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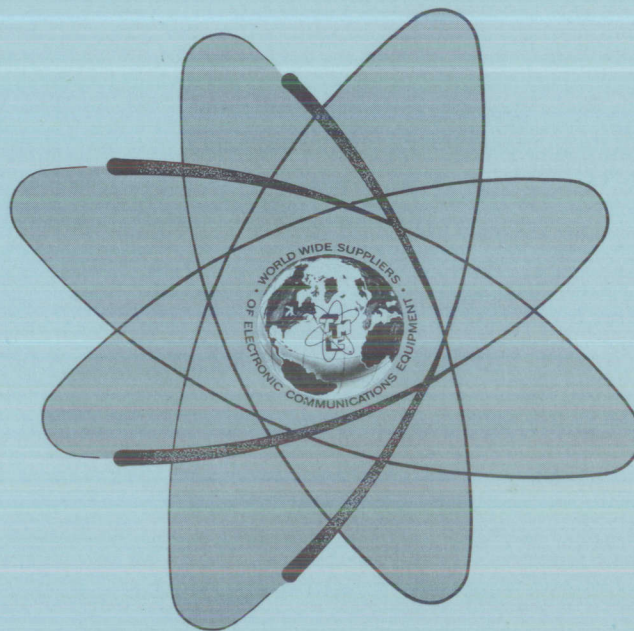
SERVICE MANUAL

for

HIGH FREQUENCY TRANSMITTER

MODEL HFT-1K

*Sales Order
51-9521*



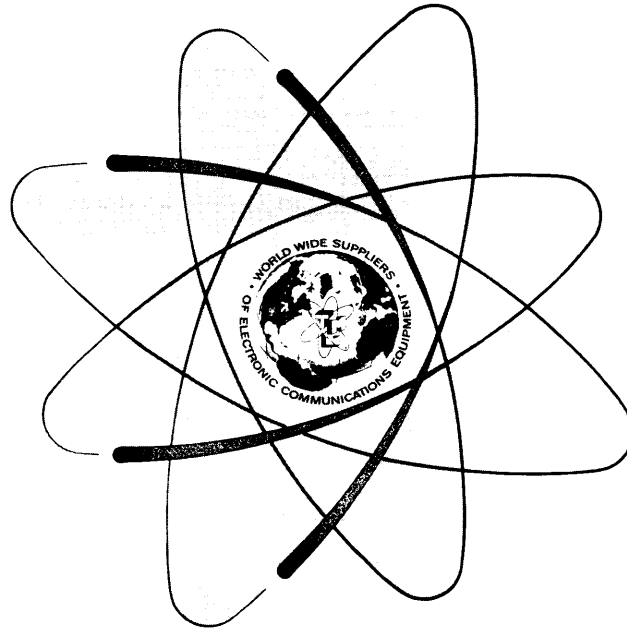
THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y.

OTTAWA, ONTARIO

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SERVICE MANUAL
for
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MODEL HFT-1K



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FOREWORD

Information for servicing the High Frequency Transmitter, Model HFT-1K is provided in this Service Manual and in the maintenance sections of the individual technical manuals for the modular units of the HFT-1K transmitter. This Service Manual for High Frequency Transmitter, Model HFT-1K provides transmitter system maintenance techniques and schematic diagrams and parts listing for the Linear Power Amplifier, HFLA-1K portion of the HFT-1K transmitter. The individual technical manuals provided for the remaining modular units of the HFT-1K are as follows: Technical Manual for Multi-Mode Exciter, Model MMXA-2A and Technical Manual for Harmonic Filter, Model TFP()-1K. In addition, Technical Manual for Antenna Tuner Group, RF-601A has been provided under separate cover.

CHANGE NO. 1

INSTRUCTION BOOK CHANGE NOTICE

Date May 1, 1972

Manual affected: Service Manual for Linear Power Amplifier, Model HFT-1K

The following fuses should be added to the Parts List on AP151, Low Voltage Bias Supply:

FOR 115V OPERATION

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
F301	FUSE, CTG	FU102-1.5
F302	FUSE, CTG	FU102-2
F303	FUSE, CTG	FU102-1
F304	FUSE, CTG	FU102-.2
F305	Same as F302	
F306	Same as F303	

FOR 230V OPERATION

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
F301	FUSE, CTG	FU102-
F302	FUSE, CTG	FU102-1
F303	FUSE, CTG	FU102-.5
F304	FUSE, CTG	FU102-.2
F305	FUSE, CTG	FU102-2
F306	Same as F302	

On page 4-2, AP152 High Voltage power supply:

Add the following reference symbol after R102:

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R103	Resistor, Fixed, WW 55W	RW115-101-55

SHOULD ADDITIONAL COPIES OF THIS CHANGE NOTICE BE REQUIRED, PLEASE CONTACT:

THE TECHNICAL MATERIEL CORP., 700 Fenimore Road, Mamaroneck, New York

Attn.: Director of Eng. Services.

CHANGE NO. 2

INSTRUCTION BOOK CHANGE NOTICE

Date June 1, 1972

Manual affected: Service Manual for Linear Power Amplifier, Model HFT-1K

Please make the following pen and ink corrections to the HFT-1K Maintenance Service Manual.

1. On page 4-2, add the following:

DS102 Same as DS101
XDS102 Socket, Lamp TS136-1FS

2. On page 4-18, change:

Part Number for B1 to M0136-5

3. On page 4-19, change:

Part Number for F303 to FU102-1.5
Part Number for F305 to FU100-4
Part Number for F306 to FU102-2.5

4. On page 4-20:

Change Part Number for R309 to RW110-5
Add R312 directly below R311. R312 Part Number Same as R311.

5. On page 4-26:

Delete C1303
Change Part Number for C1305 to CM111C121J5S

6. On page 4-33, change:

Part Number for C3 to CE105-25-50.

7. On page 5-3/5-4, Figure 5-1:

Change value of F303 to 1.5a/.75a
Change value of F305 to 4A
Change value of F306 to 2.5A
Change value of R309 to 15 ohms

Add R312 (15 Ohm, 20W) between R309 and R307.

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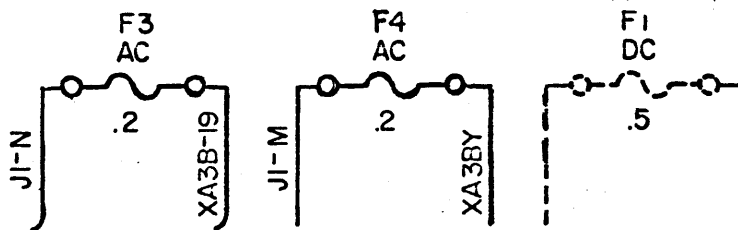
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INSTRUCTION BOOK CHANGE NOTICE

Date June 1, 1972

Manual affected: Service Manual for Linear Power Amplifier, Model HFT-1K

8. On page 5-5/5-6, Figure 5-2:
Add HIGH VOLTAGE lamp DS102, between terminals 1 and 7 on T101.
9. On page 5-9/5-10, Figure 5-3 :
Delete C1303 and associated note.
10. On page 5-13/5-14, Figure 5-4:
Add the value of .5 amp to fuses F1 and F2
Draw fuses F3 and F4 as follows:



Change J1-N from XA3B-19 to F3.
Change J1-M from XA3BY to K1-5, F4.
Change Last Symbol column from F202 to F204.

11. On page 5-17/5-18, Figure 5-4:
Change XA3B-Y from J1-M, K1-5 to F4.
Change XA3B-19 from J1-N to F3.

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SECTION 1
GENERAL INFORMATION

1-1. INTRODUCTION

The transmitter is designed for long term trouble free operation. When it becomes necessary to perform alignment and/or adjustments to the equipment, it is recommended that technicians perform the necessary operations outlined in the applicable paragraphs in this section.

A. The following maintenance aids are provided for troubleshooting, alignment and replacement of parts.

1. Fuse Location Drawing (Figure 2-1)
2. Fuse Functions (Table 2-2)
3. System overload and bias setting procedure
4. Auto-Tuning adjustment procedure

1-2. LIST OF TEST EQUIPMENT REQUIRED

VTVM	Hewlett Packard Model 410B or equivalent
Multimeter	Simpson Model 260 or equivalent
50 ohm Dummy Test Load or Antenna Simulator	

1-3. PREVENTIVE MAINTENANCE

In order to prevent equipment failure due to dust, dirt or other destructive elements, it is suggested that a schedule of preventive maintenance be set up and adhered to.

At periodic intervals, the equipment should be pulled out on its slides for internal cleaning and inspection. The wiring and all components should be inspected for dirt, dust, corrosion, grease or other harmful conditions. Remove dust with a soft brush or vacuum cleaner. Remove dirt or grease with any suitable cleaning solvent. Use of carbon tetrachloride should be avoided due to its highly toxic effects. Trichlorethylene or methyl chloroform may be used, providing the necessary precautions are observed.

WARNING

WHEN USING TOXIC SOLVENTS, MAKE CERTAIN THAT ADEQUATE VENTILATION EXISTS. AVOID PROLONGED OR REPEATED BREATHING OF THE VAPOR. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. FLAMMABLE SOLVENTS SHALL NOT BE USED ON ENERGIZED EQUIPMENT OR NEAR ANY EQUIPMENT FROM WHICH A SPARK MAY BE RECEIVED. SMOKING, "HOT WORK", ETC. IS PROHIBITED IN THE IMMEDIATE AREA.

CAUTION

WHEN USING TRICHLOROETHYLENE, AVOID CONTACT WITH PAINTED SURFACES, DUE TO ITS PAINT REMOVING EFFECTS.

1-4. OPERATOR'S MAINTENANCE PROCEDURE

- a. Refer to operational checkout procedures for manual or automatic depending on desired mode of operation (Operator's Manual).
- b. Refer to operator's troubleshooting chart (Table 2-1).

SECTION 2
TROUBLESHOOTING

2-1. TROUBLESHOOTING PROCEDURE

The first step in troubleshooting the automated system is as follows:

a. Observations

Observe the operation of transmitter and determine whether the indications are normal or abnormal. (Refer to operator's section both manual and automatic tuning.)

b. Fuse Checks

Should a malfunction occur a visual check of fuses on the system must be performed. (All fuses are indicating type. Refer to Figure 2-1 and Table 2-2 for fuse location and functions).

c. Voltage Checks

At this time voltage checks are not necessary until localization of the malfunction has taken place.

d. Localization of Malfunction

(1) To isolate the transmitter from antenna tuner, remove existing cable from TFP-1K RF OUT jack and connect 50 ohm dummy load to TFP-1K output jack.

(2) Set RF-601A controls in following manner:

(a) AUTO/SILENT/MANUAL switch to MANUAL.

(b) FUNCTION switch to "L".

(c) Depress and hold right pushbutton for approximately 2 seconds to remove "L" from home stop.

(3) Perform the operating procedure outlined in associated operator's manual. Use of this procedure will help localize the particular fault at hand.

e. Field Maintenance

Procedures presented on the following pages give instructions for qualified personnel to maintain, align, and/or troubleshoot the automated Transmitter.

WARNING

WHEN IT BECOMES NECESSARY TO MEASURE TRANSMITTER VOLTAGES, USE EXTREME CAUTION, HAZARDOUS VOLTAGE POTENTIALS ARE PRESENT ALTHOUGH MAIN POWER BREAKER MAY BE OFF. IT IS RECOMMENDED THAT THE FOLLOWING PRECAUTION BE STRICTLY ADHERED TO! !

1. CHECK TO ASCERTAIN MAIN PRIMARY POWER IS OFF OR REMOVED FROM TRANSMITTER.
2. ATTACH TEST METER TO POINT OF TEST DESIRED, RE-APPLY VOLTAGE TO TRANSMITTER.
3. WHEN MEASURING HIGH VOLTAGE POTENTIALS DO NOT TOUCH TEST METER OR LEADS ONCE VOLTAGE HAS BEEN APPLIED.
4. ESTABLISH TEST CONDITIONS AND OBSERVE READING ON TEST METER.
5. REMOVE PRIMARY POWER, SHORT OUT ALL HIGH VOLTAGE POINTS; REMOVE TEST METER.

TABLE 2-1. OPERATOR'S TROUBLESHOOTING CHART

<u>No.</u>	<u>Malfunction</u>	<u>Probable Cause of Malfunction</u>
1	Blower will not operate.	Replace defective BLOWER fuse.
2	PA Plate current and 2ND AMP Plate current excessive.	Replace defective BIAS fuse, or check bias adjustments for proper levels.
3	Interlock Indicator will not light.	Replace defective DC fuse, or check for open interlock.
4	HIGH VOLTAGE indicator will not light when HIGH VOLTAGE switch is pressed.	Replace defective LOW VOLTAGE fuse. Check that PLATE and SCREEN breakers are in ON position. High Voltage switch may have to be pressed twice.
5	SERVO indicator on AX5130 will not light automatic operation.	Check AC and/or DC fuse located on AX5130 chassis. Refer to operating procedure and check that all controls and switches are in the correct position for automatic operation.

TABLE 2-2. FUSE FUNCTIONS

<u>Modular Unit</u>	<u>Fuse</u>	<u>Function</u>
HFLA-1K	BLOWER Fuse	Protective fuse for blower, lights to indicate fuse defective (1.5 amp 115 vac, .75 amp 230 vac).
	FILAMENT Fuse	Protective fuse for Filament and Bias transformer, lights to indicate fuse defective (2.0 amp 115 vac, 1.0 amp 230 vac).
	BIAS Fuse	Protective fuse for dc return of bias supply, lights to indicate fuse defective (.2 amp).
	L.V. Fuse	Protective fuse for primary ac input to L.V. transformer, lights to indicate fuse defective (1.5 amp 115 vac, .75 amp 230 vac).
	DC Fuse	Protective fuse for dc return of 24 vdc supply, lights to indicate fuse defective (4.0 amp).
	CONTROL Fuse	Protective fuse for Low Voltage and Filament Bias transformer, lights to indicate fuse defective (2.5 amp 115 vac).
	AC Fuse	Protective fuse for servo amplifier, lights to indicate fuse defective. (.5 amp)
	DC Fuse	Protective fuse for 24 vdc line, lights to indicate fuse defective. (.5 amp)
MMX	LINE Fuse (2)	Protective fuses for MMX AC LINE, lights to indicate defective fuse. (1 amp each)
	SPARES	Spare 1 amp line voltage fuses.
RF-601A	AC (2)	Protective fuses for RF-601A AC LINE. (.75 amp)

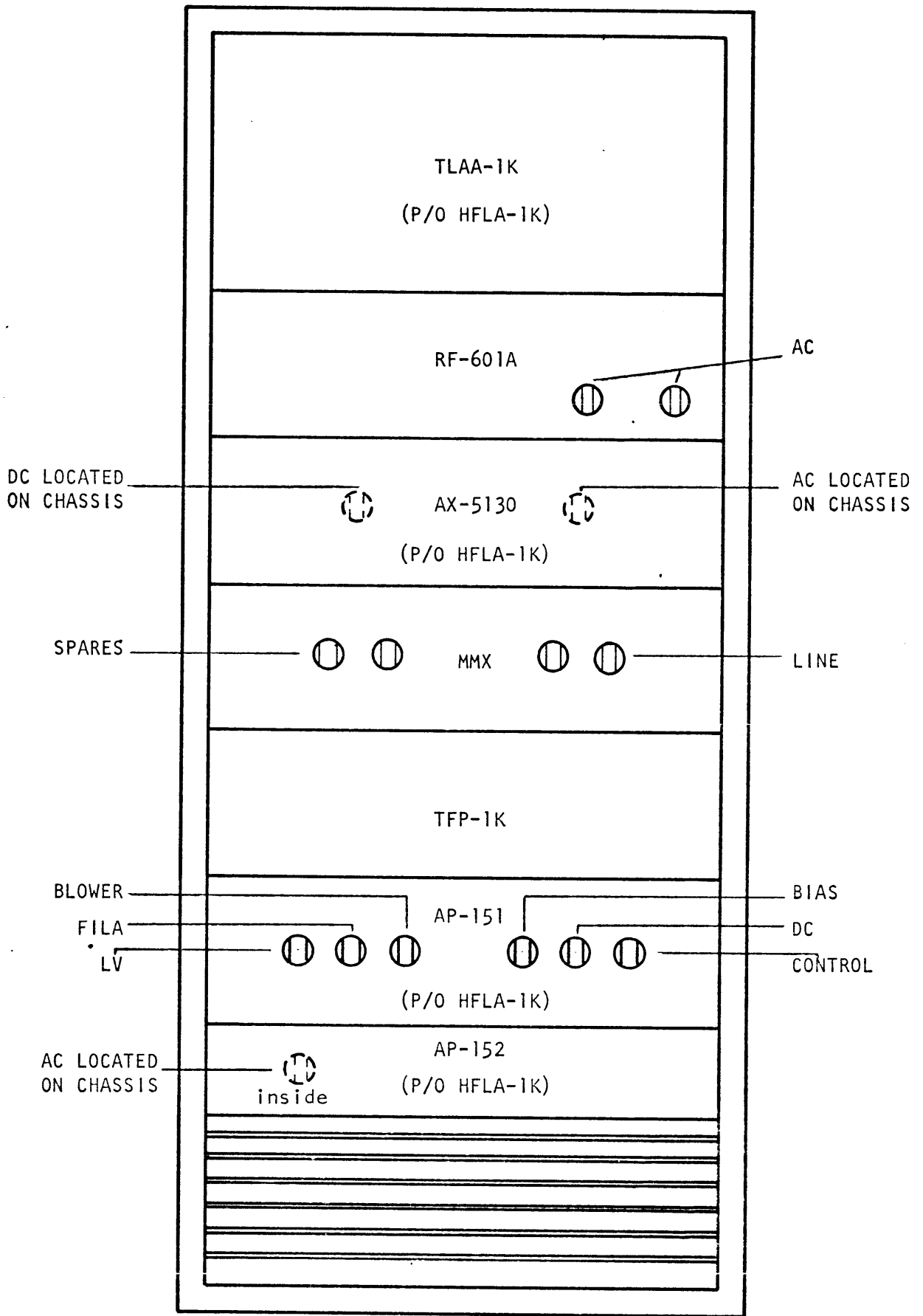


Figure 2-1. Fuse Location

SECTION 3
MAINTENANCE ADJUSTMENTS

3-1. INTRODUCTION

Maintenance adjustments outlined in this section that require transmitter tuning must have antenna tuner controls positioned in the following manner:

AUTO/SILENT/MANUAL switch - MANUAL

FUNCTION switch - "L"

Depress and hold right pushbutton for approximately two seconds to remove "L" from home stop.

Remove existing output cable connected to the rear of TFP-1K labelled (RF OUTPUT) and connect a 50 ohm dummy load.

NOTE

Once adjustments are completed, restore cables back to original position.

3-2. ALDC ADJUSTMENT PROCEDURE (Refer to figure 3-1 for control location)

Purpose:

The ALDC adjustments outlined are for the purpose of limiting RF power during modulation emission modes. The transmitter provides a negative dc voltage which is adjustable and proportional to the transmitter output. This voltage is made available at the transmitter ALDC jack to interface with an appropriate exciter. The exciter accepts this voltage to limit the RF drive.

- a. Extend the Servo Control drawer out on its chassis slides to expose the four ALDC adjustment potentiometers.
- b. Set the MANUAL/AUTO switch to MANUAL, POWER LEVEL switch to position 4.
- c. Rotate the front panel ALDC control (on TLAA-1K) counterclockwise for minimum ALDC action. Tune and load transmitter manually, to a carrier frequency on the 12 mhz band.
- d. Adjust RF GAIN control for a PA output indication of 1000 watts. Adjust front panel ALDC ADJ clockwise until output meter indicates 500 watts. Adjust ALDC ADJ #4 clockwise until there is not further increase indication on OUTPUT meter. Re-adjust front panel ALDC (on TLAA-1K) counterclockwise for minimum ALDC action.

- e. Adjust RF GAIN control for a PA output indication of 1100 watts and adjust front panel ALDC control until ALDC holds PA output at 1000 watts.
- f. Increase RF GAIN (to check ALDC capture) PA OUTPUT should remain constant.
- g. Reduce RF drive minimum, set POWER LEVEL switch to position number 3 and increase RF drive for an indication of 900 watts on OUTPUT meter.
- h. Adjust ALDC ADJ number 3 until PA OUTPUT commences to decrease.
- i. Continue to adjust ALDC ADJ number 3 for a PA OUTPUT indication of 850 watts.
- j. Reduce RF drive to minimum, set POWER LEVEL switch to position number 2.
- k. Adjust RF GAIN for a PA OUTPUT indication of 600 watts. Adjust ALDC ADJ number 2 until POWER OUTPUT commences to decrease.
- l. Continue to adjust ALDC ADJ number 2 for a PA OUTPUT indication of 400 watts.
- m. Increase RF drive (to check ALDC capture). PA OUTPUT should remain constant.
- n. Reduce RF drive to minimum, set POWER LEVEL switch to position number 1 and adjust RF GAIN control for a PA OUTPUT indication of 200 watts.
- o. Adjust ALDC ADJ number 1 potentiometer until PA OUTPUT commences to decrease.
- p. Continue to adjust ALDC ADJ number 1 for a PA OUTPUT indication of 150 watts.
- q. Increase RF GAIN (to check ALDC capture). PA OUTPUT indication should remain constant.

Reduce RF drive to minimum and slide Servo Control Drawer back into cabinet. This completes the ALDC adjustment procedure.

NOTE

The ALDC adjustments may be set for values LOWER than specified in the procedure if desired.

3-3. POWER LEVEL ADJUSTMENT PROCEDURE

Purpose:

The transmitter features four pre-set power levels which are selectable at the front of the transmitter.

These power levels are in four ranges and are selected depending on the position of the POWER LEVEL switch. The specific ranges are as follows:

POWER LEVEL POSITION #1	0 - 250 watts
POWER LEVEL POSITION #2	250 - 500 watts
POWER LEVEL POSITION #3	500 - 850 watts
POWER LEVEL POSITION #4	750 - 1000 watts

The following outlined procedural steps are for adjusting and/or calibrating the four power levels.

A. Initial Lower Limit Reference Adjustment

1. Energize transmitter (place MAIN POWER, PLATE and SCREEN breakers to the ON positions. HIGH VOLTAGE MUST BE OFF.)
2. Loosen SERVO CONTROL DRAWER panel locks and extend drawer out on its chassis slides and remove top cover.
3. Place a jumper from TP-1 to TP-2 on PC assembly A202 (A202 located on Servo Control Drawer chassis).
4. Set POWER LEVEL switch to position #1, rotate PWR LEVEL ADJ #1 (located in Servo Control Drawer behind front panel) clockwise until there is no output on meter with MTR CAL switch pushed down. Place AUTO/MANUAL switch to AUTO.
5. Press TUNE button twice.

NOTE

TUNE button is a latching switch and therefore must be pressed twice to set control relays in OPERATE condition.

6. Adjust Level potentiometer (located on PC Assembly A206 in servo control chassis) until READY indicator lights. Press TUNE button twice and readjust Level control in opposite direction slightly until READY indicator goes out. Repeat as often as necessary to obtain a condition that READY indicator does not light when there is no indication on OUTPUT meter.) Before making adjustment TUNE button must be pressed twice.

B. Upper Limit Reference Adjustment

1. Repeat paragraph 3-3A - steps 1, 2 and 3.
2. Set POWER LEVEL switch to position #1. Hold METER CAL button down and press TUNE button twice.
3. While holding METER CAL button down adjust "PWR LEVEL ADJ 1" (located in Servo Control Drawer) counterclockwise until OUTPUT meter indicates full scale deflection (1500 watts).
4. Adjust "MTR CAL ADJ" until READY indicator lights. Press TUNE button twice and observe that READY indicator lights when OUTPUT meter indicates full scale deflection.

5. Adjust "PWR LEVEL ADJ 1" for 500 watt indication on OUTPUT meter, press TUNE button twice and READY indicator should go out.
6. Repeat steps 3 and 4 as often as necessary to obtain optimum results.

NOTE

If READY indicator does not go out repeat procedure selecting a different setting on the METER CAL potentiometer to light READY indicator.

7. After adjustments are completed and optimum results are obtained, remove jumper from TP-1 and TP-2. This completes the Upper Limit adjustment.

C. Power Level Adjustments

Once the upper and lower reference limits have been calibrated, power levels may be calibrated by holding the METER CAL button down and adjusting the four "PWR LEVEL ADJ" as follows:

- Adjust PWR LEVEL ADJ #1 for 100 watts on OUTPUT meter.
- Adjust PWR LEVEL ADJ #2 for 350 watts on OUTPUT meter.
- Adjust PWR LEVEL ADJ #3 for 750 watts on OUTPUT meter.
- Adjust PWR LEVEL ADJ #4 for 900 watts on OUTPUT meter.

NOTE

The above initial settings may appear to be low, however because of over-shoot the calibration must be set accordingly to allow for the fact that the motorized RF GAIN control is a Log-Log control. The above settings simply provide RF GAIN motor stopping information.

3-4. TRANSMITTER BIAS ADJUSTMENT PROCEDURE

The bias adjustments outlined below are to obtain quiescent tube values. Before bias adjustments can be made the Low Voltage Power Supply must be extended out on its slides to expose the bias adjustment potentiometers.

1. Adjust bias controls maximum clockwise (bias voltage will be at maximum value.)
2. Place MAIN POWER, PLATE and SCREEN breakers to the ON position.
3. Set AUTO/MANUAL switch to MANUAL.
4. Insure that RF GAIN control is at minimum (max counter clockwise rotation).

TABLE 3-1. TUBE QUIESCENT CURRENT VALUES

<u>REF SYM</u>	<u>TUBE TYPE</u>	<u>TUBE FUNCTION</u>	<u>QUIESCENT PLATE CURRENT ADJ TO</u>
V1201	8233	1ST AMP	60-80 ma
V1202	4CX350	2ND AMP	240-260 ma
V1301	8576	PA	200-220 ma

NOTE

1. MAX BIAS VOLTAGE WILL BE PRESENT IF:
 - A. BANDSWITCH OR FILTER NOT IN PROPER POSITION.
 - B. PTT RELAY NOT ENERGIZED.
 - C. BIAS CONTROLS ARE AT MAX CLOCKWISE.
2. WHEN MAX BIAS VOLTAGE IS PRESENT AT V1201, V1202 and V1301 THE QUIESCENT PLATE CURRENT IS REDUCED TO ZERO WHICH PLACES THE AMPLIFIERS AT OR NEAR CUTOFF.

5. Press HIGH VOLTAGE button to light indicator subsequently applying HIGH VOLTAGE.

6. Observe "Ip" meter and adjust PA BIAS control for an indication between 200 ma - 220ma as read on Ip meter.

7. Hold meter switch "UP" (to 2ND AMP position), observe Ip meter, and adjust 2ND AMP bias control for an indication between 240 ma - 260 ma as read on Ip meter.

8. Hold meter switch down (1ST AMP position) observe Ip meter and adjust 1ST AMP bias control for an indication between 60 ma - 80 ma as read on the Ip meter.

9. Press HIGH VOLTAGE switch to OFF position. (HIGH VOLTAGE indicator must go out.) Slide drawer back to original position.

3-5. AUTO TUNING ADJUSTMENT PROCEDURE (Refer to figure 3-1 for control location)

Introduction

The following paragraphs give information for adjusting controls that enable transmitter auto tuning. Bear in mind that, the controls mentioned throughout have previously been set at the factory and therefore need only to be adjusted if abnormalities or parts replacement have taken place.

The transmitter auto-tuning is sequential, extremely rapid, and interdependent on preceding functions that supply control voltages to enable auto tuning. The requirements for auto tuning are RF input from Exciter, AUTO/MANUAL switch in AUTO, High Voltage ON and TUNE BUTTON pressed twice.

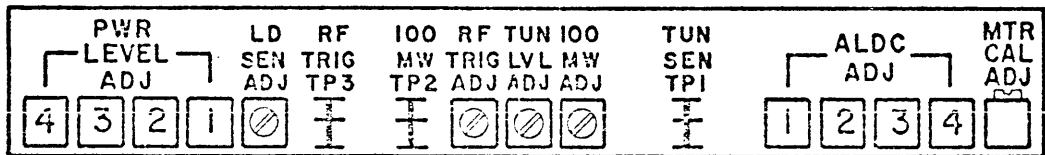


Figure 3-1

Auto Tuning Adjustment Control Location

NOTE

All adjustments in the following procedure(s) enables the transmitters auto tuning circuitry to function normally. Before making any adjustments observe transmitter indicators (meters, lamps, control knobs, breakers etc.) and refer to Operator's manual for normal transmitter indications. If a transmitter control or indicator does not appear to function normally check all switches and breakers, determine if breakers and switches are in correct position for AUTO-TUNING. Refer to Table 3-2, List of Adjustments and determine which control(s) need adjusting.

TABLE 3-2. LIST OF SERVO TUNING ADJUSTMENTS

<u>Abnormal Observation</u>	<u>Probable Cause</u>
SEARCH lamp does not light	Check exciter RF input at J1004, or check initial tune level adjustment (3-5A).
OPERATE lamp does not light	Check RF Trigger adjustment (para 3-5B).
READY lamp does not light	Check Load Sense adjustment (para 3-5C). Check that servos are turned off, check for sufficient PA output.
PA Plate Current increases from quiescent value to a value other than 320-360 ma on initial tune	Check Tune Level adjustment (para 3-5A).
FAULT lamp lights before tuning cycle complete	Check Fault Indication adjustment (para 3-6).

