



Studio "A"



Studio "B"



Projector 1



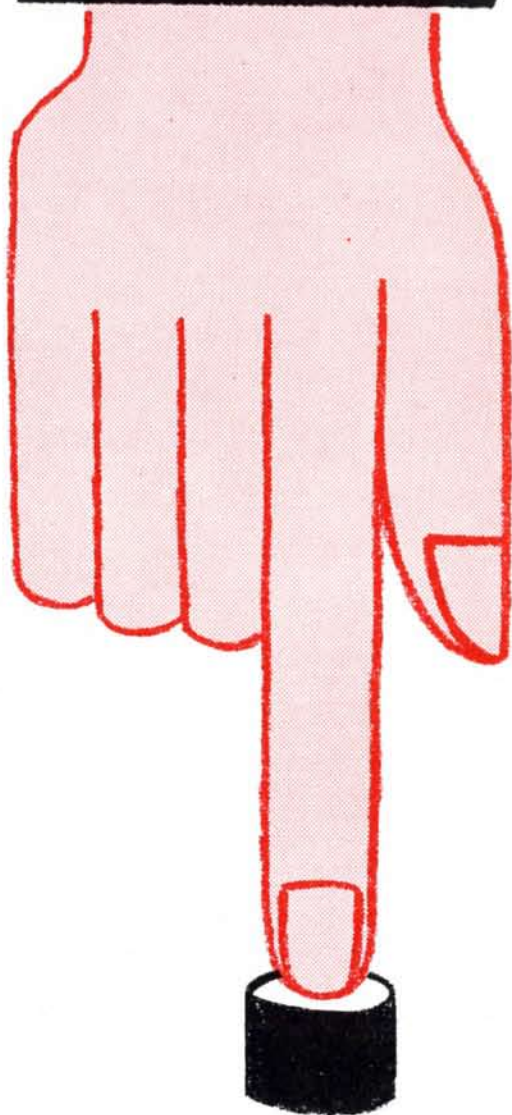
Projector 2



Slide 1



Network



# automation for TV stations



improves efficiency • avoids errors • increases profits

RADIO CORPORATION OF AMERICA







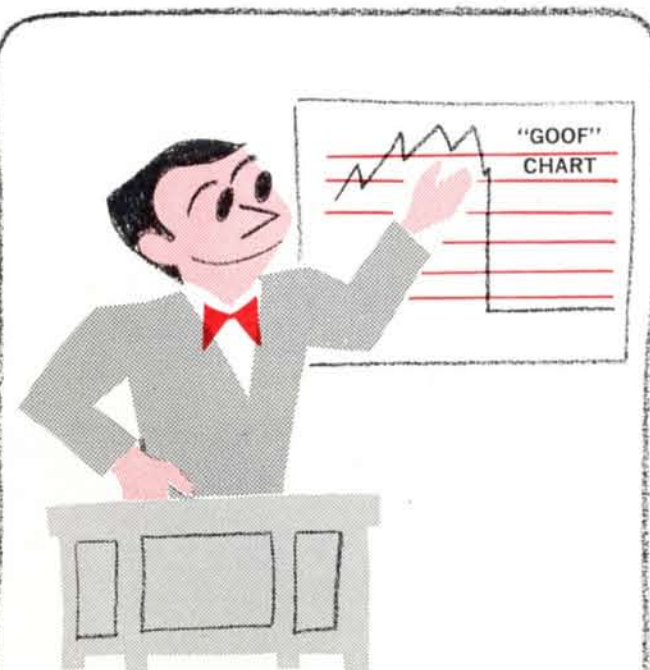
# What

# RCA automation equipment can do for the broadcaster



## Increase efficiency of operating personnel

TV Automation makes the control room operation more productive because it **evens out** the work load. It does this by eliminating the periods of frenzied switching activity normally associated with station breaks, commercial inserts and spot announcements. Complex, split second switching sequences are set up ahead of time—then run off automatically. Productivity of control operators is increased; tension and pressure are greatly relieved by letting the Automatic Programming Equipment do the remembering and the actual switching.



## Avoid switching errors

Busy program schedules frequently lead to operating "fluffs" . . . due to the multitude of **complex functions** which must be carried out at **precisely the right time**. Even the most skilled operators make mistakes—even after careful rehearsal of switching routines. TV Automation Equipment makes it possible to avoid errors by correcting them **before** they occur.



