maintenance required

B&D recommends that you check the operation of your door at least every six months (more regularly in extreme environments or frequent use). The effort required to manually open and to manually close the door should be about the same (if door has an automatic opener, put into manual mode before testing door).

If the door is difficult to operate in either direction (up or down) then check that the inside surfaces of the tracks are clean and free of obstructions.

If the door is still difficult to operate, then your door will need a service to adjust the spring tension and possibly other operational parts of the door.

This service should only be carried out by an experienced door technician, using the correct tools.

If you have an automatic opener fitted to your door, it is particularly important that you ensure the optimum operation of the door, otherwise you may reduce the effective life of the opener.

To keep your door running well, it is recommended that your door be serviced, by an experienced door technician, every 12 months (more regularly in extreme environments or frequent use), or earlier if required.

lubrication

To ensure smoother operation the following areas are to be periodically lubricated to minimise wear and noise.

1. The kicker bolt where the clover hook is attached on double spring doors. See Fig 4.1.1a.
2. The pig tail hook and anchor bracket. See Fig 4.1.1b
3. Pivot of the anti-sway arm bracket. See Fig 4.1.1c.

spring tension

It is natural for springs to lose tension over time. When spring tension is adjusted or when your door is first installed it is usual to apply a little more tension than is required for balanced operation, to allow for the normal "settling in" of the springs.

warranty

Warranty conditional on proper care as recommended above. Full details of the warranty are available from your nearest B&D office or visit the B&D website **www.bnd.com.au**

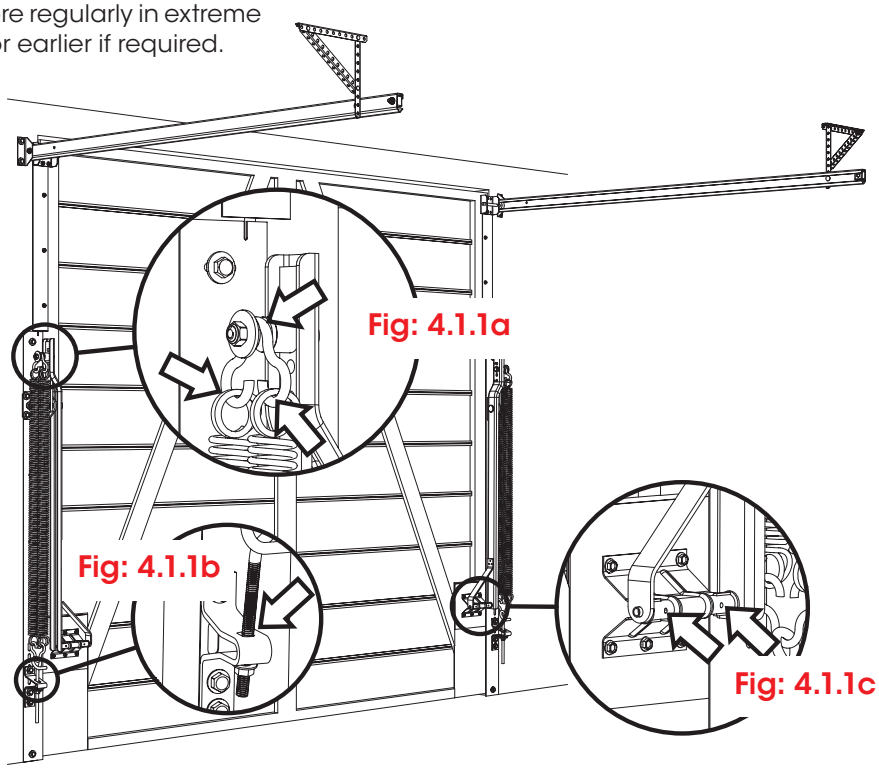


Fig: 4.1.1

b&d doors office locations

Head Office	6-8 Fiveways Blvd, Keysborough 3073	Phone (03) 9791 2000
New South Wales	34 Marigold St, Revesby 2212	Phone (02) 9722 5555
Queensland	17 Oasis Court, Clontarf 4019	Phone (07) 3883 0200
Victoria	147-153 Canterbury Rd, Kilsyth 3137	Phone (03) 9237 7766
South Australia	23 Frederick Rd, Royal Park 5014	Phone (08) 8440 4747
Western Australia	96 Mulgul Rd, Malaga 6090	Phone (08) 9247 8777
International/Export	34 Marigold St, Revesby 2212	Phone +61 (0)2 9722 5555
New Zealand	46 Braeburn Drive, Hornby, Chch 8042	Phone +64 3384 5145

your representative is

Prefixed trademarks are the property of B&D Australia Pty Ltd. B&D Doors & Openers is a division of B&D Australia Pty Ltd. ABN 25 010 473 971. © 2018 B&D Australia Pty Ltd.

www.bnd.com.au