A. Tune Level Adjustment

The TUNE LEVEL control (located in Servo Control Drawer behind front panel) determines the transmitter Plate Current level during initial automatic tuning cycle. When the TUNE LEVEL control is adjusted the voltage present is routed to the RF Gain Motor Control board providing one input, the second input to the motor control is a sample of the PA cathode voltage. The RF Gain Motor Control board compares the levels of the two input voltages, and when either the PA cathode or Tune Level voltage is unequal, the RF Gain Motor Control assembly will control the RF Gain motor, which is mechanically coupled to the RF GAIN control, to increase or decrease the RF drive as necessary to equalize the input voltage levels. Therefore the amount of tune level voltage will determine the tune up level or inhibit auto-tuning if incorrectly adjusted:

When PA Cathode voltage is less than Tune Level voltage, Transmitter Drives-up.

When PA Cathode voltage is greater than Tune Level voltage, Transmitter Drives-down.

When Tune Level Voltage is incorrectly adjusted too high, Transmitter Tuning level high.

When Tune Level voltage is incorrectly adjusted too low, Transmitter Drives down.

When PA Cathode voltage is missing, Transmitter Drives up to limit switch.

When Tune Level voltage is missing, Transmitter Drives-down.

Before attempting to make a Tune Level adjustment proceed as follows:

1. Insure that Transmitter is properly terminated into whip antenna.
2. Place MAIN POWER breaker, PLATE and SCREEN breakers to their ON positions.
3. Place AUTO/MANUAL switch to MANUAL (RF Drive must be at minimum).
4. Select a carrier frequency in the 2 mhz band.
5. Press High Voltage switch to light indicator subsequently applying High Voltage.
6. Check quiescent current values as indicated on the "Ip" meter. If necessary adjust for the following values:

PA PLATE CURRENT	between 200-220 ma
1ST AMP PLATE CURRENT	between 60-80 ma
2ND AMP PLATE CURRENT	between 240-260 ma
7. Place AUTO/MANUAL switch to AUTO and MANUAL/SILENT/AUTO switch (on Ant Tuner) to AUTO press TUNE button twice
8. Observe the following transmitter actions and/or indicators.
 - a. PA Plate current increase from quiescent value to 320-360 ma.
 - b. SERVO indicator lights.
 - c. SEARCH indicator lights.
 - d. OPERATE lamp lights.
 - e. TUNE indicator on Antenna Tuner lights, READY lamp on Antenna Tuner lights.
 - f. All indicators on AX5130 go out.
 - g. Transmitter output power increase to pre-set power level and READY lamp lights.

9. The TUNE LEVEL control must be adjusted only if after the TUNE button is pressed and PA Plate current meter indicates a value other than 320-360 ma.

10. To adjust TUNE LEVEL Control, observe PA Plate current indication, if more or less than 320-360 ma, press TUNE button twice to recycle Transmitter and adjust TUNE LEVEL control counterclockwise (counterclockwise to increase PA Plate current) or clockwise (clockwise to decrease PA Plate current) to obtain a PA Plate current value of 320-360 ma.

NOTE

After each adjustment of the TUNE LEVEL control the TUNE button must be pressed twice to initiate a retune cycle. The adjustment should be repeated as often as necessary to obtain the proper PA Plate current level of 320-360 ma.

B. RF Trigger Adjustment

The RF Trigger control determines the amount of voltage required to complete the search mode and begin the servo operate mode. Initially, as the TUNING capacitor approaches resonance and/or zero tune sense voltage, the OPERATE lamp lights indicating resonance and servo mode completed. During the auto tuned cycle of the transmitter if the tuning capacitor continues to rotate (search mode) the OPERATE lamp fails to light, the RF TRIGGER voltage may be insufficient to Trigger the servo mode. To adjust the RF Trigger control proceed as follows:

- a. Connect transmitter output to dummy load and set Load control to "0". Set transmitter controls for MANUAL operation.
- b. Place Test VTVM at TUN SEN TP-1. (Set VTVM for zero center to observe negative or positive reading when tuning control is adjusted through resonance).
- c. Manually adjust RF GAIN control clockwise slightly to apply drive to transmitter and adjust tuning control observing Plate current meter and Test VTVM. Plate current must be at 320-360 ma. Test VTVM should indicate approximately zero at resonance.
- d. Once zero indication has been observed place Test Meter in RF Trigger TP-3 test jack. The RF Trigger Voltage should be .3 VDC.

NOTE

If RF Trigger Voltage is not a .3VDC adjust RF Trigger control unit Test meter indicates .3VDC.

Place MANUAL/AUTO switch to AUTO. Press TUNE button twice and observe the following Tune Sequence:

Tune level achieved (PA plate current 320-360 ma).

SERVO and SEARCH lamp should light.

TUNING control should rotate to point of resonance.

OPERATE lamp should light indicating servo mode ends and operate modes again.

NOTE

When transmitter is connected into ANTENNA TUNER and the above sequence is not observed, readjust RF Trigger control counterclockwise slightly until sequence is observed.

C. Load Sense Adjustment

The LOAD SENSE control is used to adjust the position of the LOAD capacitor for correct loading. When the transmitter is in the AUTO mode of operation the LOAD capacitor rotates to minimum capacitance after SEARCH lamp lights. During transmitter loading the LOAD capacitor rotates toward maximum capacitance and stops when loading is correct.

A condition of NO loading will be noted by the following:

- (A) LOAD capacitor does not rotate clockwise after READY lamp lights.
- (B) Excessive PA Plate Current and insufficient PA OUTPUT.
- (C) Fault lamp lights after 15 seconds.

Should it become necessary to adjust the LOAD SENSE control proceed in the following manner:

- (1) Connect transmitter to dummy load.
- (2) Energize transmitter (MAIN POWER, SCREEN AND PLATE BREAKERS to ON). H.V. switch pressed to ON.
- (3) Place MANUAL/AUTO switch to MANUAL. POWER LEVEL switch to position 4. Turn LOAD SENSE adjust fully clockwise (LOAD SENSE ADJ located in servo control drawer).
- (4) At 12 MHz operate TUNE and LOAD control to produce the maximum PA OUTPUT with the least amount of PA Plate Current.
- (5) Increase RF DRIVE until PA OUTPUT meter indicates rated output. (Note setting of LOAD capacitor)
- (6) Reduce PA OUTPUT until PLATE current meter indicates 320-360 ma.
- (7) Slide AX5130 unit out on its chassis slides to expose LOAD SENSE adjustment control. (Refer to figure 3-1 for control location.) Adjust LOAD SENSE control until voltage on PC607 TP-1 and TP-2 are equal.
- (8) Place MANUAL/AUTO switch in AUTO press TUNE button twice.

NOTE

LOAD setting should be same as previous. If not, turn LOAD SENSE control ccw to increase setting or cw to decrease setting. Load setting may have to be readjusted when transmitter is connected into ANTENNA TUNER.

Transmitter indicator lamps and meter indicator should indicate in the following sequence:

PA Quiescent current 220 ma as read on Ip meter.

PA Plate Current indicator increases to 320-360 ma.

SERVO lamp lights.

SEARCH lamp followed by OPERATE lamp lights.

Load control will rotate to pre-set position. (When transmitter is connected to ANTENNA TUNER, LOAD control will rotate after READY on ANTENNA TUNER is lit).

3-6. FAULT INDICATION ADJUSTMENT PROCEDURE

Introduction

The transmitter is designed to servo tune to rated or pre-selected output in approximately 5 seconds. The fault circuit featured in the transmitter, senses the transmitter tuning time, and will remove voltages to the servo amplifiers, RF drive motor and bias the transmitter at or near cutoff if the transmitter has not completed the tuning cycle within the duration of time affixed by the following adjustment.

1. Extend Servo Control drawer out on its slides and remove top cover.
2. Place MAIN POWER, PLATE and SCREEN breakers to their ON positions.
3. Press HIGH VOLTAGE switch to OFF (H.V. indicator OUT).
4. Press TUNE switch twice. After approximately 15 seconds the FAULT indicator should light.
5. If the FAULT lamp does not light within 15 seconds, adjust R4 on A209 until FAULT indicator lights 15 seconds after TUNE button is pressed (Repeat the adjustment as often as necessary to obtain optimum results).
6. Affix top cover to Servo Control drawer and slide drawer back to its original position. This completes the FAULT indicator Adjustment procedure.

3-7. OVERLOAD CIRCUIT TEST

A. Purpose

The Overload Circuitry functions to protect the transmitter against excessive current and VSWR overload. To set and/or check the overloads perform the following:

- (1) Energize Transmitter (MAIN POWER breaker ON, PLATE and SCREEN breakers ON).
- (2) MANUAL/AUTO switch to MANUAL, POWER LEVEL switch to position 4.
- (3) Loosen panel locks and extend low voltage drawer out on its slides to expose bias controls.
- (4) Press HIGH VOLTAGE switch to ON (HIGH VOLTAGE Indicator should light).

NOTE

When overload occurs, HIGH VOLTAGE switch must be pressed twice to re-apply high voltage. Press to reset overload and press to apply high voltage.

B. PA PLATE OVERLOAD ADJUSTMENT

- Step 1 Adjust Overload indicator (adjustment screw, part of meter, located directly below meter face) for 300 ma as indicated on PLATE current meter.
- Step 2 Adjust PA Bias control counterclockwise until PLATE current meter indicates 300 ma. Observe the following:
 - a. When meter indicator reaches the value of overload indicator setting, the high voltage will trip off.
 - b. PLATE current (lp) meter face will illuminate, indicating overload in plate current.
 - c. Meter indicator will remain at the overload value to indicate which caused overload condition.
- Step 3 Readjust bias to maximum clockwise position and press HIGH VOLTAGE pushbutton to reset high voltage. (H.V. Switch must be pressed twice.)
- Step 4 To check further operation of plate overload, adjust bias control counterclockwise again, noting that high voltage tripped as in Step 2; set overload indicator for indication of 800 ma. Readjust PA bias control for 200-220 ma as indicated on the lp meter.

C. 2ND AMPLIFIER PLATE OVERLOAD ADJUSTMENT

- Step 1 Extend TLAA out on its slides to expose the 2nd Amp and SWR overload adjustment control. (Overload adjustment located on bottom of TLAA-1K)
- Step 2 Push "PLATE meter switch" up and observe 2ND AMP plate current.
- Step 3 Adjust 2ND BIAS control counterclockwise until 2ND AMP plate current indicates 400 ma.

- Step 4 Adjust 2ND AMP PLATE OVERLOAD potentiometer until high voltage trips off (located on bottom of TLAA-1K).
- a. PLATE current meter will illuminate, indicating overload in 2ND AMP plate current.
 - b. High Voltage will trip OFF, HIGH VOLTAGE Indicator will go out.
 - c. PLATE current meter will indicate zero.
- Step 5 Readjust 2ND AMP BIAS control to maximum clockwise position and press HIGH VOLTAGE pushbutton to reset high voltage (HIGH VOLTAGE switch must be pressed twice).
- Step 6 To check further operation of 2ND AMP PLATE OVERLOAD, readjust bias control counterclockwise again, noting that high voltage tripped as in Step 4.
- Step 7 Reset bias control for a 2ND amp plate current reading of 240 to 260 ma.

D. SWR OVERLOAD ADJUSTMENT

- Step 1 Tune transmitter into a 50 ohm dummy load at any frequency in the 2.0 MHz region.
- Step 2 Remove HIGH VOLTAGE. Disconnect antenna or dummy load.
- Step 3 Press HIGH VOLTAGE pushbutton to apply high voltage.
- Step 4 Push SWR pushbutton and carefully increase drive until a reading of 250 watts on KILOWATT meter, is observed on the reflected power scale.
- Step 5 Adjust SWR potentiometer until high voltage trips OFF (located on bottom of TLAA-1k).
- a. The OUTPUT meter will illuminate.
 - b. High voltage will trip OFF; HIGH VOLTAGE indicator will go out.
 - c. PLATE current meter will indicate zero.
 - d. To further check operation of SWR overload, reduce RF Drive, press HIGH VOLTAGE pushbutton to ON and increase RF Drive again until overload trips HIGH VOLTAGE OFF.
 - e. Re-connect ANTENNA TUNER into transmitter.

NOTE

The transmitter will now protect the ANTENNA TUNER against a high reflected power condition.

SECTION 4
PARTS LIST
for
Linear Amplifier, HFLA-1K

4-1. INTRODUCTION

Reference designations have been assigned to identify all electrical parts of the equipment. These designations are used for marking the equipment (adjacent to the part they identify) and are included on drawings, diagrams and the parts list. The letters of a reference designation indicate the kind of part (generic group), such as resistor, capacitor, transistor, etc. The number differentiates between parts of the same generic group. Sockets associated with a particular plug-in device, such as transistor or fuse, are identified by a reference designation which includes the reference designation of the plug-in device. For example, the socket for relay K201 is designated XK201. The assemblies and/or sub-assemblies that are a part of a major assembly are suffixed with an asterisk; parts list breakdown for these assemblies are located in the rear of the parts section. For example, in parts list for Power Amplifier, the Reference Symbol A1001 shows a TMC part number A4879*, the parts list breakdown for A4879 is located in the rear of parts list for TLAA-1K. To expedite delivery when ordering replacement parts, specify the TMC part number and the model number of the equipment. See example below.

To order C1 of A4879, order as follows:

A4879 C1, TMC Part No. CX119-104M.

	<u>Title</u>	<u>Page</u>
H.V. Power Supply AP152 (Symbol Series 100)	4-2
Servo Control Drawer AX5130 (Symbol Series 200)	4-4
L.V. and Bias Supply AP151 (Symbol Series 300)	4-19
RF Linear Power Amplifier TLAA-1K (Symbol Series 1000)	4-22

AP152 H/V Power Supply

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A101	Assembly, PC, Board, Rect	A-4853-6*
A102	Assembly, PC, Board, Rect	A-4853-7*
A103	Assembly, PC, Board, Zener	A-4875*
B101	Fan, Vent	BL106-2
B102	Same as B101	
C101	Capacitor, Fixed, Film	CN109
C102 thru C104	Same as C101	
C105	Capacitor, Fixed, Paper	CP70B1EG106K
CB101	Circuit, Breaker	SW261
DS101	Lamp, Incand	BI105-1
F101	Fuse, Circuit	FU102-500
K101	Rel, Arm	RL184-3
L101	React, 5H	TF5034
L102 thru L104	Same as L101	
R101	Res, Fixed, WW 160W	RW117-39
R102	Same as R101	
T101	Xfmr, P1	TF413
TB101	Terminal, Bd, Barr	TM102-4
XDS101	Socket, Lamp	TS136-2FS
XF101	Fuse holder	FH105
XK101	Soc, Rel	TS196-1
Z101	Shunt, Circuit, Breaker	AR196
Z102	Shunt, Circuit, Breaker	AR197

AP152 H/V Power Supply (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
	A-4853-6 Assembly, Board, PC Rect	
A101CR1 thru A101CR4	Rect, Scnd, Dev	DD140
A101R1	Resistor, Fixed, WW 10W	RW109-4
A101R2	Same as A101R1	
A101R3	Resistor, Fixed, WW 20W	RW110-3
	A-4853-7 Assembly, Board, PC Rect	
A102CR1 thru A102CR4	Rect, Scnd, Dev	DD140
A102R1	Resistor, Fixed, WW 10W	RW109-4
A102R2	Same as A102R1	
A102R3	Resistor, Fixed, WW 10W	RW109-7
	A-4875 Assembly, Board, PC Zener	
A103CR1	Scnd, Dev, Dio	1N2846A
A103CR2	Same as A103CR1	
A103R1	Resistor, Fixed, Comp	RC42GF274J
A103R2	Resistor, Fixed, Comp	RC42GF124J
A103R3	Resistor, Fixed, WW 25W	RW111-33
A103R4	Same as A103R3	
A103R5	Resistor, Fixed, WW 50W	RW105-35
A103R6	Same as A103R5	
A103R7	Same as A103R5	
A103R8	Resistor, Fixed, Comp	RC42GF101J
A103R9	Same as A103R8	

AX5130 Servo Control Drawer

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A201	ALDC Control	A-4856-2*
A202	Board, PC Level Adjust	A-4876*
A203	Board, PC, Interconnect	A-4883*
A204	Board, PC, Channel	A-4873*
A205	Board, PC, Load Adjust	A-4886*
A206	Board, PC, Output Control	A-4880*
A207	Board, PC, Servo Control	A-4871*
A208	Board, PC, Servo	A-4870*
A209	Board, PC, Servo Recycle	A-4869*
A210	Board, PC, Gain Control	A-4872*
A211	Assembly, RF Gain Control	BMA466*
C201	Capacitor, Fixed, Ceramic	CC100-40
C202	Capacitor, Fixed, Paper	CX131
C203	Capacitor, Fixed, Ceramic	CC100-44
C204	Same as C203	
C205	Capacitor, Fxd, Elec	CE105-50-25
DS201	Not used	
DS202	Lamp, Ind, Min	BI110-7
DS203	Same as DS202	
E201	Terminal, Turret	TE102-2
F201	Fuse, Slo-Blow	FU102-.5
F202	Same as F201	
K201	Relay, Arm	RL168-3C10-24 DC
R201	Res, Fxd, Comp	RC07GF105J
R202	Res, Fxd, Comp	RC07GF681J

AX5130 Servo Control Drawer (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R203	Res, Fxd, Comp	RC07GF822J
R204	Res, Fxd, Comp	RC42GF151J
R205	Res, Fxd, Comp	RC20GF224J
R206	Res, Fxd, Comp	RC32GF221J
R207	Res, Fxd, Comp	RC32GF681J
R208	Res, Fxd, Comp	RC32GF182J
S201	Switch, Rotary	SW106
S202	Switch, Push	SW522-1
S203	Same as S202	
S204	Switch, Toggle	ST103-5-62
S205	Switch, Push Button	SW296-1
XA201	Socket, Elec	TS100-3
XA202	Conn, RECEP, Elec	JJ319-22DFE
XA203A	Same as XA202	
XA203B	Same as XA202	
XA204	Conn, RECEP, ELEC	JJ319-22DPE
XF201	Holder, Fuse, Ind	FH104-4
XF202	Same as XF201	
XK201	Socket, Elec	TS100-5
Z201	Servo, Amp	NW181
Z202	Servo, Amp	NW182

A-4856-2 ALDC CAN

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R1	Resistor, Fixed, Comp	RC07GF221J
R2	Resistor, Fixed, Comp	RC07GF474J
R3	Resistor, Fixed, Comp	RC07GF101J
R4	Resistor, Fixed, Comp	RC07GF682J
R5	Same as R1	
R6	Resistor, Fixed, Comp	RC07GF471J
R30	Resistor, Fixed, Comp	RC07GF822J
	A-4855 ALDC Printed Circuit Board	
C1	Capacitor, Fixed, Elect	CE105-75-25
C2 thru C4	Capacitor, Fixed, Cer	CC100-9
C5	Same as C1	
C6 thru C10	Same as C2	
C11	Capacitor, Fixed, Elect	CE105-6-15
C12	Same as C2	
C13	Same as C2	
C14	Capacitor, Fixed, Elect	CE105-1-15
CR1	Semicond, Diode	1N277
CR2	Semicond, Diode	1N759A
CR3	Same as CR2	
R1 thru R6	Not Used	
R7	Resistor, Fixed, Comp	RC07GF471J

A-4855 ALDC Printed Circuit Board (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R8	Resistor, Fixed, Comp	RC07GF221J
R9	Resistor, Fixed, Comp	RC07GF682J
R10	Resistor, Fixed, Comp	RC07GF101J
R11	Resistor, Fixed, Comp	RC07GF223J
R12	Resistor, Fixed, Comp	RC07GF181J
R13	Resistor, Fixed, Comp	RC07GF474J
R14	Resistor, Fixed, Comp	RC07GF102J
R15	Resistor, Fixed, Comp	RC07GF224J
R16	Resistor, Fixed, Comp	RC07GF152J
R17	Resistor, Fixed, Comp	RC07GF333J
R18	Resistor, Variable	RV124-1-502K
R19	Resistor, Fixed, Comp	RC07GF153J
R20	Resistor, Fixed, Comp	RC07GF562J
R21	Resistor, Fixed, Comp	RC07GF103J
R22	Same as R14	
R23	Same as R19	
R24	Same as R18	
R25	Same as R17	
R26	Same as R16	
R27	Resistor, Fixed, Comp	RC07GF183J
R28	Resistor, Fixed, Comp	RC07GF472J
R29	Same as R14	
Z1	Operational, Amp	NW156
Z2	Same as Z1	

A-4876 Board, Assembly, PC Level Adjust

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	Capacitor, Fixed, Cer	CC100-41
C2	Same as C1	
C3	Capacitor, Fixed, Cer	CC100-44
CR1	Scond, Dev, Dio	1N34A
CR2	Scond, Dev, Dio	1N3022B
DS1 thru DS4	Lamp, Incand	BI114-2
R1	Resistor, Var, Comp	RV119-1-503-B
R2 thru R4	Resistor, Var, WW	RV121-1-501
R5	Same as R2	
R6	Resistor, Var, WW	RV121-1-103
R7	Same as R2	
R8	Same as R6	
R9	Resistor, Var, WW	RV115-1-503
R10 thru R13	Resistor, Var, WW	RV121-1-502
R14	Resistor, Fixed, Comp	RC32GF271J
R15 thru R17	Resistor, Fixed, Comp	RC32GF391J
R18	Resistor, Fixed, Comp	RC20GF471J
R19	Resistor, Fixed, Comp	RC20GF223J
R20	Resistor, Fixed, Comp	RC20GF103J
R21	Resistor, Fixed, Comp	RC42GF221J

A-4876 Board, Assembly, PC Level Adjust (continued)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R22	Resistor, Fixed, Comp	RC20GF563J
R23	Same as R20	
TP1 thru TP3	Terminal, Stud	TE127-9

A-4883 Board, Assembly, PC Interconnect

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
XA205 thru XA210	Conn, Recep, Elec	JJ319-22DPD

A-4886 Board, Assembly Load Adjust

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	Capacitor, Fixed, Elec	CE105-25-15
C2	Same as C1	
C3	Capacitor, Fixed, Elec	CE105-75-25
C4 thru C6	Capacitor, Fixed, Cer	CC100-44
CR1	Scond, Dev, Dio	1N645
CR2	Same as CR1	
CR3	Scond, Dev, Dio	1N277
CR4	Same as CR1	
CR5	Same as CR1	
K1	Rel, Arm, 4PDT	RL156-15
K2	Same as K1	
Q1	Scond, Dev, TSTR	2N1711
Q2	Same as Q1	
Q3	Scond, Dev, TSTR	2N4036
R1	Resistor, Fixed, Comp	RC07GF392J
R2	Resistor, Fixed, Comp	RC07GF332J
R3	Resistor, Fixed, Comp	RC07GF822J
R4	Resistor, Fixed, Comp	RC07GF153J
R5	Resistor, Fixed, Comp	RC07GF221J
R6	Resistor, Fixed, Comp	RC07GF472J
R7	Resistor, Fixed, Comp	RC07GF222J
R8	Same as R2	
TP1	Terminal, Stud	TE127-2
TP2	Same as TP1	

A-4886 Board, Assembly, Load Adjust (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
XK1	Socket, Relay	TS171-4
XK2	Same as XK1	

A-4880 Board, Assembly, PC Output, Control

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R1	Resistor, Fixed, Comp	RC07GF332J
Z1	Network, Comparator	NW 161

A-4871 Board, Assembly PC, Servo Control

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	Capacitor, Fixed, Cer	CC100-44
C2	Same as C1	
CR1 thru CR10	Scond, Dev, Dio	1N645
K1	Rel, Arm 4PDT	RL156-10
K2	Same as K1	
K3	Rel, Arm, 4PDT	RL156-15
K4	Same as K1	
K5	Same as K1	
Q1	Scond, Dev, Dio	2N697
Q2	Same as Q1	
R1	Resistor, Fixed, Comp	RC07GF153J
R2	Resistor, Fixed, Comp	RC07GF332J
R3	Same as R1	
R4	Same as R2	
TP1	Terminal, Stud	TE127-2
TP2	Same as TP1	
XK1 thru XK5	Socket, Relay	TS171-4
Z1	Network, TD	NW179-24-0.5S

A-4870 Board, Assembly, PC Servo

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	Capacitor, Fixed, Cer	CC100-35
C2	Same as C1	
C3	Capacitor, Fixed, Elec	CE105-3-25
C4	Same as C3	
C5	Capacitor, Fixed, Elec	CE105-150-75
CR1	Rect, Sccond, Dev	DD130-100-1.5
K1	Rel, Arm , DPDT	RL156-15
K2	Same as K1	
K3	Rel, Arm DPDT	RL156-4
K4	Rel, Arm DPDT	RL156-9
R1	Resistor, Fixed, Comp	RC07GF104J
R2	Resistor, Fixed, Comp	RC07GF472J
R3	Resistor, Fixed, Comp	RC07GF393J
R4	Same as R2	
R5	Same as R1	
XK1	Socket, Relay	TS171-4
XK2	Same as XK1	
XK3	Socket, Relay	TS171-5
XK4	Same as XK3	

A-4869 Board, Assembly, PC Servo Re-Cycle

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	Capacitor, Fixed, Elec	CE105-100-25
C2	Capacitor, Fixed, Elec	CE105-150-75
CR1	Scond, Dev, Dio	1N645
CR2	Scond, Dev, Dio	1N2484
CR3	Same as CR2	
K1	Rel, Arm DPDT	RL156-1
K2	Rel, Arm 4PDT	RL156-15
K3	Same as K2	
K4	Rel, Arm, DPDT	RL156-9
K5	Same as K1	
Q1	Scond, Dev, TSTR	2N492
R1	Resistor, Fixed, Comp	RC20GF221J
R2	Resistor, Fixed, Comp	RC32GF221J
R3	Same as R2	
R4	Resistor, Var, Comp	RV111254A
XK1	Socket, Relay	TS171-5
XK2	Socket, Relay	TS171-4
XK3	Same as XK2	
XK4	Same as XK1	
XK5	Same as XK1	

A-4872 Board, Assembly, PC Gain Control

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1 thru C4	Capacitor, Fixed, Elec	CE105-25-25
C5 thru C7	Capacitor, Fixed, Cer	CC100-44
C8	Capacitor, Fixed, Elec	CE105-200-25
CR1 thru CR3	Scond, Dev, Dio	1N645
CR4	Scond, Dev, Dio	1N277
CR5	Same as CR4	
CR6	Same as CR1	
K1	Rel, Arm, 4DPT	RL156-15
K2	Same as K1	
Q1	Scond, Dev, TSTR	2N1711
Q2	Same as Q1	
Q3	Scond, Dev, TSTR	2N4036
Q4	Same as Q3	
R1	Resistor, Fixed, Comp	RC07GF392J
R2	Same as R1	
R3	Resistor, Fixed, Comp	RC07GF822J
R4	Same as R3	
TP1	Terminal, Stud	TE127-2
TP2	Same as TP1	
XK1	Socket, Relay	TS171-4
XK2	Same as XK1	

BMA 466 R.F. Gain Control

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
B1	Motor	MO136
C1	Capacitor, Fixed, Mylar	CN1141R04J
E1	Terminal, Turret	TE102-2
E2	Same as E1	
R1	Resistor, Var, Comp	RV4NAYSK102C
R2	Resistor, Fixed, WW	RW107-28
S1	Switch, Sen	SW353-3
S2	Same as S1	
S3	Switch, Sem	SW353-2

AP151 L/V and Bias Supply

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A301	Board, Assembly, Pc, Bias	A-4877*
C301	Capacitor, Fixed, Elec	CE52C200Q
C302	Same as C301	
C303	Capacitor, Fixed, Elec	CE116-8VN
C304	Same as C303	
CB301	Circuit, Breaker	SW262
CB302	Circuit, Breaker	SW215
CR301	Scond, Dev, Dio	1N2843RA
CR302	Scond, Dev, Dio	1N2831RA
CR303	Scond, Rect	RX108-2
CR304	Scond, Dev, Dio	1N3321B
CR305	Scond, Dev, Dio	1N3324B
DS301	Lamp, Incand	BI110-7
DS302	Same as DS301	
DS303	Gen, Audio, Sig.	BZ101-2
J301	Conn, Recep, ML	MS3102A32-414P
K301	Rel, Arm.	RL168-3C10-24 DC
L301	React. 5H	TF5028
L302	Same as L301	
R301	Res, Fxd, WW 10W	RW109-19
R302	Res, Fxd, Comp	RC42GF474J
R303	Res, Fxd, Comp	RC20GF103J
R304	Res, Fxd, WW. 10W	RW109-1
R305	Same as R304	
R306	Res, Fxd, WW 20W	RW110-5

AP151 L/V and Bias Supply

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R307	Same as R304	
R308	Res, Fxd, Comp	RC42GF392J
R309	Res, Fxd, WW 20W	RW110-6
R310	Res, Fxd, Comp	RC42GF101J
R311	Same as R310	
S301	Switch, Toggle, SPST	ST103-5-62
S302	Switch, Push, DPDT	SW522-1
T301	Transformer, Fil	TF414
T302	Transformer, L/V	TF416
TB301	Terminal, Strip, Barr	TM100-8
XA301	Conn, Pc, Board	JJ319-22DFE
XC301	Socket, Octal	TS101P01
XC302	Same as XC301	
XCR301	Soc, Scond, Dev	TS166-1
XCR302	Same as XCR301	
XDS301	Light, Ind	TS153-11
XDS302	Light, Ind	TS184
XF301	Fuseholder	FH104-3
XF302	Same as XF301	FH104-3
XF303	Same as XF301	
XF304	Same as XF301	
XF305	Fuseholder	FH104-11
XF306	Same as XF305	
XK301	Same as XC301	

