IBM Systems Reference Library

IBM 1440 Data Processing System
Operator's Guide

This publication describes the setup and operating procedures for each of the units of an IBM 1440 system: 1311, 1442, 1443, 1447, and 7335. The descriptions include stop and restart conditions and program load routines for card, disk, and tape.

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Figure 1.   IBM 1442 Card Read-Punch

Figure 2.   IBM 1442 Card Transport

This publication describes the procedure for preparing the units of the 1440 system for systems operation and the sequence of the steps for manual operation of the console to perform separate functions. Each unit is described individually with power off and power on.

IBM 1442 Card Read-Punch

With the power off, inspect the card transport area of the read punch (Figure 1) to see if the unit was cleared after the last operation.

Standing behind the machine lift the top cover by grasping the left end of the cover and raising it up to the right. When the cover is up, the operator can inspect the card transport area. If a card in the transport area cannot be run out by pressing the non-process runout key with power on, the card can be removed by lifting the plastic card guides that cover the card path. These guides are held down by magnetic latches. Three plastic guides besides the read station can be opened to give access to the card bed.

Read Station

The read station (Figure 2) can be opened by pulling the knurled knob, on the top front of the sensing unit, toward the center and lifting the sensing unit to the rear of the card bed.

Punch Station

The punch station (Figure 2) can be opened for cleaning and observation of the punch by removing the guide plate from under the punch station. This guide is held in position by a knurled screw located under the punching position (Figure 3). To remove the guide, loosen this screw and pull the guide out and down.

The die and stripper of the punch assembly can be opened for card removal and cleaning by operating a lever (Figure 3) located below the punching station. By pressing down on this lever, which extends out to the right below the punch unit, the card line through the die and stripper assembly of the punch is opened for greater clearance.

After an inspection of the card transport area is completed, recheck the read station. If it has been opened, make sure that it is latched in operating position.
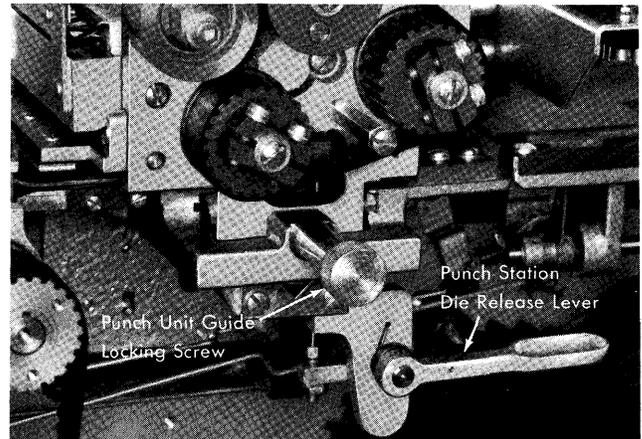

Figure 3. IBM 1442 Punch Station

Stackers

With the top cover open, raise the stacker feed-roll cover to observe the stacker area. This cover opens from left to right, facing the front of the machine.

Cover Interlock

Close all the covers, and the 1442 card read-punch is ready to turn power on. The top cover must be closed completely because there is an interlock switch that is operated by the top cover. The cover interlock switch disables the start key.

IBM 1443 Printer

With the power off, open the top cover by releasing the cover latch, located in the center of the base under the front panel. Lift the cover from the front edge up toward the rear of the printer (Figure 4). This cover position gives the operator access to the ribbon, typebar, platen, forms tractor, carriage tape, and the manual adjustments.

The following items should be checked:
Check the ribbon for wear.
Check the typebars and the typebar mode switch.
Check the typebar switch for ON setting.

Ribbon Replacement

If the ribbon needs replacement, it should be installed according to the diagram (Figure 5) attached to the
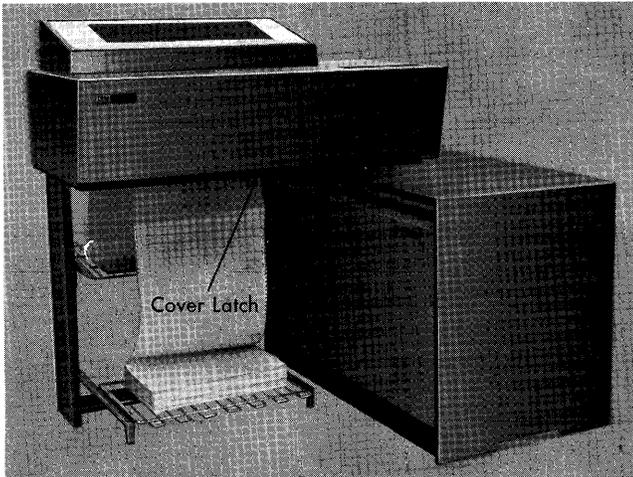
Figure 4. IBM 1443 Printer
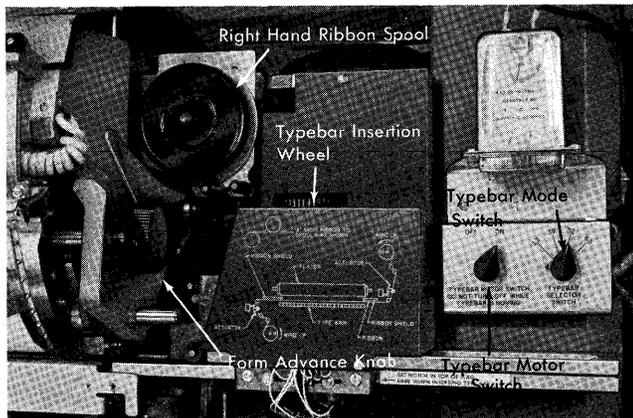
Figure 5. IBM 1443 Printer Right-Hand Controls

