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Systems

Form Design Reference Guide for Printers

IBM

Preface

This publication contains information to be considered by personnel designing, ordering, or using forms for the printers listed below.

This manual has two sections: general forms-design information applicable to these printers, and specific information (Appendix) for particular printers. The general information relates to items such as form length, width, weight, fastenings, and other forms-related items that must be considered and/or met when forms are designed for printers. Form sets should comply with national standards specifications and ISO Recommendation No. 2784. The specifications are not intended to be restrictive, but to permit the customer to purchase continuous forms from the manufacturer of his choice.

For detailed information on forms feeding and operating procedures, see the appropriate component description and operating procedures manuals for the particular printer or system.

Companion publications useful in designing forms are:

American National Standard Character Set and Print Quality for Optical Character Recognition (OCR-A) ANSI X3.17-1974

Print Chart (Six Lines per Inch), GX20-1816

Print Chart (Eight Lines per Inch), GX20-1818

Form Design Reference Guide for the IBM 3800 Printing Subsystem, GA26-1633.

Another publication which is not an IBM publication but may be helpful in designing forms and for comparison purposes is *International Standard ISO*, 2784. Dimensions in this manual are to this standard.

IBM printers included are:

1132	3211	3612	3776	5256
1403	3213	3618	3780	5320
1404	3215	3713	3784	
1443	3284	3715	4973	
2203	3286	3717	4974	
2213	3288	3767	5024	
2222	3289	3771	5103	
2780	3608	3773	5203	
3203	3610	3774	5211	
3210	3611	3775	5213	

Line Printer Feature (155 lpm maximum) for 3791 and 3792

Line Printer Feature (410 lpm maximum) for 3791

Note: *Use the index for locating page numbers of the above printers.*

Twelfth Edition (July 1977)

This is a major revision of, and obsoletes, GA24-3488-10. Besides technical changes to existing pages, the primary change is the addition of form specifications for the IBM 3289, 4973, 4974, 5211 and 5256 printers. Technical changes and additions to the text and illustrations are indicated by a line to the left of the change.

Changes are continually made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest SL Newsletter or Bibliography for the edition that is applicable and current to these systems. Although the information in this manual is current as of the date of its publication, it is subject to change by IBM at any time without notice, and IBM makes no warranty, expressed or implied, relative to completeness or accuracy.

Requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality. This manual has been prepared by the IBM System Products Division, Product Publications, Dept. K10, P.O. Box 6, Endicott, N.Y. 13760.

A form for reader's comments is provided at the back of this publication. If the form has been removed, comments may be sent to the above address. Comments become the property of IBM.

Contents

Paper Quality

Paper for continuous forms must be of sufficient weight and strength to prevent the margin holes from tearing out during form-feeding, skipping, and ejecting operations. This is important, particularly for single-part forms.

The form when removed from the carton must be flat, and the edges and folds must not be damaged. The assembly of multiple-part forms must be even and the perforations intact when forms are stacked before feeding.

The paper must not be so stiff as to cause improper feeding or excessive bulging, particularly at the outfold, and should be free of paper dust and lint.

Generally, optical character reading applications require high-grade stock and tighter control of paper qualities than paper for other applications. If a prepared document is to be read by an OCR reader, refer to the appropriate reader laterature for the proper paper and ink qualities necessary in the form design. Generally, a minimum weight and type of 20-lb bond (75 g/m^2 OCR form) with a smoothness within a range of 65 to 130 Sheffield units (as measured with a Sheffield Tester*) maximum is recommended. Additional references for OCR specifications are: *American National Standard Character Set and Print Quality for Optical Character Recognition (OCR-A)* ANSI X3.17-1974, and *ANS Character Set for Optical Character Recognition (OCR-B),* ANSI X2.39-1975.

Form Width

Figure 1 shows the common form widths which printers are normally capable of handling. Refer to the "Appendix" to determine the print format capability of any particular printers.

Note: *Narrow width forms contribute to instability of stacker height and may require operator stacker attention. Therefore, wider base forms are recommended.*

Form Length

The forms-control method determines the forms-length capability of a printer. See "Appendix" for form-length specifications for each printer. Before ordering a nonstandard form length, consult your IBM sales representative and your forms supplier. Common form lengths are shown in Figure 2.

For printing six lines to the inch, the length of the form or document must be evenly divisible by 0.167 in. (4,24 mm) for single-spacing. Similarly, printing eight lines to the inch requires the length of the form to be evenly divisible by 0.125 in. (3,18 mm) for single-spacing.

Overall Width		Hole-to-Hole Width	
in.	mm	in.	mm
4.75	120,7	4.25	108,0
5.75	146,1	5.25	133,4
6.50	165,1	6.00	152,4
8.00	203,2	7.50	190,5
8.50	215,9	8.00	203,2
9.50	241,3	9.00	228,6
9.875	250,8	9.375	238,1
10.375	263,5	9.875	250,8
10.50	266,7	10.00	254,0
10.625	269,9	10.125	257,0
11.00	279,4	10.50	266,7
11.75	298,5	11.25	285,8
12.00	304,8	11.50	292,1
12.844	326,2	12.344	313,5
13.00	330,2	12.50	317,5
13.625	346,1	13.125	333,4
14.375	365,1	13.875	352,4
14.875	377,8	14.375	365,2
15.50	393,7	15.00	381,0
16.00	406,4	15.50	393,7
16.75	425,5	16.25	412,8
17.78	451,6	17.28	438,9

Figure 1. Generally Available Form Widths

Length		
in.	mm	
3.00	76,2	For stacking efficiency, these form lengths should be fanfolded in two- or three-up multiples.
3.50	88,9	
3.67	93,2	
4.00	101,6	
4.25	108,0	
5.00	127,0	
5.50	139,7	
6.00	152,4	
7.00	177,8	
8.00	203,2	
8.50	215,9	
10.00	254,0	
11.00	279,4	
12.00	304,8	
14.00	355,6	
16.00	406,4	
17.00	431,8	

Figure 2. Recommended Form Lengths

* A product of Sheffield Corporation

Because all characters can be printed in every position, form length can be reduced and ribbon life extended by printing information side by side.

Vertical Lines

When preprinted vertical lines are required, ruling on the form can split adjacent print positions for assigning particular positions in a columnar field. However, for best results, a vertical line should occupy at least one character space. Preprinted vertical lines should be parallel to the vertical center line through the margin holes, spaced in multiples of 0.100 ±0.005 in. (2,54 ±0,13 mm).

Horizontal Lines

Preprinted horizontal lines should always be perpendicular to the center line of the margin holes.

Margins

The distance from the form edge to the margin tear strip is normally 0.50 in. (12,7 mm). See Figure 3. However, this dimension may vary for special applications. In such instances, the minimum dimension of the first and last print position carriage translation (see "Appendix") should be adjusted accordingly.

For a form without a margin perforation, the first (or last) character of a print line should be at least 0.438 in. (11,1 mm) from the edge of the form. With a friction-feed platen, printing can take place to the edge of the form, except as noted for specific printers in the appendix.

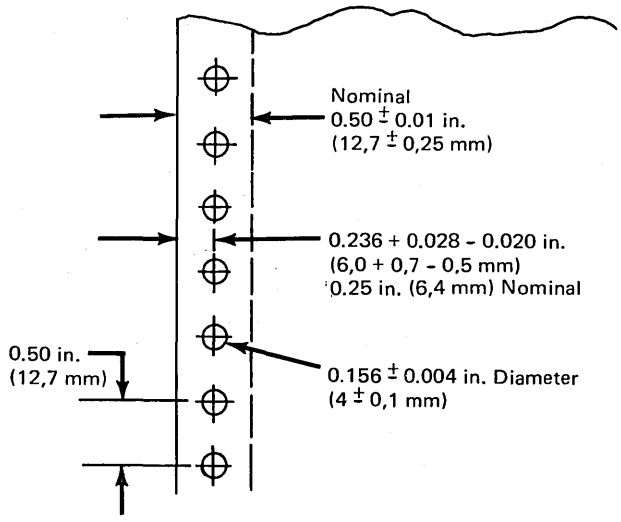


Figure 3. Margin Dimensions

Margin Holes

Continuous forms having feed holes (margin holes) 0.156 ±0.004 in. (4,0 ±0,1 mm) in diameter (see Figure 4) in both the right and left margins are preferred. Serrated margin holes 0.156 in. inside diameter (ID) and 0.172 in. outside diameter (OD) (4,0 mm ID and 4,4 mm OD) are also permissible. Spacing between holes, center to center, must be nominally 0.50 in. (12,7 mm). The margin holes should be free of chads. Presence of chads on the print line can cause loss of printed characters.

To ensure proper feeding, the two vertical rows of margin holes must be parallel. The recommended distance from the edges of the form to the center lines of the margin holes is 0.236 +0.028 −0.020 in. (6,0 +0,7 −0,5 mm). For calculation purposes, 0.236 (6,0 mm) should be treated nominally as 0.25 in. (6,4 mm). See Figure 3.

To allow for carbon shrinkage and processing tolerances, margin holes in the carbon paper should be 0.156 in. (4,0 mm) in diameter.

Perforations

Perforations should permit easy separation, but should not tear or catch in ordinary handling or feeding through the printer. Perforations should be uniform in length and spacing to ensure proper and efficient tearing.

Margin Perforations: The distance from the edge of the form to the margin perforations is usually 0.50 in. (12,7 mm); however, this width may vary.

Forms Perforations: Horizontal perforations between forms should be perpendicular to the center line of the margin holes.

Forms Stacking

Stacking efficiency diminishes for form lengths less than 8 in. (203 mm) or greater than 12 in. (305 mm). Test such forms to ensure individual stacking requirements are met. Forms over 17 in. (432 mm) long usually require manual assistance to assure proper stacking, and, for some printers, may extend beyond the limits of the machine. When a forms stand is used, the dimensions of the form should not exceed the dimensions of the stacking tray.

Preconditioning Forms

Forms stacking is affected by relative humidity, number of plies, and form length. For best operation, forms should be preconditioned, not less than 48 hours (preferably in an open box) in the environment of the printer. If the printer is located in an environmnet subject to extremes of relative humidity, it may be necessary to store the forms in a controlled environment and withdraw them on an as-required basis.

Multiple-Part Forms

The number of legible copies needed is a factor in determining the weight of the paper and carbon to be used in multiple-part sets. Single-part forms of less than 15-lb (56 g/m^2) or more than 24-lb (90 g/m^2) stock should be tested prior to batch ordering of forms.

Multiple-part forms are generally composed of sheets, 12- to 13-lb stock (17 × 22 in.—500 sheets: 45 to 49 g/m^2) or less. For special applications, carbonized paper or carbonless forms can be used to obtain extra legible copies.

The carbon paper used in multiple-part forms should be medium carbon, 8- to 9-lb (30 to 34 g/m^2) or less. Multiple-part forms consisting of more than four parts, and forms with the first part of more than 13-lb (49 g/m^2) paper should be tested under operating conditions to determine the suitability of feeding and legibility.

Registration

In some printers, because of the bend of the form over a platen, a small dimensional difference may occur between printed lines on successive parts of a multiple-part form. This difference, more noticeable on loosely fastened forms, is proportional to the thickness of the form. Because of this, the assembly of multiple-part forms should ensure that all punching and printing is in registration within 0.015 in. (0,38 mm).

Single-space, eight-lines-per-inch printing is not recommended with 0.095-in. (2,41-mm) type when the registration between lines is critical. Eight-lines-per-inch printing should be adequately tested for character overlap, especially when printing underscores and when performing paper skips with multiple-part forms.

Fastening

The width, length, and number of copies of the form determine the fastening requirements for satisfactory feeding through a printer. If the construction of the form is such that the parts are of different widths, the necessity for, and the method of, fastening the form should be determined by the weight of paper, the width of the parts, and the length of the form (Figure 4). For forms over 17 in. (432 mm) in length, the maximum distance between fastenings should be determined by actual test.

Form Length		Maximum Distance Between Fastenings	
in.	mm	in.	mm
1 to 5	25,4 to 127,0	5	127,0
5.50 to 11	139,7 to 279,4	11	279,4
11 to 14	279,4 to 355,6	7	177,8
14 to 17	355,6 to 431,8	8.5	215,9

Figure 4. Fastening Requirements for Multiple-Part Forms

For maximum efficiency, forms should be tightly fastened on both sides to prevent copies from shifting. Print quality and forms feeding are adversely affected by loosely applied plies.

The security of the fastening becomes more important as the number of parts, width of form, or the humidity increases. For relative humidity near 80 percent, both margins should be fastened by a method unaffected by high humidity, such as gluing or stitching.

Forms should be fastened only in the margins. Avoid using metallic staples or any hard fasteners with multiple-part forms. In no case should metal or hard fasteners be located so that they pass the printing unit.

Fastening of forms on the horizontal perforations between margins is not recommended. If a fastening medium is inserted on the perforated line, no printing should be within 0.25 in. (6,4 mm) above and below the perforated line.

Multiple-part forms in which individual parts vary in width should be tested before quantity-ordering. If multiple-part forms are not fastened, print quality may deteriorate.

The carbon paper must be kept in line with the form by some acceptable method. One method is to use narrow-width carbon glued to the set. Another is to use full-width carbon paper punched with substantially larger margin holes that are approximately centered with the corresponding holes in the form. Oversize marginal holes in the carbon allow for carbon shrinkage and provide the processing tolerance necessary for some commonly used form structures.

One-time carbon paper or carbon-backed paper can also be used. The selection of proper carbon paper or coating is a prime factor in determining the required number of legible copies without excessive smudging. Determine this by making test runs with sample sets of forms containing different qualities of carbon papers, known as *write test carriers.* Use these carriers with caution to avoid damage to the printer or form.

Print Legibility

The number of legible copies produced depends on the weight of the paper used and the carbon coating.

For multiple-part forms beyond the original and three copies, the paper and carbon should be tested with the proper machine settings to determine the suitability of each combination. Some printers have forms-thickness and/or print-density adjustments to accommodate multiple copies and provide optimum legibility within a range of settings.

Form sets used on one printer (or model of a printer) may not produce acceptable results when used on another printer (or model of the same printer). Tests should be made under actual operating conditions.

Paper (and ribbon) for applications, such as optical character reading, ditto, photo-offset, multilith, heat transfer, or similar processes, must be tested to ensure that its use satisfactorily meets individual requirements.

Print legibility on multiple-part forms may vary within a box due to tolerances of the paper and the carbon, temperature, and age of the carbon.

Card Forms

Card forms should be selected from card stock not exceeding 0.009-in. (0,23-mm) thickness. Preferably, card seams or scores should be lapped so that the upper card overlaps the lower card to provide a smooth feeding surface on the front of the form.

Folding specifications recommended for continuous card forms for some printers are three or four up for optimum stacking. See "Appendix" for any deviation of this for specific printers. Operator attention is normally required to assure efficient stacking on all printers. Long-grain stock is recommended.

Special card forms should be tested to ensure that they satisfactorily meet individual requirements.

Graphics

Graphics specified by the USA and ISO Standard Codes for Information Exchange are available for most system printers. All characters and symbols installed can be printed at every print position. Because of this, form depth can be reduced by using side-by-side printing. For example, ordered-by and ship-to names can be printed on the same line, one on the left side of the form and the other on the right.

In many instances, oblique lines, dashes, and so forth can be used instead of preprinting margin enclosures and separators. However, long vertical lines should be avoided as repeated impact in a single print column can cause ribbon damage when using line printers. The dollar symbol need not be preprinted on a check form because this symbol can be programmed to print immediately to the left of a significant digit.

Special type fonts for plotting and unique symbols can be ordered through an IBM sales representative.

Spacing Chart

A basic tool for forms design is the six-lines-per-inch spacing chart (order no. GX20-1816) shown in Figure 5. Numbers across the top and bottom of the chart represent the print-position locations.

For printers using a carriage-control tape, the facsimile tape (shown at the left of the chart in Figure 5) is for marking the tape-control punches for a specific form.

A printer spacing chart (GX20-1818) is also available with eight lines per inch for use in designing forms for printers with eight-line-per-inch capability.

