



The 760 Gate Automation System

The FAAC 760 automation system consists of a monoblock hydraulic unit and foundation box assembly. The system is designed for underground installation, and will not alter the appearance of the gate.

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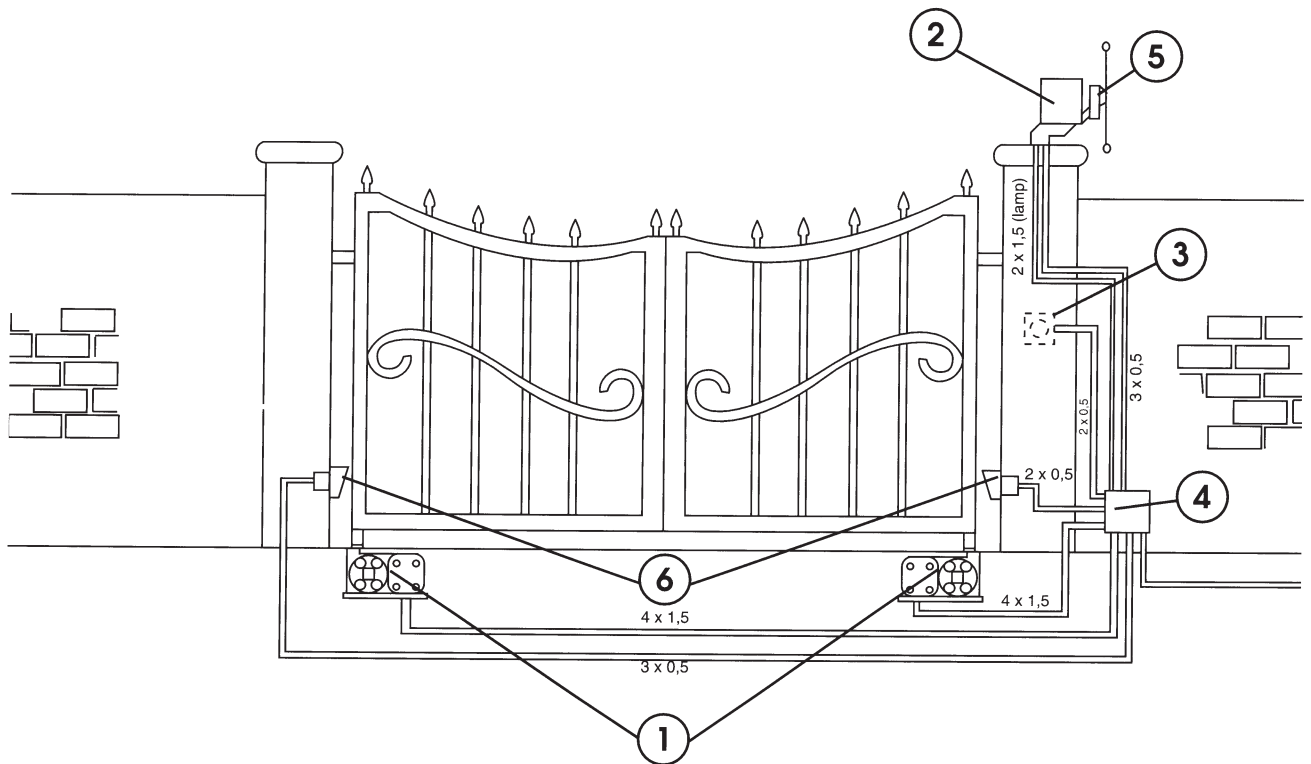
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General Safety Standards

- **Read the instructions carefully** before installing the gate automation system. Keep these instructions for future reference.
- Installation, electrical wiring and adjustments must be carried out in compliance with current safety standards.
- FAAC cannot be held responsible for failure to observe technical standards in the construction of gates, or for any deformation of the gates which may occur during use.
- Before installing the gate automation system, make all necessary structural modifications to ensure safety clearances, and for the protection and/or isolation of all cutting, entrapment, and crushing areas.
- This equipment should be defined only to the use for which it has been expressly conceived (all equipment), any other use should be considered improper and therefore dangerous. The manufacturer cannot be held responsible for eventual damage caused by improper, incorrect and unreasonable use.
- Do not use this device in areas subject to explosion: the presence of flammable gases or fumes is a serious hazard.
- Before carrying out any cleaning or maintenance operations, unplug the equipment from the electrical supply network either by removing the plug or by turning off the system's main switch.
- An isolation switch should be provided for the installation according to by current safety regulations with an opening distance of 3 mm or more on the part of the contacts. Alternatively, use a 6A thermo-magnetic breaker with multi-pole switching.
- Ensure that there is a differential switch up-line of the electrical system, with a trip threshold of 0.03A.
- Check that the earthing plant is in perfect condition and connect it to the gate frame. Also earth the yellow/green wire of the operator.
- The end-user must avoid any attempt to repair or adjust the automation system; these operations must be carried out exclusively by qualified personnel.
- Use only FAAC original spare parts for maintenance operations.
- Do not carry out any modifications to automation components.
- Packaging material (plastic, polystyrene etc.) is a potential hazard and must be kept out of reach of children
- The installer must supply all information regarding manual operation of the system in the event of an emergency and provide the end-user with the leaflet attached to the product.
- The operator is fitted with an anti-crush safety system, this is a torque control device which guarantees ultimate safety and reliability if properly adjusted
- In any event, FAAC always recommends the installation of other safety devices, taking into consideration current safety standards, installation site, system operation logics, dimensions and weight of the gate.
- The safety devices (e.g photocells, safety edges, etc.) will protect the crushing and entrapment areas and general potential hazard areas of the automation.
- Each installation must be fitted with at least one flashing light (e.g. FAAC LAMP, MINILAMP etc.) as well as a warning plate suitably fixed to the gate.
- FAAC UK Ltd. accepts no responsibility for damage or injury resulting from the incorrect use of this gate automation system.



