

**IBM**
 IR  
 QUALITY ENGINEERING  
 LABORATORY BÖBLINGEN

 Title: FOLDING ENDURANCE AFTER  
 AGING -- 7 AND 9 POINT CARD STOCK

## 1.0 INTRODUCTION

### 1.1 SCOPE

- 1.1.1 This document establishes the method for determining folding endurance after aging of 7 and 9 point card stock.
- 1.1.2 Folding endurance after aging tests reflects the relative ability of data processing card stock to retain its physical strength after long periods of time.

### 1.2 REFERENCES

#### 1.2.1 Specifications

IBM-IRD 7-02-0101 -- Card Stock IBM Information Processing Cards

IBM-IRD 7-02-0201 -- Card Stock Nine Point Data Processing

IBM 894502 -- Data Processing Card Stock 7 Point

IBM 894507 -- Data Processing Card Stock 9 Point

#### 1.2.2 Standards

TAPPI T402 -- Conditioning Paper and Paperboard for Testing

TAPPI T453 -- Relative Stability of Paper

### 1.3 AUTHORIZATION

- 1.3.1 This document is authorized by the Manager of Quality Assurance.

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#### 1.4 TEST EQUIPMENT/MATERIAL

- 1.4.1 Fisher Scientific Forced Draft Isotemp Oven or approved equivalent.
- 1.4.2 Folding Endurance Paper Tester (MIT).
- 1.4.3 JDC Precision Sample Cutter, Model JDC #15.

### 2.0 PROCEDURE

#### 2.1 SAMPLE PREPARATION

- 2.1.1 The test sample shall consist of five standard data processing cards from which one specimen (4-1/4" x 9/16") is cut in the machine direction (total of five samples).
- 2.1.2 The test specimens shall be placed in the Isotemp oven (or equivalent) for 72 hours at  $105^{\circ} \pm 2^{\circ}C$ .
- 2.1.3 After 72 hours, remove specimens from oven and allow samples to condition a minimum of two hours. Environment for conditioning and testing shall be in accordance with TAPPI T402 ( $73 \pm 3.5^{\circ}F$  and  $50 \pm 2\%$  RH for a minimum of two hours).

### 3.0 TEST INSTRUCTIONS

NOTE: Refer to applicable specification (Reference 1.2.1) for actual value(s) to be tested.

- 3.1 Place the oscillating folding head in the position of zero fold with both sets of clamp faces perpendicular.

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- 3.2 Place a 1 kg weight on top of the plunger (Figure 1) to preload sample with a specified tension.
- 3.3 Clamp the specimen firmly and squarely in the jaws and ensure that the surface of the specimen is not touching the jaw mounting plate. (Figure 1). Be careful not to touch the sample at the folding point.
- 3.4 Remove the weight from the plunger, if the reading of the load indicator has changed because of slack or sample stretching reset it by means of the plunger tension adjusting screw to 1 kg.
- 3.5 Turn on the instrument and fold the strip until it is severed at the crease.
- 3.6 Record the total number of double folds required to sever all five specimens.

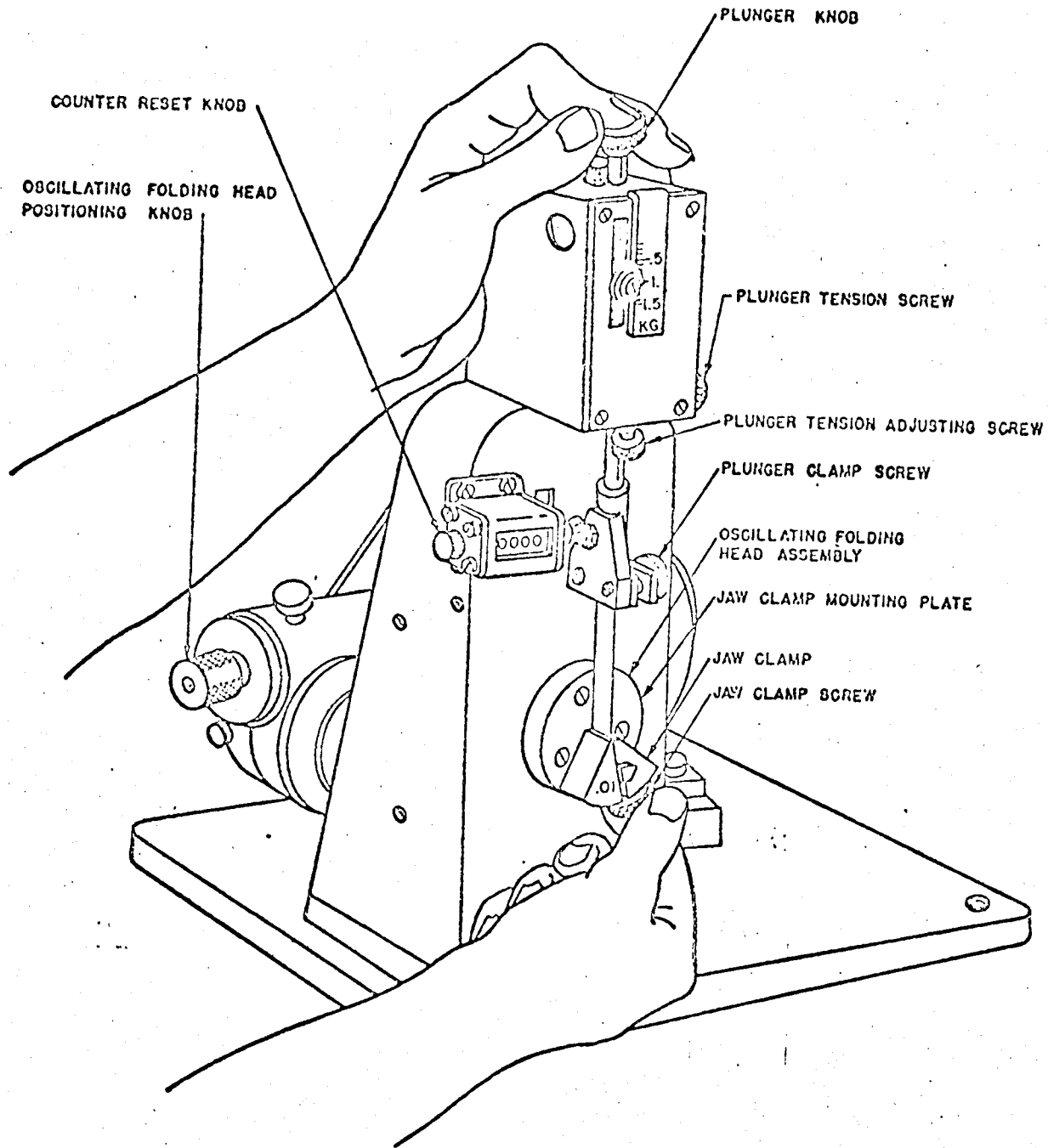
#### 4.0 REPORTING

- 4.1 Report the average number of double folds required to sever the specimen after aging.
- 4.2 Report the average folding endurance after aging as a percentage of the average folding endurance of the unheated specimens, expressed to the nearest whole number.

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FOLDING ENDURANCE TESTER

M.I.T.

Figure 1