QUICK TESTS TO DETERMINE PROPER FUNCTIONING OF SDA LOUDSPEAKERS

Assumptions:

1. The speakers are connected to a common-ground amplifier, in correct absolute phase (i.e., "+" amplifier terminal to "+" speaker terminal).

2. The speakers are correctly positioned. The front faces of the two units must lie in the same plane; the speakers must not be "toed-in" if they are to work properly. The left-channel speakers MUST be in the left position, and the right-channel speaker MUST be in the right position, viewed from the listening position.

Procedures:

1. With a monaural broadband signal such as interstation noise on an FM tuner, set the balance control in the center position. The sound image should now be positioned directly in the center, between the two speakers. The "dimensional" tweeter and driver on each speaker (see manual) should now be inactive. Note that the dimensional driver may be vibrating in sympathy with the sound being produced by the "stereo" drivers, but is not itself actively producing sound. Now, rotate the balance control to the left; the image should now shift decidedly to the left, appearing to the left of the left-channel speaker. All the drivers and tweeters on the left-channel speaker should now be producing sound; on the right-channel unit, however, only the "dimensional" driver and tweeter should be operating. Similarly, when the balance control is rotated to the right, the situation is reversed, with all right-channel drivers and tweeters active and only the dimensional driver and tweeter active in the left-channel unit.

   If the dimensional drivers and tweeters fail to produce sound when the balance control is rotated to the right, then it is likely that the right-channel unit has been connected to the amplifier in reverse phase. If the fault occurs when balance is rotated left, then check the left-channel connections. Check the phase of both channels if the dimensional drivers fail to work at all.

   With some amplifiers, the common inter-channel connection is made through the positive terminals, rather than the negative terminals. In this case, the speakers behave as though both units were connected in reverse phase, and the dimensional drivers will not work; this can be corrected by wiring BOTH units in reverse phase.

2. Disconnect the speaker cable from the black terminals on both the left- and right-channel units. Using the same monaural broadband signal as in (1), rotate the balance control to the left. Only the dimensional speakers of both left- and right-channel units should now be active. The sound should have an odd, "spacey" quality to it, and from the listening position should sound as if it is coming from nowhere in particular. It should also be lacking in bass content. As the balance control is rotated from the left position, the amplitude of the sound should diminish, almost completely disappearing at the center balance position, then reappear and return to its

original level at the rightmost balance position. It should still have the same odd sonic qualities.

The test signal to which you have just been listening represents the "difference" between the left- and right-channel signals. For best operation of the SDA speakers, the balance control should now be set so that this difference test signal is minimized.

If, when the balance control is rotated to either extreme, the sound source appears to be located firmly in the center between the two speaker systems, this is an indication that one of the sets of dimensional speakers is wired out-of-phase. In this case, the ground wires should be reconnected to both the left- and right-channel systems, and test #1 (above) should be performed. This time, during test #1, the balance control will be rotated, and each speaker system will be evaluated for bass output. If one unit produces a markedly lower output in the bass region, it is likely that this is the unit with the out-of-phase dimensional driver and/or tweeter. A driver or tweeter is correctly wired when the BLACK lead is connected to the terminal marked with a dot of red paint (driver) or a red washer under the terminal (tweeter).

3. Several checks can be performed with a VOM to verify that certain internal connections are in order. These involve measurements of resistance between pins of the interconnect cable socket and the red (+) and black (-) bindings posts, all on the backs of the speakers. Interconnect socket pins are marked, and pin #1 is the larger of the two. The following measurements are for a RIGHT-CHANNEL speaker; for a left-channel unit, simply exchange the pin numbers for the interconnect socket:

   Note: Measurements taken with all cables disconnected from the speakers.

	Proper value (ohms)		
Measure between	SDA-2	SDA-1A	SDA-CRS
I.C. pins 1&2	10.5 +/- 10%	10.5 +/- 10%	7 +/- 10%
I.C. pin 1 and (+)	0 ((.3)	0 ((.3)	0 ((.3)
I.C. pin 2 and (+)	10.5 +/- 10%	10.5 +/- 10%	7 +/- 10%
I.C. pin 1 and (-)	4.8 +/- 20%	3.4 +/- 20%	7 +/- 20%
I.C. pin 2 and (-)	15.3 +/- 20%	13.5 +/- 20%	13.5 +/- 20%
(+) and (-)	4.8 +/- 20%	3.4 +/- 20%	7 +/- 20%

