besam®

Manual 30-23-025
Revision A 07/01/94

SWINGMASTER® 300 & 400 SERIES

electro mechanical

swing door operators
(with 3-piece universal housing)

*NOTE: Pedestrian Door System shall comply with the requirements in the American National Standards A156.10 for power operated pedestrian doors.

The glazing material of all doors shall comply with the requirements in the American National Standard Performance Specification and Methods of Test for Safety Glazing Material used in Buildings, Z97.1-1975.

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Swingmaster® Model Introduction

Swingmaster® 300 Series

Model 300 (Overhead Concealed)

- Double acting (spring return to closed position from the panic position).
- Standard energy closing spring.
- Closing force of approximately 23 lbs. to 34 lbs. depending on door width.
- Non-handed. Converts easily to right hand or left hand swing.

Model 305 (Same as 300 Model except for:)

- Low energy closing spring.
- Closing force of approximately 14 lbs. to 26 lbs. depending on door width.

Model 350 (Surface mounted. Same as 300 Model except for:)

- Rack gear extension and internal spring spacer to increase spindle shaft rotation to 135° which accommodates various pivoting arrangements. (Hinge, offset pivots, and center pivots.)
- Closing force of approximately 23 lbs. to 34 lbs. depending on door width.

Model 355 (Same as 350 Model except for:)

- Low energy closing spring.
- Closing forces of approximately 14 lbs. to 26 lbs. depending on door width.

Swingmaster® 400 Series

Model 400 (Overhead concealed)

- Factory handed operator for right hand or left hand operation.
- Single acting (spring open to panic position).
- Requires closing door stop--retractable stop for panic breakout.
- Internal clutch assembly.
- Standard energy closing spring.
- Closing forces of approximately 16 lbs. to 30 lbs. depending on door width.
- Closing force adjustable dependent on application.

Model 405 (Same as 400 Model except for:)

- Low energy closing spring.
- Closing force of approximately 11 lbs. to 23 lbs. depending on door width.

Model 450 (Surface mounted. Same as 400 Model except for:)

- Rack gear extension and internal spring space to increase spindle shaft rotation to 135° which accommodates various pivoting arrangements (hinge, offset pivots, and center pivots).
- Closing force of approximately 16 lbs. to 30 lbs. depending on door width.

Model 455 (Same as 450 Model except for:)

- Low energy closing spring.
- Closing forces of approximately 11 lbs. to 23 lbs. depending on door width.

NOTE: For other Swingmaster® Models 500, 550, 600, 650, 700, 750 and 850 instructions, please contact Besam, Inc.

Performance and Safety

All swing door applications *intended for pedestrian* use must be properly ordered, installed, adjusted and maintained to the following American National Standard and applicable building codes.

- Power Operated Pedestrian Doors.
  ANSI/BHMA A156.10.

The ANSI Standards provides design and performance requirements for the following:

- Automatic/manual operation.
- Entrapment protection.
- Emergency egress.
- Activating and safety devices.
- Door markings.
- Time delays.
- Guide rails.
- Others.

For a copy of the Standard contact American National Standards Institute, 11 West 42nd Street, NY, NY 10036 (212) 642-4900. All questions regarding performance or safety please contact Besam, Inc., 81 Twin Rivers Drive, Hightstown, NJ 08520-5212, (609) 443-5800.

Swingmaster 300/400 Overhead Concealed Header and Operator Installation

General

The Swingmaster® overhead concealed housing assembly is made up of a three piece factory assembled fixed extrusion, a removable cover (side mount) and two steel end caps for attachment to the vertical door frames. The housing assembly is 6" high by 6" wide by length as required for the door opening. To install operator and printed circuit board (PCB), see Drawing B-545956 (pg. 4) and D-18058 (pg. 5).

Door Leaf Preparation Center Pivot Doors

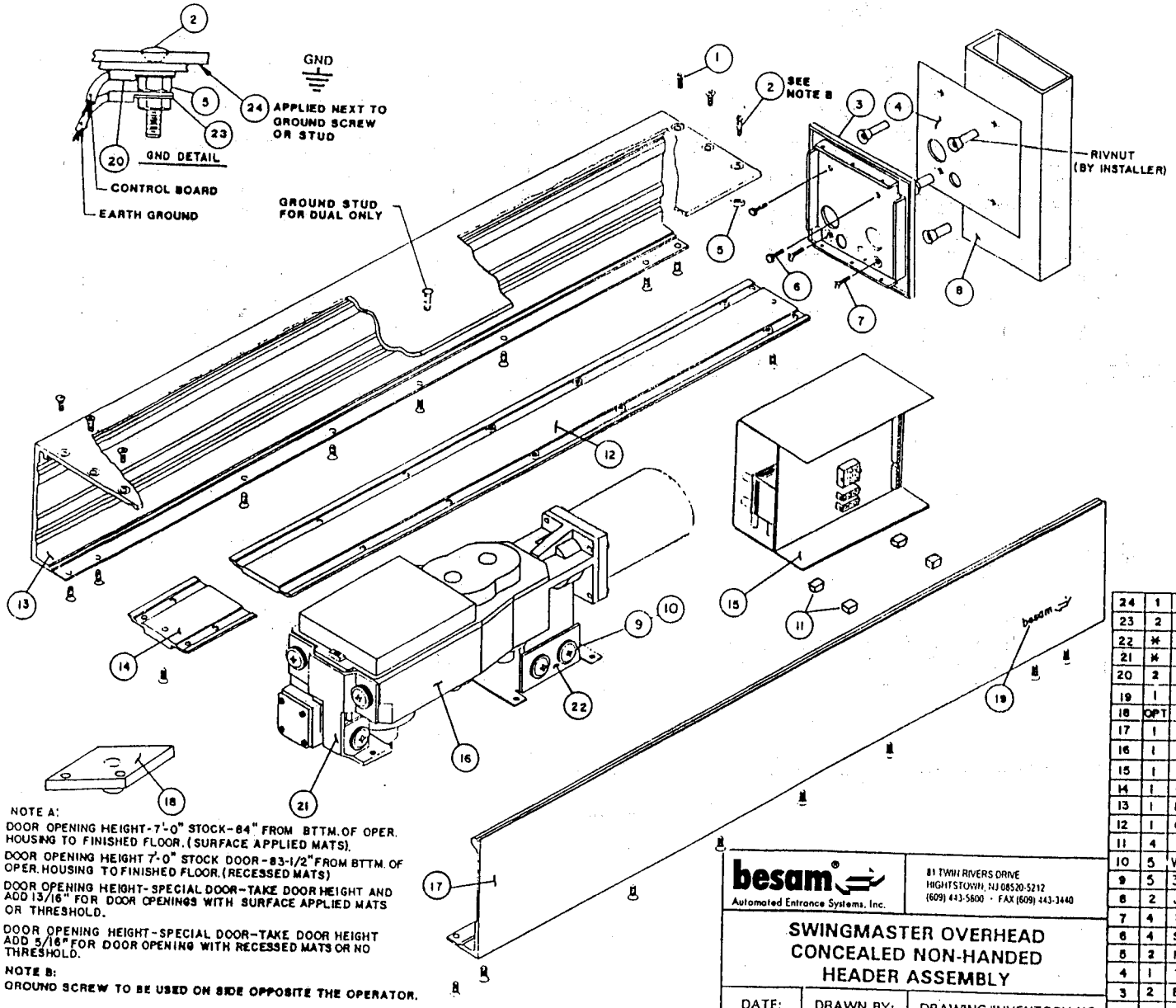
In preparing the door leaf to receive the Swingmaster® operator, the following must be taken into consideration:

There must be cut-outs at the heel of the door both at the top for the door arm and the bottom for the door pivot. Door is mounted by applying the arm to the operator, moving the arm to an open position (90 degrees hold open or panic) and slipping the door over the bottom pivot and sliding the arm in the top rail until the screw holes for attaching the arm line up with the prepared holes in the door leaf.

Referring to Drawings D-18060 (pg. 6) and D-18061 (pg. 7), locate holes as shown in the top rail, drill four holes (.332" diameter - Q drill) and apply **#A25-140** flat head rivnuts as shown. Be sure that these holes are properly centered for good alignment of the door leaf.

Prepare and install bottom pivot in accordance with pivot manufacturer's recommended procedures, making sure that the centerline of the bottom pivot shaft is the same as the centerline of the splined hole of the top door arm. Refer to Drawings D-18060 (pg. 6) and D-18061 (pg. 7) for proper dimensional information of the top arm and bottom pivot. The pivot shown on our drawings is the end mount as manufactured by "Kawneer" which is used for illustration purposes *only*.

Secure top door arm to top of door and check for dimensions as shown. In the event that a mistake has been made, the arm may be turned over and a new set of holes located to correct the problem. When arm is properly mounted, remove same from door leaf unless, of course, the door is to be secured with a dummy pivot (refer to Drawing B-545956, pg. 4, item 18) for a period of time before operator is installed. If dummy pivot is to be used, install pivot shaft in top door arm which fits into the inside of the spline diameter and tighten door arm set screw to secure same. Tilt door with shaft into slotted opening and drop the housing block into place as shown in drawing, securing with (2) 1/4" 20 X 3/8" flat head machine screws as called for in operator housing detail.



1. ESTABLISH OPERATOR HOUSING HEIGHT (SEE NOTE A) AND THE DESIRED OPERATOR ACCESS. NOTE NEW HOUSING DIMENSIONS 5" X 6".
2. PREPARE MOUNTING AND ELECTRICAL ENTRY HOLES IN THE JAMBS UTILIZING THE TEMPLATE (4) PROVIDED.
3. INSTALL ((8) 1/4"-20 COUNTER SUNK RIVNUTS INTO THE JAMB AS INDICATED.
4. POSITION HEADER BETWEEN JAMBS AND SECURE END CAPS. THE UPPER MOUNTING HOLE RECEIVES (2) 1/4"-20 X 1" HEX HEAD MS. THE TWO LOWER MOUNTING HOLES (2) 1/4"-20 X 1" F.H.M.S.
5. INSTALL MAIN POWER AND SWITCH WIRING INTO HOUSING, USING ACCESS HOLES INDICATED ON TEMPLATE (4). WIRING CAN ACCESS THE HOUSING FROM THE HINGE/PIVOT JAMB OR STRIKE JAMB. IT'S ALWAYS MORE DESIRABLE TO BRING ALL WIRING THRU THE STRIKE JAMB BECAUSE OF TIGHT CONDITIONS.
6. INSTALL THE BOTTOM SPINDLE CLOSURE (14) ACCORDING TO THE REQUIRED DOOR HANDING. POSITION TO THE L.H. SIDE FOR L.H. REGULAR/R.H. PARALLEL APPLICATION AND TO THE R.H. SIDE FOR R.H. REGULAR/L.H. PARALLEL APPLICATION. THIS PROVIDES A SHELF SUPPORT WHEN INSTALLING THE OPERATOR(S).
7. INSTALL OPERATOR(S) (16) SECURING IT TO SPINDLE CLOSURE WITH (2) 1/4"-20 X 3/8" F.H.M.S. INSTALL THE BOTTOM CLOSURE (12) AND SECURE THE CENTER OPERATOR SUPPORT BRACKET WITH (4) 1/4"-20 X 3/8" F.H.M.S.
   NOTE: IF DUMMY PIVOT (18) IS BEING UTILIZED IT CAN INSTALLED AFTER AFTER BOTH BOTTOM CLOSURES (12) AND (14) ARE INSTALLED. THE DUMMY PIVOT IS SECURED WITH (2) 1/4"-20 X 3/8" F.H.M.S. THRU THE SPINDLE CLOSURE (12).
8. INSTALL PCB CONTROL WIRE AND GROUND (GREEN) WIRES TO OPERATOR HOUSING BRACKET AS SHOWN. THE PCB CONTROL (15) IS SECURED TO THE BOTTOM CLOSURE (12) WITH SELF ADHESIVE TAPE PROVIDED (11).
9. INSTALL DOORS AND TUNE ACCORDING TO INSTALLATION MANUAL PART NO. 30-23-025.
10. REINSTALL HOUSING COVER.

NOTE A:

DOOR OPENING HEIGHT-7'-0" STOCK-84" FROM BTTM. OF OPER. HOUSING TO FINISHED FLOOR. (SURFACE APPLIED MATS).

DOOR OPENING HEIGHT 7'-0" STOCK DOOR-83-1/2" FROM BTTM. OF OPER. HOUSING TO FINISHED FLOOR. (RECESSED MATS)

DOOR OPENING HEIGHT-SPECIAL DOOR-TAKE DOOR HEIGHT AND ADD 13/16" FOR DOOR OPENINGS WITH SURFACE APPLIED MATS OR THRESHOLD.

DOOR OPENING HEIGHT-SPECIAL DOOR-TAKE DOOR HEIGHT ADD 5/16" FOR DOOR OPENING WITH RECESSED MATS OR NO THRESHOLD.

NOTE B:

GROUND SCREW TO BE USED ON SIDE OPPOSITE THE OPERATOR.

