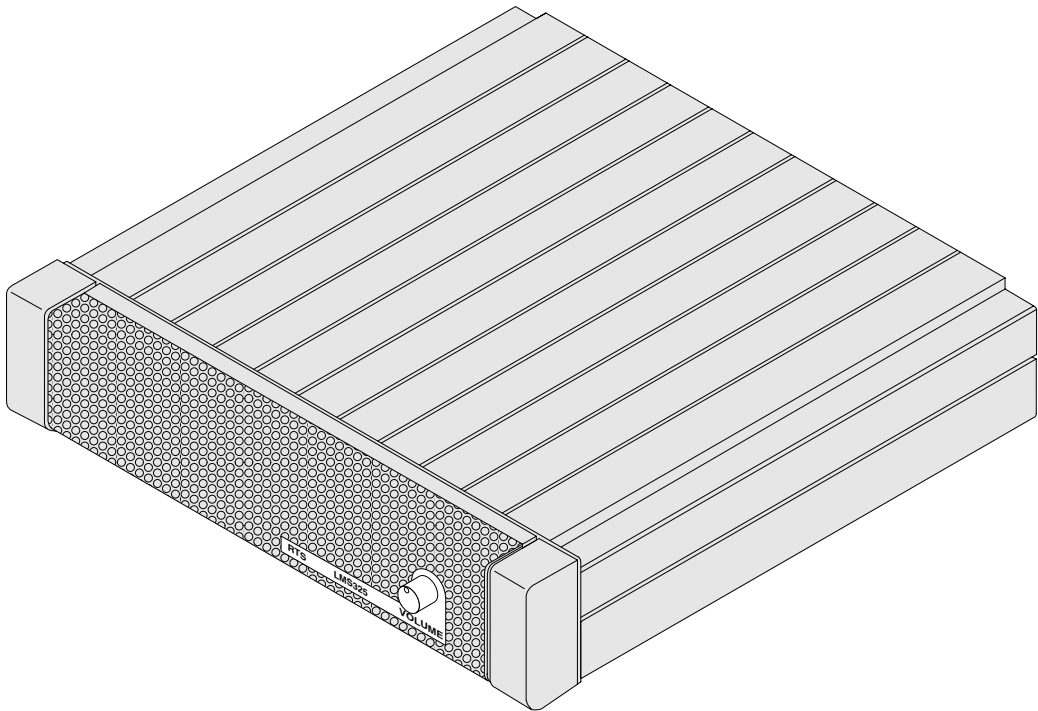

User Manual
LMS-325
Line Monitor Speaker



RTS™

Proprietary Notice

The product information and design disclosed herein were originated by and are the property of Telex Communications, Inc. Telex reserves all patent, proprietary design, manufacturing, reproduction, use and sales rights thereto, and to any article disclosed therein, except to the extent rights are expressly granted to others.

Copyright Notice

Copyright 2005 by Telex Communications, Inc. All rights reserved. Reproduction, in whole or in part, without prior written permission from Telex is prohibited.

Warranty Notice

See the enclosed warranty card for further details.

Customer Support

Technical questions should be directed to:

Customer Service Department

Telex Communications, Inc.
12000 Portland Avenue South
Burnsville, MN 55337
Telephone: (800) 392-3497
Fax: (800) 323-0498

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, obtain a RETURN AUTHORIZATION from:

Customer Service Department

Telex Communications, Inc.
Telephone: (800) 392-3497
Fax: (800) 323-0498

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

Be prepared to provide the 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).

Shipping to the Manufacturer

All shipments of product should be made via United Parcel Service or the best available shipper, prepaid. The equipment should be shipped in the original packing carton. If the original carton 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 must be sent to the following address and must include a Return Authorization.

Factory Service Department

Telex Communications, Inc.
1930 West 1st Street
Blue Earth, MN 56013 U.S.A.
Attn: Service

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

CHAPTER 1

Description and Specifications 1

General Description 2

Features 2

Controls 2

Specifications 3

General 3

Connector Pin Configurations 3

Speaker Amplifier 4

CHAPTER 2

Operation 5

External Connections & Controls 6

Mounting Configurations 7

CHAPTER 3

Replacement Parts 9

Where to Obtain Parts 10

Mechanical Parts 10

CHAPTER 4

Drawings 17

Description and Specifications

What you will find in this chapter:

- General Description
- Features
- Controls
- General Specifications
- Connector Pin Configurations
- Speaker Amplifier Specifications

General Description

The LMS-325 is a modular amplified speaker that can be used to monitor one or two intercom or program channels. The LMS-325 is a five-watt, eight-ohm modular amplified speaker for use with RTS rack or console-mounted intercom systems.