## Increase profits

Fewer operating errors mean fewer rebates due to lost commercials . . . and leads to more satisfied sponsors. Increased efficiency of operating personnel through TV Automation means higher output per man—and a better return on the TV station's investment in manpower. Furthermore, the growing station can handle an even **busier program** schedule **without higher operating costs**.



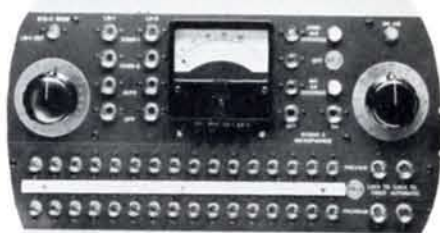


# RCA automation will perform many operating functions



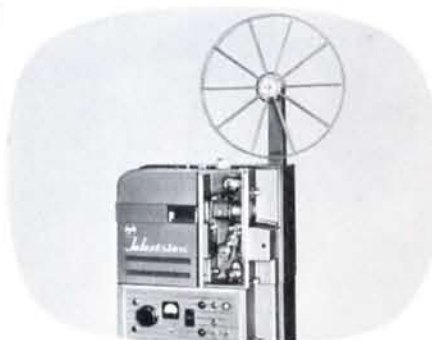
## Operates video switcher

The RCA TV Automation Equipment will handle all of the switching operations involved in switching between the network, live studios, film cameras or remote inputs . . . in any desired sequence. Video switchers—either relay or transistor type—may be operated by RCA TV Automation Equipment



## Operates audio switcher

RCA TV Automation Equipment will select the proper audio input from the network, studio, announce booth, film room, turntables, tape recorder, or other audio source. The system will switch the sound source simultaneously with the picture source . . . or it may be set up to handle the two switching functions independently—as required.



## Starts and stops film projectors

RCA Automation Equipment will roll the film projector at the proper time . . . stop the projector at the end of a film (or film insert)—with **split-second accuracy**. It will even provide the proper amount of "roll cue" time required to bring the projector up to speed before switching the film picture and sound on the air.



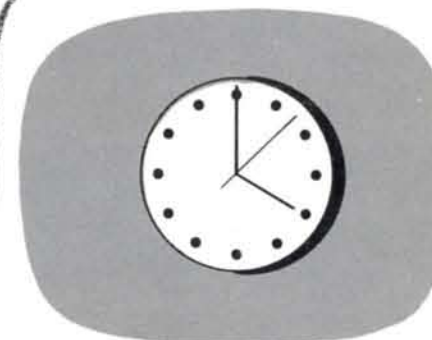
## Operates slide projector

RCA Automation Equipment will switch the picture from a slide projector to "on air" at the proper time. It will also control the **slide-change function** of the projector to show a series of slides—with sound originating from the announce booth, turntable, or audio tape recorder. The length of time that each slide is shown on the air is controlled automatically . . . but may be controlled manually, if desired.



## Positions multiplexer mirrors


Provision is included in the TV Automation system for automatic positioning of the film room multiplexer mirrors—to accommodate any pre-determined sequence of films or slides. The operator is thus relieved of the problem of determining and setting up the multiplexer mirror arrangement during on air time.



## Automatically times program events (optional)

Provision is available if desired for **automatic timing** of the duration of each program event—within an **accuracy of one second**. With or without automatic timing, the system may be operated as a **pre-set switcher**—permitting the operator to put on air a pre-determined sequence of picture and sound sources—by merely pushing a single button for each successive event.





# How RCA automation improves efficiency of operations



## Without automation


An inherent problem in the operation of any television station room is the **extreme variation in work load** between periods of peak activity and periods of slow activity. During station breaks and commercial inserts, the operator is called in to perform a multitude of complex duties. Within a period of time which may last from thirty seconds to several minutes, he must select and operate the proper pushbuttons on a video switcher, operate an audio switcher, start and stop film and slide projectors, turntables and tape recorders, and change the position of the film room multiplexer mirrors—all in proper sequence. Moreover, each operation must be performed at the precise instant required by the program schedule.



