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Marti Electronics
SCD-10
STL Subcarrier Demodulator

597-8108 rev C
April 4, 2011

Marti Electronics

SCD-10

STL Subcarrier Demodulator

Marti Electronics
Product Warranty (One-Year Limited)

Broadcast Electronics (BE) hereby warrants all new Marti Electronics branded products, including STL systems, manufactured by BE, against any defects in material or workmanship at the time of delivery thereof, or that develop under normal use within a period of one (1) year, from the date of shipment.

BE reserves the right to repair equipment under warranty with new or refurbished equipment or parts. BE's sole responsibility with respect to any equipment or parts not conforming to this warranty is to replace or repair such equipment upon the return thereof F.O.B. to BE's factory in Quincy, Illinois, U.S.A. In the event of replacement pursuant to the foregoing warranty, only the unexpired portion of the warranty from the time of the original purchase will remain in effect for any such replacement.

This warranty shall exclude the following products, component parts and/or assemblies:

(a) Transmitter power output tubes shall only carry the original manufacturer's or supplier's standard warranty in effect on their original shipment date.

(b) All computers, computer peripherals, cables, hard disk drives, etc., shall only carry the manufacturer's or supplier's standard warranty in effect on their original shipment date.

(c) "Components", defined as separate and individual parts (e.g. transistors, integrated circuits, capacitors, resistors, inductors, fans, etc), resold by BE from another manufacturer or supplier, shall only carry a 90 day warranty, effective the date of shipment. Any such 'Components' being returned for warranty claim must be (1) returned in their original packaging and (2) must be in new, unused condition.
BE is unable to process or resolve component defects or performance concerns on components that have been soldered, installed, wired or in any way altered from new their new condition.

(d) "Resale Equipment", defined as equipment purchased from another manufacturer or supplier, then resold by BE, shall only carry such manufacturer's or supplier's standard warranty in effect as of the original shipment date.. All warranty claims against any and all 'resale equipment' sold by BE must be filed directly with the original equipment manufacturer. BE is unable to process or resolve equipment defects or performance concerns on products or services not manufactured by BE.

This warranty shall not extend to claims resulting from any acts of God, terrorism, war, defects or failures caused by Purchaser or user abuse or misuse, operator error, or unauthorized attempts to repair or alter the equipment in any way.

Under no circumstances shall BE be responsible for indirect, incidental or consequential damages, including, but not limited to transportation costs, non-authorized repair or service costs, downtime costs, costs for substituting equipment or loss of anticipated profits or revenue, incurred by Purchaser, whether based in contract, tort or for negligence or breach of statutory duty or otherwise.

The terms of the foregoing warranty shall be null and void if the equipment has been altered or repaired without specific written authorization from BE, or if not installed according to BE's instruction manuals, including, but not limited to, the absence of proper grounding, surge (TVSS) protection on the AC circuit panel or proper lightning protection/grounding on all output circuits, or if equipment is operated under environmental conditions or circumstances other than those specifically described in BE's product literature or instruction manual which accompany the

equipment. **The warranty shall be voided if the product or subassembly is equipped with a tamper seal and that tamper seal is broken.** BE shall not be liable for any expense of any nature whatsoever incurred by the original user without prior written consent of BE. The warranty provided herein shall terminate at the end of the period set forth above. **This warranty extends only to the original Purchaser and is not transferable.** There are no third party beneficiaries of any of the provisions of this warranty. If the equipment is described as "used" equipment, it is sold as is and where is and no warranty applies unless authorized in writing.

EXCEPT AS SET FORTH HEREIN, AS TO TITLE AND AS SPECIFICALLY REQUIRED BY LAW, THERE ARE NO OTHER WARRANTIES, OR ANY AFFIRMATIONS OF FACT OR PROMISES BY BE, WITH REFERENCE TO THE EQUIPMENT, OR TO MERCHANTABILITY, FITNESS FOR A PARTICULAR APPLICATION, SIGNAL COVERAGE, INFRINGEMENT, OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION OF THE EQUIPMENT ON THE FACE HEREOF.

IMPORTANT INFORMATION

EQUIPMENT LOST OR DAMAGED IN TRANSIT -

When delivering the equipment to you, the truck driver or carrier's agent will present a receipt for your signature. Do not sign it until you have:

1) Inspected the containers for visible signs of damage and 2) Counted the containers and compared with the amount shown on the shipping papers. If a shortage or evidence of damage is noted, insist that notation to that effect be made on the shipping papers before you sign them.

Further, after receiving the equipment, unpack it and inspect thoroughly for concealed damage. If concealed damage is discovered, immediately notify the carrier, confirming the notification in writing, and secure an inspection report. This item should be unpacked and inspected for damage WITHIN 15 DAYS after receipt. Claims for loss or damage will not be honored without proper notification of inspection by the carrier.

RF PRODUCT TECHNICAL ASSISTANCE, REPAIR SERVICE, PARTS -

Technical assistance is available from Broadcast Electronics by letter, prepaid telephone or E-mail. Equipment requiring repair or overhaul should be sent by common carrier, prepaid, insured, and well protected. If proper shipping materials are not available, contact the RF Technical Services Department for a shipping container. Do not mail the equipment. We can assume no liability for inbound damage, and necessary repairs become the obligation of the shipper. Prior arrangement is necessary. Contact the RF Technical Services Department for a Return Authorization.

Emergency and warranty replacement parts may be ordered from the following address. Be sure to include the equipment model number, serial number, part description, and part number. Non-emergency replacement parts may be ordered directly from the Broadcast Electronics stock room at the number shown below.

RF TECHNICAL SERVICES -

Telephone: +1 (217) 224-9617
E-Mail: rfservice@bdcast.com
Fax: +1 (217) 224-6258

FACILITY CONTACTS -

Broadcast Electronics, - Quincy Facility
4100 N. 24th St. P.O. BOX 3606
Quincy, Illinois 62305
Telephone: +1 (217) 224-9600
Fax: +1 (217) 224-6258
General E-Mail: bdcast@bdcast.com
Web Site: www.bdcast.com

PARTS -

Telephone: +1 (217) 224-9617
E-Mail: parts@bdcast.com

RETURN, REPAIR, AND EXCHANGES -

Do not return any merchandise without our written approval and Return Authorization. We will provide special shipping instructions and a code number that will assure proper handling and prompt issuance of credit. Please furnish complete details as to circumstances and reasons when requesting return of merchandise. All returned merchandise must be sent freight prepaid and properly insured by the customer.

MODIFICATIONS -

Broadcast Electronics, reserves the right to modify the design and specifications of the equipment in this manual without notice. Any modifications shall not adversely affect performance of the equipment so modified.

SAFETY PRECAUTIONS

PLEASE READ AND OBSERVE ALL SAFETY PRECAUTIONS!!

ALL PERSONS WHO WORK WITH OR ARE EXPOSED TO POWER TUBES, POWER TRANSISTORS, OR EQUIPMENT WHICH UTILIZES SUCH DEVICES MUST TAKE PRECAUTIONS TO PROTECT THEMSELVES AGAINST POSSIBLE SERIOUS BODILY INJURY. EXERCISE EXTREME CARE AROUND SUCH PRODUCTS. UNINFORMED OR CARELESS OPERATION OF THESE DEVICES CAN RESULT IN POOR PERFORMANCE, DAMAGE TO THE DEVICE OR PROPERTY, SERIOUS BODILY INJURY, AND POSSIBLY DEATH.

DANGEROUS HAZARDS EXIST IN THE OPERATION OF POWER TUBES AND POWER TRANSISTORS -

The operation of power tubes and power transistors involves one or more of the following hazards, any one of which, in the absence of safe operating practices and precautions, could result in serious harm to personnel.

A. HIGH VOLTAGE - Normal operating voltages can be deadly. Additional information follows.

B. RF RADIATION - Exposure to RF radiation may cause serious bodily injury possibly resulting in Blindness or death. Cardiac pacemakers may be affected. Additional information follows.

C. HOT SURFACES - Surfaces of air-cooled radiators and other parts of tubes can reach temperatures of several hundred degrees centigrade and cause serious burns if touched. Additional information follows.

D. RF BURNS - Circuit boards with RF power transistors contain high RF potentials. Do not operate an RF power module with the cover removed.

HIGH VOLTAGE –

Many power circuits operate at voltages high enough to kill through electrocution. Personnel should always break the primary AC Power when accessing the inside of the transmitter.

RADIO FREQUENCY RADIATION -

Exposure of personnel to RF radiation should be minimized, personnel should not be permitted in the vicinity of open energized RF generating circuits, or RF transmission systems (waveguides, cables, connectors, etc.), or energized antennas. It is generally accepted that exposure to "high levels" of radiation can result in severe bodily injury including blindness. Cardiac pacemakers may be affected.

The effect of prolonged exposure to "low level" RF radiation continues to be a subject of investigation and controversy. It is generally agreed that prolonged exposure of personnel to RF radiation should be limited to an absolute minimum. It is also generally agreed that exposure should be reduced in working areas where personnel heat load is above normal. A 10 mW/cm^2 per one tenth hour average level has been adopted by several U.S. Government agencies including the Occupational Safety and Health Administration (OSHA) as the standard protection guide for employee work environments. An even stricter standard is recommended by the American National Standards Institute which recommends a 1.0 mW/cm^2 per one tenth hour average level exposure between 30 Hz and 300 MHz as the standard employee protection guide (ANSI C95.1-1982).

RF energy must be contained properly by shielding and transmission lines. All input and output RF connections, such as cables, flanges and gaskets must be RF leak proof. Never operate a power tube without a properly matched RF energy absorbing load attached. Never look into or expose any part of the body to an antenna or open RF generating tube or circuit or RF transmission system while energized. Monitor the tube and RF system for RF radiation leakage at regular intervals and after servicing.

HOT SURFACES –

The power components in the transmitter are cooled by forced-air and natural convection. When handling any components of the transmitter after it has been in operation, caution must always be taken to ensure that the component is cool enough to handle without injury.

Table of Contents

1 INTRODUCTION – SCD–10

The *MARTI* SCD–10 Subcarrier Demodulator is designed for use with Model SCG–10 Subcarrier Generator to provide a high quality subcarrier channel on a microwave link (STL) or FM station. The SCD–10 may be specified for operation on a standard subcarrier frequency used in FM broadcasting. The subcarrier input to this demodulator should be from a high quality FM receiver having adequate if bandwidth with group delay characteristics sufficient for subcarrier work. The Marti R–Series receivers with 200 KHz phase linear IF filter are excellent in this respect. The SCD–10 has several options available, allowing it to perform a wide range of functions in broadcasting and communications. Audio processing options include selectable de–emphasis of 0, 75, 150 or 225 microseconds. Low–pass audio filters of 3 KHz, 5KHz, or 7.5 KHz are available. For subcarrier link systems using the SCG–10 Generator, a compander decode board plugs into the demodulator, and an encode board into the generator, to adapt the system to audio companding. The SCD–10 employs an illuminated panel meter to aid in adjusting subcarrier input level and audio output.

1.1 FEATURES OF THESE DEMODULATORS INCLUDE:

- Squelch relay with contacts available for external switching.
- Test meter on front panel indicates Signal Level and Audio Level.
- Terminal strip for balanced 600 ohm audio output.
- Low–pass filters designed to eliminate overshoot on complex audio waveforms.
- Accessory plug for external DC power, remote control, etc.
- Low power consumption for operation on AC, solar cell, battery or other single polarity DC source.
- Excellent signal to noise and distortion characteristics.
- Optional companding. (requires companding in accompanying generator.)
- Selectable de–emphasis of 0, 75, 150, or 225 microseconds.