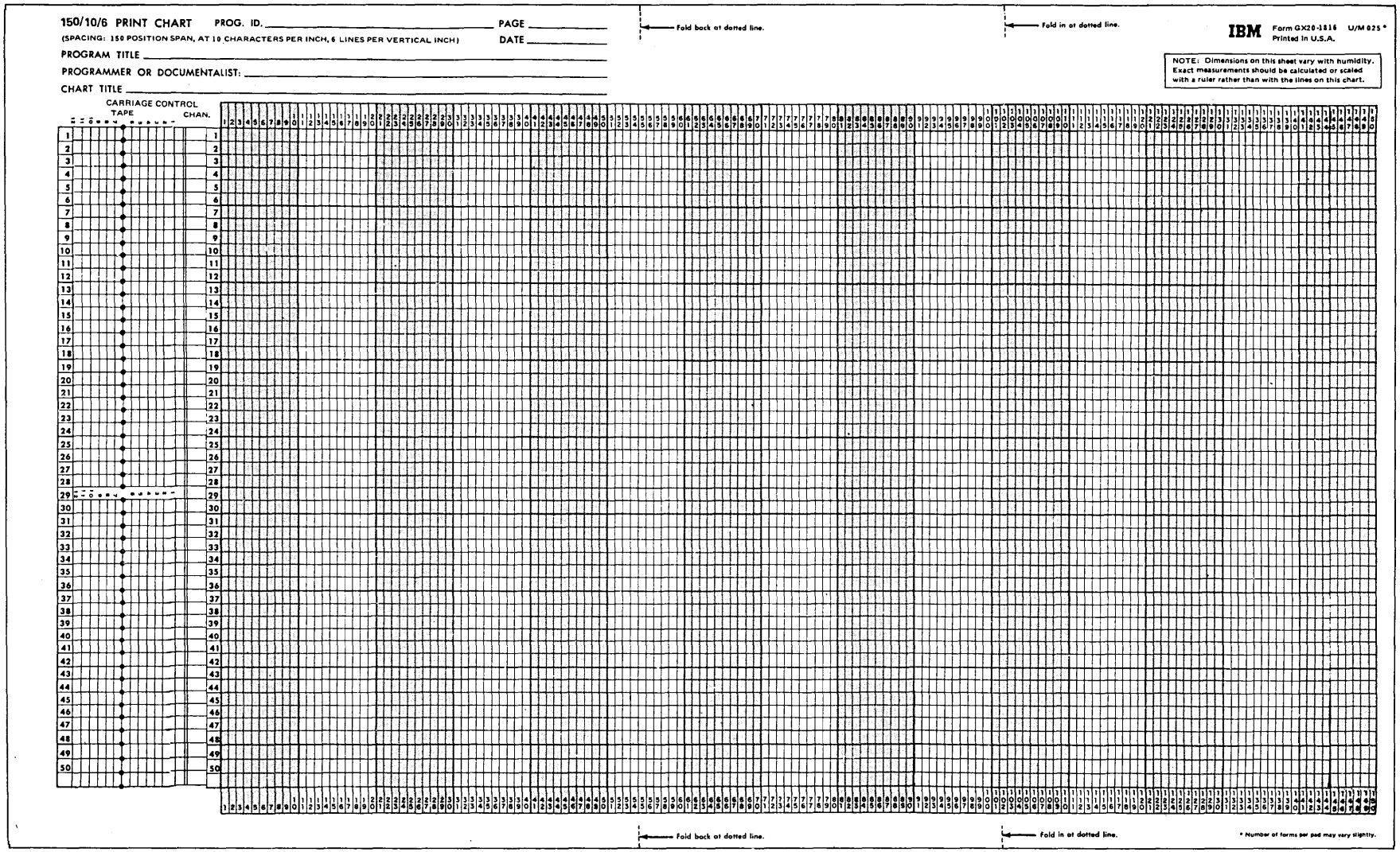
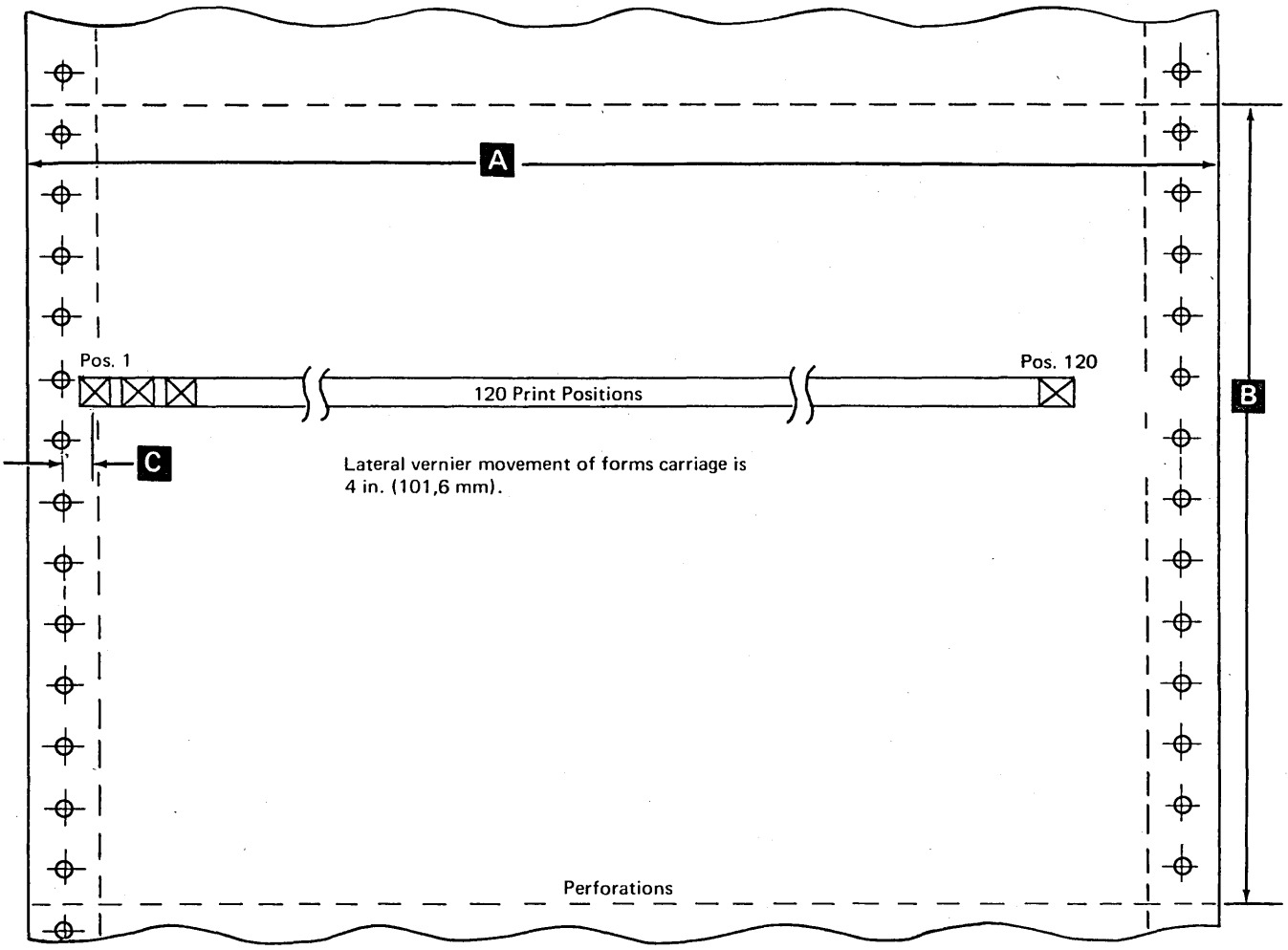


Figure 5. Printer Spacing Chart

Appendix: Forms Specifications

1132 Form Specifications

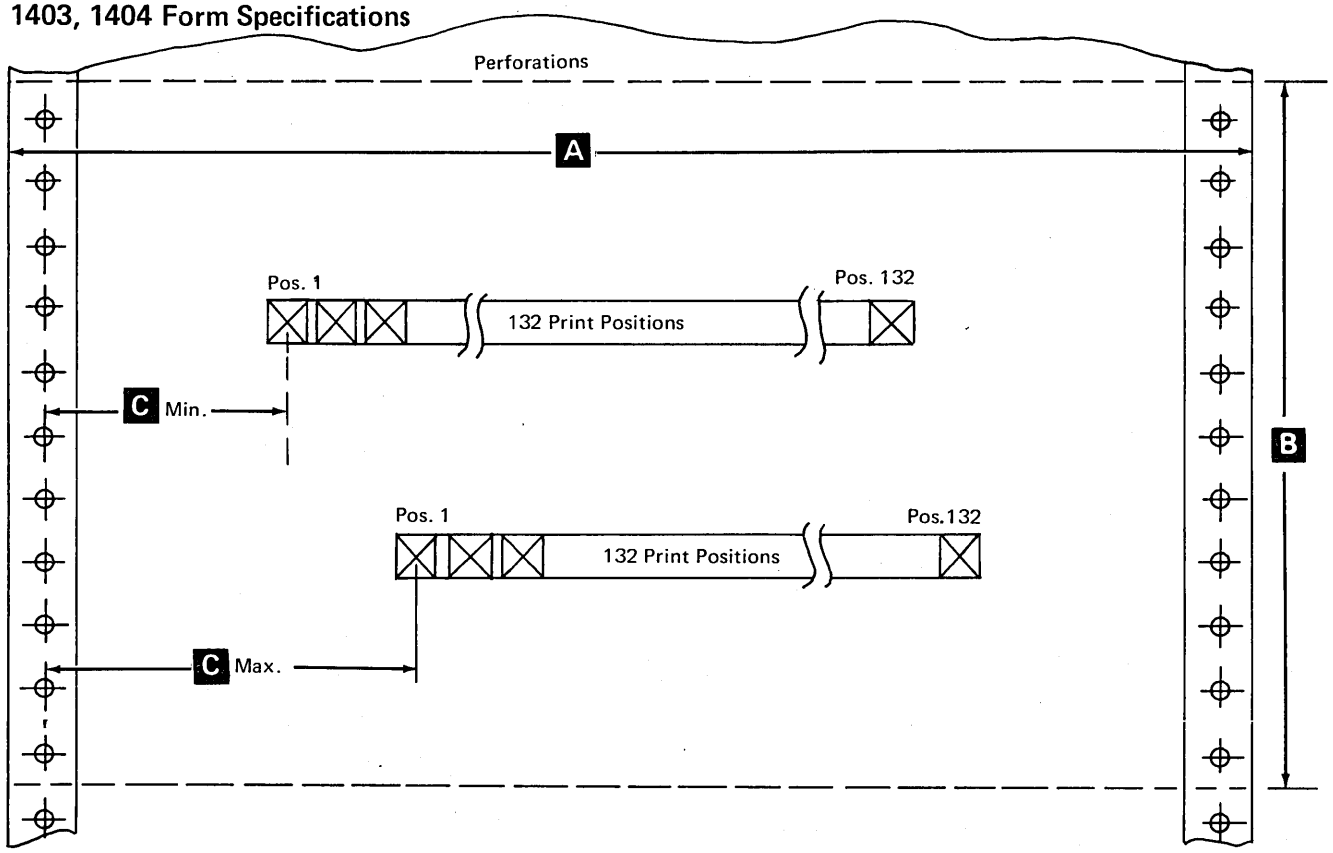


		Maximum	Minimum
A	Form Width	16.75 in. (425,5 mm)	4.75 in. (120,7 mm)
B	Form Length	22 in. (558,8 mm) 6 lpi 16.5 in. (419,1 mm) 8 lpi	– – –

C If form has no tear strip, center line of the first and last positions should be at least 0.188 in. (4,8 mm) from the center line of the margin holes.

For general forms design considerations, see pages 5 to 8.

1403, 1404 Form Specifications



A Form Width	C Maximum	C Minimum	Comment
18.75 in. (476,3 mm)	2.75 in. (69,9 mm) for all widths	1.938 in. (49,2 mm)	Maximum form width; minimum tractor movement
16.75 in. (425,5 mm)		0.30 in. (7,6 mm) for this width and all smaller width forms	Allows full translator movement for printing 132 positions
3.5 in. (88,9 mm)			Minimum form width; full range of movement

B Form Length

Tape-Controlled Carriage

a. Maximum for lengths at 6 lpi is 22 in. (558,8 mm); 8 lpi is 16.5 in. (419,1 mm). The recommended minimum form length is 3 in. (76,2 mm).

b. Stacking efficiency decreases when form lengths exceed 14 in. (355,6 mm).

Notes:

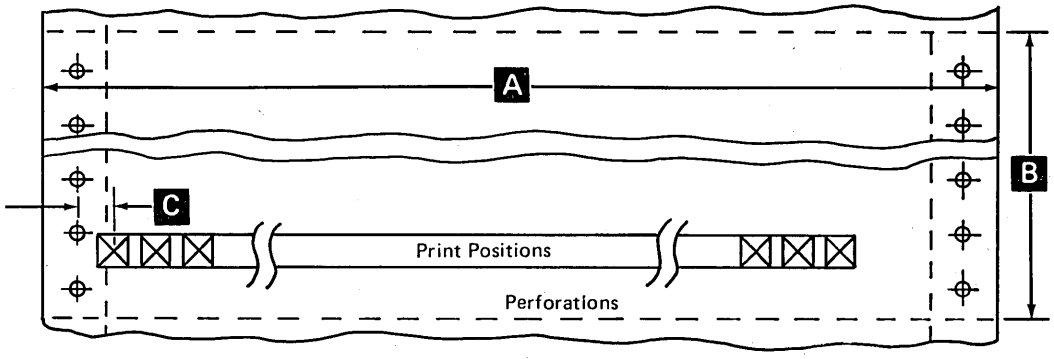
1. Form lengths over 17 in. (431,8 mm) cannot be used in Model N1.
2. The 1404 handles continuous forms similar to the 1403 printer. In addition, cut card stock may be fed and printed as an auxiliary feature. (See Systems Reference Library manual, *IBM 1404 Printer,* Order No. GA24-1446 for card stock printing specifications.)

Recommendations

1. Leaders for alignment of prenumbered documents.
2. Multiple Copies
   a. Preferably, forms should be securely fastened on both edges.
   b. Composite form set thickness 0.020 in. (0,51 mm) maximum. Ribbon smudging may occur as form set approaches maximum thickness.

For general forms design considerations, see pages 5 to 8.

1443, 2203, 2780, 3780 Form Specifications



		Maximum	Recommended	Minimum
A	Form Width	18.5 in. (469,9 mm)	16.75 in. (425,5 mm)	3.5 in. (88,9 mm)
	Dual-Feed Carriage	16.75 in. (425,5 mm)		4 in. (101,6 mm)
B	Form Length	22 in. (558,8 mm) 6 lpi		
		16.5 in. (419,1 mm) 8 lpi		
	Dual-Feed Carriage			
	Upper Form	13 in. (330,2 mm) 6 lpi		
		10 in. (254 mm) 8 lpi		
	Lower Form	22 in. (558,8 mm) 6 lpi		
		16.5 in. (419,1 mm) 8 lpi		

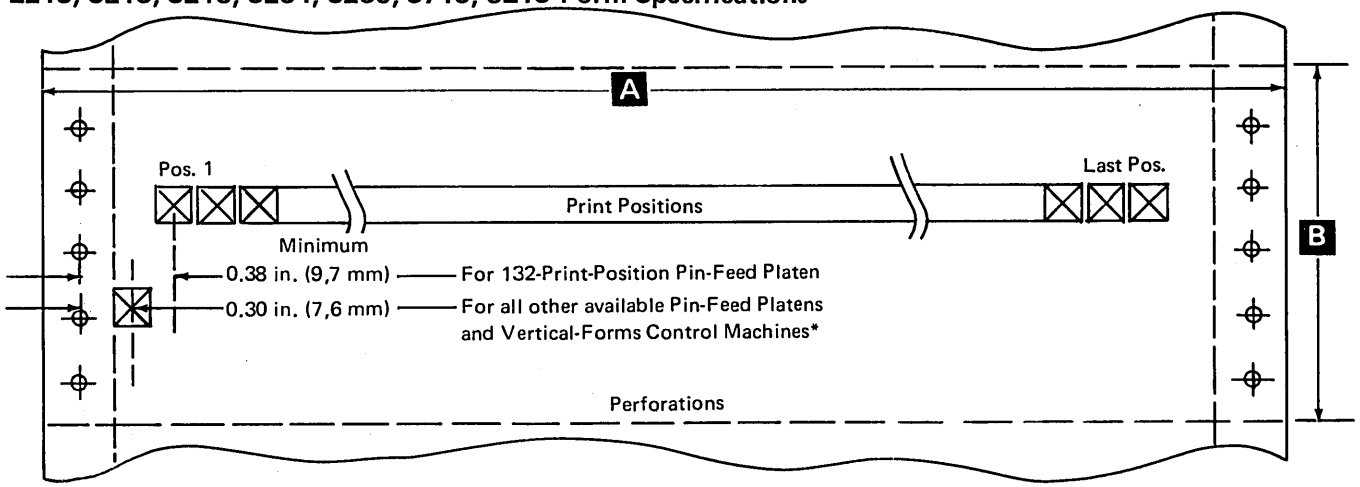
C Center line of first and last print positions should be at least 0.188 in. (4,8 mm) from the center line of the margin holes.

Notes:

1. Number of available print positions—120 or 144.
2. To assure that print quality is acceptable, multiple form sets should be tested prior to batch ordering of forms.

For general forms design considerations, see pages 5 to 8.

2213, 3213, 3215, 3284, 3286, 3713, 5213 Form Specifications



A Form Width

Model	Maximum Width		Minimum Width	
	Print Positions	Overall	Print Positions	Overall
2213-1 Friction Feed	132	15 in. (381 mm)	----	--------
Pin-Feed	132	14.375 in. (365,1 mm)	70	8 in. (203,2 mm)
2213-2 (VFC)*	132	14.875 in. (377,8 mm)	20	3 in. (76,2 mm)
3213, 3215	126	13.625 in. (346,1 mm)	120	13 in. (330,2 mm)
3284, 3286	132	14.375 in. (365,1 mm)	120	13 in. (330,2 mm)
3713**	132	14.375 in. (365,1 mm)	120	13 in. (330,2 mm)
5213-1	132	14.375 in. (365,1 mm)		
5213-2, 3 (VFC)*	132	14.875 in. (377,8 mm)	20	3 in. (76,2 mm)

* Vertical Forms Control (VFC) — Machines with tractors that feed paper vertically through the printer and permit single/double/triple space, and skip operations. Lateral movement of forms carriage is 0.38 in. (9,7 mm). In contrast to pin-feed platens, VFC machines can use any width form between the maximum and minimum widths shown above. If forms do not have a tear strip, first and last positions may be located immediately adjacent to the feed holes.

** With adjustable margin feature and shorter platen, width is 8 in. (203,2 mm) overall, 7.5 in. (190,5 mm) hole to hole. The 3713 maximum print line is 128 characters, despite 132-position form width.

B Form Length — 11 in. (279,4 mm) recommended for optimum stacking
Maximum — 14 in. (355,6 mm) — [11 in. (279,4 mm) on 2213-2 with 8 lpi]
Minimum — 3 in. (76,2 mm)

Multiple Copies — Up to 6-part form can be printed.

- Front form of multiple copy must be a full form width.
- No hard fasteners.
- Maximum thickness depends on model.
  - Pin-Feed — Thickness 0.018 in. (0,46 mm) maximum. For optimum feeding and stacking no more than 3-part forms are recommended.
    — Card stock not recommended.
  - Friction Feed — Limited to 12-lb (45-g/m^2), single-part paper.
    — Card stock not recommended.
  - VFC — Thickness 0.025 in. (0,64 mm) maximum with multiple-part forms.
    — Card stock thickness 0.0075 in. (0,191 mm) maximum.

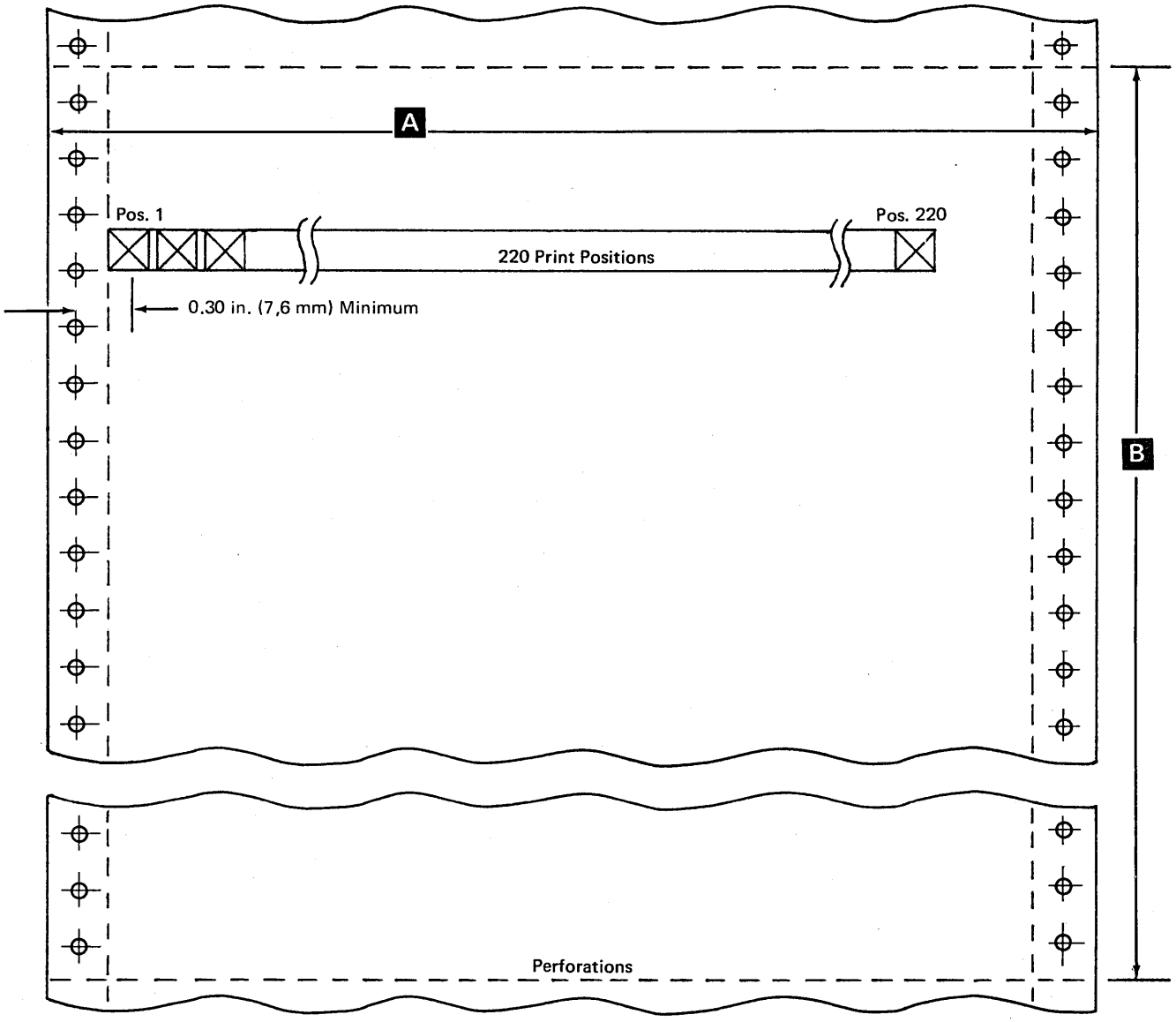
Single-ply Roll Paper (2213-1)
Width — up to 15 in. (381 mm)
OD - 4 in. (101,6 mm)
ID - 0.375 in. (9,5 mm)

Platen Length Pin to Pin	Max. No. of Print Pos.
7.50	70
8.00	75
9.00	85
9.375	88
9.875	93
10.00	95
10.125	96
11.25	107
11.50	110
12.50	120
13.125	126
13.875	132

Platens for 2213 and 3713 Printers

For general forms design considerations, see pages 5 to 8.

