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MT-1099A

Mobile Mount

Operator/Technical Manual

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Datron World Communications Inc.

995 Joshua Way, Suite A
Vista, CA 92081, U.S.A.
Phone: (760) 597-1500 Fax: (760) 597-1510
E-Mail: customerservice@dtwc.com
www.dtwc.com

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Datron World Communications, Inc.

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a. Model, serial number, and date of installation.
b. Name of dealer or supplier of the equipment.
c. Detailed explanation of problem.
d. Return shipping instructions.
e. Telephone or fax number where Buyer may be contacted.

Datron will return the equipment prepaid by United Parcel Service, Parcel Post, or truck. If alternate shipping is specified by Buyer, freight charges will be made collect.

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Parts Replacement: The following instructions for the supply of replacement parts must be followed:

a. Return the parts prepaid to “Parts Replacement” Datron World Communications Inc., 3030 Enterprise Court, Vista, California 92081; and
b. Include a letter with the following information:
1. Part number
2. Serial number and model of equipment
3. Date of installation

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Safety Considerations

This product and manual must be thoroughly understood before attempting installation and operation. To do so without proper knowledge can result in equipment failure and bodily injury.

Caution: Before applying ac power, be sure that the equipment has be properly configured for the available line voltage. Attempted operation at the wrong voltage can result in damage and voids the warranty. See the manuals section on installation. DO NOT operate equipment with cover removed.

Earth Ground: All Datron products are supplied with a standard, 3-wire, grounded ac plug. DO NOT attempt to disable the ground terminal by using 2-wire adapters of any type. Any disconnection of the equipment ground causes a potential shock hazard that could result in personal injury. DO NOT operate any equipment until a suitable ground has been established. Consult the manual section on grounding.

Servicing: Trained personnel should only carry out servicing. To avoid electric shock, DO NOT open the case unless qualified to do so.

Various measurements and adjustments described in this manual are performed in ac power applied and the protective covers removed. Capacitors (particularly the large power supply electrolytics) can remain charged for a considerable time after the unit has been shut off. Use particular care when working around them, as a short circuit can release sufficient energy to cause damage to the equipment and possible injury.

To protect against fire hazard, always replace line fuses with ones of the same current rating and type (normal delay, slow-blow, etc.). DO NOT use higher value replacements in an attempt to prevent fuse failure. If fuses are failing repeatedly this indicates a probable defect in the equipment that needs attention.

Use only genuine Datron factory parts for full performance and safety of this product.

Made in the USA

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CHAPTER 1
INTRODUCTION

1.1 MT-1099A

The MT-1099A is a vehicular mobile mount that supports both the PRC1099 and PRC1099A transceivers (PRC1099/A). The MT-1099A can accommodate an external RF amplifier and external antenna tuner and is available in either 12 or 24 Vdc versions depending on the vehicle electrical system where the MT-1099A is to be mounted. The MT-1099A includes a built-in external speaker with volume control.

The MT-1099A provides the following features:

- 12 Vdc and 24 Vdc versions
- Configurable for PRC1099 or PRC1099A
- Built-in speaker with volume control
- External RF Amplifier and antenna tuner interfaces

1.2 Specifications

All specifications subject to change without notice or obligation.

Characteristic	Description
Electrical	
Input Power MT-1099A-12 MT-1099A-24	 12 to 15 Vdc negative ground. 22 to 32 Vdc negative ground.
Input Protection	Power line conditioning and reverse polarity protection.
Output Power MT-1099A-12 MT-1099A-24	 Unregulated 13.6 Vdc, nominal (12 to 15 Vdc) Regulated 13.6 Vdc, 5A, Unregulated 28 Vdc, nominal (20 to 32 Vdc).
Antenna Tuner	Primary voltage and key lines provide control of antenna tuner.
Radio Control	Power and control interface to PRC1099/A transceiver.
Loudspeaker	Built-in, waterproof speaker. Front panel on/off switch.
Mechanical	
Weight	8 kg (17.5 lbs.).
Size (HWD)	15.37 cm x 41.91 cm x 30.48 cm (6.05 in. x 16.5 in. x 12.0 in.).
Environmental	
Temperature Operating Storage	 -30°C to +60°C (ambient). -55°C to +85°C.
Shock (Ballistic)	MIL-STD-901L, 1 blow with 400 lb. hammer, 5 ft. in x, y, and z axis.
Vibration	MIL-STD-810E, Method 514.3, Procedure 1, Category 8 (ground mobile).
Drop	MIL-STD-810E, Paragraph 5, Procedure 1 (functional shock).
Immersion	MIL-STD-810E, Method 512.2, Paragraph 1 to 3.1, Procedure 1.

CHAPTER 2
INSTALLATION

2.1 Mounting Template

The MT-1099A mounting hole pattern is identical to the standard military mount, MT1029/VRC, and can be mounted wherever space permits.

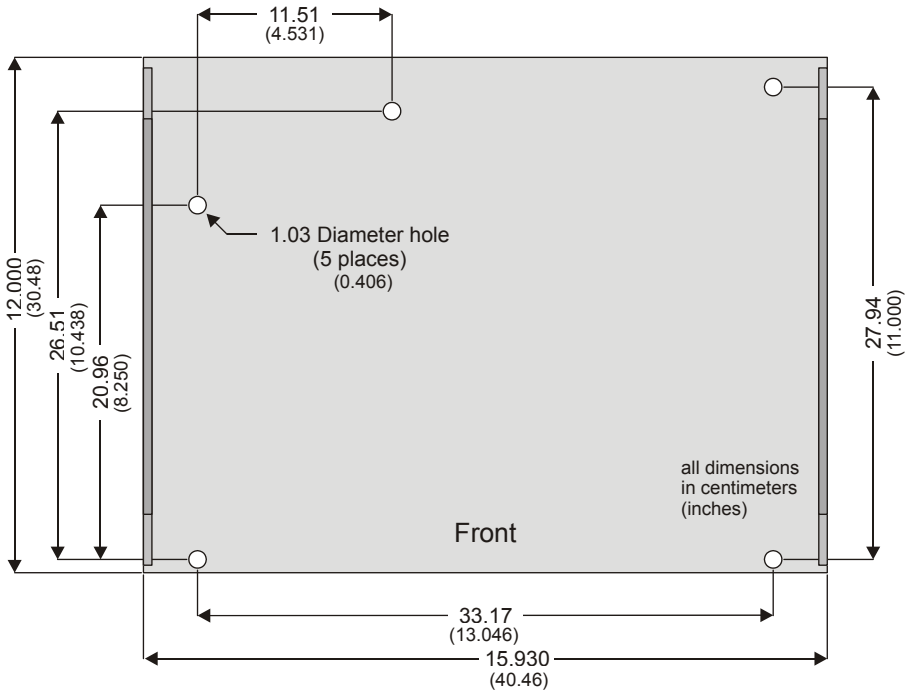


Figure 2-1. MT-1099A Mounting Template (Top View)

2.2 Antennas

The MT-1099A supports the following antennas:

- MAR-16 antenna
- MAR-12 antenna
- MAR-16T antenna
- RA-MAS antenna
- AAW

The MAR-16 is a 4.8m (16 ft.) mobile antenna system that consists of a heavy duty fiberglass military whip antenna with a flexible spring base and mounting bracket. The MAR-16 can be tied down horizontally to support NVIS communications. This antenna requires an antenna tuner.

The MAR-12 is identical to the MAR-16 except that it is 3.6m (12 ft.) in length.

The MAR-16T is identical to the MAR-16 except that it includes a tilt whip adapter on a flexible spring base. The adapter enables the antenna to be locked in four different positions.

The RA-MAS is a 4.8m (16 ft.) mobile antenna system that consists of a heavy duty fiberglass military whip antenna with a rigid mobile base and a mobile mounting bracket. This antenna requires an antenna tuner.

The AAW is a whip adapter and feed wire (C992102) for connecting the RA-MAS, MAR-12 and MAR-16 antennas directly to the PRC1099/A front panel antenna mount. This is used in transceiver-only 20W mobile systems. The AAW is not required when the system includes an external antenna tuner.

2.3 System Configurations

The MT-1099A can be installed in multiple configurations:

- 12 or 24 Vdc 20W (MT-1099A-12/24)
- 12 or 24 Vdc 100W (MT-1099A-12/24)
- 24 Vdc 400W (MT-1099A-24)

Figures on the following pages show these configurations, components and associated cabling. For each configuration, the PRC1099/A includes the battery case installed without the BB-LA6 battery in the battery case.

CAUTION: The following installations require the operator to remove the protective cap from the PRC1099/A's accessory connector. Make sure the protective cap is attached to the PRC1099/A front panel by a cord so it does not get lost. The protective cap contains an internal jumper that completes the 12V path to the radio when using battery power.
If the PRC1099/A needs to be converted from a mobile or fixed base to a manpack configuration with the BB-LA6 battery installed, the radio must have the protective cap in place to operate.
When the PRC1099/A is installed in the MT-1099A, the MT-1099A provides the +12 Vdc supply to the PRC1099/A through the C991949 cable.

