WJ-871Y/8KRF 8 kHz ROOFING FILTER OPTION

APPENDIX F

WJ P/N 181284-001, Revision B

Copyright © Watkins-Johnson Company 1993 All Rights Reserved

WATKINS-JOHNSON COMPANY 700 QUINCE ORCHARD ROAD GAITHERSBURG, MARYLAND 20878-1794

WARNING

This equipment utilizes voltages which are potentially dangerous and may be fatal if contacted. Exercise extreme caution when working with the equipment with any protective cover removed.

PROPRIETARY STATEMENT

This document and subject matter disclosed herein are proprietary items to which Watkins-Johnson Company retains the exclusive right of dissemination, reproduction, manufacture and sale.

This document is provided to the individual or using organization for their use alone in the direct support of the associated equipment unless permission for further disclosure is expressly granted in writing.

LIST OF EFFECTIVE PAGES

Page Number	Description	Revision
i	Cover	В
ii	Proprietary Statement	В
iii	List of Effective Pages	В
iv	Intentionally Blank	В
v	Revision Record	В
vi	Intentionally Blank	В
vii thru viii	Table of Contents	В
F-1 thru F-2	Appendix F	Α

THIS PAGE INTENTIONALLY LEFT BLANK

WJ-871Y/8KRF 8 kHz ROOFING FILTER OPTION

REVISION RECORD

Revision	Description	Date
Α	Initial Issue.	12/93
В	Added WJ part number to the title page. Incorporated a List of Effective Pages. Added page numbers to section cover pages and their back pages. Removed "intentionally left blank" pages and replaced with "Notes" pages that are formatted with headers and page numbers.	9/97

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

APPENDIX F

Paragraph		Page
F.1	Electrical Characteristics	F-1
F.2	Installation	F-1
F.2.1	SMO, Signal Monitor Output	F-1
F.3	Local Operation of the WJ-8711A and WJ-8712P	F-1
F.4	Remote Operation of the WJ-8711A and WJ-8710A	F-1
	LIST OF TABLES	
Table		Page
F-1	WJ-871Y/8KRF 8 kHz Roofing Filter Option Specifications	F-2

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX F

WJ-871Y/8KRF 8 kHz ROOFING FILTER OPTION

F.1 <u>ELECTRICAL CHARACTERISTICS</u>

The WJ-871Y/8KRF 8 kHz Roofing Filter Option improves the reception of weak signals which are in the presence of large signals at nearby adjacent frequencies. With this option installed, the receiver's RF bandwidth is reduced to 8 kHz and the number of selectable IF bandwidths is reduced to 58 (extending from 58 Hz to 8 kHz). This option also limits the bandwidth of the receiver's Signal Monitor Output to 8 kHz. Table F-1 provides a list of specifications associated with this option.

F.2 **INSTALLATION**

F.2.1 SMO, SIGNAL MONITOR OUTPUT

With the WJ-871Y/8KRF Option installed, the signal monitor output connector continues to provide a sample of the 2nd intermediate frequency, centered at 455 kHz. However, the nominal (-6 dB) bandwidth of this signal is reduced from 30 kHz to 8 kHz. The nominal output impedance remains at 50 ohms with approximately 30 dB of gain from the antenna input.

F.3 LOCAL OPERATION OF THE WJ-8711AAND WJ-8712P

When the WJ-871Y/8KRF Option is installed in the WJ-8711A or WJ-8712P Digital HF Receiver, the number of available IF bandwidths (which may be selected via the front panel controls) is reduced to 58. **Table F-1** shows the IF bandwidths which are available. Refer to the base manual for details on selecting the desired IF bandwidth via the receiver's front panel controls.

F.4 REMOTE OPERATION OF THE WJ-8711A, WJ-8710A, WJ-8712P AND WJ-8712A

When the WJ-871Y/8KRF Option is installed in the WJ-8711A, WJ-8710A, WJ-8712P, or WJ-8712A Digital HF Receiver, the number of available IF bandwidths which may be remotely selected (via the RS-232 serial interface or other optional remote control interface) is reduced to 58. **Table F-1** shows the IF bandwidths which are available. Refer to the base manual for details on selecting the desired IF bandwidth via remote control.

Table F-1. WJ-871Y/8KRF 8 kHz Roofing Filter Option Specifications

3dB Bandwidth	Typical Shape Factor (3/60 dB)	3 dB <u>Bandwidths</u>	Typical Shape Factor (3/60 dB)
.056 kHz	1.45:1	.700 kHz	1.35:1
.063 kHz	1.40:1	.750 kHz	1.35:1
.069 kHz	1.40:1	.800 kHz	1.30:1
.075 kHz	1.35:1	.900 kHz	1.45:1
.081 kHz	1.35:1	1.000 kHz	1.30:1
.088 kHz	1.35:1	1.100 kHz	1.40:1
.094 kHz	1.35:1	1.200 kHz	1.35:1
.100 kHz	1.30:1	1.300 kHz	1.35:1
.113 kHz	1.45:1	1.400 kHz	1.35:1
.125 kHz	1.40:1	1.500 kHz	1.35:1
.138 kHz	1.40:1	1.600 kHz	1.30:1
.150 kHz	1.35:1	1.800 kHz	1.45:1
.163 kHz	1.35:1	2.000 kHz	1.40:1
.175 kHz	1.35:1	2.200 kHz	1.40:1
.188 kHz	1.35:1	2.400 kHz	1.35:1
.200 kHz	1.30:1	2.600 kHz	1.35:1
.225 kHz	1.45:1	2.800 kHz	1.35:1
.250 kHz	1.40:1	3.000 kHz	1.35:1
.275 kHz	1.40:1	3.200 kHz	1.30:1
.300 kHz	1.35:1	3.600 kHz	1.45:1
.325 kHz	1.35:1	4.000 kHz	1.40:1
.350 kHz	1.35:1	4.400 kHz	1.40:1
.375 kHz	1.35:1	4.800 kHz	1.35:1
.400 kHz	1.30:1	5.200 kHz	1.35:1
.450 kHz	1.45:1	5.600 kHz	1.35:1
.500 kHz	1.40:1	6.000 kHz	1.35:1
.550 kHz	1.40:1	6.400 kHz	1.30:1
.600 kHz	1.35:1	7.200 kHz	1.25:1
.650 kHz	1.35:1	8.000 kHz	1.20:1
Monitor Output		tine to problem unique und his si electronic conduction and his sign	o mediculação também (1920) esta area efectada o filiable d
Center Frequency		155 kH2	nominal
	••••••		
		50 db abc	

APPENDIX G

[Reserved for Future Use]

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX H

871Y/485 RS-485 INTERFACE OPTION AND

871Y/MCU MULTI-DROP CONVERTER UNIT OPTION

WJ P/N 181273-001, Revision G

Copyright © Watkins-Johnson Company 1995 All Rights Reserved

WATKINS-JOHNSON COMPANY 700 QUINCE ORCHARD ROAD GAITHERSBURG, MARYLAND 20878-1794

PROPRIETARY STATEMENT

This document and subject matter disclosed herein are proprietary items to which Watkins-Johnson Company retains the exclusive right of dissemination, reproduction, manufacture and sale.

This document is provided to the individual or using organization for their use alone in the direct support of the associated equipment unless permission for further disclosure is expressly granted in writing.

WARRANTY

Seller warrants for a period of one year from the date of shipment, unless a different period has been agreed upon and incorporated into the Contract, that the products delivered or services rendered will conform to the specifications and be free from defects in workmanship and materials. THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHER WARRANTIES OR GUARANTIES OF ANY KIND OR DESCRIPTION, WHETHER STATUTORY, EXPRESS, OR IMPLIED. If the goods delivered or services performed fail to conform to the warranty stated in this clause, Seller will correct the nonconformity at its expense by such repair, adjustment, modification, or replacement of the goods or services as Seller deems expedient. THE FOREGOING REMEDY OF BUYER FOR ANY FAILURE OF THE GOODS OR SERVICES TO MEET ANY WARRANTY IS EXCLUSIVE. BUYER EXPRESSLY AGREES THAT THE LIABILITY OF SELLER UNDER ANY WARRANTY SHALL NOT INCLUDE DAMAGE TO OUR LOSS OF PROPERTY OTHER THAN THE GOODS COVERED BY THE CONTRACT; LOSS OF PROFITS OR REVENUE; INCREASED COSTS OF ANY KIND; CLAIMS OF CUSTOMERS OF BUYER; OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. As to goods or components where the customer has funded the repair, Seller will warrant as limited above, the repaired portion of the unit for three months from the date of reshipment. EQUIPMENT OR PARTS DESCRIBED AS BEING MANUFACTURED BY OTHERS ARE SOLD BY SELLER AS IS and Buyer must look to the respective manufacturer for any and all claims with regard to said equipment or parts.

LIST OF EFFECTIVE PAGES

Page Number	Description	Revision
i	Cover	G
ii	Proprietary Statement	G
iii	List of Effective Pages	. G
iv	Intentionally Blank	G
V	Revision Record	G
vi	Intentionally Blank	G
vii thru viii	Table of Contents	G
H-1 thru H-32	Appendix H	G

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX H

871Y/485 AND 871Y/MCU OPTIONS

REVISION RECORD

Revision	Description	Date		
A	Initial Issue.	2/94		
В	Changed Recommendation of RS-232-to-RS-485 Converter.	5/94		
С	Corrected errata associated with DIP switch configuration.	5/95		
D	12/94			
E	3/95			
F	Added WJ part number to the title page. Incorporated a List of Effective Pages. Added page numbers to section cover pages and their back pages. Removed "intentionally left blank" pages and replaced with "Notes" pages that are formatted with headers and page numbers.	9/97		
G	Incorporated ECO 039697, adding details for the 871Y/MCU option.	6/99		

THIS PAGE INTENTIONALLY LEFT BLANK

	A compared constant of the property of the pro		

TABLE OF CONTENTS

APPENDIX H

871Y/485 AND 871Y/MCU OPTIONS

Paragraph	en en en 1900 de 1900 De 1900 de 190	Pag
H.1	Introduction	H-1
H.2	Electrical Characteristics	H-1
H.3	Mechanical Characteristics	H-1
H.4	Overall Functional Description	H-1
H.5	Installation	H-2
H.6	Configuring the Receiver for Remote Operation	H-3
H.6.1	Accessing DIP Switches on the Digital Control PC Assembly	H-5
H.6.1.1	WJ-8711A Digital HF Receiver	H-5
H.6.1.2	WJ-87112A and WJ-8712P Digital HF Receivers	H-6
H.6.1.3	WJ-8710A Digital HF Receiver	H-7
H.7	Remote Operation	H-8
H.7.1	Communications Protocol	H-9
H.8	Unit Numbering Method	H-
H.9	Reference Designation Prefix	H-
H.10	List of Manufacturers	H-
H.11	Parts List	H-
H.11.1	Type 871Y/485 RS-485 Interface Option	H-
H.11.1.1	Type 797214-007 Digital Control PC Assembly	H-
H.11.2	Type 871Y/MCU Multi-Drop Converter Unit Option	H-:
	LIST OF TABLES	
<u>Table</u>	1962년 - 1971년 - 1972년 - 1972년 - 1972년 - 1972	Pag
H-1	RS-485 Data and Command Structure	H-
H-2	Supported Multi-Drop Communications Control Commands	H-9

LIST OF ILLUSTRATIONS

Figure		Page
H-1	Typical 871Y/485 Network Configuration	H-2
	Locating and Setting Configuration DIP Switches A2S1 and A2S2 (WJ-8711A)	H-4
H-2	Locating and Setting Configuration of Average Average and Table 1	H-5
H-3	Examples of Set DIP Switches A2S1 and A2S2	
H-4	Location of Switches A2S1 and A2S2 in the WJ-8712A and WJ-8712P	H-6
H-5	Location of Switches A2S1 and A2S2 in the WJ-8710A	H-7
	Receiver Addressing State Transitions	H-9
H-6	Receiver Addressing State Transitions	

APPENDIX H

871Y/485 RS-485 INTERFACE OPTION AND

871Y/MCU MULTI-DROP CONVERTER UNIT

H.1 INTRODUCTION

This document describes the 871Y/485 RS-485 Interface Option. Details on the 871Y/MCU Multi-Drop Converter Unit option are also provided herein due to its exclusive use with the 871Y/485 option. The associated configuration setup procedures and remote operation instructions are also provided. These options are used on the WJ-8710A, WJ-8711A, WJ-8712A, and WJ-8712P Digital HF Receivers. When the WJ-871Y/485 RS-485 Interface Option is installed, standard remote operations via the CSMA interface are not available.

H.2 ELECTRICAL CHARACTERISTICS

The 871Y/485 RS-485 Interface Option provides the capability of networking several WJ-871Y receivers over an RS-485 interface. It can be used in multipoint applications, where one central computer that is also equipped with the 871Y/MCU option controls many different devices. Up to 32 units can be interconnected over an RS-485 network in a multi-drop interface setup. A computer with a standard RS-232 interface will also require the 871Y/MCU Multi-Drop Converter unit which also acts as an RS-232 to RS-485 converter. This converter connects in-line with the interface cables and requires +12 Vdc for operation. A 120 Vac to 12 Vdc Power Supply Adaptor is provided with the option for this purpose.

H.3 MECHANICAL CHARACTERISTICS

The 871Y/485 RS-485 Interface Option consists of the Type 797214-007 Digital Assembly and associated software installed on EPROMs.

The 871Y/MCU Mutli-Drop Converter Unit option consists of a B&B Electronics Manufacturing Company (6J757) Model 485COR RS-232 to RS-485 Converter and a Model 485PS 120 Vac/12 Vdc Power Supply Adaptor module.

H.4 OVERALL FUNCTIONAL DESCRIPTION

The 871Y/485 RS-485 Interface Option provides the capability of networking several WJ-871Y receivers over a RS-485 interface when used with the 871Y/MCU Multi-Drop Converter unit. See Figure H-1 for a typical network diagram of RS-485 equipped receivers. The RS-485 standard defines a balanced interface with tristatable drivers. It can be used in multipoint applications where one central computer controls many different devices. Up to 32 units can be interconnected over an RS-485 network. Transmissions can run long distances at speeds as high as 9600 baud. Distance is a function of cable design. For specific allowable distances, consult the RS-485 Standard.

The RS-485 interface is implemented on pins 18 (TX/RXA) and 25 (TX/RXB) of connector A2J3, located on the receiver's rear panel.

H.5 INSTALLATION

The 871Y/485 RS-485 Interface Option is installed in the receiver at the factory when ordered with the receiver.

The B&B Electronics Manufacturing Company (6J757) Model 485COR RS-232 to RS-485 Converter unit (included with the 871Y/MCU option) attaches to the controlling PC's 25-pin RS-232 control port. The DB-25 pin female connector of this converter is its RS-232 port, intended for connection to the PC. The DB-25 pin male connector is its RS-485 port, intended for connection to the receiver via an interface bus using the appropriate serial interface cable. When installing the converter module, tighten its retaining screws to both the PC and the interface cable to ensure a good connection. See **Figure H-1** for a typical network configuration including the converter module.

The RS-232 to RS-485 Converter unit requires +12 Vdc for operation. The 120 Vac/12 Vdc adaptor is provided with the 871Y/MCU option specifically for this purpose. This adaptor plugs into a standard US 2-prong, 120 Vac outlet. A cable with a 2.5 mm plug on one end is used to attach the adaptor to the Converter unit.

