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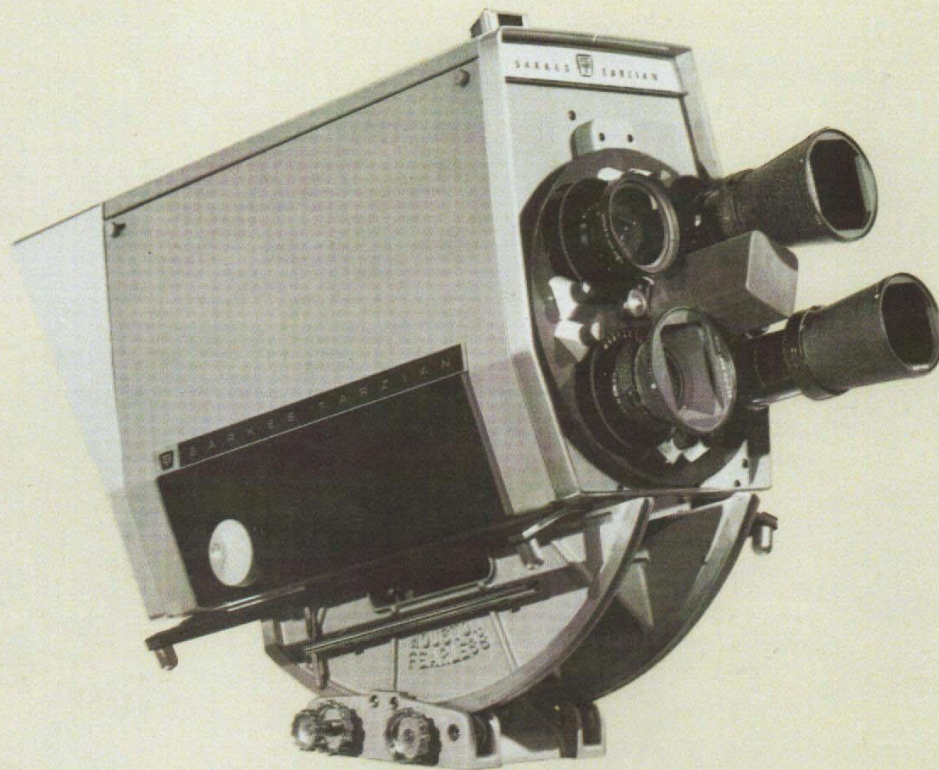
Symbol of Excellence in Electronics

3000L

3" Image Orthicon Camera System

TRANSISTORIZED TELEVISION BROADCAST EQUIPMENT

TRANSISTORIZED TELEVISION BROADCAST EQUIPMENT



3000L 3" Image Orthicon Camera Head

FEATURES

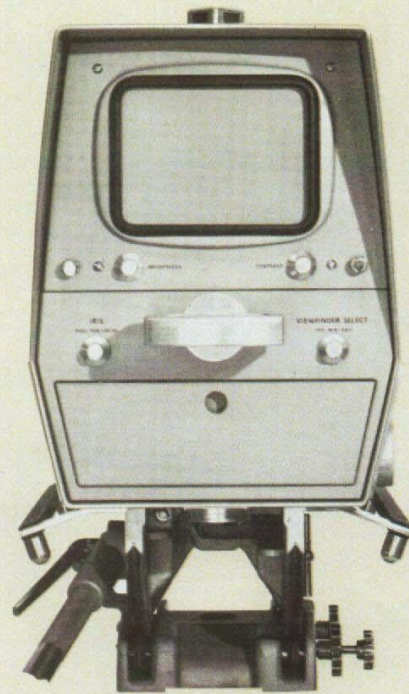
- 100% transistorized
- Plug-in 8" viewfinder
- Remote iris
- Plug-in transistor card electronics
- Regulated AC at camera head
- Standard IO cable and connector
- Orbiter
- Electronic lens cap
- Viewfinder peaking switch
- Remote shading controls
- External viewfinder input
- Hinge out yoke assembly for easy IO tube replacement

