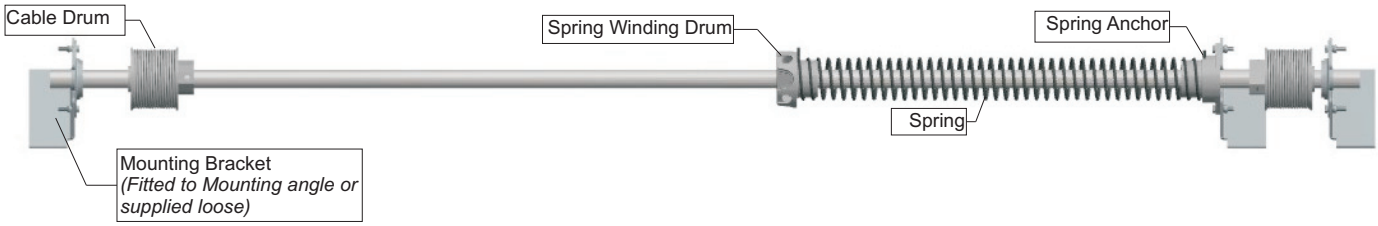
SINGLE SPRING FITTING APPENDIX

The following instructions are for installing the single spring balancer and are for maintenance men & fitters who service and fit up and over roller shutter doors.
These directions are designed for a single torsion spring mounted to a single bracket above the shutter door.

Your balancer assembly should look simular to the picture below.



1 Getting Started: SAFETY FIRST!

Before getting started on the replacement, it is essential that we begin these instructions with our sternest warning:

CAUTION! Fitting/replacing a roller shutter door torsion spring is dangerous because the springs are under tension. If you do not use the right tools and follow safe procedures, you could lose hands, limbs or even your life. You could also damage the vehicle. Doing the job right is your responsibility. If you have any doubts about your ability to safely fit or change your springs, we recommend you consult a professional to install the spring. Safety First! Then work.

2.1 Two important assumptions will help you execute this replacement safely. First, assume that the springs are going to break as you unwind or wind them. To avoid injury, clutch the bars firmly on the ends furthest away from the cones and stand securely on a sturdy ladder, not on chairs or cans turned upside down. Keep clothes and body parts away from the springs. Wear safety glasses.

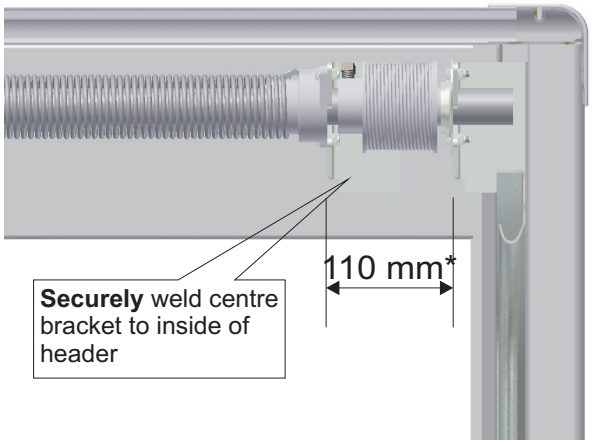
2.2 Second, assume that the cone will slip or explode as you unwind and wind the spring. Keep your head out of the path of the winding cone. Keep your hands away from the cones so that if and when the winding bar slips out of the cone and your hand jerks up, the cone doesn't rip your flesh or wrap your clothes and body parts into the spring.

2 CENTER BRACKET & BALANCER INSTALLATION

Remove bracket from balancer assembly
(If end brackets are not fixed to mounting angles, position the end brackets as high as possible behind the header)
Align 'centre' brackets with outer brackets and position 110mm *(min depending on spring length*)* from near side bracket.
It is important that all 3 balancer brackets are aligned and flush with each other.
Weld or bolt brackets on inside of header or a suitable plate fixed to header.

! CAUTION

This bracket takes the full load of the spring torque and must be securely fixed and tested.