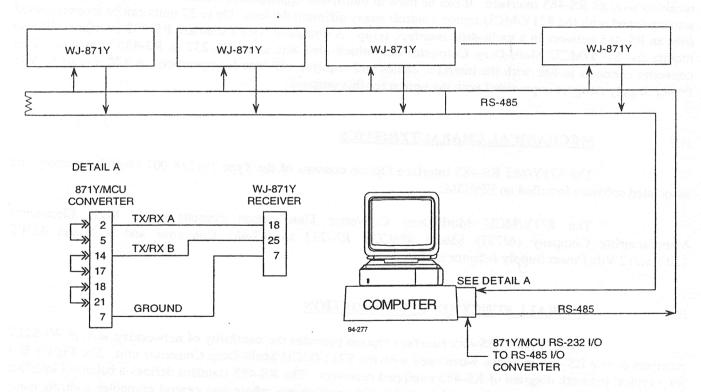


Figure H-1. Typical 871Y/485 Network Configuration

H.6 CONFIGURING THE RECEIVER FOR REMOTE OPERATION

The receiver contains two DIP switches that are used to configure the receiver for remote operation. These switches are mounted on the Digital PC Assembly (A2) and are accessed as noted in paragraph H.6.1. The switches are designated A2S1 and A2S2. Each switch contains eight rocker-type switches. The rocker switches are on when they are in the down position and are off when in the up position.

The rocker switches in A2S1 are used to enable either the RS-232C or the RS-485 interface for remote operations, to set the baud rate for the selected interface, and to set the receiver's frame address. Setting switch 4 of A2S1 to off(up) enables the RS-232C interface. Conversely, setting switch 4 to on enables the RS-485 interface.

The positions of switches 1, 2, and 3 of A2S1 are used to set the baud rate for remote operations. Selectable baud rates are 75, 150, 300, 600, 1200, 2400, 4800, and 9600 bps. See **Figure H-2** for the proper positions of switches 1, 2, and 3 of A2S1 to select the desired baud rate.

Switches 5 of A2S1 is used to designate the receiver's frame address. When set to on, the frame address is 25 which is reserved for the WJ-8711A receivers. When reset, the frame address is 24, reserved for the WJ-8710A and WJ-8712A and WJ-8712P receiver.

Switches 1 thru 5 of A2S2 are used to set the receiver's address on the RS-485 Network during RS-485 remote operations. Valid addresses are from 00 to 31. See **Figure H-2** for the proper position of switches 1 thru 5 of A2S2 to select the desired RS-485 network receiver address.

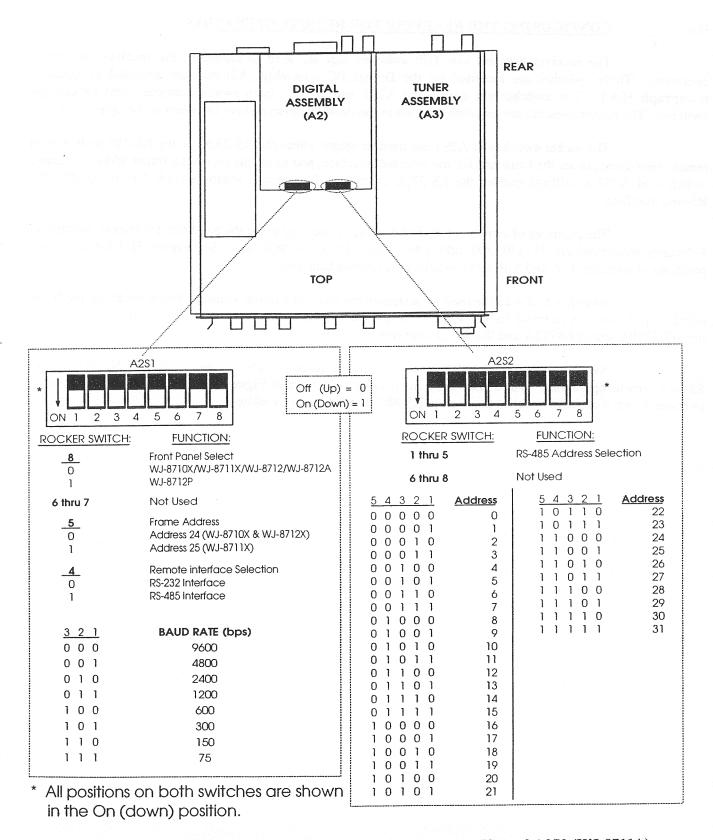


Figure H-2. Locating and Setting Configuration DIP Switches A2S1 and A2S2 (WJ-8711A)

When determining the switch settings to achieve a specific binary value, a switch in the off (up) position corresponds to a binary 0 while a switch in the on (down) position corresponds to a binary 1.

Figure H-3 gives an example of switches A2S1 and A2S2 set to positions to provide particular configurations. In the example, switch A2S1 is set to provide a frame address of 24 (WJ-8710X and WJ-8712X) and to select RS-485 remote operation with a baud rate of 2400 bps. Switch A2S2 is set to a receiver address of 26.

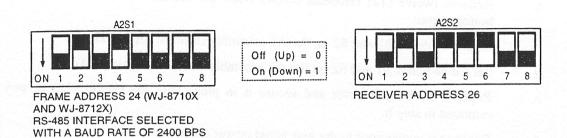


Figure H-3. Examples of Set DIP Switches A2S1 and A2S2

H.6.1 ACCESSING DIP SWITCHES ON THE DIGITAL CONTROL PC ASSEMBLY

H.6.1.1 WJ-8711A Digital HF Receiver

Perform the following procedural steps to gain access to DIP switches A2S1 and A2S2:

- a. Turn off the receiver and disconnect the power plug from the rear panel power connector.
- b. Remove two pan-head screws from the rear edge of the top panel securing it to the chassis rear apron and two flat-head screws on the forward edge of the top panel.
- c. Carefully remove top panel and disconnect the speaker leads.
- d. Locate switches S1 and S2 on the A2 assembly (refer to Figure H-2).
- e. Set the switches for the desired configuration in accordance with Figure H-2.
- f. Reconnect the speaker leads to the top panel and replace the top panel on the receiver. Secure the top panel with the screws removed in step b.
- g. Reconnect power cord to the rear panel power connector.

H.6.1.2 WJ-8712A and WJ-8712P Digital HF Receiver

Perform the following procedural steps to gain access to DIP switches A2S1 and A2S2:

- a. Turn off the receiver and disconnect the power plug from the rear panel power connector.
- b. Remove twelve (12) flat-head screws from the bottom cover and remove the bottom cover.
- c. Locate switches S1 and S2 on the A2 assembly (refer to Figure H-4).
- d. Set the switches S1 and S2 on the A2 assembly (refer to Figure H-4).
- e. Replace the bottom cover and secure it in place with the twelve (12) screws removed in step b.
- f. Reconnect power cord to the rear panel power connector.

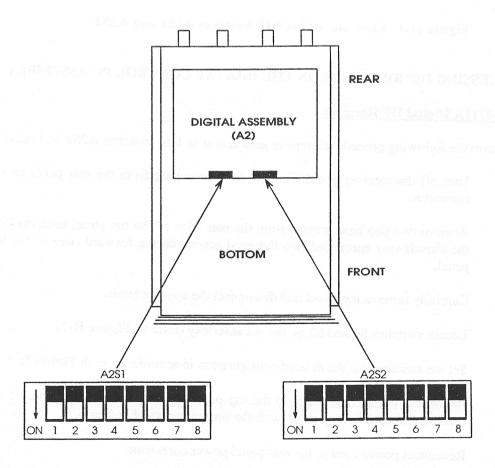


Figure H-4. Location of Switches A2S1 and A2S2 in the WJ-8712A and WJ-8712P

H.6.1.3 WJ-8710A Digital HF Receiver

Perform the following procedural steps to gain access to DIP switches A2S1 and A2S2:

- a. Turn off the receiver and disconnect the power plug from the front panel PWR 12 Vdc connector.
- b. Remove two black pan-head screws from the lower left and right corners of the front panel.
- c. Remove four flat-head screws from the rear panel.
- d. Slide the main chassis out of the enclosure.
- e. Locate switches S1 and S2 and the A2 assembly (refer to Figure H-5).
- f. Set the switches S1 and S2 on the A2 assembly (refer to Figure H-5).
- g. Slide the main chassis back into the enclosure and reinstall the two pan-head screws and four flat-head screws that were removed in steps b and c, respectively.
- h. Reconnect the power plug to the front panel PWR 12 Vdc connector.

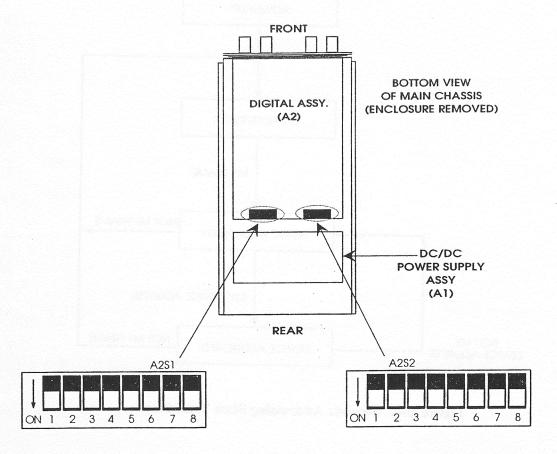


Figure H-5. Location of Switches A2S1 and A2S2 in the WJ-8710A

H.7 REMOTE OPERATION

With the RS-485 Interface Option installed, the WJ-8711A, WJ-8710A, WJ-8712P, or WJ-8712A Digital HF Receiver is controlled remotely by a computer or other controller device equipped with an RS-232C interface connected to the B&B Electronics Model 485COR RS-232 to RS-485 Converter, part of the 871Y/MCU option.

The WJ-8711A can be set for RS-485 remote control by selecting "RS-485" in the remote control entry mode with the front panel SPECIAL FUNCTION key and then selecting the desired receiver address (00-31). Refer to Section III of the WJ-8711A Manual for details on using the SPECIAL FUNCTION key. In addition, the WJ-8711A, WJ-8710A, WJ-8712P or WJ-8712A may be set for RS-485 remote operation by setting the DIP switches as described above.

Once the receiver is properly addressed, it continues to accept data until a new frame or receiver address is detected. If no new frame address is issued, the frame address need not be reissued, only the receiver address. **Figure H-6** shows the receiver addressing state transitions.

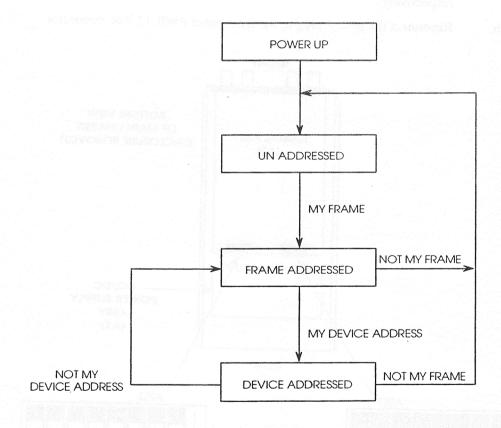


Figure H-6. Receiver Addressing State Transitions

H.7.1 COMMUNICATIONS PROTOCOL

When the LF character is sent to the receiver, it responds to a valid message with an ACK, or to an invalid message with a NAK. An invalid message is indicated on a communications error such as framing, noise, or overrun. The transmission of a NAK indicates that one or more of the bytes received after the last LF had an error. ACK/NAK response is sent only after the receiver has completed processing any previous messages in the input buffer and output any response necessary. Table H-1 shows the data and command structure for the RS-485. Table H-2 shows the supported multi-drop communications control commands.

The input buffer is processed on the receipt of a LF character or a CR, LF combination of characters.

Receipt of the DCL (device clear) command causes the receiver to clear both input and output buffers of any data. This command is acted upon as soon as it is received and is not buffered.

D0	D1	D2	D3	D4	D5	D6	D7	Command Type
Х	х	х	х	Х	Х	Х	0	Data
х	х	х	х	х	0	0	1	Bus Acquisition, Not used in this application
х	х	х	х	х	1	0	1	Not used
х	х	х	х	х	0	1	1	Frame Address
х	х	х	х	х	1	1	1	Receiver Address

Table H-1. RS-485 Data and Command Structure

Table H-2. Supported Multi-drop Communications Control Commands

HEX	ASCII	RX	TX	Function
06	ACK		х	Acknowledged, data received okay
15	NAK		х	Not Acknowledged, data communications error
0A	LF	х	X	Line Feed, start processing input buffer
0D	CR	х	х	Carriage Return, no action
14	DC4	х		DCL, clear input and output buffers
D9,D8		Х		Frame Address group (24, 25)
E0-FF		x		Receiver Address group (00-31)

H.8 UNIT NUMBERING METHOD

The method of numbering used throughout the unit is assigning reference designations (electrical symbol numbers) to identify: assemblies, subassemblies, modules within a subassembly and discrete components. An example of the unit numbering method used is as follows:

Subassembly Designation A1

R1 Class and No. of item

Identify from right to left as:

First (1) resistor (R) of first (1) subassembly (A)

On the main chassis schematic, components which are an integral part of the main chassis have no subassembly designations.

H.9 REFERENCE DESIGNATION PREFIX

Partial reference designations are used on the equipment and on the manual illustrations. This partial reference designation consists of the component type letter(s) and the identifying component number. The complete reference designation may be obtained by placing the proper prefix before the partial reference designation. Reference designation prefixes are included on the drawings and illustrations in the figure titles in parenthesis).

H.10 LIST OF MANUFACTURERS

The manufacturer listed below is a supply source used for obtaining parts used in the 871Y/MCU option. This manufacturer is not listed in the base manual. All other manufacturers of parts listed in this appendix can be found in the base manual.

Mfr.

Code

Name and Address

6J757

B&B Electronics Manufacturing Co.

707 Dayton Road P.O. Box 1040 Ottawa, IL 61350

H.11 PARTS LIST

The following parts lists identify all of the major electrical and mechanical components used in the 871Y/485 RS-485 Interface Option and in the 871Y/MCU Multi-Drop Converter Unit Option. When ordering replacement parts from the Watkins-Johnson Company, specify the unit type, serial number, option configuration, and reference designation and description of the part being ordered. The manufacturer's part number provided in paragraph H.11.1 and paragraph H.11.2 are supplied as a guide to aid the user of the equipment while in the field. The parts listed may not necessarily be identical with the parts installed in the unit. The parts listed in paragraph H.11.1 and paragraph H.11.2, if used, will provide satisfactory unit operation.

Replacement parts may be obtained from any manufacturer provided that the physical characteristics and electrical parameters of the replacement item are compatible with the original part. In cases where components are defined by a military or industrial specification, a vendor who can provide the necessary component is suggested as a convenience to the user.

NOTE

As improvements in semiconductors are made, it is the policy of Watkins-Johnson to incorporate them in proprietary products. As a result, some transistors, diodes, and integrated circuits that are installed in the unit may not agree with the parts lists or schematic diagrams contained in this manual. Replacing these components with the devices listed in this manual, however, will produce satisfactory results.

-	Signal Makes and State of					A CONTRACTOR OF THE PARTY OF TH	
			QTY		A 1200 L		1
- 1				MANUFACTURERS	MFR.	DECH	1
	REF		PER			RECM	1
	DESIG	DESCRIPTION	ASSY	PART NO.	CODE	VENDOR	1
	DESIG				the state of the s	and the second	4 .

