The television equipment herein described consists of a special high-sensitivity airborne Conversion Unit. It operates as part of the AN/AXT-2 (also Navy Model ATJ and ATK) equipment replacing the PH-522 (also Navy CRV-59AAE) Conversion Unit normally used with that equipment. It is designed for unattended operation in an Army/Navy Aircraft and is used to convert an optical image into a composite video signal suitable for radio frequency transmission from the associated AN/AXT-2 equipment. It is especially suitable for applications where light-sensitivity is of paramount importance, being approximately 100 times as sensitive as the Conversion Unit it replaces.

The main features of this equipment are the high-sensitivity 2F 21 Multiplier Orthicon Picture Pickup Tube. directly replaceable with types 2P23 and 5820, the miniature-tube video amplifier, the compact construction, and the component and wiring accessibility.

Power Requirements: The conversion Unit requires the following voltages & currents: +28.6 volts D.C. at 4.8 amperes; +405 volts D.C. at 200 milliamperes; - 53 volts D.C. at 5.2 milliamperes. The primary d-c voltage supply should not vary beyond the limits of 26 to 30 volts. When the Monitor Unit of AN/AXT-2 equipment is used with this Conversion Unit, the additional load on the primary voltage supply is approximately four amperes.

Operating Sensitivity: The Conversion Unit will provide rated video output voltage when the scene brightness is 0.75 candle per square foot or more, and a usable output voltage when

the scene brightness is 0.25 candle per square foot.

Video Amplifier Frequency Response Characteristic: Figure 6-1 shows the overall frequency

response characteristic of the video amplifier with the high-peaker circuit removed.

The procedure which should be used to obtain this frequency response characteristic is as follows: a. Disconnect the video cable between the Transmitter and Conversion Unit & remove the case from the Conversion Unit in accordance with Section V, par. 2-c. b. Disconnect C139 from Pin 2, Vl03. c. Disconnect Cl40 from Pin 7, Vl03. d. Disconnect Rl47 from Pin 1, Vl07. Disconnect the lead to Pin 5, VIIO, and Pin 2, VIII, from the junction of RI42 and RI43. f. Connect a five-ohm resistor between Pin 1, VIOI and ground. g. Connect a jumper across RI71. h. Connect a one-megohm resistor between Pin 1, V107, and ground. i. Connect the output of a video sweep generator in series with a 1000-ohm resistor to Pin 1, VIO7. j. Connect a 47-ohm resistor across the output terminals of the video amplifier (J104). k. Reduce the sweep generator voltage output to zero, apply power to the Conversion Unit, and allow it to operate for at least five minutes before proceeding further. 1. Connect a wide-band oscilloscope to the video amplifier output terminals (J104), and advance the VIDEO GAIN control until the oscilloscope indicates a noise output of approximately 0.1 volt p-p. m. Advance the sweep generator output control until the oscilloscope connected to J104 indicates an output of 0.6 volt p-p at a frequency of one megacycle. If this output cannot be obtained, lower the value of the resistor connected in series with the sweep generator output. n. Disconnect the oscilloscope. and connect the sweep generator detector to the video amplifier output terminals (J104). Connect an oscilloscope to the proper terminals of the sweep generator to obtain the video amplifier frequency response characteristic.

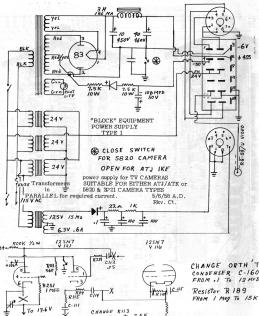
Wratten No. 89A Filter Characteristics: This infra-red filter cuts off practically all light wavelengths below 680 millimicrons, and transmits light of 700 millimicron wave-length with 20% efficiency.

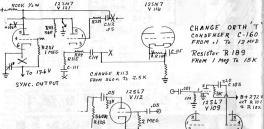
Increased contrast in the reproduced picture can often be obtained when this filter is used on the PH-548/AXT-2A Conversion Unit especially for brilliantly lighted outdoor scenes and other scenes where it is desirable to eliminate nearly all visible light.

When the scanning circuits of the PH-548/AXT-2A Conversion Unit are properly adjusted, the reproduced test pattern will fill only about 3/4 of the picture width and height, and the resolution values indicated will be only about 3/4 of the actual resolution observed.

Before the PH-548/AXT-2A Conversion Unit is set up for test, it should be carefully inspected. Remove all packing material, and make a visual inspection of the unit. Push each tube firmly into its socket, and make sure that the plate cap is in place. Very carefully, push the socket onto the base of the 2P21 Multiplier Orthicon Picture Pickup Tube at the rear of the unit to make sure it is properly engaged.

Make sure that the lead from the high-voltage coupling capacitor C146 to X101, Pin 1, is dressed at least 1/8 inch from the case of C146, that the filament leads to X120, Pins 2 and 7. are dressed at least 3/16 inch from all other leads, and that all leads are dressed at least 3/32 inch from X117, Pins 3 and 4, X118, Pin 3, and X119, Pin 3.





VERT OSC =

HOR. OSC.

H.A.MP