PARAMETER	SPECIFICATION
SUBCARRIER FREQUENCY	Specify 39 KHz, 41 KHz, 67 KHz, 110 KHz, 152 KHz, or 185 KHz
SUBCARRIER INPUT	0.1 TO 1 volt RMS, 10K ohms impedance, BNC connect–tor, Panel adjustment.
DEMODULATOR	Phase–locked FM detector has less then 0.6% THD
DISTORTION AUDIO PROCESSING	De–emphasis: 0, 75, 150, 225 microseconds. user selectable Low–pass filters: Audio cut off frequencies of 3 KHz, 5 KHz, or 7.5 KHz, are specified with original equipment order. The lowest possible cut–off frequency is recommended. Maximum cut–off is 12% of subcarrier frequency. Companding: An optional compander decode board is available for installation in the SCD–10 subcarrier generator with a compander encode board. Companding will reduce noise and can mask certain types of main channel to subcarrier cross–talk
FREQUENCY	+/– 1.5 dB, 25Hz. to 95% of low pass filter cut–off frequency.
RESPONSE	More than 68 dB below 5 KHz deviation (using SCG–10 as signal source directly connected to SCD–10 input, 225 microsecond pre/de–emphasis
SIGNAL/NOISE RATIO	+ 10 dBm maximum output level balanced and isolated into 600ohms. Front panel adjustment range –60 dBm to +10 dBm.
AUDIO OUTPUT LEVEL	Front panel adjustable squelch relay will squelch audio output over subcarrier level range of 0.1 to 2.0 volts in put. Normally open relay contacts available at accessory "D" connector for external functions. LED on front panel indicates "squelch open" condition.
SUBCARRIER	Illuminated panel meter indicates subcarrier input level or audio output level.
SQUELCH	Meter Switch, Squelch Adjust/ Squelch Open (LED panel indicator), Subcarrier Input Level Adjust, Audio Output Level Adjust.
METERING	BNC jack for subcarrier input, 9 pin "D" connector for balanced audio output; squelch relay contacts. FSK out put, ground, +18 to 20 volt input, + 13.5 volt input, AC receptacle, 6–32 screw terminals for balanced 600 ohm audio output.
CONTROL	

PARAMETER	SPECIFICATION
OPERATING TEMP RANGE	–10C TO +50C
POWER REQUIREMENTS	120/220/240 VAC (voltage to be specified on original order 50/60 Hz 10 watts or 12–14 VDC at 50 ma negative ground or 24–28 VDC at 70 ma (28 volt operation require the APS–28/18 power supply
AC FUSE RATING	For 120v use 3/8 amp fuse
DIMENSIONS	1 3/4 in high x 19 in. wide x 12 in deep 4.45 cm high x 48.26 cm wide x 30.48 cm deep
WEIGHT	Net 4.5 pounds Domestic packed 9 pounds Net 2.1 kilograms. export packed 4.1 kilograms

2 UNPACKING AND INSPECTING

This equipment was factory tested, inspected, packed, and delivered to the carrier with utmost care. Do not accept shipment from the carrier which shows damage or shortage until the carrier's agent endorses a statement of the irregularity on the face of the carrier's receipt. Without documentary evidence, a claim cannot be filed.

Unpack equipment immediately upon receipt and thoroughly inspect for concealed damage. If damage is discovered, cease further unpacking and request immediate inspection by a local agent of the carrier. A written report of the agent's findings, with his signature is necessary to support the claim. Check your shipment against the shipping papers for possible shortage. Do not discard any packing material until all items are located. Small items are often thrown away with packing material.

The packing material should be retained until equipment testing is completed. Any equipment returned to the factory should be packed in the original cartons, insured, and pre–paid.

3 INSTALLATION

NOTE *INSTALL RACK–MOUNTED EQUIPMENT*
IN A WELL VENTILATED, GROUNDED,
NOTE *AND SHIELDED RACK CABINET*

Install rack–mounted equipment in a well ventilated, grounded, and shielded rack cabinet. Do not locate solid–state equipment in a rack above tube–type equipment which produces high temperatures. Problems can also be avoided by locating this unit away from other equipment which has transformers that produce strong magnetic fields. These fields can induce hum and noise into the Marti equipment thus reducing performance. Strong radio–frequency (RF) fields should be avoided where possible. Extensive shielding and filtering have been incorporated into this equipment to permit operation in moderate RF environments. All equipment racks, cabinets, etc., should be bonded together by wide copper grounding strap to ensure that all system elements are at the same RF ground potential.

3.1 SCD–10 DEMODULATOR CONNECTIONS

1. Connect balanced 600 ohm audio load to the screw terminals of terminal strip TB–1 on the rear panel.

2. Connect the 36" coaxial cable supplied (Marti Part No. 585–019) between the BNC jack J–1 sub. Input of the SCD–10 and the BNC jack marked Subcarrier Output on the STL receiver. (Receiver subcarrier output level should be between 0.1 and 1.0 volt RMS)

3. The accessory connector J2 has the following pin connections

Pin 1 and 5	External DC power (backup)
Pin 2 and 4	Squelch relay contact (N/C)

Pin 3	FSK/ Subaudible output
Pin 6 and 9	Chassis ground
Pin 7 and 8	600 ohm balanced audio

4. Connect SCD –10 to a 115 volt AC power source with special cord set supplied. The equipment is fused with a 3/8 Amp., 250 volt, 3 AG type Fuse

WARNING *THIS EQUIPMENT MUST BE OPERATED WITH A 3–PRONG, GROUNDED, 115 VOLT, AC OUTLET RECEPTACLE. FAILURE TO*
WARNING *USE A PROPERLY GROUNDED OUTLET COULD RESULT IN A SAFETY HAZARD OR FAULTY EQUIPMENT PERFORMANCE.*

4 OPERATION

1. With subcarrier signal connected to J1 place Meter Switch to "Sub. Input Level" position. Adjust Sub. Input Level pot to an indication between –10 and 0 VU on the Meter.

2. Turn Squelch adjust pot until Squelch Open LED turns ON. Place Meter Switch in " Audio Output Level" post ion with the generator modulated 100%. (0 VU). Set audio Output Level pot for desired level. 0 VU on the meter is +10 dBm.

3. Return Meter Switch to "Sub. Input Level" position. At the SCG–10 Subcarrier Generator, place Subcarrier Control Switch in "Off/Remote" position. At the SCD–10 Subcarrier Demodulator set Squelch Adjust pot for signal squelch condition ("Squelch Open" LED should be OFF). If cross–talk or noise intermittently opens the squelch, readjust the squelch pot until the Squelch Open" LED remains OFF under all conditions. At the SCG–10, place Sub- carrier Control Switch in "ON" position. At the SCD–10 demodulator the "Squelch Open" LED should now be "on" and the system operational.

5 SCD–10 TUNE–UP AND ADJUSTMENT

Refer to Location of Adjustments Drawing No. 702–080 and appropriate schematic diagrams for each module.

This equipment was thoroughly tested and inspected at the factory prior to shipment. The actual equipment performance was recorded on the factory test report (SCD–10 Test report) Adjustments should rarely be necessary in the field and should be attempted only by highly trained technicians familiar with this type equipment. Laboratory grade test equipment is required and is listed under "TEST EQUIPMENT AND TOOLS." For location of adjustments and test points in the SCD–10 Demodulator refer to Adjustment location Diagram 702–080.

5.1 AUDIO BOARD, 800–205D

1. Set the pre–emphasis switch S1 and S2 on SCG–10 Audio Board, 800–194G to 225 microseconds as shown on drawing 702–079 of SCG–10 instruction book.

2. Set de–emphasis switches S1 and S2 of SCD–10 Audio Board 800–205D to 225 microseconds as shown on Drawing 702–080 of SCD–10 instruction book.

3. Modulate generator 100% at exactly 1 KHz. Set Audio Output Level Adjust for exactly +10 dBm on an accurate audio level meter connected to the SCD–10 output.

4. Lower the audio signal generator frequency to exactly 400 Hz at the exact same level into the SCG–10.

5. The SCD–10 Demodulator audio output level meter should read +10 dBm +/– 0.25 dB. If not, adjust R4 on the SCD–10 Audio Board, 800–205D for exactly +10 dBm output.

5.2 DEMODULATOR BOARD, 800–266

1. Input Filter Adjustment: With SCG–10 and SCD–10 operating back to back , reduce Sub. Input Level of SCD–10 until Sub Input Meter reads approximately 1/4 scale. Adjust L1, L2, L3 on 800–266 Board, using an insulated tool, for maximum meter reading. These coil settings may be re–adjusted slightly to lower demodulator distortion on some modulating frequencies.

2. VCO Fine Tune Adjustment: Connect the SCG–10 or signal generator set to the exact subcarrier frequency, to J1, Sub. Input jack at a 0.25 volt RMS level. Rotate Squelch Adjust pot to maximum counter–clockwise position. Rotate Sub. Input Level pot in a counter–clockwise direction until the minimum signal level is found which will maintain “Squelch Open” operation. Monitor the 600ohm balanced output for the demodulator noise floor and adjust R14 for center of lock range or minimum demodulator noise.

5.3 DEMODULATOR, 800–266 (FSK ADJUST)

1. Add C31, 15000pf 33 volt 5% polystyrene or polypropylene capacitor in parallel with C25. This is done on the top side of the 800–266 Board using terminals provided.

2. Connect SCG–10 “J1” to SCD–10 “J1”. Set SCG–10 Control Switch to “ON” and adjust levels for normal operation as previously explained.

3. Connect a square wave generator output to pin 3 of J2. Set generator for symmetrical square wave output of 1000 pps at 4 volts peak–to–peak.

4. Connect oscilloscope to pin 3 of J2 of SCD–10. Adjust VCO Fine Tune pot, R14. for symmetrical square wave output.

5.4 POWER SUPPLY BOARD 800–219D

Set R2 "Meter Calibrate" pot to maximum counter–clockwise position.

6 TEST EQUIPMENT

Distortion Analyzer	Krohn–Hite Model 6802
Oscillator	Krohn–Hite Model 6802
Attenuator Set	Hewlett–Packard Model 3500
Frequency Counter	Hewlett–Packard Model 5383A (Option 001)
Digital Multimeter	Beckman Model 3030
Analog Multimeter	Triplett Model 630
Oscilloscope	Tektronix Model 2215

7 TOOLS FOR ALIGNMENT

Screwdriver	R184
Tuning Tool	Coilcraft, Hex Alignment Tool

SCD–10 SUBCARRIER DEMODULATOR FACTORY TEST DATA

CUSTOMER: _____

ADDRESS: _____

SERIAL NO.:_____AUDIO BANDWIDTH: _____KHz. DE-EMPHASIS SET: ___US.

_____Companding Decode

_____Regulated Voltage 13.3–13.5 volts DC

_____PLL Range Set

_____Sub Input Level Meter Checked

_____Squelch Adjust Checked

_____Squelch Open Light Checked

_____Squelch Relay Checked

_____Sub Input Level Adjust Checked

_____Audio Output Level Adjust Checked

_____De–emphasis Set

_____System Data Recorded on SCG–10 Factory Test Data Sheet

8 MAIN FRAME BILL OF MATERIAL

This bill of material uses an indented structure to show relationships of parts into sub assemblies. Example; all BOM LEVEL 2 parts are contained in the BOM LEVEL 1 part immediately above it.