A-4877 Board, Assembly, PC Bias

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
CR1	Rect, Scond, Dev	DD130-600-1.5
CR2	Scond, Dev, Dio	1N645
CR3 thru CR10	Same as CR2	
K1	Rel, Arm 4PDT	RL156-15
K2	Rel, Arm 4PDT	RL156-10
R1	Res, Fxd, Comp	RC42GF100J
R2	Same as R1	
R3	Res, Fxd, Comp	RC42GF122J
R4	Res, Var, Comp	RV4LAYS252A
R5	Res, Fxd, Comp	RC42GF101J
R6	Res, Fxd, Comp	RC42GF332J
R7	Res, Var, Comp	RV4LAYS502A
R8	Res, Fxd, Comp	RC42GF151J
R9	Res, Fxd, Comp	RC42GF472J
R10	Res, Var, Comp	RV4LAYS103A
R11	Res, Fxd, Comp	RC42GF123J
R12	Res, Fxd, Comp	RC32GF122J
R13	Res, Fxd, Comp	RC32GF152J
R14	Same as R12	
R15	Same as R13	
XK1	Soc, Rel	TS171-4
XK2	Same as XK1	

TLAA-1K RF Linear Power Amplifier

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A1001	Printed Circuit Board Assembly	A-4879*
A1002	Tune Capacitor Assembly	AX5132*
A1003	Load Capacitor Assembly	AX5133*
A1004	Printed Circuit Board Assembly	A-4878*
A1005	Printed Circuit Board Assembly	A-4850-2*
A1006	Bandswitch Assembly	AS160*
A1007	Printed Circuit Board Assembly	A-4807-2*
C1001 thru C1004	Capacitor, Fxd, Polyester	CX119-104M
C1005	Capacitor, Fxd, Cer	CC109-1
C1006	Capacitor, Fxd, Mica	CM15B300J03
DC1001	Coupler, Directional	DC108
DS1001	Lamp, Incand	BI101-1819
DS1002	Same as DS1001	
J1001	Conn, Recp, ML	MS3102A-18-16P
J1002	Conn, Recp, Fml	MS3102A18-16S
J1003	Conn, Recp, ML	MS3102A32-7P
J1004	Conn, Recp, BNC	JJ172
J1005	Same as J1004	
J1006	Conn, Recp, HN	UG560*/U
J1007	Conn, Recp, ML	MS3102A32-414P
J1008	Conn, Recp, FML	JJ310-3
L1001	Coil, RF	CL138
M1001	Meter, PL	MR216-1

TLAA-1K RF Linear Power Amplifier (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
M1002	Meter, Output	MR217
S1001	Switch, Lever	SW523-3
S1002	Switch, Actuator	SW347
S1003	Switch, Intlk	SW219
XA1001	Conn, Recp, PC Board	JJ319-22-DFE
XA1002	Conn, Recp, PC Board	JJ287
XA1003	Same as XA1002	
XDS1001	Lamp, Holder, Bay	TS107-2
XDS1002	Same as XDS1001	
C1101 thru C1107	Capacitor, Fxd, Cer	CK70AW202M
C1108	Capacitor, Fxd, Cer	CC108-4P-1000M
C1109	Same as C1108	
C1110 thru C1112	Capacitor, Fxd, Cer	CK70AW202M
C1113	Not used	
C1114	Not used	
C1115	Capacitor, Fxd, Cer	CC100-37
C1116	Capacitor, Fxd, Elec	CE105-25-25
C1117	Capacitor, Fxd, Elec	CE105-10-50
CR1101	Scnd, Dev, Dio	1N3022B
CR1102	Scnd, Dev, Dio	1N547
E1101	Not used	
E1102	Bush, Slot Heat	TE101-3

TLAA-1K RF Linear Power Amplifier (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
E1103	Term, Turret	TE102-2
E1104	Bush, Slot Head	TE101-3
E1105 thru E1108	Same as E1103	
K1101	Rel, Arm, DPDT	RL156-1
R1101 thru R1103	Resistor, Fxd, Comp	RR114-5W
R1104	Resistor, Fxd, Comp	RC42GF100J
R1105	Resistor, Fxd, WW	RW111-4
R1106	Resistor, Fxd, Comp	RC42GF391J
R1107	Resistor, Fxd, Comp	RC32GF102J
R1108	Resistor, Fxd, Comp	RC20GF103J
R1109	Resistor, Var, Comp	RV106UX10C102A
R1110	Resistor, Fxd, Comp	RC20GF101J
R1111	Resistor, Fxd, WW	RW110-1
R1112	Resistor, Fxd, Comp	RC42GF102J
R1113	Resistor, Fxd, Comp	RC42GF821J
S1101	Switch, Intlk	SW219
TB1101	Terminal, Strip	TM121-1
XK1101	Socket, Relay	TS171-1
Z1101	Time, Delay	NW183-24-30
C1201	Capacitor, Fxd, Mica	CM111C301J5S
C1202	Capacitor, Fxd, Cer	CC100-16
C1203	Capacitor, Fxd, Cer	CC100-37
C1204	Capacitor, Fxd, Cer	CC100-32
C1205	Same as C1204	

TLAA-1K RF Linear Power Amplifier (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1206	Capacitor, Fxd, Cer	CC100-31
C1207	Capacitor, Fxd, Mica	CM111E220J5S
C1208	Capacitor, Fxd, Mica	CM112F222F3S
C1209 thru C1213	Same as C1203	
C1214	Same as C1204	
C1215	Capacitor, Fxd, Cer	CC109-38
C1216	Same as C1204	
C1217	Same as C1203	
C1218	Same as C1215	
C1219	Capacitor, Fxd, Paper	CP41B1EF405K
C1220	Same as C1203	
E1201 thru E1208	Term, Turret	TE102-2
L1201	Not used	
L1202	Coil, RF	CL101-2
L1203 thru L1205	Coil, RF	CL140-2
L1206	Ind, Fxd	CL459
L1207	Coil, RF	CL178
R1201	Resistor, Fxd, Comp	RC20GF102J
R1202	Resistor, Fxd, Comp	RC32GF100J
R1203	Resistor, Fxd, Comp	RC42GF120J
R1204	Resistor, Fxd, Comp	RC42GF222J

TLAA-1K RF Linear Power Amplifier (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R1205	Resistor, Fxd, Comp	RC20GF333J
R1206	Resistor, Fxd, Comp	RC42GF331J
R1207	Resistor, Fxd, Comp	RC42GF472J
R1208	Resistor, Fxd, Comp	RR114-20W
R1209	Resistor, Fxd, Comp	RC20GF102J
R1210	Same as R1209	
T1201	Coil, RF, Adj	CL460
V1201	Tube, El	8233
V1202	Tube, El	4CX350A
XV1201	Socket, El Tube	TS198
XV1202	Socket, El Tube	TS197
Z1201	Supp, Parasitic	A1546-2
Z1202	Supp, Parasitic	A1546-4
B1301	Blower, Cent	BL134
C1301	Capacitor, Fxd, Mica	CM112F562J5S
C1302	Capacitor, Fxd, Cer	CC100-37
C1303	Capacitor, Fxd, Mica	CM111C501J5S
C1304	Capacitor, Var	CV11D450
C1305	Same as C1302	
C1306	Capacitor, Fxd, Mica	CM111C151J5S
C1307	Capacitor, Fxd, Cer	CC100-32
C1308	Same as C1307	
C1309	Same as C1302	
C1310	Capacitor, Fxd, Cer	CC109-38

TLAA-1K RF Linear Power Amplifier (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1311 thru C1315	Capacitor, Fxd, Cer	CC109-36
C1316	Capacitor, Fxd, Cer	CC108-4P1000M
C1317 thru C1321	Capacitor, Fxd, Cer	CC109-6
C1322	Same as C1310	
C1323	Same as C1310	
E1301	Term, Turret	TE102-2
E1302	Ins, Standoff	NS3W0108
K1301	Relay, Arm	RL185
K1302	Same as K1301	
L1301	Coil, Output	CL463
L1302	Coil, RF	CL140-6
L1303	Same as L1302	
L1304	Coil, RF	CL471
R1301	Resistor, Fxd, Comp	RR116-1400W
R1302	Resistor, Fxd, Comp	RR114-5W
R1303	Same as R1301	
S1301	Switch, Micro	SW252
T1301	Transformer, Match	TR195
TB1301	Term, Strip, Barr	TM102-6
V1301	Tube, E1	8576/PL264J
XV1301	Socket, E1, Tube	TS182

A-4879 Printed Circuit Board Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1 thru C17	Capacitor, Fixed, Polyester	CX119-104M
C18	Not used	
C19 thru C21	Same as C1	
C22	Capacitor, Fixed, Mica	CM111C200J5S
C23	Capacitor, Fixed, Mica	CM111E511H5S
C24	Capacitor, Fixed, Elec	CE105-3-25
C25	Same as C1	
C26	Capacitor, Fxd, Elec	CE105-20-15
C27	Capacitor, Fxd, Elec	CE105-50-15
CR1	Scnd, Dev, Dio	1N759
CR2	Same as CR1	
CR3 thru CR5	Scnd, Dev, Dio	1N2484
CR6 thru CR8	Scnd, Dev, Dio	1N645
CR9	Not used	
CR10	Not Used	
CR11	Same as CR3	
L1	Coil, RF	CL240-120
L2	Same as L1	
Q1	Transistor	2N492A
Q2	Transistor	2N1595

A-4879 Printed Circuit Board Assembly (con't)

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
Q3	Same as Q2	
R1	Resistor, Var, Comp	RV111U502A
R2	Resistor, Var, Comp	RV111U103A
R3	Resistor, Fixed, Comp	RC20GF152J
R4	Resistor, Fixed, Comp	RC20GF102J
R5	Resistor, Fixed, Comp	RC20GF153J
R6	Resistor, Fixed, Comp	RC20GF391J
R7	Resistor, Fixed, Comp	RC20GF101J
R8	Same as R4	
R9	Resistor, Fixed, Comp	RC20GF821J
R10	Resistor, Fixed, Comp	RC20GF121J
R11	Resistor, Fixed, Comp	RC20GF122J
R12	Resistor, Fixed, Comp	RC20GF102J
R13	Resistor, Fixed, Comp	RC20GF222J
R14	Resistor, Fixed, Comp	*
R15	Resistor, Fixed, Comp	*
R16	Resistor, Fixed, Comp	*
R17	Not Used	
R18	Not Used	
R19	Not Used	
R20	Resistor, Fixed, Comp	RC20GF224J
R21	Resistor, Fixed, Comp	RC20GF474J
R22	Resistor, Fixed, Comp	RC07GF562J
Z1	Network, OP Amp	NW156

* Nominal Value. Actual value to be selected by factory calibration

AX5132 Capacitor Tune Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A1002A1	Board, Assembly, PC	A-4790
A1002B1	Motor Servo	M0127
A1002C1	Capacitor, Var, Vac	CB177
A1002S1	Switch, SPDT	SW353-1
A1002S2	Same as A1002S1	
	A-4790 Board, Assembly, PC p/o AX5132	
C1 thru C4	Capacitor, Fixed, Cer	CC100-16
C5	Capacitor, Fixed, Paper	CN114-1R0-4J
C6 thru C13	Capacitor, Fixed, Cer	CC100-16
E1 thru E12	Term, Stud	TE127-3

AX5133 Load Capacitor Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
A1003A1	Board, PC Assembly	A-4790
A1003B1	Motor	M0127
A1003C1	Capacitor, Variable, Air	CB175
A1003S1	Switch	SW353-2
A1003S2	Same as A1003S1	

A-4878 Printed Circuit Board Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1 thru C9	Capacitor, Fxd, Polyester	CX119-104M
CR1 thru CR9	Scond, Dev, Dio	1N645
DS1 thru DS9	Lamp, Incand	BI114-2
E1 thru E10	Terminal, Stud	TE127-2
R1	Resistor, Fxd, Comp	RC32GF391J

A-4850-2 Printed Circuit Board Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	Capacitor, Fixed, Cer	CC100-28
C2	Same as C1	
C3	Capacitor, Fixed, Elec	CE105-5-50
CR1	Scond, Dev, Dio	1N34A
E1 thru E3	Terminal, Stud	TE127-2
R1	Resistor, Fixed, Comp	RC20GF272J
R2	Resistor, Fixed, Comp	RC20GF102J

AS160 Band Switch Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1 thru C6	Capacitor, Fixed, Cer	CC109-38
C7	Capacitor, Fixed, Cer	CC109-28
C8	Capacitor, Fixed, Cer	CC109-19
CR1	Scond, Dev, Dio	1N547
E1	Term, Turret	TE102-2
E2	Same as E1	
K1	Rel, Arm, DPDT	RL168-2C10-24DC
L1	Coil, Rf	CL292
L2	Coil, MN, Tank	CL470
L3	Coil. Load	CL472
P1	Conn, PL, ML, 37/C	JJ313-3H
S1A	Assembly, Bnd, Bd	BMA464
S1B	Assembly, Output, Bd	BMA465
S2	Switch, Rotary, Solenoid	SW429
XK1	Socket, Relay	TS100-3

A-4807-2 Printed Circuit Board Assembly

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1 thru C5	Capacitor, Fixed, Cer	CC100-16
CR1 thru CR3	Scond, Dev, Dio	1N3070
CR4	Scond, Dev, Dio	1N3022B
L1	Transformer, Fixed	TR194
R1	Resistor, Fixed, Comp	RC20GF102J
R2	Resistor, Fixed, Comp	RC42GF470J
R3	Same as R2	
R4	Same as R1	
R5	Same as R1	
R6	Resistor, Fixed, Comp	RC20GF222J
R7	Same as R1	

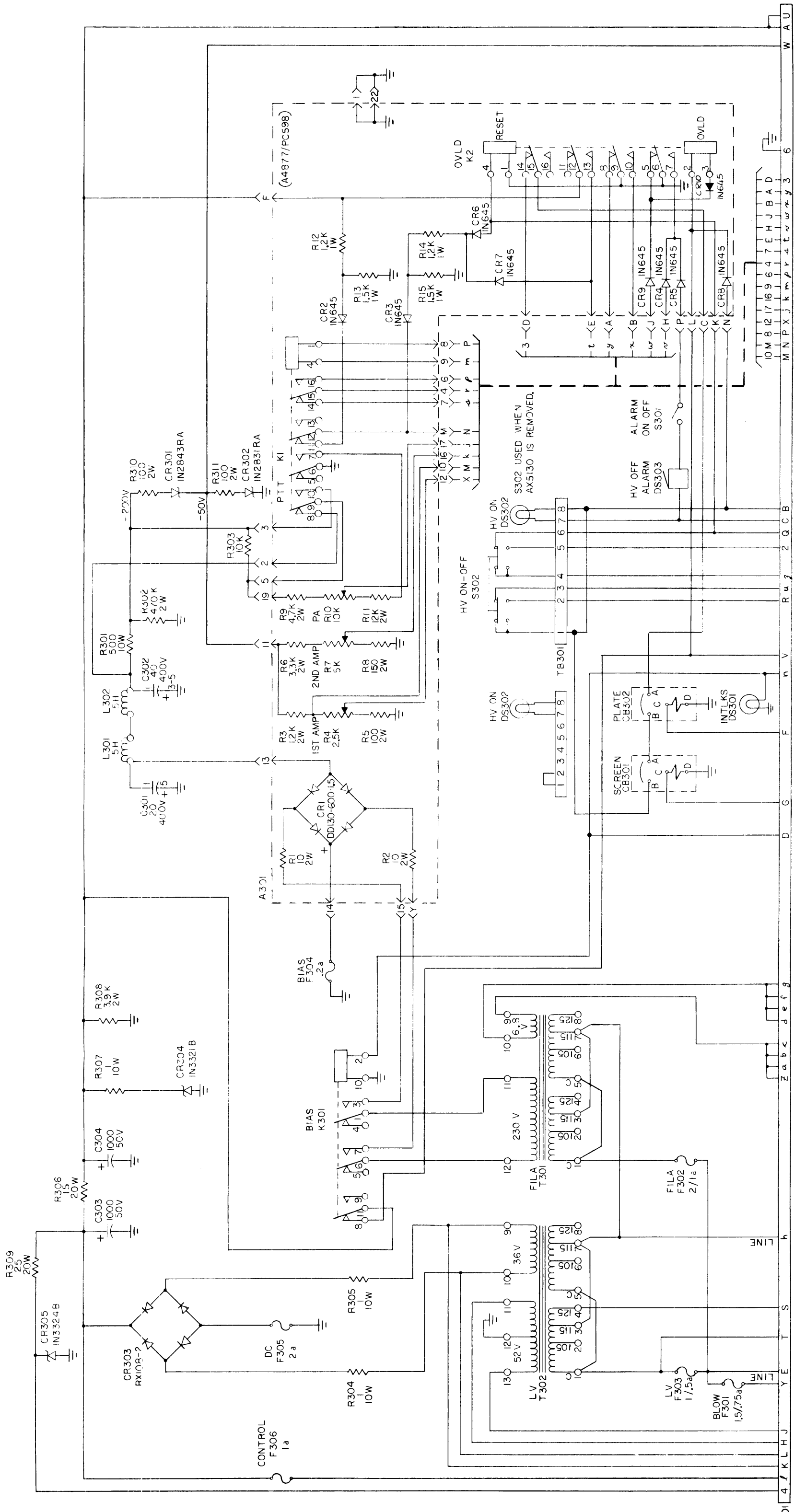
SECTION 5

MAINTENANCE DIAGRAMS

5-1. GENERAL

This section contains the following maintenance diagrams for the transmitter modular units:

- Figure 5-1 Low Voltage and Bias Supply AP151
Schematic Diagram - CK1870C
- Figure 5-2 High Voltage Power Supply AP152
Schematic Diagram - CK1869B
- Figure 5-3 Power Amplifier TLAA-1K
Schematic Diagram - CK1873B (3 sheets)
- Figure 5-4 Servo Control AX5130
Schematic Diagram - CK1883Ø (4 sheets)
- Figure 5-5 AX5130 Modification Diagram - CK1941Ø
- Figure 5-6 ALDC Circuit
Schematic Diagram - CK1850C
- Figure 5-7 HFT-1K Wiring Interconnect Diagram - CK1931A (3 sheets)
- Figure 5-8 Remote Cable Interconnect Wiring Diagram - ID403Ø



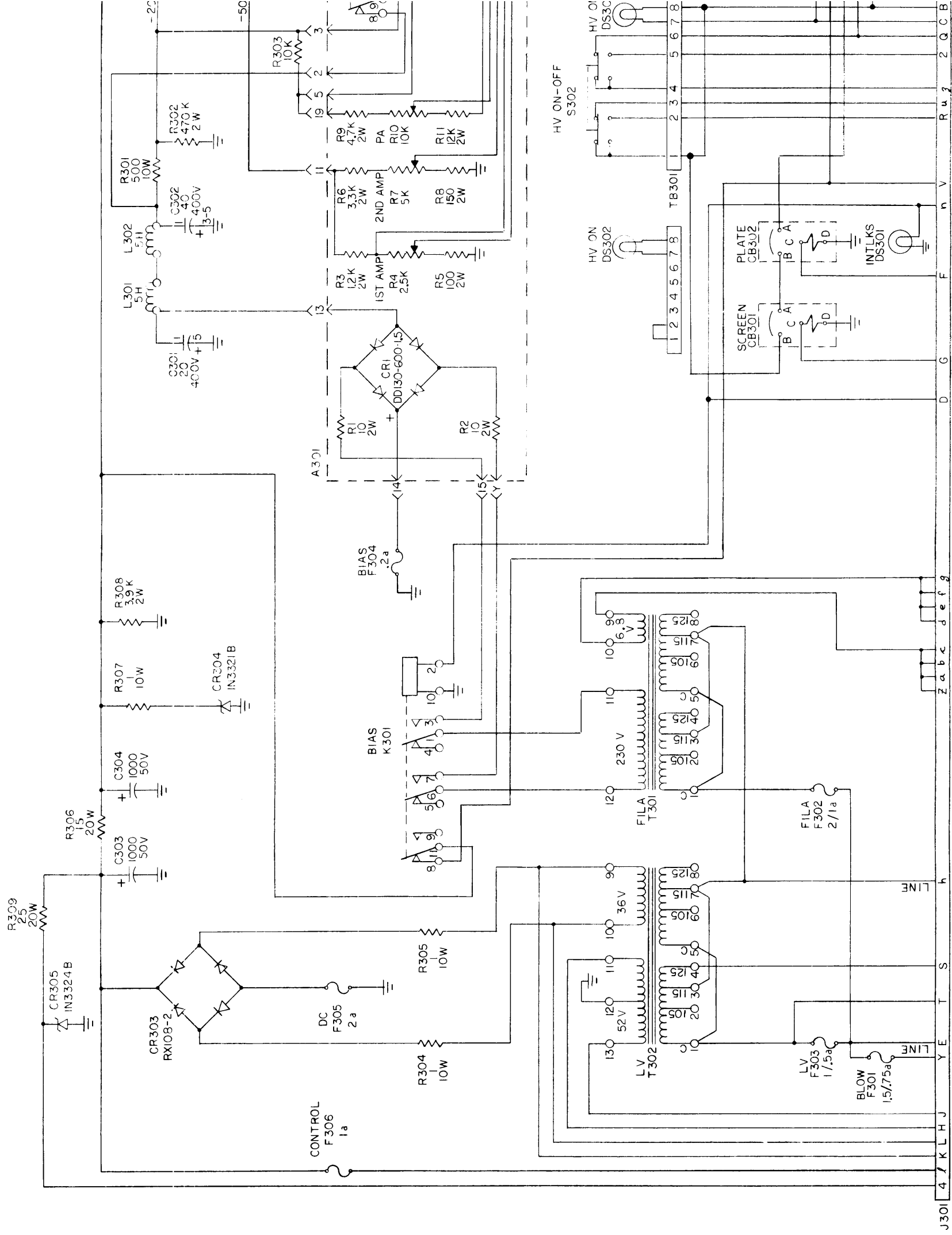
UNLESS OTHERWISE SPECIFIED:
 1. ALL RESISTANCES ARE IN OHMS, $\frac{1}{2}$ W.
 2. ALL CAPACITANCES ARE IN MFD.
 3. ALL INDUCTANCES ARE IN H.
 4. AC FUSE VALUES SHOWN FOR 115/230 V OPERATION.

5. TRANSFORMERS SHOWN WIRED FOR 115 V. FOR OTHER VOLTAGES CHANGE LINE # JUMPERS TO CORRESPOND.
 6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION PREFIX THE PART DESIGNATION WITH THE SUB-ASSEMBLY DESIGNATION.

SCHEMATIC DIAGRAM

Low Voltage and Bias Supply AP151

(CK1870C)



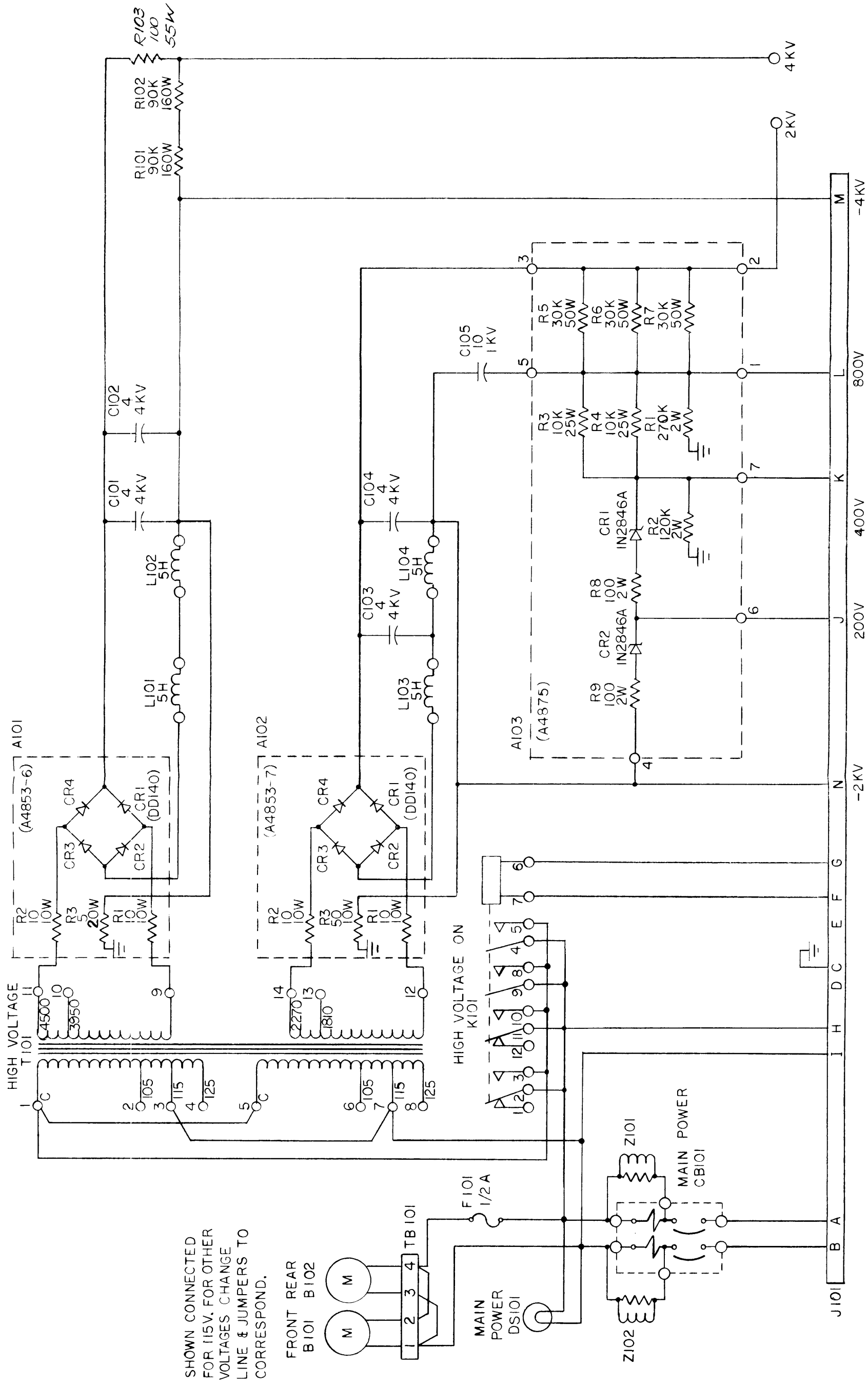
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1. ALL RESISTANCES ARE IN OHMS, $\frac{1}{2}$ W.
2. ALL CAPACITANCES ARE IN MFD.
3. ALL INDUCTANCES ARE IN H.
4. AC FUSE VALUES SHOWN FOR 115/230 V OPERATION.

5. TRANSFORMERS SHOWN WIRED FOR 115 V. FOR OTHER VOLTAGES CHANGE LINE # JUMPERS TO CORRESPOND.

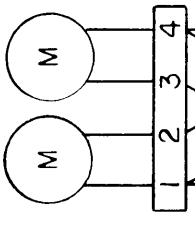
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATION PREFIX THE PART DESIGNATION WITH THE SUB-ASSEMBLY DESIGNATION.

(CK1870C)

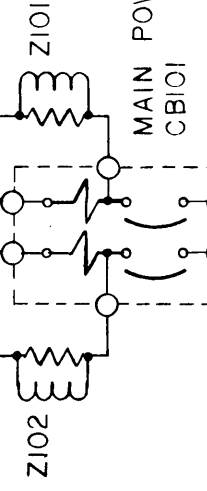


SHOWN CONNECTED FOR 115V. FOR OTHER VOLTAGES CHANGE LINE & JUMPERS TO CORRESPOND.