■ The Sarkes Tarzian 3000L series 3-inch Image Orthicon Camera is a completely new design incorporating major advances in mechanical and electronic design. ■ There are no tubes of any kind used except the Image Orthicon and viewfinder tubes. ■ The basic 3000L is identical for both field and studio use—the small, compact size of the processor makes the entire equipment highly portable. Only the camera head and processor are required for the complete camera chain. ■ The 3000L is designed to use any known, currently available 3-inch Image Orthicon tube. Extensive use of plug-in electronics assures fast, convenient troubleshooting and maintenance. Circuit electronics include a transistor preamplifier designed to assemble to the IO socket, which substantially improves noise performance. The remaining camera video electronics are contained on plug-in circuit cards. Precise temperature control is accomplished by a sensitive sensing thermistor located immediately adjacent to the IO tube. A temperature calibra-

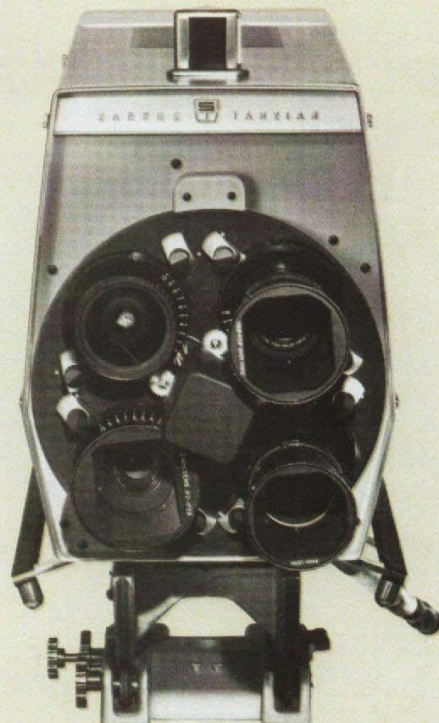
Large 8" viewfinder is self-contained, plug-in assembly—brightness range is exceptionally good. Frequently used operator controls are grouped for ease of operation; others are concealed behind hinged panel for simplicity.

tion control allows setting the upper limit of the faceplate temperature to the precise value required by the particular IO tube used. ■ When the camera is turned on, a high speed heater immediately brings the IO tube to temperature while the blower system is on low speed. The blower is turned on full speed when temperature control point has been reached. The entire yoke assembly is cooled with forced air by a very quiet, high efficiency impeller blower. The entire yoke assembly swivels outward for rapid IO tube replacement.

■ Simple and rapid adjustment of focus is provided by an electronic beam rocker circuit. Both vertical and horizontal focus modulation are included. Independent adjustments are provided to control focus modulation amplitude. ■ The transistorized horizontal sweep circuit assures better than $\frac{1}{2}\%$ linearity and this unique circuit allows adjustment of linearity via a single control. Both vertical and horizontal sweep protection are included to assure complete IO tube protection. This circuit will operate with reduced sweep or the absence of sweep to prevent a raster burn-in, as well as complete sweep failure protection. Vertical sweep includes reversal control for special effects. ■ Remote shading controls are provided for those examples where there is no control of lighting as in field situations. An electronic lens cap circuit is included for significant operational convenience. The camera can be left with all control settings established by operating the lens cap switch. This assures complete disabling of the IO tube. When ready to resume operation, the deactivation of the lens cap places the camera in the exact operating condition as when previously set up. ■ A target set switch is included to allow a setting of the IO tube operating point. The procedure is to switch in the target set and establish picture whites at cut-off. When the target set switch is released, a pre-set amount of positive voltage is placed on the target. ■ Saturable reactor AC regulating transformers are provided in the camera head. This allows camera cable lengths to vary up to 1000 ft., making camera head AC voltages independent of camera cable lengths. ■ All cameras come equipped with the basic facilities for remote iris; that is, lens turret commutator, etc. The Iris Servo unit and lens turret iris motor assembly can be added at any time. The iris servo unit is plug-in. Local or remote control of iris is selected at the camera head. The iris control is a smooth fast operation and can be calibrated for individual T stop openings.



