



Ellison Bronze, Inc.

## Instructions for the installation of Ellison Bronze balanced door model #139B control hardware

*Used from 1973 to 1992*

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1. A packing list will be found attached to crate No. 1 of each shipment. The parts in the crates should be checked with this list. If there are any discrepancies, notify Ellison Bronze at once.
2. All parts are numbered. Numbering starts from the left as you face the unit from the exterior side. Be sure that each part is erected in its proper position.
3. Assemble the frame (except hardware access section of hinge jamb) on the floor and raise into place or assemble the frame in the opening, depending on unit construction requirements. See job drawings.
4. Level the bottom unit, being especially careful that the door control hardware floor boxes (18) are level with each other and/or saddle. ***This is important. Do not fasten any part of the unit to walls or floor at this time.***
5. Install door hinge pivot assembly (11) as follows:
  - (a) Remove floor box access plate (18A), pry pawl (18C) off, and note large gear (18D) key.
  - (b) Remove lower screw (6) from spline pin (5) and push pin down flush with top of top arm. Note position of large spline.
  - (c) Place hinge (11) bottom pivot key way over key in floor box large gear (18D) and swing arms around to open position.
  - (d) Engage splined top pivot pin with splined hole in unit above. To accomplish this, push up pin screw (6) located in shaft slot and move shaft around until you feel chamber on top of pin fit into chamber of hole above. With continued up pressure on pin screw, rotate shaft back and forth until screw slides to top of slot. Splined pin is then engaged. Replace second screw (6) and turn in until head is flush with outside of shaft.
  - (e) Note the clearance between top arm and head member. If other than the door clearance specified, remove the hinge pivot. If too low, add shims in large gear key under hinge shaft bottom pivot; if too high, file the required amount off hinge shaft bottom pivot. Replace door hinge pivot.
6. Hang door
  - (a) Loosen set screw (8) in top arm and remove the door top pivot (7).
  - (b) Check to be sure that the door pivots (9) and (14) and door roller (10) screws are tight.
  - (c) Place door in opening in open position with top tipped toward push side. Lift door and place door bottom pivot (14) in bearing (15) of bottom arm.
  - (d) Straighten door and at the same time engage door top roller (10) in guide channel (4).
  - (e) Drop door top pivot pin (7) into top arm (with hole toward set screw) and into door top pivot bearing (9).
  - (f) Tighten set screw (8) securely.
7. Shift and shim jamb sections, gear boxes and threshold as required to obtain perfect door alignment in all directions. ***This is important.***
8. Keeping the above alignment, fasten threshold and jamb sections as per drawing requirements.

9. Check door clearances all around and adjust as required.
  - (a) Turn check valves (3R) out enough to allow free swing of the door.
  - (b) Adjust clearances as follows: (See top view of door on separate sheet)
    1. To change clearances between door and side jambs or between doors, move door top pivot bearing (9) and/or bottom pivot (14). Slotted mounting holes parallel with the door are provided for this purpose.
    2. To adjust door against stops, move door top roller (10) in or out as required. Move roller toward pull side if door hits the hinge jamb stop but not the strike side. Move roller toward the push side if the door hits the strike side but leaves too much clearance at hinge jamb stop. Slotted mounting holes perpendicular to door are provided for this purpose.
    3. To raise door, add shim disc on top of bottom pivot bearing (16).  
NOTE: Door must be taken down to make the above adjustments
    4. To lower the door, bend the bottom arm down. To accomplish this, place the door in open position, place a block of wood on the bottom arm as close to the door bottom pivot as possible. With a six pound hammer, hit it down sharply. Check the clearance, and if not enough, repeat the operation until the desired clearance is obtained.
10. Door closing adjustment.
  - (a) Replace pawl (18C) in floor box. (If Adj. Gear (18B) has hex socket in center, replace cover plate (18A).
  - (b) Insert prongs of closer spring wrench in adjusting gear (18B) center hole and one tooth space. (If hex socket type, insert 1/2" Allen wrench). Turn toward hinge jamb. Repeat until sufficient tension is achieved to close the door from any standing position. Minimum tension required to close the door is recommended except where extreme air pressures or other resisting forces are anticipated.
  - (d) Insert 5/32 Allen wrench in #2 check valve hole and turn clockwise until desired second or latch speed is obtained.
  - (e) Repeat operation "C" in #1 check valve hole to adjust first or initial arc door closing speed. This should be reasonably fast and still travel smoothly.
11. If possible, arrange to have doors glazed at this point. Door clearances and adjustments should be rechecked after glazing.
12. Replace floor box access cover (18A), (Already replaced if hex socket type adj gear) and install hardware access section of jamb.
13. Install any finish material and clean entire unit as required to complete the installation.
14. Obtain a written acceptance of the material, finish and installation from the owner or his representative.

