TAB 76

flats sorting machine guidelines

(FSM 775)

Handbook PO-406

February 1984

U.S. POSTAL SERVICE
Washington, DC 20260

FLATS SORTING MACHINE (FSM 775) GUIDELINES **Transmittal Letter**
Handbook PO-406 **February 1984**

A. MATERIAL TRANSMITTED

This handbook describes the Model 775 Flats Sorter and explains the operational procedures to assure proper implementation.

B. DISTRIBUTION

1. Initial. This handbook is distributed to all present and proposed FSM offices and to Headquarters, Regions, and Districts.

2. Additional Copies. If your office did not receive the quantity needed, send a completed Form 7380, *Supply Center Requisition*, to your area supply center.

C. SUPERSEDED INSTRUCTIONS

This handbook supersedes all previous instructions on this subject.

D. EFFECTIVE DATE

These instructions are effective upon receipt.

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CHAPTER 1
CRITERIA AND DESCRIPTION

110 PURPOSE AND CRITERIA

111 The importance of careful planning, continuing direction, and coordination cannot be over-emphasized in developing and operating a successful mechanized operation. Acceptance and understanding of new mail processing systems by all levels of management is important to the development of positive attitudes at operating levels.

112 Criteria and operational procedures have been developed to assure proper implementation of Model 775 Flat Sorters. Proper adherence to criteria and procedures is vital to assure that economic benefits are realized.

120 GENERAL DESCRIPTION

The Model 775 is a mechanized flat sorter with four feed stations that insert flats onto a single transport system. It sorts to 100 separations under control of a computer subsystem that translates keycode data to bin destination codes.

130 MACHINE DESCRIPTION

131 GENERAL

The Model 775 has three main subsystems: the feed subsystem, the bins subsystem, and the computer subsystem.

132 FEED SUBSYSTEM

132.1 Description

The feed subsystem consists of four operator consoles and a supervisor control panel.

132.2 Operator Console

.21 Each console is individually operated.

.22 Each console is equipped with the following:

a. An adjustable elbow rest pad.

b. A keyboard with:

(1) A START button,

(2) A STOP button, and

(3) An EMERGENCY STOP button.

(See Exhibit 1 in the Appendix.)

132.3 Keyboard

.31 Description. The keyboard is right-hand operated. At the upper left are numbered keys sequentially arranged from bottom to top (the same as on an adding machine).

.32 Key Pad

.321 To the left center of the key pad is a 2-DIGIT key. Use this key to complete the three-key stroke requirement for areas needing only two hits.

.322 A REPEAT key is located at top center. Use this key when two or more flats with the same bin destination run consecutively.

.323 A CL (clear) key is located at upper right. Use this key to clear codes that have been keyed incorrectly.

.324 A REJ (reject) key is located at lower right. This key can be programmed and may be used for a high volume direct.

132.4 Keyboard Mount

.41 The keyboard assembly is adjustable which allows it to swivel closer to or away from the operator.

.42 The mount is adjustable horizontally by releasing the spring-loaded catch located underneath the right side of the mount.

132.5 Advance Feed Mechanism

.51 The feed belt advances flat mail from right to left.

.52 A knee switch allows the operator to actuate the advance mechanism.

.53 As mail approaches the induction station, a HALT switch discontinues the advance.

132.6 Induction Belt

.61 An induction belt is located at each operator console.

.62 Keyed flats placed onto the induction belt activate the photoelectric sensors that permit the flat to be inserted onto the main transport belt.

132.7 Color Coded Lights

.71 The lights are located above the induction belt.

.72 The lights indicate the status of the induction cycle.

.73 The purpose of the color-coded lights is listed below as they appear on the machine in right to left order:

a. Code (green)—indicates the code cycle is ready to receive a key code.

b. Wait (yellow)—indicates that a correct key code has been keyed and induction belt is waiting to move the flat onto the main transport belt.

c. Reject (red)—indicates that an improper key code was received by the computer.

133 BINS SUBSYSTEM

133.1 Sort Bins

.11 Sort bins are located on both sides of the machine. The bins are programmable, except for the last bin which is a bypass bin.

.12 Each bin module has five bins on each side for a total of ten bins.

.13 Each sort bin is removeable, and is intended to be covered, strapped, labeled, and dispatched.

133.2 By-Pass Bin

.21 By-pass occurs when a mail piece is not diverted at its destination bin.

.22 The by-pass may result from the following:

a. A stuck diverter gate;

b. Improper insertion of a flat at an induction station;

c. A momentary jam that causes the flat to slip from its designated position on the transport belt; or

d. One of several other possible events that result in loss of tracking or diverter actuation.

134 ALIGNMENT MODULE

134.1 Description

.11 The alignment module connects the feed subsystem to the bin subsystem.

.12 The name is derived from the fact that the slope of the transport surface from the feed subsystem to the bin subsystem is changed from 45° to 70°.

.13 The alignment module has five bins located on the back side.

134.2 Counter

A photocell activated counter, located on the front side of the alignment module between the number one feed station and the first bin, records the total volume of flats transported by the machine.

135 THE END MODULE

135.1 Location

The end module is at the opposite end of the machine from the feed subsystem.

