



SUBJECT: SETTLING FLUORESCENT SCREENS - EQUIP.
 Process Specifications

SUPERSEDES Oct. 9, 1953

The following equipment is used in the Settling Room to settle fluorescent screens. The procedures for actual settling follow this standardizing notice. For example, settling P7 screens may be found in 34-17-14G or settling P14 screens in 34-17-14P.

1. EQUIPMENT - GENERAL

a. Air conditioned room maintained at 23.5 - 24.5°C. (74.3 - 76.1°F.). MAY 1955

- b. Settling table of solid construction - one-piece or multi-unit.
- c. Six position tilt tables for six 10" bulbs, twelve 7" bulbs, eighteen 5" bulbs, etc., Model No. 799TT. Each position equipped with wooden pegs to support either bulb size and bulb holding clamps actuated by a center screw thread with handle. Each position has a segment of a circular bakelite block mounted vertically on one side. This acts as a pulley guide for a cable whose other end is wound on a shive. All 6 shives are fastened to a main shaft whose rotation controls the tilting action. A reversible motor, through a Boston reductor, drives the shaft in either direction. A microswitch automatically shuts off the mechanism at full tilt position and an adjustable time switch delays the tilting until the initial agitation of the liquid stops. Metal splash trays at each position catch decanted liquid and spill into a trough to sewer.
- d. A 12-place bulb drying rack equipped with low or high pressure air jets.
 - (1) Belt (10B, 12L, 16A, 16G): Model No. L799AT, Part No. AX4331.
 - (2) Bay (10B, 16A, 16G): Model No. L780EJ, Part No. C3307.
 - (3) Bay (7J): Model No. L780EJ, Part No. C3309.

e. Funnels

	Spout		Top	
	I.D.	Length	I.D.	Length
(1) 10B	3/4"	12"	3"	5"
(2) Open	7/8	9	3	5
(3) Underwater Side Spray	3/4	18	3	5
(4) Overwater Spray	3/4	18	3	5
(5) Model L799BE (Part No.: 7J, CX4320; 10B, CX4264; 12L, CX4429) Model L799AZ (Part No.: 16A, CX4565; 16G, CX4565) Alt. for 16A, 16G: Model No. L799BE, Part No. CX4265.				

- f. Funnel spacer, Model No. L799BE, Part No. B4215.
- g. Spray tips.
 - (1) Model No. L799BE. (Part No.: 7J, AX4427; 12L, AX4428; 16A, 16G, AX4426)
 - (2) Model No. L799AZ. (Part No.: 10B, AX4362)
- h. Dispensing table - a solidly constructed table used as a working table for preparing screen suspensions or as a support for automatic dispenser. The top is equipped with gutters for drainage.
- i. Stainless steel insert for funnel with 200-mesh stainless screen (or #400-mesh for * projection types) on one end, Model No. L799BE. Part No.: B4214 (mesh), B4213 (ring), B4212 (cup).
- j. A neck washing position using ammonium bifluoride solution or dilute hydrofluoric acid dip tank and an adjacent inside-outside neck water rinse.
- k. Trays for transporting bulbs. These are equipped with interchangeable platforms 29" x 16". For 10" bulbs 2 holes 9-1/4" are provided while the platforms for 7" bulbs have 6 holes 6-1/2" diameter.

(Continued on Page 2)

SCALE—

DIMENSIONS IN

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

1-546-17-60 PC124514-126AE

* CHANGE
 ** ADDITION
 *** DELETION

These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission.

13726-101



SUBJECT: **SETTLING FLUORESCENT SCREENS - EQUIP.**
Process Specifications

SUPERSEDES Aug. 15, 1949

1. EQUIPMENT - GENERAL (cont'd)
 - l. Graduates - 50, 100, 500, 1000, 2000 ml.
 - m. Thermometers (1) -100 to 150°C. in 10 divisions
(2) - 50 to 50°C. in 0.20 divisions
 - n. Aprons, gloves, cloths, sponges, china markers, etc.
2. EQUIPMENT - SPECIFIC FOR HAND DISPENSING
 - a. Flasks - 500 ml. Erlenmeyer
3 l. Florence
 - b. 4-liter and 12-gal. Pyrex battery jars fitted with outlet at bottom for dispensing solutions. Those used for suspensions contain a rotating stirrer driven by a 1/4 hp. motor. Outlet may be connected to graduated cylinder to measure desired volume.

3. EQUIPMENT - SPECIFIC FOR AUTOMATIC DISPENSING

Automatic Dispenser Model L-799-AT, Part SAE4242, equipped with source of distilled water and bottle flushing device.

