

The 620/640 Barriers: Installation Manual

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Important Safety Information

Both the installer and the owner and/or operator of this system need to read and understand this installation manual and the safety instructions supplied with other components of the gate system. This information should be retained by the owner and/or operator of the gate.

WARNING! To reduce the risk of injury or death

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
 2. Never let children operate or play with gate controls. Keep the remote control away from children.
 3. Always keep people and objects away from the gate. **NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.**
 4. Test the gate operator monthly. The gate **MUST** reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
 5. Use the emergency release only when the gate is not moving.
 6. **KEEP GATES PROPERLY MAINTAINED.** Read the owner's manual. Have a qualified service person make repairs to gate hardware.
 7. The entrance is for vehicles only. Pedestrians must use separate entrance.
 8. **SAVE THESE INSTRUCTIONS.**
-

There are three kinds of safety issues involved with an automatic gate operator: issues arising from the design of the gate, from the installation of the gate and the operator, and from the use of the gate operator. The following information is designed to help you be sure your gate and its operator are well-designed, installed correctly, and used safely.

Gate Design

1. A gate is a potential traffic hazard, so it is important that you locate the gate far enough away from the road to eliminate the potential of traffic getting backed up. This distance is affected by the size of the gate, how often it is used, and how fast the gate operates.
2. The operator you choose to install on your gate must be designed for the type and size of your gate and for the frequency with which you use the operator.
3. Your gate must be properly installed and must work freely in both directions before the automatic operator is installed.
4. An automatic operator should be installed on the inside of the property/fence line. Do not install the operator on the public side of the property/fence line.
5. Pedestrians should not use a vehicular gate system. Prevent such inappropriate use by installing separate gates for pedestrians.
6. Exposed, reachable pinch points on a gate are potentially hazardous and must be eliminated or guarded.
7. Outward swinging gates with automatic operators should not open into a public area.
8. The operating controls for an automatic gate must be secured to prevent the unauthorized use of those controls.
9. The controls for an automatic gate should be located far enough from the gate so that a user cannot accidentally touch the gate when operating the controls.
10. An automatic gate operator should not be installed on a gate if people can reach or extend their arms or legs through the gate. Such gates should be guarded or screened to prevent such access.

Installation

1. If you have any question about the safety of the gate operating system, do not install this operator. Consult the operator manufacturer.
2. The condition of the gate structure itself directly affects the reliability and safety of the gate operator.
3. Only qualified personnel should install this equipment. Failure to meet this requirement could cause severe injury and/or death, for which the manufacturer cannot be held responsible.

4. The installer must provide a main power switch that meets all applicable safety regulations.
5. Clearly indicate on the gate with a minimum of 2 warning signs (visible from either side of the gate) that indicate the following:
 - The gate is automatic and could move at any time, posing a serious risk of entrapment.
 - Children should not be allowed to operate the gate or play in the gate area.
 - The gate should be operated only when it is visible to the operator and the when the area is free of people and obstructions.
6. It is extremely unsafe to compensate for a damaged gate by overtightening a clutch or increasing hydraulic pressure.
7. Devices such as reversing edges and photocells must be installed to provide better protection for personal property and pedestrians. Install reversing devices that are appropriate to the gate design and gate application.
8. Before applying electrical power, be sure that the voltage requirements of the equipment correspond to your supply voltage. Refer to the label on your operator system.
9. Do not install the barrier in such a way that the beam moves within 2 feet (610 mm) of a rigid object.

Use

1. Use this equipment only in the capacity for which it was designed. Any use other than that stated should be considered improper and therefore dangerous.
2. When using any electrical equipment, observe some fundamental rules:
 - Do not touch the equipment with damp or humid hands or feet.
 - Do not install or operate the equipment with bare feet.
 - Do not allow small children or incapable persons to use the equipment.
3. If a gate system component malfunctions, turn off the main power before making any attempt to repair it.
4. Do not attempt to impede the movement of the gate. You may injure yourself as a result.
5. This equipment may reach high temperatures during operation; therefore, use caution when touching the external housing of the operator.
6. Learn to use the manual release mechanism according to the procedures found in this installation manual.
7. Before carrying out any cleaning or maintenance operations, disconnect the equipment from the electrical supply.
8. To guarantee the efficiency of this equipment, the manufacturer recommends that qualified personnel periodically check and maintain the equipment.

| U.L. Class and FAAC Operator Model | | Duty Cycle | Typical Use |
|---|-----|-----------------|--|
| Class I: Residential Vehicular Gate Operator | | | |
| 402 | 746 | Limited duty | • Home use |
| 422 | 750 | | • Small apartment building, for example, up to 4 units in a building, with limited public access |
| 412 | 760 | | |
| 630 | | | |
| Class II: Commercial/General Access Vehicular Gate Operator | | | |
| 400 | 640 | Continuous duty | • Apartment buildings |
| 620 | | | • Very public access |
| Class III: Industrial/Limited Access Vehicular Gate Operator | | | |
| 400 | 640 | Continuous duty | • No public access |
| 620 | | | |
| Class IV: Restricted Access Vehicular Gate Operator | | | |
| 620 | 640 | Continuous duty | • Prison rated security |

Technical Data

| Parameter | 620 | | | | 640 | | |
|---|--|--------|----------|--------|--|----------|--------|
| | Standard | | Express | | | | |
| Available beam length, ft (m) ¹ : | 6 (2) | 10 (3) | 6 (2) | 10 (3) | 13 (4) | 16 (5) | 20 (6) |
| | 8 (2.5) | 13 (4) | 8 (2.5) | 13 (4) | 16 (5) | 18 (5.5) | 23 (7) |
| | 10 (3) | 16 (5) | 10 (3) | 16 (5) | | 20 (6) | |
| | 13 (4) | | 13 (4) | | | | |
| <i>Maximum</i> beam length, ft (m) ¹ : Rigid beam | | | | | | | |
| | | | | | | | |
| Wood | 13 (4) | 16 (5) | 13 (4) | 16 (5) | 16 (5) | 18 (5.5) | 20 (6) |
| Aluminum | 10 (3) | 13 (4) | 10 (3) | 13 (4) | 16 (5) | 20 (6) | 23 (7) |
| Articulated beam (aluminum only) | 10 (3) | 13 (4) | 10 (3) | 13 (4) | NA | NA | NA |
| Skirted beam (aluminum only) | 10 (3) | 13 (4) | NA | NA | 16 (5) | 20 (6) | 23 (7) |
| Pump capacity, liters | 1 | 0.75 | 1 | 1.5 | 1 | 1.5 | 1 |
| Motor speed, rpm | 1400 | | 2800 | | 1400 | | |
| Opening time, sec (not including braking) | 3.5 | 4.5 | 2 | 3 | 4 | 5.5 | 8 |
| Motor run time ² (frequency of use), % | 70 | | 100 | | 100 | | |
| Power voltage required, VAC (frequency, Hz) ³ | 230, +6 or -10% (50-60)** | | | | | | |
| Power consumption, W | 440 | | | | | | |
| Operator cabinet weight, lb (kg) | 161 (73) | | | | 185 (84) | | |
| Operator cabinet dimensions, in. (cm) | 6-5/8 × 13-3/4 × 42-1/2 (17 × 35 × 108) | | | | 7-7/8 × 14-15/16 × 42-1/2 (20 × 38 × 108) | | |
| Type of oil | Lubrication Engineers- MONOLEC 6105 or Shell- Tellus T15 | | | | | | |
| Oil quantity, qt (l) | 2.1 (2) | | | | | | |
| Fan | NA | | Standard | | Standard | | |
| Automatic fan operation temperature, deg F (deg C) | NA | | 113 (45) | | 113 (45) | | |
| Automatic motor shut off temperature, deg F (deg C) | NA | | 185 (85) | | 185 (85) | | |
| Thermal overload switch, deg F (deg C) | 212 (100) | | | | | | |

¹ Measurements in feet are rounded; measurements in meters are precise.

² Exposure to direct sunlight may reduce the maximum motor run time to 20%.

³ Your standard 220 VAC power source meets the specification for 230 VAC, +6 or -10%

NA: Not available

Unpacking the Barrier System

When you receive your Barrier System, complete the following steps.

Before you remove the barrier beam or cabinet from its shipping carton, inspect the carton for damage. As you unpack the carton, insure that all the parts listed below for your system are included and are undamaged.

Inspect the parts for damage. Notify the carrier immediately if you note any damage because the carrier must witness the damage before you can file a claim.

The Parts List

Operator Carton:

- 1 Operator cabinet
- 1 Key for cabinet
- Bolts for attaching beam to cabinet: 4 or 6, depending on the barrier and type of beam

Beam Carton (optional): 1 barrier beam

The 620 and 640 Barriers

General Characteristics

The U.L. listed Model 620 or 640 Barrier gate system with *GentleSwing*[™] Motion Management includes a barrier beam and a cabinet housing the hydraulic operator and control panel.

The main differences between the 620 and the 640 Barrier systems are in the length of the barrier beam and in the speed of operation. The 620 system controls beams that are 6-1/2 to 16 ft (2 to 5 m) in length and offers extremely fast opening and closing times. The 620 is ideal for single-lane vehicular traffic in moderate to heavy traffic. The 620 Barrier can also be articulated (jointed) for use with low overhead clearances or skirted to prevent vehicles from passing beneath the beam.

The 640 Barrier system is for barrier beams that are 13 to 23 ft (4 to 7 m) long and is suitable for wide entrances and heavy-duty applications. The 640 Barrier can also be skirted.

The barrier beam is attached to a heavy-duty, lockable metal cabinet bolted to a cement foundation. Inside the cabinet are the operator and the control panel. Important metal parts of the barrier unit have been electroplated with a nickel alloy or covered with a polyester paint to resist the effects of rust and smog.

The motor housing holds the oil that drives the pistons and helps to cool the motor. The temperature of the oil is monitored, and on some models, high temperatures turn on a fan for further cooling of the outer motor casing when necessary.

The hydraulic motor of either the 620 or 640 operator drives two single-acting pistons. Both are attached to the rocker arm, and the rocker arm rotates the barrier beam. A compression spring attached to one piston serves to counterbalance the beam, and an adjustable braking feature guarantees smooth movement of the beam through its travel and prevents damage to the beam and cabinet from abrupt stopping.

Some notable features enhance the reliable and safe operation of the 620 or 640 Barrier. First, a hydraulic locking device holds the beam in both the opened and closed positions. Second, the metal cabinet that houses the operator can be opened only with a key. Third, the barrier includes a Manual Release function to disengage the beam from its hydraulic operation so that you can raise or lower the beam by hand. Fourth, two adjustable hydraulic valves precisely control the force of the beam in the opening and closing directions.

An optional auto-reverse mechanism is available for use in parking applications, and an optional solenoid valve is available for automatically disengaging the hydraulic system in the event of power failures.

Optional add-on electronic cards are also available.

- The Slave Card is useful in applications with two opposing barrier beams.
- The FSW Card enables all reversing devices in parking applications.
- The Relay Card provides six electrical contacts for connecting auxiliary equipment.

Both the 620 and 640 Barriers are supplied with the FAAC 624 MPS Control Panel. The control panel allows you to select the following:

- Logical mode of operation
- Braking time of the beam
- Pause time between opening and closing
- Flashing of an optionally installed warning light

The control panel also provides terminal connections for a number of other reversing and gate system accessories.

Furthermore, the control panel provides a number of light-emitting diodes (LEDs) for easily diagnosing any operational problems.

Logical Operation

The operation of the 620 or 640 Barrier is controlled by the 624 MPS Control Panel housed inside the operator cabinet. What accessories you install and which DIP switch settings you choose determine the logical operation of the beam. Two DIP switches on the control panel allow you to select the E (semi-automatic), A (automatic), P (parking), or R (remote) mode of operation. Furthermore, the barrier beam can be operated by hand during emergencies by means of a Manual Release mechanism. The logical modes are discussed below and are summarized on page 8.

Manual Release Mechanism

WARNING! Because the Manual Release function is available only if you have a key, it is important to install emergency and other reversing devices (such as inductive loops and photocells) to allow the safe passage of people and vehicles.

The Manual Release function for the 620 or 640 Barrier is engaged with a key in the operator cabinet on the lower right side (see 2).

