

# CONTRACT TERMS

## Quality Assurance Through Attributes Program for Printing and Binding (QATAP)

Prospective suppliers should carefully read this publication as the applicable attributes stated herein become an integral part of printing and binding contracts with the U.S. Government Publishing Office. This copy should be retained for reference.

**GPO Publication 310.1**  
Effective May 1979 (Rev. 09-19)



**U.S. GOVERNMENT PUBLISHING OFFICE**  
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This publication is available online at [GPO.gov](http://GPO.gov).

Comments and suggestions from users of this publication are invited. All such correspondence should be addressed as follows:

U.S. Government Publishing Office  
Quality Control for Published Products  
[qcpp@gpo.gov](mailto:qcpp@gpo.gov)  
202-215-0542

Questions of applicability to individual contracts should be addressed to the respective Contracting Officer.

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# THE U.S. GOVERNMENT PUBLISHING OFFICE QUALITY ASSURANCE THROUGH ATTRIBUTES PROGRAM (QATAP)

**THIS FOREWORD IS NOT PART OF THE CONTRACT.  
IT IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.**

## **QATAP—AN INFORMATIONAL OVERVIEW**

The purpose of QATAP is to provide the objective determination of conformity to these requirements once the product has been produced or received. This publication also provides awareness to vendors prior to submitting a bid or quotation of quality expectations for procured products.

The quality of published products contracted for Federal Agencies by the U.S. Government Publishing Office (GPO) is addressed in the following three GPO documents:

- The specific contract

The contract specifications should be read and followed exactly.

- **GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**

This publication is a part of every GPO contract by reference. Article 1 deals with quality requirements in a general manner.

- **GPO Contract Terms, Quality Assurance Through Attributes Program For Printing and Binding 310.1 (Rev. 09-19)**

This publication specifies the contractual requirements of QATAP.

**Note:** If there is a conflict between the contract specifications and the other two documents, the specifications take precedence.

## THE QUALITY ATTRIBUTES

QATAP is based on the use of quality attributes, which are measurable properties, including tolerances of a printed piece, which define its compliance with the specifications. Each quality attribute has its own evaluation procedure for measuring tolerances based on the Quality Level of the contract.

### The complete list of attributes is as follows:

#### Printing Attributes

- P-1 Hickies and Spots
- P-2 Extraneous Marks
- P-3 Moire
- P-4 Register
- P-5 Text and Illustration Image Position
- P-6 *Reserved*
- P-7 Type Quality and Uniformity
- P-8 Halftone Match
- P-9 Solid or Screen Tint Color Match
- P-10 Process Color Match
- P-11 Rub Resistance of Printed Image

#### Paper Attributes

(Subdivided into characteristics; e.g., color, opacity, smoothness.)

#### Finishing Attributes

- F-1 Trim Size
- F-2 Misplacement and Misalignment of Cover Image
- F-3 Cover Position
- F-4 Folding Position and Skewness
- F-5 Perfect-Bound Book Durability
- F-6 Loose Cover, Pages, and Binding
- F-7 Excess Glue
- F-8 Damaged Pages
- F-9 Damaged Edges
- F-10 Warpage
- F-11 Damaged Covers
- F-12 Missing Pages
- F-13 Upside-Down Cover
- F-14 Upside-Down Pages
- F-15 Unspecified Blank Pages
- F-16 Wrong Pagination
- F-17 Loss of Information
- F-18 *Reserved*

## EVALUATION STANDARDS

The attributes will be evaluated by the applicable standard:

- An absolute basis, with defects assessed on deviation from explicit or implicit nominal
  - For example, (F-1) if the trim size is specified as 8 x 10", these are the nominal values from which deviations are measured.
- Comparison to pre-identified specified standards (P-7, P-8, P-9, P-10, and some paper)
  - For example, (P-9) if the density on the ink drawdown, approved by the Government is 1.30, that is the standard.

Tolerances specify how far the product may deviate from the nominal or specified standard and still be acceptable. Tolerances are defined for each attribute and each Quality Level.

For all but four of the numbered attributes and some paper characteristics, evaluation is made on an absolute basis, with defects assessed on deviation from explicit or implicit nominal values, rather than on comparisons to a specified physical object called the specified standard.

Specified standards are pre-identified reference items (e.g., OK'd press sheets or furnished copy) with which sample items are compared to measure conformance for attributes P-7 through P-10 and some paper characteristics (e.g., paper color and formation). Another example, process color match (P-10) may be evaluated by comparing the printed illustration with an OK'd press sheet. In this instance the OK'd press sheet would have been listed in the job specifications as the specified standard for attribute P-10.

Thus, the evaluation for attributes P-7 through P-10, and some paper characteristics are made relative to a specified standard while the other attributes and paper characteristics are evaluated on an absolute basis.

## **QUALITY LEVELS (QLs)**

For each attribute, QATAP indicates either a specified standard or a nominal value along with tolerances that specify the range of acceptability. In either case, any necessary measuring instruments are listed.

Obviously, no single set of tolerances can apply to all products; for instance, tighter conformity is necessary on prestige products than on general information handouts or interoffice forms. Therefore, five Quality Levels (QLs) have been established in QATAP, based primarily on the intended end use of the product.

These levels range from Best Quality (Level I) through Functional Quality (Level V), allowing successively more deviation from design characteristics and furnished reproducibles.

The QL for each individual printing or binding job is selected by the customer agency, sometimes with GPO's assistance. The QL is chosen based on the fidelity of reproduction required, the desired aesthetic appearance, and the intended durability of the final product.

Listed below are brief, general descriptions of the five Quality Levels; the exact definition of each level consists of the tolerances and standards listed in this publication.

Defects for printing, finishing, and paper attributes are counted toward an acceptable Quality Level, which is used to determine acceptance or rejection.

### **Note:**

The tolerance examples shown for each QL are the starting points at which demerits are assigned for printing attributes and defects for finishing attributes.

Some imperfections by themselves may render a product unacceptable.



## Quality Level I

---

### Descriptive Terms

Best quality, highest quality, tightest tolerances.

### Fidelity of Reproduction

The information transmitted requires maximum fidelity to the furnished reproducibles in detail, color, and resolution.

### Quality of Materials and Workmanship

These products typically involve the highest quality materials, reproducibles, production methods, and workmanship. Finishing must be held to the highest standards of accuracy, durability, and appearance.

### Typical Physical Description

At this level, products are generally multicolor or process color work. Illustrations may be very fine line drawings, multicolor illustrations, or up to 300-line screen halftones.

### Examples of Tolerances

Half a row of dots for multicolor halftone registration (see attribute P-4); one broken character per page for type quality (see P-7); and greater than 1/16" for trim size (see F-1).

### Examples

Art books, medical journals, and meat grading charts.

## Quality Level II

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### Descriptive Terms

Better quality, prestige quality, library quality.

### Fidelity of Reproduction

Close fidelity to furnished reproducibles is required.

### Quality of Materials and Workmanship

These products typically involve high quality materials, reproducibles, production methods, and workmanship.

### Typical Physical Description

Overall appearance is of primary importance. Products in this level generally have single color

or multicolor work. Finishing must be held to high standards of accuracy, durability, and appearance.

### Examples of Tolerances

A half a row of dots for multicolor halftone registration (see P-4); one broken character per page for type quality (see P-7); and greater than 3/32" for trim size (see F-1).

### Examples

Yearbooks, recruiting materials, and illustrated professional papers.

## Quality Level III

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### **Descriptive Terms**

Good quality, above average quality.

### **Fidelity of Reproduction**

Illustrations must transmit precise information even though fidelity to minutest detail is not required.

### **Quality of Materials and Workmanship**

Typically involves above average quality materials, reproducibles, production methods, and workmanship.

### **Typical Physical Description**

Generally requires clean, sharp printing of single or multicolor work (general process color work),

and halftone reproductions up to 150-line screen.

Finishing must be held to above average standards of accuracy, durability, and appearance.

### **Examples of Tolerances**

One row of dots for multicolor halftone registration (see attribute P-4); two broken characters per page for type quality (see P-7); and greater than 1/8" for trim size (see F-1).

### **Examples**

Annual reports, general process color work, court decisions, budget reports, catalogs, textbooks.

## Quality Level IV

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### **Descriptive Terms**

Basic quality, informational quality, utility quality.

### **Fidelity of Reproduction**

Average fidelity and resolution to furnished copy or film is required.

### **Quality of Materials and Workmanship**

Requires average quality materials, reproducibles, production methods, and workmanship.

### **Typical Physical Description**

Products that provide general information, usually black only or color linework (non-process), and occasional halftone reproductions. Utility is important, as well as basic, clean appearance.

Finishing must be of an accuracy, durability, and appearance that does not impair the function of the product.

### **Examples of Tolerances**

Two rows of dots for multicolor halftone registration (see attribute P-4); six broken characters per page for type quality (see P-7); and greater than 1/8" for trim size (see F-1).

### **Examples**

Telephone directories, indexes, project reports (technical manuals without process color and with only occasional halftones).

## Quality Level V

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### **Descriptive Terms**

Functional quality, lowest usable quality, greatest tolerances.

### **Fidelity of Reproduction**

Considered of adequate quality provided there is no loss of information from furnished copy.

### **Quality of Materials and Workmanship**

Considered of adequate quality provided there is no information loss and the finishing does not impair the function of the product. These products may be reproduced from any readable copy.

### **Typical Physical Description**

One-color type and line work only.

### **Examples of Tolerances**

Multicolor halftone register is not applicable (see attribute P-4); broken characters are not applicable (see P-7); and greater than 1/8" for trim size (see F-1).

### **Examples**

Interoffice forms, line-only information handouts.

## **MIXING QUALITY LEVELS**

The foregoing implies a unique QL for each product. Actually, in some instances it may be desirable to mix Quality Levels. For example, a bound volume for which heavy use is anticipated may require Level II conformity to attributes related to life and durability, but only Level III conformity to attributes dealing with the quality of the printed image.

## **DEFINITION OF DEFECTS**

For each attribute and QL, QATAP provides tolerances which are the allowable deviation from nominal values or specified standards.

For some of the attributes (e.g., number of flexes to loosen a page), different amounts of deviation from the specified values have vastly different effects on the usability of the finished product. Thus, two different types of defects (major and critical) have been defined.

Major defects are based on a deviation from specifications or standards which normally would be noticed by the customer; e.g., excessively low type density.

Critical defects are those which render a product extremely difficult to use, or even unusable; e.g., loss of information is always assessed as a critical defect.

Thus, for attributes P-1 through P-11, and the paper attribute, QATAP assesses only major defects, except when loss of information occurs. For attributes F-1 through F-17, major, or critical defects can be assessed.

## **INSPECTION BY ATTRIBUTES**

Each attribute of each item inspected (individual book, pamphlet, etc.) is classified as acceptable, defective at the major level, or defective at the critical level. Therefore, each item can have more than one defect.

Specifically, for each printing attribute, P-1 through P-11, demerits are assessed to each page measured. Then the item is assessed a major defect for that attribute if the average demerit level (ADL) per page for that attribute exceeds 4.0.

If the ADL does not exceed 4.0, but if one or more pages is so obviously defective that it significantly impairs the quality of the entire copy, then a single major defect (Conspicuous Single Page Defect) will be assigned for that printing attribute. Examples are: a large hickey at the focal point of an illustration, P-1; a single page with extremely light (but legible) type, P-7; large ink or oil spots, P-1; large offcolor spots in process color illustrations, P-10.

For the finishing attributes, F-1 through F-17, no ADL is used to determine defects, nor does the Conspicuous Single Page Defect provision apply. Instead, for each finishing attribute, the individual item is inspected and if necessary, assessed a major defect or a critical defect in accordance with the applicable tolerance table.

QATAP provides for the evaluation of paper characteristics by inspection and testing in accordance with the standards in [Government Paper Specification Standards, Part 2, Testing Standards and Definition of Terms](#). Demerits are assessed for each characteristic that deviates from nominal values or specified standards. Then, if the sum of the demerits for that item is 31 or more, the item is assessed a major defect under QATAP.

In summary, each individual item can be inspected for all applicable attributes and then assessed a specific number of major and/or critical defects; e.g., seven major defects and one critical defect.

## **ACCEPTANCE SAMPLING**

There is an inherent variability in every group of manufactured items. One could inspect every item in the lot, but the cost would be prohibitive.