1. 760 Typical Installation Schematic



- | | | |
|-------------------------|--|---------------|
| ① FAAC 760 | 2 x Operators 760 CBAC CR | (106770) |
| ② FAAC LAMP | 2 x Leaf foundation boxes | (490062) |
| | 2 x Manual release | (418137) |
| | 1 x Electronic control unit 450 MPS | (790902) |
| | 1 x Control box container | (720118) |
| ③ FAAC T10 keyswitch | 1 x 418mhz receiver | (IRM418) |
| | 1 x MINIDEC decoder | (IMINIDECSL) |
| ④ FAAC 450 MPS | 1 x 418 mhz transmitter | (ITI418) |
| | 1 x FAAC LAMP | (410001) |
| | 1 x pair of Photocells | (IPHOTORELAY) |
| ⑤ FAAC 418 mhz receiver | 2 x Photocell support posts | (722214) |
| ⑥ FAAC Photocells | 2 x Photocell support post foundation plates | (737621) |
| | 1 x Keyswitch T10 | (401010) |
| | 1 x Plastic boxes | (720086) |



2. Technical Specifications

Table 1

MODEL	CR VERSIONS (with deceleration) Fig.2			SR VERSIONS (without deceleration) Fig.1		
	760 CBAC	760 SB	760 SBS	760 CBAC	760 SB	760 SBS
Power supply	220 V +6% -10% 50 / 60 Hz					
Absorbed power	220 W					
Current drawn	1 A		0,8 A		1 A	
Electric motor	4 poles 1400 rpm		6 poles 960 rpm		4 poles 1400 rpm	
Starting capacitor	8 µF		8 µF		8 µF	
Power cable length	1,8 m					
Thermal cut out	120 °C (on winding)					
Duty cycle	See section 3.1 below					
Quantity of oil	1,2 litres					
Type of oil	FAAC OIL XD 220					
Operating temperature range	- 25 °C to 70 °C					
Housing protection	IP 67					
Weight of operator	13 Kg					
Pump delivery	0,75 l/min		0,5 l/min		0,75 l/min	
Max. operating pressure	60 bar		30 bar		60 bar	
Max. length per leaf	2 m	3 m	4 m	2 m	3 m	4 m
Max. weight per leaf	800 Kg					
Max. torque	543 Nm		272 Nm		543 Nm	
Angular speed	0,13 rad/sec		0,09 rad/sec		0,13 rad/sec	
Max. opening angle	148 °			162 °		
Deceleration start angle	10 °			not applicable		
Deceleration ramp	adjustable			not applicable		



3. Description and Technical Specifications

- 1 – Bleed screw
- 2 – By-pass valves
- 3 – Release device
- 4 – Release lock (optional accessory)
- 5 – Oil filler plug
- 6 – Mechanical travel stop adjusting screw
- 7 – Deceleration ramp adjusting screw

Fig. 1

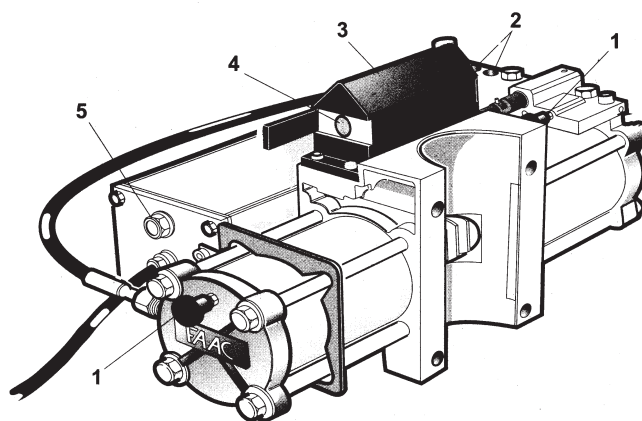
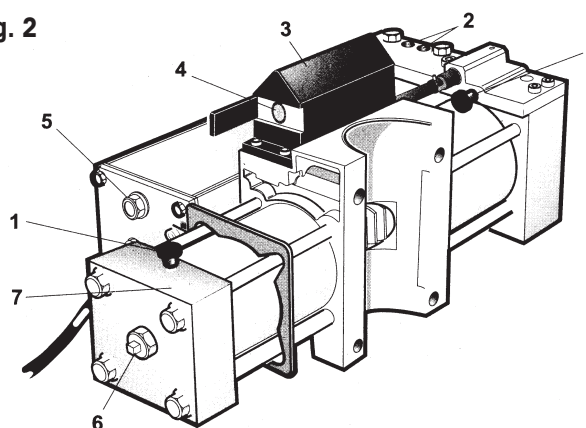


Fig. 2



3.1 Maximum duty cycle curve

The curve makes it possible to determine maximum operating time (T) on the basis of duty cycle (F).

For example, 760 CBAC/SB operators can run continuously at a duty cycle of 60%. To ensure smooth running, operation should be kept within the area below the duty cycle curve.