TEST DATA VAR.	DCR CHECKPOINTS	RGT. CHANNEL	LFT. CHANNEL
SDA-1(ORIGINAL)			
R1	IC PIN #2 TO BLACK TERMINAL	INF Ω	5.5 Ω
R2	IC PIN #1 TO BLACK TERMINAL	5.5 Ω	INF Ω
R3	IC PIN #1 TO IC PIN #2	INF Ω	INF Ω
R4	IC PIN #2 TO RED TERMINAL	INF Ω	0.1 Ω
R5	RED TERMINAL TO BLACK TERMINAL	5.5 Ω	5.5 Ω
R6	IC PIN #1 TO RED TERMINAL	0.1 Ω	INF Ω
SDA-1A			
R1	IC PIN #2 TO BLACK TERMINAL	13.5 Ω	3.3 Ω
R2	IC PIN #1 TO BLACK TERMINAL	3.3 Ω	13.5 Ω
R3	IC PIN #1 TO IC PIN #2	10.0 Ω	10.0 Ω
R4	IC PIN #2 TO RED TERMINAL	10.0 Ω	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	3.3 Ω	3.3 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	10.0 Ω
SDA-2			
R1	IC PIN #2 TO BLACK TERMINAL	15.3 Ω	4.8 Ω
R2	IC PIN #1 TO BLACK TERMINAL	4.8 Ω	15.3 Ω
R3	IC PIN #1 TO IC PIN #2	10.5 Ω	10.5 Ω
R4	IC PIN #2 TO RED TERMINAL	10.5 Ω	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.8 Ω	4.8 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	10.5 Ω
SDA-CRS			
R1	IC PIN #2 TO BLACK TERMINAL	13.5 Ω	6.8 Ω
R2	IC PIN #1 TO BLACK TERMINAL	6.8 Ω	13.5 Ω
R3	IC PIN #1 TO IC PIN #2	7.0 Ω	7.0 Ω
R4	IC PIN #2 TO RED TERMINAL	7.0 Ω	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	6.8 Ω	6.8 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	7.0 Ω

NOTE: IC PIN #1 IS LARGE BLADE, IC PIN #2 IS SMALL BLADE ON INTERCONNECT

TEST DATA VAR.	DCR CHECKPOINTS	RIGHT CHANNEL	LEFT CHANNEL
SDA SRS 1.2 / SRS 1.2TL			
R1	IC PIN #2 TO BLACK TERMINAL	2.2	2.2
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	2.2	2.2
R4	IC PIN #2 TO RED TERMINAL	3.0	3.0
R5	RED TERMINAL TO BLACK TERMINAL	3.6	3.6
R6	IC PIN #1 TO RED TERMINAL	3.6	3.6
SDA SRS 2.3			
R1	IC PIN #2 TO BLACK TERMINAL	3.1	3.1
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	3.1	3.1
R4	IC PIN #2 TO RED TERMINAL	3.1	3.1
R5	RED TERMINAL TO BLACK TERMINAL	4.0	4.0
R6	IC PIN #1 TO RED TERMINAL	4.1	4.1
SDA SRS 2 .nc			
R1	IC PIN #2 TO BLACK TERMINAL	1.8	1.8
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	1.8	1.8
R4	IC PIN #2 TO RED TERMINAL	3.0	3.0
R5	RED TERMINAL TO BLACK TERMINAL	3.7	3.7
R6	IC PIN #1 TO RED TERMINAL	3.7	3.7
SDA CRS + .nc			
R1	IC PIN #2 TO BLACK TERMINAL	2.2	2.2
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	2.2	2.2
R4	IC PIN #2 TO RED TERMINAL	3.0	3.0
R5	RED TERMINAL TO BLACK TERMINAL	3.7	3.7
R6	IC PIN #1 TO RED TERMINAL	3.7	3.7

NOTE: ALL CROSSOVERS WITH A PIN AND BLADE INTERCONNECT(.nc extension) WILL HAVE THE BLADE = PIN #1 AND THE PIN = PIN #2

SDA WIRING CHECK POINTS

TABLE 1.4-3

TEST DATA VAR.	DCR CHECKPOINTS	RGT. CHANNEL	LFT. CHANNEL
NOTE: IC PIN #1 IS LARGE BLADE, IC PIN #2 IS SMALL BLADE ON INTERCONNECT			
SRS			
R1	IC PIN #2 TO BLACK TERMINAL	INF Ω (843)	4.3 Ω
R2	IC PIN #1 TO BLACK TERMINAL	4.3 Ω	INF Ω (843)
R3	IC PIN #1 TO IC PIN #2	INF Ω (843)	INF Ω (843)
R4	IC PIN #2 TO RED TERMINAL	INF Ω (843)	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.3 Ω	4.3 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	INF Ω (843)
SRS 2 /SDA 1B			
R1	IC PIN #2 TO BLACK TERMINAL	INF Ω (843)	4.3 Ω
R2	IC PIN #1 TO BLACK TERMINAL	4.3 Ω	INF Ω (843)
R3	IC PIN #1 TO IC PIN #2	INF Ω (843)	INF Ω (843)
R4	IC PIN #2 TO RED TERMINAL	INF Ω (843)	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.3 Ω	4.3 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	INF Ω (843)
SDA-2A / SDA CRS+			
R1	IC PIN #2 TO BLACK TERMINAL	INF Ω (843)	4.0 Ω
R2	IC PIN #1 TO BLACK TERMINAL	4.0 Ω	INF Ω (843)
R3	IC PIN #1 TO IC PIN #2	INF Ω (843)	INF Ω (843)
R4	IC PIN #2 TO RED TERMINAL	INF Ω (843)	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.0 Ω	4.0 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	INF Ω (843)