safety cover over the typebar drive. This diagram is visible when the cover is open. The typebar can be removed so that the ribbon can be threaded more easily into the guides and the area between the type-bar and the paper. This also eliminates the possibility of getting the ribbon caught in the fingers of the type-bar and causing damage to both the ribbon and the typebar.

Typebar Removal

To remove a typebar from the 1443 printer, the follow-ing procedure is recommended:

1. Turn the typebar switch off. This switch is located next to the typebar mode switch at the right of the carriage (Figure 5).
2. Turn the typebar insertion wheel (Figure 5), which is also located on the right side of the base between the carriage and the typebar switch, to the right until the typebar stops moving. When the typebar has reached its limit of travel to the right, it is dis-engaged with the typebar insertion wheel. The

typebar guide on the right side is slotted (Figure 6) so that the typebar can be manually pulled out of the guide.

Carefully pull the bar straight to the right until the complete bar is free of the guide (Figure 6).

Typebar Installation

Insert the typebar into the guide, and push it to the left until the bar is stopped. When the bar is stopped, it is at the point to mesh with the gear that is con-trolled by the typebar insertion wheel. By pushing on the typebar with one hand and rotating the wheel with the other hand, the bar is moved to the left. This should not require any more pressure than it did to remove the bar. The rotating of the typebar insertion wheel to the left moves the typebar until the notch in the flag aligns with the point indicated by the decal on the top of the typebar guide. This position applies to the 39-, 52-, and 63-character sets. The 13-character set bar-alignment position is the right edge of the upper section of the flag instead of the notch.

After the typebar is inserted and aligned, select the correct mode for the character-set mode switch, lo-cated on the right side near the typebar guide.

Turn the typebar switch on, and the printer is ready for operation.

Forms Insertion

Forms can be inserted into the 1443 printer by two methods. One method is to feed the form up through the forms guides from underneath the machine until the form can be grasped above the platen. To feed the form freely into the feeding position, the form brake must be released and the platen must be shifted for maximum clearance, using the platen positioning knob on the left side of the carriage.
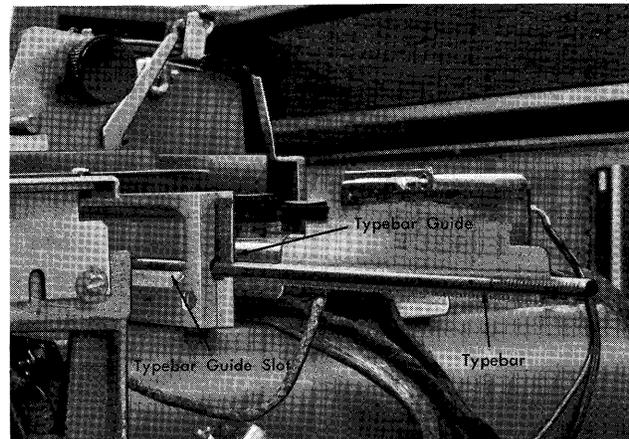

Figure 6. IBM 1443 Typebar and Guide

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Another method of inserting the form is to bring the end of the form out to the left-hand side of the printer. From this position, the form can be slid into the form guides (Figure 7). This requires moving the form from left of the print station to the right until it is in line with the tractors for locking into place for feeding.

Form alignment is accomplished by shifting the tractors (Figure 8) to the approximate print position, and then aligning for the fine positioning with the vernier on the left side of the carriage assembly. The print-line vertical location is also adjusted by a vernier knob on left side of the carriage.