H.11.1 TYPE 871Y/485 RS-485 INTERFACE OPTION

Revision E

A2 Digital Control PC Assembly

1 797214-007

14632

		QTY	er 19 ag 18 Stadte Stadtiget og engligt og en og en og en skalende og en skalende og en skalende og en skalend	and compared to the compared	ga y casasa
REF		PER	MANUFACTURERS	MFR.	RECM
DESIG	DESCRIPTION	ASSY	PART NO.	CODE	VENDOR

H.11.1.1 Type 797214-007 Digital Control PC Assembly

REF DESIG PREFIX A2

	Revision D			
BT1	Not Used			
XBT1	Not Used			
BT2	Not Used			
XBT2	Not Used			
Cl	Capacitor, Ceramic, .01µF, 10%	118	841415-019	14632
C2	Same as C1			
C3	Same as C1			
C4	Capacitor, Ceramic, .033µF, 10%	17	841415-022	14632
C5	Same as C4			
C6	Same as C4			
C7	Same as C4			
C8	Same as C4			
C9	Same as C4			
C10	Same as C4			
Cll	Same as C1			
C12	Capacitor, Ceramic, .1µF, 10%, >/=50VDC	8	841250-25	14632
C13	Same as C1			
C14	Capacitor, Ceramic, 75pF,2%	1	841416-046	14632
C15	Capacitor, Tantalum, 3.3µF, 20%, 16V	10	841293-10	14632
C16	Same as C12			
C17	Capacitor, Ceramic, 22pF, 5%	3	841415-003	14632
C18	Same as C1			
C19	Same as C1			
C20	Capacitor, Ceramic, 100pF, 5%	9	841415-007	14632
C21	Same as C20			
C22	Same as C20			
C23	Same as C20			
C24	Same as C1			
C25	Capacitor, Electrolytic, Aluminum, 470 F, 16V	1	ECE-A1CU471	54473
C26	Same as C1			
C27	Capacitor, Ceramic, .047µF, 10%	9	841415-023	14632
C28	Same as C27			
C29	Same as C1			
C30	Same as C4			
C31	Same as C4			
C32	Same as C1			
C33	Same as C4			
C34	Same as C1			
C35	Same as C15			
C36	Same as C1			
C37	Same as C1			
C38	Same as C12			
220	non durino ad. Oli 4 de la companya del companya della companya			

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR	
-----------------------	--------------------	---------------------------	--------------	----------------	--

REF DESIG PREFIX A2

C39	Same as C1			
C40	Capacitor, Tantalum, 10µF, 20%, 16V	2	841293-16	14632
C41	Same as C17			
C42	Same as C17			
C43	Same as C12			
C44	Same as C1			
C45	Same as C12			
C46	Same as C40			
C47	Same as C1			
C48	Same as C12			
C49	Capacitor, Ceramic, 470pF, 5%	8	841415-011	14632
C50	Same as C49			
C51	Same as C49			
C52	Same as C49			
C53	Same as C49			
C54	Same as C1			
C55	Same as C1			
C56	Capacitor, Ceramic, 1000pF, 10%	4	841415-013	14632
C57	Capacitor, Ceramic, 47pF, 2%	4	841416-041	14632
C58	Same as C1			
C59	Same as C1			
C60	Same as C1			
C61	Same as C15			
C62	Same as C15			
C63	Same as C15			
C64	Same as C1			
C65	Same as C1			
C66	Same as C1			
C67	Same as C1			
C68	Same as C1			
C69	Same as C1			
C70	Same as C1			
C71	Same as C15			
C72	Same as C56			
C73	Same as C56			
C74	Same as C49			
C75	Same as C27			
C76	Same as C27			
C77	Capacitor, Ceramic, 1500pF, 10%,	3	841415-014	14632
C78	Same as C27			
C79	Same as C77			
C80	Same as C77			
C81	Capacitor, Ceramic, 820pF, ~~2%	3	841416-071	14632

REF NO SOURCE AND ADDRESS OF THE PROPERTY OF T	PER MAI	NUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
--	---------	-------------------------	--------------	----------------

REF DESIG PREFIX A2

C82	Same as C49					
C83	Same as C1					
C84	Same as C1					
C85	Same as C1					
C86	Same as C49				•	
C87	Same as C1					
C88	Same as C1					
C89	Same as C1					
C90	Same as C1					
C91	Same as C1					
C92	Same as C1					
C93	Same as C1					
C94	Same as C1					
C95	Same as C1					
C96	Capacitor, Ceramic, 2200pF, 10%		4	841415-015		14632
C97	Same as C57					
C98	Same as C1					
C99	Same as C1					
C100	Same as C1					
C101	Same as C27					
C102	Same as C1					
C103	Same as C15					
C104	Same as C15					
C105	Same as C4					
C106	Capacitor, Ceramic, 220pF, 5%		1	841415-009		14632
C107	Same as C1					
C108	Same as C27					
C109	Same as C1					
C110	Same as C1					
C111	Same as C1					
C112	Same as C15					
C113	Capacitor, Ceramic, 330pF, 5%		1	841415-010		14632
C114	Same as C27					
C115	Same as C57					
C116	Same as C1					
C117	Same as C1					
C118	Same as C96					
C119						
C120	Same as C1					
C121	Same as C15					
C122	Same as C57					
C123	Same as C4					
C124	Same as C96					

REF		DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR.	RECM VENDOR
DESIG	en der gereichen der Steine der gegener der gestellt der gegener der gegener der gegener der gegener der gegen Der steine gegener der der der der gegener der gegener der gegener der gegener der gegener der gegener der geg	DESCRIPTION	ASSY	PART NO.	CODE	

				REF DESIG PREFIX A2
C125	Capacitor, Ceramic, 180pF, 2%	1	841416-055	14632
C126	Capacitor, Ceramic, 470pF, 2%	1	841416-065	14632
C127	Same as C27			
C128	Capacitor, Ceramic, 68pF, ~~2%	1	841416-045	14632
C129	Same as C1			
C130	Same as C1			
C131	Not Used			
C132	Same as C1			
C133	Same as C1			
C134	Same as C1			
C135	Not Used			
C136	Same as C1			
C137	Same as C1			
C138	Same as C81			
C139	Same as C1			
C140	Same as C1			
C141	Same as C1			
C142	Not Used			
C143	Same as C1			
C144	Same as C81			
C145	Same as C1			
C146	Same as C1			
C147	Same as C1			
C148	Capacitor. Ceramic, 100pF, 2%	4	841416-049	14632
C149	Same as C148			
C150	Same as C148			
C151	Same as C148			
C152	Same as C1			
C153	Same as C1			
C154	Same as C1			
C155	Same as C1			
C156	Same as C1			
C157	Same as C1			
C158	Capacitor, Ceramic, 1000pF, 2%	1	841416-073	14632
C159	Capacitor, Ceramic, 56pF, 2%	1	841416-043	14632
C160	Same as C1			
C161	Same as C1			
C162	Capacitor, Ceramic, 1200pF, 2%	1	841416-075	14632
C163	Capacitor, Tantalum, 68µF, 20%, 6.3V		841293-24	14632
C164	Same as C1			
C165	Same as C1			
C166	Same as C1			
C167	Same as C1			

REF	DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM	
DESIG	DESCRIPTION	ASST	PART NO.	CODE	VENDOR	

				CLI DESIGTREMA
C168	Same as C1			
C169	Same as C1			
C170	Same as C1			
C171	Same as C56			
C172	Same as C1			
C173	Same as C1			
C174	Same as C1			
C175	Capacitor, Tantalum, 33	uF 20% 16V	9 841293-22	14632
C176	Same as C175	μι, 2070, 10 τ	0412/3-22	
C177	Same as C96			
C177	Same as C1			
C179	Same as C175			
C180	Capacitor, Tantalum, 6.8	8uF 20% 63V	2 841293-14	14632
C181	Same as C180	μι, 2070, 0.5 v	2 041253-14	
C182	Same as C1			
C183	Not Used			
C184	Same as C1			
C185	Same as C12			
C186	Same as C12			
C187	Same as C1			
C188	Same as C1			
C189	Same as C1			
C190	Not Used			
C191	Same as C1			
C192	Same as C4			
C193	Same as C1			
C194	Same as C1			
C195	Same as C1			
C196	Same as C1			
C197	Same as C1			
C198	Not Used			
C199	Not Used			
C200	Same as C1			
C201	Same as C1			
C202	Same as C175			
C203	Same as C175			
C204	Same as C175			
C205	Same as C1			
C206	Same as C20			
C207	Same as C1			
C208	Same as C1			
C209	Same as C1			
C210	Same as C1			

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
--------------------------	--------------------	------------------------	--------------	----------------

C211	Same as C1			
C212	Same as C1			
C213	Same as C1			
C214	Same as C20			
C215	Same as C20			
C216	Same as C1			
C217	Same as C20			
C218	Same as C1			
C219	Same as C175			
C220	Same as C175			
C221	Same as C175			
C222	Same as C1			
C223	Same as C20			
C224	Same as C1			
C225	Same as C1			
C226	Same as C1			
C227	Same as C1			
C228	Same as C1			
C229	Same as C4			
C230	Same as C1			
C231	Same as C1			
C232	Not Used			
C233	Same as C4			
C234	Not Used			
C235	Same as C1			
C236	Same as C4			
C237	Same as C4			
C238	Not Used			
C239	Not Used			
CR1	Not Used (SOT-23)			
CR2	Diode/Swpin Dual Swithcing Diode Reverse Volltage	2	MMBD7000LT1	04713
CR3	Not Used			
CR4	Same as CR2			
CR5	Not Used			
FL1	Filter, 455 kHz Precision Ladder Type	1	CFS-455B	51406
J1	Connector, Jack, BNC BNC Rt Ang, PCB/Panel MT	1	227677-1	00779
	W/SLDR Mt Posts			
J2	Phone Jack, 3.5 Dia Mini Phone Jack	1	SJ360	53337
J3	Connector, 25-Pin, D-Sub, RT Ang, PC MT	1	DB25SQFA	05574
J4	Connector, 24-Pin Term Strip Gold Flash .100CTRS	4	79223-624	22526
J 5	Connector, Header, 6 Pos Pin Friction Lock .156 CTRS	1	26-48-2066	27264
J 6	Not Used			
J 7	Same as J4			

REF	DESCRIPTION	QTY PER	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
DESIG	DESCRIPTION	A001	elektronistasik (h. 1841).		

		•		
J8	Same as J4			
J 9	Same as J4			
J10	Not Used			
J11	Connector, PC,BD 3 Pin SHRD HDR	1	3-102202-4	00779
J12	Not Used		•	
J13	Not Used			
J14	Connector, Header, 10 Pin, Double Row	1	SLW-105-01-G-D	55322
J15	Not Used			
J16	Not Used			
JW1	Not Used			
Ll	Inductor, 10µH, Surface MT	3	RL-1500-10	14778
L2	Same as L1			
L3	Same as L1			
L4	Inductor, 1.0µH, ~~20%,@7.96MHZ	9	B82422-A1102-M	25088
	QMIN-25 370MA Ferrite 1210			
L5	Same as L4			
L6	Same as L4			
L7	Same as L4			
L8	Same as L4			
L9	Same as L4			
L10	Same as L4			
Lll	Not Used			
L12	Inductor, 2.2µH	1	841444-009	14632
L13	Inductor, 4.7µH	1	B82422-A1472-M	25088
L14	Inductor, 150nH	1	841438-029	14632
L15	Inductor, 68nH	1	841438-021	14632
L16	Inductor, 2.7µH	1	841444-011	14632
L17	Not Used			
L18	Inductor, 1000μH	2	NLF453232-102K	7J069
L19	Same as L18			
L20	Same as L4			
L21	Same as L4			
L22	Not Used			
L23	Not Used			
Q1	Not Used			
Q2	Transistor	3	MMBT2222ALT1	04713
Q3	Same as Q2			
Q4	Not Used			
Q5	Not Used			
Q6	Transistor	2	2N7002-LT1	17856
Q7	Same as Q2			
Q8	Transistor	2	MMBT-3906	04713

REF DESIG DESCRIPTION DESCRIPT
--

Q 9	Same as Q6			
Q10 ·	Transistor	2	MMBT3904LT1	04713
Q11	Same as Q8			
Q12	Same as Q10			
R1	Resistor, Fixed, $100k\Omega$, 5%	110	841414-121	14632
R2	Resistor, Fixed, 47Ω , 5%	20	841414-041	14632
R3	Resistor, Fixed, $47k\Omega$, 5%	7	841414-113	14632
R4	Same as R3			
R5	Resistor, Fixed, 100Ω , 5%	16	841414-049	14632
R6	Same as R3			
R7	Resistor, Fixed, $10k\Omega$, 5%	43	841414-097	14632
R8	Resistor, Fixed, $4.7k\Omega$, 5%	7	841414-089	14632
R9	Resistor, Fixed, $2.2k\Omega$, 5%	8	841414-081	14632
R10	Same as R2			
R11	Resistor, Fixed, 820Ω , 5%	1	841414-071	14632
R12	Resistor, Fixed, 680Ω , 5%	1	841414-069	14632
R13	Same as R5			
R14	Same as R5			
R15	Not Used			
R16	Not Used			
R17	Not Used			
R18	Resistor, Fixed, $1.0k\Omega$, 5%	23	841414-073	14632
R19	Jumper .05 Ω MAX 1A MIN@70C	26	841417	14632
R20	Same as R19			
R21	Same as R18			
R22	Same as R19			
R23	Not Used			
R24	Same as R18			
R25	Same as R19			
R26	Resistor, Fixed, $1.5k\Omega$, 5%	5	841414-077	14632
R27	Same as R19			
R28	Same as R18			
R29	Resistor, Fixed, 2.7Ω , 5%	4	841414-011	14632
R30	Resistor, Fixed, $22k\Omega$, 5%	4	841414-105	14632
R31	Same as R5			
R32	Same as R30			
R33	Same as R5			
R34	Same as R1			
R35	Same as R19			
R36	Resistor, Fixed, $2.7k\Omega$, 5%	2	841414-083	14632
R37	Same as R18			
R38	Same as R19			
R39	Same as R7			

	4		1 may 2	QTY			
REF				PER	MANUFACTURERS	MFR.	RECM
 SIG		DESCRIPTION		ASSY	PART NO.	CODE	VENDOR

R40	Same as R7			
R41	Same as R18			
R42	Same as R7			
R43	Same as R19			
R44	Not Used			
R45	Same as R18			
R46	Same as R36			
R47	Same as R2			
R48	Same as R1			
R49	Same as R1			
R50	Resistor, Fixed, 470Ω , 5%	10	841414-065	14632
R51	Not Used			
R52	Resistor, Fixed, $75k\Omega$, 5%	2	841414-118	14632
R53	Same as R52			
R54	Same as R1			
R55	Resistor, Fixed, $33k\Omega$, 5%	5	841414-109	14632
R56	Resistor, Fixed, 220k Ω . 5%	6	841414-129	14632
R57	Same as R55			
R58	Same as R56			
R59	Resistor, Fixed, $68k\Omega$, 5%	4	841414-117	14632
R60	Same as R18			
R61	Same as R1			
R62	Same as R1			
R63	Same as R50			
R64	Same as R1			
R65	Same as R1			
R66	Same as R1			
R67	Same as R2			
R68	Same as R56			
R69	Same as R56			
R70	Same as R2			
R71	Same as R56			
R72	Same as R56			
R73	Same as R2			
R74	Same as R59			
R75	Same as R18			
R76	Same as R1			
R77	Same as R1			
R78	Same as R9			
R79	Same as R1			
R80	Same as R1			
R81	Same as R18			
R82	Same as R1			