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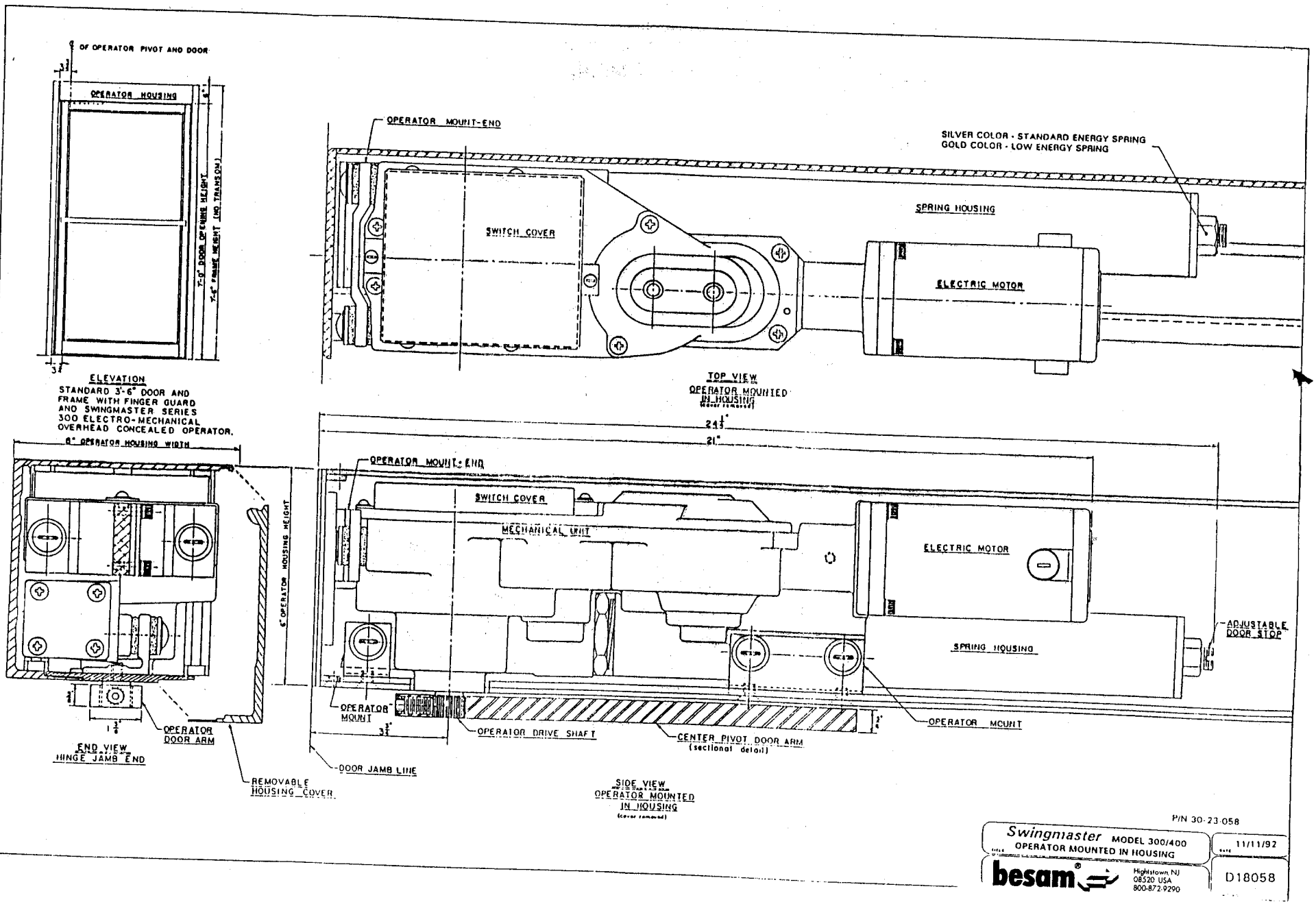
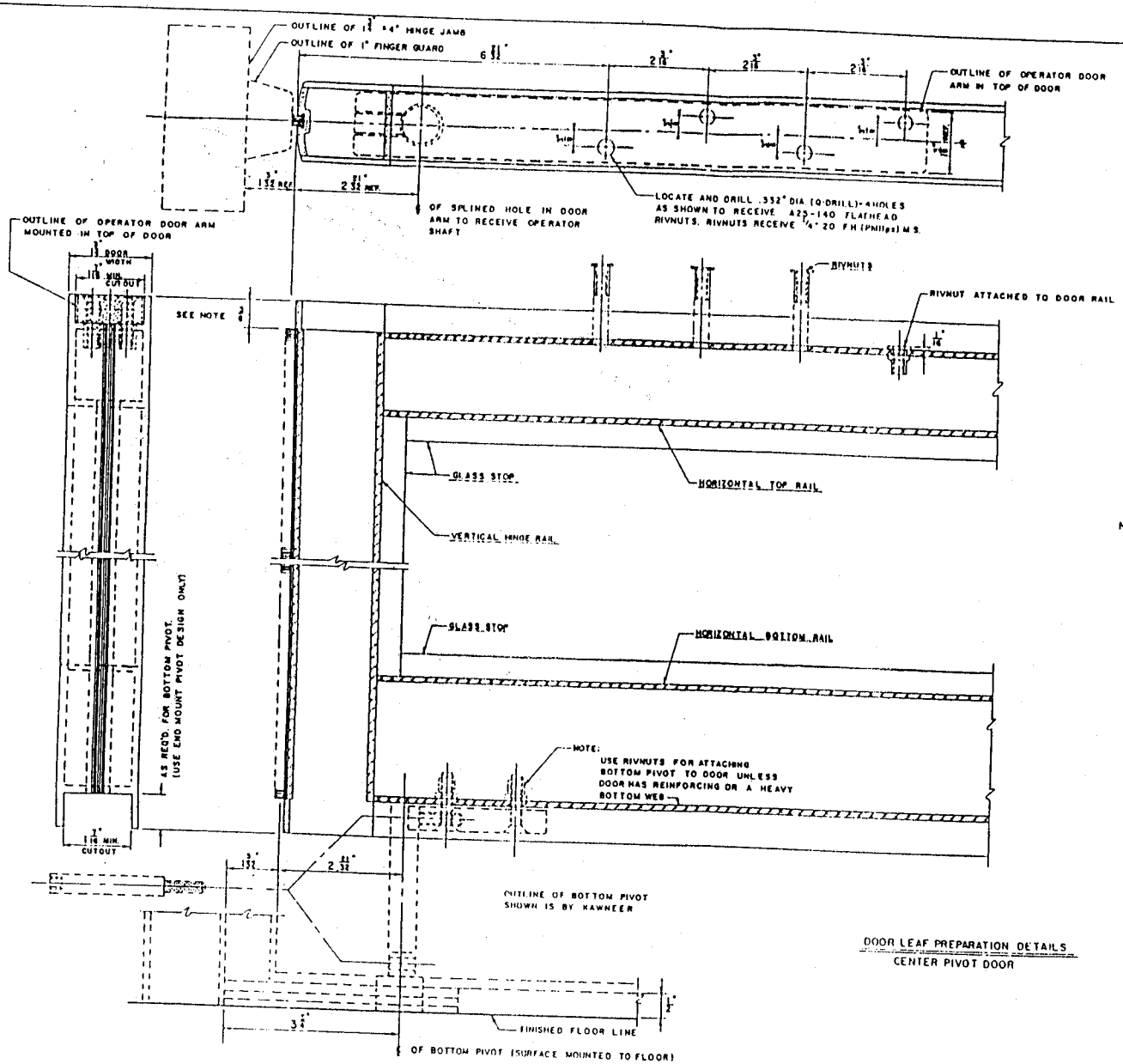
SWINGMASTER OVERHEAD CONCEALED NON-HANDED HEADER ASSEMBLY

DATE:	DRAWN BY:	DRAWING/INVENTORY NO.
11/18/92 REV. C	PFC	B-545956

ITEM	QTY	DESCRIPTION	P/N CLEAR	P/N BRONZE
24	1	LABEL, GROUND	30-24-006	
23	2	1/4" STAR WASHER INT.	30-09-216	
22	*	MTG. BRKT.(OPERATOR) SEPARATE	30-04-006	
21	*	MTG. BRKT.(OPERATOR) SEPARATE	30-04-005	
20	2	LUG 1/4-20 CRIMP ON	30-02-019	
19	1	LABEL BESAM	11-20-203	
18	OPT	DUMMY PIVOT ASSY.	30-15-315	
17	1	REMOVABLE COVER	30-15-324	30-15-325
16	1	OPERATOR		
15	1	P.C. BD. ASSY. (INC. 11 & 20)	30-15-010	
14	1	CENTER COVER, BTTM SPINDLE CLOSURE		
13	1	FIXED COVER	30-15-322	30-15-323
12	1	CENTER COVER	30-15-320	30-15-321
11	4	BUMPONS	30-20-231	
10	5	WASHER, FLAT 3/8-16	30-09-224	
9	5	3/8-16 x 11/4 TRUSS HD. MACH. SCR.	30-09-223	
8	2	JAMB TUBE		
7	4	SCREW 1/4-20 X 1-1/4" FHMS	30-09-274	
6	4	SCREW 1/4-20 X 1-1/4" HHMS	30-09-320	
5	2	NUT 1/4-20 HEX	50-09-107	
4	1	TEMPLATE, DRILL SCHEDULE	30-23-005	
3	2	END CAP ASSY.	30-15-300	30-15-301
2	1	SCREW 1/4-20 X 1" FHPMS	31-09-200	
1	23	SCREW 1/4-20 X 3/8 P.F.H.	40-09-200	


℄ OF OPERATOR PIVOT AND DOOR
OPERATOR HOUSING
7'-0" DOOR OPENING HEIGHT
7'-6" FRAME HEIGHT (NO TRANSOM)
3'
ELEVATION
STANDARD 3'-6" DOOR AND FRAME WITH FINGER GUARD AND SWINGMASTER SERIES 300 ELECTRO-MECHANICAL OVERHEAD CONCEALED OPERATOR.
6" OPERATOR HOUSING WIDTH
6" OPERATOR HOUSING HEIGHT
OPERATOR DOOR ARM
END VIEW
HINGE JAMB END
REMOVABLE HOUSING COVER
OPERATOR MOUNT-END
SILVER COLOR - STANDARD ENERGY SPRING
GOLD COLOR - LOW ENERGY SPRING
SPRING HOUSING
SWITCH COVER
ELECTRIC MOTOR
TOP VIEW
OPERATOR MOUNTED IN HOUSING
(cover removed)
24"
21"
OPERATOR MOUNT-END
SWITCH COVER
MECHANICAL UNIT
ELECTRIC MOTOR
ADJUSTABLE DOOR STOP
SPRING HOUSING
OPERATOR MOUNT
OPERATOR DRIVE SHAFT
CENTER PIVOT DOOR ARM
(sectional detail)
OPERATOR MOUNT
DOOR JAMB LINE
SIDE VIEW
OPERATOR MOUNTED IN HOUSING
(cover removed)
P/N 30-23-058
Swingmaster MODEL 300/400
OPERATOR MOUNTED IN HOUSING
11/11/92
besam
Hightstown, NJ
08520 USA
800-872-9290
D18058



NOTE:

IF WEB DEPTH OF TOP OF DOOR IS GREATER THAN ½" DEEP, APPLY RIVNUTS TO WEB AS SHOWN AND USE SPACER BETWEEN DOOR ARM AND RIVNUTS. LONGER SCREWS MAY BE REQ'D.

TOP OF DOOR ARM SHOULD BE FLUSH WITH TOP OF DOOR.

EXAMPLE: 1" WEB DEPTH - 1½" TO TOP OF RIVNUT LESS ½" ARM THICKNESS = ⅛" SPACER REQ'D BETWEEN DOOR ARM AND WEB.

DOOR LEAF PREPARATION DETAILS
CENTER PIVOT DOOR

P/N 30-23-060

Swingmaster MODEL 300/400
PREP. DETAILS - DOOR LEAF

11/12/92

besam®
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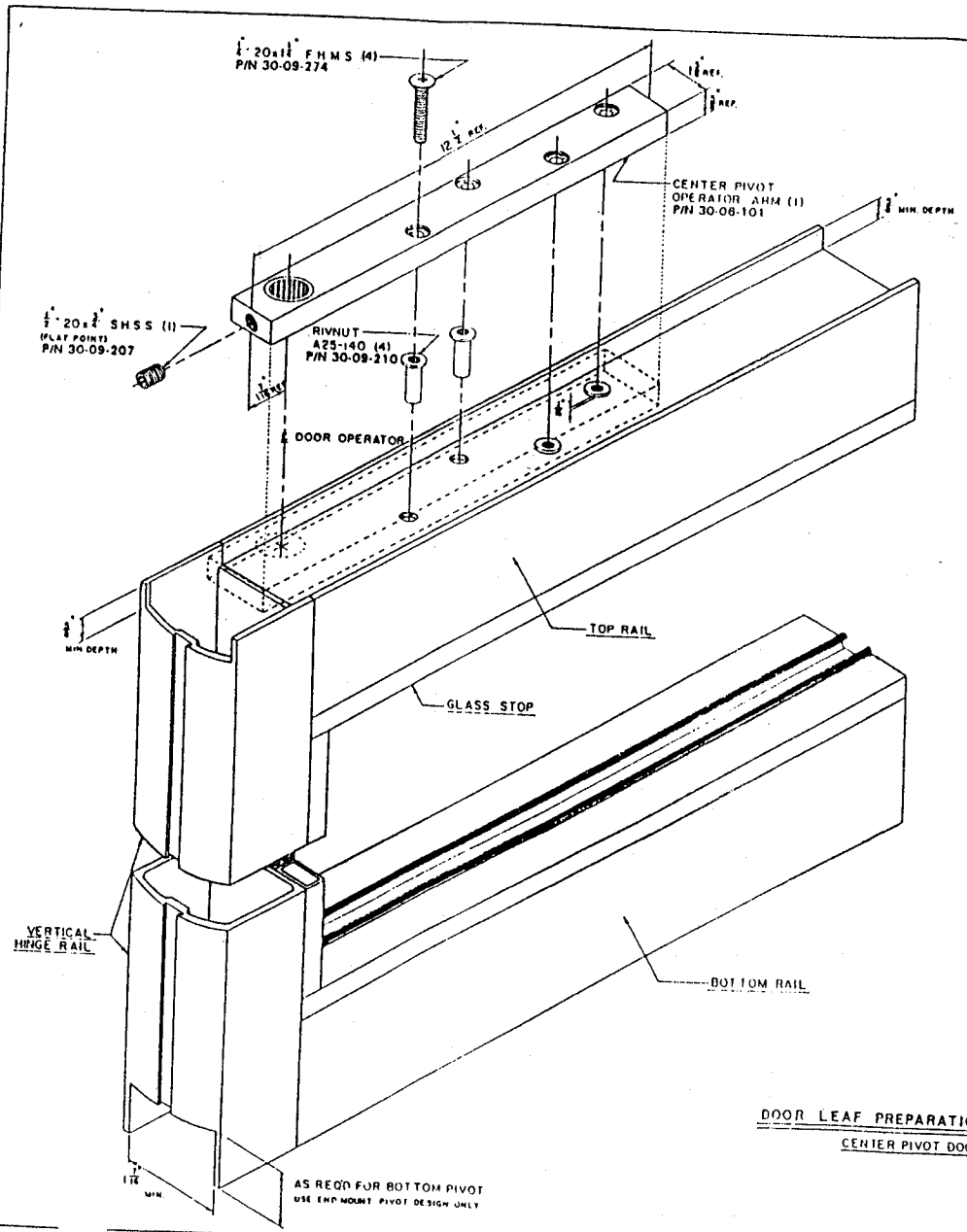
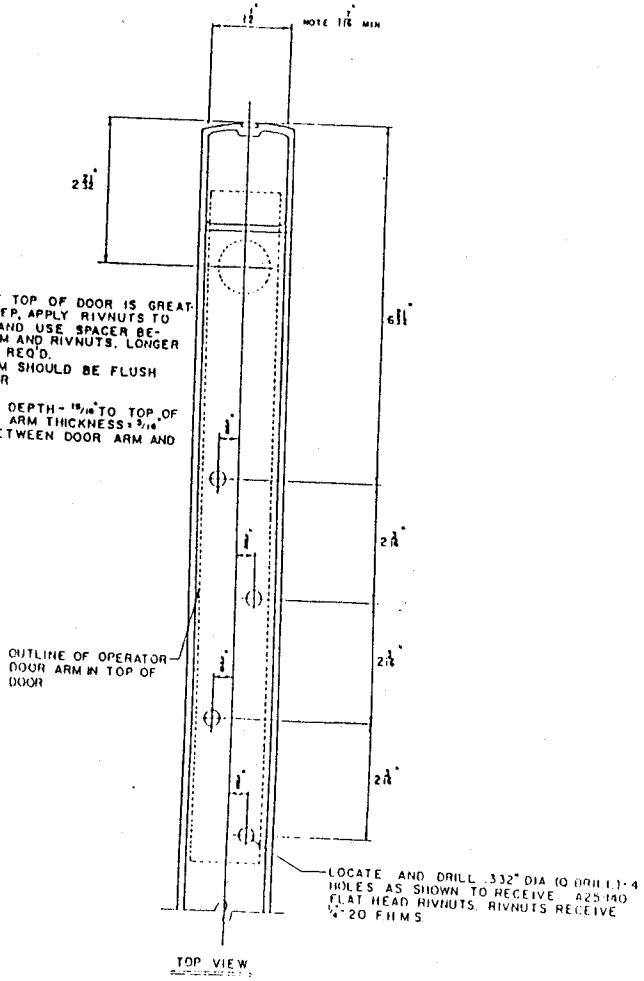
D18060





