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MINUTES OF MEETING

Tyson
August 14, 1964

High Resolution Step & Repeat Printer Design Review Meeting

at [redacted]

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Personnel Present:

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[redacted]

U. S. Government

[redacted]

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A formal presentation was made by [redacted] of project organization, progress to date, and projected work for next period.

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The following items were brought up during the question, answer and general discussion period.

1. Film Coding

Tyson is determining the possibility of applying film code to archival films and new films.

- (a) A single border edge along the length of the film will always be clean and available for coding, however, the choice of which border is available along the film length is a variable.
- (b) Coding system should be preferably human readable as well as machine readable.
- (c) Cannot indent or damage film in any way.
- (d) Should be permanent. Removability is not a requirement.
- (e) Cannot put code between frames because some negatives may contain strip photography and will have to be artificially split up.
- (f) Should consider the possibility of edge coding (along the 2.5 to 7.5 mm edge).
- (g) [redacted] recommends consideration of ultrasonic technique.
- (h) [redacted] proposed a meeting be held in Washington soon with our technical representatives present to resolve the problem of coding compatibility with existing codes in archival films.

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2. Masking and Transport

- (a) Masks along the width of the film may be eliminated in order to assure the printing of all data on the film.
- (b) Masks along the length of the film only for prevention of fogging, not

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- (c) No discreet frame sizes. Frame sizes will vary from roll to roll and possibly within the same roll. Coding will determine the stopping point for locating frames in strip photography.
- (d) Masks to be manually adjusted (automatic feature not required).
- (e) Should have capability of removing partially exposed roll of dupe film (in the dark) by cutting, (safelights will be used).
- (f) 1000' roll capability definitely required for raw stock.
- (g) Maximum negative film length will probably be 500'.

3. Reaction to Machine Sketch

- (a) Try to limit size to 5 x 7 x 2.5 if at all possible.
- (b) Control panel as shown may make access to film area difficult. Should consider recessing if possible.
- (c) Artist's concept required by October 1, 1964.

4. RFI Testing

Will defer answer until much later, but must design for it anyway. [] wants description of associated equipment that may be sensitive to our machine. Tyson says this is not the problem. Instead, it is radiation from our machine to outside undetermined (possibly enemy) sources.

5. Exposure Control, Dodging, Gate

- (a) Range of density - no clarification by monitor except that some films are black and some clear (.05 above fog to 2.5).
- (b) Printer will handle high and low altitude films.
- (c) [] says that if resolution can be achieved without liquid gate so much the better.
- (d) No [] type cleaner in the machine. Preferably vacuum cleaning of raw film.
- (e) Auto dodging - spot size vs. resolution. [] feels that spot size must be equal to or smaller than the bit size of the information desired (i.e., 1/400 mm or 200 cycles/mm modulation) to maintain resolution.

6. Questions Outstanding

- (a) List of spool sizes to be used
- (b) Document procurement by monitor

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AGENDA

DESIGN REVIEW MEETING

Friday, Aug. 14, 1964

HIGH RESOLUTION STEP & REPEAT CONTACT PRINTER

1. Organization
 - A. Preliminary Task Description
 - B. Task Assignment
 - C. Pert and Schedule
2. Progress to Date
 - A. Task Progress to date
 - B. Problems encountered
 - C. Problem approach
3. Projected Work for Next Period
4. Question-Answer Period, General Discussion

FEASIBILITY STUDY, NO. 2 PRINTER

PRELIMINARY TASK DESCRIPTION

1. Printer Assembly, Artist's Concept, Human Factors

A. Presentation Material

Two views of printer in color, open and closed on 20" x 24" matte boards setting forth prime objectives of the printer.

B. Human Factors

Studies of control functions, selection of control components, sequence of operations, machine configuration and environmental factors.

2. Frame and Structure

Studies of basic machine structure. Materials, vibration analysis, shock mount requirements, internal environment control, clean room techniques, system integration.

3. RFI Control and Power Distribution

Basic RFI plan. Power distribution, fusing, safety interlock philosophy. Power supply requirements, heat dissipation considerations, components selection, environmental sensors, schematic.

4. Electronic Control Circuits

Basic machine control; film transport, film safety requirements; exposure control, dodging-electronics interface with control panel; servo mechanisms, operation interlocks.

5. Film Coding

Code material and application, location on film, effects on film, permanency of record, ability to remove or change for correction, clean room contamination, ease of application; type of coding, techniques for reading, readout logic.