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	705-SCD-10	SCD-10 W/O MODULES	1	
....2	500-033	Screw, 6 x 1/4 phillips head SM SS type A"	7	
....2	586-090	Cable Assembly, SCD-10 Harness	1	
......3	410-1416	LUG,TERM,BENT,11/16	1	
......3	510-090	Cable Ties, 4 Panduit PANPLT1M-M MS3367-4-9"	1	
......3	512-018	Solder Lug, #4 short Concord 707-1204	3	
......3	550-122	CONNECTOR, 10 PIN MOLEX HOUSING 09-50-8100	3	
......3	550-126	Connector, crimp terminal pin Molex 08-50-0187	57	
......3	550-137	Connector, 8 pin Molex housing 09-50-8080	5	
......3	580-040	Wire, UL1061 22/7 OTC Black	1.98	
......3	580-041	Wire, UL1061 22/7 OTC Brown	2.31	
......3	580-042	Wire, UL1061 22/7 OTC White	0.98	
......3	580-043	Wire, UL1061 22/7 OTC Red	3.71	
......3	580-044	Wire, UL1061 22/7 OTC Yellow	0.92	
......3	580-045	Wire, UL1061 22/7 OTC Blue	2.04	
......3	580-046	Wire, UL1061 22/7 OTC Green	2	
......3	580-047	Wire, UL1061 22/7 OS-1 Orange	1.89	
......3	580-048	Wire, UL1061 22/7 OTC Violet	1.52	
......3	580-049	Wire, UL1061 22/7 OTC Slate	1.63	
......3	580-050	Wire, UL1061 22/7 OS-1 White/Red	2.1	
......3	580-088	Shielded Wire, 16-C-22-SPJ White/Red 1 Cond. 22/19x34 pvc	1.06	
......3	580-089	Shielded Wire, 16-C-22-SPJ White/Orange 1 cond 22/19x34 pvc	0.96	
......3	580-091	Shielded Wire, 16-C-22-SPJ White/Green 1 Cond.22/19x34 pvc	0.78	
......3	580-092	Shielded Wire, 16-C-22-SPJ White/Blue 1 Cond.22/19x34 pvc	0.94	
......3	580-093	Shielded Wire, 16-C-22-SPJ White/Violet 1 Cond.22/19x34 pvc	1.33	
......3	580-099	Shielded Wire, 16-C-22-SPJ White/Black 1 Cond. 22/19x34 pvc	1.61	
....2	700-259-5A	SCD-10 Main Frame	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....3	320-040L	TRANSFORMER, POWER, SCD/SCG 110V W/LUGS	1	
.....4	320-040	TRANSFORMER, POWER, 41FJ300	1	
.....4	512-020	TERMINAL,NICHIFU TMDN #125-250-03FA TERMINAL	2	
.....3	320-040AL	TRANSFORMER, POWER, SCD/SCG 220V W/LUGS	1	
.....4	320-040A	TRANSFORMER, POWER, 16654 220V	1	
.....4	512-020	TERMINAL,NICHIFU TMDN #125-250-03FA TERMINAL	2	
.....3	339-0006	FILTER,RFI,10A 250VAC,50/60HZ	1	
.....3	410-951	Diode, LED, Quality Tech MV5054A1	1	
.....3	500-002-1	Hex Nut, #4-40 Regular Nickel Plated	23	
.....3	500-033	Screw, 6 x 1/4 phillips head SM SS type A"	5	
.....3	500-055	Lockwasher, #4 internal tooth small pattern zinc plated	20	
.....3	500-162	Screw, 4-40 x 7/16 phillips pan head MS zinc plated"	26	
.....3	500-166	Self Locking Nut, 4-40	2	
.....3	500-180	Screw, 4-40 x 1/4 phillips pan head M/S Black Zinc"	2	
.....3	500-181	Screw, #4 x 1/4 phillips pan head S/M Black Zinc"	4	
.....3	500-187	Screw, #6 x 1/4 phillips pan head S/M type A black zinc	8	
.....3	500-188	Screw, 4-40 x 3/8 phillips,flat head,black oxide"	2	
.....3	500-199	Keps nut 4 x 40 zinc 4CNKEOZ	6	
.....3	500-203	Screw, 6 x 3/16 Philips Pan Head SMS	1	
.....3	510-047	Fuse, 3/8 Amp 3AG Littlefuse 312.375	1	
.....3	510-072	Fuseholder, Littlefuse #342-004	1	
.....3	510-113	Bushing, #B-312-250 black shorty Microplastic #22MP01015	3	
.....3	512-014	Closed End Connector, Molex ETCNC-2214	2	
.....3	513-042	Spacer,4-40 x 3/16,Hex,Threaded	20	
.....3	550-015	Connector, UG-625B/U BNC receptacle Amphenol 31-236 *NOTE*	1	
.....3	586-194	Cable Assembly, AC Connector to Fuseholder (SBCM)	1	
.....4	512-020	TERMINAL,NICHIFU TMDN #125-250-03FA TERMINAL	2	
.....4	580-130	Wire, Stranded UL1015-20/10 Black Tinned Copper	0.32	
.....3	586-195	Cable Assembly, AC Connector to Ground (SBCM)	1	
.....4	410-1416	LUG,TERM,BENT,11/16	1	
.....4	512-020	TERMINAL,NICHIFU TMDN #125-250-03FA TERMINAL	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	580-130	Wire, Stranded UL1015-20/10 Black Tinned Copper	0.32	
.....3	700-227-2	Top Cover, ATS/ARS/SCG/SCD/CD	1	
.....3	700-227-3	Bracket,SCG/SCD/ATS/ARS/CD Rack	2	
.....3	700-259-1	Chassis, SCG/SCD/CD-15/ATS/ARS	1	
.....3	700-259-3D	Rear Panel, SCD-10	1	
.....4	700-259-3-009	Rear Panel, Subcarrier (UNSCREENED)	1	
.....3	700-259-5	Front Panel, SCD-10	1	
....2	800-219A	Receiver Power Supply	1	
.....3	100-1041	RES,1K OHM,1/4W,1%	1	R7
.....3	100-1051	RES,10K OHM,1/4W,1%	2	R11,R16
.....3	101-501	Potentiometer, 500 ohm cermet Bourns 3309P-501	1	R2
.....3	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R17
.....3	103-2211	RES,22.1K OHM,1/4W,1%,METAL	1	R23
.....3	103-2341	RES,2.32K OHM,1/4W,1%,METAL	1	R9
.....3	103-3323	RES,332 OHM,1/4W,1%,METAL	1	R12
.....3	103-3325	RES,33.2K OHM,1/4W,1%,METAL	1	R21
.....3	103-4741	RES,4.75K OHM,1/4W,1%,METAL	8	
.....3	103-4753	RES,475 OHM,1/4W,1%,METAL	1	R15
.....3	145-101	RESISTOR, 100 OHM 1/4 WATT 1% METAL FILM MEPCO SFR25	1	R10
.....3	145-241-1	RESISTOR, 240 OHM 1/4 WATT 1% SFR55 240 1% TR	1	R8
.....3	145-433	Resistor, 43k ohm 1/4 watt 5% carbon film 29SJ250	1	R4
.....3	203-4148	DIODE,1N4148	3	D9,D10,D11
.....3	211-3904	TSTR,2N3904	1	Q2
.....3	217-103	CAP,0.1UF 250VDC 5%,POLY FILM	3	C10,C11,C14
.....3	219-080	Cap,electrolytic 10uF 25V Nichicon TVX1E100MAA	1	C13
.....3	219-200	CAPACITOR ELECTROLYTIC 22UF 25V	3	C6,C7,C8
.....3	219-472	CAPACITOR, ELECTROLYTIC 4700UF 25V	1	C5
.....3	268-102	CAPACITOR, .001 uF 50V DISC -20+80%	4	C1,C2,C3,C4
.....3	400-091A	IC, OP-AMP, LINCMOS PROGRAMMABLE LOW POWER	1	IC1
.....3	400-293	IC, DUAL DIFFERENTIAL COMPARATOR	1	IC2
.....3	401-338	IC, SMT, REGULATOR, 5 AMP, LM338T *NOTE*	1	IC3
.....3	402-0001	TY-RAP,T+B TY24M,1-1/4 DIA	1	
.....3	410-110	Diode, zener Motorola 1N4741A 11v 5%	1	D7
.....3	414-007	Diode, General Instruments 1N4007	7	D1,D2,D3,D4, D5,D6,D8
.....3	500-162	Screw, 4-40 x 7/16 phillips pan head MS zinc plated"	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....3	500-199	Keps nut 4 x 40 zinc 4CNKEOZ	1	
.....3	520-051	HEATSINK, THERMALLOY 6030B-TT	1	
.....3	550-123	Connector, 10 pin header (cut from 550-162)	1	P2
.....4	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
.....3	550-138	Connector, 8 pin Molex header (cut from 550-162)	1	P1
.....4	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.333	
.....3	550-161	IC Socket, 16 pin Aries 16-3518-11	1	K1
.....3	570-035-1	Relay, Aromat HB2E-DC12V	1	K1
.....3	580-155	Wire, Kynar Black 30 Gauge Alpha #5951	0.08	
.....3	800-302B	PC Board,Receiver Power Supply	1	PCB
.....3	DB61024	Washer, TO-220 Shoulder NYL Thermalloy #7721-7PPS	1	
.....3	DB68027	Sil Pad TO220 .75x.5" ADHSV Berquist 3223-07AC-58"	1	
....2	800-264AD	SCD-10 Meter Board	1	
.....3	030-034M	Meter, VU	1	M1
.....4	030-033	200 Micro-Amp Meter	1	
.....4	030-033-1	VU Meter Scales	1	
.....3	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R3
.....3	145-221	Resistor, 220 ohm 1/4 watt 1% metal film Mepco SFR25	1	R2
.....3	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	1	R1
.....3	200-0015	DIODE,ZENER,15V,1W,1N4744A	1	D2
.....3	414-007	Diode, General Instruments 1N4007	1	D1
.....3	420-4104	SCREW,4-40X.250,S.S. PH	2	
.....3	500-055	Lockwasher, #4 internal tooth small pattern zinc plated	2	
.....3	510-196	SUBMINIATURE LAMP, LUMEX IFL-LX2162-16T	1	B1
.....3	513-033	Spacer, 4-40 x 13/16 hex threaded Concord 535-8413-02	2	
.....3	530-057	SWITCH,SLIDE,DPDT	1	S1
.....3	550-176	Connector, 8 pin Molex angle header (cut from 550-163)	1	P1
.....4	550-163	Connector, 24 pin break-away (angle) Molex 26-48-6246	0.333	
.....3	800-264B	PC Board, Meter SCG/SCD-10	1	PCB
....2	800-265AD	SCD-10 Input/Output Filter Board	1	
.....3	255-750	CAPACITOR, 75 pF 5% NPO DISC	1	C8
.....3	270-102	Cap,monolithic,1000pf 50v 5%KemetC1206C102J5GACTR marked	7	C1,C2,C3,C4, C5,C6,C7

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....3	310-014	TRANSFORMER, AUDIO, MIDCOM 671-9041 TECATE VFT 950-0394	1	T1
.....3	330-018	INDUCTOR, 10 uH, 10%	8	L1,L2,L3,L4,L5, L6,L7,L8
.....3	414-007	Diode, General Instruments 1N4007	2	D1,D2
.....3	500-105	Pop-Rivet, AD42BS Aluminum	2	
.....3	510-210	Brackets, #6 Keystone 634	2	
.....3	511-043	Terminal Block, Augat/RDI 4DB-R207-02 PC Mount	1	TB1
.....3	550-138	Connector, 8 pin Molex header (cut from 550-162)	1	P1
.....4	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.333	
.....3	550-154	CONNECTOR, D-SUB 9 PIN ANGLE	1	J1
.....3	580-044	Wire, UL1061 22/7 OTC Yellow	0.21	
.....3	800-265B	PC Board, Input/Output Filter SCG/SCD-10 (NOTE)	1	PCB
....2	800-269A	SCD-SCG Dummy Board	1	
.....3	550-123	Connector, 10 pin header (cut from 550-162)	1	P1
.....4	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
.....3	800-269B	PC Board, Dummy SCG/SCD-10	1	PCB

9 AUDIO BOARDS BILL OF MATERIAL

This bill of material uses an indented structure to show relationships of parts into sub assemblies. Example; all BOM LEVEL 2 parts are contained in the BOM LEVEL 1 part immediately above it.