FRONT REAR
B101 B102



MAIN POWER
DS101

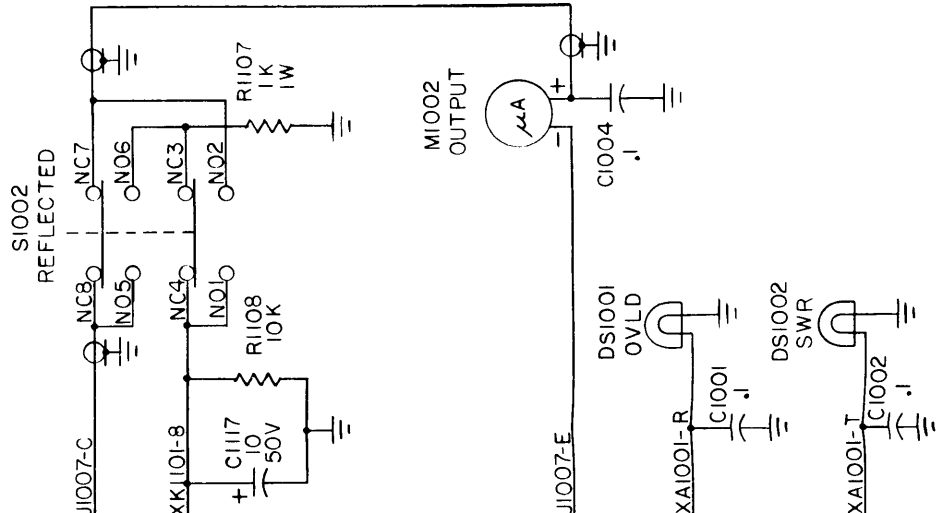
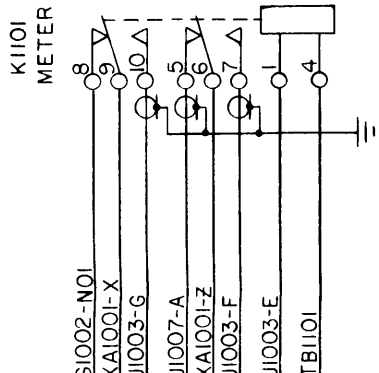
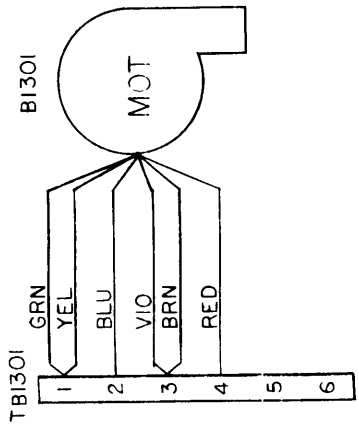


SCHMATIC DIAGRAM

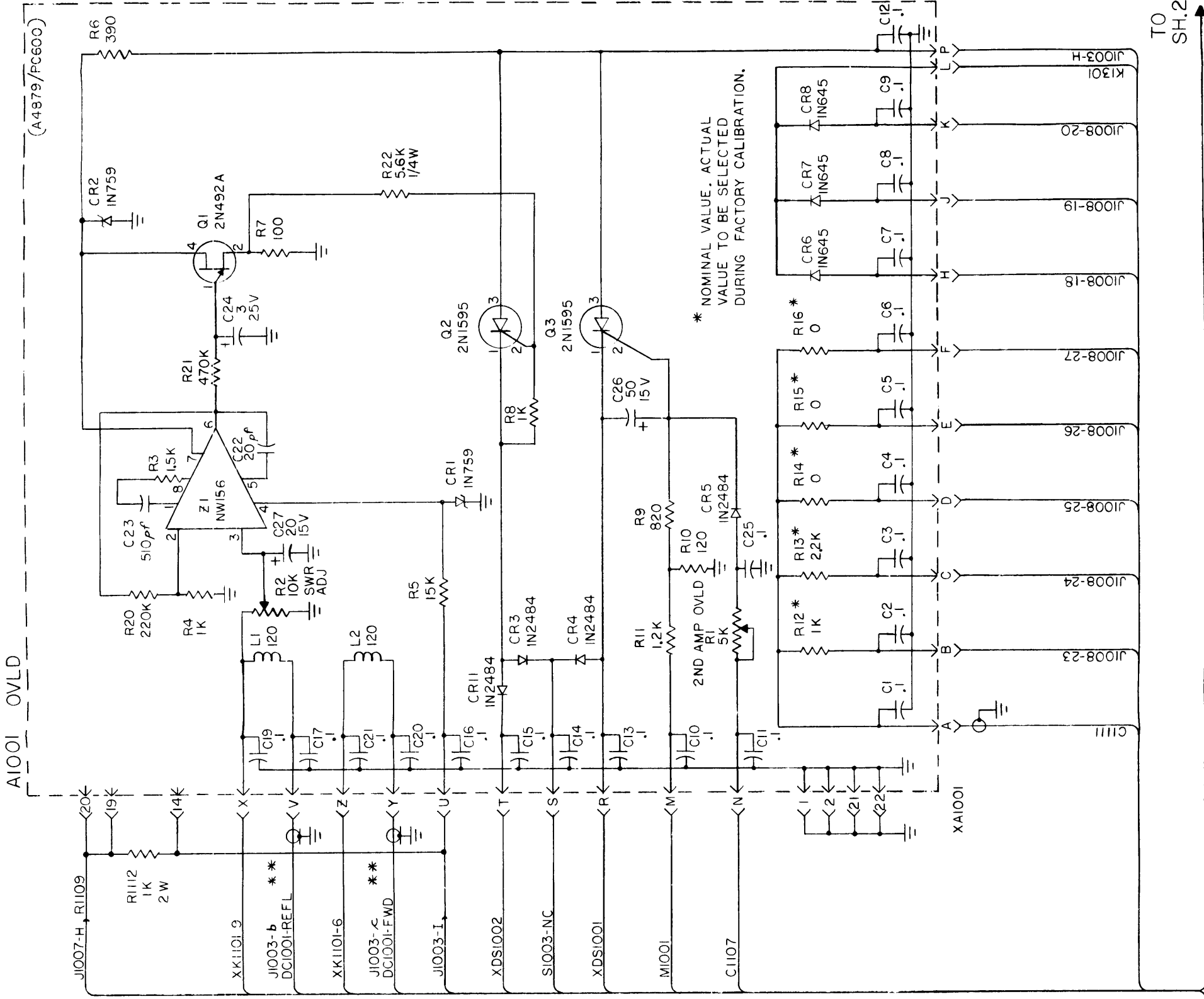
(CK1869B) HIGH Voltage Power Supply API52

5-5/5-6

230 VAC CONNECTION



 ONE PAIR OF LEADS ONLY IS USED. IF TFP-1K IS USED IN SYSTEM DC1001 IS REMOVED. UNUSUAL PAIR IS TIED BACK.

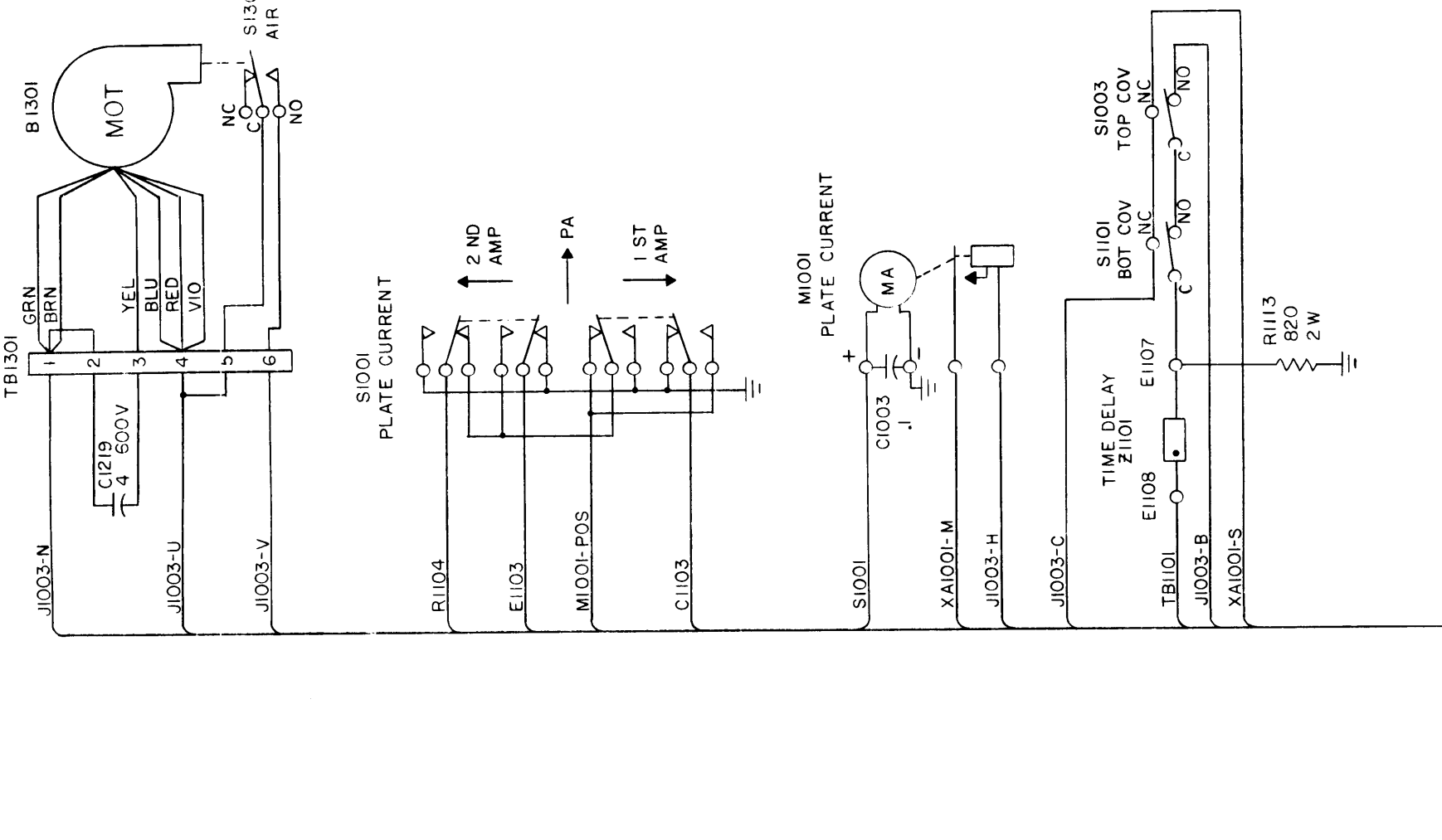
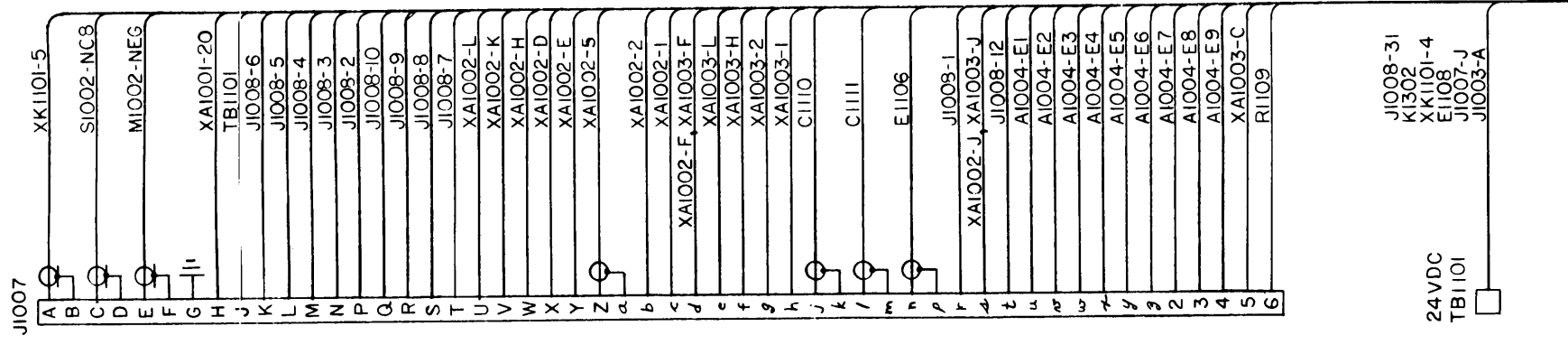
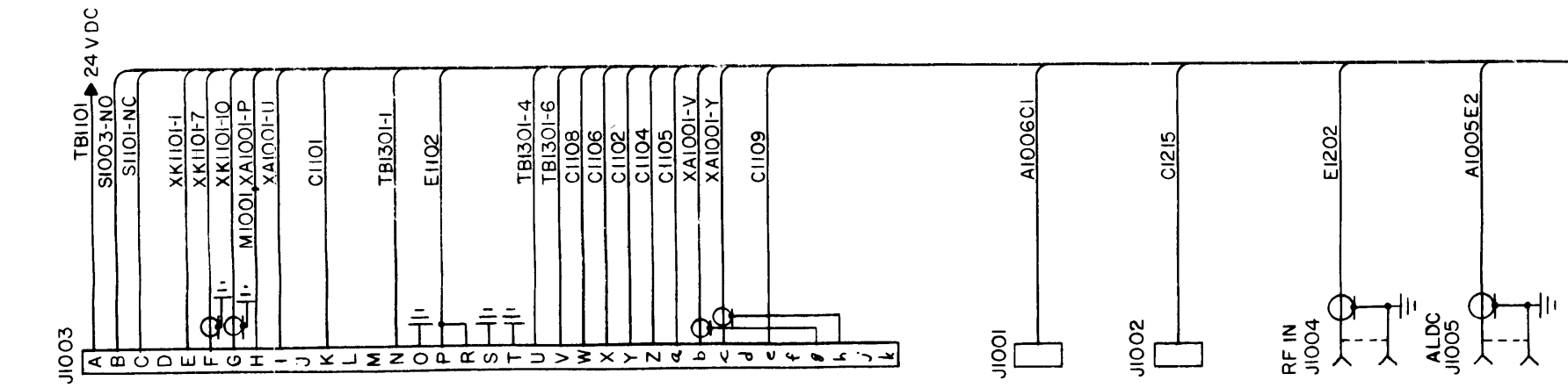


* NOMINAL VALUE. ACTUAL VALUE TO BE SELECTED DURING FACTORY CALIBRATION.

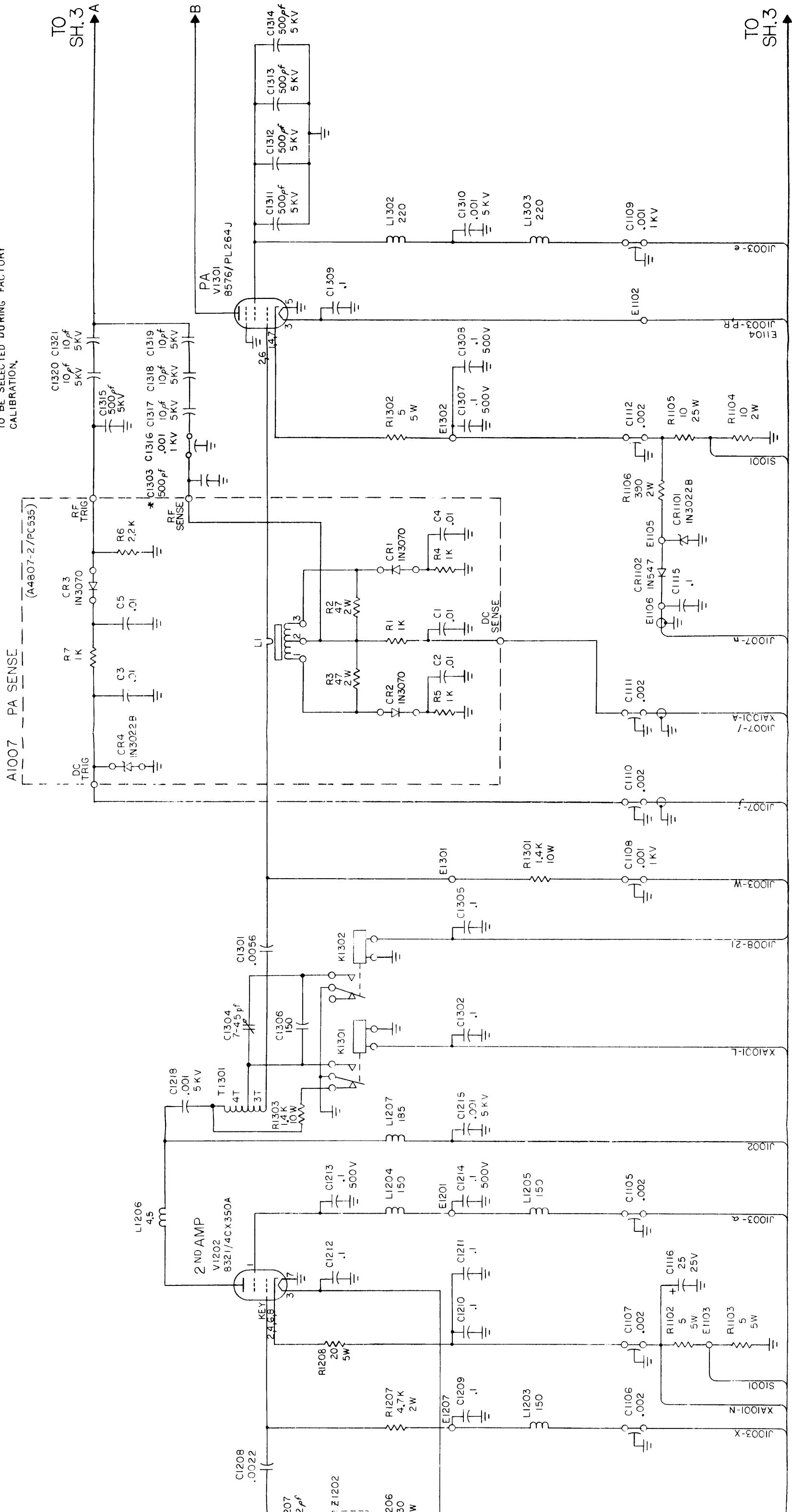
TO SH.2

(CK1873B)

SCHEMATIC DIAGRAM
Power Amplifier TLAA-1K
 (Sheet 1 of 3)



* NOMINAL VALUE; ACTUAL VALUE TO BE SELECTED DURING FACTORY CALIBRATION.



LESS OTHERWISE SPECIFIED:
 ALL RESISTANCES ARE IN OHMS, 1/2 W.
 ALL INDUCTANCES ARE IN MICROHENRIES.
 ALL CAPACITANCES ARE IN MICROFARADS.
 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH THE SUB-ASSEMBLY DESIGNATION.

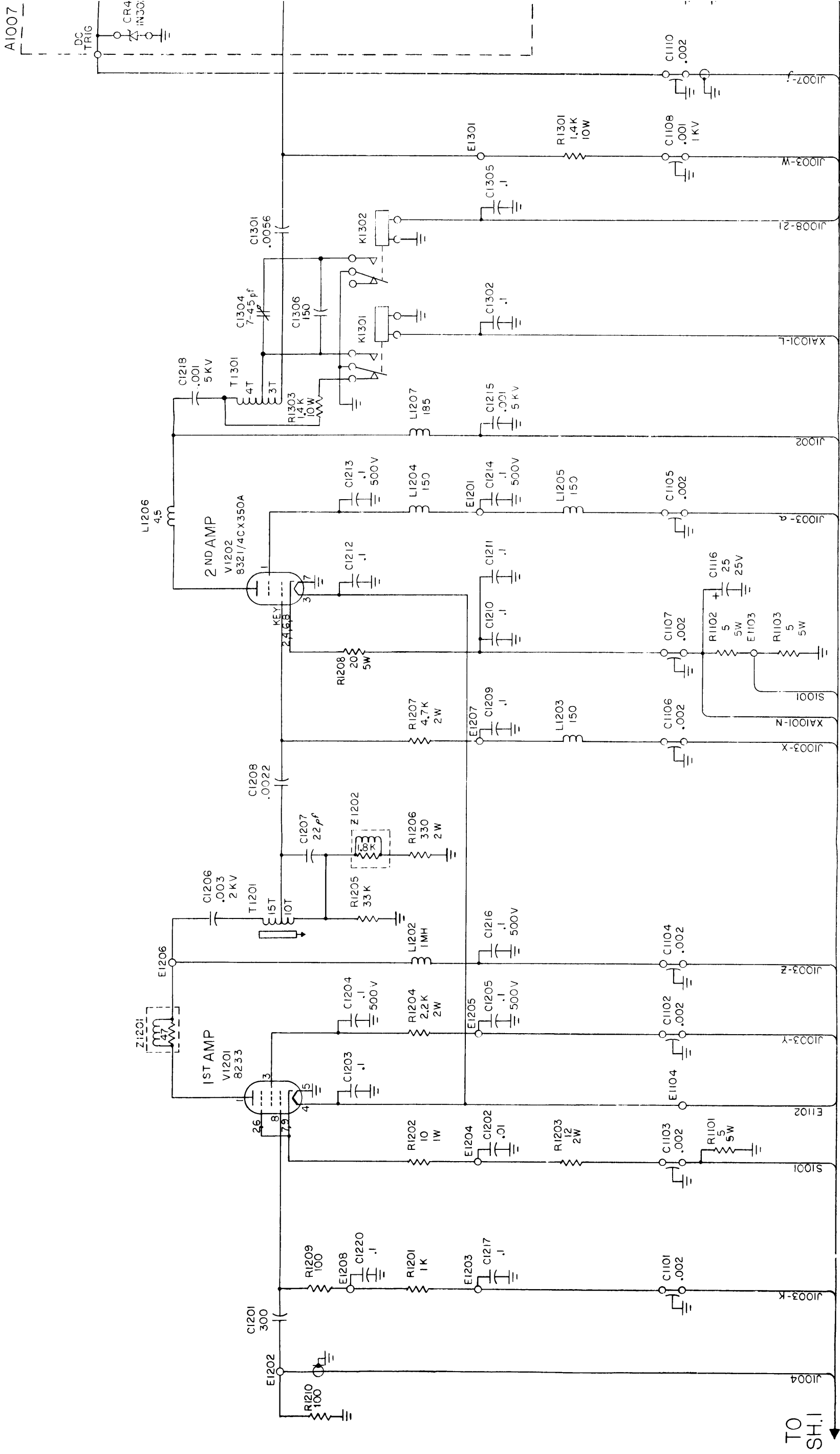
(CK1873B)

SCHEMATIC DIAGRAM

POWER AMPLIFIER, TLAA-1K

(Sheet 2 of 3)

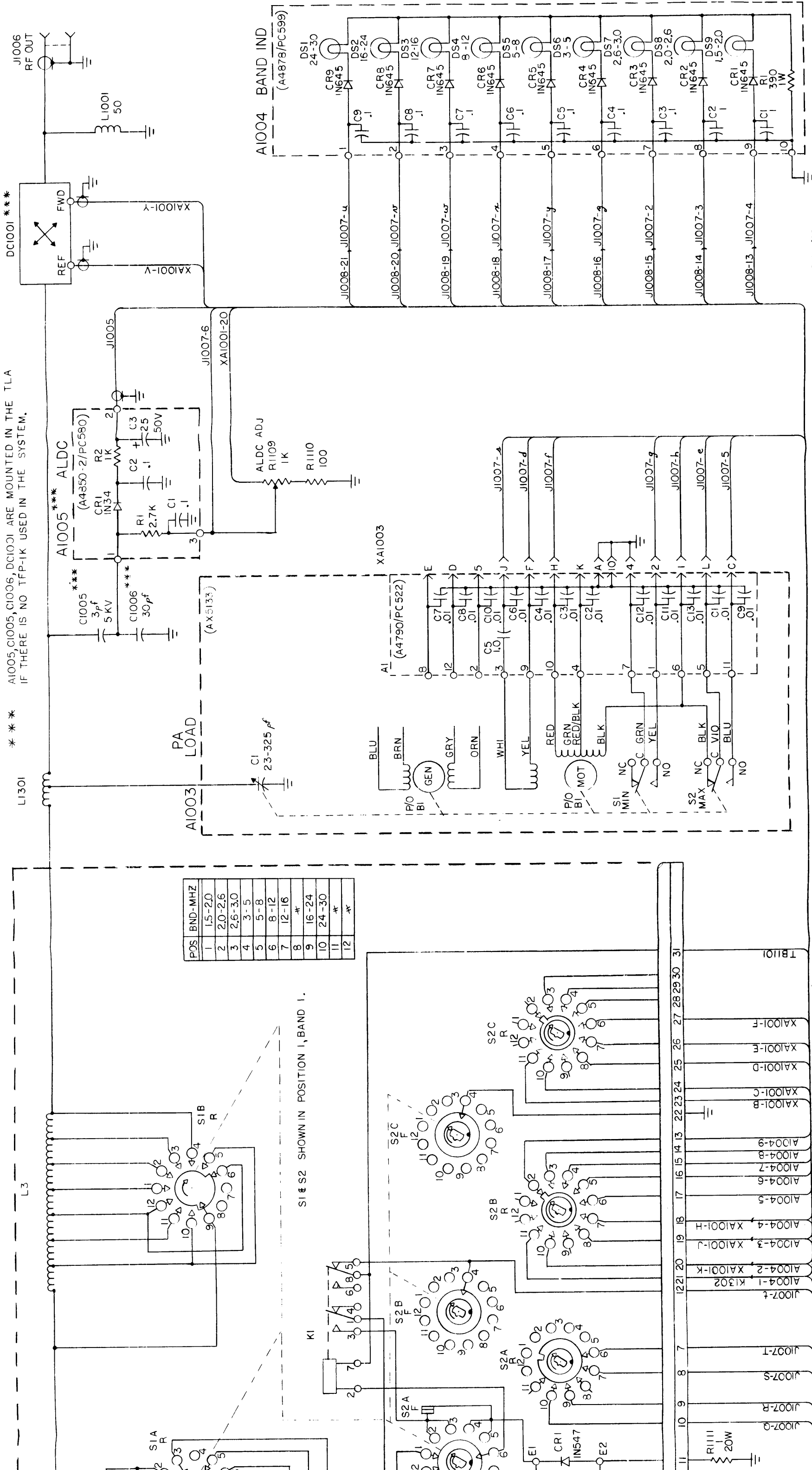
5-9/5-10



- UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCES ARE IN OHMS, 1/2 W.
 2. ALL INDUCTANCES ARE IN MICROHENRIES.
 3. ALL CAPACITANCES ARE IN MICROFARADS.
 4. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH THE SUB-ASSEMBLY DESIGNATION.

*** AI005, C1005, C1006, DC1001 ARE MOUNTED IN THE TLA
IF THERE IS NO TFP-1K USED IN THE SYSTEM.

DC1001 ***



POS	BND-MHZ
1	1.5-2.0
2	2.0-2.6
3	2.6-3.0
4	3-3.5
5	5-8
6	8-12
7	12-16
8	*
9	16-24
10	24-30
11	*
12	*

S1 & S2 SHOWN IN POSITION 1, BAND 1.

SCHEMATIC DIAGRAM

POWER AMPLIFIER, TLAA-1K

(CK1873B)

(Sheet 3 of 3)

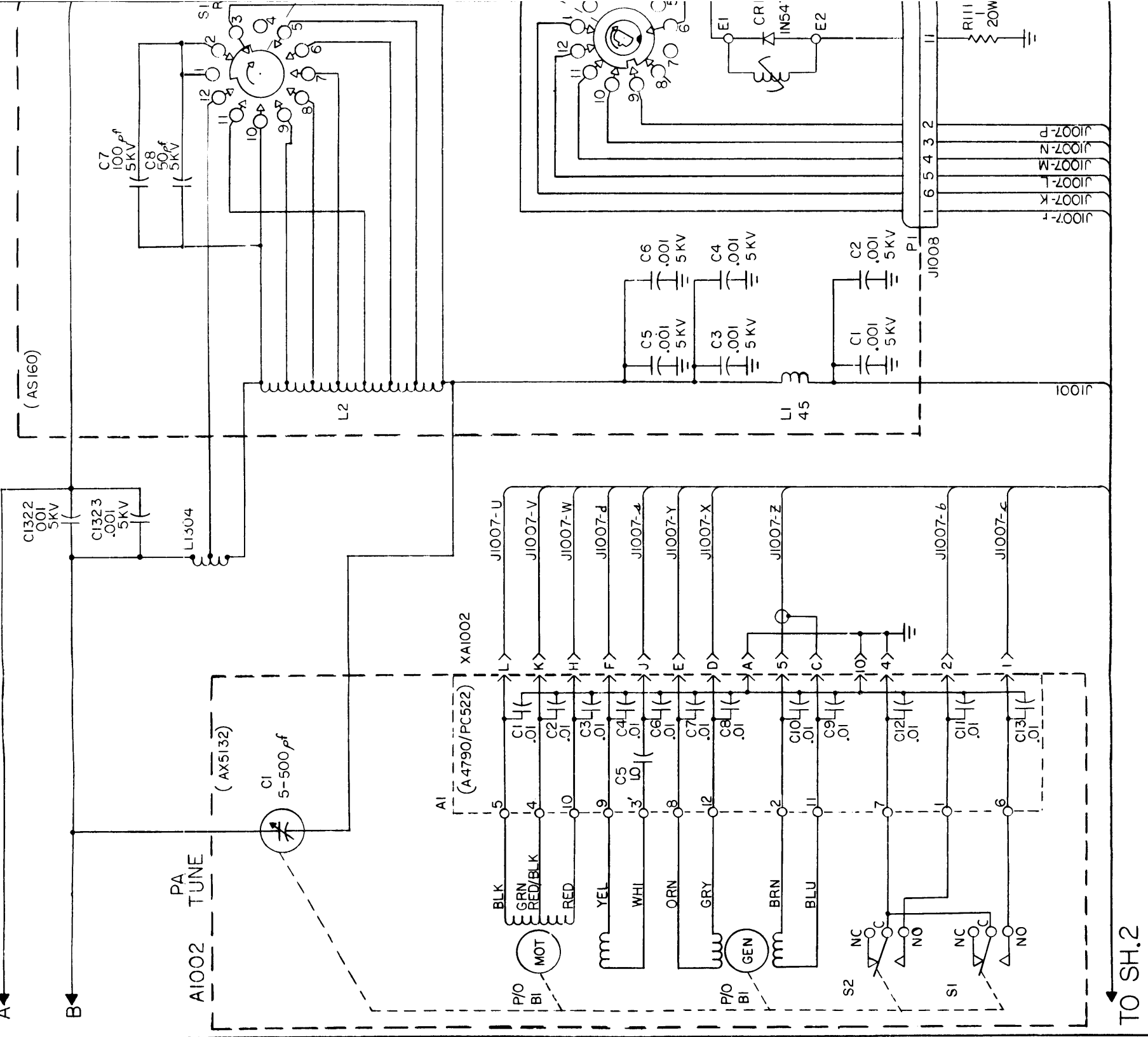
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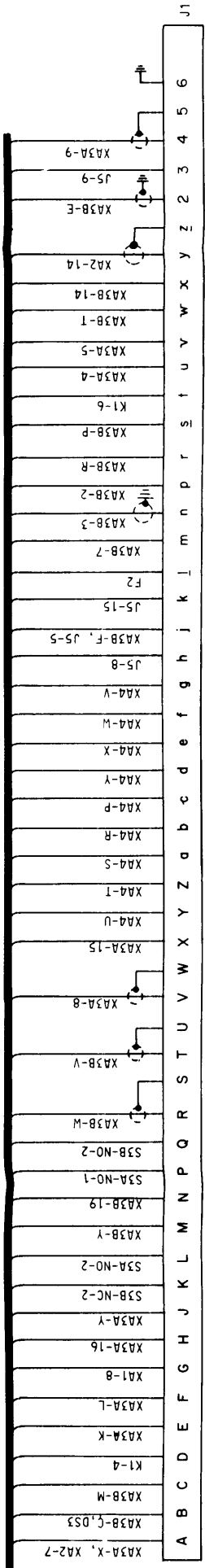
TO SH.2
A