REF DESIG DESCRI	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
---------------------	--------------------	------------------------	--------------	----------------

R83	C D1			
	Same as R1			
R84	Same as R1			
R85	Not Used		•	
R86	Same as R1			
R87	Same as R2			
R88	Same as R18			
R89	Same as R9			
R90	Same as R1			
R91	Same as R1			
R92	Same as R1			
R93	Same as R50			
R94	Resistor, Fixed, 18kΩ, 5 %	- 4	841414-103	14632
R95	Same as R2			
R96	Same as R94			
R97	Same as R2			
R98	Same as R3			
R99	Same as R3			
R100	Same as R55			
R101	Same as R8			
R102	Same as R1			
R103	Same as R1			
R104	Same as R1			
R105	Not Used			
R106	Same as R9			
R107	Same as R94			
R108	Same as R9			
R109	Same as R94			
R110	Same as R18			
R111	Same as R7			
R112	Resistor, Fixed, $8.2k\Omega$, 5%	2	841414-095	14632
R113	Same as R112			
R114	Same as R7			
R115	Same as R1			
R116	Not Used			
R117	Same as R7			
R118	Same as R7			
R119	Same as R7			
R120	Same as R1			
R121	Same as R1			
R122	Same as R1			
R123	Same as R1			
R124	Same as R2			
R125	Same as R1			

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
--------------------------	--------------------	------------------------	--------------	----------------

R126	Same as R18			
R127	Same as R59			
R128	Same as R7			
R129	Same as R2			
R130	Same as R1			
R131	Same as R1			
R132	Same as R1			
R133	Resistor, Fixed, $150k\Omega$, 5%	2	841414-125	14632
R134	Same as R50			
R135	Same as R7			
R136	Same as R26			
R137	Same as R26			
R138	Same as R30			
R139	Same as R2			
R140	Same as R1			
R141	Same as R1			
R142	Same as R18			
R143	Same as R18			
R144	Same as R1			
R145	Same as R18			
R146	Same as R55			
R147	Resistor, Fixed, 150Ω , 5%	1	841414-053	14632
R148	Resistor, Fixed, $3.3k\Omega$, 5%	9	841414-085	14632
R149	Same as R1			
R150	Same as R1			
R151	Resistor, Fixed, 10Ω , 5%	5	841414-025	14632
R152	Same as R18			
R153	Same as R18			
R154	Same as R133			
R155	Resistor, Fixed, 4.7Ω , 5%	1	841414-017	14632
R156	Not Used .			
R157	Same as R7			
R158	Same as R7			
R159	Same as R7			
R160	Same as R26			
R161	Same as R26			
R162	Same as R30			
R163	Same as R2			
R164	Same as R3			
R165	Same as R1			
R166	Same as R7			
R167	Same as R7			
R168	Same as R18			

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR	
-----------------------	--------------------	---------------------------	--------------	----------------	--

R169	Resistor, Fixed, 220Ω , 5%	3 841414-057 14632	
R170	Same as R7		
R171	Same as R1		
R172	Same as R151		
R173	Same as R7		
R174	Same as R7		
R175	Not Used		
R176	Same as R29		
R177	Same as R1		
R178	Same as R7		
R179	Same as R1		
R180	Same as R2		
R181	Not Used		
R182	Not Used		
R183	Same as R2		
R184	Same as R29		
R185	Same as R7		
R186	Same as R19		
R187	Same as R2		
R188	Same as R151		
R189	Not Used		
R190	Same as R29		
R191	Same as R19		
R192	Not Used		
R193	Same as R1		
R194	Same as R1		
R195	Same as R7		
R196	Same as R7		
R197	Same as R148		
R198	Same as R148		
R199	Same as R151		
R200 R201	Same as R18		
	Same as R149		
R202 R203	Same as R148		
R204	Same as R148 Not Used		
R205	Same as R19		
R206	Same as R151		
R207	Same as R1		
R208	Same as R1		
R209	Same as R19		
R210	Same as R1		
R211	Same as R19		
	Cuille do IVI		

REF DESIG DESCRIPTION

R212	Same as R1		
R213	Not Used		
R214	Same as R19		
R215	Same as R1		
R216	Same as R19		
R217	Resistor, Fixed, $5.6k\Omega$, 5%	1 841414-091	14632
R218	Same as R148		
R219	Same as R9		
R220	Same as R5		
R221	Same as R5		
R222	Same as R9		
R223	Same as R7		
R224	Same as R1		
R225	Not Used		
R226	Same as R8		
R227	Same as R3		
R228	Same as R8		
R229	Same as R1		
R230	Same as R1		
R231	Same as R19		
R232	Same as R1		
R233	Same as R1		
R234	Not Used		
R235	Same as R1		
R236	Not Used		
R237	Same as R1		
R238	Not Used		
R239	Same as R1		
R240	Same as R7		
R241	Same as R8		
R242	Same as R8		
R243	Same as R7		
R244	Same as R1		
R245	Same as R7		
R246	Same as R1		
R247	Resistor, Fixed, 1.0 M Ω 5%	4 841414-145	14632
R248	Same as R2		
R249	Same as R1		
R250	Same as R7		
R251	Same as R7		
R252	Same as R2		
R253	Same as R1		
R254	Same as R1		
		민들은 교육 인도 그들은 이동시에 하루바쥬겠다가 이미는	

				QTY PER	MANUFACTURERS	MFR.	RECM
REF DESIG	er generalist er state er for en state half til flere en fant en en en en en en state er fre en en en en en en	DESCRIPTION	ang ang Maria Maria ang at Pangalan ang at Ang Ang at Ang a	ASSY	PART NO.	CODE	VENDOR

R255	Same as R7
R256	Same as R1
R257	Same as R1
R258	Same as R1
R259	Same as R1
R260	Same as R1
R261	Same as R1
R262	Not Used
R263	Not Used
R264	Not Used
R265	Same as R5
R266	Same as R1
R267	Same as R1
R268	Same as R1
R269	Not Used
R270	Same as R7
R271	Same as R19
R272	Same as R1
R273	Same as R7
R274	Same as R7
R275	Same as R1
R276	Same as R1
R277	Same as R1
R278	Same as R7
R279	Not Used
R280	Same as R19
R281	Same as R1
R282	Same as R1
R283	Same as R7
R284	Not Used
R285	Not Used
R286	Same as R247
R287	Not Used
R288	Same as R1
R289	Same as R19
R290	Same as R1
R291	Not Used
R292	Same as R1
R293	Same as R19
R294	Same as R19
R295	Not Used
R296	Same as R19
R297	Same as R55

REF DESIG		DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
DESIG	r i de la como de la c	DESCRIPTION		# 14 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

R298	Same as R7			
R299	Not Used			
R300	Not Used			
R301	Same as R19			
R302	Same as R5			
R303	Same as R7			
R304	Same as R1			
R305	Same as R1			
R306	Same as R18			
R307	Same as R59			
R308	Same as R7			
R309	Not Used			
R310	Same as R7			
R311	Same as R7			
R312	Same as R1			
R313	Same as R1			
R314	Same as R5			
R315	Same as R7			
R316	Same as R5			
R317	Same as R1			
R318	Same as R5			
R319	Same as R1			
R320	Same as R50			
R321	Same as R1			
R322	Same as R1			
R323	Same as R18			
R324	Same as R5			
R325	Same as R1			
R326	Same as R1			
R327	Same as R18			
R328	Same as R7			
R329	Same as R1			
R330	Same as R9			
R331	Same as R1			
R332	Same as R1			
R333	Resistor, Fixed, $6.8 \text{ k}\Omega$, 5%	2	841414-093	14632
R334	Same as R8			
R335	Not Used			
R336	Same as R1			
R337	Same as R333			
R338	Same as R148			
R339	Same as R148			
R340	Resistor, Fixed, 68Ω , 5%	2	841414-045	14632

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR	
-----------------------	--------------------	---------------------------	--------------	----------------	--

R341	Same as R247			
R342	Same as R247			
R343	Same as R2			
R344	Same as R1			
R345	Same as R1			
R346	Same as R1			
R347	Same as R1			
R348	Same as R1			
R349	Same as R1			
R350	Same as R1			
R351	Same as R1			
R352	Same as R1			
R353	Same as R1			
R354	Same as R1			
R355	Same as R1			
R356	Same as R1			
R357	Same as R1			
R358	Same as R1			
R359	Same as R1			
R360	Same as R7			
R361	Same as R340			
R362	Not Used			
R363	Same as R19			
R364	Not Used			
R365	Not Used			
R366	Same as R50			
R367	Same as R5			
R368	Same as R5			
R369	Same as R5			
R370	Same as R50			
R371	Same as R50			
R372	Same as R169			
R373	Same as R50			
R374	Same as R50			
R375	Same as R169			
R376	Same as R19			
R377	Same as R148			
R378	Same as R2			
R379	Not Used			
S1	Switch/Dip SPST Side Actuated Dip	2 ADP-08S	95146	
S2	Same as S1			
T1	Transformer CPLG Audio 600CT/500CT IMP=10%,	2 SPT-130	20462	
T2	Same as T1			

REF DESIG DESCRIPTION AS	R MANUFACTURERS	MFR. CODE	RECM VENDOR
--------------------------	-----------------	--------------	----------------

			KLI	DESIGTRE
Ul	Integrated Circuit, Microcontroller.Microcontroller	1	MC68GC11A0FN	04713
	Unit 16-BIT Timer 8 Channel 8-BIT			
XU1	Socket 52-POS PLCC .050CTRS 1.050 X .20HT	1	213-052-601	26742
* 10.	Polarized Surf	1	74HC373SOL20	02735
U2	Integrated Circuit,TRI-State Octal D-Type Latch SOL-20 Wide Pkg	1	7411C3733OL20	02133
U3	Integrated Circuit,Octal TRI-State B!uffer, SOL-20 Wide Pkg	4	74HC244 SOL20	04713
U4	Integrated Circuit, Quad 2-Input NAND Gate S0-14N	1	74HC00 SO14	02735
U5	Integrated Circuit, RAM,8K X 8 Nonvolatile Time	1	DS1643-120	0B0A9
	Keeping RAM 120NS=AT 28-Pin			
XU5	Socket, IC 28 Pin .600 Row Spacing On .100 CTRS Gold Contact	2	O-628-SGT	S5322
U6	Integrated Circuit, CMOS, Triple Three Input OR Gate	1	74HC4075 SO14	02735
	SO-14 PLSTC PKG	, 1	7411/027 0014	02725
U7	Integrated Circuit.TRIPLE 3-Input NOR Gates	1	74HC27 SO14 74HC138 SO16	02735 02735
U8	Integrated Circuit, 3-TO-8 Line Decoder	1	74HC138 SO16 74HC125 SO14	34371
U9	Integrated Circuit, CMOS, Quad Buffer/Line Driver	2		04713
U10	Integrated Circuit, Triple 3-Input AND Gate	1	74F13 SO14	04713
Ull	Integrated Circuit,1-OF-8 Decoder/Demultiplexer	1	74F138 SO16	
U12	EPROMProgrammed	1	842032	14632
XU12	socket, IC 32-PIN LOW PROFILE DIP Socket .600 Row Slpace Gold	1	O-632-SGT	S532
U13	Integrated Circuit,16-BIT A/D Converter 20-Pin PLSTC DIP	1	DSP56ADC16S	04713
U14	Same as U3			
U15	Integrated Circuit,Octal D Flip-Flops With Clear SOL-20 Wide Pkg	1	74HC273 SOL20	
U16	Same as U9			
U17	Same as U3			
U18	Not Used			
U19	Same as U3			
U20	Integrated Circuit,Line Driver and Receiver Monolithic 8 Pin PKS	2	SN75155D	01295
U21	Integrated Circuit, CMOS.Hex Inverters Active Outputs	3	74AC04 SO14	04713
U22	Amplifier Ultra-High Frequency Op. Amp Gain	1	NE5539D	18324
022	Bandwidth 1.	•	1123372	
U23	Integrated Circuit, Dual D Flip-Flop With Preset and Clear	3	74HC74 SO14	04713
U24	Integrated Circuit, CMOS,14-Stage Binary Ripple Counter	2	74HC4020 SO16	34371
U25	Integrated Circuit, CMOS,Parallel-In/Serial-OUT 8-BIT	1	74HC165 SO16	02735
023	Shift Register SO-1	,	,c105 5010	02733
U26	Integrated Circuit, /INV Hex Inverter	1	74HC04 SO14	04713
U27	Integrated Circuit, 7NN V Hex Inverter Integrated Circuit, SYN Presettable Binary Counter	2	74AC161 SO16	34371
021	integrated Circuit, 5 FIN Freschable Billary Counter	∠	AMCIOI SOIO	J43 / I

REF 1	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
-------	--------------------	---------------------------	--------------	----------------

