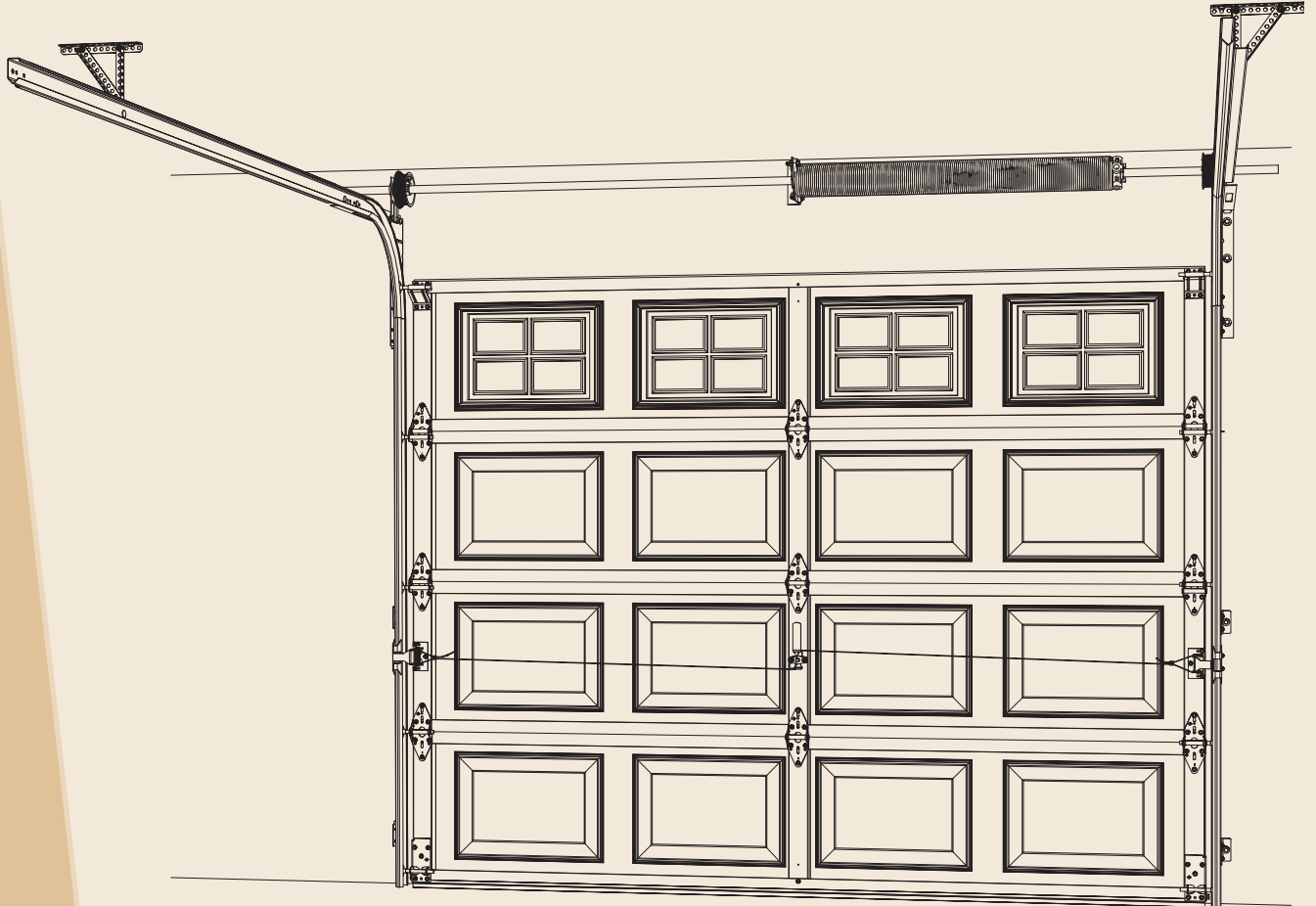




Firmapanel™

INSTALLATION INSTRUCTIONS



DISCLAIMER

***THESE INSTRUCTIONS ARE INTENDED FOR
PROFESSIONAL GARAGE DOOR INSTALLERS***

Note: All references are taken from inside looking out



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1.0 BEFORE YOU START

1.1 SAFETY CHECKLIST

The following hazards and hazard controls have been identified for installers during the installation of this door.

Hazard	Control
<ul style="list-style-type: none"> Housekeeping - risk of slip trip or fall Housekeeping - risk of injury to other people or animals in the installers work area 	<ul style="list-style-type: none"> Tidy up site prior to start work as a minimum area should be at least the area of the installation back into the garage and 2 metres in front If the Site housekeeping is deemed to be unsafe do not install the door Keep all people well clear of installers work area with appropriate signage and discussion with owner
<ul style="list-style-type: none"> Manual handling when moving the door from the Trailer or Ute to the installation area - risk of musculoskeletal injury Manual handling when installing Doors & Openers particularly above head height - risk of musculoskeletal injury or twisting Manual handling when installing tracks and torsion bars - risk of musculoskeletal injury 	<ul style="list-style-type: none"> Pack sizes Use of 2 person lifts Use of mechanical aids Avoid twisting (Practice correct lifting techniques) Correct use of ladders while installing tracks
<ul style="list-style-type: none"> Working at heights and working with ladders, scissor lifts, scaffold - risk of fall from height 	<ul style="list-style-type: none"> Ladder check Ladder placement Do not work off the top rung
<ul style="list-style-type: none"> Sharp edges on door, tracks or related jewellery - risk of laceration 	<ul style="list-style-type: none"> Wear appropriate PPE (Dyneema cut off Gloves) Follow instruction explicitly particularly for the installation of windows in some panel doors as the unrolled cut out edges presents a very sharp edge
<ul style="list-style-type: none"> Pinch points - risk of cut, puncture or crush injury 	<ul style="list-style-type: none"> Wear appropriate PPE and keep hands well clear of pinch points Ensure hands well clear of the panels
<ul style="list-style-type: none"> Use of hand tools - risk of eye injury, laceration, cut, stab or puncture injuries (Tools checklist) Use of Electric/ Battery or pneumatic tools - noise hazard Use of cutting tools creating sparks - risk of fire 	<ul style="list-style-type: none"> Wear appropriate PPE and utilise operators manual 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
<ul style="list-style-type: none"> Tension spring - risk of release of stored energy (striking installer on the head or body) 	<ul style="list-style-type: none"> 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

1.2 FASTENER RECOMMENDATIONS FOR FITTING GARAGE DOORS

MATERIAL	FASTENER TYPE(S)	DIAMETER OR TYPE		LENGTH OF FASTENER (See Note)
New Solid Brick	Coach Bolts (Hex Lag Screw) - combined with wall plugs	5/16"	X	1½"
		3/8"	X	2"
	Macplugs (wall plugs) to suit above	5/16"	X	50mm
		3/8"	X	60mm
	HLC Sleeve Anchors (Dyna Bolts)	12mm	X	55mm
New Hollow Brick	HRD-VGK or HGK-VGS (Hex Head) Frame Anchors	10mm	X	60mm
New Solid Concrete	Coach Bolts (Hex Lag Screw) - combined with wall plugs	5/16"	X	1½"
		3/8"	X	2"
	Macplugs (wall plugs) to suit above	5/16"	X	50mm
		3/8"	X	60mm
	HLC Sleeve Anchors (Dyna Bolts)	12mm	X	55mm
Aerated Concrete e.g. (HEBEL)	Fischer Nylon Twist Lock Anchor Type GB 14	14mm	X	85mm
Steel Framing e.g. BHP Framing (with rear access)	Hex Head Bolt Zinc Plated, Hexagon Nuts Zinc Plated, Washers Zinc Plated	5/16"	X	1"
		3/8"	X	1"
		10mm	X	25mm
		12mm	X	25mm
Heavy Gauge Steel	Hex Head Tek	14-20	X	22mm
Light Steel Framing e.g. BHP House Framing (no rear access)	Heavy Duty Kap Toggle	10mm	X	100mm
		12mm	X	100mm
	Hex Head Tek	6-10	X	20mm
New Timber	Coach Bolts (Hex Lag Screw)	5/16"	X	1½"
		3/8"	X	2"
	Hex Head Tek	14-10	X	50mm

IMPORTANT NOTES:

- For installation to materials not covered in the above chart, the installer should seek expert advice from a qualified builder.
- Minimum length of fastener does not exclude use of longer lengths. Decision must be made by fitter to ensure adequate strength.
- Recommendations for old materials or materials not in good condition are not included. If in doubt about the strength of the material seek specialist advice.
- Fasteners for sectional door spring brackets and top track brackets in masonry should be at least 5/16" x 2.5" long or metric equivalent.
- HEBEL Fischer type fastener should be installed 150mm from edge of blocks. Minimum overlap of door should be approximately 115mm (S1), 110mm (S3) and 90mm (Panelift). Add 50mm more if mounted on panels instead of blocks.

IMPORTANT INFORMATION ON FASTENERS

Coach bolts/screws supplied with this product are suitable for fastening to timber jambs.

Correct and safe fastening to other materials may require different fasteners.

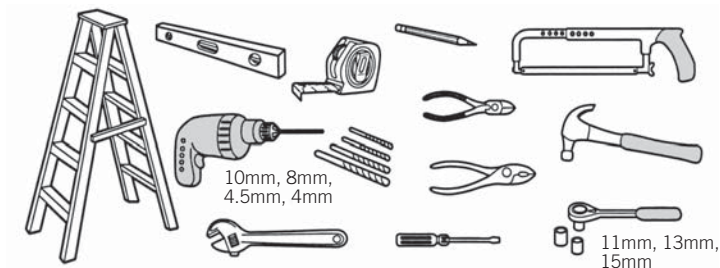
The installer must select and use fasteners appropriate to the material into which they are being fixed.

1.3 TOOLS CHECKLIST

The following tools are needed to install sectional overhead doors.

- Hammer
- Spirit level 1200mm/water level 7-8 metres (clear hose)
- Measuring tape
- Extension lead
- Step ladder
- Speed drill and drill bits (6mm)
- Impact drill and masonry bits (10mm)
- Hack saw
- Open end adjustable spanner
- A set of open end spanners
- Socket set and speed brace
- Set square
- Wood chisel
- Steel chisel
- Cutting knife

- Wood and steel punch
- Screw driver set
- Pliers
- Tin snips
- 2 vice grips
- Felt tip pen & pencil
- 2 winding bars OT2457 or OT2458



1.4 PARTS CHECKLIST

When taking delivery of your sectional overhead door you will be supplied with the following:-

- 1 package with door panels
- 2 pairs of tracks short for vertical use, and long for horizontal use
- 1 torsion bar
- 1 small parts box

For Large Doors over 5000 mm wide

- Double end stile Panels

For large Doors over 3550 width,

PANEL REINFORCEMENT		
WIDTH	No. of REO REQUIRED	
	4 PANEL DOOR	5 PANEL DOOR
3550-4705mm	1	1
4710-5000mm	2	3
5005-5450mm	3	4
5455-6600mm	4	5

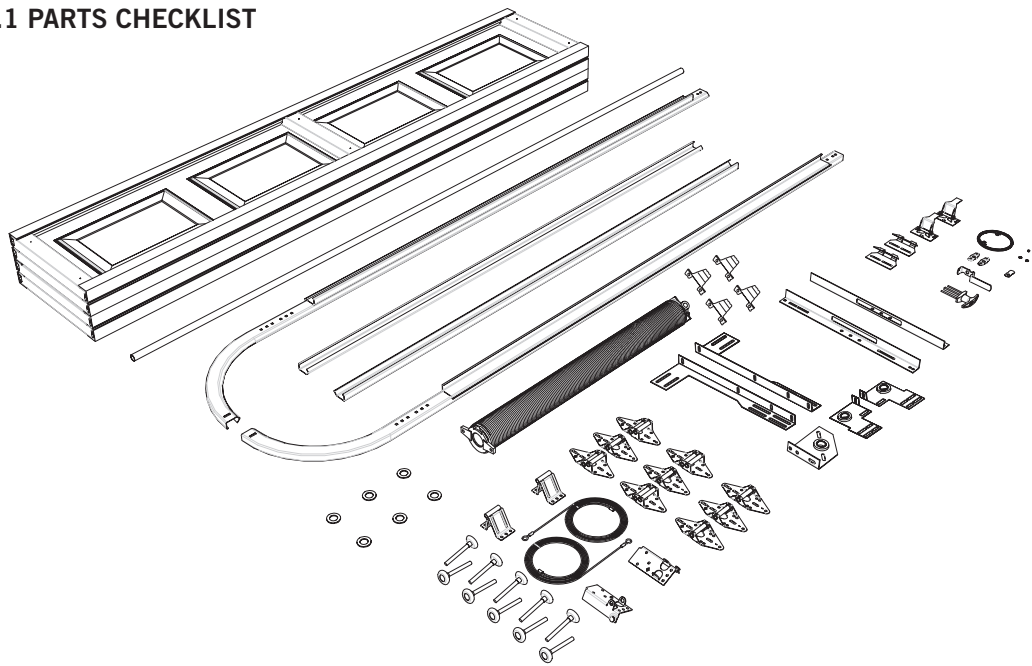
For low headroom doors

- 2 pulley wheels & brackets
- 2 rear torsion brackets
- Rear Torsion parts bag

In your small parts box you should have:-

- 1 or 2 springs
- 2 side bearing brackets
- 1 left hand cable drum (red)
- 1 right hand cable drum (black)
- 1 or 2 spring anchor brackets
- 2 lifting cables
- 1 lock set assembly (Optional)
- Wheel axles
- Hangers (No 1, No. 2, No. 3 etc)
- 2 top and bottom hangers
- 2 axle plate hangers
- 2 adapter plates
- 2 bracket packers
- Nuts and bolts to suit
- 4 cable drum spacers
- Rear Torsion parts bag
- 2 pulley wheels
- 4 spacers
- 2 nuts, bolts and washers
- 2 bottom hangers BB5R
- Reinforcing plastic end caps

FIGURE 1.3.1 PARTS CHECKLIST



1.5 CHECKING MEASUREMENTS

Before unpacking the door, check that the door width is furnished to that of the door opening with a measuring tape. Also measure one panel height and multiply by the number of panels to give you the door height.

For Standard Installations

Sideroom	120mm	
Headroom	340mm	(Doors 4 panels high) (add 50mm for automatic opener)
		(Doors 5 panels high & 5285mm wide)
		(Doors 6 panels high & 4705mm wide)
	390 mm	(All other sizes)

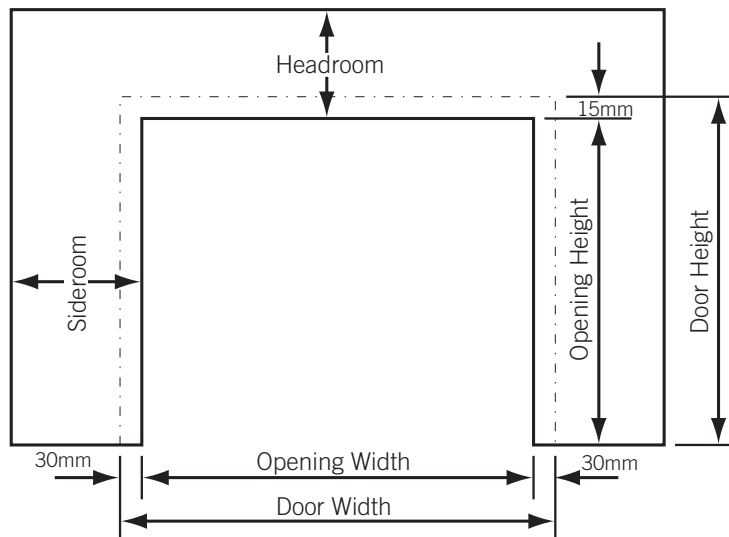
For Low Sideroom Installations (with or without automatic opener)

Sideroom	90mm
----------	------

For Rear Torsion Installations

Sideroom	155mm	(doors up to 15m ²)
	295mm	(doors greater than 15m ²)
Headroom	190mm	(doors to 5285mm wide) (add 50mm for automatic opener)
	200mm	(doors over 5285mm wide) (add 50mm for automatic opener)

For low headroom installations involving large doors, Rear Torsion becomes a viable alternative when the radius of cable drums and spring gear becomes large enough to start impacting on headroom.



2.0 INSTALLATION

2.1 ASSEMBLING BOTTOM PANELS

If installing tapers familiarise yourself with this section then please consult page 24-25. Open up the pack of door panels, take out the bottom panel (weather seal on the bottom of the panel).

Sort and organise hangers, this is recommended as it makes finding the proper hangers later much easier as you progressively add more panels, see Figure 2.1.1.

If using a rear torsion system a different hanger is required, please consult Rear Torsion Installation on Page 18.

Remove existing screws in the corners of the panel near the weather seal, see Figure 2.1.2. Locate both bottom hangers assemblies and cables. Loop cable onto mushroom head knob on the bottom hangers. Attach the bottom hangers to the lower end of the door as shown in Figure 2.1.3 A. Do not unwind lifting cable until specified later to do so. Assemble No. 1 hangers, which can be identified by the "1" pressed into the surface, and insert Wheel-Axles, Figure 2.1.3.B.