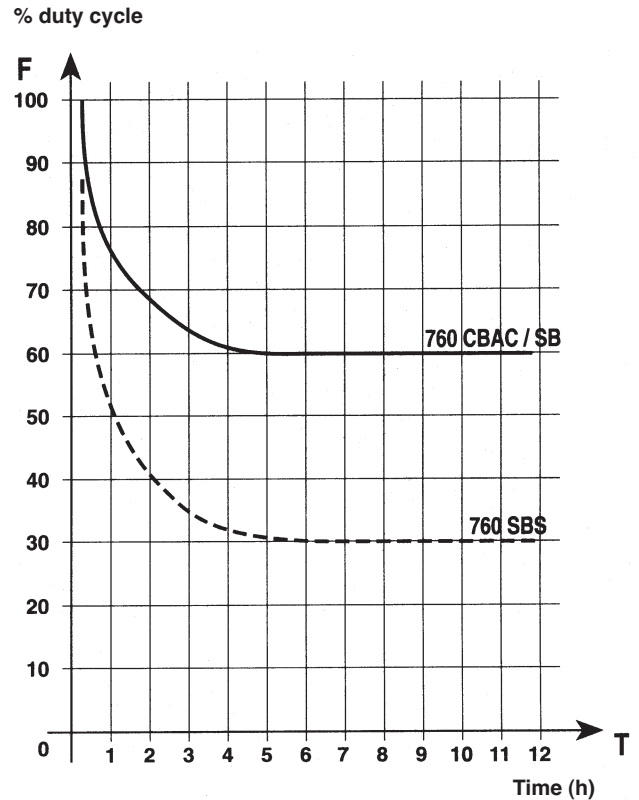
Important Note: The curve has been plotted for operation at 24 °C. Allow a reduction of up to 20% in the duty cycle at higher ambient temperatures.

Calculating the Duty Cycle

The duty cycle is the percentage of actual operating time (opening and closing) compared with total cycle time (opening + closing + stationary + internal).

$$\%F = \frac{TA + TC}{TA + TC + TP + TI} \times 100$$

- TA : opening time
- TC : closing time
- TP : stationary time
- TI : length of interval between one complete cycle and the next



Important Notes:

Read these instructions carefully before installing the gate automation system. Keep these instructions for future reference.

Installation and electrical wiring must conform to current standards.

Switch off power supply before performing any work on the electronic control unit.

Install a **10 A** thermal-magnetic differential switch with **0.03 A** trip threshold up-line from the electrical system.

FAAC accepts no responsibility for damage or injury resulting from the incorrect use of this gate automation system.



4. Installation

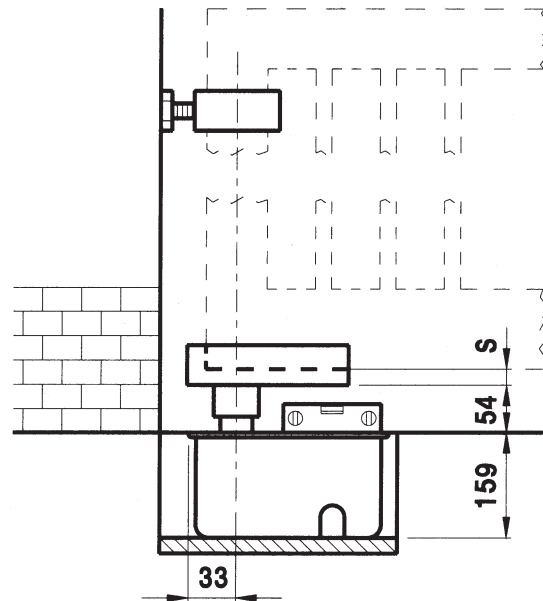
4.1 Preliminary Checks

To ensure trouble-free operation, make sure that the gate (whether existing or yet to be installed) are within following specifications:

- max. weight of single leaf 800 Kg
- max. length of single gate leaf 4 m (see table 1)
- strong and rigid leaf frame
- smooth gate movement
- min. clearance between bottom edge of gate and ground as in fig. 6/a (where 's' = thickness of guide bracket)
- mechanical travel stops.

If any welding or brazing has to be done on the gate, do this before installing the automation system.

Fig. 6/a



4.2 Installation of leaf supporting foundation box (fig.3)

Proceed as instructed below:

- Existing gate with fixed hinges**
 - Remove the gate.
 - Remove the bottom hinge.

If the gate cannot be removed, place blocks under its bottom edge to support it.
- Existing gate with adjustable hinges**
 - Remove the bottom hinge.
 - Slacken off the top hinge.
 - Swing the leaf around the axis of the top hinge (fig. 4).
- New gate to be installed**
 - Fit just the top hinge. If possible use an adjustable hinge.

Fig. 3

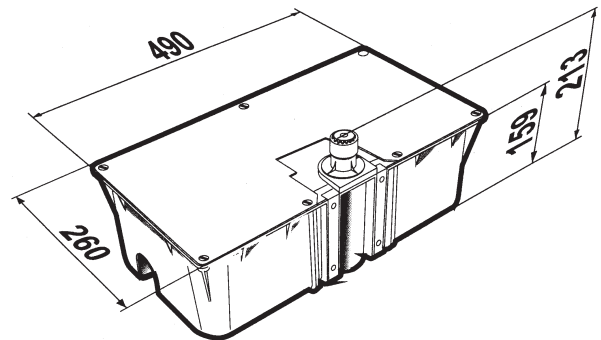
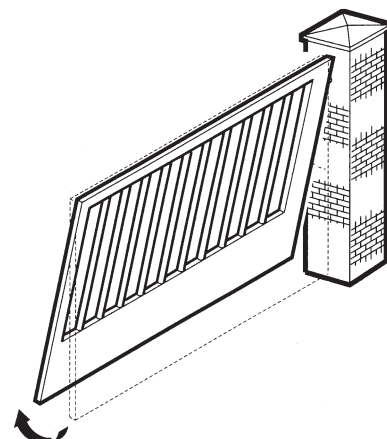