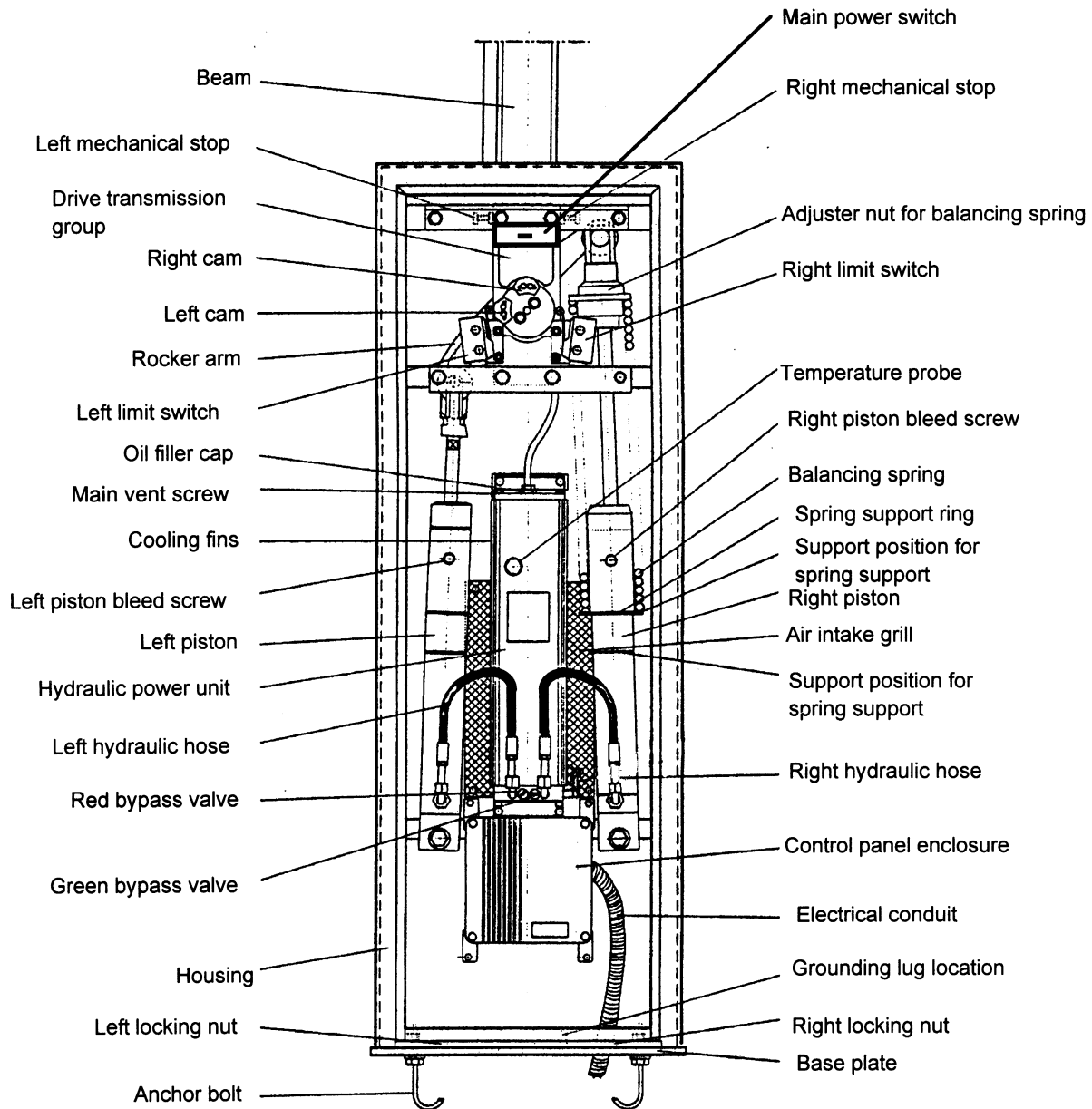


Figure 1. The interior of the 620/640 Barrier cabinet (for right-hand orientation)

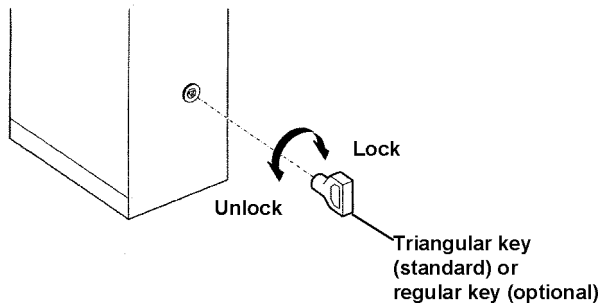


Figure 2. For manual operation, use the Manual Release key to unlock the barrier

Using the Manual Release key to disengage the beam from hydraulic operation allows you to operate the barrier by hand.

You disconnect the hydraulic operation of the beam by turning the Manual Release key counterclockwise. Then you can raise or lower the barrier by hand.

Manual operation of the beam is important during the installation process and can be useful during power interruptions or failures.

To re-engage the hydraulic operation of the barrier, turn the key clockwise.

E (Semi-Automatic) Mode

The E (semi-automatic) mode of operation for the 620 and 640 Barrier is designed for users who want to signal the barrier to either open (the beam rises) or close (the beam lowers).

Sending one activating signal to the beam causes it to open and remain open until another activating signal is sent. Sending a second activating signal lowers the beam.

The basic logic of E mode is enhanced to protect both people and property if anything interrupts the beam's movement. What happens after such an interruption depends on whether the barrier is opening or closing when the interruption occurs and depends on whether the interruption is a second signal or an obstacle in the beam's path.

When a second signal interrupts opening, the beam stops. The beam does not move until yet another signal is sent. Then the beam closes.

If an activating signal interrupts the beam during closing, the beam immediately reopens. A stop signal stops the movement of the beam.

If something obstructs the beam's closing for 30 sec or less, the beam stops its movement, though the motor may continue to run its entire cycle. Sending another signal causes the beam to reopen. If something obstructs the beam's movement for more than 30 sec, the barrier becomes jammed. You then have to reset the barrier for normal hydraulic operation (see the subsection "Resetting the Barrier" below).

WARNING! The pressure the beam applies to the obstruction is determined by the bypass valve adjustment. It is the installer's responsibility to make sure the pressures for the closing and opening beam are correctly set.

Installing external reversing devices alters the logic of E mode operation in the following way: During the opening cycle, any triggered reversing device is ignored, that is, the beam continues its opening movement. During closing, a triggered reversing device causes the beam to open or stop, depending on the pause count and whether preflashing is selected (see page 8).

A (Automatic) Mode

Note: The A (automatic) mode of operation on the 624 MPS control panel is not exactly the same as the A mode on other FAAC control panels. On the 624 MPS, the A mode includes some security features useful in barrier applications.

The A (automatic) mode of operation for the 620 or 640 Barrier is designed for users who want to signal the beam once to open and then automatically close after a selected time.

What happens when A mode operation is interrupted depends on which part of the cycle is interrupted by a signal or obstruction. During the opening phase, a second activating signal is ignored; a stop signal stops the beam; reversing devices do not affect the beam.

During the pause phase, an activating signal causes the beam to close; a stop signal or triggered reversing device discontinues the pause count (the beam will not move until it receives an activating signal or the reversing device is no longer triggered).

During the closing phase, an activating signal causes the beam to reopen immediately; a stop signal stops the movement of the barrier beam (it will not move until it receives another activating signal); a triggered reversing device opens or stops the beam, depending on the pause count and whether preflashing is selected (see page 8).

If the barrier beam has been stopped with a stop signal, additional signals have the following effects on the beam. An activating signal causes the beam to reclose immediately; another stop signal has no effect; and a triggered reversing device has no effect.

If an obstacle interrupts A mode operation during closing for 30 sec or less, the beam stops its movement, though the motor may continue to run. If something obstructs the beam's movement for more than 30 sec, the barrier becomes jammed. You then have to reset the barrier for normal hydraulic operation (see the subsection "Resetting the Barrier" below).

P (Parking) Mode

WARNING! Do not connect reversing devices to your control panel if the barrier is to operate in P mode. P mode logic is not compatible with signals from such devices. For photocells, loops, and other N.C. reversing devices to operate properly in P mode, you must install the optional 624 FSW Electronic Card.

WARNING! Operating a 620 or 640 Barrier in P mode without an attendant can be dangerous. Therefore, we highly recommend the use of the optional 624 FSW Card.

The P (parking) mode of operation assumes you want to signal the beam to open, close, or stop and assumes that a three button switch is installed, one button to open, one to close, and one to stop.

In P mode, each switch button essentially performs its function every time it is pressed. Sometimes this means the button has no effect. For example, pressing the open button when the beam is already opened has no effect.

An apparent exception to the "you get what you press" logic is when the beam is opening and you press the close button: The beam continues to open. However, once opened, the beam immediately closes. In other words, the system remembers the close command and responds as soon as it can.

R (Remote) Mode

Note: The R mode of operation *requires* the installation of the 624 Slave Card.

The R (remote) mode of operation is useful only in those applications with two opposing beams that operate simultaneously and that control very wide entrances. The R mode essentially suppresses one 624 MPS control panel so that the other can control both beams.

Caution: Do not use R mode logic when you have only one barrier beam. Your one barrier will not operate properly if it is set to R mode.

In two-barrier applications, you set the one barrier (called the slave) to R mode and set the other barrier (called the master) to A, E, or P mode. Both beams then operate simultaneously according to the logic set on the master barrier's control panel.

Resetting the Barrier

There are two occasions when it is necessary to reset the barrier for normal operation: after the operator has been in jam status or after it has been in alarm status.

To reset the operator, you can press the reset button located on the control panel (see Figure 6) to continue normal barrier operation. An alternate and easier way to reset the barrier is to turn the main power supply off and then on.

Jam Status

There are situations in which the barrier beam can become jammed, when it will not respond to activating signals of any kind.

If an obstruction or someone stops the beam's movement as a limit switch is being triggered by the limit switch plate (just as the barrier beam is starting its travel), the motor times out and the operator does not know how to interpret any incoming activating signal. The barrier beam will not move until the control panel is reset. Press the reset button on the control panel (see Figure 6), or turn the main power off and then on.

Alarm Status

An emergency alarm device, such as a fire box, with a normally closed switch can be connected to terminals 4 and 5 on the control panel. Sending an activating signal to such a device opens the barrier and keeps it open. Such an emergency signal puts the control panel in alarm status, and you must then reset the barrier to close the barrier or to resume normal hydraulic operation. Press the reset button on the control panel (see Figure 6), or turn the main power off and then on.

E Logic: How the Barrier Beam Behaves

| Beam Status | Signal and Its Effect on Beam | | | |
|-------------|-------------------------------|-----------|------------------|---|
| | Open | Stop | Reversing Device | Emergency Alarm |
| closed | opens | no effect | no effect | beam opens (or remains open) and warning light flashes; all other functions are inhibited |
| opened | closes* | stops | no effect | |
| closing | opens | stops | opens or stops** | |
| opening | stops | stops | no effect | |
| stopped | closes* | no effect | no effect | |

* With preflashing selected, the beam recloses after 5 sec; with no preflashing selected, the beam closes immediately.

**With no preflashing selected, the beam opens immediately and requires another signal to close. With preflashing selected, the beam stops until the reversing is no longer triggered; then the beam opens.

A Logic: How the Barrier Beam Behaves

| Beam Status | Signal and Its Effect on Beam | | | |
|-------------|-----------------------------------|--|--|---|
| | Open | Stop | Reversing Device | Emergency Alarm |
| closed | opens and closes after pause time | no effect | no effect | beam opens (or remains open) and warning light flashes; all other functions are inhibited |
| opened | closes* | beam remains open until another activating signal closes beam* | stops; pause count is interrupted; when reversing device is no longer triggered, beam closes after remaining pause count | |
| closing | opens | stops | opens or stops** | |
| opening | no effect | stops | no effect | |
| stopped | closes* | no effect | no effect | |

* With pre-flashing selected, the beam recloses after 5 sec; with no preflashing selected, the beam closes immediately.

**With no preflashing selected, the beam opens immediately; when the reversing device is no longer triggered, the pause count begins. With preflashing selected, the beam stops until the reversing device is no longer triggered; then the beam opens and begins its pause count.

P Logic: How the Barrier Beam Behaves

| Beam Status | Signal and Its Effect on Beam | | | |
|-------------|-------------------------------|----------------------|-----------|---|
| | Open | Close | Stop | Emergency Alarm |
| closed | opens | no effect | no effect | beam opens (or remains open) and warning light flashes; all other functions are inhibited |
| opened | no effect | closes | no effect | |
| closing | opens | no effect | stops | |
| opening | no effect | closes after opening | stops | |
| stopped | opens | closes | no effect | |

R Logic: How the Barrier Beam Behaves

R logic insures the simultaneous operation of the two opposed beams across a very wide entrance. The slave barrier with R logic operates according to the A, E, or P logic set on the control panel of the master barrier.

Installing the Barrier System

WARNING! Do not install the barrier in such a way that the beam moves within 2 feet (610 mm) of a rigid object.

Installing the 620 or 640 Barrier System consists of the following general steps:

- Determining the orientation of the installation
- Preparing the forms for the concrete mounting slab and conduit
- Mounting the cabinet on the concrete slab
- Connecting the main power source to the operator
- Wiring the control panel for operational logic
- Wiring additional accessories into the control panel
- Decreasing the hydraulic pressures
- Setting the DIP switches on the control panel
- Attaching the barrier beam
- Testing the operation of the beam

Note: The following installation instructions assume you are fully capable of installing an electronic barrier gate. This manual does not instruct you in designing a gate, pouring the cement foundation, or basic electrical wiring. The installation tasks discussed in this manual are tasks peculiar to the 620 and 640 Barriers.

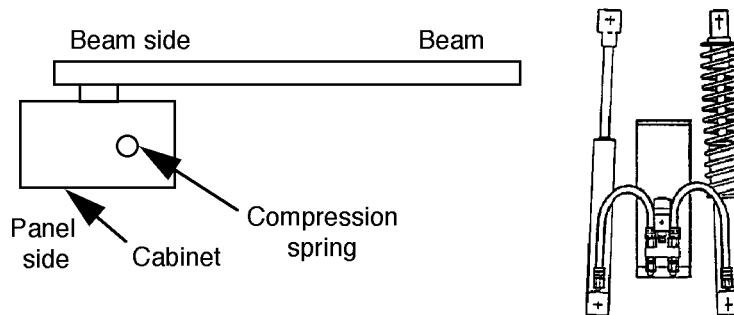
Determine the Orientation of the Installation

You first need to determine whether your operator is set up for a right-hand or left-hand installation (see Figure 3). Either orientation is acceptable.

Open the panel door of the operator cabinet with the key provided and lift the panel up and away from the cabinet, taking care not to disconnect the cabling to the fan (if installed). Look at the two pistons to see which has the compression spring surrounding it. Compare your operator with Figure 3 and use the figure to help you determine the orientation of your installation.