6. Illumination System

Investigation of current and advanced illumination techniques; light versus film spectrum match; photometry; heat dissipation, contamination considerations, cycle time.

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7. Format Masking

Define format sizes, areas to be masked for various film widths, means for changing, interface with negative transport system.

8. Control Panel

Define all controls, selection of components to meet requirements, human factors, RFI minimization.

9. Film Gate

Liquid versus dry gates, open versus closed gates, even-ness of illumination, maintenance of resolution, Newton ring elimination, heat and dust elimination.

10. Exposure Control, Dodging

Define ranges of exposure, technique study for sensing and controlling exposure; methods and desirability of dodging; interface with light source and electronic control.

11. Film Cleaning

Study and determination of particle size associated with raw stock, static elimination, cleaning methods compatible with internal clean-room conditions.

12. Film Handling

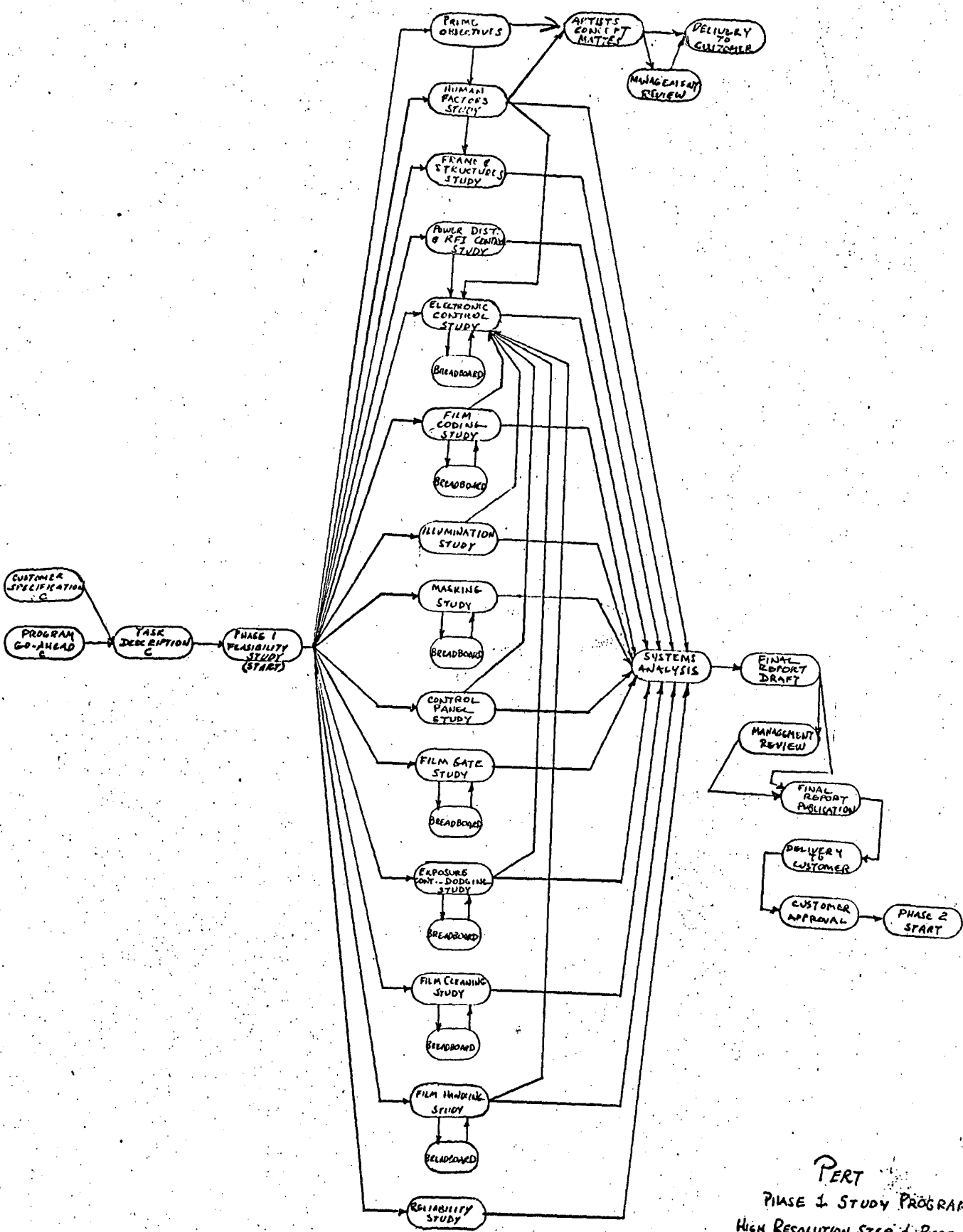
Transport methods, tension sensing and control, abrasion and scratching considerations, adaptation for various film widths and format sizes, cycle time, precision of stop and start - interface with code readout.