2222 Form Specifications (Part 1 of 2)



	Maximum	Minimum
A	Form Width 23 in. (584,2 mm)	3.5 in. (88,9 mm)

Continuous Form Width Overall — 1 or 2 form sets (not overlapped)
Overlapping of dual fed forms is not permitted.

B	Form Length 14 in. (355,6 mm)	2.31 in. (58,8 mm)

Up to 12 in. (304,8 mm) recommended for efficient stacking.

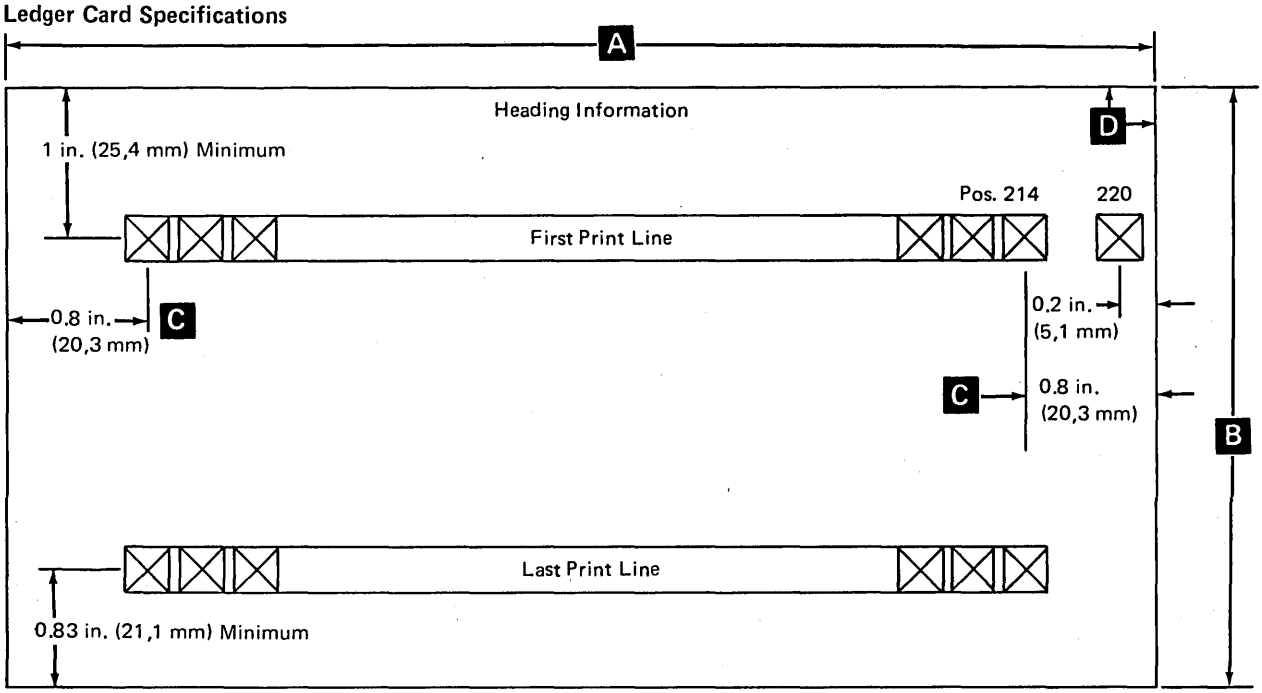
Multiple Copies (Up to 6-part form on primary tractors; up to 5-part form on secondary tractors)
Thickness: 0.025 in. (0,64 mm) maximum (including ledger card)
Maximum difference in thickness between form sets (including ledger card) is 0.010 in. (0,25 mm)
Fastening: no staples.

For ledger-card specifications, see part 2 of 2.

For general forms design considerations, see pages 5 to 8.

2222 Form Specifications (Part 2 of 2)

Ledger Card Specifications



		Maximum	Minimum
A	Card Width	14 in. (355,6 mm)	6 in. (152,4 mm)
	Recommended widths for optimum alignment:		
	14 in. (355,6 mm)	125 Print Positions	
	11 in. (279,4 mm)	95 Print Positions	
	8.5 in. (215,9 mm)	70 Print Positions	
	6 in. (152,4 mm)	45 Print Positions	
B	Card Length	11 in. (297,4 mm)	8 in. (203,2 mm)
	Available Data Lines	56	38

C If line-finding marks and BCD coding are to be sensed, a strip [0.75 in. (19,1 mm)] along both right and left margins (front and back of forms) must be clear of preprinting, data printing, blemishes, and extraneous marks. If only one side of the card is to be printed, the restrictions apply to both front and back of the right margin only.

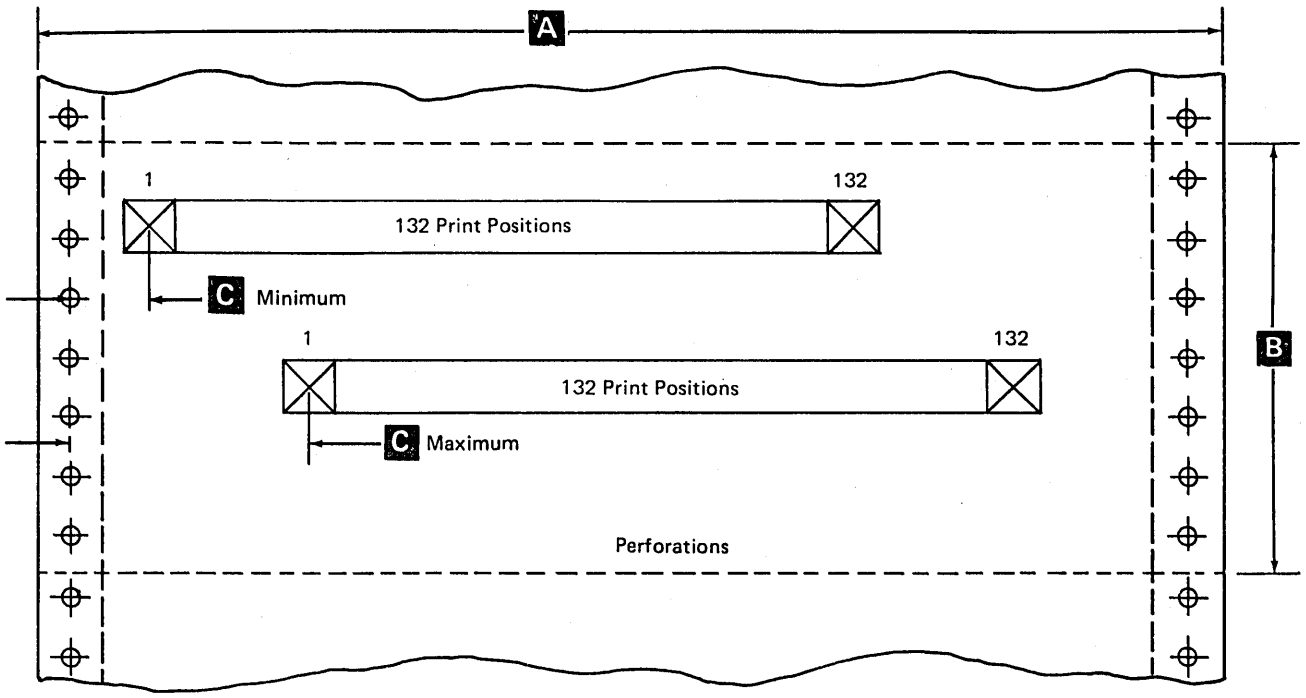
D Squareness of ledger card (sides to leading edge, except for permitted radius on corners) must be within 0.010 in. (0,25 mm). The leading edge of the ledger card must be straight within 0.005 in. (0,13 mm). An excessively frayed edge above and below the 0.005 in. (0,13 mm) limit is unacceptable.

Other Specifications:

1. Thickness 0.0070 $\pm$ 0.0004 in. (0,178 $\pm$ 0,010 mm)
2. No multipart card forms.
3. Card must be fed with the long grain in a vertical direction. In order to identify direction of long grain, blank (not preprinted) square cards must have the feeding direction indicated for the operator. For this purpose, it is recommended that a 0.25 in. (6,4 mm) hole to be punched 0.25 in. from the bottom and midway between margins.
4. Rounded corners permitted up to 0.188 in. (4,8 mm) radius.
5. Ledger card material must be 100% chemical wood fiber. Refer to ANSI. X3.11-1969 standard by Business Equipment Manufacturers Association.
6. Ledger-card colors vary in reflectivity for sensing the line-finding mark:
   White, pink, yellow and buff are recommended.
   Red, orange, brown, and green are acceptable.
   Blue cannot be used.

For general forms design considerations, see pages 5 to 8.

3203 Form Specifications



A Form Width	C Maximum	C Minimum	Comment
20 in. (508 mm)	3.5 in. (88,9 mm)	1.25 in. (31,8 mm)	Maximum form width; minimum tractor movement.
17.78 in. (451,6 mm)	3.5 in. (88,9 mm)	0.30 in. (7,6 mm)	Full flexibility and range of line location.
3.5 in. (88,9 mm)	— — —	0.30 in. (7,6 mm)	Minimum form width; full range of tractor movement.

	Maximum	Minimum
B Form Length	24 in. (609,6 mm)	3 in. (76,2 mm)

Form Feeding

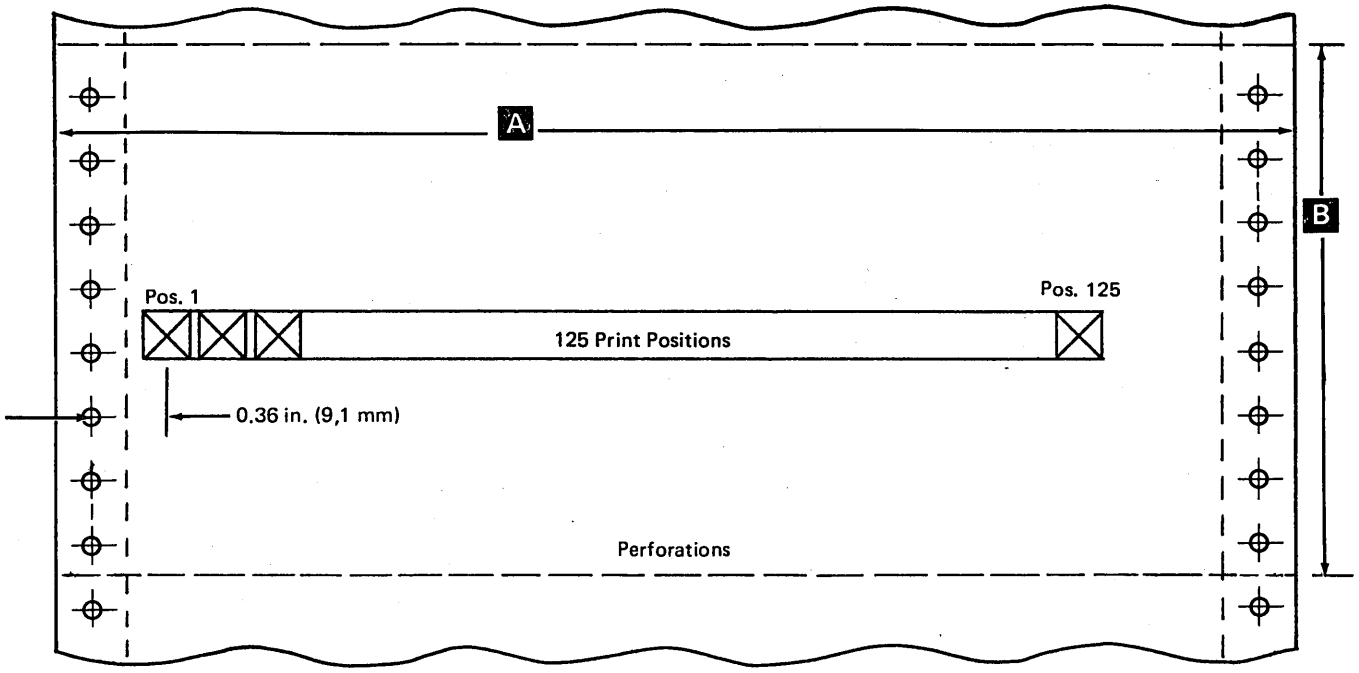
1. Form lengths greater than 14 in. (356 mm) require that the acoustic enclosure remain open.
2. Form lengths which exceed 17 in. (432 mm) require that the front door remain open.
3. For effective stacking, the recommended flat-fold length is 8 to 14 in. (203 to 356 mm). Short forms should be grouped to improve stacking efficiency.
4. The printer is program-controlled and can print at either 6 or 8 lines per inch.

General Requirements

1. Multiple-part forms should be fastened securely on both sides and only in the margin areas. Single-side fastening is not recommended. However, if this method is used, the fastening must be on the right side. Carbons must also be fastened on the right-hand side.
2. Forms should be free of margin-hole chads.
3. No hard or metallic fasteners are permitted.
4. Composite form set thickness should not exceed 0.020 in. (0,51 mm). The 3203 prints on continuous forms consisting of one to four parts (copies). Forms consisting of more than four parts should be tested under operating conditions to determine acceptability. Ribbon smudging may occur as form set approaches maximum thickness.
5. A leader is normally required for prenumbered forms.

For general forms design considerations, see pages 5 to 8.

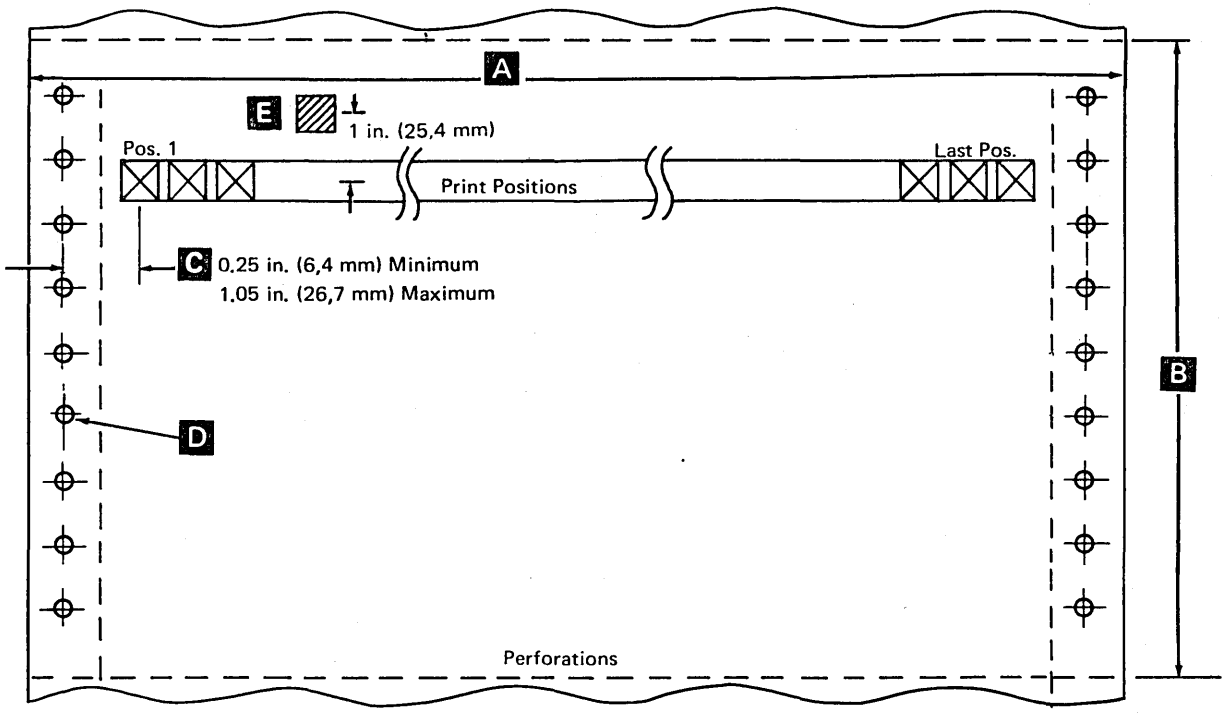
3210 Form Specifications



A	Fixed Width	13.625 in. (346,1 mm)
B	Form Length	To accommodate the stacking shelf, the recommended maximum fold-to-fold length is 11 in. (279,4 mm).

For general forms design considerations, see pages 5 to 8.

3211 Form Specifications



		Maximum	Minimum
A	Form Width	18.75 in. (476,3 mm) Forms with widths over 14.1 in. (358,1 mm) should be investigated to assure desired print positions are within the 0.8 in. (20,3 mm) lateral adjustment of the forms carriage.	3.5 in. (88,9 mm)
B	Form Length	24 in. (609,6 mm) 6 lpi or 22.5 in. (571,5 mm) 8 lpi Lengths over 17 in. (431,8 mm) may require manual stacking assistance.	3 in. (76,2 mm)

C Indexing permits any print position from 1 to 31 to be selected as the first printed position. Thus, the maximum dimension from the left margin feed hole center line extends from 1.05 to 4.05 in. (26,7 to 102,9 mm) in 0.10-in. (2,5-mm) increments.

D The left margin holes should be free of chads to avoid false form checks.

