

Built Slower...

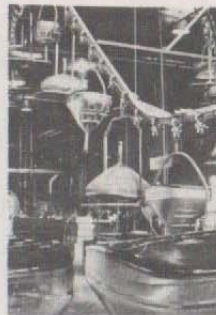
Receiving

Inspection
and
Sorting

Neck
Removal

RECEIVING ... a Channel Master truck, carrying duds from all over the country, rolls up to the plant... truck bay doors close on the trailer... factory doors open automatically... the level-line platform moves into position, and the long, slow process begins...

NECK REMOVAL ... the neck is scored ... a bright blue flame pierces the neck, releasing the vacuum... old neck, base, and electron gun are removed.



Delaminating
Room

Bake

Panel
Removal

DELAMINATION ... at this point, bonded duds are sent to the

Unless otherwise indicated on the carton, Channel Master Color Tubes contain used materials which, prior to reuse, are carefully inspected and tested to meet our high quality standards.



31 exacting electronic and visual inspections

External Wash

Rough Internal Wash

Dry

New Neck

External Wash

Inspection

ROUGH INTERNAL WASH... two hydrofluoric acid washes remove the old screen, aluminum, and dag... followed by a water rinse...



NEW NECK... a unique machine automatically cuts glass tubing to the proper length... flares the neck end... a lathe equipped with flame jets heats the glass to a molten state... the new neck is carefully spliced to the bulb body... an annealer controls cooling and prevents cracking...



Resin Removal

MANUFACTURE OF
ELECTRON GUNS

Inspection
Parts

Delamination Area to have the old face panels removed...

GUN ROOM... the brand new

CHANNEL

Neck
Inspection

Inside
Wash

Screen

Screen
Inspection

Face
Wash
Neck
Clean

Lacquer

INSIDE WASH...the bulb arrives at the carousel internal washer...a high velocity nozzle is automatically inserted into the bulb...after rotating through 14 powerful jet washes...with acid, caustic, and deionized water...chemical purity and physical properties are identical to brand new glass...



SCREEN...barium acetate is poured into the bulbs through stainless steel pipes...a precise amount of phosphor and potassium silicate is measured from a plexi glass tank on an overhead trolley...it takes exactly 11 minutes for chemicals to combine and form a gel on the face of the glass...the liquid is poured out...warm air, blown through rubber tubes, dries the screen...

SCREEN INSPECTION...each new screen is carefully examined under a brilliant light...even a pinhole as tiny as 1/20,000 of an inch is cause for rejection...rejected bulbs go all the way back to the start of the line...



LACQUER...to protect the new screen during the Aluminizing step which allows the inside of the bulb is sprayed with a smooth, even coat of lacquer...surplus lacquer is removed...

Ultra
sonic
Parts
Wash

Hydrogen
Firing

Beading
Assembly

Beading
Inspection

Cut
and
Bend
Stems

Cathode
Tabbing
and
Measuring

...w gun, that goes into every Channel Master picture tube, is precision built to microscopic tolerances in the dust fr

MASTER PRE

Lacquer
Inspection

Internal
Dag

Alumi-
nizing

Alumi-
nizing
Inspection

Bake Out

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ALUMINIZING ... a truly fine picture tube must have an interior aluminum coating for maximum brilliance and contrast... a measured amount of aluminum is placed in a coil... the bulb is set over it... a temporary vacuum is created inside the bulb... the coil is heated and the aluminum is completely vaporized... a film of aluminum three to five millionths of an inch thick is deposited over the entire interior of the bulb...



BAKE OUT... an aluminum cap is fitted over the neck to keep out impurities... the bulb is placed on a slowly moving conveyor for a trip through the huge 110 foot Lehr Oven... a series of controlled heat zones brings the temperature up to 410° Centigrade... the tube remains in the oven for 2½ hours... only sound bulbs can survive — structurally weak glass shatters... all moisture and organic material (including the lacquer) is vaporized...

Grid #1
Assembly

Mount
Stems

Wire Weld

Heater
Insertion
and
Welding

Top Disk
Wire Weld

ee atmosphere of the immaculate gun room...

MIUM PICTU

Screen
Inspection

Glass
Inspection

Gun
Sealing

Glass
Inspection
(Rough)

Exhaust

Ne



GUN SEALING...the gun is placed on a peg... the bulb is lowered over it... centering and position must be perfect... five pre-heating positions raise the glass to sealing temperature... the glass wafer in the gun is fused to the neck... excess neck glass is removed... Channel Master is one of the few manufacturers who go to the extra trouble and expense of sealing guns in a nitrogen atmosphere to prevent premature cathode breakdown, and assure longer life...