FIGURE 2.1.1

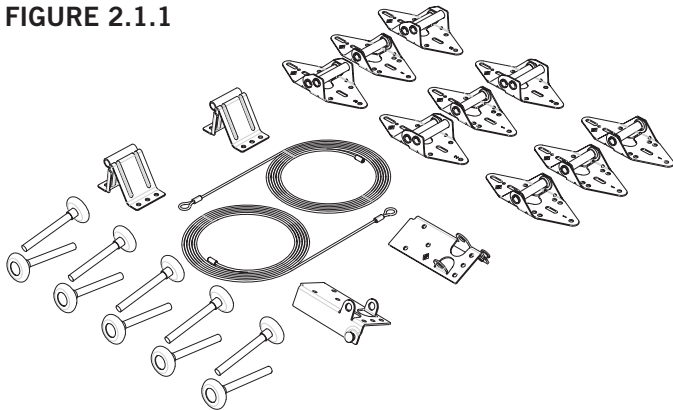


FIGURE 2.1.2

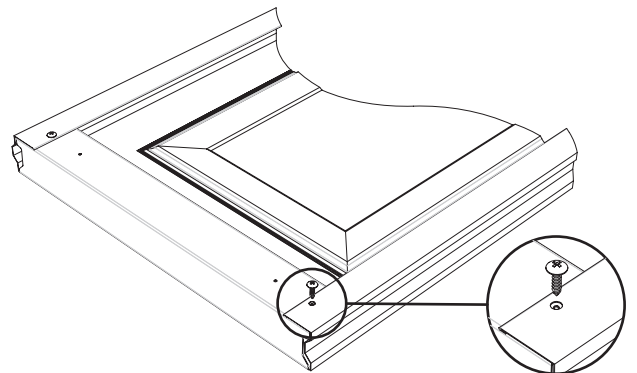
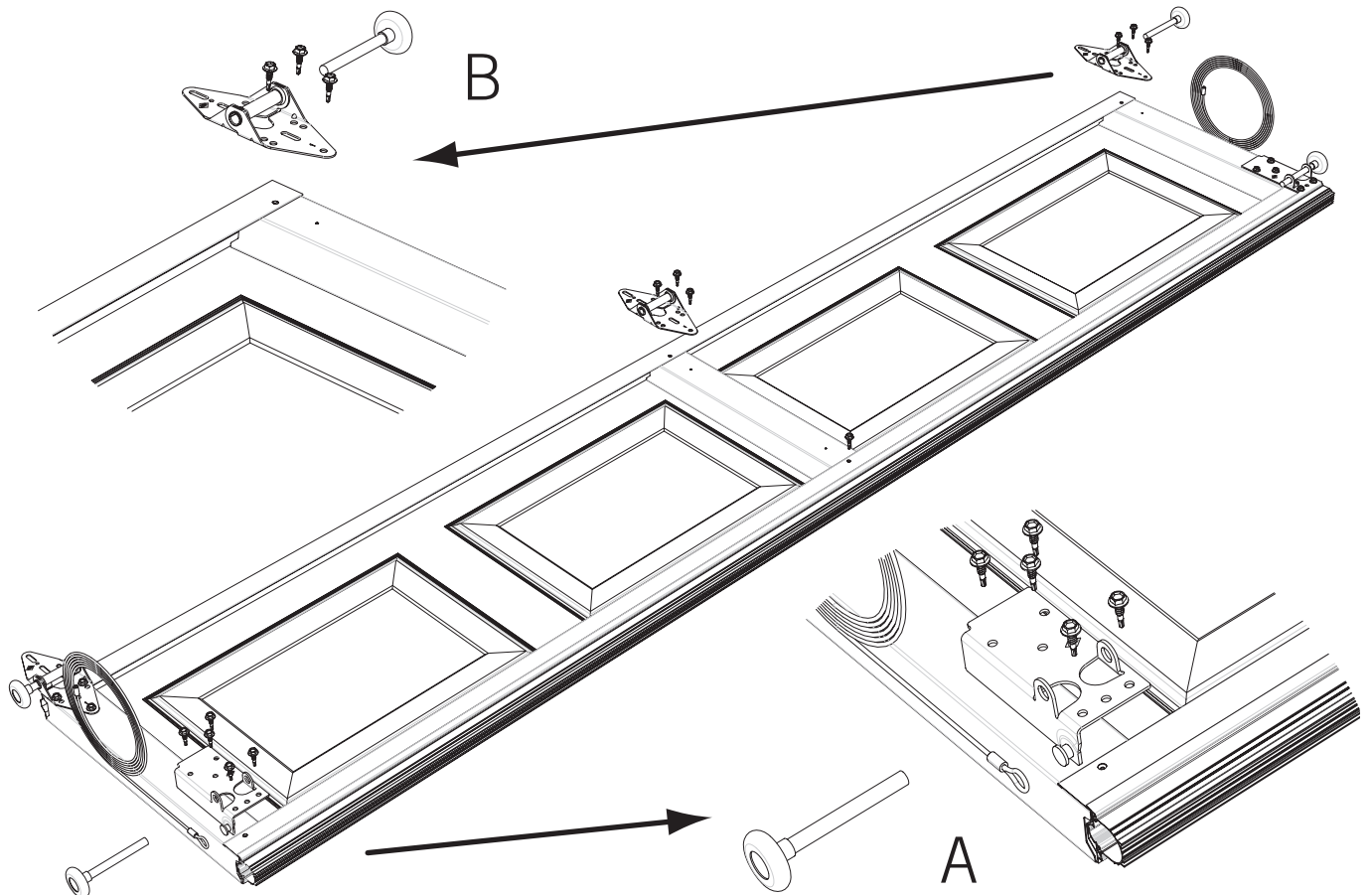
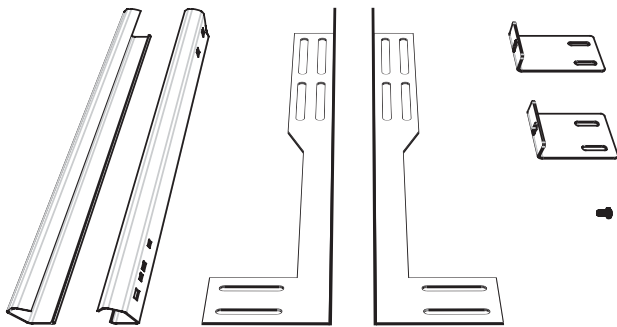


FIGURE 2.1.3



2.2 ASSEMBLING VERTICAL TRACKS

PARTS NEEDED



The vertical tracks should be:

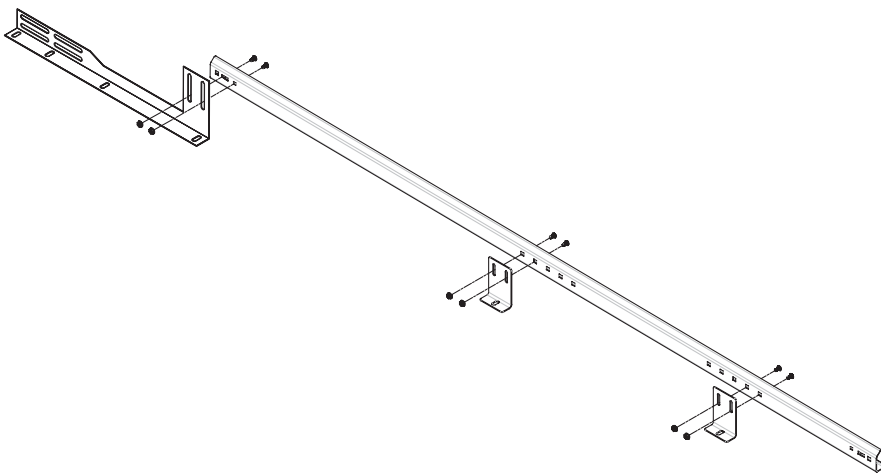
**Door height - Standard 127mm
- Low 276mm.**

Remove vertical track brackets and wall brackets and fasteners from the parts bag.

Assemble vertical track bracket, Wall brackets and tracks together as shown in Figure 2.2.1.

The top and bottom of the vertical track should be fixed so that it will be approximately 70mm and 40mm off the wall respectively when set against the door jamb as shown in Figure 2.2.2.

FIGURE 2.2.1 TRACK ASSEMBLY

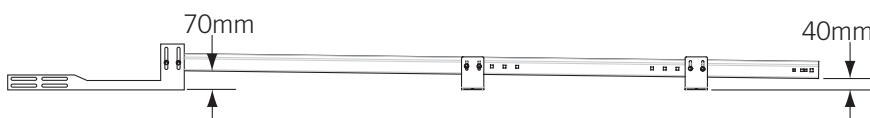


Assemble the rest of the brackets onto the tracks ensuring the “V” section points away from the wall bracket. For smaller doors two No. 1 brackets per side are used, for the larger doors one No. 1 (used at the bottom) and one No. 2 (placed approximately midway) are used.

LOW SIDEROOM INSTALLATION:

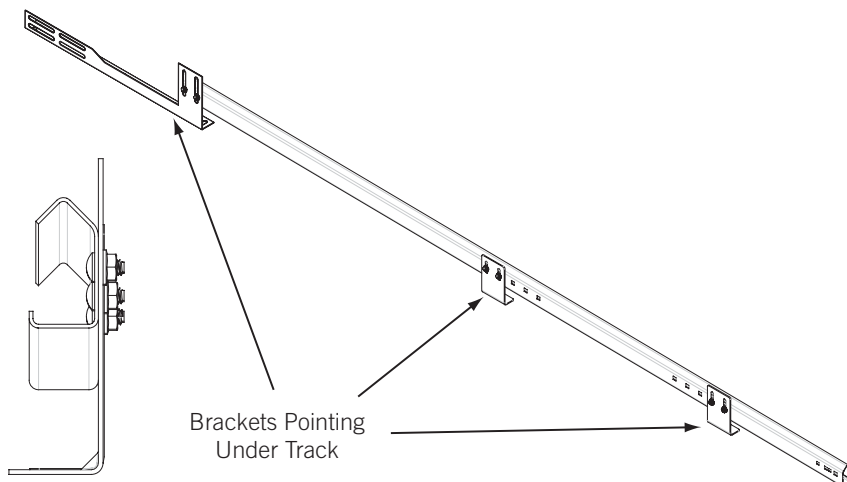
In situations with less than 120mm from the door opening to a wall or other possible obstruction, then a low sideroom installation is required. This is achieved by having the wall brackets pointing inward under the track as shown in Figure 2.2.3.

FIGURE 2.2.2 CLEARANCE FROM WALL



In a low sideroom door the track Brackets are reversed, in the case of the top track brackets swap sides, so that they fall under the track as opposed to the side, see Figure 2.2.3. The tracks can still be fixed onto the walls while assembled using a spanner.

FIGURE 2.2.3 LOW SIDEROOM



2.3 INSTALLING BOTTOM PANEL

If installing taper please consult pages 24-25.

Using a water level, mark a point on the wall approximately half way up the door opening on both right and left hand sides of the opening, see Figure 2.3.1 .

Install the vertical tracks, measure from the water level mark to the top most point of the top track brackets. If this is not equal, either lift the vertical track or cut the required amount from the bottom of the track to make both tracks level. Do not cut more than 20mm.

The tracks should be:

Standard headroom door height - 127mm

Low headroom door height - 276mm

FIGURE 2.3.2 INSTALLING VERTICAL TRACK

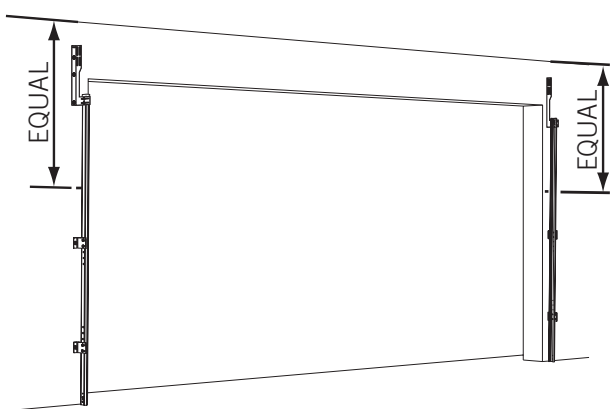
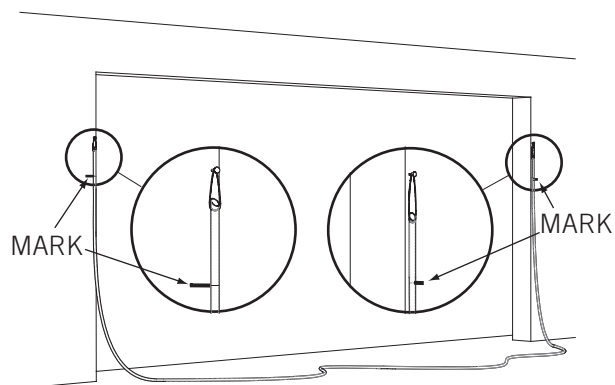


FIGURE 2.3.1 WATER LEVEL



Carefully thread the wheels of the Bottom Panel into the tracks. The bottom door panel is to sit squarely in the door opening. The wheels are to sit in the "V" groove of the vertical tracks and there should be 5-10mm clearance between panel and tracks, see Figure 2.3.3.

FIGURE 2.3.3 WHEEL-AXLE

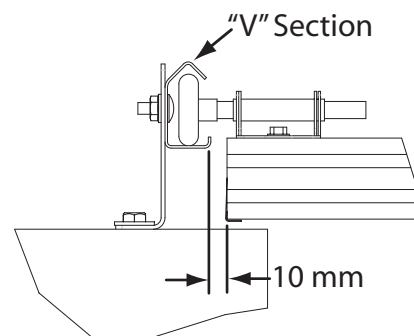
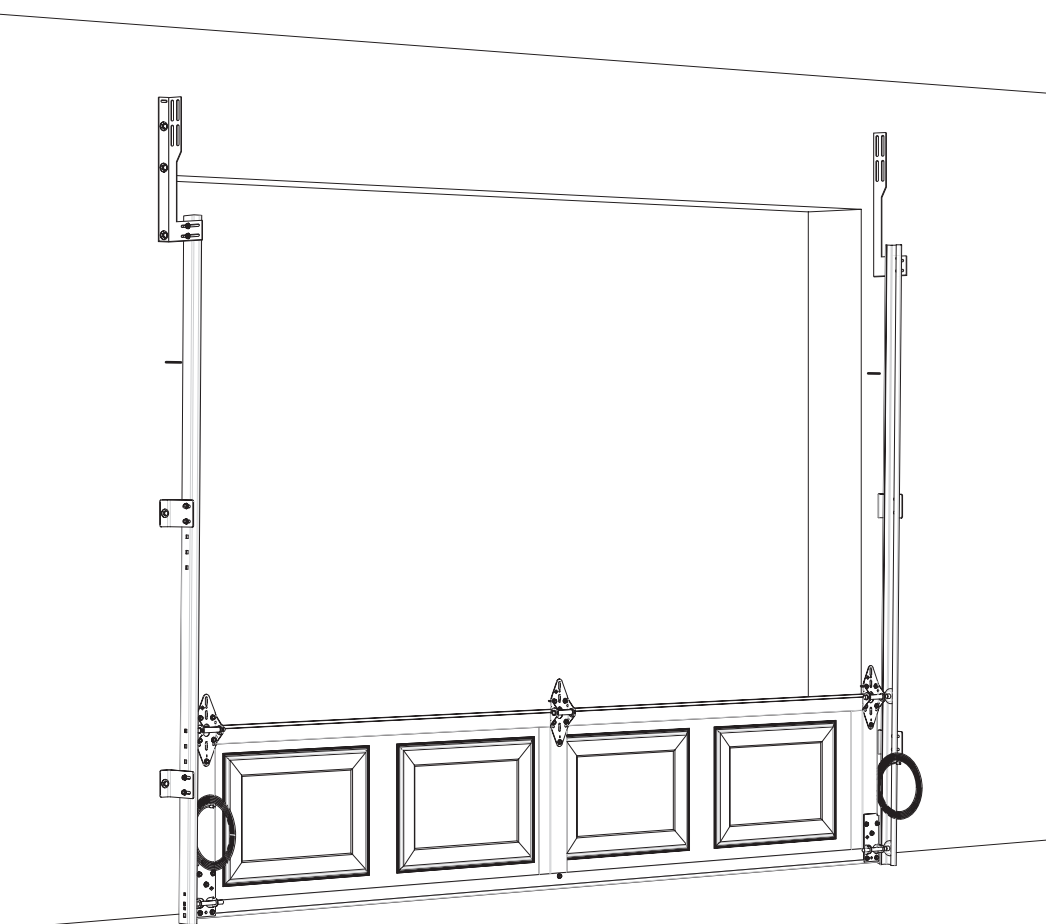


FIGURE 2.3.4 INSTALLING BOTTOM PANEL



2.4 ADDING ADDITIONAL PANELS

Now you are ready to install the rest of the panels except the top panel which differs and is covered separately.

Assemble the hinges and hangers to the panels as shown in Figure 2.4.2. There is a hinge for every point where there is a stile.

Fit a temporary spacer, 1-2mm thick, at each panel joint to give clearance between each panel in order to decrease paint rub.

Insert panel into the guide up then down engaging the wheels into the vertical tracks, Figure 2.4.4, and nesting the groove onto the tongue of the bottom panels, Figure 2.4.5. Screw the panels together through the hinges and hangers.

Repeat this procedure for all other panels with the exception of the top panel which is positioned after the curve is installed, Figure 2.4.6.

Set the vertical tracks parallel on both sides of the door. Ensure that there is a 5-10mm gap between the edge of the wheel axle shoulder and the door panels. Once satisfied, secure all fixing points on the vertical tracks.

FIGURE 2.4.1 HANGERS

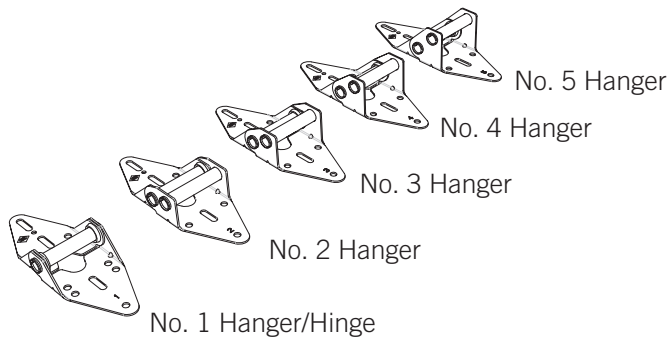


FIGURE 2.4.2 ASSEMBLE HANGERS ONTO PANEL

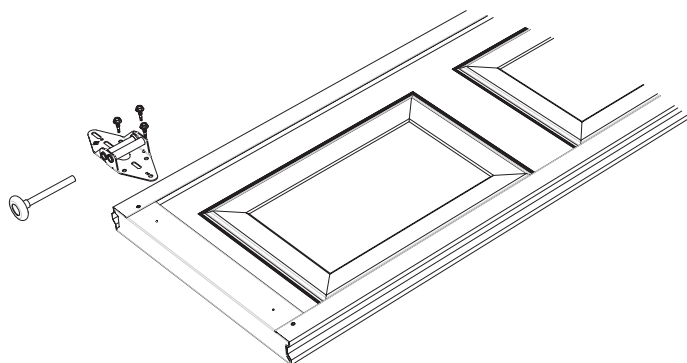


FIGURE 2.4.3 LABEL



FIGURE 2.4.4

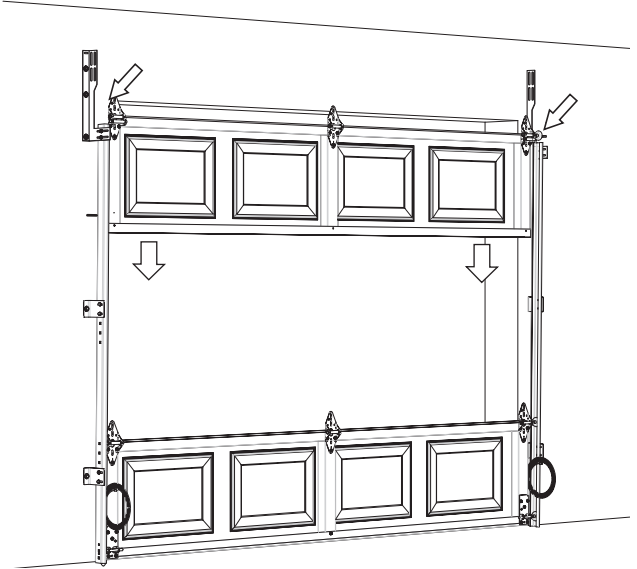


FIGURE 2.4.5

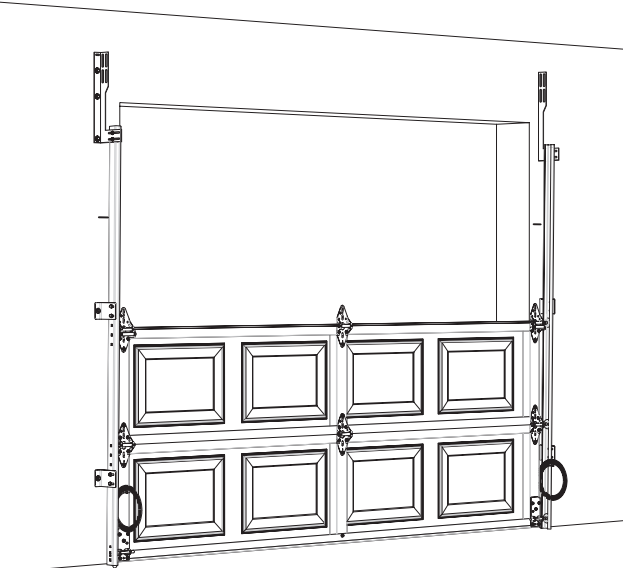
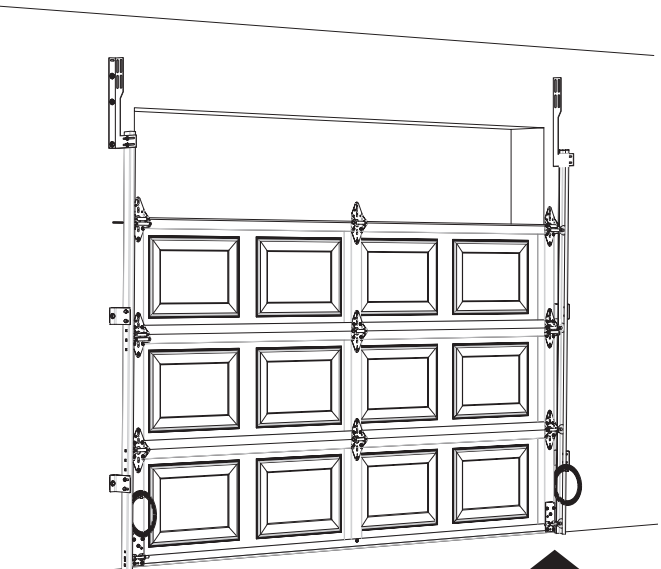


FIGURE 2.4.6



2.5 INSTALLING HORIZONTAL TRACKS

The horizontal tracks are identified by being the curved pair of tracks supplied and should be at least:

Door height + 350mm

Assemble curved track as shown in Figure 2.5.1, ensure that the curve is aligned and butts up against the vertical track.