NOTE:
IF WEB DEPTH OF TOP OF DOOR IS GREATER THAN 5/8" DEEP, APPLY RIVNUTS TO WEB AS SHOWN AND USE SPACER BETWEEN DOOR ARM AND RIVNUTS. LONGER SCREWS MAY BE REQ'D.
TOP OF DOOR ARM SHOULD BE FLUSH WITH TOP OF DOOR

EXAMPLE: 1" WEB DEPTH - 15/16" TO TOP OF RIVNUT LESS 5/8" ARM THICKNESS = 5/16" SPACER REQ'D BETWEEN DOOR ARM AND WEB.

DOOR LEAF PREPARATION DETAILS

CENTER PIVOT DOOR

P/N 30.23.061

Swingmaster MODEL 300/400 PREP. DETAILS - DOOR LEAF	11/12/92
besam	D18061

Installation of Control

The electronic control for the Swingmaster® 300/400 series is a printed circuit board (PCB) that sits inside of the housing and faces (see Drawing B-545956, pg. 4) the removable side of the operator housing. The main power (110 volts) is connected to a two wire disconnect harness, factory wired to Terminal 3 (neutral leg) Terminal 5 (110 volt hot leg) and the ground is connected to grounding post located on the housing (see Drawing B-545956). The motor(s) is plugged into either J1 or J2 on the PCB depending on the handing of the door swing. The switch harness is plugged into J3 on the PCB (see Drawing D-18008, pg. 10). Wiring and adjustment procedures are contained in Drawing D-18008. An optional three position switch (off-hold open-automatic) can be installed (see Drawing A-18018, pg.11) to control the function of the door.

NOTE: The closing speed resistor R1 (see Drawing D-18008) installed on the printed circuit board must match the type of operator it is controlling. Regular duty/standard energy spring - 82 ohms, 15 watt, Light duty/low energy spring - 175 ohms, 15 watt. See Troubleshooting Section, pg 25.

Installation Of Door

300 Series

To install the door leaf, it is required that the door arm be attached to the operator spindle shaft in the door closed position and then rotated to the full open position--90 degrees (operate or panic). The arm must be held in the open position for proper installation of the door. To secure the arm in the open position, there are two ways this can be done: (1) Secure the activating mat or hold open switch, if one is installed, causing the arm to rotate and stay in position while power is on. (2) Move the arm to either operate or panic open position and install the supplied 5/16-18 thumb screw to the hole located in the housing approximately 1" from the motor mount. This hole is on both sides. By tightening the screw, pressure is applied to the motor coupling and will hold the door arm into whatever position it is set in until this thumb screw is released.

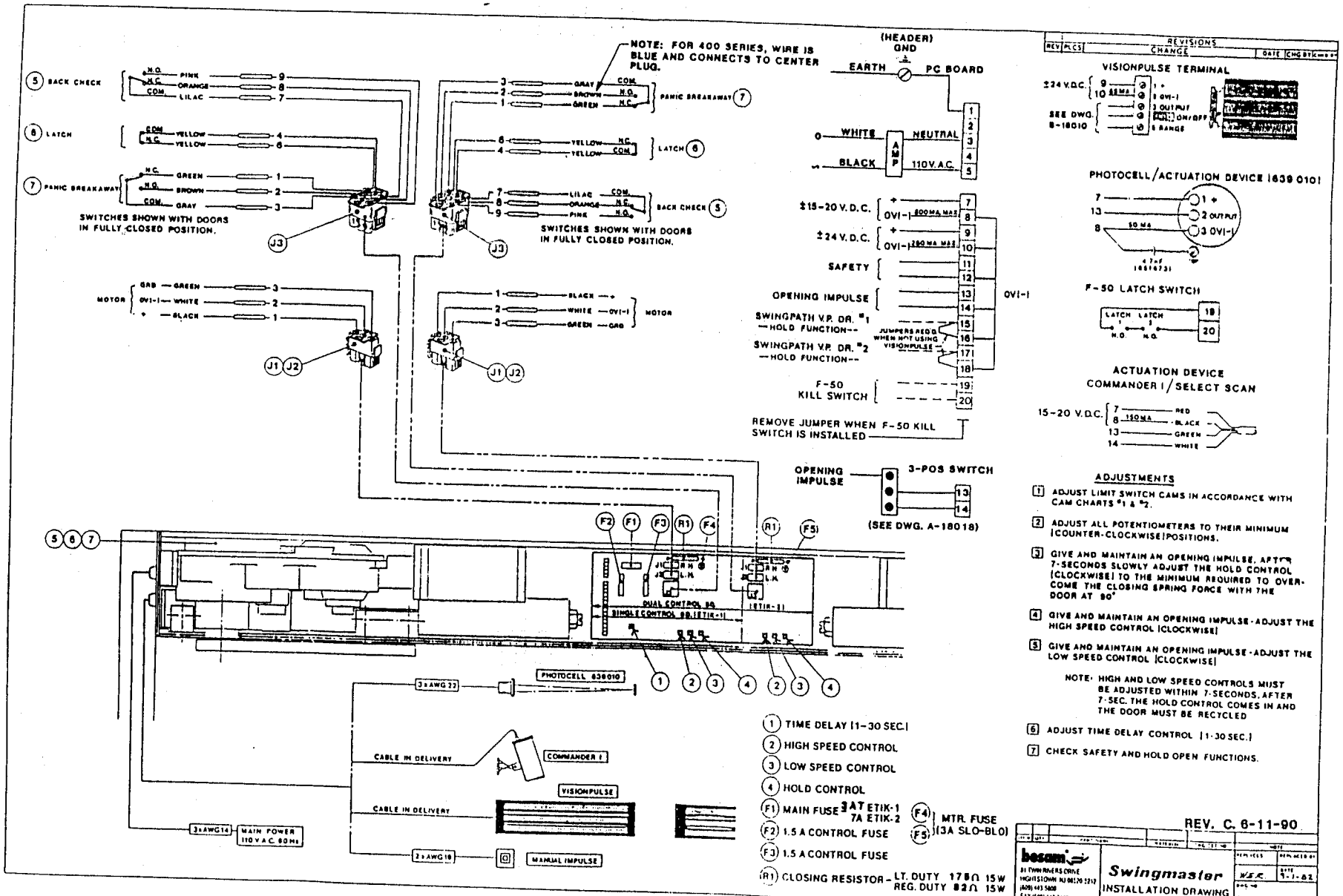
(NOTE: See 400 Series instructions.) Do not tighten excessively--only 2 or 3 pounds of force is required to hold the coupling. With the arm still attached to the operator shaft and the bottom pivot set in place, slide the door in from the hinge end over the bottom pivot and the operator arm being guided into the top web of the door. Move door in until rivnuts line up with the screw holes in the top arm and apply 1/4-20 x 1/ 1/4" flat head phillips machine screw through the arm to connect to the top of the door.

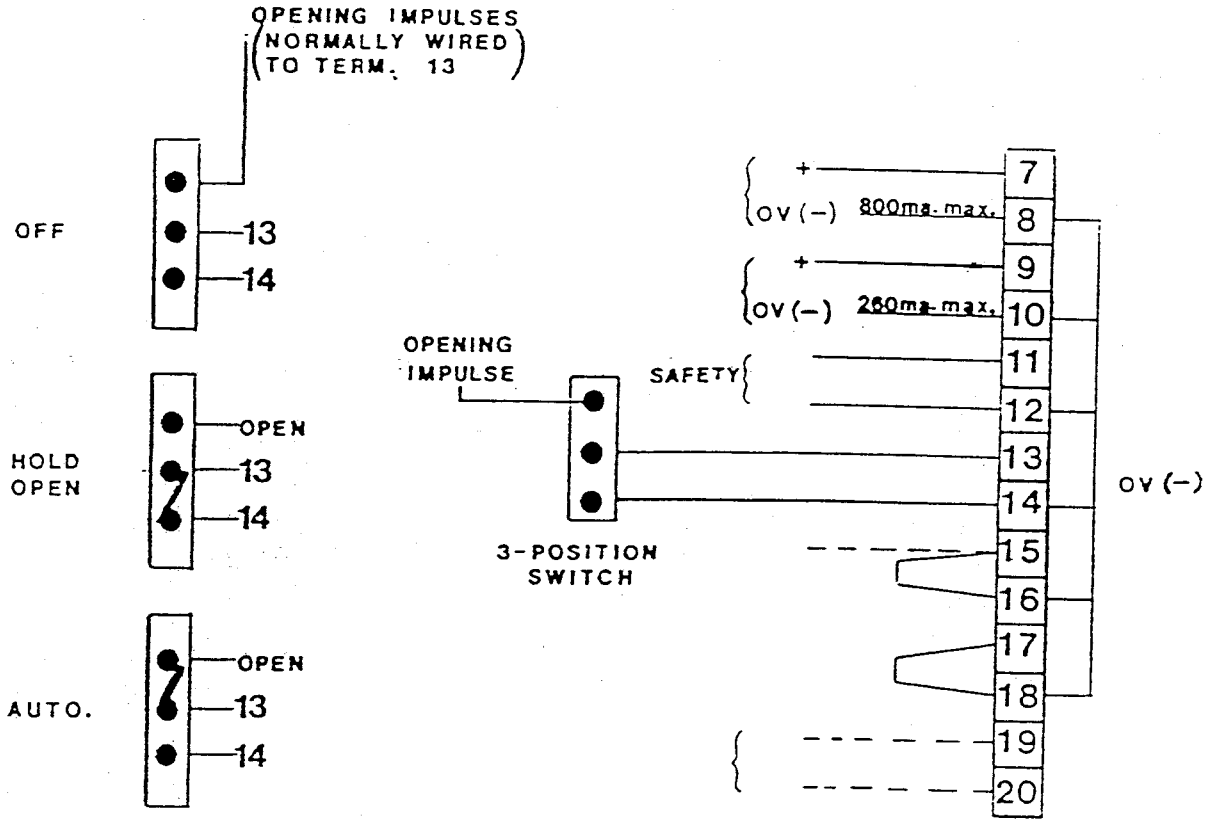
At this point, loosen the set screw in the back of the operator arm which has been tightened to hold the arm on the operating shaft and allow the arm and door to settle against the bottom pivot. Re-tighten the top screws securely and then re-tighten the lock screw in the door operator arm. After this is complete, disconnect the activating device or release the screw holding the coupling and allow the door to close. Re-check all operations of the door to see if the door is opening correctly and if adjustments in the opening speed and back-check are required. (See electrical installation drawings for these adjustments on the control box.) When the opening back-check, closing and latching speeds have been checked out (closing and latching are factory set and cannot be adjusted) the door should then be pushed in the direction opposite its normal swing to approximately 90° which is the panic position. The door in this position should be unable to operate under power and when released should return to the normal closed position in the same manner and speed as in the normal closing. There is one exception. Approximately 2" before the door reaches the stop position, the panic switch, being de-activated, will release the breaking force of the motor which is essential for the purpose of the door becoming ready to operate as a power unit again.

Having completed all of the above and having been satisfied that the door is in proper operating order, the removable cover plate on the housing should then be re-secured to the housing. The door is now ready to operate as an automatic unit.

400 Series

All 400 Series single acting (springs open to panic position) operators are supplied with the spindles secured in the 0° (closed) position by a 5/16"-18 thumb screw. Do not release thumb screw until door and external closed door stop has been installed. Note: For panic breakout applications a special retractable door stop (part no. 99-99-004) must be installed.