Note: The printer must be in non-ready status to space or restore the carriage by using the carriage-control keys.
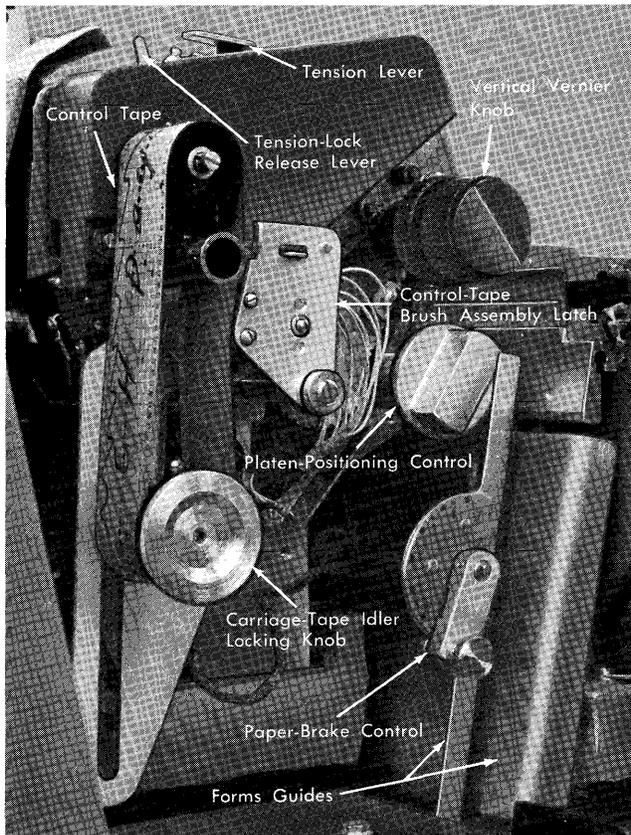

Figure 7. IBM 1443 Printer Left-Hand Controls

Vertical Line Spacing

Line spacing is changed from 6 to 8 lines to the inch by shifting the belt on the left side of the carriage. When changing from 6 to 8 lines to the inch, the belt tension must be released by pushing the belt-tension lock lever (Figure 7) toward the rear of the carriage. This lever is located on the left side of the carriage and extends through the cover over the belt drive for the forms tractor. This is the belt that must be changed to alter the spacing.

After the tension is released, the belt is moved from one set of gears to the other by shifting the belt from the larger gear to the smaller gear first. This permits more looseness in the belt for ease of transfer. When the belt is positioned on the outside gears, the spacing is for 6 lines to the inch (the belt is on the large gear of the lower set and the small gear of the upper set). The inside gears (nearest the carriage side plate) are for 8 lines to the inch.

When the belt is positioned, reset the tension by pressing the latch lever in front of the tension release lever. This belt tension should be set light, with only sufficient tension to keep the belt in position on the operating gears.

Close the cover and the carriage vertical line spacing is set.

Installing Carriage-Control Tape

1. Raise the counterbalanced cover of the printer to gain access to the tape-reading mechanism.
2. Turn the feed-clutch knob to disengage the clutch.
3. Raise the brushes by lifting the latch on the side of the brush holder (Figure 7).
4. Place one end of the loop (with the line numbering on left) over the pin-feed drive wheel so that the pins engage the center drive holes.
5. Place the opposite end of the loop around the adjustable carriage-control-tape idler.
6. Remove the excess slack from the tape by loosening the locking knob (Figure 7) on the idler and moving the idler in its track. Tighten the knob when the desired tension is reached. The tape should be just
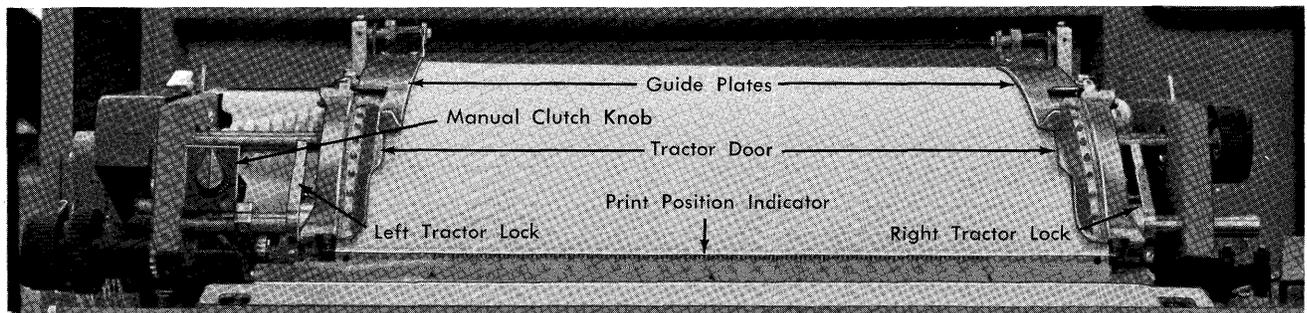

Figure 8. Tractor Feed

tight enough so that it gives slightly when the middle portions of the loop are pressed together. If it fits too tightly, damage can occur to the pin-feed holes.

7. Press the brushes into operating position until they latch, and close the printer cover when the tape is in position.

8. Press the carriage-restore key to bring the tape to its home position, and turn the feed-clutch knob back to the engaged position. The carriage is ready to operate.