FIGURE 2.5.1 ASSEMBLING CURVED TRACK

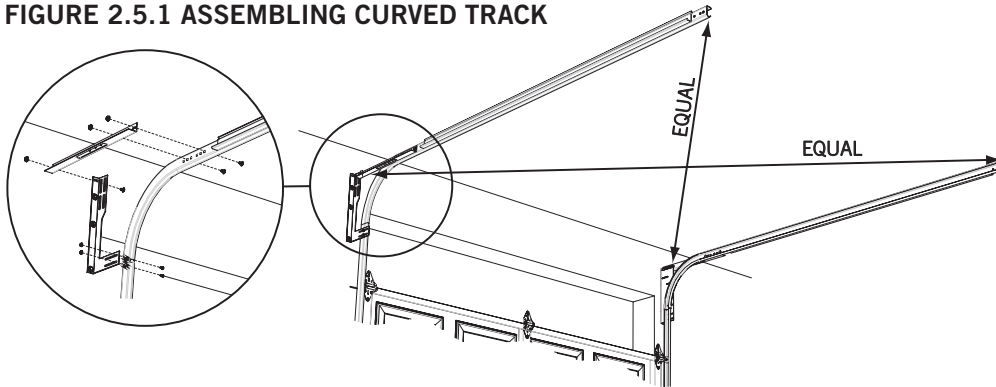


FIGURE 2.5.2 BRACING

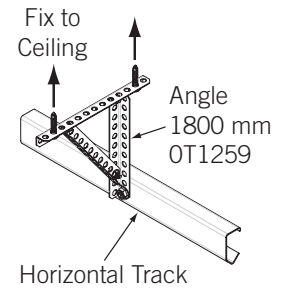


FIGURE 2.5.3 SINGLE BRACE

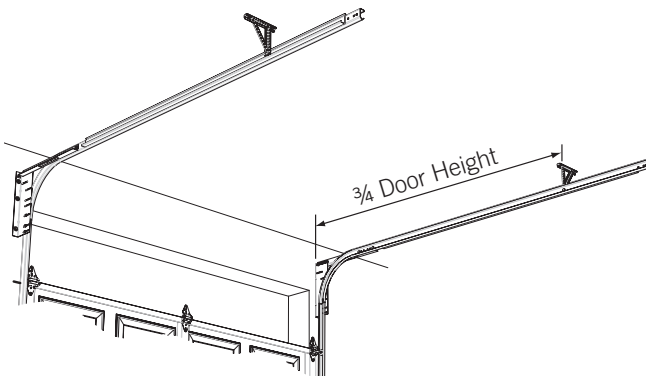
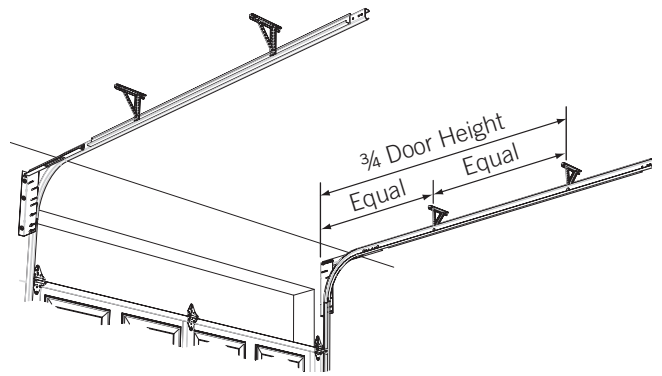


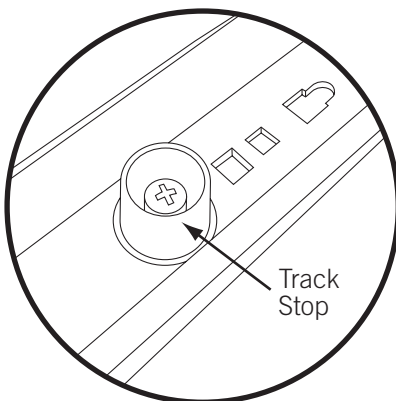
FIGURE 2.5.4 DOUBLE BRACE



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 on both sides. Check both sides. Adjust if necessary and fix diagonal brace. Figure 2.5.1.

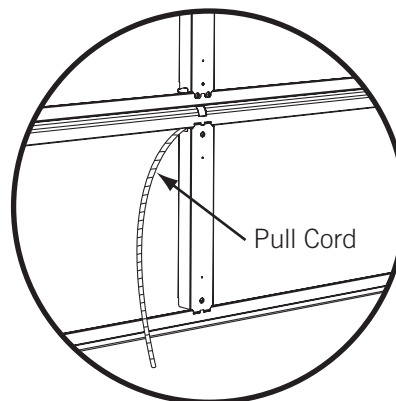
Use steel angle, Figure 2.5.2, to fix the horizontal tracks to the building. Find a structurally sound location to fix your angle to the ceiling or side wall. It is recommended that the track support angle be located approximately at $\frac{3}{4}$ height of the door, Figure 2.5.3. For doors higher than 2280mm and/or wider than 4700mm two supports will be required, Figure 2.5.4.

INSTALLING THE SAFETY STOP



The safety stops must always be fitted at the end of the horizontal track to prevent the panels from accidentally exiting track.

INSTALLING THE SAFETY PULL CORD



The safety pull cord must always be fitted to the centre of the door.

Pass the cord through the white hinge pin, tie in a loop and adjust length, ensure the cut end is sealed.

2.6 INSTALLING TOP PANEL

The top panel will always have a central stile for use with an opener, even if other panels don't.

If a rear torsion door please consult page 18 before proceeding. Assemble top hangers as shown in Figure 2.6.1, please note that the wheel distance can be adjusted. Rest top panel into position then thread top hanger with wheel axle down through curve into position, and screw into place in the top corners of the panels. Adjust as necessary. Don't forget to fix the top panel to the previous panel's hinges.

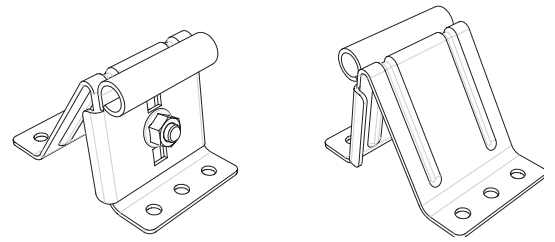
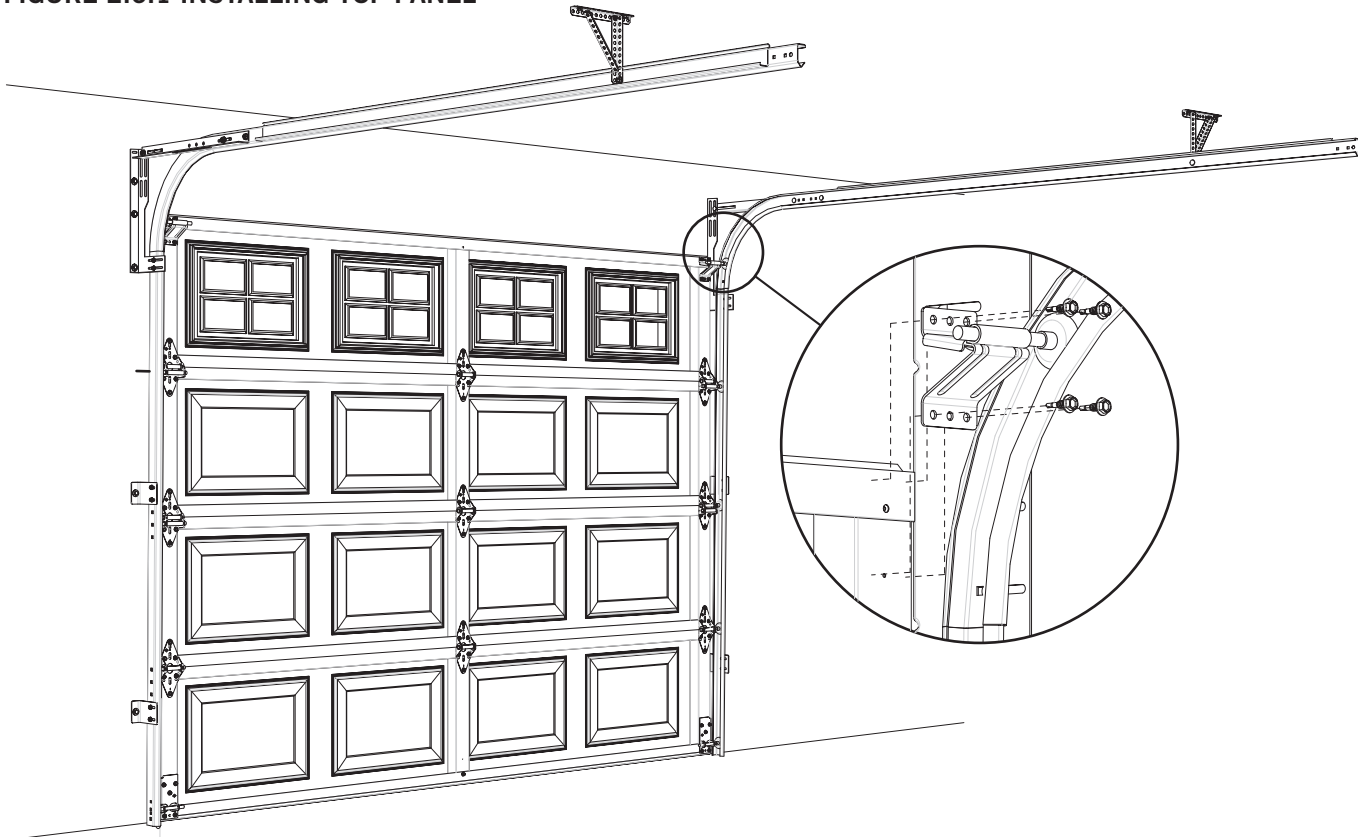


FIGURE 2.6.1 INSTALLING TOP PANEL



2.7 LARGE DOORS - PANEL REINFORCEMENT

Large doors feature double end stiles and extended wheel/axles as in Figure 2.7.2. which are secured to both end stiles to cope with the increased weight. The larger doors also feature panel reinforcement and reinforced horizontal tracks, Figure 2.7.3. Large doors greater than 4000mm require two installers for safe installation and prevent any damage to panels.

Doors great than 3550 require panel reinforcement, the number of panel reinforcements are shown in Table 2.7.1. In situation where there the number of reinforcements is less than the number of panels, the order of priority in which panels need to be reinforced are as follows, the top panel, then lock panel (second panel from bottom) then the remaining panels going down from the top leaving the bottom panel last.

Doors greater than 5290mm also require double end stiles and extended wheels.

TABLE 2.7.1 PANEL REINFORCEMENT		
WIDTH	No. of REO REQUIRED	
	4 PANEL DOOR	5 PANEL DOOR
3550-4705mm	1	1
4710-5000mm	2	3
5005-5450mm	3	4
5455-6600mm	4	5

The panel reinforcement can be mounted in any position on the panel but it is recommended to mount as high as possible to minimise problems with the following situations, the top panel with automatic opener, the top panel with windows, the locking panel when a lock is to be installed.

2.7.2 DOUBLE END STILES

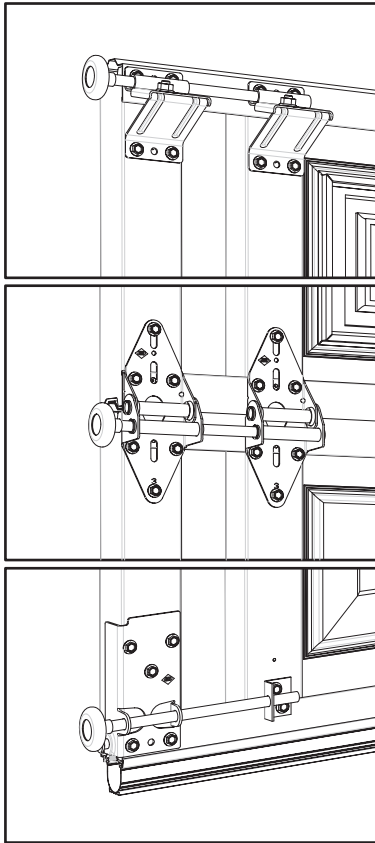


FIGURE 2.7.3 ASSEMBLING PANEL REINFORCEMENT

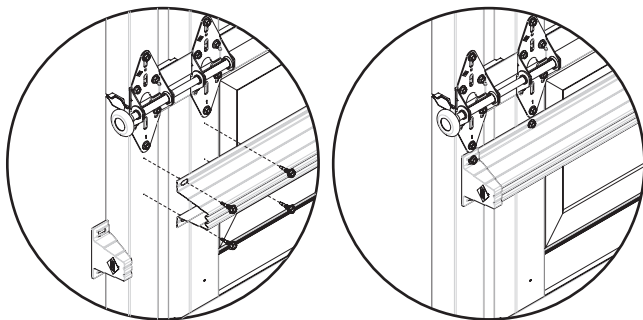
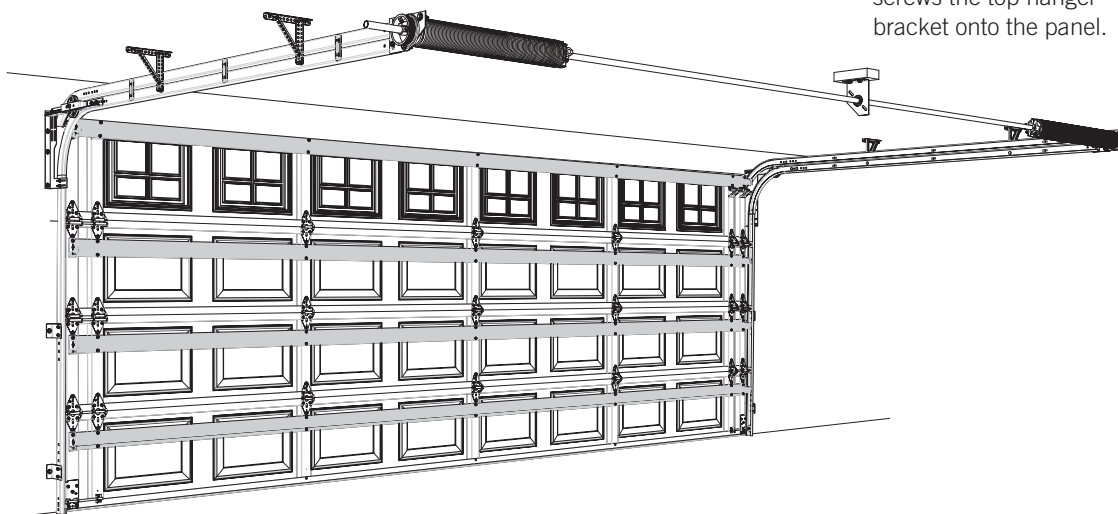


FIGURE 2.7.5



It is also recommended to mount the reinforcement consistently on the panels presenting a more professional appearance.

The lock generally straddles the centre of the panel so the reinforcement has to be offset to allow clearance for the installation and operation of the lock.

The top panel requires the reinforcement placed to the top of the panel in order to better support the door against the workings of an automatic opener which tends to stress the top panel. It is recommended to always install reinforcement above operator arm, see Figure 2.7.4. When there are windows installed on the top panel it is best that the reinforcement is moved as far up the panel so as to minimise obstruction.

FIGURE 2.7.4 OPENER ARM

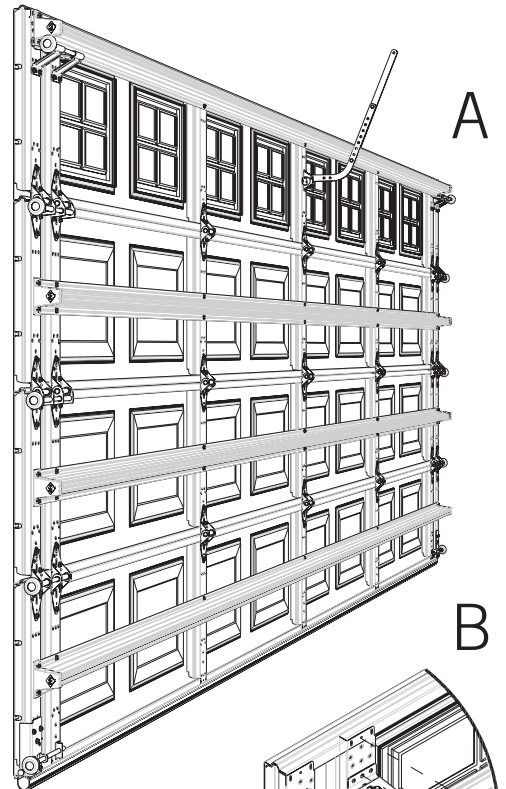


Figure A shows the New REO assembled to the Panelmasta door with Windows on the Top Panel.

Figure B shows the process of installing the New REO onto the Panelmasta door.

Figure C shows the New REO installed on the door. It should be noted that the New REO occupies the location of one of the Tek Screws which screws the top hanger bracket onto the panel.