135.2 Components

The end module consists of the turnaround wheel and two reversing belts which hold the flat against the wheel as it is transported to the backside of the FSM.

136 SUPERVISOR CONTROL PANEL

136.1 Function

.11 The panel is used to provide the following functions:

a. Select sort plans.

b. Start and stop the machine.

.12 The panel also contains light indicators for machine conditions.

(See Exhibit 2 in the Appendix.)

136.2 Description

.21 Release Key. The release key is used to allow sort plan selection in conjunction with program lights.

.22 Programs.

.221 Programs are selected by depressing any combination of one to four buttons. The buttons have values of 1, 2, 4, and 8. A supervisor may select any one of 14 programs. *Example:* Depress buttons 1, 2, and 4 to select program seven.

.222 Program number 15 is a diagnostic program which permits diverter gate checks.

.23 START Button. The START button allows machine operation after program selection.

.24 STOP Button. The STOP button is used for normal machine stops. When the STOP button is pushed, power to all feed stations is shut off. The transport belt continues for one revolution to assure that no mail is left in the main transport belt.

.25 Emergency Stop.

.251 The EMERGENCY STOP light on the control panel is lighted when any EMERGENCY STOP button is activated.

.252 The EMERGENCY STOP button causes an immediate halt of the machine. Manual reset is necessary before restart.

.253 The EMERGENCY STOP buttons are located as follows:

a. On the main control panel,

b. On each keyboard console, and

c. Strategically around the bins section.

.254 Interlock switches effect the same conditions as EMERGENCY STOP buttons. They are located at each feed station and on removable panels on turnaround modules.

.26 Lights

.261 The 24V light is lighted when the system power is on.

.262 The jam light comes on as a jam occurs and is reset when the START button is pushed after the jam has been cleared.

.263 The following lights identify machine malfunction and indicate the need for maintenance:

a. The MOTOR CIR (Circuit) BREAKER light,

b. The ELECTRONIC CIR (Circuit) BREAKER light,

c. The COMPRESSED AIR light, and

d. The ELECTRONIC VOLTAGE light.

137 COMPUTER SUBSYSTEM

137.1 Computer Cabinet

.11 A Digital Equipment Corporation (DEC) RX02 Floppy Disc drive is located in the upper section of the cabinet.

.12 A DEC PDP 1103/03-L computer is located at the center part of the cabinet.

.13 An hour meter and a piece counter are located below the computer. Both meters are accumulative and can be reset only with a key.

.14 A computer selector switch is located adjacent to the counters:

a. The selector switch has eight positions and allows selection of 1 to 8 program storage positions.

b. Each switch position will accept 14 programs.

.15 Printed circuit boards are located in the lower section of the cabinet.

137.2 DECwriter

.21 Currently, a DECwriter printer/terminal is used with the FSM 775.

.22 In order to operate the DECwriter, the 300 key must be in the DOWN or depressed position and the ON-OFF switch must be in the ON position. Both are located on the left side of the DECwriter.

.23 Pre-programmed commands are entered via the DECwriter keyboard to select system functions, including management statistical reports.

140 DIMENSIONS

The dimensions of the FSM 775 with computer and DECwriter in place for the 100 Bin models are:

a. Length—82 feet

b. Width—13 feet

c. Height—7 feet

CHAPTER 2
USE CRITERIA

210 MACHINE USE
Use Model 775 Flat Sorting Machines with approved distribution plans as provided in 231. Plans and proposed changes in the plan must be approved by the Regional General Manager, Logistics Division.

220 VOLUME REQUIREMENTS

221 Daily flat volumes and space availability are controlling factors in determining if and how many machines should be located in a post office.

222 The Model 775 has a maximum sort rate of 10,000 pieces per machine hour.

230 MACHINE SORT PROGRAMS

231 GENERAL
Sort programs for outgoing, MMP, SCF, incoming primary, incoming secondary, and box section, may be applied to the FSM in the order of priority consistent with service standards. The operational numbers will be in the 140 series.

232 AUTHORITY TO EXPAND UTILIZATION

232.1 Authorization
Postmasters are authorized to establish additional FSM tours as needed.

232.2 Distribution Schemes

.21 Approval. All distribution schemes must be approved as follows:

a. Distribution schemes and changes in Intra-SCF distribution are approved by the MSC manager.

b. Intra-Regional distribution schemes and changes are approved by the Regional General Manager, Logistics Division.

c. Dispatch make-up must conform to the national labeling instructions.

.22 Deviations. Any deviations from the above are to be approved by the Office of In-Plant Processing, Mail Processing Department, Headquarters.

232.3 Diagram Changes

.31 Postmasters are authorized to make FSM diagram changes which may involve the relocation or exchange of bin locations, but do not involve the addition or deletion of separation items.

.32 Postmasters are authorized to make changes to the incoming diagrams including additions, deletions, or combination of local zones and firm directs as needed.

232.4 Regional Diagram Changes
Diagram changes made at the direction of the Regional General Manager, Logistics Division, should be forwarded to the regional office when completed so that diagram files may be updated.

233 MACHINE DISTRIBUTION OF FLAT MAIL

233.1 Sort Plan
Separate flat mail to ADC/SDC, SCF, Incoming Primary, Incoming Secondary, firm, box, or ZIP Code according to approved sort plan programs.