A1006 BANDSWITCH
(AS160)

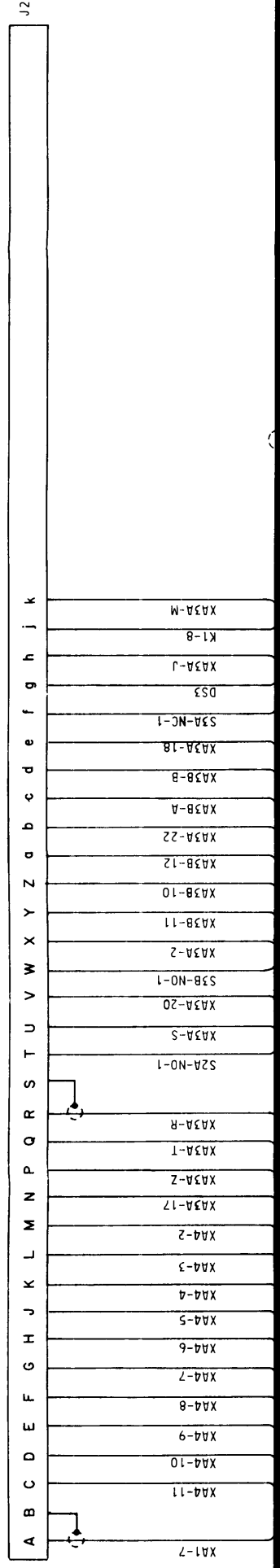
PA TUNE
A1002
(AX5132)

TO SH.2



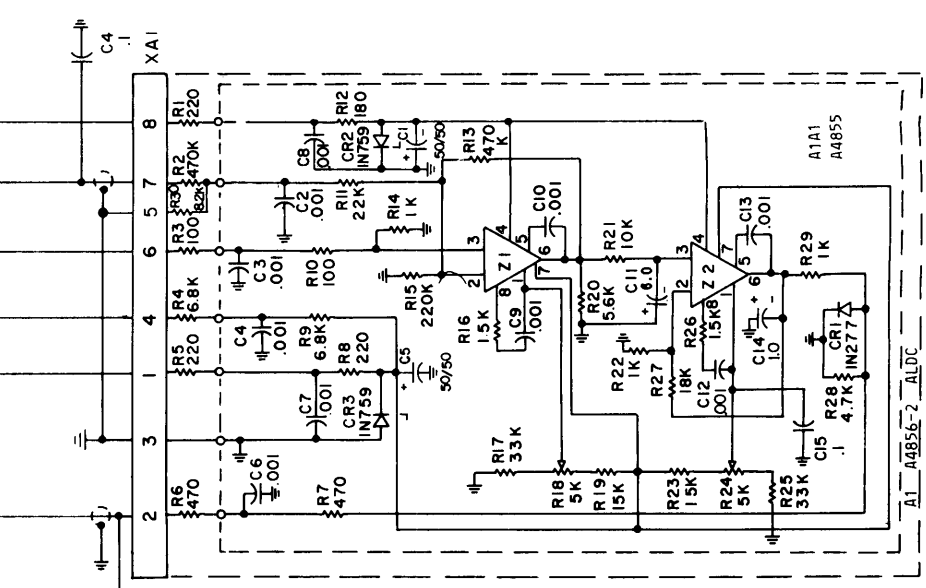


P/O 411



TO SHEET 3 ← TO SHEET 2

NOTE: DOTTED LINE INDICATES JUMPERS NEEDED ONLY WHEN MMXAA-2 IS USED IN SYSTEM



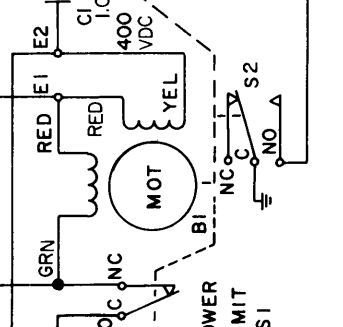
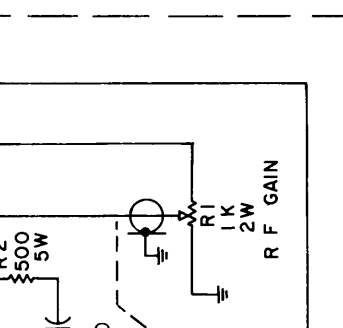
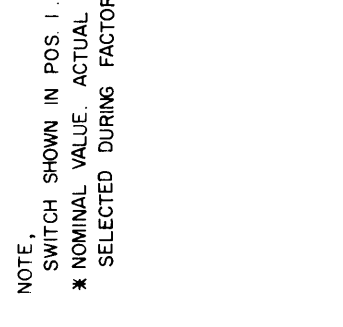
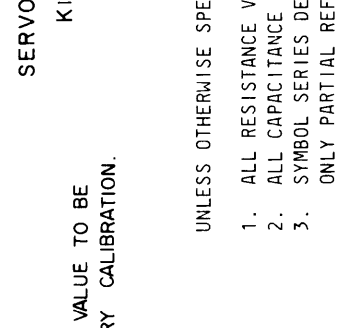
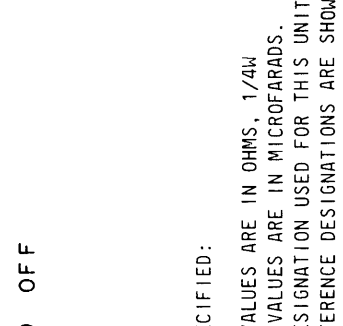
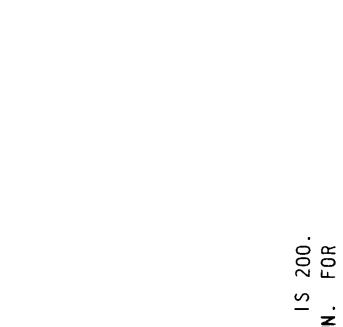
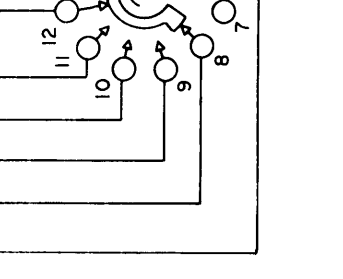
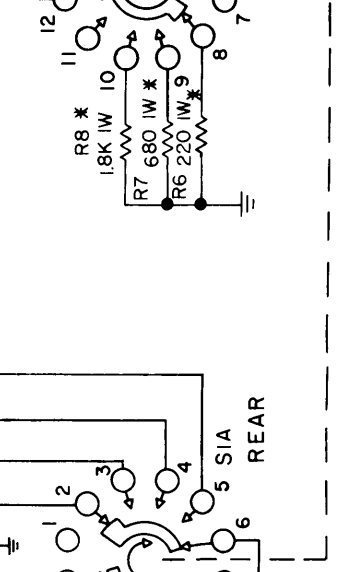
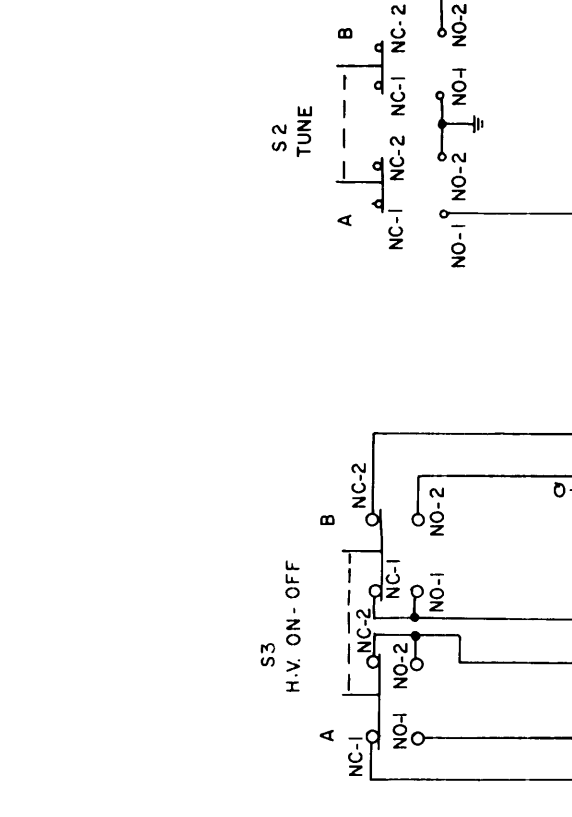
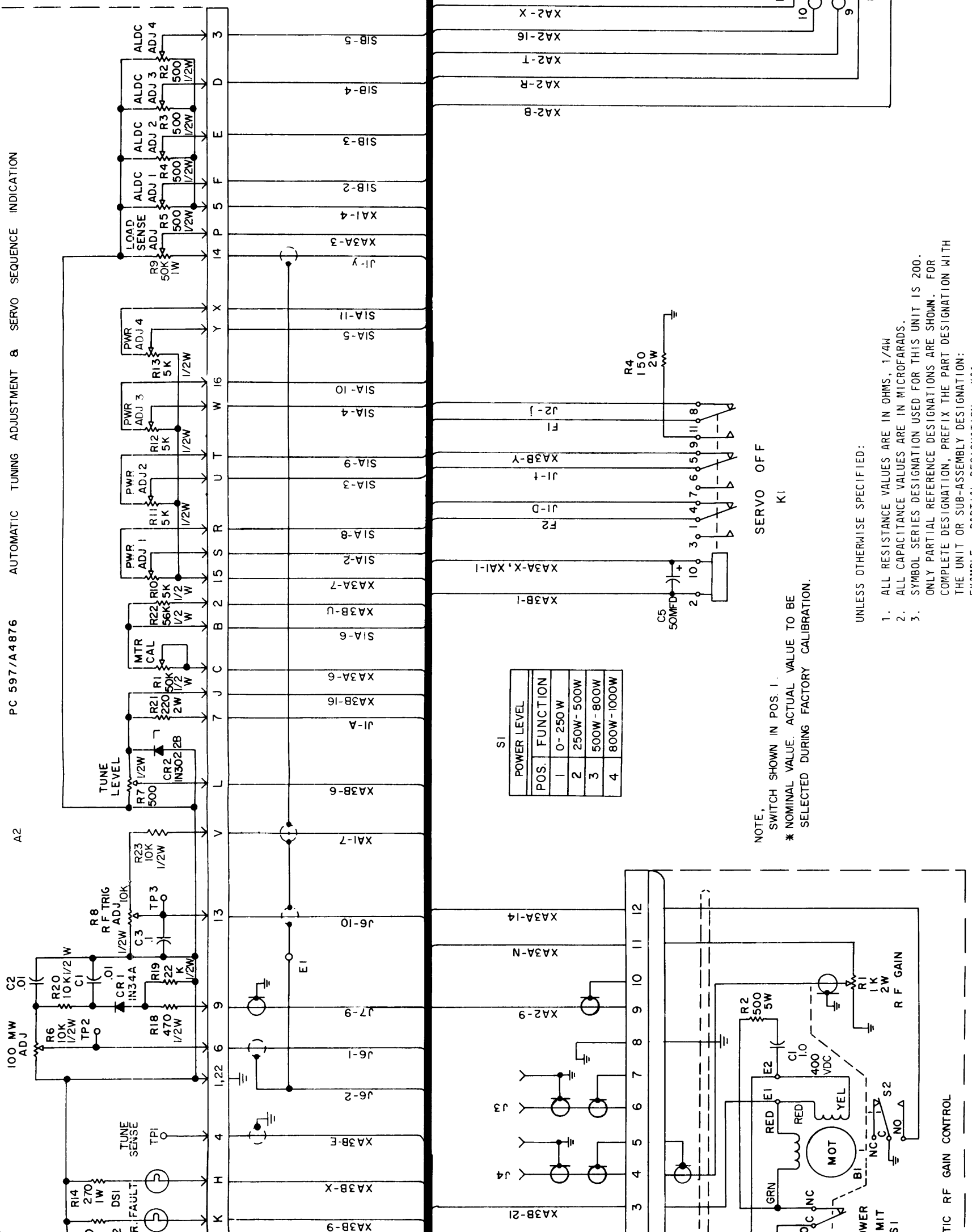
A1 SERIES	LAST SYMBOL	MISSING SYMBOL
	A1	
	C15	
	CR3	
	R30	
	Z2	

A200 SERIES	LAST SYMBOL	MISSING SYMBOL
	AZ11	
	C205	
	DS203	
	E201	
	F202	
	J207	
	K201	
	R208	
	S205	
	W201	
	XA210	
	Z202	
		DS201

- UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. SYMBOL SERIES DESIGNATION USED FOR THIS UNIT IS 200.
- ONLY PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH THE UNIT OR SUB-ASSEMBLY DESIGNATION.
- EXAMPLE: PARTIAL DESIGNATION: XA1
COMPLETE UNIT DESIGNATION: XA201
NATION:

SCHEMATIC DIAGRAM
Servo Control AX5130
(Sheet 1 of 4)

(CK18830)



SCHEMATIC DIAGRAM

Servo Control AX5130

(Sheet 2 of 4)

(CK18830)

5-15/5-16

NOTE:
SWITCH SHOWN IN POS. 1.
* NOMINAL VALUE. ACTUAL VALUE TO BE
SELECTED DURING FACTORY CALIBRATION.

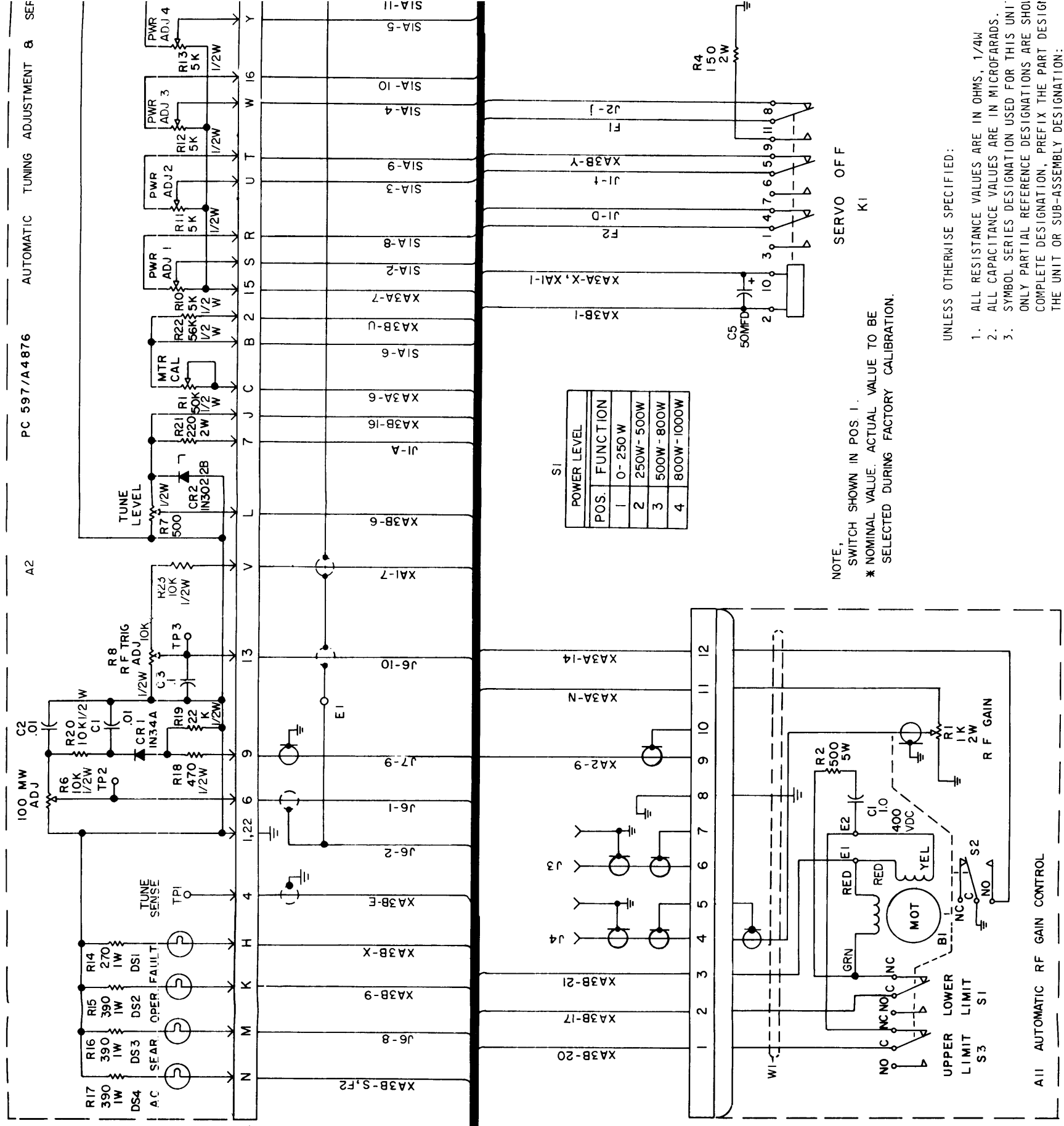
UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. SYMBOL SERIES DESIGNATION USED FOR THIS UNIT IS 200.
- ONLY PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR
COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH
THE UNIT OR SUB-ASSEMBLY DESIGNATION: XA1
EXAMPLE: PARTIAL DESIGNATION: XA1
COMPLETE UNIT DESIGNATION: XA201

RF GAIN CONTROL

A2 SERIES

LAST SYMBOL	MISSING SYMBOL
C3	
CR2	
DS4	
R23	
TP3	



FROM SHEET 1

SI

POWER LEVEL	FUNCTION
1	0-250 W
2	250W-500W
3	500W-800W
4	800W-1000W

NOTE, SWITCH SHOWN IN POS. 1.
* NOMINAL VALUE. ACTUAL VALUE TO BE SELECTED DURING FACTORY CALIBRATION.

A11 SERIES

LAST SYMBOL	MISSING SYMBOL
B1	
C1	
E2	
P1	
R2	
S3	
W1	

- UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. SYMBOL SERIES DESIGNATION USED FOR THIS UNIT ONLY PARTIAL REFERENCE DESIGNATIONS ARE SHOWN COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION THE UNIT OR SUB-ASSEMBLY DESIGNATION: EXAMPLE: PARTIAL DESIGNATION: XA1 COMPLETE UNIT DESIGNATION: XA201

SERVO OFF

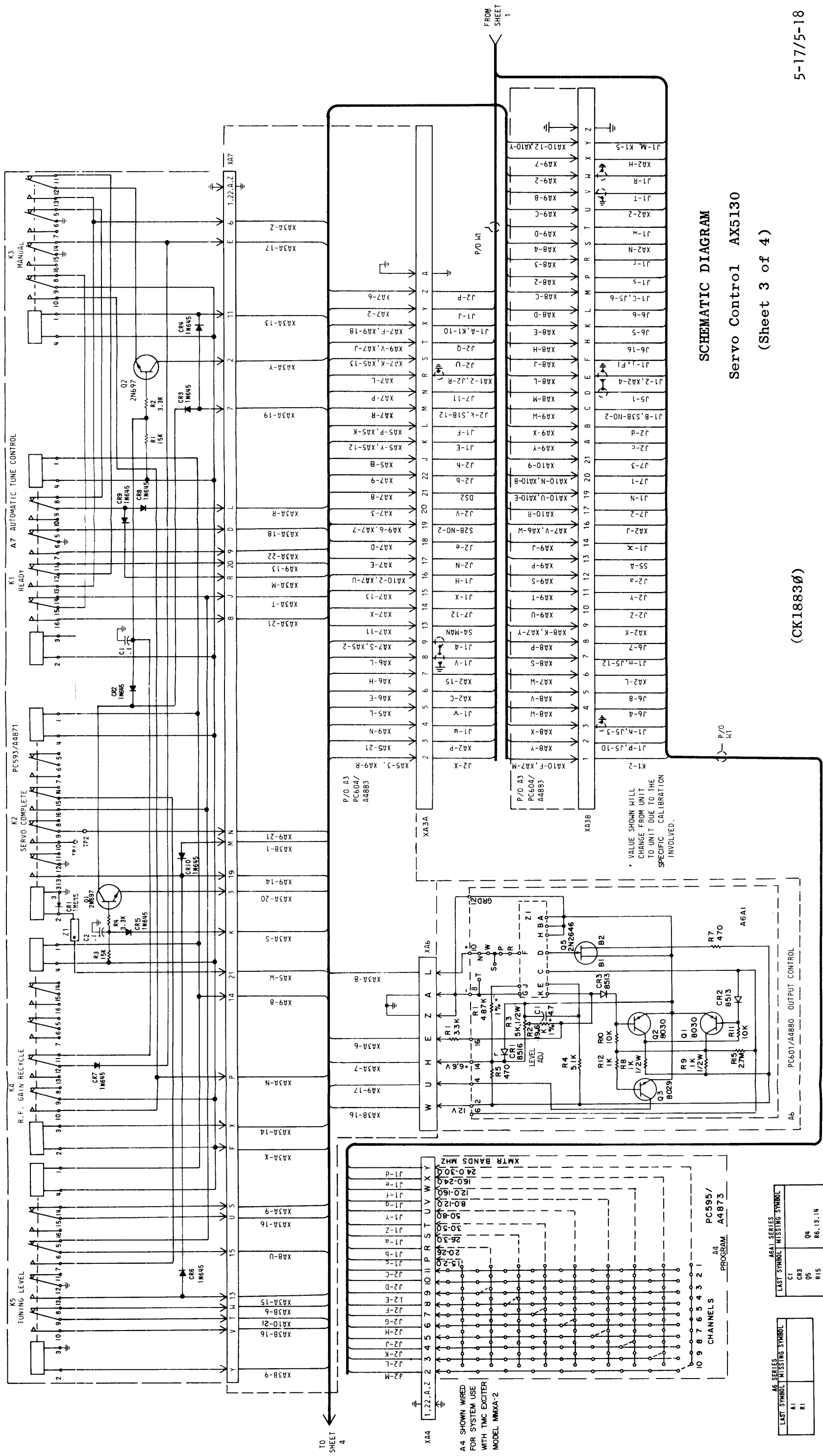
K1

A11 AUTOMATIC RF GAIN CONTROL

UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. SYMBOL SERIES DESIGNATION USED FOR THIS UNIT IS 200. ONLY PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH THE UNIT OF SUB-ASSEMBLY DESIGNATION. EXAMPLE: PARTIAL DESIGNATION: XA1 COMPLETE UNIT DESIGNATION: XA201

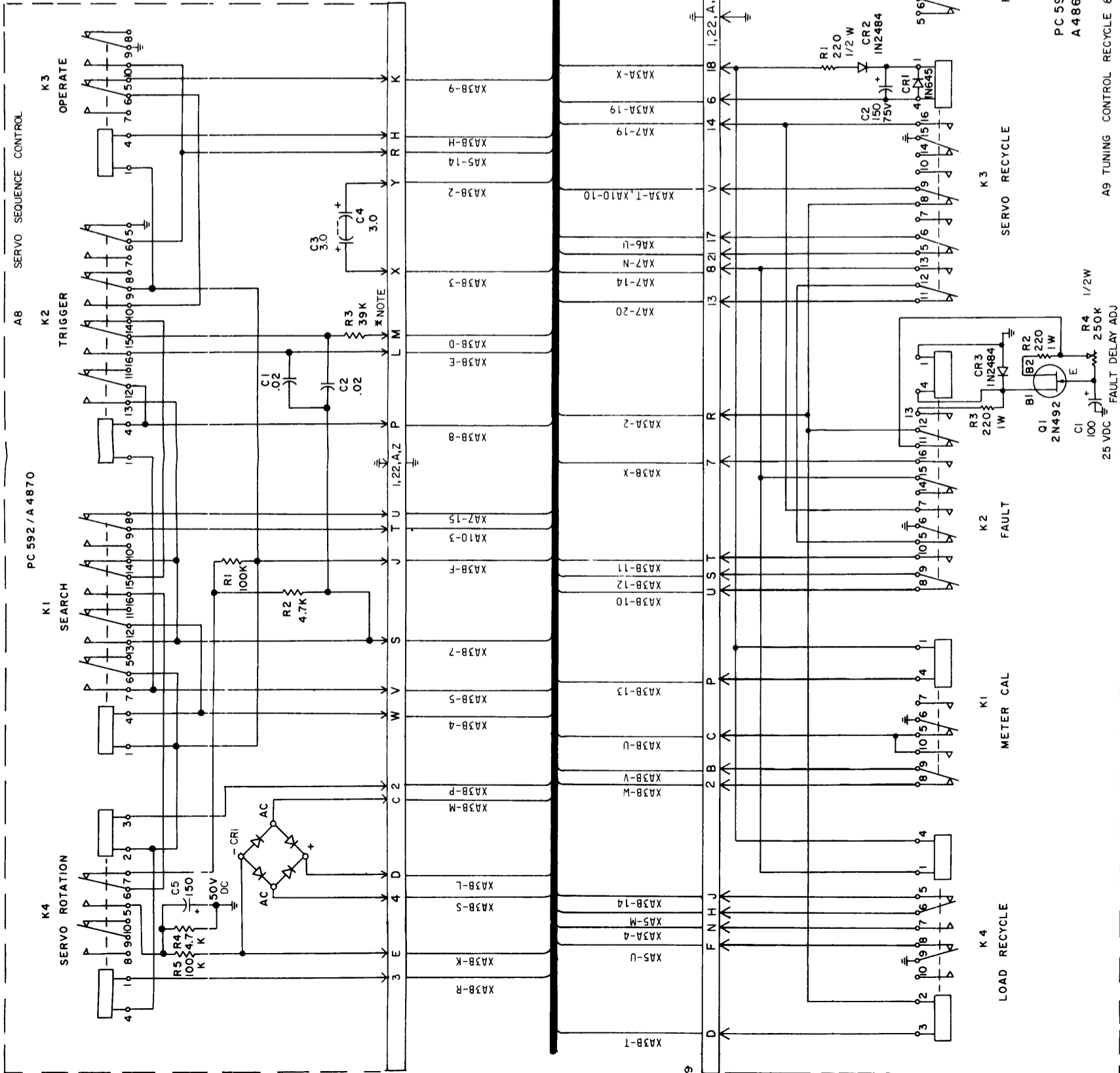
A7 SERIES	
LAST SYMBOL MISSING SYMBOL	
C2	
CR10	
K5	
Q2	
R4	
TP2	
Z1	



SCHEMATIC DIAGRAM
Servo Control AX5130
 (Sheet 3 of 4)

(CK18830)

5-17/5-18



AB SERIES
LAST SYMBOL MISSING SYMBOL

C5
CR1
K4
R5

* NOTE: NOMINAL VALUE, ACTUAL VALUE SELECTED DURING FACTORY CALIBRATION

A5 SERIES
LAST SYMBOL MISSING SYMBOL

C6
CR5
K2
Q3
R8
TP2

A10 SERIES
LAST SYMBOL MISSING SYM

C7
CR5
K2
Q4
R4
TP2

SCHEMATIC DIAGRAM

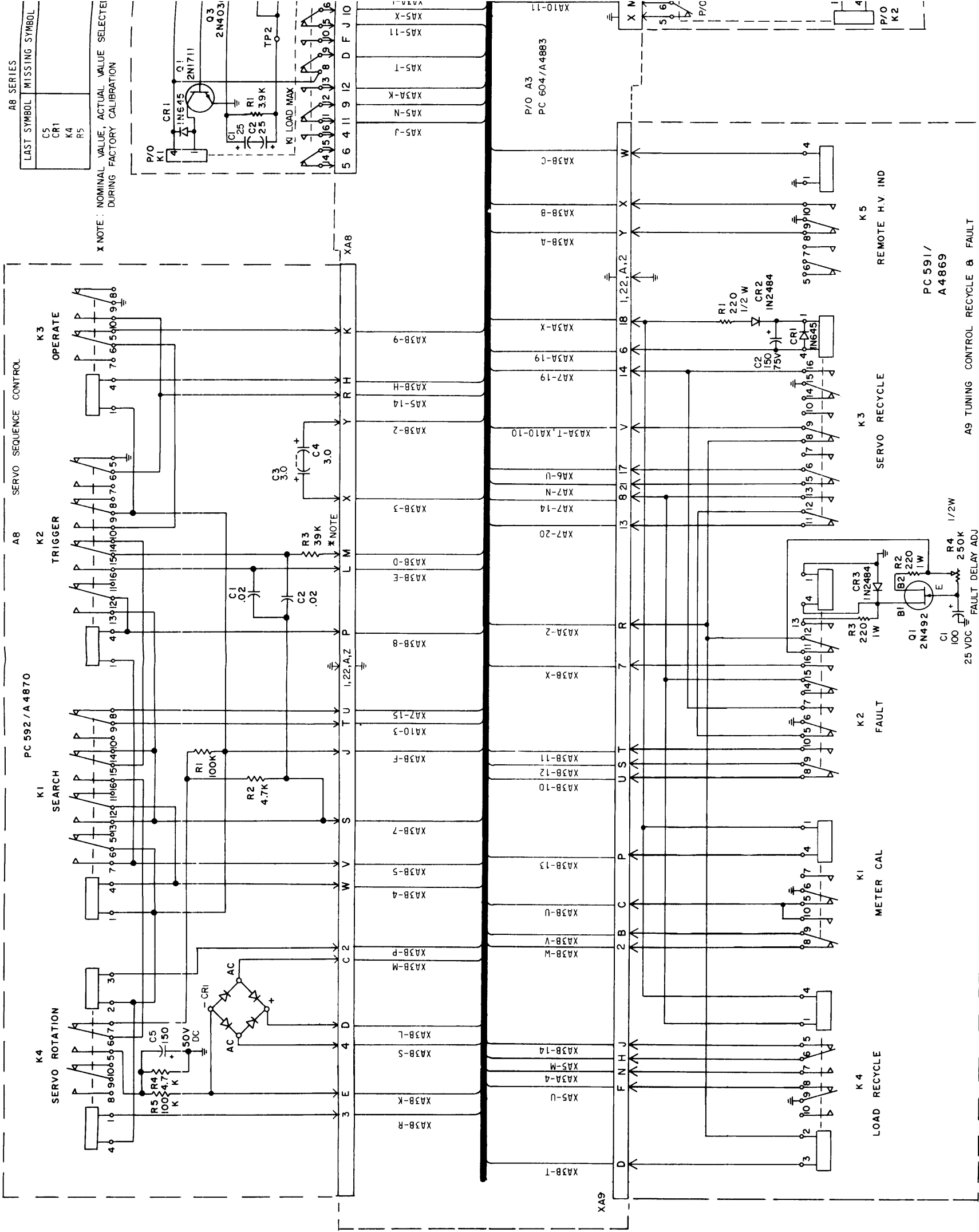
Servo Control AX5130
(Sheet 4 of 4)