If your operator is not in the correct orientation, turning the cabinet around 180 deg is the easiest way to solve the problem. We suggest you call us if your installation site cannot accommodate this solution since the orientation of the barrier can be changed with about an hour's worth of work.

(a) Right-hand orientation: top view and hose connections



(b) Left-hand orientation: top view and hose connections

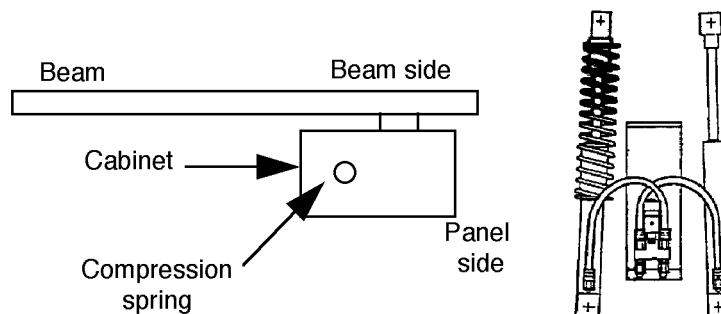


Figure 3. Right-hand vs. left-hand installation of the 620/640 Barrier

Prepare the Forms for the Concrete Slab and Conduit

You need to set the concrete forms to provide a cement footing that is a minimum of 18 by 18 in. (46 by 46 cm) and that is poured a minimum of 18 in. (46 cm) below the ground level or just below the frost line, whichever is greater (see Figure 4). (Your soil conditions will also affect the size of the cement footing.) To help prevent rust, the top of your cement footing should be above ground level.

Within the form boundaries you must locate the electrical conduit so that it will protrude through the foundation plate (the plate is provided as an option) and above the top of the foundation plate about 1/2 in. (1.3 cm).

The exact placement of the conduit is determined partly by the foundation plate you use and more importantly by the access holes in the bottom of the operator cabinet (see Figure 5). If you choose to supply your own foundation plate, be sure to use steel that is 3/8 in. (1 cm) thick for the plate and be sure to provide a hole large enough to accommodate your two electrical conduits, one for high-voltage wire and one for low-voltage wire. In addition, your foundation plate needs four 1/2-in. (1-1/4 cm) anchor bolts that

extend at least 6-1/2 in. (16-1/2 cm) into the cement footing. The anchor bolts should be positioned to match the holes in the bottom of your operator's cabinet.

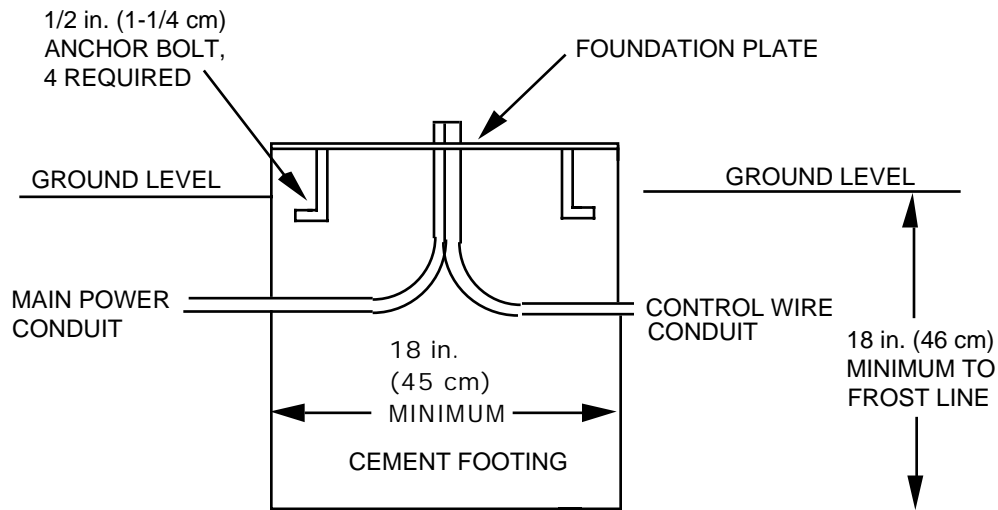
After the concrete is poured in the forms and before it sets, place the foundation plate in the cement so that the top of the plate is level and flush with the top of the cement.

Allow the concrete to set a minimum of two full days before you mount the operator cabinet.

With the key provided, open the operator's panel door and lift the door away from the cabinet. It may be necessary on your model of operator to disconnect the wiring to the fan on the panel door to allow you to more easily handle the heavy cabinet.

Set the operator cabinet on the foundation plate, aligning the holes in the bottom of the cabinet with the bolts and conduit protruding above the foundation plate. Bolt the cabinet to the foundation plate and cement footing. If necessary, reconnect the wiring to the fan on the panel door.

Before connecting the main power to your barrier, you must remove the vent screw on the hydraulic power pack. Midway along the top, left edge of the hydraulic



NOTES:

Sizes shown are minimum dimensions.

Wires for loop detectors, push buttons, activating devices, and so forth must be kept separated from the high voltage line.

Figure 4. Concrete mounting slab, side view

power pack is a hexagonal screw. Remove it now. Failure to remove the screw can result in erratic operation of the barrier beam. Do not throw the screw away in case you ever need to transport the barrier unit or its hydraulic power pack.

Connect the Main Power

The installer is responsible for providing a grounded circuit protected by a circuit breaker from the main power source to the operator.

Note: Your standard 220 VAC power source meets the specification for 230 VAC, +6 or -10%.

All wiring should conform to applicable electrical codes and all wiring and fittings should be weather-proof and/or suitable for burial.

To connect the main power source to the barrier, remove the cover of the main power switch at the top of the inside of the barrier cabinet. Then run the main power wires from the base of the cabinet up through flexible conduit that is on the cabinet door side of the steel cross member. Run the wires and conduit through the connector on the right side of the junction box for the main power switch. (see Figure 7)

Caution: Do *not* run the main power conduit up the metal channel in the right front of the cabinet. The right front channel houses wiring for the limit switches and is appropriate *only* for low-voltage wiring.

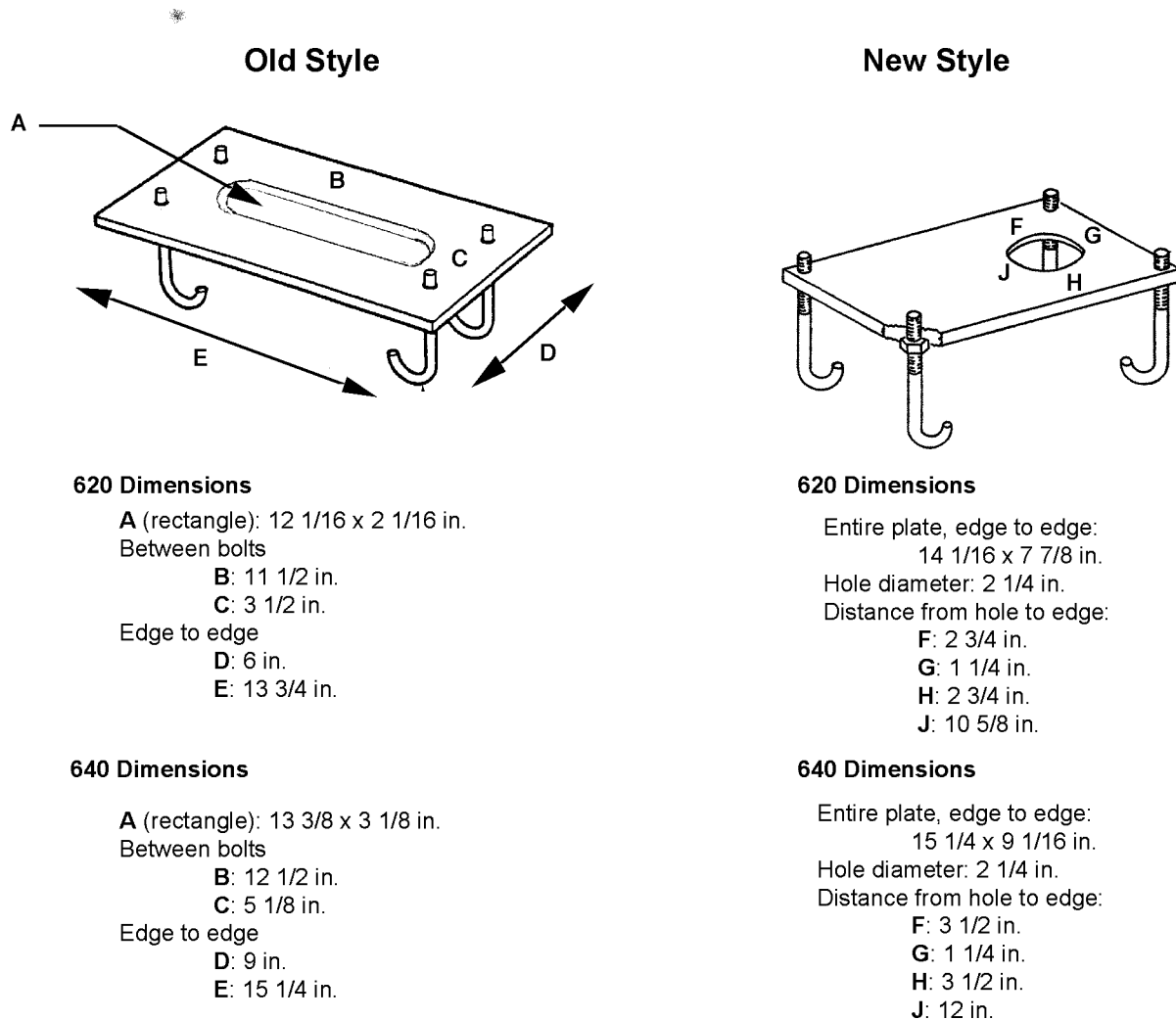
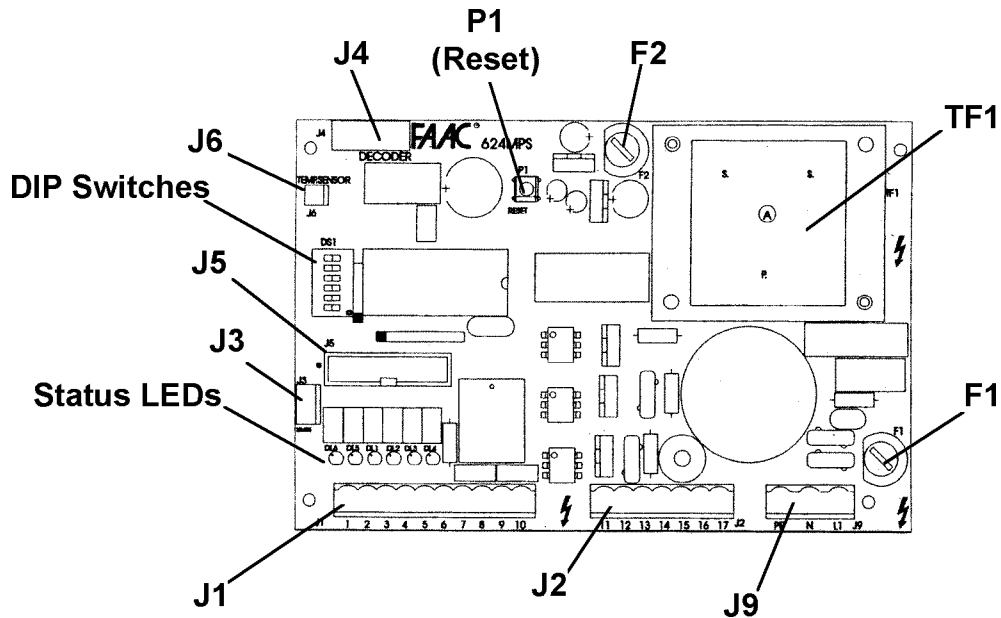


Figure 5. Dimensions of the optional FAAC 620/640 foundation plate



- J1** Low-voltage terminal strip
- J2** High-voltage terminal strip
- J3** Limit switch connector
- J4** Decoder connector
- J5** Connector for FSW, Slave, Relay boards
- J6** Connector for NTC probe
- J9** Power supply terminal strip
- P1** Reset pushbutton
- TF1** Transformer

DIP Switches:

- S1 Used to set operating logic
- S2 Used to set operating logic
- S3 Used to set pause time
- S4 Used to set pause time
- S5 Used to set pause time
- S6 Used to set braking time, long or short

Fuses:

- F1** 5 amps: fuse for operator motor and main power
- F2** 1.6 amps: fuse for accessories

Capacitor: 16 F

Status LEDs:

- FCC (DL6)** Illuminated except when gate is fully closed
- FCA (DL5)** Illuminated except when gate is fully opened
- OPEN (DL1)** Illuminates only when receiving signal to open
- CLOS/FSW (DL2)** In A or E mode is illuminated except when a reversing device is triggered. In P mode, this is illuminated only when receiving close signal
- STOP (DL3)** Illuminated except when receiving stop signal
- ALARM (DL4)** Illuminated except when emergency signal is received (gate is open in emergency)

Figure 6. The 624 MPS Control Panel

Connect the main power ground wire to the ground screw in the junction box. Connect the other wires to the line side of the switch. The 624 MPS control panel is already connected to the load side of the main power switch.

Caution: U.L. listing *requires* the use of flexible conduit around the main power wiring from the base of the barrier cabinet to the flexible conduit connector on the junction box of the main power switch.

Wire the Control Panel for Operational Logic

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

Any opening activating devices you install must have normally open (N.O.) contacts. The required contacts for your closing device vary according to the operating logic you want to use: A and E logic modes require N.O. contacts, and P mode requires normally closed (N.C.) contacts. No matter which logic mode you use, all stop, reversing, and emergency activating devices must have N.C. contacts.