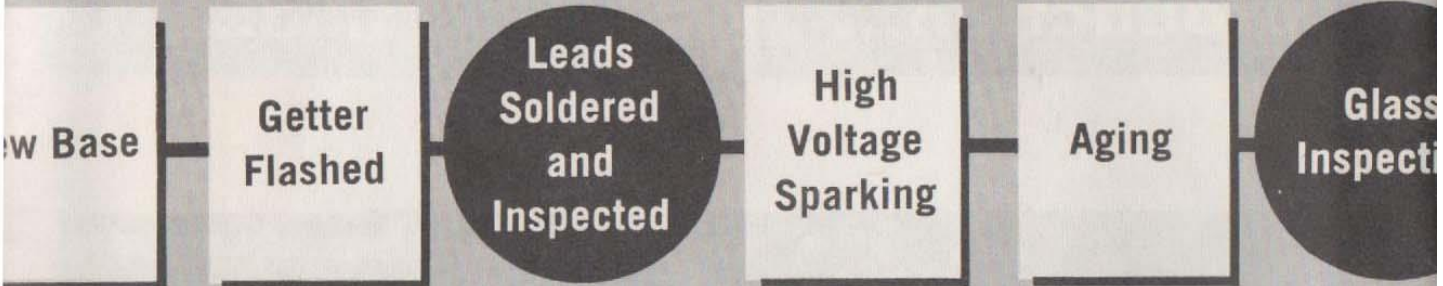
EXHAUST... the tube is placed in an automated cart... a heating coil drives off air trapped inside the gun... as the cart travels through the exhaust oven the temperature is gradually raised to 410° C... the cathode is activated... high velocity diffusion pumps develop a vacuum of 14 lbs. per square inch within the tube... when the proper vacuum is established the tube is automatically sealed...

Top Disk
Assembly

Wiring
Snubbers

Final Gun
Inspection

RE TUBES



GETTER FLASH ... a ring within the gun called the getter is heated by an induction heating coil ... the barium in the getter is vaporized ... the barium oxide which is produced remains in the tube to trap and absorb oxygen and other gas molecules ...



HIGH VOLTAGE SPARKING ... 55,000 volts of direct current are pulsed through the tube to burn up any microscopic particles remaining in the gun or neck ...

AGING ... as the tube moves slowly down the aging line, it is subjected to voltages which automatically change at various intervals ... the level of emission is stabilized ... proper aging is vital for long, trouble-free tube life and top quality pictures ...



MANUFACTURE OF BONDED TUBE TYPES

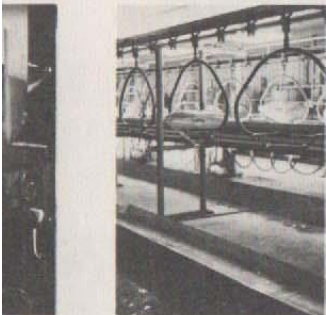


BONDING ROOM ... bonded tube types are conveyed

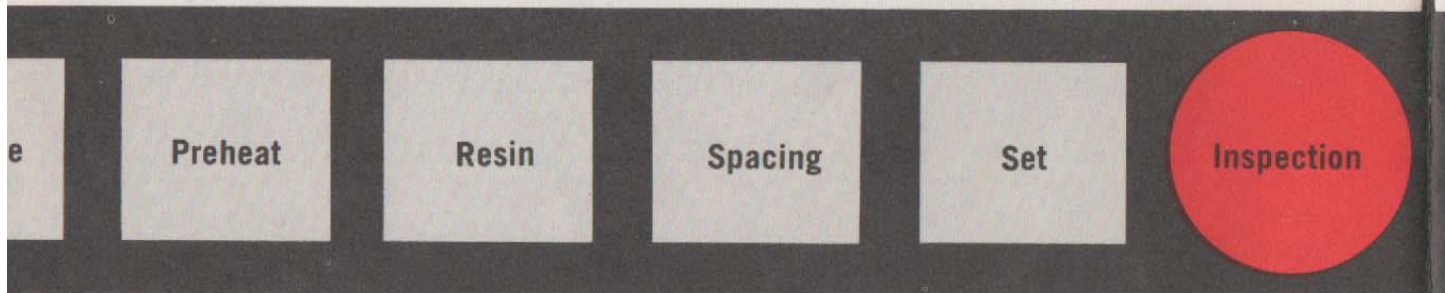
...an extra measure of care and skill in every step



ELECTRICAL TESTING...at the electrical testing station, a signal is fed to the tube for the first time... each and every Channel Master tube must pass a series of 17 separate tests... gas ratio, voltage breakdown, cut-off, warm-up, emission, aluminum breakthrough, focus, and many other points are checked... a visual check with test pattern is made...