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-205A3	SCD-10 3 KHz Audio Board	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	7	
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	6	
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	1	
....2	145-030	RESISTOR, 3.3 OHM 1/4 WATT 1% METAL FILM MEPCO SFR25	2	
....2	145-122-1	Resistor, 1.2k ohm 1/4 watt 1% CCF07 1.2K MF TR	1	
....2	145-134	Resistor, 130k ohm 1/4 watt 5% carbon film 29SJ250	1	
....2	145-182-1	RESISTOR, 1.8K OHN 1/4 WATT 1% RL07S182G MF	1	
....2	145-184-1	RESISTOR, 180K OHM 1/4 WATT 2% RL07S184G	1	
....2	145-220	Resistor, 22 ohm 1/4 watt 5% metal film Mepco SFR25	2	
....2	145-274	Resistor, 270k ohm 1/4 watt 5% carbon film CF1/4-270K	2	
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	1	
....2	145-563	Resistor, 56k ohm 1/4 watt 5% carbon film 29SJ250	1	
....2	203-4148	DIODE,1N4148	2	
....2	215-151C	Capacitor, 150pF 5% 200V ceramic dipped C322C151J2G5CA	2	
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	
....2	215-332	Capacitor, 3300 pf 2.5% 100v polypro Seacor PFWAB330HGUE	1	
....2	215-622	Capacitor, .0062 mfd 2.5% 100v polypro Seacor PFWAB620HGNE	1	
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	2	
....2	219-181	Capacitor, electrolytic 180uF 10V radial ECA-1AFQ181	4	
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	5	
....2	219-221	CAPACITOR, ELECTROLYTIC 220uF 25V RADIAL	3	
....2	221-0072	AMP,OP,BIFET TLO72CP	2	
....2	253-471	CAPACITOR, 470 PF 50V 10% Y5P DISC	5	
....2	255-361	Capacitor, 360pF 300v 5% silver mica	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
		CD10FA361J03		
....2	401-877	IC, DUAL AUDIO POWER AMPLIFIER, LM1877N-9	1	
....2	530-053	Switch, slide Alco SLSA-220-1 New Part#5-1437577-6	2	
....2	550-138	Connector, 8 pin Molex header (cut from 550-162)	2	
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.333	
....2	800-205B	PC Board, Audio R-10 NOTE!!	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-205A5	SCD-10 5 KHz Audio Board	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R4
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	5	
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	6	R3,R12,R13, R21,R27,R33
....2	103-3325	RES,33.2K OHM,1/4W,1%,METAL	1	R16
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	1	
....2	145-030	RESISTOR, 3.3 OHM 1/4 WATT 1% METAL FILM MEPCO SFR25	2	R8,R29
....2	145-122-1	Resistor, 1.2k ohm 1/4 watt 1% CCF07 1.2K MF TR	1	R24
....2	145-154	Resistor, 150k ohm 1/4 watt 5% carbon film 29SJ250	2	R17,R18
....2	145-182-1	RESISTOR, 1.8K OHN 1/4 WATT 1% RL07S182G MF	1	R23
....2	145-184-1	RESISTOR, 180K OHM 1/4 WATT 2% RL07S184G	1	R32
....2	145-220	Resistor, 22 ohm 1/4 watt 5% metal film Mepco SFR25	2	R22,R25
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	1	R5
....2	145-683	Resistor, 68k ohm 1/4 watt 1% metal film Mepco SFR25	2	R14,R15
....2	145-753	Resistor, 75k ohm 1/4 watt 5% carbon film 29SJ250	1	R19
....2	203-4148	DIODE,1N4148	2	D3,D4
....2	215-151C	Capacitor, 150pF 5% 200V ceramic dipped C322C151J2G5CA	2	C20,C23
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C19
....2	215-332	Capacitor, 3300 pf 2.5% 100v polypro Seacor PFWAB330HGUE	1	C5
....2	215-622	Capacitor, .0062 mfd 2.5% 100v polypro Seacor PFWAB620HGNE	1	C4
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	2	C18,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	5	C2,C21,C24, C27,C29
....2	219-221	CAPACITOR, ELECTROLYTIC 220uF 25V RADIAL	7	C3,C14,C15, C30,C35,C36 ,C37
....2	221-0072	AMP,OP,BIFET TLO72CP	2	
....2	253-471	CAPACITOR, 470 PF 50V 10% Y5P DISC	5	C25,C26,C32 ,C33,C34
....2	255-361	Capacitor, 360pF 300v 5% silver mica CD10FA361J03	1	C22
....2	401-877	IC, DUAL AUDIO POWER AMPLIFIER, LM1877N-9	1	IC3

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	530-053	Switch, slide Alco SLSA-220-1 New Part#5-1437577-6	2	S1,S2
....2	550-138	Connector, 8 pin Molex header (cut from 550-162)	2	P1,P2
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.333	
....2	800-205B	PC Board, Audio R-10 NOTE!!	1	PCB

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-205A7	SCD-10 7.5 KHz Audio Board	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R4
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	7	
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	7	R3,R12,R13, R16,R21,R27 ,R33
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	1	
....2	145-030	RESISTOR, 3.3 OHM 1/4 WATT 1% METAL FILM MEPCO SFR25	2	R8,R29
....2	145-122-1	Resistor, 1.2k ohm 1/4 watt 1% CCF07 1.2K MF TR	1	R24
....2	145-182-1	RESISTOR, 1.8K OHN 1/4 WATT 1% RL07S182G MF	1	R23
....2	145-184-1	RESISTOR, 180K OHM 1/4 WATT 2% RL07S184G	1	R32
....2	145-220	Resistor, 22 ohm 1/4 watt 5% metal film Mepco SFR25	2	R22,R25
....2	145-433	Resistor, 43k ohm 1/4 watt 5% carbon film 29SJ250	2	R14,R15
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	1	R5
....2	145-513	Resistor, 51k ohm 1/4 watt 5% carbon film 29SJ250	1	R19
....2	203-4148	DIODE,1N4148	2	D3,D4
....2	215-151C	Capacitor, 150pF 5% 200V ceramic dipped C322C151J2G5CA	2	C20,C23
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C19
....2	215-332	Capacitor, 3300 pf 2.5% 100v polypro Seacor PFWAB330HGUE	1	C5
....2	215-622	Capacitor, .0062 mfd 2.5% 100v polypro Seacor PFWAB620HGNE	1	C4
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	2	C18,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	5	C2,C21,C24, C27,C29
....2	219-221	CAPACITOR, ELECTROLYTIC 220uF 25V RADIAL	7	C3,C14,C15, C30,C35,C36 ,C37
....2	221-0072	AMP,OP,BIFET TLO72CP	2	
....2	253-471	CAPACITOR, 470 PF 50V 10% Y5P DISC	5	C25,C26,C32 ,C33,C34
....2	255-361	Capacitor, 360pF 300v 5% silver mica CD10FA361J03	1	C22
....2	401-877	IC, DUAL AUDIO POWER AMPLIFIER, LM1877N-9	1	IC3
....2	530-053	Switch, slide Alco SLSA-220-1 New Part#5-1437577-6	2	S1,S2
....2	550-138	Connector, 8 pin Molex header (cut from	2	P1,P2

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
		550-162)		
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.333	
....2	800-205B	PC Board, Audio R-10 NOTE!!	1	PCB

10 DEMODULATOR BILL OF MATERIAL

This bill of material uses an indented structure to show relationships of parts into sub assemblies. Example; all BOM LEVEL 2 parts are contained in the BOM LEVEL 1 part immediately above it.

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-266A39	SCD-10 39 KHz Demod Board	1	
....2	100-104-1	Potentiometer, 100K ohm cermet trimmer Piher PTC15YB100K	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	R9
....2	100-522	Potentiometer, 5k ohm cermet trimmer Piher PTC15YB5k	1	R21
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R14
....2	103-1007	RES,1 MEG OHM,1/4W,1%,METAL	1	R8
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	2	
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	3	R2,R3,R24
....2	103-2241	RES,2.21K OHM,1/4W,1%,METAL	1	
....2	103-3324	RES,3.32K OHM,1/4W,1%,METAL	1	R23
....2	103-3325	RES,33.2K OHM,1/4W,1%,METAL	1	R16
....2	103-4731	RES,475K OHM,1/4W,1%,METAL	1	R13
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	2	
....2	145-123	Resistor, 12k ohm 1/4 watt 1% metal film Mepco SFR25	1	R19
....2	145-183-1	RESISTOR, 18K OHM 1/4 WATT 1% RL07S183G	1	R15
....2	145-273	Resistor, 27k ohm 1/4 watt 1% carbon film 29SJ250	1	R4
....2	145-364-1	RESISTOR, 360K OHM 1/4 WATT 1% CARBON FILM	1	R18
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	2	R11,R20
....2	145-562	RESISTOR, 5.6K OHM 1/4 WATT 5% METAL FILM	1	R12
....2	145-912	Resistor, 9.1k ohm 1/4 watt 5% metal film Mepco SFR25	1	R1
....2	215-122	Capacitor, .0012 mfd 2.5% 100v polypro Seacor PFWAB120HGNE	2	C10,C19
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C23
....2	215-301	CAPACITOR, 300 PF 2.5% 100V POLYPRO	1	C25
....2	217-103	CAP,0.1UF 250VDC 5%,POLY FILM	7	C13,C14,C17 ,C18,C22, C24,C27
....2	217-104	CAPACITOR, .01 UF 50V GMV DISC	2	C16,C29
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	3	C11,C12,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	1	C21
....2	221-5532-001	IC,NE-5532AN	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	255-100	CAPACITOR, 10 PF 5% NPO DISC	1	C15
....2	255-101C	Capacitor, 100pf 5% 200V ceramic dipped C317C101J2G5CA	2	C4A,C7A
....2	255-102C	Cap,1000 pf COG 200V Ceramic Dip Kemet C322C102J2G5CA 5%	2	C1,C5
....2	255-750	CAPACITOR, 75 pF 5% NPO DISC	1	C26
....2	256-301	CAPACITOR, 300 pF 5% NPO DISC	2	C4B,C7B
....2	350-036	INDUCTOR, 8mH - 20mH	3	L1,L2,L3
....2	402-211	Integrated Circuit, XR2211CP	1	IC2
....2	412-494	DIODE, GERMANIUM 1N270 (note)	1	D1
....2	550-069	IC Socket, 14 pin Keltron ICS-14-3-T / Aries 14-3510-10	1	IC2
....2	550-123	Connector, 10 pin header (cut from 550-162)	1	P1
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
....2	800-266B	PC Board, Demod SCD-10	1	PCB

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-266A67	SCD-10 67 KHz Demod Board	1	
....2	100-104-1	Potentiometer, 100K ohm cermet trimmer Piher PTC15YB100K	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	R9
....2	100-522	Potentiometer, 5k ohm cermet trimmer Piher PTC15YB5k	1	R21
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R14
....2	103-1007	RES,1 MEG OHM,1/4W,1%,METAL	1	R8
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	2	R6,R17
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	4	R2,R3,R19, R24
....2	103-2241	RES,2.21K OHM,1/4W,1%,METAL	1	R10
....2	103-3324	RES,3.32K OHM,1/4W,1%,METAL	1	R23
....2	103-4731	RES,475K OHM,1/4W,1%,METAL	1	R13
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	2	R7,R22
....2	145-183-1	RESISTOR, 18K OHM 1/4 WATT 1% RL07S183G	1	R15
....2	145-273	Resistor, 27k ohm 1/4 watt 1% carbon film 29SJ250	1	R4
....2	145-364-1	RESISTOR, 360K OHM 1/4 WATT 1% CARBON FILM	1	R18
....2	145-433	Resistor, 43k ohm 1/4 watt 5% carbon film 29SJ250	1	R16
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	2	R11,R20
....2	145-562	RESISTOR, 5.6K OHM 1/4 WATT 5% METAL FILM	1	R12
....2	145-912	Resistor, 9.1k ohm 1/4 watt 5% metal film Mepco SFR25	1	R1
....2	215-151C	Capacitor, 150pF 5% 200V ceramic dipped C322C151J2G5CA	2	C4B,C7A
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C23
....2	215-301	CAPACITOR, 300 PF 2.5% 100V POLYPRO	1	C25
....2	215-701	Capacitor, 700 pf 2.5% 100V polypro Seacor PFWAA700HGUE	4	C1,C5,C10, C19
....2	217-103	CAP,0.1UF 250VDC 5%,POLY FILM	7	C13,C14,C17, C18,C22,C24, C27
....2	217-104	CAPACITOR, .01 UF 50V GMV DISC	2	C16,C29
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	3	C11,C12,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	1	C21
....2	221-5532-001	IC,NE-5532AN	1	
....2	255-100	CAPACITOR, 10 PF 5% NPO DISC	1	C15
....2	255-161	CAPACITOR, 160 PF 300V 5% SIVLER MICA	2	C4A,C7B