Operating Principles and Adjustment of Automatic Dispenser

The automatic dispensing unit was designed and built by the RCA Equipment Development Section to eliminate the slow and inaccurate hand filling methods used for kinescope bulbs. By a single starting switch, accurate repetition of sequence and precise liquid volumes at a high rate of speed are achieved when dispensing screens of the high production types. Simple adjustments vary dispensing conditions for the various bulb types and sizes.

Its general principle embodies an overhead three-compartment * lucite tank for the two solutions and the phosphor suspension which comprise the screen ingredients. An electric timer operates three air driven plungers which control the flow of the liquids from the tanks into rubber hose reservoirs. A scale for positioning the air operated dispensing valves establishes the amount of liquid each dispenses. Two additional timers actuate an air vise which opens and closes a valve from the distilled water supply to the common funnel. This arrangement dispenses water into the bulb in two steps. The water cushion layer is poured first, followed by the solutions and phosphor simultaneously, while finally a flushing layer of water rinses the system.

As an added refinement, a smoothly operated carrier for two bulbs is positioned by rolling to left or right on a track so that the neck of either bulb is directly beneath the dispensing funnel. This gives time saving flexibility of filling to the dispenser operator as it avoids waiting for a second operator to remove a filled bulb before proceeding with the next, or permits replacing a bulb while the other is filling.

An important accessory is a *lucite glass funnel of unique design which is placed into the bulb neck below the dispenser outlet. It serves three essential purposes: (1) A long * lucite shank extends into the bulb so that the liquid is released below the splice line of cone and neck. (2) A stainless steel tip with about 30 perforations uniformly distributes the liquid flow in as many directions, all toward the inner bulb face. (3) A stainless steel sleeve 4" long and 2-5/8" diameter has a *** stainless steel screen *secured to its bottom to prevent foreign particles from entering the bulb.

* CHANGE PCL24514-126AE
** ADDITION These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced
*** DELETION or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission. 13D26-R1



SETTLING FLUORESCENT SCREENS - EQUIP.
SUBJECT: Process Specification

3. EQUIPMENT - SPECIFIC FOR AUTOMATIC DISPENSING (Cont'd)

All necessary adjustments for any particular bulb type which involve sequence and volumes of liquids dispensed are accomplished within the five contact timer and the positioning of the air vise clamps on the rubber hose reservoirs.

The five timer positions control the following.

1. Total Time "On" contact set always at zero and "off" contact, which is a reset for the relays, is set approximately 1 second (4 graduations) after the no. 5 timer for flush waters, goes off.
2. Tank Valves "On" contact opens 3 plunger valves to fill rubber hose reservoirs and "off" contact closes them before hose clamps open for liquid dispensing
3. Dispensing Valves "On" contact opens 3 air vises and dispenses hose contents into funnel. "Off" pinches hoses closed.
4. Line Valve Cushion Water Normally first operation with "on" contact set at 0 and "off" contact adjusted to give correct water volume.
5. Line Valve Flush Water Usually follows immediately after dispensing valves close. "On" contact again opens distilled water line until "off" contact closes.

The volume of water dispensed can be measured by running through the time cycle with a graduate under the dispensing funnel but with the flow of the silicate, sulphate, and phosphor suspension withheld.

The procedure is to first disconnect the top air hose connections to the three air vises which normally open the tank plungers. With the graduated cylinder under the dispensing funnel, depress the "Start Dispensing" lever. The cushion layer of water will be dispensed and its volume observed before the flush layer commences so that total of either component is known. These settings are described by the "Dispenser Operation" schedule for each bulb type. Below is typical example:

No.	TIMER SETTING - 1/4 SECOND	ON	OFF	QUANTITY
1	TOTAL TIME	0	72	xxxx
2	TANK VALVES	12	40	xxxx
3	DISPENSING VALVES	44	56	xxxx
4	LINE VALVE - CUSHION WATER	0	28	1200
5	LINE VALVE - FLUSH WATER	52	68	400

Assuming that timer no. 2 has been set to open sufficiently long to fill the hose reservoirs, the dispensed volumes of the three liquids, sulfate,**or acetate silicate, and suspension are controlled by the positioning of the air vises on the hoses. Each of these volumes should be checked at the beginning of each shift or whenever bulb types are changed. This is accomplished by disconnecting the hoses leading to overhead air vises controlling the plungers of the two liquids not to be checked, and by passing the distilled water to a vessel by removing its hose from the funnel. Under these conditions, the liquid to be measured is alone dispensed from the funnel when the "Start Dispenser" lever is depressed and the mechanism goes through its time cycle.

SCALE—

DIMENSIONS IN

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

3-546-17-60 PCI24514-126JD

* CHANGE
** ADDITION
*** DELETION

These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission.