Therefore, determining the acceptability of an entire job, which may contain thousands of individual items, is somewhat more complicated than the inspection of a single item as described above.

One alternative to 100 percent inspection is a formal process called acceptance sampling which can be employed in many cases to determine the acceptability of an entire job.

Acceptance sampling involves the use of statistics applied to the results of inspecting each item in a representative sample taken from an entire job or shipment, hereinafter called a lot. [ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes](#) (version in effect as of date of award) prescribes the sample size appropriate for varying lot sizes under various circumstances. A full description of the acceptance sampling process is contained in [Government Printing Office, Technical Report No. 27, Acceptance Sampling](#).

## **ACCEPTABLE QUALITY LEVELS (AQLs)**

After selecting and inspecting a representative sample, the question is whether to accept or reject the entire lot based on those results.

Under QATAP, a contractor is not allowed to knowingly ship any defective products. However, in many circumstances, a customer may tolerate a limited, predefined percentage of defective items in a shipment that have not been caught by the contractor's quality system. It is the job of this publication and [ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes](#), to define this risk.

Therefore, in order to determine acceptance or rejection of the entire lot, an Acceptable Quality Level (AQL) must be established. The AQL specifies the maximum number of defects per 100 units (as a process average) considered satisfactory for that lot.

The purpose of sampling and inspection is to determine statistically whether the AQL has been exceeded. Typical AQLs for Government contracts are 1.0 defect per 100 items for critical defects, and 6.5 defects per 100 items for total defects, i.e., major defects plus critical defects.

## **ACCEPTABILITY OR REJECTION OF THE LOT**

After sampling and inspection, the appropriate tables in publication **ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes**, are checked to determine for the sample size being used and the number of defects that will render the lot acceptable or rejectable, i.e., the number of defects in the sample that corresponds to the AQL.

In a typical situation, a product that exceeds the AQL of 1.0 for critical defects or 6.5 for total defects is not deemed acceptable, and the Government has the option of having the lot replaced or the defects corrected, if possible.

In a limited number of cases, where circumstances do not allow reprinting and it is necessary to use “as is”, QATAP provides the Government the option of accepting the lot with an equitable reduction in the contract price. This publication provides discount tables to determine such reductions.

## **INTENT OF QATAP**

While QATAP allows acceptance of a defective lot under an equitable reduction in contract price, in all cases, it is the intent of the Government that all of the items meet the quality specified in the contract.

Furthermore, the goal of QATAP is not only enforcement of quality standards through inspection, but also that contractors establish quality control systems that assure production of a product that meets the standards set forth in the contract.

## REFERENCED DOCUMENTS

Electronic copies of the following documents below may be obtained from:

U.S. Government Publishing Office

Quality Control for Published Products

- Email: qcpp@gpo.gov
- Phone: 202-512-0542
- Online at: GPO.gov

**GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**

**Government Paper Specification Standards**

**GPO Contract Terms, Quality Assurance Through Attributes Program For Printing and Binding 310.1 (Rev. 09-19)**

**\*Government Printing Office, Technical Report No. 26, The GPO Quality Attributes Program—An Update**

**\*Government Printing Office, Technical Report No. 27, Acceptance Sampling**

\*Available upon request

**ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes** may be obtained from

- American National Standards Institute  
11 West 42nd Street  
New York, NY 10036
- Phone: 212-642-4900
- Fax: 212-302-1286

## **QATAP SUMMARY**

The attributes are evaluated against nominal values or specified standards.

There are five Quality Levels (QLs), I (Best) to V (Functional).

For the printing attributes:

- Demerits are assigned if specified tolerances are exceeded.
- When an individual copy has an Average Demerit Level (ADL) of more than 4.0 (4 per page), the copy is assessed a major defect.
- If a conspicuous single page defect is present, a single major defect can be assessed to the appropriate printing attribute, even if the ADL is 4.0 or less.

For the other attributes (excluding paper):

- Major or critical defects can be assessed.

For the paper attribute:

- Demerits are assessed in accordance with **Government Paper Specification Standards**.
- If the demerits equal 31 or more, a major defect is assessed.

Loss of Information for any reason is assessed a critical defect.

Total Defects are the sum of major and critical defects in the entire sample inspected.

The Acceptable Quality Level (AQL) is the maximum number of defects per 100 units the Government will tolerate the risk of accepting at the contract price.

- A typical AQL is 1.0 for critical defects and 6.5 for total defects.

Acceptance Sampling, an alternative to inspecting every unit in the lot, can be used to determine if the entire lot meets the AQL.

- The appropriate sample size for determining a representative sample is derived by using **ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes** (version in effect as of date of award).

If the defects exceed either or both AQLs:

- The Government has the option of having the lot replaced or corrected if possible, or accepting the lot with an equitable reduction in the contract price.

**END OF INFORMATIONAL FOREWARD**



# QUALITY ASSURANCE THROUGH ATTRIBUTES PROGRAM (QATAP)

## INTRODUCTION

### 1. DEFINITIONS

#### 1-1. Quality Attribute

A quality attribute is a property of a product which affects its quality. Examples are trim size, image position, type quality, and paper.

#### 1-2. Lot or Batch

A lot or batch is a quantity of copies of a publication from which a sample is drawn. A lot or batch consists of copies which are produced under essentially the same conditions and at essentially the same time.

#### 1-3. Critical Defect

A critical defect is a serious deviation from specifications. Critical defects are designated in the tolerance tables for finishing attributes.

#### 1-4. Major Defect

A major defect is a deviation from specifications which is less serious than a critical defect. Major defects are designated in the tolerance tables for printing attributes, finishing attributes, and the paper attribute.

#### 1-5. Total Defects

Total defects are the sum of all critical and all major defects; e.g., 3 critical defects + 2 major defects = 5 total defects.

#### 1-6. Acceptable Quality Levels (AQLs)

The AQLs are the maximum number of defects per 100 copies that the Government will accept at the contract price. Unless otherwise specified, the AQLs are 1.0 for critical defects and 6.5 for total defects.

#### 1-7. Quality Levels (QLs)

The QLs specify the degree of quality required in the final product. QATAP contains five QLs ranging from Level I (Best) to Level V (Functional). Generally, tolerances for attributes vary with the QL.

#### 1-8. Inspection Levels

The inspection levels are the means used to determine the relationship between the lot or batch size and the minimum sample size. Inspection Levels will be specified in accordance with [ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes](#) (version in effect as of date of award).

### 1-9. Specified Standards

The specified standards are the criteria on which printing attributes P-7, P-8, P-9, and P-10 are evaluated. For example, process color match (P-10) might be evaluated by comparing a printed illustration with an “OK’d press sheet.” In this example, the “OK’d press sheet” would be listed in the specifications as the specified standard for printing attribute P-10.

STANDARDS WILL BE SPECIFIED FOR THE FOLLOWING ATTRIBUTES:

P-7 Type Quality and Uniformity

P-8 Halftone Match

P-9 Solid or Screen Tint Color Match

P-10 Process Color Match

### 1-10. Average Demerit Levels (ADLs)

ADLs are one of the means used to classify defects for printing attributes.

### 1-11. Standard Viewing Conditions

Standard viewing conditions are those defined in ISO 3664:2009, Graphic Technology and Photography Viewing Conditions.

## 2. EVALUATION OF QUALITY

- a. QATAP establishes attributes for quality, and it defines tolerances for those attributes for five Quality Levels of printing. When attributes deviate from the allowable tolerances, the deviations will be classified as either major or critical defects pursuant to the applicable tolerance table.
- b. Attributes which are not identified as quality attributes under QATAP, e.g., stitching position will be evaluated in accordance with the article entitled “Quality” in [GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 \(Rev. 01-18\)](#).

## 3. DETERMINING ACCEPTABILITY

Because inspection of all copies of a publication is usually impractical, the Government will utilize statistical sampling to determine quality. When the Government determines that both the number of critical defects and the number of total defects in the lot or batch do not exceed their respective AQLs, the lot or batch will be accepted at the contract price. [ANSI/ASQC Z 1.4, Sampling Procedures and Tables for Inspection by Attributes](#), will be used to make this determination.

If the defects exceed either or both AQLs, the Government will have the option of having the lot or batch replaced, having the defects corrected, or accepting the lot or batch with an equitable reduction in the contract

price. The discount tables contained in Appendices A and B will be used as a guide by the Contracting Officer to determine reductions. Failure to agree to such reduction of price shall be a dispute concerning a question of fact within the meaning of the article entitled “Disputes” of **GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**. In all cases, it is the intent of the Government that the products meet the quality requirements in the specifications.

#### 4. CATEGORIES OF ATTRIBUTES

Quality attributes are divided into three categories which consist of printing attributes, finishing attributes, and the paper attribute.

##### 4-1. Printing Attributes

For each copy that is inspected, the Government will evaluate each applicable printing attribute by separately inspecting:

- a. outside covers, i.e., the spine and Covers 1 and 4
- b. text, i.e., pages and Covers 2 and 3

**Note:**

All attributes apply to any printing process, i.e., offset, screen, flexo, digital. Any reference to ink throughout this document is meant to include digital ink, i.e. toner, pigment.

**ADLs WILL BE DETERMINED AS FOLLOWS:**

- (i) Outside covers will be inspected and evaluated as one unit. The unit will be assessed demerits (i.e., 4, 20, 100) pursuant to the demerit table for each printing attribute that deviates from specifications. The demerits which are assessed constitute the ADL for outside covers for that printing attribute for that copy.
- (ii) The text will be evaluated by inspecting pages (each page is an individual unit), Cover 2, and Cover 3 as individual units. Each unit will be assessed demerits (i.e., 4, 20, 100) pursuant to the demerit table for each printing attribute that deviates from specifications. The demerits which are assessed will be summed, and each sum will be divided by the number of individual units that were inspected for that printing attribute. The quotient constitutes the ADL for text for that printing attribute for that copy.
- (iii) In each copy, the ADLs for each printing attribute will be classified as follows:

Tolerance Table for Printing Attributes	
ADLs	Classifications of Defect
4 or less for both outside covers and text	None
More than 4 for either or both outside covers and text	Major

## CONSPICUOUS SINGLE PAGE DEFECTS

When one or more pages have been assessed demerits for a printing attribute, but the ADL does not exceed 4, a single major defect will be assessed for that printing attribute if one or more pages is so conspicuously defective that it significantly impairs the quality of the entire copy. Examples include a large hickey at the focal point of an illustration, a single page with extremely light (but legible) type, large ink spots, large oil spots, large offcolor spots in illustrations, and P-10: Quality Level 1 serious shift.

### 4-2. Finishing Attributes

The Government will evaluate finishing attributes by inspecting individual copies of the product. When each copy is inspected, each applicable finishing attribute that deviates from specifications will be classified as either a critical or major defect in accordance with the tolerance table for that attribute.

### 4-3. Paper Attribute

The Government will evaluate the paper attribute by inspecting and testing paper characteristics in individual copies of the product. The paper characteristics will be tested in accordance with the current edition of **Government Paper Specification Standards** which is published by the Joint Committee on Printing. When each copy is inspected, paper that deviates from specifications will be assessed a major defect.

Tolerance Table for the Paper Attribute	
Sum of Demerits	Classification of Defect
Less than 31	None
31 or more	Major

## 5. GOVERNMENT FURNISHED MATERIAL (GFM)

Defects will not be assessed for deviations from specifications which are caused by GFM if the contractor notifies the Government prior to production that the GFM is not satisfactory.

# PRINTING ATTRIBUTES

## P-1 HICKIES AND SPOTS

### Definition

Hickies and spots are small deformities, specks, or other imperfections on a page, cover, or spine, which result from the printing or reproduction process.

### Examples

Ink spatter, hickies caused by dirty blankets, or spots due to paper picking.

### Instruments

1. Magnifier with scale graduated in increments of 0.005"
2. Tappi Dirt Estimation Chart

### Procedure

Evaluate hickies, off-color spots, and ink spots in accordance with the table below.

#### EXCEPTION

- Controlled manufacturer marks from digital printing, do not apply to this defect.