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	255-750	CAPACITOR, 75 pF 5% NPO DISC	1	C26
....2	300-001	COIL, 387-10M 3000-10000uH #47271-010	3	L1,L2,L3
....2	402-211	Integrated Circuit, XR2211CP	1	IC2
....2	412-494	DIODE, GERMANIUM 1N270 (note)	1	D1
....2	550-069	IC Socket, 14 pin Keltron ICS-14-3-T / Aries 14-3510-10	1	IC2
....2	550-123	Connector, 10 pin header (cut from 550-162)	1	P1
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
....2	800-266B	PC Board, Demod SCD-10	1	PCB

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-266A92	SCD-10 92 KHz Demod Board	1	
....2	100-104-1	Potentiometer, 100K ohm cermet trimmer Piher PTC15YB100K	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	R9
....2	100-522	Potentiometer, 5k ohm cermet trimmer Piher PTC15YB5k	1	R21
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R14
....2	103-1007	RES,1 MEG OHM,1/4W,1%,METAL	1	R8
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	2	R6,R17
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	3	R2,R3,R24
....2	103-2241	RES,2.21K OHM,1/4W,1%,METAL	1	R10
....2	103-3324	RES,3.32K OHM,1/4W,1%,METAL	1	R23
....2	103-4731	RES,475K OHM,1/4W,1%,METAL	1	R13
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	2	R7,R22
....2	145-123	Resistor, 12k ohm 1/4 watt 1% metal film Mepco SFR25	1	R19
....2	145-183-1	RESISTOR, 18K OHM 1/4 WATT 1% RL07S183G	1	R15
....2	145-273	Resistor, 27k ohm 1/4 watt 1% carbon film 29SJ250	1	R4
....2	145-283	Resistor, 28k ohm 1/4 watt 1% metal film Mepco SFR55	1	R16
....2	145-364-1	RESISTOR, 360K OHM 1/4 WATT 1% CARBON FILM	1	R18
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	2	R11,R20
....2	145-562	RESISTOR, 5.6K OHM 1/4 WATT 5% METAL FILM	1	R12
....2	145-912	Resistor, 9.1k ohm 1/4 watt 5% metal film Mepco SFR25	1	R1
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C23
....2	215-301	CAPACITOR, 300 PF 2.5% 100V POLYPRO	1	C25
....2	217-103	CAP,0.1UF 250VDC 5%,POLY FILM	7	C13,C14,C17, C18,C22,C24, C27
....2	217-104	CAPACITOR, .01 UF 50V GMV DISC	2	C16,C29
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	3	C11,C12,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	1	C21
....2	221-5532-001	IC,NE-5532AN	1	
....2	253-471	CAPACITOR, 470 PF 50V 10% Y5P DISC	3	C1,C5,C10
....2	255-100	CAPACITOR, 10 PF 5% NPO DISC	1	C15
....2	255-271C	CAPACITOR, 270pF 5% 200V CERAMIC DIPPED	2	C19,C20
....2	255-750	CAPACITOR, 75 pF 5% NPO DISC	1	C26

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	256-131	CAPACITOR, 130 pF 5% 50V NPO DISC	2	C4,C7
....2	300-001	COIL, 387-10M 3000-10000uH #47271-010	3	L1,L2,L3
....2	402-211	Integrated Circuit, XR2211CP	1	IC2
....2	412-494	DIODE, GERMANIUM 1N270 (note)	1	D1
....2	550-069	IC Socket, 14 pin Keltron ICS-14-3-T / Aries 14-3510-10	1	IC2
....2	550-123	Connector, 10 pin header (cut from 550-162)	1	P1
......3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
....2	800-266B	PC Board, Demod SCD-10	1	PCB

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-266A110	SCD-10 110 KHz Demod Board	1	
....2	100-104-1	Potentiometer, 100K ohm cermet trimmer Piher PTC15YB100K	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	R9
....2	100-522	Potentiometer, 5k ohm cermet trimmer Piher PTC15YB5k	1	R21
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R14
....2	103-1007	RES,1 MEG OHM,1/4W,1%,METAL	1	R8
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	2	
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	3	R2,R3,R24
....2	103-2241	RES,2.21K OHM,1/4W,1%,METAL	1	
....2	103-3324	RES,3.32K OHM,1/4W,1%,METAL	1	R23
....2	103-4731	RES,475K OHM,1/4W,1%,METAL	1	R13
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	2	
....2	145-123	Resistor, 12k ohm 1/4 watt 1% metal film Mepco SFR25	1	R19
....2	145-183-1	RESISTOR, 18K OHM 1/4 WATT 1% RL07S183G	1	R15
....2	145-273	Resistor, 27k ohm 1/4 watt 1% carbon film 29SJ250	1	R4
....2	145-283	Resistor, 28k ohm 1/4 watt 1% metal film Mepco SFR55	1	R16
....2	145-364-1	RESISTOR, 360K OHM 1/4 WATT 1% CARBON FILM	1	R18
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	2	R11,R20
....2	145-562	RESISTOR, 5.6K OHM 1/4 WATT 5% METAL FILM	1	R12
....2	145-912	Resistor, 9.1k ohm 1/4 watt 5% metal film Mepco SFR25	1	R1
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C23
....2	215-301	CAPACITOR, 300 PF 2.5% 100V POLYPRO	1	C25
....2	217-103	CAP,0.1UF 250VDC 5%,POLY FILM	7	C13,C14,C17, C18,C22,C24, C27
....2	217-104	CAPACITOR, .01 UF 50V GMV DISC	2	C16,C29
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	3	C11,C12,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	1	C21
....2	221-5532-001	IC,NE-5532AN	1	
....2	253-471	CAPACITOR, 470 PF 50V 10% Y5P DISC	4	C1,C5,C10,C19
....2	255-100	CAPACITOR, 10 PF 5% NPO DISC	1	C15
....2	255-101C	Capacitor, 100pf 5% 200V ceramic dipped C317C101J2G5CA	2	C4,C7
....2	255-750	CAPACITOR, 75 pF 5% NPO DISC	1	C26

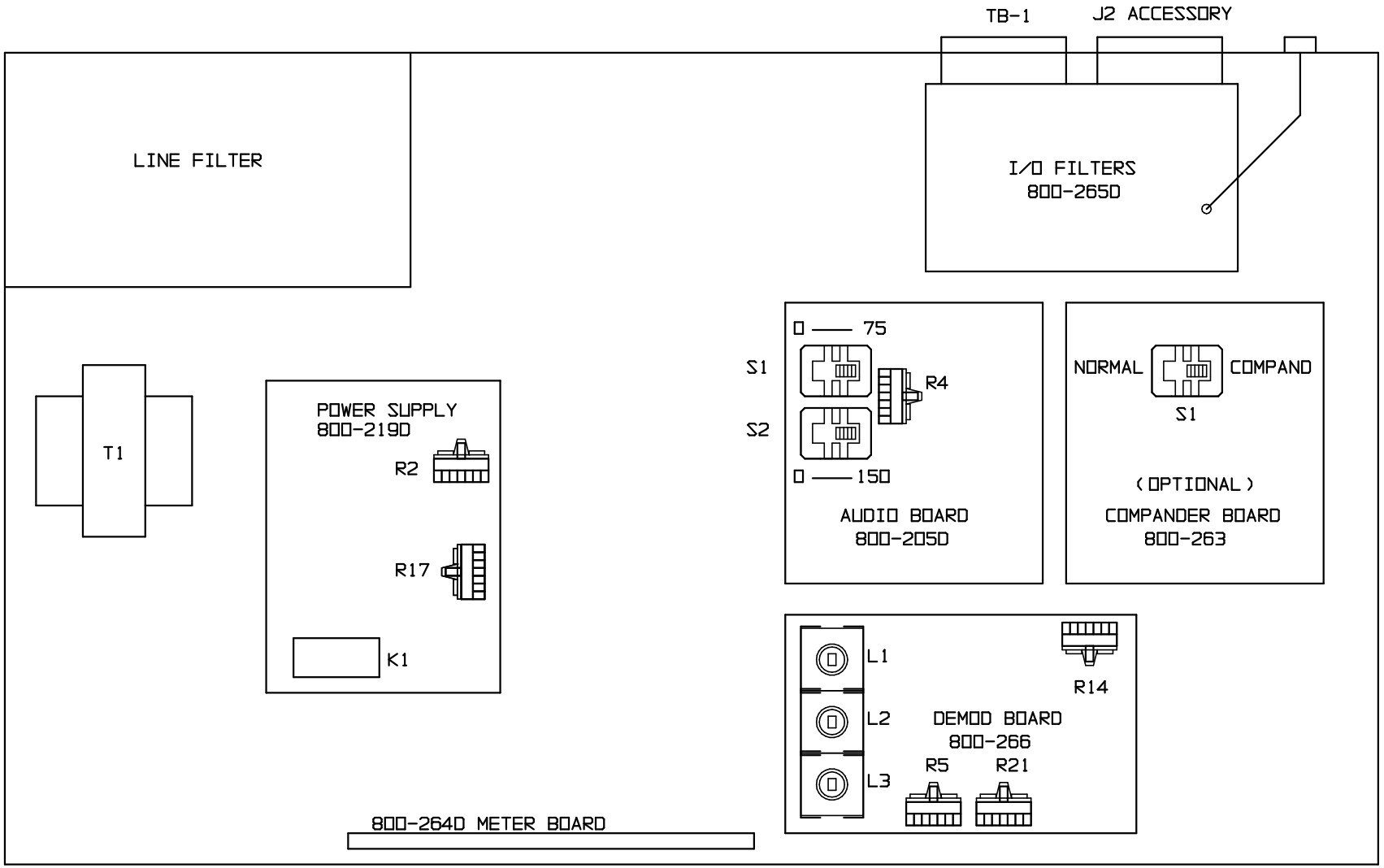
BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	300-001	COIL, 387-10M 3000-10000uH #47271-010	3	L1,2,L3
....2	402-211	Integrated Circuit, XR2211CP	1	IC2
....2	412-494	DIODE, GERMANIUM 1N270 (note)	1	D1
....2	550-069	IC Socket, 14 pin Keltron ICS-14-3-T / Aries 14-3510-10	1	IC2
....2	550-123	Connector, 10 pin header (cut from 550-162)	1	P1
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
....2	800-266B	PC Board, Demod SCD-10	1	PCB

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	800-266A185	SCD-10 152/185 KHz Demod Board	1	
....2	100-104-1	Potentiometer, 100K ohm cermet trimmer Piher PTC15YB100K	1	
....2	100-1041	RES,1K OHM,1/4W,1%	1	R9
....2	100-522	Potentiometer, 5k ohm cermet trimmer Piher PTC15YB5k	1	R21
....2	101-502	POT,5K,SINGLE TURN,HORIZONTAL PCB MOUNT	1	R14
....2	103-1007	RES,1 MEG OHM,1/4W,1%,METAL	1	R8
....2	103-1062	RES,100K OHM,1/4W,1%,METAL	2	
....2	103-2211	RES,22.1K OHM,1/4W,1%,METAL	3	R2,R3,R24
....2	103-2241	RES,2.21K OHM,1/4W,1%,METAL	1	
....2	103-2744	RES,2.74K OHM,1/4W,1%,METAL	1	R7
....2	103-3324	RES,3.32K OHM,1/4W,1%,METAL	1	R23
....2	103-4731	RES,475K OHM,1/4W,1%,METAL	1	R13
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	1	
....2	145-123	Resistor, 12k ohm 1/4 watt 1% metal film Mepco SFR25	1	R19
....2	145-183-1	RESISTOR, 18K OHM 1/4 WATT 1% RL07S183G	1	R15
....2	145-273	Resistor, 27k ohm 1/4 watt 1% carbon film 29SJ250	1	R4
....2	145-283	Resistor, 28k ohm 1/4 watt 1% metal film Mepco SFR55	1	R16
....2	145-364-1	RESISTOR, 360K OHM 1/4 WATT 1% CARBON FILM	1	R18
....2	145-470	Resistor, 47.5 ohm 1/4 watt 1% metal film Mepco SFR25	2	R11,R20
....2	145-562	RESISTOR, 5.6K OHM 1/4 WATT 5% METAL FILM	1	R12
....2	145-912	Resistor, 9.1k ohm 1/4 watt 5% metal film Mepco SFR25	1	R1
....2	215-202	Capacitor, .002 mfd 2.5% 100v polypro Seacor PFWAB200HGEE	1	C23
....2	215-301	CAPACITOR, 300 PF 2.5% 100V POLYPRO	1	C25
....2	217-103	CAP,0.1UF 250VDC 5%,POLY FILM	7	C13,C14,C17, C18,C22,C24, C27
....2	217-104	CAPACITOR, .01 UF 50V GMV DISC	2	C16,C29
....2	219-106	CAPACITOR, 10UF 50V RADIAL ELECTROLYTIC	3	C11,C12,C28
....2	219-220	CAPACITOR, ELECTROLYTIC 22uF RADIAL 35V	1	C21
....2	221-5532-001	IC,NE-5532AN	1	
....2	255-100	CAPACITOR, 10 PF 5% NPO DISC	1	C15
....2	255-101C	Capacitor, 100pf 5% 200V ceramic dipped C317C101J2G5CA	1	C5
....2	255-271C	CAPACITOR, 270pF 5% 200V CERAMIC DIPPED	1	C19