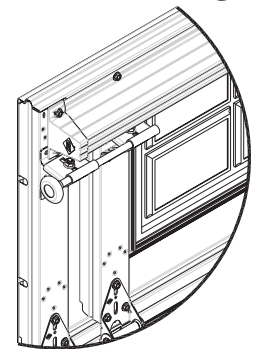
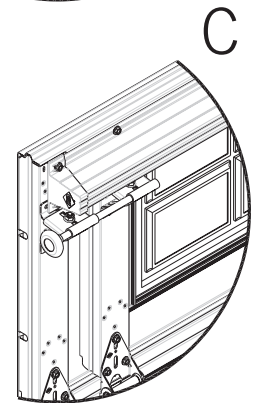
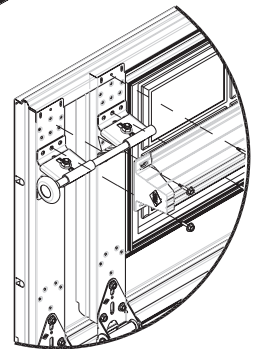
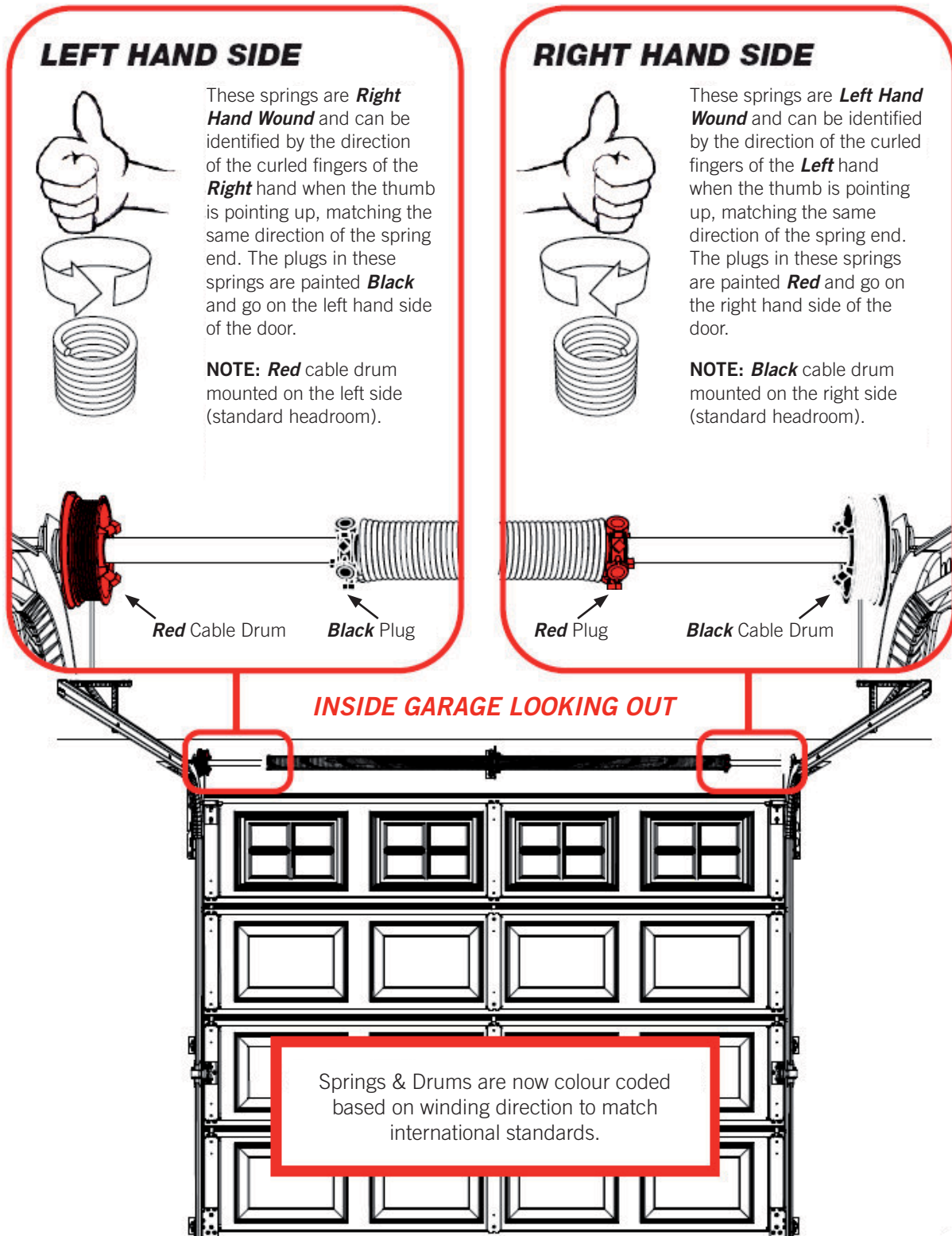


FIGURE 2.7.6

ATTENTION INSTALLERS!

NEW COLOUR CODING STANDARD FOR ALL B&D SECTIONAL DOOR SPRINGS



2.8 ASSEMBLING SPRING COUNTERBALANCE SYSTEM

Place the torsion bar on the floor and position the lifting parts in order. Place the spring anchor bracket onto the torsion bar, positioning it approximately half way along. The 'cut off' corner should face the floor if mounted on the lintel, or if mounted on the ceiling should face rearward, away from the lintel to allow the panels to clear as the door operates, see Figure 2.8.2.

With single spring doors, slide a shaft collar against the spring anchor bracket. The bearing flange in the spring anchor bracket must face the spring. It may need to be reversed depending on whether a left or right hand spring is supplied, see Figure 2.8.3A. The shaft collar is tightened against the bearing flange. Slide the spring onto the torsion bar and over the shaft collar. A left hand spring has a red winding plug, and should be fitted to the left hand side of the spring anchor bracket. A right hand spring has a black winding plug. The winding plugs should face away from the spring anchor bracket, see Figure 2.8.3B.

With two springs no shaft collar is necessary. Place the cable drum onto the torsion bar with the red cable drum on the left side and the black cable drum on the right side as in Figure 2.8.3D.

The set screws on the cable drums should face inwards see Figure 2.8.3C. Place the two 3mm cable drum spacers on each side. Then the side bearing brackets are positioned outside the cable drum spacers with the flange facing outwards.

FIGURE 2.8.1 PARTS NEEDED

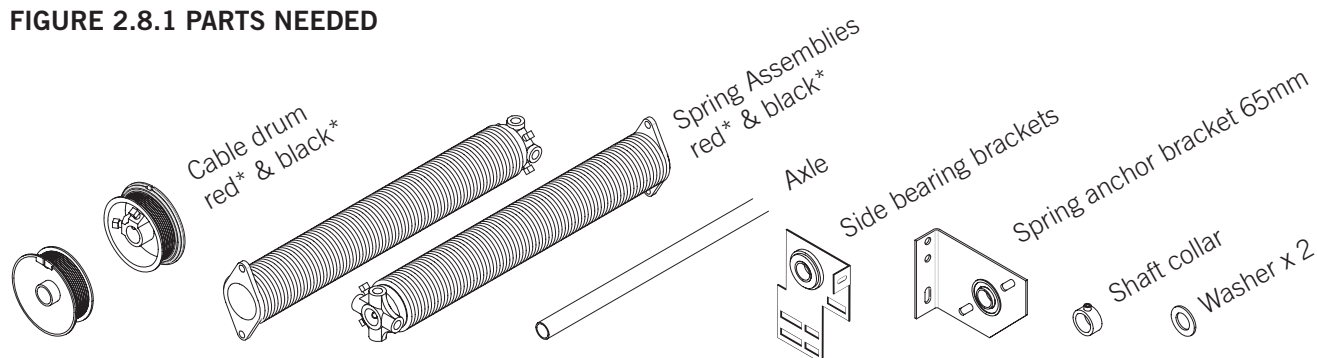


FIGURE 2.8.2 SPRING ANCHOR BRACKET

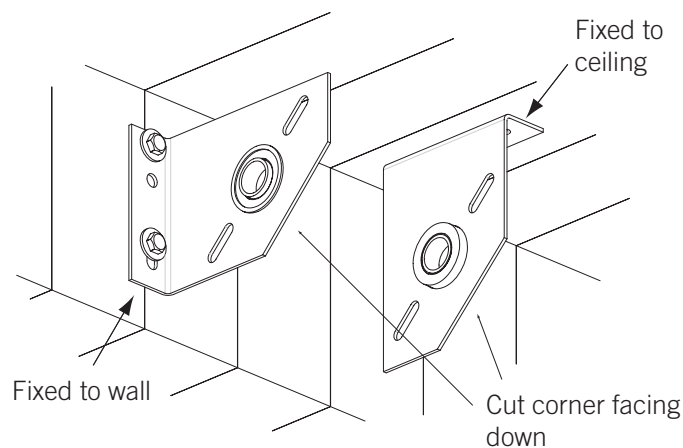
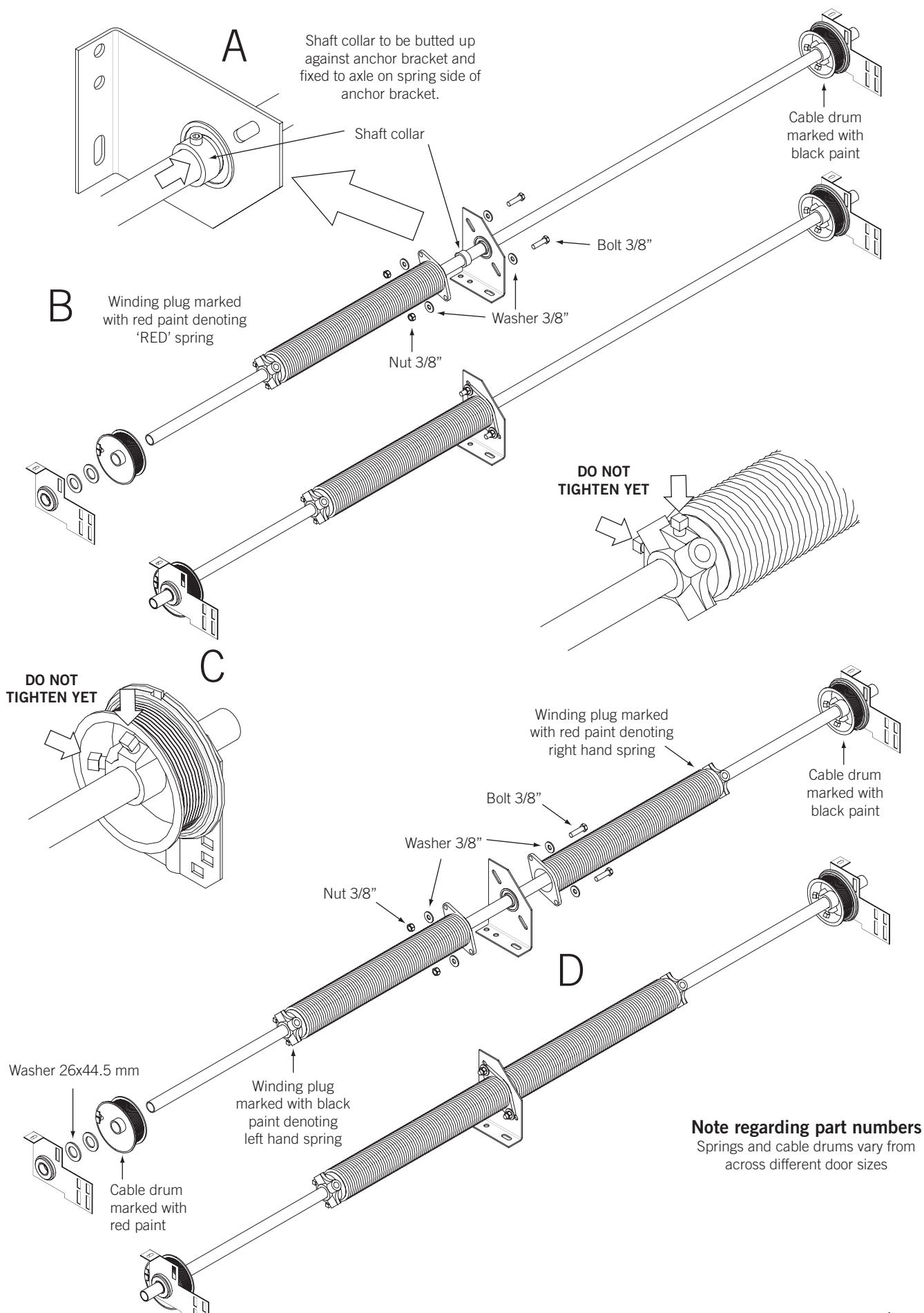


FIGURE 2.8.3 AXLE ASSEMBLY



2.9 LARGE DOORS - TWO PIECE SHAFTS

For very large doors whose springs simply become too large and heavy to handle in single axle assembly, two solid torsion axles are supplied with a coupling to allow easier installation.

Assemble both axle assemblies on the floor, only one spring anchor bracket is used, the other spring anchor bracket is fixed in position at the wall. A) shows the right half of the axle assembly as it should look on the floor. The shaft collar should be butted up against the spring anchor bracket opposite of the spring and then firmly fixed into place.

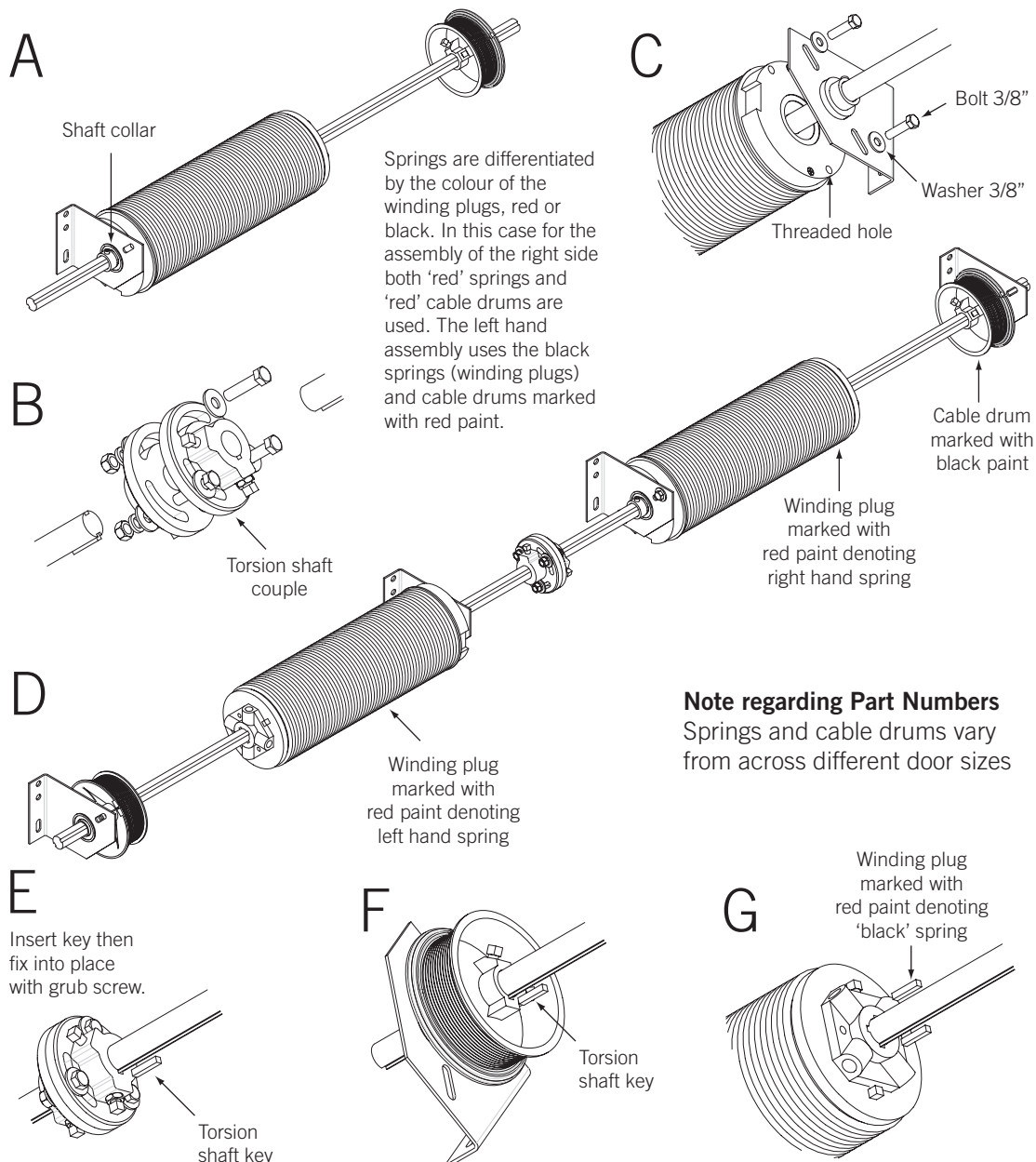
Lift and thread the axle on the cable drum side through the mounted spring anchor bracket and fix the loose spring anchor bracket securely to the lintel. You may need to rest the assembly end on a ladder or scissors lift.

Assemble the torsion shaft coupler engaging both left and right hand axle assemblies as shown in B), it will not be necessary to tighten the bolts as yet, allowing some adjustment. The axles should be flush with each couple allowing free rotation to occur.

Secure the spring assemblies to the spring anchor brackets as shown in C). The complete assembly should look like D) by this stage. Cut the key to the required lengths and then insert into the slots as shown in E) for the couple.

Attach lifting cable to cable drum in the same fashion described on page 17 and adjust as described, however a key needs to be inserted into place as shown in F) when tightening the grub screws, the couple should allow some adjustment before tightening the bolts connecting the two axles fully.

The springs are tensioned in the same fashion as described on page 20, however with the additional step of insertion of keys into the slots which should be lined up between the winding drum and axle then fixed firmly in place with grub screws, G).



2.10 INSTALLING COUNTERBALANCE SYSTEM

Place the torsion bar assembly into position, resting both ends over the top of the horizontal tracks. Ensure that the side bearing brackets are situated on the inside of the horizontal tracks, see Figure 2.10.1.

Ease the side bearing brackets as far forward toward the wall using the spring anchor bracket as a guide (the axle must be parallel with opening). Tighten into position, see Figure 2.10.2.

Now secure the spring anchor bracket firmly into a solid foundation of either brickwork, timber studs, head or into the ceiling, whichever will support the lifting system correctly, ensuring that the axle is straight - packing may be necessary.

