



manual window control installation & maintenance

HIGHLINE[®]
WINDOW CONTROLS

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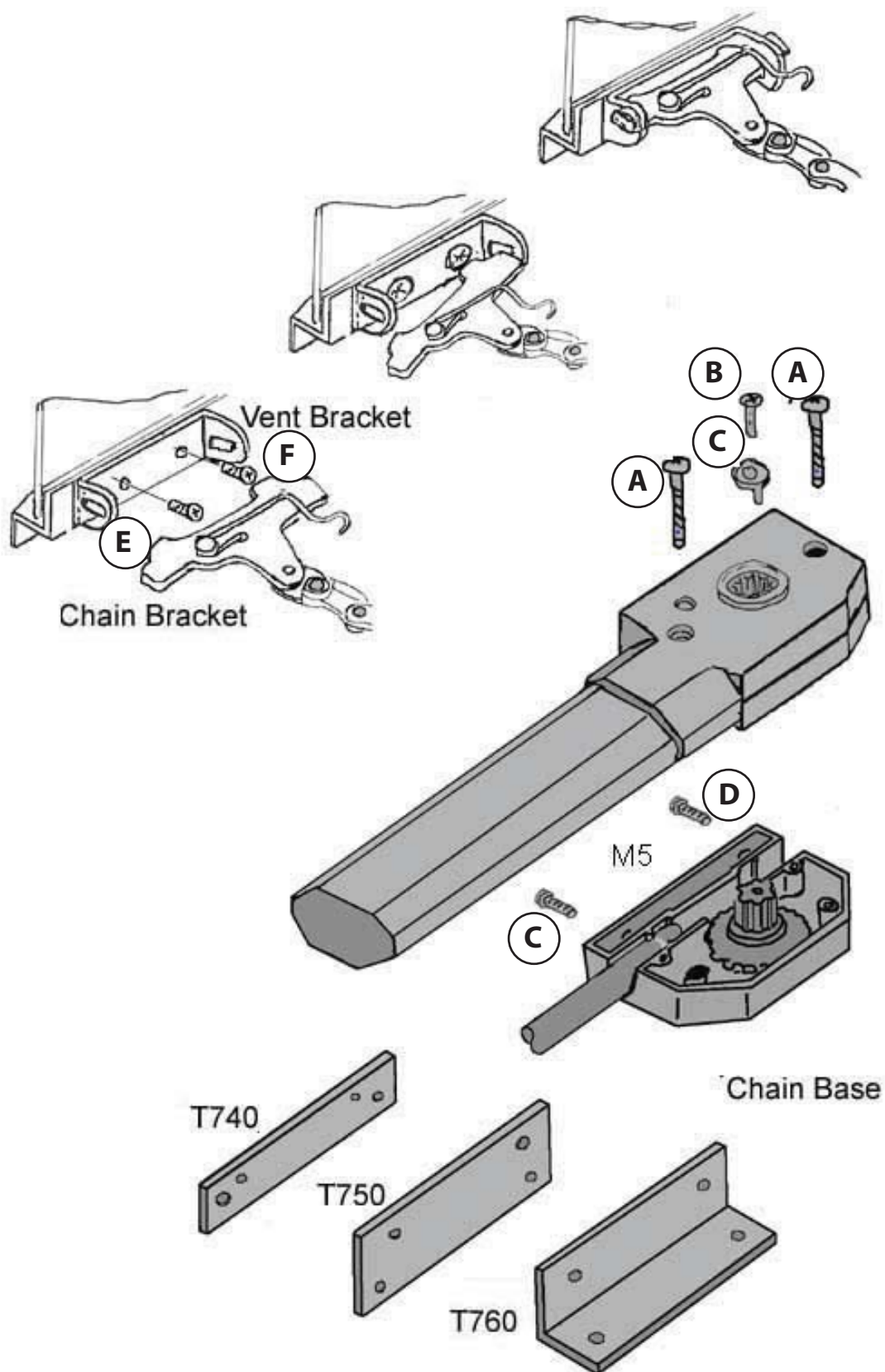
**WINDOW
WARE**
We've got it