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	255-390C	Capacitor, 39pF 5% 200V ceramic dipped C322C390J2G5CA	2	C4,C7
....2	255-750	CAPACITOR, 75 pF 5% NPO DISC	1	C26
....2	256-131	CAPACITOR, 130 pF 5% 50V NPO DISC	2	C1,C10
....2	300-001	COIL, 387-10M 3000-10000uH #47271-010	3	L1,L2,L3
....2	402-211	Integrated Circuit, XR2211CP	1	IC2
....2	412-494	DIODE, GERMANIUM 1N270 (note)	1	D1
....2	550-069	IC Socket, 14 pin Keltron ICS-14-3-T / Aries 14-3510-10	1	IC2
....2	550-123	Connector, 10 pin header (cut from 550-162)	1	P1
.....3	550-162	Connector, 24 pin break-away (straight) Molex 26-48-6248	0.417	
....2	800-266B	PC Board, Demod SCD-10	1	PCB

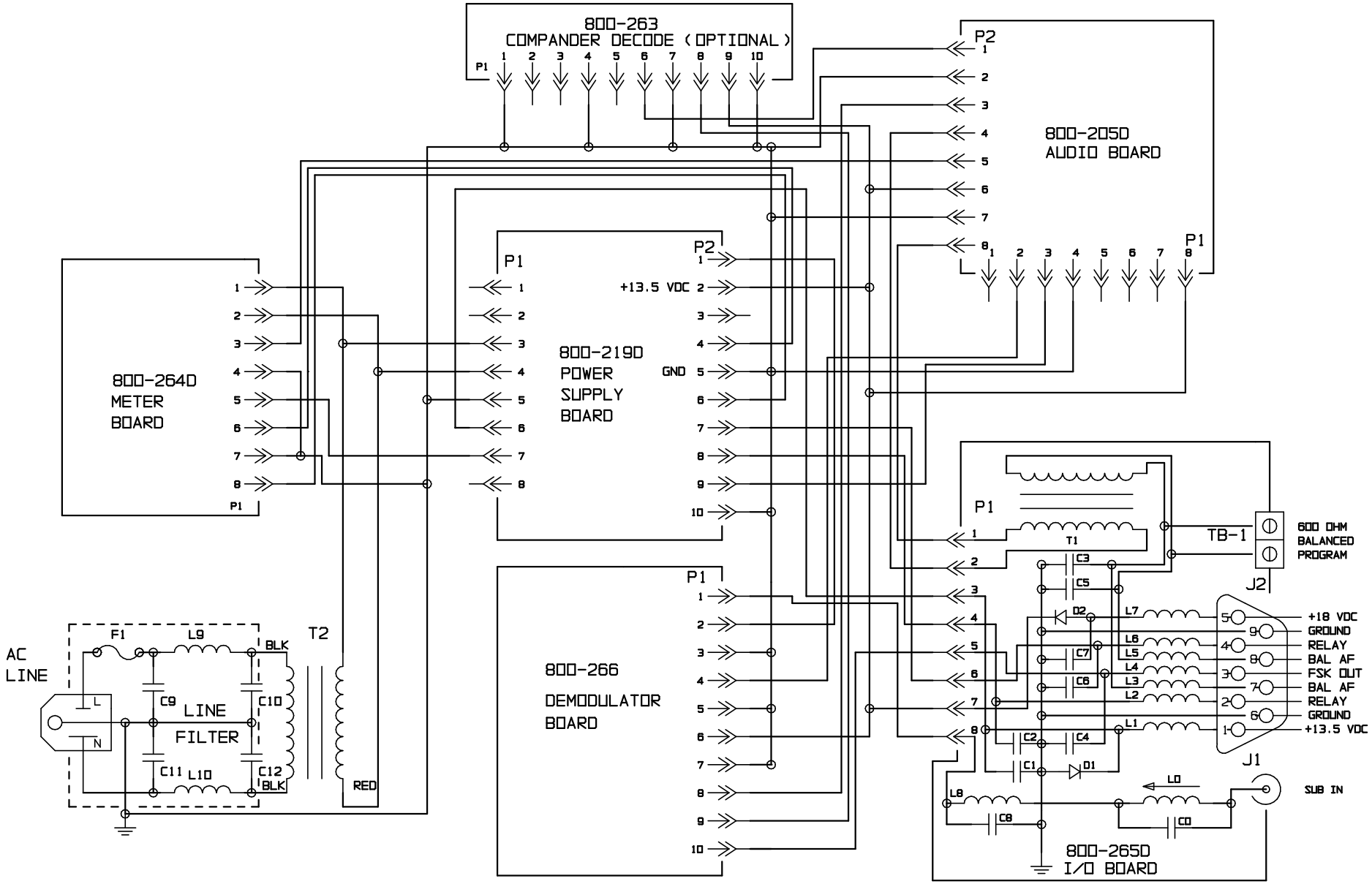
BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.

11 SCHEMATICS

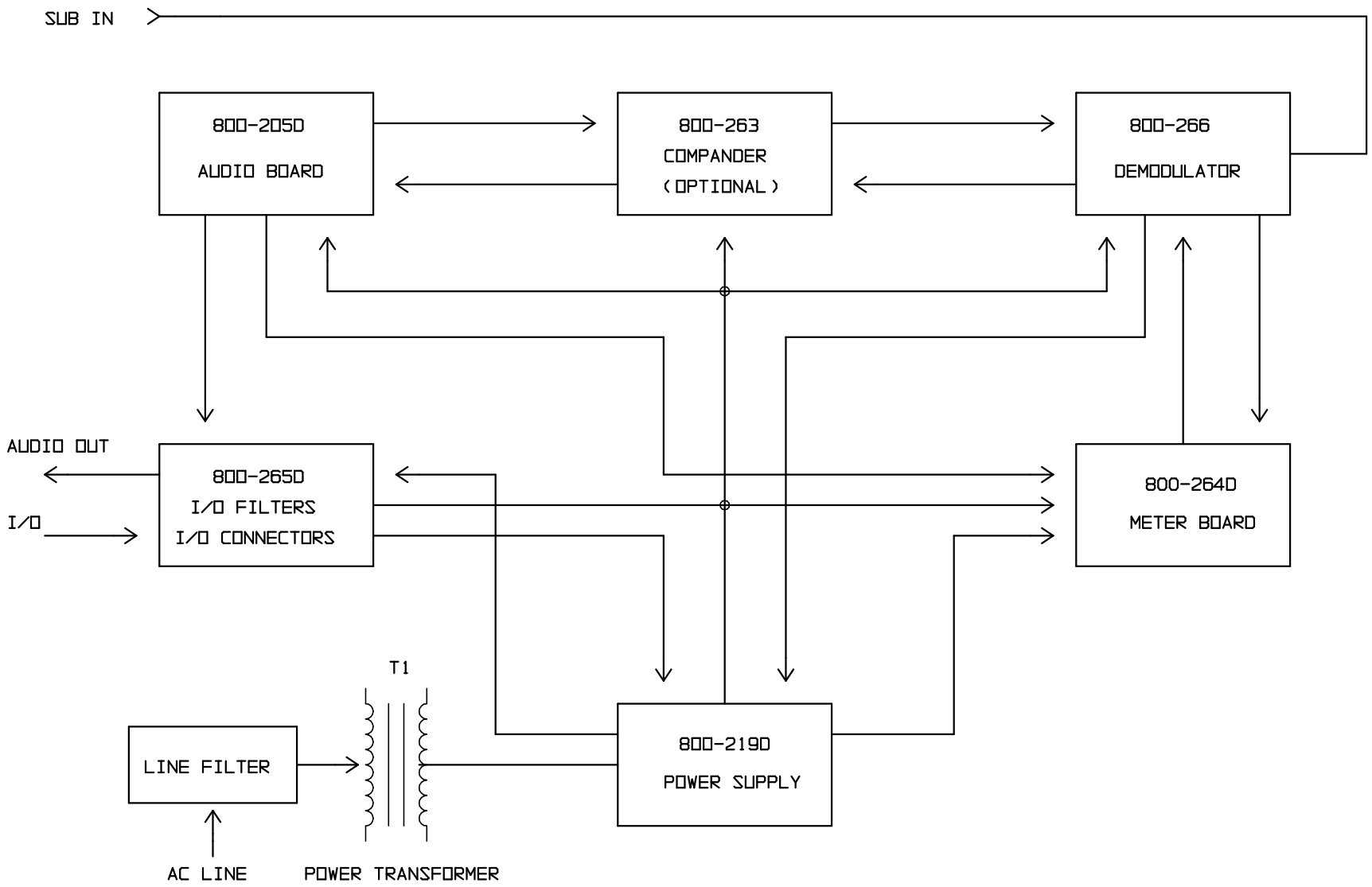


FRONT PANEL

MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT <DATE> 702-080	TITLE LOCATION OF ADJUSTMENTS



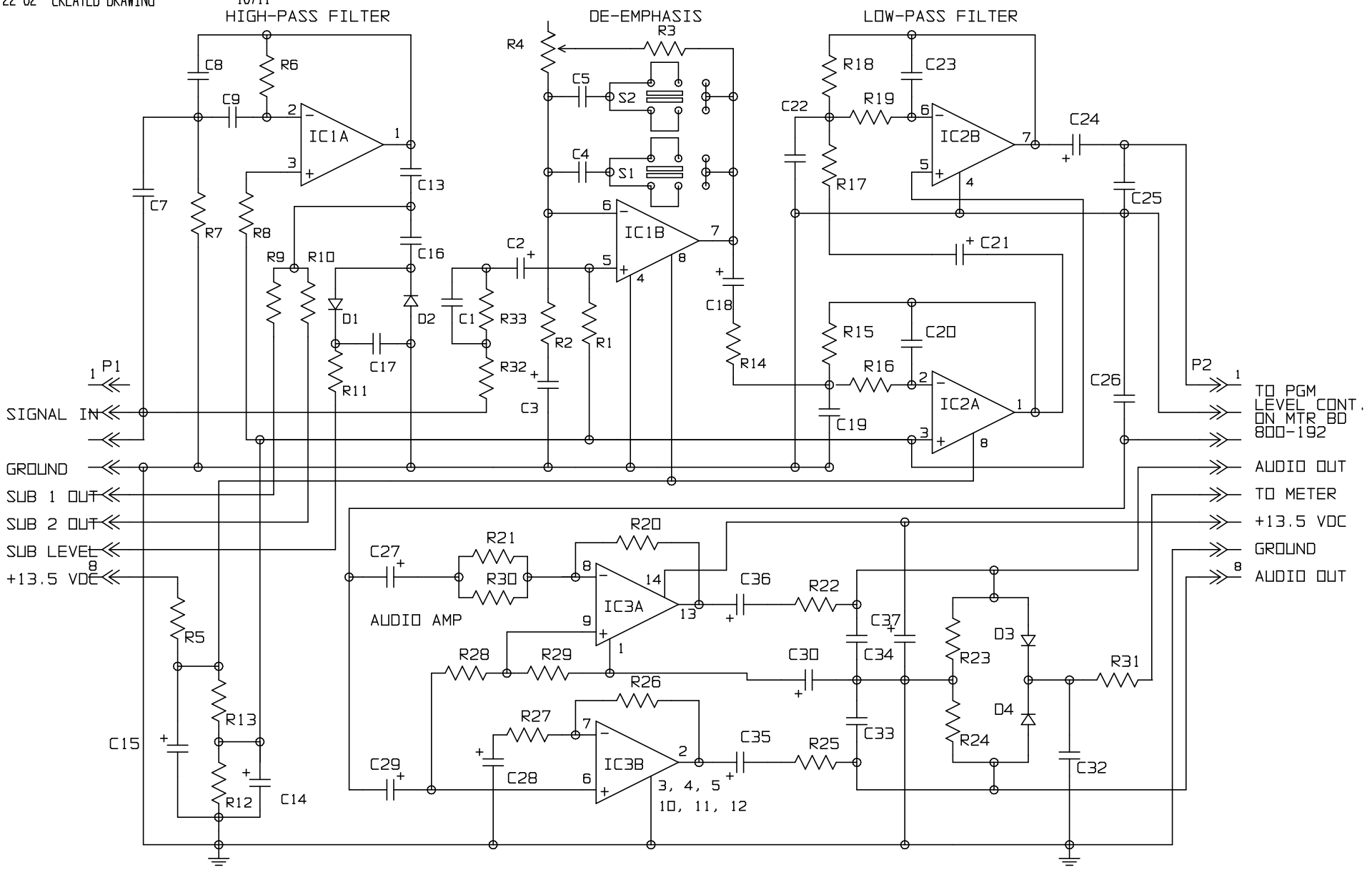
MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT <DATE> 702-081	TITLE SCD-10 MAIN FRAME