A9 SERIES
LAST SYMBOL MISSING SYMBOL

C2
CR3
K5
R4
Q1

- UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W.
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. ONLY PARTIAL REFERENCE DESIGNATION USED FOR THIS UNIT IS 200. FOR COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH THE UNIT OR SUB-ASSEMBLY DESIGNATION. EXAMPLE: PARTIAL DESIGNATION: XA1 COMPLETE UNIT DESIGNATION: XA201

(CK18830)



A8 SERIES

LAST SYMBOL	MISSING SYMBOL
C5	CR1
K4	R5

X NOTE: NOMINAL VALUE, ACTUAL VALUE SELECTED DURING FACTORY CALIBRATION

A9 SERIES

LAST SYMBOL	MISSING SYMBOL
C2	CR3
K5	R4
Q1	

UNLESS OTHERWISE SPECIFIED:
 1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W.
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. SYMBOL SERIES DESIGNATION USED FOR THIS UNIT IS 200.
 ONLY PARTIAL REFERENCE DESIGNATION ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX THE PART DESIGNATION WITH THE UNIT OR SUB-ASSEMBLY DESIGNATION.
 EXAMPLE: PARTIAL DESIGNATION: XA1
 COMPLETE UNIT DESIGNATION: XA201

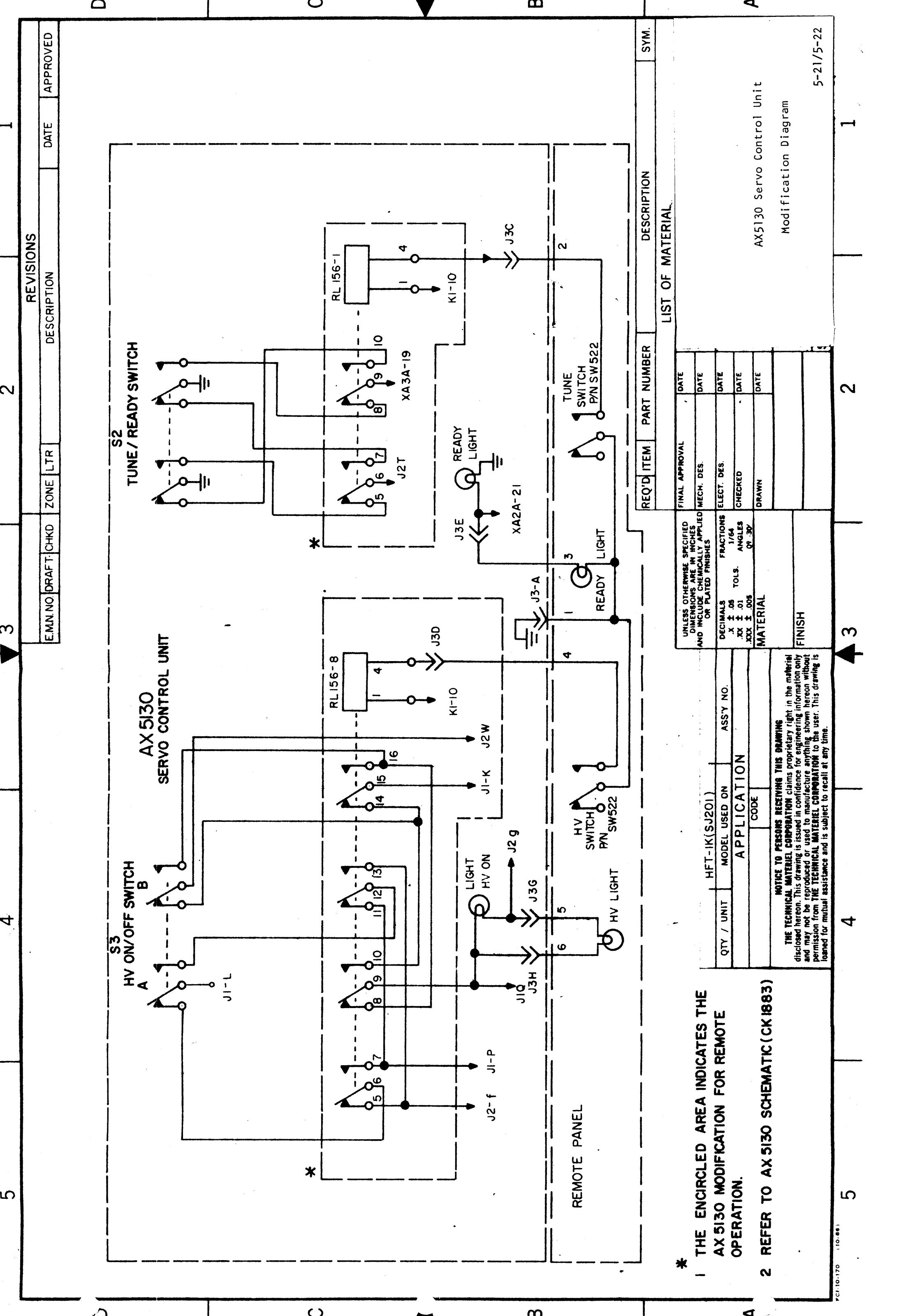
(CK18830)

PC 592 / A 4870

PC 604 / A 4883

PC 591 / A 4869

PC 591 / A 4869



REVISIONS		DATE	APPROVED
E.M.N. NO	DRAFT: CHKD	ZONE	LTR
DESCRIPTION		DATE	APPROVED

REQ'D	ITEM	PART NUMBER	DESCRIPTION	SYM.
LIST OF MATERIAL				
FINAL APPROVAL	DATE			
MECH. DES.	DATE			
ELECT. DES.	DATE			
CHECKED	DATE			
DRAWN	DATE			
			AX5130 Servo Control Unit	
			Modification Diagram	
				5-21/5-22

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED MECH. DES. OR PLATED FINISHES		DECIMALS	FRACTIONS
.X	± .05	TOLS.	1/64
.XX	± .01	ANGLES	0° .30'
.XXX	± .005		
MATERIAL		FINISH	

QTY / UNIT	HFT-1K(SJ201)	MODEL USED ON	ASSY NO.
APPLICATION			
		CODE	
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* THE ENCIRCLED AREA INDICATES THE AX 5130 MODIFICATION FOR REMOTE OPERATION.

2 REFER TO AX 5130 SCHEMATIC (CK1883)

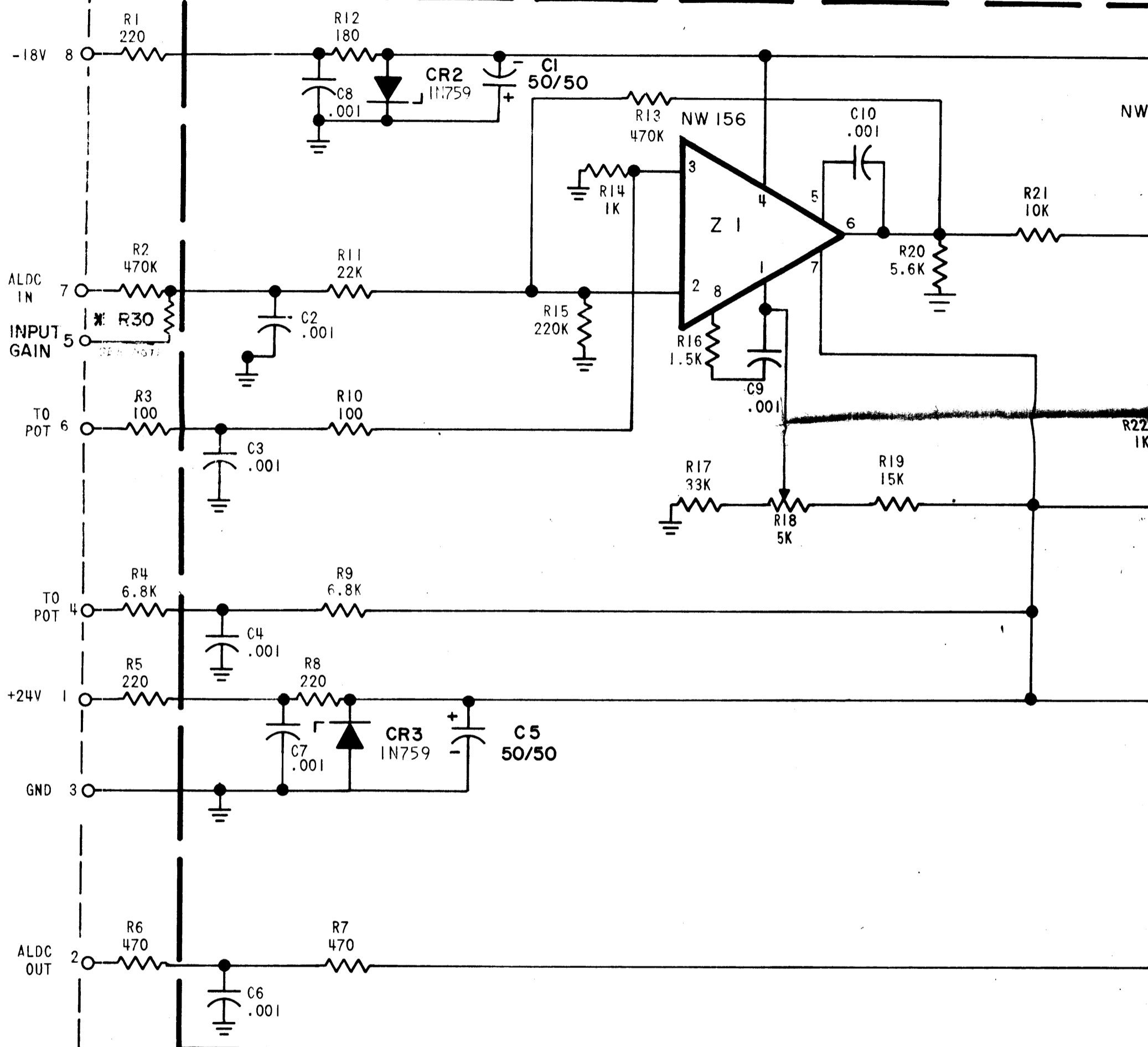
D

C

B

A

A 4856



***NOTE**
 WHEN UNIT IS CONFIGURED FOR A4856, R30 VALUE SHOULD BE 6.8K WHEN UNIT IS CONFIGURED FOR A4856-2 R30 VALUE SHOULD BE 8.2K

LAST SYMBOL	MISSING SYMBOL
C15 CR3 R30 VR22	

1	AX5130	A4856-2
	A4856-2	A4856
QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
	CODE	

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UNLESS OTH
 DIMENSION
 AND INCLUDE C
 OR PLAT

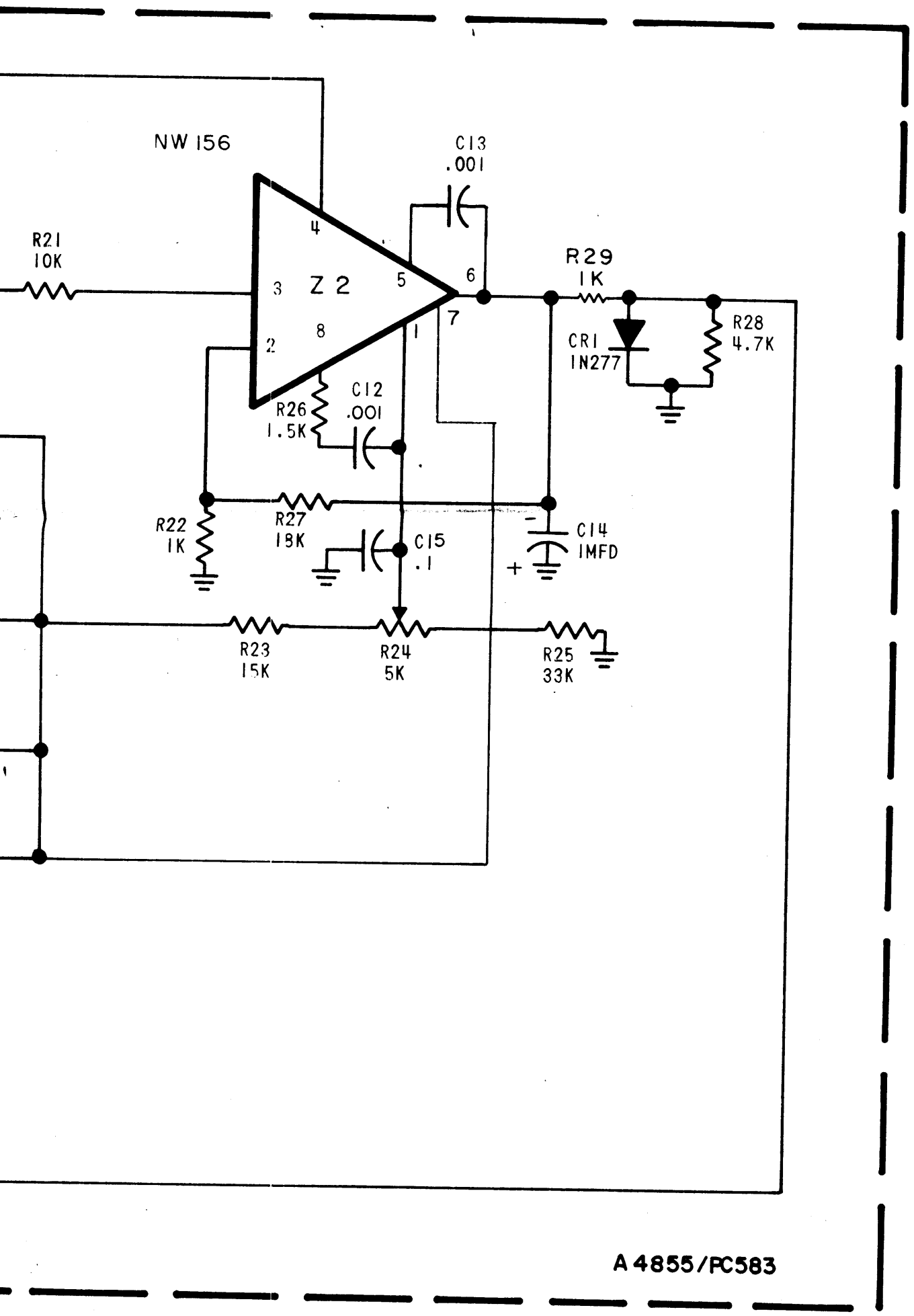
TOLEF

DECIMALS
 .X ± .05
 .XX ± .01
 .XXX ± .005

MATERIAL

FINISH

REVISIONS					DESCRIPTION	DATE	APPROVED
E.M.N.NO	DRAFT	CHKD	ZONE	LTR			
20731	GE	J		B	ADJUSTIVE SIZE REF. DIM. ON THE DRAWING.		JED
20463	GE	J		B	REPLACE C5 WITH R30 AND NOTE	1/11/12	EL
20731	GE	J		B	REPLACE C11 WITH 6MFD. VALUE	6/15/12	EL



QTY. REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
-----------	------	----------	-------------	--------

LIST OF MATERIAL

FINAL APPROVAL	DATE
MECH. DES.	DATE
ELECT. DES.	DATE
CHECKED	DATE
DRAWN	DATE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES ON

DECIMALS	FRACTIONS
.X ± .05	± 1/64
.XX ± .01	ANGLES
.XXX ± .005	± 0° -30'

MATERIAL

FINISH

ALDC CIRCUIT
Schematic Diagram

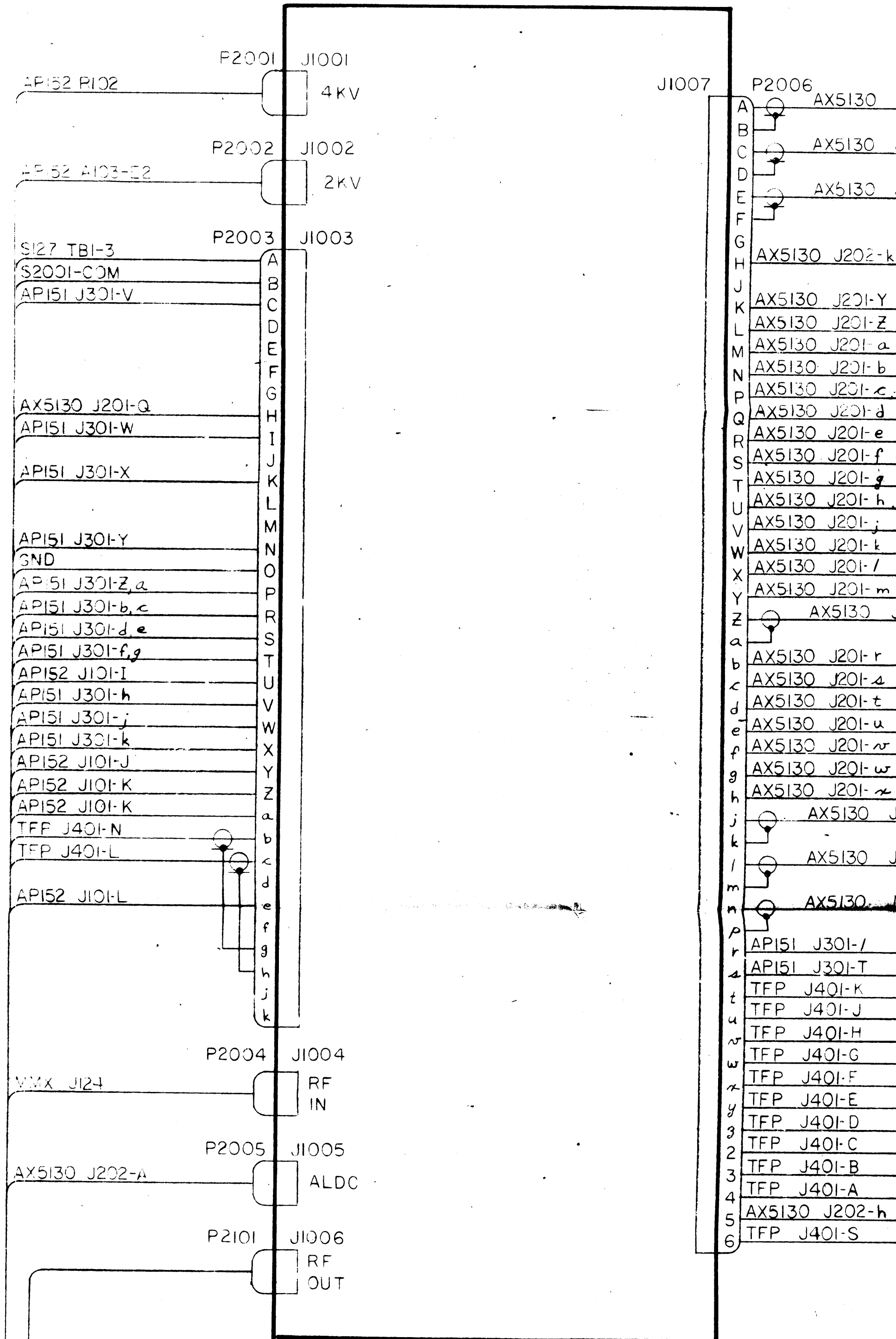
D

C

B

A

LIN AMP
TLAA-1K



P2001 J1001

4KV

API52 R102

P2002 J1002

2KV

API52 A103-E2

P2003 J1003

SI27 TBI-3

S2001-COM

API51 J301-V

AX5130 J201-Q

API51 J301-W

API51 J301-X

API51 J301-Y

GND

API51 J301-Z, a

API51 J301-b, c

API51 J301-d, e

API51 J301-f, g

API52 J101-I

API51 J301-h

API51 J301-j

API51 J301-k

API52 J101-J

API52 J101-K

API52 J101-K

TFP J401-N

TFP J401-L

API52 J101-L

P2004 J1004

RF
IN

VWX J124

P2005 J1005

ALDC

AX5130 J202-A

P2101 J1006

RF
OUT

J1007

P2006

AX5130

AX5130

AX5130

AX5130 J202-k

AX5130 J201-Y

AX5130 J201-Z

AX5130 J201-a

AX5130 J201-b

AX5130 J201-c

AX5130 J201-d

AX5130 J201-e

AX5130 J201-f

AX5130 J201-g

AX5130 J201-h

AX5130 J201-j

AX5130 J201-k

AX5130 J201-l

AX5130 J201-m

AX5130

AX5130 J201-r

AX5130 J201-s

AX5130 J201-t

AX5130 J201-u

AX5130 J201-v

AX5130 J201-w

AX5130 J201-x

AX5130

AX5130

AX5130

AX5130

API51 J301-l

API51 J301-T

TFP J401-K

TFP J401-J

TFP J401-H

TFP J401-G

TFP J401-F

TFP J401-E

TFP J401-D

TFP J401-C

TFP J401-B

TFP J401-A

AX5130 J202-h

TFP J401-S

ANT TUN
RF601A

2006 AX5130 J201-R

AX5130 J201-T

AX5130 J201-V

AX5130 J201-k

AX5130 J201-Y

AX5130 J201-Z

AX5130 J201-a

AX5130 J201-b

AX5130 J201-c

AX5130 J201-d

AX5130 J201-e

AX5130 J201-f

AX5130 J201-g

AX5130 J201-h

AX5130 J201-j

AX5130 J201-k

AX5130 J201-l

AX5130 J201-m

AX5130 J201-n

AX5130 J201-r

AX5130 J201-s

AX5130 J201-t

AX5130 J201-u

AX5130 J201-v

AX5130 J201-w

AX5130 J201-x

AX5130 J201-y

AX5130 J201-2

AX5130 J201-4

PI51 J301-1

PI51 J301-T

FP J401-R

FP J401-J

FP J401-H

FP J401-G

FP J401-F

FP J401-E

FP J401-D

FP J401-C

FP J401-B

FP J401-A

AX5130 J202-h

FP J401-S

J1 P2007
A GND
B GND

C
D
E
F
G
H
I
J
K
L
M
N

AX5130 J202-T

AX5130 J202-U

AX5130 J202-V

AC POWER

AC POWER

J2: P2201
A INTFC TB5-1

B
C
D
E
F
G
H
I
J
K
L
M
N
P
R
S
T
U
V
W
X
Z
a
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d
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f
g
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k
l
m
n
p
r
s

