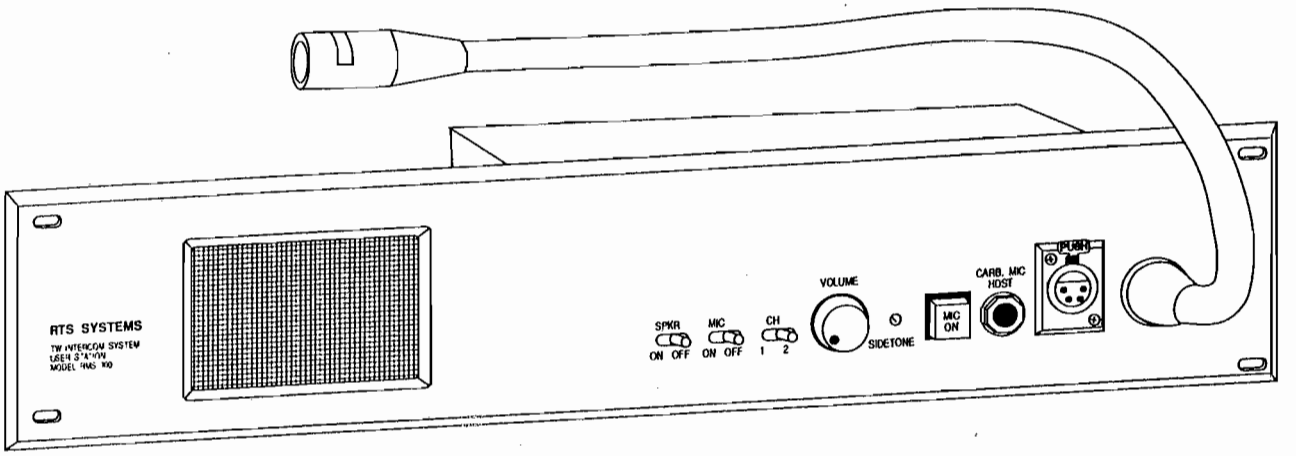
TECHNICAL DATA PACKAGE

TDP3504 / O/N 9300-3504-00
Third Edition / September 1989

MODEL RMS300

Rack Mount Speaker User Station



O/N 9000-2727-00
TW INTERCOM SYSTEM

RTS SYSTEMS
A Telex Communications Company
1100 West Chestnut Street / Burbank, California 91506 / Phone 818/566-6700 / FSCM: 60572

PROPRIETARY NOTICE

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PATENT NOTICE

The Model RMS300 contains and uses a design embodied in United States Patent No. 4,358,644: "BILATERAL CURRENT SOURCE FOR A MULTI-TERMINAL INTERCOM". This design employs a bilateral current source operated as a two-wire to four-wire converter.

TECHNICAL DATA PACKAGE, TDP 3504
Model RMS300 TW Intercom System Rack Mount Speaker User Station

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Written by: Stan Hubler
Lianne Sterling Swanson

Edited by: Sheryl Thompson

Address all communication regarding this publication to:

Director of Engineering
RTS Systems
1100 West Chestnut Street
Burbank, CA 91506 U.S.A.

UNPACKING INFORMATION AND INSPECTION

Immediately upon receipt of the equipment, inspect the shipping container and the contents carefully for any discrepancies or damage. Should there be any, notify the freight company and the dealer at once.

The shipping Model RMS300 container should contain the following components:

Ordering Number 9000-2727-00

Qty	RTS Systems Part Number	Description
1	9010-2727-00	Model RMS300
1	9300-3504-00	Technical Data Package

NOTE: Detailed information concerning Theory of Operation, Maintenance, Spare Parts and System Interconnection is available in "The TW Intercom System Technical Manual", which may be obtained through an RTS Systems Dealer or directly from through RTS Systems.

QUICK TABLE OF CONTENTS

RTS SYSTEMS' LIMITED WARRANTY

The products of RTS Systems are warranted to be free from defects in materials and workmanship for a period of one year from the date of sale.

RTS Systems sole obligation during the warranty period is to provide, without charge, parts and labor necessary to remedy covered defects appearing in products returned prepaid to RTS Systems, 1100 W. Chestnut Street, Burbank, California, 91506, U.S.A.. This warranty does not cover any defect, malfunction or failure caused beyond the control of RTS Systems, including unreasonable or negligent operation, abuse, accident, failure to follow instructions in the Technical Manual or the Owner's Manual, defective or improper associated equipment, attempts at modification and repair not authorized by RTS Systems and shipping damage. Products with their serial numbers removed or effaced are not covered by this warranty.

To obtain warranty service, follow the procedures entitled "PROCEDURE FOR RETURNS" and "SHIPPING TO MANUFACTURER FOR REPAIR OR ADJUSTMENT" listed below.

This warranty is the sole and exclusive express warranty given with respect to RTS Systems products. It is the responsibility of the user to determine before purchase that this product is suitable for the user's intended purpose.

ANY AND ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY ARE LIMITED TO THE DURATION OF THIS EXPRESS LIMITED WARRANTY.

NEITHER RTS SYSTEMS NOR THE DEALER WHO SELLS RTS SYSTEMS' PRODUCTS IS LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

RETURN SHIPPING INSTRUCTIONS

Procedure For Returns:

If a repair is necessary, contact the dealer where this unit was purchased.

If repair through the dealer is not possible, phone the RTS Systems Customer Service Department, located at the factory, as directed below. They will issue a **Return Authorization Number.**

DO NOT RETURN ANY EQUIPMENT TO THE FACTORY WITHOUT FIRST OBTAINING A RETURN AUTHORIZATION NUMBER.

Be prepared to provide your company name, address, phone number, a person to contact regarding the repair, the type and quantity of equipment, a description of the problem and the serial number(s).

Questions regarding returns for repair should be directed to:

Customer Service
RTS Systems
1100 W. Chestnut St.
Burbank CA 91506 USA
Telephone: (818) 566-6700
Telex: 194855
Telefax: (818) 843-7953

SHIPPING TO MANUFACTURER FOR REPAIR OR ADJUSTMENT

All shipments of RTS Systems equipment should be prepaid via United Parcel Service or the best available shipper. The equipment should be shipped in the original packing carton; if that is not available, use any suitable container that is rigid and of adequate size. If a substitute container is used, the equipment should be wrapped in paper and surrounded with at least four inches of excelsior or similar shock-absorbing material. All shipments should be directed to the attention of the Order Service Department and must include the Return Authorization Number.

Upon completion of any repair the equipment will be returned collect via United Parcel Service or specified shipper.

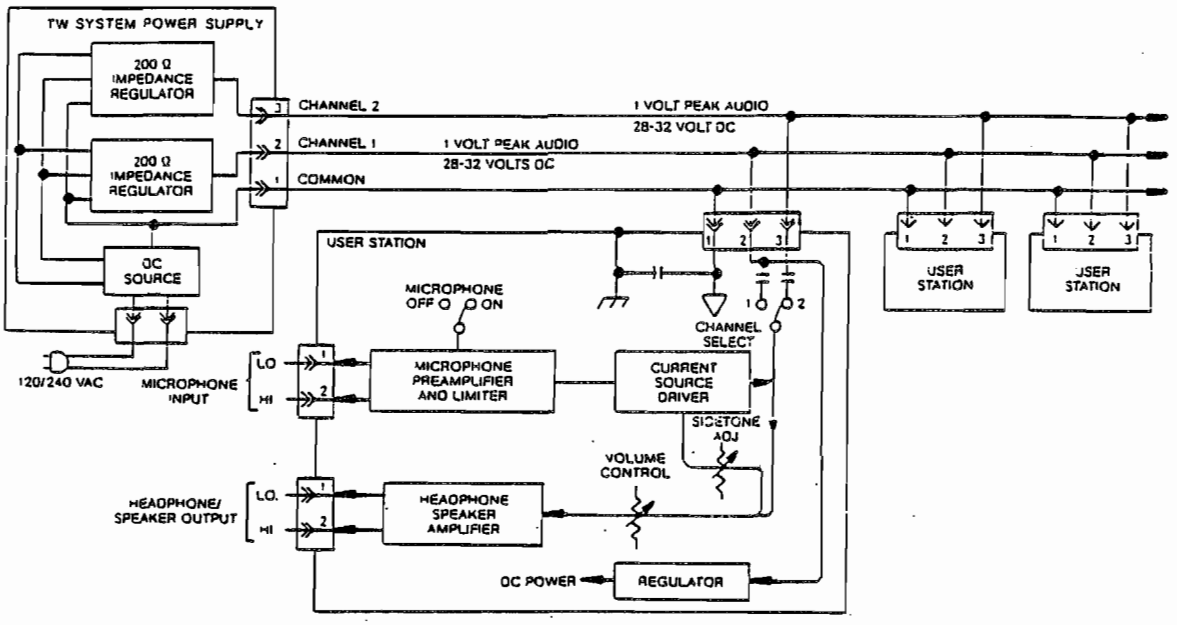

Figure 1-1
TW System Concept Block Diagram

SECTION 1: DESCRIPTION & SPECIFICATIONS

1.1 DESCRIPTION

The Model RMS300, a Rack Mount Speaker User Station, is a component used in the TW INTERCOM SYSTEM. Each User Station is a communications unit along a multi-unit conference bus.

The System Concept Block Diagram, Figure 1-1, shows User Station interconnection, and User Station connection to the system power supply.

User Station interconnection can be: 1) centrally wired, with each cable coming from a central point, or 2) distributed, where all the user stations are looped together from one to another, or 3) a combination of both. The centrally wired interconnection not only reduces interchannel crosstalk, but also allows for easier expansion into an assignable channel, multi-channel system.

The RMS300 Block Diagram, Figure 1-2, shows user station functional components, input/output connections, and controls.

The RMS300 User Station has the following functional components:

1) a microphone preamplifier with limiter
2) an electronic microphone switch
3) a "bilateral current source" line driver
4) a listen volume control
5) a headphone amplifier
6) a speaker amplifier
7) a speaker switch
8) a channel selector switch

The microphone preamplifier/limiter
converts the small microphone signal to a strong line level signal
conditions the signal strength from loud and soft talkers to be almost the same
sends the signal to the line via the microphone switch and a "bilateral current source".

The bilateral current source adds signal, via the channel select switch, to the line without affecting any signals already on the line. The bilateral current source also extracts the listen signal from the line and sends it to the headphone amplifier via the volume control. Some of the user's own voice signal ("sidetone") is also fed to the headphone amplifier.

The Channel Selector Switch selects the channel on which the user will talk and listen.

The headphone amplifier output drives the user's headphones.

The Volume Control also feeds the speaker amplifier via the speaker switch and the speaker dim network.

The user station voltage regulator takes power from channel 1, regardless of the channel selector switch setting (exception: local power option units). The regulator not only supplies regulated power to the user station, but also prevents unwanted interaction between the user station and theat intercom line which is supplying the power. Because the regulator takes power from channel 1, channel 2 can be expanded into many channels by using a switch and, for each channel, a separate wire and a termination network consisting of a 200 ohm resistor and a 10 microfarad capacitor in series. (See the Application Diagrams in the TW Intercom Systems Technical Manual).

A TW System Power Supply terminates a line with 200 ohms.

1.1.2 Operational Controls

The RMS300 User Station has the following controls, described and shown in Section 3:

1) Channel Select Switch
2) Latching-action MICrophone ON-OFF toggle switch.
3) Momentary-action MICrophone ON-OFF pushbutton switch.
4) Speaker/Headphone VOLUME Control
5) CALL LIGHT switch/indicator
6) SPeaKeR ON/OFF switch
7) SIDETONE Adjustment

1.1.3 Connection, Inputs and Outputs

The RMS300 User Station has four input/output connectors:

1) DYNamic MICrophone type HeaDSeT or handset
2) CARBON MICrophone type headset or handset
3) Line INPUT (ties the station to the intercom line
4) LOOP/EXTension (allows another station to access the line through the first station. Also called loop-through.)

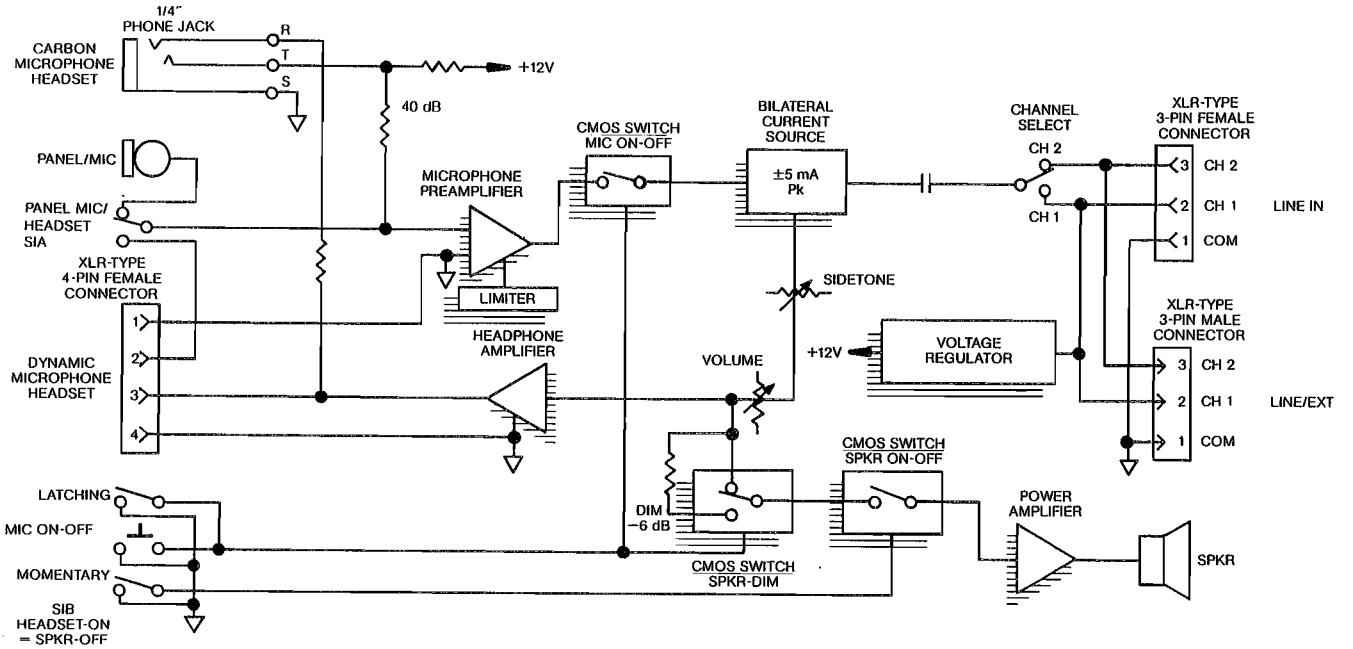

Figure 1-2
RMS300 Block Diagram

1.2 MODEL RMS300 SPECIFICATIONS

OVERALL SYSTEM SPECIFICATIONS

Audio Line Voltage, Nominal	1 volt, peak (0 dBm voltage-equivalent)
Average Speech Level Range	-20 dBV to -10 dBV
Absolute Maximum Speech Level	3 volts, peak (linear limit)
Audio Line Impedance, Nominal	200 50 ohms, 75 Hz to 20kHz System will continue to operate from 50 ohms to 300 ohms
System DC Line Voltage	
Nominal	32 volts DC
Operational Range	18 to 35 volts DC
Steady state without damage	-1.5 volts to 36 volts DC
Transient	200 volts, 8 milliseconds or less (after this time, power supply and user station fuses will open)
System DC Current	
Quiescent (per station)	10 to 40 milliamps
Dynamic (per station)	50 milliamps (w/25 ohm headphones) 70 milliamps (w/25 ohm headphones and lights) 100 milliamps (w/8 ohm speaker)
Start-Up Current	1.25 amperes, 50 units, all kinds
Fault Current	4.0 amperes, power supply at voltage >12 volts 1.0 amperes, power supply at voltage <12 volts
Operating Distances	
Maximum DC limit	5,000 ft. distance along cable, power supply to single station #22 gauge wire -DC voltage drop limitation
Maximum AC limit	10,000 ft. dry pair, power supply at each end, #22 gauge wire
System Capacitance	0.3 microfarads (cumulative effect of 10,000 ft. of Maximum cable at 30 picofarads/foot)

USER STATION SPECIFICATIONS

Input DC voltage:	20 to 35 volts DC, operating from -200 to +36 volts DC without damage
DC Current	Quiescent, 10 to 40 milliamps 50 milliamps, typical (w/25 ohm headphones) 75 milliamps, typical (w/25 ohm headphones + light) 100 milliamps, typical(w/8 ohm speaker
Impedance across line:	10,000 ohms typical; 2,000 ohms worst case dynamic operation
Ambient Temperature Range	Operating: 0 C to 60 C Storage: -55 C to 125 C
Noise contribution to 200 ohm line:	One Unit: -75 dBu Ten Unit: -67 dBu

Microphone Preamplifier

Input impedance*	470 ohms
Source Impedance*	200 ohms, nominal
Maximum Input Level*	150 millivolts
Voltage gain:	54 dB
Frequency Response	100 Hz to 10,000 Hz, 3dB
Limiter range	50 dB
Carbon Mic Excitation Current	10 milliamps, nominal

*Dynamic Microphone Input

Current Source

Transfer ratio:	5 milliamps/1.5 volts
Output:	5 milliamps into 200 ohms

Headphone Amplifier

Overall voltage gain	24 dB
Overall voltage gain	9 volts peak-to-peak into 25 ohms
Output power:	Headset station: 1/2 watt into 25 ohms Speaker Station: 2 watts into 8 ohms
Frequency Response	150 Hz to 8,000 Hz, 3 dB
Headphone Impedance Range	25 to 600 ohms
Sidetone Adjustment Range	20 dB to full on
Call Light:	Signaling Frequency 20,000 kHz 3 dB Flashing Rate 5 Hz 2 Hz
Dimensions	3.468" H x 1.5" W x 3.0" D 13.21 x 3.81 x 7.62 centimeters

SECTION 2: INSTALLATION

2.1 MECHANICAL INSTALLATION

The Model RMS300 mounts in an EIA standard 19-inch equipment rack/enclosure, and is one rack unit high. Allow a minimum of 4 inches (101.6 mm) for the panel microphone and controls in front. Additional depth should be allowed for the cabling in the rear. There are no ventilation requirements.