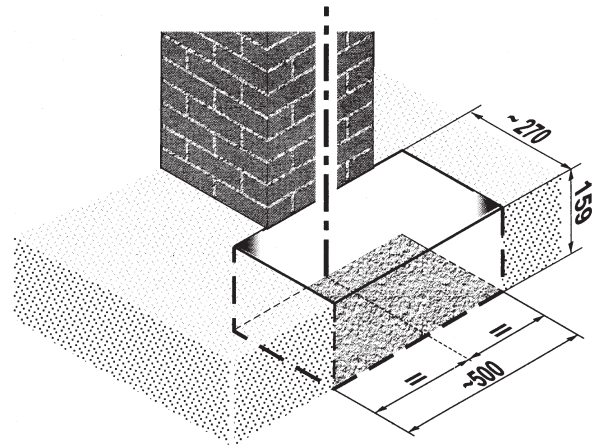
Fig. 4



1. Dig out a hole for the foundation box as shown in fig. 5.

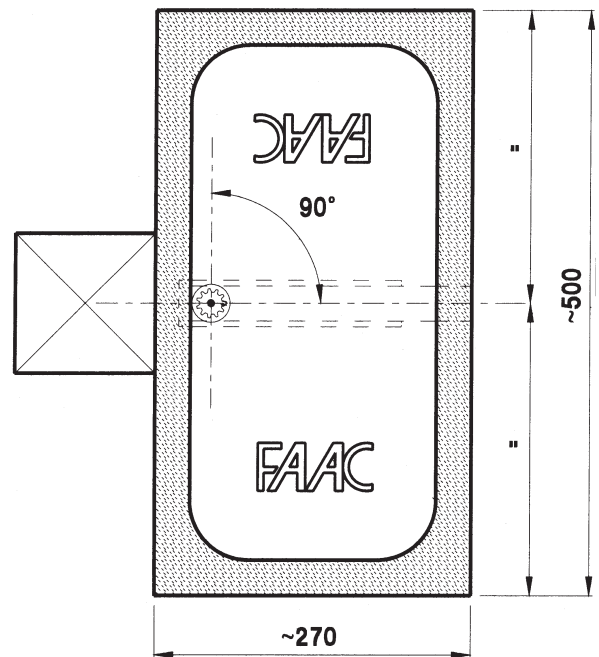
N.B.: Depending on the nature of the ground, it may be necessary to cast a bed of quick-setting concrete at the bottom of the hole to avoid subsidence in future.

Fig. 5



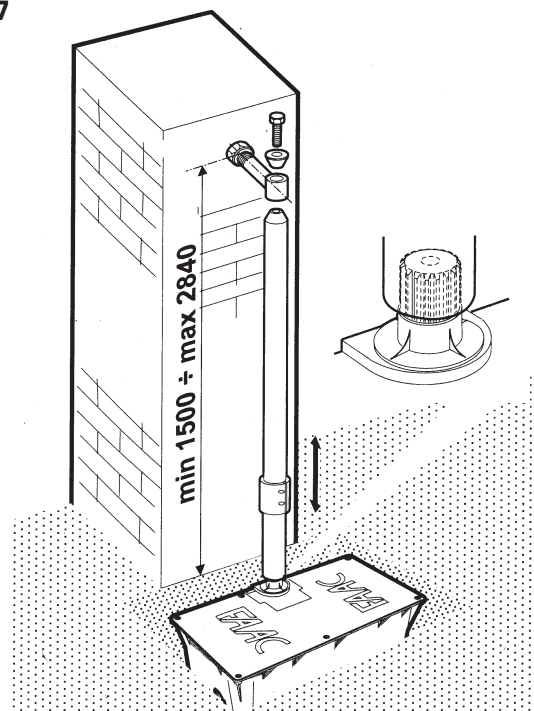
2. Insert the base box in the hole, fig. 6 a/b. The centre of the pinion must be perfectly aligned with the leaf's axis of swing.

Fig. 6/b



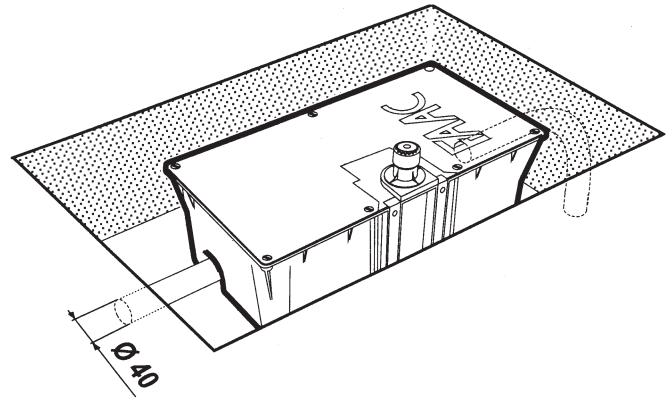
N.B.: A telescopic rod is available as an accessory. This can be used to align the base box and top hinge, fig. 7.

Fig. 7



3. Lay down a PVC tube of diameter 40 mm through which the electrical cable passes. The tube must reach from the box to the control unit (fig. 8). Install a second tube as a surface water drain (fig. 8).

Fig. 8



4. Fix the box with concrete.

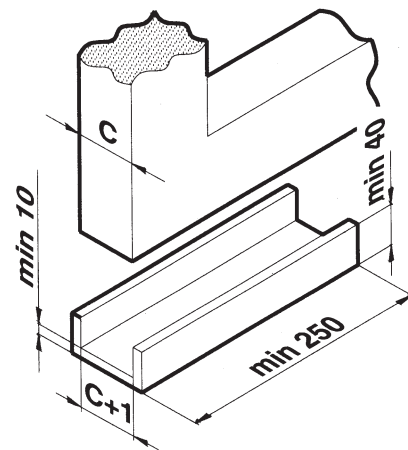
4.3 Setting up the gate

N.B.: Wait for the concrete to set before starting this work.