*The anchor bracket should be positioned as close to the balancer centre as the spring length allows.
Note: Spring length plus a stretch allowance of 100mm (min) should be allowed for spring tensioning

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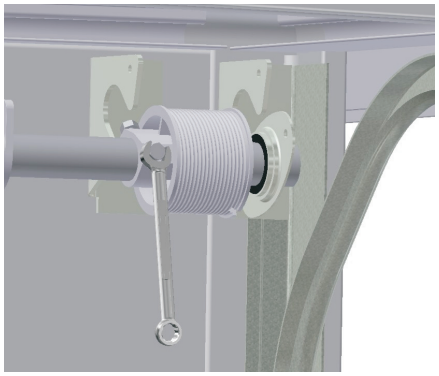
2a CENTER BRACKET & BALANCER INSTALLATION (cont'd)



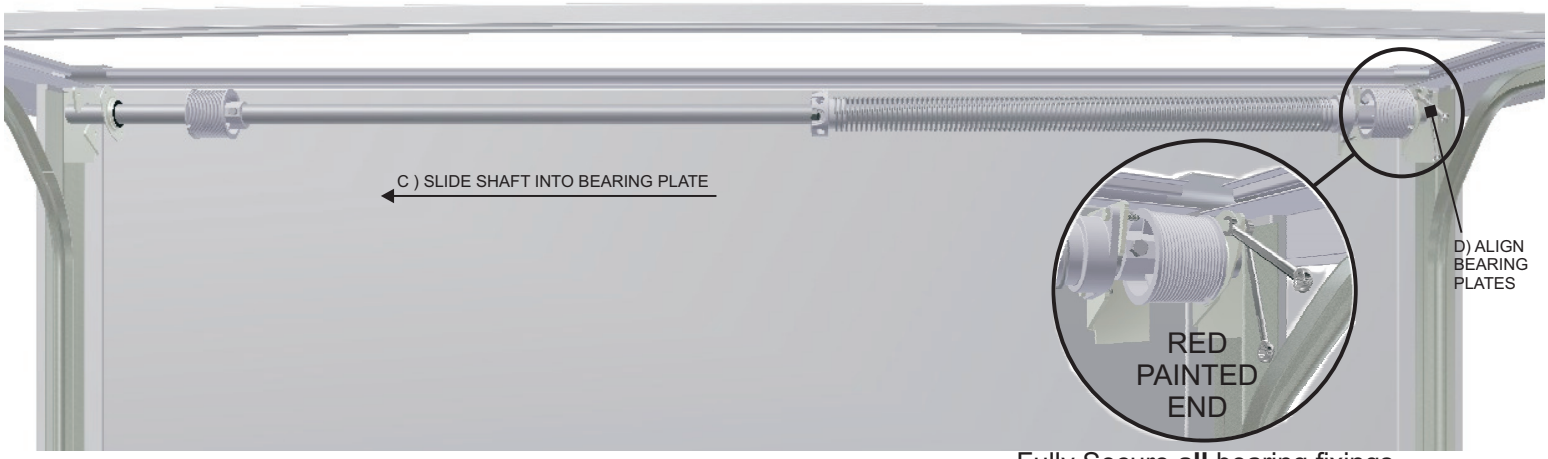
A) Mount balancer to brackets by removing the nearside bearing plate from the mounting bracket *(retain fixings)* . Leave the bearing assemblies on the balancer shaft in the relevant positions.

B)Loosen set screws on both cable drums.

C) Slide balancer shaft through offside bearing plate.

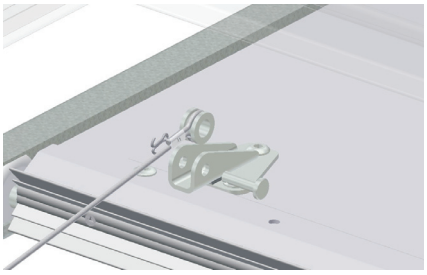
D) Align the spring anchor casting and nearside bearing plates to the relevant mounting brackets and secure in place using fixings previously removed .