2.1.1 Headset Requirements

Dynamic microphone headset type:
50 to 1000 ohm microphone
25 to 1000 ohm headphone(s)

High efficiency headphones are recommended because less line current is required from the power supply. Use headphones with an impedance of 25 ohms or greater. Low impedance 8 ohm headphones are not recommended. Headphones with good acoustic isolation (20 to 40dB) improve communication in high ambient noise environments, and allow the user to use the headphones at a less tiring, lower volume.

In the headset connecting cable, prevent coupling between the microphone and headphone leads by using a shielded, twisted pair for the microphone, and a separate, twisted pair for the headphones. Do not allow headphone ground to contact microphone ground or shield. Tie the shield to microphone ground or "mic low". The headset cable can be made longer when the microphone and headphone pairs are physically separated. The wider the separation, the longer the cable length which may be used. Estimated maximum usable headphone cable lengths are as follows:

Single cable, Two shielded twisted pair:	10 ft. (3 m).
Dual ribbed cable, Two shielded twisted pair:	30 ft. (9 m).

2.2 ELECTRICAL

2.2.1 Power

The RMS300 receives electrical power from either:

(1) a system power supply (26 to 32 volts DC on line connector pins 2 (+) and 1 (com) (1 or two channel operation); or

(2) a local power supply option (14 to 26 volts DC). A user station requires 18 to 33 volts to be a 10,000 ohm bridging impedance across the powering line, but the station can otherwise operate (as in the local power option) from 12 to 33 volts.

When using a local power supply option, each channel requires a 200 ohm load. See Figure 1-1. It is necessary to do this only once for each channel string.

Model RMS300 current requirements range from 30 to 100 mA; Since, in (1), above, the power and communications signals may share conductors, it may be necessary to overcome power losses by increasing conductor size over long runs (over 1/2 mile (804 m)). Typical operating distance for one RMS300 station is 1/2 mile (.80 km), and for one RMS300-L, 1/3 mile (0.53 km) using a normal # 22 AWG conductor size.

2.2.2 Signal

The required number of conductors to interconnect user stations is as follows (For standard unbalanced TW user stations):

# of Channels	# of Conductors
1	2 *
1	3 **
2	3 ***

* Using a TW power supply (and possibly operating on a TW system).

** Using a non-TW power supply.

*** Using a TW power supply and operating on a TW two channel system.

Use shielded cable to interconnect user stations in areas of possible electrical interference, (areas such as those near: digital equipment, high current primary power conductors ("mains"), transformers, transmitters, and lamp dimmers).

Most two channel applications may use either standard microphone cable (for convenience) or two-twisted-pair cable (considerably less expensive than microphone cable). Standard wire size for the TW Intercom System is #22 gauge wire for interconnection. For permanent installations it is recommended that each channel should have individually shielded twisted pair of at least #22 gauge wire, such as Belden #8723 for 2 channels. Connect the shield to system common **but do not tie the shield to chassis, earth or connector shell ground.**

2.2.3 Crosstalk Control

In the TW Intercom System all channels share a common circuit ground return. Crosstalk due to common ground resistance can be lowered by reducing the common ground resistance. Reduction of ground resistance can occur as a side benefit of using shielded cable, since the shield drains can be tied together and electrically parallel the circuit ground. Another way of lowering resistive crosstalk is to "homerun" all interconnecting cables to a central or "home" location. In this configuration, the ground path is short and the corresponding ground resistance is small. Crosstalk due to mutual capacitance occurs when the signal on one wire of a twisted pair couples into the other wire. Separating the two conductors with a shield greatly reduces the capacitive crosstalk.

To reduce both capacitive and resistive crosstalk and to afford a degree of RF and electrostatic shielding, use a cable which has a shielded twisted pair for each channel. Each pair consists of a conductor for the channel, a conductor for circuit ground return and a shield around the two conductors. The shield is accessed via a drain conductor. This drain conductor and the shield can augment the circuit grounds and thus lower the ground resistance.

Routing the TW Intercom System cables along the same ductways and pathways as power cabling can increase the noise and hum levels.

2.2.4 Moisture / Contamination Protection

When using equipment in the rain, always protect the equipment with plastic covers----also, make sure all cable connectors are lifted out of the mud or snow and protected with plastic bags. Water, mud and snow in connectors can cause considerable audible noise.

2.2.5 Hum Prevention

Prevent inducing hum into the system by not locating user stations near hum sources such as power transformers, electrical switch panels, lamp dimmers or TV cameras. When the microphone switch is turned on, the dynamic microphone acts as a sensitive antenna for hum sources.

2.4 USER STATION CONNECTIONS

Dynamic Microphone headset connector:
XLR-4-31 type receptacle (J1)
Input level: -55 dbu nominal
Output level to headphone: 10 volts peak-to-peak open circuit.

Pin 1 - Microphone low
Pin 2 - Microphone high
Pin 3 - Headphone low
Pin 4 - Headphone high

Carbon Microphone headset connector: Standard 1/4" Phone Jack (J2)
Input level: -15 dbu nominal

Output to Headphone: 10 volts peak-to-peak open circuit.

Tip - Carbon Microphone
Ring - Headphone
Sleeve - Common/ground

Line input connectors: (J3/J4)

XLR-3-31/32 types (for two-channels)

Pin 1 - Common (low side of line)
Pin 2 - Channel 1
Pin 3 - Channel 2

XLR-4-31/32 types (for three-Channels)

Pin 1 - Channel 1
Pin 2 - Channel 2
Pin 3 - Channel 3
Pin 4 - Common (low side of line)

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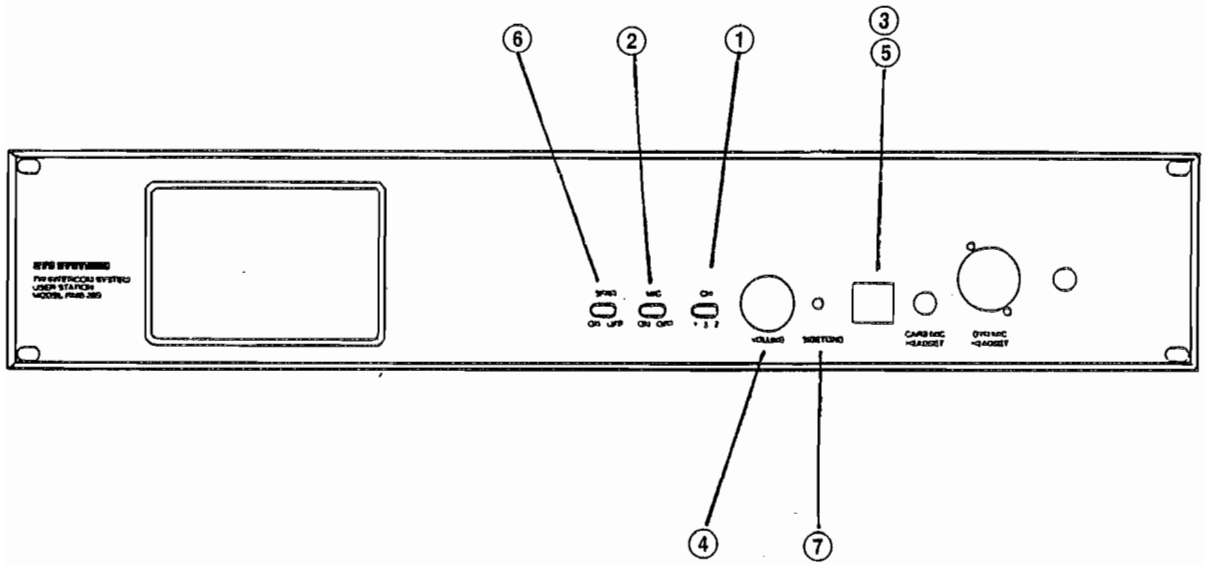


Figure 3-1
Model RMS300 Front Panel

SECTION 3: OPERATION

3.1 Operating Controls (See Figure 3-1)

Table 3-1 below lists the Model RMS300 operating controls. The reference numbers in Table 3-1 correspond to the circled numbers in Figure 3-1.

Table 3-1

Ref. No.	Name	Description
1	**Channel Select Switch**	Selects one of two channels (standard) or one of three channels (optional). The Call Light Option transmitter and receiver operate on the channel selected by this switch. The CHannel Select Switch is omitted in the Single Channel (SC) option.
2	**MIC ON-OFF Toggle**	A latching-action switch. Turning on the microphone slightly "dims" or attenuates the speaker.
3	**MIC ON-OFF Pushbutton**	A momentary-action pushbutton switch. Not standard with the Call Light Option. Turning on the microphone here also slightly "dims" or attenuates the speaker.
4	**VOLUME**	A speaker/headphone volume control. May be a dual control for the Dual Listen (DL) or Program (E) Option. **CAUTION: ALWAYS TURN THIS CONTROL ALL THE WAY COUNTERCLOCKWISE (TO THE LEFT) BEFORE PLUGGING IN THE HEADSET.**
5	**Call Light Indicator Switch**	This switch/indicator appears in place of the MIC ON-OFF PUSHBUTTON (#3) on user stations with the "Call Light" option. When depressed, this switch adds a 20 kilohertz signal to the TW intercom line on the same channel that the CHannel Select Switch has been set. This signal activates the Call Light receiver on all user stations which are switched to the same channel.
6	**SPeaKeR ON/OFF**	This switch: 1) turns on the speaker, 2) disables the headset microphone and 3) enables the panel microphone.
7	**SIDETONE**	The screwdriver-adjusted SIDETONE control sets the "sidetone" level during headset operation and sets the "balance" nulling during speaker/panel microphone operation.

To adjust the SIDETONE control for speaker operation: 1) turn ON the SPeaKeR switch, 2) turn ON the MICrophone switch, 3) set the VOLUME control to about 50%, 4) hum into the panel microphone and adjust SIDETONE for minimum sound through the loudspeaker.

To adjust the SIDETONE control for headset operation: 1) turn OFF the SPeaKeR switch, 2) turn ON the MICrophoone switch, and 3) plug in a headset, 4) set the VOLUME control to about 50%, 5) turn the SIDETONE control fully counterclockwise, the adjust it clockwise for a comfortable level of your own voice while talking into the headset microphone.

EN5541

Installation, Local Power Option, RMS300 and SPK300

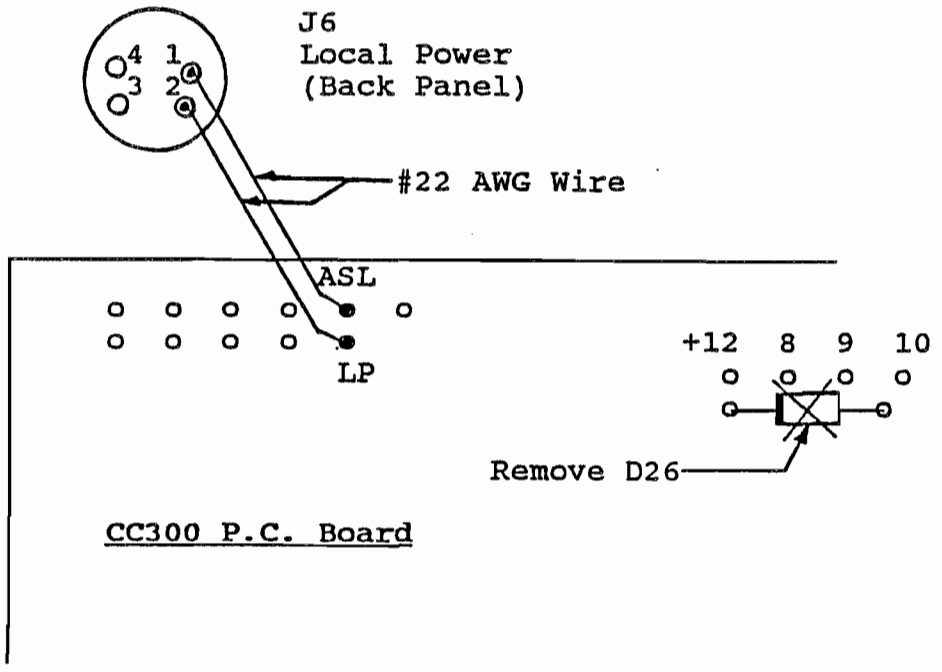
The RMS300 and SPK300 can be powered from an external (local) power supply of between 18 to 33 volts DC. The local power option, as supplied by RTS Systems uses a power supply assembly (RTS #9020-4425-00), which is 117 VAC 60 Hz in, 24 VDC 400mA out.

To modify the RMS300 or SPK300 for local power operation:

1. Remove diode D26 from the CC300 P. C. board.

2. Add J6, 4 pin jack (Calrad #30-454, RTS #2013-0005-00), to the back panel. Wire as shown in the diagram below. Pin 1= common, Pin 2= external supply + (18 to 33 VDC).

3. Wire P6, 4 pin plug (Calrad #30-453, RTS #2013-0016-00) to the external supply: Pin 1= common, Pin 2= external supply +. Plug P6 into J6 on the RMS300 or SPK300 back panel. Note: If using RTS local power option kit 9002-5541-00, the external supply will already be wired to P6.



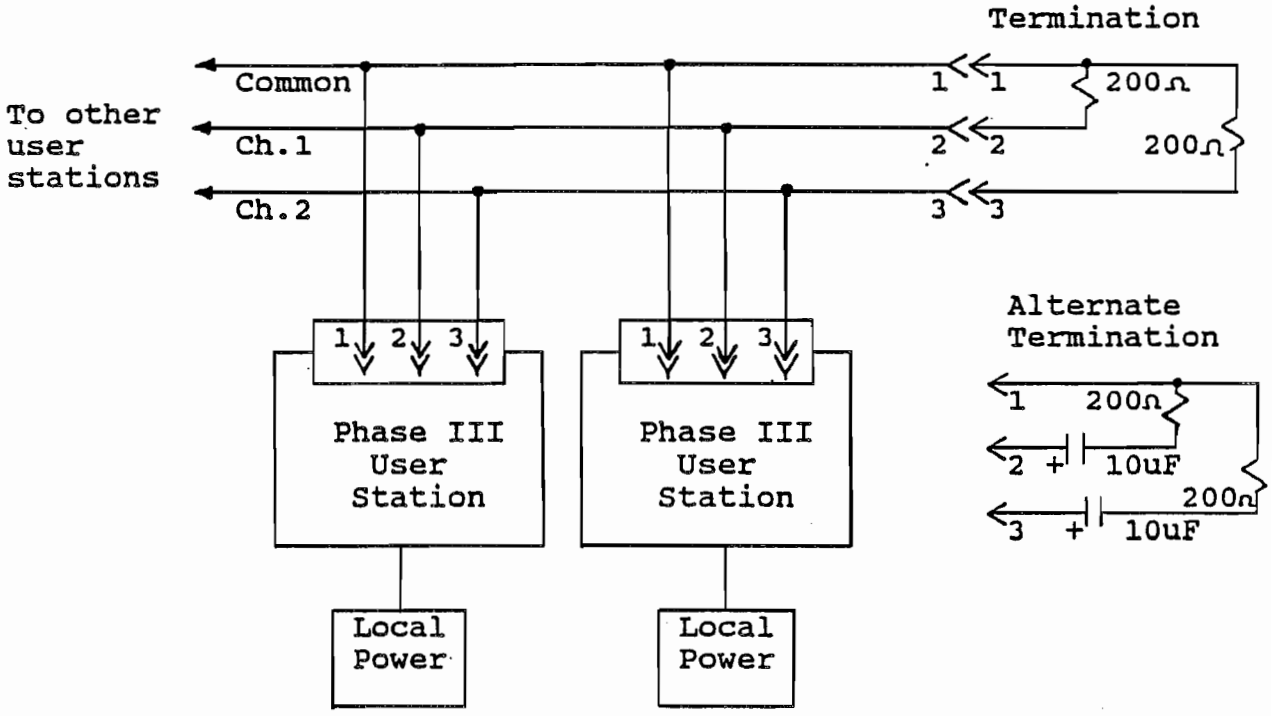
When a system is constructed using locally powered user stations, it is essential that all channels are terminated with a 200 ohm system termination. System terminations include:

1) An RTS Systems TW power supply*,

2) A discrete 200 ohm resistor for each locally supplied channel,

3) When application of a D.C. voltage is expected or possible, a 10 microfarad/ 50 volt capacitor in series with the 200 ohm resistor for each locally supplied channel.

