Use a step ladder or tressel to prop the door in the open position and mark the line where the door would strike the lintel when opened fully. Nail the rubber buffers (Item 7) to either side of the door, on this line, to prevent door damage on opening.

Check that the kicker plate is positioned in the third hole from the pivot on the power arm. Check that all bushes are in position and fit the spring(s) to the bottom of the kicker plate. Where two springs are used (double door) use the W-shape hooks to attach the springs to the plate. Apply a little grease to the spring eye before it is fitted to the kicker plate.

Where a single spring is fitted use an "S" hook to fix the bottom of the spring to the spring anchor chain. Where a double spring is fitted use a spring pull bolt and W-shape hook to connect and tension the springs to the spring anchor bracket. Adjust the spring tension by adjusting the chain length (Single spring), or pull bolt (Double spring) .

> *NOTE:* The springs must be tensioned such that the door will hold in the open position; requiring only a slight pull to close it.

Once the springs are fitted and the door opens and closes correctly fit components such as the centre or padlock locking mechanism. Check that the door opens and closes without jamming or sticking.

With the door open drill and fit the windpin into the door jamb just below the angle iron . Attach the other end of the windpin chain to the stile. Fit the locking nails into the subsidiary holes (adjacent to slotted holes) in both the power plates and door support angle irons.

> ***IMPORTANT***: Do not forget to fit the locking nails as they prevent any movement of the mechanism due to frame shrinkage or structural movement.

KICKER ADJUSTMENT

The action of the kicker prevents the door slamming on closing and controls the opening action. By adjusting the position of the kicker bolt in the slot in the kicker plate the anti-slam action of the kicker can be increased or decreased. Adjust the bolt so that the door operates from fully open to fully closed without slamming at either end of its travel.

> *NOTE*: When using automatic openers set the kicker action to its minimum by setting the kicker bolt to its lowest position in the slot.

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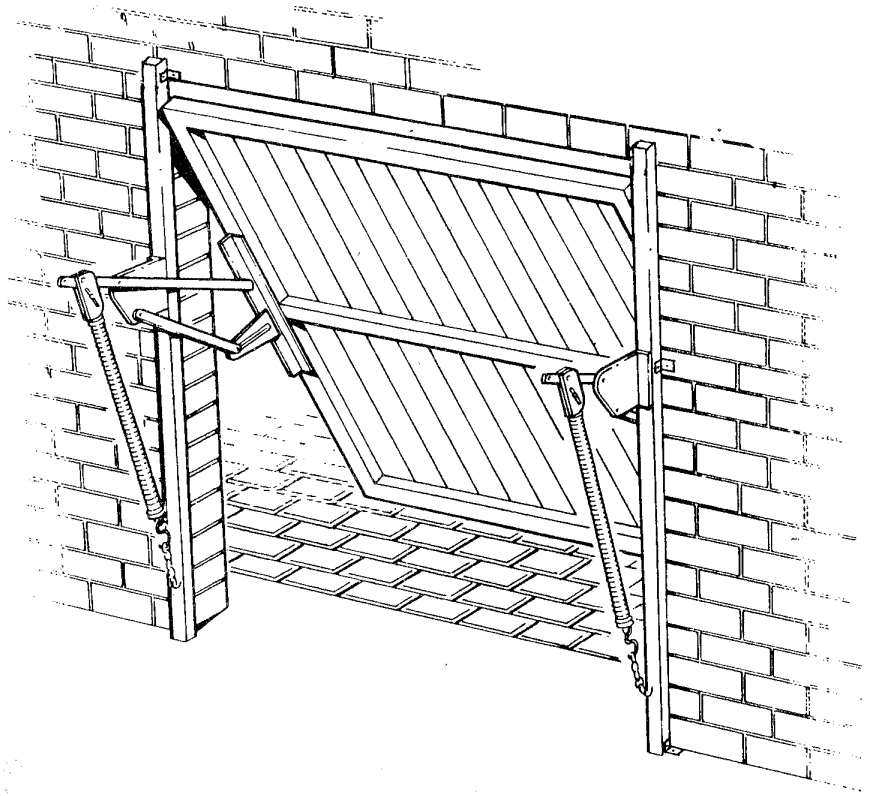
TIP-UP GARAGE DOOR SPRING SET



INSTALLATION GUIDE

INSTALLATION

The following instructions are intended as a guide for experienced installers for the correct location and fitment of the spring set. The installer must check that the structure to which the set is to be mounted is sufficient to support the mass of the door and hinge assembly as well as providing a suitable anchor for the lower end of the operating spring(s). Make sure that the maximum permissable door mass is not exceeded.