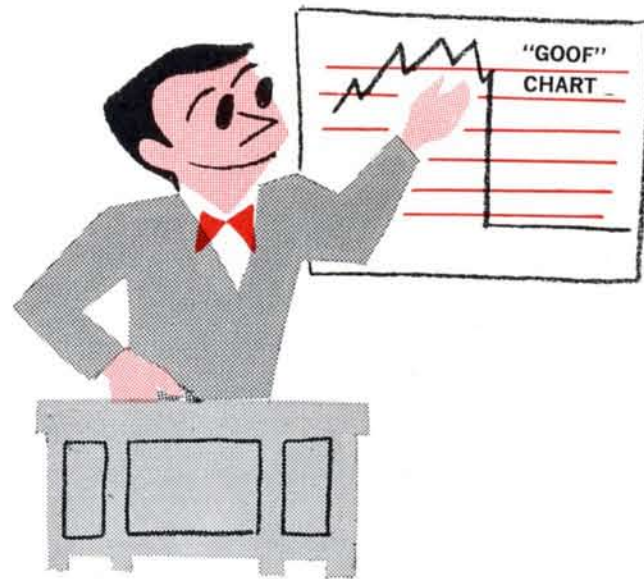
## With automation

The operator in a television station equipped with RCA TV Automation Equipment **avoids periods of peak activity** . . . by setting up in advance all of the switching operations required over a pre-determined period of time. Presetting of the automation equipment may be done at any convenient time. When the station break occurs, all of the switching operations required for the break are "run off" by merely pushing a single button. As many as **25 program events**, each involving a change in sound and picture source, may be set up in advance and **programmed automatically**.





# How RCA automation equipment avoids switching errors



### Preset

Program switching sequences are set up ahead of time by feeding information from the program schedule into a "memory" circuit: Picture source, Sound source, and Number of event are preset. With automation system including automatic timing duration of the event is also preset into the Automation system.

### Precheck

After the program information has been fed into the memory circuit, it may be prechecked before the program goes on air. The information pertaining to any preset program event may be reviewed . . . by means of a **visual display** at the control position. Changes for any event may be made at any time—until the event goes on air. Any **errors** may thus be **corrected** before program time.

### Present

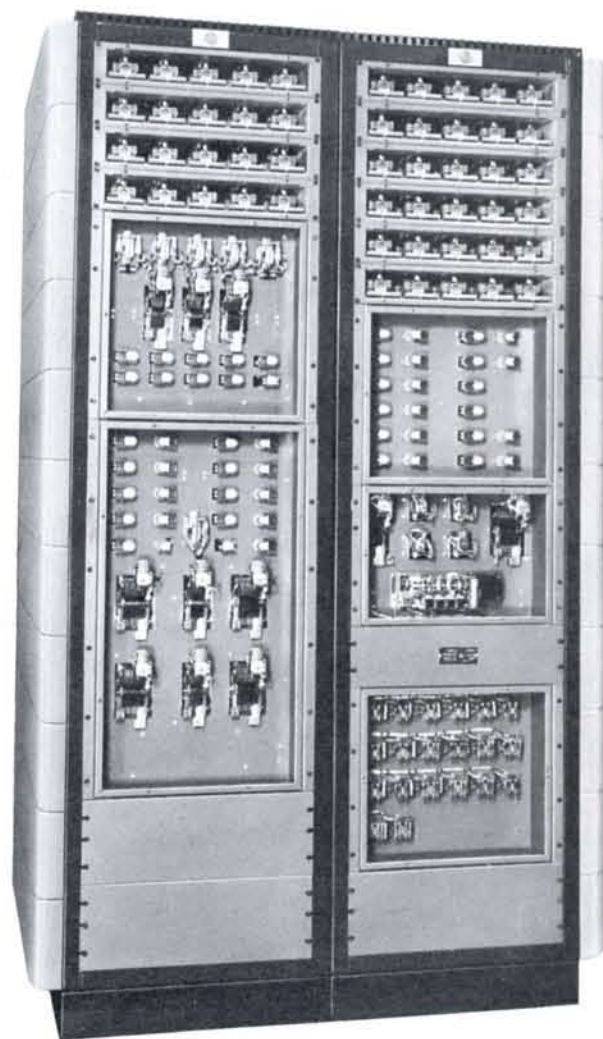
The effort required to put the program on the air is the least of all. When the time arrives for the first event to go on the air, the operator merely pushes the OPERATE button. Each preset event follows automatically—in the **proper sequence** . . . **precisely timed**. In a semi-automatic system (without automatic timing) each succeeding event is placed on air by pushing the OPERATE button.