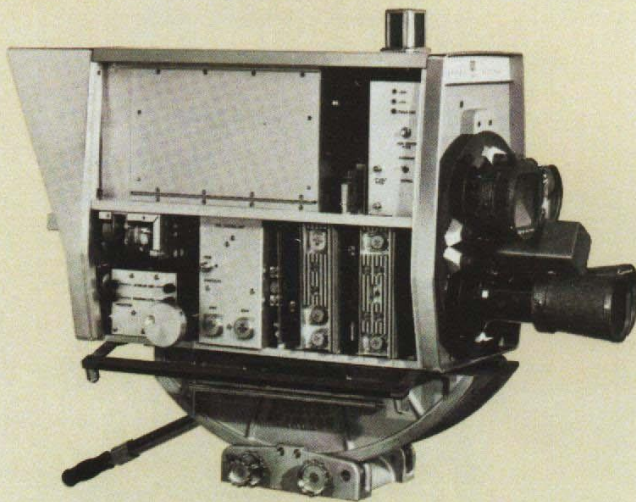
Large, four-lens turret with standard remote iris control accepts wide variety of lenses.



Plug-in electronics assure fast, convenient troubleshooting and maintenance. Rugged side doors swing down to form convenient work surface, or can be readily removed.

Lenses are easily changed simply by loosening two thumb screws allowing lens and insert to come free of the turret.

■ An image orbiter is included as standard equipment. A dual transistor intercom unit with individual level controls provides independent gain settings for program sound/engineering sound and for program sound/production sound. Dual headset jacks allow the camera operator and a floor man to plug into the camera intercom system. An accessory intercom unit is available which allows private or party line connections. In addition, cross connection between engineering and production sound can be accomplished. ■ The 3000L camera turret is designed to use a wide variety of lenses. Universal lens inserts allow using any 35 mm zoom, standard IO 35 mm lenses, 35 mm motion picture lenses, Taylor, Taylor Hobson or Canon remote iris lenses. Lens changes are accomplished simply by loosening two thumb screws allowing the lens and insert to come free of the turret. ■ A variable ratio focus control operates a ball bearing focus assembly. The focus setting will not change with position of camera and the operation



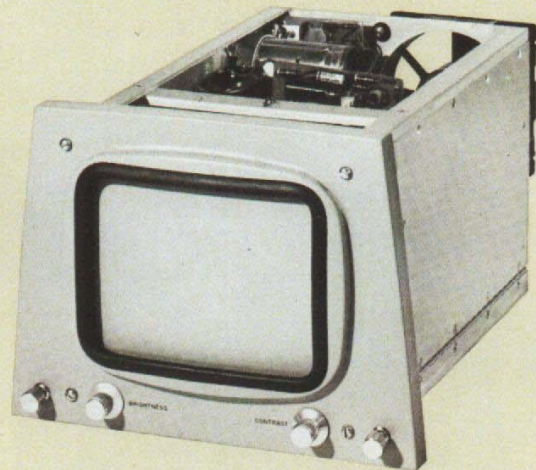
TRANSISTORIZED TELEVISION BROADCAST EQUIPMENT

is smooth and precise. ■ A large camera tally which can be seen from any angle is designed to allow numbers to be placed on the tally to identify camera sources. ■ Manual lens turret control is from the rear of the camera and lens zoom control is also brought to the rear apron. ■ The large 8-inch viewfinder is a self-contained plug-in assembly. The viewfinder has exceptional brightness range, with absolute regulation and high voltage stability. Resolution of the viewfinder is in excess of 600 lines. The viewfinder tube is of the bonded faceplate variety. ■ Within the plug-in viewfinder assembly individual viewfinder circuits are modular, for simple, rapid servicing. Access to all viewfinder circuits is possible without removing the unit from the camera head assembly. A separate saturable reactor transformer is contained within the viewfinder to make its operation independent of camera cable length. A switch for normal passband or overpeaking in the video circuitry is included for operator convenience. ■ The viewfinder video input is selectable. The camera man can select video to be seen on his viewfinder. This feature can be used for setting up shots. Selection of the output of the camera system, or an independent input, can be made. The independent input may be a source directed to the camera from the switching system preview bus, for example. The operator can select either of these two video signals or a non-additive mix of these two video signals. ■ The plug-in viewfinder can be used with any series 2000L, 2500L, 2700L, 3000L, or 4000L camera systems. This interchangeable feature provides the broadcaster with unusual maintenance flexibility.