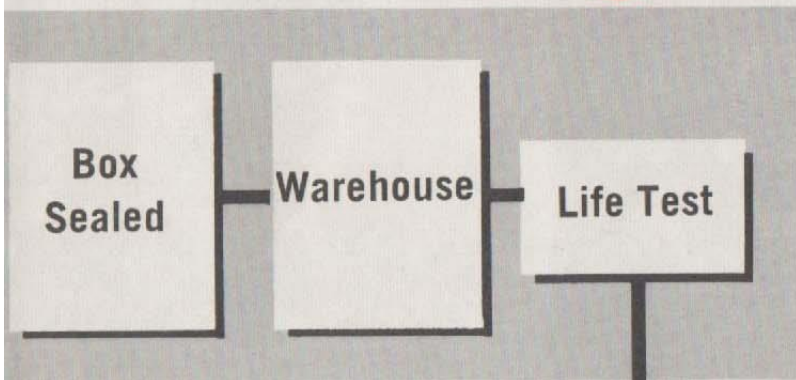


Finally, after nine long hours... the end of the line... the tube is packed in the famous colorful Channel Master shipping carton... an outside label (with the same serial number as the tube) is attached to the carton... the face is given a final cleaning with Channel Master Pixsee...

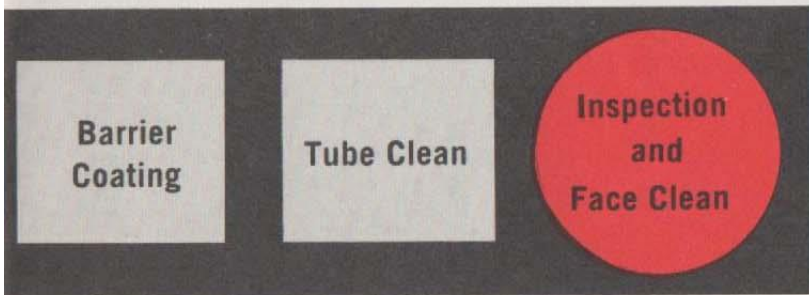


to the bonding room where a brand new face panel is laminated to the face of the tube...

...to last longer



the warranty card is placed in the carton — your assurance that this replacement picture tube has been through the most exacting, exhaustive process in the picture tube industry. . . . And passed every test with flying colors!



All materials and parts used in the manufacture of Channel Master's Black and White tubes are new except for the envelope which prior to re-use has been inspected and tested to the same standards as new envelopes.

Premium Picture Tubes are built in an ultra modern multi-million dollar plant!

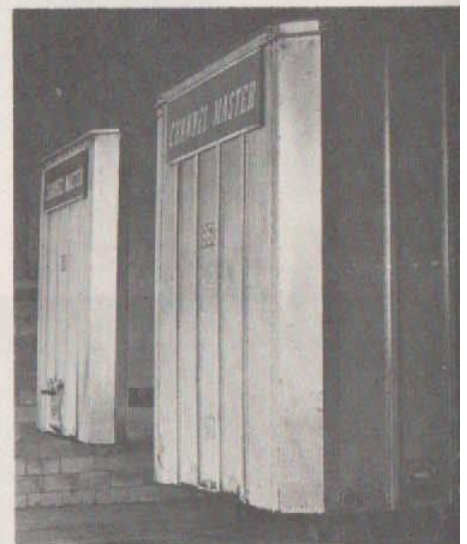
Deliberately built without windows to reduce temperature variations, drafts, dampness, and dust — the plant interior is maintained under positive pressure with filtered air from the outside. Dirt and dust are kept at an absolute minimum. Air movement is under constant control.

When you set foot in it, your first impression is that of a strange new world—an automated world with glass faces slowly moving across a vast open space at various heights, only to disappear suddenly into heating or cleaning units.

