

# GATF ACCEPTANCE TEST

## SPECIFICATIONS & EXPECTATIONS

Sheetfed Press - 6 Color Medium Format Version

The press being tested for acceptance is to be prepared according to specifications and standards as stated in the press manufacturer's Press Manual. This includes all mechanical settings and packing specifications. At the start of the GATF Grid Test all mechanical devices will be set at its zero point. (Centering, lateral and circumferential and cocking devices.)

Printing materials and components necessary for successful printing (i.e.: blankets, rollers, inks, fountain solutions, etc.) on this press must be the same as or similar to those currently used on similar presses running successfully in this geographical area. These components must be readily available in this geographical area. There must be no special or unusual requirements for the above-described printing components to enable the press to print acceptably.

Evaluation for all tests will be based on sample sets consisting of 30 consecutive sheets taken at specified speeds. Printed test sheets are to be maintained by the company requesting the testing for a period of three years. Final analysis and acceptance determination will be based on the test results, evaluations and conclusions of the GATF Representative.

Testing will commence not later than 30 days after completion of installation or repair job. This will allow the press manufacturer to debug all systems and allow the press operators to learn the press. It is necessary for the press manufacturer to have a demonstrator and mechanic on premises to help with and observe the testing.

Measurement Device: Densitometer (Wide Band Status "T")

## CONSUMABLES

Preferred Vendors:

Ink – See press manufacturer's/customer's preferred supplier.

Blankets – See press manufacturer's/customer's preferred supplier.

Fountain Solution – See press manufacturer's/customer's preferred supplier.

Wash-up – See press manufacturer's/customer's preferred supplier

Substrate: 10,000 sheets (28" x 40") 100 lb. #1 C2S

5,000 sheets (28" x 40") 80lb. # 2 C2S

Total Quantity – 15000 Sheets

## TEST NUMBER ONE – DRY SOLID TEST

**PURPOSE:** To identify ink charge characteristics, streaking problems, damaged and/or patched cylinders, and evaluation of print pressure and impression cylinder abnormalities.

**PROCESS:** New print blankets are installed to each print unit. Each blanket is packed to the press manufacturer's specifications and verified by measurement with a packing gauge. No image or coating, bare metal, test plates will be mounted on each of the press's printing units. Each test plate is packed to the press manufacturer's specifications and verified by measurement with a packing gauge. The print impression setting will be set to normal for the caliper of the substrate being run. Each unit will be tested separately. Dry solid impression breakaways will be printed at the normal impression, and at settings where the impression cylinder is backed away by 0.002" (0.05mm), 0.04" (0.10mm), and 0.006" (0.15mm) or until break-a-way is achieved.

Ink Color - Cyan

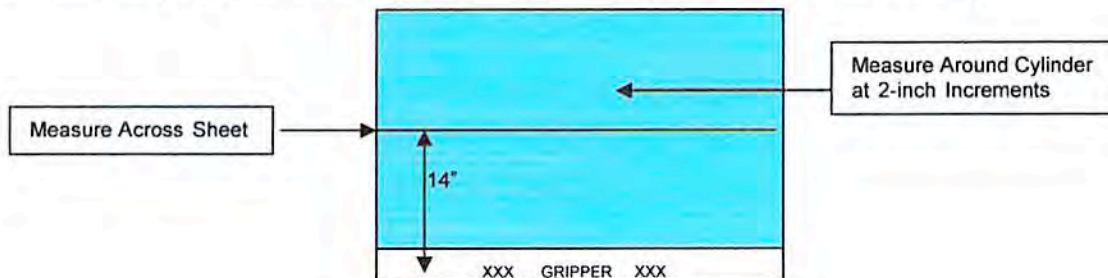
Ink Densities..... Cyan 1.40 +/- 0.08 (Status T)

Paper..... (28" x 40") 80 lb. C2S

Sample sets (10 Consecutive Sheets) taken at standard impression and all break-a-way settings while running at 50% of rated press speed. Measurements will be taken on two consecutive sheets.