IBM 1311 Disk Storage Drive
Disk Pack Removal

1. Open the top cover on the disk storage drive.
2. Place the cover over the disk pack.
3. Turn the handle in the center of the cover to the left (counterclockwise) as indicated by the arrows labelled OFF.
4. Lift the pack up and out of the drive. The pack can now be placed in storage until needed.

Disk Pack Installation

1. Open the top cover on the disk storage drive.
2. Place the disk pack on the drive by holding the pack by the handle on the cover and lowering it into position on the drive shaft.
3. Turn the top cover handle clockwise as indicated by the arrows labelled ON, until the handle comes to a stop. This position ensures that the pack-on safety switch is activated. It is possible for the cover to be loose before the stop point is reached. Nevertheless the complete turning of the cover handle to the stop position is necessary. Then the top cover can be removed, leaving the disk pack located on the drive shaft.

IBM 7335 Tape Unit

Clean the tape transport area by wiping it gently with a clean lint-free cloth moistened with an approved cleaner.

After all the units have been inspected and set up, the operator can return to the console (Figure 9) and turn the power on.

The power is turned on by operating the main line switch located on the right side of the console panel. This switch controls the power supply to all the units on the system.

The machine-ready procedures for the other units are described in the following text.

1442 Card Read-Punch

See the program-load procedure.

1443 Printer

Press the start key. The ready light comes on to indicate ready status.

1311 Disk Storage Drive

1. Press the start key on each drive.
   a. The key light comes on.
   b. The module-ready light comes on when the disk pack is rotating up to speed.
2. Check the disk-write switch on the console for the correct setting: WRITE, ON, or OFF. The write-address key on Disk Drive 0 controls all drives when the address-mode light is on.

7335 Tape Drive

1. Load the tape reels (follow the diagram on the read-write head cover).
2. Close the read-write head.
3. Press the low-speed rewind key.

4. Press the start key on the tape drive. This places the tape unit under system control and turns on the ready light.
5. Set the tape-select switch on the console to N unless an alternate unit is assigned.

1011 Paper Tape Reader

1. Load paper tape.
2. Turn on the main power switch.
3. Press the reel power key.
4. Press the reset key. This resets the necessary circuitry at the beginning of an operation.
5. Press the start key. This turns the ready light on if the following conditions are satisfied:
   a. Tape correctly threaded in the tape transport area.
   b. Proper tension on the tape.
   c. No error condition indicated.

1012 Tape Punch

1. Load paper tape.
2. Turn on the main power switch.
3. Press the reel power key.
4. Press the reset key. This resets the circuits in the 1012 for the beginning of an operation.
5. Press the start key. This turns on the ready light if the following conditions have been satisfied:
   a. Tape properly loaded.
   b. Tape tension normal.
   c. Power on.
   d. Reel power switch on.
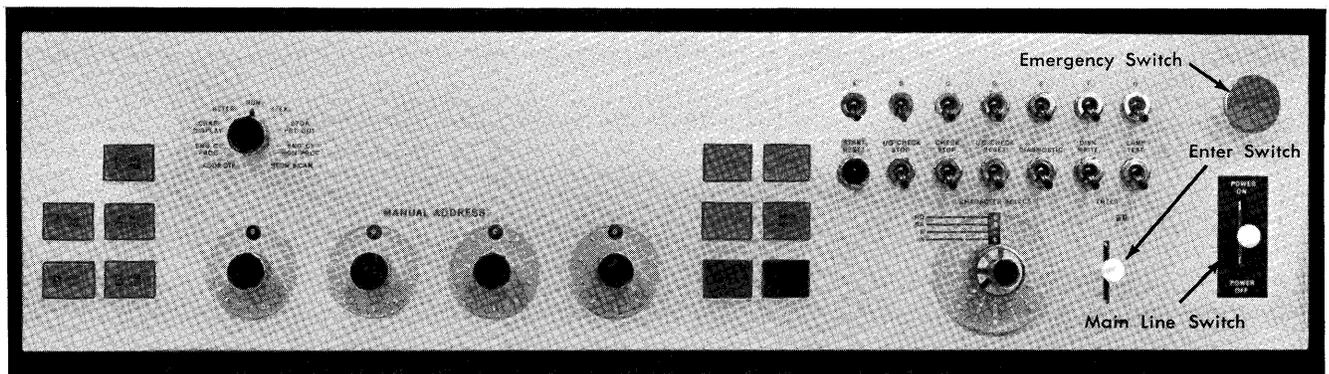
Figure 9.　IBM 1447 Console Controls

Program-Load Routine from Cards

1. Console Operation (Figure 9):
   a. Clear storage.

      1. Place the mode switch in storage-scan position.
      2. Select the B-position of the NO setting of the character-select dial (outer dial).
      3. Select the correct zone setting by selecting the matching color on the zone knob (inner dial) to the NO color setting of the character-select dial.
      4. Press and hold the start key while pushing the enter switch upward to enter the character selected by the character-select dial. This enters blanks into all positions of core storage without word marks.
      5. The result places C-bits in all positions of core storage.