FIGURE 2.10.1 RESTING AXLE ASSEMBLY

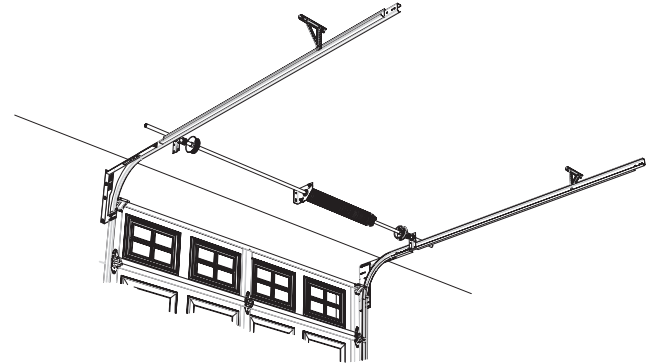


FIGURE 2.10.2 ATTACHING SIDE BEARING & SPRING ANCHOR BRACKETS

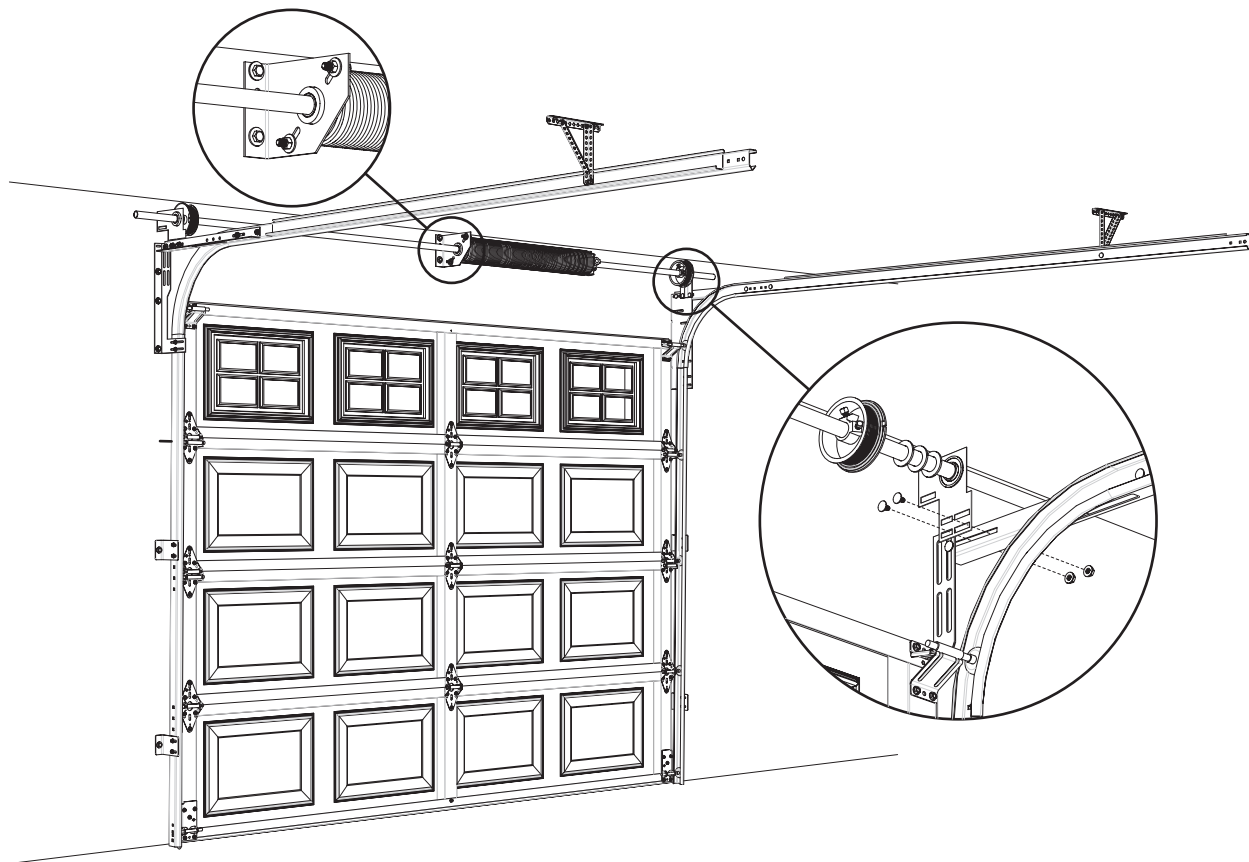
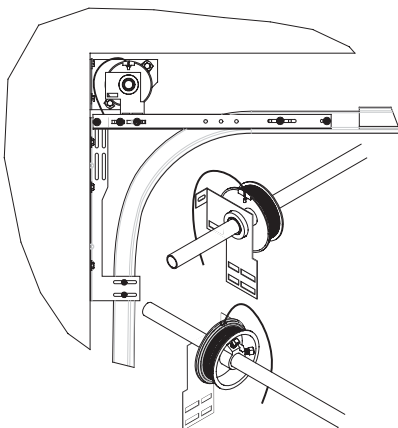


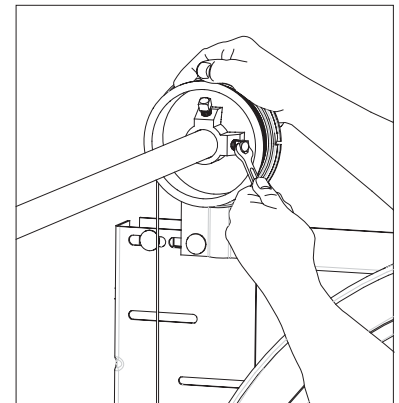
FIGURE 2.10.3



Now secure the springs to the spring anchor bracket using 9.5 x 38.1mm hexagonal head bolts and 9.5mm washers and nuts.

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), Figure 2.10.3. Wind the cable by hand turning away from the door in an up and over direction. Once the cable is taut, slide the cable drum against the end bearing bracket and tighten the 9.5mm set-screws securely to the torsion bar. Be careful not to over-tighten the set-screws, Figure 2.10.4.

FIGURE 2.10.4



NOTE: Dimpling the shaft with a drill helps.

2.11 REAR TORSION INSTALLATION

BOTTOM HANGERS: Find the low lift bottom hangers, the cables, clevis pins, humpback spring pins, and washers. Assemble low lift bottom hangers as shown in Figure 2.11.1A. Then assemble onto the bottom panel as shown in Figure 2.11.1B and Figure 2.11.1C.

AXLE ASSEMBLY: The axle assembly for rear torsion is different in that the side bearing brackets are replaced with sheave bracket rear torsion. The springs are mounted off these sheave brackets which are connected to the free ends of the horizontal tracks rather than directly over the opening.

Figure 2.11.2A illustrates the first stage of assembling a single spring rear torsion installation. A shaft collar is still required and fixed on the spring side of the flat spring anchor brackets.

Figure 2.11.2B demonstrates a double spring rear torsion installation, which like a single spring rear torsion door has the springs mounted off the sides on the flat spring anchor brackets rather than the centre.

DOUBLE TRACKS: Assemble double tracks and pulley bracket assembly as shown in Figure 2.11.3. Ensure curve butts up against and is aligned with the vertical track.

TOP PANEL: Please note the wheel on the top panel runs in the upper track, Figure 2.11.7, otherwise the assembly of the top panel is the same as a standard door.

FIGURE 2.11.1 BOTTOM HANGERS

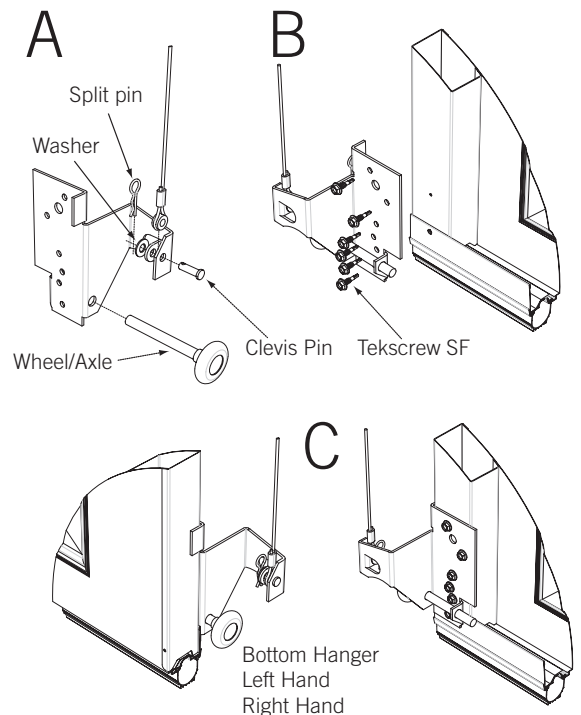


FIGURE 2.11.2 AXLE ASSEMBLY

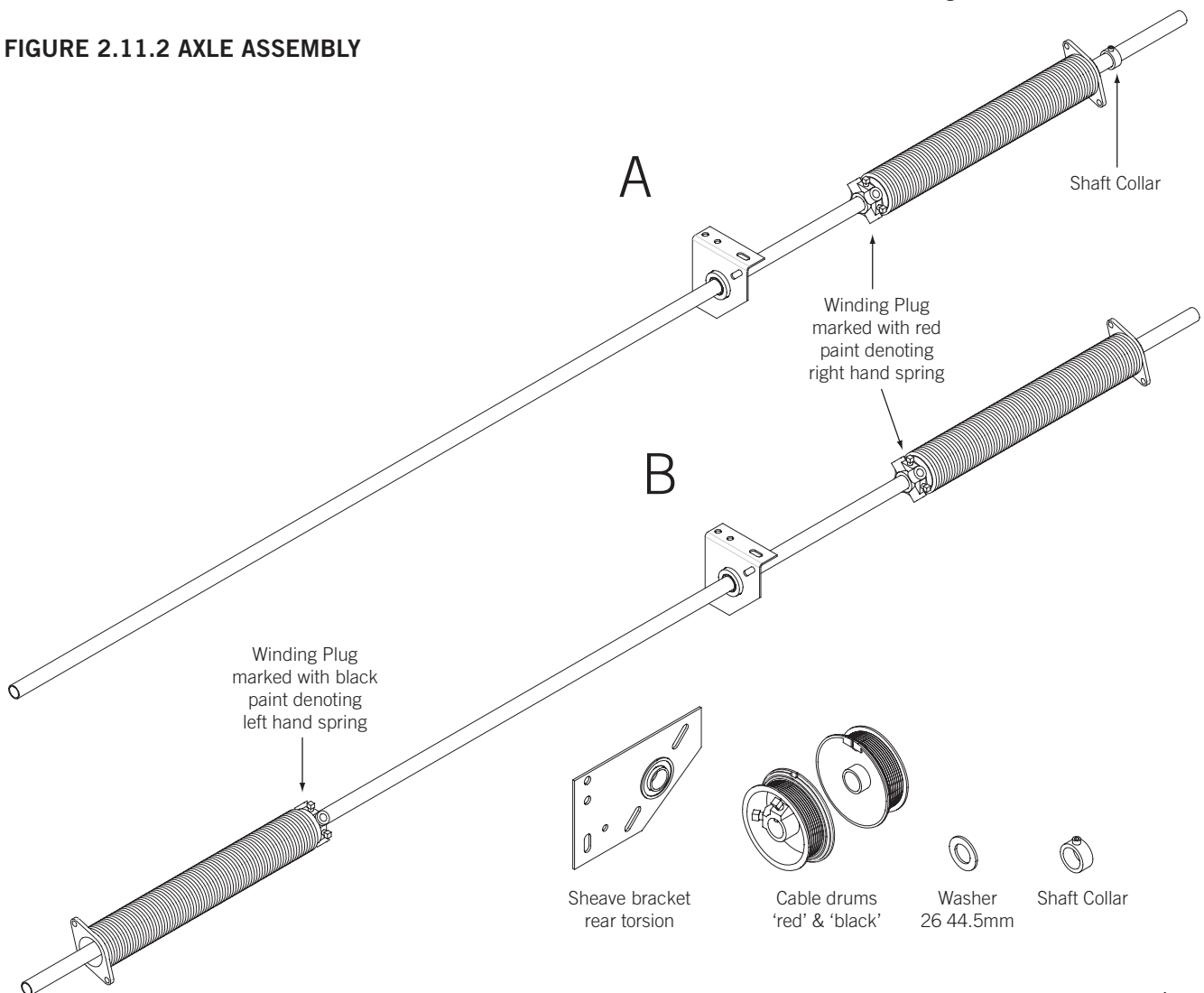


FIGURE 2.11.3 REAR TORSION LOW HEADROOM BRACKET INSTALLATION INSTRUCTION

1. Mount LHR brackets on horizontal tracks as per diagram on right.
 - (1) Left hand mounting shown only.
 - (2) Use perforated angle lines to strengthen middle portion of horizontal tracks if door weight is over 100g.
 - (3) Extra holes provided on bracket for strengthening if door weight is over 120kg or double track installation.
 - (4) The bearing flange should face the cable drum.
2. Mount torsion bar, spring/s and cable drums as normal.

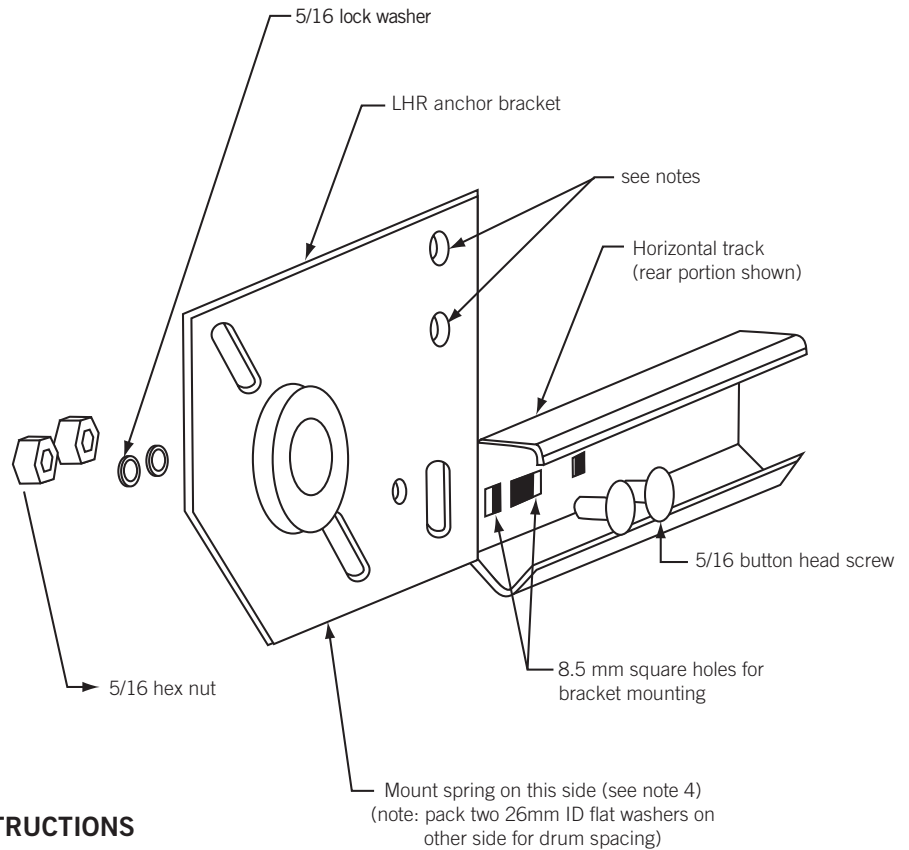


FIGURE 2.11.4 LOW HEAD ROOM INSTRUCTIONS

SHEAVE PULLEY BRACKET ASSEMBLY / ANGLE REINFORCING INSTALLATION INSTRUCTION (P/NO.T2791)

NOTE: Use angle reinforcing for standard head room doors.

1. Mount vertical track on top track bracket by using two (2) #1/4 nuts and bolts (see Diagram 1).
2. Mount top track bracket (with vertical track) on wall as normal.
3. Mount one end of the LHR sheave pulley bracket assembly (P/No. T5244) on top track bracket to a position as shown in Diagram 2 by using one (1) #6/16 nut and bolt. **NOTE:** Use angle reinforcing (P/No. T5482) instead of sheave pulley bracket assembly for SHR doors.
4. Mount Horizontal track on top track by using one (1) #1/4 nut and bolt and on angle reinforcing by using two (2) #5/16 nuts and bolts (see Diagram 1 and 2).
5. Adjust vertical and horizontal track position as normal.

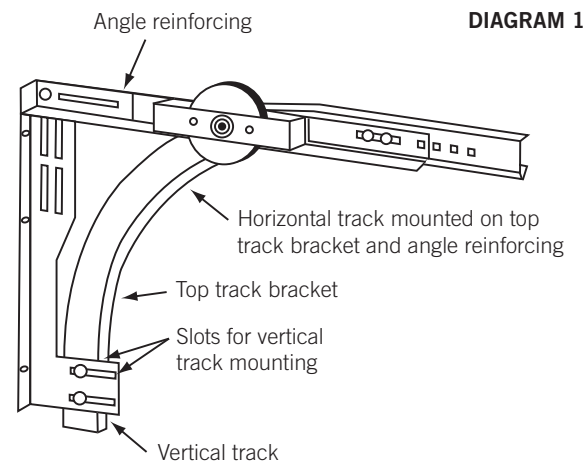


DIAGRAM 1

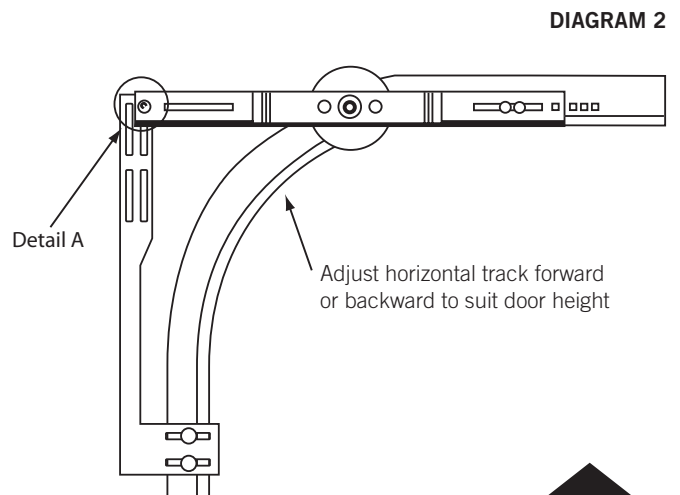
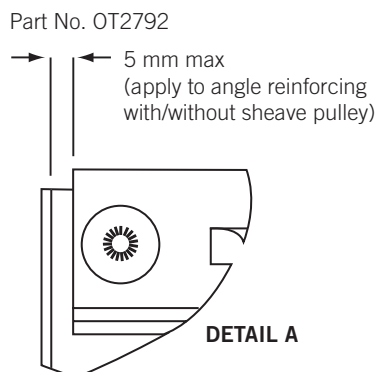
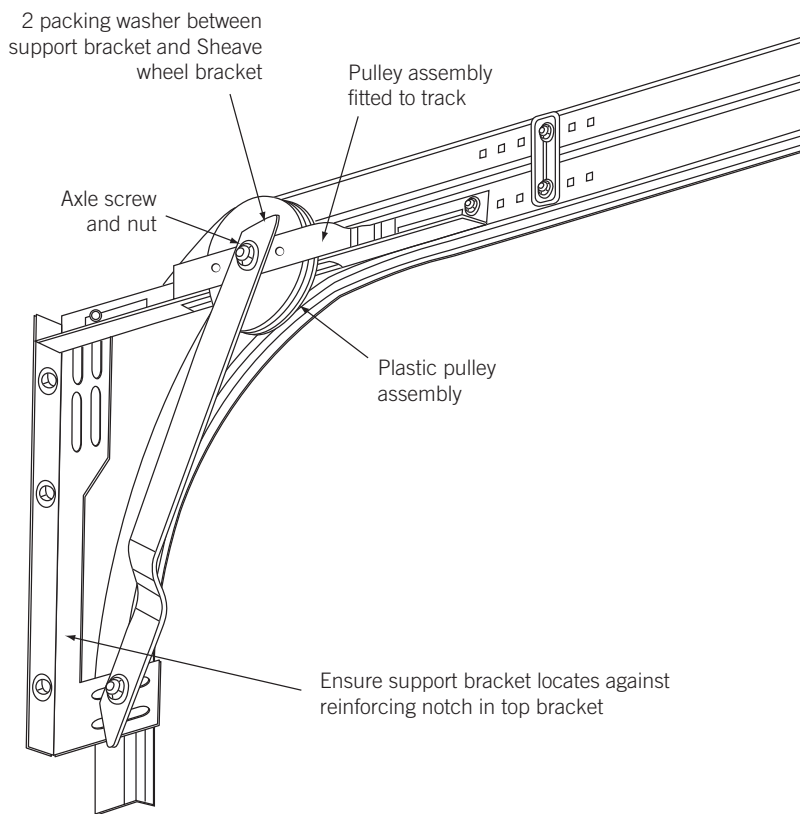


DIAGRAM 2



DETAIL A





1. Mount sheave pulley and angle reinforcing bracket sub-assembly as per instructions for Bracket (OT2791).
2. Unscrew sheave pulley axle screw, then remove nut and lock washer (DO NOT REMOVE SCREW).
3. Place two spacing washers and support bracket on to the sheave axle screw and replace lock washer and nut. Tighten to finger tightness.
4. Position support bracket to reinforcing notch in top bracket (see diagram).
5. Mark-off two bolt hole positions and drill two holes 10 mm diameter in top track bracket.
6. Fit support bracket bolts through the bracket and top track support bracket screw on the nylon nut.
7. Tighten all bolts and sheave axle screw and nut.
8. Continue installation to normal procedure.