NOTE: FOR 400 SERIES, WIRE IS BLUE AND CONNECTS TO CENTER PLUG.
SWITCHES SHOWN WITH DOORS IN FULLY CLOSED POSITION.
SWITCHES SHOWN WITH DOORS IN FULLY CLOSED POSITION.
(HEADER)
GND
EARTH
PC BOARD
WHITE
NEUTRAL
BLACK
110V.A.C.
±15-20 V.D.C.
±24 V.D.C.
SAFETY
OPENING IMPULSE
SWINGPATH V.P. DR. #1 —HOLD FUNCTION—
SWINGPATH V.P. DR. #2 —HOLD FUNCTION—
JUMPERS NEED WHEN NOT USING VISIONPULSE
F-50 KILL SWITCH
REMOVE JUMPER WHEN F-50 KILL SWITCH IS INSTALLED
OVI-I
VISIONPULSE TERMINAL
SEE DWG. B-18010
PHOTOCELL/ACTUATION DEVICE 1639 0101
F-50 LATCH SWITCH
ACTUATION DEVICE
COMMANDER I/SELECT SCAN
15-20 V.D.C.
OPENING IMPULSE
3-POS SWITCH
(SEE DWG. A-18018)
ADJUSTMENTS
1 ADJUST LIMIT SWITCH CAMS IN ACCORDANCE WITH CAM CHARTS #1 & #2.
2 ADJUST ALL POTENTIOMETERS TO THEIR MINIMUM (COUNTER-CLOCKWISE) POSITIONS.
3 GIVE AND MAINTAIN AN OPENING IMPULSE, AFTER 7-SECONDS SLOWLY ADJUST THE HOLD CONTROL (CLOCKWISE) TO THE MINIMUM REQUIRED TO OVERCOME THE CLOSING SPRING FORCE WITH THE DOOR AT 90°
4 GIVE AND MAINTAIN AN OPENING IMPULSE - ADJUST THE HIGH SPEED CONTROL (CLOCKWISE)
5 GIVE AND MAINTAIN AN OPENING IMPULSE - ADJUST THE LOW SPEED CONTROL (CLOCKWISE)
NOTE: HIGH AND LOW SPEED CONTROLS MUST BE ADJUSTED WITHIN 7-SECONDS, AFTER 7-SEC. THE HOLD CONTROL COMES IN AND THE DOOR MUST BE RECYCLED
6 ADJUST TIME DELAY CONTROL (1-30 SEC.)
7 CHECK SAFETY AND HOLD OPEN FUNCTIONS.
(1) TIME DELAY (1-30 SEC.)
(2) HIGH SPEED CONTROL
(3) LOW SPEED CONTROL
(4) HOLD CONTROL
(F1) MAIN FUSE 3AT ETIK-1, 7A ETIK-2
(F2) 1.5 A CONTROL FUSE
(F3) 1.5 A CONTROL FUSE
(R1) CLOSING RESISTOR - LT. DUTY 175Ω 15W, REG. DUTY 82Ω 15W
(F4) (F5) MTR. FUSE (3A SLO-BLO)
PHOTOCELL 638010
CABLE IN DELIVERY
COMMANDER I
VISIONPULSE
MANUAL IMPULSE
MAIN POWER 110 V.A.C. 60 Hz
REVISIONS
REV. CHANGE DATE
REV. C 6-11-90
besam
Swingmaster
INSTALLATION DRAWING
D-18008



ITEM	QTY	PART NAME	MATERIAL	DWG/DET NO	NOTE

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Automated Entrance Systems, Inc.
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HIGHTSTOWN, NJ 08520-5212
(609) 443-5800 • FAX (609) 443-3440

SWINGMASTER
3-POSITION SWITCH

WIRING DIAGRAM

REPLACES	REPLACED BY
	DATE 2/17/84

DWG NO.
A- 18018

Swingmaster® 350/450
Surface Applied Instructions

The Swingmaster® 350/450 Series operators are the same as the 300/400 Series with modifications added for use as a surface applied (conversion unit) operator.

The following pages include drawings showing how the 350/450 mounts on the different types of doors and the type of arm assemblies required to operate them.

The electrical requirements for the 350/450 are the same as the 300/400. NOTE: The switch harness assembly (panic breakaway) is wired differently for a 300 (panic spring close) and 400 (panic spring open) Series Swingmaster®. See drawing 18008, pg 10.

Install Housing, Operator, and PCB

Refer to drawing B-545957 and D-18059 for installing operator housing, operator and printed circuit board (PCB).

Back-Check CAM Setting

Measure the reveal (distance between operator mounting surface and the face of the door) and adjust back-check CAM according to the type of hinge/pivot, operator hand, and required linkage according to CAM Chart No. 2, page 21.

Install Arm Assembly

Check the arms to be sure that all parts necessary are included and review the exploded view of the shaft adapter system shown on the template drawings.

Locate door in correct door closed position and secure temporarily in place.

350/450 Center Pivoted Door - OUTSwing (See Template No. 5.)

Attach door shoe part of arm assembly to the door leaf and with the arm assembly rotated to align with operator shaft, apply the shaft adapter and slip the arm over the adapter gently tapping it into place. Apply shaft adapter lock and attach with screw to operator shaft. When lock and adapter are attached to the shaft, tighten the 7/16 socket head cap screw in the arm securely, using at least a 6" extension on the socket wrench. Re-tighten the shaft adapter lock to be sure all three parts are adequately secured to the shaft. (Do not try to rotate shaft when installing door; linkage and operator shaft must remain in the closed position.) This will hold the door in the normally closed position when not in operation. A permanent closed door stop is required on OUTswing applications. The 5/16-18 locking thumb screw must be released on the 450 operator before moving the door.

350/450 Hinge Or Offset Pivot - OUTSwing (See Template No. 1.)

Follow the same instructions for center pivoted door with the following exception: to assure that there will be spring pressure acting on the door to hold it in the closed position a pre-load must be established. After locating and preparing door to receive door shoe, set arm on operator shaft so that the shoe is approximately 1: (see Template No. 1) from door in the closed position.

350/450 Center Pivoted Door - INSwing (See Template No. 8.)

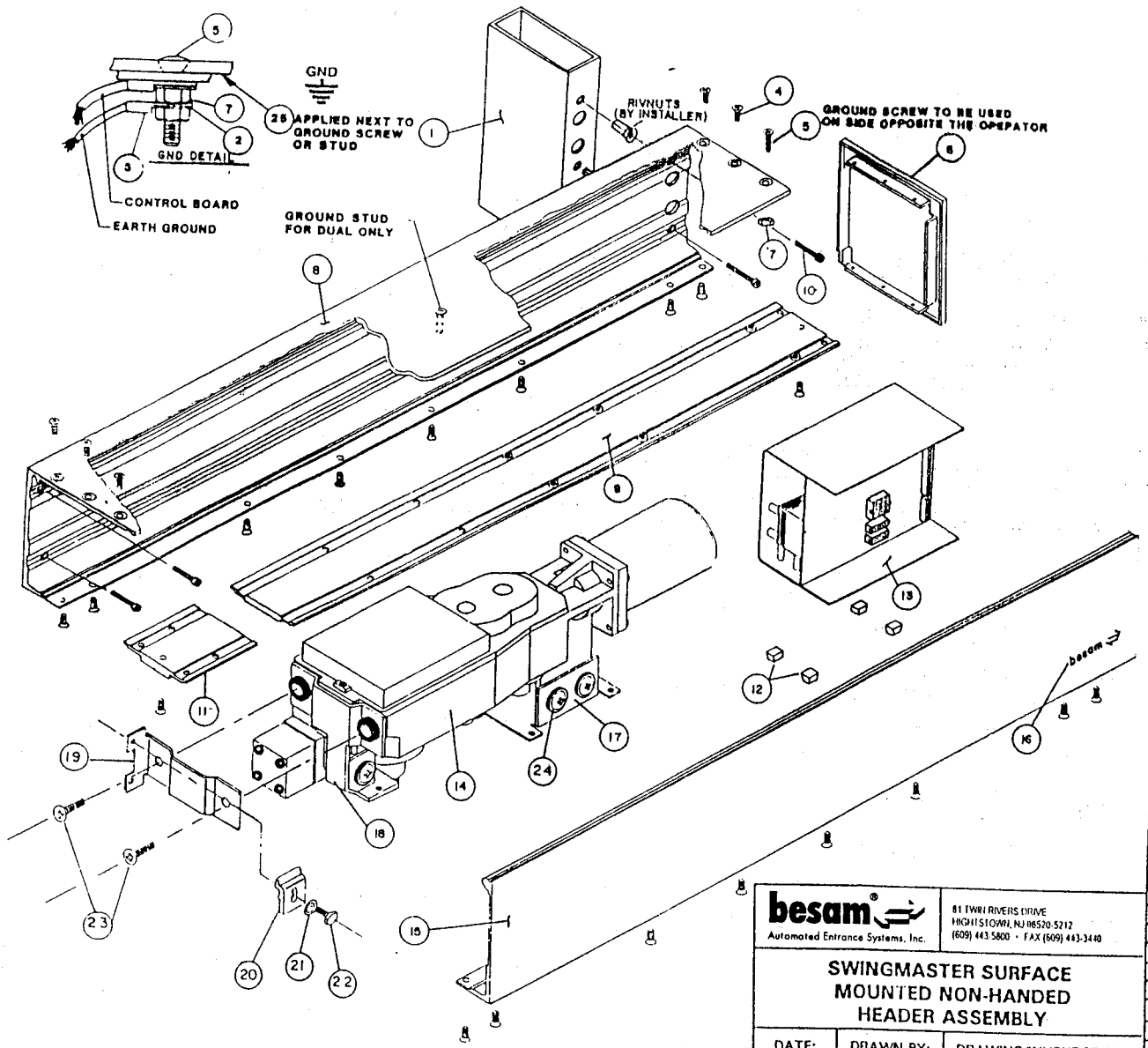
Attach door track to the door leaf. Take the door arm with roller attached, insert the roller part into the track and align the arm with operator shaft. Then apply the shaft adapter and slip the arm over the adapter gently tapping it into place. Apply shaft adapter lock and attach with screw to operator shaft. When lock and adapter are attached to shaft, tighten the 7/16 socket head cap screw in the arm securely using at least a 6" extension on the socket wrench.

Re-tighten the shaft adapter lock to be sure all three parts are adequately secured to shaft. (Do not try to rotate shaft when installing, because you are placing the arm with the door in the proper closed position and the operator shaft in the zero position. Release the door and it should be held in this position at the arm connection.

NOTE: The 450 Model requires a zero degree door stop. For panic breakaway applications a retractable stop must be installed.

350/450 Hinge Or Offset Pivot - In Swing (See Template No. 4.)

Locate door in correct door closed position and secure temporarily in this position. Attach door track to the door leaf and position door arm with roller in track, locate and mark the approximate location and angle of the arm with reference to the shaft. Open door out of the way and rotate arm and roller until the roller is approximately 1" further in than is normally required to fit in the track. With the arm in this position, apply the shaft adapter and slip the arm over the adapter gently tapping it into place. Apply shaft adapter lock and attach with screw to operator shaft. When lock and adapter are attached to the shaft, tighten the 7/16 socket head cap screw in the arm securely, using at least a 6" extension on the socket wrench. Re-tighten the shaft adapter lock to be sure all three parts are adequately secured to shaft. Now remove the shaft adapter lock and slightly reduce the 7/16 socket pressure. The arm should now slip off the shaft spindle with the adapter securely a part of the arm. When removing, mark to relocate between operator spline and adapter spline for rematching arm to shaft. Close the door, rotate the operator shaft to open position, or partially open, and reapply the arm adapter and lock making sure that the matching splines line up. Remove the track, re-allow the arm to close until the roller is against the door leaf. Slip the track back into place, aligning the roller in the track and reattach track to door. The arm should now be in a position so that spring pressure is being applied through the roller to hold the door closed against the stops.



1. ESTABLISH OPERATOR HOUSING HEIGHT AND CORRECT JAMB OVERLAP. SEE INSTALLATION MANUAL, P/N 30-23-035 TEMPLATE DRAWINGS 1,4,5 AND 8. NEW HOUSING DIMENSION IS 6" X 6".
2. UTILIZING THE HOUSING (8) AS A TEMPLATE, MARK AND DRILL ELECTRICAL AND MOUNTING HOLES INTO YHE JAMBS AS SHOWN ON TEMPLATE DRAWINGS 1,4,5 AND 8.
3. INSTALL 1/4"-20 COUNTER SUNK RIVNUTS INTO THE JAMBS. INSTALL HOUSING (8) WITH 1/4"-20 X 1" MS. INSTALL MAIN POWER AND SWITCH WIRING INTO THE HOUSING USING 3/4" ACCESS HOLES. WIRING CAN ENTER HOUSING FROM THE HINGE/ PIVOT JAMB OR STRIKE JAMB. IT IS ALWAYS DESIRABLE TO BRING ALL WIRING THRU THE STRIKE JAMB BECAUSE OF THE TIGHT CONDITIONS.
4. INSTALL THE BOTTOM SPINDLE CLOSURE (11) ACCORDING TO THE REQUIRED DOOR HANDING. POSITIONTO THE L.H. SIDE FOR L.H. REGULAR/R.H. PARELLEL APPLICATIONS, TO THE R.H. SIDE FOR R.H. REGULAR/L.H. PARELLEL APPLICATIONS. THIS PROVIDES A SHELF SUPPORT WHEN INSTALLING THE OPERATOR(S).
5. MEASURE DOOR REVEAL (DISTANCE BETWEEN OPERATOR MOUNTING SURFACE AND FACE OF DOOR) AND ADJUST OPERATOR BACKCHECK CAM (SEE CAM CHART NO. 2) SETTING.
6. INSTALL OPERATORS (14) SECURING IT TO THE SPINDLE CLOSURE WITH (2) 1/4"-20 X 3/8" F.H.M.S. INSTALL BOTTOM CLOSURE (9) AND SECURE THE CENTER OPERATOR SUPPORT BRACKET (19) WITH (4) 1/4"-20 X 3/8" F.H.M.S.
7. INSTALL THE PCB CONTROL (13) WIRE AND GROUND (GREEN) WIRES TO THE OPERATOR HOUSING BRACKET AS SHOWN. THE PCB CONTROL (13) IS SECURED TO THE BOTTOM CLOSURE (9) WITH SELF ADHESIVE TAPE PROVIDED (12).
8. INSTALL LINKAGE AND TUNE OPERATOR ACCORDING TO INSTALLATION MANUAL PART NO. 30-23-035.
9. INSTALL HOUSING COVER(S) WITH (8) 1/4"-20 X 3/8" F.H.M.S.

