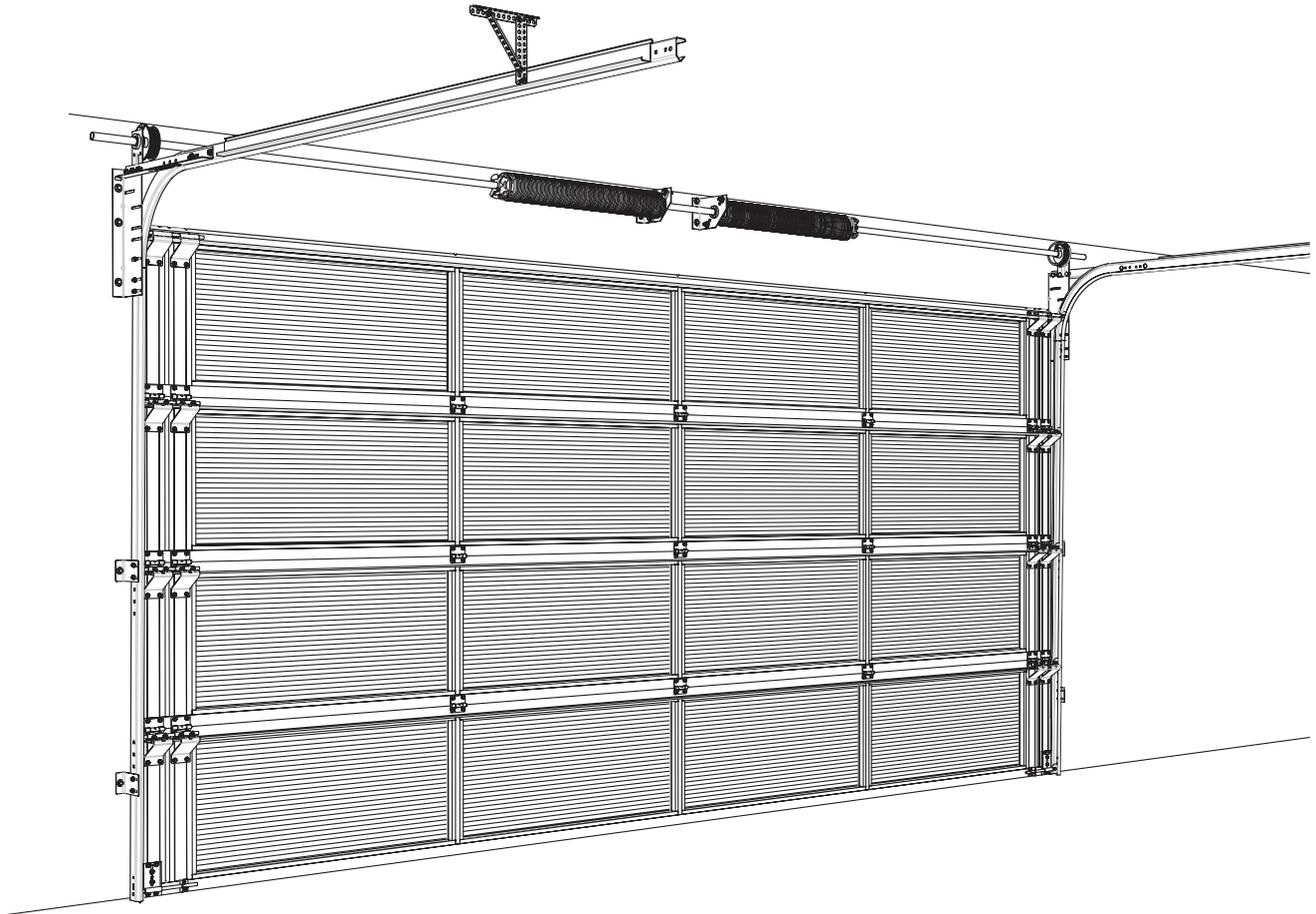


b&d

The Designer Series

& P7 Industrial™

installation instructions PART NO: 0T2429



These instructions are intended for professional garage door installers. All references are taken from inside looking out.

DOC# 165005_05
PART NO# 0T2429
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1.0 before you begin

1.1 installation safety warnings

This B&D Door is 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 the door is not installed as instructed.



WARNING!

Crush injury from unsecured door

Tension Springs

- 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.
- Follow the installation instructions.
- Ensure correctly fitting winding bar is used.
- Ensure the correct length winding bar is utilised.
- Ensure winding bar is placed appropriately in the torsion socket plug.
- Ensure correct bolts are tightened or loosened (or clamp pliers) to ensure there is no release or controlled release of energy from the spring either through the torsion bar or the winding bar.
- Keep hands clear of the torsion plug at all times.
- Keep head clear of the tensioning bar at all times.



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

Fall from ladder

Hand Tools

Entanglement

- Practice correct lifting techniques when required.
- Use mechanical aids such as lifting devices, forklift and cranes where possible.
- Avoid twisting.
- 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.
- 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.
- Keep hands and loose clothing clear of moving door and guides at all times.
- Depending on the size of the door, this product may require a two person lift. Use proper techniques and equipment to lift the door from the trailer and into position.



TWO PERSON LIFT:

1.2 fastener recommendations for fitting garage doors

substrate type	fastener required	washer required	plug required	drilled hole ø (mm)	min hole depth (mm)		B&D fastner pack	
					Unlined	Plaster Lined	100pk	500pk
solid brick (>10 MPa)	screw, coach 5/16 - 9tpi x 50	washer flat M8	plug, nylon 5/16 x 50	10	60	90	FK0011	FK0012
three hole brick (> 30 MPa)	screw anka M8 x 75 flange hex head	washer 3/8"	n/a	8	75	75	FK0024	FK0023 (50PK)
ten hole brick (>15 MPa)	screw anka M8 x 75 flange hex head	washer 3/8"	n/a	8	75	75	FK0024	FK0023 (50PK)
concrete block (> 8 MPa)	screw anka M8 x 75 flange hex head	washer 3/8"	n/a	8	75	75	FK0024	FK0023 (50PK)
concrete (> 15 MPa)	screw, coach 5/16 - 9tpi x 80	washer flat M8	plug, nylon 5/16 x 80	10	60	90	FK0013	FK0014
timber	screw, coach 5/16 - 9tpi x 50	washer flat M8	n/a	5	60	90	FK0011	FK0012
steel section (0.9-2mm thick)	screw tek 14g - 20tpi x 25 flange hex head ZP	washer flat M8	n/a	n/a	n/a	n/a	FK0019	FK0020

important notes

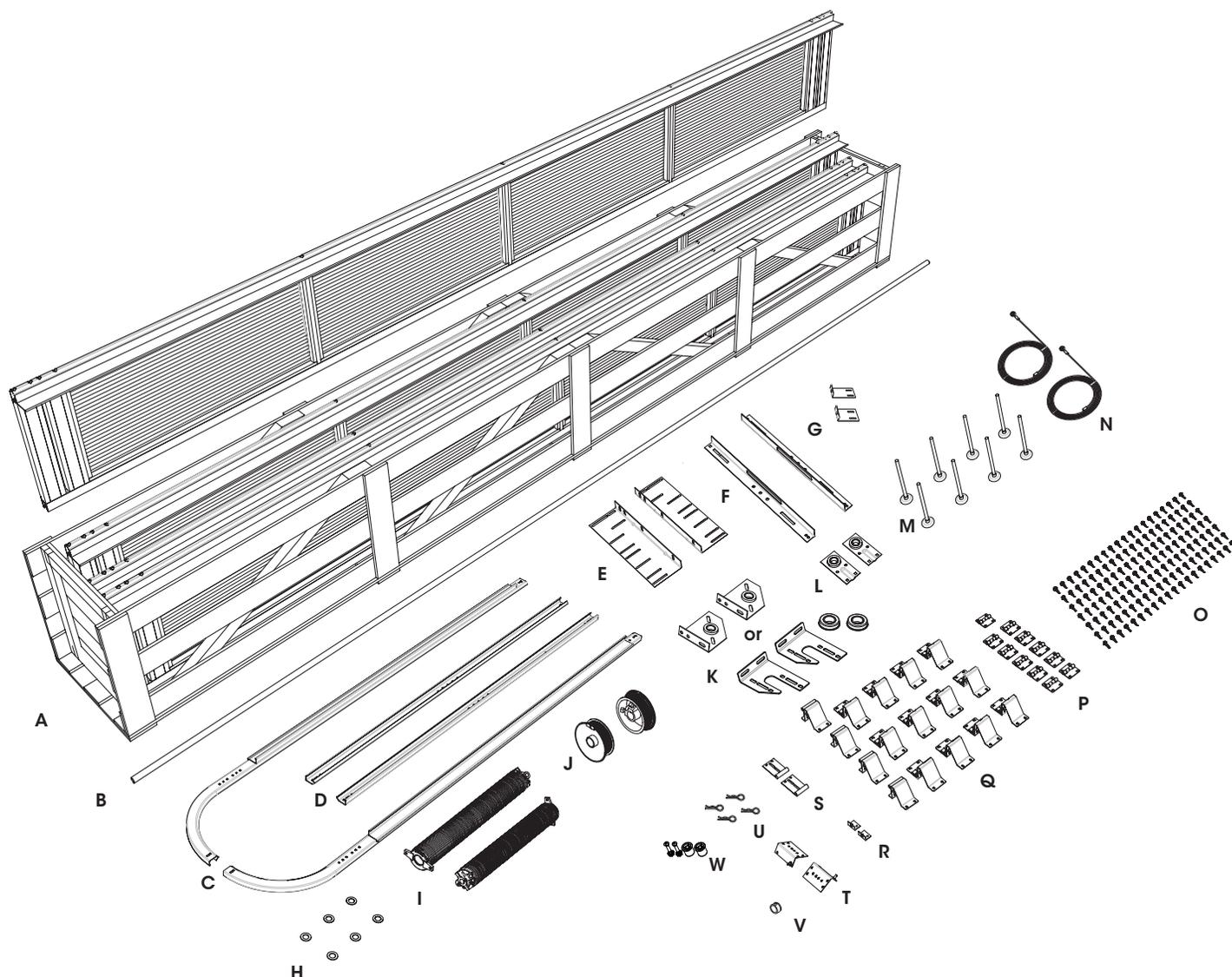
1. For installation to substrate materials not covered in the above chart, the installer should seek expert advice.
2. Substitute fasteners are not recommend unless approved.
3. The above chart specifies the fasteners for new substrate materials only. Seek specialist advice regarding pre-existing substrate materials.
4. It is important that correct washer and plug is used and the correct pilot hole drilled where specified.



WARNING!

The installer must select and use fasteners appropriate to the material into which they are being fixed.

1.3 parts checklist



ITEM	DESCRIPTION	QTY
A	DOOR PANELS PACKAGE	1
B	TORSION BAR	1
C*	HORIZONTAL TRACKS*	2
D	VERTICAL TRACKS	2
E	SHORT TOP TRACK ANGLE	2
F	HORIZONTAL BRACKETS	2
G	SMALL ANGLE JAMB BRACKETS	2+
H	WASHERS	6+
I	TENSION SPRING	1-4
J	CABLE DRUMS	2
K	SPRING ANCHOR BRACKET	2
	HD ANCHOR BRACKET + 2" ROLLER BEARING	2

ITEM	DESCRIPTION	QTY
L	SIDE BEARING BRACKETS	2
M	WHEEL AXLES	8+
N	LIFTING CABLE	2
O	TEK SCREWS	20+
P	HINGES	9+
Q	END HINGES	8+
R	BOTTOM PANEL BRACKET	2
S	AXLE PLATE HANGER	2
T	BOTTOM HANGERS	2
U	SNAP PINS	2+
V	SHAFT COLLAR	1
W	SAFETY STOP	2

* Refer to appendix for BTRK drawing



1.4 requirements before installation

mounting - The door is designed to be mounted behind the opening.

obstructions - Ensure that the surface where the door will be fitted is smooth, and the area behind the opening is free from any protrusions.