   b. Place the console mode switch in RUN position.
   c. Press the check-reset key.
   d. Press the start-reset key.
2. At this time, set up the card read-punch according to the following procedure:
   a. Press the non-process run-out key before placing cards in the hopper.
   b. Place cards in the hopper facedown, 9-edge first.
   c. Press the start key, and feed one card.
   d. The ready light comes on (ready status).
3. Press the program-load key on the console. This starts card feeding on the card read-punch. The feed continues to run until the last card feeds out of the hopper, then stops. The start key on the card read-punch must be pressed to enter the last card of the program deck into storage.
4. Press the non-process run-out key on the 1442 to clear the program deck from the transport area. The system is now ready for processing.
5. Load the 1442 card read-punch hopper with the data cards (facedown, 9-edge first). Press the start key on the card read-punch. This starts data-card feeding and processing. If the stop light on the console is on, this indicates a program halt. The start key on the console must be operated to start feeding and to turn off the console stop light.

Program-Load Routine from Disk

1. On the console:
   a. Set the mode switch to RUN.
   b. Press the check-reset and start-reset keys.
   c. Check the procedure for the sense-switch settings.
   d. Set the I/O check-stop switch on.
2. On the 1311 disk drive, place the disk pack containing the program on Disk Drive 0.

3. On the 1442 card read-punch:
   a. Press the non-process run-out (NPRO) key to clear the card feed.
   b. Place the program deck, preceded by load cards, in the hopper.
   c. Press the start key to place the card read-punch in ready status.
4. Again on the console, press the program-load key. This selects the card read-punch which, in turn, selects Disk Drive 0, causing the program to be read from the disk into core storage.

Display Information from Storage

1. Set the manual address switches to the starting address, which is the leftmost position of the field desired.
2. Set the mode switch to ALTER.
3. Press the start key. This displays the address selected.
4. Set the mode switch to CHARACTER DISPLAY.
5. Press the type key. This causes data to print out on the console printer. It begins with the selected address and continues until the operation is stopped manually.

Alter Routines

To alter a character in storage:
1. Set manual address switches to the address of the position of core storage to be changed.
2. Select the bit configuration desired with the character-select dial. The outer dial is set to the character wanted, and the inner dial to the corresponding zone.
3. Set the mode switch to ALTER.
4. Operate the enter switch up to to enter the character selected without a word mark.
5. Operate the enter switch down to enter the character selected with a word mark.

To alter a field:
1. Set the manual address switches to the address of the leftmost position of the field desired.
2. Set the mode switch to ALTER.
3. Press the B-address register key.
4. Press the type key.

5. Key in the information from the typewriter keyboard. If a word mark is desired, it must be entered from the keyboard just before the character it is associated with.

The word mark is available on the keyboard for this operation. The ∨ symbol on the shift position of the key identifies the word-mark key.

What To Do When the System Stops

Check the console for any indicators that show the unit or condition that caused the stop.

Error Conditions

The names of the units on the system are displayed in a legend across the top left portion of the console (Figure 10). When one of the console I/O lights is on, it signals either an error or the need for operator attention on that particular unit.

Reader

The check lights show the specific condition that stopped a unit. The following information describes the conditions that affect each indicator:

• Feed Check — This light comes on under the following conditions:
  1. Card jam or crooked feeding in the card path.
  2. Photocell failure at the reading station.

• Validity Check — This light comes on when an invalid character is detected during a read operation. This also lights the console I/O reader light. If the I/O check-stop switch is off, this light is turned off by an instruction in the program to test the condition. If the I/O switch is on, this light is turned off by the non-process run-out (NPRO) key on the reader-punch.

The storage address register contains the address of the information that resulted in the validity error.

Figure 10.   IBM 1447 Console Indicators

Restart: Empty the hopper and stacker and run the cards out with the NPRO key. Two cards will feed out. The first card is the card that caused the error; the second card has not been read. Visually check the error card for the column containing an invalid character and correct it if possible. After the error card has been corrected, both cards that fed out must be placed in front of the cards previously removed from the hopper. Press the start key on the reader-punch to resume operation.

• Read Register Check — This light comes on when the card being read is off registration. If the I/O check-stop switch is off, the light is turned off by an instruction in the program to test the condition. If the I/O switch is on, this light is turned off by the NPRO key on the 1442.

When a read-register check occurs, the B-register contains the result of the first attempt to read a column. The A-register contains the result of the second attempt to read. The storage address register contains the address of the next column to the right of the column where the error occurred.

Restart: Empty the hopper and stacker and run the cards out with the NPRO key. Two cards will run out. The first card is the card that caused the error; the second card has not been read. After the error card has been duplicated, both cards that ran out must be placed in front of the cards previously removed from the hopper, and placed into the feed. Press the start key on the reader-punch to resume operation.