INTFC TB5-2

INTFC TB5-3

INTFC TB5-4

INTFC TB5-5

INTFC TB5-6

INTFC TB5-7

INTFC TB5-8

INTFC TB5-9

INTFC TB5-10

INTFC TB5-11

INTFC TB5-12

INTFC TB5-13

INTFC TB5-14

INTFC TB5-15

INTFC TB5-16

INTFC TB5-17

INTFC TB5-18

INTFC TB5-19

INTFC TB6-1

INTFC TB6-2

INTFC TB6-3

INTFC TB6-4

INTFC TB6-5

INTFC TB6-6

INTFC TB6-7

INTFC TB6-8

INTFC TB6-9

INTFC TB6-10

INTFC TB6-11

INTFC TB6-12

INTFC TB6-13

INTFC TB6-14

INTFC TB6-15

INTFC TB6-16

INTFC TB6-17

INTFC TB6-18

007
ND
ND

K5130 J202-T

K5130 J202-J

K5130 J202-V

C POWER

C POWER

201

TFC TB5-1

TFC TB5-2

TFC TB5-3

TFC TB5-4

TFC TB5-5

TFC TB5-6

TFC TB5-7

TFC TB5-8

TFC TB5-9

TFC TB5-10

TFC TB5-11

TFC TB5-12

TFC TB5-13

TFC TB5-14

TFC TB5-15

TFC TB5-16

TFC TB5-17

TFC TB5-18

TFC TB5-19

TFC TB6-1

TFC TB6-2

TFC TB6-3

TFC TB6-4

TFC TB6-5

TFC TB6-6

TFC TB6-7

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TFC TB6-11

TFC TB6-12

TFC TB6-13

TFC TB6-14

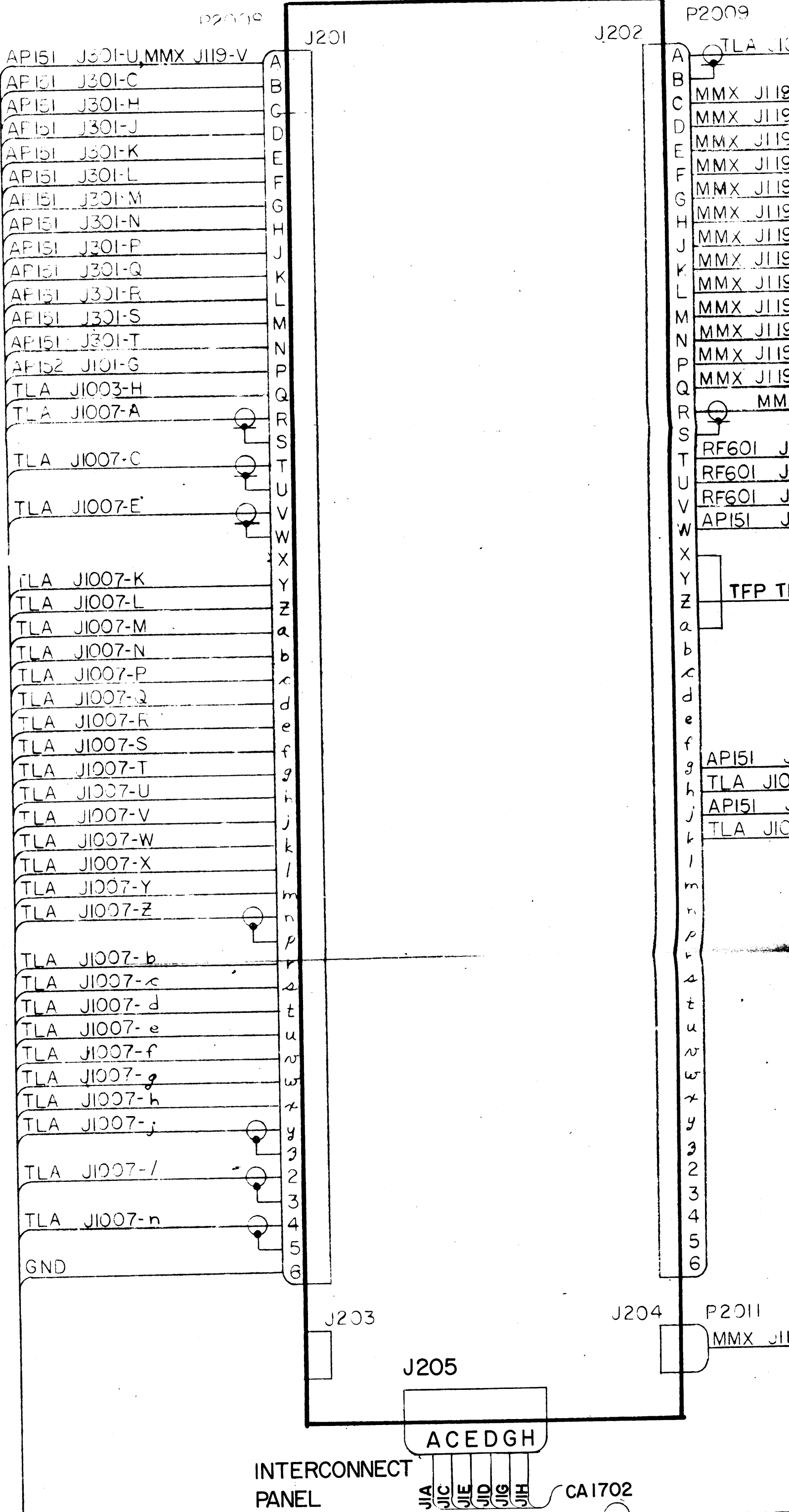
TFC TB6-15

TFC TB6-16

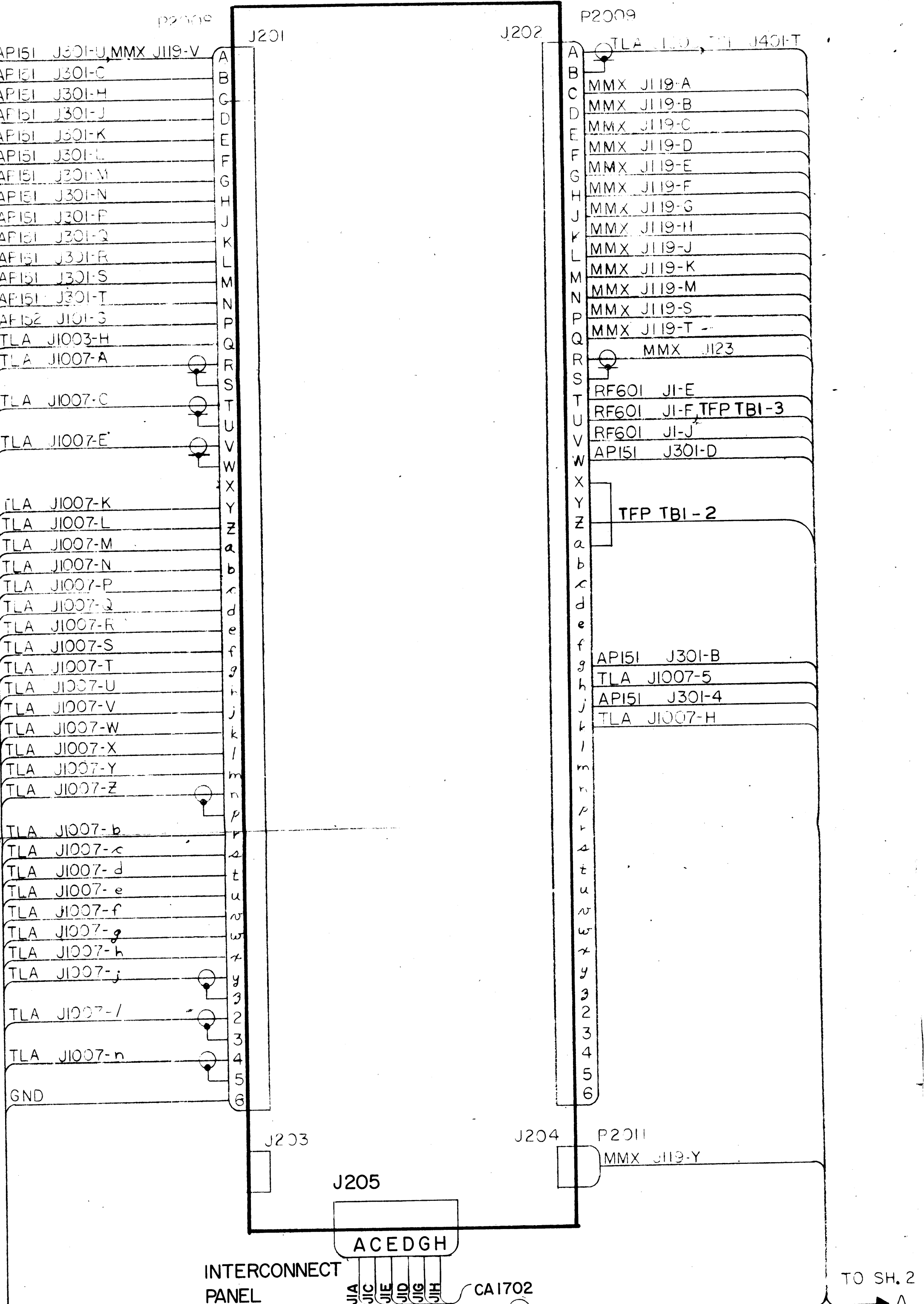
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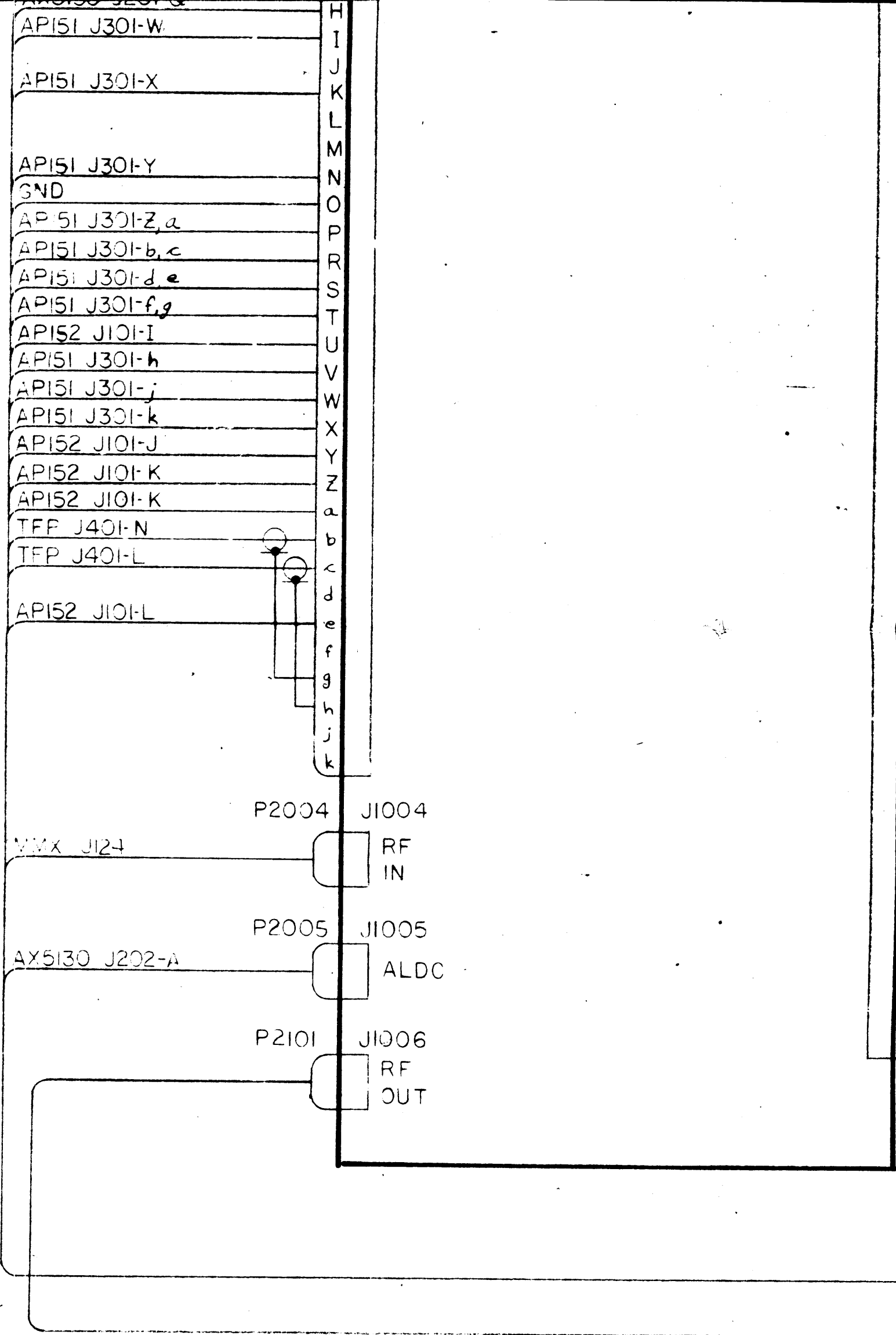
TFC TB6-18

SERVO CONT
AX5130



SERVO CONT
AX5130





Q	AX5130 J201-a
R	AX5130 J201-e
S	AX5130 J201-f
T	AX5130 J201-g
U	AX5130 J201-h
V	AX5130 J201-j
W	AX5130 J201-k
X	AX5130 J201-l
Y	AX5130 J201-m
Z	AX5130 J201-n
a	AX5130 J201-r
b	AX5130 J201-s
c	AX5130 J201-t
d	AX5130 J201-u
e	AX5130 J201-v
f	AX5130 J201-w
g	AX5130 J201-x
h	AX5130 J201-y
i	AX5130 J201-z
j	TFP J401-K
k	TFP J401-J
l	TFP J401-H
m	TFP J401-G
n	TFP J401-F
o	TFP J401-E
p	TFP J401-D
q	TFP J401-C
r	TFP J401-B
s	TFP J401-A
t	AX5130 J202-h
u	TFP J401-S
v	
w	
x	
y	
z	
aa	
ab	
ac	
ad	
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ag	
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30 J201-d
 30 J201-e
 30 J201-f
 30 J201-g
 30 J201-h
 30 J201-j
 30 J201-k
 30 J201-l
 30 J201-m
 AX5130 J201-n
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 30 J201-v
 30 J201-w
 30 J201-x
 AX5130 J201-y
 AX5130 J201-2
 AX5130 J201-4
 J301-I
 J301-T
 J401-K
 J401-J
 J401-H
 J401-G
 J401-F
 J401-E
 J401-D
 J401-C
 J401-B
 J401-A
 30 J202-h
 J401-S

J2:

P2201

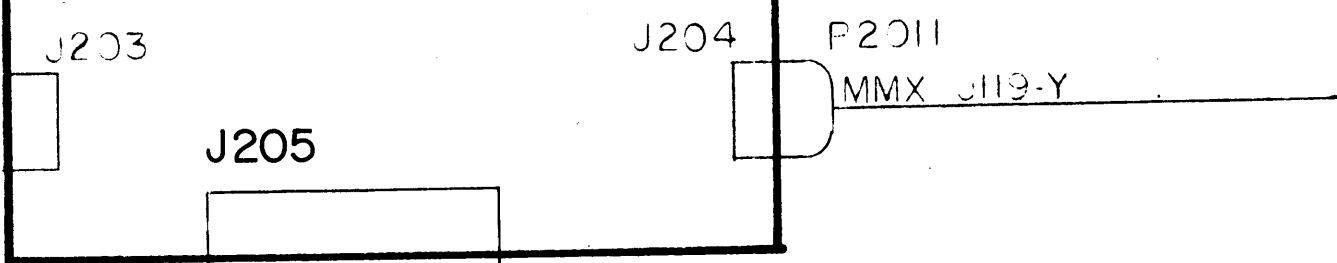
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B	INTFC TB5-2
C	INTFC TB5-3
D	INTFC TB5-4
E	INTFC TB5-5
F	INTFC TB5-6
G	INTFC TB5-7
H	INTFC TB5-8
J	INTFC TB5-9
K	INTFC TB5-10
L	INTFC TB5-11
M	INTFC TB5-12
N	INTFC TB5-13
P	INTFC TB5-14
R	INTFC TB5-15
S	INTFC TB5-16
T	INTFC TB5-17
U	INTFC TB5-18
V	INTFC TB5-19
W	INTFC TB6-1
X	INTFC TB6-2
Z	INTFC TB6-3
a	INTFC TB6-4
b	INTFC TB6-5
c	INTFC TB6-6
d	INTFC TB6-7
e	INTFC TB6-8
f	INTFC TB6-9
g	INTFC TB6-10
h	INTFC TB6-11
j	INTFC TB6-12
k	INTFC TB6-13
m	INTFC TB6-14
n	INTFC TB6-15
p	INTFC TB6-16
r	INTFC TB6-17
s	INTFC TB6-18

TLA J1007-C
 TLA J1007-E
 TLA J1007-K
 TLA J1007-L
 TLA J1007-M
 TLA J1007-N
 TLA J1007-P
 TLA J1007-Q
 TLA J1007-R
 TLA J1007-S
 TLA J1007-T
 TLA J1007-U
 TLA J1007-V
 TLA J1007-W
 TLA J1007-X
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 TLA J1007-l
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RF601 JI-E
 RF601 JI-F, TFP TBI-3
 RF601 JI-J
 API51 J301-D
 TFP TBI-2
 API51 J301-B
 TLA J1007-5
 API51 J301-4
 TLA J1007-H

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INTERCONNECT
PANEL

ACEDGH

JIA JIC JIE JID JIG JIH CA1702

TO SH.

CA1701

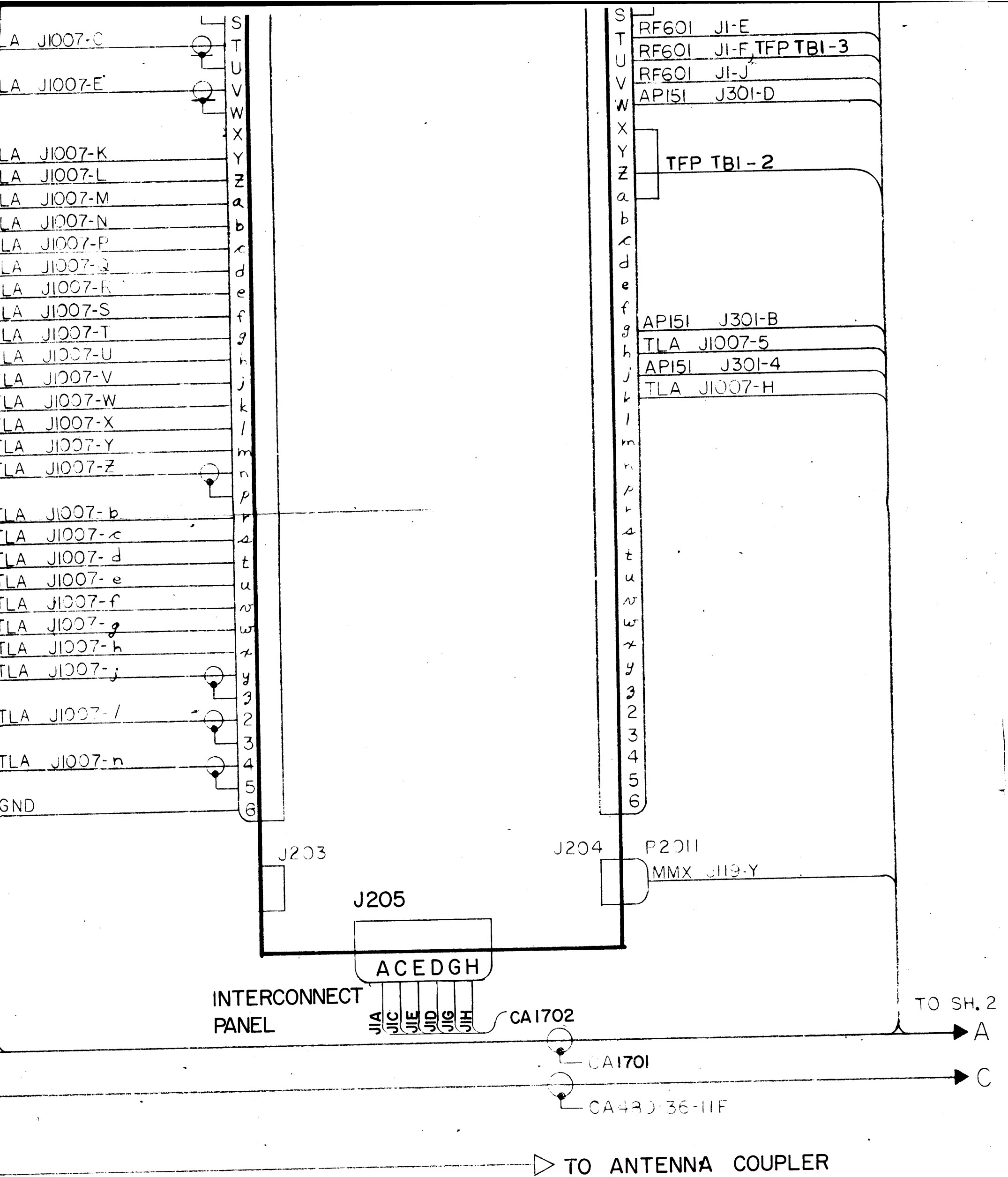
CA430-36-11F

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FINAL APPROVAL	<i>[Signature]</i>	DATE	1/11/70
MECH. DFS		DATE	
ELECT. DFS		DATE	
CHECKED		DATE	
DRAWN	<i>GE</i>	DATE	1/11/70

HFT-1K Wiring Interconnect Diagram
 (Sheet 1 of 3)

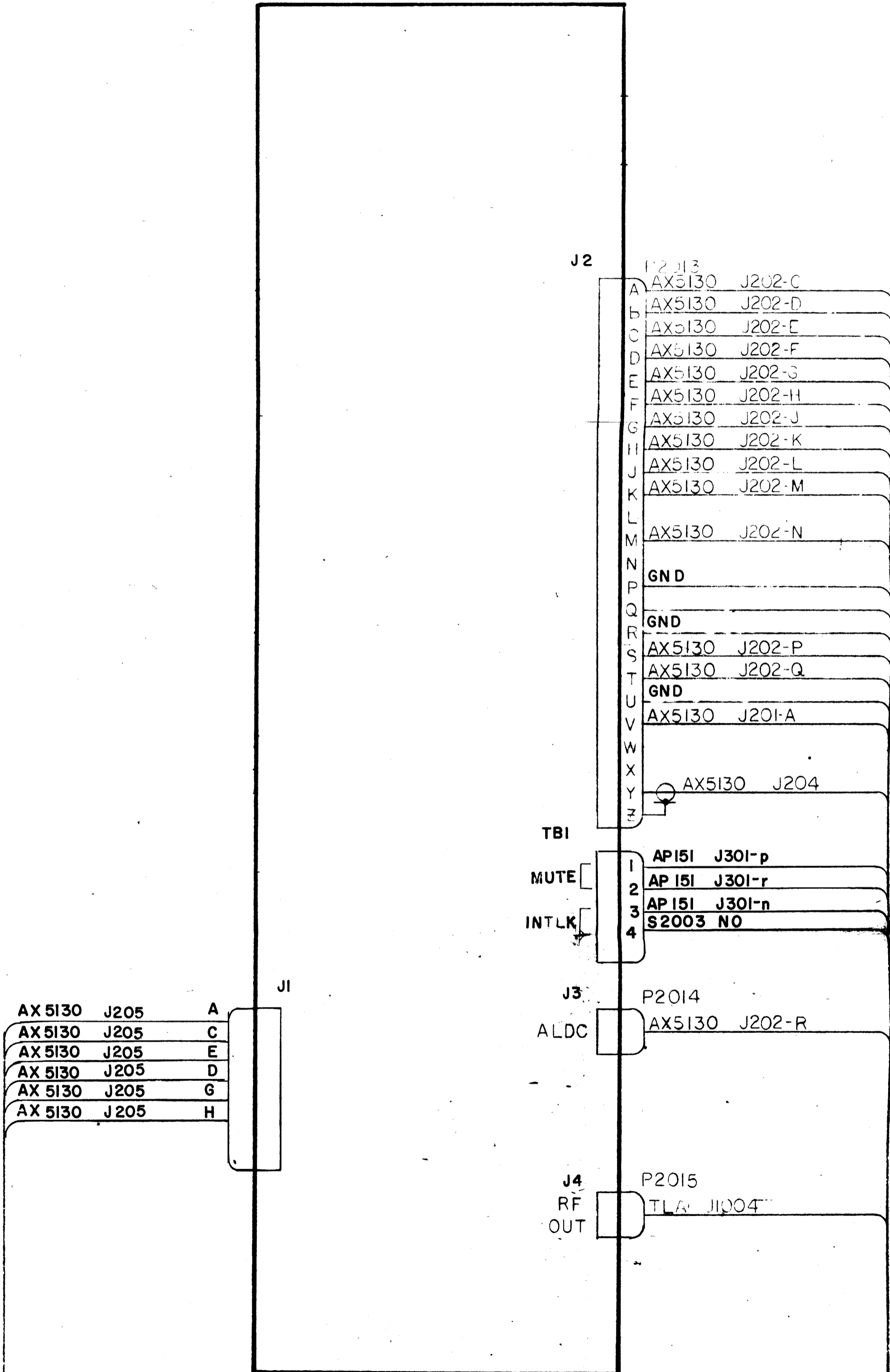


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MECH. DES.		DATE	
ELECT. DES.		DATE	
CHECKED		DATE	
DRAWN	<i>CE</i>	DATE	<i>1/11/52</i>

HFT-1K Wiring Interconnect Diagram
 (Sheet 1 of 3)

INTERCONNECT PANEL



HARM. FILT
TFP-1K

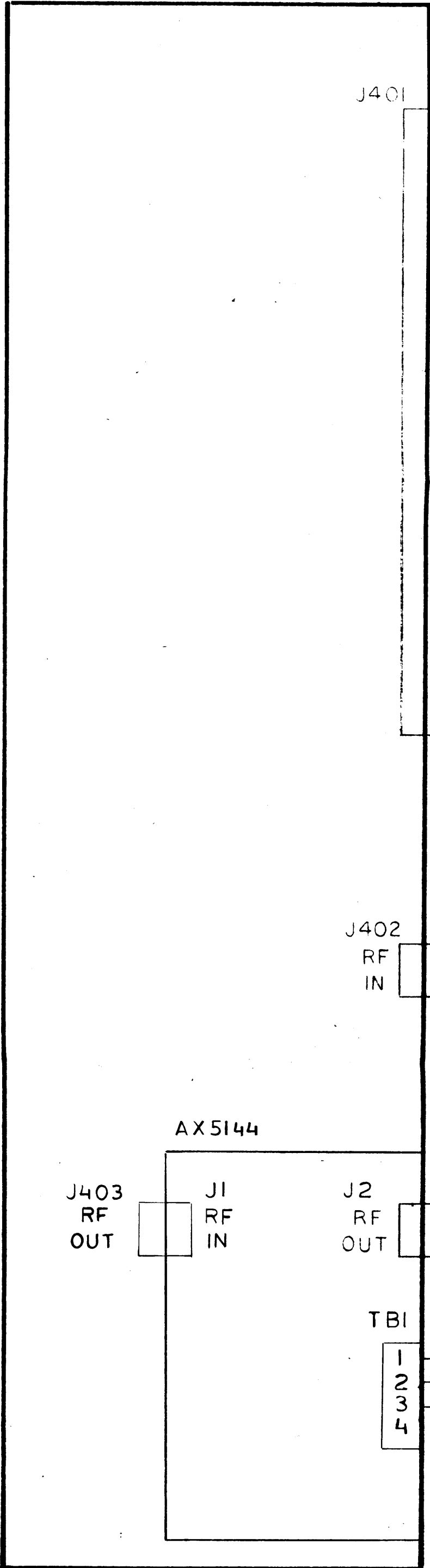
C
D
E
F
G
H
J
K
L
M
N

P
Q

R

04

R



J401

P2016

- A TLA J1007-4
- B TLA J1007-3
- C TLA J1007-2
- D TLA J1007-1
- E TLA J1007-y
- F TLA J1007-x
- G TLA J1007-w
- H TLA J1007-v
- J TLA J1007-u
- K TLA J1007-t
- L TLA J1003-c
- M
- N TLA J1003-b
- P
- Q API51 J301-m
- R API51 J301-l / TFP TBI-1
- S TLA J1007-6
- T AX5130 J202-A
- U
- V
- W
- X
- Y
- Z GND

J402

P2102

RF
IN

AX5144

J403
RF
OUT

J1
RF
IN

J2
RF
OUT

P2103

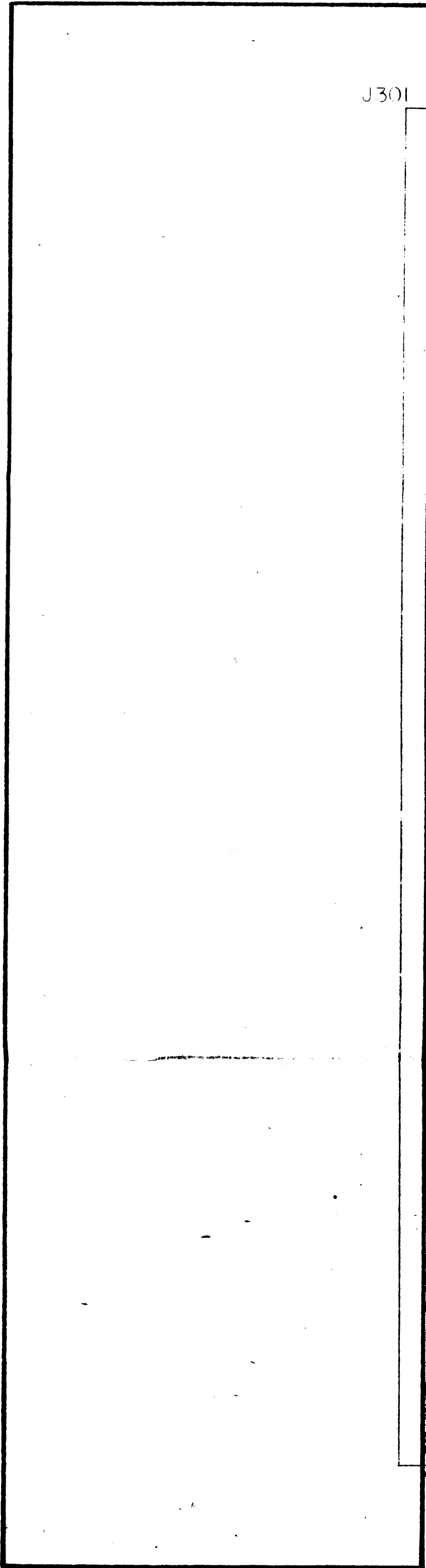
TBI

- 1
- 2
- 3
- 4

TFP J401-R
AX5130 J202-Z
AX5130 J202-U

J301

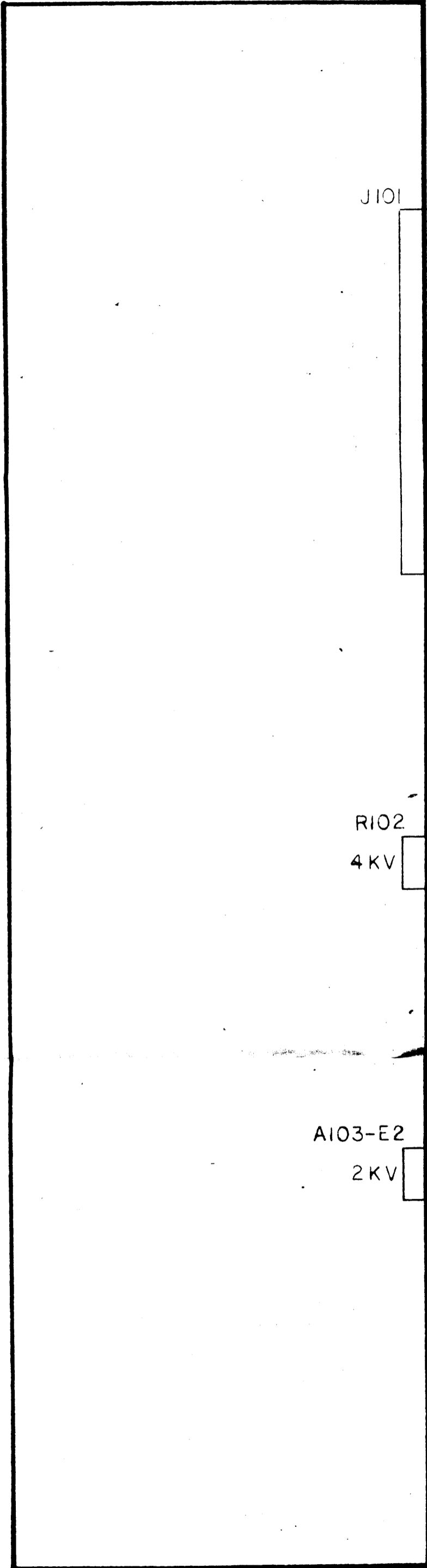
P2017



A	
B	AX5130 J202-g
C	AX5130 J201-B
D	AX5130 J202-W, API52 J101-F
E	API52 J101-H
F	API52 J101-M
G	API52 J101-N
H	AX5130 J201-C
J	AX5130 J201-D
K	AX5130 J201-E
L	AX5130 J201-F
M	AX5130 J201-G
N	AX5130 J201-H
P	AX5130 J201-J
Q	AX5130 J201-K
R	AX5130 J201-L
S	AX5130 J201-M
T	AX5130 J201-N, TLA J1007-d
U	AX5130 J201-A
V	TLA J1003-C, S2001-NC
W	TLA J1003-I
X	TLA J1003-K
Y	TLA J1003-N
Z	TLA J1003-P
a	TLA J1003-P
b	TLA J1003-R
c	TLA J1003-R
d	TLA J1003-S
e	TLA J1003-S
f	TLA J1003-T
g	TLA J1003-T
h	TLA J1003-V
j	TLA J1003-W
k	TLA J1003-X
l	TLA J1007-r, TFP J401-R
m	TFP J401-q
n	INTERCONNECT TBI 3
p	INTERCONNECT TBI 1
r	INTERCONNECT TBI 2
s	
t	
u	
v	
w	
x	
y	
z	
2	GND
3	
4	AX5130 J202-j
5	
6	GND

HV SUP
AP-152

2 J101F
J1007-4
I-NC
J401-R
3
1
1 2



J101

P2018

A	AC POWER
B	AC POWER
C	
D	
E	
F	API51 J301-D
G	AX5130 J201-P
H	API51 J301-E
I	TLA J1003-U
J	TLA J1003-Y
K	TLA J1003-Z, a
L	TLA J1003-e
M	API51 J301-F
N	API51 J301-G