ITEM	QTY	DESCRIPTION	P/N CLEAR	P/N BRONZE
25	1	LABEL, GROUND	30-24-008	
24	3	WASHER, FLAT 3/8-16	30-09-224	
23	5	3/8-16 x 1 1/4 TRUSS HD. MACH. SCR.	30-09-223	
22	1	1/4-20 x 5/8 HEX. HD. MACH. SCR.	21-09-004	
21	1	WASHER, FLAT 1/4-20 THIN WALL	21-09-005	
20	1	CLAMP	21-04-003	
19	1	TOP STABILIZER BRACKET	35-03-001	
18	*	MTG. BRKT (OPERATOR) SEPARATE	30-04-005	
17	*	MTG. BRKT. (OPERATOR) SEPARATE	30-04-006	
16	1	LABEL BESAM	11-20-203	
15	1	REMOVABLE COVER	35-15-324	35-15-325
14	1	OPERATOR		
13	1	P.C. BD. ASSY.(INC. 3 & 12)	30-15-010	
12	4	BUMPONS	30-20-231	
11	1	CENTER COVER, BTTM. SPINDLE COVER	———	
10	4	SCREW, 1/4-20 X 1-1/4" P.F.H. MS	30-09-274	
9	1	CENTER COVER	35-15-320	35-15-321
8	1	FIXED COVER	35-15-322	35-15-323
7	2	NUT, 1/4-20 HEX	50-09-107	
6	2	END CAP ASSY.	35-15-300	35-15-301
5	1	SCREW, 1/4-20 X 1" P.F.H. MS	31-09-200	
4	25	SCREW, 1/4-20 X 3/8 P.F.H. M.S.	40-09-200	
3	2	LUG, SPADE 1/4-20 CRIMP ON	30-02-019	
2	2	LOCK WASHER 1/4-20 INT. TOOTH	30-09-216	
1	2	JAMB TUBE	———	

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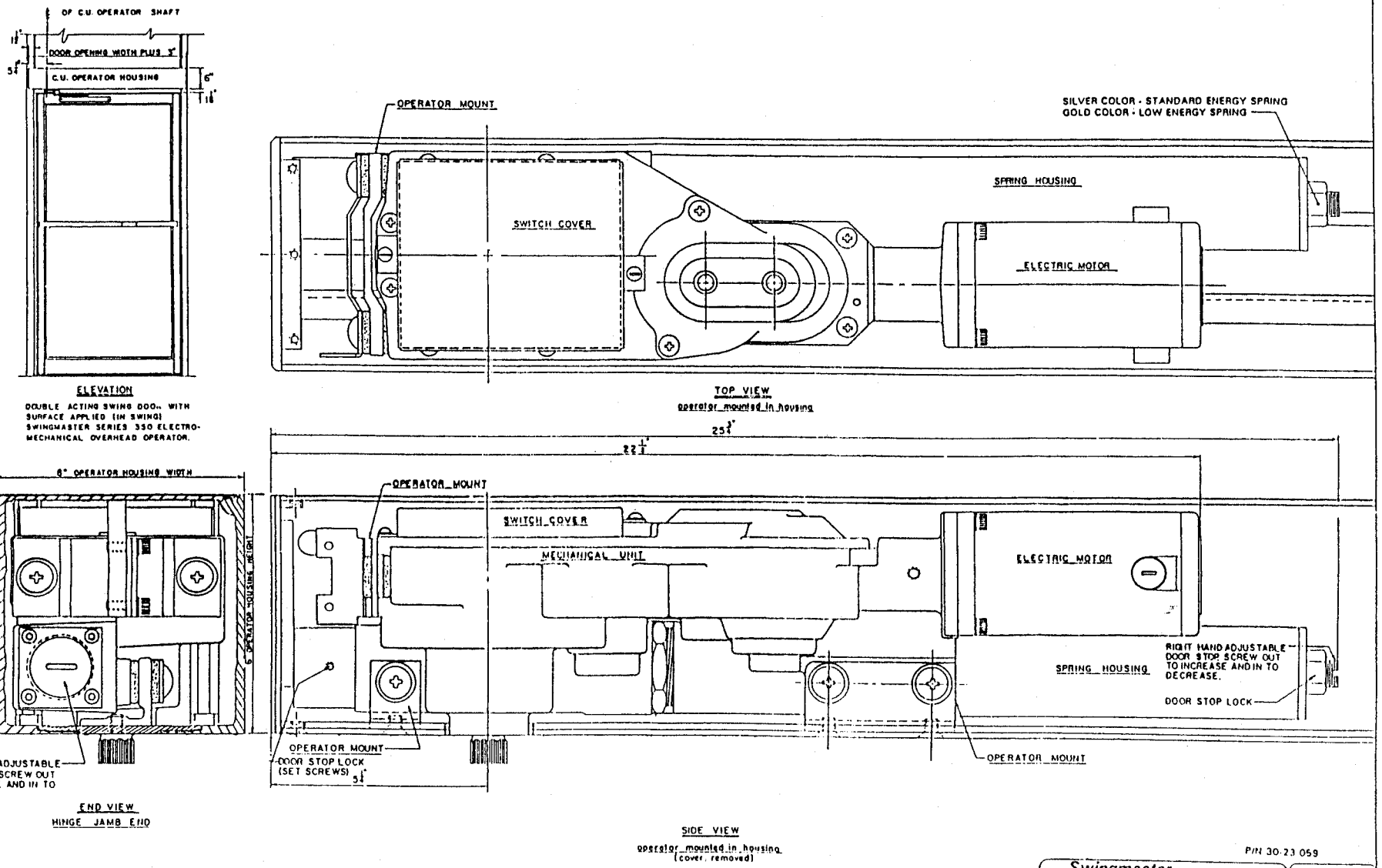
Automated Entrance Systems, Inc.
81 TWIN RIVERS DRIVE
HIGHTSTOWN, NJ 08520-5212
(609) 443-5800 · FAX (609) 443-3440

SWINGMASTER SURFACE MOUNTED NON-HANDED HEADER ASSEMBLY

DATE:	DRAWN BY:	DRAWING/INVENTORY NO.
11/18/92 REV. C	PFC	B-545957



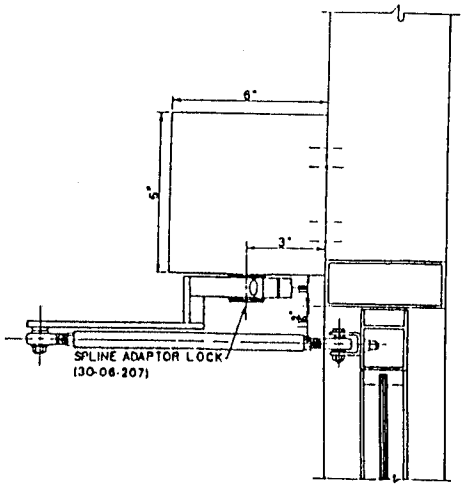
P/N 30-23 059

Swingmaster MODEL 350/450
OPERATOR MOUNTED IN HOUSING

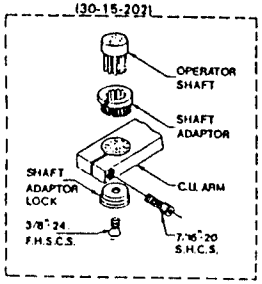
11/11/92

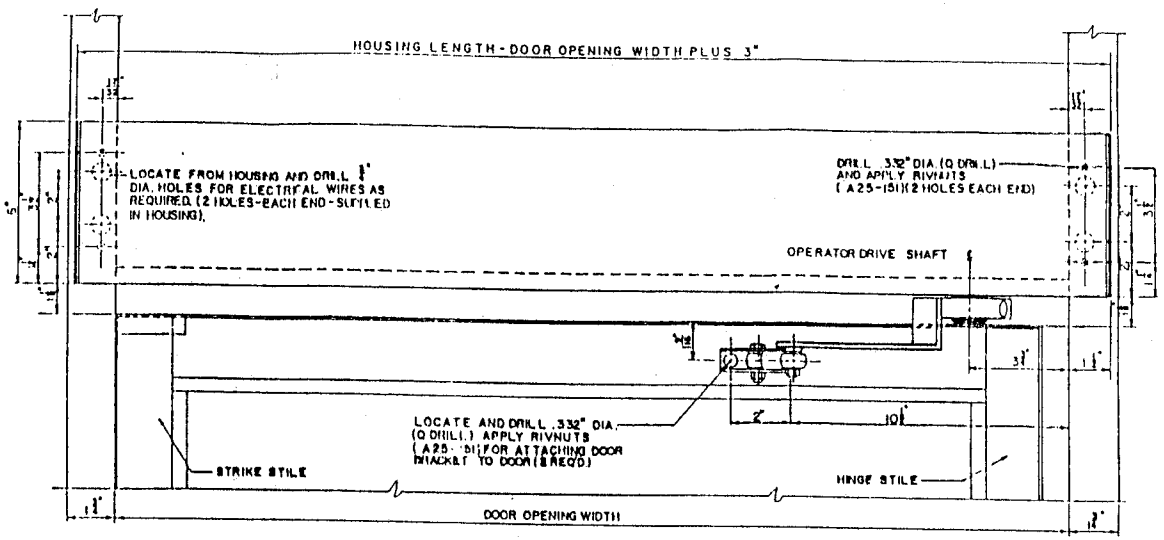
besam®
Hightstown NJ
08520 USA
800-872-9290

D18059

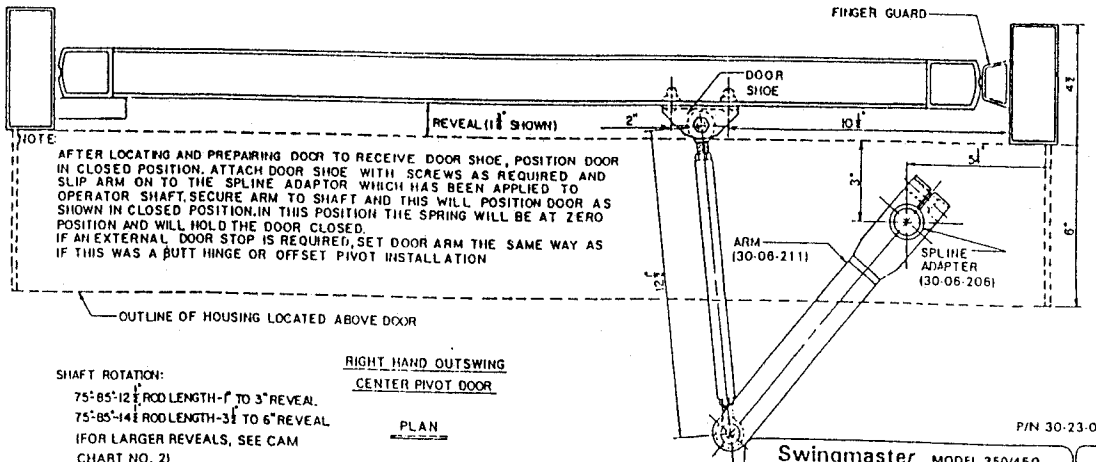


END VIEW





ELEVATION



NOTE:
AFTER LOCATING AND PREPARING DOOR TO RECEIVE DOOR SHOE, POSITION DOOR IN CLOSED POSITION. ATTACH DOOR SHOE WITH SCREWS AS REQUIRED AND SLIP ARM ON TO THE SPLINE ADAPTOR WHICH HAS BEEN APPLIED TO OPERATOR SHAFT. SECURE ARM TO SHAFT AND THIS WILL POSITION DOOR AS SHOWN IN CLOSED POSITION. IN THIS POSITION THE SPRING WILL BE AT ZERO POSITION AND WILL HOLD THE DOOR CLOSED.
IF AN EXTERNAL DOOR STOP IS REQUIRED, SET DOOR ARM THE SAME WAY AS IF THIS WAS A BUTT HINGE OR OFFSET PIVOT INSTALLATION

SHAFT ROTATION:
75°-85°-12½ ROD LENGTH-1" TO 3" REVEAL.
75°-85°-14½ ROD LENGTH-3½ TO 6" REVEAL
(FOR LARGER REVEALS, SEE CAM CHART NO. 2)