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

level and plumb - The door must be installed in an absolutely level position, if opening is not level and square, appearance and/or sideroom requirements will be affected. The floor should be level or recessed across the opening to avoid gaps.

1.4.1 measurements

(refer to appendix for rear torsion allowances)

opening width - As the door overlaps each side by 30mm or more, the door should be 60mm wider than the opening. A wider door can be fitted as long as additional sideroom and fixing is available. See Fig 1.4.1.

opening height - The door will fit any opening height up to the marked door size.

sideroom - A minimum of 120mm of sideroom is required over and above door width and should extend above the head to allow for bracket fixing.

headroom - depending on the cable drums used a minimum of 340mm (390mm for larger doors) of headroom is required.

backroom - as the door extends into the garage when opening a minimum of the door height + 300mm for tracks is required (+ 1000mm if opener fitted).

level datum - use a water or lazer level to mark a datum line on both sides approx. 1.5m from the floor. Use this line to compare the distance on each side to the opening height to determine if the opening is level.

vertical track height - the track height should be the door height minus the short top track angle measurement.

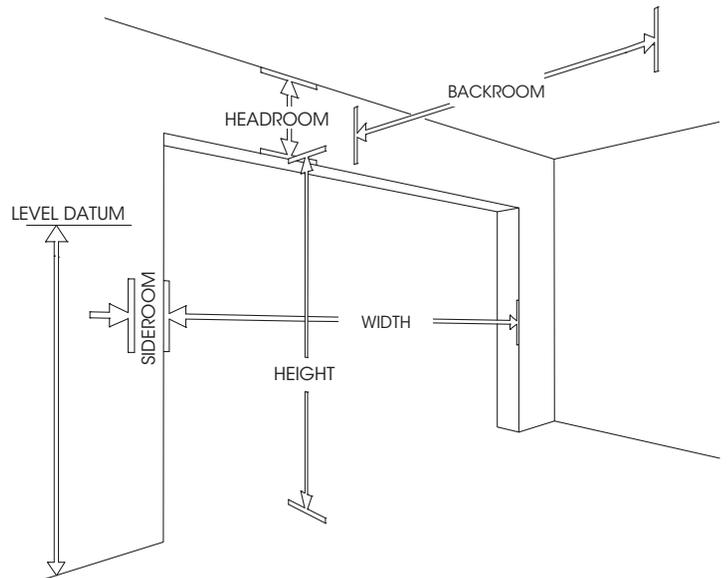


Fig: 1.4.1

1.4.2 initial calculations

- Open the package of door panels and locate the label on the end of the door panel.
- The label lists the Sales No: XXXXXX, then underneath DH: X,XXXmm (door height).
- All the vertical track lengths are precut in the factory. However to calculate the vertical track length:

tip $\text{door height} - \text{short top track angle (standard 127mm, low headroom 275mm) (BTRK 242mm)} = \text{vertical track length}$

- Calculate the track width:

tip $\text{panel width} + 20\text{mm} = \text{track width (from the inside edge)}$

- Calculate the horizontal track brace position:

tip $\text{door height} \times \frac{3}{4} = \text{horizontal track brace position}$

1.5 tools

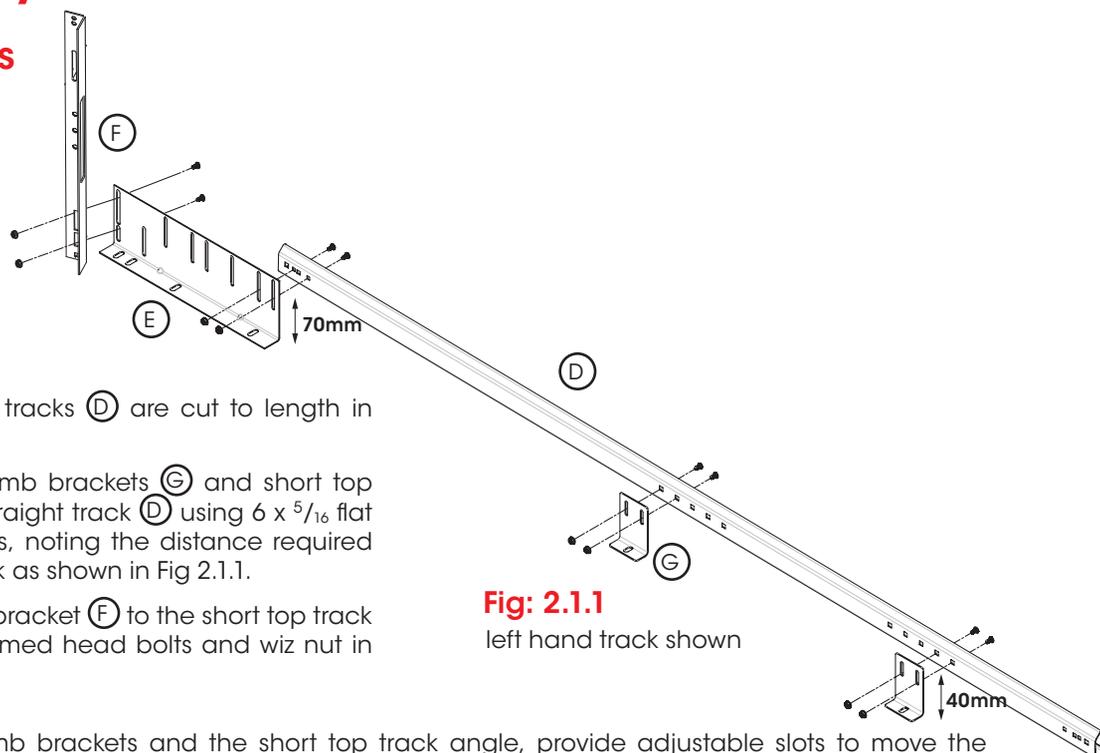
It is recommended that this door is installed by a professional door installer using a professional and specialised tool kit.



Carry a set of spacers within the installer kit; 4 x 1-2mm thick, 1 x 10mm thick to assist with aligning hinges and panels

2.0 assembly

2.1 vertical tracks



- All the Vertical Straight tracks (D) are cut to length in factory.
- Affix the small angle jamb brackets (G) and short top track angle (E) to the straight track (D) using 6 x 5/16 flat head bolts and wiz nuts, noting the distance required from the wall to the track as shown in Fig 2.1.1.
- Connect the horizontal bracket (F) to the short top track angle (E) using a 1/4 domed head bolts and wiz nut in top corner of the "V".

Fig: 2.1.1
left hand track shown

NOTE: The small angle jamb brackets and the short top track angle, provide adjustable slots to move the track out from the wall. For larger doors one bracket is placed at the bottom and the second bracket placed approximately midway.

2.2 door panels

NOTE: Refer to appendix if installing a taper or rear torsion system as this requires a different hanger.

- Open up the pack of door panels, making sure the bottom panel (weather strip seal on the bottom of the panel and bottom hinge hole) is on top of the pack. Start with the bottom panel.
- Place the axles plate hanger (S) onto the bottom hanger (T) and secure onto the bottom panel as shown in Fig 2.2.1 using tek screws. Ensure to line up the holes with the bottom panel bracket (R).

! tip Apply general purpose grease to all axles before fitting them.

- Secure the bottom panel bracket (R) with 2 tek screws, then slide in wheel axle (M) through the axle plate hanger to the bottom panel bracket.
- Push the end of each lifting cable (N), onto the bottom hanger, followed by a washer (H) and secure with a snap pin (U) Fig 2.2.1.

! tip Do not unwind lifting cable until specified to do so.

- Attach a hinge (P) to the top of the panel at every door stile using a 10mm spacer to ensure alignment, with 2 tek screws (Fig 2.2.1). Then place 2 end hinges (Q) at either end of the panel and secure with tek screws as shown.
- Insert the top wheel axle (M) on both sides of the panel. NOTE: Once the panel is in place the hinged hangers (Q) can be adjusted if needed to ensure the panels are parallel to the opening.
- Repeat steps e) and f) to assemble other middle panels.

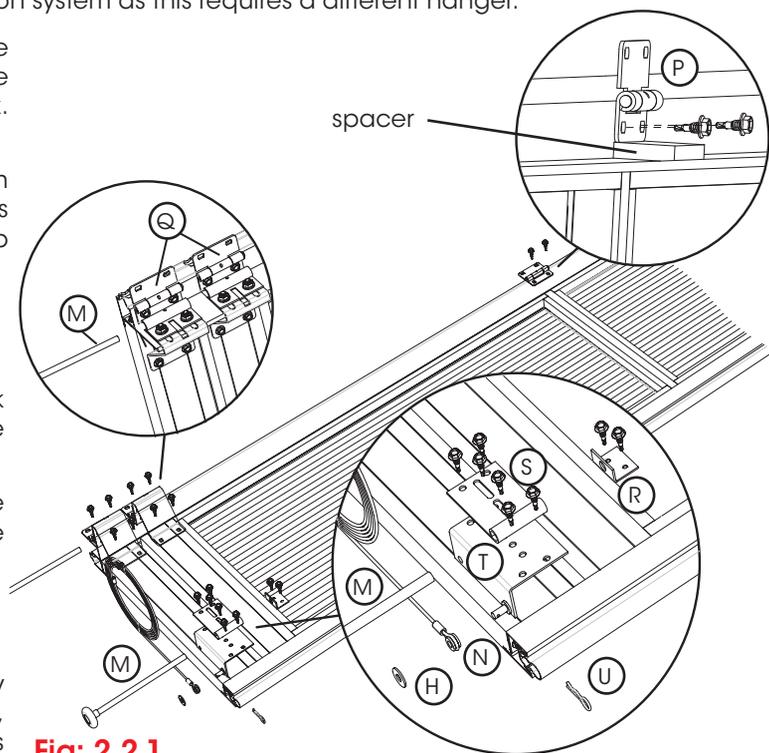


Fig: 2.2.1

3.0 installation

3.1 installing vertical tracks

- Set the vertical tracks parallel on both sides of the door at the vertical track width calculated in Section 1.4.2 d.
- The tracks should be panel width + 20mm apart. Use the level/datum marks to ensure the tracks are level with each other and the same distance to the top of the track or the door will not function correctly. Fig 3.1.1
- Ensure to follow the measurements as shown in Fig 3.1.2 to set out the placement of the track and brackets.
- Once satisfied temporarily fix in position with at least two (2) fixings to the top bracket and one to each of the lower track brackets. These will hold the tracks in position and allow for minor adjustments.

WARNING! All fixings must be fitted after the door is fully adjusted and operating satisfactorily.