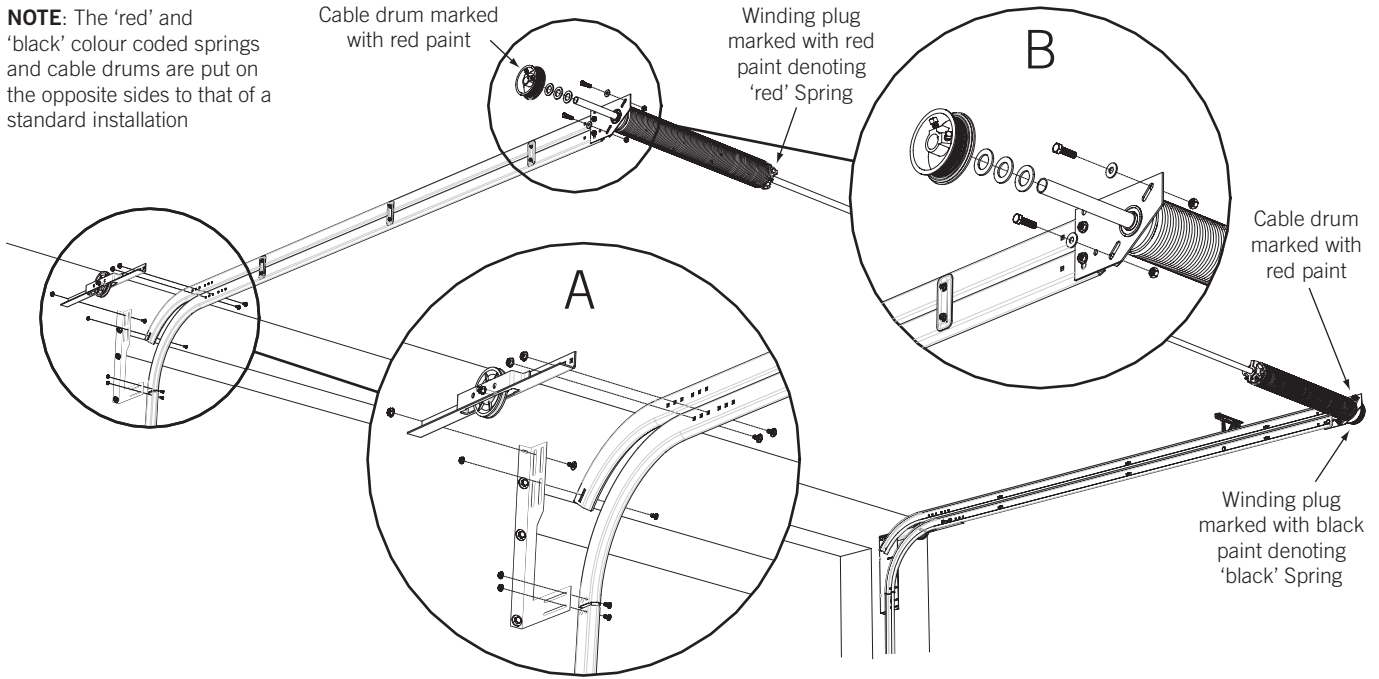
RETRO FIT INSTALLATION INSTRUCTION FOR NEW SHEAVE PULLEY ASSEMBLY (OT5200)

Instructions given here for an experienced door installer.

1. Close door.
2. Release spring tension from door.
3. Remove cables from door.
4. Remove old pulley brackets OT5208 and OT5209.
5. Remove ANGLE REINFORCING OT5482 from track.
6. FIT NEW SHEAVE WHEEL AND BRACKET ASSEMBLY SUPPLIED into this position.
7. MARK OFF TWO HOLE POSITIONS through the support brackets to the vertical track top bracket (OT4670) already installed.
8. Drill two holes each side for the support bracket bolts 10mm diameter.
9. Fit the support bracket bolts through the track and support bracket.
10. Tighten all bolts.
11. Re-assemble the door to normal procedure.

FIGURE 2.11.5 ASSEMBLING ONTO TRACK

NOTE: The 'red' and 'black' colour coded springs and cable drums are put on the opposite sides to that of a standard installation



TORSION BAR INSTALLATION: Fix the flat spring anchor brackets to the free ends of the horizontal double tracks, see Figure 2.11.3B. Rest torsion bar assembly on top of the tracks, then slide axle assembly through one bearing and then through the other bearing. Now secure the springs to the spring anchor bracket using 3/8" x 1 1/2" hexagonal head bolts and 3/8" washers and nuts.

The cable drums are mounted on the outside of the track and brackets with the grub screws pointing away from the centre as shown in Figure 2.11.3B. Additionally the red and black springs are put on opposite sides of the axle than for a standard installation.

Now secure the spring anchor bracket firmly into a solid foundation directly or through the use of steel angle to timber beams onto the ceiling, whichever will support the lifting system correctly. Ensure that 'cut corner' is pointing down in the direction of the opened door, Figure 2.11.4.

Unwind the lifting cable on both sides and thread the cable through the pulley brackets around the pulley wheel and over to the rear drums, Figure 2.11.6.

Attach the lifting cable to the cable drum by slipping the cable into the slot on the outside groove, see Figure 2.10.3 page 17. (The ferrule will prevent the cable from coming out). Wind the cable by hand turning away from the door in an up and over direction. Once the cable is taut, slide the cable drum against the end bearing bracket and tighten the 9.5 mm set-screws securely to the torsion bar.

Be careful not to over-tighten the set-screws.

NOTE: The centre of the sheaf pulley wheel and the cable fixing point to the bottom hanger should align when the door is fully open.

FIGURE 2.11.6

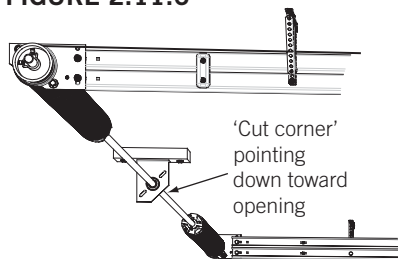


FIGURE 2.11.7

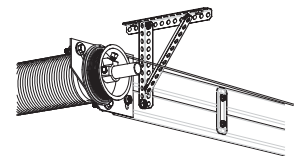


FIGURE 2.11.8

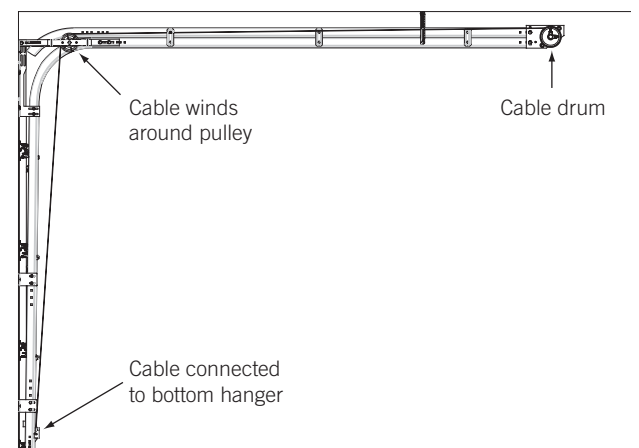
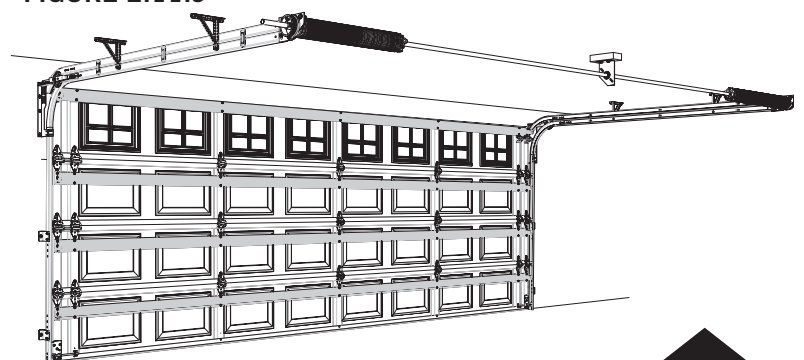


FIGURE 2.11.9



2.12 ADDING TENSION TO SPRING

Secure the torsion bar to prevent any rotation, as shown in Figure 2.12.1.

WARNING: TORSION SPRINGS CAN CAUSE SERIOUS INJURY! IF YOU ARE NOT SURE, STOP NOW! ASK TRAINED PERSONNEL.

The number of turns required for each spring is shown on a paper tag attached to the springs Figure 2.12.2. If the spring is required to have 7.5 turns for example, these are full turns and are equivalent to 30 quarter turns. Alternatively, a line is painted along every spring. If the spring is turned for example 8 times, then 8 lines can be counted along the spring, See Figure 2.12.3.

Turn the spring by inserting winding bars into the winding plug holes and wind up in an up and over direction towards the ceiling, Figure 2.12.4. Once you have completed the amount of turns required, remove one winding bar then tap the remaining bar back towards the spring anchor bracket if spring snaking occurs. Now you can tighten the two set screws with an open ended spanner, Figure 2.12.5. Again be careful not to over-tighten the set screws.

Repeat this procedure if there is more than one spring but remember, always wind the springs, whether left or right hand, in an up and over direction towards the opening.

WARNING: KEEP HANDS CLEAR OF THE SPRING AND THE SPRING WINDING PLUG AT ALL TIMES.

Double check that the set screws are properly tightened, before removing the restraints on the torsion bar.

Test the balance of the door. Put the door into the open position and view along the horizontal tracks. Check that the clearance in the vertical tracks (5-10mm) is also in the horizontal tracks. If you find that the door is binding, open out the horizontal tracks slightly to create the correct tolerance. Once satisfied that the operation of the door is as near perfect as possible, check that all nuts and bolts are tight and 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, Figure 2.12.6.

FIGURE 2.12.1 SECURING TORSION BAR

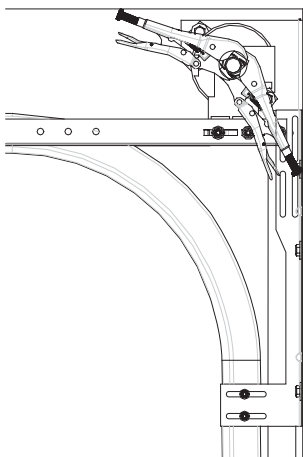


FIGURE 2.12.4 ADDING TENSION

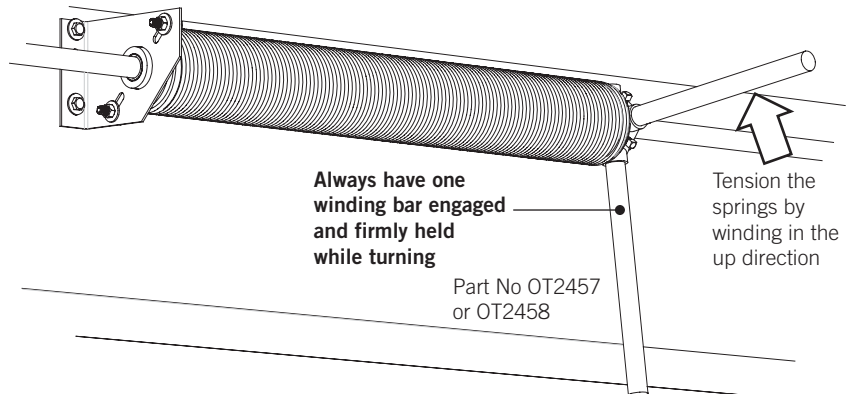


FIGURE 2.12.2 SPRING LABEL

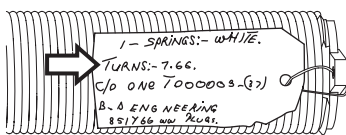


FIGURE 2.12.5 TIGHTENING GRUB SCREWS

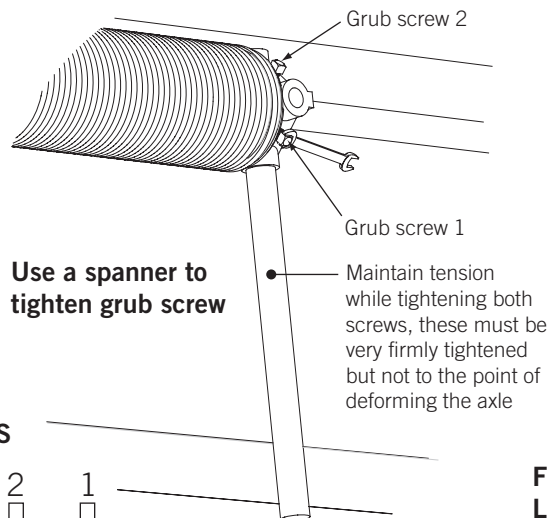


FIGURE 2.12.3 COUNTING THE TURNS

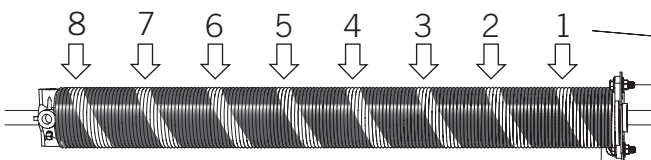


FIGURE 2.12.6 LUBRICATING SPRINGS

3.0 OPTIONAL COMPONENTS

3.1 LOCK INSTALLATION

NOTE: In coffin garages (those with no access other than the garage door), the lock handle should be installed immediately after fitting the lock panel.

The lock handle is to be fixed to the middle of the second panel. Using lock plate as a guide, centre on central end stile and drill through the end stile and the panel using a 1/2" (13 mm) drill bit for the large hole and a 3/16" (5 mm) bit for the two holes on either side.

Fit the "T" handle to the panel by inserting the lock shaft and the two 3/16" thread bolts into the panel from the outside, through the lock muntin. Attach the 3/16" or 4.7 mm nuts and washers securing the 'T' Handle in place. Next insert the lock guide plate (dimples facing away from door) followed by the internal handle, the lock cam and the second guide plate (dimples facing the door). Lock together with 3/16" nuts and washers, see Figure 3.1.2 and Figure 3.1.3.

FIGURE 3.1.1 PARTS

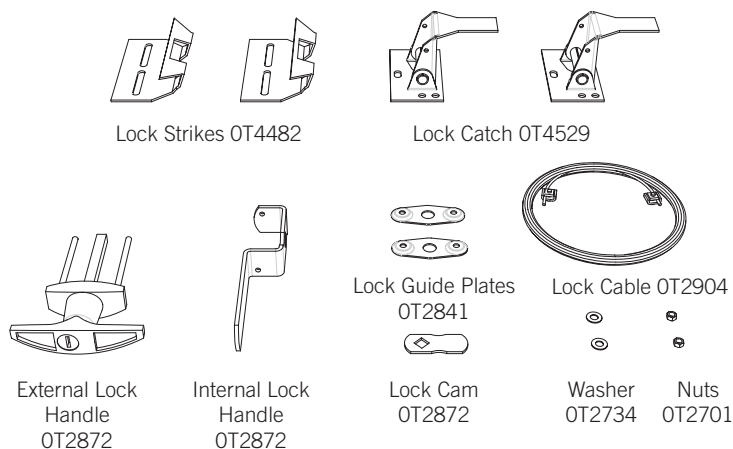
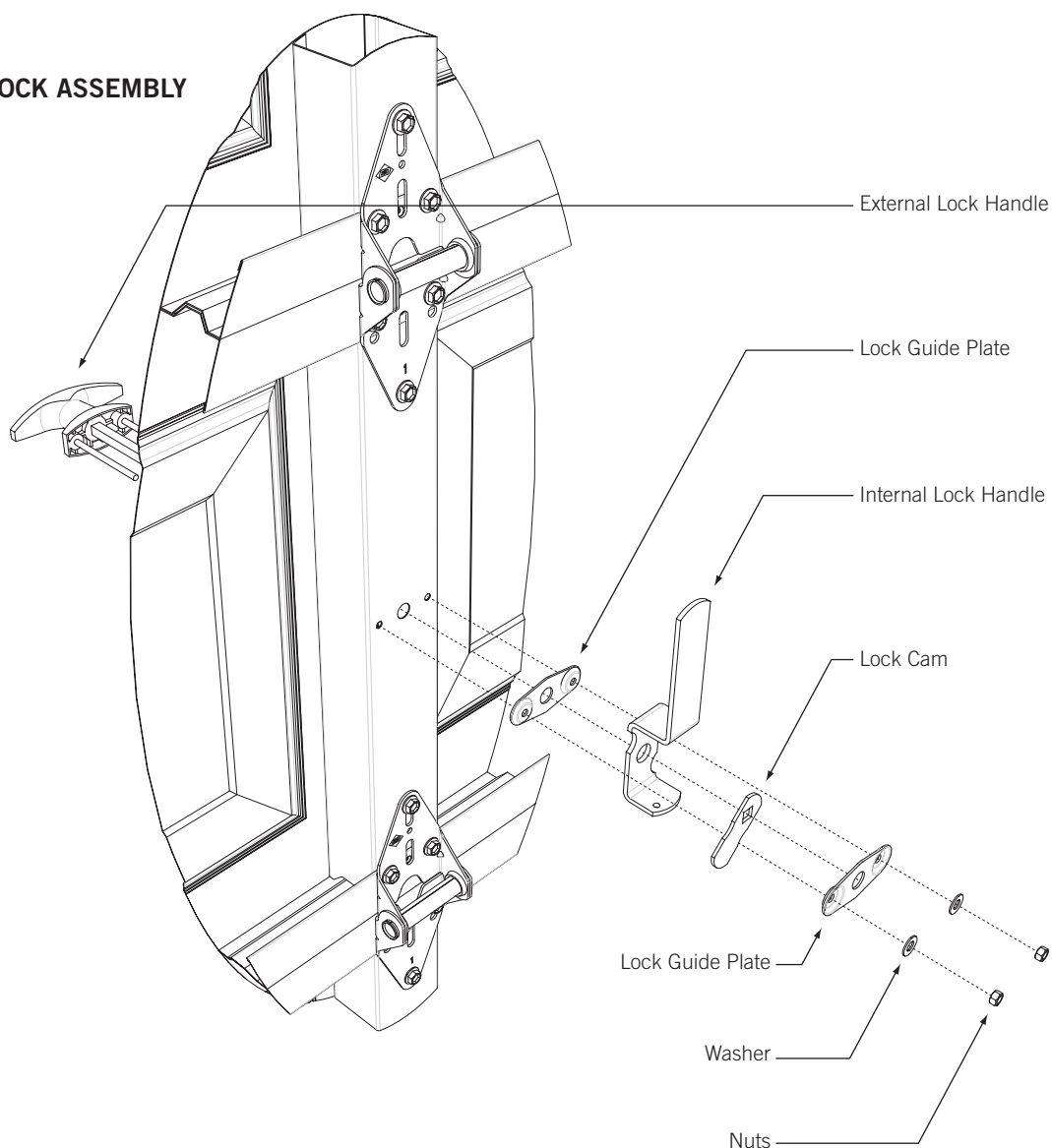