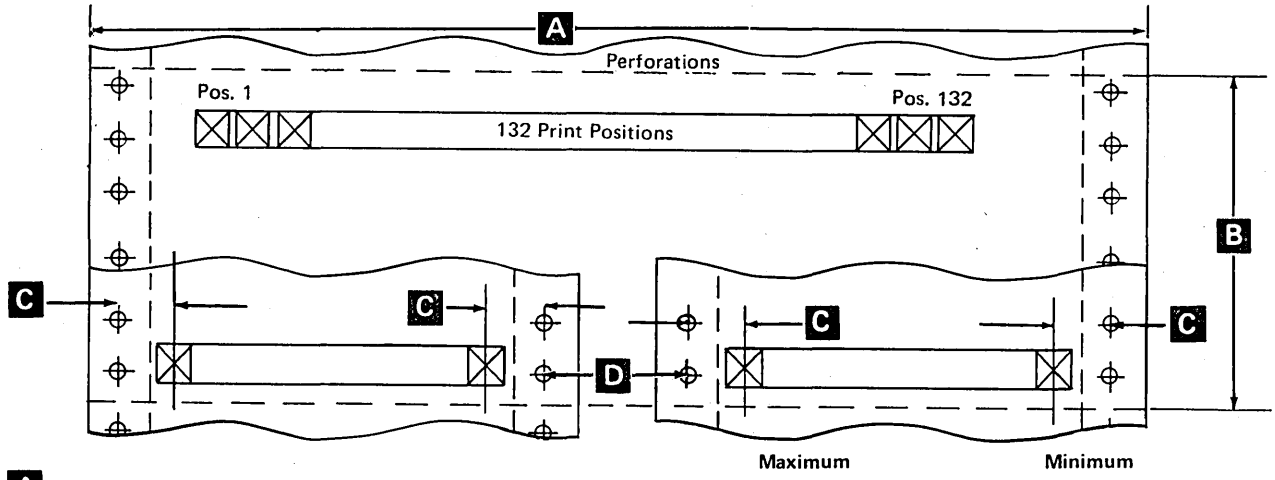
E Forms Thickness (Sense Area) — Thickness of the form passing through the sensing area (just above positions 9 to 11) should not vary more than 0.003 in. (0,076 mm) from thickness in the area to be printed. However, horizontal and vertical fastening areas may exceed this thickness by 0.010 in. (0,25 mm). The right-hand fastening passing through the print area may exceed this thickness by only 0.005 in. (0,13 mm). Ribbon smudging may occur with greater thicknesses.

Recommendations

1. Leaders for alignment of prenumbered documents.
2. Multiple Parts
   a. Securely fastened on both edges. If a single edge fastening is used, it must be the left edge.
   b. Carbons fastened on left edge.
   c. No hard fasteners permitted.
   d. Form thickness 0.020 in. (0,51 mm) maximum. Ribbon smudging may occur as form set approaches maximum thickness.
3. It is recommended that forms be conditioned in an atmosphere similar to that of the intended working humidity for a minimum of 48 hours before use.
4. Paper colors vary in reflectivity and may reduce contrast to the feed holes. Forms with gray or black backing near the feed strips, should not be used because false forms checks may occur. The backside of the left tear strip should be free of markings or printing to avoid false forms checks.

For general forms design considerations, see pages 5 to 8.

3288, 3289 Model 1, 3618, 3717, 3775, 3784, 4973 Model 1, 5024, 5320B and Line Printer Feature (155 lpm Maximum) for 3791 and 3792 Form Specifications (Part 1 of 2)



		Maximum	Minimum
A	Form Width (Single- or Dual-Feed Carriage)	15 in. (381 mm) See Note 10	3.5 in. (88,9 mm)
B	Form Length (Single- or Dual-Feed Carriage) Carriage Spacing—6 lines per inch only.	14 in. (355,6 mm)	3 in. (76,2 mm)

C The maximum distance from the center line of the left margin hole and center line of print position No. 1 is 0.55 in. (13,9 mm) with the left tractor in leftmost position.

A maximum of 0.50 in. (12,7 mm) if interchangeability with the 3715, 3771, 3773, 3774, or 5320 A Model printers is desired.

Forms With 0.50 in. (12,7 mm) Tear Strips (Single- or Dual-Feed Carriage)

The distance between the center line of a margin hole and the center line of the first available print position is:
0.30 in. (7,6 mm) minimum with odd print position and
0.40 in. (10,2 mm) minimum with even print position.

The distance between the center line of a margin hole and the center line of the last available print position is:
0.30 in. (7,6 mm) minimum with even print position and
0.40 in. (10,2 mm) minimum with odd print position.
[For a 132-print position printer, the maximum forms width for which these distances are obtainable is 14.375 in. (365,1 mm) with left tractor in the leftmost position.]

Note: Separation of the perforation may occur as the 0.30 in. (7,6 mm) minimum dimension above is approached.

Forms Without Tear Strips (Single- or Dual-Feed Carriage)

The distance between the center line of a margin hole and the center line of the first available print position is:
0.15 in. (3,8 mm) minimum with odd print position and
0.25 in. (6,4 mm) minimum with even print position.

The distance between the center line of a margin hole and the center line of the last available print position is:
0.15 in. (3,8 mm) minimum with even print position and
0.25 in. (6,4 mm) minimum with odd print position.
[For a 132-print position printer, the maximum forms width for which these distances are obtainable is 14.25 in. (362 mm) with left tractor in the leftmost position.]

D The fixed distance between the center line of the paper feed pins (dual-feed carriage) is 1 in. (25,4 mm).

Notes:

1. Over 4-part forms should be tested to assure satisfactory feeding, print quality, and legibility. Modifications in forms fastening techniques, perforations, stiffness or paper quality can often overcome forms processing difficulties.
2. Up to 6-part forms can be used; maximum thickness not to exceed 0.020 in. (0,51 mm). Ribbon smudging may occur as forms set approaches maximum thickness.
3. a. 5320 B Model only:

   Cut card stock is not permitted. Continuous card stock forms are generally not recommended. (See *IBM System/32 Membership and Mailing List System Design Objectives,* GH30-0010, or *Design Specifications,* GH30-0012 for card stock specifications approved for this Industry Application Program or other user applications with card stock requirements that meet such specifications.)

   b. All other printers:

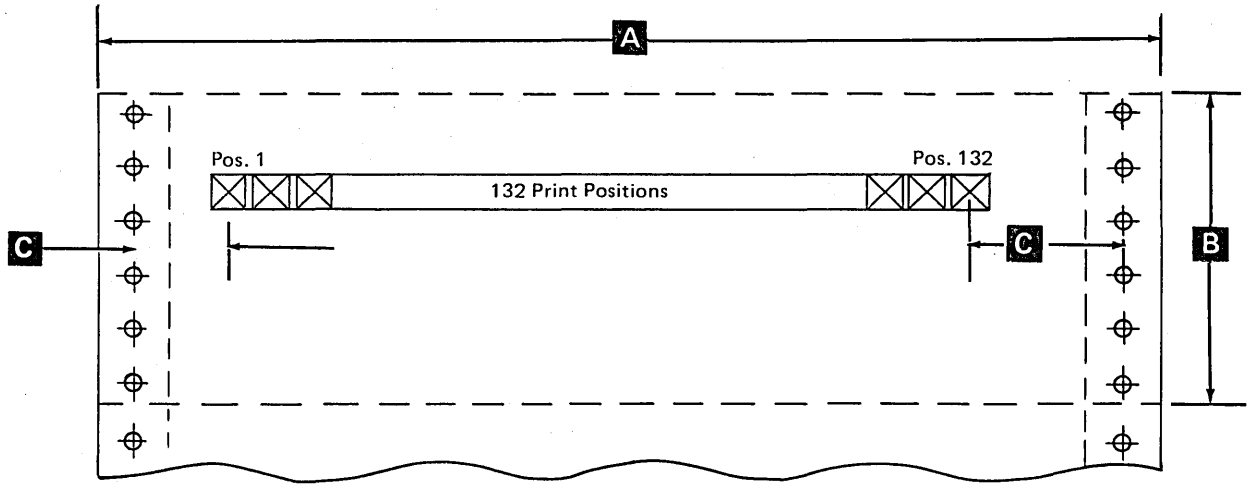
   Continuous card stock forms are generally permitted. They should be tested to assure satisfactory feeding and smudge acceptability. Cut card stock is not permitted. Card stock should not exceed 0.009-in. (0,23-mm) thickness. Overlapped glue joints are not recommended.
4. Cutouts are not permitted from 2.75 to 3.25 in. (69,9 to 82,6 mm) from left edge of form with tractor in leftmost position. Cutouts in this area may cause a false end-of-forms.
5. No hard or metallic fasteners are permitted.
6. Paper colors vary in reflectivity and may reduce contrast to the feed holes. Forms with variations of color, or forms with gray or black backing near the feed strips, should not be used because false forms checks may occur. The backside of the left tear strip should be free of markings or printing to avoid false forms checks.
7. Fastening multiple set forms on both edges is recommended. The crimping method of fastening is recommended; however, crimps should not be within 0.50 in. (12,7 mm) of the horizontal perforation. If crimp fasteners are used, the crimps must not project significantly above the body of the form. Excessively hard or stiff crimps may interfere with proper ribbon and/or form processing operation. If a glue fastening is required, the forms should be tested for acceptable feeding.

For general forms design considerations, see pages 5 to 8.

3288, 3289 Model 1, 3618, 3717, 3775, 3784, 4973 Model 1, 5024, 5320B and Line Printer Feature (155 lpm Maximum) for 3791 and 3792 Form Specifications (Part 2 of 2)

8. Feed holes should remain free of chads and crimps to avoid false form jam checks.
9. Recommended that no printing occurs within 0.50 in. (12,7 mm) of the horizontal perforation.
10. Sixteen-inch leaders for alignment of prenumbered documents are recommended. A narrow 3-in. (76,2-mm) long trailer (trailer not to ride over end-of-forms switch) is recommended on the last form of the form set to maintain registration on the last form.
11. When using dual-feed carriage, the maximum difference of form thickness between the left and right carriage cannot be more than 0.006 in. (0,15 mm).
12. Left tractor must be in the leftmost position when using maximum form width.

3289 Model 2, 3776, 4973 Model 2, 5320C, and Line Printer Feature (410 lpm Maximum) for 3791 Form Specifications (Part 1 of 2)



		Maximum	Minimum
A	Form Width	15 in. (381 mm)	3.5 in. (88,9 mm)
B	Form Length	14 in. (355,6 mm)	3 in. (76,2 mm)

C The maximum distance from the center line of the left margin hole and center line of print position No. 1 is 0.55 in. (13,9 mm) with the left tractor in the leftmost position.

A maximum of 0.50 in. (12,7 mm) if interchangeability with the 3715, 3771, 3773, 3774, or 5320 A Model printers is desired.

Forms With 0.50 in. (12,7 mm) Tear Strips

The minimum distance between the center line of a margin hole and the center line of the first or last available print position is 0.30 in. (7,6 mm). However, separation of the perforation may occur as the 0.30 in. (7,6 mm) dimension is approached. The maximum forms width for which this distance (margin hole to last print position) is obtainable is 14.375 in. (365,1 mm) with left tractor in the leftmost position.

Forms Without Tear Strips

The minimum distance between the center line of a margin hole and the center line of the first or last available print position is 0.15 in. (3,8 mm). The maximum forms width for which this distance (margin hole to last print position) is obtainable is 14.25 in. (362 mm) with left tractor in the leftmost position.

Notes:

1. Over 4-part forms should be tested to assure satisfactory feeding, print quality, and legibility. Modifications in forms fastening techniques, perforations, stiffness, or paper quality can often overcome forms processing difficulties.
2. Up to 6-part forms can be used; maximum thickness not to exceed 0.020 in. (0,51 mm). Ribbon smudging may occur as forms set approaches maximum thickness.
3. No hard or metallic fasteners are permitted.
4. Fastening multiple set forms on both edges is recommended. The crimping method of fastening is recommended; however, crimps should not be within 0.50 in. (12,7 mm) of the horizontal perforation. If crimp fastening is used, excessively stiff crimps, or crimps that project significantly above the body of the form may interfere with proper ribbon and/or form processing operation. If a glue fastening is required, the forms should be tested for acceptable feeding.
5. Feed holes should remain free of chads and crimps to avoid false form jam checks.
6. Paper colors vary in reflectivity and may reduce contrast to the feed holes. Forms with variations of color, or forms with gray or black backing near the feed strips, should not be used because false forms checks may occur. The backside of the left tear strip should be free of markings or printing to avoid false forms checks.
7. Recommended that no printing occurs within 0.50 in. (12,7 mm) of the horizontal perforation.
8. Sixteen-inch leaders for alignment of prenumbered documents are recommended. A narrow 3-in. (76,2 mm) long trailer (trailer not to ride over end-of-forms switch) is recommended on the last form of the form set to maintain registration on the last form.

For general forms design considerations, see pages 5 to 8.

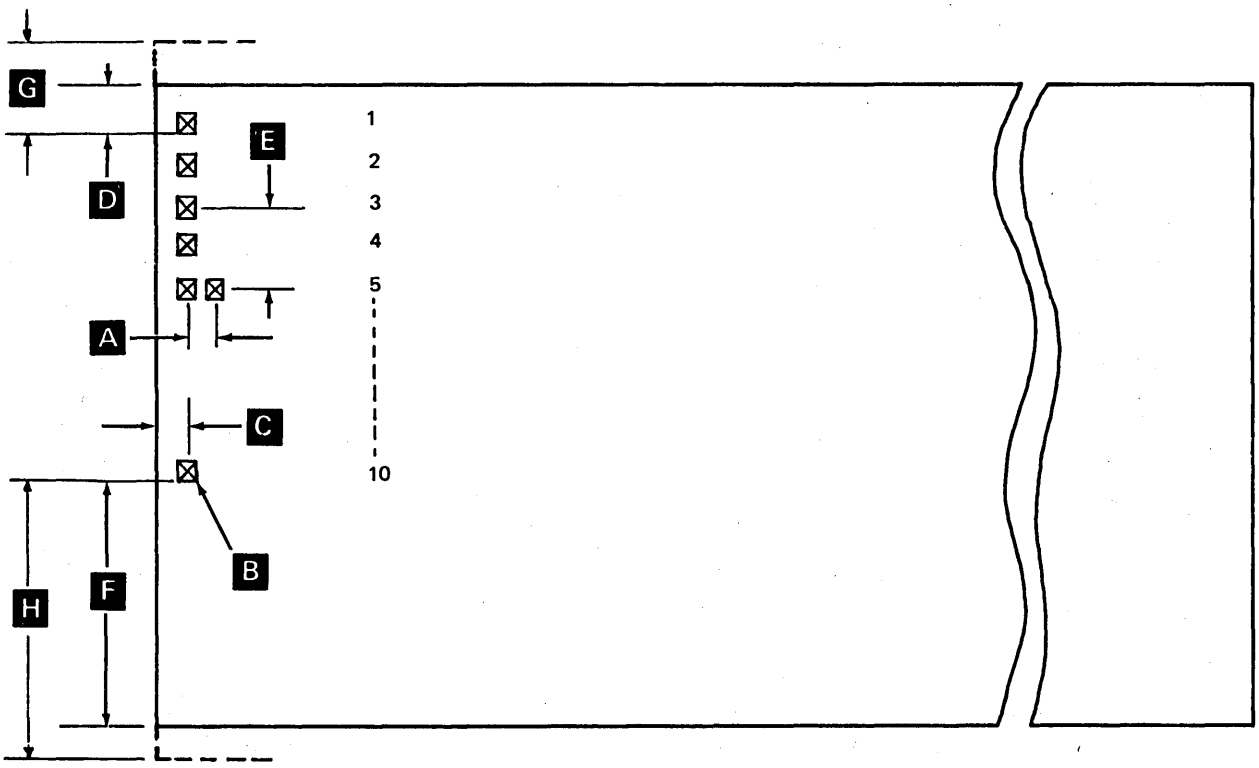
3289 Model 2, 3776, 4973 Model 2, 5320C, and Line Printer Feature (410 lpm Maximum) for 3791 Form Specifications (Part 2 of 2)

Card Stock

1. Continuous card stock forms are permitted. They should be tested to assure satisfactory feeding and smudge acceptability. Cut card stock is not permitted. Card stock should not exceed 0.009 in. (0,23 mm) thickness.
2. Overlapped glue joints are not permitted.
3. Cutouts not permitted from 2.75 to 3.25 in. (69,9 to 82,6 mm) from left edge of form with tractor in leftmost position. Cutouts in this area cause a false end-of-form.
4. Cut card stock is not permitted. Continuous card stock forms are generally not recommended. (See *IBM System/32 Membership and Mailing List System Design Objectives,* GH30-0010, or *Design Specifications,* GH30-0012 for card stock specifications approved for this Industry Application Program or other user applications with card stock requirements that meet such specifications.)

3608 Printing Financial Services Terminal Forms Specifications

Without OCR Feature (Part 1 of 2)



A Print pitch is 0.100 in. (2,54 mm) from vertical center line to vertical center line.

B 10-pitch characters are nominally 0.100 in. (2,54 mm) high and 0.067 in. (1,7 mm) wide.

C Location of vertical center line of first print position is determined by program control. Minimum distance from the left edge of the form is 0.100 in. (2,54 mm).

Note:

Documents inserted skewed will cause skewed printing or printing to run off the form.

3.25 in. (82,6 mm) Forms [See Appendix 32 for 3.5 in. (88,9 mm) forms]

D With 3.25 in. (82,6 mm) form height, the distance from the bottom of the first possible print line to the top of the form is 0.27 in. (6,8 mm).

E The print wheel positions are set at the factory as specified by the customer's order. No two adjacent positions may be specified. The minimum spacing between print lines is 0.40 in. (10,2 mm). The standard combinatons of print-line positions are:

1,4, and 10;
1,5, and 10;
1,3, and 6;
1,7, and 10 or
4,7, and 10

F With 3.25 in. (82,6 mm) form height, the distance from the bottom of the last print line to bottom edge of form without OCR feature is 1.181 in. (30 mm). Refer to the following chart for the nominal distance from the bottom edge of the form to a particular print line.

For general forms design considerations, see pages 5 to 8.

3608 Printing Financial Services Terminal Forms Specifications

Without OCR Feature (Part 2 of 2)

Print Line Positions	Distance From Bottom of Document to Bottom of Print Line	
1	2.981 in.	(75,72 mm)
2	2.781 in.	(70,64 mm)
3	2.581 in.	(65,56 mm)
4	2.381 in.	(60,48 mm)
5	2.181 in.	(55,40 mm)
6	1.981 in.	(50,32 mm)
7	1.781 in.	(45,24 mm)
8	1.581 in.	(40,16 mm)
9	1.381 in.	(35,08 mm)
10	1.181 in.	(30 mm)

3.5 in. (88,9 mm) Forms

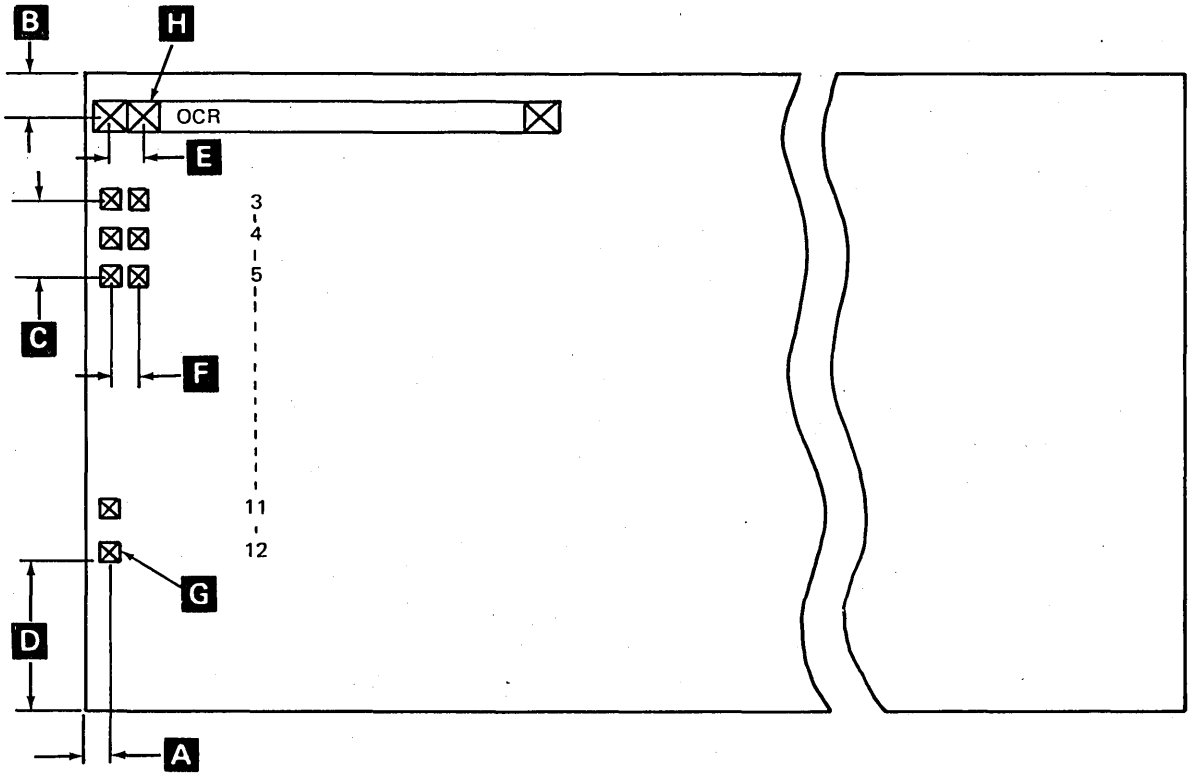
G With 3.50 in. (88,9 mm) form height, the distance from the bottom of the first possible print line to the top of the form is 0.394 in. (10.03 mm).

