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Teletec DXP-U150 Amplifier on ATV

The Teletec DXP-U150 amps were designed as an all mode linear amplifer for HT's, mobile and base transmitters in the output power range of .5 to 35 watts between 420 to 440 MHz and will work fine with ATV transmitters from 420-440 MHz. 10 to 15 watts pep typically out of a TC70-10 ATV transceiver will give 100 to 150 watts pep (sync tip power) output after proper setup with excellent linearity. Typical gain is 10 dB. For higher frequencies C16 and C72 can be repeaked for maximum output. Teletec put the ATV modifications (HPA-0007) in production units made after May 1997 and sold by us.

For key down times greater than 5 minutes, a fan blowing air down through the heatsink fins is strongly recommended. There is an internal thermal shut off that keys in at 100 degrees C, but too many cycles of reaching this temperature will shorten the life of the power transistors significantly.

Power amplifers for video are best run on their own separate power supply (13.8 Vdc @ 25 amp for this amplifier) due to the varying high current. The only point of real regulation is just at the supply terminals. Never run AM or SSB gear to a common external junction strip. Any lead length past the power supply terminals has significant resistance and inductance through 5 MHz such that a voltage will be developed across the leads that resembles the video waveform. This voltage can upset other equipment, or cause distortion in the video and audio if it gets back into the transceiver through the power supply.

The built-in receive preamp is not needed with most stations since the ATV downconverters have more than enough gain and lower noise figures than the Jfet device used in this amp. We suggest disabling the preamp by connecting jumper HPA-0005 from the front panel jack to +13.8 Vdc. Too much gain increases the chance of intermod and overload interference.

P. C. Electronics only stocks the DXP-U150, but the repeater version uses the same circuit and can be ordered and drop shipped to you by us.. The repeater version, DXR-U150, has a larger heatsink, built in fans and better shielding.

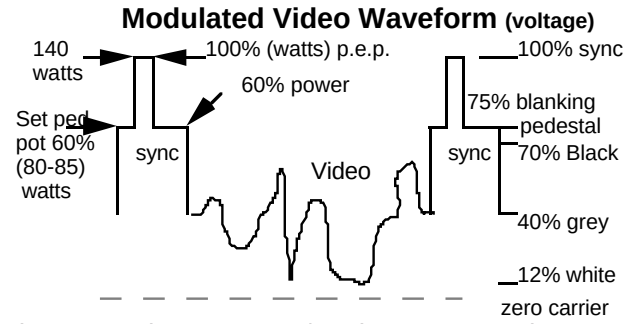
Set up: Every ATV transmitter / amp combination must have an initial drive and pedestal set up due to different gains, applied voltage and power outputs. The sync stretcher must be set to maintain the proper video to sync ratio given the amplifier gain compression as power output increases. This is done by adjusting the RF peak power drive and then the blanking pedestal level. Once set up, the power and pedestal pots need not be touched again unless the applied DC voltage is changed by more than a half volt such as going from a 13.8 Vdc regulated supply to 12.6 V battery power.

1. Connect a RF power meter in the amplifier output line to a good 50 Ohm termination. VSWR must not have more than 10% reflected power. With no video connected to the ATV transmitter, set the blanking pedestal pot (ccw on the TXA5-70) on the the transmitter board for maximum power output.

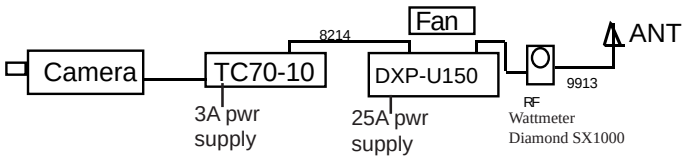
2. Turn on both the ATV transmitter and the amp for no more than 10 seconds. Note the output and reflected power. If the reflected power is less than 10%, it is OK to procede with longer key down time. Set RF drive, if necessary, so as not to exceed 150 watts output with the exciter RF output pot - never detune the trimmer caps. The output power you noted will be your peak envelope power at the sync tip and will be constant even after the following adjustments. Multiply this value by .6 - i.e. 140 watts times .6 equals 84 watts.

3. Key the transmitter and reset the pedestal pot to no more thanthe calculated value from step 2. The ATV transmitter / amp combination will still be putting out the original power you measured on the sync tip, and the set value at the blanking pedestal under video modulation. RF Power meters under video modulation are meaningless - the whiter the picture the lower the reading and is not comparable to any other station. That is why pep is used for any complex AM modulated transmitter system to compare power levels.

4. Reconnect the video source and adjust the video gain to a level just before white clipping or smearing. Have a distant station talk the video gain control in via two meters, receiving in your own shack can give erroneous results. Take care not to over modulate which can cause interference to other users of the band and put sync buzz into your audio.



The automatic RF sense T/R relay may not activate or chatter with low drive and lots of white in the picture. If so, increase the drop out hang time by adjusting the pot on the bottom of the amplifier.



System Block Diagram with RF wattmeter for initial setup. Antenna must be a resonant broadband 50 Ohm 70cm type such as the KLM 440-16X or DSFO ATV-25, etc.

Please read the DXP-U150 Instruction Manual - If you have any problems with the Teletec Amp, check all your cables and connections, power supply, transmitter ouput, reflected power, reread the manuals and then call Teletec service at (919) 556-7800.