233.2 Memory Items
Memory item codes assigned to associate a ZIP Code, route number, firm name, city, or other unique addresses shall incorporate to the extent pratical specific code combinations that can be associated with the address.

233.3 Distribution Accuracy
FSM sort operators are required to key at an accuracy rate of 95 percent.

234 SORT PLAN REQUIREMENTS
Use established distribution sort plans to distribute mail to proper separations.

235 OUTGOING PRIMARY CRITERIA

Densities and local service commitments should be the criteria for separation assignments. Distribution requirements, established by the Region as mandatory separations, must also be made.

240 MINIMUM RUNTIME

Sufficient volume for start-up and operation at a throughput necessary to achieve acceptable productivity shall be determined locally. A minimum runtime of four hours is suggested.

250 BIN ASSIGNMENTS

251 LABEL DIAGRAM

Prepare a labeling diagram of the separation and code numbers assigned to each bin. This must be completed prior to machine installation and approved by the Regional General Manager, Logistics Division. Bin assignments for subsequent machines should be identical.

252 MAKING BIN ASSIGNMENTS

Bin assignments, beginning at bin number one, should be made after considering each of the following systems:

a. Sort scheme by ZIP Code sequence,

b. Sort scheme based upon the most efficient sweep arrangement, and

c. Sort schemes in which any common separations are in the same location.

253 BIN LABELS

Bin labels should be distinctive by scheme so that sweepers do not mistakenly read a label assigned to another program.

254 LABEL UPDATE

Labels must be updated to reflect any program changes.

CHAPTER 3
CONDITIONS FOR MACHINE OPERATION

310 STAFFING GUIDELINES

311 GENERAL
When available, all craft personnel assigned to the FSM operation should be qualified keyboard operators to allow for rotation and leave replacement (sick leave, annual leave, etc.).

312 KEYBOARD OPERATIONS

312.1 Minimum Operators
The following minimum number of trained employees should be maintained for each Model 775 machine crew:

a. 5-day week—9 employees

b. 7-day week—11 employees

312.2 Additional Operators
Those authorized above the crew requirements are to provide relief for all types of absences.

320 PERSONNEL UTILIZATION

321 POSITIONS
Depending on the mail volumes, both available and anticipated, and the sort plan, the Model 775 uses a maximum of seven positions as follows:

a. Keyers—4,

b. Sweepers—2, and

c. Loader—1

322 ROTATION

322.1 Scheduled Basis
Keyboard operators rotate on a scheduled basis to other assignments.

322.2 Frequency
As a matter of day-to-day operating procedure, operators will not key more than 45 minutes per rotation. Rotation schedules are determined based on the number of qualified operators assigned. Rotation assignments include sweeping and ledge loading.

330 VERIFICATION
Verification of mail sorted during machine operations is necessary to assure quality of performance and to prevent the possibility of missent mail, caused by either operator error or machine malfunction. Some separations require more attention to verification, while others may not require any.

340 ENVIRONMENTAL CONDITIONS
The environmental factors surrounding the flat sorting machine area should be controlled to minimize distractive factors. The area in and around the machines is restricted to those managers or personnel required in the area. Care should be taken to keep the area from becoming congested with equipment.

CHAPTER 4
FSM OPERATING PROCEDURES

410 STRATEGY

Use approved FSM criteria and operating procedures to obtain optimum productivity and efficiency.

420 PERSONNEL DUTIES AND RESPONSIBILITIES

Supervisors assigned to the Flat Sorting Machine are responsible for the following:

a. Assigning loader to assure that all console feed tables will be loaded with mail prior to the start of the machine operation.

b. Assuring an equitable starting assignment rotation of employees in accordance with 310. (See Section 322 for comment.)

c. Assuring that sufficient quantities of machinable mail are available for continuous operation.

d. Requiring operators to work all assigned distribution as necessary to assure retention of their knowledge and proficiency.

e. Seeing that distribution is kept current and the mail sorted in proper time sequence.

f. Requiring notification to supervisor immediately if excessive amounts of non-machinable mail are received. The supervisor should then contact the source unit through his/her general supervisor.

g. Requiring sweepers to see that mail is verified as necessary prior to making each scheduled dispatch.

430 PRE-START PROCEDURES

The following items shall be determined prior to operation:

a. Type of mail to be processed.

b. Volume available—10,000 pieces suggested minimum. (A smaller quantity may be used if arrival profile indicates a continued supply.)

c. Logistics:

(1) Empty trays on hand.

(2) Label holders filled.

(3) Sufficient equipment of appropriate style on hand.

(4) Ledges loaded.

440 OPERATING THE FSM

441 Power ON:

a. Lift power switch adjacent to Bin No. 1.

b. Open air pressure line.

442 Loading the Floppy Disc:

a. Open left side disc drive door at top of cabinet.

b. Grasp disc with label up and toward the hand.

c. Slide into drive slot and close door.