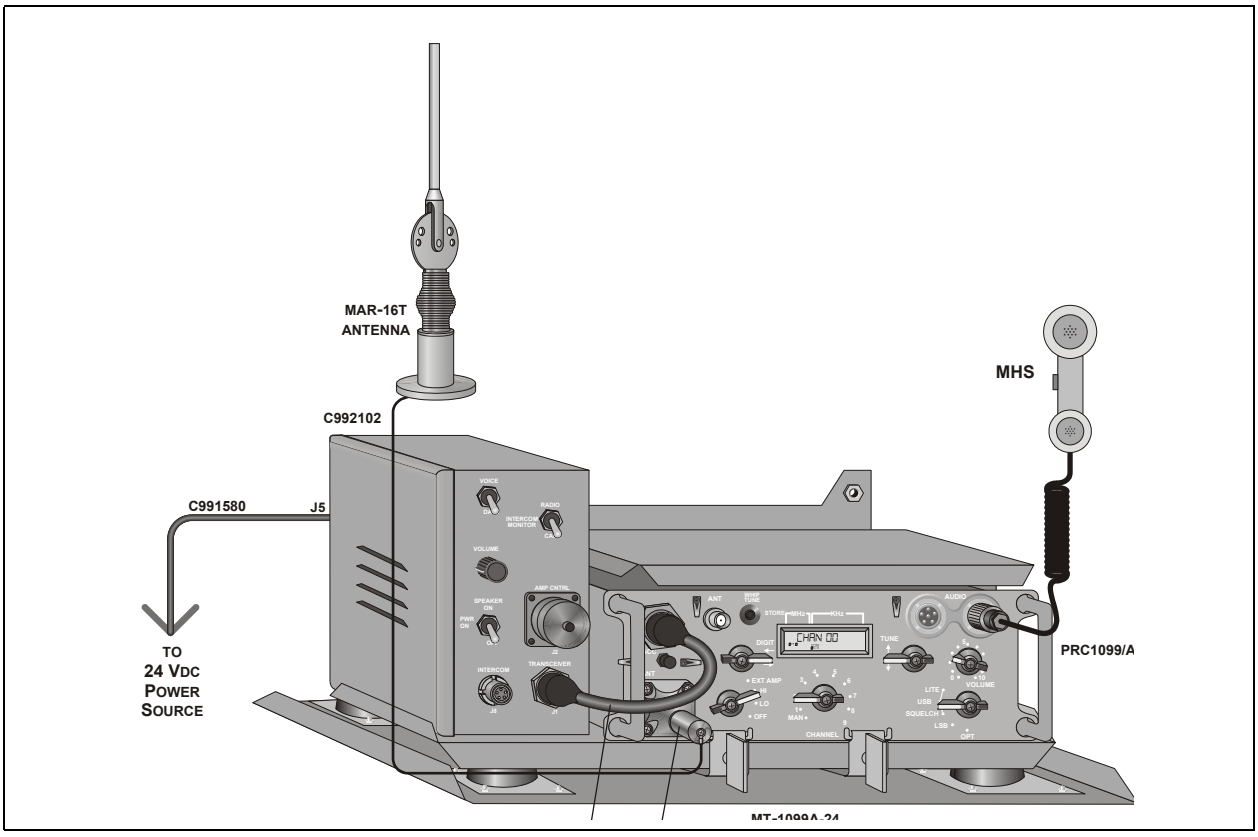


Figure 2-2. 24 Vdc 20W Mobile System

2.3.1 24 Vdc 20W Mobile System

The 24 Vdc 20W mobile system includes the following components:

- MT-1099A-24 mobile mount
- PRC1099/A transceiver
- MAR-16T antenna (or equivalent)
- MHS military handset
- AAW whip adapter and feed wire (C992102 antenna cable)
- C991580 DC power cable
- C991949 transceiver power and control cable

2.3.2 12 Vdc 20W Mobile System

The 12 Vdc 20W mobile system is identical to the 24 Vdc 20W mobile system except that it uses the MT-1099A-12 instead of the MT-1099A-24. All other equipment, cabling and connections are the same.

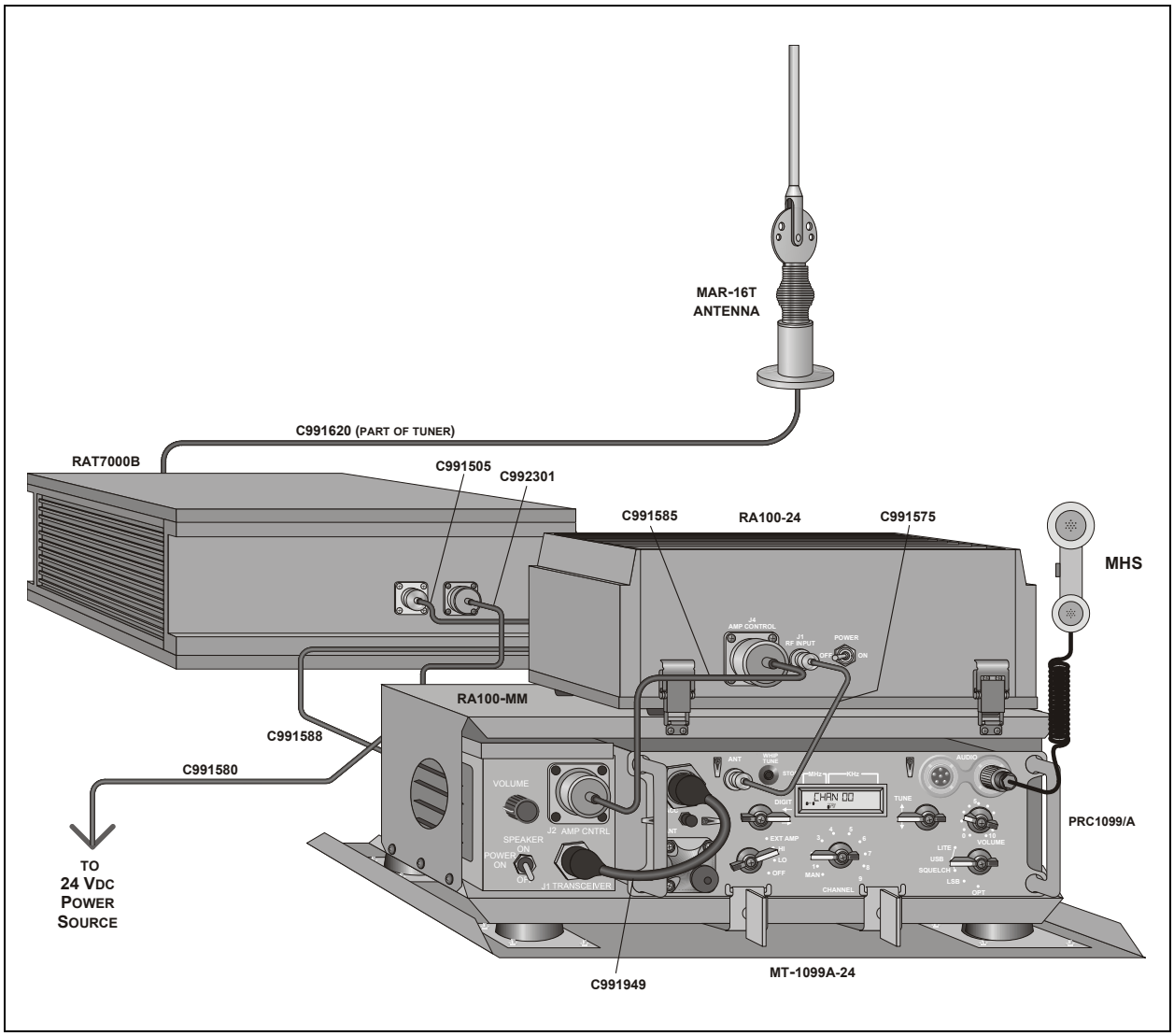


Figure 2-3. 24 Vdc 100W Mobile System

2.3.3 24 Vdc 100W Mobile System

The 24 Vdc 100W mobile system consists of the following components:

- MT-1099A-24 mobile mount
- PRC1099/A transceiver
- RA100-24 RF power amplifier
- RAT7000B 125W antenna tuner
- MAR-16T antenna (or equivalent)
- MHS military handset
- RA100-MM mounting bracket
- C991620 antenna cable (part of the RAT7000B antenna tuner)
- C991505 RF cable

- C991575 RF cable
- C991580 DC power cable
- C991585 power and control cable
- C991588 DC power cable
- C991949 power and control cable
- C992301 power and control cable

2.3.4 12 Vdc 100W Mobile System

The 12 Vdc 100W mobile system is identical to the 24 Vdc 100W mobile system except that it uses the MT-1099A-12 instead of the MT-1099A-24 and the RA100-12 replaces the RA100-24. All other equipment, cabling and connections are the same.