1. Prepare the gate guide bracket as follows:

– Use a 'U' profile of the dimensions given in fig. 9.

Fig. 9



– Ascertain the correct location for the bushing to suit the position of the gate with respect to the axis of rotation (fig. 10 a/b).

Fig. 10a

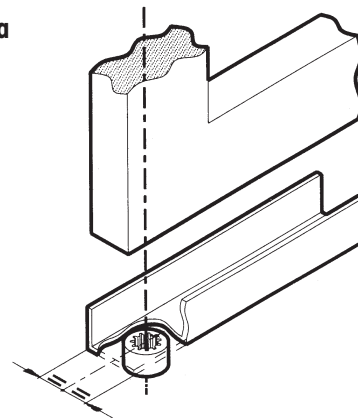
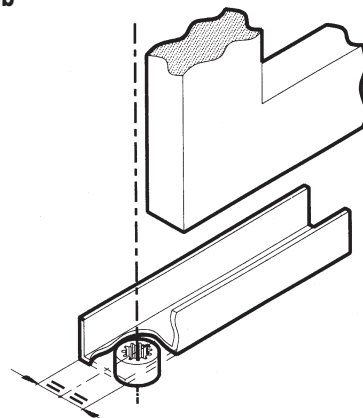


Fig. 10b



- Plate the bushing so that one notch aligns with the centre-line of the 'U' profile (fig. 11).

N.B.: This alignment is essential to the correct operation of the gate automation system.

- Carefully weld the bushing to the 'U' profile (fig. 12).

- Seal the 'U' profile on the post side with a plate as shown in fig. 13a/b.

2. Grease the pinion.

3. Fit the guide bracket over the pinion so that the tooth with the punch mark engages in the bushing notch aligned along the centre-line of the bracket (fig. 14).

4. Fit the gate into the guide bracket and fix the top hinge in place.

Important: do NOT weld the gate to the guide bracket or to the bushing.

Fig. 11

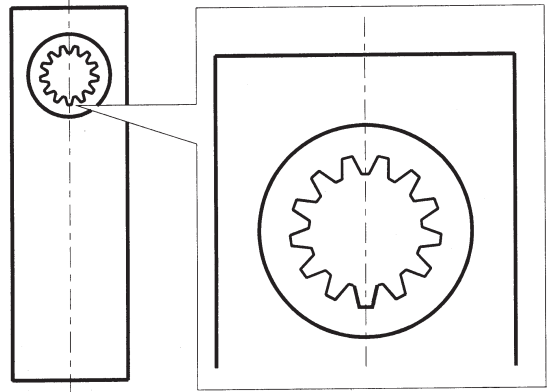


Fig. 12

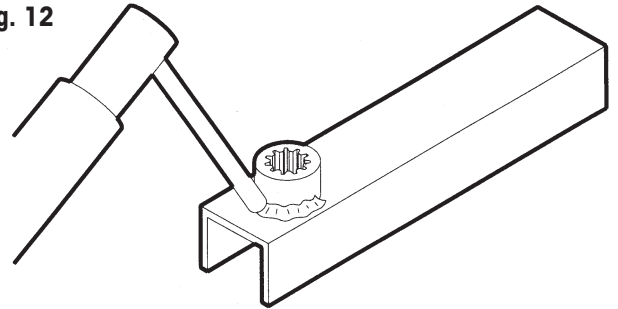


Fig. 13a

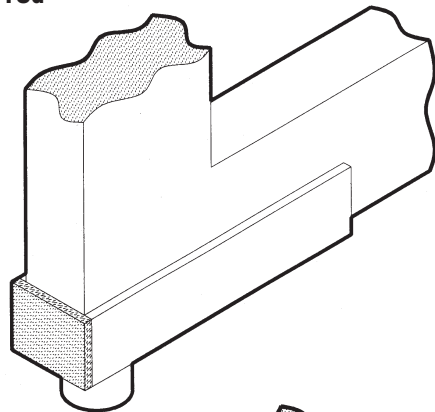


Fig. 13b

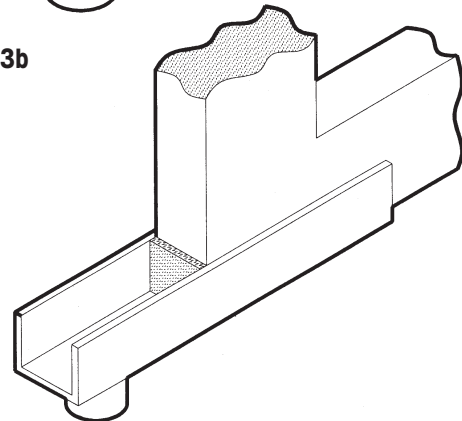
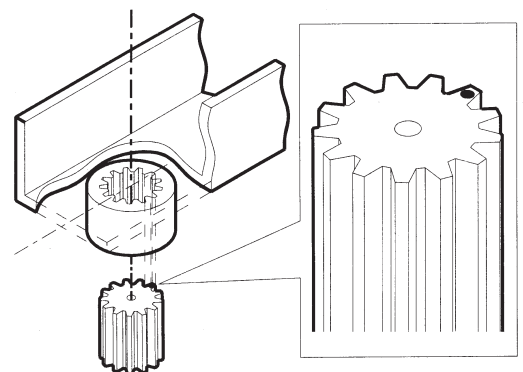


Fig. 14



4.4 Installing the Operator

1. Prepare the operator for installation as follows:
 - Remove the plastic cover from the rack ram (fig. 15).
 - Fit the release device (see section 7 page 12).
2. Remove the cover plate from the foundation box (fig. 16).
3. Manually fit the gate at its half opening position (angle α , fig. 17).