See diagram below.



*Examples of RTS Systems power supplies are: PS8, PS10, PS30, PS31, PS50, and PS60.

SECTION 4: DRAWINGS

Model RMS300

RTS Systems Document Number	Title
SD3487	Servicing Diagram, Light Signaling Circuit CC285
SD3585	Servicing Diagram, Model RMS300/SPK300
SD2712	Schematic Diagram, CC300, page 1 of 3
SD2712	Schematic Diagram, CC300, page 2 of 3
SD2712	Schematic Diagram, CC300, page 3 of 3
	Wiring for External Microphones
WD2712	Wiring Diagram, pg. 1 of 11
	SPK/RMS300 Standard -L Option and Local Power Option
WD2712	Wiring Diagram, pg. 2 of 11
	SPK/RMS300 3CH and 3CH-L Options
WD2712	Wiring Diagram, pg. 3 of 11
	SPK/RMS300-DL
WD2712	Wiring Diagram, pg. 4 of 11
	SPK/RMS300, IFB Option
WD2712	Wiring Diagram, pg. 5 of 11
	SPK/RMS300-DL-3CH
WD2712	Wiring Diagram, pg. 6 of 11
	SPK/RMS300 Program Input Option
WD2712	Wiring Diagram, pg. 7 of 11
	SPK/RMS300 DL (Dual Listen) - E (Program Input)
WD2712	Wiring Diagram, pg. 8 of 11
	SPK/RMS300-USM-B
WD2712	Wiring Diagram, pg. 9 of 11
	SPK/RMS300-VI-3CH-VI
WD2712	Wiring Diagram, pg. 10 of 11
	SPK/RMS300-DL-MS6
WD2712	Wiring Diagram, pg. 11 of 11
	SPK/RMS300 Program Input and USMB Options

Zone	Rev	Description	Date	Apprv
		SEE SHEET 2		

PANEL MIC
PANEL MIC/ HEADSET SELECT S1A
N.C.
N.O.
DYNAMIC MIC HEADSET CONNECTOR
MIC HI
MIC LO
DYN MIC HI
DYN MIC LO
MIC PREAMP
MIC GAIN OPT. ONLY
ELECT. MIC SW
SPARE DL,3CH-DL OPTIONS ONLY
MS REMOTE MIC SW
S2 MIC SWITCH
OFF
ON
S3 MOMENTARY MIC
HEADSET CONNECTOR/ HEADPHONE OUTPUT
HPHI
HPLO
42TU048
HEADPHONE AMP
LM386
S4 CHANNEL SELECT SWITCH
CH.1
CH.2
DL OPT.
DL,E OPTIONS ONLY
DL, 3CH-DL OPTIONS
SQUAWK, DL,E OPTIONS
TO E6
TO E8
2WB OPT.
TO OPTIONAL CONNECTOR ON REAR PANEL (SQUAWK OPT.)
SQUAWK, DL-VI OPT.
SQUAWK ADJ.
SPKR. VOL. ATTENUATE SW.
SPKR. SW.
VOLUME CONTROL
SPEAKER SWITCH S1B
SPEAKER
GND
SPS
SDL
SQH
SQL
LISTEN SWITCHES
DL,3-CH-DL OPTIONS ONLY
LINH
TINH
CAM ISO
SPEAKER AMP
REMOTE SPKR. GROUND
DL,-3CH-DL OPTIONS
TALK SELECT SWITCHES
DL,3CH-DL,E,SQUAWK OPTIONS
SIDETONE
10K TRIM CH.1
10K TRIM CH.2
10K TRIM CH.3
-DL OPT.
DL,-3CH-DL OPTIONS ONLY
3CH-DL OPTIONS ONLY
DL,3CH-DL OPTION ONLY
JMP1
JMP2
JMP3
JMP4
JMP5
JMP6
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JMP8
JMP9
JMP10
JMP11
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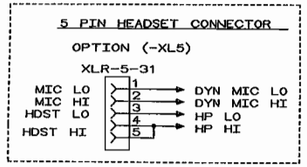
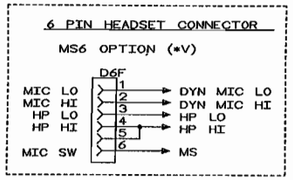
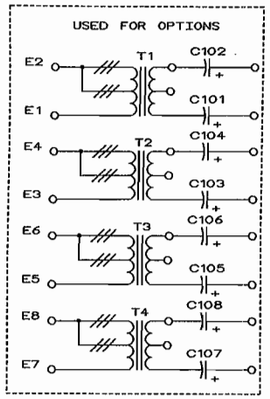
JMP89
JMP90
JMP91
JMP92
JMP93
JMP94
JMP95
JMP96
JMP97
JMP98
JMP99
JMP100
J8 CARBON MIC JACK
QUIESCENT CURRENT: 40mA NO LIGHT, 50mA WITH LIGHT
DYNAMIC CURRENT: 30 TO 150mA
+12 SOURCE
+4.7 SOURCE
+18 – +33VDC LOCAL POWER INPUT
SEE SHEET 2 FOR NOTES

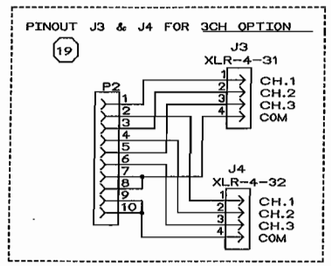
CONTRACT NO. SERIES 300	RTS SYSTEMS Burbank, California
Drawn R.NEILSON	SCHEMATIC DIAGRAM , CC-300 FOR SPK-300 , RMS-300
Checked	
Issued	
SIZE D	FSCM 60572
DWG NO	SD2712
REV	AG
DATE 8-18-89	S2712G01
SHEET	1 of 3

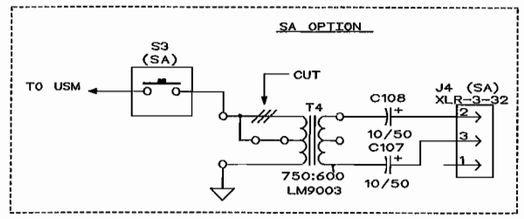
Zone	Rev	Description	Date	Apprv
	AE	REVISED & REDRAWN	8-18-89	
	AF	REVISED PER ECO#2624	9-27-89	
	AG	SHT 3,ZONE B-5, ADDED COLOR WHITE PER ECO#3100	7/27/90	KB.

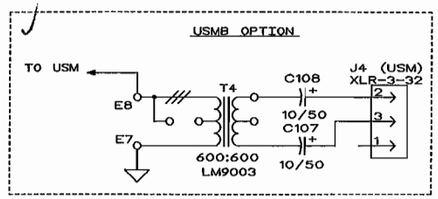


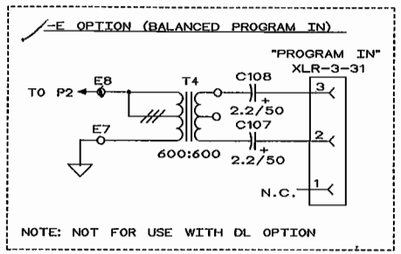




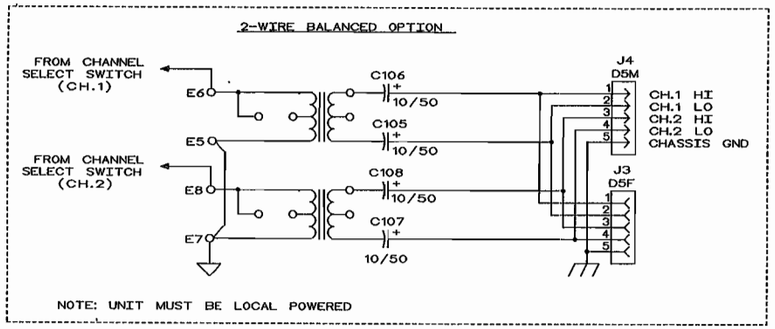




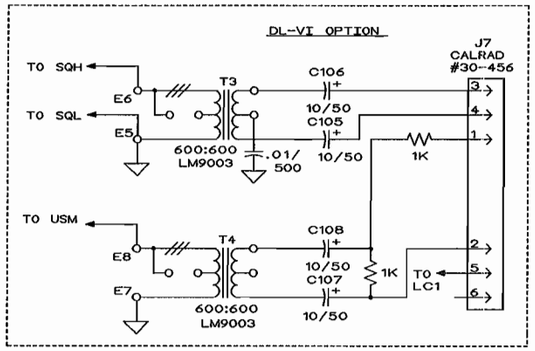


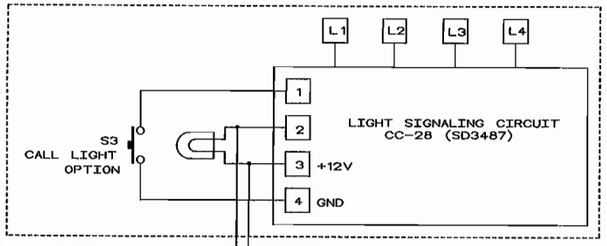


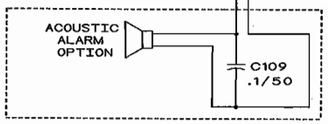
NOTE: NOT FOR USE WITH DL OPTION

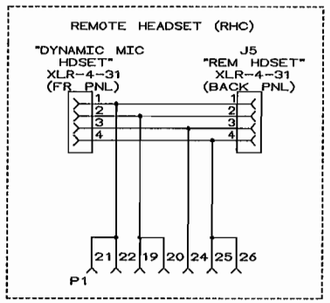


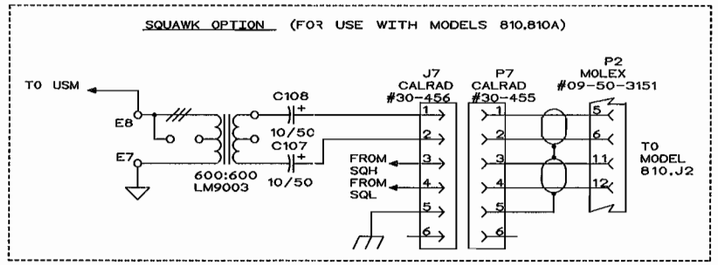
NOTE: UNIT MUST BE LOCAL POWERED

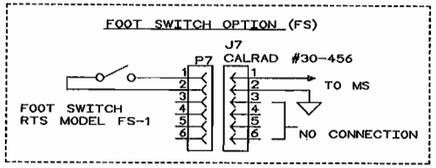


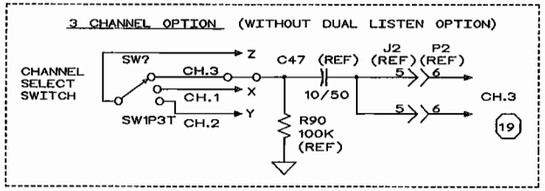


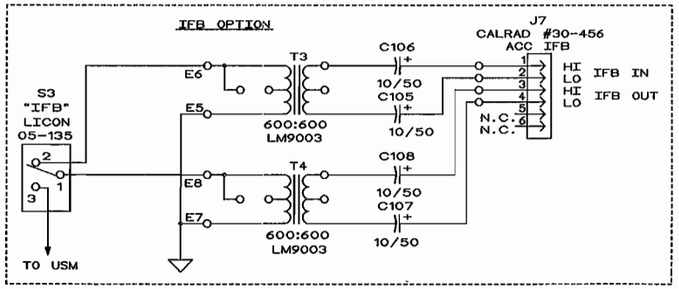


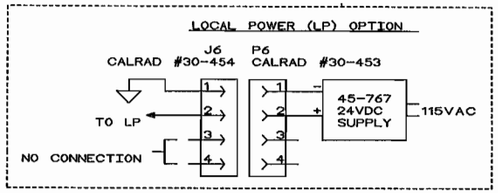


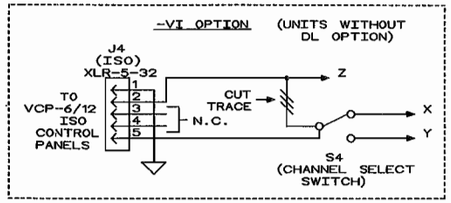












(26) IN UNITS WITH CALL LIGHT OPTIONS (-L), MOMENTARY MIC SWITCH IS NOT INSTALLED.

(25) FOR 3CH-DL OPTION: REMOVE W2 WHEN AUX. LISTEN IS SET TO MONITOR CHANNEL 1, REMOVE W4 WHEN AUX. LISTEN IS SET TO MONITOR CHANNEL 2. CUT TRACE BETWEEN U4-3 & L3 WHEN AUX. LISTEN IS SET TO MONITOR CHANNEL 3.

(24) IN UNITS BUILT PRIOR TO 1-3-88, THE CARBON MIC WAS ACTIVE IN BOTH THE "PANEL" & "HEADSET" SWITCH POSITIONS. IN UNITS BUILT AFTER 3-1-88, THE CARBON MIC IS ACTIVE ONLY IN THE "HEADSET" POSITION.

(23) FOR LOCAL POWER OPTION, REMOVE D26.

(22) CUT TRACE FOR SQUAWK OPTION. ADD JUMPER BETWEEN SQ1 & SQ2.

(21) FOR SQUAWK OPTION, CHANGE R99 TO 10K.

(20) CUT TRACE FOR E (BALANCED PROGRAM IN) OPTION, SQUAWK OPTION.

(19) ON 3-CH (3-CHANNEL) OPTIONS, SEE DETAIL FOR PIN OUT OF INPUT (J3) AND LOOP/EXT (J4) CONNECTORS.

(18) FOR E (BALANCED PROGRAM IN), SQUAWK OPTIONS: JMP2 IS JUMPERED TO JMPE. DELETE JUMPER FROM JMP1 TO JMP2.

17. FOR DL-VI OPTION (DUAL LISTEN WITH VIDEO ISO), JUMPER TC1 TO LC1.

(16) ALTERNATE PIN OUT NOTED FOR 7307 I.C. (APPLIES TO UNITS MANUFACTURED PRIOR TO JANUARY, 1984).

(15) DELETE P2 FOR 2-WIRE BALANCED OPTION.

(14) CUT TRACE FOR 2-WIRE BALANCED OPTION.

13. JUMPER P1 TO B1 & P2 TO B2 FOR DL (DUAL LISTEN) OPTION.

(12) CHANGE R24 TO 22K FOR DL (DUAL LISTEN) OPTION & SQUAWK OPTION.

(11) REMOVE FOR DL (DUAL LISTEN) OPTION, SQUAWK OPTIONS.

(10) CUT TRACES FOR DL (DUAL LISTEN) OPTION.

(9) REMOVE R34 WHEN USING R33.

8. CUTTABLE TRACES ARE SHOWN ~~~~.

(7) ON STANDARD SPK UNITS, PANEL MIC IS DELETED, R15 REMOVED, AND S1A JUMPERED N.C. TO N.O.

(6) SPK UNITS HAVE T5 INSTALLED. RMS UNITS HAVE JUMPERS ACROSS T5 PADS AS SHOWN BY DASHED LINES. (T5 IS DELETED).

(5) IN THE STANDARD CONFIGURATION U3,U4,U5,U7,U8 & U10 ARE NOT USED. U3 PINS 5,6 & 7 ARE JUMPERED TOGETHER, JMP1 IS JUMPERED TO JMP2, AND B1 IS JUMPERED TO P1.

(4) R31-CHANGE TO 10K WHEN U3 IS INSTALLED (DL,E, & SQUAWK OPTIONS).