RIGHT HAND OUTSWING
CENTER PIVOT DOOR

PLAN

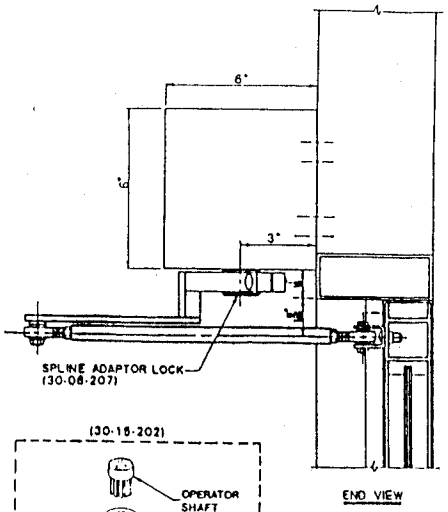
P/N 30-23-054

Swingmaster MODEL 350/450
TEMPLATE #5

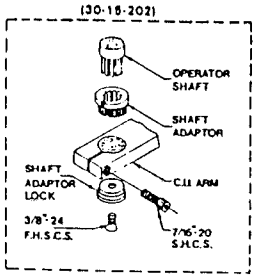
11/06/92

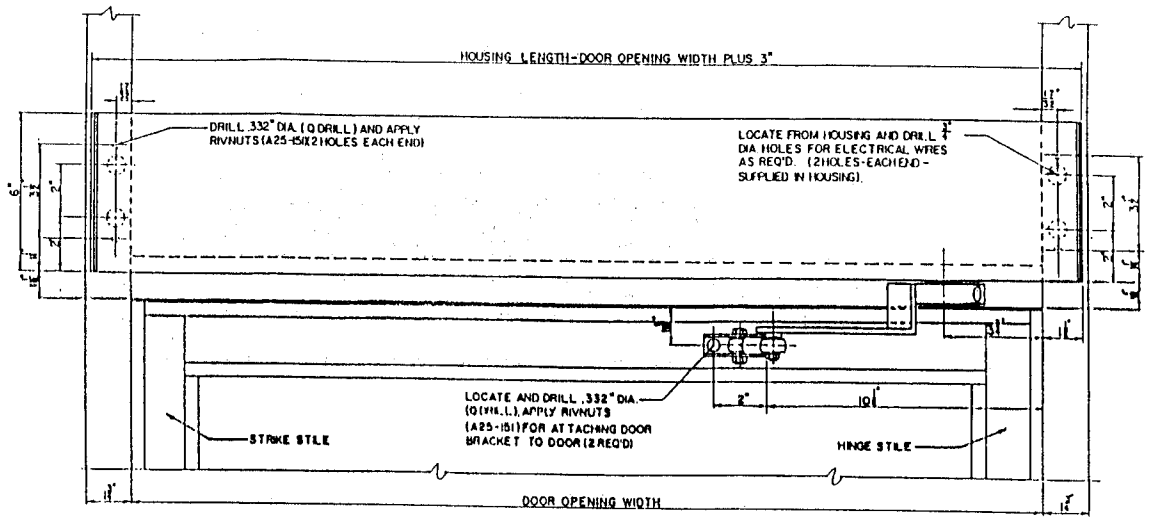
besam®
Hightstown, NJ
08520 USA
800-872-9290

D18054



END VIEW





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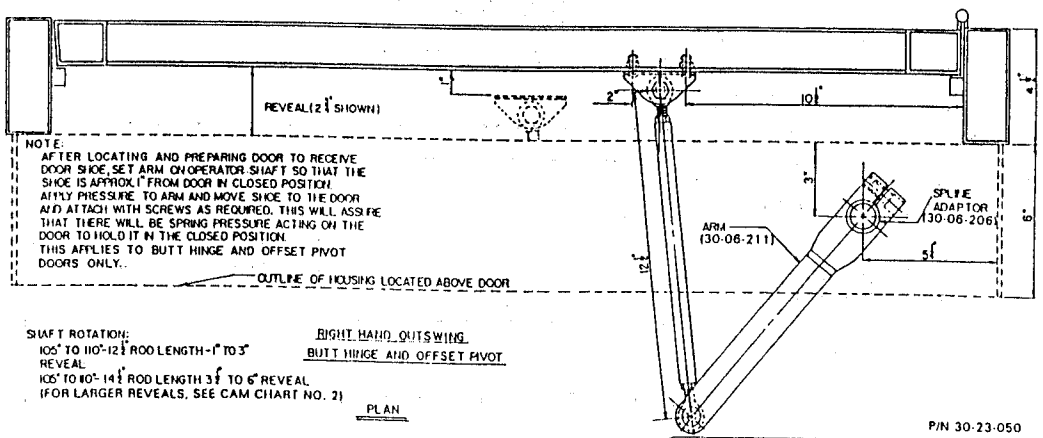


SHAFT ROTATION:
105° TO 110°-12½" ROD LENGTH-1" TO 3" REVEAL
105° TO 80°-14½" ROD LENGTH 3½" TO 6" REVEAL
(FOR LARGER REVEALS, SEE CAM CHART NO. 2)

RIGHT HAND OUTSWING
BUTT HINGE AND OFFSET PIVOT

PLAN

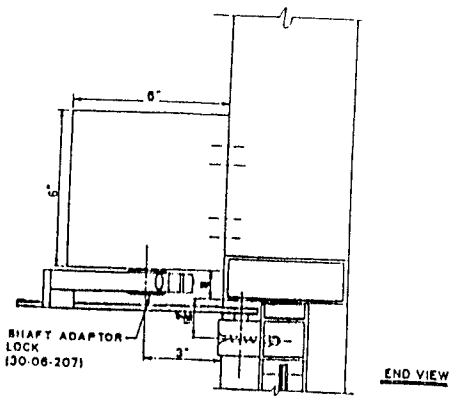
P/N 30-23-050

Swingmaster MODEL 350/450
TEMPLATE #1

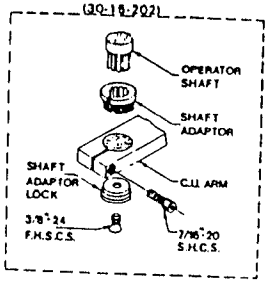
DATE 11/06/92

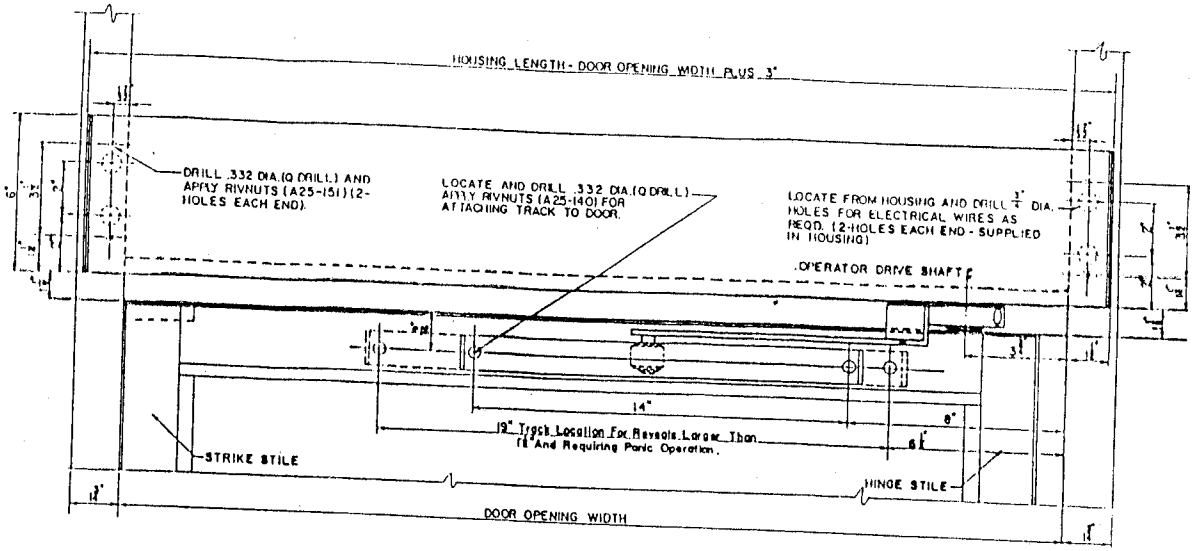
besam®
Hightstown, NJ
08520 USA
800-872-9290

D18050



END VIEW





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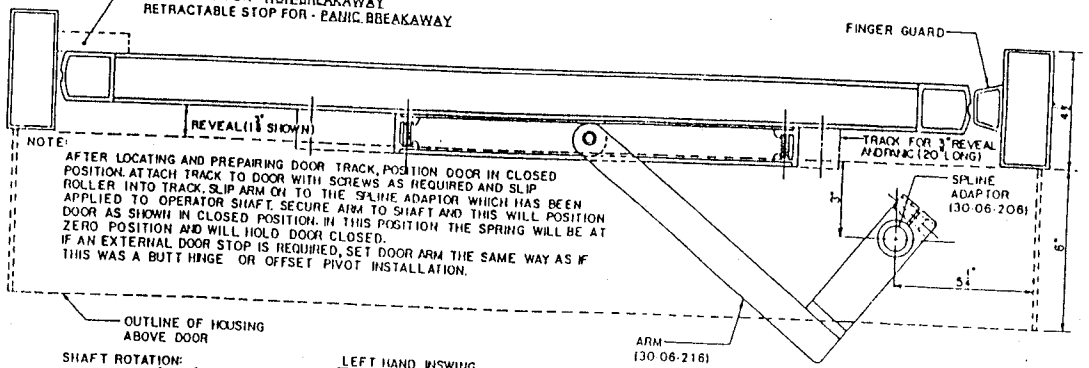


SHAFT ROTATION:
110° TO 116° - 1" TO 1½" REVEAL
116 TO 130-½° TO 3" REVEAL
USE LONGER TRACK IF REVEAL IS LARGER THAN 1½ AND RELOCATE AS SHOWN.
(FOR LARGER REVEALS, SEE CAM CHART NO. 2)

LEFT HAND INSWING
CENTER PIVOT DOOR

PLAN
(PANIC OUT)

THIS ARM AND TRACK DESIGN WILL NOT WORK WITH MORE THAN 3" REVEAL BECAUSE OF LIMITED SHAFT ROTATION.

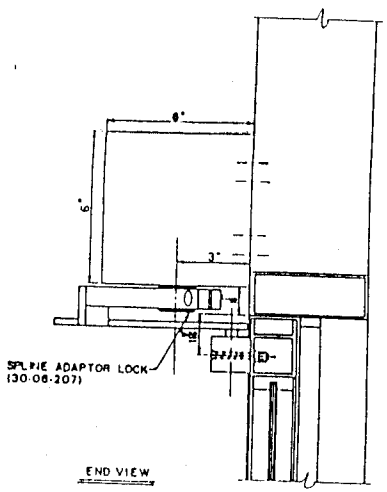
P/N 30-23-057

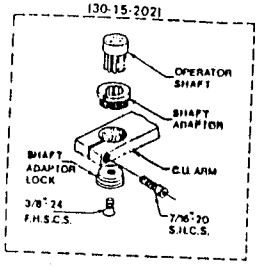
Swingmaster MODEL 350/450
TEMPLATE #8

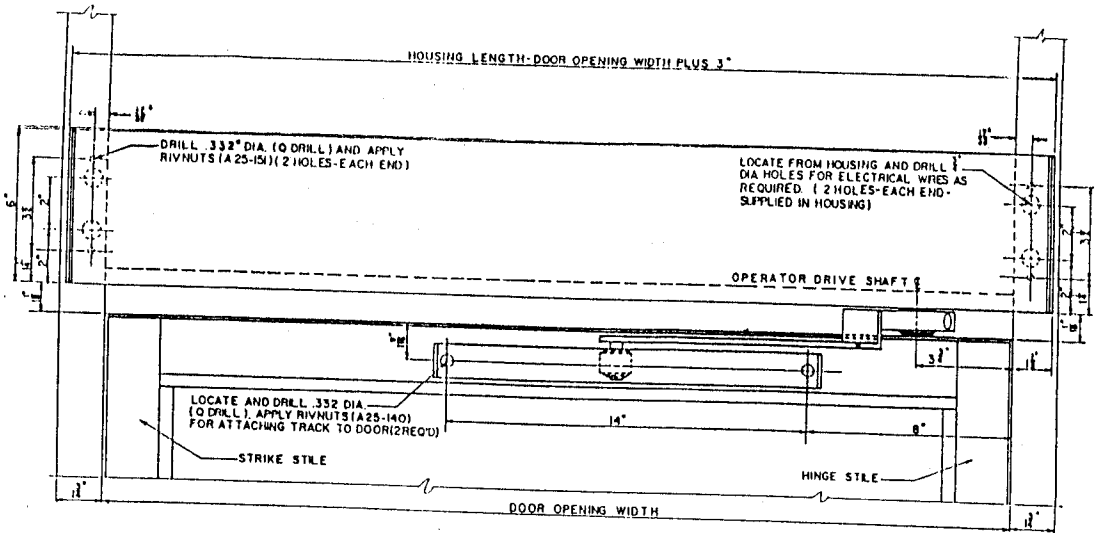
11/08/92

besam®
Hightstown, NJ 08520 USA
800-872-9290

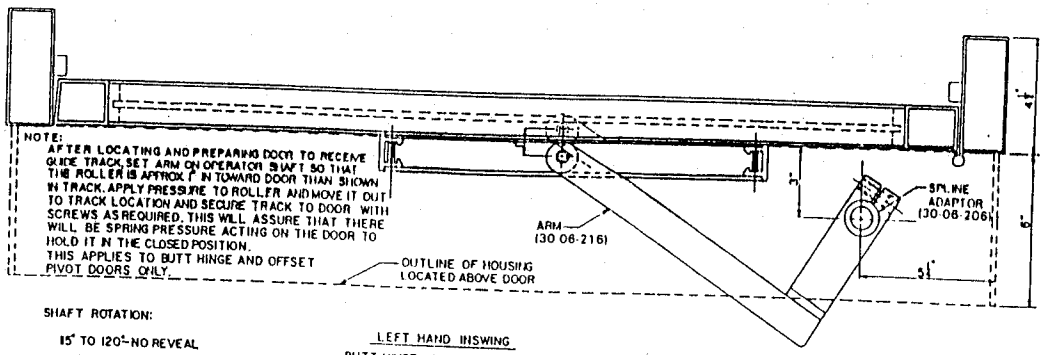
D18057







ELEVATION



SHAFT ROTATION:

15° TO 120°-NO REVEAL
130° TO 135°-MAX. 3" REVEAL
(THIS ARM WILL NOT WORK WITH MORE THAN 3" REVEAL)
(FOR LARGER REVEALS, SEE CAM CHART NO. 2)