In addition to connecting your activating devices for your logical mode of operation (A, E, or P) to terminals 1, 2, and 3, you also have to set DIP switches S1 and S2 to set the operating logic. (See the section "Logical Operation" earlier in this manual for a complete discussion of the logical operating modes.)

A or E Mode Operation

For A or E mode operation, connect the activating, reversing, stop, and emergency devices as shown in Figure 7. If your activating device has separate normally open (N.O.) contacts for both opening and closing signals, connect both wires in parallel to terminal 1. Use terminal 5 or 6 for common for all activating, reversing, stop, and emergency devices that you connect.

P Mode Operation

For P mode operation, connect the opening, closing, stop, and emergency devices as shown in Figure 8.

Note that the opening device must be of the normally open (N.O.) type, and that the closing, stopping, and emergency devices must be of the normally closed (N.C.) type. Use terminal 5 or 6 for common for those devices.

WARNING! Do not wire reversing devices directly to your control panel if the barrier is to operate in P mode. P mode logic is not compatible with signals from such devices. For photocells, loops, and other N.C. reversing devices to operate properly in P mode, you must install the optional 624 FSW Electronic Card.

WARNING! We highly recommend the use of an optional 624 FSW Card if you are operating in P mode to provide more protection for people and property.

Wire Additional Accessories

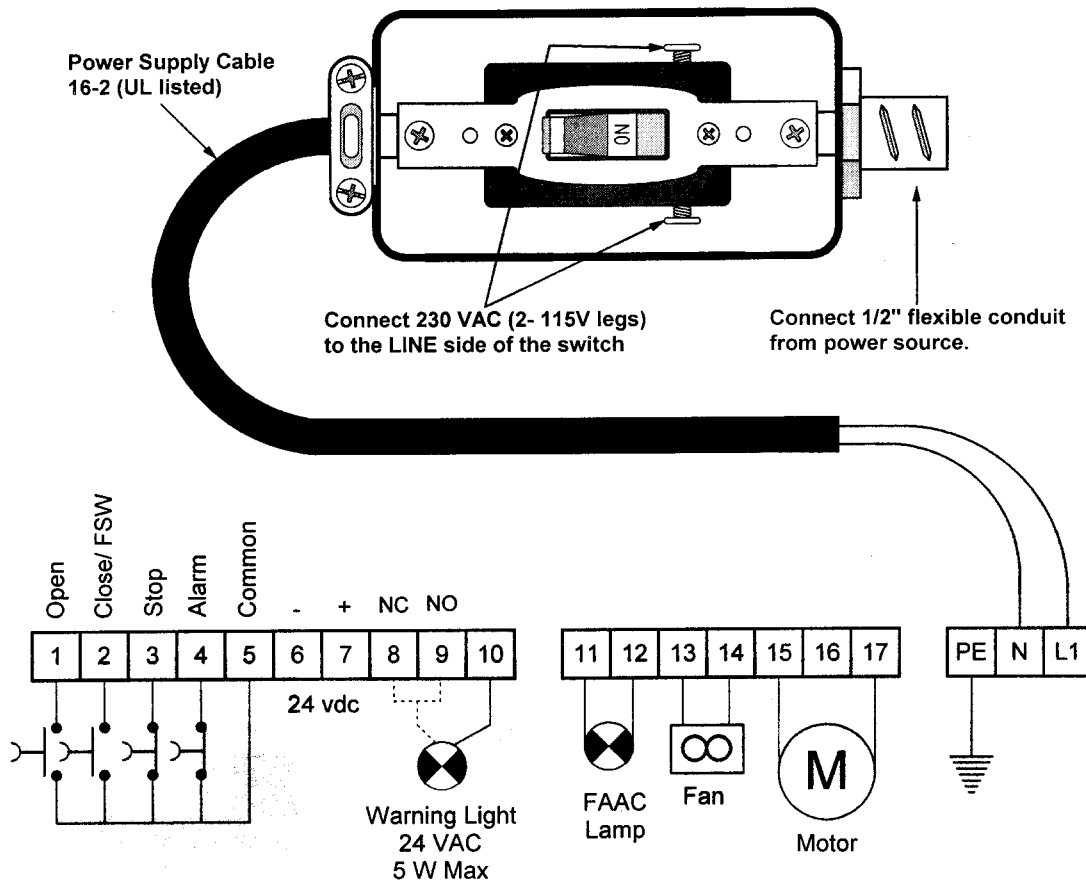
WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

WARNING! Do not connect reversing devices to your control panel if the barrier is to operate in P mode. P mode logic is not compatible with signals from such devices. For photocells, loops, and other N.C. reversing devices to operate properly in P mode, you must install the optional 624 FSW Electronic Card.

Wire additional accessories into your 624 MPS Control Panel as shown in Figures 6 and 7.

Breaking the emergency device contacts to terminal 4 automatically raises the beam. You then must reset the control panel to operate the beam. To reset the control panel, cycle the main power off and on or press the reset button on the control panel (see Figure 6).

Terminal 7 on the control panel provides 24 VDC current and can be used to power accessories requiring such power.



NOTE: In "A" & "E" mode, terminal 2 is an input for a reversing device. In "P" mode, terminal 2 is an input for close.

Figure 7. The wiring detail for the 620/ 640 barrier

Decrease the Hydraulic Pressures

WARNING! You must decrease the hydraulic pressures of the beam's opening and closing momentum before you operate the barrier electrically. The pressure valves are not preset at the factory and may operate the beam with enough force to endanger people and seriously damage the beam itself.

The red and green screws located near the bottom of the hydraulic power pack are the bypass pressure valves that control the hydraulic pressure of the barrier beam when it opens and closes.

Turning the screws counterclockwise decreases the pressure and turning them clockwise increases the pressure. The red screw sets the closing pressure, and the green screw sets the opening pressure.

Before operating the beam for the first time, decrease the pressure of each valve. When you test your installed barrier beam later, you will make final adjustments to these pressure valves.

Set the DIP Switches

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

You need to set six different DIP switches before you operate the barrier. The DIP switches control the operating logic, the pause time, and the length of time for braking.

Operating Logic

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

Switches S1 and S2 set the operating logic of the barrier beam. (See the section "Logical Operation" earlier in this manual for a complete discussion of the logical operating modes.) Use the following table to set your switches:

| Logic | Switch | |
|-------|--------|-----|
| | S1 | S2 |
| A | on | on |
| E | off | on |
| P | on | off |
| R | off | off |

Caution: Use R logic only in an application with two opposed barrier beams. Set only one control panel to R logic; set the other control panel to A, E, or P.

Pause Time

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

The DIP switches S3, S4, and S5 allow you to set the time in seconds for how long the barrier beam pauses when it is fully opened before it closes in A mode. In addition, if you have a warning light installed on your barrier system and you are operating in A or E mode, you can use these DIP switches to have the warning light flash for the last 5 sec of the pause time before the gate closes. (P mode does not allow preflashing of a warning light.)

Use the following table to set your switches for the pause time:

| Pause time, sec | Switch | | |
|--------------------|--------|-----|-----|
| | S3 | S4 | S5 |
| 0 | off | off | off |
| 5 | on | off | off |
| 10 | off | on | off |
| 20 | on | on | off |
| 10 | off | off | on |
| 20 | on | off | on |
| 30 | off | on | on |
| 40 | on | on | on |

The shaded selections flash any connected warning light for the last 5 sec of the pause time. Note that P logic does not allow preflashing.

Braking Time

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

DIP switch S6 allows you to choose a long or short braking time. Turn S6 off for a short braking time (1.5 sec). Turn S6 on for a long braking time (2.5 sec).

Whether you should choose a short or long braking time depends on the interaction of DIP switch S6 and the braking control of the limit switches (see Figure 9). The length and type of your barrier beam is the most important factor in this decision. For example, all skirted beams require a long braking time. All other 620 barriers will operate best with a short braking time. All 640 barrier beams operate best with a long braking time.

Braking cannot begin until a limit switch is triggered. You can adjust the placement of either limit switch plate so that it triggers its switch sooner or later in the beam's 90-deg travel (see Figure 9). The switch and switch plate on the same side of the cabinet as the compression spring control the closing brake; the switch and switch plate on the other side of the operator cabinet control the opening brake.

To move a limit switch plate, loosen the Allen screws holding the plate and then slide the plate. For longer braking, slide the plate toward its switch; for shorter braking, slide the plate away from its switch. Then retighten the Allen screws that secure the limit switch plates.

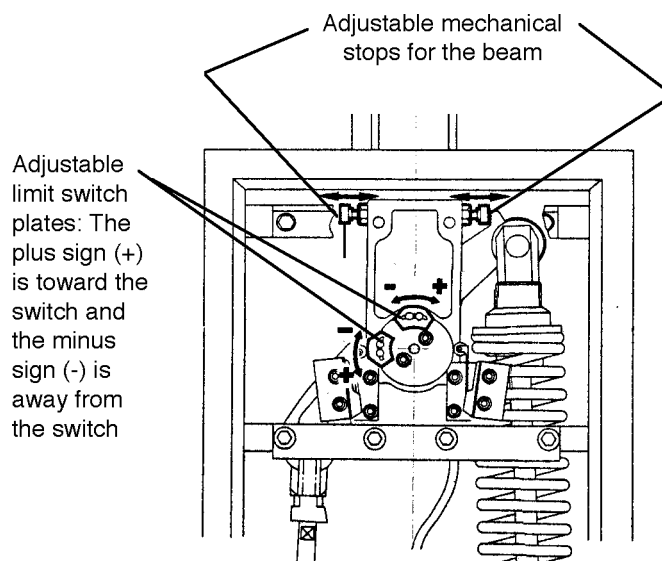


Figure 8. Limit switch plates and mechanical stops on a right-hand barrier

In choosing a long or short braking time, keep the following in mind.

DIP switch S6 sets one braking time for both the opening and the closing.

The longer the barrier beam, the easier is it on the beam if braking begins sooner.

It does not hurt the operator if the motor continues to run after the barrier beam is fully opened or fully closed.

If the motor stops running before the beam fully opens or closes, then choose a long braking time (switch S6 is on) and/or adjust the limit switches.

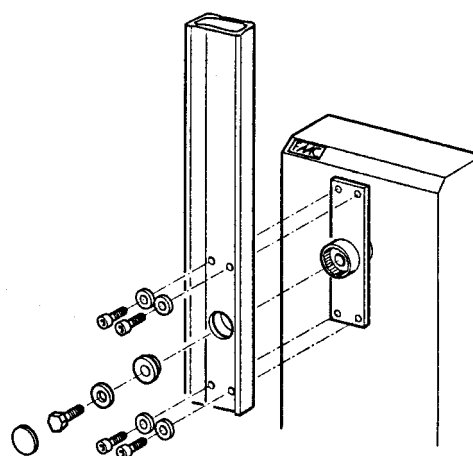


Figure 9. Attaching an aluminum beam to the 620 Barrier

Attach the Barrier Beam

WARNING! Do not install the barrier in such a way that the beam moves within 2 feet (610 mm) of a rigid object.

Before you attach the barrier beam, be sure you have disconnected the barrier from hydraulic operation by means of the Manual Release mechanism (turn the key counterclockwise).

Next you attach the beam to the operator cabinet with the beam in a vertical position. See Figure 10 if you are attaching an aluminum beam to a model 620 operator and see Figure 11 if you are attaching an aluminum beam to a model 640 operator. (Wooden beams require additional sandwich plates for mounting the beam to the barrier cabinet.)

Test the Operation of the Beam

Check the Mechanical Stops

First, be sure the hydraulic operation of the beam is still disengaged (the Manual Release key should be turned counterclockwise). Next, move the beam by hand from the fully opened position (vertical) to the fully closed position (horizontal) and back to the fully opened position. If the positions are not perfectly vertical and perfectly horizontal, then adjust the mechanical stops as necessary (see Figure 9).

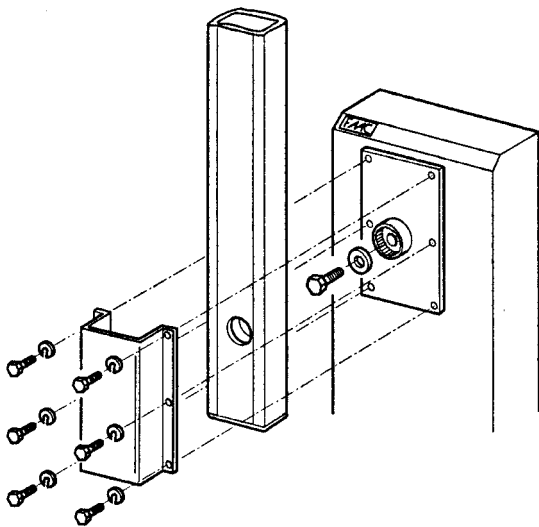


Figure 10. Attaching an aluminum beam to the 640 Barrier

Check the Compression Spring

The compression spring should be adjusted so that it holds the beam in any position that it is placed while in manual mode. (Manual mode is discussed on pages 5 and 6 and shown in Fig. 2)

Move the beam by hand to a half-opened position. The beam should stay there when you remove your hand.

Note: All compression spring adjustments should be made with the beam in the vertical (open) position.

If the beam drifts toward the closed position, turn the adjuster nut (shown in Fig. 1) clockwise to tighten the compression spring.

If the beam drifts toward the opened position, turn the adjuster nut (shown in Fig. 1) counterclockwise to loosen the compression spring.

Note: Proper adjustment of the spring will counterbalance the beam. This will allow the minimal pressure setting necessary to move the beam.