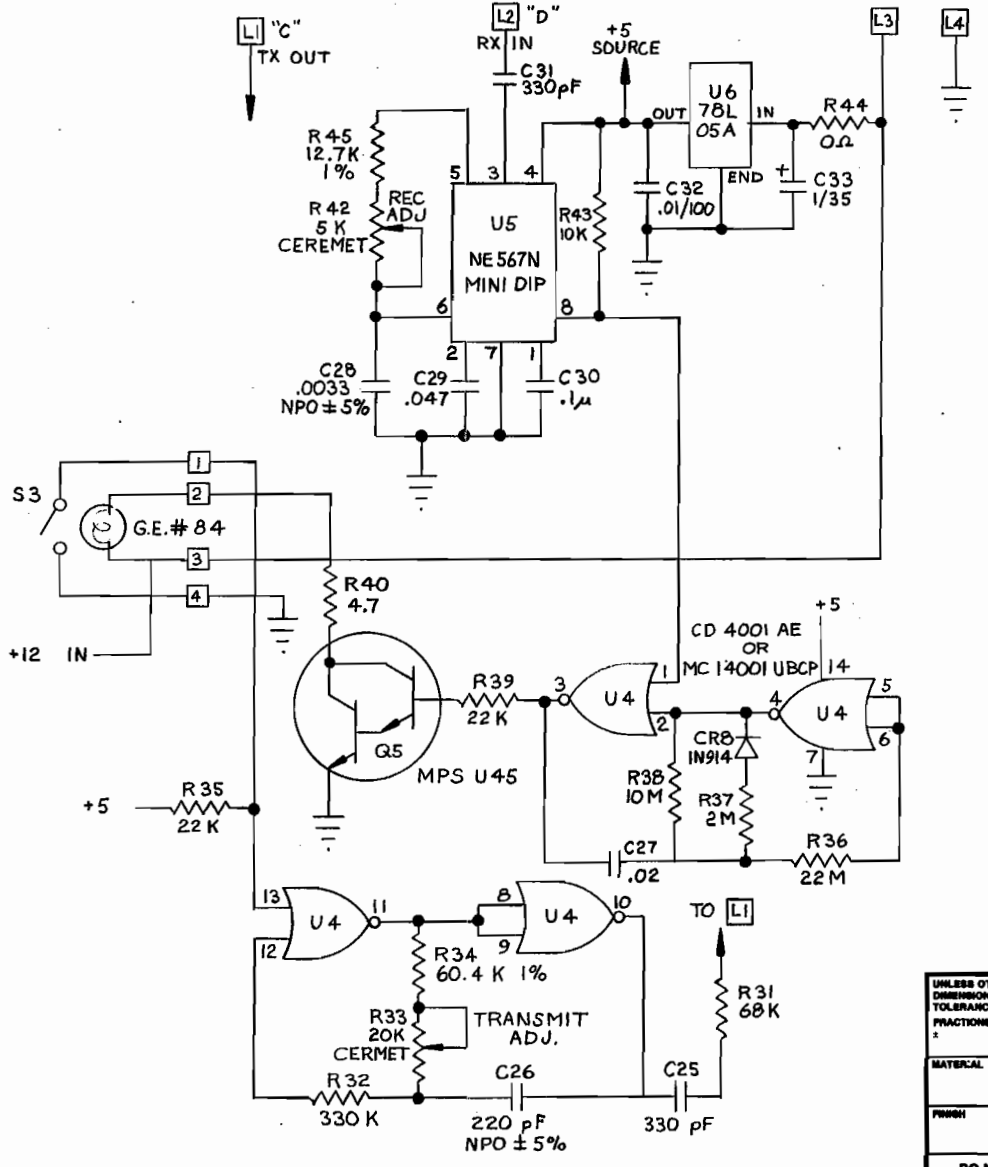
(3) THESE PARTS ARE ALTERNATE BIAS NETWORK FOR ALTERNATE CONDENSER MIC. REMOVE R3 & C1 WHEN USING THIS NETWORK.

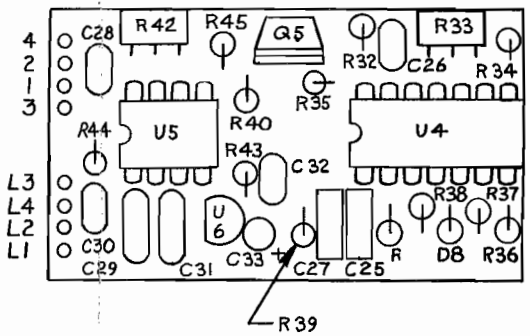
2. CAPACITANCE VALUES ARE SHOWN MICROFARADS/VOLTS.

1. ALL RESISTORS ARE CARBON FILM, 1/4 WATT, +/-5%.

NOTES: UNLESS OTHERWISE SPECIFIED

CONTRACT NO. SERIES 300	RTS SYSTEMS Burbank, California		
Drawn R.NEILSON	SCHEMATIC DIAGRAM , CC-300 FOR SPK-300 , RMS-300		
Checked			
Issued	SIZE D	FSCM 60572	DWG NO SD2712 REV AG
	DATE 8-18-89	S2712G02	SHEET 2 of 3





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	CHANGE VALUE OF R37 WAS 10M PER ECO # 1893	4-13-87	
	B	ADDED LOCATION OF PADS 1-4 & L1-L4	8-12-87	

NOTES : UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO.	RTS SYSTEMS BURBANK, CALIFORNIA
	APPROVALS / DATE	SERVICING DIAGRAM, LIGHT SIGNALING CIRCUIT, CC-28, PHASE THREE CONFIGURATION.
MATERIAL	DRAWN D. MARTINEZ 9-7-83	
FINISH	CHECKED	SIZE B · FSCM NO. 60572 · DWG. NO. SD 3487 · REV. B
DO NOT SCALE DRAWING	ISSUED	SCALE · SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	ADDED NOTE 3	10-10-86	
	B	C3 WAS .01, ADDED ARROW TO R1 ECO 2090	2-2-88	
	C	ADDED NOTE 4 PER ECO # 2149	3-14-88	
	D	ADDED NOTES 5,6,7 PER ECO #2229	5-20-88	
	E	REVISED S1A PER ECO 2338 RFC	11-7-88	
	F	ADDED VALUES TO C12 & C15 PER ECO # 2845	2-9-90	

CARBON MIC
MIC
H.P.
C48 0.1
R96 100Ω
J1
PANEL MIC
S1A PANEL MIC/ HEADSET SELECT (PART OF SPEAKER SWITCH, SEE S1B)
N.C.
N.O.
MIC HI
MIC LO
HEADSET CONN. DYNAMIC MIC
R3 2.2K
R6 1K
R7 1K
C1 47/10
C4 47/10
C5 2.2/10
R15 470Ω
R8 470Ω
+4.7
LIMITER
D2 IN6263
D3 IN6263
R28 5.1M
C11 0.1
R32 22K
C21 0.1
R37 10K TRIM
R17 820Ω
+12
C8 .033
D1 IN6263
R20 68K
MIC PRE
C12 47/16
R29 10K
Q1 J305
C15 47pF
R34 220K
C16 22pF
U1
R18 240Ω
C9 10
R21 220K
R25 220K
C13 .01
C17 .01
R35 22Ω
MIC PRE
R98 100K
C22 +10
R40 1K
U2C
ELEC. MIC SW.
BILATERAL CURRENT SOURCE
J1-11
L1
R57 10K
C51 22pF
R64 22K
JPM 1
JPM 2
U6A
R58 100K
R58 100K
R66 10K TRIM SIDETONE
R67 60.4K 1%
R93 6.2M
R68 60.4K 1%
U6B
R79 20.0K 1%
R76 20.0K 1%
D17 IN4004
D20 IN4004
C42 100
R88 100K
Z
W5
X
CH. 1
CH. 2
CHANNEL SELECT SWITCH
B1
P1
R42 100K
R89 100K
W7
Y
C45 10
J2
REAR XLR CONN.
1 COM
2 CH. 1
3 CH. 2
C46 10
MIC SWITCH S2
OFF
ON
MS
J1-5
J1-21
MOMENTARY MIC SW. S3
R16 22K
C6 .01
R26 4.7Ω
T5 JUMPER
J1
HP HI
HP LO
HEADSET CONN/ HEADPHONE OUTPUT
JUMPER
HEADPHONE AMP
C19 4.7
R38 1.2K
U9
C23 100
R97 4.7Ω
C24 0.1
C20
POWER SUPPLY
ASH
TP2
TP1
+12V SOURCE
+4.7V SOURCE
J1-12
J1-15
Q2 J305
TP3
L3
L4
C39 2200 16V
C40 2200 16V
C49 100 10V
C34 0.1
D27 4.7V
ASL
16
R75 10Ω
D13 IN4004
D14 IN4004
U2 LM317T
R85 1K
C41 100/16
R86 11K
R87 1K
D15 15V
D25 36V
R91 3.3Ω FUSE 1/8W.
D16 IN4004
12 VDC LOCAL POWER INPUT
SPKR. VOL. ATTENUATE SW.
U2A
U2B
SPKR SW
R31 56K
R14 47K
R12 47K
VOLUME CONTROL
R1 50K
C3 .1/50
OFF
SDL
SPEAKER SWITCH S1B (SEE S1A ABOVE)
ON
SPS
C7 1/35 TANT
R27 10K
R36 22K
SPEAKER
SPEAKER AMP
D7 IN914
U11 7307
U11 820
C29 10
C31 .001
C32 100
SPKR
R43 10K
R41 100K
R48 100
C27 100
C30 1/35 TANT
C50 .001
C25 0.1
R56 2.7Ω
C33 0.1

7. SPK300 USES A PUSH-TO-TALK MIC, PLUGGED INTO THE DYNAMIC MIC HDST. CONNECTOR. SEE SD2712, SHEET 3.

(6) IN SPK300, S1A N.C. AND N.O. PADS ARE JUMPERED. PANEL MIC IS DELETED.

(5) T5 IS MOUSER 42TU048 (RTS#2306-000600). T5 IS USED ONLY IN SPK300 FOR 'PHANTOM' MIC ON SWITCH. FOR RMS300, T5 IS REMOVED AND JUMPERS ARE ADDED IN ITS PLACE.

(4) IN UNITS PRIOR TO 1-3-88 , THE CARBON MIC WAS ACTIVE IN BOTH THE 'PANEL' & 'HEADSET' SWITCH POSITIONS. IN UNITS BUILT AFTER 3-1-88 , THE CARBON MIC IS ACTIVE ONLY IN THE 'HEADSET' POSITION.

(3) ALTERNATE PIN OUT NOTED FOR 7307 I.C. (APPLIES TO UNITS MANUFACTURED PRIOR TO JANUARY, 1984).

2. ALL CAPACITANCE VALUES SHOWN MICROFARADS / VOLTS.

1. ALL RESISTORS ARE CARBON FILM, 1/4W, ± 5%.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

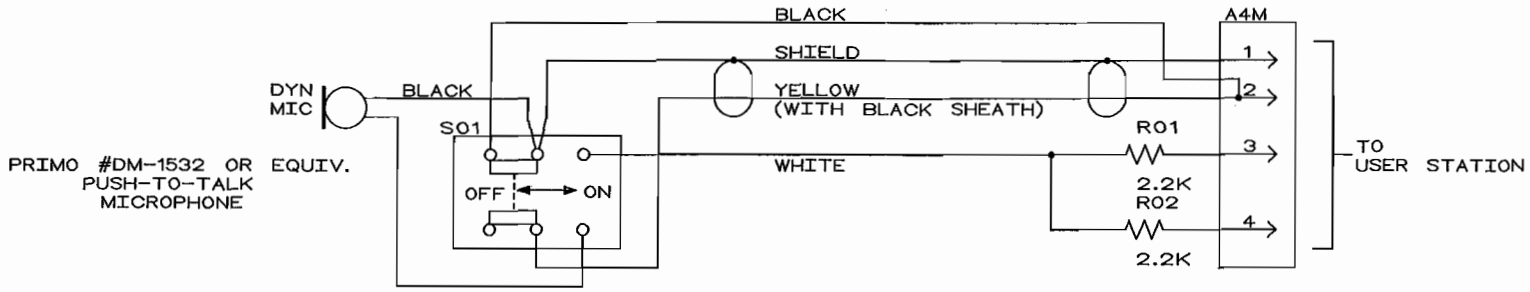
APPROVALS	DATE
DRAWN R. PEKSON	2-21-85
CHECKED	
ISSUED	

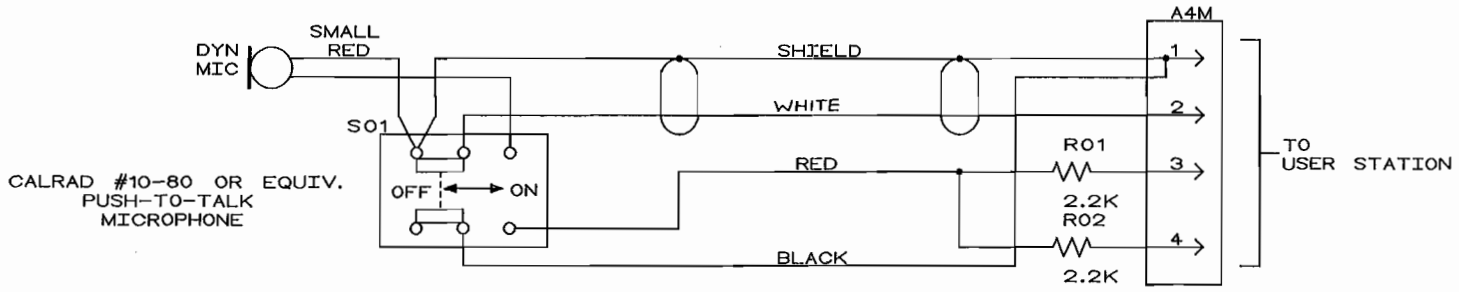
RTS SYSTEMS BURBANK, CALIFORNIA

SERVICING DIAGRAM, RMS-300 / SPK300

SIZE D | FSCM NO. 60572 | DWG. NO. SD3585 | REV F
SCALE | SHEET

Zone	Rev	Description	Date	Apprv.
		SEE SHEET 2		



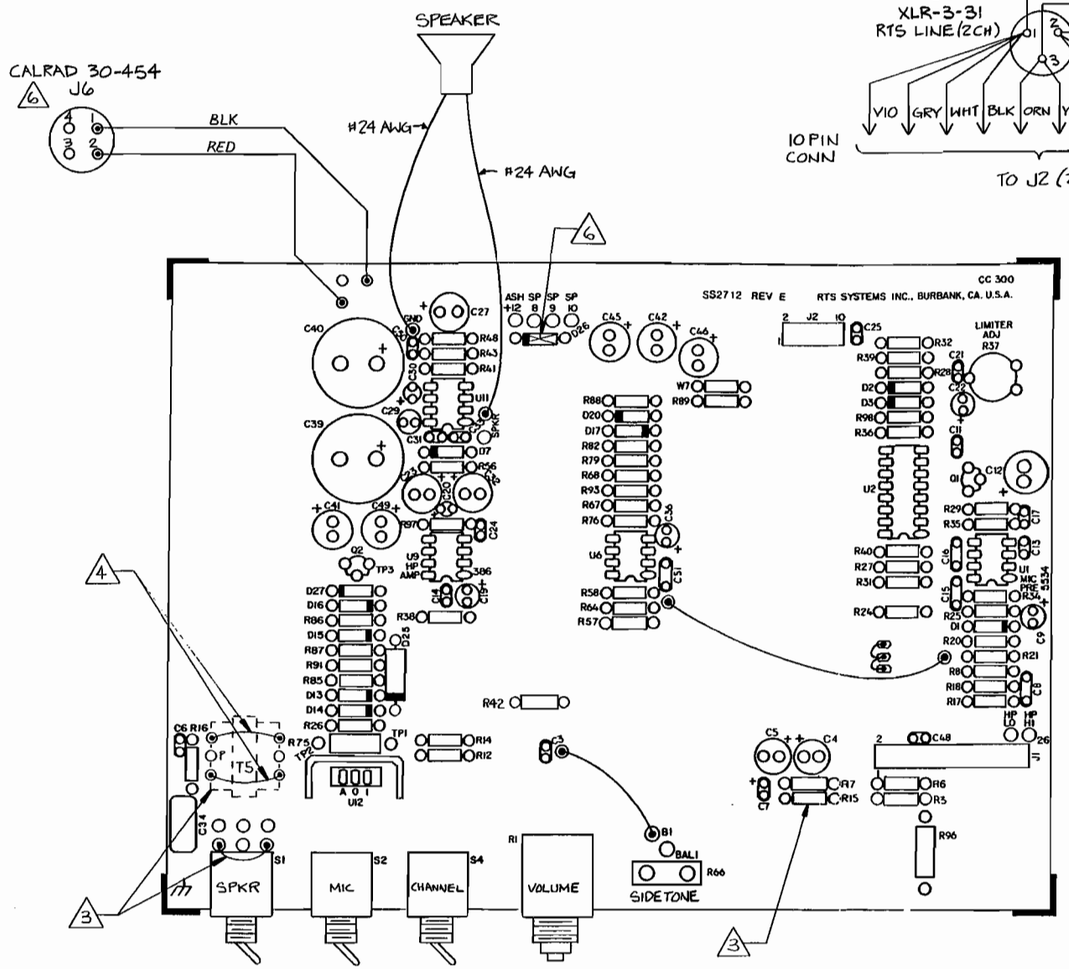


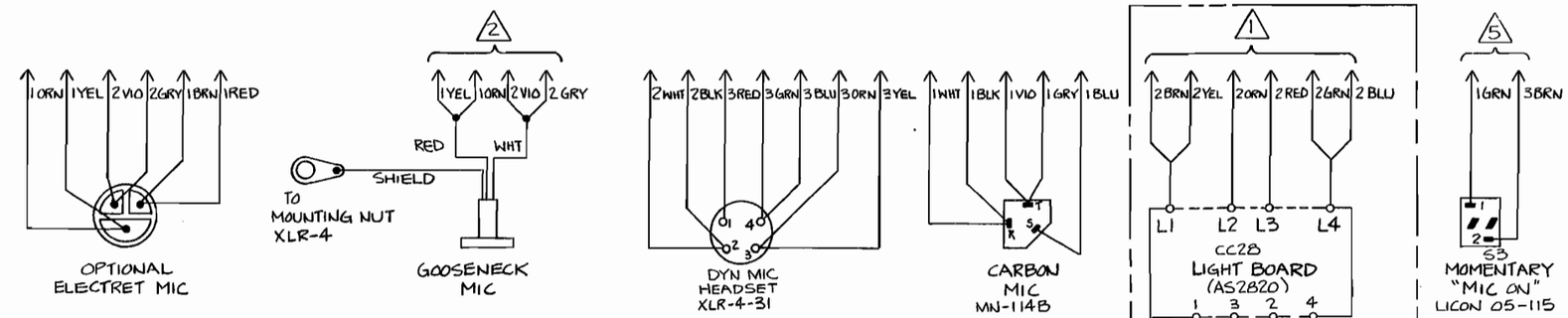
4. THIS SHEET APPLIES TO SPK UNITS ONLY.
3. MICROPHONE ARE 500 OHM DYNMIC TYPE.
2. S01 IS A PUSH-TO-TALK MICROPHONE SWITCH.
1. ALL RESISTORS ARE 1/4 WATT, CARBON FILM, +/-5%.