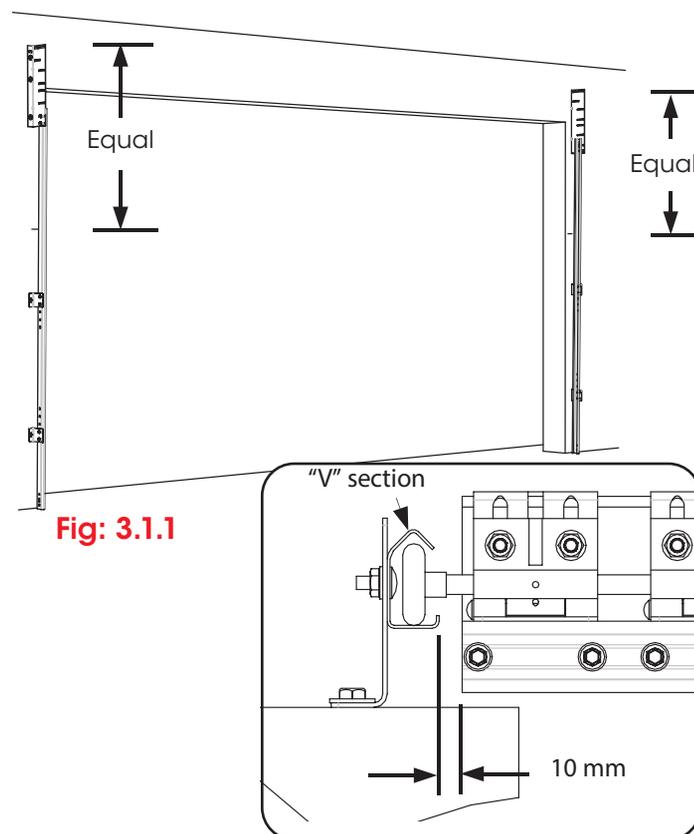


Fig: 3.1.1

Fig: 3.1.2

3.2 installing bottom panel



TWO PERSON LIFT: depending on the size of the door, this process may require two persons to lift into place.

- Carefully lower the wheels of the bottom panel into the tracks and lower so the panel is sitting level in the door opening Fig 3.2.1.
- Check that the wheels are sitting in the "V" groove of the vertical track on each side and there is sufficient clearance between the panel and the track as per Fig 3.1.2.



CAUTION: After installation is complete all plastic protective film must be removed from all panels.

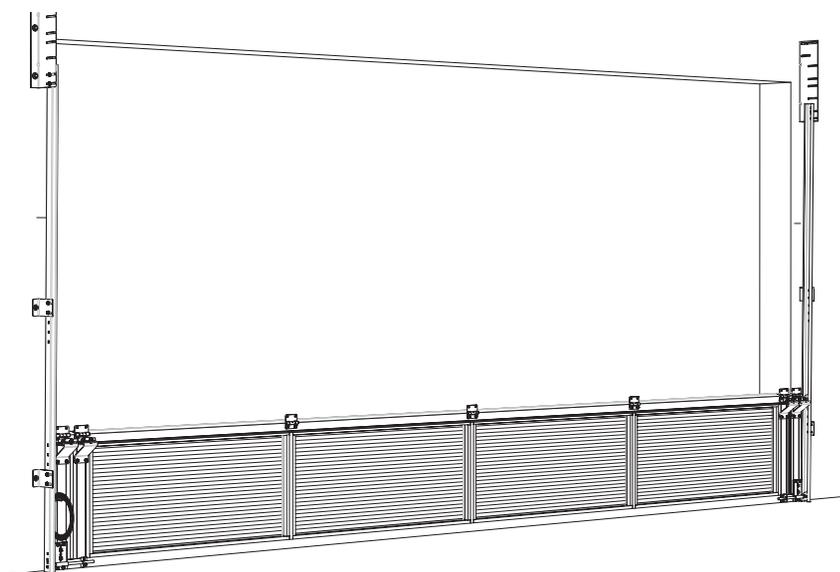


Fig: 3.2.1

3.3 adding panels



TWO PERSON LIFT: depending on the size of the door, this process may require two persons to lift into place.

- a) Before adding the next panel into the tracks fit a temporary spacer, 1-2mm thick, at each panel joint to give clearance between each panel in order to decrease paint rub.
- b) Insert the next panel into the guides and lower to rest on top of the bottom panel. Fig 3.3.1 and 3.3.2.
- c) Screw the hangers and hinged hangers to the lowered panel, before removing the temporary spacer.

NOTE: The hinged hangers are adjustable to ensure the panels are parallel to the opening.

- d) Repeat this procedure for all other panels with the exception of the top panel which is positioned after the horizontal track is installed Fig 3.3.3.
- e) Once satisfied with the door placement, secure all fixing points on the vertical tracks.



CAUTION: Ensure the warning label is placed on the door in a clearly visible position.

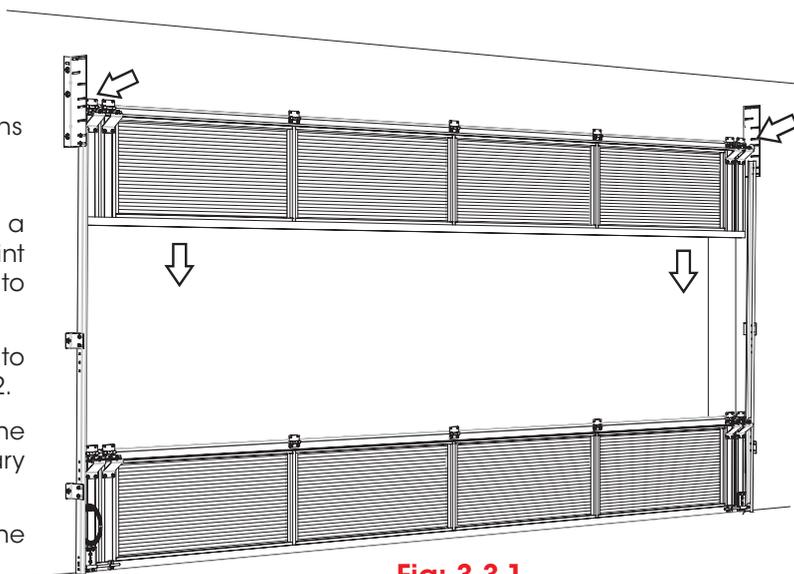


Fig: 3.3.1

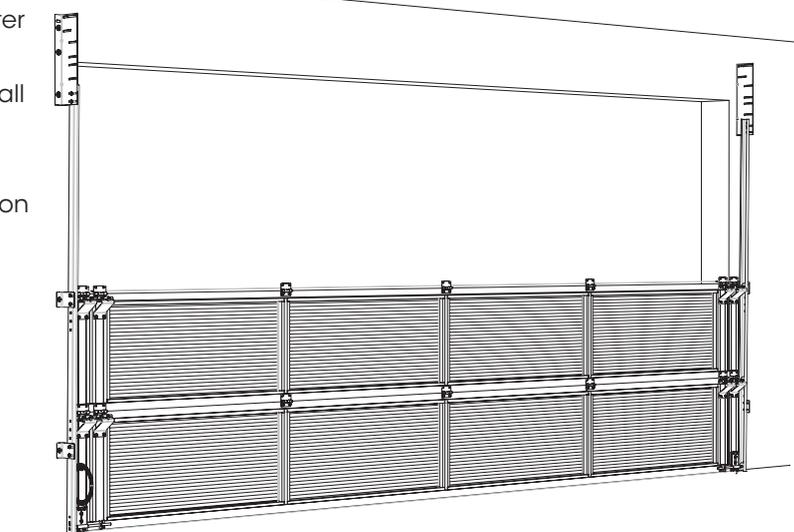


Fig: 3.3.2

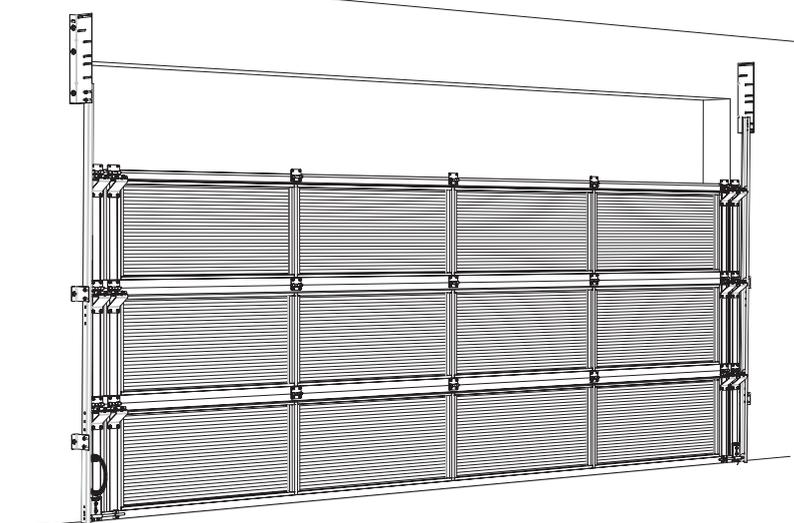


Fig: 3.3.3

3.4 installing horizontal tracks

Assemble the track as shown in Figure 3.4.1. The curve must align and butt up against the vertical track snugly.

NOTE: Refer to appendix if installing a BTRK for biowood or different clad doors as they require different horizontal tracks.

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

- Measure from the top of the vertical track to the end of the horizontal track.
- Check both sides.
- Adjust if necessary.

The track support must be located along the horizontal track approximately at $\frac{3}{4}$ door height. For doors higher than 2280mm and/or wider than 4700mm two supports will be required.

WARNING! Failure to position supports approximately $\frac{3}{4}$ door height along the track can result in the tracks twisting out.

- Calculate the horizontal track brace position as per section 1.4.2.
- 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 3.4.2 or Fig 3.4.3.
- Each installation must be assessed individually for ceiling fixing requirements.

WARNING! For all doors higher than 2280mm and wider than 4700mm two (2) ceiling supports must be fitted per horizontal track.

The safety stop must always be fitted to prevent the panels from accidentally exiting the track

- Install the safety stop (W) at the end of the horizontal track as shown in Fig 3.4.4.

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

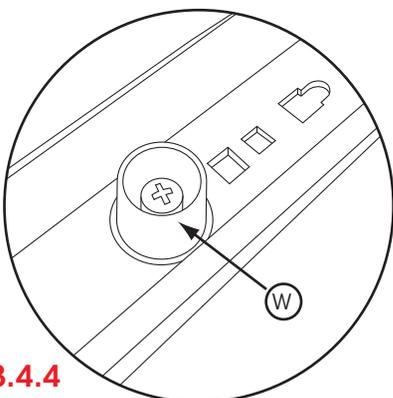


Fig: 3.4.4

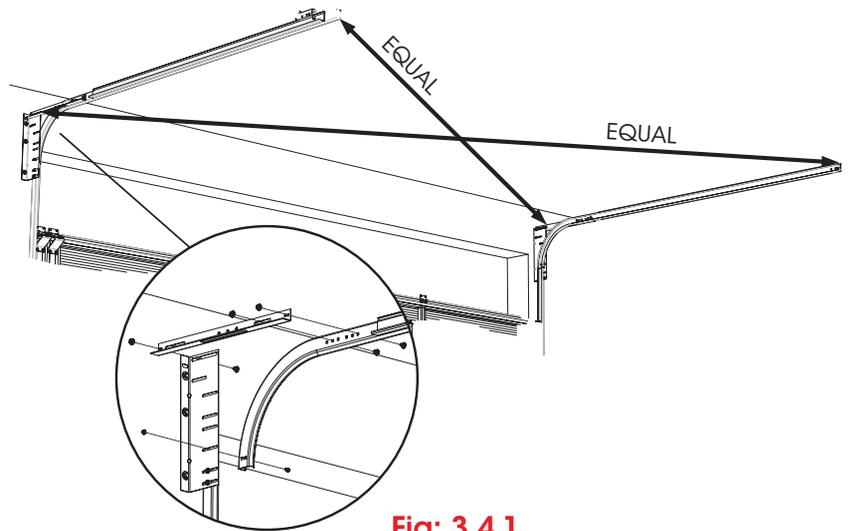


Fig: 3.4.1

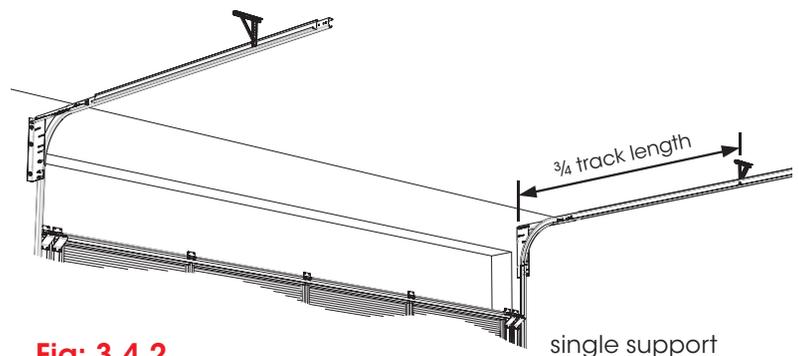


Fig: 3.4.2



Check that the clearance in the vertical tracks as per Fig 3.1.2 is also in the horizontal tracks.