Adjust the Bypass Valves

Now that the beam is attached, re-engage the hydraulic operation of the barrier by rotating the Manual Release key clockwise.

Send an activating signal to the barrier. The signal should open the barrier. If it does not open, increase the pressure of the opening bypass valve (the green valve) by turning the screw clockwise in small, 1/8-turn increments until the beam does open.

Test the closing of the barrier in the same way. If the beam fails to move in the closing direction, then increase the pressure of the closing bypass valve (the red valve) by turning the screw clockwise in small increments until the beam does close.

Remember that you should set the bypass pressure valves so that the beam works with the least pressure necessary. It is a safety feature of the barrier that the beam should apply no more than about 33 lb (15 kg) force against any obstacle it might encounter.

WARNING! For maximum safety to people and property, use photoeyes and other non-contact reversing devices in addition to adjusting the bypass pressure valves to the minimum settings.

Optional Installations

Installing the Emergency Bypass Solenoid

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

The emergency bypass solenoid automatically disengages the hydraulic system of the barrier beam when the main power is not available. This allows the barrier to be raised by hand so that people and vehicles can safely pass during power interruptions and failures.

Note: Once the emergency bypass solenoid has disengaged the hydraulic system *and* once you have raised the beam by hand, you *cannot* lower the barrier beam until the power is restored.

If you are installing the optional emergency bypass solenoid, you must first turn off the main power and disengage the hydraulic system by using the Manual Release key.

Then you disassemble the hydraulic lines between the pistons and the operator so that you can install new hydraulic pipe fittings.

After installing the new pipe fittings, install the emergency bypass solenoid (see Figure 12).

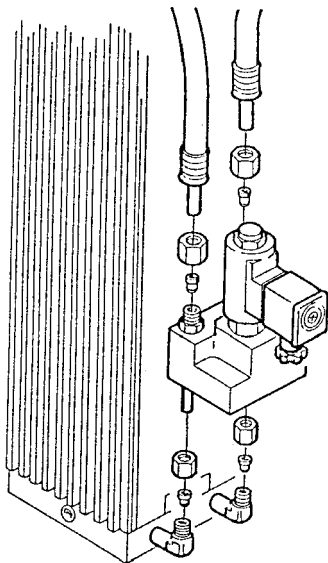
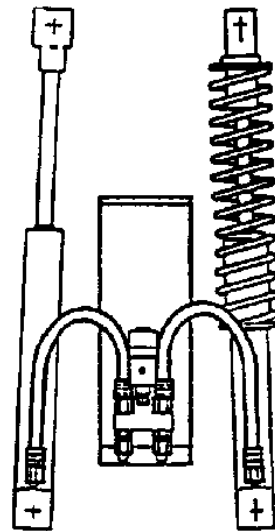


Figure 11. Install the solenoid

After connecting the solenoid, you need to connect the hydraulic lines between the operator and the pistons. How you connect the lines depends on the orientation of your barrier installation (see Figure 13).

Finally, connect the solenoid to your main power line so that it can sense when power is or is not available (see Figure 14).

(a) Right-hand orientation



(b) Left-hand orientation

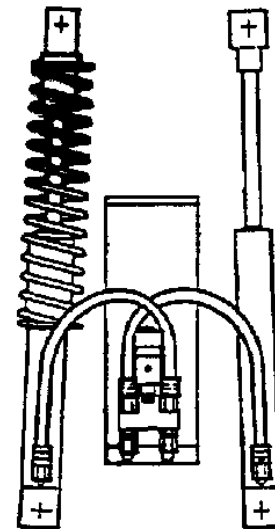


Figure 12. Connect the hydraulic lines

Re-engage the hydraulic system with the Manual Release key so that you can test the installed solenoid.

To test the solenoid, turn off the power to the barrier. If the solenoid works, you should be able to raise the beam but not lower it after raising it. You should be able to lower the beam only after turning the power back on.

Installing Optional Electronic Cards

Three optional electronic cards enhance the versatility of the FAAC 620 and 640 Barriers. The cards feature the same reliable surface-mount technology as our electronic control panels and feature easy installation. You just plug the 624 Slave Card, the 624 FSW Card, or the 624 Relay Card into the 20-pin connector port next to the DIP switches on the main 624 MPS control panel (see Figure 6).

In addition, if you want two or more of the new optional Cards, you just stack the optional cards on top of one another with the 624 Relay Card always the uppermost card (see Figures 14 and 17).

The 624 Slave Card

The optional 624 Slave Card enables two opposing barriers to operate simultaneously, preventing any lag time between the beams when you signal the operators to open. Generally, only very wide entrances make use of two opposing barriers, but those applications often require the capabilities of the 624 Slave Card for smooth traffic control, aesthetics, and safety reasons.

In such an application, you must set up 3 different circuit boards:

Master 624 MPS control panel: This is the control panel on one of the two barriers.

Slave 624 MPS control panel: This is the control panel on the other of the two barriers.

624 Slave Card: This is the optional electronic card that is plugged into the master 624 MPS control panel.

Installing the 624 Slave Card requires the following.

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

First, you must choose one of the two 624 MPS control panels to be the master control panel. The other 624 MPS control panel (the slave 624 MPS control panel) is controlled by the master.

On the master control panel, you then set the DIP switches for the logic (A, E, or P), pause time, and braking time that you want. Both barrier beams will behave according to these settings on the master 624 MPS control panel.

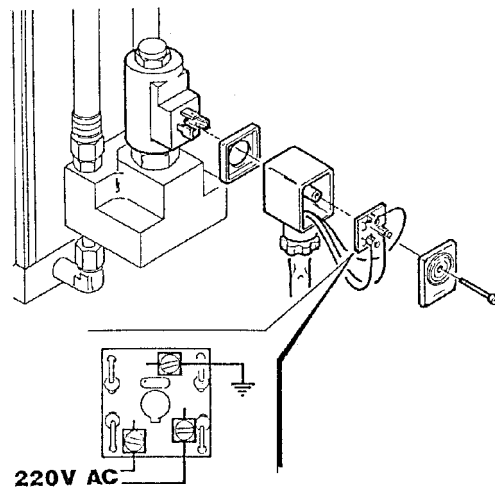


Figure 13. Connect the solenoid to the main power supply line

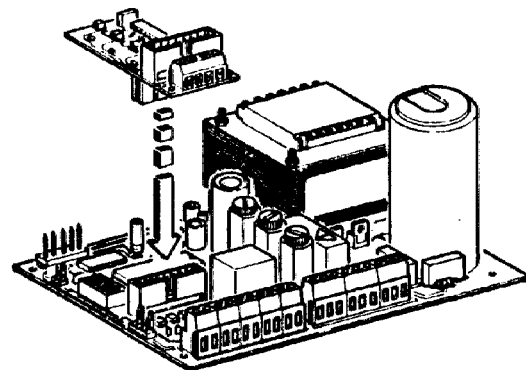


Figure 14. How the 624 Slave Card or 624 FSW Card plugs into the main 624 MPS control panel

Next, you electrically connect the master 624 MPS control panel for the logic you have set on DIP switches S1 and S2 (see Figures 6 and 7).

Then you plug the 624 Slave Card into the 20-pin connector port on the master 624 MPS control panel. Make sure it is well seated in the port.

If you have set the logic on the master 624 MPS control panel to P mode, then you *must* cut jumper LK1 on the 624 Slave Card.

Next, you connect the 624 Slave Card to the slave 624 MPS control panel using 20 AWG wire according to the scheme shown in Figure 16.

Finally, on the slave 624 MPS control panel, set both the S1 and S2 DIP switches to *off* for R logic. The master MPS control panel ignores all other DIP switch settings on the slave 624 MPS control panel.

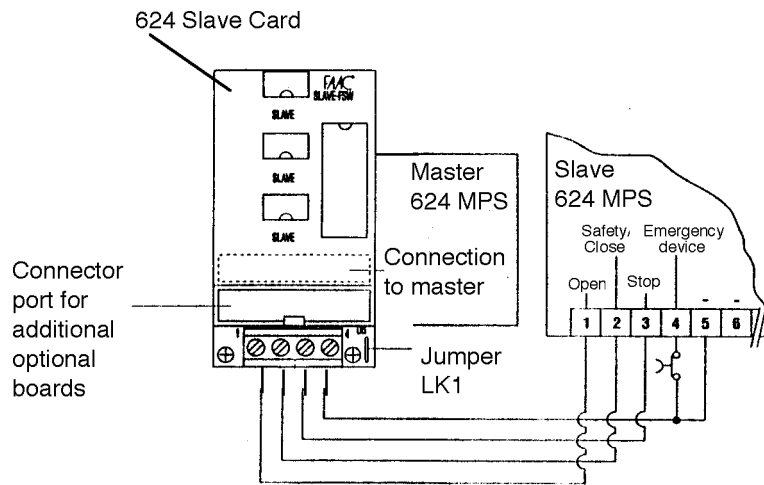


Figure 15. Wiring diagram for the 624 Slave Card

The 624 FSW Card

The optional 624 FSW Card enables reversing devices to work when the barrier is operating in P (parking) mode. Useful in revenue parking applications, the FSW Card maintains the revenue generating situation while insuring that the beam doesn't harm potential tailgaters. The option allows a reversing device to intervene while the beam is closing to stop beam motion. The beam finishes closing when the reversing device is no longer triggered.

Note: The optional 624 FSW Card does not work with 624 MPS control panels of revision level 0. Such control panels have the DIP switches in the middle of the board rather than on the edge of the board. You can verify the revision level of your control panel by checking the position of the DIP switches or by looking on the bottom side of the board (revisions are numbered 00 or 01, for example).

Installing the optional 624 FSW Card requires the following.

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

First, plug the 624 FSW Card into the 20-pin connector port on the main 624 MPS control panel. Make sure the card is well seated. Then connect the terminals on the 624 FSW Card to the 624 MPS control panel as shown in Figure 17. Use 20 AWG wire to make the connections.

The LEDs on the 624 FSW Card have the following functions when the card is connected.

| LED | Lighted | Not Lighted |
|-----|--------------------------------|----------------------------|
| DL1 | Stop deactivated | Stop activated |
| DL2 | Close activated | Close deactivated |
| DL3 | Reversing device not activated | Reversing device activated |

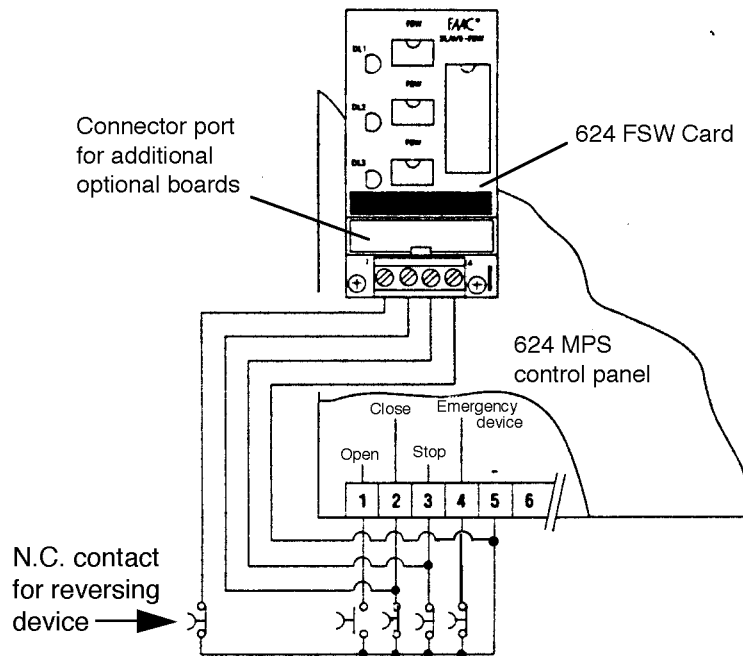


Figure 16. Wiring diagram for the 624 FSW Card

The 624 Relay Card

The optional 624 Relay Card provides six normally open (N.O.) electrical contacts for connecting auxiliary equipment, such as remote monitors, counters, computers, lighting controls, and so forth. The Relay Card is much more convenient to use than standard relays and has the advantage of fitting neatly in the control panel enclosure.

Installing the 624 Relay Card requires the following.

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

First, plug one end of the flat cable into the Relay Card as shown in Figure 18. Then mount the Relay Card to the transformer of the main control panel using the flat cable, spacers and screws provided (see Figure 18). Next plug the flat cable into the 20-pin connector port on the main control panel. Make sure the connecting ends of the flat cable are well seated.

Each numbered terminal on the Relay Card (for example, RL1; see Figure 19), along with the common terminal (COM), provides a normally open contact. Each contact has a maximum rating of 1 amp for a 24 VDC accessory or 1/2 amp for a 120 VAC accessory. Each contact closes under a certain condition (see the table below).

| Relay Terminal | Beam Status When Relay Contact Closes |
|----------------|---------------------------------------|
| RL1 | Stopped |
| RL2 | Opened |
| RL3 | Closed |
| RL4 | Opening |
| RL5 | Closing |
| RL6 | Alarm status |

These six sets of contacts can be used with the various accessories and auxiliary equipment common to parking and revenue generating applications.

The 624 Relay Card has a number of LEDs that function in addition to the LEDs on the main 624 MPS control panel. The Status LEDs are not illuminated unless a particular condition exists. The table to the right lists the condition that makes these LEDs illuminate.