### TEST EXPECTATIONS

1. The Dry Solid Test will be performed on each printing unit.
2. Obtain desired ink density along the center of the sheet. (14" back/gripper)
3. The target is to have no more than 0.06 "Density Fall Off" at any point from the lead edge to the tail of the sheet. Measurements of 0.07 and greater "Density Fall Off" at any point described above is unacceptable. Measurements (12) are taken in the same ink zone (around the cylinder) at 2-inch increments, on sheets printed at normal pressure settings for the substrate being printed.
4. At this point no corrections should be made. Streaks are to be noted but no action taken.
5. Break-a-way dry solids to be printed at (-) 0.002", (-) 0.004", and (-) 0.006" or until break-a-way is achieved, from normal settings for substrate being printed.
6. Breakaway Point of all units has to be comparable. (Within 0.0004" or 0.01mm)



## TEST NUMBER TWO - WET SOLID TEST

**PURPOSE:** To evaluate the dampening system capabilities and roller streaking. To identify any streaking not seen on the dry solids test.

**PROCESS:** The Wet Solids Test will proceed at the same time as the Dry Solids Test with the introduction of the dampening system. Each unit will be tested separately. The blankets used on the Dry Solids Test will remain on the press. Printing plates will be made to print a solid image with a one inch white space border around the sheet on all four sides. Color bars are to be included in the border along the gripper or tail of the sheet. Each test plate is packed to the press manufacturer's specifications and verified by measurement with a packing gauge. The print impression setting will be set to normal for the caliper of the substrate being run. Each unit will be tested separately.

Ink Color - Cyan

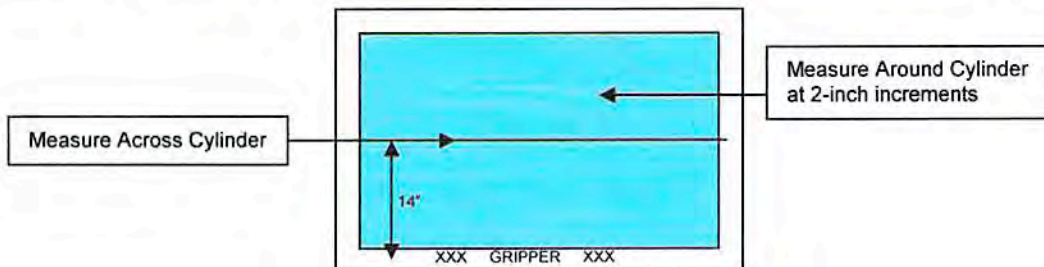
Ink Densities..... Cyan 1.40 +/- 0.08 (Status T)

Paper ..... (28" x 40") 80 lb. C2S

Sample sets (10 Consecutive Sheets) taken at 50% rated speed taken at standard impression setting.

### TEST EXPECTATIONS

1. Obtain desired ink density of 1.40 +/- 0.08 along the center of the sheet. (14" back from gripper)
2. The target is to have no more than .06 "Density Fall Off" at any point from the lead edge to the tail of the sheet. Measurements of 0.07 and greater "Density Fall Off" at any point described above is unacceptable and press manufacturer is responsible for corrections. Measurements (12) are taken in the same ink zone (around the cylinder) at 2-inch increments, on sheets printed at normal pressure settings for the substrate being printed.



# TEST NUMBER THREE - GHOSTING TEST

**PURPOSE:** The press will be tested for ghosting characteristics.

**PROCESS:** The GATF Ghost Test Form will be plated, mounted and run on each unit of the press, one unit at a time. Each unit will be tested and evaluated for ghosting characteristics. If results are good on two units, additional testing of all remaining units may not be necessary.

Ink Color:..... PMS 477 Brown

1.65

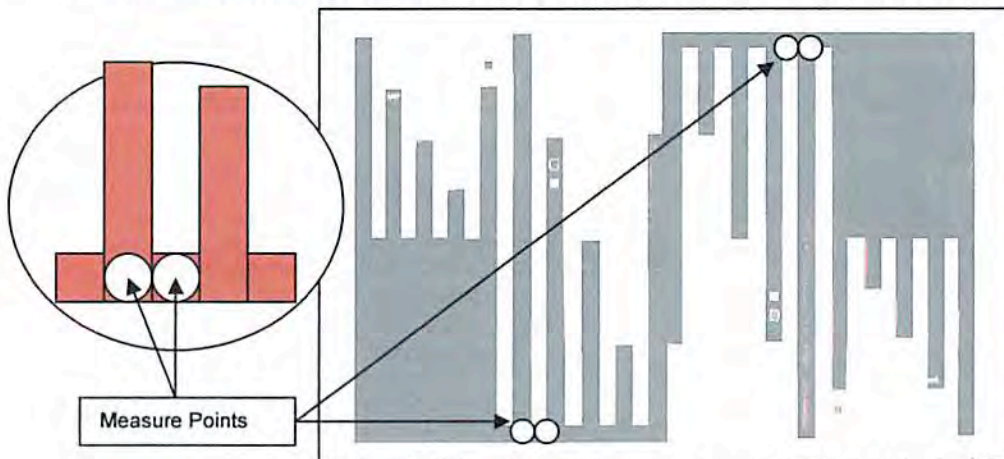
Ink Density ..... PMS Book Density - ~~1.75~~Y +/- 0.08 (Status T)