Features

Features of the LMS-325 include:

- Two monaural phone jacks for two separate audio inputs.
- One 3-pin XLR connector for RTS intercom channels one and two.
- Control to adjust volume of speaker output.
- Control that balances the speaker's audio level between input one and input two.
- Power externally from a Telex Wall Pack.

Controls

The LMS-325 has the following controls:

- Detented volume control to simultaneously adjust the speaker level for both input lines.
- Control to balance the relative level of the input line one and input line two.

Specifications

General

Impedance

8 ohms

Power Rating

5 watts

Sensitivity

90± dB/2.83V/meter on axis averaged over one octave bands centered at 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz and 8 kHz when enclosed in a sealed box with a volume of 1.3 liters.

Frequency Response

200 Hz to 10 kHz ± dB on 1/10 octave measurements in a sealed box with a volume of 1.3 liters.

Free Air Resonance

200 Hz to 250 Hz

Stray Magnetic Field

Less than 1 gauss at a distance of 1 cm from chassis.

Mechanical Noise

Free of buzzes and rattles with 5W sine-wave input from 100 Hz to 10 kHz

Environmental Requirements

Storage: -20°C to 80°C; 0% to 95% humidity, non-condensing.

Operating: 0°C to 50°C; 0% to 95% humidity, non-condensing.

Dimensions

1.72" (44mm)H x 8.2" (208mm)W x 8" (203")D

Weight

2 lbs. 12 oz. (1.25kg)

Connector Pin Configurations

Speaker Inputs

Type: RCA Phone Jacks

Tip: Audio

Sleeve: Common

Type: XLR-3F

Pin 1 Common

Pin 2 RTS Channel 1 audio

Pin 3 RTS Channel 2 audio

External Power

Type: 2.0 mm jack
Internal pin: positive (+)
External shell: negative (-)

Speaker Amplifier

NOTE: Specifications are for *INPUT 1* with the balance control set for minimum attenuation. Specifications for *INPUT 2* are identical.

Input Impedance

47 k Ω

Input Level

0.7 V_{rms}

Output Amplifier Power

5 W maximum, 4 W continuous into 8 Ω

Signal to Noise Ratio

75 dB, reference 2 W into 8 Ω

Total Harmonic Distortion

Less than 0.5% at 2 W nominal.

Balance Control

12 dB maximum relative attenuation.

Operation

What you will find in this chapter:

- External Connections & Controls
- Mounting Configurations

External Connections & Controls

NOTE: The numbers refer to the callouts in Figure 1.

1. Volume Control
Use this control to simultaneously adjust the speaker level for both speaker input lines.
2. 12-15 VDC Input Jack
The LMS-325 is powered from a Telex® Wall Pack (part number 532006-000). Plug the Wall Pack into the 12-15 VDC jack and into an AC outlet.
3. Balance Control
This control adjusts the relative level of the Input 1 and Input 2 (Channel 1 and Channel 2, respectively). Use a small flat-blade screwdriver to adjust the control.
4. Audio Input Jacks
These 1/4" monaural phone jacks can be used to connect audio inputs from some other line-level program sources (an auxiliary output from a radio or tap player for example).
5. XLR Line Input Connector
This 3-pin female XLR jack can be connected directly to an RTS™ intercom line. The RTS™ intercom line may carry Channel 1, Channel 2, or both channels.

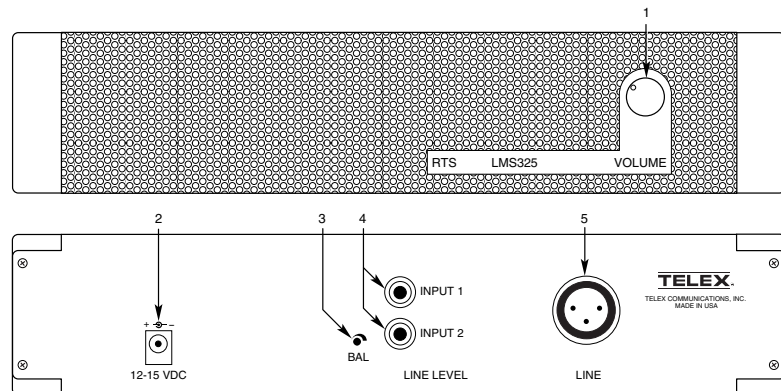


Figure 1. LMS-325 Connections and Controls

Mounting Configurations

Optional mounting configurations for modular RTS™ intercom stations are shown in Figure 2 and include rack-mount, console-mount, desktop, and portable stations.