# TV automation equipment

## Type TSA-1



Information storage and processing

### Packaged system for television stations

The TSA-1 Television Automation Equipment is designed for easy integration into existing television facilities. It consists of a console mounted **control position** and a rack mounted **information storage and processing system**. The TSA-1 equipment is available with or without timing. As an initial step, the system may be installed without automatic timing . . . timing may be added at a later date.

### Readily adapted to station requirements

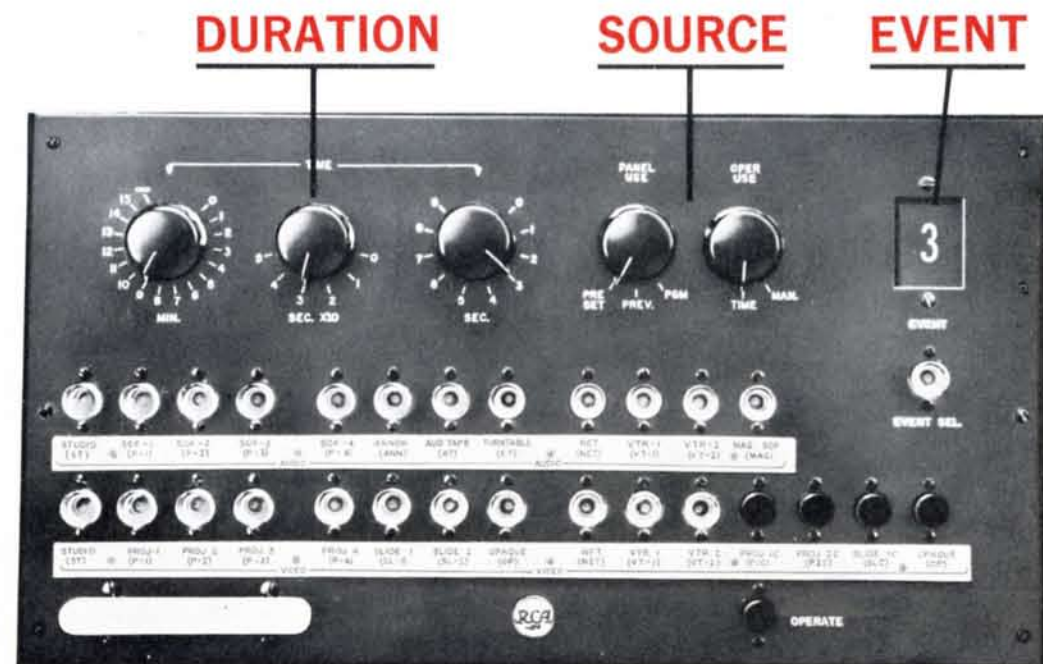
A series of standard TSA-1 TV Automation Equipment packages are available with a range of memory storage capacity from 10 to 25 program events. A program event is defined as any item in the program schedule calling for a change in picture or sound source. Modular design of the TSA-1 system permits easy adaptation to the needs of individual television stations.



Control console

### Control panel

This panel contains the pushbuttons and selector switches used in operating the TSA-1 TV Automation Equipment. Pushbuttons resembling those of conventional video switchers are used for the selection of the picture source and sound source for each program event. Rotary selector switches are used to time the duration of the event in minutes and seconds. The program source and time information is placed into storage by merely pressing the "cut bar". Automatic operation of the system is initiated by pressing the OPERATE button. If desired, the control panel may be used at any time as a manual switching control panel—bypassing the Automation System. Control panels are supplied on a custom basis, in order to accommodate the exact requirements of the individual television station.



### Program read-out panel

This panel is mounted immediately above the control panel at the TSA-1 TV Automation control position. It contains two horizontal rows of "windows" which provide a visual display of the information which has been preset into the memory circuits of the Automation System. The display is in the form of numbers and lettered abbreviations. These indicate the number of the event. The upper row of windows displays the information pertaining to the program event which is on air. The lower row of windows displays the information pertaining to the next event to be shown on air. It may also be used to precheck the information stored in the memory circuit for **any upcoming event** which the operator chooses to check. The operator is thus provided with an easily read display of any of the information which has been preset into the Automation System.