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T100 & T150 CHAIN OPENERS

- 1** Fix the chain base to the vertical leg of the window frame with the 2no. M5 machine screws provided (D). Alternatively surface fix with the T740, T750 or T760 brackets (supplied separately) to aluminium, PVC-U or timber windows respectively or if fixing to a bottom-hung open in window, use the T850 bottom-hung fixing kit (see page 14).
- 2** Fit the vent bracket with the 2no. 12mm screws supplied (E) or use other screws appropriate to vent material. Be careful not to break the glass.
- 3** Unfasten screws (A) & (B) and remove the locking pin from the top of the chain opener. Remove the chain body from the chain base and put to one side with the screws and pin.
- 4** Locate the pre-prepared conduit into the collared slots on either side of the chain base (see T400 instructions for preparing conduit). A length of “spent travel” conduit must be fitted to the last chain opener.
SPENT TRAVEL CONDUIT:
300mm minimum for T100
450mm minimum for T150
- 5** Fix the chain body to the chain base with the 2no. 25mm machine screws (A). Do not replace screw (B) or locking pin (C) at this stage.
- 6** Wind the cable from the operator through the conduit and the chain base(s) ensuring that the cable moves freely through the conduit.
- 7** Cut the cable to length allowing an extra 280mm cable for T100 or 410mm for T150.
- 8** Push the vent open with your hand and attach the chain bracket to the vent bracket, Ensure the spring catch is secure.
- 9** Pull the vent tightly shut with your hand and insert the locking pin (C) into vacant slot on the keyway situated on top of the chain body. Open and close the vent with the operator to check compression of sash and frame. Repeat operation placing pin in adjacent slot should you require further adjustment. Finally fasten locking pin with the 1no. 12mm machine screw (B).



T250 & T260 MIDI OPERATORS

- 1** Decide upon the operator position, normally between 1200-1500mm from floor level, allowing at least 230mm from centre of operator to any obstructions for hand clearance.
- 2** To remove cover from body turn the bezel ring anti-clockwise and remove. Place steel backplate in position on wall or framework and mark fixing holes. Remove plate and drill the 3 holes, fit rawl plugs provided, fix backplate and gearbox to wall with the 3no. 37mm screws or use suitable alternative.
- 3** Unfasten the 2no. machine screws on the gearbox and lift off the top section. Locate the pre-prepared conduit into the collared recess in the gearbox base. Fit to right hand port for “pull” to open or left hand port for “push” to open action of cable on clockwise rotation of the handle.
- 4** Refit the top half of the gearbox over the conduit and fasten using the 2no. machine screws. Ensure that the groove in the conduit is located in the collar of the gearbox.
- 5** Complete installation of the conduit and window openers.
- 6** Feed the end of the cable into the bottom port of the gearbox directly below the conduit run. Place the handle on the spindle and wind the cable through the system until it appears out of the last chain opener. Wind out to show approximately 280mm (for T100) or 410mm (for T150) of cable.
- 7** Cut the cable directly below the gearbox. Wind down 100mm or so, file the end clean and screw on the brass stop (T720) – See Figure 1. Place cable and brass stop on anvil then hit on the top face of the brass stop with a centre punch and hammer to anchor the brass stop to the cable.
- 8** Fit the square conduit over the cable and brass stop and secure into the recess in gearbox and lay flat on backplate.
- 9** Replace the cover and fasten the collar and handle. Operate the system until the windows are closed tightly. Remove handle from spindle and refit in vertical position (Figure 2). Fasten handle to spindle with threaded pin provided in fixing pack.