H With 3.50 in. (88,9 mm) form height, the distance from the bottom of the last print line to bottom edge of form (OCR feature not available) is 1.306 mm). The only print wheel positions available on the 3.50 in. document feature are 4, 7, and 10. Refer to chart below for nominal distance from the bottom edge of the form to a particular print line.

Print Line Positions	Distance From Bottom of Document to Bottom of Print Line	
4	2.506 in.	(63,65 mm)
7	1.906 in.	(48,41 mm)
10	1.306 in.	(33,17 mm)

3608 Printing Financial Services Terminal Forms Specifications

With OCR Feature (Part 1 of 2)



For general forms design considerations, see pages 5 to 8.

3608 Printing Financial Services Terminal Forms Specifications
With OCR Feature (Part 2 of 2)

A Location of vertical center line of first print position is determined by program control. Minimum distance from the left edge of the form is 0.100 in. (2,54 mm).

B With 3.25 in. (82,6 mm) form height, the distance from the horizontal center line of the OCR character to the top of the form is 0.219 in. (5,56 mm). Consider the print wheel positions if printing is done on forms less than 3.25 in. in height. If a document less than 3.25 in. in height is inserted skewed, the printing may be skewed or run off the form.

C The standard print line locations are OCR, 3, and 5. No two adjacent positions may be specified. The minimum spacing between print lines is 0.40 in. (10,2 mm). For example, the distance between positions 3 and 5 is 0.40 in. (10,2 mm).

D Distance from bottom of last print line to the bottom edge of form with OCR feature is 0.781 in. (19,84 mm). Refer to the chart shown below for the nominal distance from the bottom edge of the form to a particular print line.

Print Line Positions	Distance From Bottom of Document to Bottom of Print Line	
OCR	2.946 in.	(74,83 mm)
3	2.581 in.	(65,56 mm)
4	2.381 in.	(60,48 mm)
5	2.181 in.	(55,40 mm)
6	1.981 in.	(50,32 mm)
7	1.781 in.	(45,24 mm)
8	1.581 in.	(40,16 mm)
9	1.381 in.	(35,08 mm)
10	1.181 in.	(30 mm)
11	0.981 in.	(24,92 mm)
12	0.781 in.	(19,84 mm)

E Print pitch for OCR is 0.15 in. (3,8 mm) from vertical center line to vertical center line.

F Print pitch for lines 3 through 12 is 0.100 in. (2,54 mm) from vertical center line to vertical center line.

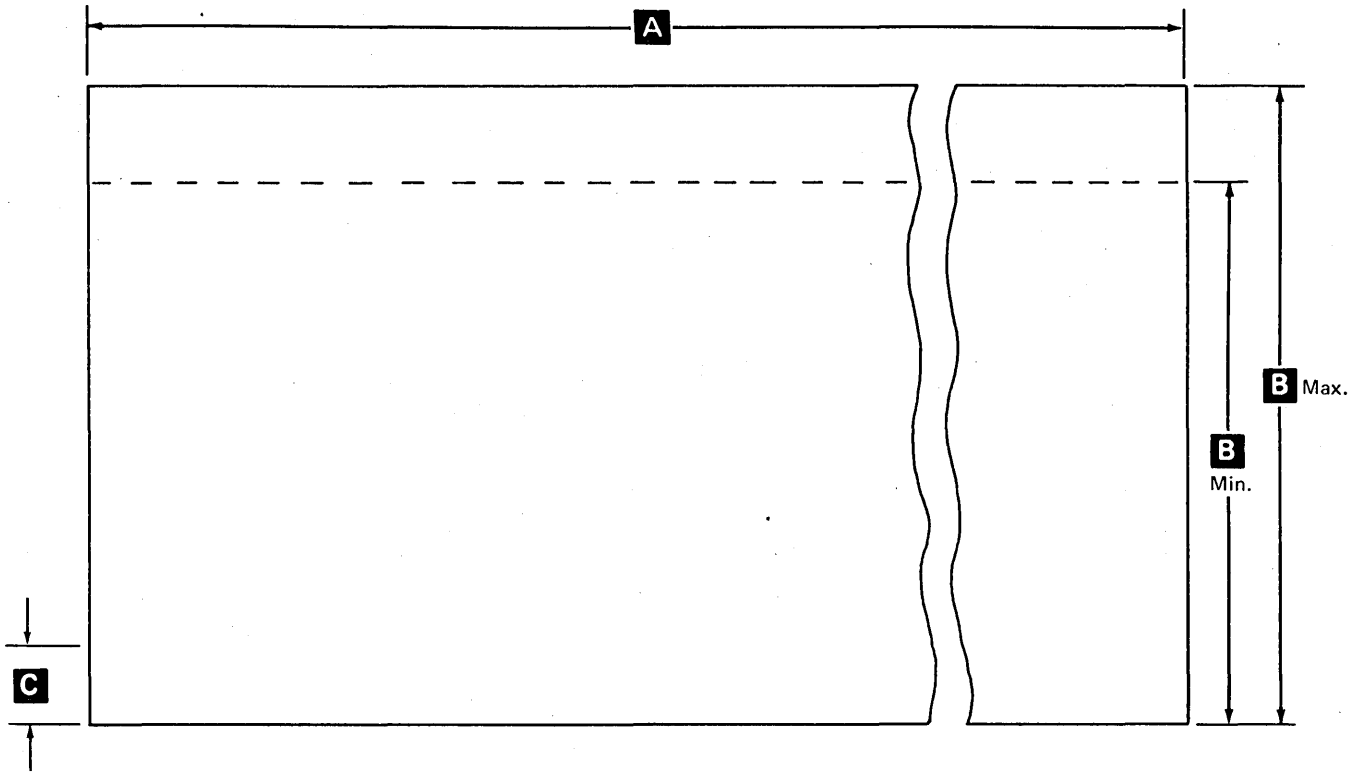
G 10-pitch characters are nominally 0.100 in. (2,54 mm) high and 0.067 in. (1,7 mm) wide.

H OCR-7B characters are nominally 0.170 in. (4,32 mm) high and 0.100 in. (2,54 mm) wide.

For general forms design considerations, see pages 5 to 8.

3608 Printing Financial Services Terminal Form Specifications

Single-Part Forms (Part 1 of 2)



For general forms design considerations, see pages 5 to 8.

3608 Printing Financial Services Terminal Form Specifications

Single-Part Forms (Part 2 of 2)

A Form Width

Documents 3.25 in. (82,6 mm) in height may range in width from 4.8 to 8.5 in. (122 to 216 mm).

Documents 2.75 in. (69,9 mm) or greater but less than 3.25 in. in height may range in width from 5.8 to 8.5 in. (148 to 216 mm).

	Maximum	Minimum
B Form Height	3.25 in. (82,6 mm)	2.75 in. (69,9 mm)

C Registration is controlled by the bottom 0.375 in. (9,53 mm) of the left edge of the document. The lower left corner of the document must be square for a minimum of 0.25 in. (6,4 mm) along the bottom edge. No discontinuities or cutouts should exist along the bottom edge from the first print column to the end of the document.

Document Color Specifications

For best print contrast, the background color for printing on single-part forms should conform to the following:

1. Natural, white, or pastel pink, blue, green, or yellow stock is acceptable.
2. Color should be uniform in the area to be printed.
3. Safety paper with small geometric patterns on a white or pastel background is acceptable if the pattern is pastel.
4. Patterns and background may be different shades of the same pastel.
5. Changes in color, pictures, halftone reproductions, and certain types of safety and bank note paper may result in unsatisfactory ink contrast.

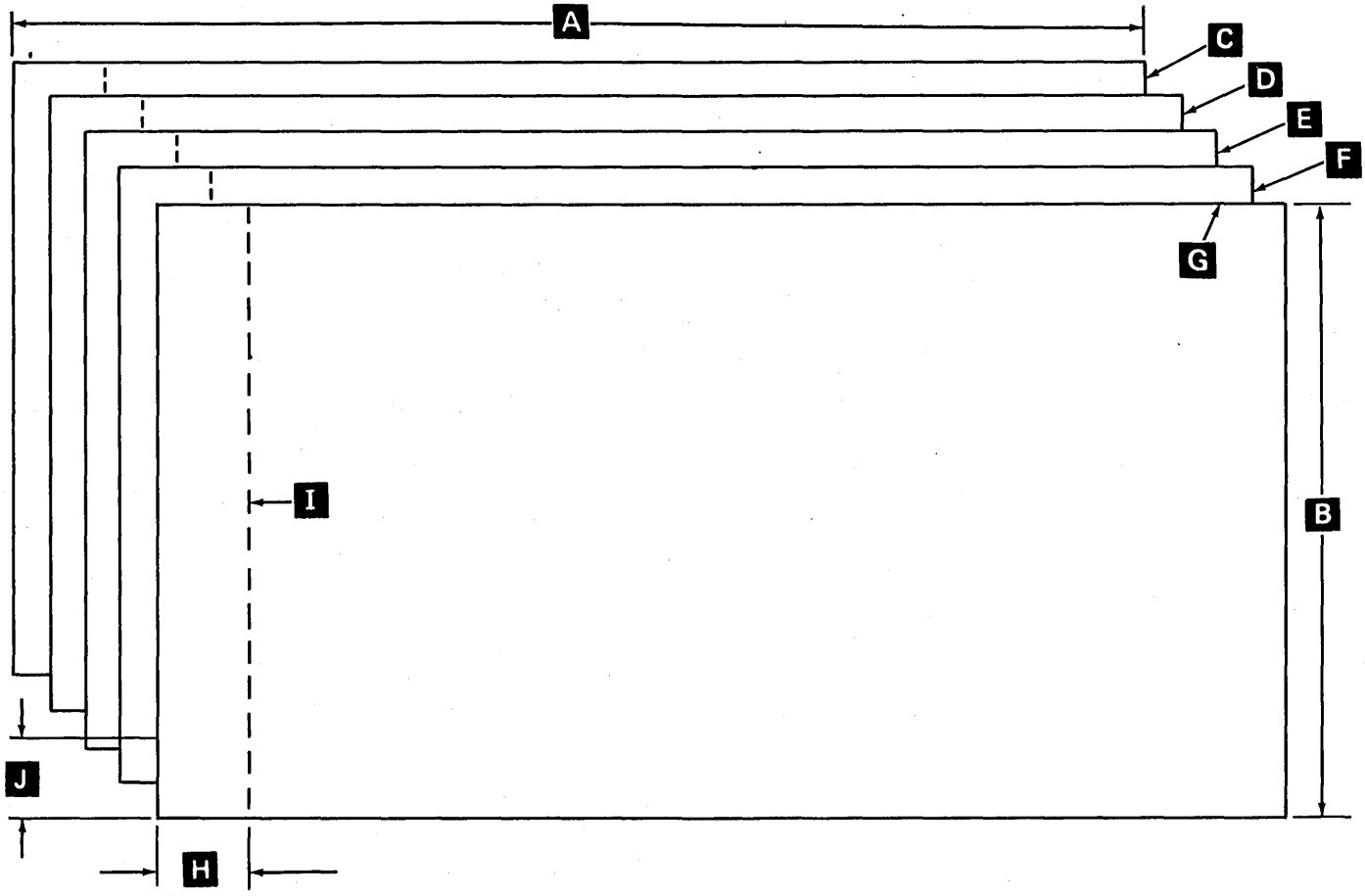
Notes:

1. Single-part form thickness should be at least 0.004 in. (0,10 mm) but not exceeding 0.011 in. (0,28 mm).
2. Form must be opaque to be sensed by the registration sensor.
3. Forms should be tested for satisfactory print quality first before ordering large quantities.
4. Hard fasteners must not be used. Paper clips, staples, etc. may damage the printer or cause irrecoverable paper jams.
5. Forms should not have any folds, tears, or mutilations. Mutilated forms must be straightened by the operator before being inserted into the printer.
6. Forms should not be preprinted with lines to designate areas to be printed in by the 3608.
7. Print quality is affected by the variance in card, paper stock, and environment (temperature and humidity). Therefore, the user should evaluate sample forms in his environment to determine if his performance criteria are met before ordering large quantities.

For general forms design considerations, see pages 5 to 8.

3608 Printing Financial Services Terminal Form Specifications

Multiple-Part Forms (Part 1 of 2)



For general forms design considerations, see pages 5 to 8.

3608 Printing Financial Services Terminal Form Specifications

Multiple-Part Forms (Part 2 of 2)

A	Form Width	4,8 to 8.5 in. (122 to 216 mm) including the glue strip. *Note:* All parts of the form should be the same width.
B	Form Height	3.25 in. (82,6 mm)
C	Last Copy	The 3608 is designed to enable optical reading of the OCR-7B characters on the last copy. This part should be 28-lb (105 g/m^2) white OCR bond paper or white 99-lb (161 g/m^2) OCR card stock. Natural colored card stock may be used but white card stock is preferred. A change in character reject and substitution rates may result from the use of other than white OCR stock.
D	OCR Carbon	If the OCR sheet is to be OCR-scanned, a medium-hard black scanning carbon is recommended. Low-temperature applications may require a softer carbon. (See Note 5.)
E	Middle Copy	10- to 12-lb (38 to 45 g/m^2) paper. If middle copy is a self-contained (ink-impregnated) carbonless paper, the first part should be likewise.
F	Front Carbon	If middle part is a self-contained (ink-impregnated) carbonless paper, no carbon paper is necessary. If first part of form is 11- to 13-lb (41 to 49 g/m^2) translucent paper, the front carbon must be double-faced.
G	First Copy	May be either 12-lb (45 g/m^2) self-contained (ink-impregnated) carbonless paper or 11- to 13-lb (41 to 49 g/m^2) translucent paper so that the carbon printing on the back may be read from the front. With a basic 10-pitch printer, 10- to 12-lb (38 to 45 g/m^2) plain paper may be used. To prevent smearing of characters on the first copy, paper quality should be such that the first copy remains flat without curling or waviness.
H	Glue Strip	Variations of the glue strip dimension affect horizontal registration of printing on detached portions of the form set. The glue strip must be on the left side of the form. The left edge must be tightly glued and remain flat to prevent foldback of forms as the form passes through the printer. Form jams and smearing may result if forms are processed which have wavy or curled glue strips.
	Form Thickness	0.008 to 0.017 in. (0,2 to 0,43 mm) including the glue strip.
I	Scoring	Forms should be constructed such that no material is removed from the scored area. Corner cuts on the detachable portions of the document are permissable. The scoring should be designed so that the form set does not delaminate during machine processing. Closely spaced perforations on the top copy are recommended to prevent smearing of the leading or left edge of the removable top copy.

J Horizontal print registration is controlled by the bottom 0.375 in. (9,53 mm) of the left edge of the document. The lower left corner of the document must be square for a minimum of 0.25 in. (6,4 mm) along the bottom edge. No discontinuities or cutouts should exist along the bottom edge from the first print column to the end of the document. (See Note 4.)

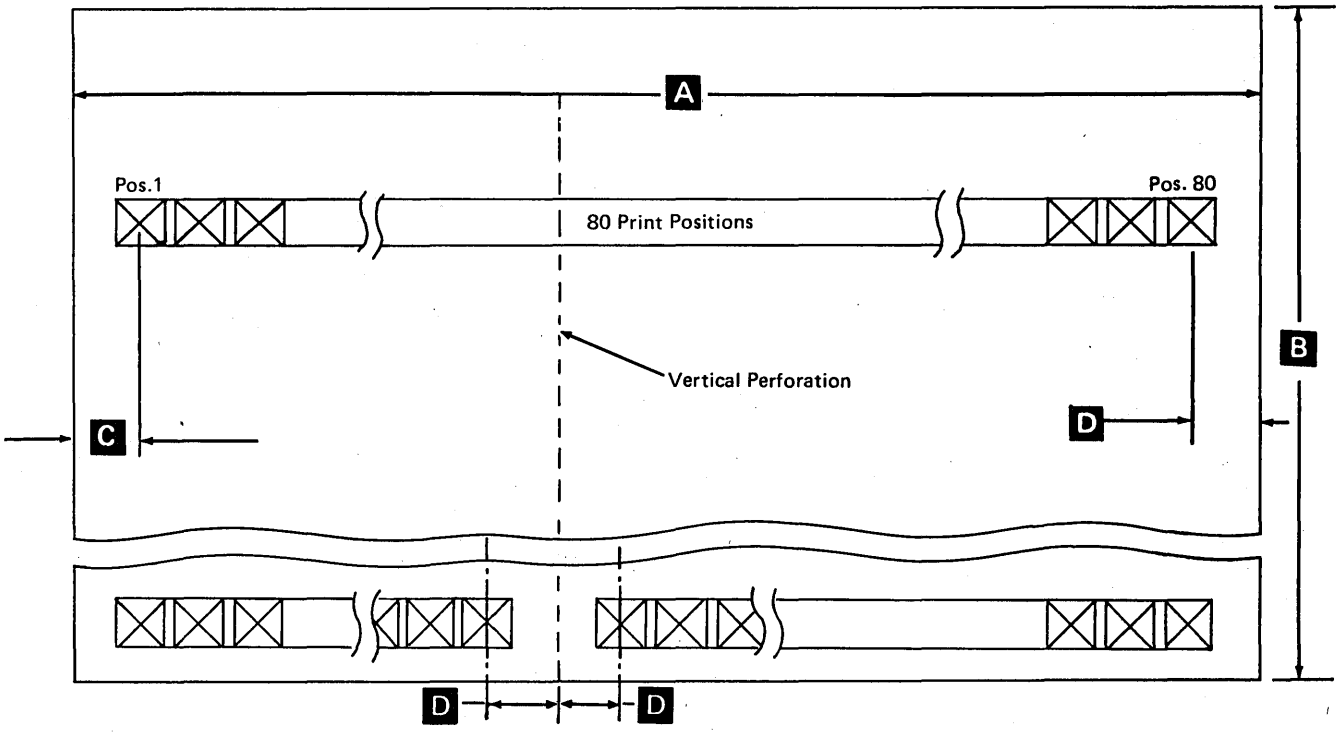
Notes:

1. OCR printing is recommended on 2- and 3-part forms only.
2. Hard fasteners must not be used. Paper clips, staples, etc. may damage the printer or cause irrecoverable paper jams.
3. Because of margin requirements, some OCR equipment cannot read the first or last OCR print position.
4. Lines preprinted on a form should have at least 0.20 in. (5,1 mm) clearance from the nominal edge of a character. Two character positions should be allowed between OCR 7B fields.
5. Print quality is affected by the variance in card, paper stock, carbon stock, and environment (temperature and humidity). Therefore, the user should evaluate sample forms in his environment to determine if his performance criteria are met before ordering large quantities.
6. Forms must be new and unprocessed by any other machine. The forms must not have any folds or mutilations.