Note. For reference mount the **red painted end** of balancer drum into **nearside** bracket

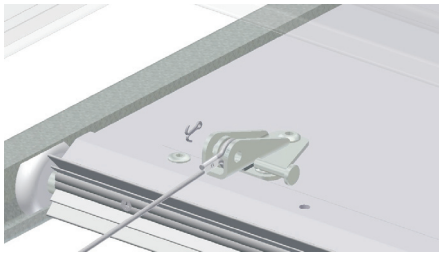


Fully Secure **all** bearing fixings and torque to 6N/m.

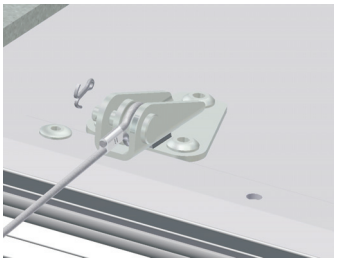
3 CONNECT CABLES TO SHUTTER



Starting on the left hand side (Nearside).
Insert the thimble end of the cable into anchor bracket on front of shutter.



Retain in place with cotter pin

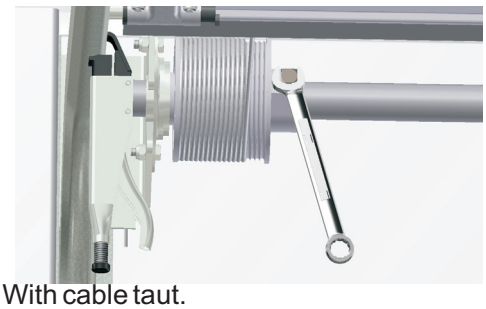


Retain cotter pin with split pin

Repeat for other cable

4 FIT CABLES TO BALANCER

Slacken off cable drum set screws.
Insert nipple end of cable into slot on drum.
Wind cable on to drum following grooves until cable is taut.
It is important that end of cable is inserted fully into notch. If this is not done properly, it could interfere with drum movement.



With cable taut.
Push cable drum up to bearing.
Secure in place with set screws.
*****Ensure drum is securely fixed as this will take the balancer tension & weight of shutter*****
Shaft must extend completely through bearings, an equal amount on each side, the shaft ends should not be in contact with the side walls

Before winding cable onto other drum.
Place a pair of mole grips onto balancer shaft to prevent cable from unwinding.
Repeat on other drum.

TORQUE SETTINGS
Balancer set screws
20N/m *(Mild Steel Shaft)*
27 N/m *(Stainless steel Shaft)*

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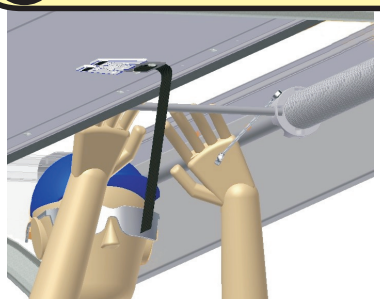
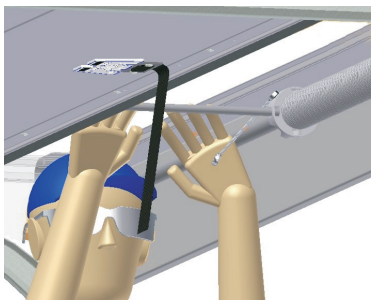
5 PRE-TENSION BALANCER



Slacken the two square head bolts in spring torque casting.

Using the holes in spring torque casting & two tommy bars in a upwards direction add 3 to 4 turns.
Now pull and stretch the spring by minimum of 101mm (4")
(to allow for spring expansion during operation)



While holding the tension with a tommy bar.
Re-tighten the two set screws in spring torque casting and remove the mole grip clamps on shaft.
Carefully remove tommy bar

Shutter is now pre-tensioned.

Remove the two clamps from the horizontal tracks to allow the shutter to enter the radius.
Be aware the shutter will rebound down to normal open position.

Pull shutter into vertical tracks all the way down to the sill (as the shutter is pull closed tension is added to the balancer)

6 CONTINUING TO BUILD SHUTTER

Return to original instructions and continue to build shutter.