U28					
U30	U28	Same as U27			
Asynchronous Clear SO	U29 ·				
U31 Same as U23 U32 Same as U21 U33 Integrated Circuit, CMOS, Dual D Flip-Flop With 1 74AC74CO14 02735 PRESET AND CLEAR 04713 04713 04713 04713 U34 Voltage Regulator's TERM NEG Volt Regulator -5V 1 MC79M05CDT 04713 U35 Same as U24 04713 04713 04713 04713 U36 Same as U21 04713 04714 04714 04714 04714 04714<	U30	Integrated Circuit, Synchronous Binary Counter with	1	74HC161 SO16	02735
U32 Same as U21		Asynchronous Clear SO			
U33	U31	Same as U23			
PRESET AND CLEAR 1	U32	Same as U21			
Volume V	U33		1	74AC74CO14	02735
U36	U34	Voltage Regulator3 TERM NEG Volt Regulator -5V	i	MC79M05CDT	04713
U37	U35	Same as U24			
PLL 24-BIT 132-PIN PQF	U36	Same as U21			
U38	U37	Integrated Circuit,40 MHZ DSP Microprocessor with	1	DSP56002FC40	04713
		PLL 24-BIT 132-PIN PQF			
Access Time 28PIN SOJ Same as U39 Was as	U38	Same as U20			
U41	U39		6	MT5C2568DJ-20	6Y440
U42	U40	Same as U39			
Operation W/IV Input	U41	Same as U39			
U43 Not Used U44 Integrated Circuit, Differential Bus Transceiver 2 SN75176AD 01295 U45 Same as U39 U46 Same as U39 U47 Same as U39 <	U42	Integrated Circuit, /Sensing Undervoltage Sensing Rest	1	MC34064D-5	04713
U44 Integrated Circuit, Differential Bus Transceiver 2 SN75176AD 01295 U45 Same as U39 <td< td=""><td></td><td>Operation W/1V Input</td><td></td><td></td><td></td></td<>		Operation W/1V Input			
145 Same as U39 U46 Same as U39 U47 Same as U39 U48 Integrated Circuit, Octal D Flip-Flop with RESET 2 74HCT273 SOL20 02735 SOL-20 PKG	U43	Not Used			
U46 Same as U39 U47 Same as U39 2 74HCT273 SOL20 02735 U48 Integrated Circuit, Octal D Flip-Flop with RESET 2 74HCT273 SOL20 02735 SOL-20 PKG 1 74HCT74 SO14 34371 U50 Same as U48 1 74HCT74 SO14 34371 U50 Same as U48 2 DAC0800LCM 27014 U51 Integrated Circuit, /CONV D/A Monolithic 8-BIT HS 2 DAC0800LCM 27014 U52 Amplifier JFET-Input Dual OP AMP 7 MC34002D 04713 U53 Integrated Circuit, Quad 2-Input AND Gate 1 74HC08 SO14 02735 U54 Same as U52 5 5 5 5 14632 5 U55 Same as U51 5 5 5 14632 5 14632 14632 U57 Same as XU5 5 5 5 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632 14632	U44	Integrated Circuit, Differential Bus Transceiver	2	SN75176AD	01295
U47 Same as U39 U48 Integrated Circuit, Octal D Flip-Flop with RESET SOL-20 PKG 2 74HCT273 SOL20 02735 U49 Integrated Circuit, Dual D Flip-Flop with SET and RESET 1 74HCT74 SO14 34371 U50 Same as U48 2 DAC0800LCM 27014 U51 Integrated Circuit, /CONV D/A Monolithic 8-BIT HS Current Output 2 DAC0800LCM 27014 U52 Amplifier JFET-Input Dual OP AMP 7 MC34002D 04713 U53 Integrated Circuit, Quad 2-Input AND Gate 1 74HC08 SO14 02735 U54 Same as U52 5 Same as U51 5 Same as U51 U55 Same as XU5 5 Same as XU5 5 Same as XU5 U57 Same as U44 5 Same as U44 5 T4F139 SO16 04713 U59 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 AD1851R 24355 Converter Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U45	Same as U39			
U48	U46	Same as U39			
SOL-20 PKG SOL-20 PKG	U47	Same as U39			
U50 Same as U48 U51 Integrated Circuit, /CONV D/A Monolithic 8-BIT HS 2 DAC0800LCM 27014 Current Output U52 Amplifier JFET-Input Dual OP AMP 7 MC34002D 04713 U53 Integrated Circuit, Quad 2-Input AND Gate 1 74HC08 SO14 02735 U54 Same as U52 U55 Same as U51 U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U48		2	74HCT273 SOL20	02735
U51 Integrated Circuit, /CONV D/A Monolithic 8-BIT HS 2 DAC0800LCM 27014	U49	Integrated Circuit, Dual D Flip-Flop with SET and RESET	1	74HCT74 SO14	34371
Current Output U52 Amplifier JFET-Input Dual OP AMP 7 MC34002D 04713 U53 Integrated Circuit, Quad 2-Input AND Gate 1 74HC08 SO14 02735 U54 Same as U52 U55 Same as U51 U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U50	Same as U48			
U52 Amplifier JFET-Input Dual OP AMP 7 MC34002D 04713 U53 Integrated Circuit, Quad 2-Input AND Gate 1 74HC08 SO14 02735 U54 Same as U52 U55 Same as U51 U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U51	Integrated Circuit, /CONV D/A Monolithic 8-BIT HS	2	DAC0800LCM	27014
U53 Integrated Circuit, Quad 2-Input AND Gate 1 74HC08 SO14 02735 U54 Same as U52 U55 Same as U51 U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735		Current Output			
U54 Same as U52 U55 Same as U51 U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U52	Amplifier JFET-Input Dual OP AMP	7	MC34002D	04713
U55 Same as U51 U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U53	Integrated Circuit, Quad 2-Input AND Gate	1	74HC08 SO14	02735
U56 EPROM Programmed 1 842033 14632 XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U54	Same as U52			
XU56 Same as XU5 U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U55	Same as U51			
U57 Same as U44 U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U56	EPROM Programmed	1	842033	14632
U58 Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer 1 74F139 SO16 04713 U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	XU56	Same as XU5			
U59 Integrated Circuit, /CONV D/A 16 Bit Audio D/A 1 AD1851R 24355 Converter U60 Integrated Circuit, CMOS, Triple 2-Channel Analog 3 74HC4053 SO16 02735	U57	Same as U44			
Converter U60 Integrated Circuit, CMOS,Triple 2-Channel Analog 3 74HC4053 SO16 02735	U58	Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer	1	74F139 SO16	04713
Converter U60 Integrated Circuit, CMOS,Triple 2-Channel Analog 3 74HC4053 SO16 02735	U59	Integrated Circuit, /CONV D/A 16 Bit Audio D/A	1	AD1851R	24355
	U60	Integrated Circuit, CMOS, Triple 2-Channel Analog	3	74HC4053 SO16	02735

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
-----------------------	--------------------	---------------------------	--------------	----------------

U61	Same as U52			
U62	Same as U60			
U63	Same as U52			
U64	Same as U52			
U65	Amplifier Single Low Noise OP AMP SO 8 PIN	3	NE5534D	18324
U66	Same as U65			
U67	Integrated Circuit, Dynamic Range Processor Dual	1	SSM-2122P	06665
	VCA 16-Pin DIP			
U68	Same as U60			
U69	Amplifier JFET-Input Operational Amplifier	2	MC34001D	04713
U70	Same as U69			
U71	Same as U52			
U72	Integrated Circuit, /AMP 1.5W Audio Power AMP	1	LM388n-1	27014
	14-PIN DIP			
U73	Not Used			
U74	Same as U52			
U75	Same as U65			
VRI	Not Used			
XTB1	Connector, Header 13-POS Shrouded PC MT	1	ELFH13210	58982
Yl	Not Used			

REF	DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR.	RECM VENDOR
DESIG	DESCRIPTION	ASSI	TAILT NO:	1 0000	VENDOR

H.11.2 TYPE 871Y/MCU MULTI-DROP CONVERTER UNIT OPTION

Revision B

1	Converter Unit, RS-232 to RS-485, 2-Channel	1 485COR	6J757
2	Adaptor, Power Supply, 120 Vac/12 Vdc, 100 mA	1 485PS	6J757

APPENDIX I

TYPE WJ-871Y/SEU SPEECH ENHANCEMENT UNIT WJ P/N 181274-001, Revision D

Copyright © Watkins-Johnson Company 1995 All Rights Reserved

WATKINS-JOHNSON COMPANY 700 QUINCE ORCHARD ROAD GAITHERSBURG, MARYLAND 20878-1794

WARNING

This equipment utilizes voltages which are potentially dangerous and may be fatal if contacted. Exercise extreme caution when working with the equipment with any protective cover removed.

PROPRIETARY STATEMENT

This document and subject matter disclosed herein are proprietary items to which Watkins-Johnson Company retains the exclusive right of dissemination, reproduction, manufacture and sale.

This document is provided to the individual or using organization for their use alone in the direct support of the associated equipment unless permission for further disclosure is expressly granted in writing.

LIST OF EFFECTIVE PAGES

Page Number	<u>Description</u>	Revision
i	Cover	D
ii	Proprietary Statement	D
iii	List of Effective Pages	D
iv	Intentionally Blank	D
\mathbf{v}	Revision Record	D
vi	Intentionally Blank	D
vii thru viii	Table of Contents	D
I-1 thru I-8	Appendix I	C

THIS PAGE INTENTIONALLY LEFT BLANK

WJ-871Y/SEU SPEECH ENHANCEMENT UNIT

REVISION RECORD

Revision	Description	Date
Α	Initial issue.	1/95
. B	Updated for 797214-1 (A2) Upgrade.	4/95
С	Corrected edratta. Mnemonic for WBN added to Table I-1 . Information about mutual exclusivity of options also updated.	3/95
D	Added WJ part number to the title page. Incorporated a List of Effective Pages. Added page numbers to section cover pages and their back pages. Removed "intentionally left blank" pages and replaced with "Notes" pages that are formatted with headers and page numbers.	9/97

THIS PAGE INTENTIONALLY LEFT BLANK

그리고 있는데 하는 그는 그는 그를 느라면서 하는 경기에 주는 그림을 하는 것이 아이들에 느려져왔다면 하는 그들이 사용되었다. 그리고 그 모나는 모나는 그를 하는 그는 그를 그는 그를 그를 다 했다.

TABLE OF CONTENTS

APPENDIX I

WJ-871Y/SEU SPEECH ENHANCEMENT UNIT

Paragraph		Page
I.1	General Description	I-1
I.2	Mechanical Description	I-1
I.3	Field Installation Procedure When Used with Type 797012 Digital	
	Control Assembly	I-1
1.4	Field Installation Procedures When Used with Type 797214	
	Digital Control Assembly	
I.5	Operation	
I.5.1	Local Operation	
I.5.2	Remote Operation	
I.6	Operator Tips	
I.7 I.7.1	Parts List	
<u>Table</u>	LIST OF TABLES	<u>Page</u>
<u>.</u>	WI 671V/CFH County False and Hair County Made	
I-1 I-2	WJ-871Y/SEU Speech Enhancement Unit Operating Modes	
1-2	LIST OF ILLUSTRATIONS	1-3
<u>Figure</u>		Page
I-1 I-2	Type 797012 Installation Component Illustration	

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX I

WJ-871Y/SEU SPEECH ENHANCEMENT UNIT

L1 GENERAL DESCRIPTION

The WJ-871Y/SEU Speech Enhancement Unit option uses adaptive filtering techniques to provide enhancement of audio signals that are received from signals in the HF frequency band. The option utilizes these filter techniques to accomplish wideband noise reduction and automatic notch filtering of the audio signals. The adaptive filters analyze the correlation, or constancy, of the signal and modify the audio response to attenuate highly correlated steady tone interference or uncorrelated broad band noise. Use of these features permits an operator to attenuate the effects of the interference, providing a more intelligible output. Selection and control of the Adaptive Notch Filter and Wideband Noise Reduction can be performed from the front panel or via the remote interface.

I.2 MECHANICAL DESCRIPTION

The WJ-871Y/SEU Speech Enhancement Unit option may be field installed in units equipped with software versions 4.01.02 or greater, having a Type 797012 Digital Control Assembly (A2) with a dash 3 or greater type number suffix. The option may also be installed in units that have a Type 797214-1 Digital Control Assembly (A2) installed. It functions with any option configuration except for configurations containing the WJ-871Y/PCSM, WJ-871Y/488, WJ-871Y/IFC125, or WJ-871Y/DSO1 options.

When used with the Type 797012 Digital Control Assembly the option consists of the Type 797201-4 Digital Expansion Assembly, five standoffs for mounting the assembly, a DSP EPROM and a Control EPROM containing the control and Digital Signal Processing software for the option. The Control and DSP EPROMs install in place of the existing Control (U12) and DSP (U56) EPROMs, located on the Type 797012 Digital Control Assembly. When used with the Type 797214 Digital Control Assembly the two EPROMS are not required as they are already installed in the Type 797214 Digital Control Assembly.

The Type 797201-4 Digital Expansion Assembly is a daughterboard that mounts to either of the Digital Control Assemblies using the five mounting standoffs supplied with the option. Electrical interface between the Digital Control Assembly and the Digital Expansion Assembly is through two on-board multipin connectors that plug into the J8 and J9 connectors of the Digital Control Assembly. No additional cabling or hardware configuration is required.

I.3 <u>FIELD INSTALLATION PROCEDURE WHEN USED WITH TYPE 797012 DIGITAL</u> CONTROL ASSEMBLY

Installation of the WJ-871Y/SEU Speech Enhancement Unit consists of upgrading of the Type 797012 Control and DSP software, and installation of the Type 797201-4 Digital Expansion Assembly daughterboard onto the receiver's Digital assembly. All of the necessary installation hardware is included with the option. The installation procedure is detailed in the following steps.

1. Remove the top cover from the receiver to gain access to the receiver's Type 797012 Digital assembly.

2. Remove EPROMs U12 and U56 from their sockets on the Digital Assembly. Refer to Figure I-1 for the locations of these components on the assembly.

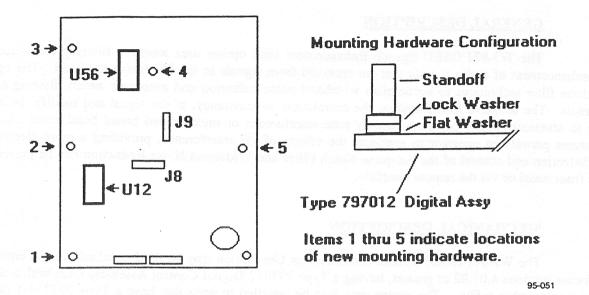


Figure I-1. Type 797012 Installation Component Illustration

- 3. From the components supplied, locate EPROMs U12 (842032) and U56 (842033) and install these components into their respective EPROM sockets.
- 4. Remove five of the six mounting screws and their associated washers from the Digital Assembly, identified as items 1 through 5 in Figure I-1.
- 5. At each mounting location install one standoff, one flat washer, and one lock washer. Refer to the Mounting Hardware Configuration in **Figure I-1** for the orientation of these parts.
- 6. Orient the SEU Digital Expansion Assembly as illustrated in Figure I-2, with the component side facing down and J5 pointing toward the rear of the receiver. Carefully connect sockets J1 and J2 with J8 and J9 on the Type 797012 Digital Assembly. Using slight pressure, seat the SEU Digital Expansion Assembly into place.

7. At each of the five mounting holes on the SEU Digital Expansion Assembly, install one mounting screw, one flat washer and one lock washer. Refer to the mounting hardware configuration in Figure I-2 for the orientation of these parts.

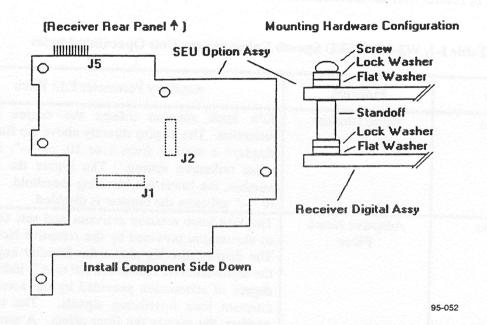


Figure I-2. SEU Digital Expansion Assembly Hardware Illustration

I.4 <u>FIELD INSTALLATION PROCEDURES WHEN USED WITH TYPE 797214</u> DIGITAL CONTROL ASSEMBLY

The procedures for installtion of the WJ-871Y/SEU option when used with the Type 797214 Digital Control Assembly are identical to the instructions contained in paragraph I.3 above except that the EPROMS are not required, as the correct EPROMS are already installed in the Type 797214 Digital Control Assembly.

I.5 OPERATION

The WJ-871Y/SEU option provides enhancement to the audio present at all audio outputs of the receiver. It may be activated with AM, FM, SAM, CW, SB, or USB demodulation. It is not recommended for use with CW signals and is inhibited in the ISB detection mode. Activation and control of the speech enhancement features may be performed locally at the front panel, or remotely via the remote interface.

I.5.1 LOCAL OPERATION

Local selection of the features of the WJ-871Y/SEU Speech Enhancement Option are made using the BLANKER key and the Auxiliary Parameter edit knob on the receiver front panel. When the option is installed, the BLANKER key becomes a three-function selection key, permitting control of the Noise Blanker, the Adaptive Notch Filter, and the Wideband Noise Reduction. The Auxiliary Parameter Edit knob sets the magnitude of control over the selected function. The control operation is illustrated in Table I-1.