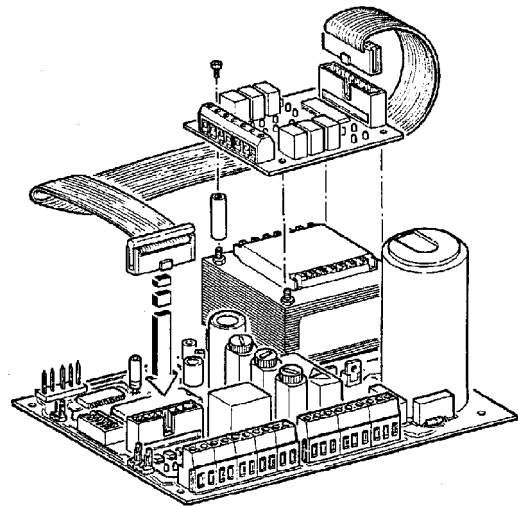


Figure 17. How the 624 Relay Card plugs into the 624 MPS control panel

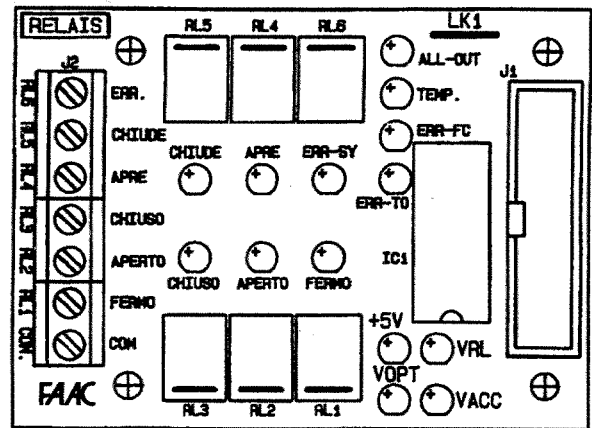


Figure 18. The 624 Relay Card

| Status LED | Condition Causing Illumination |
|------------|--------------------------------|
| CHIUDE | Beam is closing |
| APRE | Beam is opening |
| CHIUSO | Beam is closed |
| APERTO | Beam is opened |
| FERMO | Beam is stopped |

The Alarm LEDs are also not illuminated unless a particular condition exists. When an Alarm LED is lighted, you must do both of the following:

- (1) Correct the condition causing the LED to illuminate.
- (2) Reset the barrier in order to resume normal barrier operation.

To reset the barrier, turn the power off and then on or press the Reset button on the main 624 MPS control panel.

The table below lists the condition that makes each Alarm LED illuminate.

| Alarm LED | Condition Causing Illumination |
|-----------|--|
| ERR-SY* | Microprocessor error |
| ERR-TO | Safety timer error |
| ERR-FC | Limit switch error |
| TEMP. | Motor shut down because of temperature |
| ALL-OUT** | Emergency device input enabled |

* When you have a 624 Slave Card installed, this illuminated LED indicates that there is a problem with the Slave Card connection.

** If you have cut jumper LK1 on the Relay Card, this LED will illuminate but the contact will not close.

Four additional LEDs are always illuminated unless there is a problem in the circuits of the 624 Relay Card itself. FAAC personnel may ask you about these LEDs so the following table is included here. However, you must send the board to us to be repaired.

| Circuit Status LED | Problem |
|--------------------|---------------------------|
| +5 V | Voltage regulators |
| VRL | Relay secondary power |
| VOPT | Opto-isolator power |
| VACC | Accessory secondary power |

Changing the Length or Type of Barrier Beam

WARNING! Do not install the barrier in such a way that the beam moves within 2 feet (610 mm) of a rigid object.

Changing the length or type of the barrier beam requires installing a different barrier beam of the desired length (and/or type) and requires making sure you have the correct compression spring (designed for a particular weight of beam) for the barrier beam.

The installer is responsible for making sure that the compression spring is the correct spring for the barrier beam.

The following tables show which springs are designed for various beam types and lengths. To check for the part number of the compression spring in your operator cabinet, check the tag attached to the spring.

If it is necessary for you to replace the spring in a cabinet with another compression spring, do the following. First, turn off the main power to the operator and then open the cabinet panel. Turn the Manual Release key counterclockwise. Then move the beam by hand to the fully opened position.

Unbolt the piston with the compression spring from the rocker arm. Then very carefully unscrew the cap holding the compression spring with the spanner wrench to disengage the spring from the piston. Remove the spring from the piston.

Install the correct compression spring by placing it over the piston and screwing it into place. Then rebolt the piston to the rocker arm and reinstall the steel cross member. Re-engage the hydraulics by turning the Manual Release key clockwise.

Be sure to recheck the tension of the compression spring before you turn on the main power to the operator. Then be sure to adjust the hydraulic pressures.

Rigid Beams: Part Numbers of Compression Springs for Various Lengths

| Beam and Required Spring | 620 Barrier Systems | | | | 640 Barrier Systems | | | |
|--------------------------------------|---------------------|-----------|--------|--------|---------------------|--------|--------|--------|
| Redwood Beam, ft | 8–10 | 12–14 | 16 | NA | 16–18 | 18–20 | 20 | NA |
| Rigid Aluminum Beam, ft (m) | 6 (2) | 8 (2 1/2) | 10 (3) | 13 (4) | 13 (4) | 16 (5) | 20 (6) | 23 (7) |
| FAAC Part No. for Compression Spring | 721085 | 721069 | 721070 | 721072 | 721073 | 721074 | 721075 | 721080 |

Skirted Beams: Part Numbers of Compression Springs for Various Lengths

| Beam and Required Spring | 620 Barrier Systems | | | | 640 Barrier Systems | | | |
|--------------------------------------|---------------------|-----------|--------|--------|---------------------|--------|--------|--------|
| Skirted Aluminum Beam, ft (m) | 6 (2) | 8 (2 1/2) | 10 (3) | 13 (4) | 13 (4) | 16 (5) | 20 (6) | 23 (7) |
| FAAC Part No. for Compression Spring | 721069 | 721071 | 721073 | 721074 | 721079 | 721080 | 721081 | 721082 |

Maintenance

Regular Maintenance

Inspect and service your 620 or 640 Barrier system anytime you observe or suspect a malfunction of the barrier. In addition, FAAC recommends you check the barrier system every 1,000,000 cycles of the operator for the items listed below to keep your operator in the best working condition. Failure to observe these recommendations could compromise the functionality of the operator.

| Item to Check Every 1,000,000 Cycles | What to Do |
|--------------------------------------|---|
| Entire barrier system | Replace any visually obvious defective part |
| Oil level | Refill the oil if necessary |
| Bypass valves | Tighten or loosen the valves to maintain the recommended pressure settings |
| Beam motion | Adjust the compression spring if necessary |
| Cooling fan | Clean the motor cooling ducts |
| Control panel | Test the function of input power and output function of all attached relays, cards, and devices |

Special Maintenance

Inspect and service your 620 or 640 Barrier system anytime you observe or suspect a malfunction of the barrier. In addition, if your observations warrant it, FAAC recommends you make the following listed repairs and replacements to the barrier system to keep your operator in the best working condition. Failure to observe these recommendations could compromise the functionality of the operator.

| Part(s) to Repair or Replace | Number of Cycles |
|-----------------------------------|------------------|
| Drive pistons: seals and gaskets | 1,000,000 |
| Ball joints in the rocker arm | 1,000,000 |
| Mechanical stops | 1,000,000 |
| Hydraulic unit: seals and gaskets | 2,000,000 |
| Cooling fan | 2,000,000 |
| Balancing spring | 3,000,000 |
| Limit switches | 6,000,000 |

Troubleshooting

WARNING! Turn the main power off before you make any electrical connections or set any switches inside the control panel box.

Problem: The beam is closed and won't open in response to an activating signal.

Solution:

Make sure the hydraulic operation of the barrier beam is engaged: The Manual Release key should be turned clockwise.

The OPEN indicator LED should illuminate when you send an activating signal. If it does not, temporarily short terminals 1 and 5. If the short causes the beam to open, then the problem exists in the activating device itself.

If you have no stop device wired to terminal 3, then make sure you have a jumper installed between terminals 3 and 5 on the control panel. The STOP LED should be on.

The FCC indicator light on the control panel should not be illuminated. If it is illuminated, then the gate is not fully closed. Adjust the position of the closing limit switch plate.

Try increasing the opening hydraulic pressure in small increments by turning the opening bypass valve screw (the green valve) clockwise.

Verify that you have the correct compression spring for your barrier beam. If you have the correct spring, check that the spring will hold the beam in any position during manual operation. If the spring doesn't hold the beam in any position, try tightening the compression spring until the beam is held and then recheck the hydraulic operation of the beam.

Problem: The beam is open and won't close in response to an activating signal.

Solution:

Check the LEDs on the control panel. The FCA light should be off, and the CLOS/FSW, STOP, FCC, and ALARM lights should be on.

If the FCA light is on, then the gate is not fully opened. Move the opening limit switch plate closer to the opening switch sensor.

If you have no reversing devices installed and you are operating in A or E mode, make sure you have a jumper installed between terminals 2 and 5. (The CLOS/FSW light should be on.)

If the CLOS/FSW light is off, some reversing device you have installed is being continuously triggered and is preventing the beam from closing. Check your reversing devices.

If your activating device has two buttons—one for opening/closing and one for stop—and you are operating in P mode, then make sure you have a jumper between terminals 2 and 5.

If you have no stop device wired to terminal 3, then make sure you have a jumper installed between terminals 3 and 5 on the control panel.

If you have no emergency device wired to terminal 4, then make sure you have a jumper installed between terminals 4 and 5 on the control panel.

Increase the pressure of the closing bypass valve (the red valve) by turning the screw clockwise in small increments to see if the beam needs more hydraulic pressure for the closing direction.

Problem: The beam is half opened and will neither open nor close in response to the activating device.

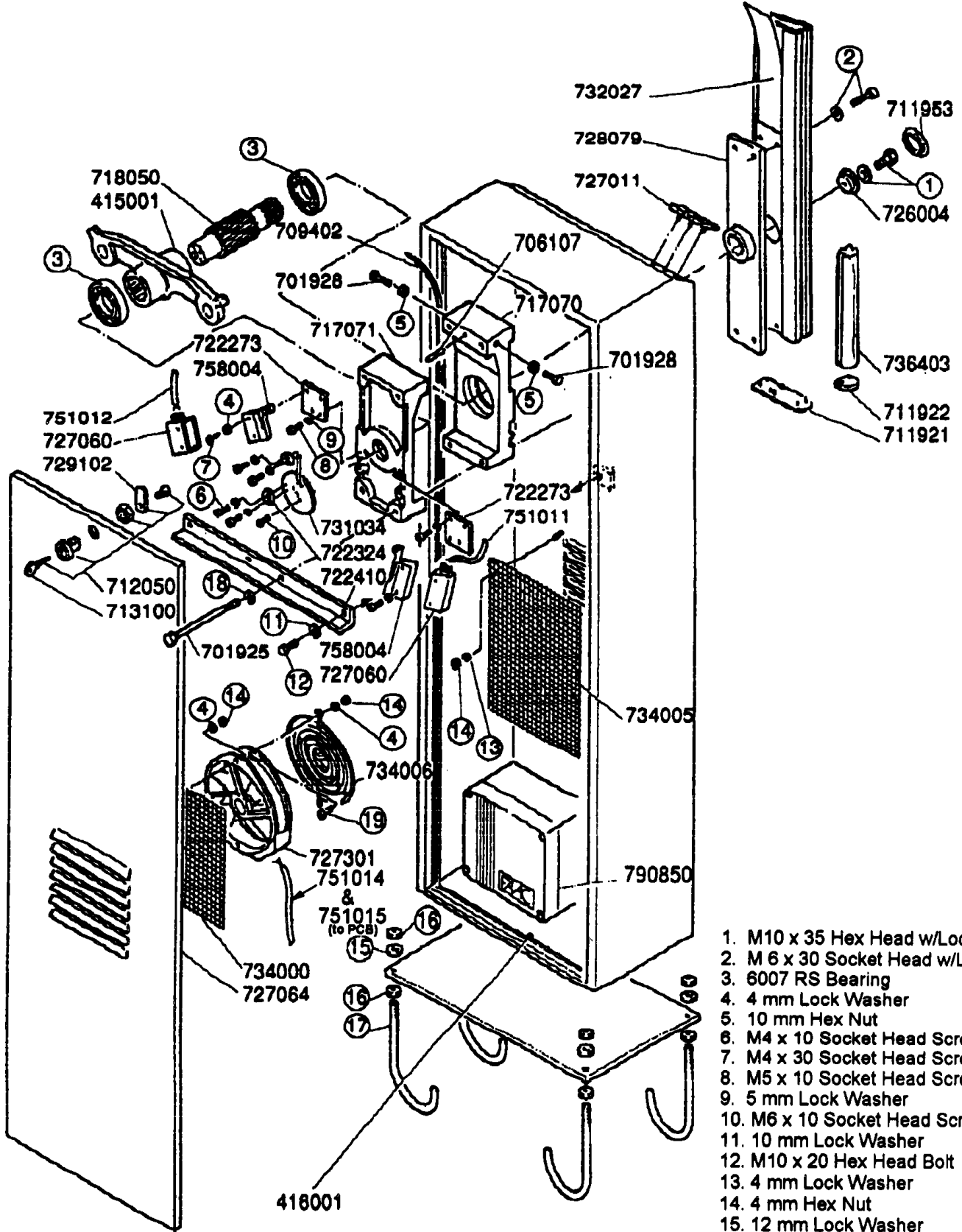
Solution:

The barrier may be in jam status because something or someone has physically prevented the beam from opening or closing. Reset the barrier and then try sending another activating signal.

Check the CLOS/FSW indicator light. It should be on. If it is not illuminated, then check the wiring on your safety devices.