Diameter	Count
Less than 0.04"	1
0.04 to but not including 0.08"	3
0.08 through 0.12"	15
Greater than 0.12"	45

Demerit Table for Hickies and/or Spots		
Quality Level		Demerits
Level I	5 to and including 10 counts	4
	11 to and including 20 counts	20
	Greater than 20 counts	100
Level II	10 to and including 15 counts	4
	16 to and including 25 counts	20
	Greater than 25 counts	100
Level III	15 to and including 20 counts	4
	21 to and including 30 counts	20
	Greater than 30 counts	100
Level IV	20 to and including 25 counts	4
	Greater than 25 counts	20
Level V	Not applicable	

## P-2 EXTRANEIOUS MARKS

### Definition

Extraneous marks are undesirable marks which are not hickies or spots. There are two categories of deviations.

### Examples

Lines due to plate scratches, scumming, tinting, wheel marks, oil marks, and ink bleed-through. Show-through is not evaluated under this attribute.

#### Category 1

These are marks which are readable on a densitometer and which cover an area measuring more than ¼" at their smallest dimension. Examples are scumming, set off, and smearing.

#### Category 2

These are marks that do not fall into Category 1. Examples are roller marks, gear marks, lines due to scratches on plate, and ink bleed-through. These are classified according to seriousness as follows:

##### LIGHT MARKS

Marks which are visible under standard viewing conditions and which slightly detract from the appearance of a page. Examples are visible marks measuring less than 0.010 square inch in total area.

##### MEDIUM MARKS

Marks that moderately detract from the appearance of a page. Examples are visible marks measuring between 0.010 and 0.020 square inch in total area.

##### HEAVY MARKS

Marks that seriously detract from the appearance of a page. Examples are marks greater than 0.020 square inch in total area.

### EXCEPTION TO CATEGORIES 1 & 2

- Marks caused by foreign matter such as oil will always be classified as heavy marks.

### Instruments

1. Reflection Densitometer
2. Ruler graduated in 0.10"
3. Tappi Dirt Estimation Chart

### Procedures

#### Category 1

1. Use a reflection densitometer with the filter giving the highest reading.
2. Measure the three areas of greatest density in the mark.
3. Compute the average and assign demerits on the average.

#### Category 2

1. Visually inspect the marks under standard viewing conditions.
2. Classify the marks based on the above criteria.
3. Measure area of mark only if there is a dispute regarding the classification.

### Demerit Assessment

Assess demerits on the more defective of the two categories. A maximum of 100 demerits will be assessed per category, per page.

P-2 EXTRANEIOUS MARKS (CONTINUED)

Demerit Table for Category 1 Extraneous Marks		
Quality Level		Demerits
Level I	Visible to but not including 0.01 density	4
	0.01 through and including 0.02 density	20
	Greater than 0.02 density	100
Level II	0.01 to but not including 0.02 density	4
	0.02 through and including 0.03 density	20
	Greater than 0.03 density	100
Level III	0.02 to but not including 0.03 density	4
	0.03 through and including 0.04 density	20
	Greater than 0.04 density	100
Level IV	0.03 to but not including 0.04 density	4
	0.04 through and including 0.05 density	20
	Greater than 0.05 density	100
Level V	Not applicable	

Demerit Table for Category 2 Extraneous Marks		
Quality Level		Demerits
Level I	Light Marks	20
	Medium Marks	100
	Heavy Marks	100
Level II	Light Marks	4
	Medium Marks	20
	Heavy Marks	100
Level III	Light Marks	4
	Medium Marks	20
	Heavy Marks	100
Level IV	Light Marks	4
	Medium Marks	4
	Heavy Marks	20
Level V	Not applicable	

## P-3 MOIRE

### Definition

Moire is defined as objectionable patterns which are created when halftone screens are printed over one another at incorrect screen angles.

#### AVOIDABLE MOIRE

Avoidable moire is moire that is due to poor production methods rather than the inherent limitations of the process (e.g., 15 degree yellow screen angle, rescreened halftones).

### Procedure

Visually examine halftone under standard viewing conditions.

Demerit Table for Moire		
Quality Level		Demerits
Level I	Any avoidable moire	100
Level II	Any avoidable moire	100
Level III	Any avoidable moire	20
Level IV	Any avoidable moire	20
Level V	Not applicable	



## P-4 REGISTER

### Definition

Register is the alignment of two or more image components. There are two categories of deviation.

### Category 1

Multicolor Halftone Register (Internal and/or Border)

### Category 2

Solids, Linework, and Continuous Tone Register

### Instrument

Magnifier with scale graduated in increments of 0.005"

### Procedures

#### Category 1

1. Establish the measuring base by determining two colors in register within  $\frac{1}{2}$  row.
2. Sum the rows of misregister for all colors.
3. Use the sum to assign demerits.

#### EXCEPTIONS TO CATEGORY 1

- If three or more colors are used and no two colors register within one row, assign 100 demerits to that page.
- If more than one illustration appears on a page, assess demerits only on the most defective illustration.

#### Category 2

1. Establish the measuring base by determining two colors in register within 0.004".
2. Using a magnifier with a graduated scale, measure the misregister for each color in inches.
3. Sum the measurements of misregister for all colors.
4. Use the sum to assign demerits.

#### EXCEPTION TO CATEGORY 2

- If no two colors are in register within 0.004", select as the measuring base the color which will result in the smallest number of demerits.

### Demerit Assessment

A maximum of 100 demerits will be assessed per category, per page.

P-4 REGISTER (CONTINUED)

Demerit Table for Category 1—Multicolor Halftone Register		
Quality Level		Demerits
Level I	0.5 through and including 1 row	20
	Greater than 1 row	100
Level II	0.5 to but not including 1 row	4
	1 through and including 2 rows	20
	Greater than 2 rows	100
Level III	1 to but not including 2 rows	4
	2 through and including 3 rows	20
	Greater than 3 rows	100
Level IV	2 through and including 3 rows	4
	Greater than 3 rows	20
Level V	Not applicable	

Demerit Table for Category 2—Solids, Linework, and Continuous Tone		
Quality Level		Demerits
Level I	0.004" to but not including 0.008"	4
	0.008" through and including 0.012"	20
	Greater than 0.012"	100
Level II	0.004" to but not including 0.008"	4
	0.008" through and including 0.012"	20
	Greater than 0.012"	100
Level III	0.008" to but not including 0.012"	4
	0.012" through and including 0.016"	20
	Greater than 0.016"	100
Level IV	0.016" to but not including 0.020"	4
	0.020" through and including 0.024"	20
	Greater than 0.024"	100
Level V	Not applicable	

## P-5 TEXT AND ILLUSTRATION IMAGE POSITION

### Definition

There are two categories of deviations.

#### Category 1

##### MISPLACEMENT

Misplacement is the linear displacement of the image between the specified and actual position.

#### Category 2

##### SKEWNESS

Skewness is the angular displacement of the image in relation to the edges of the page.

### Examples

Unintentional bleeds, incorrect placement of text, and improper alignment of two-page spreads.

### Instrument

Ruler graduated in 0.10"

### Procedures

#### Category 1

Using a ruler, determine the vertical and horizontal deviations of the printed image position from the specified position. Assess demerits on the greater deviation.

#### EXCEPTIONS TO CATEGORY 1

- **Image Bleeds:** If either a specified image bleed does not occur or an unspecified image bleed does occur, assess 100 demerits for Levels I, II, and III, and 20 demerits for Level IV.
- **Facing Pages:** When the vertical deviations of facing pages are in opposite directions from the specified position, calculate the sum of

the measurements of both deviations. Using the demerit table for misplacement, assess demerits based on the combination of the two pages.

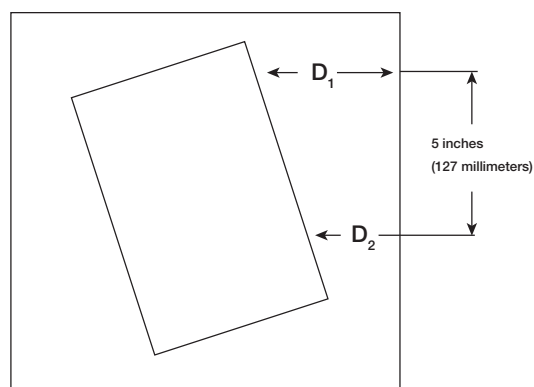
**For example:** In a Level III book, one margin is 3/32" high and the facing page margin is 1/16" low. Assess a total of 20 demerits to the two pages combined based on the sum of 5/32".

#### Category 2

Measure the distance from the printed image to the edge of the page at two points on the same edge, exactly 5" apart (see illustration). Calculate the difference between the two measurements ( $D_1 - D_2$ ) and assess demerits based on this difference. If a 5" distance is not available, extend the edges of the copy and the image to 5".

### Demerit Assessment

A maximum of 100 demerits will be assessed per category, per page.



P-5 TEXT AND ILLUSTRATION IMAGE POSITION (CONTINUED)

Demerit Table for Category 1—Misplacement		
Quality Level		Demerits
Level I	1/32" to but not including 1/16"	4
	1/16" through and including 1/8"	20
	Greater than 1/8"	100
Level II	1/32" to but not including 1/16"	4
	1/16" through and including 1/8"	20
	Greater than 1/8"	100
Level III	1/16" to but not including 1/8"	4
	1/8" through and including 3/16"	20
	Greater than 3/16"	100
Level IV	1/16" to but not including 1/8"	4
	1/8" through and including 3/16"	20
	Greater than 3/16"	100
Level V	Not applicable	

Demerit Table for Category 2—Skewness		
Quality Level		Demerits
Level I	0.02" to but not including 0.04"	4
	0.04" through and including 0.07"	20
	Greater than 0.07"	100
Level II	0.02" to but not including 0.04"	4
	0.04" through and including 0.07"	20
	Greater than 0.07"	100
Level III	0.02" to but not including 0.07"	4
	0.07" through and including 0.12"	20
	Greater than 0.12"	100
Level IV	0.04" to but not including 0.09"	4
	0.09" through and including 0.18"	20
	Greater than 0.18"	100
Level V	Not applicable	

## **P-6 RESERVED**

The previous P-6 attribute has been omitted from this version as a result of changes in technology.

## P-7 TYPE QUALITY AND UNIFORMITY

### Definition

Type quality and uniformity is the line width and ink density of line illustrations and type. There are four categories of deviation.

NOTE: These tolerances will also be used for line width and density of line illustration.

### Category 1

Minimum Type Density (maximum % reflectance)

### Category 2

Variation in Type Density (% reflectance) between facing pages, within a page, or from an Ok'd press sheet

### Category 3

Deviation in Type Dimension from the specified standard

### Category 4

Broken Characters

### Instruments

1. Print Contrast Meter (% reflectance convertible to density)
2. 8x type size finder
3. 50x microscope with reticle calibrated to 0.001"

### Procedures

#### Category 1

Inspect each page visually to locate minimum type density (maximum % reflectance). Make dry readings of the three lightest characters with a print contrast meter. Compute the average of the readings. Use the calculation to assess demerits based on the table below.

#### Category 2

Compare measurements for each individual page inspected:

- a. against a % reflectance reading for its facing page
- b. against each other for variation within a page
- c. against those of an Ok'd press sheet

#### EXCEPTION FOR CATEGORIES 1 & 2

- Type printed with colored ink will be evaluated for visible density variation between facing pages, within a page, or between the page and the specified standard listed for attribute P-9 Solid or Screen Tint Color Match. Each page containing any of these variations will be assessed 100 demerits at Levels I and II, 20 demerits at Levels III and IV.

#### Category 3

Evaluate type dimension by comparing measurements of the finished publication with the specified standard. Use the 50x microscope or print contrast meter to measure type dimensions. Tolerances are based on the maximum deviation from the specified standard.

#### Category 4

Count the number of broken characters on each page.

### Demerit Assessment

A maximum of 100 demerits will be assessed per category, per page.