For general forms design considerations, see pages 5 to 8.

3610, 3611, 3612 Form Specifications

3610 (Models 2, 4, 5, and 12) and 3612 (Models 2 and 12) Journal/Roll Forms



		Maximum	Minimum
A	Form Width	8.5 in. (215,9 mm) (Only width, Models 4 and 5)	4 in. (101,6 mm)
B	Journal/Roll Length:	Single-part forms approximately 100 ft (30,5 meters) Two-part forms approximately 50 ft (15,2 meters)	See Note 1.
C	Edge of journal/roll to first available print position	3610-2 and 12, 3612-2 and 12: 0.30 in. (7,6 mm) 3610-4 and 5: None	0.175 in. (4,4 mm) 0.175 in. (4,4 mm)

D Printing must not occur closer than 0.175 in. (4,4 mm) to a vertical perforation or from the right edge of the document. See Note 8.

Notes:

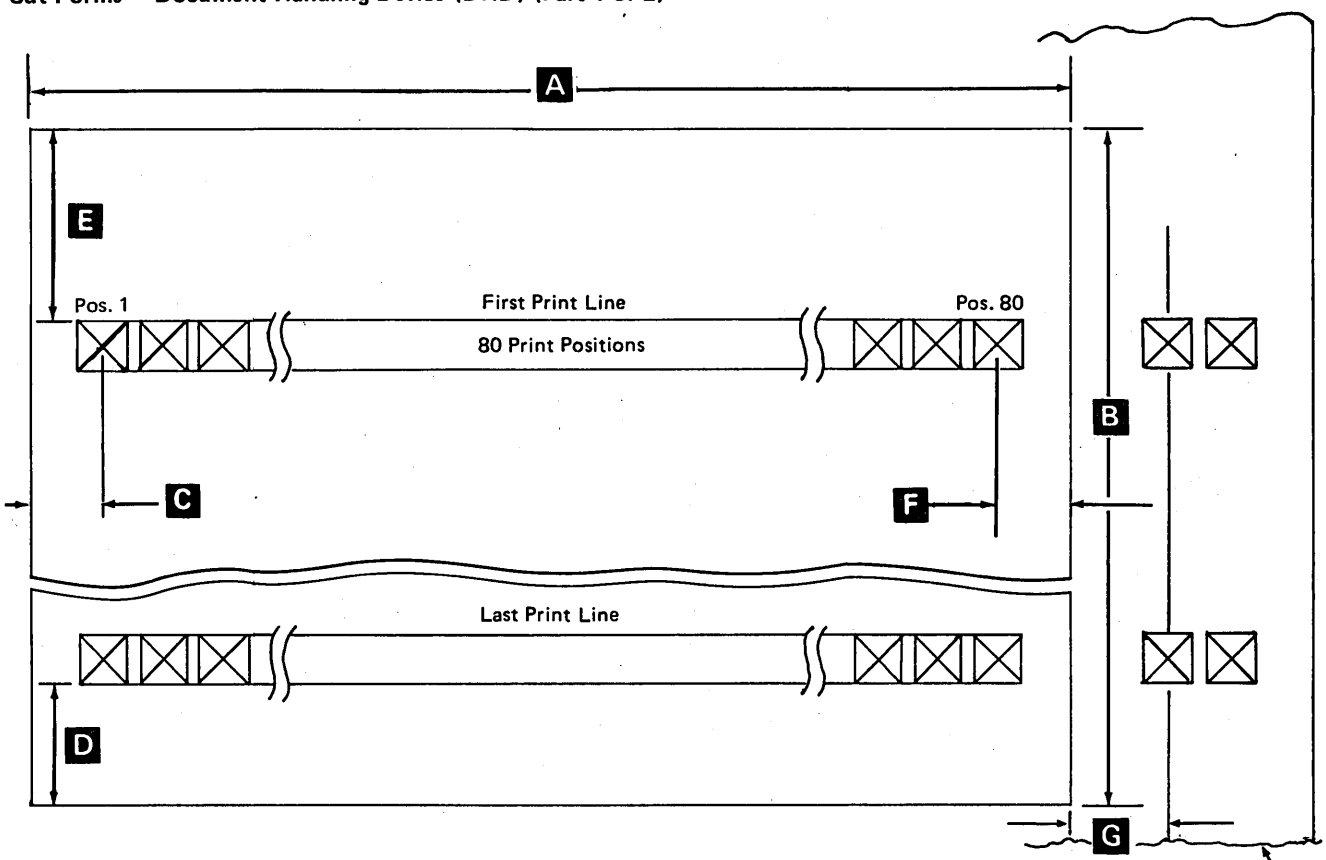
1. Maximum journal/roll diameter 2.4 in. (61 mm). [Maximum take-up roll capacity 100 ft (30,5 m) single part.] [Maximum take-up roll capacity, Models 4 and 5, 50 ft (15,2 m) single part, or one half of the journal roll.]
2. Journal/roll forms: One- or two-part 10 through 12-lb (38 through 45 g/m^2) self-contained (ink-impregnated) carbonless paper.
3. Bond paper should not be used for journal/roll purposes.
4. Preprinted journal/roll forms are not recommended.
5. Journal/roll forms are overprinted in red to indicate the last 3 to 4 ft (914,4 to 1219,2 mm).
6. Passbook printing is not permitted in the journal/roll form printers.
7. A minimum clear margin of 0.125 in. (3,18 mm) is required between the edges of the journal and first and last print position.
8. Vertically perforated journals are not to be separated in the printer (one part exiting, the other on take-up).
9. All forms should be tested to ensure acceptable printer processing and print quality.
10. When printing beyond the right edge of a cut form and onto a journal, printing on the journal must not occur closer than:
    0.175 in (4,4 mm) with a new "Type 2" print wheel [0.125 in. (3,18 mm) minimum clear margin], or
    0.55 in. (13,9 mm) with a "Type 1" print wheel [0.50 in. (12,7 mm) minimum clear margin].

Note: The new "Type 2" print wheels will have a metal disk with radial tear drop slots approximately 0.25 in. (6,35 mm) wide.

For general forms design considerations, see pages 5 to 8.

3610 and 3612 (All Models)

Cut Forms – Document Handling Device (DHD) (Part 1 of 2)



A Form Width

3610 Models 4 and 5	4 to 9.25 in. (101,6 to 235 mm)	
3610 and 3612 Models 1, 2, and 12	4 to 9.25 in. (101,6 to 235 mm)	
3610 and 3612 Models 3 and 13	4 to 8.5 in. (101,6 to 215,9 mm)	

B Height Minimum

2.7 in. (68,6 mm)
(See Note 12.)

C *Edge of document to print position 1—range of adjustment from 0.125 in. (3,18 mm) to 1 in. (25,4 mm). Models 4 and 5 fixed at 0.125 in. (3,18 mm) minimum.

D **Distance from the bottom of the document to the bottom of the last print line:

	3610 and 3612-2 and 3	3610-4 and 5
Single-line print (using document stop), between	***0.70 to 0.83 in. (17,8 to 21,1 mm)	***0.76 to 0.89 in. (19,3 to 22,6 mm)
Multiline print	0.31 in. (7,9 mm) minimum	0.31 in. (7,9 mm) minimum

E ****Multiline Printing

Distance from top of document to top of first print line:

3610 and 3612-2 and 3	3610-4 and 5
0.86 to 1.04 in. (21,8 to 26,4 mm)	0.72 to 0.90 in. (18,3 to 22,9 mm)

(Refer to Note 14.)

F *Printing must not occur closer than 0.175 in. (4,4 mm) from the right edge of the document.

*See Note 10.
**See Note 12.
***See Note 15.
****See Note 1d.

G Printing beyond the right vertical edge of a cut form and onto a journal or continuous forms must not occur closer than:
0.175 in. (4,4 mm) with a new "Type 2" print wheel [0.125 in. (3,18 mm) minimum clear margin], or
0.55 in. (13,9 mm) with a "Type 1" print wheel [0.50 in. (12,7 mm) minimum clear margin].

Note: The new "Type 2" print wheels will have a metal disk with radial tear drop slots approximately 0.25 in (6,35 mm) wide.

For general forms design considerations, see pages 5 to 8.

3610 and 3612 (All Models)

Cut Forms — Document Handling Device (DHD) (Part 2 of 2)

Notes:

1. Cut forms can be used individually or in conjunction with journal/roll or continuous forms:
   a. Single-part forms: 12-lb (45 g/m^2) bond to 99-lb (161 g/m^2) tab card stock.
   b. Maximum thickness must not exceed 4 parts or, when used with journal or continuous forms, the total combined thickness must not exceed 0.017 in. (0,43 mm). Card stock, if used, must be the last copy.
   c. When used with continuous sheet forms, a carbon behind the cut form is necessary if the printout is required on the first sheet of the continuous form.
   d. Single or multipart cut forms continuously joined and horizontally perforated for individual tear-off are not to be processed if folded on the perforations or elsewhere.
2. Stepped or shingled edges are not recommended.
3. Indexing of adhesive fastened forms, with left or right edges glued, is 2.5 in. (63,5 mm) maximum (15 lines at 6 lines/in.).
4. No printing can be within 0.19 in. (4,8 mm) of any glued area or horizontal perforation.
5. Bottom edge gluing is not recommended.
6. Spot carbon is not recommended.
7. Do not process any type of folded forms, or print on or across punched holes, other holes, edges, cutouts, or perforations.
8. Metal fastened or stapled forms are not permitted.
9. Models 3 and 13 of the 3610 and 3612 must be indexed so that the horizontal perforation on the continuous form is at least 0.75 in. (19,1 mm) from the print line when using cut and continuous forms together. (Lesser distances may not allow easy insertion of the cut form.)
10. When using cut forms on Models 3 and 13 of the 3610 and 3612, the edges of the cut form must not touch the pins, and the printing must not be closer to the center line of the pins than 0.55 in. (13,9 mm).
11. All forms should be tested to ensure acceptable printer processing and print quality.
12. The maximum distance the bottom edge of a print line can be to the bottom edge of a form is 11 in. (279,4 mm).
13. For Models 4 and 5, the distance is 9.625 in. (244,48 mm). When designing preprinted cut forms that include boxes or windows for printing additional data, the windows should be made large enough (two line spaces minimum) to accommodate variations in line space registration. Spacing variations generally are cumulative. The amount depends mainly on form length and number of copies.

    Variations from exact spacing that can be expected are:

1- and 2-Part Forms	1 Line Space in 11 in. (279 mm)
3-Part Forms	1 Line Space in 9 in. (229 mm)
4-Part Forms	1 Line Space in 6 in. (152 mm)

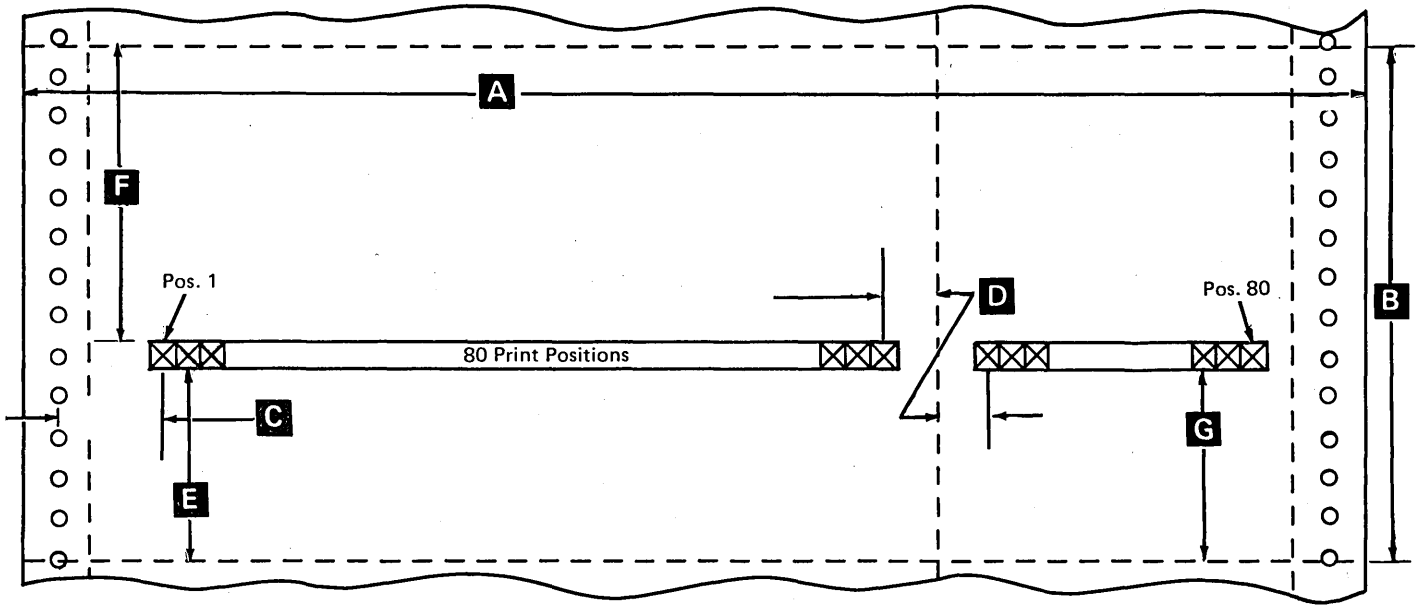
14. If the top of the form is not used as the reference point, printing *tick* or *orientation* marks is recommended. The tick mark on the edge of the form is used to reference the print line to the horizontal indicating device on the access cover. Printing occurs between 1.27 in. (32,3 mm) and 1.33 in. (33,8 mm) from the top of the form or the tick mark to the top of the first print line. Provide suitable finger holding space above the tick or orientation marks for ease of form insertion and alignment.
15. Maximum number of lines printed below minimum dimension **D** are:

3610-2 and 3	5 lines per inch—one line	3610-4 and 5	5 lines per inch—2 lines
3612-2 and 3	6 lines per inch—two lines		6 lines per inch—2 lines

For general forms design considerations, see pages 5 to 8.

3610 (Models 3 and 13) and 3612 (Models 3 and 13)

Continuous Forms (Single- or Multiple-Part Forms)



A	Form Width	9.5 in. (241,3 mm)
B	Maximum Length (between tear-off perforations)	14 in. (335,6 mm)
C	Printing must not be closer to the center line of the platen pins than	0.55 in. (13,9 mm)
D	Minimum distance from any print position to any vertical perforation	0.175 in. (4,4 mm)
E	Minimum distance from glued area or horizontal perforation to last print line	0.19 in. (4,8 mm)
F	Minimum distance from horizontal perforation to the first print line	0.75 in. (19,1 mm)
G	Print position distance from bottom of last print line to bottom edge of last form	0.31 in. (7,9 mm) minimum

Notes:

1. Maximum multiple copy 4 parts
   Maximum total thickness .017 in. (0,43 mm)
2. Recommended Paper Weights:
   Multiple-Part — 12-lb (45 g/m^2) paper; 9-lb (34 g/m^2) carbon maximum.
   Single-Part — 15-20-lb (56-75 g/m^2) paper.
3. Metal fasteners or staples are not permitted.
4. Continuous card stock not permitted.
5. Partial forms separation (torn perforations) is not permitted.
6. All forms should be tested to ensure acceptable printer processing and print quality.
7. When printing beyond the right edge of a cut form onto a continuous form, printing on a continuous form must not occur closer than:
   0.175 in. (4,4 mm) with new "Type 2" print wheel [0.125 in. (3,18 mm) minimum clear margin], or
   0.55 in. (13,9 mm) with a "Type 1" print wheel [0.50 in. (12,7 mm) minimum clear margin].
   Note: The new "Type 2" print wheels will have a metal disk with radial tear drop slots approximately 0.25 in. (6,35 mm) wide.

For general forms design considerations, see pages 5 to 8.

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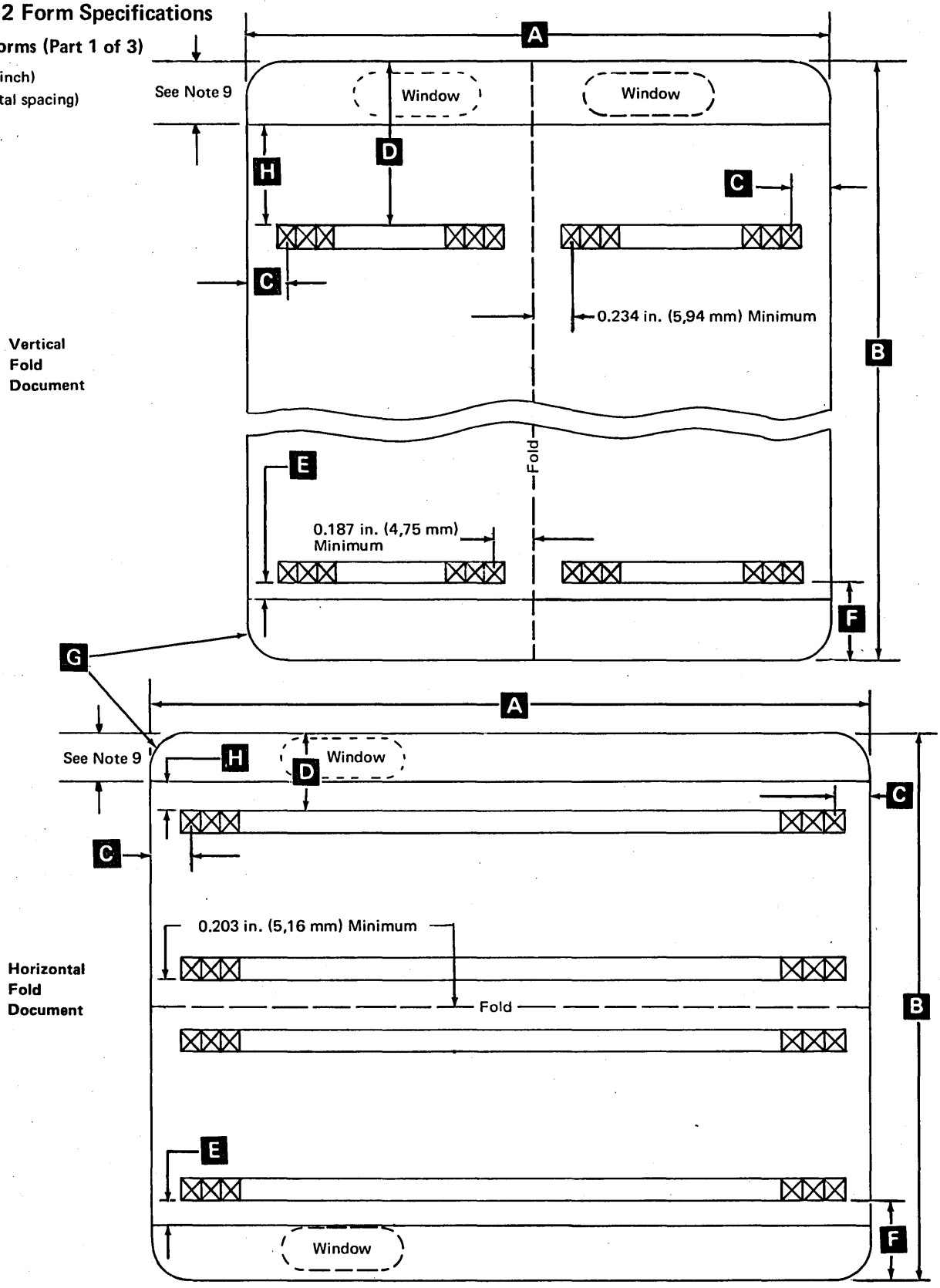
3611, 3612 Form Specifications

Passbook Forms (Part 1 of 3)

(12 char/inch)
(Horizontal spacing)



For general forms design considerations, see pages 5 to 8.