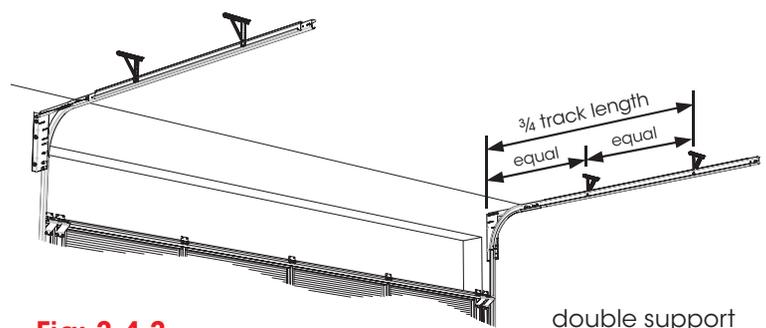


Fig: 3.4.3

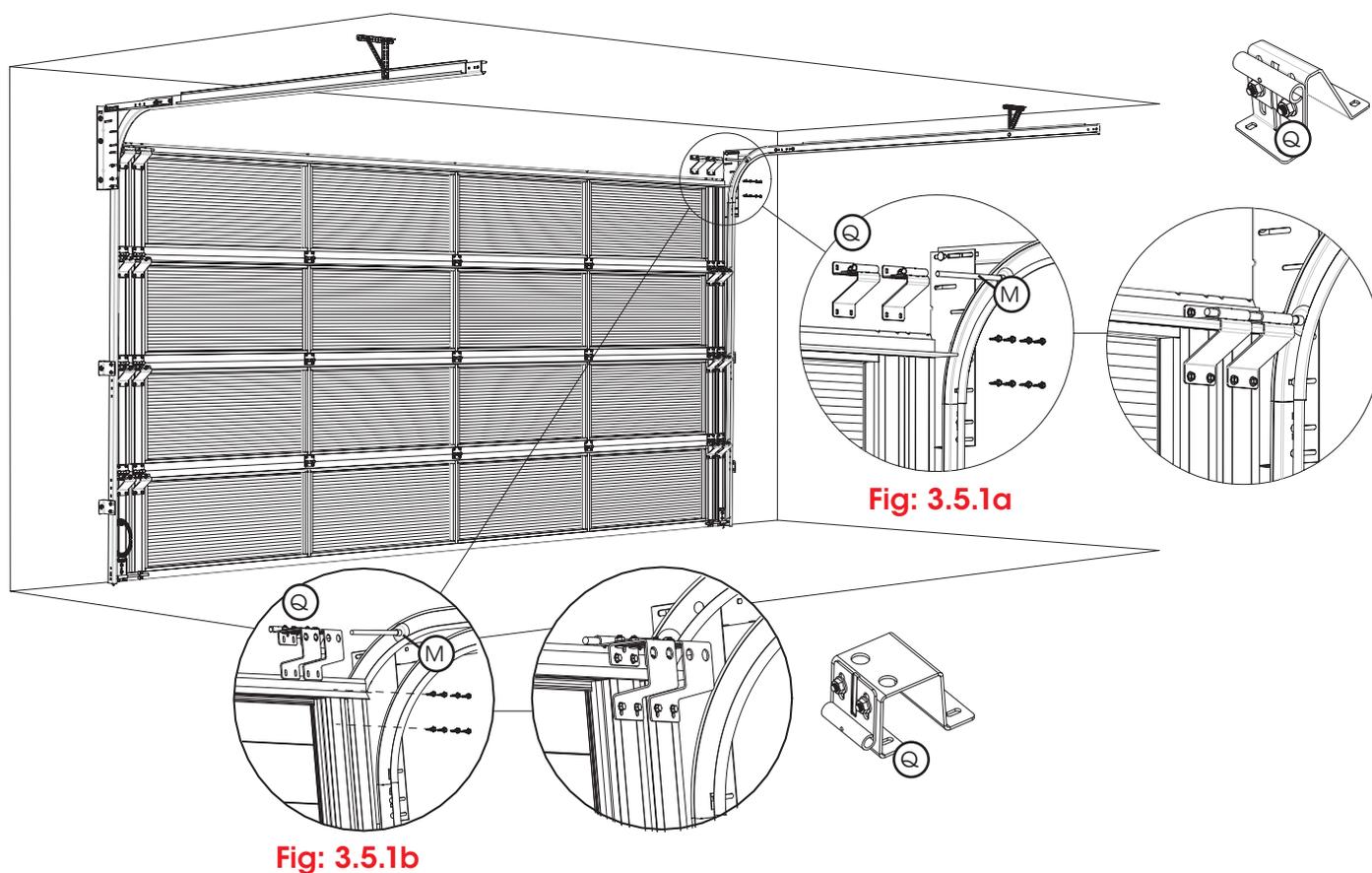
3.5 install top panel

NOTE: Refer to appendix if installing a rear torsion systems as installation of top panel may be different.



TWO PERSON LIFT: depending on the size of the door, this process may require two persons to lift into place.

- a) Rest the top panel into position on top of the last panel.
- b) Thread the wheel axle (M) down the horizontal track and slide the hinged hangers (Q) onto the wheel axle (fig 3.5.1a standard, 3.5.1b for BTRK).
- c) Secure hinged hangers with tek screws as shown in both top corners of the panel and adjust hinge to wheel height if necessary.
- d) Attach top panel to panel below via the hangers and hinges on previous panel.



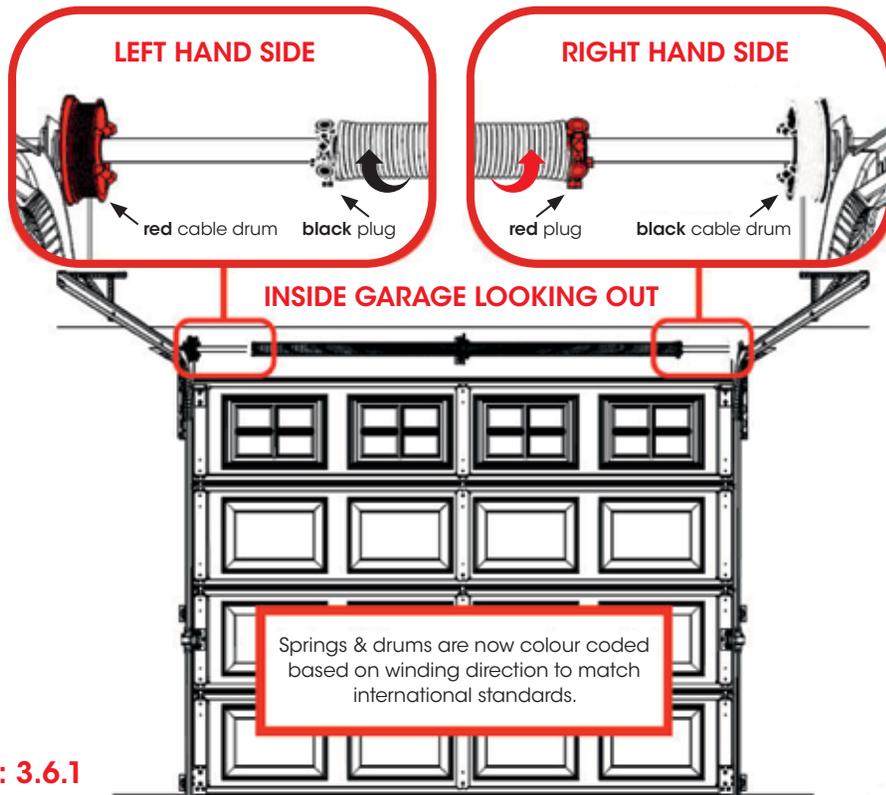


Fig: 3.6.1

3.6 standard spring counterbalance system

NOTE: Refer to appendix for large / heavy doors containing two piece shafts and heavy duty brackets.

The springs and drums for the counterbalance system are now colour coded to easily identify which side of the centre bracket the spring is placed. Fig. 3.6.1.

- Place the torsion bar (B) on the floor and slide the spring anchor bracket (K) onto the torsion bar, positioning it approximately half way along.
- Locate the cable drum/s (J), spring/s (I), shaft collar (V) and washers (H) and assemble them as shown in Fig. 3.6.2.

NOTE: Shaft Collar not required in double spring mountings.

- Ensure the shaft collar is butted up against the anchor bracket as shown in Fig. 3.6.2 and fixed to axle on spring side of anchor bracket.