P-7 TYPE QUALITY AND UNIFORMITY (CONTINUED)

Demerit Table for Category 1—Minimum Type Density				
Quality Level			Demerits	
Level I	Gloss	5% reflectance to and including 10%	4	
		11% reflectance to and including 15%	20	
		16% reflectance or greater	100	
	Matte	7% reflectance to and including 10%	4	
		11% reflectance to and including 15%	20	
		16% reflectance or greater	100	
Level II	Gloss	6% reflectance to and including 12%	4	
		13% reflectance to and including 17%	20	
		18% reflectance or greater	100	
		Matte	8% reflectance to and including 12%	4
			13% reflectance to and including 17%	20
			18% reflectance or greater	100
		Uncoated	11% reflectance to and including 13%	4
			14% reflectance to and including 18%	20
			19% reflectance or greater	100
Level III	Gloss	7% reflectance to and including 13%	4	
		14% reflectance to and including 18%	20	
		19% reflectance or greater	100	
		Matte	9% reflectance to and including 13%	4
			14% reflectance to and including 18%	20
			19% reflectance or greater	100
		Uncoated	13% reflectance to and including 14%	4
			15% reflectance to and including 19%	20
			20% reflectance or greater	100
Level IV	Gloss	9% reflectance to and including 14%	4	
		15% reflectance to and including 19%	20	
		20% reflectance or greater	100	
		Matte	11% reflectance to and including 14%	4
			15% reflectance to and including 19%	20
			20% reflectance or greater	100
	Uncoated	16% reflectance to and including 19%	4	
		20% reflectance to and including 24%	20	
		25% reflectance or greater	100	
	Newsprint	20% reflectance to and including 24%	4	
		25% reflectance to and including 29%	20	
		30% reflectance or greater	100	
Level V		Not applicable		

P-7 TYPE QUALITY AND UNIFORMITY (CONTINUED)

Equivalent Densities for Percent Reflectance	
Percent Reflectance	Density
2	1.70
3	1.52
4	1.40
5	1.30
6	1.22
7	1.15
8	1.10
9	1.05
10	1.00
11	0.96
12	0.92
13	0.89
14	0.85
15	0.82
16	0.80
17	0.77
18	0.74
19	0.72
20	0.70
21	0.68
22	0.66
23	0.64
24	0.62
25	0.60
26	0.59
27	0.57
28	0.55
29	0.54
30	0.52



P-7 TYPE QUALITY AND UNIFORMITY (CONTINUED)

Demerit Table for Category 2—Variation in Type Density		
Quality Level	Between facing pages, within a page, or from an Ok'd Press Sheet	Demerits
Level I	2% to but not including 3% reflectance	4
	3% through and including 4% reflectance	20
	Greater than 4% reflectance	100
Level II	3% to but not including 4% reflectance	4
	4% through and including 5% reflectance	20
	Greater than 5% reflectance	100
Level III	3% to but not including 4% reflectance	4
	4% through and including 5% reflectance	20
	Greater than 5% reflectance	100
Level IV	4% to but not including 5% reflectance	4
	5% through and including 6% reflectance	20
	Greater than 6% reflectance	100
Level V	Not applicable	

Demerit Table for Category 3—Type Dimension*		
Quality Level	*1 point equals 0.0138"	Demerits
Level I	0.002" to but not including 0.003"	4
	0.003" through and including 0.004"	20
	Greater than 0.004"	100
Level II	0.002" to but not including 0.003"	4
	0.003" through and including 0.004"	20
	Greater than 0.004"	100
Level III	0.003" to but not including 0.004"	4
	0.004" through and including 0.005"	20
	Greater than 0.005"	100
Level IV	0.004" to but not including 0.005"	4
	0.005" through and including 0.006"	20
	Greater than 0.006"	100
Level V	Not applicable	

P-7 TYPE QUALITY AND UNIFORMITY (CONTINUED)

Demerit Table for Category 4—Broken Characters		
Quality Level		Demerits
Level I	1 to 2 broken characters	4
	3 to 5 broken characters	20
	Greater than 5 broken characters	100
Level II	1 to 2 broken characters	4
	3 to 5 broken characters	20
	Greater than 5 broken characters	100
Level III	2 to 3 broken characters	4
	4 to 6 broken characters	20
	Greater than 5 broken characters	100
Level IV	6 to 8 broken characters	4
	Greater than 8 broken characters	20
Level V	Not applicable	

## P-8 HALFTONE MATCH

### Definition

Halftone match is the fidelity of detail between the single or multicolor continuous-tone image and the specified standard. There are three categories of specified standards.

NOTE: For process-color continuous-tone images, refer to P-10.

### Category 1

Ok'd Press Sheet or Prior to Production Sample

### Category 2

Approved Proof: Excludes content proofs

### Category 3

Government Furnished Material (GFM), e.g., electronic files, camera copy, film negatives.

### Instruments

1. Reflection densitometer
2. Magnifier

### Procedures

#### Category 1

- a. Make a densitometer reading in an area with solid ink density.
  - i. For single-impession halftones, use the densitometer filter that indicates the highest total density.
  - ii. For two-color duotones, make comparative densitometer readings with the two filters that indicate the highest readings.
- b. If the Ok'd press sheet or prior to production sample is the specified standard:

- i. Zero densitometer to the paper.
- ii. Make comparative dry measurements between the standard and the reproduction in corresponding highlight, midtone, and shadow areas.

#### Categories 2 & 3

- a. Determine the shift in detail between the specified standard and the printed sample in the highlight, midtone, and shadow areas.
- b. The shift in detail will fall into the following three categories:
  - i. Perceptible shift: A slight shift in detail between the specified standard and the sample, that is perceptible under standard viewing conditions but is not large enough to be classified as objectionable.  
Example: shift of detail in a non-focal point; e.g., clouds, background object.
  - ii. Objectionable shift: A shift in detail between the specified standard and the sample causing a definite change in detail.  
Example: shift of detail in a focal point; e.g., suit lapels, facial detail.
  - iii. Serious shift: A major shift in detail between the specified standard and the sample causing misrepresentation or loss of identity.  
Example: loss of detail creating illegible department seal, plugged shadows or washed-out highlights.

## P-8 HALFTONE MATCH (CONTINUED)

### Demerit Assessment:

1. If a visible density shift occurs in a single illustration that occupies a two-page spread, for each page assess 100 demerits at Levels I and II, and 20 demerits at Levels III and IV.
2. A maximum of 100 demerits will be assessed per page.

### For category 1 only:

Assess 20 demerits if highlight or shadow dot structure is not maintained in the reproduction and 100 demerits if detail is lost. However, normal dropout of extreme highlights is acceptable.

Assess 20 demerits for excessive compression of highlights or shadows e.g., midtone shifts.

Demerit Table for Highlights		
Highlight densities are measured from an area of not less than 0.15 density on the Ok'd Press Sheet		
Quality Level		Demerits
Level I	$\pm 0.03$ to but not including $\pm 0.04$	4
	$\pm 0.04$ through and including $\pm 0.05$	20
	Greater than $\pm 0.05$	100
Level II	$\pm 0.04$ to but not including $\pm 0.05$	4
	$\pm 0.05$ through and including $\pm 0.06$	20
	Greater than $\pm 0.06$	100
Level III	$\pm 0.06$ to but not including $\pm 0.07$	4
	$\pm 0.07$ through and including $\pm 0.08$	20
	Greater than $\pm 0.08$	100
Level IV	$\pm 0.07$ to but not including $\pm 0.08$	4
	$\pm 0.08$ through and including $\pm 0.09$	20
	Greater than $\pm 0.09$	100
Level V	Not applicable	

P-8 HALFTONE MATCH (CONTINUED)

Demerit Table for Midtones Midtone densities are measured from an area between 0.45 to 0.60 on the Ok'd Press Sheet		
Quality Level		Demerits
Level I	± 0.10 to but not including ± 0.11	4
	± 0.11 through and including ± 0.12	20
	Greater than ± 0.12	100
Level II	± 0.11 to but not including ± 0.12	4
	± 0.12 through and including ± 0.13	20
	Greater than ± 0.13	100
Level III	± 0.12 to but not including ± 0.15	4
	± 0.15 through and including ± 0.20	20
	Greater than ± 0.20	100
Level IV	± 0.15 to but not including ± 0.20	4
	± 0.20 through and including ± 0.25	20
	Greater than ± 0.25	100
Level V	Not applicable	

Demerit Table for Shadows*		
Quality Level		Demerits
Level I	-0.02 to but not including -0.06	4
	-0.06 through and including -0.12	20
	Greater than -0.12	100
Level II	-0.02 to but not including -0.09	4
	-0.08 through and including -0.16	20
	Greater than -0.16	100
Level III	-0.02 to but not including -0.10	4
	-0.10 through and including -0.20	20
	Greater than -0.20	100
Level IV	-0.02 to but not including -0.10	4
	-0.10 through and including -0.25	20
	Greater than -0.25	100
Level V	Not applicable	

## P-8 HALFTONE MATCH (CONTINUED)

\*Tolerances in the shadow areas are based on the following solid ink densities:

Single Impression Black Halftones	
Coated Stock	1.40
Uncoated Stock	1.10

## P-9 SOLID OR SCREEN TINT COLOR MATCH

### Definition

Solid or screen tint color match is the density deviation between the reproduction and the specified standard. There are three categories of deviation.

#### Category 1

Single Color Solid or Tint

#### Category 2

Multicolor Solid or Tint

#### Category 1

Process Color Solid or Tint

### Instrument

Reflection densitometer

### Procedures

#### Procedure for Categories 1 & 2

Make a dry comparative densitometer reading using the filter that will indicate the highest density.

#### EXCEPTION TO CATEGORIES 1 & 2

- If a visible density shift occurs within or between, solid or tint (on a single page or on a two-page spread), assign 100 demerits at Levels I and II, and 20 demerits at Levels III and IV will be assessed for each page.

#### Procedure for Category 3

Use the scoring system for P-10 Process Color Match to determine demerits.

Demerit Table for Solid and/or Screen Tint		
Quality Level		Demerits
Level I	± 0.05 to but not including ± 0.10 density	4
	± 0.10 through and including ± 0.15 density	20
	Greater than ± 0.15 density	100
	Visible variation within a solid	100
Level II	± 0.07 to but not including ± 0.12 density	4
	± 0.12 through and including ± 0.17 density	20
	Greater than ± 0.17 density	100
	Visible variation within a solid	100
Level III	± 0.09 to but not including ± 0.14 density	4
	± 0.14 through and including ± 0.19 density	20
	Greater than ± 0.19 density	100
	Visible variation within a solid	20
Level IV	± 0.12 to but not including ± 0.17 density	4
	± 0.17 through and including ± 0.22 density	20
	Greater than ± 0.22 density	100
	Visible variation within a solid	20
Level	Not applicable	

## **P-10 PROCESS COLOR MATCH**

### **Definition**

Process color match is the fidelity of color match between the item being inspected and the specified standard. There are three categories of deviation.

#### **Category 1**

##### **PERCEPTIBLE**

A perceptible shift is a shift in color between the specified standard and the sample that is perceptible under standard viewing conditions but is not large enough to be classified as objectionable.

#### **Category 2**

##### **OBJECTIONABLE**

An objectionable shift is a shift between the specified standard and the sample causing a definite color change. Examples are fleshtones shifting slightly towards a yellow or magenta hue, green grass taking on a yellow or cyan cast, browns turning slightly reddish or yellowish, and overall density change.

#### **Category 3**

##### **SERIOUS**

A serious shift is a major shift in color between the specified standard and the sample causing inaccuracy, misrepresentation, or loss of identity. Examples are fleshtones, browns, and grays turning green or purple, green grass turning brown or magenta, plugged shadows, or washed out highlights.

### **Instrument**

Densitometer

### **Procedures**

1. Compare sample with specified standard for shifts in hue, saturation, and lightness under standard viewing conditions.
2. When a sample of production run press sheets (fan) is required:
  - a. Assess demerits to each page.
  - b. Combine corresponding sample number from all fans to construct a set of "equivalent books."
  - c. Calculate an ADL for each equivalent book.

### **Demerit Assessment**

A maximum of 100 demerits will be assessed per page.



P-10 PROCESS COLOR MATCH (CONTINUED)

Demerit Table for Process Color Match		
Quality Level		Demerits
Level I	Perceptible shift	20
	Objectionable shift	100
	Serious shift	Major Defect
Level II	Perceptible shift	4
	Objectionable shift	20
	Serious shift	100
Level III	Objectionable shift	20
	Serious shift	100
Level IV	Objectionable shift	20
	Serious shift	100
Level V	Not applicable	

## P-11 RUB RESISTANCE OF PRINTED IMAGE

### Definition

Rub resistance is the resistance of the printed image to smearing onto similar stock when rubbed with that stock. There are two categories of deviation.

#### Category 1

Rub-Resistance of Uncoated Image

#### Category 2

Rub-Resistance of Coated Image

NOTE: Coated includes the use of varnish, aqueous, and UV.