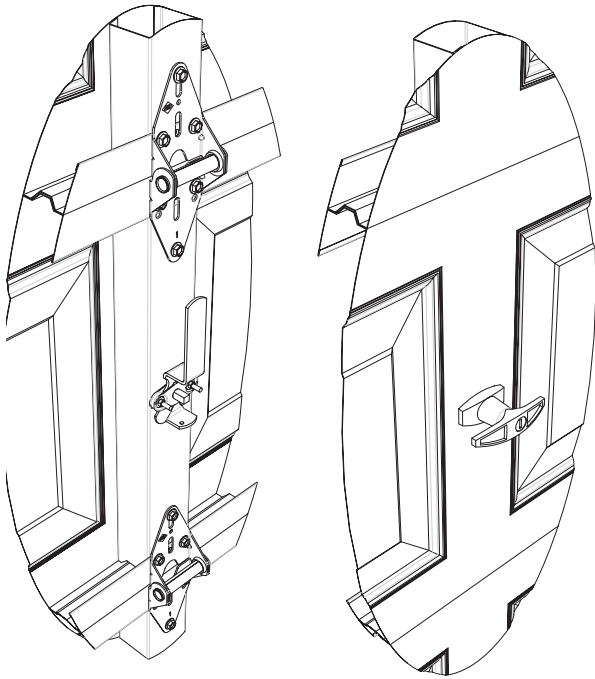
FIGURE 3.1.2 LOCK ASSEMBLY



LOCK ASSEMBLY



FIGURE 3.1.3



**ASSEMBLED LOCK
INTERNAL VIEW**

**ASSEMBLED LOCK
EXTERNAL VIEW**

Fix the lock catch brackets to each end stile on the lock panel approximately one third to half way up the panel. Drill holes in each (top and bottom) and fix using 1/4" BSW x 1/2" cup-head bolts and nuts. Position the lock strike centrally on each lock catch. Fix into the vertical tracks with the 1/4' BSW x 1/2" cup-head bolts and nuts, Figure 3.1.4.

Fix the lock cable to one of the lock catch arms with the cable clamp. Then slip the lock cable through the internal lock handle and into the other lock catch arm. Make sure to tighten cable clamps, Figure 3.1.5.

To further facilitate smooth operation, the lock strike can be twisted slightly so that it easily slides over the lock catch as shown in Figure 3.1.6, make sure that on the upward movement that the lock strikes becomes firmly engaged.

FIGURE 3.1.4 LOCK STRIKE & CATCH

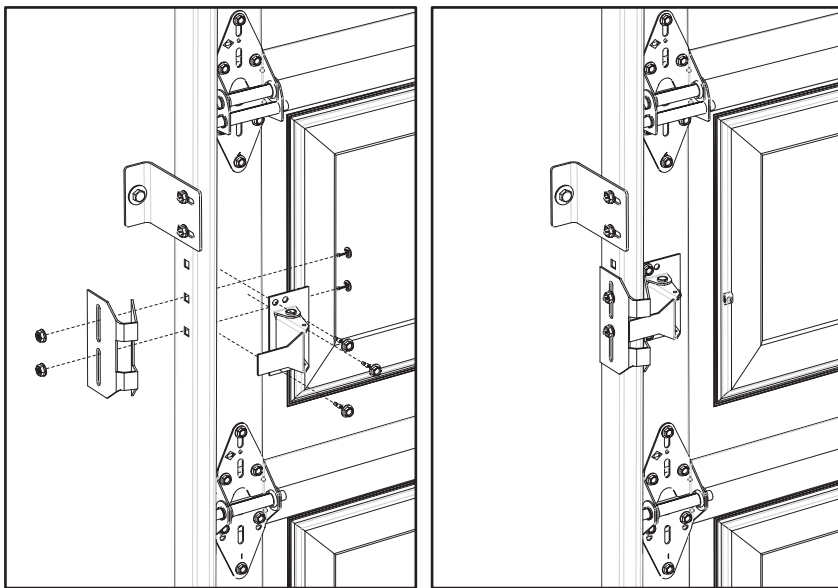


FIGURE 3.1.5 LOCK CABLE

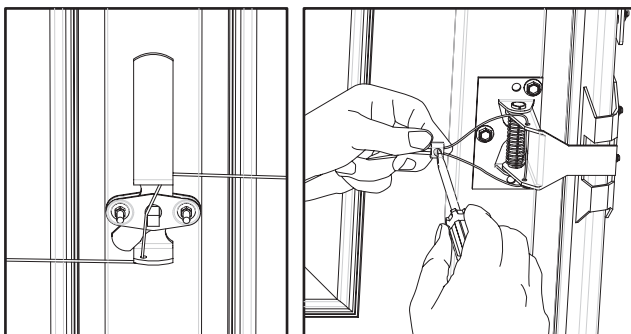
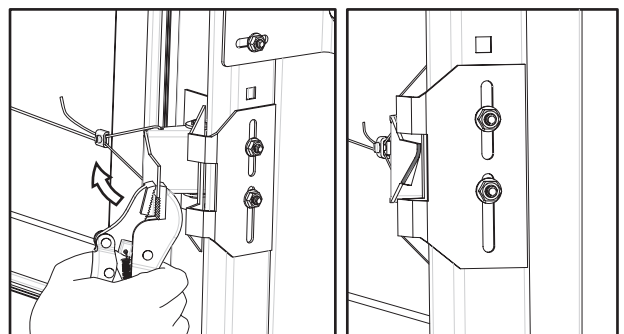


FIGURE 3.1.6 BENDING LOCK STRIKE

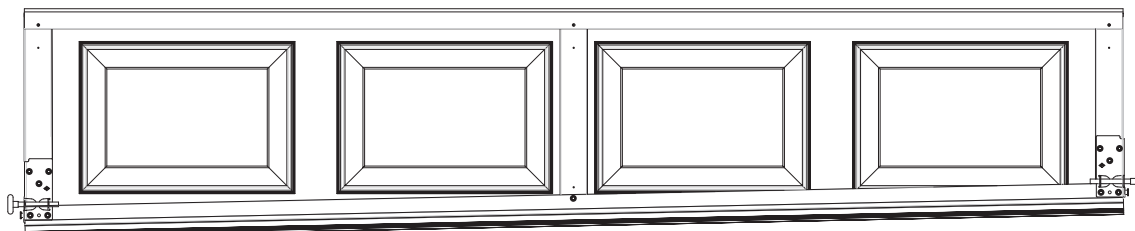


3.2 FIXED TAPERS

Fixed Tapers consist of a modified bottom panel, Figure 3.2.1. Please familiarise yourself with the standard bottom panel assembly on page 7. The installation is almost identical to that of the standard bottom panel but for one significant difference.

The wheel and lifting gear are fixed to the bottom corners of the panel.

FIGURE 3.2.1 PLACING BOTTOM HANGERS



3.3 HINGED TAPERS

Hinged tapers are accomplished using a small customised panel, which results in a slight variation in the installation process, please familiarise yourself with the standard installation before proceeding.

Tracks are assembled as standard with the only difference being that one vertical track needs to be cut down to accommodate the uneven floor. Both vertical tracks need to start from the ground and end level with each other. Cut the track as necessary from the ground end.

In Figure 3.3.1 the lifting panel is different from the standard bottom panel shown on page 7 in that there is no weather seal it's part of the taper panel. Assemble bottom hanger onto the lifting panel as shown in Figure 2.1.3 on page 7.

Simply assemble tapered panel onto lifting panel using the hinges provided on the tapered panel, Figure 3.3.2.

FIGURE 3.3.1 ASSEMBLING HINGED TAPER

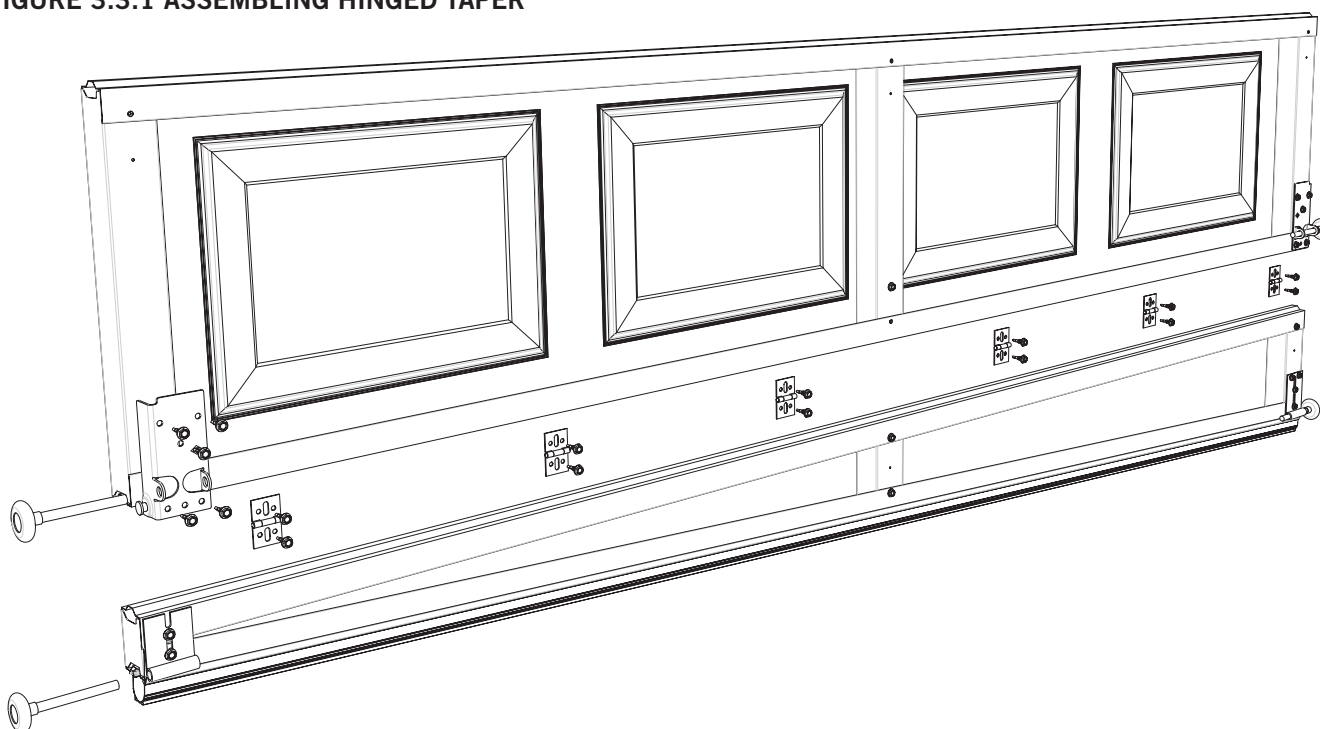
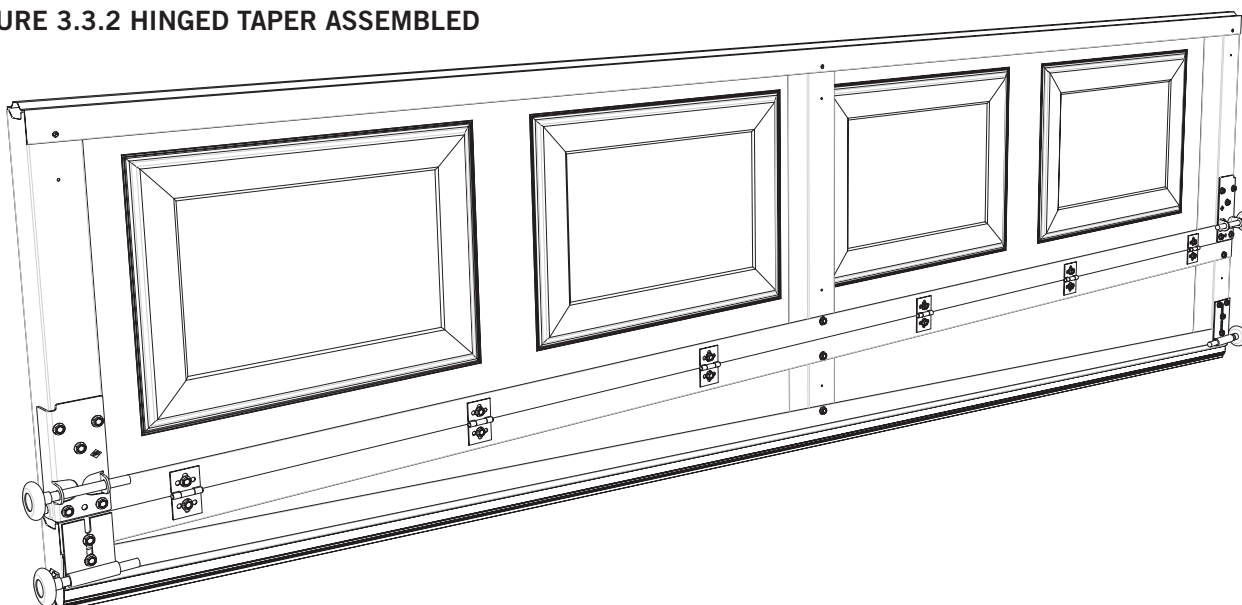


FIGURE 3.3.2 HINGED TAPER ASSEMBLED



3.4 EMB-A-SEAL KIT

A 16-17 mm gap is required between the door and the jamb, for the installation of Emb-A-Seal Kit.

Open the door. Slide the two 13mm high brushes into the “H” carriers, and the 19mm brush into the “F” carrier, see Figure 3.4.1. Cut the “F” carrier & brush to suit the door height opening, cut the “F” carrier to suit door opening width.

Place the “H” aluminium extrusion on the wall between the door and the jamb. When the door closes, it should close up against this extrusion with 0-1mm clearance, see Figure 3.4.3. The ribbed section of the aluminium extrusion is to face away from the opening. Fix to door jamb using an appropriate fixing method, screws, plugs and clips should be provided. If fixing to a steel beam, common with lintels, use 10g x 16mm hex-head self drilling screws for steel. It is important to lubricate thread before fitting. Drill 4mm pilot holes for beams over 6mm thick, see Figure 3.4.2.

NOTE: if the seal presses too hard against the door damage to the panel surface may occur over a period of time.

Place the “F” carrier under the lintel so that the brush has 0-1mm clearance, Figure 3.4.3. The ribbed section of the aluminium extrusion should be pointing out of the opening. Fix to lintel using an appropriate fixing method.

Open and close the door, checking smooth operation. Adjust the tracks if required. If installing seal in a post installation door with an electric opener fitted, adjust its sensitivity if necessary.

FIGURE 3.4.1

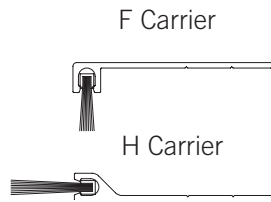


FIGURE 3.4.2 ATTACHMENT METHOD

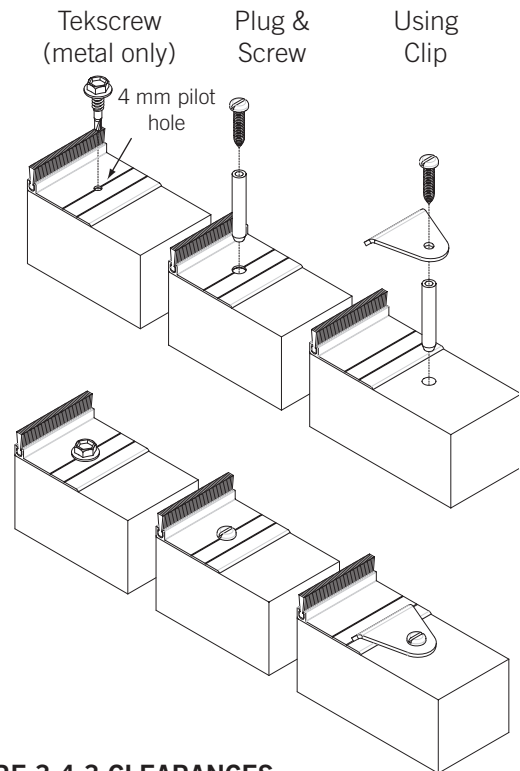


FIGURE 3.4.3 CLEARANCES

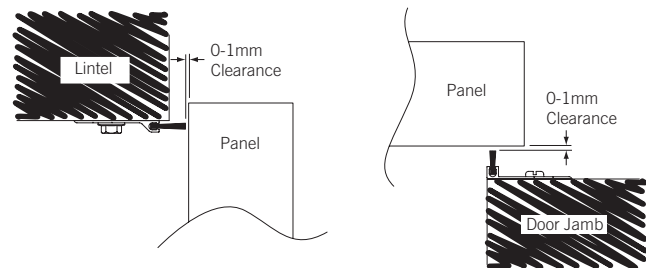
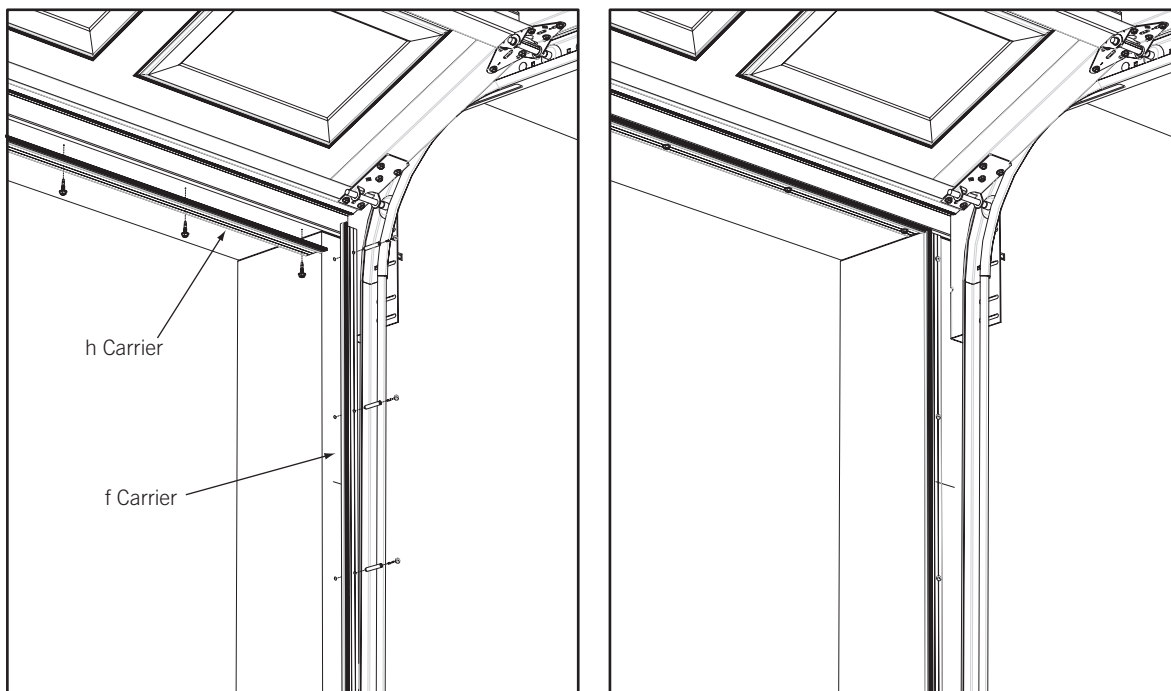


FIGURE 3.4.4 EMB-A-SEAL INSTALLATION



3.5 WINDOW INSTALLATION

Windows all occur on the top panel and these panel can be identified by cutout areas on each pattern with some of the central pattern held in place with 3 tabs.