NOTES: UNLESS OTHERWISE SPECIFIED (SHEET 3 ONLY)

CONTRACT NO. TW INTERCOM SYSTEM	RTS SYSTEMS Burbank, California
Drawn R.NEILSON	SCHEMATIC DIAGRAM, CC-300 FOR SPK 300 , RMS 300 WIRING FOR EXTERNAL MICROPHONES
Checked	
Issued	SIZE C / FSCM 60572 / DWG NO SD2712 / REV AG
	DATE 8-18-89 / S2712603 / SHEET 3 of 3

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	N	REVISED PER ECO # 2231	8-5-86	
	P	REVISED SHT 7 PER ECO 2330 RR	10-28-86	
	R	REVISED RZO ON ALL SHTS PER ECO 2347 RR	11-29-88	
	S	ADDED SHT 9 PER ECO 2403 RR	2-15-89	
	T	ADDED SHT 10 PER ECO 2424 RR	4-10-89	
	U	CORRECTED TO SHT 2 PER ECO # 2472	6-12-89	
	V	REVISED PER ECO # 2582 RR	8-15-89	
	W	REVISED PER ECO # 2631	9-7-89	
	Y	CHANGED LENS TO WHITE FROM AMBER ON NOTE 5 SHT 4 PER ECO # 2651	9-26-89	
	AA	REVISED PER ECO # 2624	9-27-89	RTK 9-27-89
	AB	REVISED PER ECO # 2675	10-9-89	RTK 10-9-89
	AC	REVISED PER ECO # 2682	10-9-89	RTK 10-9-89
	AD	REVISED PER ECO # 2799	1-23-90	
	AE	REVISED PER ECO # 3066 J.V.W	7-5-90	RTK 7-9-90
	AF	ADDED SHT 11 PER ECO # 3118 RR	8-13-90	RTK 8-13-90





6. FOR LOCAL POWER OPTION: REMOVE D26, ADD J6, AND WIRE J6 TO P.C.B. AS SHOWN.
5. IN MODELS WITH -L OPTION, S3 IS NOT USED. CUT AND SLEEVE WIRE ENDS.
4. INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.
3. INSTALL JUMPER, T5 (RTS # 2306-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.
2. GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.
1. FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NOTES: UNLESS OTHERWISE SPECIFIED

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .XXX ± | ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 300

APPROVALS	DATE
DRAWN R.T. CRUZ	7.27.88
CHECKED	
ISSUED	

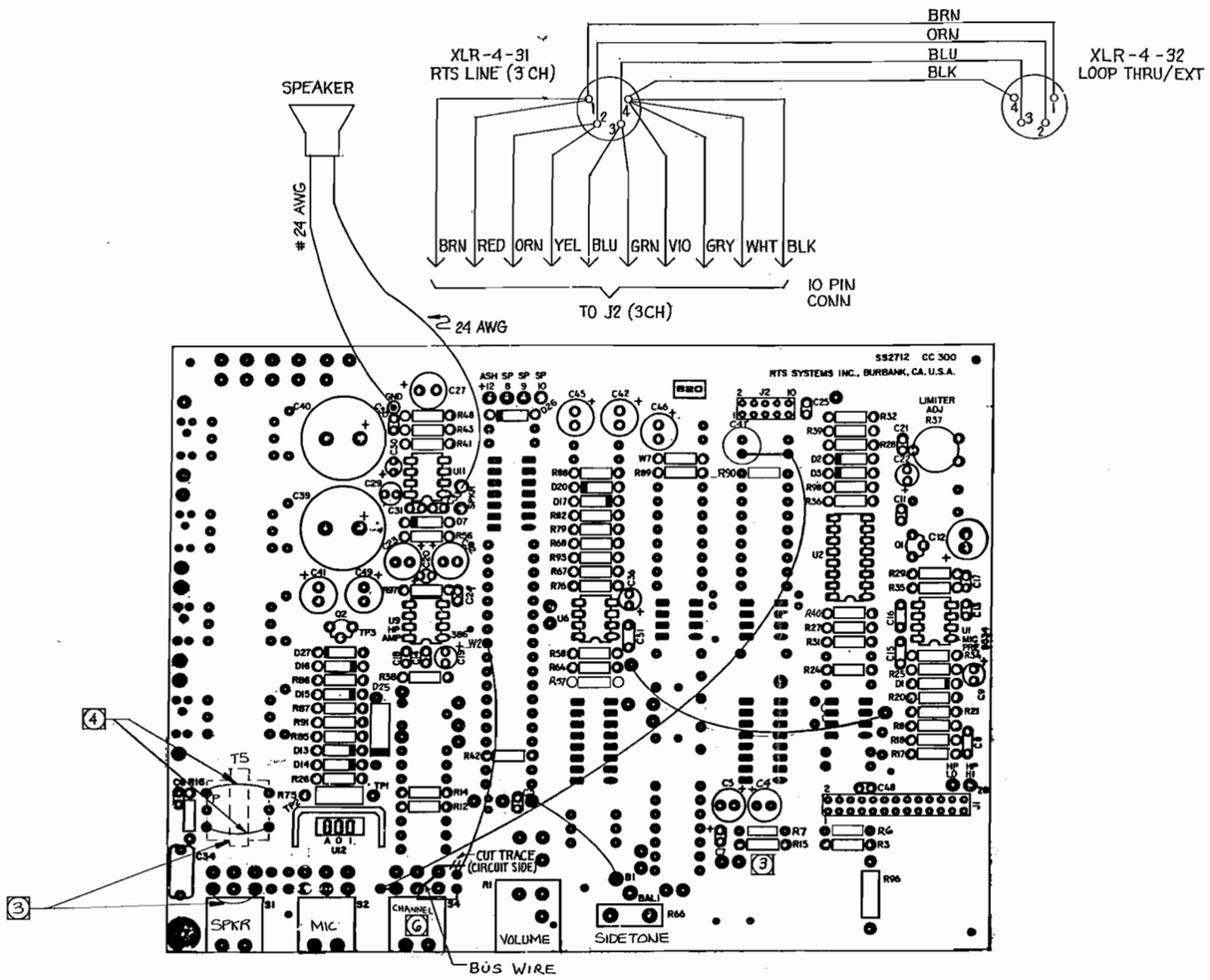
RTS SYSTEMS BURBANK, CALIFORNIA

WIRING DIAGRAM — SPK/RMS 300 STANDARD, -L OPTION & LOCAL POWER OPTION

SIZE D | FSCM NO. 60572 | DWG. NO. WD2712 | REV. AF
SCALE — | SHEET 1 OF 1

Arah - Berg Supply Co 267-0001

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1 FOR REVISION	04-03-84	



6 S4 IS A 3 POSITION TOGGLE SWITCH, C&K 7211SPYABE

5 FOR THE 3CH OPTION, MODIFY THE STANDARD CC-300 P.C. BOARD AS FOLLOWS: CUT 1 TRACE
ADD R90 (100K), C47 (10 μF/50V)
ADD 3 JUMPERS

4 INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.

3 INSTALL JUMPER, T5 (RTS# 2306-00006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.

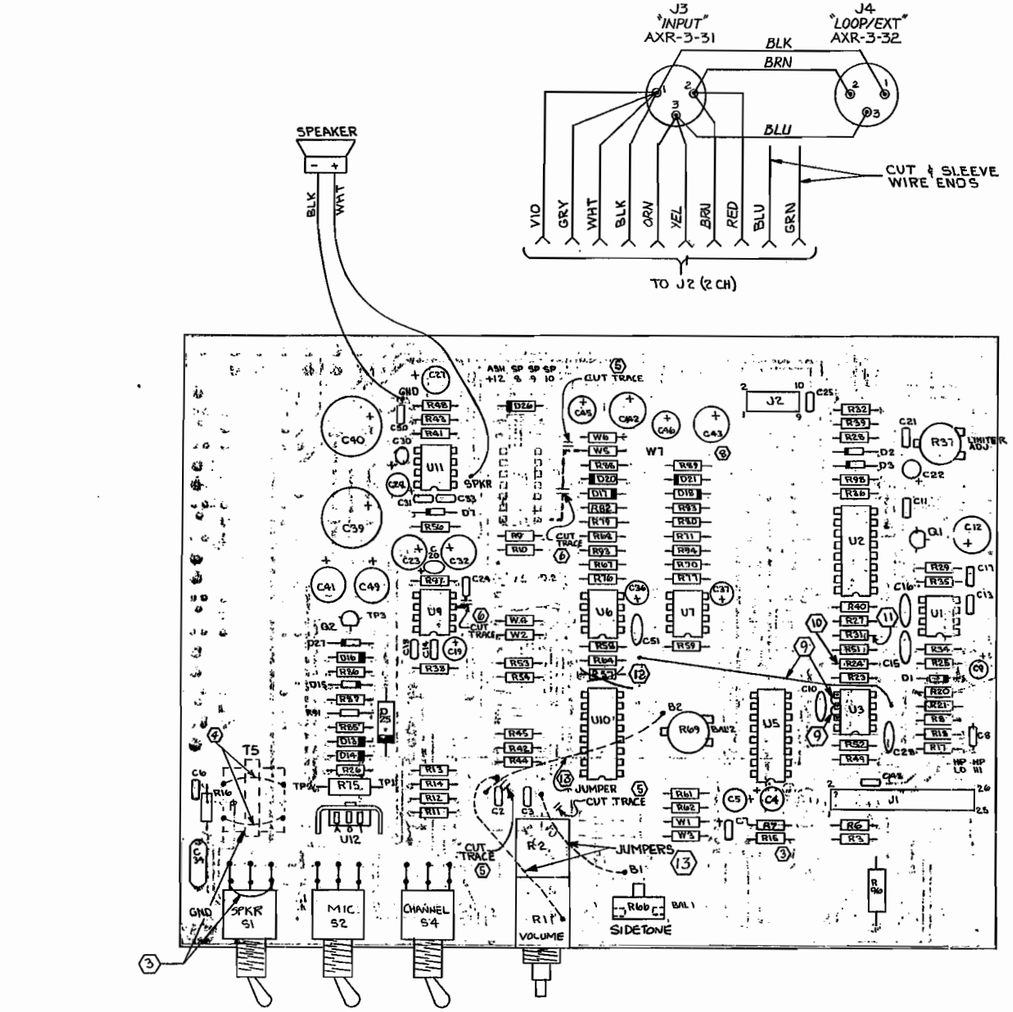
2 GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.

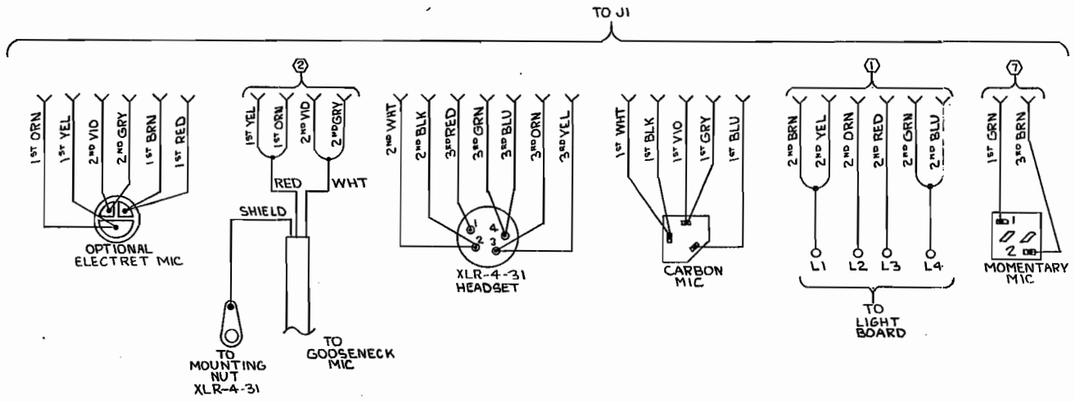
1 FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 300	RTS SYSTEMS BURBANK, CALIFORNIA
MATERIAL	APPROVALS / DRAWN R. PERSON / DATE 04-03-84	WIRING DIAGRAM - SPK/RMS 300 3CH & 3CH-L OPTIONS
FINISH	CHECKED / ENGR'G	SIZE D / FSCM NO. 60572 / DWG. NO. WD 2712 / REV. AF
DO NOT SCALE DRAWING		SCALE / SHEET 2 OF 2

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		





(13) ADD JUMPERS TO CIRCUIT SIDE (3 PLACES).

(12) REMOVE R57 FOR -DL OPTION.

(11) R31 CHANGES FROM 50K TO 10K.

(10) R 24 CHANGES FROM 220K TO 22K.

(9) REMOVE JUMPERS. (3 PLACES).

(8) REMOVE W7.

(7) MOMENTARY MIC NOT USED ON UNITS WITH CALL LIGHT OPTION (-L). CUT & SLEEVE WIRE ENDS.

(6) CUT TRACES ON CIRCUIT SIDE. (2 PLACES).

(5) CUT TRACES ON COMPONENT SIDE. (3 PLACES).

(4) INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.

(3) INSTALL JUMPER, T5 (RTS #2306-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.

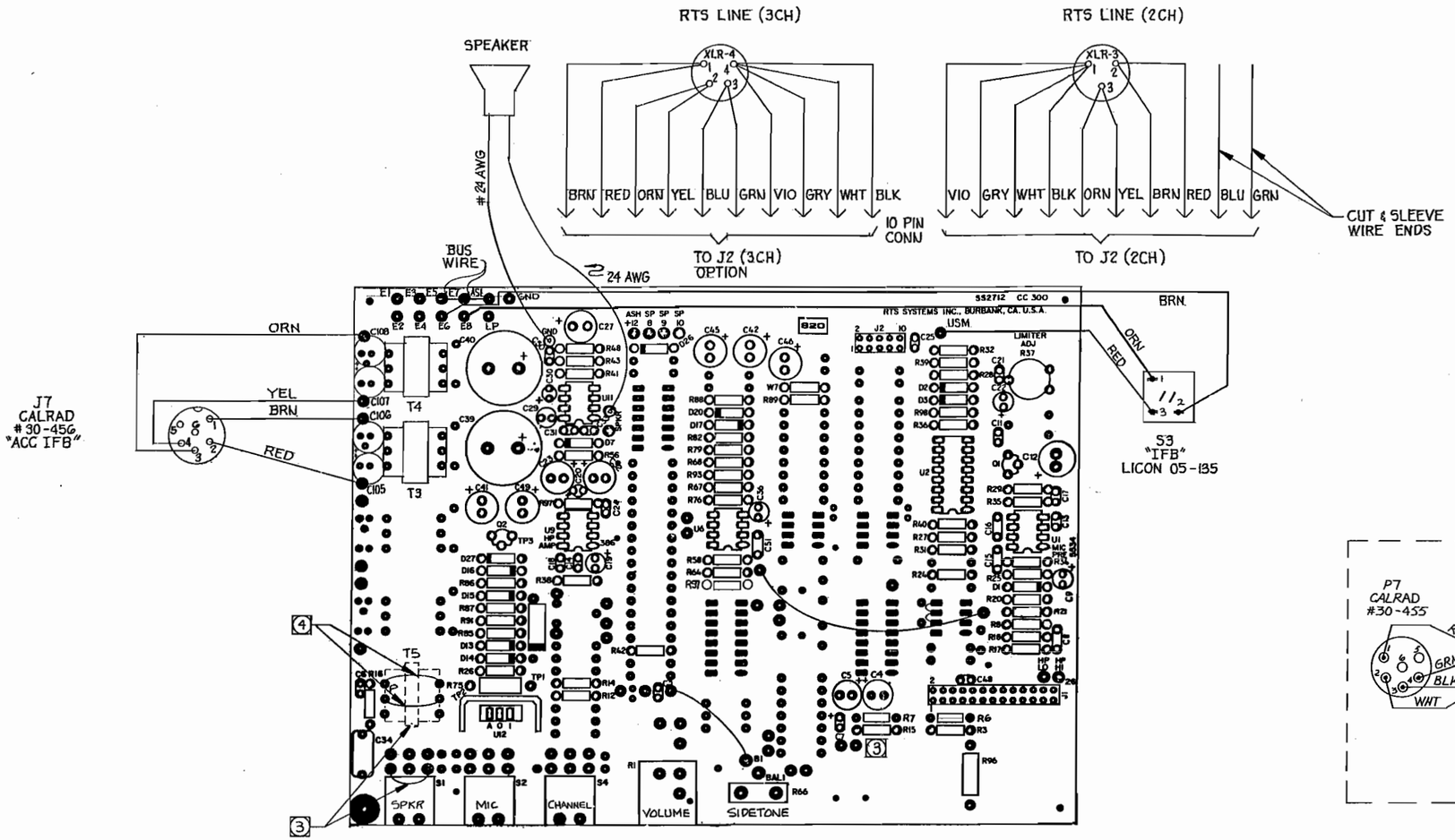
(2) GOOSENECK MIC NOT USED ON SPK-300 SERIES. CUT & SLEEVE WIRE ENDS.