EXPLODED VIEW

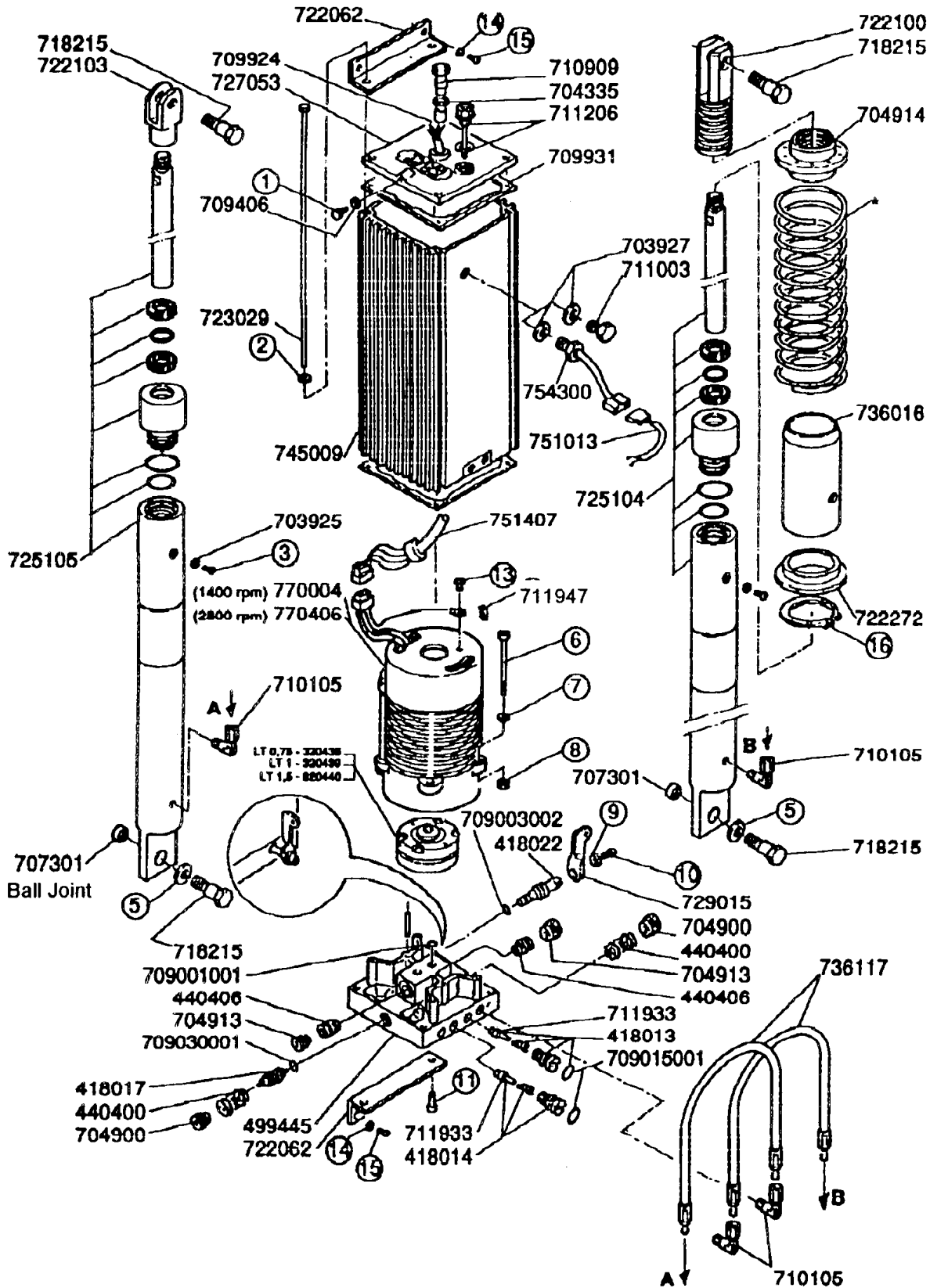
620 MECHANICAL PARTS



1. M10 x 35 Hex Head w/Lock
2. M 6 x 30 Socket Head w/Lock
3. 6007 RS Bearing
4. 4 mm Lock Washer
5. 10 mm Hex Nut
6. M4 x 10 Socket Head Screw
7. M4 x 30 Socket Head Screw
8. M5 x 10 Socket Head Screw
9. 5 mm Lock Washer
10. M6 x 10 Socket Head Screw
11. 10 mm Lock Washer
12. M10 x 20 Hex Head Bolt
13. 4 mm Lock Washer
14. 4 mm Hex Nut
15. 12 mm Lock Washer
16. 12 mm Hex Nut
17. 12 mm J-Bolt
18. 10 mm Lock Washer
19. M4 x 15 Hex Head Screw

EXPLODED VIEW

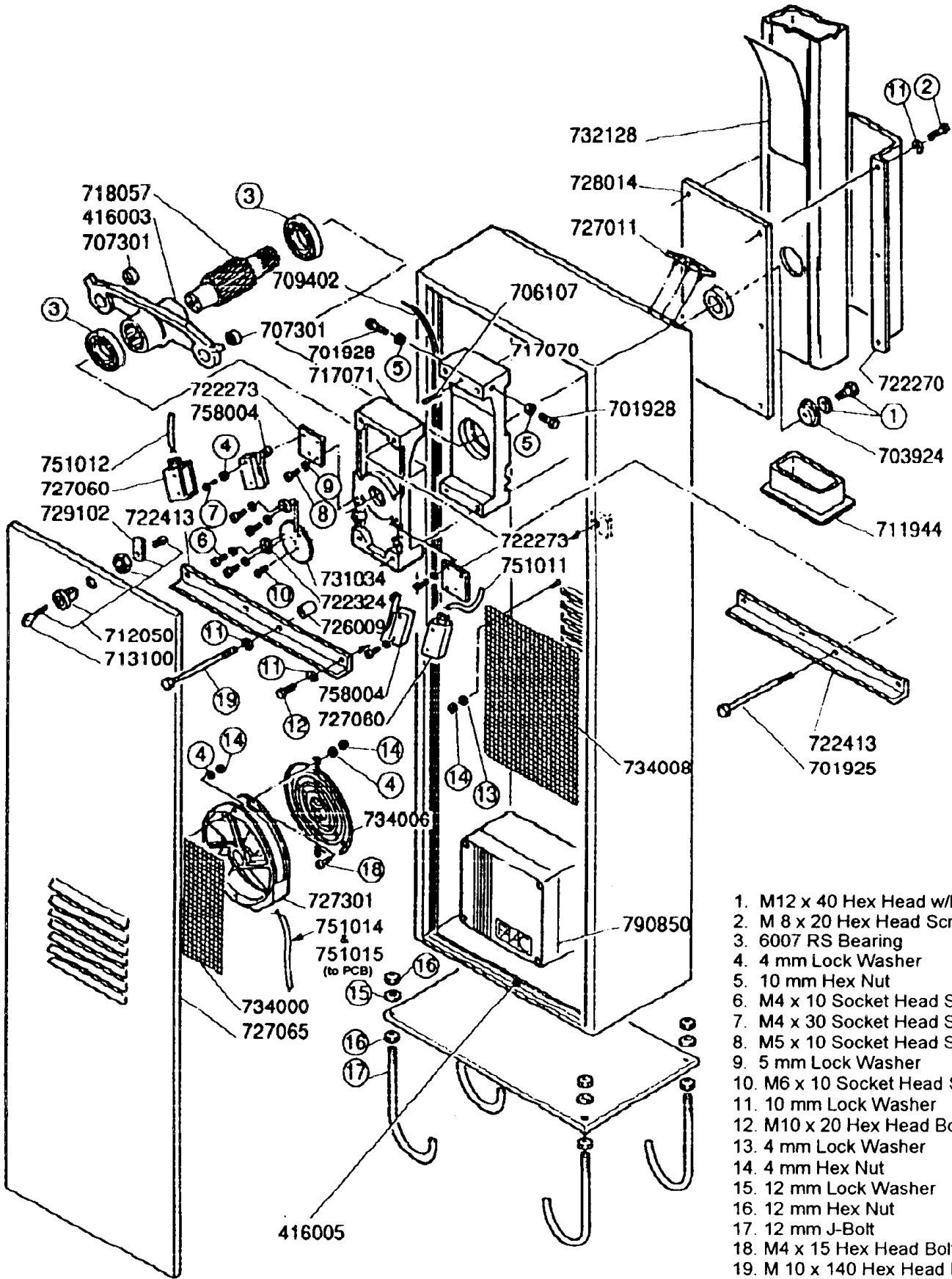
620 HYDRAULIC PARTS



- | | | |
|------------------------------|------------------------|------------------------------------|
| 1. M4 x 8 Socket Head Screw | 7. 4 mm Lock Washer | 13. M4 x 8 Socket Head Screw |
| 2. 5 mm Lock Washer | 8. 4 mm Hex Nut | 14. 6 mm Lock Washer |
| 3. M5 x 8 Socket Head Screw | 9. 4 mm Lock Washer | 15. M6 x 10 Socket Head Screw |
| 5. 17 mm Flat Washer | 10. M4 x 6 Socket Head | 16. E50 7435/75 External Snap Ring |
| 6. M4 x 50 Socket Head Screw | 11. M5 x 8 Socket Head | * See Spring Chart |

EXPLODED VIEW

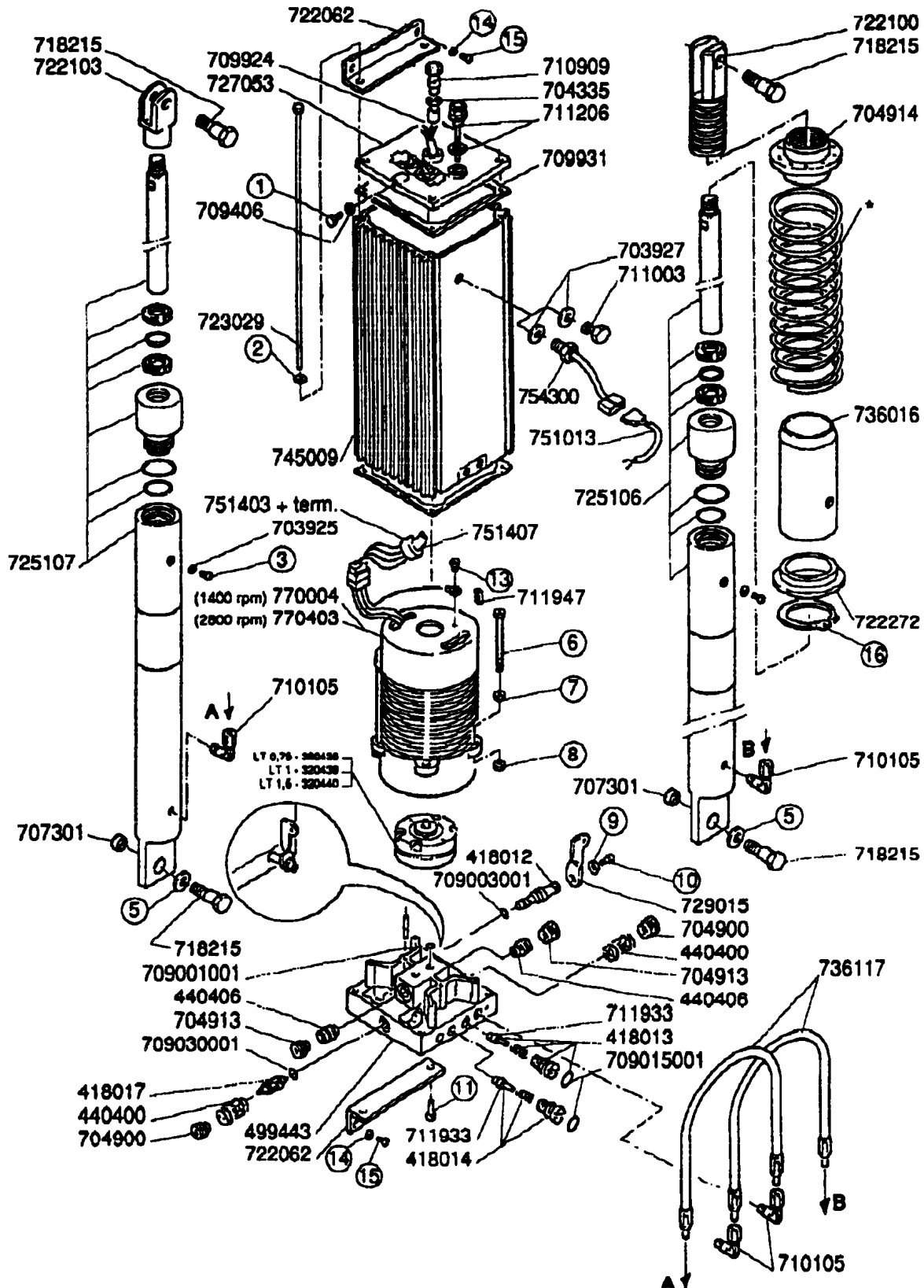
640 MECHANICAL PARTS



1. M12 x 40 Hex Head w/Lock
2. M 8 x 20 Hex Head Screw
3. 6007 RS Bearing
4. 4 mm Lock Washer
5. 10 mm Hex Nut
6. M4 x 10 Socket Head Screw
7. M4 x 30 Socket Head Screw
8. M5 x 10 Socket Head Screw
9. 5 mm Lock Washer
10. M6 x 10 Socket Head Screw
11. 10 mm Lock Washer
12. M10 x 20 Hex Head Bolt
13. 4 mm Lock Washer
14. 4 mm Hex Nut
15. 12 mm Lock Washer
16. 12 mm Hex Nut
17. 12 mm J-Bolt
18. M4 x 15 Hex Head Bolt
19. M 10 x 140 Hex Head Bolt