443 Bringing the computer on-line:

a. Lift ON switch and HALT switch (spring loaded).

b. Lift RESTART switch—this will engage writer. Switch is spring loaded and will return.

c. Computer prints: 28 start?

d. Operator types: Y (for yes). (Press RETURN key.)

e. Computer prints: proprietary information (20-second duration).

f. Operator types: DAT (space) 11-FEB-82. (Use current date: DD-MMM-YY.) (Press RETURN key.)

g. Operator types: TIM (space) 14:30. (Use current time; HH:mm.) (Press RETURN key.)

h. Operator types: R (space) PROCES. (Press RETURN key.)

i. Computer prints: R-PROCES (your loc.).

444 System is now ready to receive program

445 At the Control Panel, insert program as follows:

a. Turn key clockwise and depress.

b. While key is depressed, light the desired program number by depressing the lights directly over the key.

c. Release key to its original position.

Note: When light(s) blink off and on, the program has been accepted by the system and the FSM is now ready for operation.

d. Press START button.

450 ON-TOUR OPERATIONS

After operations are started, observe the following:

a. Mail Supply—know arrival profile: Where and who to call for mail.

b. Are all operations done in a safe manner?

c. Machine is restarted promptly by #4 operator when jam is cleared.

d. EMERGENCY STOP button is engaged to clear all jams.

460 PRODUCTION REPORTS

461 DESCRIPTION

The production reports are similar in composition to those used on other mechanized units. The use of hour and piece meters located in the computer, in conjunction with designated productivity adjustments for bypass, determine throughput.

462 RELATED FORMS

—Form 2345, *Personnel Manpower—MOD.*

—Supplemental—Tally Sheet for jams. (Developed locally.)

470 TOUR CLOSE-OUT

471 GENERAL

Tour ending requires the use of efficient procedures. These may vary depending on the operation scheduled to follow the close out.

472 MACHINE NOT IN USE BY NEXT TOUR

Crew assignments should be designated in advance of close out. Non-machinable items are to be removed as early as possible. Pre-sweep to eliminate congestion. Be aware of workhour usage. If time to dispatch, or end of Tour is critical, the entire crew may be needed to close out, and set up (per local designation). If however, time is not critical, workhour savings can be accomplished by sending some crew members to other units. Complete required production and downtime forms.

473 MACHINE IN USE BY NEXT TOUR

Follow these procedures:

a. Assign close out tasks.

b. Give unit condition report (verbal) to incoming supervisor.

c. Mail volume available.

d. Any variance of normal mail patterns or possible plan failure causes.

474 PREPARING MACHINE FOR TURN-OVER

Follow these procedures:

a. Sweep in such a manner to allow crew change to be orderly and efficient in accordance with established procedures.

b. Assure take away of dispatch and rework mails pertinent to your operation.

c. Complete and distribute production and downtime reports.

480 MANAGEMENT REPORTS

481 STATISTICS RECALL

No (statistics) recall is possible while in processing mode. To recall STATS, do the following:

a. The machine must be stopped (STOP button).

b. "Drop" program by turning release key clockwise, then depressing and releasing the key. Program light(s) will go out.

482 AT DECWRITER

Follow these procedures:

a. Hold CONTROL key down and depress the C key twice. (This puts system in monitor mode.) Release the keys.

b. STATS recall:

(1) Type R (space) STATS. (Press RETURN key.)

(2) Next line reads: DETAIL/SUMMARY/LAST/ ESTABLISH OR ERASE.

(3) Select D, S, or L key. *Note:* Never establish or erase a program. (Press RETURN key.) Type: LOC:XXX (type in Local Designator).

(4) Line will read SWITCH POSITION. Type: 1. (Press RETURN key.)

(5) Line reads FROM (HH:MM DD-MMM-YY). Example: 15:00 14-MAR-81. (Press RETURN key.)

(6) Line reads TO (HH:MM DD-MMM-YY). Example: 17:00 14-MAR-81.

(7) Press RETURN key and information will print.

c. To return to Processing Mode: Type R (space) PROCES. Computer responds with the post office identification code. Insert program. Return to instructions under heading CONTROL PANEL.

483 GENERATING STATISTICAL REPORTS

Statistical Reports are generated by "dropping" the program at the control panel at the end of the processing cycle. As the program is dropped, it is a signal to the computer to store all available statistics on the Floppy Disc. After the STATS have been stored on the Floppy Disc, they can be recalled at any convenient time, other than when the machine is in the processing mode.

484 TYPES OF AVAILABLE STATISTICS

There are three types of statistics available in the 775 program, they are:

a. Detail. This set of STATS gives total throughput feed station performance and averages in composite form. A bin density printout also is included in a detail printout.

b. Summary. A summary printout gives a throughput composite of total machine performance, and individual feed station performance, as well as overflow and reject volumes. *Note:* This type of statistic will be used most often by line supervisors in day-to-day operations.

c. Last. This type of statistic report is the same as a detail with the exception that it includes only the STATS that are involved in the "Last" set of statistics printed onto the Floppy Disc. The reason for this type of printout is convenience. When asking for this printout, no date or time entry into the DECwriter is necessary.

490 MACHINE OPERATOR ASSIGNMENTS

491 KEYBOARD OPERATOR RESPONSIBILITIES

491.1 Qualifies on approved machine programs.

491.2 Performs machine flat distribution accurately.

491.3 Keys for a designated period and rotates on a scheduled basis.

491.4 Remains at console, sorting until relieved for rotation to other work assignments or for personal needs.

491.5 Performs assigned manual distribution or other assigned duties when no machine assignment is available.

492 OPERATOR POSITION AT CONSOLE

492.1 Operator Chair
The operator chair should normally be positioned to allow comfortable arm movement and a downward visual line of sight to the mail piece.