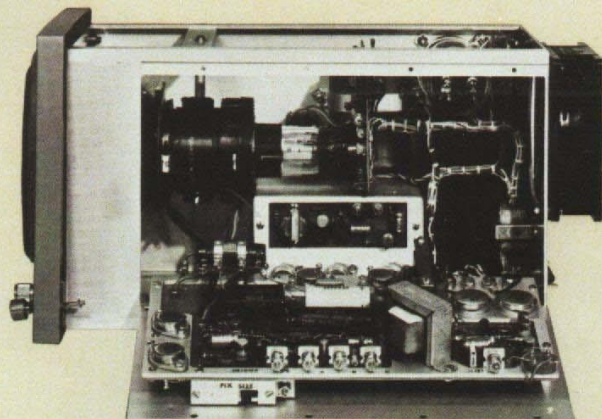
Viewfinder Specifications

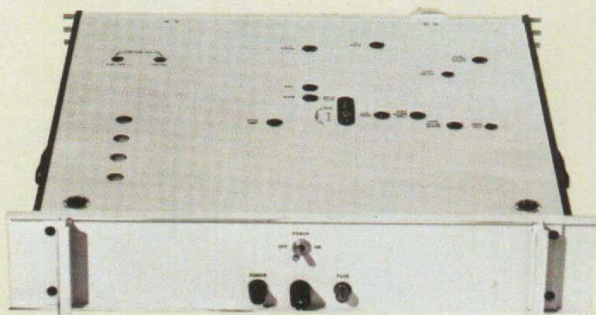
Input power . . . 100 watts; 95-125 V AC, 60 cycle
 Inputs Horizontal drive and vertical drive 3.5 to 4.5 V
 PP Video .5 to 1 V PP Noncomposite
 Size Plugs in any series 2000L, 2500L, 2700L, 3000L
 or 4000L camera. 16½" long; 8½" wide; 8" high.
 Weight 26 lbs.

Large 8" viewfinder is a completely self-contained plug-in assembly interchangeable with any Tarzian series 2000L, 2500L, 2700L, 3000L or 4000L camera systems. Wide interchangeability affords unusual maintenance flexibility.



Access to all viewfinder circuits is possible without removing the unit from the camera head assembly.





Adjustments can be made easily without removing proc amp cover.

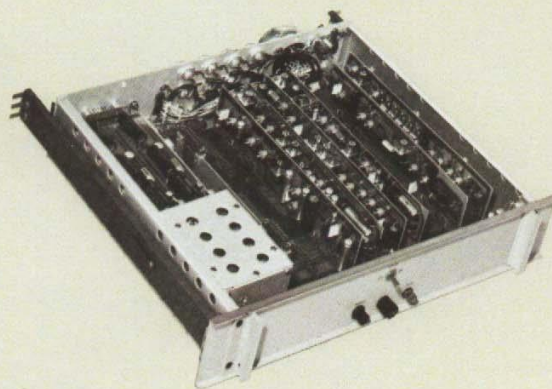
Image Orthicon Camera control panel replaces front panel of proc amp for rack mounted applications.



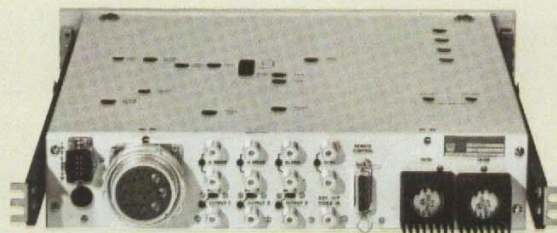
■ The 85-316 processor is a completely modular unit designed to work with all series 2000L, 2000F, 2500L, 2500F, 2700L, 2700F, 3000L and 4000L cameras. The use of a common processor unit has obvious advantages in a station operation. All circuit electronics are plug-in circuit cards. The majority of circuit cards are common to all processor units; however, certain plug-in circuit cards used depend on the camera type. For example, the 3-inch and 4½-inch Image Orthicons utilize a shading board, whereas the Vidicon and Plumbicon cameras do not require a shading board. Also, film cameras do not require the viewfinder video board, but would use instead the ABL-AGC board, which would not be used with the live cameras. Since all boards are plug-in, changing the proc amp from one mode of operation to another is very simple and provides a highly flexible, efficient maintenance system in the event of failure of any camera source. ■ The remote control panel can be either console type mount or mounted to the face of the processor unit. Even in this respect there is considerable flexibility since the front panel assembly can be removed and replaced rapidly and simply by plugging in a Processor mounted control and then fastening the panel assembly to the frame. The use of processor mounted remote controls is becoming much more dominant since the advent of transistorized camera equipment which, because of inherent stability, requires little attention after set-up. Horizontal pulse regeneration and delay adjustment are included to assure clamp keying and camera blanking occur at the same time. Vertical pulse regeneration and delay are also provided. Delays up to 200 microseconds are continuously adjustable. For the Image Orthicon, the shading circuits are remotely controlled. A vertical shading balance control is included to assure constant