EXPLODED VIEW

640 HYDRAULIC PARTS

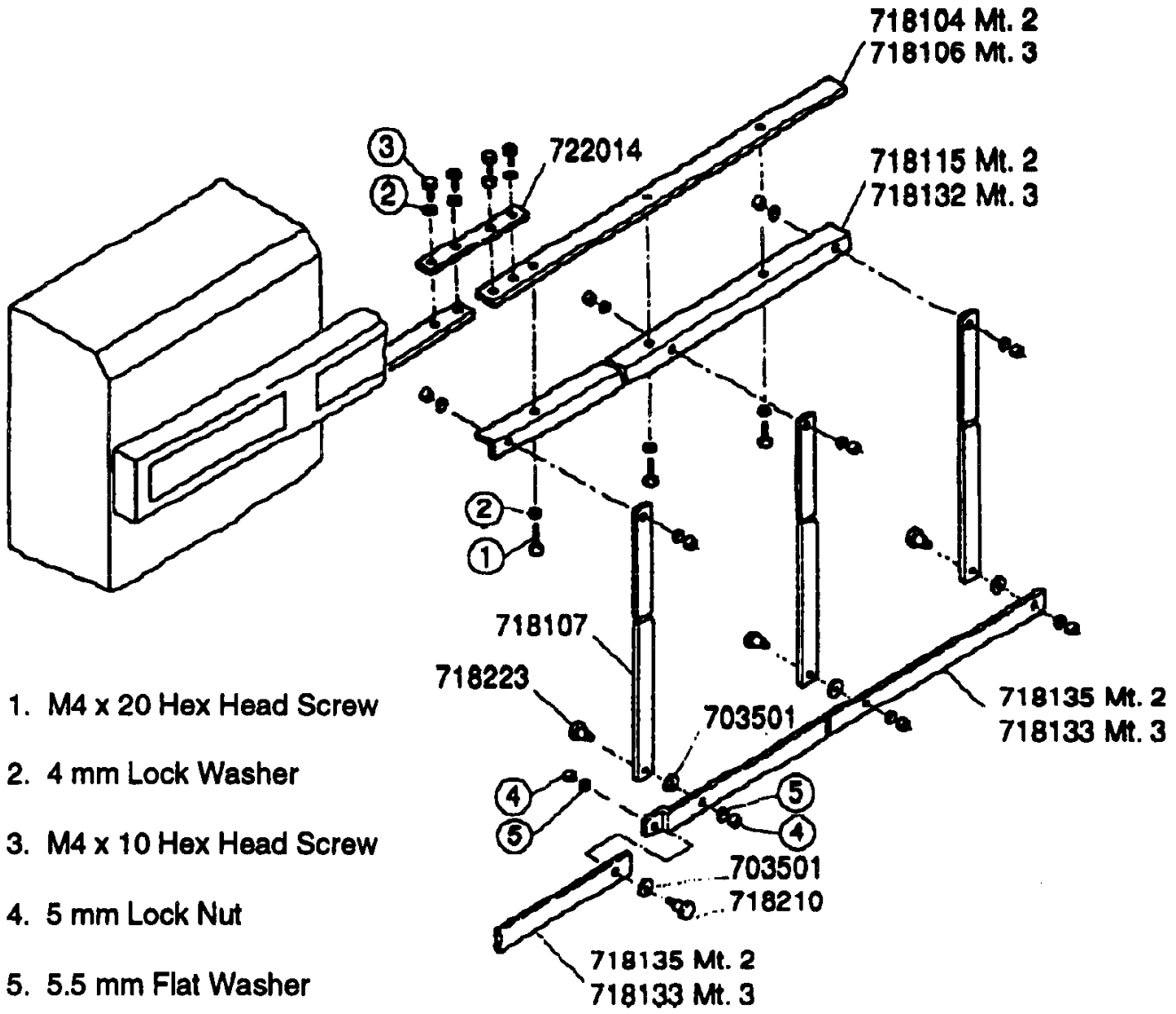


- | | | |
|------------------------------|------------------------|------------------------------------|
| 1. M4 x 8 Socket Head Screw | 7. 4 mm Lock Washer | 13. M4 x 8 Socket Head Screw |
| 2. 5 mm Lock Washer | 8. 4 mm Hex Nut | 14. 6 mm Lock Washer |
| 3. M5 x 8 Socket Head Screw | 9. 4 mm Lock Washer | 15. M6 x 10 Socket Head Screw |
| 5. 17 mm Flat Washer | 10. M4 x 6 Socket Head | 16. E50 7435/75 External Snap Ring |
| 6. M4 x 50 Socket Head Screw | 11. M5 x 8 Socket Head | * See Spring Chart |

EXPLODED VIEW

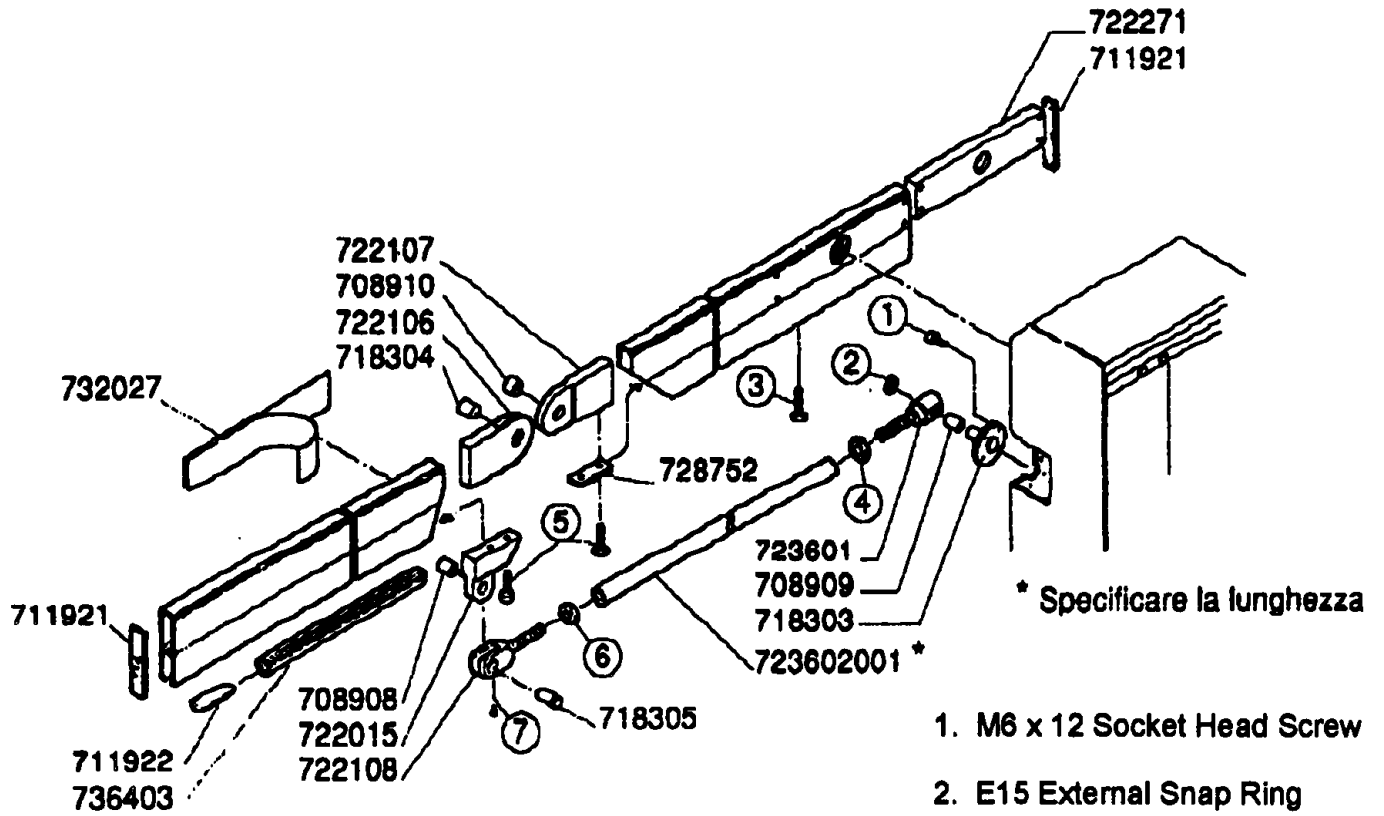
BARRIER BEAM SKIRT KIT 620 AND 640

2 meter - Part #428216
3 meter - Part #428217



EXPLODED VIEW

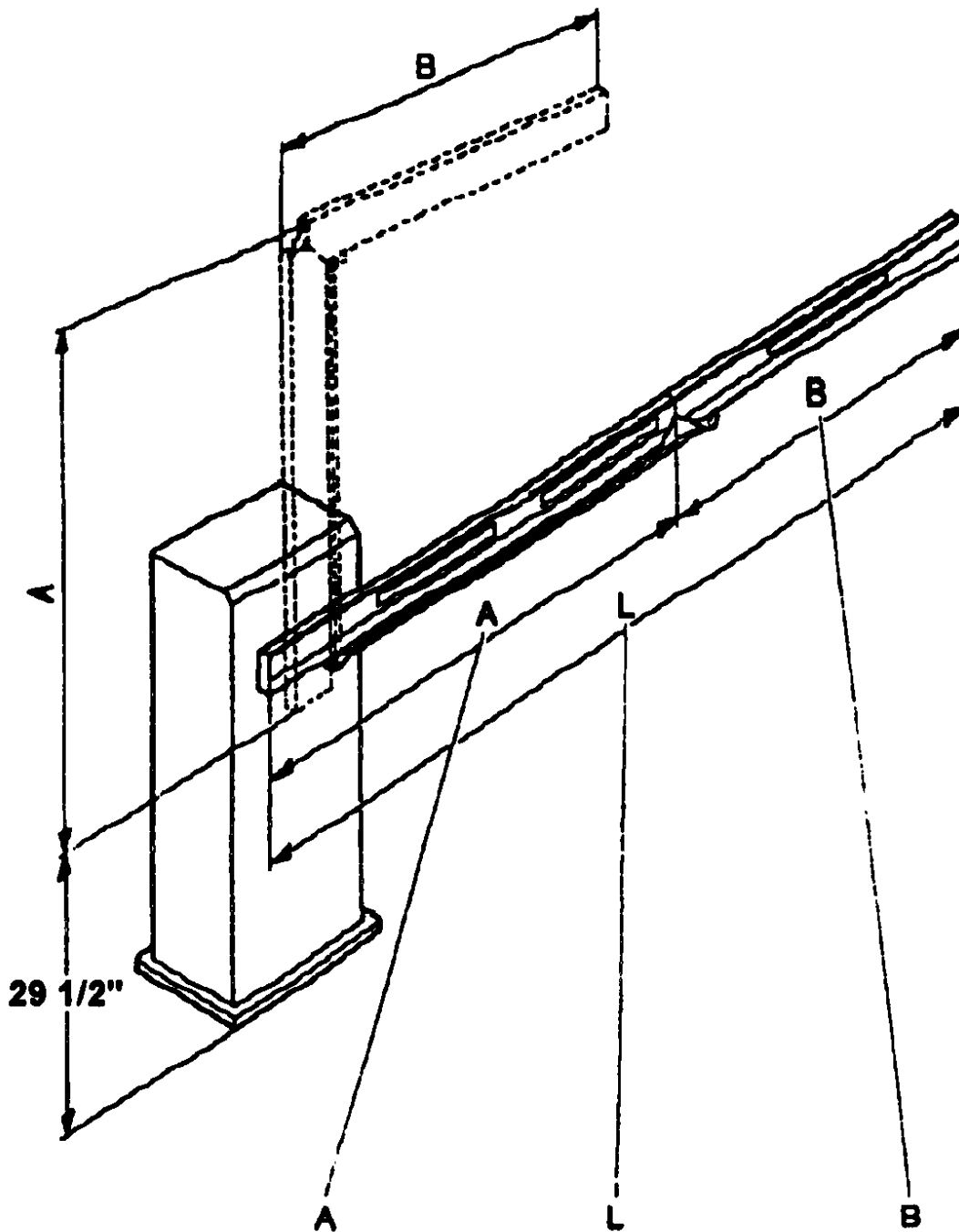
ARTICULATION KIT 620



1. M6 x 12 Socket Head Screw
2. E15 External Snap Ring
3. M6 x 18 Socket Head Screw
4. 14 mm Nut (Left Hand)
5. M6 x 20 Socket Head Screw
6. 14 mm Nut (Right Hand)
7. M4 x 6 Socket Head Screw

EXPLODED VIEW

ARTICULATION KIT SPECS 620



| A | L | B | COD. |
|--------------|-------|--------------|--------|
| 9 ft - 11 ft | 13 ft | 2 ft - 4 ft | 721074 |
| 6 ft - 9 ft | 13 ft | 4 ft - 7 ft | 721073 |
| 5 ft - 6 ft | 13 ft | 7 ft - 8 ft | 721072 |
| 3 ft - 5 ft | 13 ft | 8 ft - 10 ft | 721071 |
| 6 ft - 8 ft | 10 ft | 2 ft - 4 ft | 721072 |
| 5 ft - 6 ft | 10 ft | 4 ft - 5 ft | 721071 |
| 3 ft - 5 ft | 10 ft | 5 ft - 7 ft | 721070 |
| 3 ft - 5 ft | 10 ft | 5 ft - 7 ft | 721069 |