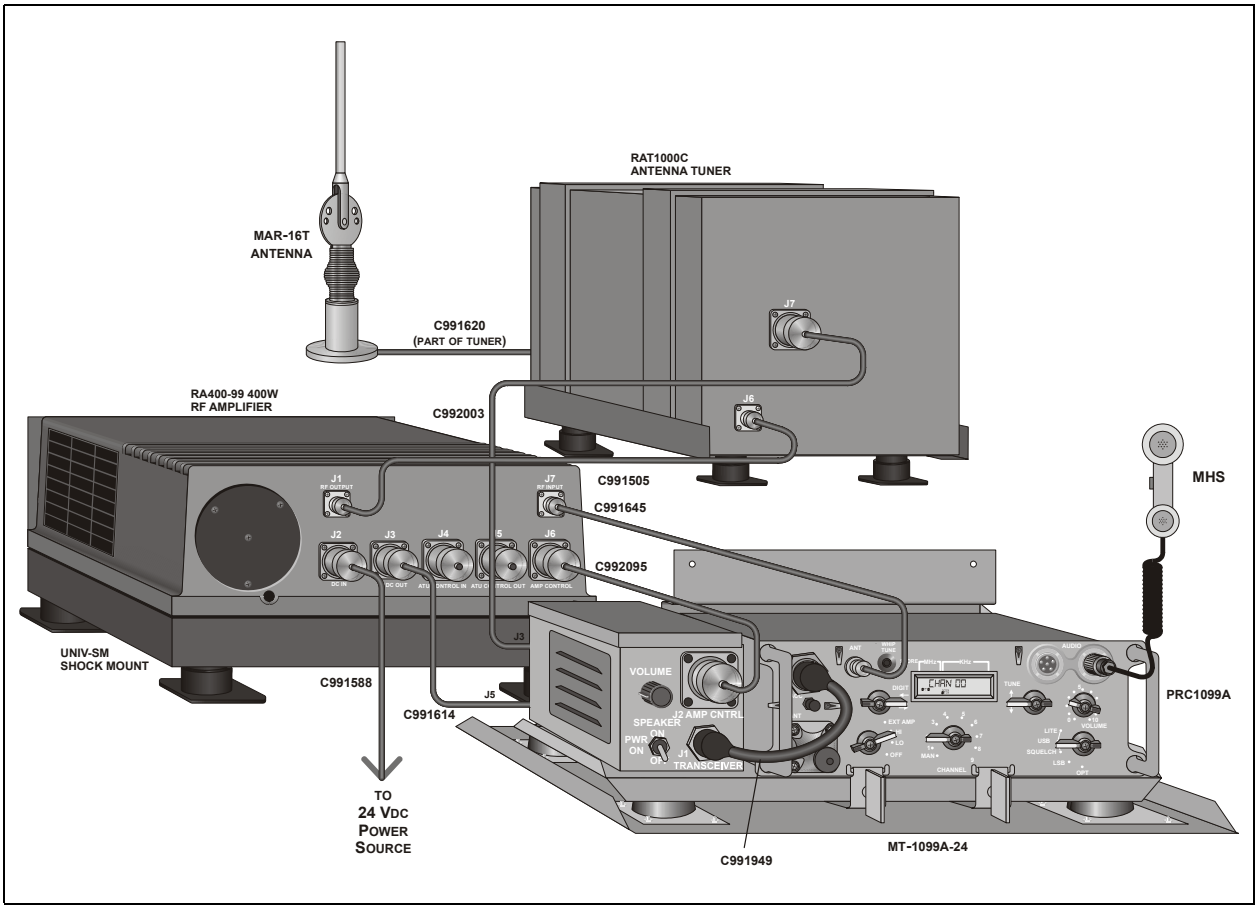


Figure 2-4. 24 Vdc 400W Mobile System

2.3.5 24 Vdc 400W Mobile System

The 24 Vdc 400W mobile system consists of the following components:

- MT-1099A-24 mobile mount
- PRC1099/A transceiver

- RA400-99 RF power amplifier
- UNIV-SM universal shock mount for the RA400-99
- RAT1000C 1000W antenna tuner
- RAT1000-SM shock mount for the RAT1000C
- MAR-16T antenna (or equivalent)
- MHS military handset
- C991505 RF cable
- C991575 RF cable
- C991588 DC power cable
- C991614 DC power cable
- C991620 antenna cable (part of the RAT7000B antenna tuner)
- C991645 RF power cable
- C991949 power and control cable
- C992003 power and control cable
- C992095 power and control cable

CHAPTER 3
OPERATION

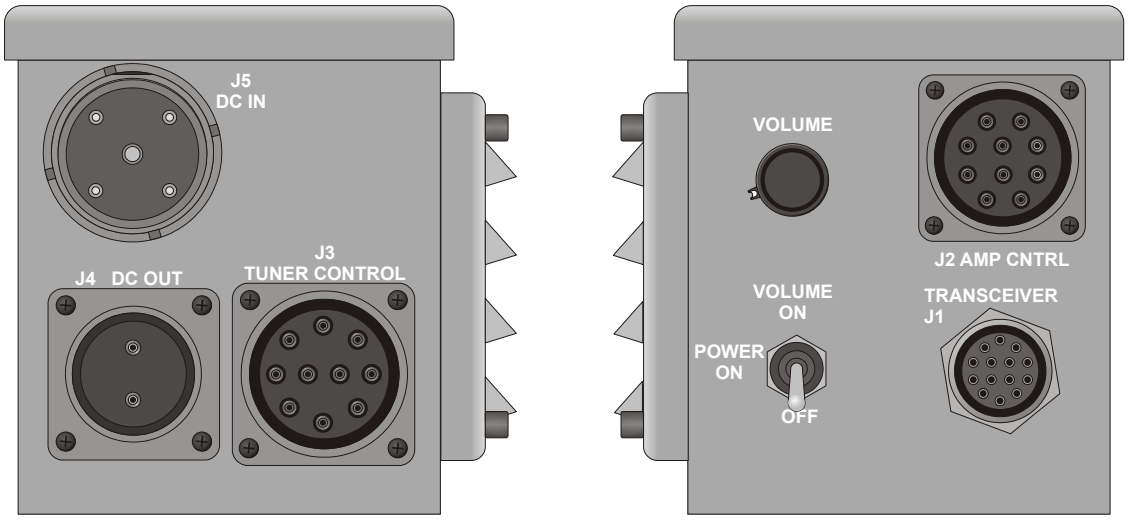


Figure 3-1. MT-1099A Front and Rear Panels

To operate the MT-1099A:

1. Do one of the following:
   - For 20W operation, install the MT-1099A according to section 2.3.1, 24 Vdc 20W Mobile System on page 2-3.
   - For 100W operation, install the MT-1099A according to section 2.3.3, 24 Vdc 100W Mobile System on page 2-4.
   - For 400W operation, install the MT-1099A according to section 2.3.5, 24 Vdc 400W Mobile System on page 2-5.
2. Turn the front panel switch to the POWER ON position to apply power to the MT-1099A or to the SPEAKER ON position to also enable the built-in external speaker. The POWER ON and SPEAKER ON positions also provide power to the antenna tuner.

   Note: *The power present at the DC OUT connector to the external RF amplifier (RA100, RA400) is not switched. When source power is connected to the DC IN connector, it also present at the DC OUT connector even when the front panel switch is in the OFF position.*

The following table provides a description of the MT-1099A connectors and switches.

Table 3-1. Connector/Switches Description

Connector/Switch		Description
J1	TRANSCEIVER	Connects to transceiver ACC connector. Provides power to the transceiver and translates control and data signals between the transceiver and the MT-1099A.
J2	AMP CNTRL	Connects to an external amplifier (RA100, RA400-99). Provides 12 Vdc to the external RF power amplifier and translates control and data signals between the MT-1099A and the external amplifier.
J3	TUNER CONTROL	Connects to antenna tuner (RAT7000B or RAT1000C). Provides power to the antenna tuner and translates control and data signals between the MT-1099A and the antenna tuner.
J4	DC OUT	Connects to the RA100 (or RA400-99) RF power amplifier. Provides 12 or 24 Vdc to the RA100 or 24 Vdc to the RA400 amplifier.
J5	DC IN	Input power connector (12 or 24 Vdc).
S1	Power switch	Three pole switch turns DC power on and off and turns on audio to built-in speaker.

The following table defines each of the front power switch S1 positions.

Table 3-2. Front Panel Power Switch Positions

Setting	Description
OFF	Turns off DC power to the MT-1099A. Indirectly turns off power to the transceiver, antenna tuner and built-in speaker. The external amplifier (RA100) receives power (12 or 24 Vdc) through the DC OUT J4 connector with the power switch off.
POWER ON	Turns on power to the MT-1099A. Also provides power (12 Vdc) to the transceiver and antenna tuner. This position does not provide audio to the built-in speaker.
SPEAKER ON	Turns on power to the MT-1099A. Also provides power (12 Vdc) to the transceiver and antenna tuner. This position also provides audio to the built-in speaker.

CHAPTER 4
TECHNICAL DESCRIPTION

4.1 Circuit Description

The MT-1099A mobile mount is available in two configurations according to source voltages: +12 Vdc and +24 Vdc.

4.1.1 MT-1099A-12

The MT-1099A-12 receives input power (12 Vdc) through rear panel connector J5 and routes it directly to the rear panel J4 connector to power the RA100-12 RF power amplifier for 100W applications. The MT-1099A also routes the input voltage to the internal amplifier board where it passes through an LC π filter consisting of C1, C2 and L1. Then the 12V line goes to the center pole on the front panel power switch S1A. From the power switch, the input voltage goes to internal connector J6. A jumper bridges J6 pin 1 to J6 pin 3. From J6 pin 3, the 12V line goes through another LC filter consisting of L2, C10 and transient voltage suppression diode D3 on the amplifier board, then it goes to the front panel TRANSCEIVER connector J1 to the PRC1099/A ACCESSORY connector, the AMP CONTROL connector J2 and to the TUNER CONTROL connector J3.