3611, 3612 Form Specifications

Passbook Forms (Part 2 of 3)

		Maximum	Minimum
A	Form Width * ** *** † (See Note 18.)	8.7 in. (221 mm)	4 in. (101,6 mm)
B	Form Length *	8.25 in. (209,6 mm)	4.75 in. (120,7 mm)

C Printing must not occur within 0.156 in. (4,0 mm) from either edge of the page.

D Minimum distance between the top edge of the cover and/or page and the top of the first print line:
0.53 in. (13,5 mm) with standard internal stop
0.83 in. (12,1 mm) with optional internal stop (FC-9650). (See Note 9.)

E Minimum distance between bottom of the last print line to the bottom of a short page, or to the top edge of a cutout, notch, window, etc. is 0.125 in. (3,18 mm). Refer to dimension F .

F Minimum distance between bottom of the last print line to the bottom edge of *cover* when internal pages are the same size as the cover is 0.50 in. (12,7 mm).

G Rounded outer corners are recommended, from 0.125 to 0.375 in. (3,18 to 9,53 mm), not to exceed 0.50 in. (12,7 mm) radius. (Rounded corners not permitted at the centerfold.)

H Minimum distance between the top of the first print line to the top edge of a short page, or to the bottom edge of a cutout, notch, window, etc. is 0.17 in. (4,3 mm).

* Manufacturing tolerance on any specific passbook length and width shall not exceed, in the folded form, ±0.015 in. (0,38 mm) across the folded dimension and ±0.0075 in. (0,191 mm) across the sheared dimension. All sheared edges must be straight within 0.005 in. (0,13 mm) and square and parallel to each other within 0.005 in. (0,13 mm).

** Magnetic label requires: A 4.1 in. (104,1 mm) minimum width horizontal fold passbook. Cover thickness between 0.007 in. (0,18 mm) and 0.040 in. (1,02 mm). Corner radii not to exceed 0.375 in. (9,53 mm) and the cover should be smooth and the material compatible with the stripe adhesive.

*** Process one and only one width passbook per 3611-1 or 3612 Passbook Printer. Do not interchange horizontal and vertical fold passbooks in the same printer.

† The 3611-2 handles multiwidth horizontal fold passbooks. Do not interchange horizontal and vertical fold passbooks in the same printer. With this printer, the lefthand guide can be set to process maximum width cut forms. See Note 18 and 3611, 3612 Passbook Specifications (Part 2 of 3). Dimension A 2.

Notes:

	Maximum	Minimum
1. Form Thickness — Vertical book (open for printing)	0.062 in. (1,58 mm) (1 cover and all pages)	0.011 in. (0,28 mm) (1 cover and 1 page)
Horizontal book (open for printing)	0.050 in. (1,27 mm) (1 cover and all pages)	0.011 in. (0,28 mm) (1 cover and 1 page)

2. Page quality — 20- to 32-lb (75 to 120 g/m^2), calendar finish on both sides, white or light color (recommended for maximum contrast).
3. Narrow pages are permissible on vertical or horizontal passbooks. A minimum clear margin of 0.125 in. (3,18 mm) is required at page edges.
4. Metal fasteners, staples or clips, paste-ons, savings stamps, stamps, labels, "stick-ons" of any type, patches, repairs and/or fixes are not permitted on or to the passbook pages, covers, or any form. Refer to Note 10.
5. The cover must be durable so that it does not warp easily and must be the approximate stiffness and hardness of tab card stock (Taber V5-No. 8 minimum). See **
6. Windows or cutouts in the cover must not degrade the leading edge rigidity of the passbook cover.
7. No notches are allowed on sides or top edge of the covers.
8. No printing on holes, edges, cutouts, or folds is permitted because damage to the print wheel may result.
9. Maximum passbook insertion stop (FC-9650): If the top edges of cut-back inside pages or the bottom edge of notches, holes, and cutouts are between 0.36 in. (9,1 to 16,8 mm) from the top edge of the cover, the passbook insertion stop will be set at the maximum position and the first line of print will be a minimum distance of 0.83 in. (12,1 mm) from the top of the cover. Refer to dimensions D and H
10. The covers must be of uniform thickness under the printing area. For example, address labels, heavy embossing, or windows under the print area may cause print wheel damage and/or degradation of print quality. A magnetic stripe or label, up to 0.005 in. (0,13 mm) thick, may be attached to the outside cover.
11. Warped, folded, or creased passbooks must be flattened before using, or be replaced.
12. The fold of all pages and the stitching must coincide with the cover fold.
13. Ledger cards or "No Passbook" transaction forms, if used in the 3611-1 or 3612, must be the same width and length as passbook used. Minimum thickness—0.007 in. (0,18 mm). Ledger cards or "No Passbook" transaction forms, if used in the 3611-2, must be the same length as passbooks used. Minimum thickness—0.004 in. (0,1 mm).
14. Passbooks should be tested to ensure acceptable printer processing and satisfactory print quality before ordering large quantities.
15. Printing may not be performed on covers.
16. Passbook line indexing (by program control) 5 or 6 lines per inch.
17. 100 print positions (maximum) at 12 characters/inch.

For general forms design considerations, see pages 5 to 8.

3611, 3612 Form Specifications

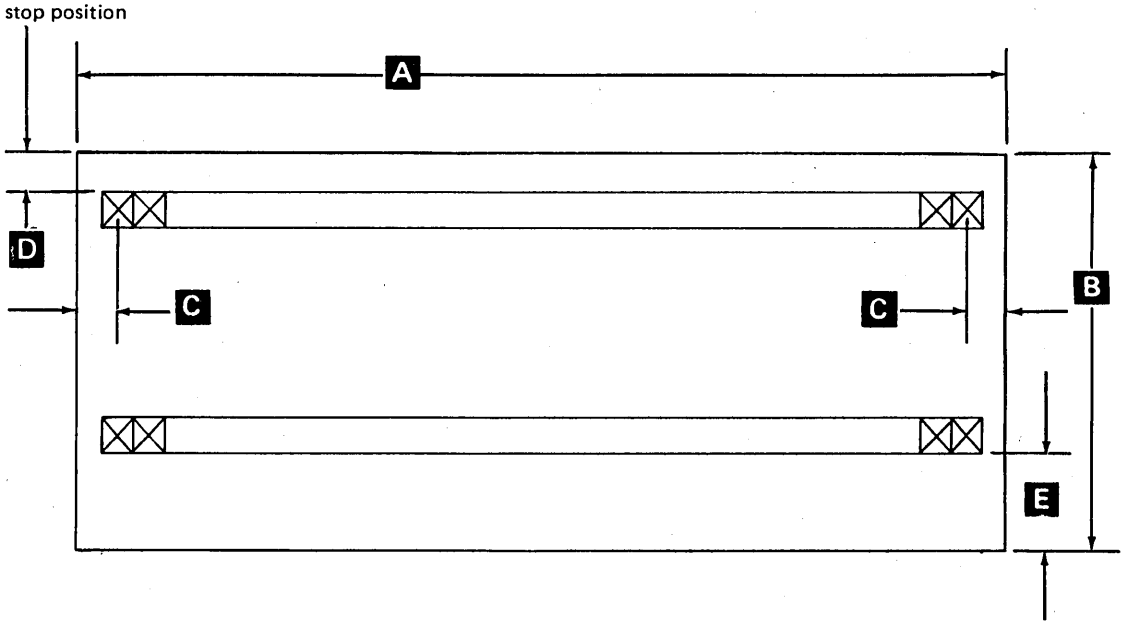
Passbook Forms (Part 3 of 3)

18. 3611-2 horizontal fold passbooks only: The left passbook guide can be repositioned to the left of the chute to permit insertion of up to 8.7 in. (221 mm) wide cut forms. When passbooks are not centered, indexing at five lines per inch is recommended. Also, slightly degraded print quality and skewed print lines may occur. Recommend that application be tested to ensure satisfaction. See 3611, 3612 Passbook Specifications (Part 2 of 3), Dimension A 2.

For general forms design considerations, see pages 5 to 8.

3611 Model 1 and 3612 Passbook — Form Specifications

Pad Forms or Single Card Stock



		Maximum	Minimum
A	Form Width	8.7 in. (221 mm)	4 in. (101,6 mm)
	Width for stiffener (backing) and all pages and/or card stock must be the same size as the passbook for which the machine is set.		
B	Form Length	8.25 in. (209,6 mm)	4.75 in. (120,7 mm) (For the detached form)

C Printing must not occur within 0.156 in. (4,0 mm) from either edge of the form.

D Minimum distance between the top edge of the pad and the top of the first print line:

Minimum set passbook insertion stop — 0.53 in. (13,5 mm)
Maximum set passbook insertion stop — 0.83 in. (21,1 mm)

E Minimum distance between bottom of the last print line to the bottom of the pad is 0.50 in. (12,7 mm).

Notes:

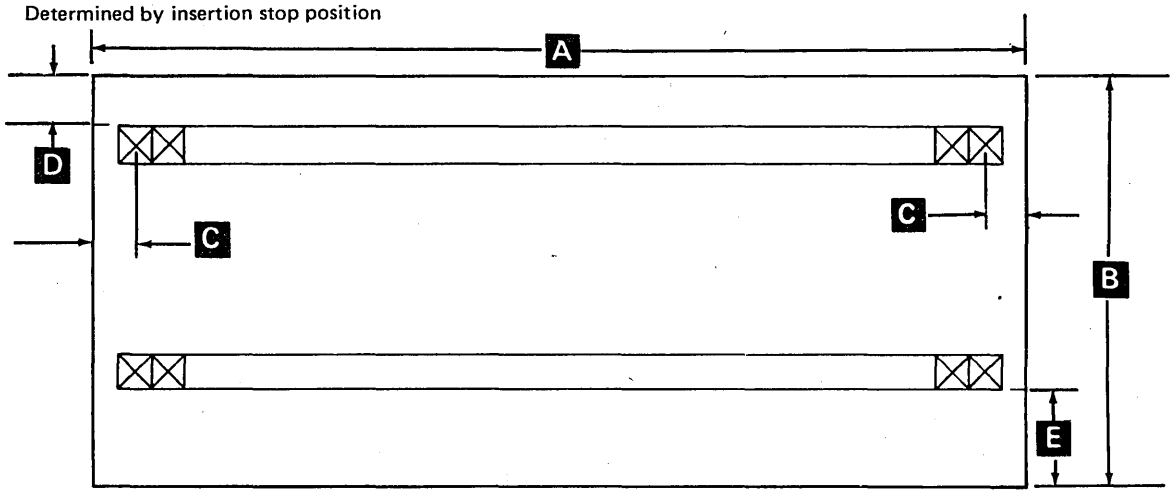
1. a. Form thickness (pad) is 0.062 in. (1,58 mm) (full pad with stiffener) maximum and 0.011 in. (0,28 mm) (last page with stiffener) minimum.
   b. Form thickness (card stock) is 0.011 in. (0,28 mm) maximum and 0.007 in. (0,18 mm) minimum.
2. Fastening must be on the bottom edge only. Unfastened edge enters the machines first.
3. Staples and other metallic or hard fasteners are NOT permitted.
4. Printing should not be done on the stiffener or backing.
5. Warped, folded, or creased pads must be flattened before being used.
6. Pad line indexing is the same as for the passbook. See 3611, 3612 Passbook Forms Specifications (Part 1 of 3).
7. The stiffener must approximate the stiffness and hardness of tab card stock: 99-lb (179 g/m^2), Taber V5-No. 8 minimum.
8. Carbon or self-contained carbonless (ink-impregnated) paper is not permitted.
9. The pad should be tested to ensure satisfactory print quality before ordering large quantities.
10. Forms are to be in pad form for tearing off after printing.
11. 100 print positions (maximum) at 12 characters/inch.

For general forms design considerations, see pages 5 to 8.

3611 Model 2 Form Specifications

Cut Forms

Determined by insertion stop position



Form Width Using:

		Maximum	Minimum
A	1. Vertical fold passbooks	One half the width of the passbook for which the machine is set plus a constant of 4.35 in. (110,5 mm). (See Note 12.)	One half the width of the passbook for which the machine is set.
	2. Horizontal fold passbooks	Centering on the platen is recommended. However, the left guide can be positioned to satisfy cut forms wider than one-half the passbook width plus 4.35 in. (110,5 mm). Recommend application be tested to ensure satisfaction. See Note 14 on this page, and Note † and Note 18 on 3611, 3612 Passbook Form Specifications (Part 2 of 3).	(Minimum same as above)
B	Form Length	8.25 in. (209,6 mm)	2.75 in. (69,9 mm) with standard internal stop. 3 in. (76,2 mm) with optional internal stop. (FC-9650)

C Printing must not occur within 0.156 in. (4,0 mm) from either edge.

D Minimum distance between the top edge of the cut form and the top of the first print line is:
0.53 in. (13,5 mm) with standard internal stop
0.83 in. (21,1 mm) with optional internal stop

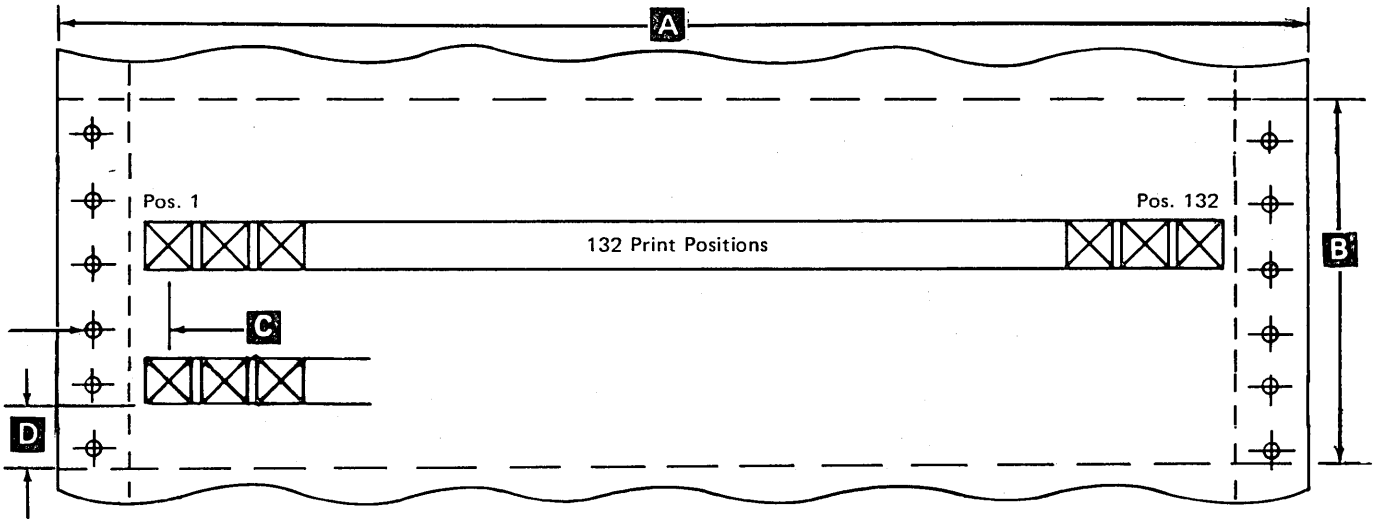
E Minimum distance between bottom of the last print line to the bottom of the form is 0.50 in. (12,7 mm).

Notes:

1. For maximum legibility of carbon copies, paper weight should not exceed 12 lb (45 g/m^2).
2. Form thickness is 0.017 in. (0,43 mm) maximum, 0.004 in. (0,10 mm) minimum, 1 to 4 parts (original plus 3 copies). Card stock and thin [0.004 to 0.005 in. (0,1 to 0,13 mm)], paper are not recommended for applications which require multiple insertions. Card stock [0.007 in. (0,18 mm)], if used, must be the last copy in the forms set.
3. Forms may be fastened (glued) at the top, right or left edges, or both. Metal fastened or stapled forms are NOT permitted.
4. Shingled or stepped top or bottom page edges are not permitted.
5. Forms must have a well defined top edge.
6. Top fastened forms must not have any perforations more than 0.31 in. (7,9 mm) from the top of the form.
7. Bottom edge fastening is not permitted.
8. Holes or perforations are not permitted anywhere in the printing area.
9. Cut forms line indexing is the same as for the passbook. See 3611, 3612 Passbook Form Specifications (Part 2 of 3).
10. On thin multipart forms, some carbon marking or smudging may occur because of the clamping mechanism. Form sets using pressure-sensitive or spot carbon paper are not recommended.
11. All forms should be tested before ordering large quantities to ensure satisfactory print quality and paper feeding.
12. Forms designed slightly larger than the maximum width may result in unacceptable feeding and skewed print lines.
13. 100 print positions (maximum) at 12 characters/inch.
14. Indexing at five lines per inch is recommended for good registration. Slightly degraded print quality and skewed print lines may occur with passbooks not centered. See 3611, 3612 Passbook Form Specifications (Part 2 of 3), Note † and Note 18.

For general forms design considerations, see pages 5 to 8.

3715, 3767, 3771, 3773, 3774, 4974, 5103, 5256, 5320 A Models Form Specifications



		Continuous Forms		Cut Forms	
		Maximum	Minimum	Maximum	Minimum
A	Form Width	15 in. (381 mm)	3 in. (76,2 mm)	14.5 in. (368,3 mm)	6 in. (152,4 mm)
B	Form Length	14 in. (355,6 mm)	3 in. (76,2 mm)	14 in. (355,6 mm)	3 in. (76,2 mm)

C First print position 0.55 in. (13,9 mm) maximum, 0.30 in. (7,6 mm) minimum. The minimum distance for 15 in. (381 mm) forms is 0.425 in. (10,8 mm). A minimum of 0.375 in. (9,53 mm) if interchangeability with the 3717, 3775, 3784, or 5320 B Model is desired.

For cut forms, the nominal distance from the left edge of the form to the center of the first print position is 0.25 in. (6,4 mm).

Except for the horizontal dimensions to the first print position specified above, no printing should occur within 0.50 in. (12,7 mm) of any edge, perforation, or fold of forms.