Paper:..... (28" x 40") 80 lb. C2S

Sample sets (30 Consecutive Sheets) taken at 50% rated speed taken at standard impression setting. Measurements will be taken on two consecutive sheets.

## TEST EXPECTATIONS:

1. Densities readings will be measured with a Status-T Densitometer.
2. There should not be any significant "Repeats of the GATF Logo and Squares" found on the form.
3. There should not be any significant "Re-roll" ghosts, positive or negative.
4. Densities readings taken below the bar, which prints the full 24" around the cylinder and directly to the right below the white space beside it, should have a difference of no more than .06 density.
5. A density difference of over (.06) indicates ghosting problems and is unacceptable.



# TEST NUMBER FOUR – STREAKING

**PURPOSE:** The press will be tested for streaking characteristics.

**PROCESS:** The Streaking Test consists of full coverage, 30% 150 line screen tints, angled at conventional process angles. Four plates are imaged, one for each printing unit 1 through 4. All four colors are printed simultaneously at optimum press speed. Additional testing of all remaining units, 5 & 6 will be linked with two other units.

Color rotation to be Black, Cyan, Magenta and Yellow.

Ink Densities.....Black - 1.70  
Cyan - 1.40  
Magenta – 1.50  
Yellow 1.05

Paper .....(28” x 40”) 100# C2S

Two runs testing four units at a time will be made.

First run on the first four units.  
Second run on the last four units.

Sample Sets (30 Consecutive Sheets) take at 85% of rated maximum speed.

Test Expectations:

GATF representative discretion.



# TEST NUMBER FIVE - GRID / (REGISTER)

**PURPOSE:** The GATF Register Test Grid is used to test register on multicolor presses equipped with pin register systems. The Register Test Grid also indicates the consistency of register between each printing unit.

**PROCESS:** Identical GATF Register Test Grid plates are imaged, using the same screen angle, for each printing unit. Each plate is made either CTP or from film. One plate is mounted on each printing unit. All units will be run simultaneously to check for registration from unit to unit, registration of consecutive sheets, relative print length, fan-out and doubling. The image area of the plate is 26" x 38" with a one inch white space border all around the sheet. Color bars are to be exposed in the white border as to press manufacturer's specifications.

Color Rotation: Customer's normal rotation

Ink Color/Densities (Status T)..... Black – 1.70 +/- 0.05  
 Cyan – 1.40 +/- 0.05  
 Magenta – 1.50 +/- 0.05  
 Yellow – 1.05 +/- 0.05  
 Blended Colors (Process Series @ 75%/25% mixtures) –Swatch Densities as measured.

Test form Line Rulings & Dot Size.....Fine Line 0.10mm (0.004")  
 Medium Line 0.20mm (0.008")  
 Heavy Line 0.36mm (0.014")  
 Screen/Dot Area 10% (0.05mm) 150 Line @  
 45° Angle

Paper .....(28" x 40") 100 lb. C2S

Sample sets (30 consecutive sheets) will be taken at 85% of maximum press speed.

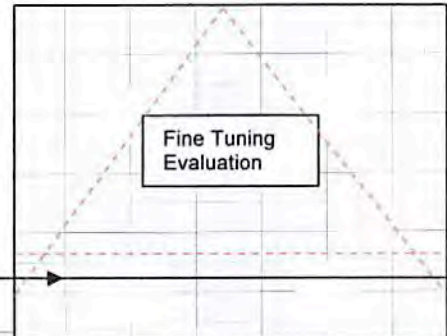
For acceptance purposes the maximum press speed will be 85% of maximum rated speed. We will however exceed this speed up to limitations of auxiliaries to observe the effects of higher speeds. Issues dealing with loss of print quality at speeds higher than 85% of maximum rated speed will not affect the acceptance or rejection of the press.