• Reader Not Ready — The not-ready condition is indicated when the ready light is not on. The following conditions must be met before the ready light can go on.
  1. Power must be on.
  2. The cover interlocks must be closed.
  3. There must be cards in the hopper.
  4. A card must be registered at the read station.
  5. The 1442 stacker must not be full.
  6. There must be no error conditions.

Punch

The check lights show the specific condition that stopped a unit. The following information describes the conditions that affect each indicator:

• Feed Check — This light comes on under the following conditions:
  1. Card jam or crooked feeding in the card path.
  2. Photocell failure at the reading station.

• Punch Check — This light comes on when an error is detected in a card as it is being punched. Location and correction of the error card depend on:
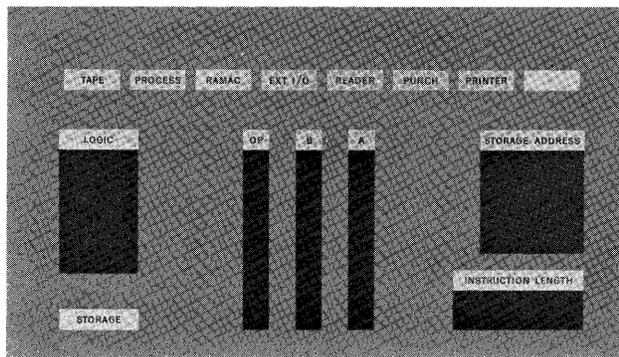
1. The setting of the I/O check-stop switch.
2. The type of punch command used.

The storage address register contains the address of the information that resulted in the punch-check error, if the I/O check-stop switch is on. When the P or PS Op codes are used and the machine detects an error condition, the machine stops with the error card at the punch station, if the I/O check-stop switch is on. The operator uses the NPRO key to clear the feed and turn off the punch-check light.

Note: The program must be manually restarted if the IBM 1442 Card Read-Punch has a punch check error and the following conditions exist:
1. The 1442 has a Punch Column Skip special feature
2. The program uses a PUNCH AND STOP instruction.
Both of the above situations require that the program be manually restarted before establishing READY on the 1442 Card Read-Punch.
Where prepunched cards are being used, the error card must be run out and the source portion of the card duplicated and fed back into the 1442. On the run-out, the error card is the first card into the stacker.
Because of the combination reading and punching capacity of the 1442, it is recommended that duplicate decks of active programs be maintained as a backup in event of accidental destruction of a source deck by erroneous punching.

- Punch Not Ready — The not-ready condition is indicated when the ready light is not on. The following conditions must be met before the ready light can go on.
1. Power must be on.
2. The cover interlocks must be closed.
3. There must be cards in the hopper.
4. A card must be registered at the punch station.
5. The 1442 stacker must not be full.
6. There must be no error conditions.

Printer

The check lights show the specific condition that stopped a unit. The following information describes the conditions that affect each indicator:

- Sync Check — This light comes on when a typebar on the printer is not synchronized with the correct position. When this occurs, the printer drops out of ready status.

  Restart: Pressing the reset key on the printer turns off the light. If the I/O check-stop switch is off, the program automatically tries the print operation again when the start key on the printer is pressed. If the I/O check-stop switch is on, the operator must branch manually by assigning a restart location of an applicable print instruction in the program, to try the print operation again. Check the program procedure to determine the location when this happens.

- Parity Check — This light comes on whenever incorrect parity is detected by the error-checking cir-

cuits on the printer. It turns off when the check-reset key on the console is pressed or when the parity indicator is tested by the program.

  Restart: Follow the same procedure as used on a sync check.

- Forms Check — This light indicates difficulty in feeding paper through the printer. The paper can be off the forms tractors, the carriage-stop key may have been pressed to stop a forms runaway, or the light may have come on while the printer adjustments were being made.

  Restart: Lift the cover of the printer and examine the forms-feeding mechanism. Correct any trouble and press the reset and start keys on the printer to resume operation.

- Carriage Interlock — This light is on if the brushes on the carriage mechanism are not locked in operating position. With this light on, the start key is inoperative and ready status cannot be initiated.

  To correct this condition lift the cover of the printer and check the brushes (located on the left side of the printer) to make sure they are latched against the carriage tape.

- End of Forms — This light comes on when the last form passes the forms-control switch located in the forms guide. The printer stops when the next channel-1 punch in the carriage-control tape is sensed after the forms light is on.

  The remaining forms can be printed by pressing the start key. This permits the next forms to be used, and another stop is exectued when the channel-1 punch is sensed again.

- Ribbon Switch — This switch must be on for normal printing operations. When this switch is off, the start key is inoperative.

- Printer Not Ready — If the printer cannot be set in ready status when the start key is pressed, recheck the interlocks and setup.