Fig 2



Fig 1



T720 Brass Stop



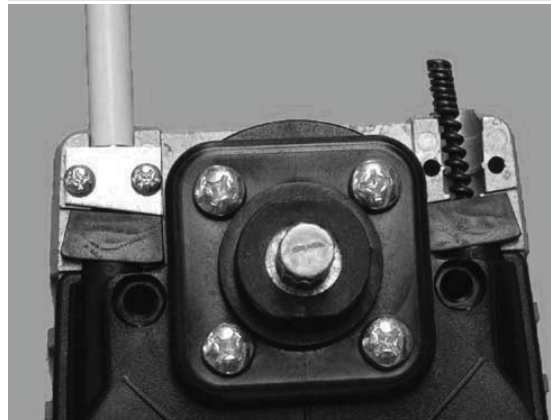
T210 MAXI OPERATOR

- 1** Decide upon operator position, normally 1.2 - 1.5m from floor level. Allowing at least 230mm from centre of operator to any obstructions for hand clearance.
- 2** To remove cover from body, turn the bezel ring anticlockwise and remove. Place operator in position and mark the fixing holes, and fix with screws provided (other screws maybe required depending on material fitted to).
- 3** Remove the conduit clamp on the side of the operator that will run to the chain openers/screwjack (the conduit can be assembled to either entry, the left-hand entry giving clockwise rotation of the handle with cable in tension (pushing), and insert pre-prepared conduit into collar and replace clamp, ensuring that the groove in the conduit remains on the collar.
- 4** Complete the installation of the rest of the conduit and vent units.
- 5** Feed the end of the cable into the vacant entry point until it reaches the cable wheel place the handle on to the operator and wind the cable until it appears out of the spent travel tube (length specified in chain opener/screwjack instructions) at the other end of the run. Wind back, until flush with end of the tube.
- 6** Cut the cable at the operator end where it enters with enough cable showing to fit a T700 spring stop (Fig 2) (Ensuring that after cutting you file the edges smooth).
- 7** Fit the spring stop.
- 8** Fit the spent travel conduit as in (3) to the vacant operator port this should be as long as the spent travel conduit specified with chain opener or screwjack opener.
- 9** Replace the cover and bezel ring.
- 10** Finally when the chain opener/screwjack is fitted and in the closed position fit the handle in the vertical position and secure with grub screw (Fig 3). To prevent misuse of windows the handle does not have to be secured with the grub screw and can be stored in a secure location.

Fig 1



Fig 2



T700 Spring Stop



T300 MINI OPERATOR

- 1** Decide upon operator position, normally between 1.2 - 1.5m from floor level. Allowing at least 230mm from centre of operator to any obstructions for hand clearance.
- 2** To remove cover from body, turn the bezel ring anticlockwise and remove. Place operator in position and mark the fixing holes, and fix with screws provided (other screws maybe required depending on material fitted to).
- 3** Remove the two machine screw holding the two halves of the body together and insert pre-prepared conduit into collar (the conduit can be assembled to either entry, the right-hand entry giving clockwise rotation of the handle with cable in tension (pulling) (repeat if both ports are been used) Replace the top half of the body.
- 4** Complete the installation of the rest of the conduit and vent units
- 5** Feed the end of the cable into vacant port below conduit until it reaches the cable wheel. Place the handle on to the operator and wind the cable until it appears out of the spent travel tube at the other end of the run. Wind back, to show approximately 280mm (for T100) or 410mm (for T150) of cable.
- 6** Cut the cable at the operator end where it enters with enough cable showing to fit a T700 spring stop.(fig 2)(ensuring that after cutting you file the edges smooth.
- 7** Fit the spring stop
- 8** A length of "spent travel" conduit must now be fitted below the operator (as above (3). Re assemble the body, ensuring that the grooves in the conduit remains on the collar.
- 9** Replace the cover and bezel ring.
- 10** Finally when the chain opener/screwjack is fitted and in the closed position fit the handle in the vertical position and secure with grub screw (Fig 1).To prevent misuse of windows the handle does not have to be secured with the grub screw and can be stored in a secure location

Fig 1



Fig 2



T700 Spring Stop



T400 CONDUIT

- 1** The T400 conduit is provided in 3-metre lengths. Care should be taken to work out the best route from the operator to the chain opener/screwjack to avoid unnecessary bends and to plan any joins. If possible joins should not be adjacent to bends.
- 2** It is always best to form any bends that are needed before cutting to size and this should be done with the aid of the T950 Bending Tool as this prevents you from over bending the conduit (maximum radius to allow the cable to move freely is 90mm).
- 3** Once the conduit has been bent it can be cut to size ensuring any rough edges are filed smooth and any internal burrs are removed.
- 4** Remove approximately 20mm of the inner nylon liner from each end; this can be done with an 8mm drill bit.
- 5** Remove 15mm of the plastic outer from each end of the conduit (Fig 1).
- 6** Using T900 Conduit Tool ream a groove in the end of the conduit (Fig 2) to enable it to sit firmly in the collar of the operator or opener. The groove formed ensures that the conduit is clamped firmly into the chain opener or operator, preventing it from pulling out or become loose.
- 7** If two pieces of conduit are to be joined prepare each end as above and fix together with a T800 conduit connector (Fig 3).
- 8** A saddle (T600, T620 or T650) should be fitted at about 1m intervals on any run of conduit, one should also be fitted at the end of a piece of spent travel conduit (see spent travel example).
- 9** Finally a T420 End Plug should be fitted to all expose ends of the conduit.