## TEST EXPECTATIONS:

1. The press will start up with all mechanical devices set on zero.
2. First pull evaluation – the 0.004" lines from all printing units must stack or touch across the lead edge of the printed sheet.
3. Fine-tuning evaluation – the 0.002" screen/dots, must stack across the lead edge of the sheet and around the cylinder in the center of the sheet. Max diameter of dots when stacked is 0.004".



1<sup>st</sup> Pull Evaluation



# TEST NUMBER SIX – GATF PRINT QUALITY FORM

**PURPOSE:** To identify print quality and mechanical characteristics of the press.

**PROCESS:** GATF Print Quality Test Form contains GATF approved elements for print analysis. GATF Print Quality Test Form plates are imaged for each printing unit. Each plate is made from film on a plate exposure frame, or step-and-repeat unit using identical vacuum drawdown and exposure times. One plate is mounted on each printing unit. All units will be run simultaneously to check print quality characteristics of the press. Additional manufacturer's color bars may be exposed in the gripper or tail border.

Color Rotation: .....Customer's normal rotation

Ink Color/Densities (Status E) ..... Black – 1.70 +/-0.08  
Cyan – 1.40 +/-0.08  
Magenta – 1.50 +/-0.08  
Yellow – 1.05 +/-0.08

Paper .....(28" x 40") 100 lb. C2S

Sample sets (30 consecutive sheets) will be taken at 85% of maximum press speed.

For acceptance purposes the maximum press speed will be 85% of maximum press speed. We will however exceed 85% of maximum press speed up to limitations of auxiliaries to observe the effects of higher speeds. Issues dealing with loss of print quality at speeds higher than 85% of maximum press speed will not affect the acceptance or rejection of the press.

## TEST EXPECTATIONS:

1. Density Control – After achieving the correct densities across the sheet, there must be no more than (+/-) 0.03 points density variation from sheet to sheet within the sample set. Measurements (+/-) 0.04 points or higher are not acceptable.
2. Mid-tone Dot Gain – Measurements of the Mid-tone Dot Gain (50% dot patch), from the GATF Proof Comparator, should be as follows:

Black – 22%    Cyan – 20%    Magenta – 20%    Yellow – 18%

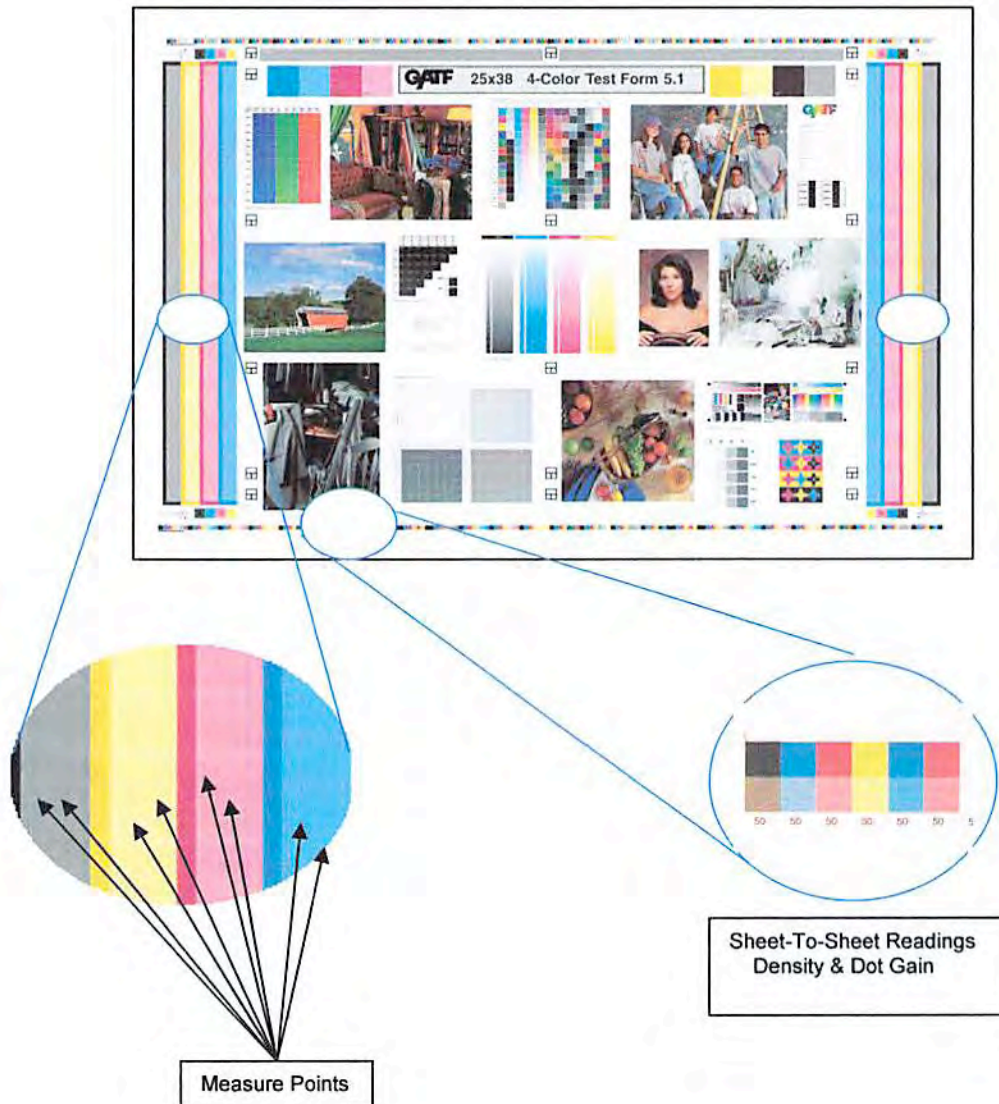
3. Variation of dot gain for each color within the sample set, reading same spot on each sheet, is targeted at (+/-) 1.0% but must be no more than (+/-) 1.5% of the midpoint of sample set. (EX. Sample set has a high of 25% and a low of 22%, midpoint is 23.5%).

$$X_1 = \frac{\min + \max}{2} - 1,5$$

$$X_2 = \frac{\min + \max}{2} + 1,5$$

$\bar{X}$  = Average => addition of all dot gain values divided by number of sheets  
 min. => lowest dot gain value of sample set/unit  
 max. => highest dot gain value of sample set/unit  
 Midpoint => min. + max. Divided by 2  
 X1 => Midpoint - 1.5%  
 X2 => Midpoint + 1.5%

4. Ladder Targets – Density for Black readings, vertical and horizontal bars, is to be no more than 0.09 points. Readings with a difference greater than 0.09 are unacceptable.
5. All other colors – Density difference of no more than 0.08. Any readings greater than 0.08 are unacceptable.





## GATF Press acceptance specification and expectations

Test	Description	Limits	Method
<u>1</u>	<u>Dry solid test for ink charge characteristics, streaking problems, print pressure and cylinder performance</u>	<u>.06 D</u>	<u>Comparison of cyan ink density across the cylinder and around the cylinder, gripper to tail.</u>
<u>2</u>	<u>Wet solid test for dampening system</u>	<u>.06 D</u>	<u>Comparison of cyan ink density across the cylinder and around the cylinder, gripper to tail.</u>
<u>3</u>	<u>Ghosting test</u>	<u>.06 D</u>	<u>Measurement of PMS 477 brown density at points on GATF ghosting form</u>
<u>4</u>	<u>Grid test for fit and registration between printing units</u>	<u>0.004"</u>	<u>Measurement of first pull for pin register systems and measurement variation of the GATF Registration Grid from printing unit to printing unit.</u>
		<u>0.002"</u>	<u>After Fine Tuning</u>
<u>5</u>	<u>Print quality</u>	<u>+/- .03 D</u> <u>+/- 1.5%</u> <u>+/- .09D</u> <u>+/- .08 D</u>	<u>Comparison of density sheet to sheet</u> <u>Measurement of mid tone (50%) dot gain sheet to sheet</u> <u>Comparison of black density, horizontal vs. vertical</u> <u>ladder targets</u> <u>Comparison of color density, horizontal vs. vertical</u> <u>ladder targets</u>