The MT-1099A provides a built-in external waterproof speaker for audio received from the PRC1099/A through the front panel MT-1099A J1 connector. The audio goes to the amplifier board which amplifies the audio using op amp LM386 U1, then it routes the audio to the built-in external speaker. A front panel VOLUME switch controls the speaker volume.

The PTT signal from the transceiver comes in through the front panel J1 connector, then goes to the amplifier board where it activates a switching relay that shuts off the audio to the external speaker when an operator presses the PTT button on the handset.

The MT-1099A includes a microcontroller that passes RS-232 serial information between the PR1099A and the RA100 and RA400-99 RF power amplifiers (clock and band selection data), and RAT1000C (channel data and clock) or RAT7000B (channel data, clock and strobe) antenna tuners.

A 10-jumper 3-pin jumper block on the amplifier board configures the MT-1099A for either a PRC1099 or PRC1099/A. It also sets the baud rate for the RS-232 transmission of data to the antenna tuners.

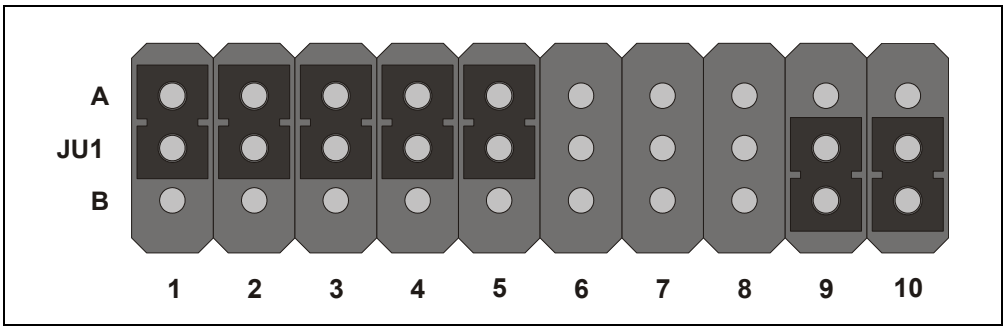


Figure 4-1. Configuration Jumper Block

Configuration	Jumper Blocks									
	1	2	3	4	5	6	7	8	9	10
Transceiver										
PRC1099A	A	A	A	A	A					
PRC1099	B	B	B	B	B					
Baud Rate										
9600									B	B
4800									B	A
2400									A	B
1200									A	A

4.1.2 MT-1099A-24

The MT-1099A-24 operates the same way as the MT-1099A-12 except that it includes the 28 Vdc M8A switching regulator board that converts +28 Vdc to +12 Vdc up to a maximum current of 8A. The MT-1099A-24 provides 24 Vdc for the RA100-24 while providing 12 Vdc for the antenna tuners and amplifiers (the RA100-24 uses both 12 Vdc and 24 Vdc).

28 Vdc M8A Voltage Regulator Board

The 28 Vdc M8A voltage regulator board includes the MC34063 monolithic switching regulator U1, configured as a step down voltage regulator. The M8A also includes the thick film hybrid power output stage SM625, U2, that consists of a high current Darlington transistor switch with a commutating diode. The regulator circuit operates at about 75% efficiency and generates little heat.

Resistors R1, R5 and R6 are current limiting resistors that limit the supply output to 9A. Capacitor Q10 sets the operating frequency at approximately 50 kHz. Resistor R2 and R3 set the output voltage to 12.6 Vdc. The M8A regulator circuit is a switching type regulator that uses a pulse width modulator to control the output. The circuit includes an input LC filter

consisting of C1, L2, C2 and C3 and an output LC filter consisting of C4, C6, L3, C7 and C8 to eliminate switching noise on the output. The capacitors are special electrolytic capacitors with a low ESR (equivalent series resistance).

The following table provides the 28 Vdc regulator module specifications.

Table 4-1. 28 Vdc Regulator Module Specifications

Characteristic	Specification
Voltage input	20 Vdc to 32 Vdc
Voltage output	12.6 Vdc ±0.5 Vdc
Regulation	±0.5 Vdc
Current output	8A (maximum)
Output ripple	500 mV_{p-p} (typical)

4.2 Connector Pin Assignments

The tables in this section provide the pin assignments for the MT-1099A external connectors.

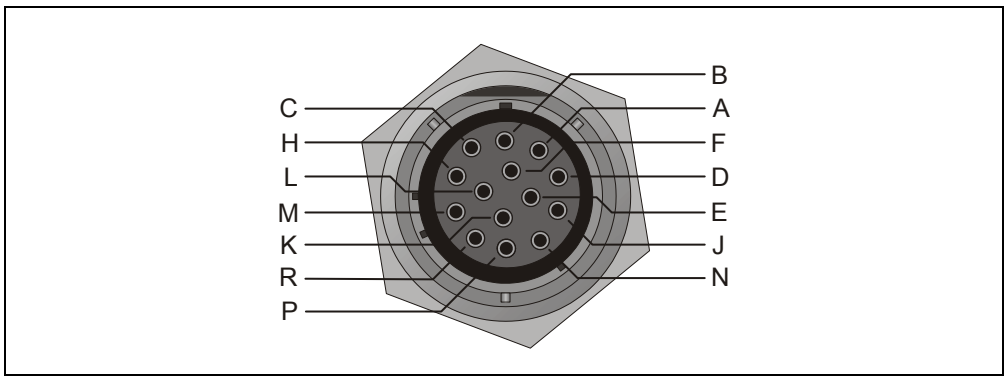


Figure 4-2. Transceiver Connector J1 Pinout

Pin	Signal	Description
A	Ground	Chassis ground.
B	Amp PTT	PTT signal to external RF power amplifier.
C	N/C	No connection.
D	Tune Initiate	Tune initiate signal from transceiver. A momentary ground from the transceiver initiates a tune cycle in the antenna tuner.
E	+12 Vdc	12 Vdc power to transceiver.
F	N/C	No connection.
H	RS232TXD/Data	Serial data line from transceiver. Provides channel number and menu data.
J	Tuner key	Return key signal from antenna tuner. Keys the transceiver into low-level carrier tune power.
K	RS232RXD/Clock	Serial clock line from transceiver. Causes tuner to read channel data.
L	N/C	No connection.
M	Ext Sel	External select line from transceiver to enable external RF power amplifier.
N	Amp ALC	Automatic level control signal to the external RF power amplifier.
P	Ex Audio	External received audio from transceiver to built-in speaker.
R	N/C	No connection.

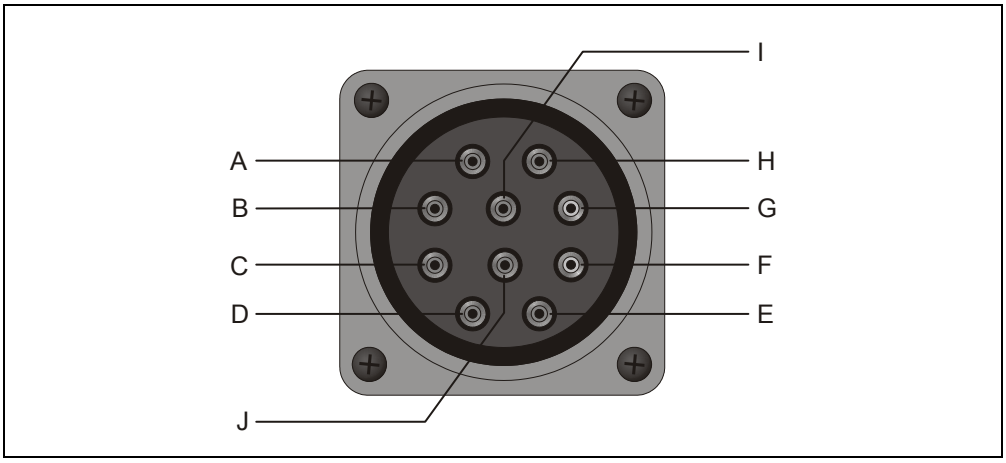


Figure 4-3. Amp Control Connector J2 Pinout

Pin	Signal	Description
A	Ground	Chassis ground.
B	Amp PTT	PTT signal to external RF power amplifier.
C	Data	Band selection data to the external RF power amplifier.
D	Clock	Clock for band selection circuit to the RF power amplifier.
E	+12 Vdc	Switched (12 Vdc) line external RF power amplifier.
F	Ext. Sel.	External select line from the transceiver to enable external RF power amplifier.
G	Amp ALC	Automatic level control signal to the external RF power amplifier.
H	No connection	No connection.