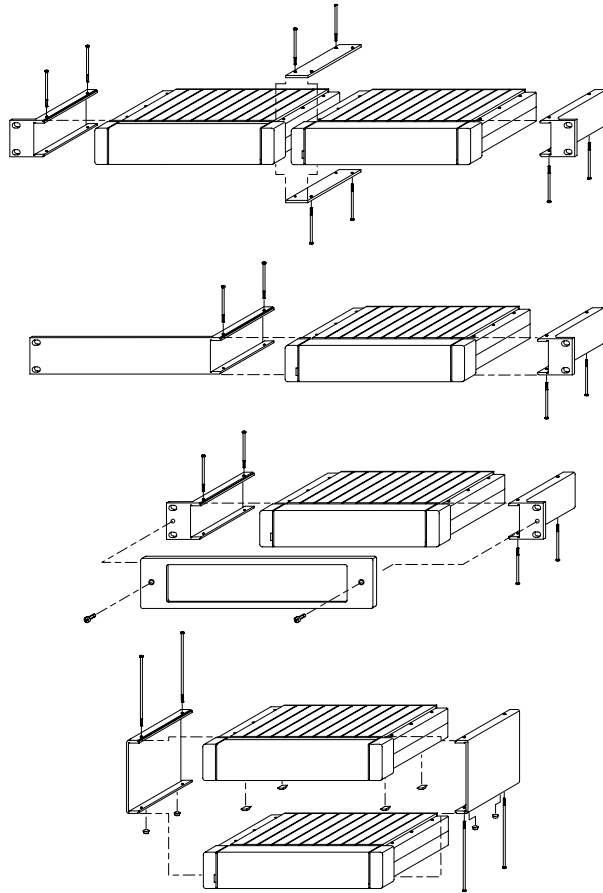


Figure 2. Optional Mounting Configurations

Replacement Parts

What you will find in this chapter:

- Where to obtain parts
- Mechanical Parts
- Electrical Parts

Where to Obtain Parts

Parts may be obtained directly from Telex at:

Telex/RTS Systems
12000 Portland Ave South
Burnsville, MN 55337
800-392-3497
Fax 800-323-0498

Mechanical Parts

TABLE 3. Mechanical Parts

Final Assembly (Refer to page 19 for Item No. locations)		
Item No.	Description	Part No.
1	Speaker Grill Assembly, LMS-325	9020-7490-000
2	Foam Strip, 1/4" Wide, Grey, 6.0" LG.	4501-0076-02
3	*6* Case Extrusion	9060-6260-00
4	P.C. Board Assembly, LMS-325	9030-7490-000
5	Gasket, Rear Panel	4501-0076-00
6	Screw, Case	9160-6305-00
7	Screw, Metric	1603008
8	Screw, #4-20, Plastite	51856-005
9	Screw, #4-40 x 1/2" LG.	51845-039
10	Rear Panel, LMS325	9080-7490-000
11	Hex Nut, #4	52188-006
12	Insulator, Silicone Pad	57896-003
13	Washer	50013-035
14	Cement	25400-046
15	Thermal Compound	84627-000

TABLE 4. Speaker Grill Assembly

Speaker Grill Assembly (Refer to Pages 20-21 Item No. locations)		
Item No.	Description	Part No.
1	Bezel, Speaker	9070-6264-00
2	Speaker Grill, LMS325/MCS325	9070-7490-000
3	Label, LMS325	9170-6633-002
4	Spacer	80660636
5		
6		
7		
8	Washer, Lock	50049-003
9	Speaker	590530-000
10	Screw	51845-056
11	Conn. Housing, 2-pin	52264-002
12	Terminal, Crimp Style, Snap In	54460-001
13	Wire, 24 AWG, Black	51204-010
14	Wire, 24 AWG, White	51204-009
15	Wire, 24 AWG, Blue	51204-006
16	Potentiometer, 10K Ohm	54131-006
17	Bracket	9110-7490-000
18	Knob, Grey	2703-0034-00
19	Screw	1008602000
20	Mounting Plate	9070-6889-001