R102

4KV

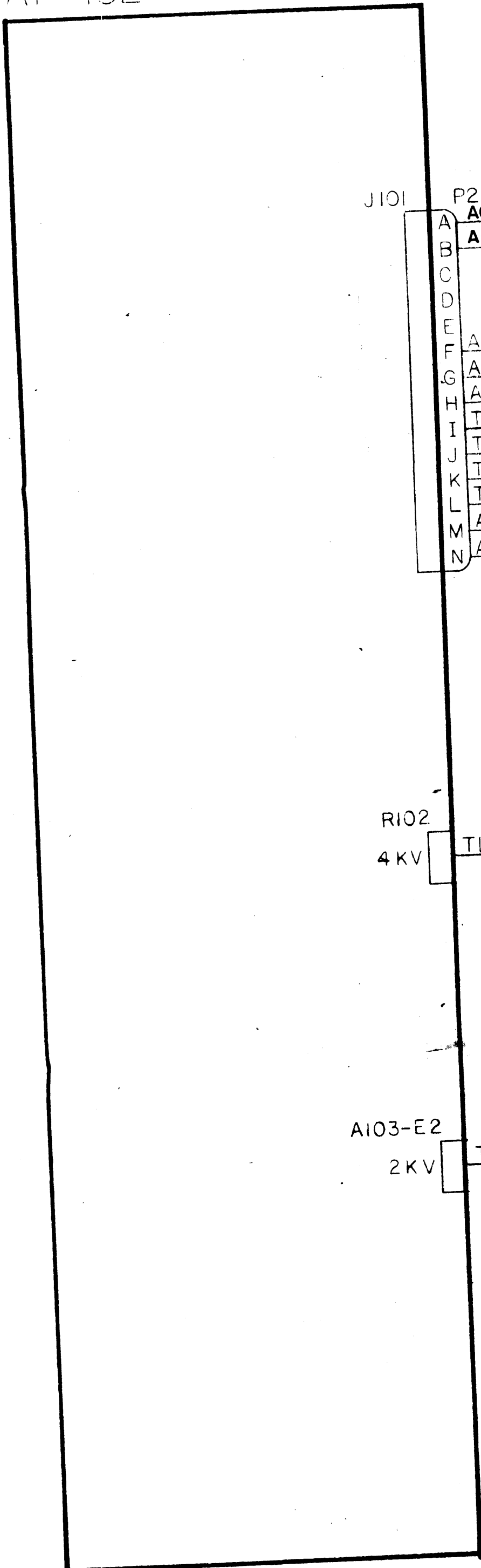
TLA J1001

A103-E2

2KV

TLA J1002

HV SUP
AP-152



J101

P2018

A
B
C
D
E
F
G
H
I
J
K
L
M
N

AC POWER

AC POWER

API51 J301-D

AX5130 J201-P

API51 J301-E

TLA J1003-U

TLA J1003-Y

TLA J1003-Z_a

TLA J1003-e

API51 J301-F

API51 J301-G

R102

4KV

TLA J1001

A103-E2

2KV

TLA J1002

TO SH. 3

→ B

G	AX5130	J202-K
H	AX5130	J202-L
J	AX5130	J202-M
L		
M	AX5130	J202-N
N		
P	GND	
Q		
R	GND	
S	AX5130	J202-P
T	AX5130	J202-Q
U	GND	
V	AX5130	J201-A
W		
X		
Y	AX5130	J204
Z		

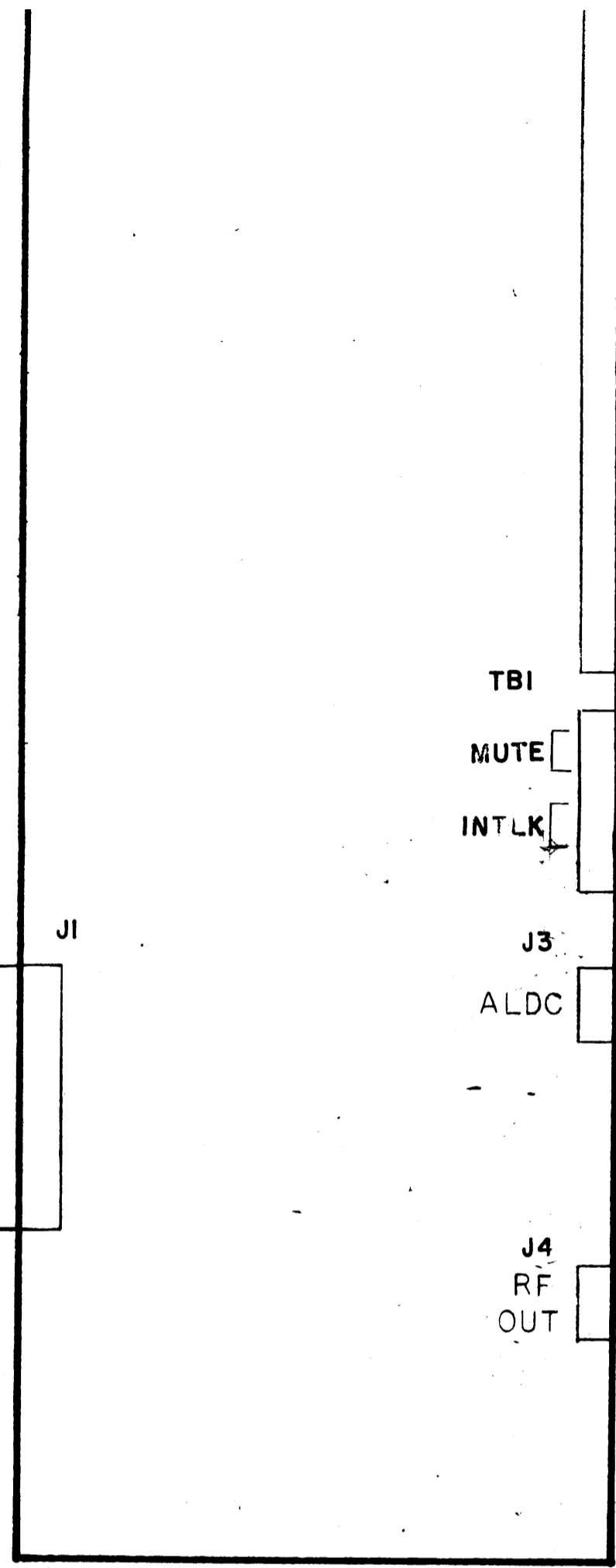
AX 5130	J205	A
AX 5130	J205	C
AX 5130	J205	E
AX 5130	J205	D
AX 5130	J205	G
AX 5130	J205	H

TBI	
MUTE	1 API5I J301-p
	2 AP 15I J301-r
INTLK	3 AP 15I J301-n
	4 S2003 NO

J3	P2014
ALDC	AX5130 J202-R

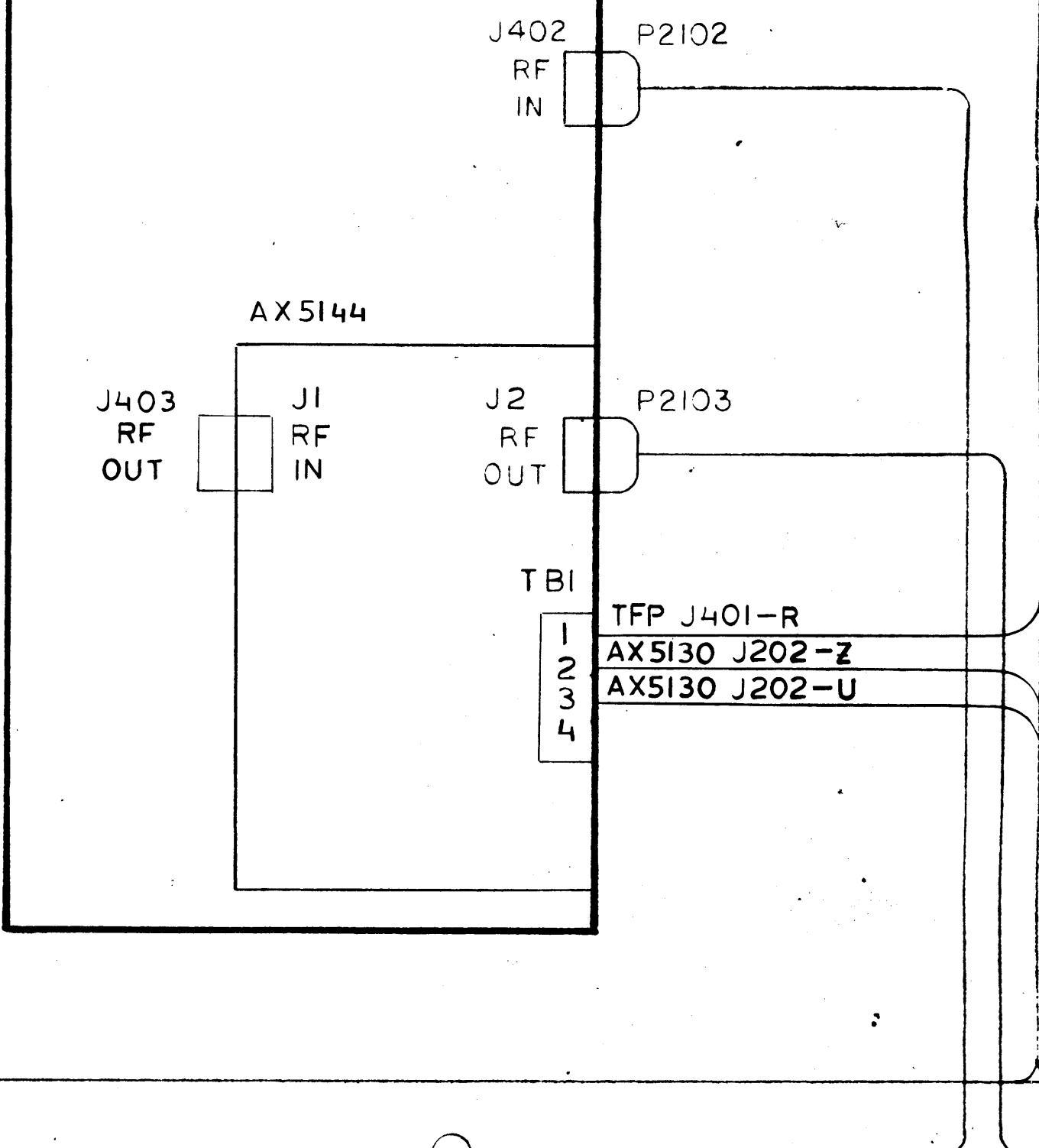
J4	P2015
RF OUT	TLA J1004

TO SH.1
 A ←
 C ←

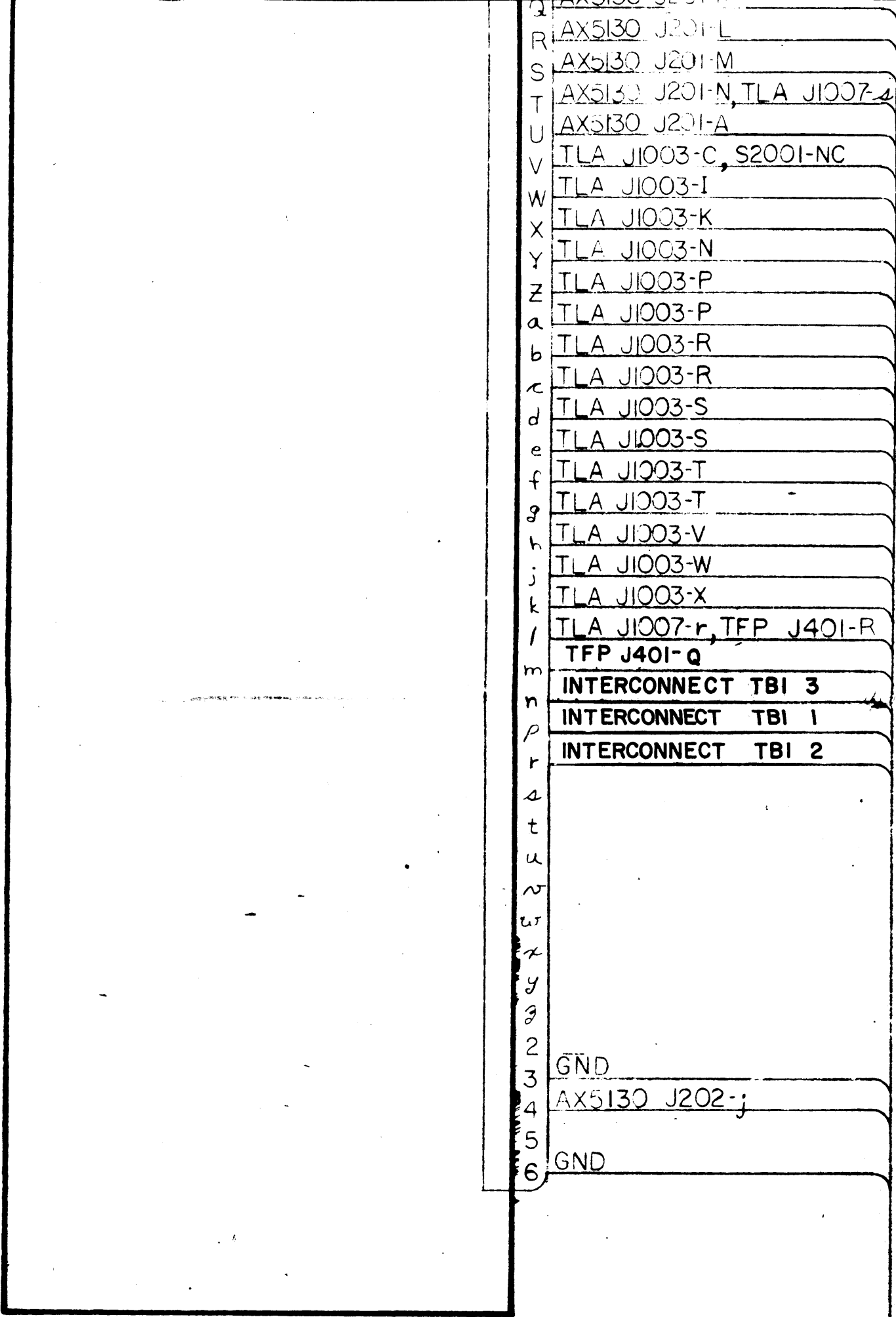


2-K
2-L
2-M
2-N
2-P
2-Q
-A
J204
2-R

Q
R API51 J301- / TFP TBI-1
S TLA J1007-6
T AX5130 J202-A
U
V
W
X
Y
Z GND



CA 480-36-11F



REVISIONS						
ZONE	LTR	DESCRIPTION	DATE	E.M.N.NO	DRAFT	CHKD APPD
	Ø		1/17/72		W	
	A	ADD AX5144 TO TFP	4/18/72	20604	GE	EP Ø

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 to manufacture anything shown hereo
 to the user. This drawing is loaned fo

K
L
M
N

TLA J1003-e
API51 J301-F
API51 J301-G

R102
4KV

TLA J1001

A103-E2
2KV

TLA J1002

TO SH. 3

CA1701

CA 480-92-60

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MECH. DES.		DATE	
ELECT. DES.		DATE	
CHECKED		DATE	
DRAWN	<i>GE</i>	DATE	<i>1/14/70</i>

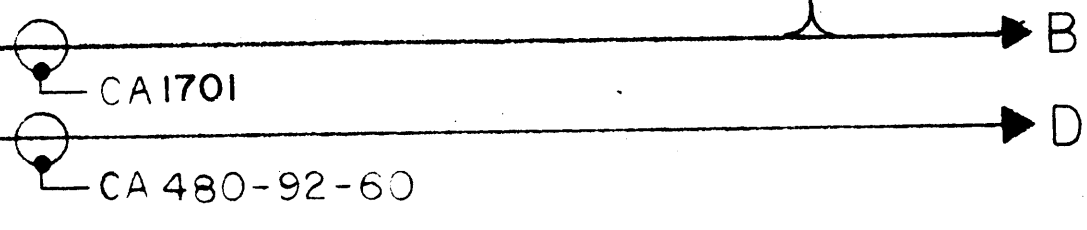
HFT-1K Wiring Interconnect Diagram
 (Sheet 2 of 3)

K TLA J1003-e
 L TLA J1003-e
 M API51 J301-F
 N API51 J301-G

R102
 4KV TLA J1001

A103-E2
 2KV TLA J1002

TO SH. 3



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ELECT. DES.		DATE	
CHECKED		DATE	
DRAWN	<i>GE</i>	DATE	<i>1/14/72</i>

HFT-1K Wiring Interconnect Diagram
 (Sheet 2 of 3)

4

3

D

C

B

A

RF 60I JI-L
 API52 JI0I-A
 API52 JI0I-B
 RF60I JI-M

115 V 1 Ø
 60 HZ

AP 15I J30I-V
 TLA JI003-B

INTERCONNECT TBI -

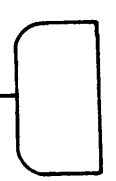
TO SH. 2

B ←

D ←

CAI70I

CA 480-92-60



P2104
 RF OUTPUT

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 AND INCLUDE TOLERANCES

TOLE
 DECIMALS
 .X ± .05
 .XX ± .01
 .XXX ± .005

MATERIAL

FINISH

QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
	CODE	

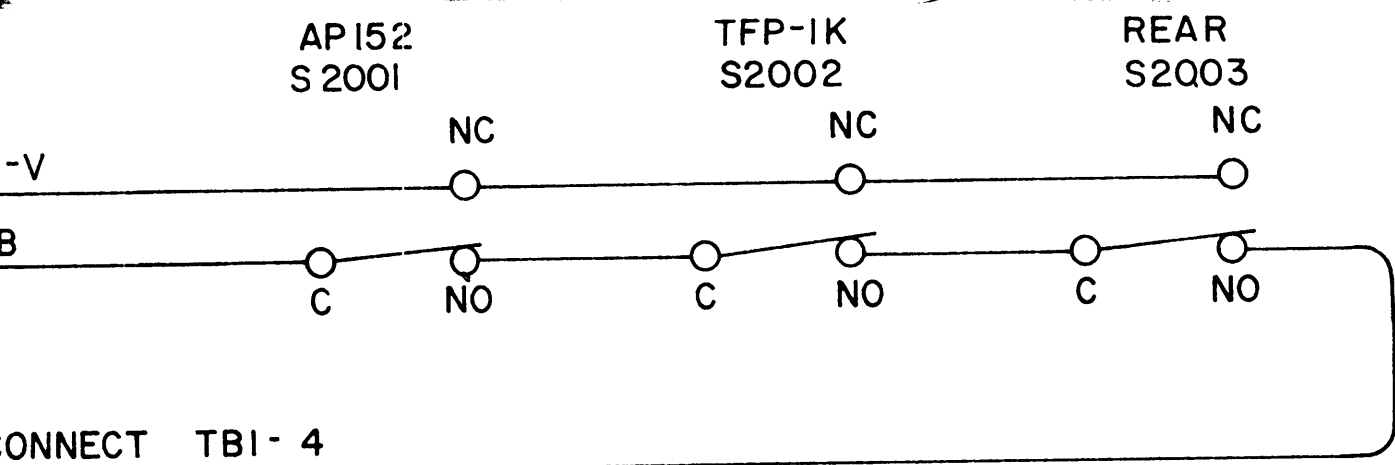
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4

3



REVISIONS						
ZONE	LTR	DESCRIPTION	DATE	E.M.N.NO	DRAFT	CHKD APPD
	A		1/17/72		W	
	A	SEE OTHER SHEETS	4/18/72	21604	GIE	8 83

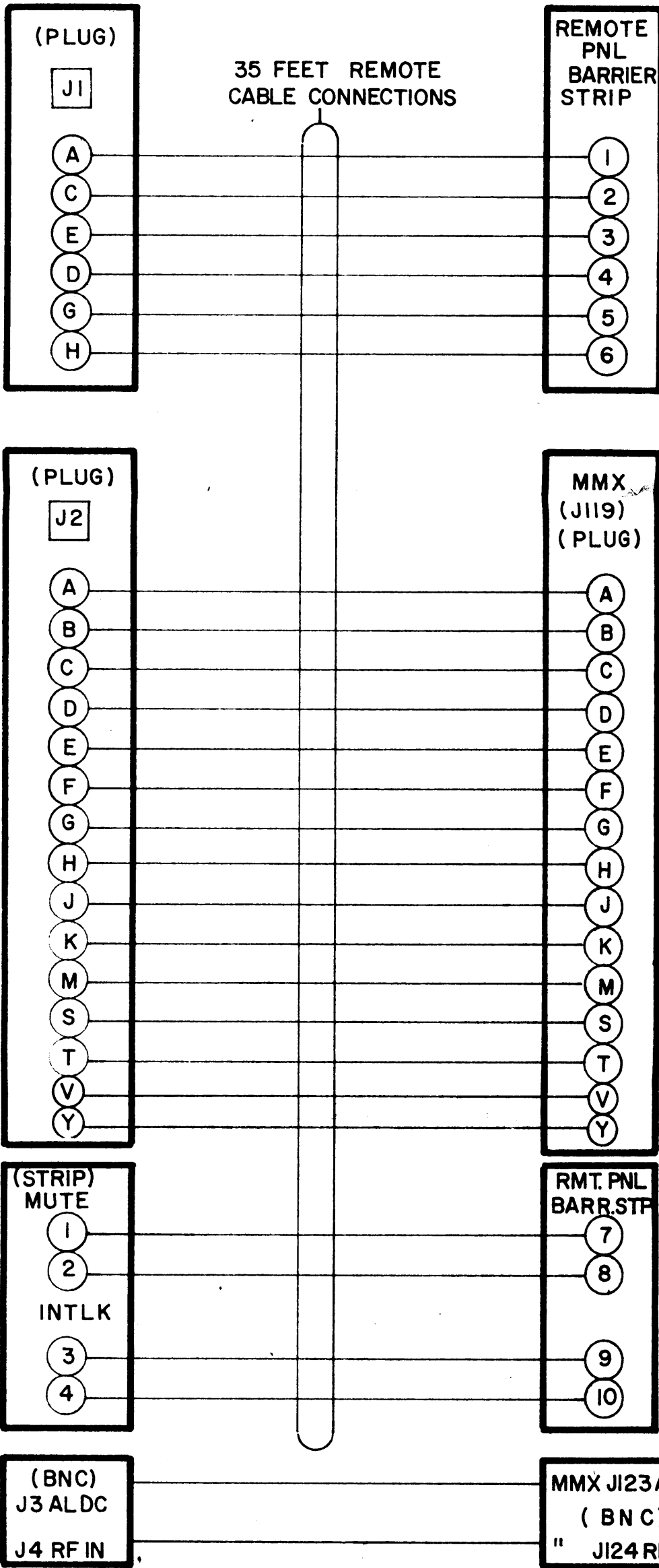


P2104
RF OUTPUT

QTY. REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
LIST OF MATERIAL				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		FINAL APPROVAL	DATE	HFT-1K Wiring Interconnect Diagram (Sheet 3 of 3)
TOLERANCES ON		MECH. DES.	DATE	
DECIMALS	FRACTIONS	ELECT. DES.	DATE	
.X ± .05	± 1/64	CHECKED	DATE	
.XX ± .01	ANGLES	DRAWN	DATE	
.XXX ± .005	± 0° -30'			
MATERIAL				
FINISH				

D

INTERCONNECT PNL.



C

B

A

QTY / UNIT	MODEL USED ON	ASS'Y NO.
APPLICATION		
CODE		

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UNLESS OTHER DIMENSIONS ARE SPECIFIED AND INCLUDE CHAMFER OR PLATE

TOLERA

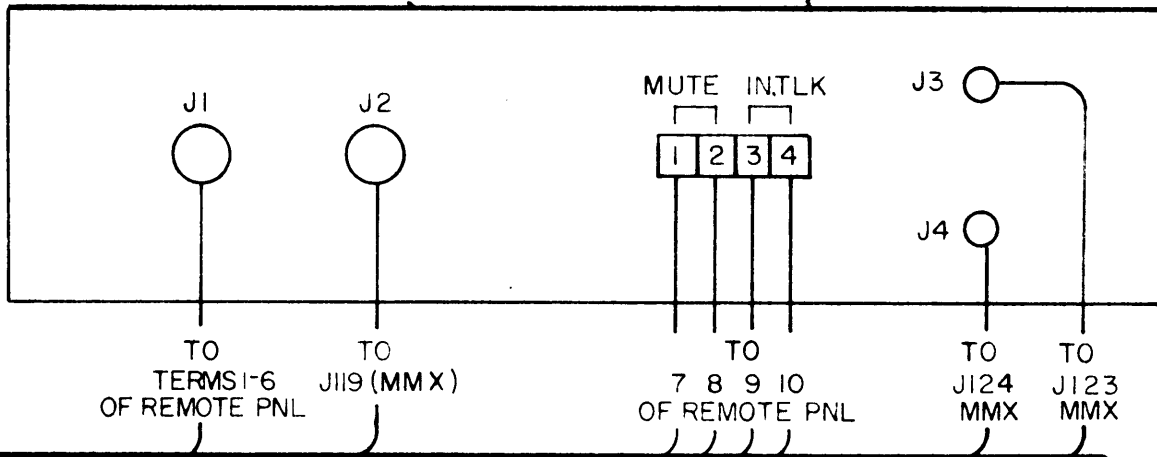
DECIMALS
 .X ± .05
 .XX ± .01
 .XXX ± .005

MATERIAL

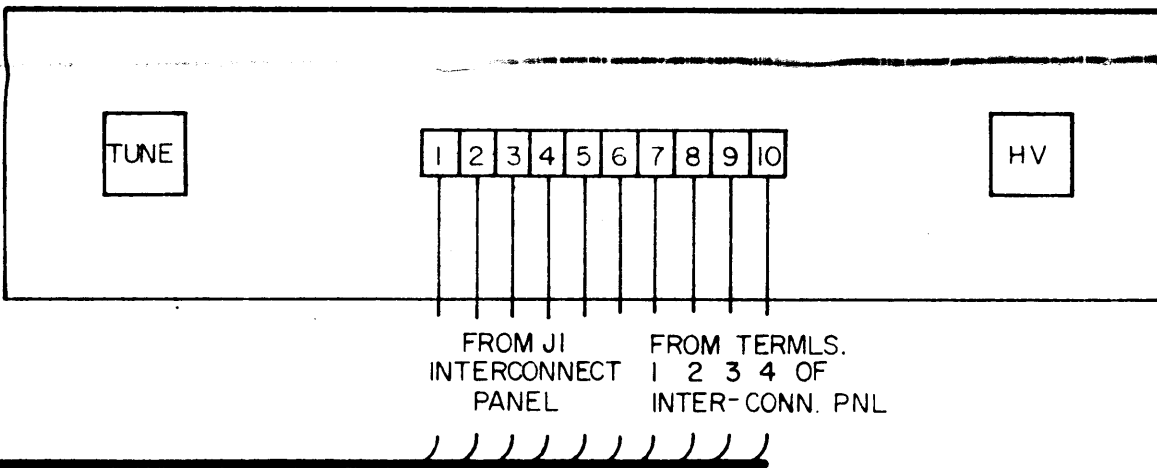
FINISH

REVISIONS						
ZONE	LTR	DESCRIPTION	DATE	E.M.N.NO	DRAFT	CHKD APPD
	0					

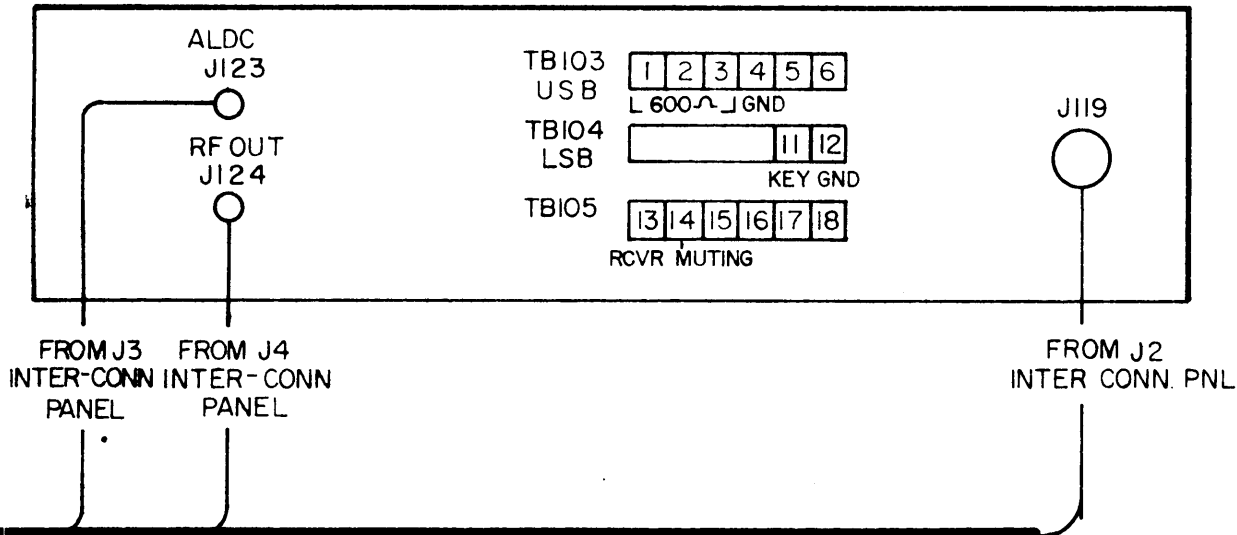
INTERCONNECT PANEL (HFTIK REAR)



REMOTE PANEL



MMX



QTY. REQ.	ITEM	PART NO.	DESCRIPTION	SYMBOL
LIST OF MATERIAL				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		FINAL APPROVAL	DATE	
TOLERANCES ON		MECH. DES.	DATE	
DECIMALS	FRACTIONS	ELECT. DES.	DATE	
.X ± .05	± 1/64	CHECKED	DATE	
.XX ± .01	ANGLES	DRAWN	DATE	
.XXX ± .005	± 0° 30'			
MATERIAL			Remote Cable	
FINISH			Interconnect Wiring Diagram	