POSITIONING THE HINGE PLATE

i. Position the stiles in or behind the door opening, allow stiles to extend up to to 200mm beyond top of door for contra brackets.

ii. Calculate or measure the thickness of the door at its thickest point. Include mouldings, and rubber stop buffer, (item 7) in this measurement. To this measurement add 485 mm (19").

iii. Measure down each stile from the lintel/header the total obtained and mark these points. Check that the line between these points is level. If not level use the lower point and adjust the position of the higher point until it is level with the lower.

iv. Position each of the power plates against the door stiles, making sure that the top of each plate is at the marked point, and mark the position of the bolt holes on the stiles.

v. Remove the stiles and drill holes to fit the coach bolts (Item 25) for wood stiles). Countersink the bolt heads into the rear face of the stile making sure that a large washer (Item 24) is fitted under each bolt head before they are inserted into the holes. For metal stiles use standard steel bolts

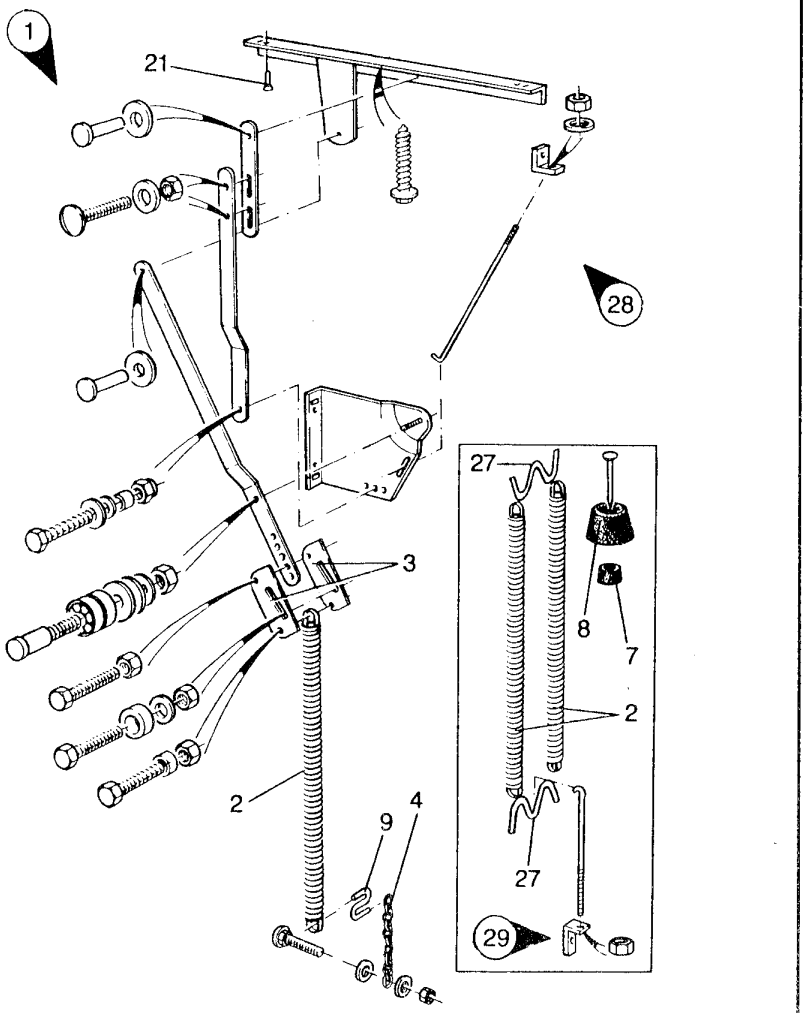
FITTING SPRING ANCHOR

Refer to the chart and mark the position of the lower spring anchor. Where a double spring is to be fitted (i.e. Double Width Door) attach the angle spring anchors (Item 29) to the stiles by bolting right through the stile from the reverse side. For a single door fix one end of the knotted chain length (Item 4) directly to the stile using a coach bolt (Item 25). Put a washer each side of the chain when installing the chain to the stile.