TABLE 5. Electrical Parts

PC Board Assembly Refer to Page 23 for Reference No.			
Qty	Ref. No.	Description	Part No.
1	D1	Diode, IN4001, 50V	50745-010
1	C14	Not Installed	51821-012
1	C9	Capacitor, EL, 10 μ F, 25V	51821-622
2	C10	Capacitor, EL, 47 μ F, 25V	51821-642
	C11		
4	C12	Capacitor, EL, 100 μ F, 25V	51821-626
	C13		
	C16		
	C18		
2	R8	Resistor, CF, 100 k Ω , 5%, 1/4 W	52154-233
	R9		
2	R11	Resistor, CF, 47 k Ω , 5%, 1/4 W	52154-241
	R14		
4	R32	Resistor, CF, 22 k Ω , 5%, 1/4 W	52154-249
	R33		
	R38		
	R39		
8	R28	Resistor, CF, 10 k Ω , 5%, 1/4 W	52154-257
	R29		
	R30		
	R31		
	R34		
	R35		
	R36		
	R37		
1	R7	Resistor, CF, 1.8 k Ω , 5%, 1/4 W	52154-275
1	R27	Resistor, CF, 2.7 Ω , 5%, 1/4 W	52154-343

TABLE 5. Electrical Parts

PC Board Assembly Refer to Page 23 for Reference No.			
Qty	Ref. No.	Description	Part No.
2	R12	Resistor, CF, 0 Ω , 5%, 1/4 W	52154-971
	R17		
2	C17	Capacitor, Cer. Disc. 10 pF 500 V. 10%	52157-502
	C19		
1	C6	Capacitor, CM, 0.33 μ F, 50V	52676-512
2	C5	Capacitor, CM, 1 μ F, 50V	52676-517
	C15		
4	C1	Capacitor, CM, 0.22 μ F, 50V	52676-613
	C2		
	C24		
	C25		
2	C3	Capacitor, CM, 0.1 μ F, 50V	52676-615
	C4		
2	C7	Capacitor, NP, 47 μ F, 35V	52710-068
	C8		
3	R1	Resistor, MF, 1 k Ω , 1%, 1/4W	54044-100
	R10		
	R15		
1	R2	Resistor, MF, 2 k Ω , 1%, 1/4W	54044-200
2	R5	Resistor, MF, 11.5 k Ω , 1%, 1/4W	54045-115
	R16		
2	R3	Resistor, MF, 100 k Ω , 1%, 1/4 W	54046-100
	R4		
1	J3	Connector, ST Locking, 0.100, M-2	57721-002
1	U1	IC, Audio Amp, NTE 1851	59616-000
1	J2	Connector, DC Power Jack, 2.0mm	59697-001
1	F1	Fuse, Fast Acting, 2A	536004-003

TABLE 5. Electrical Parts

PC Board Assembly Refer to Page 23 for Reference No.			
Qty	Ref. No.	Description	Part No.
1	J4	Connector, RA XLR, F-3	2018008100
1	U4		760361
1	D6	Diode, Zener, 17V, 1N5354	86770-003
2	C20	Capacitor, EL, 2200 μ F, 35V	51821-232
	C21		
2	C22	Capacitor, EL, 0.1 μ F, 25V	517004-000
	C23		
1	R13	Potentiometer, 10k Ω , 30%, 0.08W	14060044-00
1	R18	Potentiometer, 10k Ω , 20%, 0.1W	14090060-00
2	U2	IC, Low Noise Dual Op-Amp, LM833N	1603083300
	U3		
13	TP1	Terminal with Insert. #ME151- 101-1000	20170014-00
	TP2		
	TP3		
	TP4		
	TP5		
	TP6		
	TP7		
	TP8		
	TP9		
	TP10		
	TP11		
	TP12		
	TP13		
1	J1	Connector, RA Dual RCA-Type Jack, Yellow	20180090-00
1		PC Board Rev E	9040-7490-000
AR		Solder Paste	BE738