13. Reliability

Liaison with other tasks to assure methods and components compatible with reliability requirements.

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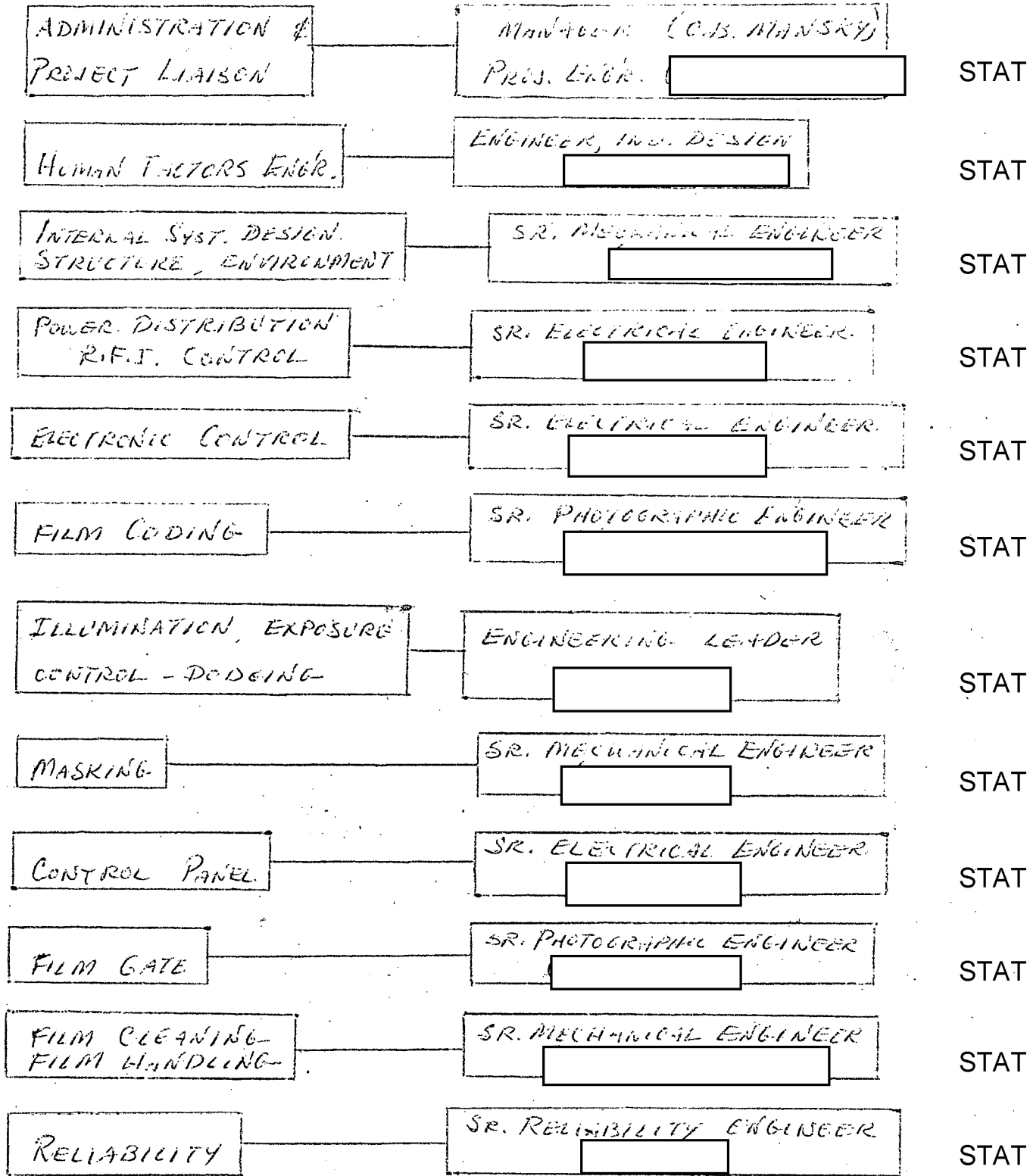
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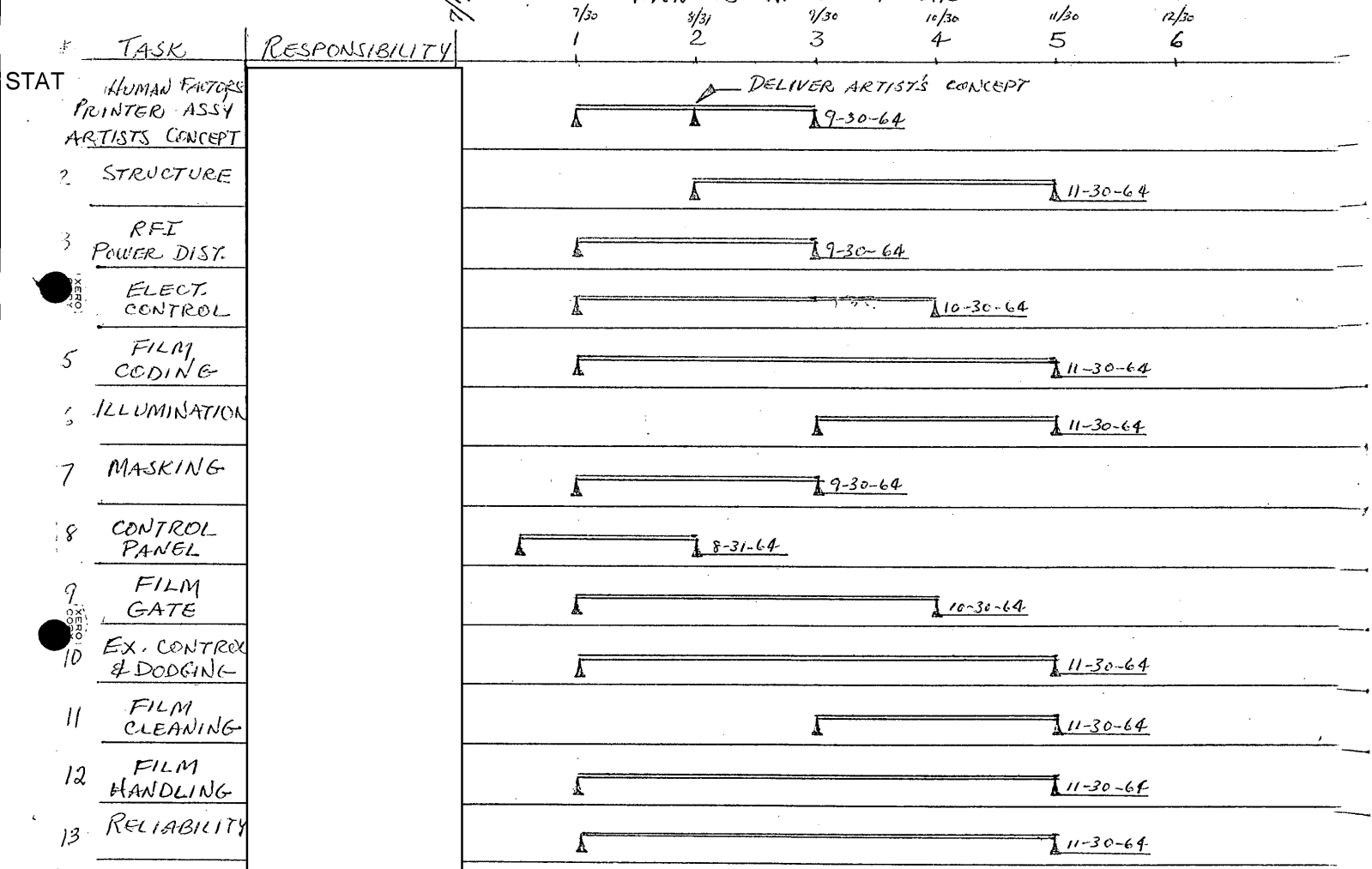
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 PHASE 1 STUDY PROGRAM
 HIGH RESOLUTION STEP & REPEAT
 PRINTER

ORGANIZATION &
TASK ASSIGNMENT CHART

HIGH RESOLUTION STEP & REPORT CENT. PRINTER



MONTHS AFTER AWARD



OPERATION FLOW CHART FOR STEP & REPEAT CONTACT PRINTING