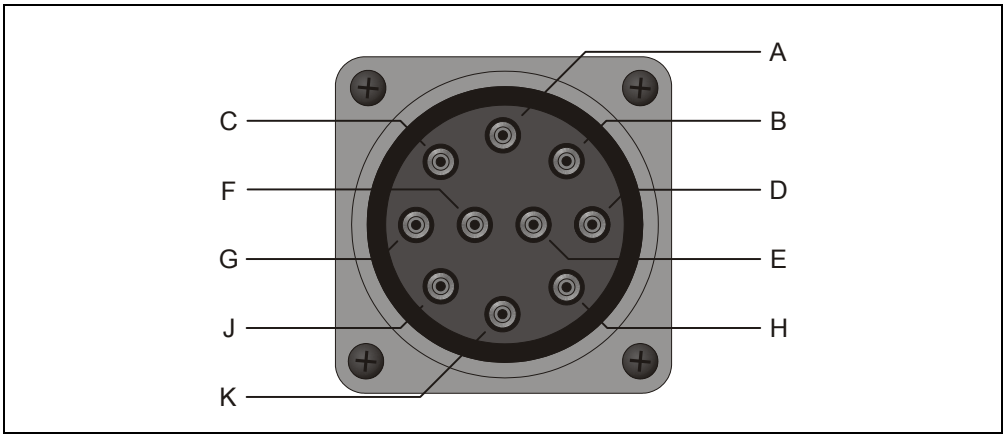


Figure 4-4. Tuner Control Connector J3 Pinout

Pin	Signal	Description
A	Key	Return key signal from antenna tuner. Keys the transceiver into low-level carrier tune power.
B	+12 Vdc	Switched (12 Vdc) line external antenna tuner.
C	Ground	Chassis ground.
D	Tune Initiate	Tune initiate signal from transceiver. A momentary ground from the transceiver that initiates a tune cycle in the antenna tuner.
E	ATU TX	Serial data (channel number) from transceiver to the antenna tuner.
F	ATU RX	Check tune, negative-going pulse from the transceiver that causes the tuner to read memory and tune according to settings stored in memory.
G	RS232 RXD	Clock: toggles to latch data in tuner so that it can be read. Not used on RAT7000B.
H	RS232 TXD	Strobe: a high level on this line allows the tuner to load to BCD channel parallel data into the serial-out shift register. Not used on RAT7000B.
J	SW DC OUT	Switched DC (+12 or 24 Vdc) primary power out to the antenna tuner. Not used on RAT7000B.
N	N/C	No connection.

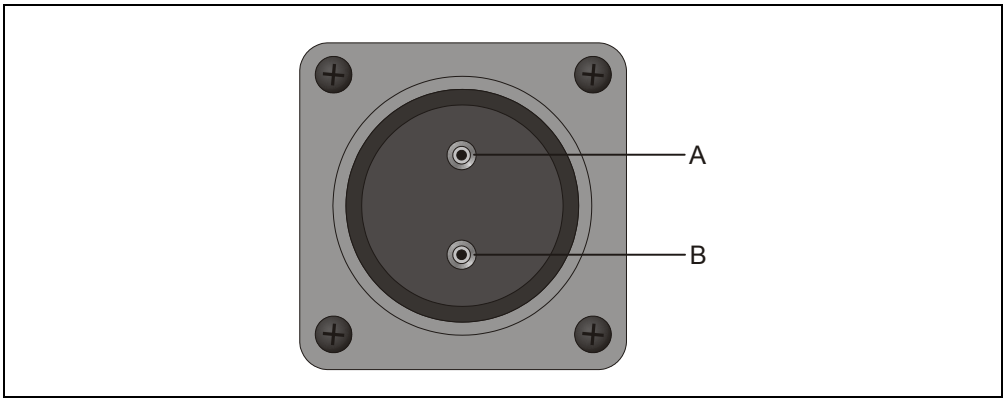


Figure 4-5. DC Out Connector J4 Pinout

Pin	Signal	Description
A	Ground	Chassis ground.
B	RA100 DC PWR	Unswitched power (+12 or 24 Vdc) to external RF amplifier.

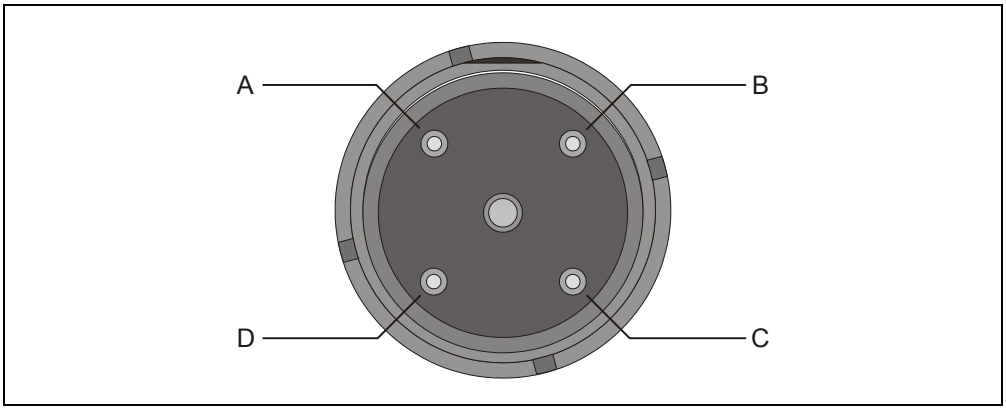


Figure 4-6. DC In Connector J5 Pinout

Pin	Signal	Description
A	GND	Chassis ground.
B	DC IN	Primary input power (+12 or 24 Vdc).
C	N/C	No connection.
D	N/C	No connection.

4.3 Component Locations, Schematics and Parts Lists

The following pages contain component locations, schematics and parts lists for the amplifier and regulator boards as well as schematics and parts lists for the MT-1099A-12 and MT-1099A chassis.

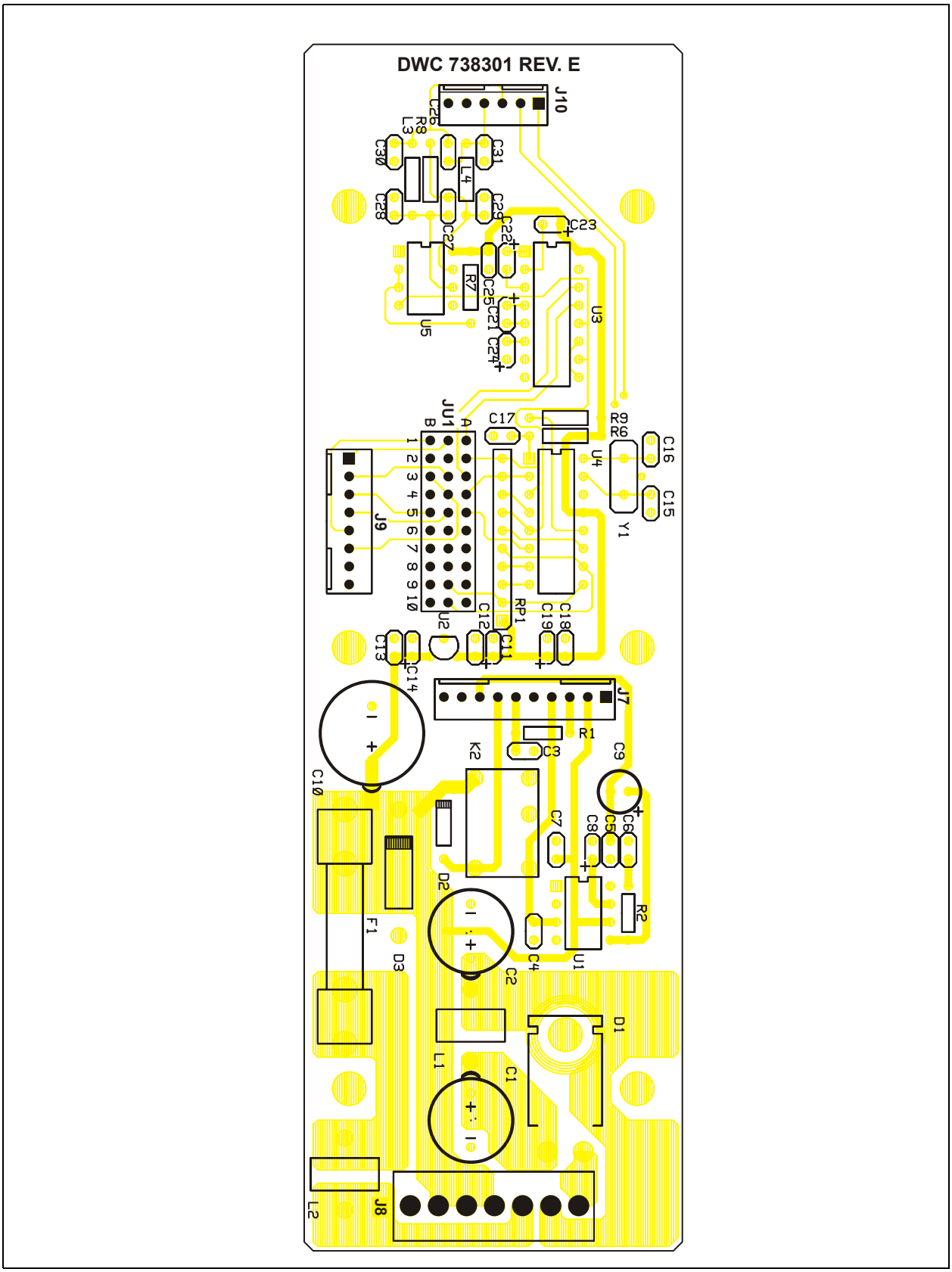
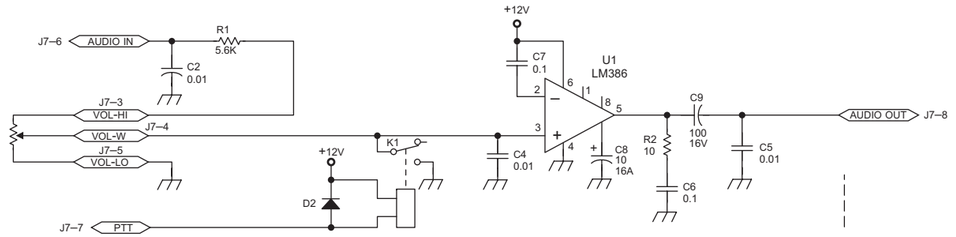
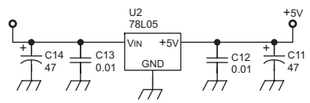
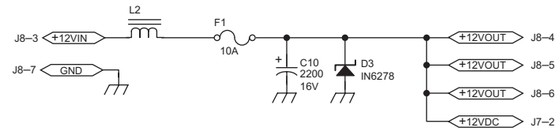