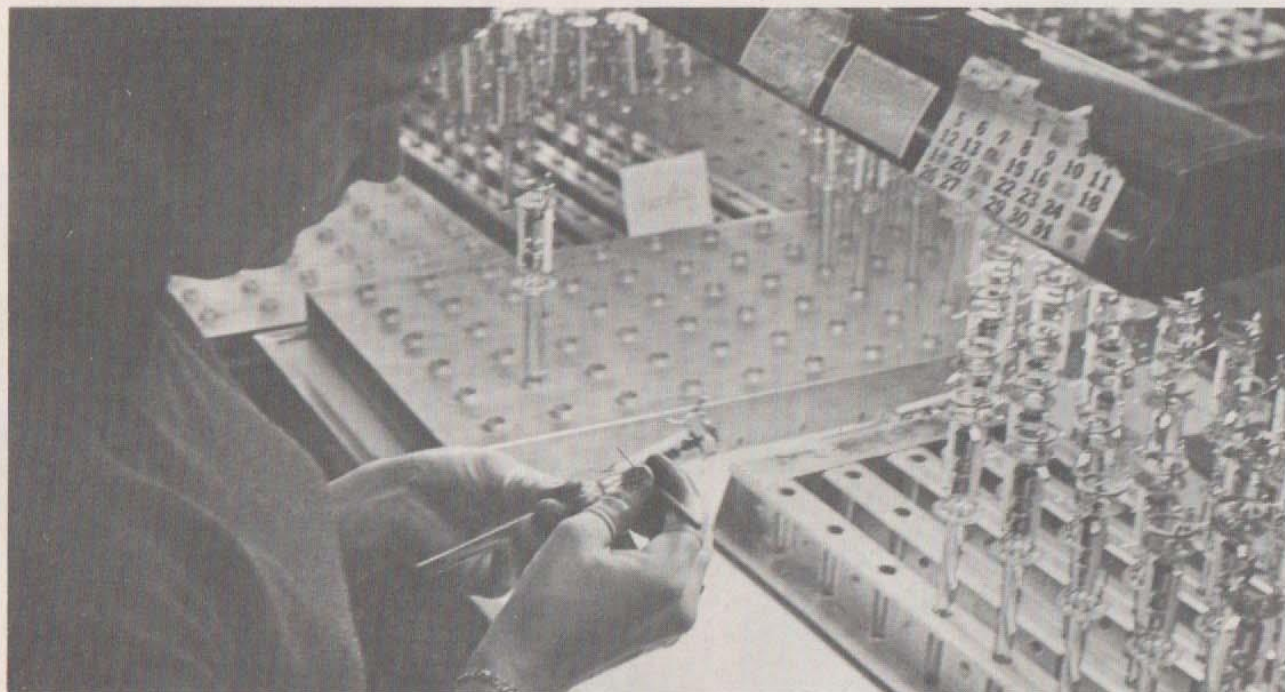
Wherever you turn, overhead conveyors are gently moving bulbs from one station to another. Every machine is designed to handle tube types of every shape and size.