Remove the central panelling from each of the window areas on the top panel as shown in Figure 3.5.2 A) Use a hammer and a small block of timber to slightly depress the right-hand side of the embossments' removable section. B) Use a pair of tin-snips to cut the right hand tab on the end of the removable section. C) Slightly depress the left-hand side of the embossment by hand. D) Use a pair of tin-snips to cut the left-hand tabs on the end of the removable section. E) To avoid the frames buckling, ensure that the tabs are cut flush with the edge of the embossed section.

FIGURE 3.5.1 PARTS NEEDED

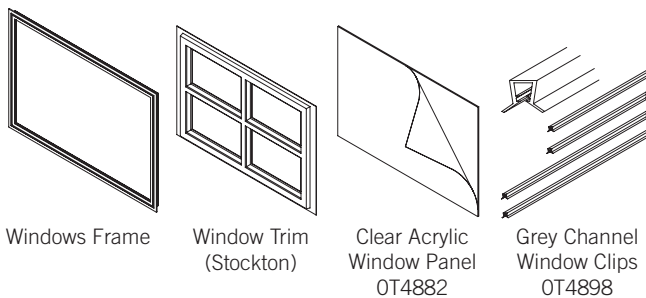
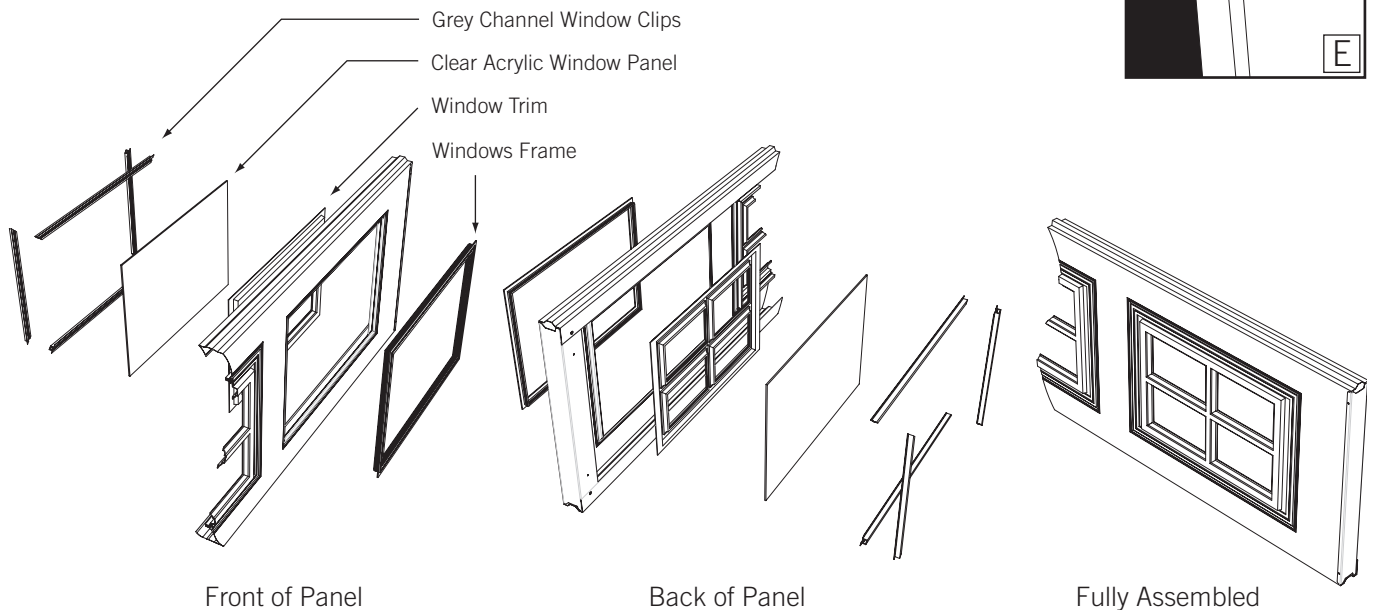


FIGURE 3.5.3 WINDOW ASSEMBLY



Peel the backing off both sides of the Perspex sheets. Insert trim onto front face of the panel and lay it flat face down on a non-abrasive, non-staining surface. Then insert the trim, the Perspex sheet which should be both resting within the frame and fix into place with the clips which should be pressed into place along the frames edge until they are firmly engaged, consult Figure 3.5.3.

If installing a window configuration set such as Sunshine or Sherwood please consult Figure 3.5.4 to ensure the proper placement of the window trim across the panel.

Now you are ready to install the top panel onto the opening as standard. If reinforcement is being used please avoid obstructing the windows by installing the reinforcement as high up the panel as is possible.

FIGURE 3.5.2

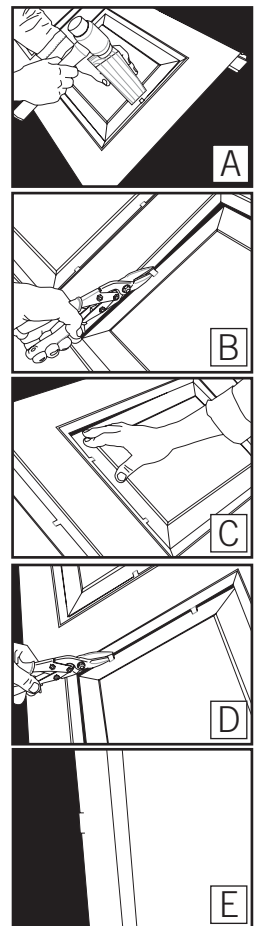


FIGURE 3.5.4 SET CONFIGURATIONS

SUNRISE SET



SHERWOOD SET



When dealing with either the Sunrise or Sherwood window styles, be sure that the complete E set has been supplied and that they are installed in the appropriate configuration shown above



4.0 REPLACING DAMAGED PANELS

THIS PROCEDURE SHOULD ONLY BE CARRIED OUT BY A QUALIFIED INSTALLER

The following procedure demonstrated the removal and replacement of a damaged bottom panel. The same process is applicable for other damaged panel sections.

Pack the bottom panel off the ground on both sides by around 100mm. A wooden packer or other object that can bear the doors weight will suffice, see Figure 4.0.1.

Secure the panels so that they will not crash down while the damaged panel is removed. There are a variety of methods depending on installation refer Figure 4.0.1. It is recommended that both sides are secured in this fashion. Multigrips are suitable for the smaller single width doors, large G-Clamps are recommended for anything larger.

Secure the axle, Figure 4.0.2, and remove tension from springs noting the number of turns required, Figure 4.0.3. The procedure is almost identical to that of adding tension as outlined in page 20, so please consult that section if unsure.

The next step is to remove the damaged panel Figure 4.0.4. Unscrew the hinge and hanger self drilling screws connecting the bottom panel with the panel above, this will allow removal of the wheels from the vertical track.

The upper panels will stay in place as they are held by the tongue and groove top and bottom edges. The panel is now ready to be removed, first hold the panel to prevent it falling. Now remove the packing from under the door, this will release the panel which can now be removed.

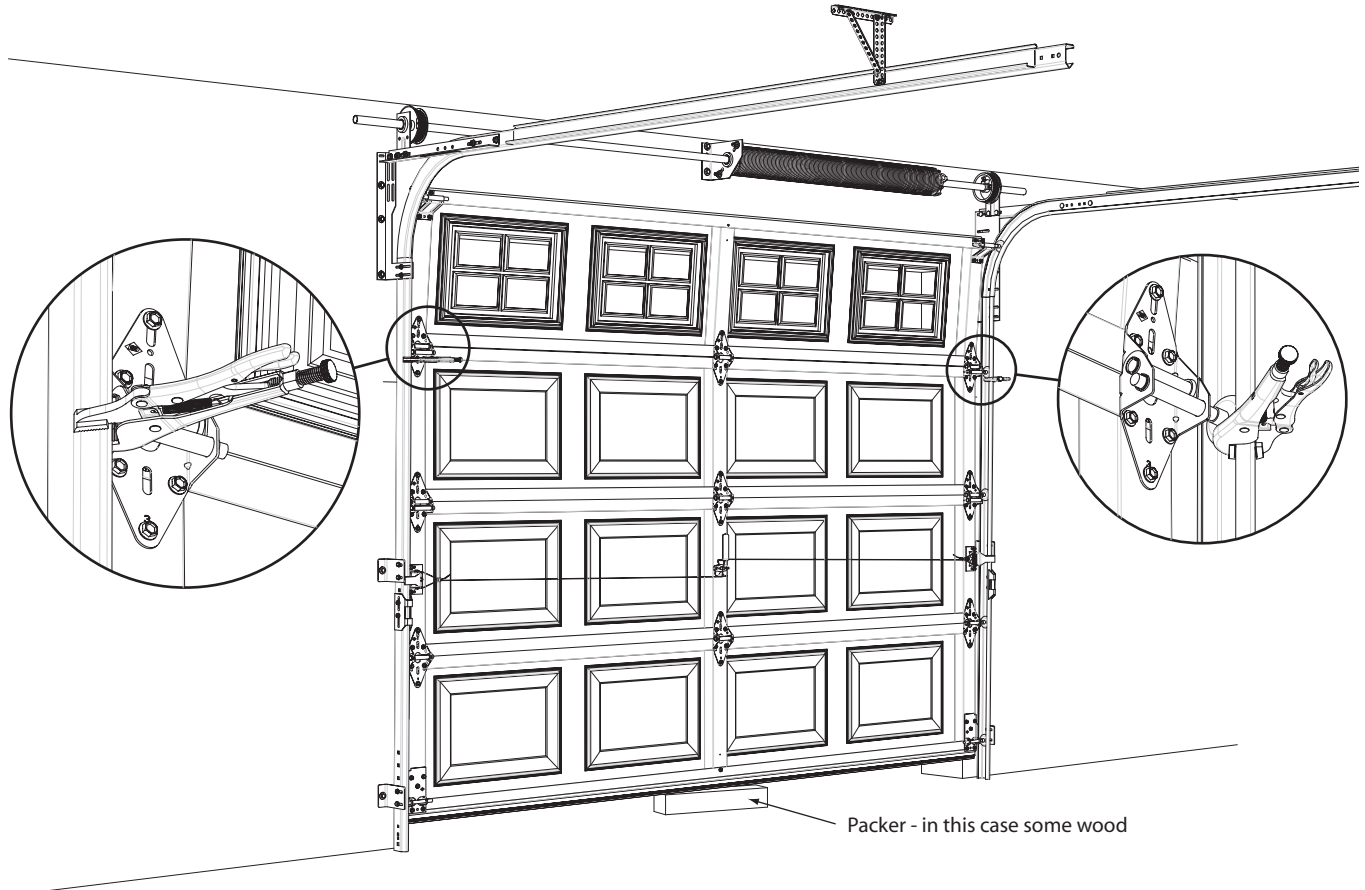
Assemble new bottom panel as outlined on page 6, ensuring salvaged parts are intact and safe for use. Also refer to Figure 4.0.5 which is the reversal of the dismantle procedure.

Using the same packing piece as before Figure 4.0.1, pack up the bottom panel, this should bring up to rest against the suspended upper panels. Then screw the panel onto the hangers of the panel above it.

Re-tension the springs following the procedure outlined on page 22 remembering the number of turns removed in the previous step.

Now the door panels can be safely unsecured.

FIGURE 4.0.1 SECURING PANELS



THIS PROCEDURE SHOULD ONLY BE CARRIED OUT BY A QUALIFIED INSTALLER

FIGURE 4.0.2 SECURING TORSION BAR

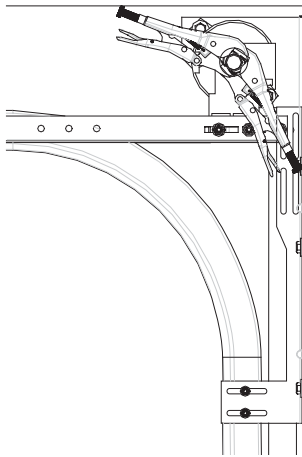


FIGURE 4.0.3 REMOVING SPRING TENSION

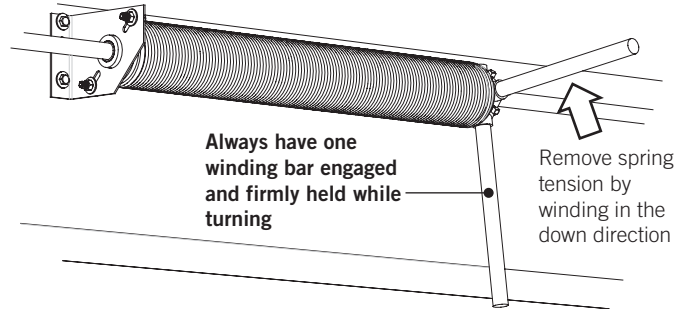


FIGURE 4.0.4 REMOVING DAMAGED PANEL

Remove screws from hinges and hangers. The wheel and axles can then be removed from the track.

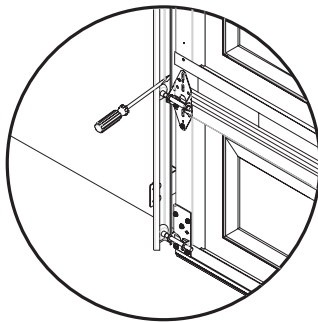
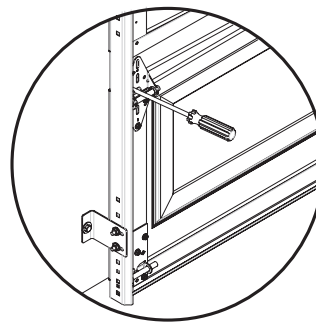


FIGURE 4.0.5 INSERTING REPLACEMENT PANEL

Is the reverse of removable.



5.0 TROUBLESHOOTING

LIFTING CABLES LOOSE WHEN DOOR IS OPENED

- Cable drums have slipped
- Diagonals out of square
- Check length of lifting cables

TORSION BAR MOVING

- Cable drums not adjusted correctly
- Springs not adjusted correctly
- Shaft collar not fitted (single spring)
- Check end bearing brackets are square and vertical

DOOR WILL NOT HOLD UP IN OPEN POSITION

- Adjust tension on door
- Incorrect springs
- Panel reinforcing fitted incorrectly

DOOR NOT LEVEL

- Check water level marks are correct
- Lifting cable not equally taut

DOOR MOVING TO ONE SIDE

- Clearances incorrect
- Cable drum not hard up against end bearing brackets

DOOR PANELS JAMMING/RUBBING ON TRACKS

- Incorrect clearance between wheel and vertical track
- Door out of level
- Cable drum not lined up correctly
- Vertical tracks not parallel
- Lifting cables slipping

DOOR HARD TO LIFT

- Incorrect tension on springs
- Spring may have slipped on set screws
- Wrong spring
- Check all panel reinforcing on door panel

If all points have been checked please seek manufacturer for service.

COMMON SPRING PROBLEMS

SYMPTOM	CAUSE	SOLUTION
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) Wrong cable drums for springs (too small)	Replace spring 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

6.0 AFTER INSTALLATION CARE

GENERAL CARE OF YOUR FIRMAPANEL™

CLEANING

COLORBOND® & COLOURED STEEL FINISH Your B&D Firmapanel™ has been pre-painted with a silicone modified polyester formulation, which is one of the best paint films commercially available today. However, all exposed surfaces require some attention to guard against the premature onset of corrosion and any other harmful atmospheric effects. In our atmosphere there are harmful deposits that gather on the door surface and if not removed regularly, will seriously affect the appearance and life of the door.

Washing of the door with clean water and a cloth every 14 days is recommended – particular care should be taken to clean areas of the door not normally washed by rain.

LOCK

Your lock does not require special maintenance, however, if the keyway becomes stiff, the application of powdered graphite is recommended – do not grease or oil the lock.

WARNING! Do not disassemble the lock mechanism and do not allow paint to enter the lock keyway.

HINGES & HANGERS

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 to the shaft to minimise this.

CABLES

Check the cables regularly for corrosion, fraying or tangling, if any of these are evident call your service provider.

REGULAR MAINTENANCE REQUIRED

B&D recommends that you check the operation of your Firmapanel™ 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.

WARRANTY

The B&D Firmapanel™ in residential use is covered by a 12 month warranty for complete door and parts, surface (excludes salt corrosion).

Warranty conditional on proper care as recommended above. Full details of the warranty are available from www.bnd.com.au

B&D Doors Office Locations:

New South Wales:	34 Marigold St, Revesby 2212.	Phone: (02) 9722 5555	South Australia:	23 Frederick Rd, Royal Park 5014.	Phone: (08) 8440 4747
Queensland:	17 Oasis Court, Clontarf 4019.	Phone: (07) 3883 0200	Western Australia:	96 Mulgool Rd, Malaga 6090.	Phone: (08) 9247 8777
Newcastle:	Unit 1/108 Mitchell Rd, Cardiff NSW 2285.	Phone: (02) 4956 8533	International/Export:	34 Marigold St, Revesby 2212.	Phone: +61 (0)2 9722 5555
Victoria:	147-153 Canterbury Rd, Kilsyth 3137.	Phone: (03) 9237 7766			



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