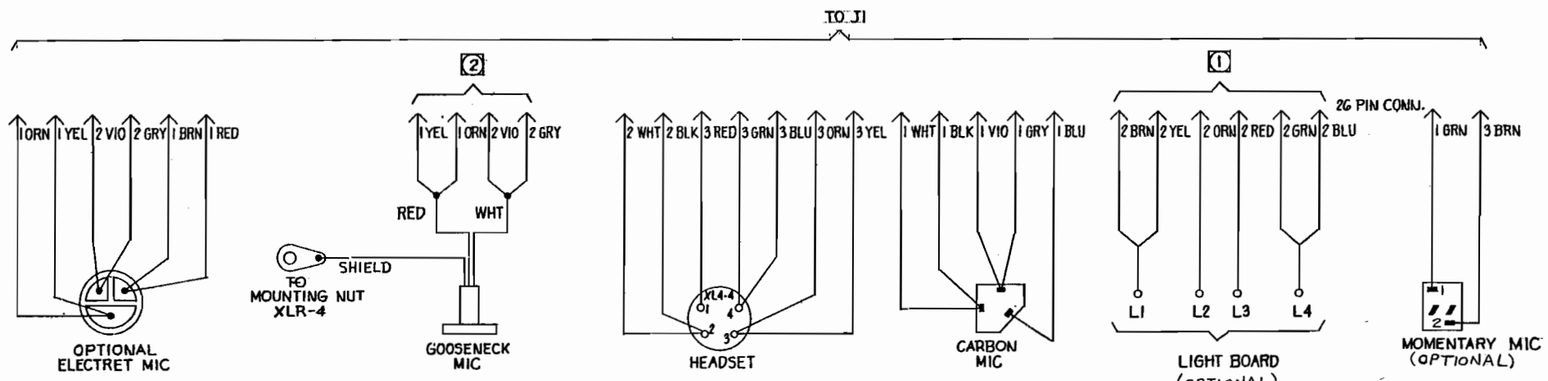
(1) FOR MODELS WITH OUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NOTES : UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 300	RTS SYSTEMS BURBANK, CALIFORNIA
MATERIAL	APPROVALS / DATE	WIRING DIAGRAM, SPK/RMS-300-DL
FINISH	DRAWN 11-18-83	SIZE D · FSCM NO. 60572 · DWG. NO. WD 2712 · REV. AF
DO NOT SCALE DRAWING	CHECKED / ISSUED	SCALE — · SHEET 3 OF 11

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1 FOR REVISION	04-04-84	





6 FOR IFB OPTION, ADD THE FOLLOWING PARTS TO CC-300: T3, T4 (LM9003) C105-C108 (10/50V RADIAL ELECTROLYTIC) BUS WIRE JUMPERS BETWEEN E5, E7 & ASL

5 FOR IFB OPTION: a) ADD J7, CALRAD # 30-456, 6 PIN JACK TO REAR PANEL, WIRE AS SHOWN.
b) ADD S3, LICON 05-135, MOMENTARY ACTION SWITCH, WIRE AS SHOWN. LENS CAP (WHITE) SHOULD BE ENGRAVED "IFB", TAKES NO LIGHT BULB.

4 INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.

3 INSTALL JUMPER, T5 (RTS# 7506-00006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.

2 GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.

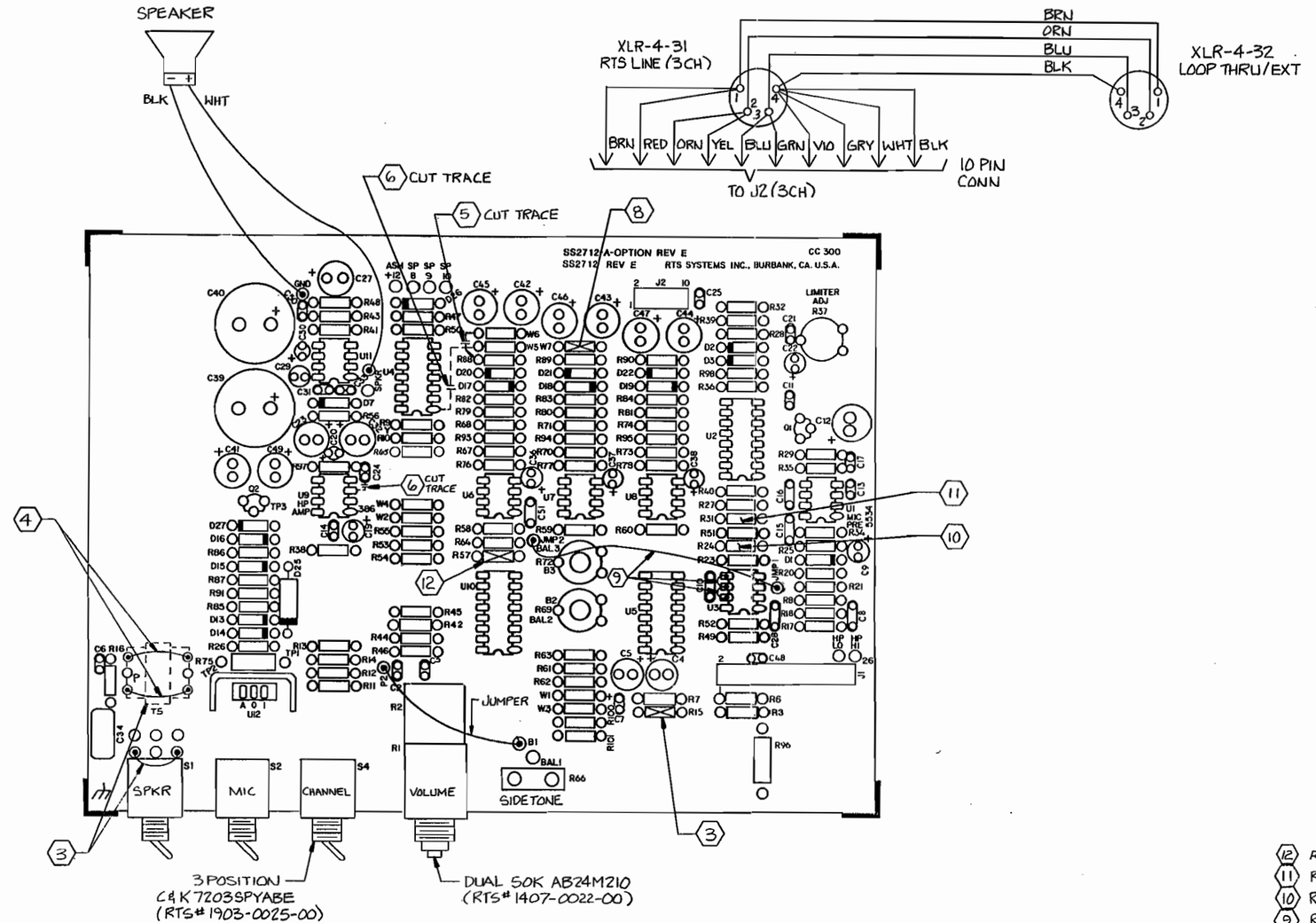
1 FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

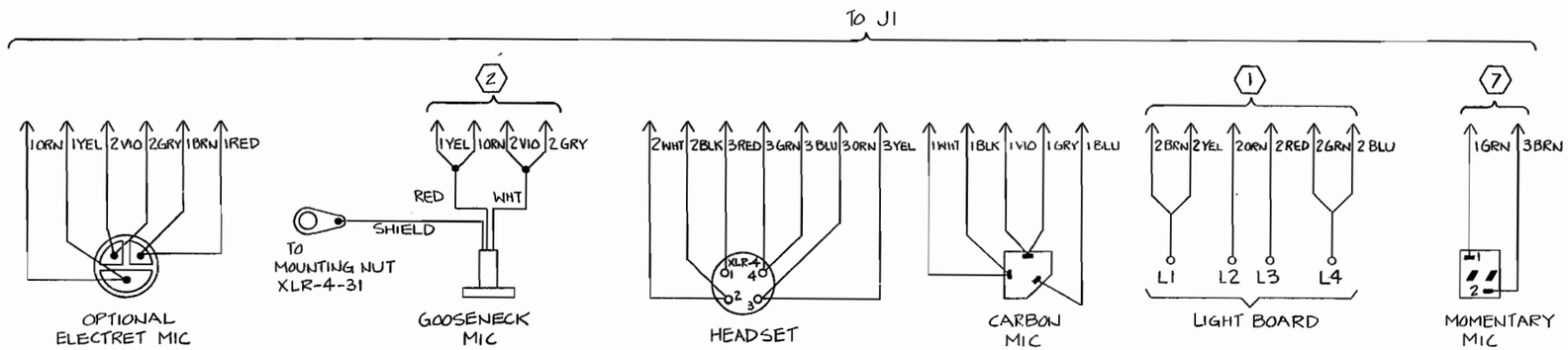
NOTES:

7 ASSEMBLE IFB OPTION CABLE AS SHOWN IN DETAIL A. PLUG P7 INTO J7.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 300	RTS SYSTEMS BURBANK, CALIFORNIA	
MATERIAL	APPROVALS	DATE	WIRING DIAGRAM - SPK/RMS 300 IFB OPTION
FINISH	DRAWN R. PEKSON	04-03-84	
DO NOT SCALE DRAWING	CHECKED		
	ISSUED		SIZE B FSCM NO. 60572 D. WG. NO. WD 7712 REV AF
			SCALE SHEET 4 OF 11

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		





12. REMOVE R57 FOR -DL OPTION.
11. R31 CHANGES FROM 56K TO 10K.
10. R24 CHANGES FROM 220K TO 22K.
9. REMOVE JUMPERS.
8. REMOVE W7 FOR -DL OPTION.
7. MOMENTARY MIC NOT USED ON UNITS WITH CALL LIGHT OPTION (-L). CUT & SLEEVE WIRE ENDS.
6. CUT TRACES ON CIRCUIT SIDE (TWO PLACES).
5. CUT TRACE ON COMPONENT SIDE (ONE PLACE).
4. INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.
3. INSTALL JUMPER, T5 (RTS# 2306-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.
2. GOOSENECK MIC NOT USED ON SPK-300 SERIES. CUT AND SLEEVE WIRE ENDS.
1. FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NOTES: UNLESS OTHERWISE SPECIFIED

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 300

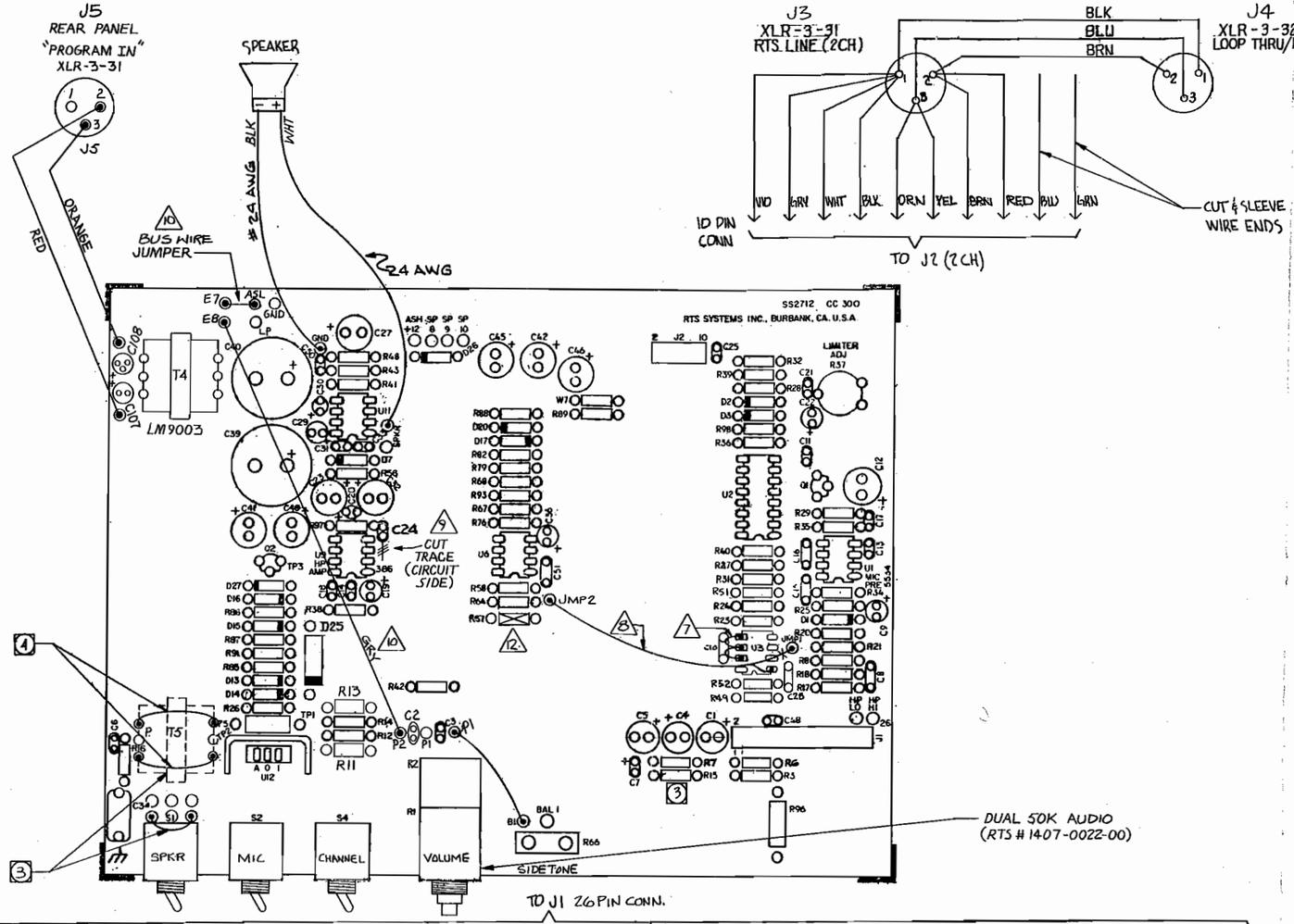
APPROVALS	DATE
DRAWN R.T.CRUZ	8.4.88
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

WIRING DIAGRAM, SPK/RMS-300-DL-3CH

SIZE D | FSCM NO. 60572 | DWG. NO. WD 2712 | REV. AF
SCALE — | SHEET 5 OF 11

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED PER ECO # 717 B.MAEZ	12-6-82	
	B	REVISED PER ECO # 776 B.MAEZ	1-24-83	S L H
	C	REVISED PER ECO # 817 B.MAEZ	3-2-83	
	D	REVISED PER ECO # 837 B.MAEZ	4-13-83	
	E	REVISED PER ECO # 1011 B.MAEZ	6-16-83	
	F	REVISED PER ECO # 986 B.MAEZ	7-12-83	
	G	REVISED PER ECO	04-03-84	
	H	ADDED NOTE 5 (EV MIC)	7-10-86	
	J	ADDED R57 REVISED POLARITY ON C12 PER ECO 1700.	10-28-86	
	K	ADDED R20 PER ECO # 2149	3-11-88	
	L	WAS SHEET 1-4 ECO # 2231	6-1-88	
		SEE SHEET ONE		



7 FOR PROGRAM INPUT (-C) OPTION: REMOVE JUMPERS AT U3 PINS 5, 6 & 7.

6 FOR PROGRAM INPUT (-C) OPTION: ADD C2 (.1/50), C10 (100pF), C18 (.001/100), C28 (22pF), C107 & C108 (2.2/50), R11 & R13 (47K), R23 (150K), R49 (10K), R51 (100K), R52 (22K), T4 (LM9003), U3 (3558 & 8-PIN SOCKET) CHANGE R1 FROM SINGLE TO DUAL POT, CHANGE R31 VALUE TO 10K.