set-up. For film use, video set-up, peak white, and peak-to-peak video level is automatically controlled in the automation mode. The operation of this circuit is extremely fast and smooth. The ABL and AGC work in conjunction with ATC in the film camera head to assure an output video signal of constant set-up—peak white—and peak-to-peak level, which is independent of film or slide densities. The operation of this circuit truly assures a 'hands off' operation for film and slide reproduction. Aperture correction is completely electronic and provides true phaseless correction. The point of maximum correction is adjustable. In order to assure best performance, the point of maximum boost is different for 3-inch IO's, 4½-inch IO's, Vidicon and Plumbicon Cameras. This proprietary circuit allows station technical personnel to adjust the aperture point of boost, as well as the amplitude, to obtain best performance from each type camera unit. ■ A 3-position gamma correction switch allows setting of gamma at .6, .8 and 1. A single control allows variations of gamma around these individual settings. The final processed video is directed to a video distribution amplifier which provides four outputs. Three of these outputs appear on the rear apron in standard UHF connectors and are for external use. The fourth output is routed to the viewfinder video board. (The solid state switching unit located here selects the video source for the viewfinder.) ■ Selective sync addition for each output is accomplished through the sync adder board. Sync level addition is adjustable between .2 and .5 V PP. Sync addition can be switched in or out on the rear apron of the processor unit for each of the three outputs. The 85-316 processor contains a dual transistor intercom circuit with individual level controls for operator convenience.

All proc amp circuit electronics are readily accessible on plug-in circuit cards.



All input, output, and camera cable connections are made on rear apron of proc amp.



SPECIFICATIONS

Scanning rate	525 lines, 30 frames, 60 fields, 2:1 interlaced
Line repetition rate	15,750 cycles per second
Orbiter	4% picture height
Overscan	10% horizontal and vertical
Viewfinder size	8" tube
Resolution (horizontal)	600 lines picture center 500 lines picture corners
Signal-noise ratio	Limited only by image orthicon
Geometric distortion	Less than 2% of picture height
Square wave tilt	Adjustable to zero at 60 cycles
Remote iris control	Time for full range, 3 seconds Accuracy of setting ± 0.25 lens stop
Aperture correction	Phaseless electronic
Camera cable correction	Correct frequency response and clamp delay to 1,000 feet
Camera cable	Standard cable and connectors
Input signals	Horizontal drive, 4 volts ± 0.5 volts Vertical Drive, 4 volts ± 0.5 volts Sync, 4 volts ± 0.5 volts Blanking, 4 volts ± 0.5 volts Viewfinder video (external), 0.7 volts Intercom Audio
Input power	95-130 volts, AC, 60 cycles (no tap switch)
Output signals	3—non-composite 0.7 volts 75 ohm source impedance Composite 1.0 volts 75 ohm source impedance
Tally lights	Relay operated
Intercom	Dual transistorized
Length	22 $\frac{1}{2}$ " with viewfinder hood 27 $\frac{1}{4}$ " with viewfinder hood and iris motor 32 $\frac{3}{4}$ "
Width	12 $\frac{1}{2}$ "
Height	16 $\frac{7}{8}$ "
Weight	95 lbs.
Viewfinder weight	26 lbs.



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BROADCAST EQUIPMENT • DIVISION • BLOOMINGTON, INDIANA