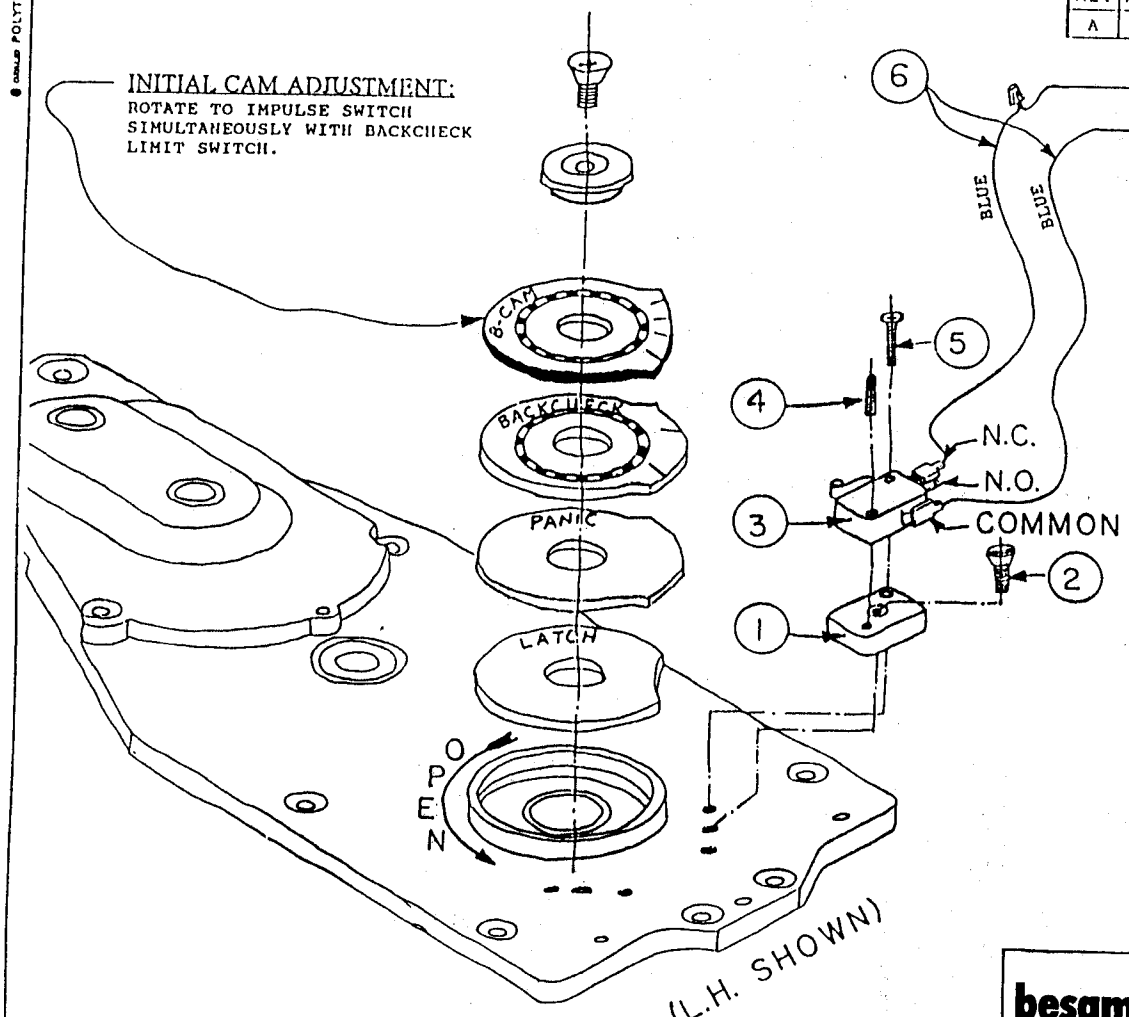
LEFT HAND INSWING
BUTT HINGE AND OFFSET PIVOT

PLAN

P/N 30-23-053

Swingmaster MODEL 350/450 TEMPLATE #4		11/06/92
besam® Hightstown, NJ 08520 USA 800-872-9290		53

REVISIONS					
REV	PLCS	CHANGE	DATE	CHG BY	CHKD B
A		DELETED REF. NOTES IN B.OH. ADDED #7. REVISED DWG. TITLE.	6-2-94	CAMC	



BROWN CONDUCTOR FROM TERM. 4 ON/OFF SWINGPATH V.P.

TO TERMINAL #10 OV(-) SWINGMASTER CONTROL BOARD

CAUTION: DISCONNECT MAIN VOLTAGE TO OPERATOR BEFORE MAKING CAM ADJUSTMENTS.

INSTALLATION INSTRUCTIONS FOR SIMULTANEOUS "B" SWITCH FUNCTION WITH BACKCHECK.

1. Secure switch (3) as shown.
2. Rotate B-CAM and check for proper function of switch (3).
3. Install wire harness (2 blue wires) to the common and normally closed contacts.
4. Check switch (3) function with a tester.
5. Surface mounted applications - adjust backcheck CAM to proper setting - see CAM chart No. 2.
6. Rotate operator spindle with OHC arm until backcheck switch is first impulsed. Secure in this position with motor coupling thumb screw.
7. Rotate "B" switch CAM in the opening direction until the rise of the CAM just impulses switch (3).
8. Carefully run "B" switch wiring along with main switch harness and replace cover.

KIT NUMBER 30-02-270 / LIST OF MATERIALS

ITEM #	QTY	DESCRIPTION	PART NO.
1	1	"B" SWITCH ADAPTER	30-04-248
2	1	#4-40 X 1/2"L FHMS	30-09-228
3	1	MICROSWITCH	30-02-200
4	1	#4-40 X 5/8"L SSS CUP PT.	30-09-261
5	1	#4-40 X 7/8"L RHMS (PH)	30-09-268
6	1	WIRE HARNESS	30-02-228
7	1	INSTALLATION DRAWING	30-23-031

FOR CAM CHART: REFER TO INSTALLATION MANUAL P/N 30-03-025.

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Automated Entrance Systems, Inc.
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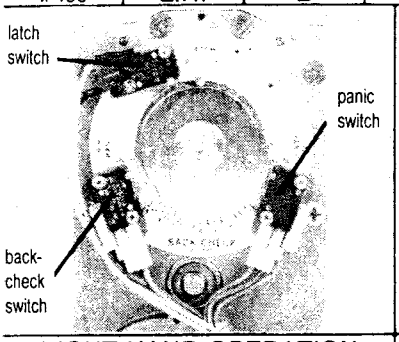
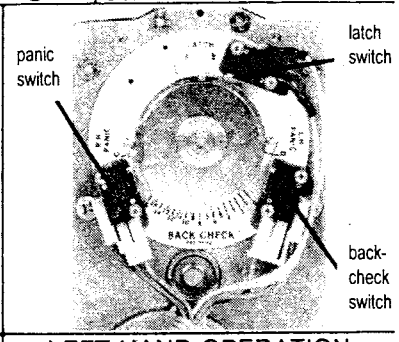
"B" CAM-SWITCH KIT INSTALLATION WITH CAM KITS (#30-15-230 & #30-15-240)

DRAWN BY	SCALE
DATE	7/6/93
DWG. NO	B 90079 PT. NO. 30-23-031

MODEL	SWING	LATCH	PANIC	BACKCHECK
#300 AND #305	R.H.	A	D	#11 FOR 90° OPEN
	L.H.	B	C	#5 FOR 90° OPEN
#350 AND #355	R.H.	A	D	SEE BACKCHECK CHART #2
	L.H.	B	C	SEE BACKCHECK CHART #2
#400 AND #405	R.H.	A	D	#11 FOR 90° OPEN
	L.H.	B	C	#5 FOR 90° OPEN
#450 AND #455	R.H.	A	D	SEE BACKCHECK CHART #2
	L.H.	B	C	SEE BACKCHECK CHART #2



RIGHT HAND OPERATION



LEFT HAND OPERATION

FOR REVEAL DIM'S., LINKAGE REQUIREMENTS AND BACKCHECK CAM SETTINGS FOR SURFACE APPLICATION SEE CHART NO. 2.

besam SWINGMASTER **CAM CHART NO. 1**

SWITCH CAM SETTINGS LATCH—PANIC—BACKCHECK SWINGMASTER MODELS #300 & #400 SERIES OPERATORS

#300 SERIES: DOUBLE ACTING

#400 SERIES: SINGLE ACTING

SWITCH CAM SETTINGS BACKCHECK SWINGMASTER MODELS #350 - #355 - #450 & #455

B.H. = BUTT HINGE

O.P. = OFFSET PIVOT

C.P. = CENTER PIVOT

REVEAL DIM.	DOOR SWING	B.H. OUT	O.P. OUT	ROD LENGTH	C.P. OUT	ROD LENGTH	B.H. IN	O.P. IN	TRACK LENGTH	C.P. IN	TRACK LENGTH
0-1"	R.H.	#7	#8	10¼"	#11	10¼"	#5	#6	14"	#8	14"
	L.H.	#9	#8	10¼"	#5	10¼"	#11	#10	14"	#8	14"
2"	R.H.	#7	#8	10¼"	#12	10¼"	#5	#5	14"	#7	20"
	L.H.	#9	#8	10¼"	#4	10¼"	#11	#11	14"	#9	20"
3"	R.H.	#7	#8	10¼"	#12	12¼"	#4	#5	14"	#7	20"
	L.H.	#9	#8	10¼"	#4	12¼"	#12	#11	14"	#9	20"
4"	R.H.	#7	#9	10¼"	#12	12¼"	#4	#4	14"	#6	24"
	L.H.	#9	#7	10¼"	#4	12¼"	#12	#12	14"	#10	24"
5"	R.H.	#8	#9	12¼"	#13	14¼"	#4	#4	14"	#5	24"
	L.H.	#8	#7	12¼"	#3	14¼"	#12	#12	14"	#11	24"
6"	R.H.	#8	#9	12¼"	#13	14¼"	#2½	#3	14"	#5	24"
	L.H.	#8	#7	12¼"	#3	14¼"	#13½	#13	14"	#11	24"
7"	R.H.	#8	#9	14¼"	#13	16¼"					
	L.H.	#8	#7	14¼"	#3	16¼"					
8"	R.H.	#8	#9	14¼"	#13	16¼"					
	L.H.	#8	#7	14¼"	#3	16¼"					
9"	R.H.	#8	#9	16¼"	#13	18¼"					
	L.H.	#8	#7	16¼"	#3	18¼"					
10"	R.H.	#8	#9	16¼"	#13	18¼"					
	L.H.	#8	#7	16¼"	#3	18¼"					
11"	R.H.	#8½	#9½	18¼"	#13	20¼"					
	L.H.	#7½	#6½	18¼"	#3	20¼"					
12"	R.H.	#8½	#9½	18¼"	#13	20¼"					
	L.H.	#7½	#6½	18¼"	#3	20¼"					

CONSULT FACTORY FOR LARGER REVEALS ON INSWING DOORS

BACKCHECK CAM SETTINGS FOR CENTER PIVOT DOORS ARE FOR 3¾" PIVOT DIMENSIONS ONLY. SEE LARGER CHART FOR 2¾" PIVOT CAM SETTINGS.

besam® SWINGMASTER

CAM CHART NO. 2

Setting Operator Stops

With arm securely attached to the door, move the door to the open position desired and secure temporarily with the 5/16-18 thumb screw in the hole located next to the motor and tighten finger tight against the motor coupling. (Be sure to release/remove before moving the door.) Referring to Drawing D-18059, adjust opening limit stop as required and secure stop lock to hold in place. If door cannot be opened to the full open position, back off the limit stop to increase the door travel. When stop is secured, allow door to close.

When all of the above has been completed, apply cover, recheck all fasteners including all switches externally or otherwise, and the door is now ready for operation when proper switches and activating devices have been installed.

Swingmaster® 300/350 Handing Conversion

(400/450 Series are handed and cannot be converted.)

There is basically one operator that when properly set up can handle all hands. The 300 Series in header operator and 350 Series conversion unit transom-mount differ only by the addition of an extension block and a different spring tube assembly which provide the increased stroke required when surface linkage is utilized. The block acts as an adjustable left hand door stop. A 300 in header cannot be converted to a 350 or vice versa without changing to the proper spring tube assembly.

NOTE: The 350 extension is located in the 1 1/2" header overlap of the frame and cannot be cut down if overlap restrictions are found.

The header case is also designed to be versatile and the bottom closure piece can be repositioned (spindle opening) to accommodate a right hand or left hand application. Surface applied headers are always 3" longer in length than overhead concealed headers.

Remove limit switch cover and establish the hand of the operator by inspecting the CAM and microswitch locations on the operator with the enclosed drawing or the decals attached to the outside of the CAM cover. With the spindle at 0°, determine which hand operator you require and if a change is necessary, proceed as follows:

NOTE: Special decal aids for the alignment of the CAM positions and switch locations are installed in the operator for the convenience of the installer and performance for future service.

Remove the limit switch cover. To establish the hand of the operator, carefully inspect the location of the switches against the figures given on CAM Chart No. 1, page 21. If a handing change is necessary, proceed with the following:

1. Remove the latch switch (yellow wires and 1-spacer). Reverse and relocate to opposite side as indicated in CAM Chart No. 1. The wiring remains the same. Be sure to reinstall the 1-spacer on the bottom.

2. Remove back-check (3 spacers) and panic (2 spacers) switches. Remove spacers from each switch and reinstall spacers on opposite side of their respective switch. Reverse switches (with spacers reinstalled), wires, etc. and reinstall hold down screws. (See figure given on CAM Chart No. 1, page 21.)

3. Loosen the locking set screw, holding the CAMS, to allow the CAMS to be rotated and realigned.

4. Realign latch switch CAM (bottom CAM) by first centering the indicator marks around "A" and "B" on the alignment ring. For right hand operation align indicator mark approximately at "A" to be in line with "A". For left hand operation align mark at "B" to be in line with "B".

NOTE: The following step is for Swingmaster® 300, 305, 400, and 405 concealed models only.

5. Realign back-check CAM (top CAM) by first centering the CAM lobe (high point) between the back-check switch and the panic switch. For right hand operation: align the indicator mark (on the CAM) closest to the back-check switch with No. 11 on the alignment ring (back-check marks). For left hand operation: align the indicator mark (on the CAM) closest to the back-check switch with No. 5.

NOTE: The following is for Swingmaster® 350, 355, 450, and 455 surface mounted models only.