Caution! Failure to fit the gate at the right angle will prevent the gate from opening or closing fully on completion of the installation.

To determine the precise angle α , measure the length of line L (fig. 17) and position the gate at the mid-point of the line.

4. Fit the operator inside the box and engage the rack ram with the pinion in the box (fig. 18).
5. Fix the operator in place with the four M8 bolts provided (fig. 18). If possible, use a torque wrench to tighten the bolts to 2.6 Kgm.
6. Release the operator (see section 7) and manually open the leaf to check that the mechanism operates smoothly.
7. Connect up the cables to the electronic control unit (see relevant instructions).

Fig. 15

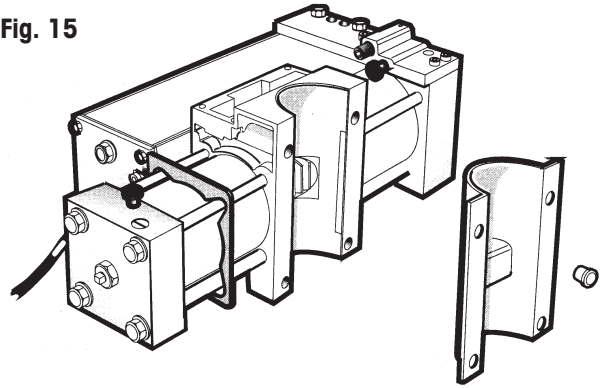


Fig. 16

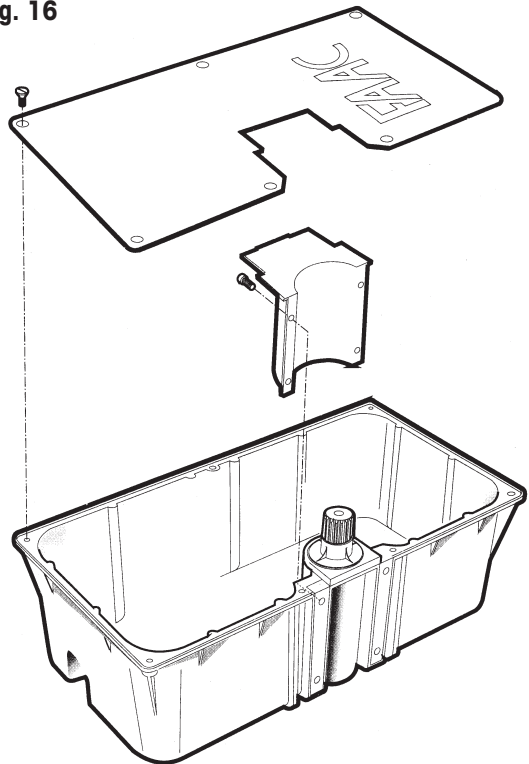


Fig. 17

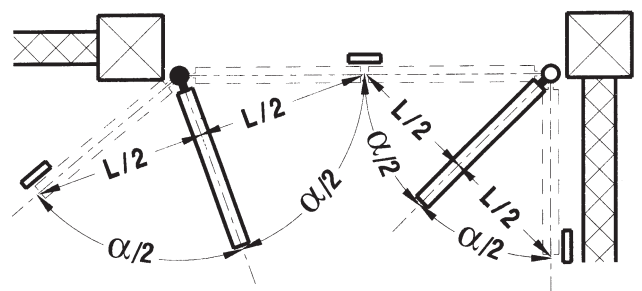
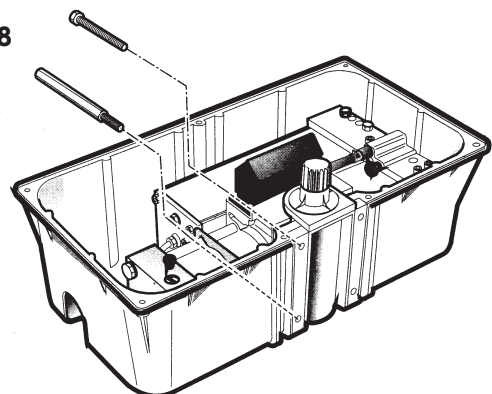


Fig. 18





5. Start-up

Perform the following steps in the order given to ensure trouble-free gate operation.

- 5.1 ADJUSTMENT OF ANTI-CRUSHING SYSTEM
- 5.2 ADJUSTMENT OF INTERNAL TRAVEL STOP SCREWS (MODEL 760 CR ONLY)
- 5.3 ADJUSTMENT OF DECELERATION RAMP (MODEL 760 CR ONLY)

5.1 Adjustment of the Anti-Crushing Device

The FAAC 760 operators (with or without deceleration ramp) are equipped with an anti-crushing safety system that stops the gate should an obstacle be encountered.

Adjust the anti-crushing system's torque according to applicable standards, but should not exceed 15 Kg of force at the outer edge of the gate.

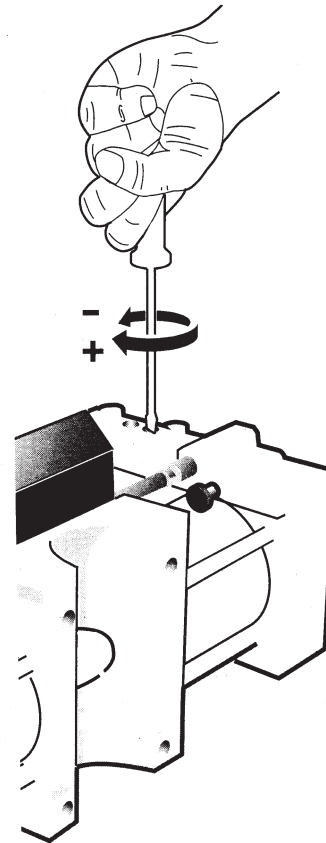
Use a linear dynamometer to ensure that force at the outer edge of the gate is measured accurately.