5 IN MODELS WITH -L OPTION, S3 IS NOT USED. CUT AND SLEEVE WIRE ENDS.

4 INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.

3 INSTALL JUMPER & T5 (RTS # 2306-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.

2 GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.

1 FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NOTES: UNLESS OTHERWISE SPECIFIED.

12 REMOVE R57 FOR PROGRAM INPUT (-C) OPTION.

11. FOR PROGRAM INPUT (-C) OPTION: ADD J5 TO REAR PANEL. WIRE AS SHOWN.

10 ADD JUMPER FOR PROGRAM INPUT (-C) OPTION.

9 CUT TRACE FOR PROGRAM INPUT (-C) OPTION.

8 FOR PROGRAM INPUT (-C) OPTION: MOVE JUMPER FROM JMP1 & JMP2 TO U3-1 & JMP2.

NEXT ASSY	USED ON		
APPLICATION			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 300

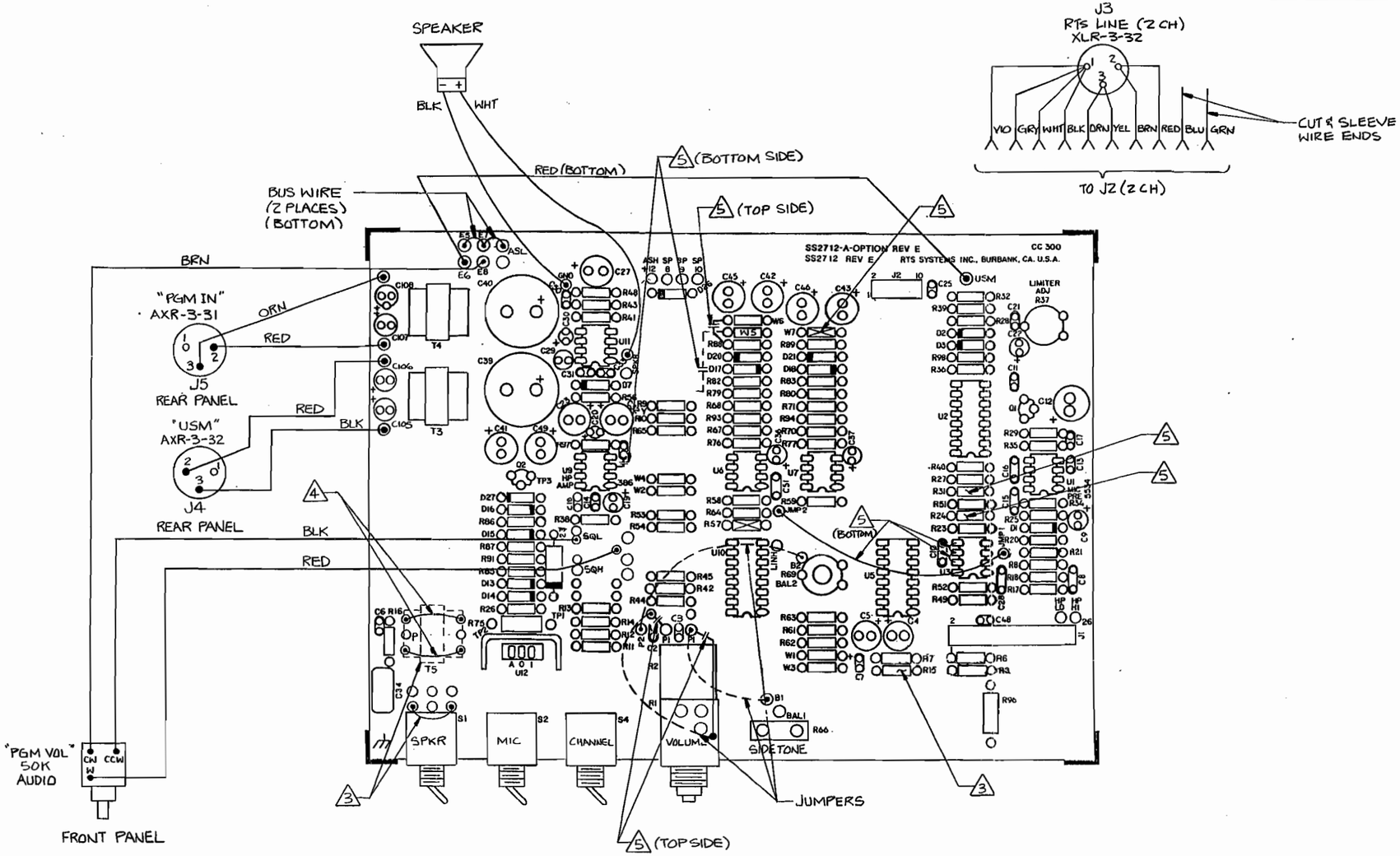
APPROVALS	DATE
DRAWN R. NEILSON	6-1-88
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

WIRING DIAGRAM - SPK/RMS 300
PROGRAM INPUT OPTION (C)
(DO NOT USE WITH DL)

SIZE D | FSCM NO. 60572 | DWG. NO. WD 7712 | REV AF
SCALE — | SHEET 6 OF 11

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



8. For label information on RMS300-BCS (Dual Listen, Program input, and Unswitched mic) see drawing FDXXXX.

7 For **Unswitched Mic** option when Program input option is present: Add T3 (LM9003), C105 and C106 (10uF/50V elect), 24 awg red wire jumper (E6 to USM) on bottom side of board, 22 awg bus wire (E5 to E7) on bottom side of board. Use J4 (LOOP conn) with two 24 awg wire jumpers (J4-2 to C106 and J4-3 to C105). For the USM connector (J4) erase "LOOP/EXT" and add label "USM" (see note 8).

6. For **Program Input** option when Dual Listen option is present: Add T4 (Mouser 42TM018), C107 and C108 (10uF/50V elect), 50K audio pot (this pgm vol pot is mounted on the front panel) with three 24 awg wire jumpers (CW of PGM VOL pot to E8, CCW of PGM VOL pot to SQL, and W of PGM VOL pot to wiper of R30) on the top side of the board, and 22 awg bus wire (E7 to ASL) on bottom side of the board, J5 (3-pin fem XLR conn) with two 24 awg wire jumpers (J5-2 to C107 and J5-3 to C108) on the top side of the board.

5 For **Dual Listen** option: Cut three traces (P1 to R46, P1 to J1-13, and W6 to R88) on the top side of the board. Cut two traces (U9-3 to C24 and U4-1 to W5). Remove R57 and W7. Remove three jumpers (JMP1 to JMP2, U3-5 to U3-6, and U3-6 to U3-7) on bottom side of the board. Change R24 to 22K,1/4W,5% and R31 to 10K,1/4W,5%. Add Dual Listen option components per parts list 9030358700.

4 On RMS300 units only: transformer T5 is not installed. Add two 24 awg red wire jumpers in place of T5 on bottom side of the board as shown.

3 On SPK300 units only: install jumper across S1, install transformer T5 (RTS #2306000600), and remove resistor R15.

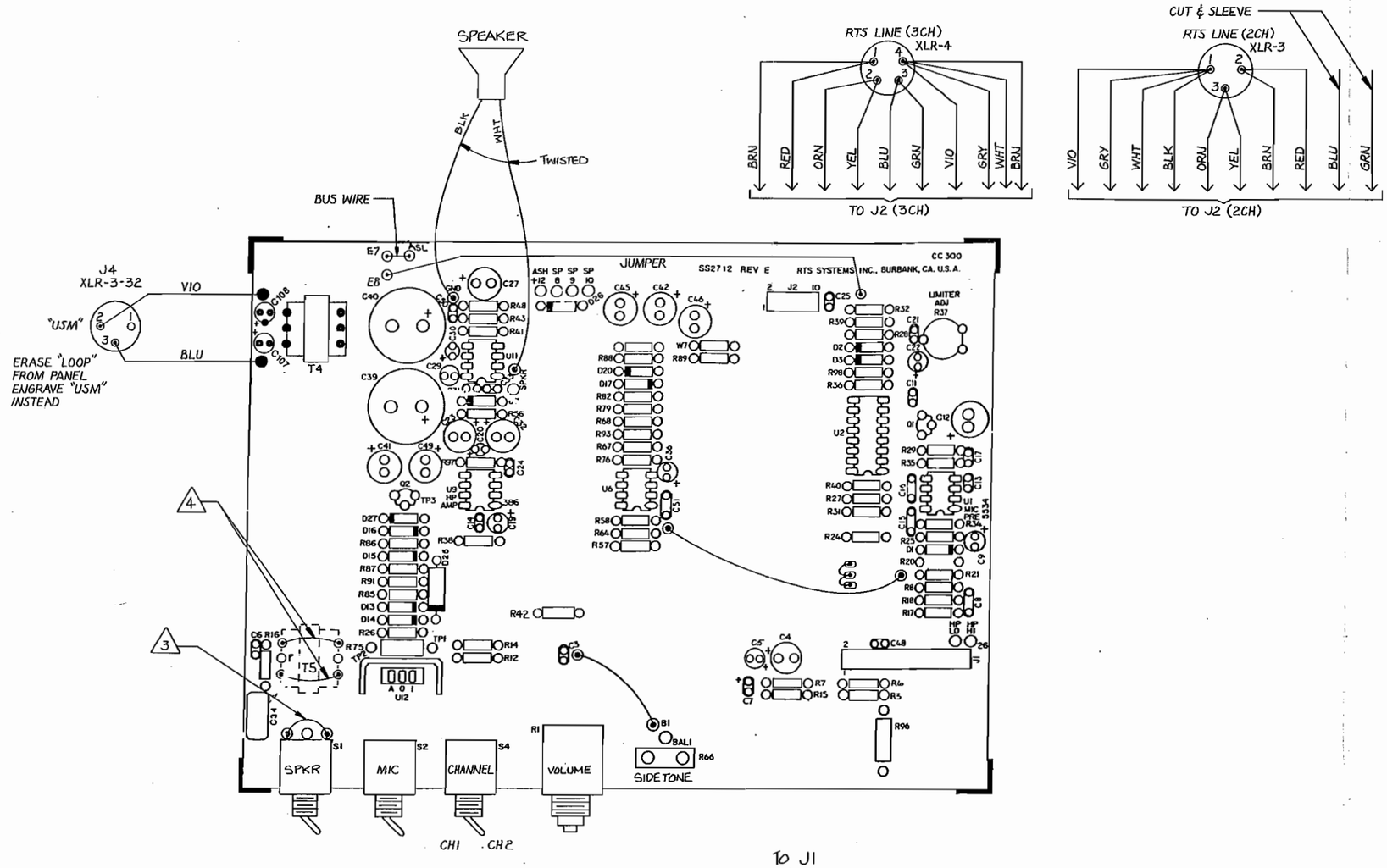
2 Gooseneck mic not installed on SPK300 units. Cut and sleeve wire ends.

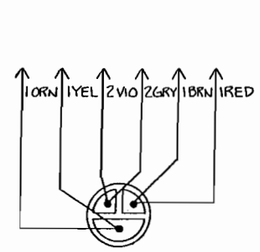
1 For options without a light board (CC28) cut and sleeve wire ends.

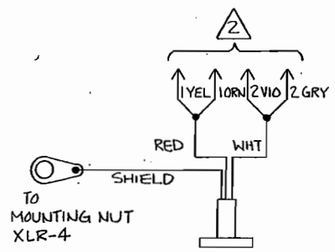
NOTES:

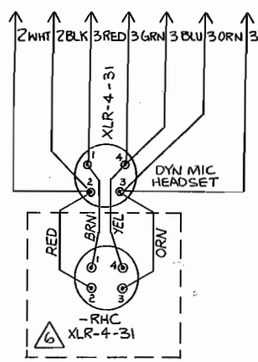
		UNLESS OTHERWISE SPEC FIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 300	RTS SYSTEMS BURBANK, CALIFORNIA	
		MATERIAL	APPROVALS / DATE	WIRING DIAGRAM, SPK/RMS-300-B (DUAL LISTEN), -C (PROGRAM INPUT), -S (USMB)	
		FINISH	DRAWN R.T. CRUZ 8-5-88		
NEXT ASSY	USED ON		CHECKED		
APPLICATION		DO NOT SCALE DRAWING	ISSUED	SIZE D FSCM NO. 60572 DWG. NO. WD2712 REV. AF	
				SCALE	SHEET 7 OF 11

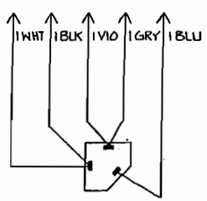
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

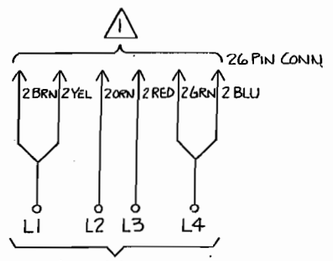












6. FOR RHC OPTION (*M) ADD J5 (XLR-4-31) BACK PANEL ERASE PROGRAM INPUT, LABEL "REMOTE HEADSET" WIRE TO THE FRONT PANEL AS SHOWN.

5. FOR -USMB(S):
   a) ADD: T4 (LM9003), C107 & C108 (10/50 ELECT. RADIAL), QTY 1 JUMPER, QTY 1 BUS WIRE.
   b) BACK PANEL: ELIMINATE "LOOP THRU" WIRES BETWEEN XLR-3-31 (RTS LINE) AND J4 (LOOP THRU). ERASE "LOOP" FROM BACK PANEL. ENGRAVE "USM" INSTEAD. WIRE J4 AS SHOWN.

4. INSTALL JUMPER IN PLACE OF T5 ON RMS-300 SERIES ONLY.

3. INSTALL JUMPER AND REMOVE R15 ON SPK-300 SERIES ONLY.

2. GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.

1. FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

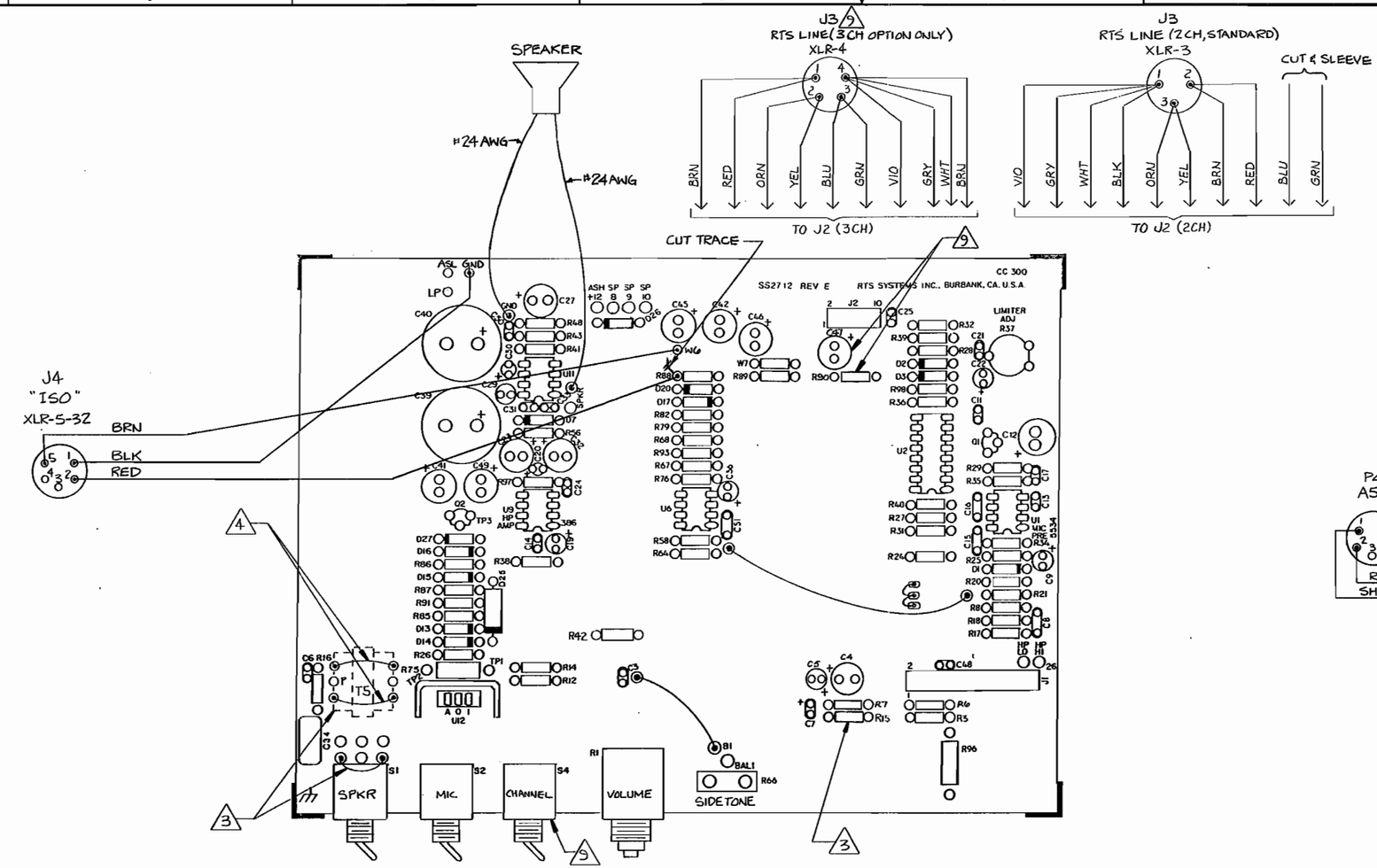
APPROVALS	DATE
DRAWN R. NEILSON	10-4-88
CHECKED	
ISSUED	

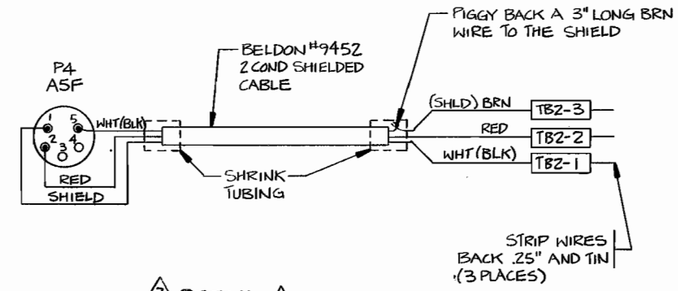
RTS SYSTEMS BURBANK, CALIFORNIA

WIRING DIAGRAM,
MODEL SPK/RMS-300-USM B(S)

SIZE D | FSCM NO. 60572 | DWG. NO. WD 2712 | REV. AF
SCALE — | SHEET 8 OF 11

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		





7 DETAIL A

7 MAKE UP A 3FT LONG CABLE AS SHOWN IN DETAIL A. MAKE WIRE LABELS "TB2-1", "TB2-2" & "TB2-3" USING 8pt HELVETICA LIGHT, BLK ON CLEAR TAPE. PLUG CONNECTOR INTO THE "ISO" CONNECTOR ON THE BACK PANEL.