Table I-1. WJ-871Y/SEU Speech Enhancement Unit Operating Modes

Blanker	Function	Auxiliary Parameter Edit Knob			
1st Press	Noise Blanker	Edit knob rotation selects the degree of noise reduction. The display directly above the Blanker key displays a number from 1 to 10, or "", indicating noise reduction setting. The higher the displayed number, the lower the blanking threshold. A setting of "" indicates the blanker is disabled.			
2nd Press	Adaptive Notch Filter	The Edit knob rotation activates and sets the amount of attenuation provided by the Adaptive Notch Filter. The display directly above the Blanker key displays the alpha-numeric characters A0 to A7, indicating the degree of attenuation provided by the notch filter to constant tone interfering signals. The higher the number, the greater the filter effect. A setting of A0 disables the adaptive filter.			
3rd Press	Wideband Noise Reduction	The Edit knob activates and sets the magnitude of the effect provided by the Wideband Noise Reduction filter. The display directly above the Blanker key displays the alpha-numeric characters W0 to W3, indicating the degree of noise filtering provided. The higher the number, the greater the filter effect. A setting of W0 disables Wideband Noise Reduction.			

The Adaptive Notch Filter and Wideband Noise Reduction can be used separately or simultaneously. Once activated, the function remains active until it is disabled by setting its parameter to 0 (A0/W0), or by cycling the receiver's power off and back on. The amount of filtering that is required is determined by listening to the audio, and adjusting the setting to obtain the best audio response. Use of the Adaptive Notch Filter with CW signals should be avoided as this highly correlated signal will be attenuated along with undesired tones.

I.5.2 REMOTE OPERATION

The commands listed in **Table I-2** are used for activating and setting of the Adaptive Notch Filter and Wideband Noise Reduction. In addition, the OPT? query has been modified to add the Speech Enhancements option to the list of available options.

Table I-2. WJ-871Y/SEU Speech Enhancement Unit Remote Commands

Command	Response	Description		
ADN nrf		Selects the Adaptive Notch Filter and sets the degree of filtering provided. Range: 0-7, 0=Off		
ADN?	ADN nrl	Requests the Adaptive Notch Filter setting. Range: 0-7, 0=Off Default: ADN 0, Off Reset: ADN 0, Off Example: ADN 1, Feature enabled with minimum filter effect.		
WBN nr1		Selects Wideband Noise Reduction and sets the degree of noise filtering. Range: 0-3, 0=Off		
WBN?	WBN nrl	Requests the Wideband Noise Reduction Setting. Range: 0-3, 0=Off Default: WBN 0, Off Reset: WBN 0, Off Example: WBN 3, Feature enabled with maximum filter effect.		

Table I-2. WJ-871Y/SEU Speech Enhancement Unit Remote Commands (Continued)

Command	Response	Description			
*OPT?	*OPT nrf, nrf	Requests a list of the options installed in the receiver. Two bytes are returned, with the bit setting reflecting available options. A bit set to logic "1" indicates that the option is installed.			
		Byte 1:			
		Bit 0 - Preselector			
		Bit 1 - Extended IF BWs			
		Bit 2 - Tuned Carrier			
		Bit 3 - Variable Line Audio			
		Bit 4 - Notch Filter			
		Bit 5 - AGC/Detection Mode Match			
		Bit 6 - Zero Digit Tuning			
		Bit 7 - Synchronous AM			
		Byte 2:			
		Bit 0 - AGC Enhancements			
		Bit 1 - Speech Enhancement			
		Bit 2-7 - Reserved, set to 0			

I.6 **OPERATOR TIPS**

This section contains a number of operator tips and suggestions that will provide the most effective performance of the WJ-871Y/SEU option. It is suggested that this section be reviewed before using the features of this option.

- When copying CW signals, the Adaptive Notch Filter should not be engaged, as it will attenuate the desired signal along with interfering tones. In this situation, it is recommended that the Passband Tuning and Tunable Notch Filter functions be used to block interfering tones. Refer to the Local Operation section of the receiver manual for details on these functions.
- In situations where multiple interfering tones are present, it is recommended that the Tunable Notch Filter feature be used first to attenuate the strongest interfering signal. The Adaptive Filter should then be activated to attenuate the remaining tones. This will provide better attenuation performance on the remaining tones.

- Due to limitations in the computational capabilities of this option, the effectiveness of the Adaptive Notch Filter and Wideband Noise Reduction is decreased when the features are used simultaneously. To obtain the highest level of performance it is recommended that only one of these features be activated at a time. For example, a signal with multiple interfering tones and static hiss would be best satisfied by selecting a narrower IF bandwidth and then activating the Adaptive Notch Filter. This provides more effective performance than enabling both the Adaptive Notch Filter and Wideband Noise Reduction with a wide IF bandwidth selected.
- Some signals may cause the Speech Enhancement Option performance to fail.
 This condition results in a sudden muting of the receiver audio. If this condition occurs, the setting of the enabled feature should be decreased until the audio is restored.

I.7 PARTS LIST

The following parts list contains all operational components used in the Speech Enhancement Option, along with mechanical parts and EPROMS that are required for installation.

REF	DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR	
DESIG	DESCRIPTION	1 ~~~.				4

I.7.1	WJ-871Y/SEU SPEECH ENHANCEMENT OPT			REF DESIG PREFIX SEU	
	Revision X1			14620	
A1	Digital Expansion Assy/SEU Option	. I	797201-4	14632	
A2U12	EPROM, Programmed, Control*	1	842032	14632	
A2U56	EPROM, Programmed, DSP*	1	842033	14632	
	Spacer, .187 x .52, 4-40 Stud	5	283051-2	14632	
	Washer, Flat, No. 4	10	MS15795-803	96906	
	Washer, Lock, No. 4	10	MS35338-135	96906	
	Screw, Machine, 2-56 x 5/16	5	MS51957-4	96906	

^{*}A2U12 and A2U56 are not required when the WJ-871Y-SEU Option is used with the Type 797214 Digital Control Assembly

WJ-871Y/IFC125 12.5 kHz IF OUTPUT OPTION

APPENDIX J

WJ P/N 181275-001, Revision B

Copyright © Watkins-Johnson Company 1995 All Rights Reserved

WATKINS-JOHNSON COMPANY 700 QUINCE ORCHARD ROAD GAITHERSBURG, MARYLAND 20878-1794

PROPRIETARY STATEMENT

This document and subject matter disclosed herein are proprietary items to which Watkins-Johnson Company retains the exclusive right of dissemination, reproduction, manufacture and sale.

This document is provided to the individual or using organization for their use alone in the direct support of the associated equipment unless permission for further disclosure is expressly granted in writing.

LIST OF EFFECTIVE PAGES

Page Number	Description	Revision
i	Cover	В
ii	Proprietary Statement	В
iii	List of Effective Pages	В
iv	Intentionally Blank	В
v	Revision Record	В
vi	Intentionally Blank	В
vii thru viii	Table of Contents	В
J-1 thru J-22	Appendix J	A
J-23 (J-24 blank)	Schematic	A
J-25 (J-26 blank)	Schematic	A
J-27 (J-28 blank)	Schematic	Α
J-29 (J-30 blank)	Schematic	Α

THIS PAGE INTENTIONALLY LEFT BLANK

WJ-8711A DIGITAL HF RECEIVER REVISION RECORD

Revision	Description	Date
Α	Initial issue.	12/95
В	Added WJ part number to the title page. Incorporated a List of Effective Pages. Added page numbers to section cover pages and their back pages. Removed "intentionally left blank" pages and replaced with "Notes" pages that are formatted with headers and page numbers.	9/97

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

WJ-871Y/IFC125 12.5 kHz IF OPTION

APPENDIX J

Paragraph		Page
J.1	Electrical Characteristics	J-1
J.2	Installation	J-1
J.3	Functional Description	J-1
J.4	List of Manufacturers	J-3
J.5	Parts List	J-3
	LIST OF ILLUSTRATIONS	
Figure		Page
J-1 J-2	Type 797214-5 Digital Assembly Functional Block DiagramSchematic Diagram 581839 (D)	J-2
	Digital Control Assembly	J-23

THIS PAGE INTENTIONALLY LEFT BLANK

WJ-871Y/IFC125 12.5 kHz IF OPTION

APPENDIX J

J.1 ELECTRICAL CHARACTERISTICS

The WJ-871Y/IFC125 12.5 kHz IF Option provides a post-filtered IF output on the rear panel of the WJ-871Y receiver at A2J1. The output center frequency is 12.5 kHz with a bandwidth equal to the operator-selected IF Bandwidth. The minimum output level is -20 dBm (20mV) into a 50 ohm load. Note that when the WJ-871Y/IFC125 option is installed, the WJ-871Y/DSO1, /488, /SCU, /SEU, /PCSM, and PCSM2 options are not available.

J.2 <u>INSTALLATION</u>

The WJ-871Y/IFC 12.5 kHz IF Option requires the modification of the Type 797214-X Digital Control PC Assembly (A2). The modified version is a Type 797214-5 Digital Control PC Assembly(A2). The modified A2 assembly contains the following modifications:

- FL1 and C130 are removed.
- R11, C16, C106, C122, and C129 have new values.
- A new DSP EPROM is installed as U56.
- A jumper wire is installed instead of FL1.
- A jumper wire is installed from U32 pin 13 to U32 pin 14.
- The A2 assembly has "797214-5" stamped on the outer housing for identification.

Install the new WJ-871Y/IFC125 12.5 kHz IF Option according to the removal and installation procedures for the A2 assembly outlined in the base manual.

Affix the new label, "IF TAPE" over the "IF OUT" label on the rear panel and add the "12.5K Filter" marking to the nameplate.

J.3 FUNCTIONAL DESCRIPTION

Refer to Figure J-1. The Reconstructed Analog section receives the Digitized IF and audio data from the Digital Signal Processing section and converts the signals back to analog form for output. In addition to the serial data, the Digital Signal Processing section provides frame synchronization and serial data clock signals for timing of the data transfer. These timing signals permit the Reconstructed Analog section to demultiplex the signals into separate IF and audio signals. The multiplexed analog IF and audio signals pass to the IF/Audio Demultiplex and Filtering section where the reconstructed IF signal is converted to a 12.5 kHz IF signal and is passed through the IF Baseband Filter to rear panel connector A2J1.

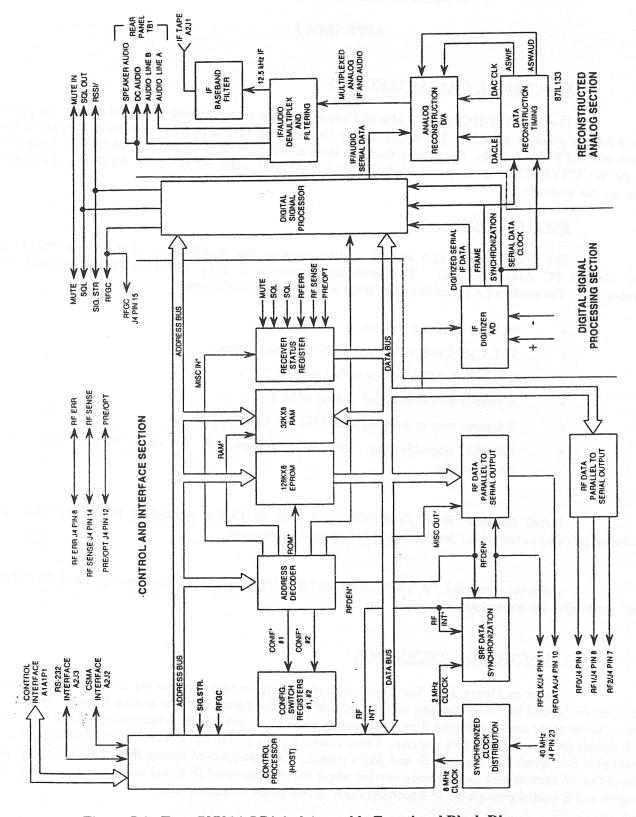


Figure J-1. Type 797214-5 Digital Assembly Functional Block Diagram

J.4 <u>LIST OF MANUFACTURERS</u>

The manufacturers listed below are supply sources used for obtaining certain parts in this option and may not be in the base manual. All other manufacturers not listed below are found in the base manual.

Mfr.		Mfr.	
Code	Name and Address	Code	Name and Address
05574	Viking Electronics Inc. 21001 Nordhoff St. P.O. Box 2379 Chatsworth, CA 91311-5987	1Z447	RCA Corp. Solid State Div. 2872 Woodcock Blvd., Suite 304 Atlanta, GA 30341-4002
53337	RDI/REED Devices, Inc. 525 Randy Road Carol Stream, IL 60188		10 or man. 10 mm m. 2 20 mm m. 2 2 mm m. 2 mm

J.5 PARTS LIST

The following parts list contains all the electrical components used in the unit, along with mechanical parts that may be subject to unusual wear or damage. When ordering replacement parts from the Watkins-Johnson Company, specify the unit type, the serial number, and the operation configuration. Also include the reference designation and the description of each item ordered. The list of manufacturers, provided in paragraph J.4, and the manufacturer's part numbers, provided in paragraph J.5.1, are supplied as a guide to aid the user of the equipment while in the field. The parts list may not necessarily be identical with the parts installed in the unit. The parts list in paragraph J.5.1 will provide for satisfactory operation.

Replacement parts may be obtained from any manufacturer provided that the physical characteristics and electrical parameters of the replacement are compatible with the original part. In the case where components are identified by a military or industrial specification, a vendor that can provide the necessary component is suggested as a convenience to the user.

NOTE

As improved semiconductors become available, it is the policy of Watkins-Johnson to incorporate them in proprietary products. For this reason some transistors, diodes, and integrated circuits installed in the equipment may not agree with those specified in the parts list and schematic diagrams of this manual. However, the semiconductors designated in the manual substitute in every case with satisfactory results.