492.2 Left Arm

.21 The left arm should be positioned comfortably close to the body with the elbow resting on the adjustable pad. This allows a restful working position.

.22 The forearm extends outward to bring the left hand into position to pick up the flat. The whole body position at this point should be adjusted to allow the left thumb and forefinger to pick up the flat on the left edge just below the upper left corner.

.23 When actually inserting flats into the machine, use a tossing motion.

.24 Toss the flat into the inserter. This allows a stroke of 4 to 6 inches.

492.3 Right Arm
The right arm should hang straight down from the shoulder and be bent at the elbow in a comfortable position with the keyboard adjusted to fit the right hand.

493 LEDGE-LOADING DUTIES

493.1 Feeding Machine Mail

.11 Assure that all console feed tables are loaded with machinable mail for the start of operation.

.12 Face and orient all mail properly on the feed table.

.13 Keep all console feed tables loaded with machinable mail during operation.

.14 Load flats lying flat, in stacks approximately 6 inches with address facing the operator. (Stacks too high cause difficulty seeing the address on the topmost pieces.)

.15 Place stacks next to edge of the feeder belt closest to operator.

493.2 Culling Non-Machinable Mail

.21 General

.211 The FSM-775 will accept a wide variety of mail. Generally stated this means flat mail within the following range:

a. Minimum Size—6″ high × 7.5″ wide

b. Maximum Size—11½″ high × 15″ wide

c. Weight—One Pound

d. Thickness— .75″

.212 Open magazines will transport with loose edge trailing. (Loose pages catch the wind if on leading edge.)

.22 What to Cull

.221 The following is a partial listing of high risk items which tend to cause jamming:

a. Flimsies. Pieces too flimsy to withstand pusher finger pressure. They fold over, causing jam.

b. Too Large. If too high, even though flat is inserted, and begins transport, top edge will catch on screen cover at turnaround.

c. Newspaper. (See 493.22a, *Flimsies.*)

d. Partially filled. Envelopes that are not uniformly filled can allow the pusher finger to bend the envelope.

e. Miscellaneous. Some items transport well if programmed for sortation to a bin on the front side, but cause jams in the turn.

.222 Notify supervisor immediately if excessive amount of non-machinable mail is being received.

.23 Cardboard Tray. A cardboard tray should be placed on top of the machine by each keying station for keyers to place culls into. Culls not removed by ledge loader can be placed in these trays without disrupting the movement or rhythm of the keyer.

.23 Riffling. Riffle mail during loading to identify mail that runs (all for one separation or ZIP Code).

Remove this mail and send to manual cases or tie-out area for bundling and dispatch. This will also prevent feeding mail that is stuck together.

494 MAIL SUPPLY (UTILITY CAR/TRUCK, ETC.)

494.1 Place mail supplies so that a minimum of walking is necessary.

494.2 Use two or more supply trucks: One close to Consoles 1 and 2, and one close to Consoles 3 and 4.

494.3 Keep loading aisle narrow. Three feet of width allows safe movement and keeps travel distance short.

495 SWEEPER-TYER DUTIES

495.1 Bins

Withdraw and verify mail from the bins as scheduled. Empty full bins immediately. Avoid premature (uneconomical) sweeping, except when dispatches are necessary. Check low density bins periodically.

495.2 Errors and Uncancelled Mail

Verify designated separations and remove errors and uncancelled mail. Properly prepare errors removed for further distribution. If excessive errors are detected, advise the supervisor immediately.

495.3 Trays

.31 The FSM-775 trays are designed for quick removal. In the case of a full tray replacement with an empty one allows the full tray to be taken to the transfer point, or sack rack.

.32 Use approved and safe lifting techniques.

.33 The sweeper will label sacks/trays as they are replaced.

.34 Trays/sacks prepared for dispatch must be properly stacked to prevent falling from the transport vehicle.

496 JAMS

496.1 Jam Clearing

.11 General Information

.111 Most jams will be cleared by sweepers, unless occurring in the feeder section.

.112 When a jam occurs, the pusher finger will pivot in the opposite direction to the transport belt travel.

.113 Return the pusher finger to the original position by removing the object of the jam.

.114 To remove a mail piece without damage, it is sometimes advisable to move the piece in a backward direction, allowing any part caught on the finger to slide off. A jerking motion forward or straight up may cause additional damage.

.12 Feeder Section

.121 Jams in the feeder section occur when a piece obstructs finger travel soon after insertion, and often in the area of the feed station immediately in front of the operator who keyed the piece.

.122 As a jam occurs, the red light on top of the machine directly opposite the keyer will light.
Note: A jam is sometimes accompanied by an audible "snap" as the pusher finger pivots. This also helps locate the jam area, as the red light will go out if jam has cleared itself.

.123 To clear jam:

a. Lift blue doors of feeder section at jam location and remove object. Close doors and RESTART.

b. If jam is directly behind a feed station:

(1) Lift blue doors.

