LCN CLOSERS - IMPORTANT NOTES ON ADJUSTMENT

Summary –

All LCN door closers have a minimum of 3 regulating (hydraulic) valves and a separate spring power adjustment where the closer is not a fixed power size. All closer mechanisms equipped with a 'delay action' feature will have an additional 4th valve. The 4040XP and 4041 mechanisms include a 5th valve on the reverse side of the mechanism which must be screwed in fully when the closer is to be fixed in the parallel arm (fig. 6) application, otherwise ignore this valve.

It is important to understand, in general terms, that the spring power setting only will give you the necessary ability to close the door into the frame (you can increase spring power with a simple Allen key adjustment). Once you are happy with this adjustment you should then fine tune the hydraulic settings which will control speeds over the opening and closing arcs. Increasing the closing speed (and ignoring power adjustment) will not solve potential problems so far as closing is concerned. Final adjustment (upon installation) takes time to achieve but with a little patience will result in a solution which closes the door correctly and quietly on each occasion. You will never need to return to the closer.

The recommended closing time provided by a properly adjusted door closer is between 5 – 7 seconds from 90° open to fully closed.

Detailed Adjustment Routine -

When you are happy the closer is installed in accordance with the template and the closer arm has the necessary pre-load (see installation instructions), make adjustments below (in this order) as required:

Spring Power Adjustment*, is located on the end of the spring tube (5/32 Allen key). It is used to adjust the spring's power (force to close the door). Clockwise adjustment gives the closer more closing power and makes the door harder to open. Anti-clockwise adjustment gives the closer reduced closing power and makes the door easier to open.

Closers are designed to control doors in calm conditions. Where air pressure differentials are present (for example at stairwells and hospital theatre doors) and where doors open into relatively small spaces you must consider combining a number of available options. These include; increasing the available spring power, installing closers at the minimum angle template setting and adding ventilation either on or immediately adjacent to doors**.

Note 1 - Parallel arm applications are best avoided where optimum power and control is required.

Note 2 - No amount of adjustment or repositioning of closers will provide the necessary power to overcome strong winds at perimeter doors. You must allow winds to abate before expecting a mechanical overhead closer to perform correctly. Similarly, opening windows and doors in connected areas throughout a building will affect a closer's performance. This is unavoidable.

For outward opening perimeter doors in exposed conditions always add the Cush-N-Stop arm and adjust the back check valve (see below) to protect doors and frames.

(*Universal, power adjustable closers only – excludes 2000 series, 3000 series and 4016/4116 closers) (**extreme situations only)

The **Back Check Valve**, (valve #1 - see the instructions) controls the back check intensity (3/32 Allen key). Use the back check feature to protect the door, frame and closing mechanism. Back check slows the door during the opening arc; should it be thrown open or should the wind catch the door and blow it open. If you need to make the back check a little more responsive, turn the valve clockwise - this will give you a stronger back check. Turning the valve anti-clockwise will give you a weaker back check.

Back check must not be relied upon to stop the door. For parallel arm installations the Cush-N-Stop feature can be used for dead stop angles between 85-110° from closed. For other mounting applications always use a wall mounted or floor mounted stop.

The **Main Speed Valve**, (valve #2 - see the instructions) controls the main closing speed of the door (3/32 Allen key). This area is measured from the door's widest open position down to 15° from closed – at which point the latch action (see below) takes over. Turning the valve clockwise will reduce the door's closing speed. Turning the valve anti-clockwise will increase the door's closing speed.

The **Latch Speed Valve**, (valve #3 – see the instructions) controls the latching action of the door (3/32 Allen key). The latching action is the final 15° of closing – as the door returns to the frame/stop. Turning the valve clockwise will reduce the door's speed to ensure it closes quietly into the frame without slamming. Turning the valve anti-clockwise will increase the door's speed adding additional momentum where required – perhaps to overcome a stubborn latch or tightly fitting seal.

The **Delay Action Valve**, (valve #4 – see the instructions) controls delay time on closers so equipped (3/32 Allen key or flat blade screw driver depending on closer series and age).

A properly adjusted delay action closer will slow the door's closing markedly. Turning the delay action valve clockwise will extend the closing time to a maximum of approximately 50 seconds. Turning the valve anti-clockwise will reduce this delay. There will be no discernible delay if the valve is fully open. Please note. The delay position is dictated by the installation position.

1. Delay action closers installed to a 180° template provide delayed action when the door is opened past approximately 95° - the delay feature is effective from approximately 120° to 90° from closed.
2. Delay action closers installed to a 90° template provide delayed action when the door is opened past approximately 70° - the delay feature is effective from approximately 90° to 70° from closed.

The spring power setting will affect how much delay time can be achieved. The weaker the spring power the more delay you can achieve. Closers set to a power size 5 or 6 will provide minimal to zero delay time.

Note 3 - During the delay cycle the door does not stay in one position – it will creep slowly at a speed dictated by a combination of the template position, spring power setting and delay action adjustment valve status.

See 'Appendix 1' for more on delay action closers.

Important –

Correctly specified LCN door closers – i.e. those installed on doors (in calm conditions) where size and weight parameters do not exceed recommended maximums - will be capable of closing doors in a safe and controlled manner if adjusted correctly. If the closer's spring is not sufficiently powerful to close the door **do not** be tempted to 'over adjust' speed control valves (valves #2 & #3) to address the problem. Valves which are backed out to the end of their thread will be dangerously close to 'popping' their seal during an opening or closing arc. Hydraulic fluid will gush from the mechanism and the closer will be a write-off. Warranty does not cover incorrectly specified and/or adjusted door closers.

Where there remains any doubt over suitability and/or correct adjustment methods please contact Relcross Door Controls. We will be pleased to assist wherever possible.

Note 4 - To adjust any LCN door closer to its Factory Default Setting - turn all adjustment valves (back check, main speed, and latch speed valves) fully clockwise and then back out 1.1/2 turns anti-clockwise.

Note 5 - If the spring force adjustment is set to the very minimum force on 1260 series closers, the internal spring adjustment plate may rest in a safety area of the threaded spring adjustment rod. To address this, open the door to approximately 30° to engage the closer spring and turn the power adjustment screw approximately 6 full turns clockwise.

For full installation and adjustment instructions on your particular closer model (including templates) see Installation Instructions here.

Appendix – 1

Delay Action Performance & Fire Certification

Any 'Delay Action' closer (if it has appropriate fire certification) can be used on a fire door if the 'Delay Action' setting is adjusted in accordance with BS EN 1154: Any incorporated delayed action function shall be capable of adjustment to less than 25 seconds between the door closing angles of 120° and the end of the delay zone.

However, there is no LCN Closers rack & pinion closer incorporating a double lever arm, which conforms. This is due to inconsistencies in tolerances between piston & bore and ball valves in ports which produce varying times on the delay. The only closer types capable of meeting the requirements of the test consistently are cam action closers – examples with full certification include the Briton 2700 Series.

Without the 'Delay Action' compliance you cannot claim CE/UKCA Certification of the 'Delay Action' feature, which is why you will find all DoPs (Declaration of Performance) for rack & pinion closers have 'N/A' (not applicable), or similar, against that particular section. This does not mean that closers listed in this manner are not CE/UKCA marked – but it does mean the 'Delay Action' feature is not included in the available features or in the certification.