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
-----------------------	--------------------	------------------------	--------------	----------------

J.5.1	TYPE 797214-5 DIGITAL CONTROL PO	C ASSEMB	LY	REF DESIG PREFIX A2
D.T.	Revision A			
BT1 XBT1	Not Used			
	Not Used			
BT2 XBT2	Not Used Not Used			
	Capacitor, Ceramic, .01µF, 10%	118	841415-019	14632
C1		110	041415-017	14032
C2 C3	Same as C1			
		17	841415-022	14632
C4	Capacitor, Ceramic, .033μF, 10%	17	641413-022	14032
C5	Same as C4			
C6	Same as C4			
C7	Same as C4 Same as C4			
C8 C9	Same as C4 Same as C4			
C10	Same as C4			
C10	Same as C1			
C12	Capacitor, Ceramic, .1µF, 10%, >/=50VDC	8	841250-25	14632
C12			041230-23	14032.
	Same as C1	n 21 - 13 km² (3 km²	041416 046	14632
C14	Capacitor, Ceramic, 75pF, ±2%	1	841416-046	
C15	Capacitor, Tantalum, 3.3μF, 20%, 16V	10	841293-10	14632
C16	Capacitor, Tantalum, 6.8 pf, 20%, 10V	1	841293-37	14632
C17	Capacitor, Ceramic, 22pF, 5%	3	841415-003	14632
C18	Same as Cl			
C19	Same as C1		041415 007	14622
C20	Capacitor, Ceramic, 100pF, 5%	9	841415-007	14632
C21	Same as C20			
C22 C23	Same as C20 Same as C20			
C23	Same as C1			
C25	Capacitor, Electrolytic, Aluminum, 470 F, 16V		ECE-A1CU471	54473
C26	Same as C1		ECE-AICU4/I	34473
C27	Capacitor, Ceramic, .047µF, 10%	9	841415-023	14632
C28	그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그	9	041413-023	14032
C29	Same as C27 Same as C1			
C30	Sama as C4			
C31	Same as C4			
C32	Same as C1			
C32	Same as C4			
C34	Same as C1			
C35	Same as C15			
C36	Same as C1			
C37	Same as CI			
C38	Same as C12			
220	Canc as CI2			

DESIG DESCRIPTION ASSY PART NO. CODE VENDOR

C39	Same as C1			
C40	Capacitor, Tantalum, 10µF, 20%, 16V	2	841293-16	14632
C41	Same as C17			
C42	Same as C17			
C43	Same as C12			
C44	Same as C1			
C45	Same as C12			
C46	Same as C40			
C47	Same as C1			
C48	Same as C12			
C49	Capacitor, Ceramic, 470pF, 5%	8	841415-011	14632
C50	Same as C49			
C51	Same as C49			
C52	Same as C49			
C53	Same as C49			
C54	Same as C1			
C55	Same as C1			
C56	Capacitor, Ceramic, 1000pF, 10%	4	841415-013	14632
C57	Capacitor, Ceramic, 47pF, 2%	4	841416-041	14632
C58	Same as C1			
C59	Same as C1			
C60	Same as C1			
C61	Same as C15			
C62	Same as C15			
C63	Same as C15			
C64	Same as C1			
C65	Same as C1			
C66	Same as C1			
C67	Same as C1			
C68	Same as C1			
C69	Same as C1			
C70	Same as C1			
C71	Same as C15			
C72	Same as C56			
C73	Same as C56			
C74	Same as C49			
C75	Same as C27			
C76	Same as C27			
:C77	Capacitor, Ceramic, 1500pF, 10%,	- 3	841415-014	14632
C78	Same as C27			
C79	Same as C77			
C80	Same as C77			
C81	Capacitor, Ceramic, 820pF, ±2%	3	841416-071	14632

DESIG DESCRIPTION ASSY PART NO. CODE VENDOR

C82	Same as C49		
C83	Same as C1		
C84	Same as C1		
C85	Same as C1		
C86	Same as C49		
C87	Same as C1		
C88	Same as C1		
C89	Same as C1		
C90	Same as C1		
C91	Same as C1		
C92	Same as C1		
C93	Same as C1		
C94	Same as C1		
C95	Same as C1		
C96	Capacitor, Ceramic, 2200pF, 10%	4 841415-015	14632
C97	Same as C57		
C98	Same as C1		
C99	Same as C1		
C100	Same as C1		
C101	Same as C27		
C102	Same as C1		
C103	Same as C15		
C104	Same as C15		
C105	Same as C4		
C106	Capacitor, Ceramic, 820pF, ±2%, 50V	1 841416-071	14632
C107	Same as C1		
C108	Same as C27		
C109	Same as C1		
C110	Same as C1		
C111	Same as C1		
C112	Same as C15		
C113	Capacitor, Ceramic, 330pF, 5%	1 841415-010	14632
C114	Same as C27		
C115	Same as C57		
C116	Same as C1		
C117	Same as C1		
C118	Same as C96		
C119	Same as C1		
C120	Same as C1	-	
C121	Same as C15		
C122	Capacitor, Ceramic, 56 pf, ±2%, 50V	1 841416-043	14632
C123	Same as C4		
C124	Same as C96		

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
-----------------------	--------------------	------------------------	--------------	----------------

REF DESIG PREFIX A2 841416-055 14632 1 Capacitor, Ceramic, 180pF, 2% C125 14632 841416-065 1 Capacitor, Ceramic, 470pF, 2% C126 Same as C27 C127 14632 841416-045 1 C128 Capacitor, Ceramic, 68pF, ±2% 841417 14632 Jumper, 0.0Ω C129 C130 Not Used Not Used C131 C132 Same as C1 Same as C1 C133 C134 Same as C1 C135 Not Used C136 Same as C1 Same as C1 C137 C138 Same as C81 C139 Same as C1 C140 Same as C1 Same as C1 C141 Not Used C142 C143 Same as C1 Same as C81 C144 C145 Same as C1 Same as C1 C146 C147 Same as C1 C148 Capacitor, Ceramic, 100pF, 2% 841416-049 14632 C149 Same as C148 C150 Same as C148 Same as C148 C151 Same as C1 C152 C153 Same as C1 C154 Same as C1 C155 Same as C1 Same as C1 C156 C157 Same as C1 C158 Capacitor, Ceramic, 1000pF, 2% 841416-073 1 14632 C159 Capacitor, Ceramic, 56pF, 2% 841416-043 14632 C160 Same as C1 C161 Same as C1 C162 Capacitor, Ceramic, 1200pF, 2% 1 841416-075 14632 C163 Capacitor, Tantalum, 68µF, 20%, 6.3V 841293-24 14632 C164 Same as C1 C165 Same as C1 C166 Same as C1 C167 Same as C1

REPLACEMENT PARTS LIST

REF DESIG DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
-----------------------	--------------------	------------------------	--------------	----------------

C168	Same as C1			
C169	Same as C1			
C170	Same as C1			
C171	Same as C56			
C172	Same as C1			
C173	Same as Cl			
C174	Same as Cl			
C175	Capacitor, Tantalum, 33µF, 20%, 16V	9	841293-22	14632
C176	Same as C175			
C177	Same as C96			
C178	Same as C1			
C179	Same as C175			
C180	Capacitor, Tantalum, 6.8µF, 20%, 6.3V	2	841293-14	14632
C181	Same as C180			
C182	Same as CI			
C183	Not Used			
C184	Same as C1			
C185	Same as C12			
C186	Same as C12			
C187	Same as C1			
C188	Same as C1			
C189	Same as C1			
C190	Not Used			
C191	Same as C1			
C192	Same as C4			
C193	Same as C1			
C194	Same as C1			
C195	Same as C1			
C196	Same as C1			
C197	Same as C1			
C198	Not Used			
C199	Not Used			
C200	Same as C1			
C201	Same as C1			
C202	Same as C175			
C203	Same as C175			
C204	Same as C175			
C205	Same as C1			
C206	Same as C20			
C207	Same as C1			
C208	Same as C1			
C209	Same as C1			
C210	Same as C1			

			(QTY			the College and the second
REF				PER	MANUFACTURERS	MFR.	RECM
DESIG	an an ang ang ang an an an ang ang ang a	DESCRIPTION		ASSY	PART NO.	CODE	VENDOR

C211	Same as C1			
C212	Same as C1			
C213	Same as C1			
C214	Same as C20			
C215	Same as C20			
C216	Same as C1			
C217	Same as C20			
C218	Same as C1			
C219	Same as C175			
C220	Same as C175			
C221	Same as C175			
C222	Same as C1			
C223	Same as C20			
C224	Same as C1			
C225	Same as C1			
C226	Same as C1			
C227	Same as C1			
C228	Same as C1			
C229	Same as C4			
C230	Same as C1			
C231	Same as C1			
C232	Not Used			
C233	Same as C4			
C234	Not Used			
C235	Same as C1			
C236	Same as C4			
C237	Same as C4			
C238	Not Used			
C239	Not Used			
CR1	Not Used (SOT-23)			
CR2	Diode/Swpin Dual Swithcing Diode Reverse Volltage	2	MMBD7000LT1	04713
CR3	Not Used			
CR4	Same as CR2			
CR5	Not Used			
FL1	Not Used			
J1	Connector, Jack, BNC BNC Rt Ang, PCB/Panel MT W/SLDR Mt Posts	1	227677-1	00779
J 2	Phone Jack, 3.5 Dia Mini Phone Jack, RES=30M	1	SJ360	53337
J 3	Connector, 25-Pin D-Sub RT Ang, PC MT	1	DMRSTR25RA05Cg	05574
J4	CONN 24-Pin Term Strip Gold Flash .100CTRS	4	79223-624	22526
J 5	Connector, Header, 6 Pos Pin Friction Lock .156 CTRS	1	26-48-2066	27264
J 6	Not Used			- <i>i - z</i> ·
J7	Same as J4			
J,	Junio m 47			

REF DESIG	DESCRIPTION		OTY PER ASSY	MANUFACTURERS PART NO.	MFR.	RECM VENDOR
--------------	-------------	--	--------------------	------------------------	------	----------------

19	J8	Same as J4			
J11 Connector, PC,BD 3 Pin SHRD HDR 1 3-102202-4 00779 J12 Not Used	J 9	Same as J4			
111 Connector, PC,BD 3 Pin SHRD HDR 1 3-102202-4 00779 112 Not Used	J10	Not Used			
13 Not Used Connector, Header, 10 Pin HDR 1 TSW105-07-G-D 55322 .025SQ X.230 X.10CTR SGLD PLTD		Connector, PC,BD 3 Pin SHRD HDR	1	3-102202-4	00779
14	J12	Not Used			
1025SQ X.230 X.10CTR SGLD PLTD 15 Not Used 14778 14779 14	J13	Not Used			
J16 Not Used L1 Inductor, 10μH, Surface MT 3 RL-1500-10 14778 L2 Same as L1 3 RL-1500-10 14778 L3 Same as L1 5 8 L4 Inductor, 1.0μH, ±20%, @7.96MHZ 9 B82422-A1102-M 25088 L5 Same as L4 4 4 L6 Same as L4 4 4 L7 Same as L4 4 4 L8 Same as L4 4 4 L9 Same as L4 4 4 L10 Same as L4 4 4 L10 Same as L4 4 4 L11 Not Used 4 4 L12 Inductor, 2.µH 1 841444-009 14632 L13 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 2.µH 1 841438-029 14632 L15 Inductor, 1600µH 2 NLF453232-102K 7J069	J14		1	TSW105-07-G-D	55322
JW Not Used Inductor, 10μH, Surface MT 3 RL-1500-10 14778 1477	J15	Not Used			
L1 Inductor, 10μH, Surface MT 3 RL-1500-10 14778 L2 Same as L1 Famour Control (10μH, ±20%, @7.96MHZ) 9 B82422-A1102-M 25088 L4 Inductor, 1.0μH, ±20%, @7.96MHZ 9 B82422-A1102-M 25088 QMIN-25 370MA Ferrite 1210 Famour Control (10μH, ±20%, @7.96MHZ) 9 B82422-A1102-M 25088 L5 Same as L4 Famour Control (10μH, ±20%, @7.96MHZ) 10 14632 11 10 10 10 10 10 10 12 14632 14	J16	Not Used			
L2 Same as L1 L3 Same as L1 L4 Inductor, 1.0μH, ±20%, @7.96MHZ 9 B82422-A1102-M 25088 QMIN-25 370MA Ferrite 1210 L5 Same as L4 L6 Same as L4 L7 Same as L4 L8 Same as L4 L10 Same as L4 L11 Not Used L11 Inductor, 2.2μH 1 841444-009 14632 L12 Inductor, 2.2μH 1 8814438-029 14632 L13 Inductor, 4.7μH 1 881438-029 14632 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 1 84144-011 14632 L17 Not Used L18 Inductor, 1000μH 2 NtF453232-102K 7J069 L19 Same as L18 L20 Same as L4 L21 Same as L4 L21 Same as L4 L22 Not Used L33 Not Used L4 Not Used L5 Not Used L6 Not Used L7 Transistor 3 MMBT2222ALT1 04713 R3 Same as Q2 R4 Not Used R5 Not Used R6 Transistor 2 2 NT7002-LT1 17856 R7 Same as Q2	JW1	Not Used			
L3 Same as L1 L4 Inductor, 1.0μH, ±20%, @7.96MHZ 9 B82422-A1102-M 25088 QMIN-25 370MA Ferrite 1210 L5 Same as L4 L6 Same as L4 L7 Same as L4 L8 Same as L4 L9 Same as L4 L10 Same as L4 L11 Not Used L12 Inductor, 2.2μH 1 841444-009 14632 L13 Inductor, 4.7μH 1 1 B82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 841438-021 14632 L17 Not Used L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L4 L21 Same as L4 L21 Same as L4 L21 Same as L4 L22 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2 N7002-LT1 17856 Q7 Same as Q2	Ll	Inductor, 10µH, Surface MT	3	RL-1500-10	14778
L4 Inductor, 1.0μH, ±20%,@7.96MHZ 9 B82422-A1102-M 25088 QMIN-25 370MA Ferrite 1210 1<	L2	Same as L1			
Min	L3	Same as L1			
L5 Same as L4 L6 Same as L4 L7 Same as L4 L8 Same as L4 L9 Same as L4 L10 Same as L4 L11 Not Used L12 Inductor, 2.2µH 1 841444-009 14632 L13 Inductor, 4.7µH 1 82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7µH 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L19 Same as L18 3 NLF453232-102K 7J069 L19 Same as L4 4 </td <td>L4</td> <td>Inductor, 1.0µH, ±20%,@7.96MHZ</td> <td>9</td> <td>B82422-A1102-M</td> <td>25088</td>	L4	Inductor, 1.0µH, ±20%,@7.96MHZ	9	B82422-A1102-M	25088
L6 Same as L4 L7 Same as L4 L8 Same as L4 L9 Same as L4 L10 Same as L4 L11 Not Used L12 Inductor, 2.2μH I 841444-009 14632 L13 Inductor, 4.7μH I 882422-A1472-M 25088 L14 Inductor, 150nH I 841438-029 14632 L15 Inductor, 68nH I 841443-01 14632 L16 Inductor, 2.7μH I 841444-011 14632 L17 Not Used L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L4 L21 Same as L4 L22 Not Used L23 Not Used L23 Not Used L23 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2 N7002-LT1 17856 Q7 Same as Q2		QMIN-25 370MA Ferrite 1210			
L7 Same as L4 L8 Same as L4 L9 Same as L4 L10 Same as L4 L11 Not Used L12 Inductor, 2.2μH 1 841444-009 14632 L13 Inductor, 4.7μH 1 882422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L18 L20 Same as L4 L21 Same as L4 L21 Same as L4 L22 Not Used C1 Not Used C2 Transistor 3 MMBT2222ALT1 04713 C3 Same as Q2 C4 Not Used C5 Not Used C6 Transistor 2 2 NNT002-LT1 17856 C7 Same as Q2	L5	Same as L4			
L8 Same as L4 L9 Same as L4 L10 Same as L4 L11 Not Used L12 Inductor, 2.2μH	L6	Same as L4			
L9 Same as L4 L10 Same as L4 L11 Not Used L12 Inductor, 2.2μH 1 841444-009 14632 L13 Inductor, 4.7μH 1 B82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841448-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used V V L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L4 V V V L20 Same as L4 V V V L21 Same as L4 V V V V L22 Not Used V V V V Q1 Not Used V V V V V Q2 Transistor 3 MMBT2222ALT1 04713 V V V V V V V V V V V <td>L7</td> <td>Same as L4</td> <td></td> <td></td> <td></td>	L7	Same as L4			
L10 Same as L4 L11 Not Used L12 Inductor, 2.2μH 1 841444-009 14632 L13 Inductor, 4.7μH 1 B82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used 1 841444-011 14632 L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L18 1 1 8453232-102K 7J069 L19 Same as L4 1 8453232-102K 7J069 L20 Same as L4 1 8453232-102K 7J069 L21 Same as L4 1 8453232-102K 7J069 L22 Not Used 4	L8	Same as L4			
L11 Not Used L12 Inductor, 2.2μH 1 841444-009 14632 L13 Inductor, 4.7μH 1 B82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 8414438-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L18 L20 Same as L4 2 Not Used L21 Same as L4 4	L9	Same as L4			
L12 Inductor, 2.2μH 1 841444-009 14632 L13 Inductor, 4.7μH 1 B82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 1000μH 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L18 2 NLF453232-102K 7J069 L20 Same as L4 2 Not Used 4 L22 Not Used 3 MMBT2222ALT1 04713 Q3 Same as Q2 3 MMBT2222ALT1 04713 Q4 Not Used 4 Not Used 4 17856 Q5 Not Used 2 2N7002-LT1 17856 Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L10	Same as L4			
L13 Inductor, 4.7μH 1 B82422-A1472-M 25088 L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L4 4 4 4 4 L21 Same as L4 <	LII	Not Used			
L14 Inductor, 150nH 1 841438-029 14632 L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L4 2 Name as L4 2 L22 Not Used 2 L22 Not Used 2 L23 Not Used 2 L22 Not Used 2 L22 L23 Not Used 2 L23 NMBT2222ALT1 04713	L12	Inductor, 2.2µH	1	841444-009	14632
L15 Inductor, 68nH 1 841438-021 14632 L16 Inductor, 2.7μH 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L4 2 Same as L4 2 L21 Same as L4 2 Not Used 2 L22 Not Used 4 1 04713 <td< td=""><td>L13</td><td>Inductor, 4.7µH</td><td>1</td><td>B82422-A1472-M</td><td>25088</td></td<>	L13	Inductor, 4.7µH	1	B82422-A1472-M	25088
L16 Inductor, 2.7μΗ 1 841444-011 14632 L17 Not Used 2 NLF453232-102K 7J069 L18 Inductor, 1000μΗ 2 NLF453232-102K 7J069 L19 Same as L18 L20 Same as L4 L21 Same as L4 L22 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L14	Inductor, 150nH	I	841438-029	14632
L17 Not Used L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L18 2 NLF453232-102K 7J069 L20 Same as L4 2 L21 Same as L4 2 L22 Not Used 3 MMBT2222ALT1 04713 Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Not Used 4 Q5 Not Used 2 2N7002-LT1 17856 Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L15	Inductor, 68nH	1	841438-021	14632
L18 Inductor, 1000μH 2 NLF453232-102K 7J069 L19 Same as L18 L20 Same as L4 <td< td=""><td>L16</td><td>Inductor, 2.7µH</td><td>1</td><td>841444-011</td><td>14632</td></td<>	L16	Inductor, 2.7µH	1	841444-011	14632
L19	L17	Not Used			
L20 Same as L4 L21 Same as L4 L22 Not Used L23 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L18	Inductor, 1000µH	2	NLF453232-102K	7J 069
L21 Same as L4 L22 Not Used L23 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L19	Same as L18			
L.22 Not Used L23 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L20	Same as L4			
L23 Not Used Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L21	Same as L4			
Q1 Not Used Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used V Q5 Not Used V Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L22	Not Used			
Q2 Transistor 3 MMBT2222ALT1 04713 Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	L23	Not Used			
Q3 Same as Q2 Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	Q1	Not Used			
Q4 Not Used Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	Q2	Transistor	3	MMBT2222ALT1	04713
Q5 Not Used Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	Q3	Same as Q2			
Q6 Transistor 2 2N7002-LT1 17856 Q7 Same as Q2	Q4	Not Used			
Q7 Same as Q2	Q5	Not Used			
그들은 사람이 살아 나는 사람들이 되어 되었다. 그는 사람이 되었다면 하는 사람들이 되었다면 하는 사람들이 되었다면 하는 사람들이 되었다. 그는 사람들이 다른 사용하다를 받았다.		Transistor	2	2N7002-LT1	17856
Q8 Transistor 2 MMBT-3906 04713		[Take]			
	Q8	Transistor	2	MMBT-3906	04713