- Carriage Stop — This key should be used to stop carriage operations when the carriage is interlocking the system. If the carriage is feeding continuously and the controls in the tape are not being recognized, use the carriage stop to interrupt this condition. If the carriage stop is used to stop a printer operation, spacing errors occur. The printer stop should be used for all normal manual stops.

Processing

The indicator that shows error conditions in the processor always comes on with another indicator to show in what unit of the operation the error occurred.

Process and Logic Lights On

This indicates the processing unit made an error during an arithmetic operation.

Restart: This restart procedure describes possible steps that the operator can try to resume processing:

Mark last data record processed, if possible.
Record information from the console, using the Console Status Sheet (X24-3100).
Press the check-reset key.
Press the start key on the console to initiate the processing of the next sequential instruction.
If the start fails, manually branch to the next sequential operation. Refer to *Alter Routines* and the program to locate the address.
After the alter routine is completed, turn the mode switch to RUN.
Press the start key on the console and on the other units.
If this fails, print out core storage and go on to the next job.

Process and Op-Register Lights On

This indicates a blank or invalid operation code has been read into the Op register. Usually this results from the program having branched to an incorrect position in core storage, or the program having incorrectly modified an instruction in core storage. The check condition that turns on the Op-register light can not be machine tested. This check condition must be reset by the operator.

Process and Storage-Address Lights On

This indicates that the machine has developed either an invalid address for the system or an invalid bit combination. The check condition that turns on the storage-address-register light can not be machine tested. This check condition must be reset by the operator.

Process, Storage, A- and/or B-Register Lights On

This indicates that the processor has detected a parity error in the bit configuration of a character that has been read into storage or moved within storage.

Restart: This restart procedure describes possible steps that the operator can try to resume processing:

Check the address displayed in the storage-address register.
Check the configuration of the characters displayed in the A- or B-address register, whichever is on.
If the proper character for the address can be determined from the listings or from any other source, use the character-select dial to enter the correct character into core storage.
If the particular character is unimportant, enter any valid character into that position, using the character-select dial.
Press the check-reset key on the console.
Set the mode switch to RUN.
Press the start key on the console and on other units on the system as required.

Process, A- and/or B-Register Storage, and Storage-Address Register On

This condition indicates a probable error on an edit operation. The Op register contains an E (CBA41). This error usually indicates the use of an edit (control) word too small for the amount field to be edited.

Restart: This restart procedure describes possible steps that the operator can try to resume processing:

Mark the data record processed, if possible.
Record the information from the console on a Console Status Sheet (X24-3100).
Press the check-reset key.
Press the start key to advance to the next sequential instruction.
If the start fails, manually branch to the next sequential instruction. Refer to *Alter Routines* and the program to locate the next address.
After the alter routine is completed, turn the mode switch to RUN.
Press the start key on the console and the other units as required.

RAMAC®

This light indicates an error condition on one of the disk drives on the system. Check the following items:
1. Is the correct disk pack mounted?
2. Is the disk drive in ready status?
3. Is an error condition set up that has not been cleared?

EXT I/O

This light indicates a problem on one of the attached I/O units. Check the console for the device being used by the program, then check the individual unit.

Programmed Halt

This is indicated by the stop light being on and the system stopped without operator intervention or error condition.
1. Press the A- and B-address register keys to determine the halt number.
2. Check the program and procedure for information in regard to the halt.
3. Before a system writes on disk, it halts to allow the the operator to check the identification of the disk pack. This halt constitutes an important form of file protection on the 1440. The operator therefore should not press the start key until he is sure it is permissible to write on the disk pack that is on the drive.
4. If no instructions are available, follow this procedure:
   a. Mark the last data record processed, if possible.
   b. Record the information that appears on the console on a Console Status Sheet (X24-3100).
   c. Print out core storage.
   d. Proceed to the next job.

1311 Disk Storage Drive

The select-lock light, located on Disk Drive 0, indicates that the disk drives on the system are inoperable. The light can be turned off by turning off the drives and restarting. By doing this, the system can be put into operation because the inoperative condition can be cleared in most cases.

1011 Paper Tape Reader

When the ready status of the reader cannot be established, the following conditions should be checked:
1. Paper-tape break.
2. Paper-tape tightness.
3. Run-out of paper tape.
4. Power failure.
5. Photocell failure (checked on run-out only).
6. Parity error detected (control panel not wired to continue reading).
7. Unwired character read (control panel not wired to continue reading).

1012 Tape Punch

When the ready status cannot be established, the following conditions should be checked:
1. Tape break.
2. Tape tension too great.
3. Power failure.
4. Feed hole is not detected for a punched character at the read station.
5. Tape movement is not detected when a character is punched.
6. Extra escapement.
7. No response check.