### Instruments

1. Reflection Densitometer
2. Rub Tester (Sutherland or equivalent)

### Procedures

#### Category 1

1. Calibrate the densitometer to the blank strip of stock.

2. Test a representative sample of the printed product on the Rub Tester. Give a 3" x 6" printed sample 25 rubs at a pressure of 1.0 P.S.I. against a 2" x 5 ¼" blank strip of stock similar to that on which the sample is printed.
3. Make three density readings in the area of highest density on the blank 2" x 5 ¼" test strip. Use the densitometer filter which indicates the maximum density for the color of ink used in the printed sample.
4. Calculate an average density for the rub-off smear based on the three independent density readings.
5. Perform all tests at least 72 hours after the printing operation.

#### Category 2

Follow the same procedure as Category 1 with the exception that each sample will be given 50 rubs at a pressure of 1.0 P.S.I.

Demerit Table for Category 1—Uncoated Image			
Quality Level			Demerits
All Levels	Type	0.04 to but not including 0.05 density	4
		0.05 through and including 0.06 density	20
		Greater than 0.06 density	100
All Levels	Halftones	0.05 to but not including 0.06 density	4
		0.06 through and including 0.07 density	20
		Greater than 0.07 density	100
All Levels	Solids	0.06 to but not including 0.07 density	4
		0.07 through and including 0.08 density	20
		Greater than 0.08 density	100

P-11 RUB-RESISTANCE OF PRINTED IMAGE (CONTINUED)

Demerit Table for Category 2—Coated Image		
Quality Level		Demerits
All Levels	0.12 to but not including 0.14 density	4
	0.14 through and including 0.16 density	20
	Greater than 0.16 density	100



# FINISHING ATTRIBUTES

## F-1 TRIM SIZE

### Definition

Trim size is the vertical and horizontal dimensions of the products. There are three categories of deviation.

### Category 1

Nonspecified trim size (finish size) is any deviation in the specified horizontal or vertical trim size.

### Category 2

Nonflush trim is any variation in length or width within a copy.

### Category 3

Unsquare trim is the angular misalignment of the trimmed edges of a copy.

### Instrument

Ruler graduated in 0.10"

### Procedures

#### Category 1

Determine the largest deviations of the horizontal and vertical trim from the specified finish size. Classify the

defect based on these deviations.

### Category 2

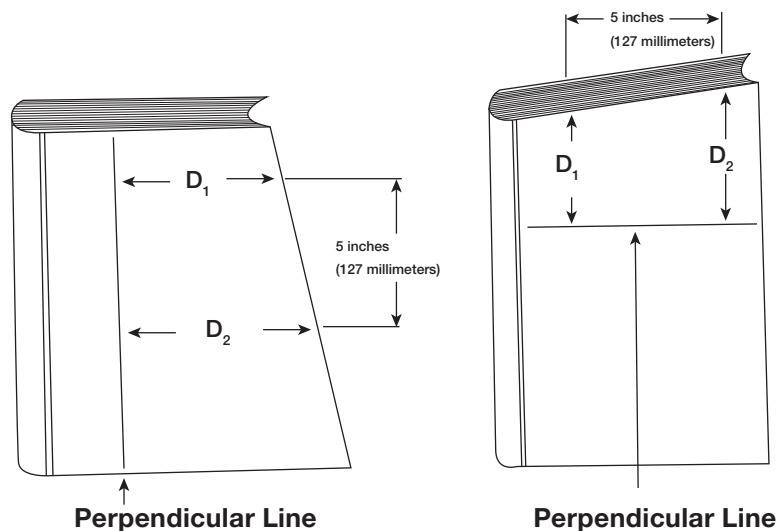
Determine the largest deviations in length and width between two pages in the copy. Classify the defect based on the greater deviation.

### Category 3

1. Draw a line perpendicular to the edge where the maximum angular misalignment occurs (see diagrams).
2. Measure distances  $D_1$  and  $D_2$  from this line to the edge that should be parallel to it.
3. Classify the defect based on the value of  $D_1 - D_2$ .

### Defect Assessment

Classify a single defect based on the most defective of the three categories.



F-1 TRIM SIZE (CONTINUED)

Tolerance Table for Category 1 Nonspecified Trim Size & Category 2 Nonflush Trim		
Quality Level		Defect
Level I	Greater than 1/16"	Major
Level II	Greater than 3/32"	Major
Level III	Greater than 1/8"	Major
Level IV	Greater than 1/8"	Major
Level V	Greater than 1/8"	Major

Tolerance Table for Category 3 Unsquare Trim		
Quality Level	(D <sub>1</sub> -D <sub>2</sub> at 5" distance)	Defect
Level I	Greater than .04"	Major
Level II	Greater than .04"	Major
Level III	Greater than .07"	Major
Level IV	Greater than .09"	Major
Level V	Greater than .09"	Major

## F-2 MISPLACEMENT AND MISALIGNMENT OF COVER IMAGE

### Definition

There are two categories of deviation.

#### Category 1

Misplacement is the difference between the specified and actual location of a printed image on a cover.

#### Category 2

Misalignment is the angular displacement from specifications of a printed image on a cover.

### Instrument

Ruler graduated in 0.10"

### Procedures

#### Category 1

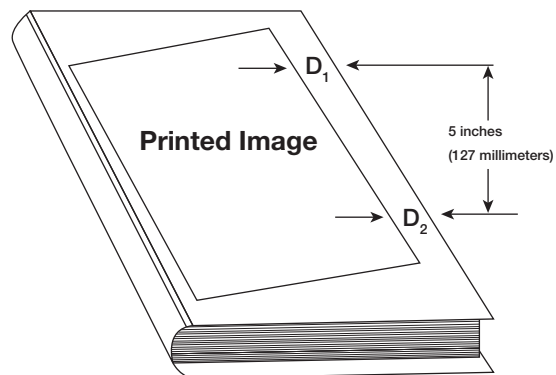
Measure both vertical and horizontal margins for conformance to specified dimensions. Classify the defect based on the greatest deviation.

#### Category 2

Measure the distance from the printed image to the edge of the cover at two points on the same edge exactly 5" (see illustration). If a 5" distance is not available on the copy being inspected, extend the image and edge of the cover on a blank sheet. Calculate the difference between the two measurements ( $D_1 - D_2$ ). Classify the defect based on this difference.

### Defect Assessment

Classify a single defect based on the more defective of the two categories.



F-2 MISPLACEMENT AND MISALIGNMENT OF COVER IMAGE (CONTINUED)

Tolerance Table for Category 1 Misplacement of Cover Image		
Quality Level		Defect
Level I	Greater than 1/16"	Major
Level II	Greater than 1/16"	Major
Level III	Greater than 3/32"	Major
Level IV	Greater than 3/32"	Major
Level V	Greater than 1/8"	Major

Tolerance Table for Category 2 Misalignment of Cover Image		
Quality Level	(D <sub>1</sub> -D <sub>2</sub> at 5" distance)	Defect
Level I	Greater than .04"	Major
Level II	Greater than .04"	Major
Level III	Greater than .07"	Major
Level IV	Greater than .09"	Major
Level V	Greater than .09"	Major



## F-3 COVER POSITION

### Definition

Cover position is the position of the text pages in relation to the cover.

1. Cover and text page overlap is defined as a misalignment or misplacement of the text pages in relation to the cover to such a degree that the text pages and cover are not flush.
2. Text pages flush with case is defined as a misalignment or misplacement of the text pages and/or endleaves in relation to the case to such a degree that the text pages and/or endleaves extend to the edge of the case.

### Instrument

Ruler graduated in 0.10"

### Procedure

Measure the distance from the edge of the cover to the endleaf or text at the shortest point.

Tolerance Table for Cover Position		
Quality Level		Defect
All Levels	Any overlap of cover or text pages	Critical
	Less than or equal to 1/16" to the point where the text pages and/or endleaf is flush with the case	Major

## F-4 FOLDING POSITION AND SKEWNESS

### Definition

There are two categories for folding.

#### Category 1

A deviation in folding position is the difference between the specified and actual position of a fold.

#### Category 2

Folding skewness is the angular displacement of a fold from the specified position.

### Instrument

Ruler graduated in 0.10"

### Procedures

#### Category 1

Measure the maximum deviation of the fold from the specified position.

#### Category 2

Measure the distance from the fold to the specified fold line at two points exactly 5" apart. If a 5" distance is not available, extend the two lines on a blank sheet. Calculate the difference in the two measurements and classify the defect on this value.

### Defect Assessment

Classify a single defect based on the more defective of the two categories.

Tolerance Table for Category 1 Deviation in Folding Position		
Quality Level		Defect
Level I	Greater than 1/16"	Major
Level II	Greater than 1/16"	Major
Level III	Greater than 1/16"	Major
Level IV	Greater than 3/32"	Major
Level V	Greater than 3/32"	Major

Tolerance Table for Category 2 Folding Skewness		
Quality Level	( $D_1 - D_2$ at 5" distance)	Defect
Level I	Greater than 0.18"	Major
Level II	Greater than 0.18"	Major
Level III	Greater than 0.18"	Major
Level IV	Greater than 0.26"	Major
Level V	Greater than 0.26"	Major

## F-5 PERFECT-BOUND BOOK DURABILITY

### Definition

Perfect-bound book durability is defined as the ability of the adhesive bound book to endure tests that simulate normal usage of the book during its expected useful life. Four tests will be used\*.

#### Test 1

Subway Test

#### Test 2

Page Pull Test

#### Test 3

Page Flex Test

\*An individual book should not be used in more than one of the tests.

### Instruments

1. Page Pull Tester
2. Flex Tester

### Procedures

#### Test 1

Open the book completely and bring the covers back to back. Perform this test in a minimum of three places:  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  of the way through the book.

#### Test 2

Test pages for the pounds of pull per inch of backbone required to separate the page from the adhesive line. Perform this test in a minimum of three places:  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  of the way through the book. The defect is classified based on the lowest pull value of the pages tested.

#### Test 3

Flex a page with 2.5 pounds (1,134 gm) of pull until the page separates from the adhesive line or reaches 126 flexes. Perform this test in a minimum of three places:  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  of the way through the book. Record the exact page numbers chosen for the test. If a test page separates from the adhesive line, retest that area of the book by moving 10 pages (5 leaves) in either direction from the original location of the defective page. Two failures are required in a book before a defect is assessed and the test may be terminated when two pages fail. The defect is classified by using the lowest number of flexes for any of the selected locations in the book.

NOTE: Failure of individual pages in tests 2 and 3 at a point other than the adhesive line will not be classified as a defect in the perfect binding.

### Defect Assessment

Only the most serious defect resulting from the tests above will be classified. For example, if a page pull is a major defect and page flex is a critical defect, the book would be assessed a single critical defect.

F-5 PERFECT-BOUND BOOK DURABILITY (CONTINUED)

Tolerance Table for Test 1 Subway Test		
Quality Level		Defect
All Levels	Any loosening of pages at any location	Critical

Tolerance Table for Test 2 Page Pull Test		
Quality Level		Defect
All Levels	2.0 lbs per inch of backbone to and including 1.5 lbs per inch of backbone	Major
	Less than 1.5 lbs per inch of backbone	Critical

Tolerance Table for Test 3 Page Flex Test		
Quality Level		Defect
All Levels	125 to and including 75 flexes	Major
	Less than 75 flexes	Critical

## F-6 LOOSE COVER, PAGES, AND BINDING

### Definition

Loose covers are defined as covers which are inadequately attached to the text. There are three categories.

#### Category 1

Case-bound Cover

#### Category 2

Glued Cover

#### Category 3

Sewn or Stitched Cover

### Procedures

#### Category 1

Inspect end sheets for wrinkles, bubbles, tears, looseness, tears in the gutter, and improper adherence of end sheets to cover. Inspect cover for looseness of binding materials such as headbands, backing, and crash.

#### Category 2

Inspect the cover and text to determine that they adhere to the spine at all points.

#### Category 3

Inspect for any looseness of the cover or text due to any improper stitching, sewing, and /or any signature starts.