CAUTION: DO NOT tighten bolts in cable drums yet

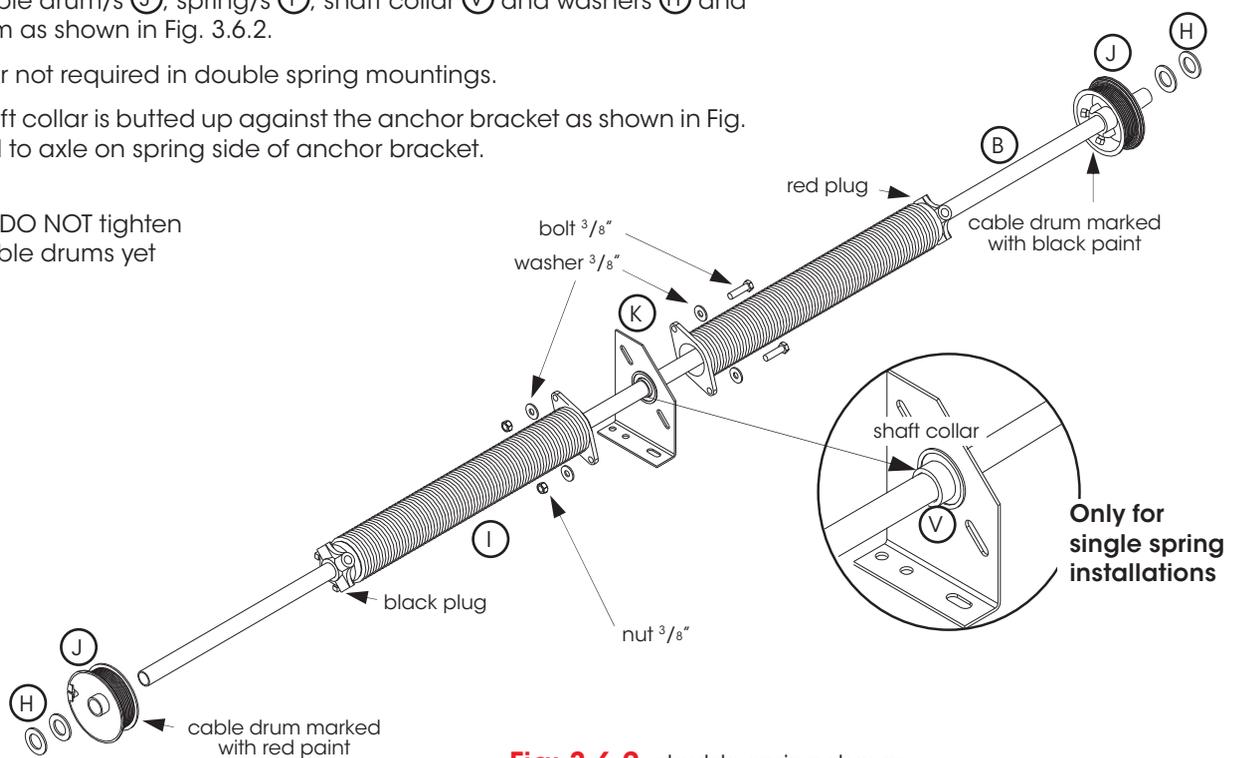


Fig: 3.6.2 double spring shown



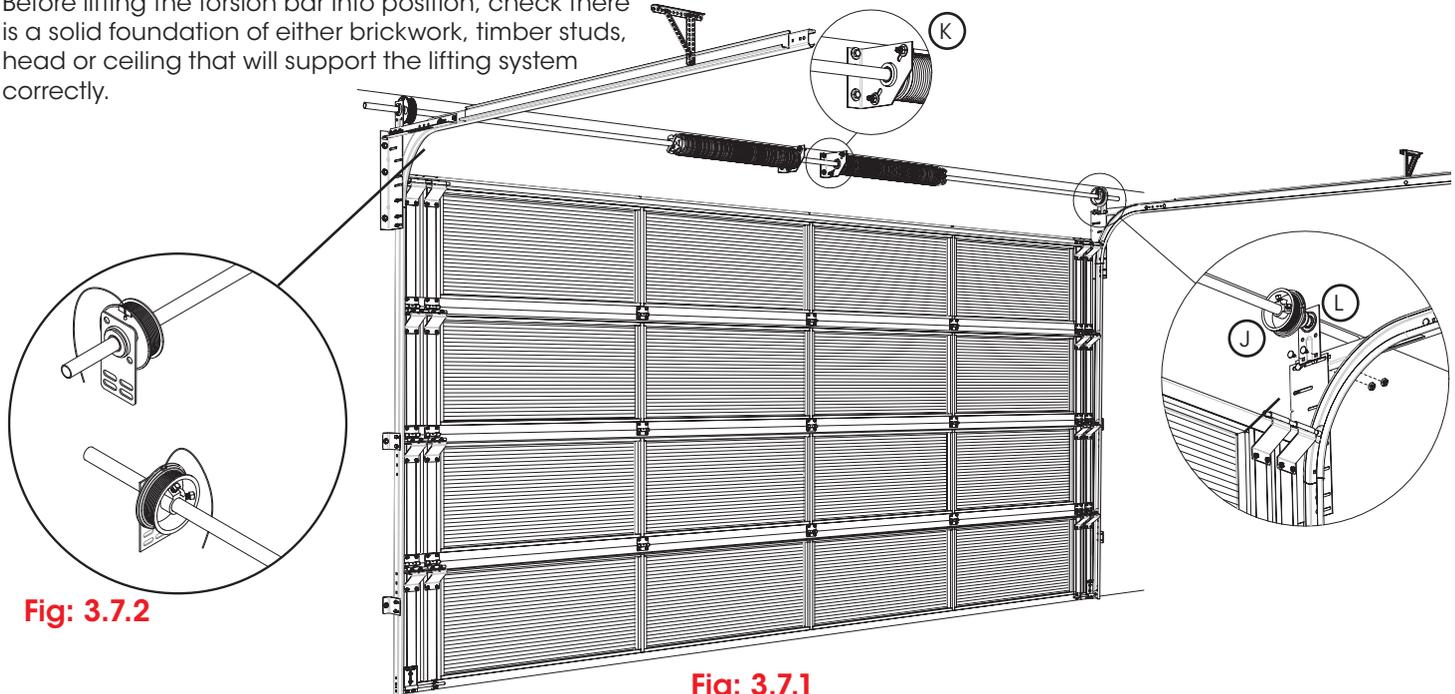
3.7 install torsion bar

NOTE: Refer to appendix if installing a rear torsion systems.

CAUTION: For larger doors refer to 5.4 appendix as a stronger system may be required.

Before lifting the torsion bar into position, check there is a solid foundation of either brickwork, timber studs, head or ceiling that will support the lifting system correctly.

tip If an opener is being fitted, consider where the C-Rail wall bracket is to be placed before fixing the spring anchor bracket (K)



a) Lift the torsion bar assembly into position, resting both ends over the top of the horizontal tracks. Fig. 3.7.1.

tip For wide doors, place a temporary support in the center of the torsion assembly to prevent sag and possible collapse.

b) Ensure that the side bearing brackets (L) and cable drums (J) are situated on the inside of the horizontal tracks.

c) Line up the spring anchor bracket (K) with the middle of the door, so that the cut corner is facing down.

d) Slide the torsion bar assembly towards the wall so the spring anchor bracket can touch the wall (the axle must be parallel with the opening).

tip It may be necessary to offset the anchor bracket in order to clear room for the opener C-rail.

e) Secure the spring anchor bracket to the wall/ceiling and the side bearing brackets to the tracks as shown in Fig 3.7.1.

tip Unwind the lifting cable from the bottom panel.

f) Attach the lifting cable to the cable drum by slipping the cable into the slot on the outside groove. (the ferrule will prevent the cable from coming out) Fig 3.7.2.

g) Wind the cable by hand by turning the cable drum away from the door.

h) Once the cable is taut, slide the cable drum against the side bearing bracket and tighten the screws to the torsion bar. Fig 3.7.3.

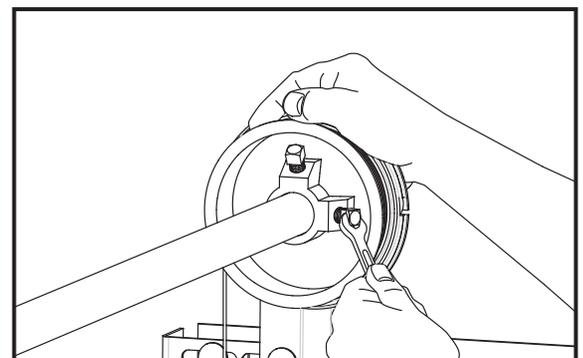


Fig: 3.7.3

CAUTION: Be careful not to over tighten the set-screws

3.8 adding tension to spring

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

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

The number of turns required for each spring is shown on a paper tag attached to the springs. Fig 3.8.1

- a) Secure the torsion bar using 2 pipe wrenches, tensioning bar or mechanical spring winder as shown in Fig 3.8.2.

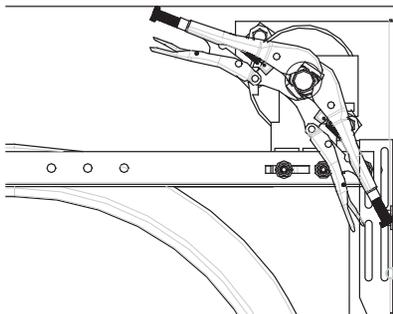


Fig: 3.8.2

tip Doors with total weight over 200kg require 850mm+ long winding bars. These can be purchased from B&D (p/n OT05480-1).

- b) Turn the spring by inserting winding bars into the plug holes of the spring and wind up in the direction towards the opening. Fig 3.8.3.

WARNING! Always have one winding bar engaged and firmly held while turning and tightening screws.

- c) Once you have completed the turns required, remove one winding bar. If spring snaking occurs, tap the remaining bar back towards the spring anchor bracket.
- d) Maintain firm tension on the winding bar, while using a spanner to tighten the two (2) grub screws. Fig 3.8.4.

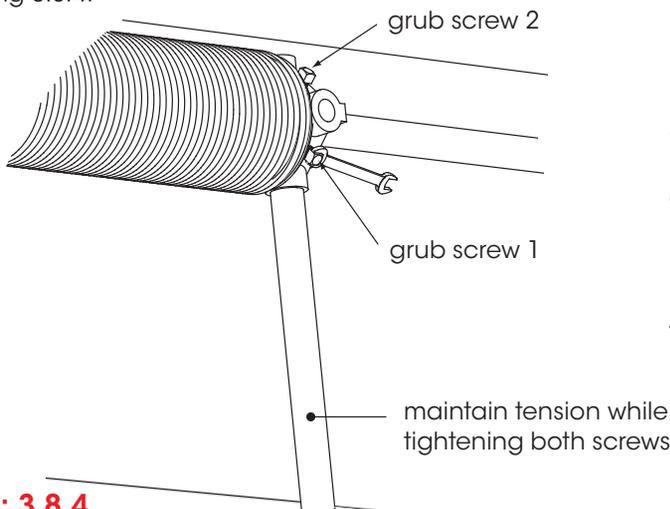


Fig: 3.8.4



Fig: 3.8.1

tip The label lists how many full turns. Alternatively, a line is painted along every spring. If the spring is turned 8 times, 8 lines can be seen along the spring

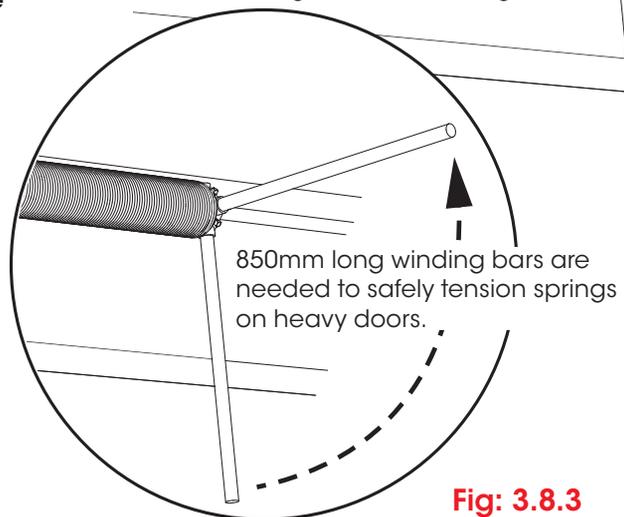
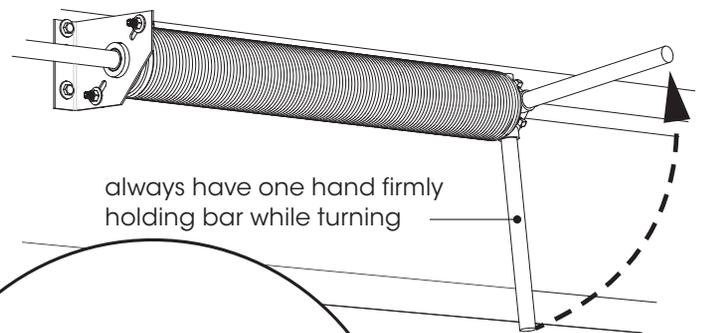
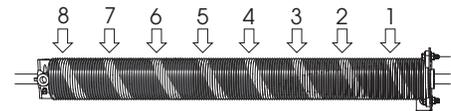


Fig: 3.8.3

CAUTION: Be careful not to over tighten the grub screws.

- e) Repeat this procedure if there is more than one spring, remembering to always wind the spring, whether left or right hand, in an up direction towards the opening.
- f) Check that all screws are properly tightened before removing the wrenches on the torsion bar.



3.9 final checks

For optimal performance the door needs to operate efficiently.