(2) Swing out entire inserter assembly. This allows full access to this area. Close doors and RESTART. *Special Note:* Before clearing feeder jam, *always* engage EMERGENCY STOP button on the affected operator console; release EMERGENCY STOP after jam is clear and doors are closed.

.13 Bins Section

.131 Most bin section jams on the front side occur at Bin No. 1 due to change in angle of deflection from feeder section.

.132 Jams are cleared by releasing the obstructed pusher finger. Use slightly backward sliding motion to prevent damage to mail piece.

.133 If mail piece is securely jammed, or an undesirable stretching is needed to reach the jam area, observe and teach the following Dos and Don'ts:

a. Do:

(1) Remove bin closest to jam.

(2) Step into vacated bin area.

(3) Clear jam.

(4) Safely step out of bin area and replace bin.

b. Don't:

(1) Stretch in an awkward or unsafe manner over bins to clear jam.

(2) Tug on pinched piece with arm extended.

(3) Take hasty backward moves that can cause tripping.

.14 Turnaround

.141 *Special Note:* Before any action is taken in the turnaround section, an *EMERGENCY STOP must be engaged—no exceptions!*

.142 Most turnaround jams occur at the belt post existing the turnaround. Flats will sometimes wrap around the belt post. To clear with minimal damage:

a. Engage EMERGENCY STOP.

b. Grasp either top belt or bottom belt with left hand, depending on which belt is involved. Back up the belt by sliding belt toward the belt post. This will unwind the flat from the belt post with little or no major damage.

c. **Do not** jerk or pull suddenly on jammed piece. Major damage to flat may result, and muscle strain is possible. Jerking motions can also cause the reversing belts to come off causing needless delay.

496.2 At End of Turnaround

.21 Set EMERGENCY STOP.

.22 Remove end cover by sliding upward. Set cover to one side in a manner to guard against cover striking leg.

.23 Remove jam object, center belt. Replace end cover, release EMERGENCY STOP and signal for RESTART.

496.3 Belt Off at Turnaround

.31 Set EMERGENCY STOP.

.32 Remove the cover.

.33 Remove jam object.

.34 Replace belt:

a. Reposition belt on belt posts.

b. Put belt back on turn wheel.

c. Center belt on remaining posts that are closest to you.

d. Replace cover. Release EMERGENCY STOP button. Signal to RESTART.

496.4 Jam Summary

Supervisors must ensure that proper safety practices are adhered to by all operators when clearing jams. Clearing practices must never be considered routine or unimportant.

CHAPTER 5
[RESERVED]

CHAPTER 6
SAFETY

610 PERSONAL SAFETY

611 Safe operation of this system is a mandate, not an option.

612 Safeguards for personnel and system safety have been incorporated into the design.

613 While improvements in system safeguarding is an ongoing program, remember that safety is a "people oriented activity." Therefore, "people" must be trained to operate all mechanized equipment safely.

620 SYSTEM SAFETY

While personnel are the most valuable asset to the U.S. Postal Service, safety training must include system safeguarding. Proper use and operation should assure personnel safety, and ensure continual availability of equipment.

630 ACCIDENT PREVENTION

631 GENERAL

Modern machinery requires a team effort on the part of many postal employees to permit such equipment to be properly designed, safely operated, and maintained. FSMs embody many safety features. Operational and safety features are constantly being improved through engineering changes and modifications. Operating personnel associated with FSMs have specific safety responsibilities as follows:

632 RESPONSIBILITIES

632.1 The Supervisor

.11 Has overall responsibility for the safety of personnel involved in the operation or maintenance on the FSM.

.12 Must enforce safety rules and regulations and insist that safe operating practices and procedures are followed and that unsafe conditions are promptly corrected.

632.2 Maintenance Personnel

.21 Responsible for the performance of maintenance assignments in a manner such as not to endanger themselves or others.

.22 Must support the efforts to properly maintain effective guards and protective devices on this equipment.

632.3 Machine Operators

A console operator, ledge-loader, or sweeper-tyer is responsible for adherence to prescribed operating instructions and rules applicable to the task being performed.

CHAPTER 7
OPERATIONAL PROBLEM-SOLVING

710 PURPOSE

711 New sort systems present situations to the supervisor that often are costly in terms of unnecessary downtime. This chapter is offered to present some problems before the fact, to enable prompt identification, and quick recovery from problems of minor operational error or oversight.

712 Problems to be presented are of the variety most often encountered by supervisors newly assigned to the FSM. These are presented according to the symptom of malfunction, with probable corrective action listed afterward.

720 AT COMPUTER

721 Symptom: no response.

722 Correction:

a. At control panel—Program RELEASE key must be unlocked.

b. Main power on—Bin #1.

c. At computer—power ON/OFF; turn ON.

d. Halt switch—activate.

e. RESTART switch—up, then RELEASE.

730 AT DECWRITER

731 AT START-UP

731.1 Symptom: no printer response.

731.2 Correction:

a. Computer power switch—turn ON.

b. HALT switch—activate.

c. RESTART switch (spring loaded)—push up.

d. DECwriter power switch—turn ON.

e. 300 key—depress.

f. Floppy disc inserted?