Core Storage Print-Out

The method of printing from core storage can vary according to the particular print-out program used. Most print-outs (dumps) require you to print one or two bands of core storage (100 positions) from the console. The program then reads into those bands and uses that area for instructions that print out the remainder of core storage. The procedure is:
1. Press the start key on the 1443 Printer to bring it to ready status.
2. Turn the mode switch on the console to STORAGE PRINT-OUT.
3. To print the first band manually, set the manual address switches to the address of that band — for example, to 0001. Unless your machine is equipped with print storage (a special feature), the two right-hand positions must be set to 01.
4. Press the start key on the console. The first band prints. (Actually either 120 or 144 positions print, depending on the size of the printer.)
5. Set the manual address switches to the address of the second band to be printed manually. Informa-

tion regarding the print-outs presently available indicates that this is the last band of core storage, in which case the switches are set to 3901, 7901, 11001, and 15001.
6. Turn the mode switch to RUN.
7. Place the core print-out program deck in the hopper of the 1442 reader.
8. Press the start key on the reader.
9. Press the check-reset and start-reset keys on the console.
10. Press the program-load key on the console. Printing begins.
11. After printing is completed, press the NPRO key on the reader to run the last card of the print-out deck out of the machine.

To Record Information from the Console

A Console Status Sheet (Figure 11), Form X24-3100, is provided for the operator to record the information as it appears on the console. When logging the information from the console for use as reference material, it is very important to have all the details that appear, such as all the lights that are on and all the switch settings. The following procedure is suggested:
1. Circle or check the error lights backlit in red.
2. Check anything displayed in the logic block, and record the number displayed on the far right side of the block.
3. Circle or check the letters and numbers displayed in Op register.
4. Circle or check the letters and numbers displayed in the A- and B-registers.
5. Record the contents of the instruction-length register.
6. Check the appropriate box representing the I, A, and B key-lights to show which address register was backlit when the machine stopped.
7. Press the start-reset key to prevent sequential movement of the program.
8. Press the appropriate key-lights (I, A, or B), and record the contents of each address register in turn.
9. Record the sense-switch settings (on or off).
10. Record the settings of the I/O check-stop switch, check-stop switch, and disk-write switch.
11. Record the status of the 1311 disk drives, indicating the pack that is mounted, key-lights that are on, and any information about the type of error that occurred.

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IBM 1447 CONSOLE STATUS SHEET

IBM 1440 AND 1460

PROGRAM _____

PROGRAMMED HALT _____

OPERATOR _____

TIME _____

DATE _____

RUN _____

| *OVERLAP | PROCESS | RAMAC | EXT I/O | READER | PUNCH | PRINTER | TAPE |

LOGIC

OVFLO B = A   B

     B ≠ A   A

     B > A   8

     B < A   4

            2

            1

OP REG: C B A 8 4 2 1

B: C B A 8 4 2 1 M

A: C B A 8 4 2 1 M

STORAGE ADDRESS					
I-ADD REG					
A-ADD REG					
B-ADD REG					
A-AUX REG					
B-AUX REG					
*O-ADD REG					

STORAGE

INSTRUCTION LENGTH					
OP	1	2	3	4	5
6	7	8	BLANK		

CONTENTS OF

I—AR _____

A—AR _____

B—AR _____

*O—AR _____

A—AUX AR _____

B—AUX AR _____

RUN

ALTER ○

I/EX ○

CHARACTER DISPLAY ○   MODE   ○ STORAGE PRINTOUT

SINGLE CYC. PROC. ○   ○ SINGLE CYC. NON-PROC.

ADDRESS STOP ○   ○ STORAGE SCAN

OFF ○

FULL STOR PRT ○

PRT 1 STOR SCAN ○

PRT 2 STOR SCAN ○

PRT 3 STOR SCAN ○

*AUX MODE

TAPE I/O ○

R/P ○

TAPE I/O R/P ○

OVLP OFF

(ON I/O UNIT)

WRITE ADDR KEY LIGHT

ON ☐

TAPE UNIT ○

TAPE DENSITY

(1460)   (1440)

200-556 ○   556

200-800 ○

556-800 ○

TYPE ☐ RED WHITE

CHECK RESET

STOP

SENSE SWITCHES

A	B	C	D	E	F	G

ON

I/O CK STOP ☐   CK STOP ☐   DIAGNOSTIC ☐   DISK WRITE ☐

ON

○ ○ ○ ○

MANUAL ADDRESS

*1460 ONLY

NOTES: _____

_____

_____

_____

_____

_____

_____

_____

Figure 11. Console Status Sheet

640315MWB

8. Press the appropriate key-lights (I, A, or B), and record the contents of each address register in turn.
9. Record the sense-switch settings (on or off).
10. Record the settings of the I/O check-stop switch, check-stop switch, and disk-write switch.
11. Record the status of the 1311 disk drives, indicating the pack that is mounted, key-lights that are on, and any information about the type of error that occurred.

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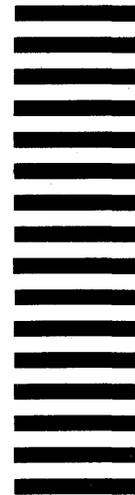
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