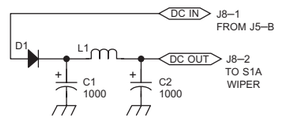
Figure 4-7. Amplifier Board Components Location (738301 Rev. E)

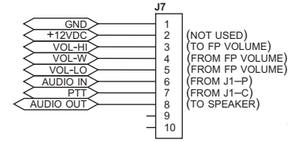
REV	ECN	DESCRIPTION	DATE	APPR
J	MT1099-077	SEE ECN BS	05-18-98	





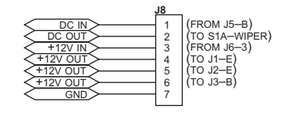






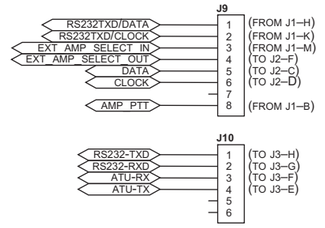
JUMPER SETTINGS

PRC1099	B	B	B	B	B
PRC1099A	A	A	A	A	A
JUMPER	1	2	3	4	5



DATA RATE PROGRAMMING

JUMPER	10	9
9600 BAUD	B	B
4800 BAUD	B	A
2400 BAUD	A	B
1200 BAUD	A	A



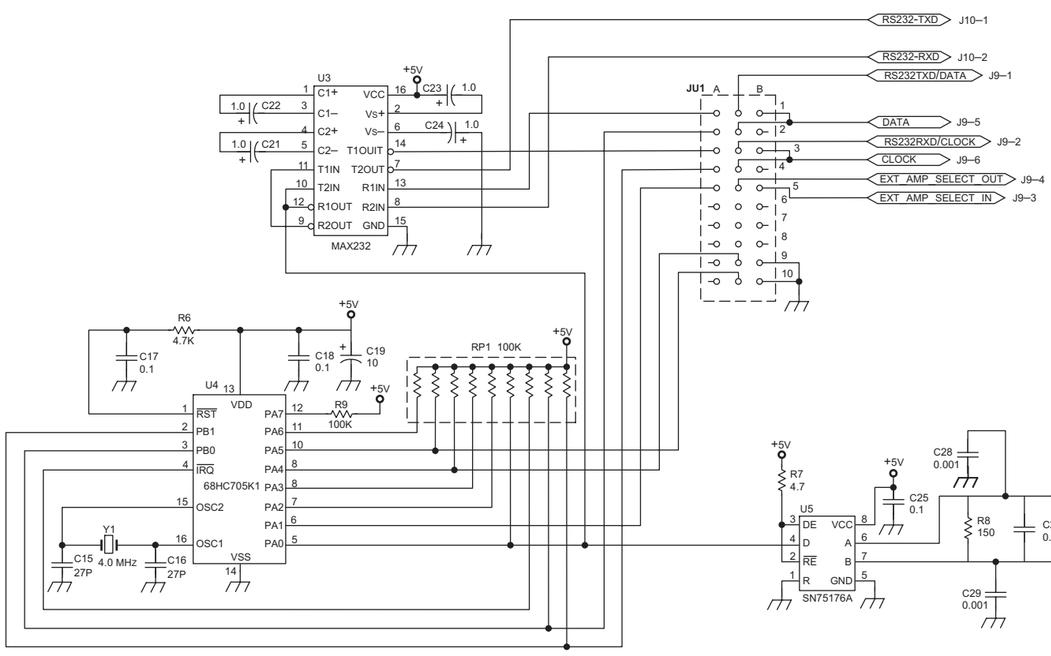


Figure 4-8
Amplifier Board
Schematic Diagram
(994048 Rev. J)

DATRON WORLD COMMUNICATIONS INC.
304 Enterprise St.
Escondido, CA 92029
(760)747-1079
FAX (760)747-2425

Title: *Schematic*
MT1099A AMP PCB

Size:	Drawn: B.SAYLES	Date:	Drawing Number:	Rev:
C	Appr:	Date: 5-18-98	994048	J

File: C:\CLIENTS\CHI\SCHEMS\994048J.SCH Date: 18-May-1998 Time: 13:44:12 Sheet 0 of 0

Table 4-1. Amplifier Board Parts List (MT1099AMP Rev. L)

Designator	Part Number	Description
C1	231102	CAP,A,1000U,35V,20%, RA,.3SP
C10	231222	CAP,2200UF 16V ELECT VRT
C11	241476	CAP, 47UF TA 20V 20% 0.1LS
C12	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C13	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C14	241476	CAP, 47UF TA 20V 20% 0.1LS
C15	275270	CAP,27 PF NPO MONOLITHIC
C16	275270	CAP,27 PF NPO MONOLITHIC
C17	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C18	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C19	241100	CAP,10MF DIP TANTALUM
C2	231102	CAP,A,1000U,35V,20%, RA,.3SP
C21	241010	CAP,1.0 MF DIP TANTALUM
C22	241010	CAP,1.0 MF DIP TANTALUM
C23	241010	CAP,1.0 MF DIP TANTALUM
C24	241010	CAP,1.0 MF DIP TANTALUM
C25	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C26	214103	CAP,C,0.01U,50,10%,X,RA,.1SP
C27	214103	CAP,C,0.01U,50,10%,X,RA,.1SP
C28	275102	CAP,C,.001UF,100V,5%,N,RA,.1SP
C29	275102	CAP,C,.001UF,100V,5%,N,RA,.1SP
C3	214103	CAP,C,0.01U,50,10%,X,RA,.1SP
C30	275102	CAP,C,.001UF,100V,5%,N,RA,.1SP
C31	275102	CAP,C,.001UF,100V,5%,N,RA,.1SP
C4	214103	CAP,C,0.01U,50,10%,X,RA,.1SP
C5	214103	CAP,C,0.01U,50,10%,X,RA,.1SP
C6	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C7	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C8	231100	CAP,10MF 16V ELECT VRT
C9	231101	CAP,100U,16V,20%,RADIAL,.1SP
D1	320126	DIODE,MBR1645 SCHTKY 16A TO220
D1	870078	INSUL SILPAD TO220 K4AC-58
D1	890099	HEAT SINK TO220 W/O TAB

Table 4-1. Amplifier Board Parts List (MT1099AMP Rev. L)

Designator	Part Number	Description
D2	320102	DIODE, 1N4001 RECT SI 1A 50V
D3	320227	DIODE, 1N6278A 17V TVS DO-204
F1	550004	FUSE, 10 AMP 3AG
J10	610197	HEADER,MLX,6PIN,.100
J7	610144	HEADER,MLX,10PIN,.100
J8	610164	HEADER,MLX,7PIN,.156,W/LK
J9	610222	HEADER,MLX,8PIN,.100,
JU1	614017	HEADER,30 PIN MALE 3 X 10
K2	540067	RELAY, NON-LATCH SEALED DS1E
L1	459173	IND ASSY, 5T#16 AWG 1-490415
L2	459173	IND ASSY, 5T#16 AWG 1-490415
L3	430041	INDUCTOR, 100 UH MOLDED
L4	430041	INDUCTOR, 100 UH MOLDED
R1	113562	RES,5.6K 1/8W 5% CARBON FILM
R2	113100	RES,10 OHM 1/8W 5% FILM
R6	124472	RES,4.7K 1/4W 5% CARBON FILM
R7	124472	RES,4.7K 1/4W 5% CARBON FILM
R8	124151	RES,150 OHM 1/4W 5% CF
R9	113104	RES,100K 1/8W 5% CARBON FILM
RP1	182002	RES,9 X 100K PAK
U1	330083	IC,LIN,LM386N-4,DIP8,OP-AMP
U2	330025	IC,VREG,78L05,TO92,5V
U3	330315	IC, MAX232
U4	MT-1099A-SW	MT1099A MICROCONTROLLER, PRGM
U5	330392	IC, BUS, XCUR
XU3	621004	SOCKET,16 PIN IC
XU4	621004	SOCKET,16 PIN IC
Y1	361093	‘XTAL,4.00MHZ,MS49/HC49S CASE