6 USE AN XLR-5-32 FOR THE "ISO" CONNECTOR. WIRE AS SHOWN.

5. DELETE SILKSCREEN "LOOP/EXT" FROM BACK PANEL. COVER WITH LABEL "ISO". (MAKE "ISO" LABEL WITH KROY TYPE, 8pt HELVETICA LIGHT

4 INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.

3 INSTALL JUMPER, T5 (RTS#2306-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.

2 GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.

1 FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

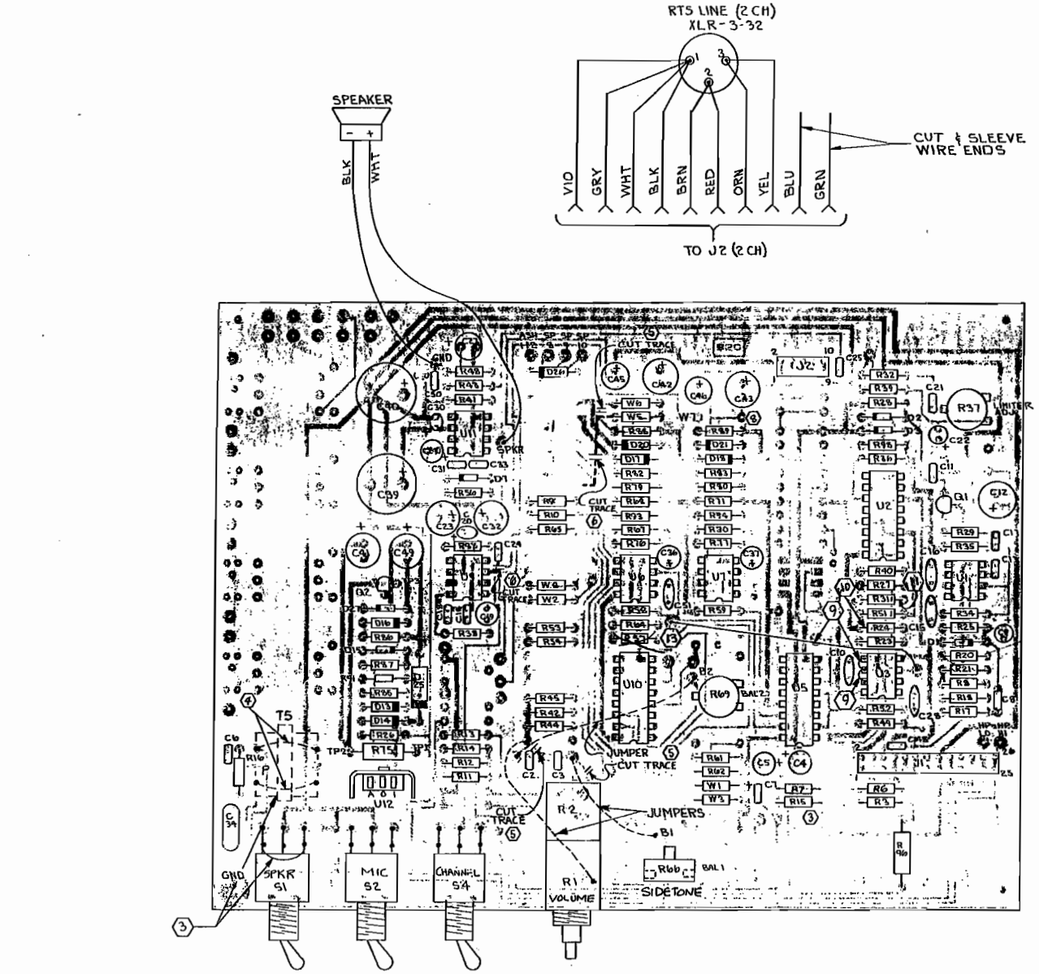
NOTES: UNLESS OTHERWISE SPECIFIED

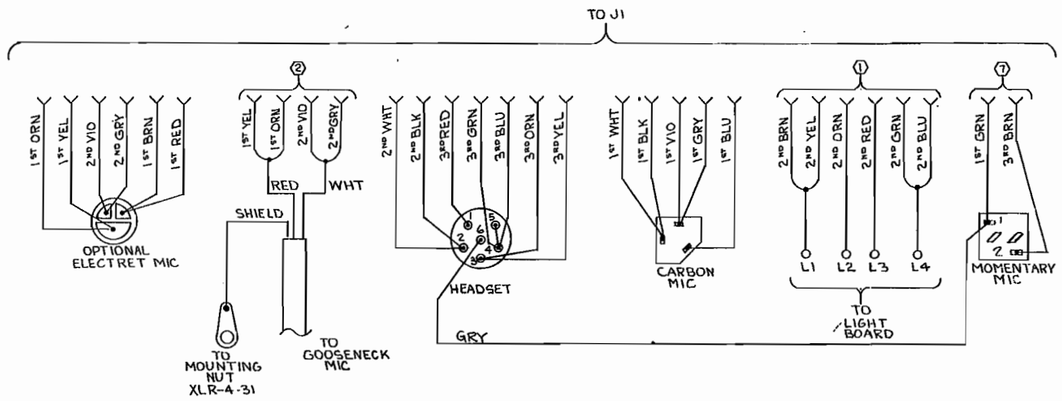
9 FOR UNITS WITH -3CH (A) OPTION ONLY:
A) J3 IS AN XLR-4-31 CONNECTOR
B) S4 IS AN 3-POSITION SWITCH (RTS#1903-0059-00)
C) R90 (100K) & C47 (10uF/50V) ARE ADDED

8 NOT FOR -DL UNITS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 300	RTS SYSTEMS BURBANK, CALIFORNIA
MATERIAL	APPROVALS / DATE	WIRING DIAGRAM — RMS300-VI(*B), SPK300-VI(*B), RMS300-3CH-VI(A*B), SPK300-3CH-VI(A*B)
FINISH	DRAWN R.T.CRUZ 2.15.89	
DO NOT SCALE DRAWING	CHECKED	
	ISSUED	SIZE D · FSCM NO. 60572 · DWG. NO. WD2712 · REV. AF
		SCALE — · SHEET 9 OF 11

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		





(12) REMOVE R57 FOR -DL OPTION.

(11) R31 CHANGES FROM 56K TO 10K.

(10) R 24 CHANGES FROM 220K TO 22K.

(9) REMOVE JUMPERS.

(8) REMOVE W7.

(7) MOMENTARY MIC NOT USED ON UNITS WITH CALL LIGHT OPTION (-L). CUT & SLEEVE WIRE ENDS.

(6) CUT TRACES ON CIRCUIT SIDE.

(5) CUT TRACES ON COMPONENT SIDE.

(4) INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.

(3) INSTALL JUMPER, T5 (RTS # 2306-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.

(2) GOOSENECK MIC NOT USED ON SPK-300 SERIES. CUT & SLEEVE WIRE ENDS.

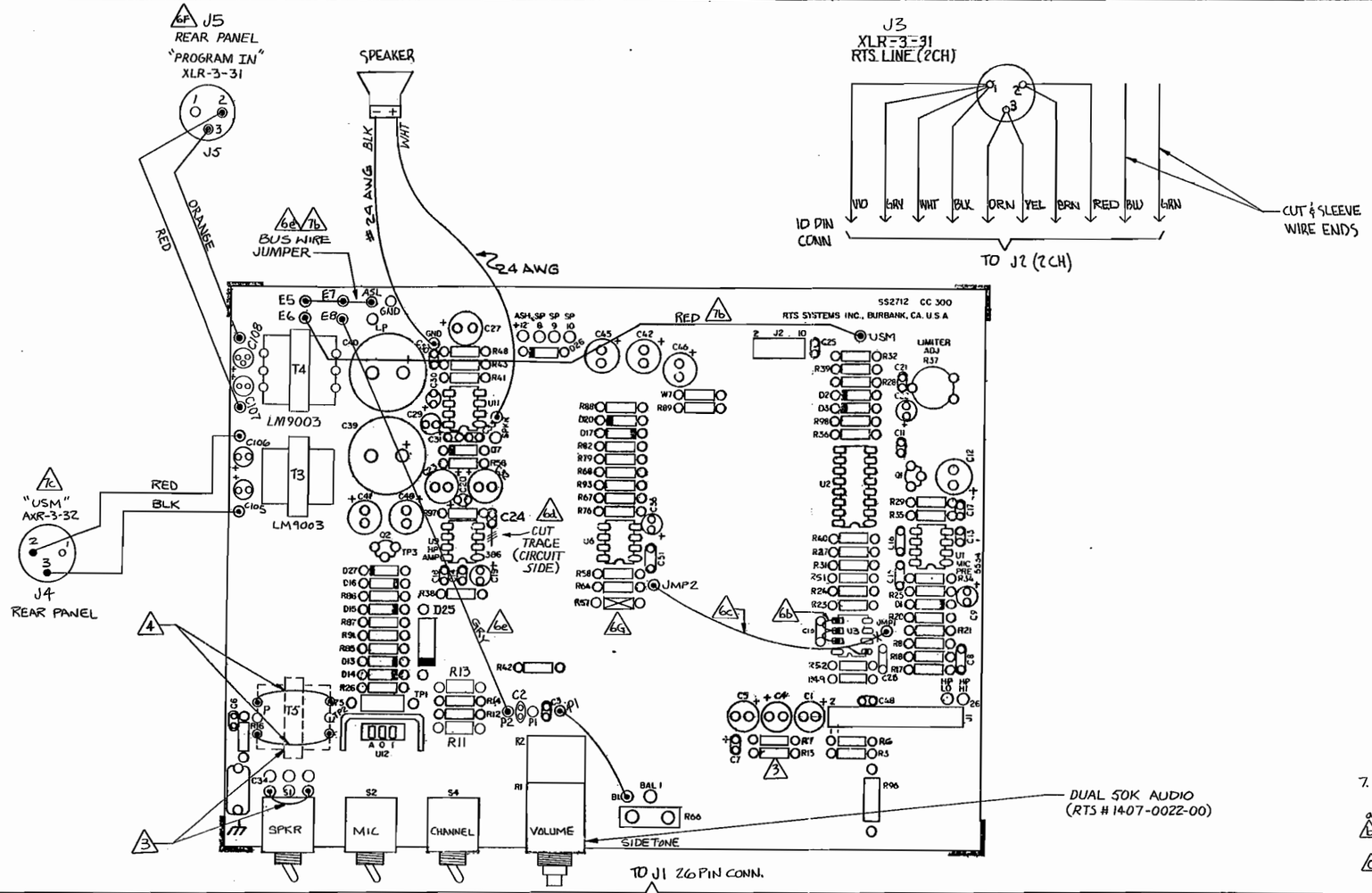
(1) FOR MODELS WITH OUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

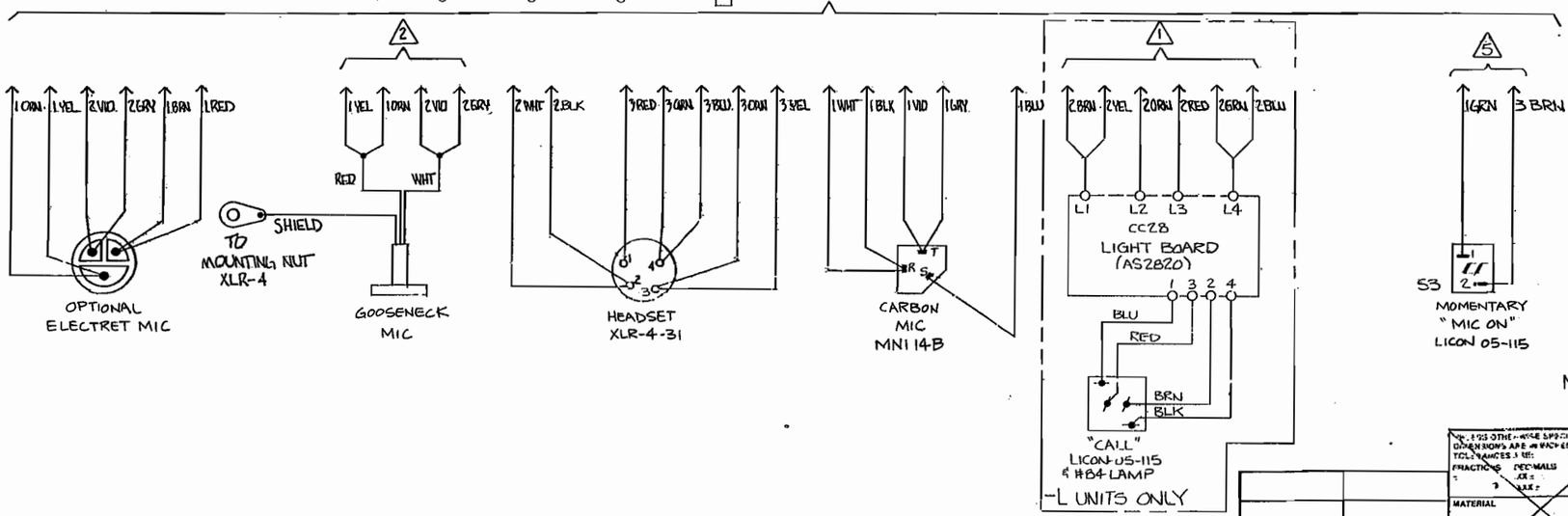
NOTES : UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO.	RTS SYSTEMS BURBANK, CALIFORNIA	
	APPROVALS / DATE	WIRING DIAGRAM, SPK/RMS-300-DL-MS6 (B% V OPTIONS)	
MATERIAL	DRAWN R.T.CRUZ 3-29-89		
	CHECKED		
FINISH	ISSUED	SIZE D FSCM NO. 60572 DWG. NO. WD 2712 REV AF	
DO NOT SCALE DRAWING		SCALE — SHEET 1 OF 11	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

SEE SHEET ONE





7. FOR UNSWITCHED BALANCED MIC OUT (S) OPTION WHEN PROGRAM INPUT OPTION IS PRESENT:
   a. ADD T3 (LM9003), C105 & C106 (10uF/50V ELEC).
   (b) ADD #24 AWG RED JUMPER FROM E6 TO USM, #22 AWG BUS WIRE JUMPER FROM E5 TO E7.
   (c) J4 "LOOP" CONNECTOR IS USED FOR "USM" CONNECTOR. ERASE "LOOP/EXT" SILKSCREENING & ADD LABEL "USM". WIRE AS SHOWN.

6. FOR PROGRAM INPUT (C) OPTION:
   (a) ADD: C2 (.1/50), C10 (100pF), C18 (.001/100), C28 (22pF), C107 & C108 (2.2/50), R11 & R13 (47K), R23 (150K), R49 (10K), R51 (100K), R52 (22K), T4 (LM9003), U3 (3550 & 8-PIN SOCKET) CHANGE R1 FROM SINGLE TO DUAL POT, CHANGE R31 VALUE TO 10K.
   (b) REMOVE JUMPERS AT U3 PINS 5, 6 & 7.
   (c) MOVE JUMPER FROM JMP1 & JMP2 TO U3-1 & JMP2.
   (d) CUT TRACE ON CIRCUIT SIDE.
   (e) ADD #24 AWG GRY JUMPER FROM P2 TO E8, #22 AWG BUS WIRE JUMPER FROM E7 TO ASL.
   (f) ADD J5 TO REAR PANEL. WIRE AS SHOWN.
   (g) REMOVE R57.
   (5) IN MODELS WITH -L OPTION, S3 IS NOT USED. CUT & SLEEVE WIRE ENDS.
   (4) INSTALL JUMPERS IN PLACE OF T5 ON RMS-300 SERIES ONLY.
   (3) INSTALL JUMPER & T5 (RTS #2806-0006-00) AND REMOVE R15 ON SPK-300 SERIES ONLY.
   (2) GOOSENECK MIC NOT USED ON SPK-300 SERIES, CUT & SLEEVE WIRE ENDS.
   (1) FOR MODELS WITHOUT LIGHT BOARD, CUT & SLEEVE WIRE ENDS.

NOTES: UNLESS OTHERWISE SPECIFIED

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ±1/32, DECIMALS .XX ±.01, .XXX ±.005, ANGLES ±1°

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.	SERIES 300
APPROVALS	DATE
DRAWN	RT CRANE 8-9-90
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

WIRING DIAGRAM - SPK/RMS 300
PROGRAM INPUT (C) & USMB OPTIONS (S)
(DO NOT USE WITH DL)

SIZE	FSCM NO.	DWG. NO.	REV.
D	60572	WD2712	AF

SCALE — SHEET 11 OF 11