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SDA DCR CHECKPOINT WORKSHEET

MODEL_____ SERIAL NBR._____

DCR CHECKPOINTS	RIGHT CHANNEL		LEFT CHANNEL	
	REFERENCE	MEAS.	REFERENCE	MEAS.
IC PIN #2 TO BLACK TERMINAL				
IC PIN #1 TO BLACK TERMINAL				
IC PIN #1 TO IC PIN #2				
IC PIN #2 TO RED TERMINAL				
RED TERMINAL TO BLACK TERMINAL				
IC PIN #1 TO RED TERMINAL				

NOTE: OLD CONNECT- IC PIN #1 = LARGE BLADE; IC PIN #2 = SMALL BLADE
NEW CONNECT- IC PIN #1 = BLADE; IC PIN #2 = PIN

COLOR CODE: OLD CONNECT- RT. CHAN.: PIN #1 = BLUE; PIN #2 = WHITE
LT. CHAN.: PIN #1 = WHITE; PIN #2 = BLACK
NEW CONNECT- RIGHT & LEFT ARE THE SAME
PIN #1 = WHITE; PIN #2 = BLUE

SKETCHES:

± 10% values
Are Normal!

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TEST DATA VAR.	DCR CHECKPOINTS	RIGHT CHANNEL	LEFT CHANNEL
SDA SRS 1.2 / SRS 1.2TL			
R1	IC PIN #2 TO BLACK TERMINAL	2.2	2.2
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	2.2	2.2
R4	IC PIN #2 TO RED TERMINAL	3.0	3.0
R5	RED TERMINAL TO BLACK TERMINAL	3.6	3.6
R6	IC PIN #1 TO RED TERMINAL	3.6	3.6
SDA SRS 2.3			
R1	IC PIN #2 TO BLACK TERMINAL	3.1	3.1
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	3.1	3.1
R4	IC PIN #2 TO RED TERMINAL	3.1	3.1
R5	RED TERMINAL TO BLACK TERMINAL	4.0	4.0
R6	IC PIN #1 TO RED TERMINAL	4.1	4.1
SDA SRS 2 .nc			
R1	IC PIN #2 TO BLACK TERMINAL	1.8	1.8
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	1.8	1.8
R4	IC PIN #2 TO RED TERMINAL	3.0	3.0
R5	RED TERMINAL TO BLACK TERMINAL	3.7	3.7
R6	IC PIN #1 TO RED TERMINAL	3.7	3.7
SDA CRS + .nc			
R1	IC PIN #2 TO BLACK TERMINAL	2.2	2.2
R2	IC PIN #1 TO BLACK TERMINAL	0.0	0.0
R3	IC PIN #1 TO IC PIN #2	2.2	2.2
R4	IC PIN #2 TO RED TERMINAL	3.0	3.0
R5	RED TERMINAL TO BLACK TERMINAL	3.7	3.7
R6	IC PIN #1 TO RED TERMINAL	3.7	3.7

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R2	IC PIN #1 TO BLACK TERMINAL	4.3 Ω	INF Ω (843)
R3	IC PIN #1 TO IC PIN #2	INF Ω (843)	INF Ω (843)
R4	IC PIN #2 TO RED TERMINAL	INF Ω (843)	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.3 Ω	4.3 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	INF Ω (843)
SRS 2 /SDA 1B			
R1	IC PIN #2 TO BLACK TERMINAL	INF Ω (843)	4.3 Ω
R2	IC PIN #1 TO BLACK TERMINAL	4.3 Ω	INF Ω (843)
R3	IC PIN #1 TO IC PIN #2	INF Ω (843)	INF Ω (843)
R4	IC PIN #2 TO RED TERMINAL	INF Ω (843)	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.3 Ω	4.3 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	INF Ω (843)
SDA-2A / SDA CRS+			
R1	IC PIN #2 TO BLACK TERMINAL	INF Ω (843)	4.0 Ω
R2	IC PIN #1 TO BLACK TERMINAL	4.0 Ω	INF Ω (843)
R3	IC PIN #1 TO IC PIN #2	INF Ω (843)	INF Ω (843)
R4	IC PIN #2 TO RED TERMINAL	INF Ω (843)	0.0 Ω
R5	RED TERMINAL TO BLACK TERMINAL	4.0 Ω	4.0 Ω
R6	IC PIN #1 TO RED TERMINAL	0.0 Ω	INF Ω (843)