731.3 If above fails, floppy disc may be defective.

732 DURING BOOT-UP PROCEDURES

732.1 Symptom: entered command, no response.

732.2 Correction: touch RETURN key. All commands must be followed by a RETURN key entry.

733 TIM OR DAT

733.1 Symptom: cannot enter TIM or DAT.

733.2 Correction: repeat entry. Format must be exact. An omitted space or colon will be cause for rejection. Press RETURN key.

734 ENTERING AT CONTROL PANEL

734.1 Symptom: entered TIM, date—cannot enter program at control panel.

734.2 Correction: at DECwriter, check and enter, if necessary, R Space Proces.

734.3 R Space Proces has been typed—touch RETURN key. Printer will respond—enter your location—enter program at control panel.

740 AT CONTROL PANEL

741 MACHINE WILL NOT START

741.1 Symptom: system booted, machine will not start.

741.2 Correction:

a. Enter program, turn RELEASE key clockwise, push in key.

b. While key is depressed, push, then release program light(s) to enter desired program number.

c. Return RELEASE key to original position.

d. Start machine—depress START.

742 KEY CODES REJECTED AT CONSOLES

742.1 Symptom: system booted, program entered, machine started, but operator consoles reject all key codes.

742.2 Cause: Program entry procedure error.

742.3 Correction: drop program by turning RELEASE key clockwise, depress and release key outward to original position (program light(s) go out).

742.4 Enter program as described in 741.2b.
Note: When program is entered properly, program light(s) will blink off, then on, as RELEASE key is returned to original position. If key is locked in depressed position, program light remains lit. This will appear proper, but blinking action is necessary to allow computer to verify program.

743 EMERGENCY STOP LIGHT

743.1 Symptom: EMERGENCY STOP light on.

743.2 Correction: Check all EMERGENCY STOP buttons at:

a. Control panel;

b. Operator console;

c. Bin section; and

d. Interlock switches.

743.3 Jam light still on. Check the following:

a. Jammed flat in bins section.

b. Jammed flat in turnaround.

c. Jammed flat in feeder section.

d. Pusher finger at last jam location is bent backward, and caught on lip of transport belt cover.

744 SUCCESSIVE STARTS AND STOPS

744.1 Symptom: Machine starts, runs 1 or 2 seconds, and stops, two or three times in succession.

744.2 Correction: Photoelectric cell is blocked in turnaround area. Most likely on the exit side of wheel, and on inside of machine. Mechanic needed to clear debris from inside location.