REFER TO SCHEMATIC DIAGRAM FOR EACH BLOCK BY NUMBER

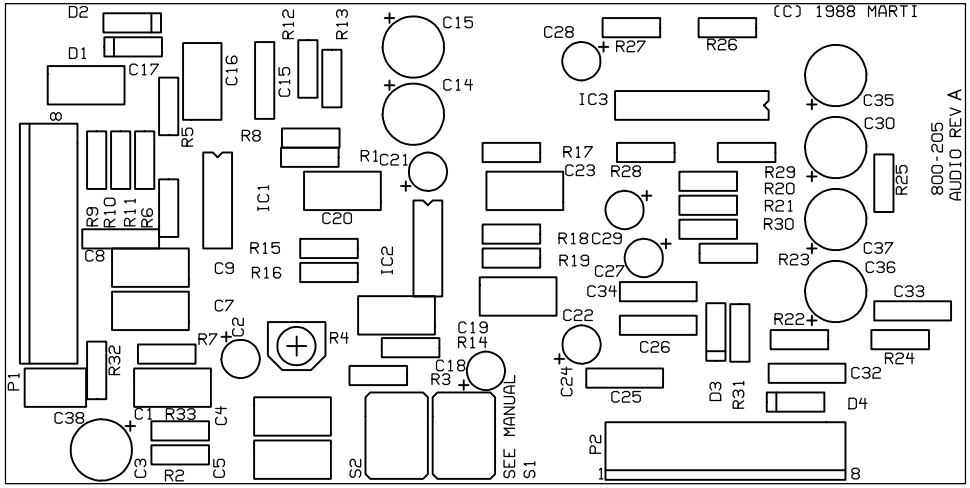
MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT <DATE> 702-084	TITLE SCD-1D BLOCK DIAGRAM

REV	DATE	DESCRIPTION	ECN	APPOVED
A	8-22-02	CREATED DRAWING	10711	

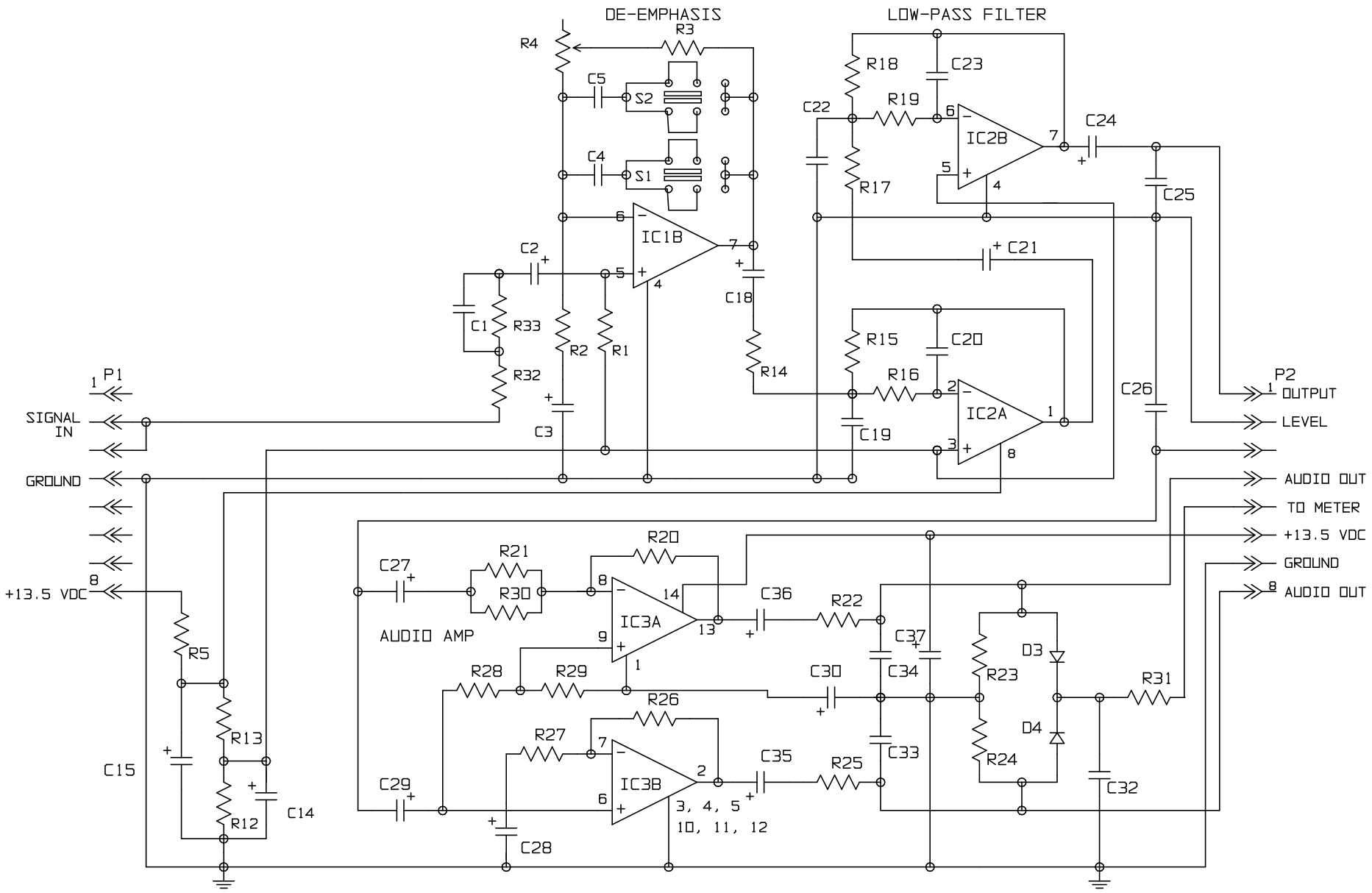


MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. 800-205 COPYRIGHT <DATE> REV A	TITLE AUDIO BOARD

REV	DATE	DESCRIPTRION	DRAFTER	APPROVED	ECN
A	8-22-02	CREATED DRAWING	KT		10711



MARTI ELECTRONICS
AUDIO BOARD
800-205A REV A



MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT <DATE> 800-2050	TITLE SCD-10 AUDIO BOARD

REV	DATE	DESCRIPTRION	DRAFTER	APPROVED	ECN
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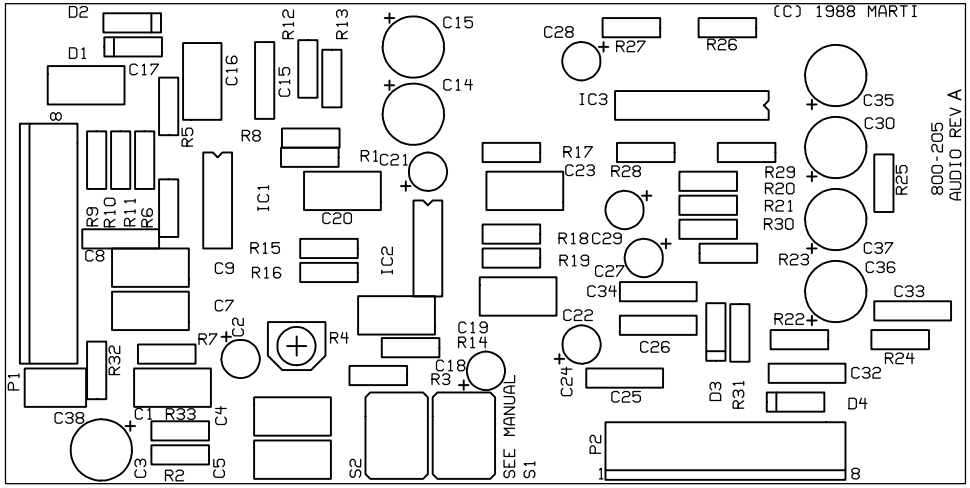
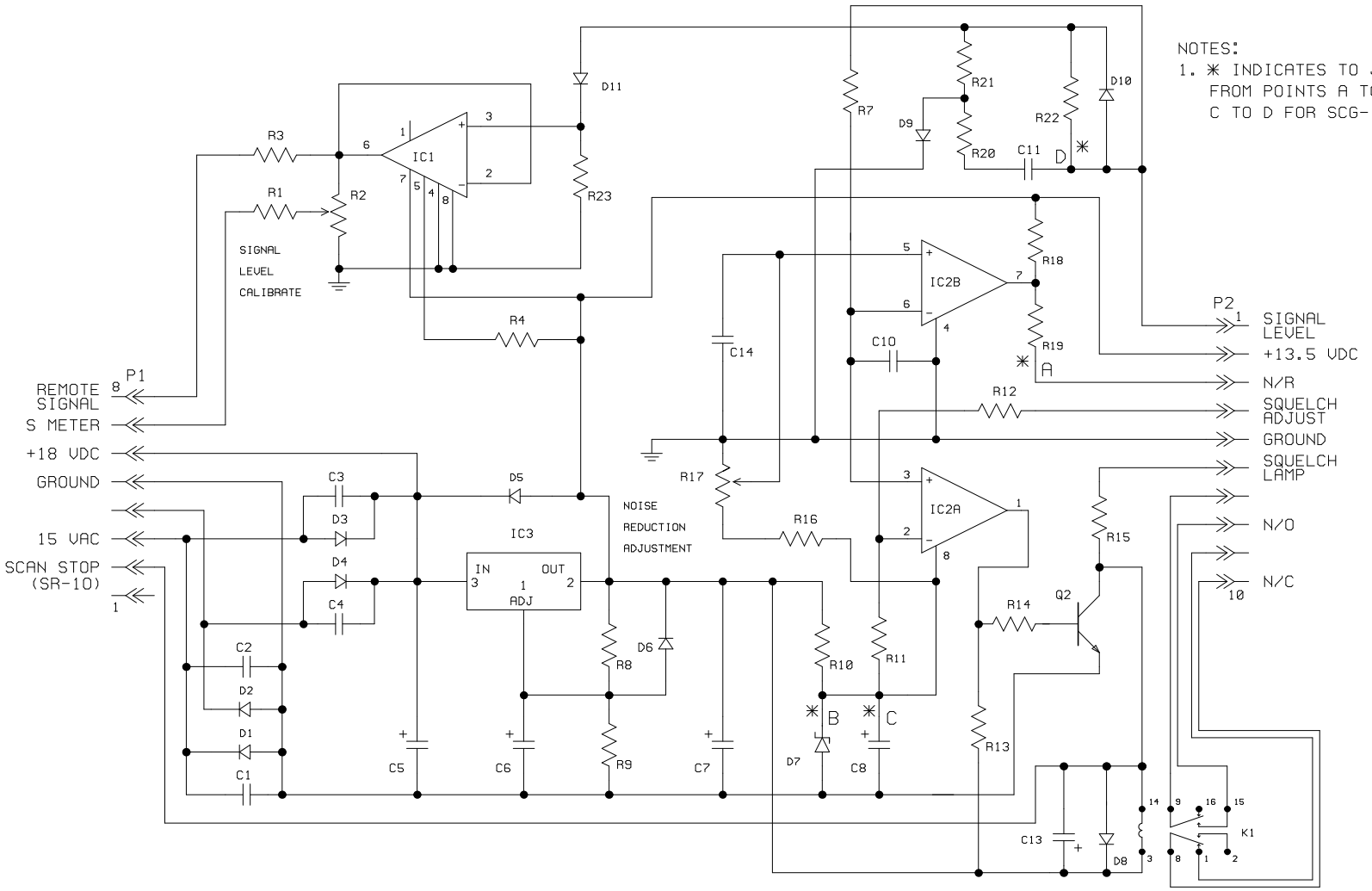