Turn the by-pass valve screws as shown in fig. 19 to set the anti-crushing system's threshold.

- The red screws adjust torque for anti-clockwise leaf movement.
- The green screw adjusts torque for clockwise leaf movement.

Turn the screws clockwise to increase torque. Turn the screws anti-clockwise to decrease torque.

Fig. 19

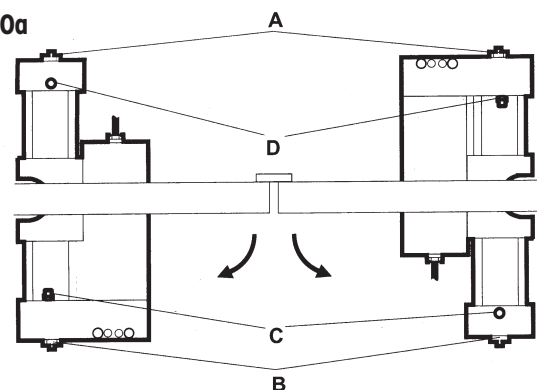


5.2 Adjustment of the internal travel stop screws (model 760 CR only)

706 operators (model CR) have adjustable deceleration ramps both in opening and closing positions for use with gates which open to angles of 90° or more.

Deceleration starts at 10° from the setting of the internal travel stop adjusting screws (ref. A-B, fig. 20/a).

Fig. 20a



N.B.: Operators are delivered with the travel stop screws screwed fully in, which correspond to the maximum leaf opening angle.

Proceed as follows to set the internal travel stop adjusting screws.

1. Release the operator (see section 7, page 12).
2. Manually move the leaf to the closed position limit stop.
3. Slacken off the lock nut from the closed travel stop adjusting screw (fig. 20/a).
4. Slacken off the closed travel stop adjusting screw (fig. 21) until the leaf starts moving.
5. Screw in the closed travel stop adjusting screw again by two turns.
6. Tighten the lock nut.
7. Manually move the leaf to the opened position limit stop.
8. Slacken off the lock nut from the open travel stop adjusting screw (fig. 20/a).
9. Slacken off the open travel stop adjusting screw (fig. 21) until the leaf starts moving.
10. Screw in the open travel stop adjusting screw again by two turns and tighten the lock nut.

N.B.: Make sure that the leaf always strikes the mechanical limit stops on the ground.

11. Re-lock the operator (see section 7, page 12).

If you wish deceleration to start at a lead angle of less than 10° , screw in the corresponding travel stop adjusting screw a couple of turns.

Fig. 20b

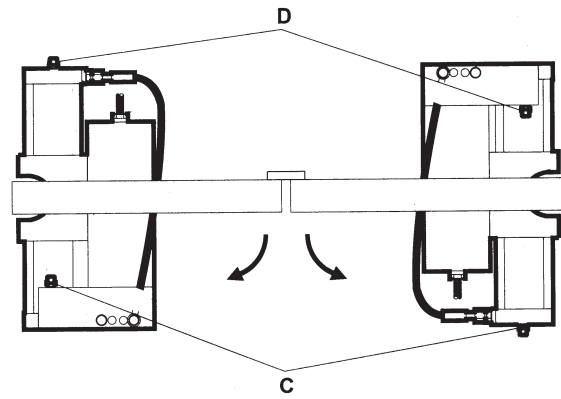
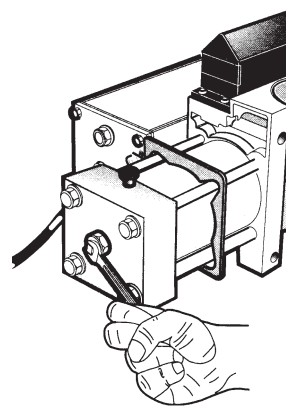


Fig. 21

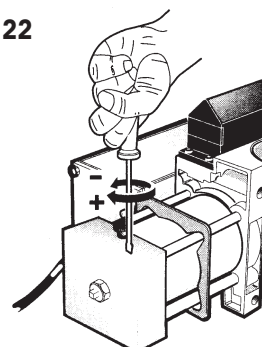


5.3 Adjustment of deceleration ramp (model 760 CR only)

The deceleration ramp can be adjusted on both opening and closing by turning the relevant adjusting screws as shown in fig. 22.

Turn the screws anti-clockwise to reduce the intensity of the deceleration.

Fig. 22



Turn the screws clockwise to increase the intensity of the deceleration.

Caution! Reduce deceleration action to a low setting if the system normally has to work in ambient temperatures above 20 °C. This avoids deceleration becoming too abrupt when the temperature drops.



6. Angles of opening below 90°

If the total angle of opening of the leaf is less than 90°, the 760 operators model CR can be set up so that deceleration is only active on the closing cycle.

To ensure trouble-free operation, before you fix the operator inside the foundation box, move the leaf manually to a distance D from its fully closed position:

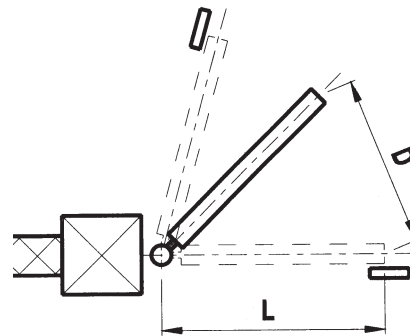
$$D = L \times 0.76 \text{ (fig. 23)}$$

where L = leaf length.