Drawings

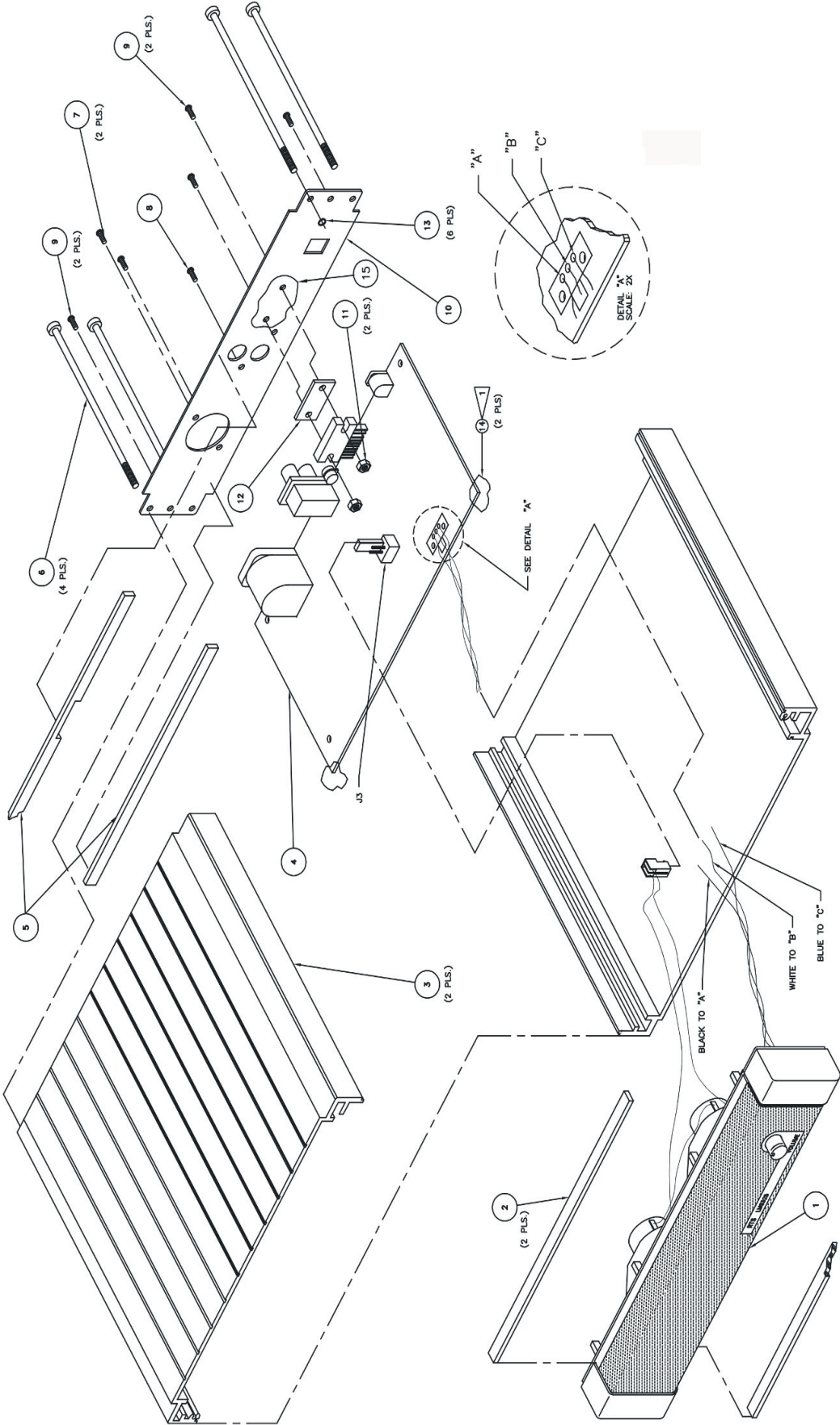
In this chapter:

- 9010-7490-000 LMS-325 Final Assembly Drawing
- 9020-7490-000 Speaker Grill Assembly
- 9027-7490-000 LMS-325 Schematic Drawing
- 9030-7490-000 Speaker Unit Assembly Drawing

NOTES:

1. APPLY (1) TO (3) AFTER (4) IS POSITIONED INTO SLOTS OF (3).

SHEET		SHEET		REVISIONS		REV.		DESCRIPTION		ECLD. NO.		DFT		CHK		APP		DATE	
REV.		STATUS		LOC.		A		RELEASE TO MFG.		60198		KS		KS		KS		1/26/95	
						B		EXTENSIVE CHANGES, SEE ECO		60572		DS		DS		—		9-27-95	
						C		ADD ITEM 15		60804		JC		JC		—		4/14/99	
						D		CHG. VIEW WAS: SINGLE SPEAKER SHOWN		63673		KS		KS		—			