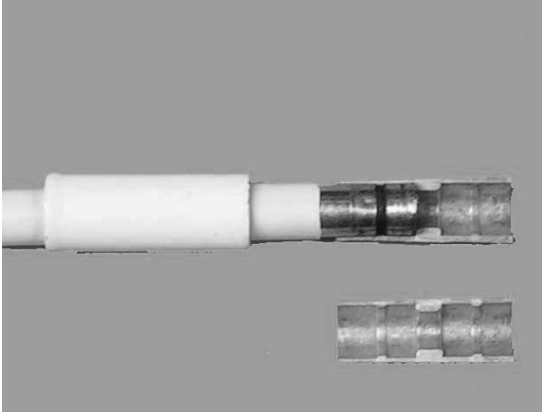
Fig 1



Fig 2



Fig 3



Spent Travel



T900 Conduit Tool

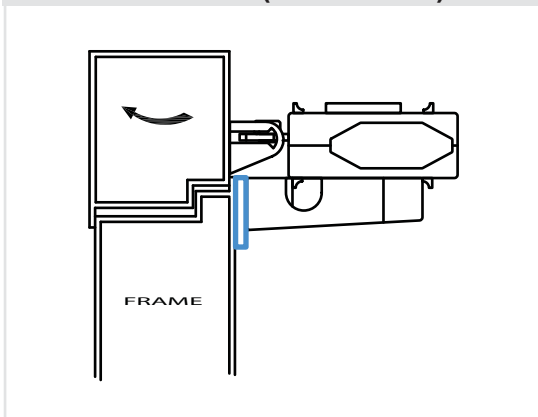


T950 Bending Tool

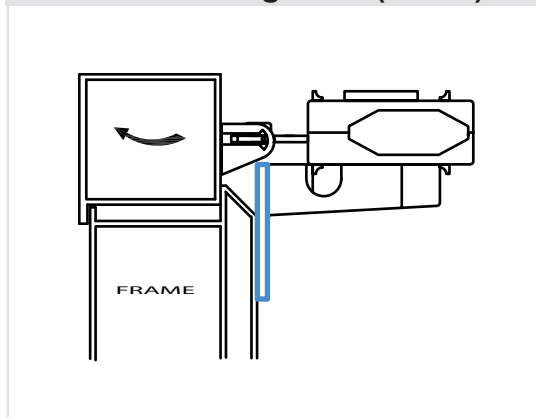


FIXING PLATES

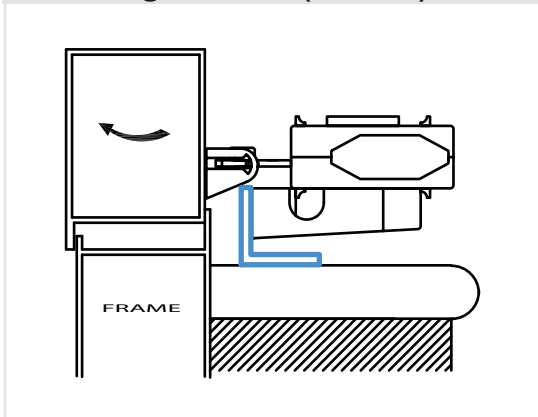
T740 Thin Plate (Aluminium)



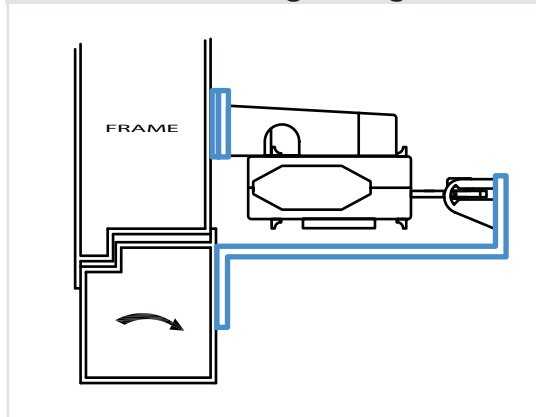
T750 Wide Fixing Plate (UPVC)



T760 Angled Plate (Timber)



T850 Bottom Hung Fixing Kit



TOP TIPS



The T700 spring stop (supplied with T210 and T300) can be used to prevent the operator from “over-winding” causing the inner cable to disappear into the conduit.



The T720 brass stop (supplied with T250 and T260) fixing pack also prevents this “over-winding” effect.



Ensure the inner cable ends are de-burred allowing the spring stop and brass stop to be positioned on the end of the cable (turn anti-clockwise onto the end of the cable).



The T260 Midi Operator is designed to be used with the T150 Chain Opener to provide a 380mm opening.



To prevent misuse of windows the handle does not have to be secured with the threaded pin and can be stored in a secure location for authorised use only.

MAINTENANCE

To ensure the longevity of the chain opener and operator it is recommended to perform the following every 2 years:



Check fixings and fastenings and tighten if necessary.



Cycle of movement (approx 3 open and close cycles) to check the chain opener and operator is performing correctly without obstruction.



Wipe the chain opener and extended chain with a cloth to remove any dust/dirt build up.



Lubricate both chain opener and operator (cog) with a *very light* lubricant (such as WD40).

available from



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