KIT PARTS LIST

ITEM No.	DESCRIPTION	PART No.	QTY
1	Hinges - Standard	7L	2
2	Tension Springs 710mm	28B	2
3	Kicker Plate Assembly	5L	2
4	Knotted Chains	7	2
5	Handle, Internal - Galv.	9G	1
6	Handle, External - Coated	9E	1
7	Rubber Stopper	10	2
8	Rubber Stoppers (Alphen Door)	11	2*
9	S hooks	19	2
10	Pull Down Cord	13	1
11	Wind Pin and Chain	14	1
12	Padbolt	15	1
13	Padbolt, Keep	16	1
14	Bracket, angle	17	*
15	Button Stoppers	18	2
16	Screws, Self Tapping 12x30 PH	39A	4
17	Woodscrew, Galv. 12x40 CSK	123G	2
18	Woodscrew, Galv. 8x25 CSK	120G	4
19	Woodscrew, Galv. 9x30 CSK	12G	3
20	Screws, Coach M8x50	40A	12
21	Nails 40mm	20A	11
22	Washer, Galv. 1/4"	190G	2
23	Washer, Galv. 3/8"	192G	12
24	Washer, Galv. 1/2"	193G	6
25	Nut/Bolt, Sq. Cup M10x75	177G	6
26	Nut/Bolt, Sq. Cup M6x90	177G	2
Additional for Double Door Set			
27	W hooks		4
28	Anti-sag truss & Bracket		2
29	Spring pull bolt & bracket		2
-2-	Tension Springs 710mm	28B	2
Optional Items			
	Lockset, Centre	21	1
	Timber Stiles	1	2
	Mounting Brackets	4L	6
	Wall Bolts	2	6

NOTE : When ordering spares please quote the **Part No.** not the Item No.



SPRING SET - TIP-UP GARAGE DOOR

FITTING THE STILES AND HINGE ASSEMBLY

With the three bolts inserted from behind, fix the stiles to the walls using the appropriate brackets and fixings. Make sure that the stile is vertical and that the line between the power plate "top" marks is level before fixing the stiles in position.

Once the stiles are in position fit the power plates to their mounting bolts and bolt up using a nut and washer, ensuring that the edge of each power plate is flush with the edge of the stile.

FITTING THE DOOR

Shim the door at the bottom so that it is correctly plumbed both vertically and horizontally with a gap of 13 mm (½.") at the bottom. Use shimming pieces to set the door central between the stiles. Slacken the bolts holding the steering arm to the mechanism so that they are finger tight. Fit the door to the angle iron brackets as follows:-

vi. Position the angle iron so that it is vertical and approximately 3mm in from the edge of the door.

vii. Mark the location of the angle fixing holes on the door and mark the approximate centre of the hole.

viii. Use a drill to drill pilot holes in the door, and fix the door to the angle iron using coach screws (Item 20). Make sure that washers are placed under the bolt heads before they are installed.

CAUTION

WITH THE DOOR CLOSED, TIGHTEN THE STEERING ARM BOLTS TIGHTLY BEFORE ATTEMPTING TO OPEN THE DOOR.

FITTING OPERATING SPRINGS

Check that the door is properly fitted to the angle iron brackets and that the power plates are bolted securely to the stiles. Check also that the steering arm bolts are tight and then open the door carefully to check that it does not bind in the frame or catch at the top.