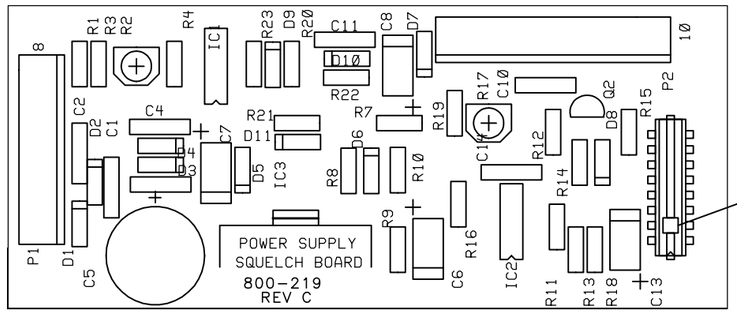
MARTI ELECTRONICS
AUDIO BOARD
800-205A REV A

REV A 8-23-00 ADDED NOTE 1; MINOR CIRCUIT CHGS. M. HAYDEN

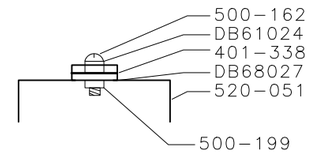


MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT 8-23-00 800-219	TITLE POWER SUPPLY/SQUELCH BOARD	REV A

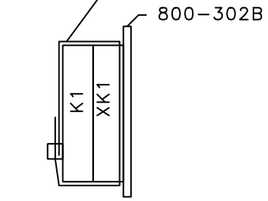
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	8-22-02	CREATED DRAWING	KT	EJ	10711
B	9-13-02	ADDED DETAIL "A"	KT	EJ	10759
C	11-4-02	ADDED DETAIL "B" & 402-0001	KT	EJ	10812



ADD TY-WRAP 402-0001
SEE DETAIL "B"

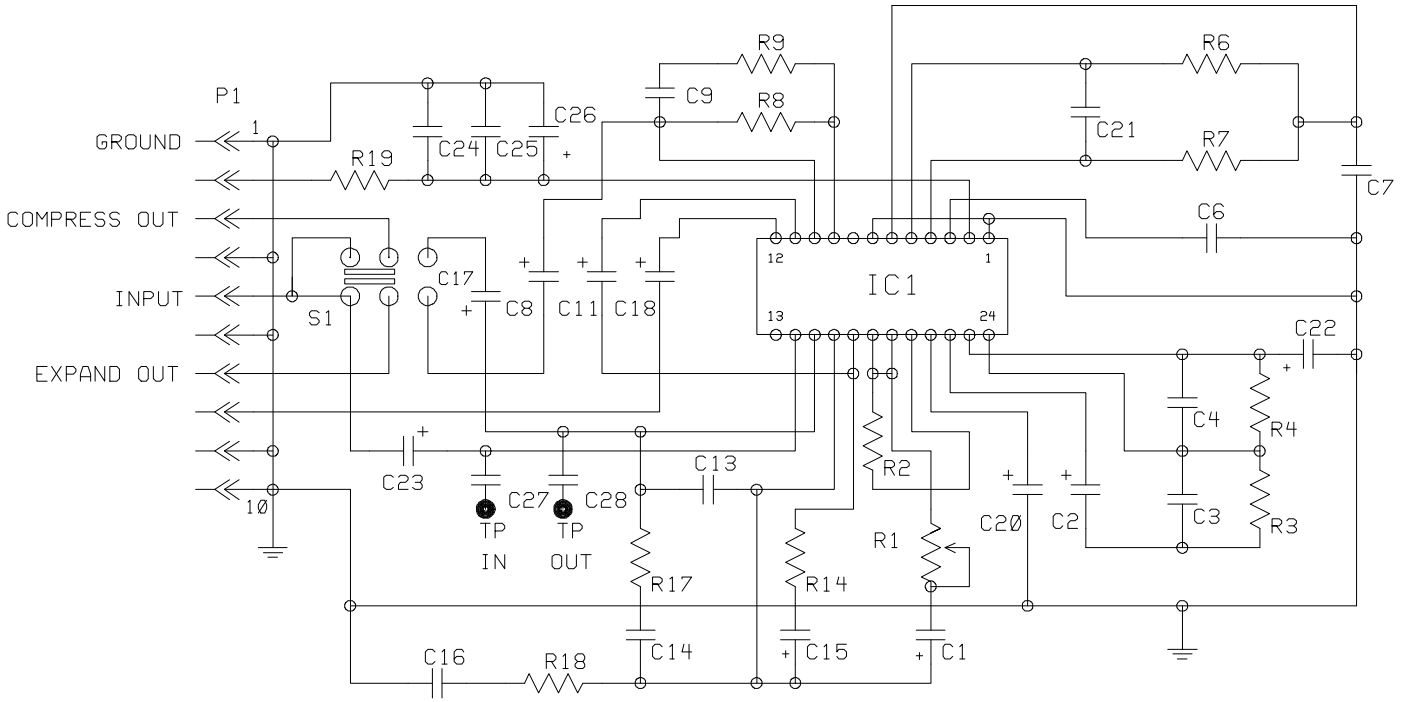


DETAIL "A"



DETAIL "B"

MARTI ELECTRONICS
800-219A/AD/AG/CA REV C
POWER SUPPLY
SQUELCH BOARD

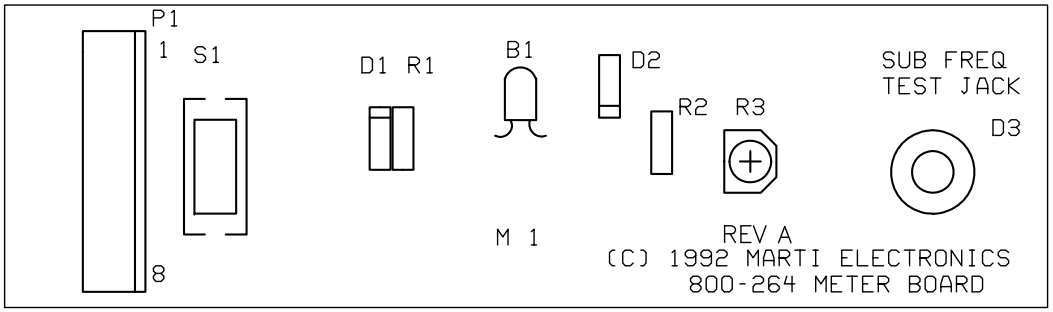


1. S1 "NORMAL" BYPASSES COMPANDER.
2. JUMPER CONNECTOR PINS 7 & 8 FOR COMPRESS. OUTPUT AT PIN 3.
3. REMOVE JUMPER BETWEEN 7 & 8 FOR EXPAND. OUTPUT AT PIN 7.

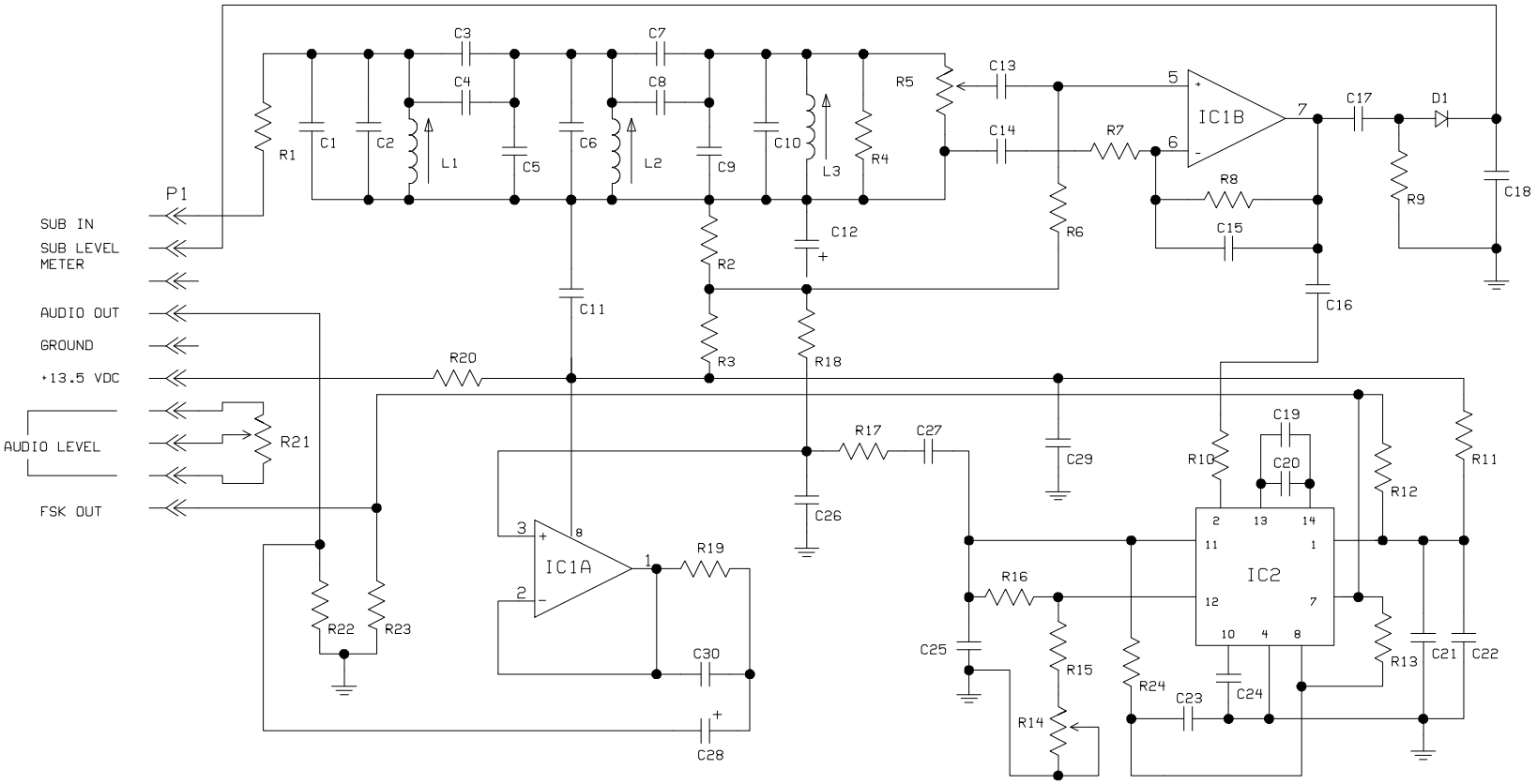
NOTE: S1 SHOWN IN "NORMAL" POSITION.

MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT 29-MAY-** 800-263	TITLE SCD-10, SCG-10 COMPANDER BOARD

REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-25-04	CREATED DRAWING	KT		-----



800-264A REV A
METER BOARD



MARTI ELECTRONICS CLEBURNE, TX 76033-0661	DRAWING NO. COPYRIGHT 800-266 29-MAY-**	TITLE SCD-10 DEMODULATOR BOARD