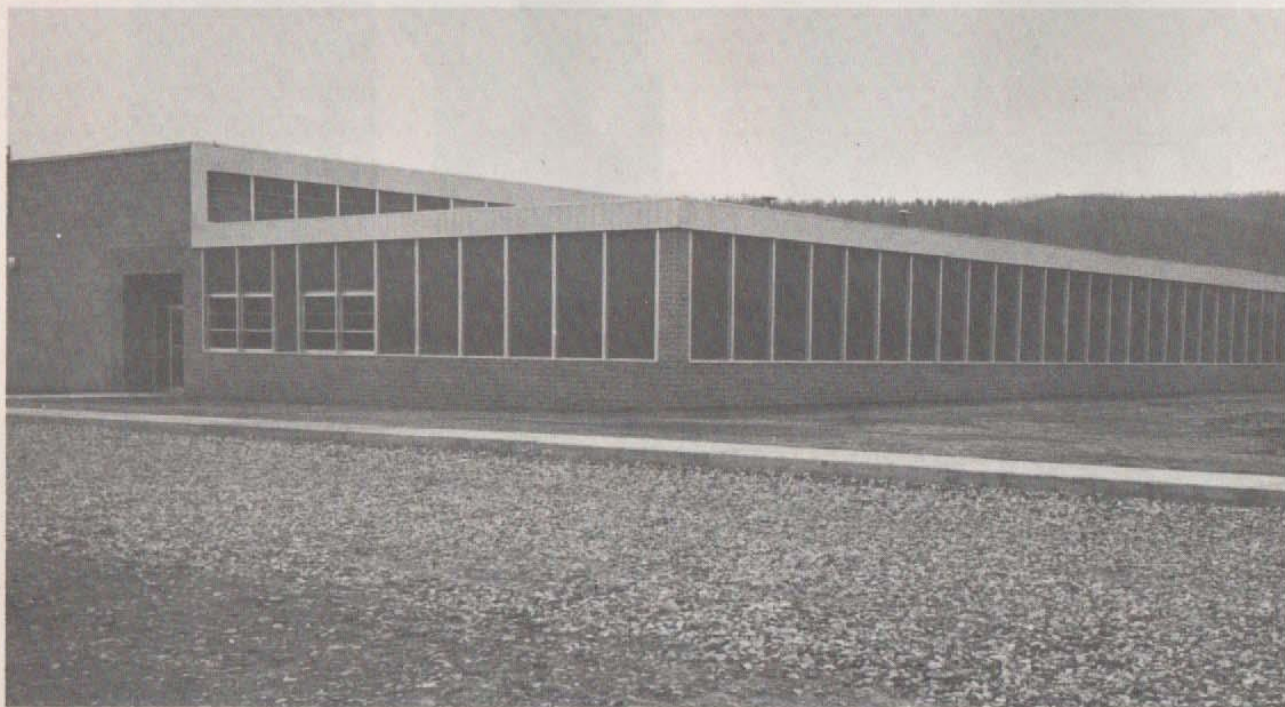
To produce a high quality screen, it is necessary to use water of the highest purity although the plant location was selected because of its pure water supply, the water is treated through a series of elaborate filters and processes to remove every trace of impurity.



In order to maintain positive atmosphere within the plant, the outside doors and loading bays are automatically locked. When the doors to the plant interior are opened,



Assembly of electron guns requires exacting precision. By assembling its own guns in dust-free temperature-controlled rooms, Channel Master assures top performance and greater reliability.



In this vast, modern plant, each tube is "babied" through a series of exacting operations on the most efficient automatic equipment available.

Unique in-line production...

moving from station to station on overhead mono-rail conveyors, moving belts, and specially designed carts, Channel Master CRT's are made in one continuous operation. Channel Master can easily control quantities of tube types—whereas new set tube manufacturers must make tubes in batches. This flexibility is essential to meet the demands of the Renewal Market.



Bulbs are conveyed into the screen room through a small opening in order to maintain the carefully controlled atmosphere essential for perfect screens.



After aluminizing, the bulbs are placed on a belt conveyor for a 2-½ hour trip through 110 foot Lehr Bakeout oven.



Specially designed carts permit unique In-Line Aluminizing. As the bulb moves slowly around a long oval track, a temporary vacuum is created and a tungsten coil vaporizes the aluminum... the vacuum is released and the bulb is taken off the cart.

**...means
unlimited
flexibility**

As the country's largest manufacturer of replacement CRT's, Channel Master specializes in anticipating market demands.

When the demand for a particular tube type increases, Channel Master's new multi-million dollar tube plant steps up production instantly!

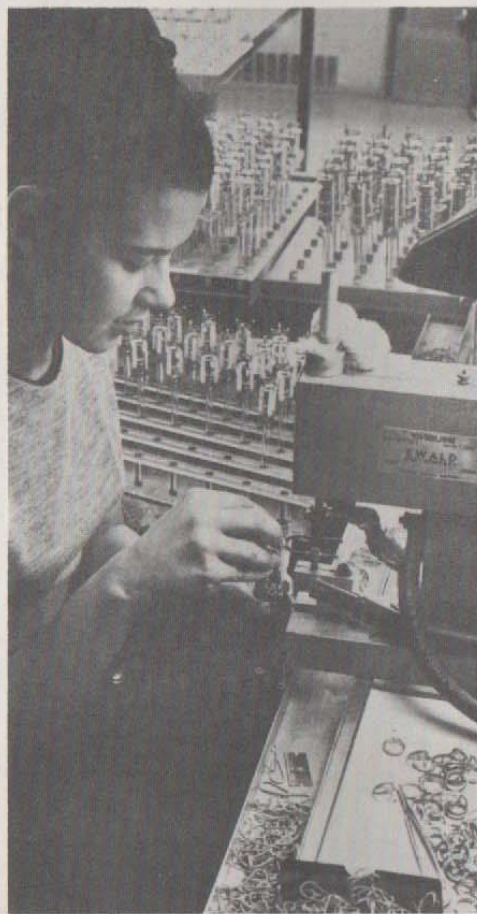
Channel Master has the tube type you need—when you need it!