5.1 Realign back-check CAM (top CAM) by first centering the CAM lobe (high point) between back-check switch and panic switch. Determine the amount of reveal, hand of door and how door is to be; or is hung; i.e., butt hung, center pivot or offset pivot. Refer to CAM Chart No. 2, page 21 for the specific reveal. (Reveal is the distance from face of door to the back of the operator when installed.)

6. Hold latch CAM and back-check CAM in place.

NOTE: The following is for ALL models:

7. Rotate panic CAM (middle CAM) to center CAM lobe (high point) between back-check and panic switches. For right hand operation: align the indicator mark (on the CAM) closest to the panic switch with "D" on alignment ring. For left hand operation: align the indicator mark (on the CAM) closest to the panic switch with "C" on alignment ring.

8. Holding the CAMS in their proper location tighten locking screw.

9. Activate the operator checking all the limit switch functions. It may be necessary to readjust the CAMS if the degree of activation of back-check (70° - 75°), or latch (10° - 15°) is not satisfactory. Dress up the wiring and reinstall the switch cover. Changing hands of the PC board will also be necessary. You are now ready to install the operator. Be sure to check the panic breakaway function. By pushing the door in the panic direction approximately 2 - 3 degrees, the operator should deactivate. This setting allows for wind loads and keeps the controlled panic closing speed within the door frame.

Switch "B" Kit (Part No. 30-02-221)

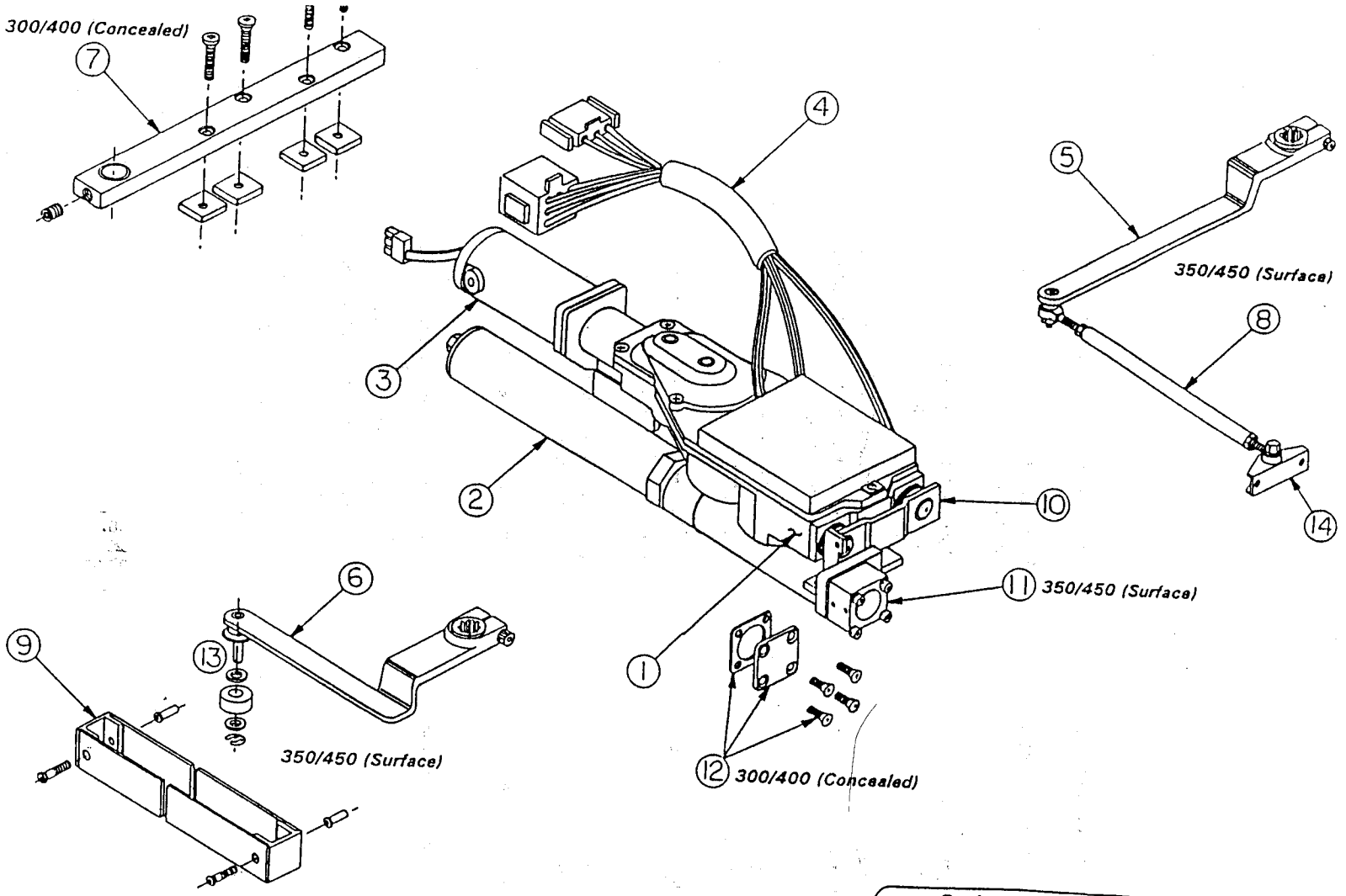
All Swingmaster® models can be equipped with a Switch "B" CAM Kit (see Drawing B-90025, pg. 20). The "B" Switch is primarily used with the Besam VisionPulse® Swing Door Presence Sensor System. It can also be used as a low voltage door status (position) switch to control system such as airlocks, air curtains, annunciator, locks and etc.

Troubleshooting Swingmaster®

When troubleshooting suspected Swingmaster® PCB faults, all detectors should be disconnected. Jumpers should be in place across No's. 15-16, 17-18, 19-20. Door should be activated with a jumper across terminal 13 and 14.

Fault	Possible Reasons Why	Remedies/Explanations
Door won't open.	Low or absent main power.	Check for 110 VAC at Terminals 3 (NEU) and 5 (HOT).
	Blown main fuse.	Check 4A fuse for single or 7A fuse for dual PCB for continuity.* NOTE: Also check PCB for physical damage or burnt components at this time.
	Blown control fuse.	Check both 1.5A fuse for continuity.* These fuses are in line with the 24 VCD regulated and the 15-20 VDC unregulated supplies used to power VisionPulse® sticks and/or other detectors.
	CAM switches in incorrect position.	Check CAM chart and wiring Diagram for correct CAM and switch position at 0°. Also check for correct switch harness wiring to plugs. *All fuse continuity and switch function checks should be made with the mains disconnected.
	Open motor windings.	Unplug motor from PCB. Short white and black leads or motor plug and manually open door. Release door carefully to prevent glass breakage and observe closing speed. If extremely slow, motor windings are okay. If door slams closed, then motor windings are open. NOTE: PCB relay will still engage in both of these cases.
	Motor fuses blown.	On dual PCB's check 4A fuses located in fuse towers for continuity.*

Fault	Possible Reasons Why	Remedies/Explanations
Door holds open.	Short PCB activate circuit.	PCB should be returned to Besam for repair.
	Mechanical problem with operator.	Operator should be returned to Besam for repair.
Door opens slow.	Operating in back check speed.	Mispositioned CAM or defective back-check switch. Check function with ohm meter.*
Door closes slow.	Contacts on PCB relay pitted or stuck.	Replace relay or return PCB to Besam for repair.
	Operating in latch speed.	Defective latch switch. Check function with ohm meter.*
	Closing resistor R-1 value incorrect.	Match operator type with correct resistor value.
No speed control. Door slams open.	Short in motor drive circuits.	Return PCB to Besam for repair.
Door stops at back-check and recycles.	Problems with low speed switching control.	(1) Adjustment of back-check speed too low. (2) Back-check switch not contacting CAM. (3) Broken wire to back-check switch. (4) Harness wiring incorrect.
Door closes fast.	Closing resistor R-1 value incorrect.	Match operator type with correct resistor value.



TITLE: Swingmaster 300/400 Series Swingmaster 350/450 Series	DATE: 8/26/92
besam® Automated Entrance Systems, Inc. 81 TWIN RIVERS DRIVE HIGHTSTOWN, NJ 08520-5212 (609) 443-5800 • FAX (609) 443-3440	C-547046 DWG NO

SPARE PARTS LIST FOR SWINGMASTER 300/400 & 350/450 SERIES (DWG. C-547046) PG. 1 OF 3

ITEM NO.	DESCRIPTION	PART NO.	300	305	400 RH	400 LH	405 RH	405 LH	350	355	450 RH	450 LH	455 RH	455 LH	REMARKS
1	OPERATOR COMPLETE	30-10-001	X												
1	OPERATOR COMPLETE	30-10-002		X											
1	OPERATOR COMPLETE	35-10-001			X										
1	OPERATOR COMPLETE	35-10-002				X									
1	OPERATOR COMPLETE	35-10-003					X								
1	OPERATOR COMPLETE	35-10-004						X							
1	OPERATOR COMPLETE	30-10-051							X						
1	OPERATOR COMPLETE	30-10-052								X					
1	OPERATOR COMPLETE	35-10-051									X				
1	OPERATOR COMPLETE	35-10-052										X			
1	OPERATOR COMPLETE	35-10-053											X		
1	OPERATOR COMPLETE	35-10-054												X	
2	SPRING TUBE ASSEMBLY	30-15-101	X												
2	SPRING TUBE ASSEMBLY	30-15-102		X											
2	SPRING TUBE ASSEMBLY	30-15-106			X										
2	SPRING TUBE ASSEMBLY	30-15-107				X									
2	SPRING TUBE ASSEMBLY	30-15-108					X								
2	SPRING TUBE ASSEMBLY	30-15-109						X							
2	SPRING TUBE ASSEMBLY	30-15-104							X						
2	SPRING TUBE ASSEMBLY	30-15-105								X					
2	SPRING TUBE ASSEMBLY	30-15-110									X				
2	SPRING TUBE ASSEMBLY	30-15-111										X			
2	SPRING TUBE ASSEMBLY	30-15-112											X		
2	SPRING TUBE ASSEMBLY	30-15-113												X	
3	ELECTRIC MOTOR	30-02-101	X	X	X	X	X	X	X	X	X	X	X	X	
4	SWITCH HARNESS	30-02-203	X	X					X	X					
4	SWITCH HARNESS	30-02-212			X	X	X	X			X	X	X	X	

SPARE PARTS LIST FOR SWINGMASTER 300/400 & 350/450 SERIES (DWG. C-547046) PG. 2 OF 3

ITEM NO.	DESCRIPTION	PART NO.	300	305	400 RH	400 LH	405 RH	405 LH	350	355	450 RH	450 LH	455 RH	455 LH	REMARKS
5	OUTSWING ARM (STD)	30-06-211							X	X	X	X	X	X	CLEAR
5	OUTSWING ARM (STD)	30-06-223							X	X	X	X	X	X	BRONZE
6	INSWING ARM (CAST) R.H.	30-06-213							X	X	X		X		CLEAR
6	INSWING ARM (CAST) R.H.	30-06-224							X	X	X		X		BRONZE
6	INSWING ARM (CAST) L.H.	30-06-216							X	X		X		X	CLEAR
6	INSWING ARM (CAST) L.H.	30-06-225							X	X		X		X	BRONZE
7	CENTER PIVOT ARM ASSY	30-06-101	X	X	X	X	X	X							
8	CONNECTING ROD (STD)	30-06-200							X	X	X	X	X	X	CLEAR
8	CONNECTING ROD (STD)	30-06-199							X	X	X	X	X	X	BRONZE
9	INSWING TRACK (STD)	30-06-202							X	X	X	X	X	X	CLEAR
9	INSWING TRACK (STD)	30-06-236							X	X	X	X	X	X	BRONZE
10	MOUNTING KIT	30-15-202							X	X	X	X	X	X	
10	MOUNTING KIT	30-15-211	X	X	X	X	X	X							
11	EXTENSION KIT	30-15-217							X	X	X	X	X	X	
12	RACK GEAR STOP KIT	30-15-216	X	X	X	X	X	X							
13	INSWING ROLLER KIT	30-15-224							X	X	X	X	X	X	
14	DOOR BRACKET	30-06-209							X	X	X	X	X	X	CLEAR
14	DOOR BRACKET	30-06-222							X	X	X	X	X	X	BRONZE
15	OIL SEAL	30-20-206	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)
16	OIL SEAL	30-20-207	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)
17	RUBBER MOUNTS	30-20-201	X	X	X	X	X	X	X	X	X	X	X	X	SET OF 5 (NOT SHOWN)
18	COVER	30-04-231	X	X	X	X	X	X	X	X	X	X	X	X	
19	SWITCH "B" KIT	30-02-221							X	X	X	X	X	X	
20	OUTSWING ARM ASSY (STD)	30-05-102							X	X	X	X	X	X	(CLEAR)
20	OUTSWING ARM ASSY (STD)	30-06-217							X	X	X	X	X	X	(BRONZE)
21	ADAPTER KIT	30-15-202							X	X	X	X	X	X	(NOT SHOWN)

SPARE PARTS LIST FOR SWINGMASTER 300/400 & 350/450 SERIES (DWG. C-547046) PG. 3 OF 3

ITEM NO.	DESCRIPTION	PART NO.	300	305	400 RH	400 LH	405 RH	405 LH	350	355	450 RH	450 LH	455 RH	455 LH	REMARKS
22	MALE ROD ENDS	30-06-208							X	X	X	X	X	X	CLEAR
22	MALE ROD ENDS	30-06-221							X	X	X	X	X	X	BRONZE
23	MOTOR COUPLING COMPLETE	30-04-225	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)
24	CONTROL BOARD (SINGLE)	30-02-002	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)
25	CONTROL BOARD (DUAL)	30-02-003	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)
26	CONTROL BOARD, L.E. (SINGLE)	30-02-252	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)
27	CONTROL BOARD, L.E. (DUAL)	30-02-253	X	X	X	X	X	X	X	X	X	X	X	X	(NOT SHOWN)

Notes

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