13D26-R1



SUBJECT: Process Specification
 SETTling FLUORESCENT SCREENS - EQUIP.

SUPERSEDES June 21, 1948

3. EQUIPMENT - SPECIFIC FOR AUTOMATIC DISPENSING (Cont'd)

It is always advisable to select a graduate cylinder of the smallest size which will contain the sample to obtain the greatest accuracy. If all three liquids are to be measured separately, it will be necessary to repeat the operation of disconnecting the air hoses for each of the other two determinations. The "Dispenser Operation" schedule also gives the volumes of the three liquids and the approximate setting of the vises on the rubber hose reservoir. A typical example is shown below:

TANK NO.	MATERIAL	QUANTITY CC	APPROX: SETTING	NOTE
1	Silicate	150	7-1/4"	
2	P ₄ O ₂	143	7"	
3	Sulphate	250	11-1/8"	
AIR PRESSURE AT DISPENSER 65-70 psi				
WATER TEMP. AT DISPENSER 20-21°C (68.0-69.8°F)				

4. EQUIPMENT - SPECIFIC FOR SETTling BELT

Herein are the instructions for operation of the Kinescope Screen Coating Machine, Model No. L799AT.

The initial instruction for starting and operating the settling belt assumes that there are no bulbs on the machine beyond the tip-over point. When the machine must be started or restarted with bulbs in positions on the under-side of the belt, special precautions must be taken, which are dealt with following the initial instruction.

a. List of Controls and Auxilliary Apparatus.

- Four-Push Button Stations - which stop the belt and prevent further operation of auxilliary apparatus:

- One located at right of loading platform
- One located above the dispenser operating key.
- One located on left motor-drive support
- One located on right motor-drive support

When the machine has been stopped by any of these buttons, it can only be restarted by pressing the starter button on the control panel.

- Main Switch located at left side of loading platform.
- Belt Switch located at left side of loading platform.
- Belt Rheostat located at left end of control panel.
- Tumbler Switch located at left center of control panel, controls operation of wash, rinse and dry apparatus.
- Starter Button located at right center of control panel.
- H.P. Air Valve at right side of loading platform
- Water Valve at right side of loading platform

→
SCALE—

DIMENSIONS IN

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

4-546-17-60 PCL24514-126JD

* CHANGE
 ** ADDITION
 *** DELETION

These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission.

13D26—R1



SETTLING FLUORESCENT SCREENS -EQUIP.
SUBJECT: Process Specification

SUPERSEDES July 8, 1954

4. EQUIPMENT-SPECIFIC FOR SETTLING BELT (Cont'd)
a. List of Controls and Auxilliary Apparatus. (Cont.)

9. L.P. Air Valve on right side of settling belt.
10. L.P. Air Heater and humidity control, Bay I-9, North Wall.

b. Settings for Controls.

Settling Belt Rheostat - to tachometer reading shown on Speed Control Chart.

H.P. Air for <u>Lift Mechanism</u>	55 P.S.I. - Drier	§ 68 P.S.I. - Neck Rinser
L.P. Air for Drier Mechanism	3-1/2 P.S.I. - 7-1/2 P.S.I. = H.P. Air	8 P.S.I.
Water Pressure for rinse		
Belt Sprocket Length	25 ft.	0-9/16 inches
§ Neck Wash and Rinse UP Microswitch		2-1/16 inches
§ Neck Wash and Rinse DOWN Microswitch		3 inches
Drier UP Microswitch		2-1/32 inches
Drier DOWN Microswitch		No Scale
Water Pressure Shut Off control		62 P.S.I.
Dispenser Timer Scale Settings:		
Total Time	0-88	
Tank Valves	0-54	
Dispenser Valves	58-74	
Line Valves	0-46	
Line-Flush	70-84	
Raise Unit	0-0	

c. To Start Machine:

1. Open the L.P. Air Valve.
2. Turn on L.P. air heater and humidity control
3. Open the H.P. air valve.
- § 4. Open the water valve (wash and rinse apparatus will not operate when water pressure is off)
5. Turn on the main switch.
6. Press the DOWN microswitch on the Drier
7. Turn on the tumbler switch.
8. Turn on the belt switch.
9. Press the starter button.
10. Adjust the rheostat until tachometer indicates desired speed.

d. To Shut Down Machine:

1. Press any stop push button control.
2. Close the L.P. air valve.
3. Close the H.P. air valve.
- § 4. Close the water valve.
5. Turn off the main switch.
6. Turn off the belt switch.
7. Turn off the toggle switch.

** § These steps not to be used for Types 21AIP4A and 21AMP4A.

SCALE—

DIMENSIONS IN

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

3-5412-7-80

PCM330-802/126JD

* CHANGE
** ADDITION
*** DELETION

These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission.