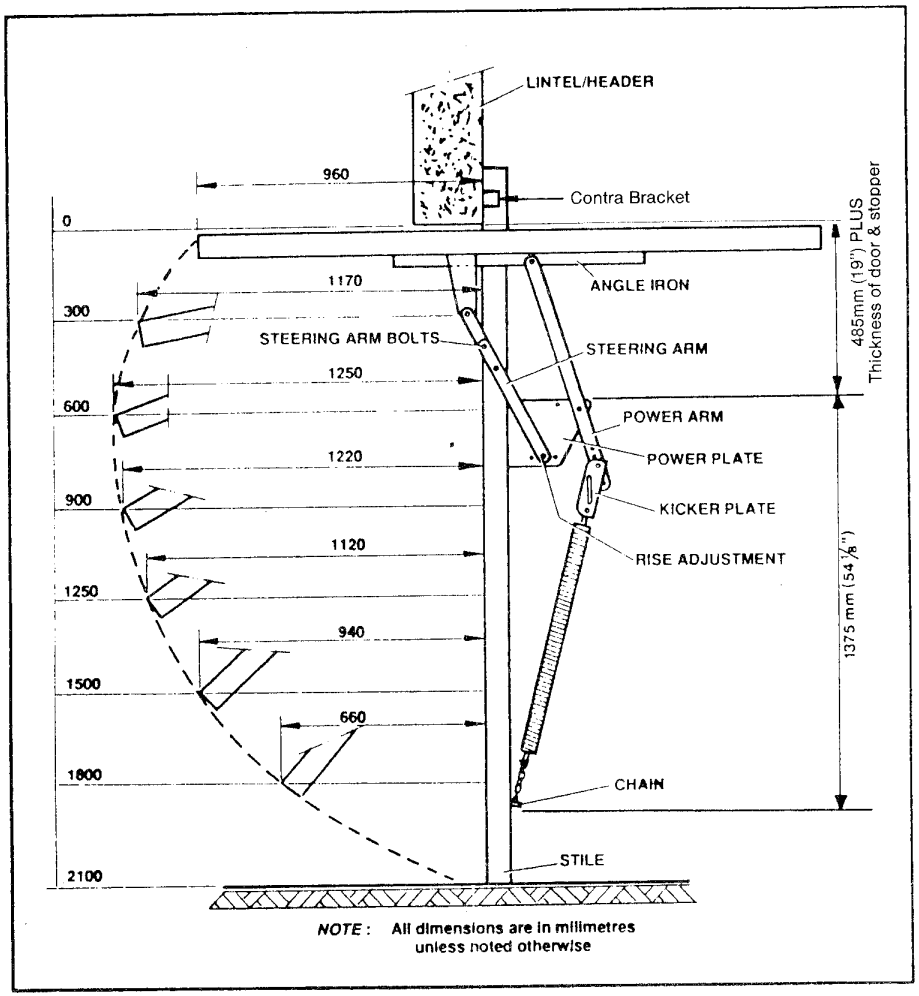
CAUTION

MAKE SURE THAT THE DOOR IS PROPPED SECURELY WHEN OPENED

OPERATING CLEARANCES AND SETTINGS

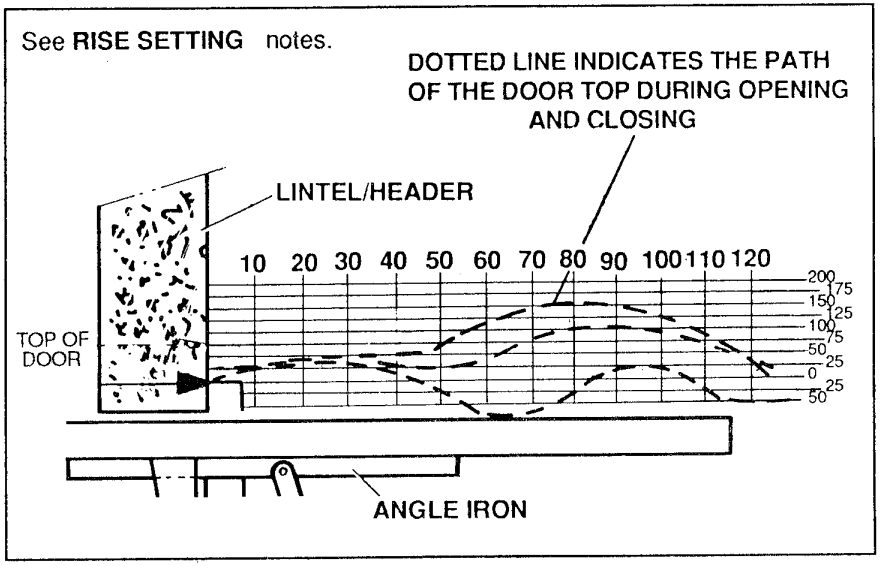
MODEL No. 485 - 7' STANDARD & HEAVY DUTY

MAXIMUM PERMISSABLE DOOR MASS
SINGLE = 70Kg (155lbs)
DOUBLE = 140 Kg (310lbs)



PATH OF DOOR BOTTOM DURING OPERATION

IMPORTANT: For automation of doors using this gear, the recommended minimum distance between the top of the door and the ceiling at the header is 250mm.



PATH OF DOOR TOP DURING OPERATION

NOTE: The above curves apply to a door 75mm thick. The curves of a thicker door would be higher by the amount that the thickness exceeds 75mm.

RISE SETTING

Position 1 - Normal Rise. Use with a minimum of 160 mm clearance above door top. Recommended for use with automatic operating gear, but note that the operator must not restrict the headroom to less than 160 mm.

Position 2 - Medium Rise. Use where overhead obstructions limit above door clearance is 130 mm.

Position 3 -Low Rise. Use where overhead obstructions limit above door clearance is between 50 mm. An absolute minimum clearance of 25mm may be obtained by hanging door directly under the lintel. Not recommended for use with automatic operating gear.