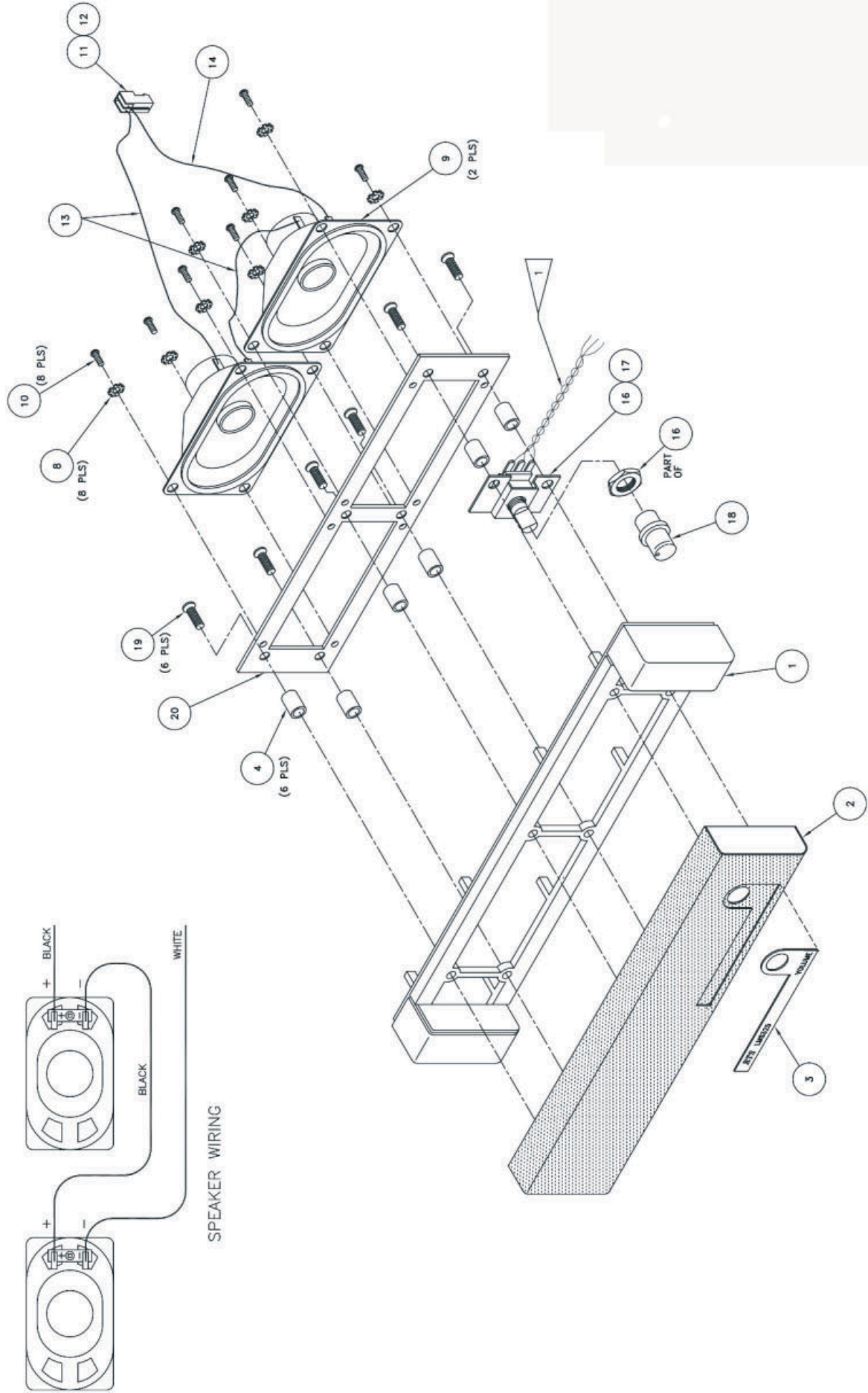


A/CAD GENERATED DRAWING		DR		KS		CK		KS		APP		TITLE	
FILE NAME: 80107490_1.DWG				DATE: 1/22/95		SCALE: NONE		DATE: 1/22/95		SCALE: NONE		LMS325	
						DID NOT SCALE DRAWING						FINAL ASSY.	
												TELEX	
												SIZE DWG. NO. 9010-7490	
												SHT. 1 OF 1	
												PLANT DIST. B.E.	

2		SHEET	REV.		REVISIONS		ECCO. NO. / MFG. APP.		DATE
		C	REV.		DESCRIPTION				
					A		RELEASE TO MFG.		1/26/95
					B		EXTENSIVE CHANGES-SEE ECCO FOR DETAILS		4/15/99
					C		ADD ITEM B, CHG. SHT. 2		8/4/99

NOTES:

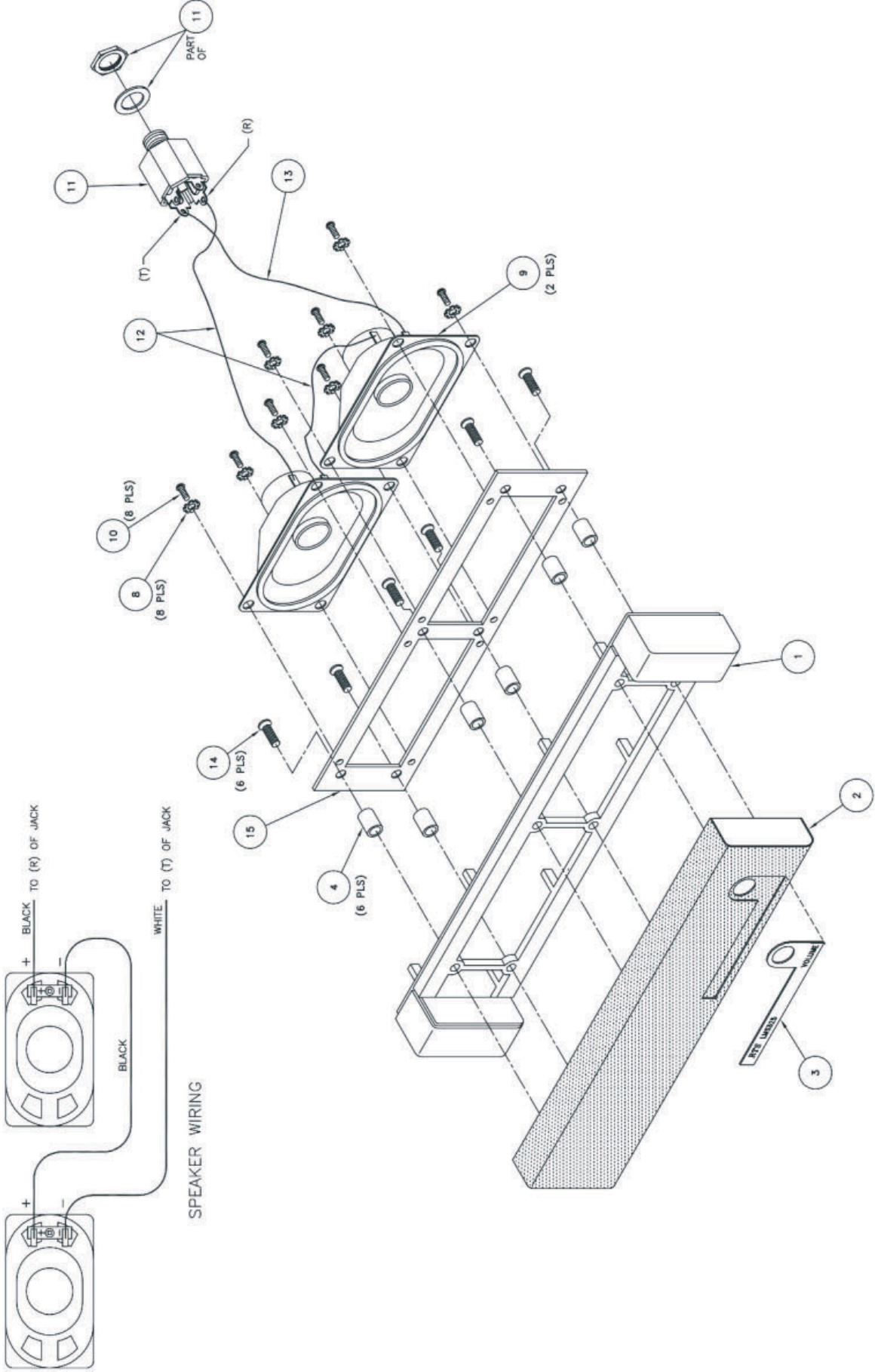
1 WIRES TO BE TWISTED.



A/CAD GENERATED DRAWING		MODEL	NEXT ASSY
FILE NAME 90207490.LDWG			
UNSPECIFIED LIMITS OF TOLERANCE		FINISHES: 25% NO. 10, 75% NO. 10	
STRAIGHTNESS AND CONCENTRICITY AND TIR		CONCENTRICITY AND TIR	
ANGLES 1/2" BORE: 12"		ANGLES 1/2" BORE: 12"	
AND 1/2" BORE: 12"		AND 1/2" BORE: 12"	
THREADS: EXT. CLASS 2A		THREADS: EXT. CLASS 2A	
INT. CLASS 2B		INT. CLASS 2B	
THREADS: 1/2" BORE: 12"		THREADS: 1/2" BORE: 12"	
TELEX		MINNEAPOLIS, MINNESOTA	
DATE: 1/22/95		DATE: 1/22/95	
DO NOT SCALE DRAWING		DO NOT SCALE DRAWING	
DR: KS		KS / APP TAY	
TITLE		LMS325	
SPEAKER GRILL		SPEAKER GRILL	
ASSY.		ASSY.	
SIZE DWG. NO. 9020-7490-000		SIZE DWG. NO. 9020-7490-000	
SHT. 1 OF 2		SHT. 1 OF 2	
PLANT DIST.		PLANT DIST.	
B.E.		B.E.	