Because their three-part guns make them so much more complex, every Channel Master color tube is individually tested for at least ten minutes.



Designed to hold every size and type of picture tube, these cradles are part of the special equipment needed to manufacture various tube types simultaneously.



In an electron gun, the size of the aperture governs the sharpness of the picture. Channel Master guns are made to the same exacting specifications as guns used in new sets.

Faster Handling...

Incoming Picture Tube orders are processed with almost incredible speed by specially trained personnel operating a 1440 IBM computer.

The amazing IBM computer performs many operations simultaneously. In addition to the many accounting functions, it maintains an exact inventory control record—it permits rapid, market by market

analysis of tube movement... allowing Channel Master to adjust production accordingly.

The IBM computer also helps Channel Master tube engineers survey new tube types and characteristics for replacement types which is made available to all dealers in the form of the Channel Master Substitution Guide.



1440 control console permits the programmer to keep a close check on the computer's various operations. The typewriter like device is a printer which types out required data from the computers.

Permanent Ramic programming is stored on disks and "played" like a phonograph record.



...Faster Delivery

A huge fleet of over 60 specially designed trailers constantly cross the length and breadth of the country—making regularly scheduled deliveries of Channel Master Picture Tubes.

Your local Channel Master Picture Tube

Headquarters is part of this vast distribution network. They know that they can count on these regular deliveries to satisfy changing local market demands almost as soon as they arise.

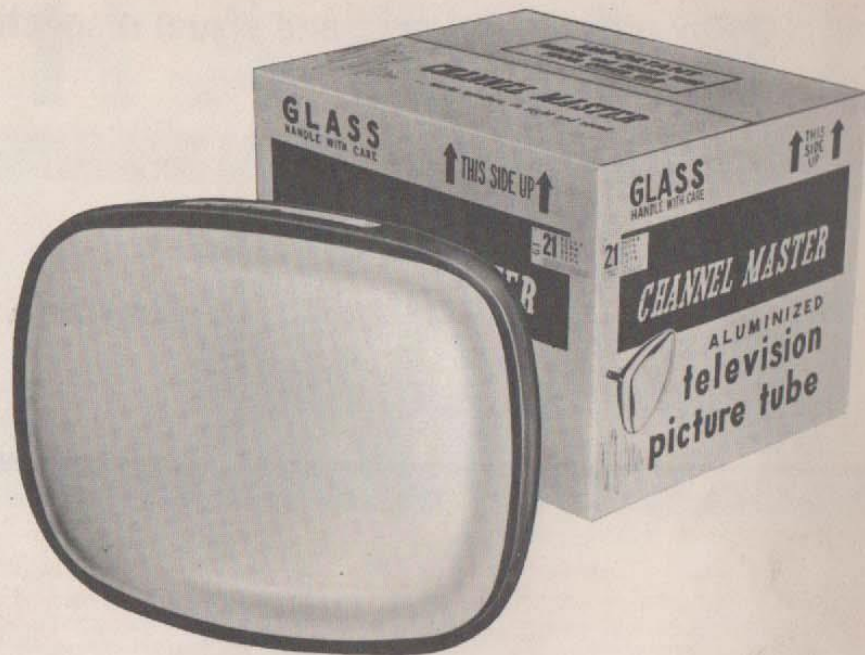


Designed for light, bulky loads such as picture tubes, and antennas, Channel Master trailers have 5 doors to permit economical partial load deliveries.

In order to keep the fleet rolling at peak efficiency, every Channel Master trailer goes through a complete preventive maintenance check each time it returns to the plant.



Round
or square
large or
small...



WE'VE GOT THEM ALL!

RADIO SPECIALTIES COMPANY, INC.

2953 Fort St.
Wyandotte, Mich.

12775 Lyndon
Detroit, Mich.

25351 - 5 Mile Rd.
Rexford, Mich.

CHANNEL MASTER

Picture Tube Headquarters

BULK RATE
U.S. POSTAGE
PAID
BROOKLYN, N.Y.
PERMIT No. 50

W R HOLBEN RADIO SVCE 88
14222 GREENLAWN AVE 40
DETROIT MICH 48238

a long look

at the country's
most popular
replacement CRT's...

CHANNEL MASTER

Premium Picture Tubes

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