- a) Manually move the door up and down, the door should move freely without binding or sticking.
- b) The maximum force required to move the door should not exceed 20kg.
- c) Lift the door to about halfway. When released, the door should stay in place. Fig 3.9.1.
- d) Check that the clearances in the vertical tracks as per Fig 3.1.2 is also in the horizontal tracks.
- e) If you find that the door is binding, open out the horizontal tracks slightly to create the correct tolerance.
- f) Once satisfied that the operation of the door is as near perfect as possible, check that all nuts and bolts are tight.
- g) Oil the springs full length to prevent noise and reduce friction. TAL 5 or similar oil rich lubricant in a pressure spray can is acceptable. Fig 3.9.2

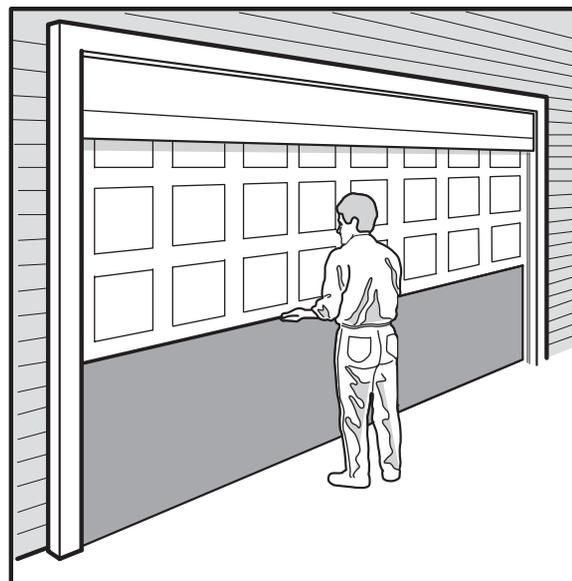


Fig: 3.9.1

! WARNING! The safety pull cord or handle must always be fitted to the door

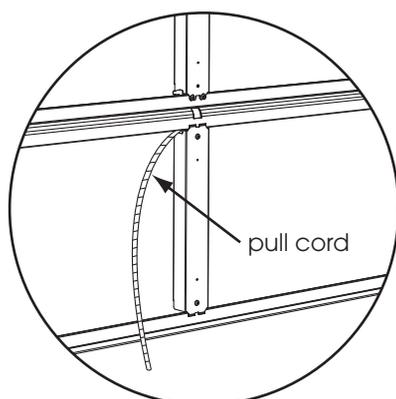


Fig: 3.9.3

Finally, the safety pull cord or handle must always be fitted to the door.

- h) pass the cord through the white hinge pin on the bottom panel. Fig 3.9.3.
- i) Adjust the length and tie in a knot at each end.
- j) Alternatively fit a "D" handle.

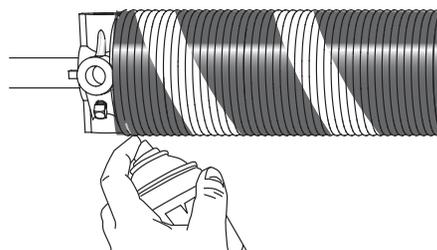


Fig: 3.9.2

4.0 troubleshooting

Symptom	Possible cause	Remedy
lifting cables loose when door is opened	cable drums have slipped diagonals out of square lifting cables not wound till taut	check the screws on the cable drums check the horizontal tracks are square loosen screws on cable drums and wind cables till taut, then tighten screws.
torsion bar moving	cable drums not adjusted correctly springs not adjusted correctly shaft collar not fitted (single spring) end bearing brackets are not straight	check and adjust check spring tension fit shaft collar, see section 3.6. check end bearing brackets are square and vertical
door will not hold up in open position	spring tension not tight enough incorrect placement of springs	check the correct number of turns has been made to spring/s. refer to section 3.8. check the springs are on the correct side/s, refer to section 3.6.
door not level	water level marks incorrect lifting cable not equally taut	check the water level marks are correct loosen screws on cable drums and wind cables till taut, then tighten screws.
door moving to one side	clearances incorrect cable drums not close to end bearing brackets	check the clearance/overlap of the door is equal on each side. loosen screws on cable drums and ensure they are hard up against the end bearing bracket and tighten screws.
door panels jamming / rubbing on tracks	incorrect clearance between wheel and vertical track door not level cable drum not lined up correctly vertical tracks not parallel lifting cables slipping	Check that the clearances per Fig 3.1.2 are the same in both vertical and horizontal tracks. check water level marks are correct. loosen screws on cable drums and ensure they are hard up against the end bearing bracket and tighten screws. Check that the clearances per Fig 3.1.2 are the same on both vertical tracks. loosen screws on cable drums and wind cables till taut, then tighten screws.
door hard to lift	spring tension spring may have slipped on set screws wrong spring	check the correct number of turns has been made to spring/s. refer to section 3.8. Ensure springs have been lubricated. check spring plug grub screws are tight, refer to section 3.8 check the springs are on the correct side/s, refer to section 3.6.



common spring problems

symptom	possible cause	rememdy
door raises from the floor and hangs down in opening	cable length too long with cable not on high portion of drum	shorten cable length until the cable rolls onto the flat portion of the drum when the door starts into the horizontal position
	springs may be too strong (too short)	replace spring
	wrong cable drums for springs (too small)	replace cable drums
door lifts from the floor and runs away at the top	door is over tensioned, too many turns on spring or wrong spring	ensure that the correct spring is supplied (if not replace) and that it has the correct number of turns applied
	wrong cable drums for spring, (too small)	replace cable drums
door falls to the floor and hangs down in the opening	door is under tensioned too few turns on spring or wrong springs	ensure that the correct spring is supplied (if not replace) and that it has the correct number of turns have been applied
	wrong cable drums for springs (too large)	replace cable drums
door falls to the floor and runs away at the top	lifting cable may be too short for high lift cable drum or vertical lift drum and is sitting too high on the spiral portion of the drum	increase the cable length to bring the cable down lower on the spiral
	torsion springs too long	shorten springs
door balances at the floor but runs up or down in between	cables in wrong position on spiral of the drums	adjust cable length
poor balance throughout	winding spring in wrong direction	wind in correct direction
	door weight incorrect	supply correct springs
	springs binding	fit torsion bar collar lubricate springs
	door not level	cable lengths are equal equal turns on both springs level door during installation



5.0 appendix

5.1 BTRK parts and install

The BTRK is a double track with top curve © that opens up to fit the top panel fitted with thick biowood or cladding on the face Figure 5.1.1.

Assemble the track as shown in Figure 5.1.2. The curve © must align and butt up against the vertical track © snugly and the top curve track needs to be close to the lintel.

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

- Measure from the top of the vertical track to the end of the horizontal track.
- Check both sides.
- Adjust if necessary.

Refer back to 3.4 c) to finish installing horizontal tracks.

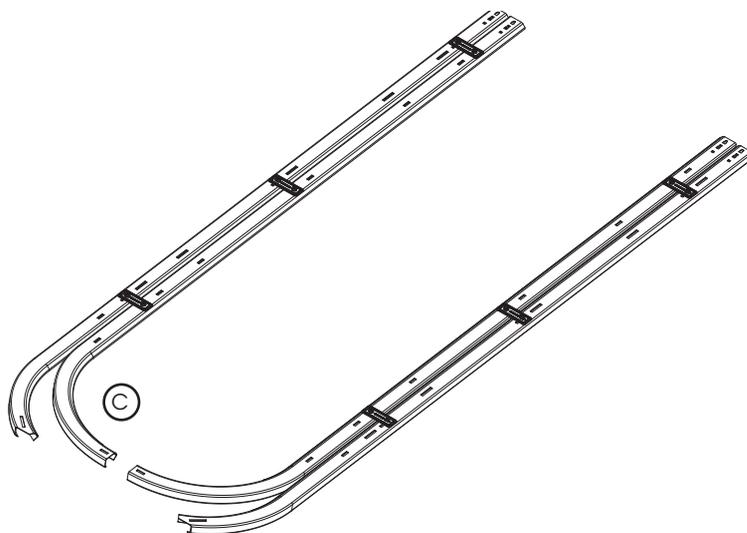


Fig: 5.1.1

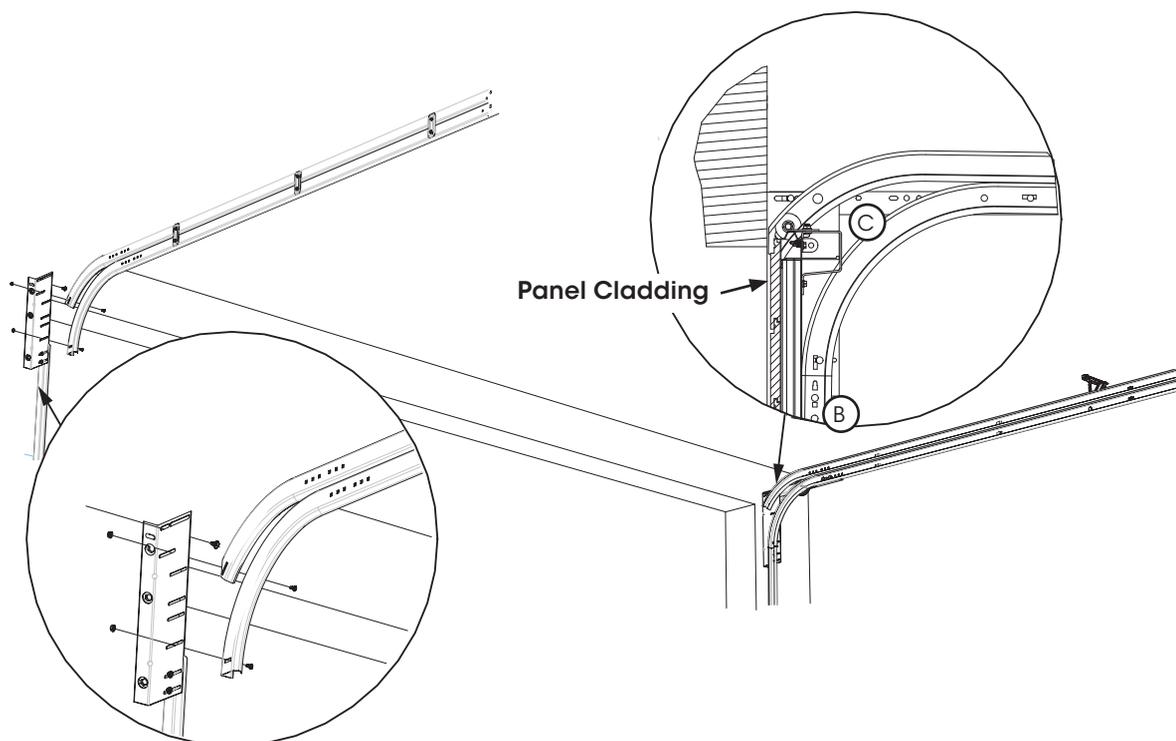


Fig: 5.1.2

5.2 two piece shafts for large doors



TWO PERSON LIFT: For large doors, this process may require two persons to lift into place and a ladder or scissor lift to support while fixing into place.

The springs and drums for the counterbalance system are now colour coded to easily identify which side of the centre bracket the spring is placed. Fig. 5.2.1.

- a) Place the 2 x torsion bars (B) on the floor and slide the 2 x HD spring anchor bracket (K) and roller bearings onto the torsion bar, positioning them towards the middle.



tip The smaller end of the roller bearing is to face the spring.

- b) Slide on the springs (I), ensuring the roller bearing is butted up against the spring anchor bracket (K) and spring (I).
- c) Connect each assembly together using 2 x 3/8" washers and bolts.
- d) Place the cable drums (J) on each end.