REV	ECN	DESCRIPTION	DATE	APPR
J	MT1099-057	SEE ECN BS	05-18-98	

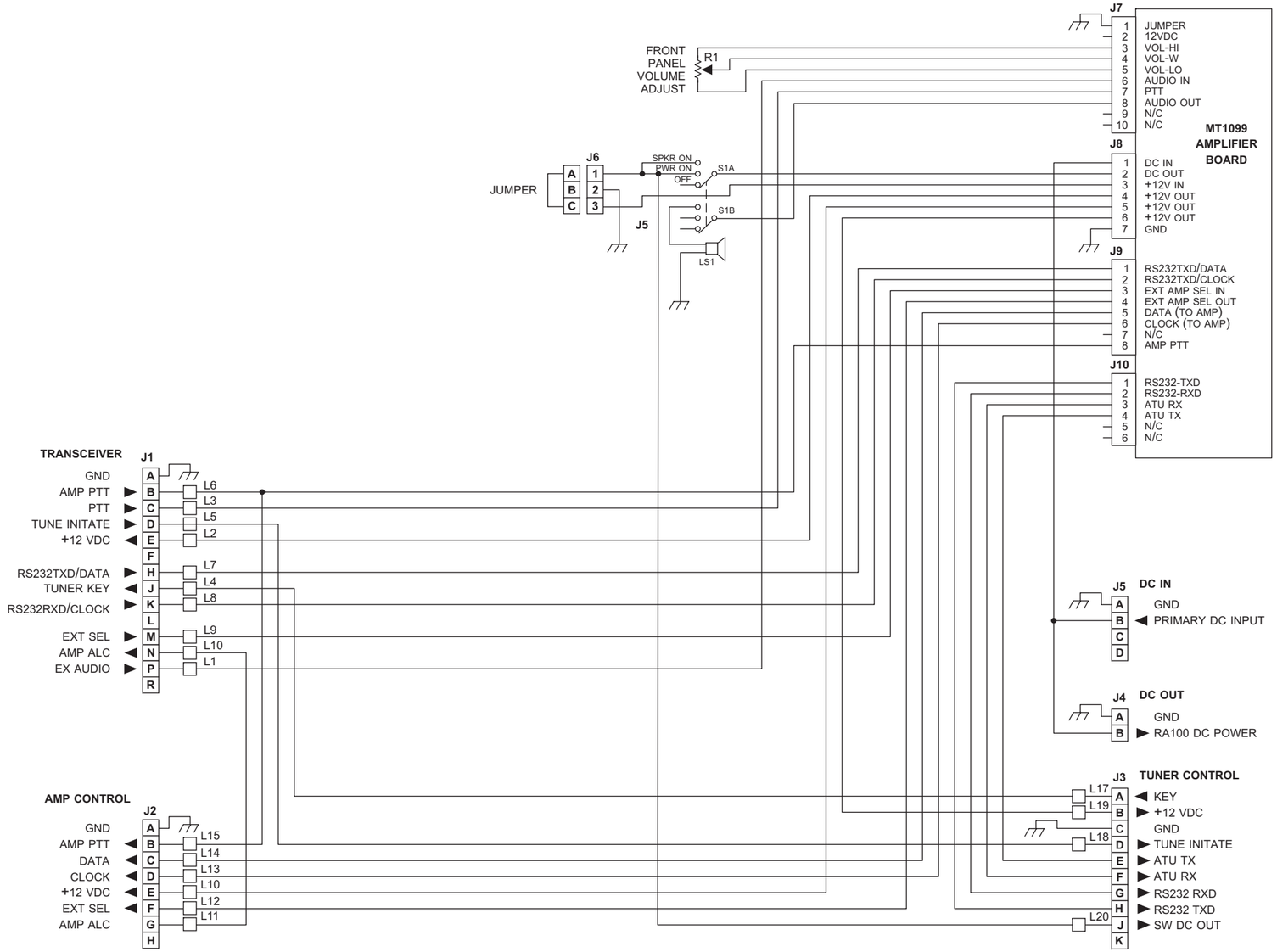


Figure 4-9
MT-1099A-12
Schematic Diagram
(994005 Rev. J)

DATRON WORLD COMMUNICATIONS INC.
3030 Enterprise St.
Escondido, CA 92029
(760)747-1079
FAX (760)747-2625

Title: Schematic
MT1099BX12
Size: C | Drawn: B.SAYLES | Date: | Drawing Number: 994005 | Rev: J
Appr: | Date: 4/6/98
File: C:\CLIENT\SCHEM\SCHED\994005J.SCH | Date: 18-May-1998 Time: 13:29:56 | Sheet 1 of 1

Table 4-2. MT-1099A-12 Parts List (MT1099BX12 Rev. S)

Designator	Part Number	Description
L1	490203	BEAD FERRITE SHIELD 73 MAT.
L10	490203	BEAD FERRITE SHIELD 73 MAT.
L11	490203	BEAD FERRITE SHIELD 73 MAT.
L12	490203	BEAD FERRITE SHIELD 73 MAT.
L13	490203	BEAD FERRITE SHIELD 73 MAT.
L14	490203	BEAD FERRITE SHIELD 73 MAT.
L15	490203	BEAD FERRITE SHIELD 73 MAT.
L16	490203	BEAD FERRITE SHIELD 73 MAT.
L17	490203	BEAD FERRITE SHIELD 73 MAT.
L18	490203	BEAD FERRITE SHIELD 73 MAT.
L2	490203	BEAD FERRITE SHIELD 73 MAT.
L20	490203	BEAD FERRITE SHIELD 73 MAT.
L3	490203	BEAD FERRITE SHIELD 73 MAT.
L4	490203	BEAD FERRITE SHIELD 73 MAT.
L5	490203	BEAD FERRITE SHIELD 73 MAT.
L6	490203	BEAD FERRITE SHIELD 73 MAT.
L7	490203	BEAD FERRITE SHIELD 73 MAT.
L8	490203	BEAD FERRITE SHIELD 73 MAT.
L9	490203	BEAD FERRITE SHIELD 73 MAT.
R1	170020	POT,1K PNL LINEAR

REV	ECN	DESCRIPTION	DATE	APPR
J	MT1099-057	SEE ECN BS	05-18-98	

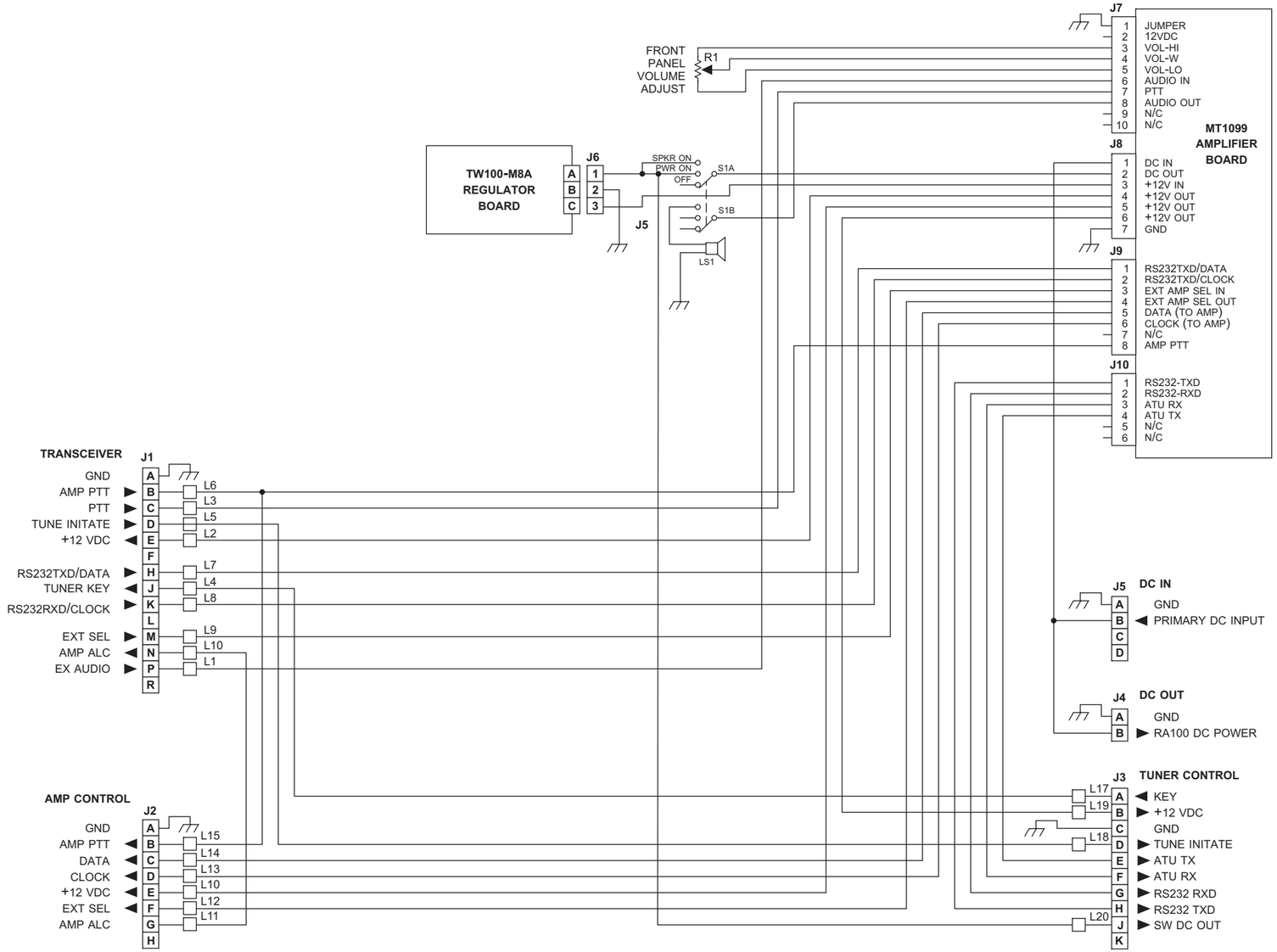


Figure 4-10
MT-1099A-24
Schematic Diagram
(994006 Rev. J)