See section 5.2 for details on how to set the internal closed position travel stop adjusting screws.

Adjustment of the internal open position travel stop has no effect.

Fig. 23



7. Manual Operation

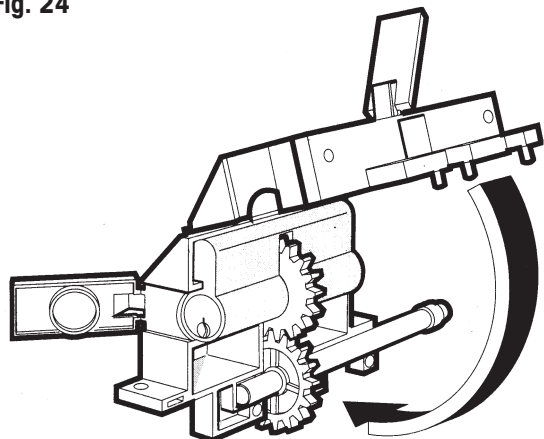
If the gate ever has to be operated manually as a result of a power failure or malfunction, release the gate with the key release device.

The release device, without the lock, is supplied with the operator's installation kit.

The key lock is available as an accessory in two versions, with standard or numbered key.

See fig. 24 to fit the key lock to the release device

Fig. 24



The release device must be fixed to the operator as shown in fig. 25, to ensure the gate can be released from the inside and outside.

Proceed as follows to operate the leaf manually (fig. 26).

- Open the release device access door.
- Insert the release key in the lock.
- Turn the key at least one full turn towards the gate post.

To re-lock the operator, turn the key in the opposite direction as far as it will go.

N.B.: The key can only be removed when in vertical position.

Checking the oil level

The oil level must be kept just below the filler plug hole (fig. 27).

For low-to-medium duty cycles, you need only change the level once every 4 years. With heavy duty cycles, change every two years.

Top up only with FAAC XD 220 oil.

Fig. 25

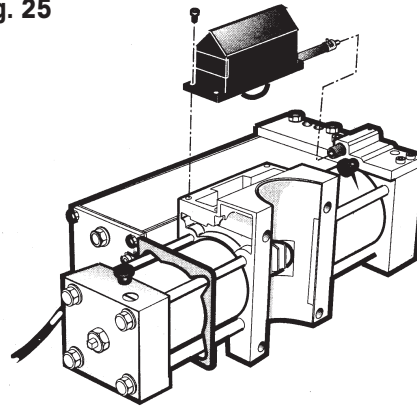


Fig. 26

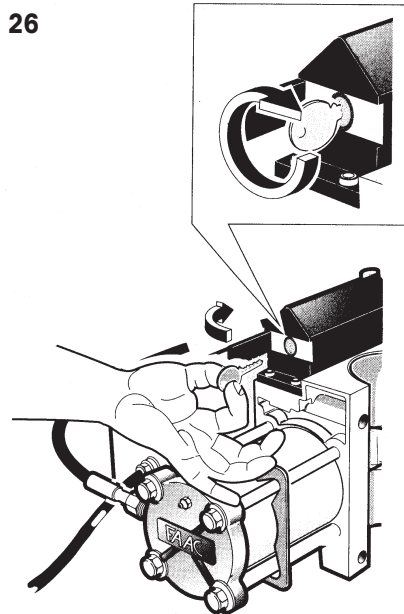
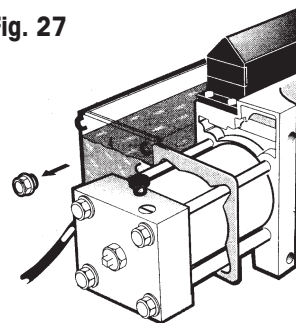


Fig. 27



8. Maintenance

Bleeding

N.B.: 760 operators have all the air removed from their hydraulic systems before delivery. No bleeding is therefore required on initial installation.

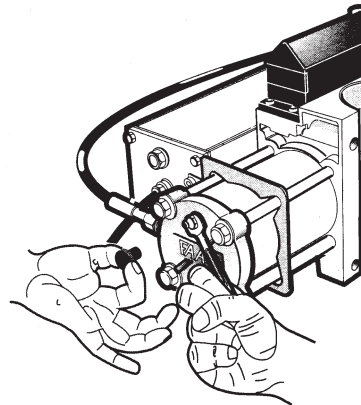
Bleeding is only necessary if work has been done on the hydraulic system.

Air in the hydraulic system causes irregular movement of the leaf and noisy operation.

Proceed as follows to bleed air from the system.

1. Give an opening signal to the gate.
2. While the gate is opening, remove the access cover and slacken off the opening bleed screw (ref. C, fig. 20 a/b) as shown in fig. 28.
3. Wait until only clear, bubble-free oil flows out.
4. Tighten the bleed screw again before the operator reaches the end of the opening cycle.
5. Give a closing signal to the gate.
6. While the gate is closing, remove the access cover and slacken off the closing bleed screw (ref. D, fig. 20 a/b) as shown in fig. 28.
7. Wait until only clear, bubble-free oil flows out.
8. Tighten the bleed screw again before the operator reaches the end of the closing cycle.
Repeat the above operations a few times on both bleed screws.
9. Top up the oil level to just below the filler hole (fig. 27). Use only FAAC XD 220 oil.

Fig. 28



The descriptions and illustrations contained in the present manual are not binding. FAAC reserve the right, whilst leaving the main features of the equipments unaltered, to undertake any modifications it holds necessary for either technical or commercial reasons, at any time and without revising the present publication.

ISO 9001 Quality Standard Manufacturing Company



Simply the world's
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And that's a FAAC.T.

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