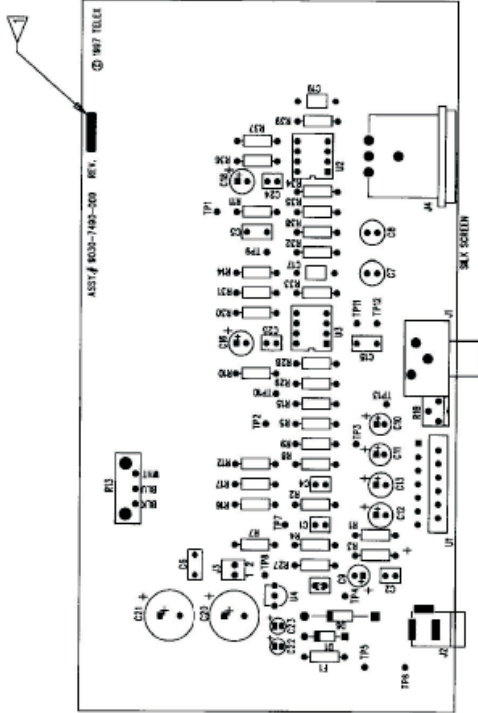
NOTES:

REVISIONS				
LOC.	REV.	DESCRIPTION	ECO. NO.	DATE
	A	RELEASE TO MFG.	60198 KS KS TAY	2/26/95
	B	EXTENSIVE CHANGES-SEE ECO FOR DETAILS	63673 KS KS	4/15/99
	C	ADD ITEM 8	63744 KS KS	8/4/99



A/CAD GENERATED DRAWING FILE NAME: 99037490_2.DWG		MODEL	NEXT ASSY	UNSPECIFIED LIMITS OF TOLERANCE FINISHES: NOTE DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED ANGLES: ALL 90° UNLESS NOTED DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED THREADS: ALL CLASS 2B UNLESS NOTED HOLD FINISH: SEE SPEC. NO. 3 SURF. F.	DR: KS [X] KS [APP] TAY [TITLE] DATE: 1/22/95 SCALE: FULL DO NOT SCALE DRAWING	MCS325 SPEAKER GRILL ASSY.	SIZE: DWG NO. 9020-7490-001 D SHT. 2 PLANT DIST. B.E.
--	--	-------	-----------	---	--	----------------------------------	---

SHEET		SHEET REVISION STATUS		REVISION			
		REV.		LOC.	REV. DESCRIPTION	ECO. NO.	DRAFT CHR APP DATE
				A	RELEASED		DP 12-28-94
				B	ROTATED VIEW	60088	DP 12-29-94
				C	CHANGED NOTE 3	60572	DP 07-25-95
				D	CHANGED NOTE 3	60804	MK 09-27-95
				E	NEW LAYOUT TO CORRECT XTALK PROBLEM	60930	CBH 04-12-96
				F	CHANGED GND PLANE TO "AGND"	62106	CBH 04-28-97
				G	CHANGED NOTE 3	63233	CBH 12-9-97
				H	SWAPPED PINS 2 & 3 ON R18 \ CHNGD. NO 3	63378	CBH 12-9-97



- NOTES:
1. MANUFACTURING TO STAMP REV ON BOARD THAT APARS ON DRAWING
 2. REFERENCE SCHEMATIC DRAWING 9027-7490-000 P E
 3. PARTS LIST FILED SEPARATLY 9030-7490-000 RE G

-004-003-002-001-000		ITEM NO.	REF. PART NUMBER	DESCRIPTION
QTY.	QTY.	QTY.	QTY.	REV.
LIST OF MATERIALS				
UNSPECIFIED LIMITS OF TOLERANCE				
FINISHES AND/OR PLATING: 205 W/P/W				
CONCENTRICITY .015 TR				
ANGLES PI/20 ROUNDS P/D				
UNMARKED ANGLES, EDGES AND INTERSECTIONS R/D				
THICKNESS: EXT. CLASS 2A				
INT. CLASS 2B				
MOLD FINISH: SP-SPE NO. 3				
DRAFT 2D				
DECIMAL				
X P.150 IN				
XX P.150 IN				
XXX P.150 IN				
MACHINED				
FINISH: 64				
DATE: 12-21-94				
SCALE: 1"				
DO NOT SCALE DRAWING				
TITLE: LWS-325 LINE MONITOR SPEAKER UNIT				
P/N: ASSEMBLY DRAWING				
SIZE: 9030-7490-000				
SHT. OF: 1 OF 1				
PLANT DIST.: B.E.				
MINNEAPOLIS, MINNESOTA				
CAD GENERATED DRAWING				
FILE NAME: IC_GROUP/ASSEMBLY/7490/REV3				
MODEL: NEXT ASSY				