Tolerance Table for Category 1 Case-bound		
Quality Level		Defect
All Levels	Wrinkles or bubbles in end sheets, end sheets loose or torn around the edges (with the cover securely fastened), or any looseness of binding materials	Major
	End sheets not glued securely all the way to the joint, or end sheet torn in gutter	Critical

Tolerance Table for Category 2 Glued Cover		
Quality Level		Defect
All Levels	Any looseness of cover or text	Major
	Any separation of cover or text from book	Critical

Tolerance Table for Category 3 Sewn or Stitched Cover		
Quality Level		Defect
All Levels	Any looseness of cover or text due to stitches or thread and/or any signature starts	Major
	Any separation of cover or text from book	Critical

## F-7 EXCESS GLUE

### Definition

Excess glue is defined as glue which is visible on the outside edge or the inside of the cover and/or text. This also includes damage affecting printed image or text.

### Instrument

Ruler graduated in 0.10"

### Procedure

1. Hold the ruler perpendicular to the glue line.
2. Measure the glue line at the point of maximum spread to determine the classification.
3. For perfect-bound publications, inspect spine for nail-head effect. Measure spine then subtract face of publication.

Tolerance Table for Excess Glue		
Quality Level		Defect
Level I	Greater than 1/16"	Major
Level II	Greater than 1/16"	Major
Level III	Greater than 1/8"	Major
Level IV	Greater than 1/8"	Major
Level V	Greater than 1/8"	Major
All Levels	Any damage from glue affecting print	Critical

## F-8 DAMAGED PAGES

### Definition

Damaged pages consists of four categories.

#### Category 1

Wrinkles radiating from the fold of a book

#### Category 2

Dog-ears and wrinkles greater than 1/8" at width

#### Category 3

Connected pages, e.g., are glue splatter or untrimmed signatures

#### Category 4

Torn pages

### Procedure

Calculate the percentage of damaged pages in relation to the number of pages in the book.

### Defect Assessment

Classify a single defect based on the most defective of the categories.

Tolerance Table for Category 1 Wrinkles		
Quality Level		Defect
Level I	Greater than 5%	Major
Level II	Greater than 8%	Major
Level III	Greater than 12%	Major
Level IV	Greater than 15%	Major
Level V	Greater than 25%	Major

Tolerance Table for Category 2 Dog-Ears and Wrinkles Greater than 1/8"		
Quality Level		Defect
Level I	A single dog-ear or greater than 1% wrinkle	Major
Level II	Greater than 2%	Major
Level III	Greater than 3%	Major
Level IV	Greater than 5%	Major
Level V	Greater than 7%	Major

Tolerance Table for Categories 3 Connected Pages and 4 Torn Pages		
Quality Level		Defect
Level I	A single connected or torn page	Major
Level II	Greater than 2%	Major
Level III	Greater than 5%	Major
Level IV	Greater than 7%	Major
Level V	Greater than 10%	Major

## F-9 DAMAGED EDGES

### Definition

Examples of damaged edges are untrimmed signatures and edges which are feathered, ragged, or burred.

### Instrument

Clear plastic grid consisting of ¼” squares

### Procedures

1. Measure damaged edges by placing the clear plastic grid over the entire edge where the damage is located.

2. Count the number of squares which cover the damage.
3. Calculate the percentage of squares containing the damage in relation to the number of squares within the entire edge.

### Defect Assessment

Classify the defect based on the edge of the copy that contains the most damage.

Tolerance Table for Damaged Edges		
Quality Level		Defect
Level I	Any visible burred, feathered, or ragged edges	Major
	Any untrimmed signatures	Critical
Level II	Greater than 5% burred, feathered, or ragged edges	Major
	Any untrimmed signatures	Major
Level III	Greater than 10% burred, feathered, or ragged edges	Major
	Any untrimmed signatures	Major
Level IV	Greater than 15% burred, feathered, or ragged edges	Major
	Any untrimmed signatures	Major
Level V	Greater than 25% burred, feathered, or ragged edges	Major
	Any untrimmed signatures	Major



## F-10 WARPAGE

### Definition

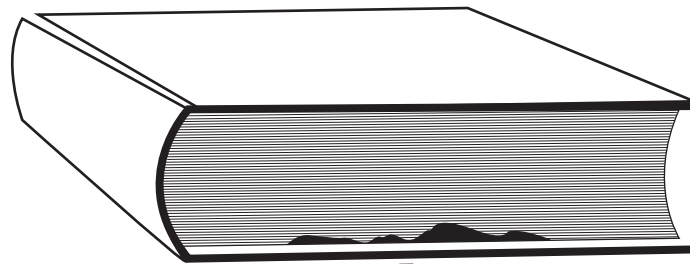
Warpage is defined as a deviation of any page or cover from the horizontal plane formed by a copy when lying on a flat surface.

### Procedure

Place the copy on a flat surface. Measure the maximum deviation perpendicular to the flat surface.

### Instrument

Ruler graduated in 0.10"



Cover Point of Maximum Vertical Deviation



Tolerance Table for Warpage		
Quality Level		Defect
Level I	Greater than 0.03"	Major
Level II	Greater than 0.03"	Major
Level III	Greater than 0.04"	Major
Level IV	Greater than 0.1"	Major
Level V	Greater than 0.12"	Major

## F-11 DAMAGED COVERS

### Definition

There are four categories of deviation.

#### Category 1

Wrinkles are ridges, furrows, or creases formed on the smooth surface of the spine or cover.

#### EXCEPTION TO CATEGORY 1

- Wrinkles in the spine of perfect-bound books are classified under a separate tolerance table.

#### Category 2

Bubbles are liftings of the covering on the surface of the cover or spine.

#### Category 3

Cuts are breaches in a cover which expose paper or cloth fibers.

#### Category 4

Scratches are blemishes which are visible under standard viewing conditions and which do not expose any paper or cloth fibers.

### Instrument

Clear plastic grid consisting of ¼" squares

### Procedures

1. Measure damaged covers by placing the clear plastic grid over the entire surface of the book where the damage is located.
2. Count the number of squares which cover the damage.
3. Calculate the percentage of squares that cover the damage in relation to the number of squares within the entire area.

### Defect Assessment

Classify the defect based on the side (Cover 1, Cover 4, or spine) of the copy that contains the most damage.

Tolerance Table for Damaged Covers*		
Quality Level		Defect
Level I	Any visible wrinkles, bubbles, or scratches	Major
	Any cuts	Critical
Level II	Any visible wrinkles, bubbles, or scratches	Major
	Any cuts	Critical
Level III	Greater than 10% wrinkles, bubbles, or scratches	Major
	Any cuts	Major
Level IV	Greater than 15% wrinkles, bubbles, or scratches	Major
	Any cuts	Major
Level V	Any cuts	Major

\*Note: See following table regarding wrinkles in spine of perfect-bound books.

F-11 DAMAGED COVERS (CONTINUED)

Tolerance Table for Wrinkles on Spine of Perfect-Bound Books		
Quality Level		Defect
Level I	Any visible wrinkles (standard viewing conditions)	Major
Level II	Greater than 5%	Major
Level III	Greater than 10%	Major
Level IV	Greater than 15%	Major
Level V	Greater than 20%	Major

## F-12 THROUGH F-18 OTHER MISCELLANEOUS FINISHING ATTRIBUTES

Tolerance Table for Miscellaneous Finishing Attributes			
	Attribute	QL	Defect
F-12	Missing Pages	All	Critical
F-13	Upside-Down Cover	All	Critical
F-14	Upside-Down Pages	All	Critical
F-15	Unspecified Blank Pages	All	Critical
F-16	Wrong Pagination	All	Critical
F-17	Loss of Information*	All	Critical
F-18	<i>Reserved**</i>		

\*Loss of Information is defined as any omission of or damage to the printed image which impairs the transmission of the intended information.

\*\* The previous F-18 attribute has been incorporated into P-10.

# GUIDE FOR EQUITABLE REDUCTIONS

## A GUIDE FOR EQUITABLE REDUCTIONS IN THE CONTRACT PRICE

As a guide, reductions in the contract price will be based on the defects in the sample and will be calculated as follows:

- a. A discount for critical defects will be determined from the table in Table A.
- b. A discount for major defects will be determined from the table in Table B.
- c. The contract price will be reduced by the sum of the two discounts. However, the total reduction in the contract price will not exceed 25%. Tables A & B list discounts as percentages of the contract price.

**TABLE A**  
**Discount Table for Critical Defects**

TABLE A Discount Table for Critical Defects [In percent]												
Number of Critical Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	.....	.....	.....	.....	.....
2	20.0	12.9	7.1	5.0	5.0	5.0	5.0	5.0	.....	.....	.....	.....
3	25	25	21.9	13.2	7.5	5.0	5.0	5.0	5.0	.....	.....	.....
4	25	25	25	23.0	13.6	8.3	5.0	5.0	5.0	5.0	.....	.....
5	25	25	25	25	20.2	12.6	7.4	5.0	5.0	5.0	.....	.....
6	25	25	25	25	25	17.2	10.2	6.0	5.0	5.0	5.0	.....
7	25	25	25	25	25	22.0	13.2	8.0	5.0	5.0	5.0	.....
8	25	25	25	25	25	25	16.3	9.9	5.7	5.0	5.0	5.0
9	25	25	25	25	25	25	19.5	12.0	7.0	5.0	5.0	5.0
10	25	25	25	25	25	25	22.8	14.1	8.3	5.0	5.0	5.0
11	25	25	25	25	25	25	25	16.2	9.6	5.6	5.0	5.0
12	25	25	25	25	25	25	25	18.4	10.9	6.5	5.0	5.0
13	25	25	25	25	25	25	25	20.5	12.3	7.4	5.0	5.0
14	25	25	25	25	25	25	25	22.8	13.7	8.2	5.0	5.0
15	25	25	25	25	25	25	25	25	15.1	9.1	5.2	5.0
16	25	25	25	25	25	25	25	25	16.5	10.0	5.7	5.0
17	25	25	25	25	25	25	25	25	17.9	11.0	6.3	5.0
18	25	25	25	25	25	25	25	25	19.3	11.9	6.9	5.0
19	25	25	25	25	25	25	25	25	20.8	12.8	7.5	5.0
20	25	25	25	25	25	25	25	25	22.2	13.7	8.0	5.0
21	25	25	25	25	25	25	25	25	23.7	14.7	8.6	5.0

TABLE A  
Discount Table for Critical Defects (continued)

TABLE A Discount Table for Critical Defects [In percent]												
Number of Critical Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
22	25	25	25	25	25	25	25	25	25	15.6	9.2	5.3
23	25	25	25	25	25	25	25	25	25	16.5	9.8	5.7
24	25	25	25	25	25	25	25	25	25	17.5	10.4	6.1
25	25	25	25	25	25	25	25	25	25	18.4	11.0	6.5
26	25	25	25	25	25	25	25	25	25	19.4	11.6	6.8
27	25	25	25	25	25	25	25	25	25	20.4	12.2	7.2
28	25	25	25	25	25	25	25	25	25	21.3	12.8	7.6
29	25	25	25	25	25	25	25	25	25	22.3	13.4	8.0
30	25	25	25	25	25	25	25	25	25	23.2	14.0	8.4
31	25	25	25	25	25	25	25	25	25	24.2	14.6	8.7
32	25	25	25	25	25	25	25	25	25	25	15.2	9.1
33	25	25	25	25	25	25	25	25	25	25	15.8	9.5
34	25	25	25	25	25	25	25	25	25	25	16.4	9.9
35	25	25	25	25	25	25	25	25	25	25	17.0	10.3
36	25	25	25	25	25	25	25	25	25	25	17.7	10.7
37	25	25	25	25	25	25	25	25	25	25	18.3	11.1
38	25	25	25	25	25	25	25	25	25	25	18.9	11.5
39	25	25	25	25	25	25	25	25	25	25	19.5	11.9
40	25	25	25	25	25	25	25	25	25	25	20.1	12.3
41	25	25	25	25	25	25	25	25	25	25	20.8	12.7
42	25	25	25	25	25	25	25	25	25	25	21.4	13.1
43	25	25	25	25	25	25	25	25	25	25	22.0	13.5
44	25	25	25	25	25	25	25	25	25	25	22.6	13.8
45	25	25	25	25	25	25	25	25	25	25	23.3	14.2
46	25	25	25	25	25	25	25	25	25	25	23.9	14.6
47	25	25	25	25	25	25	25	25	25	25	24.5	15.0
48	25	25	25	25	25	25	25	25	25	25	25	15.4
49	25	25	25	25	25	25	25	25	25	25	25	15.7
50	25	25	25	25	25	25	25	25	25	25	25	16.1
51	25	25	25	25	25	25	25	25	25	25	25	16.6
52	25	25	25	25	25	25	25	25	25	25	25	17.0
53	25	25	25	25	25	25	25	25	25	25	25	17.4
54	25	25	25	25	25	25	25	25	25	25	25	17.8
55	25	25	25	25	25	25	25	25	25	25	25	18.2