1. Replacement parts may be purchased in accordance with parts list on separate sheet in this folder.  
Order must contain the following information in order to properly identify the part and model needed.
  - (a) Part item number and name
  - (b) Complete door number —this number is stamped at top of door behind top arm.
  - (c) If unable to find the door number, furnish the following information:
    1. Building name and location.
    2. If there are installations of different vintage in the same building, furnish the approximate installation date of door requiring parts.
    3. Special information noted after part on parts list.
  
2. Door closing adjustments. (See installation instruction "10")
  
3. Replacement of door check (3) and/or removable section (4) of guide channel.
  - (a) Place door in hold open.
  - (b) Turn out six Allen screws (4A or 4B) and drop removable section (4) out of head jamb. (See 1/8 size section on inside page of separate sheet)
  - (c) Remove check (3) held in place with six Allen F.H. screws (3S).
  - (d) Any check parts (3A-3S) may be replaced at this time.
  - (e) Reassemble in reverse order, being sure that all screws are tightened securely.

NOTE: Because piston rod is extended when removable guide channel is installed into head jamb, horizontal pressure is required. A pry bar hole in guide channel has been provided for this purpose. (See detail on inside page of separate sheet)
  
4. Procedure for replacement of other parts.
  - (a) Remove floor plate cover (18A).
  - (b) Release spring tension. This may be accomplished by prying pawl (18C) off its pin.
  - (c) With door in open position, turn a 1/4-20 screw into hole on top of door top pivot (7), turn out set screw (8) and pull pivot pin (7) up and out of arm, thereby releasing top of door from top arm.
  - (d) With door still in open position, tip it toward push side until door roller (10) releases from door guide channel (4). Swing door around parallel with the opening and lift to release bottom pivot (14) from bottom arm. At this point, door pivot bearings (9), door roller guide (10), door bottom pivot (14) and/or door hold open (17) may be replaced.

NOTE: Mark position of each item before removing. Replacement must be positioned the same as the original.

  - (e) Remove inside section of door stop face of hinge jamb (Depending on frame construction).
  - (f) Note the two screws (6) in hinge shaft slot 2-1/4 below top arm. Remove lower screw and pull upper screw down the bottom of slot. This drops spline top pivot pin (5) out of cam (2B) above.

Tip shaft and lift up and out of jamb. At this point, top pivot pin (5), spring assembly (13), door bottom pivot bearing (15) and/or door bottom pivot thrust bearing (16) may be replaced.

1. Spring assembly (13) may be of the coil or torsion bar type.  
If coil type: The coil type must be replaced with the torsion bar type. The coil spring assembly is held in place with four screws on bottom of bottom arm. If spring is broken, drive out 1/4" diameter key pin 19-3/4 up from bottom of bottom arm. Drill new hole for and reinstall 1/4" dia. key pin 75-3/8 up from bottom of bottom arm. Replace coil spring assembly with torsion bar assembly (supplement drawing available).  
If torsion bar type: Spring assembly is held in place with one (or four, if replacement spring) screw on bottom of bottom arm. Remove screw and broken portions of spring. Insert new spring assembly and replace screw.
- (g) Remove fixed section (2) of guide channel in frame head member.
  1. Take out removable section (4) as outlined in instruction "3-a & b"
  2. Remove four Allen screws holding fixed section in place (2E & 2G).
  3. Pull front of channel down and then forward in frame cavity until the channel drops out.
- (h) Replacement of check (3), check parts (3A-3S) and door guide removable section (4) has already been outlined under instruction "3". In addition, the following parts may be replaced at this time: Entire fixed guide channel assembly (2); bumper rubber (2A); bumper shoe (2J); bumper spring (2H); drive cam (2B); drive cam upper (2D) and lower (2F) bearing.
- (i) Reassemble in reverse order, being sure that all screws are tightened securely.

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Ellison is responsible for the structural integrity of materials furnished and work done under our contract only.

Ellison will not be responsible for any failure of our material due to inadequate support from surrounding conditions nor improper installation and/or maintenance by others.

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