13D26-R1



SETTLING FLUORESCENT SCREENS

SUBJECT: Process Specifications

SUPERSEDES June 21, 1948

4. EQUIPMENT - Specific for Belt. (Cont'd)

e. To Load Belt:

- * 1. Place bulb gently in head.
- * 2. Secure by tightening clamp.
- 3. Be sure the under side of the dispenser platform is CLEAN and FREE of "drip".

* f. To Unload Belt:

- 1. Hold bulb securely and replace clamp.

g. To Set Up and Start the Dispenser:

- 1. Distilled water line will be closed.
- 2. H.P. air will be "off".
- 3. Be sure dispenser hose is in trough faced toward outlet of trough.
- 4. Lift the air operated valves on the top of tanks one by one to empty tanks.
- 5. When tanks have been drained, rinse with distilled water and drain again. Use hose to wash down sides of tanks in rinsing.
- 6. When draining and rinsing P6 tanks, run the agitator which will help to free any settled P6 material. Upper switch on timer box "UP" is "ON" for agitator.
- 7. Inspect tanks with flashlight before filling with material.
 Do not fill unless they appear to be clean. Be sure tank valves are seated before filling. Fill the silicate, sulphate or** acetate tanks.
- * 8. Check air clamp connectors to be sure all connectors are in holders. Turn on H.P. air. Turn on distilled water. Turn on timer (lower switch on timer box, "UP" is "ON".)
- * 9. Run one lot of material through dispenser hose and funnel into drain trough. Hold the funnel at a low angle to prevent splashing. Avoid splash on the platform and equipment during tank filling and testing operations. Clean up all slop immediately.
- 10. The strainers shall be rinsed every hour on the hour during operation and thoroughly rinsed at the close of each shift.

h. To Shut-down Dispenser (for periods longer than 15 minutes):

- 1. Rinse * lucite dispenser funnel and wash out metal strainer. Flush out hose with two cushion layers run from the first cycle of timer. To run cushion layer only press starter button; wait until timer clicks once then throw down timer switch. Count to three before throwing timer switch back to "ON" position.
- 2. Do your part to keep the machine and operating platforms clean. If you see sources of possible contamination of materials, clean them up or advise the foreman if they are at inaccessible points.

SCALE—

DIMENSIONS IN

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

6-546-17-60

PCL24514-126EB

* CHANGE
 ** ADDITION
 *** DELETION

These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission.

13D26—R1



SUBJECT: **SETTLING FLUORESCENT SCREENS-EQUIP.**
Process Specification

SUPERSEDES June 21, 1948

4. **EQUIPMENT - SPECIFIC FOR BELT (Cont'd)**

h. To Shut-down Dispenser (for periods longer than 15 minutes) . (Cont.)

3. Do not jar the settling belt nor its supporting frame. Report all severe shocks or vibratory disturbances to the machine referring to head number being loaded at time of shock. This can be reported on the face of the shrinkage report as a brief memorandum. Walk, do not run or hop on the platforms and stairways.

i. To Restart Machine when the belt carries bulbs in positions over the wash, rinse or drying positions:

1. Be sure the water and H. P. air valves are OPEN.

2. Be sure the tumbler switch is OFF.

3. Turn on the main switch.

4. Turn on the belt switch.

5. Now determine the position of the angle bars on the belt with respect to the UP microswitches and the position of the auxilliary apparatus up or down and engaged or disengaged with bulb necks.

6. If both UP microswitches are free of the angle bars and both wash-rinse and drying apparatus are DOWN---

Trip both of the DOWN microswitches,

Then trip the tumbler switch to ON and press the starter button.

7. If the wash-rinse UP microswitch is on the angle bar and the apparatus is UP---

Trip the wash rinse DOWN microswitch.

Trip the tumbler switch to ON.

Press the starter button.

8. If the drier microswitch is engaged with the angle bar and is in the UP position engaged with necks no special action need be taken.

9. If the drier UP microswitch is engaged with the angle bar and the drier is in DOWN position, leave the tumbler switch OFF, and press the Starter button. Trip the DOWN microswitch as soon as the UP microswitch has cleared the angle bar and then trip the tumbler to ON.

ENGINEERING SECTION
 STANDARDIZING

SCALE—

DIMENSIONS IN

UNLESS OTHERWISE SHOWN.

DIMENSIONS SHOWN WITHOUT TOLERANCES ARE DESIGN CENTERS

* CHANGE
 ** ADDITION
 *** DELETION

7-546-17-60

PCL24514-126EK

These drawings and specifications are the property of Radio Corp. of America, RCA Victor Div. and shall not be reproduced or copied or used as the basis for the manufacture or sale of apparatus and/or devices without permission. 13D26-R1