TABLE A  
Discount Table for Critical Defects (continued)

TABLE A Discount Table for Critical Defects [In percent]												
Number of Critical Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
56	25	25	25	25	25	25	25	25	25	25	25	18.6
57	25	25	25	25	25	25	25	25	25	25	25	19.0
58	25	25	25	25	25	25	25	25	25	25	25	19.4
59	25	25	25	25	25	25	25	25	25	25	25	19.8
60	25	25	25	25	25	25	25	25	25	25	25	20.2
61	25	25	25	25	25	25	25	25	25	25	25	20.6
62	25	25	25	25	25	25	25	25	25	25	25	21.0
63	25	25	25	25	25	25	25	25	25	25	25	21.4
64	25	25	25	25	25	25	25	25	25	25	25	21.8
65	25	25	25	25	25	25	25	25	25	25	25	22.2
66	25	25	25	25	25	25	25	25	25	25	25	22.6
67	25	25	25	25	25	25	25	25	25	25	25	23.0
68	25	25	25	25	25	25	25	25	25	25	25	23.4
69	25	25	25	25	25	25	25	25	25	25	25	23.8
70	25	25	25	25	25	25	25	25	25	25	25	24.3
71	25	25	25	25	25	25	25	25	25	25	25	24.7
72	25	25	25	25	25	25	25	25	25	25	25	25

**TABLE B**  
**Discount Table for Major Defects**

TABLE B Discount Table for Major Defects [In percent]												
Number of Major Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
1	5.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	5.0	5.0	5.0	5.0	.....	.....	.....	.....	.....	.....	.....	.....
3	9.8	5.9	5.0	5.0	5.0	.....	.....	.....	.....	.....	.....	.....
4	17.7	11.2	5.9	5.0	5.0	5.0	.....	.....	.....	.....	.....	.....
5	25	16.9	9.4	5.2	5.0	5.0	.....	.....	.....	.....	.....	.....
6	25	23.0	13.1	7.5	5.0	5.0	5.0	.....	.....	.....	.....	.....
7	25	25	16.9	9.9	5.4	5.0	5.0	.....	.....	.....	.....	.....
8	25	25	20.9	12.4	6.9	5.0	5.0	5.0	.....	.....	.....	.....
9	25	25	25	14.9	8.5	5.0	5.0	5.0	.....	.....	.....	.....
10	25	25	25	17.5	10.1	5.9	5.0	5.0	.....	.....	.....	.....
11	25	25	25	20.2	11.7	7.0	5.0	5.0	5.0	.....	.....	.....
12	25	25	25	22.9	13.4	8.0	5.0	5.0	5.0	.....	.....	.....
13	25	25	25	25	15.0	9.1	5.0	5.0	5.0	.....	.....	.....
14	25	25	25	25	16.7	10.2	5.7	5.0	5.0	.....	.....	.....
15	25	25	25	25	18.5	11.4	6.4	5.0	5.0	5.0	.....	.....
16	25	25	25	25	20.2	12.5	7.1	5.0	5.0	5.0	.....	.....
17	25	25	25	25	21.9	13.6	7.8	5.0	5.0	5.0	.....	.....
18	25	25	25	25	23.7	14.8	8.5	5.0	5.0	5.0	.....	.....
19	25	25	25	25	25	15.9	9.3	5.3	5.0	5.0	.....	.....
20	25	25	25	25	25	17.1	10.0	5.7	5.0	5.0	.....	.....
21	25	25	25	25	25	18.2	10.7	6.2	5.0	5.0	.....	.....
22	25	25	25	25	25	19.4	11.4	6.7	5.0	5.0	5.0	.....
23	25	25	25	25	25	20.6	12.2	7.1	5.0	5.0	5.0	.....
24	25	25	25	25	25	21.8	12.9	7.6	5.0	5.0	5.0	.....
25	25	25	25	25	25	23.0	13.7	8.1	5.0	5.0	5.0	.....
26	25	25	25	25	25	24.2	14.4	8.6	5.0	5.0	5.0	.....
27	25	25	25	25	25	25	15.2	9.0	5.0	5.0	5.0	.....
28	25	25	25	25	25	25	15.9	9.5	5.2	5.0	5.0	.....
29	25	25	25	25	25	25	16.7	10.0	5.6	5.0	5.0	.....
30	25	25	25	25	25	25	17.4	10.5	5.9	5.0	5.0	.....
31	25	25	25	25	25	25	18.2	11.0	6.2	5.0	5.0	5.0
32	25	25	25	25	25	25	18.9	11.5	6.5	5.0	5.0	5.0
33	25	25	25	25	25	25	19.7	11.9	6.8	5.0	5.0	5.0
34	25	25	25	25	25	25	20.5	12.4	7.1	5.0	5.0	5.0



TABLE B  
Discount Table For Major Defects (continued)

TABLE B Discount Table for Major Defects [In percent]												
Number of Major Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
35	25	25	25	25	25	25	21.2	12.9	7.4	5.0	5.0	5.0
36	25	25	25	25	25	25	22.0	13.4	7.7	5.0	5.0	5.0
37	25	25	25	25	25	25	22.8	13.9	8.0	5.0	5.0	5.0
38	25	25	25	25	25	25	23.6	14.4	8.3	5.0	5.0	5.0
39	25	25	25	25	25	25	24.3	14.9	8.6	5.0	5.0	5.0
40	25	25	25	25	25	25	25	15.4	8.9	5.0	5.0	5.0
41	25	25	25	25	25	25	25	15.9	9.2	5.2	5.0	5.0
42	25	25	25	25	25	25	25	16.4	9.5	5.4	5.0	5.0
43	25	25	25	25	25	25	25	16.9	9.9	5.6	5.0	5.0
44	25	25	25	25	25	25	25	17.4	10.2	5.8	5.0	5.0
45	25	25	25	25	25	25	25	17.9	10.5	6.0	5.0	5.0
46	25	25	25	25	25	25	25	18.4	10.8	6.2	5.0	5.0
47	25	25	25	25	25	25	25	18.9	11.1	6.4	5.0	5.0
48	25	25	25	25	25	25	25	19.4	11.4	6.6	5.0	5.0
49	25	25	25	25	25	25	25	19.8	11.7	6.8	5.0	5.0
50	25	25	25	25	25	25	25	20.3	12.0	7.0	5.0	5.0
51	25	25	25	25	25	25	25	20.8	12.3	7.2	5.0	5.0
52	25	25	25	25	25	25	25	21.3	12.6	7.4	5.0	5.0
53	25	25	25	25	25	25	25	21.8	12.9	7.6	5.0	5.0
54	25	25	25	25	25	25	25	22.3	13.3	7.8	5.0	5.0
55	25	25	25	25	25	25	25	22.8	13.6	8.0	5.0	5.0
56	25	25	25	25	25	25	25	23.3	13.9	8.2	5.0	5.0
57	25	25	25	25	25	25	25	23.8	14.2	8.4	5.0	5.0
58	25	25	25	25	25	25	25	24.3	14.5	8.6	5.0	5.0
59	25	25	25	25	25	25	25	24.9	14.8	8.8	5.0	5.0
60	25	25	25	25	25	25	25	25	15.2	9.0	5.0	5.0
61	25	25	25	25	25	25	25	25	15.5	9.2	5.1	5.0
62	25	25	25	25	25	25	25	25	15.8	9.4	5.2	5.0
63	25	25	25	25	25	25	25	25	16.1	9.6	5.3	5.0
64	25	25	25	25	25	25	25	25	16.4	9.9	5.5	5.0
65	25	25	25	25	25	25	25	25	16.8	10.1	5.6	5.0
66	25	25	25	25	25	25	25	25	17.1	10.3	5.7	5.0
67	25	25	25	25	25	25	25	25	17.4	10.5	5.8	5.0
68	25	25	25	25	25	25	25	25	17.7	10.7	6.0	5.0

TABLE B  
Discount Table For Major Defects (continued)

TABLE B Discount Table for Major Defects [In percent]												
Number of Major Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
69	25	25	25	25	25	25	25	25	18.0	10.9	6.1	5.0
70	25	25	25	25	25	25	25	25	18.4	11.1	6.2	5.0
71	25	25	25	25	25	25	25	25	18.7	11.3	6.4	5.0
72	25	25	25	25	25	25	25	25	19.0	11.5	6.5	5.0
73	25	25	25	25	25	25	25	25	19.3	11.7	6.6	5.0
74	25	25	25	25	25	25	25	25	19.7	11.9	6.7	5.0
75	25	25	25	25	25	25	25	25	20.0	12.1	6.9	5.0
76	25	25	25	25	25	25	25	25	20.3	12.3	7.0	5.0
77	25	25	25	25	25	25	25	25	20.6	12.5	7.1	5.0
78	25	25	25	25	25	25	25	25	20.9	12.7	7.3	5.0
79	25	25	25	25	25	25	25	25	21.3	12.9	7.4	5.0
80	25	25	25	25	25	25	25	25	21.6	13.2	7.5	5.0
81	25	25	25	25	25	25	25	25	21.9	13.4	7.7	5.0
82	25	25	25	25	25	25	25	25	22.2	13.6	7.8	5.0
83	25	25	25	25	25	25	25	25	22.6	13.8	7.9	5.0
84	25	25	25	25	25	25	25	25	22.9	14.0	8.0	5.0
85	25	25	25	25	25	25	25	25	23.2	14.2	8.2	5.0
86	25	25	25	25	25	25	25	25	23.5	14.4	8.3	5.0
87	25	25	25	25	25	25	25	25	23.9	14.6	8.4	5.0
88	25	25	25	25	25	25	25	25	24.2	14.8	8.6	5.0
89	25	25	25	25	25	25	25	25	24.5	15.0	8.7	5.0
90	25	25	25	25	25	25	25	25	24.8	15.2	8.8	5.0
91	25	25	25	25	25	25	25	25	25	15.4	9.0	5.0
92	25	25	25	25	25	25	25	25	25	15.7	9.1	5.1
93	25	25	25	25	25	25	25	25	25	15.9	9.2	5.2
94	25	25	25	25	25	25	25	25	25	16.1	9.3	5.3
95	25	25	25	25	25	25	25	25	25	16.3	9.5	5.3
96	25	25	25	25	25	25	25	25	25	16.5	9.6	5.4
97	25	25	25	25	25	25	25	25	25	16.7	9.7	5.5
98	25	25	25	25	25	25	25	25	25	16.9	9.9	5.6
99	25	25	25	25	25	25	25	25	25	17.1	10.0	5.7
100	25	25	25	25	25	25	25	25	25	17.3	10.1	5.8
101	25	25	25	25	25	25	25	25	25	17.5	10.3	5.8
102	25	25	25	25	25	25	25	25	25	17.7	10.4	5.9
103	25	25	25	25	25	25	25	25	25	18.0	10.5	6.0

TABLE B  
Discount Table For Major Defects (continued)

TABLE B Discount Table for Major Defects [In percent]												
Number of Major Defects	Number of Copies in Sample											
	2	3	5	8	13	20	32	50	80	125	200	315
104	25	25	25	25	25	25	25	25	25	18.2	10.7	6.1
105	25	25	25	25	25	25	25	25	25	18.4	10.8	6.2
106	25	25	25	25	25	25	25	25	25	18.6	10.9	6.3
107	25	25	25	25	25	25	25	25	25	18.8	11.1	6.3
108	25	25	25	25	25	25	25	25	25	19.0	11.2	6.4
109	25	25	25	25	25	25	25	25	25	19.2	11.3	6.5
110	25	25	25	25	25	25	25	25	25	19.4	11.4	6.6
120	25	25	25	25	25	25	25	25	25	21.5	12.8	7.4
130	25	25	25	25	25	25	25	25	25	23.7	14.1	8.3
140	25	25	25	25	25	25	25	25	25	25	15.4	9.1
150	25	25	25	25	25	25	25	25	25	25	16.7	10.0
160	25	25	25	25	25	25	25	25	25	25	18.1	10.8
170	25	25	25	25	25	25	25	25	25	25	19.4	11.7
180	25	25	25	25	25	25	25	25	25	25	20.8	12.5
190	25	25	25	25	25	25	25	25	25	25	22.1	13.4
200	25	25	25	25	25	25	25	25	25	25	23.4	14.2
210	25	25	25	25	25	25	25	25	25	25	24.8	15.1
220	25	25	25	25	25	25	25	25	25	25	25	15.9
230	25	25	25	25	25	25	25	25	25	25	25	16.8
240	25	25	25	25	25	25	25	25	25	25	25	17.6
250	25	25	25	25	25	25	25	25	25	25	25	18.5
260	25	25	25	25	25	25	25	25	25	25	25	19.4
270	25	25	25	25	25	25	25	25	25	25	25	20.2
280	25	25	25	25	25	25	25	25	25	25	25	21.1
290	25	25	25	25	25	25	25	25	25	25	25	21.9
300	25	25	25	25	25	25	25	25	25	25	25	22.8
310	25	25	25	25	25	25	25	25	25	25	25	23.7
320	25	25	25	25	25	25	25	25	25	25	25	24.5
330	25	25	25	25	25	25	25	25	25	25	25	25.0

# APPENDIX

## Printing and Binding Problem Index

**THIS INDEX IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.  
IT IS NOT PART OF THE CONTRACT.**

This index has been compiled to assist readers in determining if, and where, a specific printing or binding problem is addressed in this publication. It is suggested that this information be read before using the index.