DATRON WORLD COMMUNICATIONS INC.
304 Enterprise St.
Escondido, CA 92029
(760)747-1079
FAX (760)747-2625

Title: Schematic
MT1099BX24
Size: C | Drawn: B.SAYLES | Date: | Drawing Number: 994006 | Rev: J
Appr: | Date:
File: C:\CLIENT\SCH\SCHEMS\994006J.SCH | Date: 18-May-1998 Time: 13:31:13 | Sheet 1 of 1

Table 4-3. MT-1099A-24 Parts List (MT1099BX24 Rev. S)

Designator	Part Number	Description
L1	490203	BEAD FERRITE SHIELD 73 MAT.
L10	490203	BEAD FERRITE SHIELD 73 MAT.
L11	490203	BEAD FERRITE SHIELD 73 MAT.
L12	490203	BEAD FERRITE SHIELD 73 MAT.
L13	490203	BEAD FERRITE SHIELD 73 MAT.
L14	490203	BEAD FERRITE SHIELD 73 MAT.
L15	490203	BEAD FERRITE SHIELD 73 MAT.
L16	490203	BEAD FERRITE SHIELD 73 MAT.
L17	490203	BEAD FERRITE SHIELD 73 MAT.
L18	490203	BEAD FERRITE SHIELD 73 MAT.
L2	490203	BEAD FERRITE SHIELD 73 MAT.
L20	490203	BEAD FERRITE SHIELD 73 MAT.
L3	490203	BEAD FERRITE SHIELD 73 MAT.
L4	490203	BEAD FERRITE SHIELD 73 MAT.
L5	490203	BEAD FERRITE SHIELD 73 MAT.
L6	490203	BEAD FERRITE SHIELD 73 MAT.
L7	490203	BEAD FERRITE SHIELD 73 MAT.
L8	490203	BEAD FERRITE SHIELD 73 MAT.
L9	490203	BEAD FERRITE SHIELD 73 MAT.
R1	170020	POT,1K PNL LINEAR

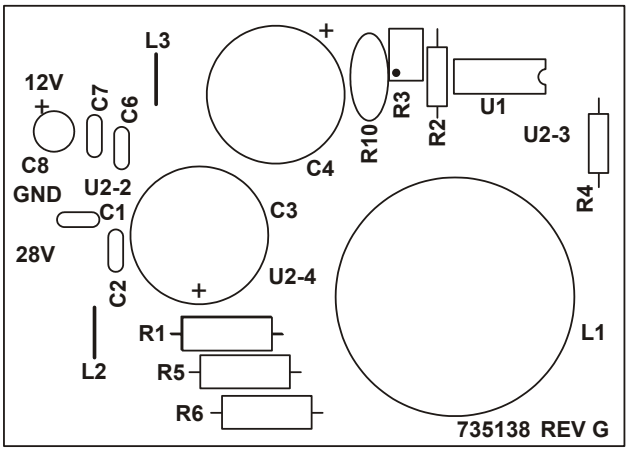
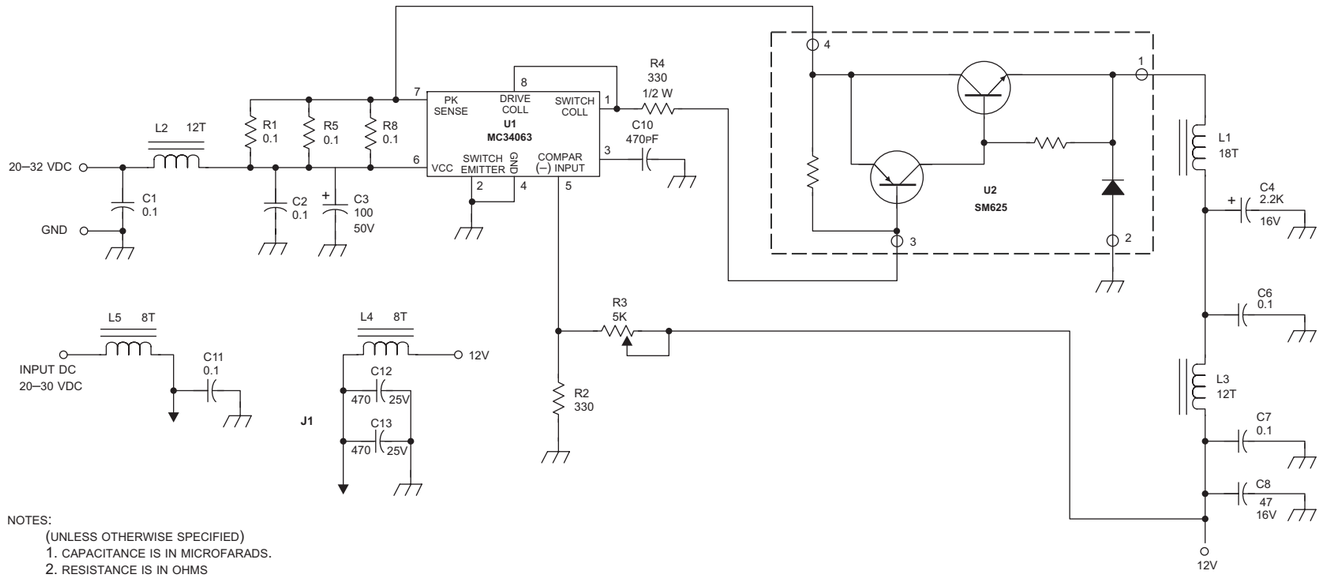


Figure 4-11. 28 Vdc Regulator Board M8A Components Location (735138 Rev. G)

REV	ECN No.	DESCRIPTION	DATE	APPD
A	TW100-648	TF		
B	TW100-022	DELETED C5, C9. C3 WAS 100. C4 WAS 100. C8 WAS 100. R2 WAS 536. R4 WAS 1K. R3 WAS CONNECTED TO C6. ADDED "GND" TO CONNECTOR.	13 SEP 88	
C	TW100-036	CC	11/21/88	
D	TW100-061	ADDED C13.	5/26/89	
E	TW100-069	R3 WAS 4.7	7/10/89	
F	TW100-256	R2 WAS 470.	4/22/91	
G	TW100-462	C3 WAS 1000uF	1-25-95	



NOTES:
(UNLESS OTHERWISE SPECIFIED)
1. CAPACITANCE IS IN MICROFARADS.
2. RESISTANCE IS IN OHMS

Figure 4-12
28V Regulator Board M8A
Schematic Diagram
(990480 Rev. G)

TOLERANCE: UNLESS OTHERWISE SPECIFIED .XX ± .03 .XXX ± .010 ANGLE ± 1/2°	DRAWN	DATRON WORLD COMMUNICATIONS INC.
	CHECKED	TITLE: TW100 M8 28V REGULATOR MODULE
MATERIAL	DSGN/ENG	
FINISH	APPROVED C.T.	SCALE NONE · SIZE C · SHEET 1 OF 1 · DWG No. TWC 990840 · REV G

Table 4-4. 28 Vdc Regulator Board M8A (TW100-M8A Rev. N)

Designator	Part Number	Description
C1	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C10	220471	CAP,470PF DM15 MICA
C11	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C12	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C13	232471	CAP,470MF 25V ELECT VRT
C2	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C4	231222	CAP,2200UF 16V ELECT VRT
C6	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C7	275104	CAP, 0.1UF X7R 50V 10% 0.1LS
C8	231500	CAP, A,47U,16V,20%,RA,.1SP
L1	459128	IND ASSY,18T#14 GA 2-490014
L2	453102	IND ASSY,12T#22 1-490302
L3	453102	IND ASSY,12T#22 1-490302
L4	452201	IND TOROID 490302 22GA 8T
L5	452201	IND TOROID 490302 22GA 8T
R1	144001	RES,0.1 OMH,5%,1W,FLAME PROOF
R2	124331	RES, 330 OHM 1/4W 5% CF
R4	134331	RES,330 OHM 1/2W 5% CF
R5	144001	RES,0.1 OMH,5%,1W,FLAME PROOF
R6	144001	RES,0.1 OMH,5%,1W,FLAME PROOF
U1	330191	IC MC34063PI
U2	330156	IC SM625
XU1	621003	SOCKET IC DIP 8-PIN