CAUTION: DO NOT tighten bolts in cable drums yet

- e) Mount the remaining 2 x spring anchor brackets to the wall above the horizontal track.

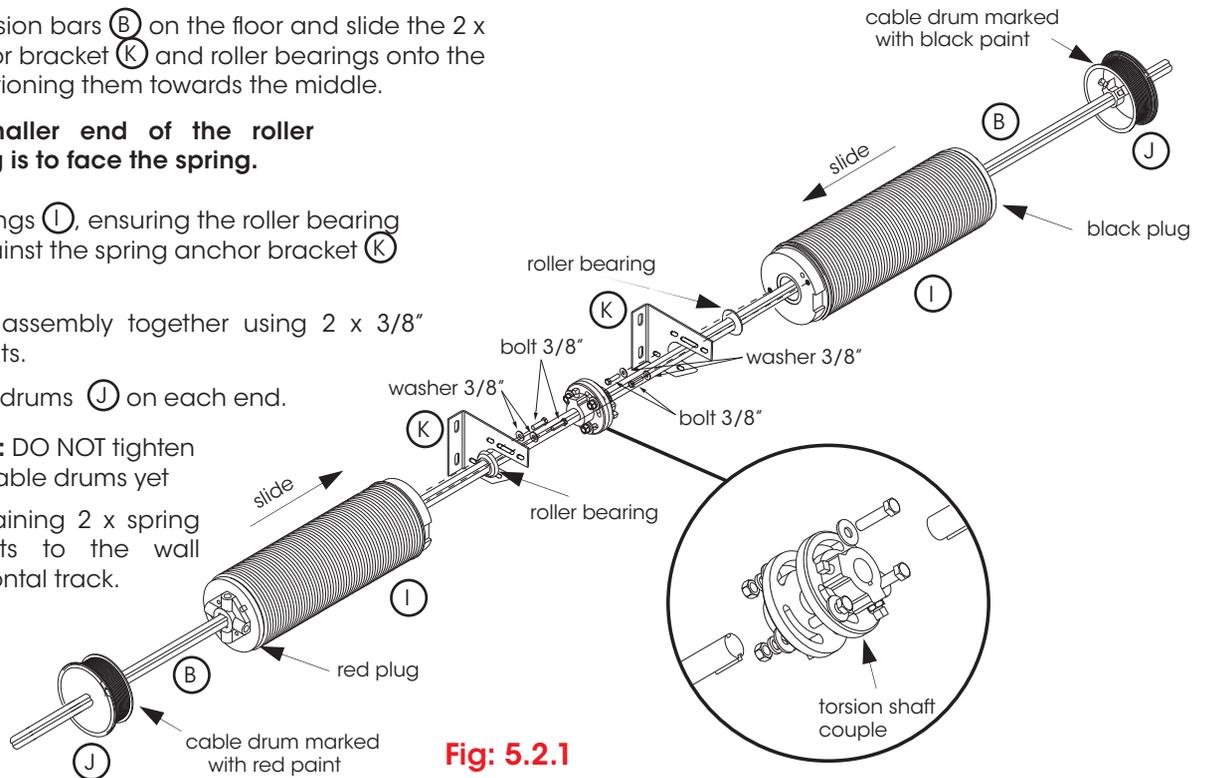


Fig. 5.2.1



TWO PERSON LIFT: Next step may require two persons to lift into place and a ladder or scissor lift to support while fixing into place.

- f) Lift and thread the right hand side of the assembly through the mounted spring anchor bracket and fix the loose spring anchor bracket securely to the wall.
- g) Assemble the torsion shaft couple, without tightening the bolts and slide onto the end of the torsion bar, ready to connect to the other torsion bar.
- h) Repeat step f) for the left hand side assembly.
- i) Position the torsion shaft couple in the middle as shown in Fig 5.2.1, the axles should be flush with each couple allowing free rotation to occur.
- j) Cut torsion shaft key in half and insert into torsion bar at the torsion shaft couple, and fix into place by tightening the grub screws on the shaft couple Fig 5.2.2.

insert key then fix into place with grub screw

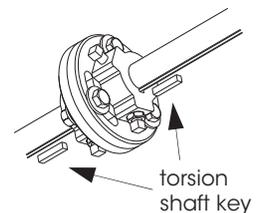


Fig. 5.2.2



tip Unwind the lifting cable from the bottom panel.

- a) Attach the lifting cable to the cable drum by slipping the cable into the slot on the outside groove. (the ferrule will prevent the cable from coming out) .
- b) Wind the cable by hand by turning the cable drum away from the door.
- c) Once the cable is taut, slide the cable drum against the side bearing bracket and tighten the screws to the torsion bar. Fig 5.2.3.
- d) Proceed to section 3.8 to tension the springs.



CAUTION: Be careful not to over tighten the set-screws

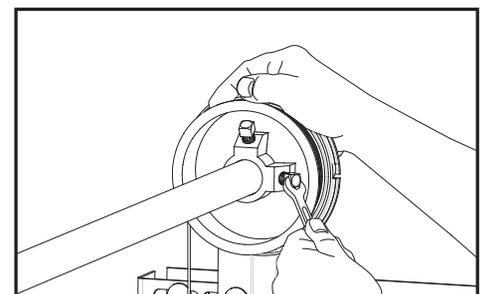


Fig. 5.2.3



5.3 rear torsion systems

For all rear torsion installations ensure you have the following measurements:

sideroom - A minimum of 155mm of sideroom (295mm for doors over 15m²) is required extending into the garage.

headroom - depending on the cable drums used a minimum of 190mm (200mm for larger doors) of headroom is required.

backroom - as the door extends into the garage when opening a minimum of the door height + 300mm for tracks is required (+ 1000mm if opener fitted).

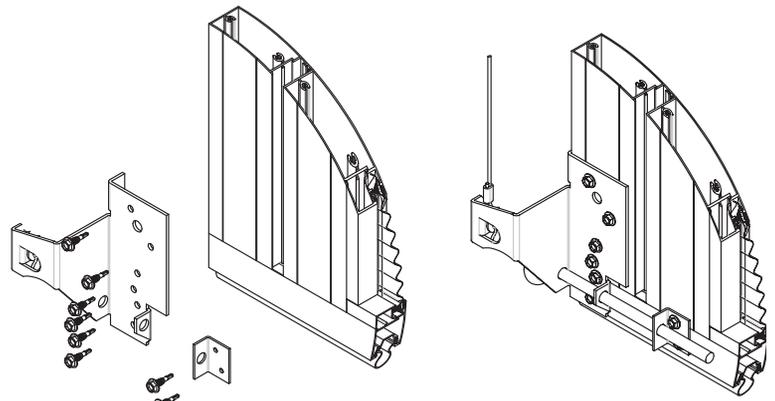


Fig: 5.3.1

The rear torsion system involves different bottom hangers, axle assembly and double horizontal tracks.

- Secure the bottom hanger and bottom panel bracket to the bottom panel with tek screws as shown in Fig 5.3.1.
- Attach the lift cable to the bottom hanger using a clevis pin, washer and snap pin. Fig 5.3.2
- Insert the wheel axle through the bottom hanger and bottom panel bracket. Fig 5.3.2.

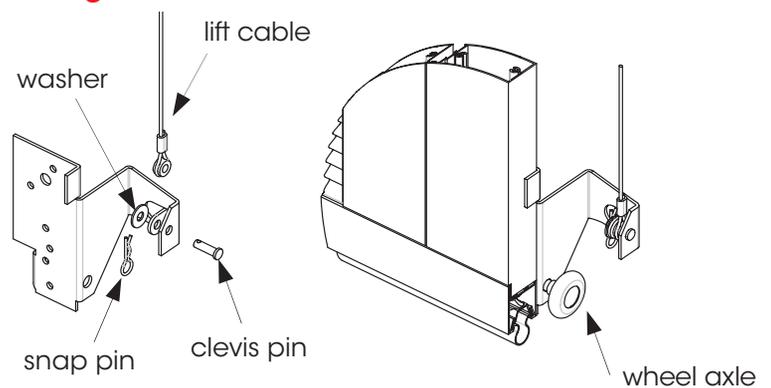


Fig: 5.3.2

The springs and drums for the counterbalance system are now colour coded to easily identify which side of the centre bracket the spring is placed. Fig. 5.3.3.

- Place the torsion bar (B) on the floor and slide the spring anchor bracket (K) onto the torsion bar, positioning it approximately half way along.
- Locate the spring/s (I) and shaft collar (V) and assemble them as shown in Fig. 5.3.3.

NOTE: Shaft Collar not required in double spring mountings.

- Ensure the shaft collar is butted up against the spring.

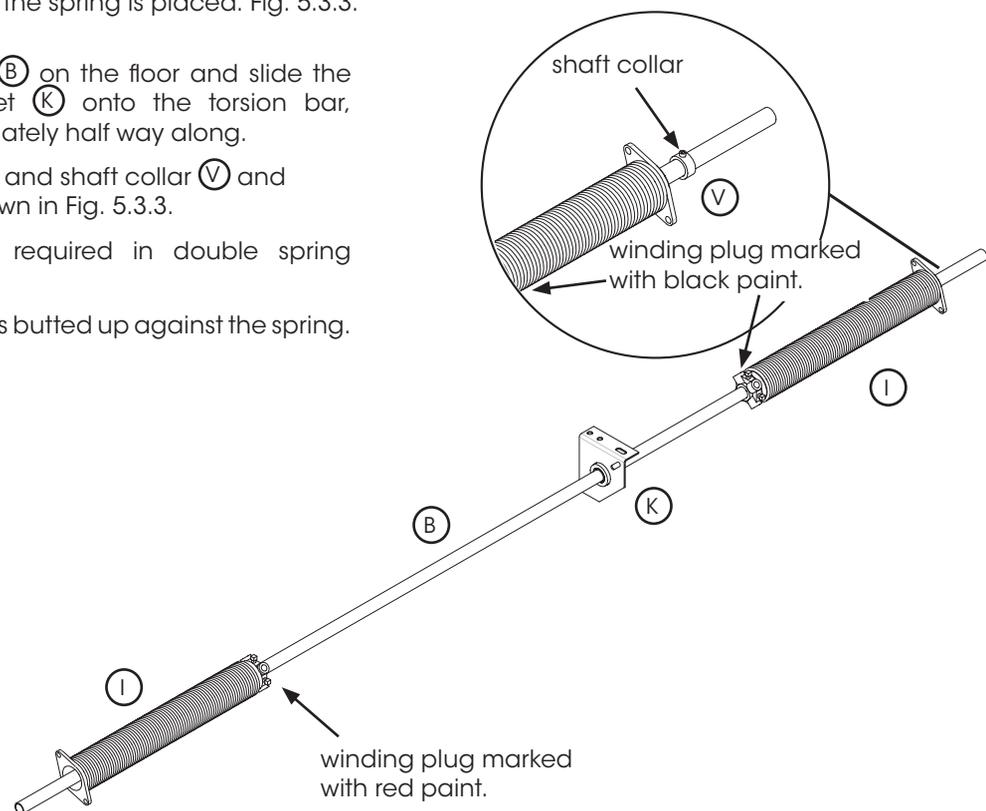


Fig: 5.3.3

Assemble the track, with cable pulley as shown in Figure 5.3.4. The curve must align and butt up against the vertical track snugly.

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

- a) Measure from the top of the vertical track to the end of the horizontal track.
- b) Check both sides.
- c) Adjust if necessary.

The track support must be located along the horizontal track approximately at $\frac{3}{4}$ door height. For doors higher than 2280mm and/or wider than 4700mm two supports will be required.

