

DATE \_\_\_\_\_  
SH. 1 OF 4  
COMPILED BY  
L.B.

# TMC SPECIFICATION NO. S 431

TITLE: PROCEDURE OF THE GPT-10,000 RELAY PANEL

JOB

APPROVED

## PURPOSE:

The Relay Panel is the power control of the GPT-10,000, this unit features a time delay up to 5 minutes for warm up period for the transmitter, a plate and filament time to keep track of the hours the 4CX5000 has been in operation, five relays for overload purposes which are arranged in such a way to remove high voltage if excessive current flows in the plate or screen of the Power Amplifier or the intermediate power amplifier and the fifth relay to protect against excessive current in the zener diodes. Bias protection is achieved by the use of two relays, one for the final and one for the driver if Bias voltage is not present at the relay panel these relays will remain unenergized, thereby keeping the interlock circuit inoperative which prevents applying high voltage. The last two relays are final screen ON and OFF and the tune operation relay. The purpose of the ON-OFF relay is removing screen voltage from the final while tuning the driver. The tune operation relay places the driver and final in tune position by placing a lower screen voltage and in operation a higher voltage. All the overload relays and the bias relay gives visual indication when they de-energize except the zener protect. All the overloads except the zener protect have overload adjustments also the bias for the final is adjusted from the front of the relay panel.

## TESTING OF RELAY PANEL:

Due to the many operations the relay panel has to perform, a tester was constructed to check each function. To test a relay panel one must connect the two cables from the tests to the relay panel

DATE \_\_\_\_\_  
SH. 2 OF 4  
COMPILED BY  
LB

# TMC SPECIFICATION NO. S 431

TITLE: TEST PROCEDURE OF THE GPT-10,000 RELAY PANEL

JOB

APPROVED

1. Set the time delay on the relay panel to maximum time.
2. Place the multimeter switch on panel to off position.
3. Place tune operation switch in tune position.
4. Place screen switch in off position.
5. Turn on main power.
6. The PA and IPA bias lamps should light and immediately go out.
7. The time delay should start moving in a counter-clock wise direction.
8. If any other overload lamps are lite, push the reset button.
9. The interlock indicator on the tester should be lite, if not the interlock circuit is miswired.
10. Remove in Indication fuse B, the Interlock Indicator should go out and the PA and IPA bias lites should go on. Replace fuse.
11. De-energize K701, the PA plate overload should go on and the interlock indicator should go out. This should hold true with K702, K706, and K707, K704 do not have a visual indicator on the relay panel but the Interlock Indicator should go out.
12. De-energize K704 and leave de-energize, wait for the time to energize, the time indicator should go out and the interlock indicator should go on - if this and the proceeding steps check the interlock circuit of the relay panel is good.
13. Remove phase one, fus the phas one, lamp should go out.
14. Phase two and the phase two lamp should go out.
15. Phas three and the phas three lamp should go out.

DATE \_\_\_\_\_  
SH. 3 OF 4  
COMPILED BY  
LB

# TMC SPECIFICATION NO. S 431

TITLE: TEST PROCEDURE OF THE GPT-10,000 RELAY PANEL      JOB

APPROVED

16. Remove rear fan fuse and the rear fan lamp should go out.
17. Remove time fuse and the timer should start back in a clockwise rotation.
18. Remove PA filament fuse and the PA filament lamp should go out.
19. The timer motor lamp is just a indication that 220 vac are present at the right terminals on the tester.
20. The filament and plate time meter should be reading the amount of time elapsed from the time the tester was placed on.
21. Place the multimeter switch in the PA screen position, place the screen switch to "ON" position. The meter should read approximately 15 ma, this checks the PA screen tune position.
22. Place the tune operation switch in the operation position. The meter should read approximately 65 ma. and the PA screen adjustment should be adjusted so the relay will kick out and the PA screen overload lite lights. Put screen switch in the off position. The meter should read nothing.
23. Place multimeter switch in the IPA screen, tune - oper switch in the tune position. The meter should read approximatly 15 ma. Switch to the operation position, the meter should read approximately 50 ma. Adjust IPA Screen Overload until the relay kick out and the IPA Screen lite lights. If this procedure checks O.K., the IPA Screen functions properly.
24. Place the multimeter switch in the zener diode position. Th meter should read approximately 120 ma. and the zener diode

DATE \_\_\_\_\_  
SH. 4 OF 4  
COMPILED BY  
L. B

TMC SPECIFICATION NO. S 431

TITLE: TEST PROCEDURE OF THE GPT-10,000 RELAY PANEL

JOB

APPROVED

overload relay should kick out.

25. Place meter switch in the IPA Plate position. The meter should read approximately 650 ma.. Adjust the IPA Screen overload until the relay kick out and the screen overload lite lights.
26. Place meter switch in the PA Plate position. The meter should read 2 amps.. Adjust overload to a point where as it just kicks out, the overload lite should light.
27. Place meter switch in the OFF position. Press reset button. This should reset all the overload relays.
28. Place volt meter across PA bias terminals. The PA bias adjust should vary the bias 280 vdc to 300 vdc.
29. Check Continuity from little j and k to A.C. terminals on plate time meter.

A careful inspection should be made of the relay for obvious mechanical errors and the high voltage relays. With all of the above completed, this relay panel can be tagged O.K. for mounting on the transmitter.