APPENDIX

Exhibit 1, Operator Console

Exhibit 2, Control Panel

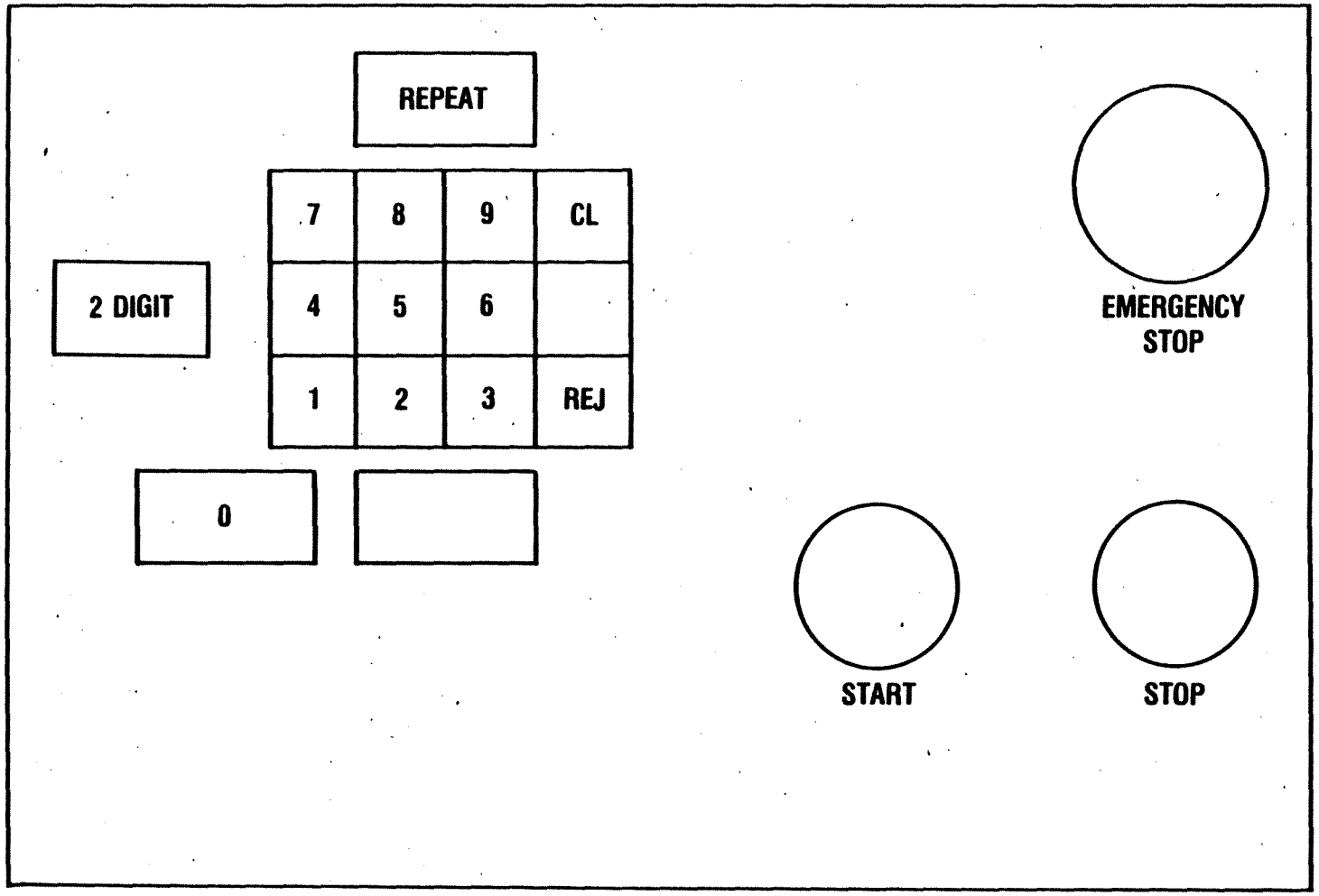

Exhibit 1—Operator Console

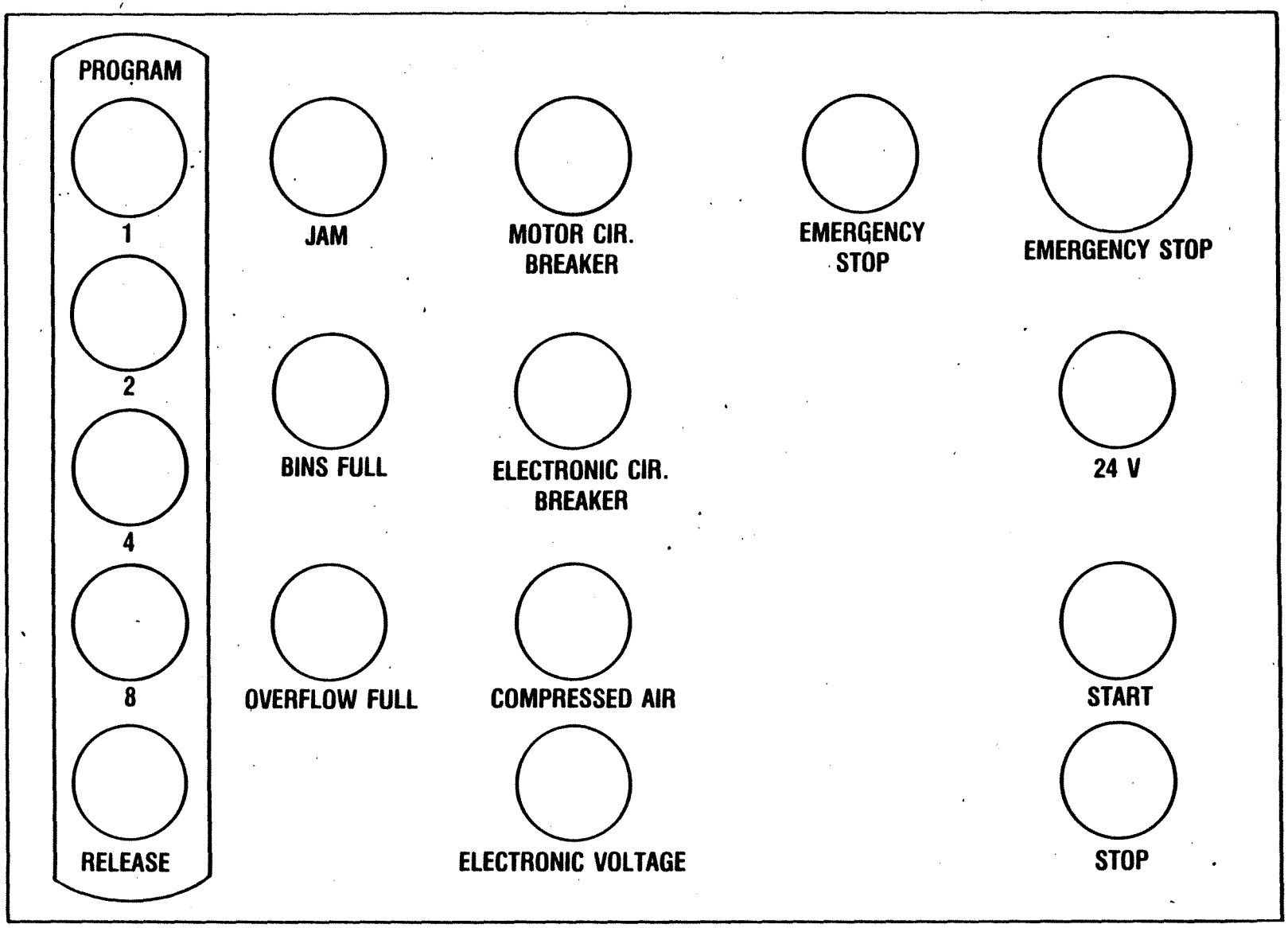

Exhibit 2—Control Panel