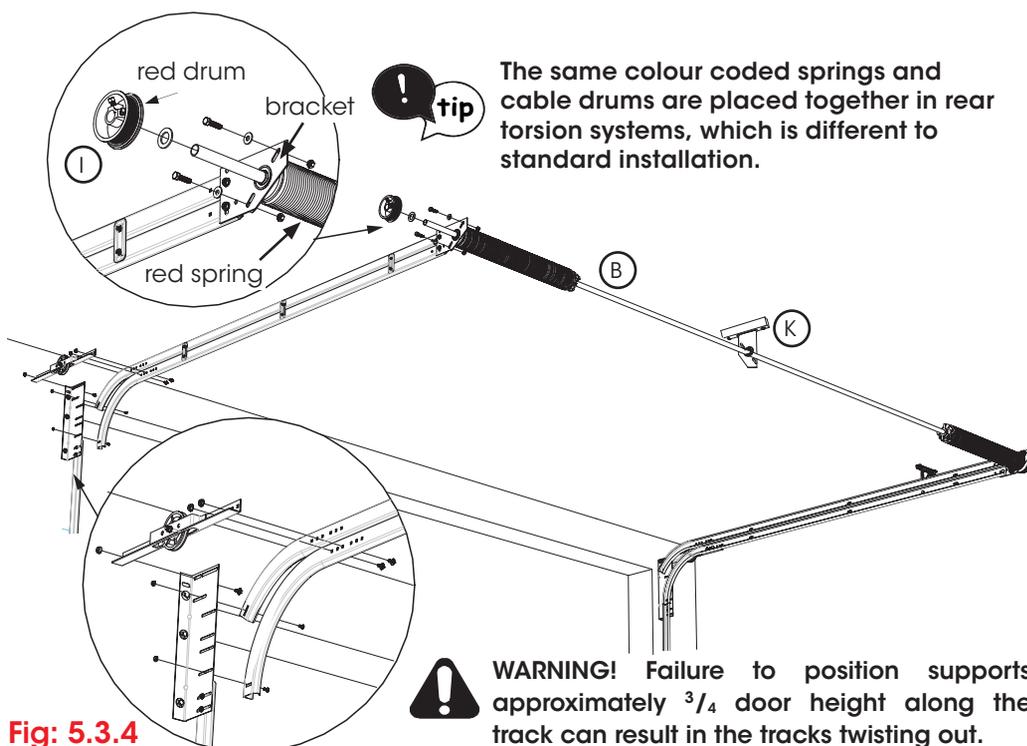


Fig: 5.3.4

- d) Calculate the horizontal track brace position as per section 1.4.2.
- e) 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.
- f) Each installation must be assessed individually for ceiling fixing requirements.
- g) Lift the torsion bar assembly into position, resting on top of the tracks.
- h) Connect the side bearing brackets to the end of the horizontal tracks using $\frac{3}{8}$ " and $1\frac{1}{2}$ " hexagonal head bolts and $\frac{3}{8}$ " washers and nuts. Fig 5.3.4.
- i) Slide the torsion bar (B) of the torsion assembly through one side bearing bracket and then the other.
- j) Place the cable drums into position after a washer, noting that red cable drum with red spring and black cable drum with black spring. DO NOT tighten screws yet.
- k) Secure the spring anchor bracket (K) firmly into a solid foundation directly or through the use of a steel angle to timber beams onto the ceiling, ensuring the 'cut corner' is pointing in the direction of the opened door.

WARNING! For all doors higher than 2280mm and wider than 4700mm two (2) ceiling supports must be fitted per horizontal track.

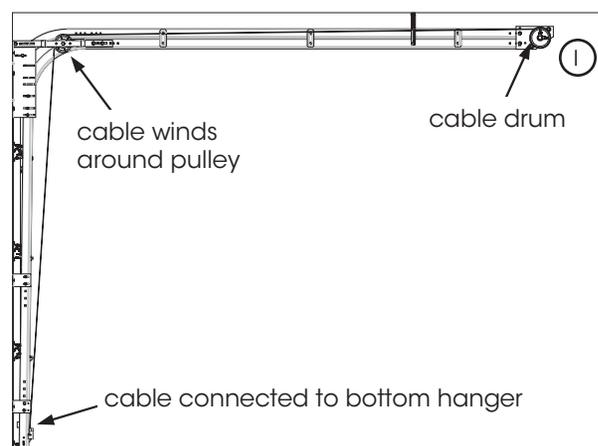


Fig: 5.3.5

tip Unwind the lifting cable from the bottom panel.

- l) Thread the lifting cable around the sheave pulley wheel and over to the rear cable drums. Fig 5.3.5.
- m) Attach the lifting cable to the cable drum (I) by slipping the cable into the slot on the outside groove. (the ferrule will prevent the cable from coming out).
- n) Wind the cable by hand by turning the cable drum away from the door.
- o) Once the cable is taut, slide the cable drum (I) against the side bearing bracket and tighten the screws to the torsion bar. Fig 5.3.6. Refer to section 3.8 for spring tension.

CAUTION: Be careful not to over tighten the set-screws

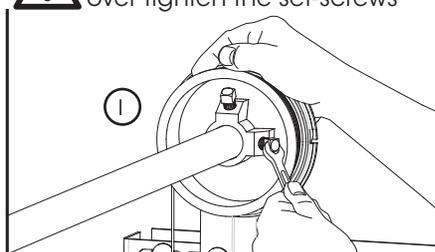


Fig: 5.3.6



5.4 hinged tapers

Tapers are accomplished using a small customised panel, which results in a slight variation in the installation process.

- a) Assemble the bottom panel taking note that there are no wheels or weather strip on the bottom panel, these are both on the taper panel. Fig 5.4.1.
- b) Connect the tapered panel to the bottom panel using hinges provided.

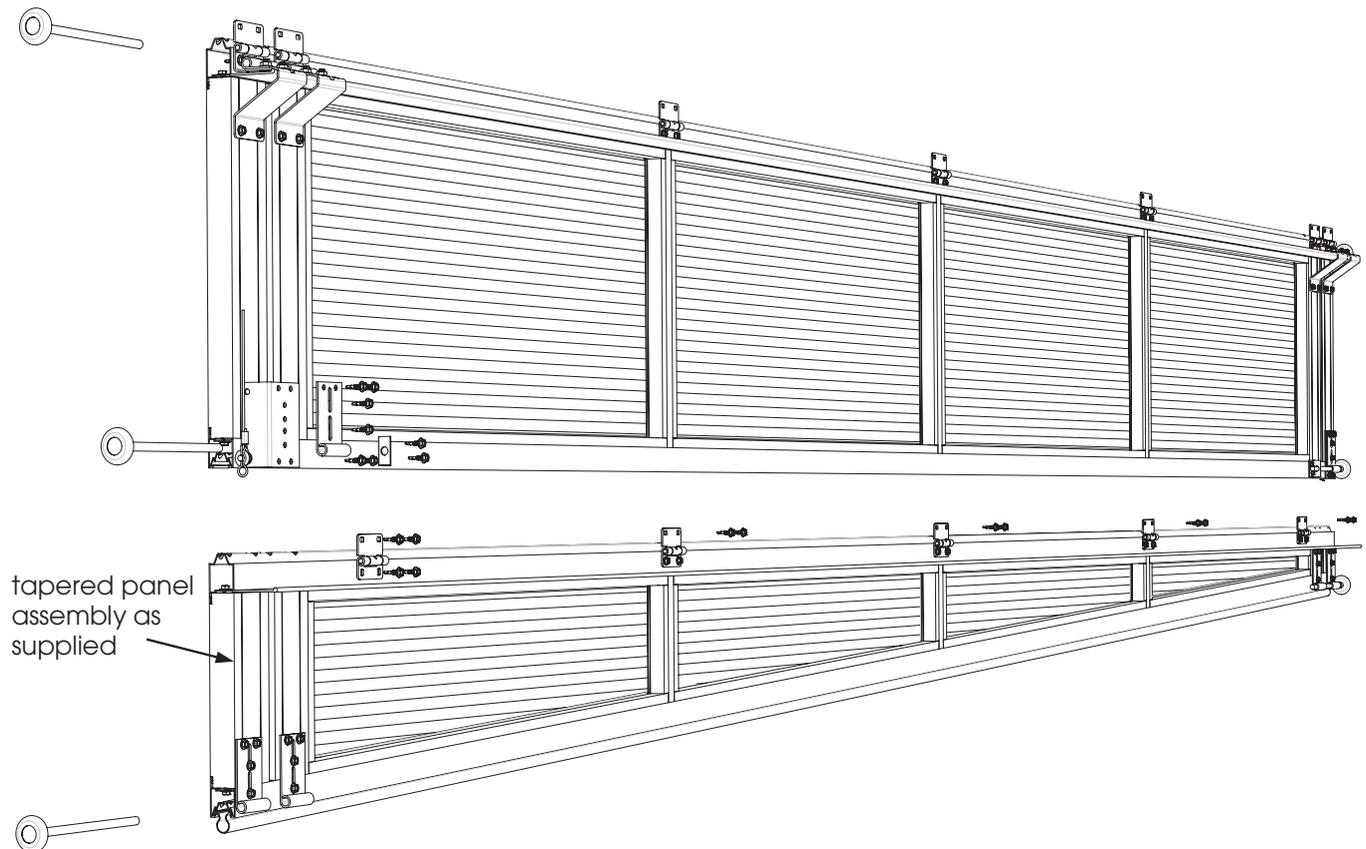


Fig: 5.4.1

Tracks are assembled as standard with the only difference being that one vertical track needs to be cut down to accommodate the uneven floor.

- c) Start with both of the verticals tracks from the ground and measure up to the level datum.
- d) Cut the tracks as necessary from the ground end.
- e) Follow the directions in section 3.1 to install tracks, before proceeding to adding panels in section 3.2.

6.0 after installation care

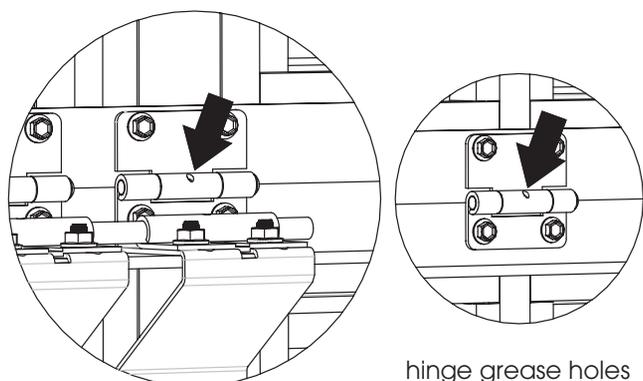
general care of your Designer Series

cleaning

Your B&D Designer Series/P7 Industrial™ panels are made from aluminium extrusions and are hence resistant to corrosion, however in our atmosphere there are harmful deposits that gather on the door surface and if not removed regularly, will seriously affect the appearance. Touch up paint is available for blemishes in the paintwork where damage has been done in powder coated doors.

hinges

If the hinges and hangers squeak and squeal during operation then the hinges haven't been greased or the grease has dried up. Please apply some grease into the holes in the hangers and hinges as pointed out in the diagram below.



inserts

Should any insert suffer damage, replacements are available from B&D.

regular maintenance required

B&D recommends that you check the operation of your Designer Series/P7 Industrial™ 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 guides 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.

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. Lightly lubricate to prevent friction between the coils.

warranty

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

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 Mulgool Rd, Malaga 6090	Phone (08) 9247 8777
International/Export	34 Marigold St, Revesby 2212	Phone +61 (0)2 9722 5555

your representative is

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