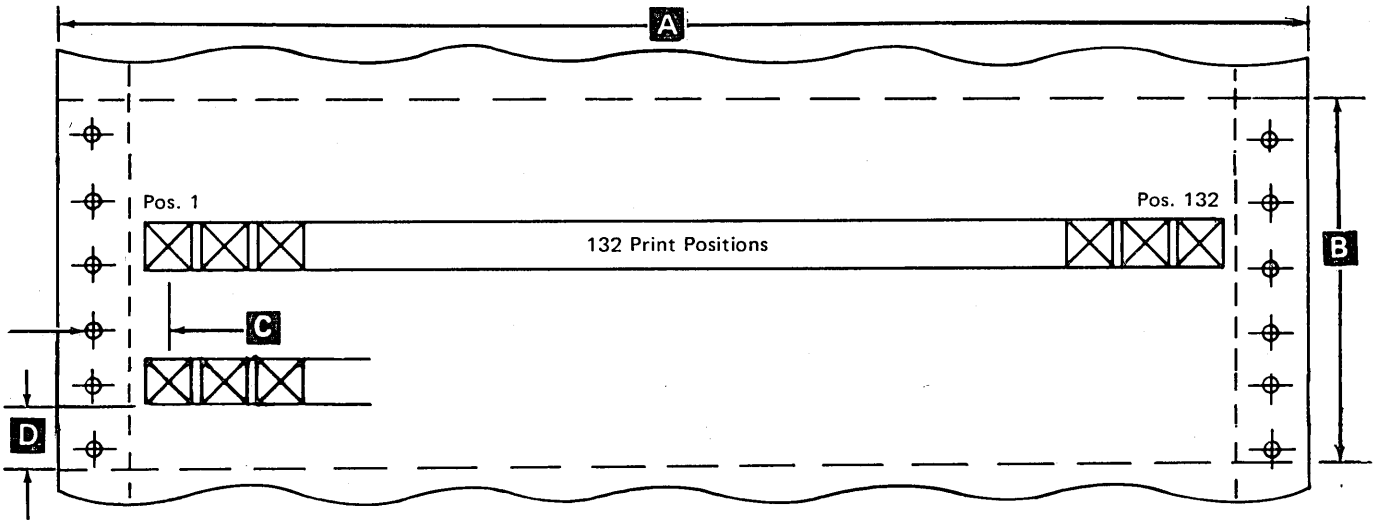
D For cut forms, the minimum distance from the bottom of the last print line to the bottom of the form is 0.50 in. (12,7 mm).

Notes:

1. Continuous card stock forms are generally not recommended. (For the 5256 and 5320 A only, see *IBM System/32 Membership and Mailing List System Design Objectives,* GH30-0010, or *Design Specifications,* GH30-0012 for card stock specifications approved for this Industry Application Program or other user applications with card stock requirements that meet such specifications.)
2. Staples are not permitted.
3. Multiple-part cut forms (form sets) must be glued together at the top.
4. Partial forms separation is not permitted.
5. Crimped multiple-part cut forms are not recommended because they tend to separate when wrapped around the platen.
6. Carbon or self-contained carbonless (ink-impregnated) forms are recommended for multiple-part continuous forms.
7. Using the forms tractor is recommended for feeding all edge-punched continuous forms.
8. Continuous single-part forms can be fed through the pressure-feed machanism if the feeding paths are clear and the forms are kept straight. However, forms that are not kept straight will require periodic operator adjustment of the forms.
9. The maximum multiple-part forms thickness is 0.018 in. (0,46 mm). The maximum single-part forms thickness is 0.0075 in. (0,19 mm).
10. The print head should not be required to travel beyond the edges of the form or across any punched holes in the form.
11. Up to six-part continuous part forms may be used; however, for optimum feeding and stacking, a maximum of four parts is recommended. Five-or six-part forms should be tested by the customer for satisfactory feeding, registration, and print quality.

For general forms design considerations, see pages 5 to 8.

3715, 3767, 3771, 3773, 3774, 4974, 5103, 5256, 5320 A Models Form Specifications



		Continuous Forms		Cut Forms	
		Maximum	Minimum	Maximum	Minimum
A	Form Width	15 in. (381 mm)	3 in. (76,2 mm)	14.5 in. (368,3 mm)	6 in. (152,4 mm)
B	Form Length	14 in. (355,6 mm)	3 in. (76,2 mm)	14 in. (355,6 mm)	3 in. (76,2 mm)

C First print position 0.55 in. (13,9 mm) maximum, 0.30 in. (7,6 mm) minimum. The minimum distance for 15 in. (381 mm) forms is 0.425 in. (10,8 mm). A minimum of 0.375 in. (9,53 mm) if interchangeability with the 3717, 3775, 3784, or 5320 B Model is desired.

For cut forms, the nominal distance from the left edge of the form to the center of the first print position is 0.25 in. (6,4 mm).

Except for the horizontal dimensions to the first print position specified above, no printing should occur within 0.50 in. (12,7 mm) of any edge, perforation, or fold of forms.

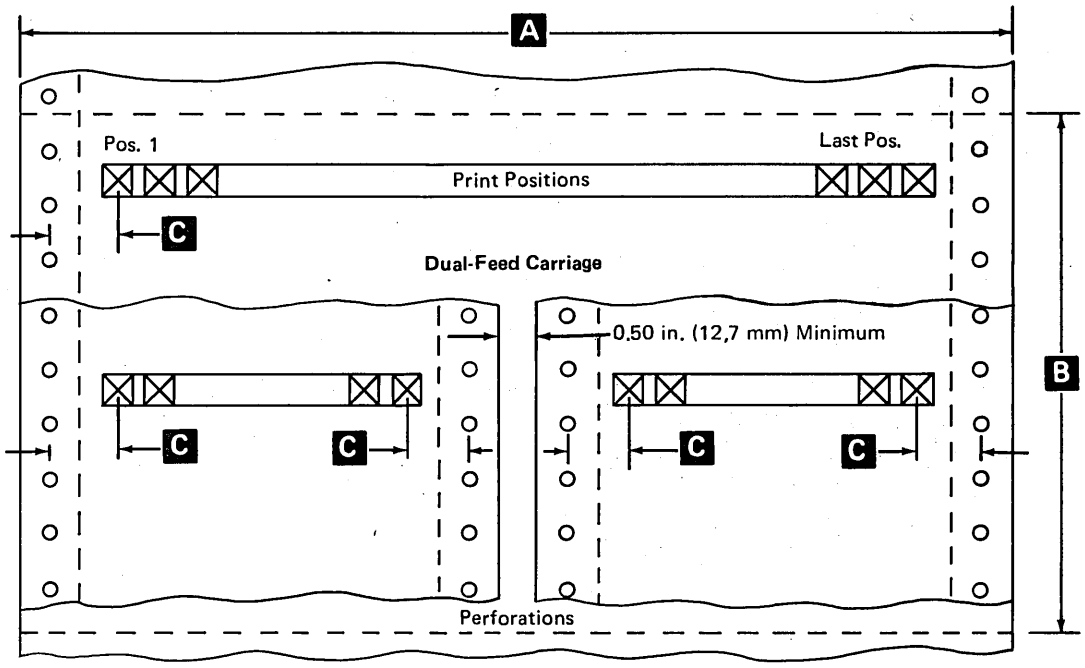
D For cut forms, the minimum distance from the bottom of the last print line to the bottom of the form is 0.50 in. (12,7 mm).

Notes:

1. Continuous card stock forms are generally not recommended. (For the 5256 and 5320 A only, see *IBM System/32 Membership and Mailing List System Design Objectives,* GH30-0010, or *Design Specifications,* GH30-0012 for card stock specifications approved for this Industry Application Program or other user applications with card stock requirements that meet such specifications.)
2. Staples are not permitted.
3. Multiple-part cut forms (form sets) must be glued together at the top.
4. Partial forms separation is not permitted.
5. Crimped multiple-part cut forms are not recommended because they tend to separate when wrapped around the platen.
6. Carbon or self-contained carbonless (ink-impregnated) forms are recommended for multiple-part continuous forms.
7. Using the forms tractor is recommended for feeding all edge-punched continuous forms.
8. Continuous single-part forms can be fed through the pressure-feed machanism if the feeding paths are clear and the forms are kept straight. However, forms that are not kept straight will require periodic operator adjustment of the forms.
9. The maximum multiple-part forms thickness is 0.018 in. (0,46 mm). The maximum single-part forms thickness is 0.0075 in. (0,19 mm).
10. The print head should not be required to travel beyond the edges of the form or across any punched holes in the form.
11. Up to six-part continuous part forms may be used; however, for optimum feeding and stacking, a maximum of four parts is recommended. Five-or six-part forms should be tested by the customer for satisfactory feeding, registration, and print quality.

For general forms design considerations, see pages 5 to 8.

5203 Form Specifications



		Maximum	Recommended (Permits Full Width Adj)	Minimum
A	Form Width			
	Single-Feed Carriage	20.125 in. (511,2 mm)	16.75 in. (425,5 mm)	3.875 in. (98,4 mm)
	Dual-Feed Carriage			
	Single Form	19 in. (482,6 mm)	16 in. (406,4 mm)	3.875 in. (98,4 mm)
	Dual Forms (total includes unused distance between forms)			
	132 Print Pos.	19.5 in. (495,3 mm)	16.125 in. (409,6 mm)	3.875 in. (98,4 mm)
	120 Print Pos.	19.5 in. (495,3 mm)	14.875 in. (377,8 mm)	3.875 in. (98,4 mm)
	96 Print Pos.	19.5 in. (495,3 mm)	12.5 in. (317,5 mm)	3.875 in. (98,4 mm)
B	Form Length (6 lpi)	22 in. (558,8 mm)	14 in. (355,6 mm)	3 in. (76,2 mm)

C If form has a tear strip, the center line of the first and last print positions should be at least 0.375 in. (9,5 mm) from the center line of the margin holes.

If no tear strip, first and last print positions may be located immediately adjacent to the margin holes.

Notes:

1. Fastening multiple set forms on both edges is recommended. If only one side is fastened, it should be the right side.
2. Choose paper quality and thickness of forms to be used on Model 3 after first testing for legibility and feeding performance.
3. Number of available print positions — 96, 120, and 132.
4. Form lengths exceeding 14 in. (355,6 mm) are not recommended because stacking faults may occur.

For general forms design considerations, see pages 5 to 8.

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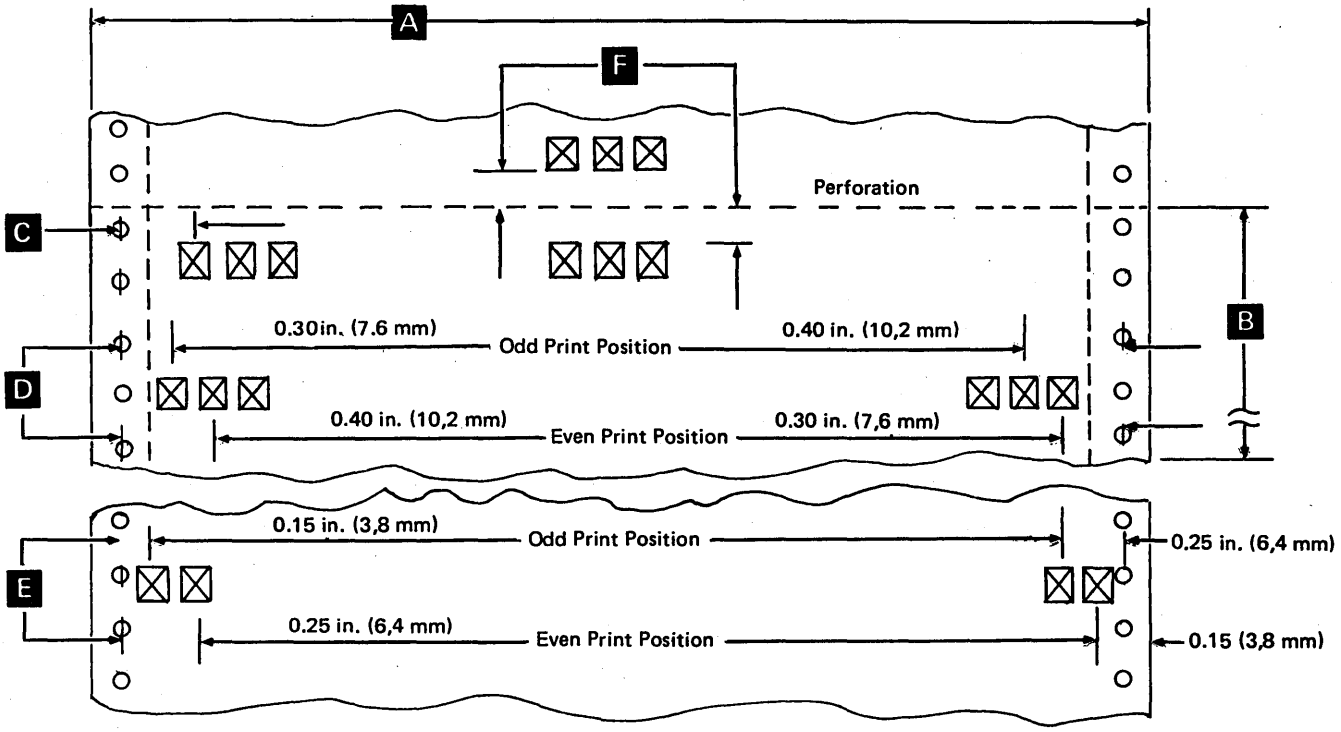
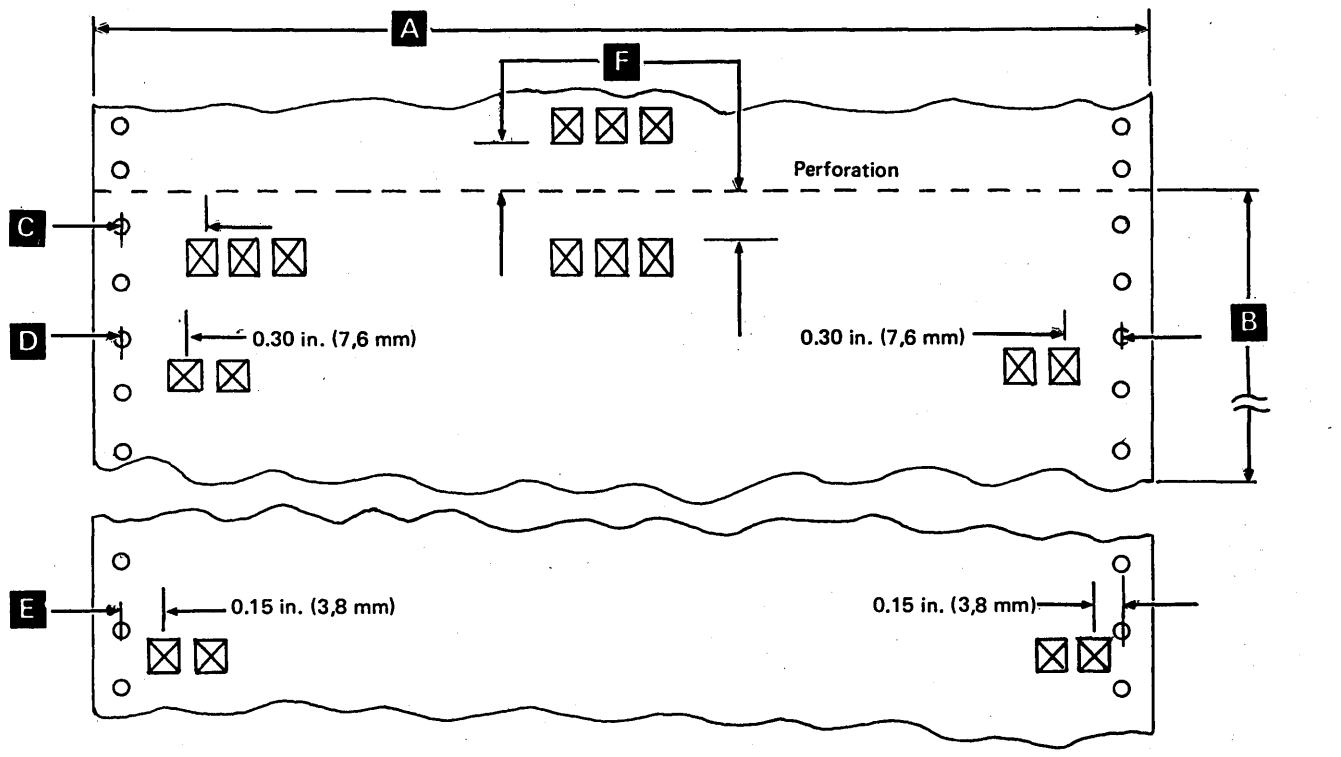
5211 Form Specifications (Part 1 of 2)

Model 1



Model 2



For general forms design considerations, see pages 5 to 8.

5211 Form Specifications (Part 2 of 2)

	Maximum	Minimum
A Form Width ----------	15.25 in. (387 mm)	3.5 in. (88,9 mm)
B Form Length ----------	14.0 in. (356 mm)	3.0 in. (76 mm)
Carriage Spacing ----	6 or 8 lines per inch	

C The maximum distance from the center of the left margin hole and center line of print position No. 1 is 0.55 in. (14,0 mm) Max.. (Left tractor in leftmost position.)

D On forms with 0.50 in. (12,7 mm) tear strips, minimum distance between the center of the margin holes and the center of the first or last print position used is 0.30 in. (7,6 mm) or 0.40 in. (10,2 mm).

Note: Tear strips may break as the minimum distance is approached.

E On forms without tear strips, minimum distance between the center of the margin holes and the center of the first or last position used is 0.15 in. (3,8 mm) or 0.25 in. (6,4 mm).

F No printing should occur within 0.50 in. (12,7 mm) of the horizontal performation.

Forms Thickness Considerations

1. Up to six-part forms can be used with total thickness not to exceed 0.020 in. (0,51 mm).
2. Forms of more than four-parts should be tested to assure satisfactory feeding, print quality, and legibility.
3. Some ribbon smudging may occur as forms approach maximum thickness.

Fastening Recommendations

1. Use forms that are fastened on both edges.
2. Fastening multiple set forms on both edges is recommended. The crimping method of fastening is recommended; however, crimps should not be within 0.50 in. (12,7 mm) of the horizontal perforation. If crimp fasteners are used, the following should be considered:
   a. Crimps must not project significantly above the body of the form in order to avoid ribbon interference.
   b. Reverse folded crimps may cause ribbon interference.
   c. Crimps should not add significantly to the total form thickness.
   d. Tail of the crimp should be opposite the direction of forms motion and away from the side of the forms where printing is occurring in order to avoid ribbon interference.
   e. Excessively hard or stiff crimps may interfere with proper ribbon and/or form processing operation.
3. No hard or metallic fasteners are permitted.

Card Stock Forms

1. Single-part card forms may be used. Card forms should be tested to assure satisfactory feeding and print quality.
2. Card stock should not exceed 0.009-in. (0,23 mm) thickness. Overlapped glue joints are not recommended.
3. For best stacking efficiency, the distance between folds should be 6 to 14 in. (152 to 356 mm).
4. When feeding card forms, operator attention may be required to ensure correct stacking.

Notes:

1. Feed holes should remain free of chads and crimps to avoid false form jam checks.
2. Cutouts are not permitted from 2.75 to 3.25 in. (69,9 to 82,6 mm) from the left edge of form with tractor in leftmost position. Cutouts in this area may cause a false end-of-forms.
3. Sixteen-inch leaders for alignment of prenumbered documents are recommended. A narrow 3-in. (76,2 mm) long trailer (trailer not to ride over end-of-forms switch) is recommended on the last form of the form set to maintain registration on the last form.
4. Left tractor must be in leftmost position when using maximum width forms.
5. Paper colors vary in reflectivity and may reduce contrast to the feed holes. Forms with variations of color, or forms with gray or black backing near the feed strips, should not be used because false forms checks may occur. The backside of the left tear strip should be free of markings or printing to avoid false forms checks.

For general forms design considerations, see pages 5 to 8.

Index

Form specifications by machine number

GA24-3488-11

Form Design Reference Guide for Printers (File No. GENL-03) Printed in U.S.A. GA24-3488-11

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