# RCA equipments designed for TV automation



**TS-40 transistorized video switching equipment**

Utilizing transistorized switching circuits and designed for remote control, the TS-40 Video Switching System is ideally suited for use with TV Automation Equipment. The video switching function is entirely electronic—no mechanical contacts are used to handle the video signal. The switching transition is extremely rapid; in the order of one microsecond to change from one picture to another. Extreme flexibility of individual system design is provided—up to 24 inputs and 10 outputs in any desired combination. Modular design of the TS-40 Switching System components allows system expansion or modification with a minimum of effort, and allows quick interchange of sub-chassis units for replacement or repair.

## Automatic light control

The RCA Automatic Light Control amplifier is a video level sensing device which produces a control signal to operate automatically the neutral density light control units in a monochrome or color television film system. Upon detection of a change in video level, the amplifier will complete a compensating change in projector light output in less time than is required for a human operator. Designed for use with either a color or monochrome video signal, the Automatic Light Control unit is a basic component for an automated television station.



## TA-21 automatic gain control amplifier

Designed to provide automatic gain control over an input level range of plus or minus 12 db, the TA-21 Video AGC Amplifier relieves the control room operator of the constant need to "ride" program video gain. It may be used in the video output line to the transmitter or at the output of individual studios or camera chains.



## TP-7 television slide projector

The TP-7 Television Slide Projector is designed to accommodate 36 two-by-two transparencies in two storage drums. Remote slide change control is provided for either manual operation or for control by a TV Automation System. The reliability of this projector and its large storage capacity make it ideal for the automated television station.



## TP-6 professional film projector

The TP-6 is a 16-mm film projector incorporating a number of design features for automated control. For example, **automatic lamp change** in the event of projection lamp failure assures continuous operation. The extremely rapid stabilization time virtually eliminates the time interval required for "projector roll" cues. Both picture and sound reach stable speed within one second after the projector start button is pressed. Another feature for the automated TV station is **automatic cue**. It stops the projector automatically at any pre-determined point on a film, and cues the film automatically at the next desired starting point. The unusually large capacity of the TP-6 projector is important to TV Automation—4,000 feet of film may be accommodated on one reel.



## TP-15 universal multiplexer

Through a system of remotely controlled, motor driven mirrors, the TP-15 Multiplexer will handle the outputs of four projector input sources (two film and two slide projectors) and two vidicon film cameras. Any two projector inputs can be fed to the two film cameras at any time, thereby providing standby protection and a high degree of program flexibility. The TP-15 Multiplexer mirrors are readily controlled by the Type TSA-1 TV Automation Equipment.



## PLANNING THE AUTOMATION OF TV STATIONS

In order to obtain maximum benefits from TV automation, each installation should be planned on the basis of a careful analysis of existing facilities. The type and number of film and slide projectors required will depend on the type of programming, the number of slides shown and the amount of film footage handled per day. In any event the film projectors and multiplexers should be capable of remote control and have adequate capacity to permit programming for reasonably long periods of time without re-loading.

## OTHER EQUIPMENT CONSIDERATIONS

Film cameras should be of the vidicon type to permit the use of automatic gain control or automatic light control—for best results over a wide range of film density. A remotely controllable video switching system of either the relay or transistorized type should be used. A relay type audio switcher should be employed.

## TYPES OF AUTOMATION EQUIPMENT

Careful consideration should be given to the event storage capacity required to meet the needs of the individual station. The TSA-1 TV Automation equipment is available in four basic packages: To handle 10, 15, 20 or 25 preset events. A choice is also available between systems with and without automatic timing.

## AUTOMATION FOR CONTINUOUS PROGRAMMING

In addition to the TSA-1 TV Automation equipment, RCA supplies punched-tape controlled systems for "all-day" automation. This equipment, which permits an entire day's operation to be set up in advance and run off automatically, is manufactured on a custom basis. Detailed system recommendations are available upon request.



For more information  
see your RCA Broadcast Representative

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