### Instructions for Using This Index

This index refers readers to attributes in this publication and sections in **GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**. The four types of references used in the index are explained below.

#### 1. Items Covered By QATAP

If QATAP covers a problem, the applicable printing (P) or finishing (F) attribute number is shown. If an item is listed under two different categories, two entries are shown.

Example:

Copy  
unreadable. . . . . P-7, F-17

Note: QATAP does NOT cover multiple-part forms, marginally-punched forms, or specialty items.

Paper problems do not show an attribute number, only a category number.

Conspicuous single page defects can apply to numerous problems, and thus are not referenced for any items; see page 4.

#### 2. Items Specifically Covered By **GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**

If a subject is not covered in QATAP but is specifically addressed in the **GPO Contract Terms, Solicitation**

**Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**, CT and an item number is shown.

Example:

Banding  
not sealed . . . . . CT3f

#### 3. Items Covered By **GPO Contract Terms, Solicitation Provisions, Supplemental Specifications, and Contract Clauses 310.2 (Rev. 01-18)**

If a subject is not specifically addressed in either document, but would be covered by the General Quality, Section 2(b), CT2 is shown.

Example:

Laminating  
wrinkled. . . . . CT2

#### 4. Items Covered By Specifications

If the subject is addressed in the specifications or other contract documents of the job (amendments to Purchase Orders, etc.), NPS (not per specifications) is shown.

Example:

Quality Assurance Samples  
missing specifications . . . . . NPS

## APPENDIX

### Printing and Binding Problem Index (continued)

Adhesive		not supplied . . . . .	NPS
excessive . . . . .	F-7	shortage . . . . .	NPS
not durable . . . . .	F-5, F-6		
		Broken Type . . . . .	P-7
Backstrip			
missing copy . . . . .	F-17	Bundles	
		breaking open . . . . .	CT3h
		not tied . . . . .	CT3h
		not wrapped . . . . .	CT3h
		unlabeled . . . . .	CT4
Banding		Cartons	
broken . . . . .	CT3f	broken . . . . .	CT3
not done . . . . .	CT3f	contractor advertising . . . . .	CT4
too narrow . . . . .	CT3f	improper packing . . . . .	CT3
wrong quantity . . . . .	NPS	mislabeled . . . . .	CT4
		not packed solidly . . . . .	CT3
		not taped securely . . . . .	CT3
		wrong size . . . . .	CT3
		wrong weight . . . . .	CT3
Bar Coding			
missing . . . . .	F-17	Case-Bound Books	
not readable . . . . .	F-17	cover creases . . . . .	F-11
numbering—		cover damage . . . . .	F-11
not consecutive . . . . .	NPS	cover furrows . . . . .	F-11
wrong system . . . . .	NPS	cover ridges . . . . .	F-11
		cover warped . . . . .	F-10
		cover wrinkles . . . . .	F-11
		durability . . . . .	F-6
		extra blank pages . . . . .	F-15
		loose end sheets . . . . .	F-6
		loose pages . . . . .	F-6
		missing pages . . . . .	F-12
		sewing missing . . . . .	NPS
		spine creases . . . . .	F-11
		spine furrows . . . . .	F-11
		spine ridges . . . . .	F-11
		spine wrinkles . . . . .	F-11
Binding			
loose pages . . . . .	F-5, F-6		
wrong kind . . . . .	NPS		
wrong position . . . . .	NPS		
Blank Pages			
additional . . . . .	F-15		
missing copy . . . . .	F-17		
Bleed			
not occurring . . . . .	P-5		
unintentional . . . . .	P-5		
Bleed Through . . . . .	P-2		
Blue Box Sample			
missing certificate . . . . .	NPS		
missing specifications . . . . .	NPS		

## APPENDIX

### Printing and Binding Problem Index (continued)

sewing broken . . . . .	F-6	upside-down . . . . .	F-13
torn end sheets . . . . .	F-6	wrinkled . . . . .	F-11
torn pages . . . . .	F-8	wrong binding . . . . .	NPS
upside-down cover . . . . .	F-13	wrong ink color . . . . .	NPS
upside-down pages . . . . .	F-14	wrong paper . . . . .	NPS
warpage . . . . .	F-10	wrong position . . . . .	NPS
wrong pagination . . . . .	F-16		
		Cover Image	
Collation		misaligned . . . . .	F-2
wrong . . . . .	F-16	misplaced . . . . .	F-2
		missing . . . . .	F-17
Contractor Advertising		skewed . . . . .	F-2
on carton . . . . .	CT4	wrong position . . . . .	F-2
on label . . . . .	CT4		
		Crossover	
Contractor ID		color mismatched . . . . .	P-9, P-10
on product . . . . .	CT9	misaligned . . . . .	P-5
Copy		Damaged	
missing because of—		cover . . . . .	F-11
finishing . . . . .	F-17	cover (warped) . . . . .	F-10
ink loss . . . . .	F-17	pages . . . . .	F-8
too dark . . . . .	P-7	text edges . . . . .	F-9
too light . . . . .	P-7	text pages . . . . .	F-8
unreadable . . . . .	F-17		
wrong pagination . . . . .	F-16	Delivery	
		late . . . . .	NPS
Covers		mislabeled . . . . .	CT4b
cut . . . . .	F-11	pallets—	
damaged . . . . .	F-11	not used . . . . .	CT8
loose . . . . .	F-6	wrong packing . . . . .	CT8
missing . . . . .	F-12	short . . . . .	CT11
missing copy . . . . .	F-17	wrong place . . . . .	CT5
not square . . . . .	F-1		
not flush . . . . .	F-3	Die Cutting	
scratched . . . . .	F-11	missing . . . . .	NPS
scuffed . . . . .	P-11, F-11	out of register . . . . .	NPS
stitches loose . . . . .	F-6	skewed . . . . .	NPS

## APPENDIX

### Printing and Binding Problem Index (continued)

wrong die . . . . .	NPS	torn . . . . .	F-6
<b>Distribution</b>		<b>Envelopes</b>	
shipment not made . . . . .	CT5	glue—	
wrong labeling . . . . .	CT4	not holding . . . . .	CT2
wrong product shipped . . . . .	NPS	prestuck . . . . .	CT2
wrong quantity shipped . . . . .	NPS	wrong place . . . . .	NPS
		stuck together . . . . .	CT2
<b>Dog-Eared</b>		warped . . . . .	CT2
cover . . . . .	F-11		
pages . . . . .	F-8	<b>Excess Glue.</b> . . . . .	F-7
<b>Doubling</b> . . . . .	P-7	<b>Extraneous Marks</b>	
		bleed through . . . . .	P-2
<b>Drilling</b>		gear marks . . . . .	P-2
missing . . . . .	NPS	hickies . . . . .	P-1
wrong place . . . . .	NPS	ink bleed through . . . . .	P-2
wrong size . . . . .	NPS	oil marks . . . . .	P-2
		plate scratches . . . . .	P-2
<b>Duotone</b>		scratches . . . . .	P-2, F-8
missing color . . . . .	NPS	scumming . . . . .	P-2
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out of register . . . . .	P-4	show through . . . . .	CT2
		smearing . . . . .	P-2
<b>Edges</b>		spots . . . . .	P-1
damaged—		strike-through . . . . .	CT2
text . . . . .	F-9		
cover . . . . .	F-11	<b>Facing Pages</b>	
		color mismatched . . . . .	P-8, P-9, P-10
<b>Embossing</b>		misaligned . . . . .	P-5, F-4
missing . . . . .	NPS		
out of register . . . . .	CT2	<b>Foil Stamping</b>	
skewed . . . . .	P-5, F-2, CT2	missing . . . . .	NPS
wrong position . . . . .	P-5, F-2, CT2	not adhering . . . . .	F-17, CT2
		out of register . . . . .	CT2
<b>End Sheets</b>		skewed . . . . .	P-5, F-2
loose . . . . .	F-6	wrong color . . . . .	NPS
missing . . . . .	NPS	wrong die . . . . .	NPS

## APPENDIX

### Printing and Binding Problem Index (continued)

wrong position . . . . .	NPS	Ghosting . . . . .	P-2, P-9
<b>Folding</b>		<b>GPO Imprint</b>	
not square . . . . .	F-4	missing . . . . .	CT9
skewed . . . . .	F-4	wrong copy . . . . .	CT9
undesired . . . . .	NPS		
wrinkles . . . . .	F-8, F-11	<b>Glue</b>	
wrong kind . . . . .	NPS	excess . . . . .	F-7
wrong position . . . . .	F-4	missing . . . . .	F-5, F-6
		not durable . . . . .	F-5
		not holding . . . . .	F-5, F-6
<b>Folio Numbers</b>			
missing . . . . .	F-17	<b>Halftones</b>	
skewed . . . . .	P-5	bleed—	
wrong number . . . . .	F-17	not occurring . . . . .	P-5
wrong position . . . . .	P-5, F-4	unintentional . . . . .	P-5
		blurred . . . . .	P-8
<b>Forms</b>		contrast—	
packing: wrong number order . . . . .	CT3a	too contrasty . . . . .	P-8
parts misaligned . . . . .	CT12f	too flat . . . . .	P-8
perforation—		density—	
missing . . . . .	NPS	not matched . . . . .	P-8
skewed . . . . .	CT2	too dark . . . . .	P-8
stub perforation missing . . . . .	CT12g	too light . . . . .	P-8
tenting . . . . .	CT2	detail lost . . . . .	P-8, F-17
wrinkled . . . . .	CT2	flopped . . . . .	NPS
wrong numbering . . . . .	NPS	misaligned . . . . .	P-5
wrong packing . . . . .	NPS	misplaced . . . . .	P-5
wrong stub . . . . .	NPS	missing . . . . .	F-17
		missing captions . . . . .	F-17
<b>Furnished Material</b>		mottled . . . . .	P-8
not returned . . . . .	CT10	multicolor register . . . . .	P-4
not used . . . . .	NPS	not matched . . . . .	P-8
		plugged . . . . .	P-8
<b>Gas Ghosting . . . . .</b>	P-9	skewed . . . . .	P-5
		upside-down . . . . .	NPS
<b>Gear—</b>		wrong caption . . . . .	F-17
marks . . . . .	P-2	wrong cropping . . . . .	NPS
streaks . . . . .	P-2		



## APPENDIX

### Printing and Binding Problem Index (continued)

wrong image . . . . .	F-17	Image Ruboff . . . . .	P-11
wrong position . . . . .	P-5		
wrong size . . . . .	NPS	Image Transfer (forms)	
		desired (not occurring properly)—	
Hickies . . . . .	P-1	NCR . . . . .	CT2
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## APPENDIX

### Printing and Binding Problem Index (continued)

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### Printing and Binding Problem Index (continued)

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