O ROMANIAN		6 agrast a	QTY	the control of the profession of the second of the		
REF			PER	MANUFACTURERS	MFR.	RECM
DESIG	DESCRIPTION		ASSY	PART NO.	CODE	VENDOR

Q 9	Same as Q6			
Q10	Transistor	2	MMBT3904LT1	04713
Q11	Same as Q8			
Q12	Same as Q10			
R1	Resistor, Fixed, 100kΩ, 5%	110	841414-121	14632
R2	Resistor, Fixed, 47Ω , 5%	20	841414-041	14632
R3	Resistor, Fixed, 47kΩ, 5%	7	841414-113	14632
R4	Same as R3			
R5	Resistor, Fixed, 100Ω , 5%	16	841414-049	14632
R6	Same as R3			
R7	Resistor, Fixed, 10kΩ, 5%	43	841414-097	14632
R8	Resistor, Fixed, $4.7k\Omega$, 5%	7	841414-089	14632
R9	Resistor, Fixed, 2.2k Ω , 5%	8	841414-081	14632
R10	Same as R2			
R11	Resistor, Fixed, $15k\Omega$, 5% , .1 watt	1	841414-101	14632
R12	Resistor, Fixed, 680Ω , 5%	1	841414-069	14632
R13	Same as R5			
R14	Same as R5			
R15	Not Used			
R16	Not Used			
R17	Not Used			
R18	Resistor, Fixed, $1.0k\Omega$, 5%	23	841414-073	14632
R19	Jumper .05 Ω MAX 1A MIN@70C	26	841417	14632
R20	Same as R19			
R21	Same as R18			
R22	Same as R19			
R23	Not Used			
R24	Same as R18			
R25	Same as R19			
R26	Resistor, Fixed, $1.5k\Omega$, 5%	5	841414-077	14632
R27	Same as R19			
R28	Same as R18			
R29	Resistor, Fixed, 2.7Ω , 5%	4	841414-011	14632
R30	Resistor, Fixed, $22k\Omega$, 5%	4	841414-105	14632
R31	Same as R5			
R32	Same as R30			
R33	Same as R5			
R34	Same as R1			
R35	Same as R19			
R36	Resistor, Fixed, $2.7k\Omega$, 5%	2	841414-083	14632
R37 R38	Same as R18 Same as R19			
R39	Same as R19 Same as R7			

REF			QTY PER	MANUFACTURERS	MFR.	RECM
DESIG		DESCRIPTION	ASSY	PART NO.	CODE	VENDOR

•					
R40	Same as R7				
R41	Same as R18				
R42	Same as R7				
R43	Same as R19				
R44	Not Used				
R45	Same as R18				
R46	Same as R36				
R47	Same as R2				
R48	Same as R1				
R49	Same as R1				
R50	Resistor, Fixed, 470Ω , 5%		10	841414-065	14632
R51	Not Used				
R52	Resistor, Fixed, $75k\Omega$, 5%		2		14632
R53	Same as R52				
R54	Same as R1				
R55	Resistor, Fixed, $33k\Omega$, 5%		5	841414-109	14632
R56	Resistor, Fixed, 220k Ω , 5%		6	841414-129	14632
R57	Same as R55				
R58	Same as R56				
R59	Resistor, Fixed, $68k\Omega$, 5%		4	841414-117	14632
R60	Same as R18				
R61	Same as R1				
R62	Same as R1				
R63	Same as R50				
R64	Same as R1				
R65	Same as R1				
R66	Same as R1				
R67	Same as R2				
R68	Same as R56				
R69	Same as R56				
R70	Same as R2				
R71	Same as R56				
R72	Same as R56				
R73	Same as R2				
R74	Same as R59				
R75	Same as R18		-		
R76	Same as R1				
R77	Same as R1				
R78	Same as R9		*		
R79	Same as R1				
R80	Same as KI				
R81 R82	Same as R18				
NO2	Same as R1				

		Total I	QTY			18-v=x + n (18-1) (14-1)
REF			PER	MANUFACTURERS	MFR.	RECM
DESIG	DESCRIPTION		ASSY	PART NO.	CODE	VENDOR

R83	Same as R1			
R84	Same as R1			
R85	Not Used			
R86	Same as R1			
R87	Same as R2			
R88	Same as R18			
R89	Same as R9			
R90	Same as R1			
R91	Same as R1			
R92	Same as R1			
R93	Same as R50			
R94	Resistor, Fixed, 18kΩ, 5 %	4	841414-103	14632
R95	Same as R2			
R96	Same as R94			
R97	Same as R2			
R98	Same as R3			
R99	Same as R3			
R100	Same as R55			
R101	Same as R8			
R102	Same as R1			
R103	Same as R1			
R104	Same as R1			
R105	Not Used			
R106	Same as R9			
R107	Same as R94			
R108	Same as R9			
R109	Same as R94			
R110	Same as R18			
R111	Same as R7			
R112	Resistor, Fixed, $8.2k\Omega$, 5%	2	841414-095	14632
R113	Same as R112			
R114	Same as R7			
R115	Same as R1			
R116	Not Used			
R117	Same as R7			
R118	Same as R7			
R119	Same as R7			
R120	Same as R1			
R121	Same as R1			
R122	Same as R1			
R123	Same as R1			
R124	Same as R2			
R125	Same as R1			

REF	等學學和實際的 明朝中華語	QTY PER	MANUFACTURERS	MFR.	RECM VENDÖR
DESIG	DESCRIPTION	ASSY	PART NO.	CODE	VENDOR

R126	Same as R18			
R127	Same as R59			
R128	Same as R7			
R129	Same as R2			
R130	Same as R1			
R131	Same as R1			
R132	Same as R1			
R133	Resistor, Fixed, $150k\Omega$, 5%	2	841414-125	14632
R134	Same as R50			
R135	Same as R7			
R136	Same as R26			
R137	Same as R26			
R138	Same as R30			
R139	Same as R2			
R140	Same as R1			
R141	Same as R1			
R142	Same as R18			
R143	Same as R18			
R144	Same as R1			
R145	Same as R18			
R146	Same as R55			
R147	Resistor, Fixed, 150Ω , 5%	. 1	841414-053	14632
R148	Resistor, Fixed, $3.3k\Omega$, 5%	9	841414-085	14632
R149	Same as R1			
R150	Same as R1			
R151	Resistor, Fixed, 10Ω , 5%	5	841414-025	14632
R152	Same as R18			
R153	Same as R18			
R154	Same as R133			
R155	Resistor, Fixed, 4.7Ω , 5%	1	841414-017	14632
R156	Not Used			
R157	Same as R7			
R158	Same as R7			
R159	Same as R7			
R160	Same as R26			
R161	Same as R26			
R162	Same as R30	-		
R163	Same as R2			
R164	Same as R3	- -		
R165	Same as R1			
R166	Same as R7			
R167	Same as R7			
R168	Same as R18			

		QTY	term getti og skillette gjagnere og skilletore som endlagte for endlagte for endlagte for endlagte for endlagte	Markette to process to	
REF		PER	MANUFACTURERS	MFR.	RECM
DESIG	DESCRIPTION	ASSY	PART NO.	CODE	VENDOR

R169	Resistor, Fixed, 220Ω, 5%	3 841414-057	14632	
R170	Same as R7			
R171	Same as R1			
R172	Same as R151			
R173	Same as R7			
R174	Same as R7			
R175	Not Used			
R176	Same as R29			
R177	Same as R1			
R178	Same as R7			
R179	Same as R1			
R180	Same as R2			
R181	Not Used			
R182	Not Used			
R183	Same as R2			
R184	Same as R29			
R185	Same as R7			
R186	Same as R19			
R187	Same as R2			
R188	Same as R151			
R189	Not Used			
R190	Same as R29			
R191	Same as R19			
R192	Not Used			
R193	Same as R1			
R194	Same as R1			
R195	Same as R7			
R196	Same as R7			
R197	Same as R148			
R198	Same as R148			
R199	Same as R151			
R200	Same as R18			
R201	Same as R19			
R202	Same as R148			
R203	Same as R148			
R204	Not Used			
R205	Same as R19			
R206	Same as R151			
R207	Same as R1			
R208	Same as R1			
R209	Same as R19			
R210	Same as R1			
R211	Same as R19			

REF DESIG DESCRIPTION		QTY PER ASSY	MANUFACTURERS PART NO.	MFR.	RECM VENDOR
-----------------------	--	--------------------	------------------------	------	----------------

	Same as P1			
R212	Same as R1			
R213	Not Used			
R214	Same as R19			
R215	Same as R1			
R216	Same as R19			
R217	Resistor, Fixed, $5.6k\Omega$, 5%	1 841414-091	14632	
R218	Same as R148			
R219	Same as R9		有益度 (86. 4/8/4)	
R220	Same as R5			
R221	Same as R5			
R222	Same as R9			
R223	Same as R7			
R224	Same as R1			
R225	Not Used			
R226	Same as R8			
R227	Same as R3			
R228	Same as R8			
R229	Same as R1			
R230	Same as R1			
R231	Same as R19			
R232	Same as R1			
R233	Same as R1			
R234	Not Used			
R235	Same as R1			
R236	Not Used			
R237	Same as R1			
R238	Not Used			
R239	Same as R1			
R240	Same as R7			
R241	Same as R8			
R242	Same as R8			
R243	Same as R7			
R244	Same as R1			
R245	Same as R7			
R246	Same as R1			
R247	Resistor, Fixed, $1.0 \text{ M}\Omega 5\%$	4 841414-145	14632	
R248	Same as R2			
R249	Same as R1			
R250	Same as R7			
R251	Same as R7			
R252	Same as R2			
R253	Same as R1			
R254	Same as R1			

REF		DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR. CODE	RECM VENDOR
DESIG	and the second s	DESCRIPTION	7.00.			2 7 75.250

R255	Same as R7
R256	Same as R1
R257	Same as R1
R258	Same as R1
R259	Same as R1
R260	Same as R1
R261	Same as R1
R262	Not Used
R263	Not Used
R264	Not Used
R265	Same as R5
R266	Same as R1
R267	Same as R1
R268	Same as R1
R269	Not Used
R270	Same as R7
R271	Same as R19
R272	Same as R1
R273	Same as R7
R274	Same as R7
R275	Same as R1
R276	Same as R1
R277	Same as R1
R278	Same as R7
R279	Not Used
R280	Same as R19
R281	Same as R1
R282	Same as R1
R283	Same as R7
R284	Not Used
R285	Not Used
R286	Same as R247
R287	Not Used
R288	Same as R1
R289	Same as R19
R290	Same as R1
R291	Not Used
·R292	Same as R1
	Same as R19
R294	Same as R19
R295	Not Used
R296	Same as R19
R297	Same as R55

REF	DESCRIPTION	QTY PER ASSY	MANUFACTURERS PART NO.	MFR.	RECM VENDOR
DESIG	DESCRIPTION	A331	PARTINO.		12

R298	Same as R7			
R299	Not Used			
R300	Not Used			
R301	Same as R19			
R302	Same as R5			
R303	Same as R7			
R304	Same as R1			
R305	Same as R1			
R306	Same as R18			
R307	Same as R59			
R308	Same as R7			
R309	Not Used			
R310	Same as R7			
R311	Same as R7			
R312	Same as.R1			
R313	Same as R1			
R314	Same as R5			
R315	Same as R7			
R316	Same as R5			
R317	Same as R1			
R318	Same as R5			
R319	Same as R1			
R320	Same as R50			
R321	Same as R1			
R322	Same as R1			
R323	Same as R18			
R324	Same as R5			
R325	Same as R1			
R326	Same as R1			
R327	Same as R18			
R328	Same as R7			
R329	Same as R1			
R330	Same as R9			
R331	Same as R1			
R332	Same as R1			
R333	Resistor, Fixed, $6.8 \text{ k}\Omega$, 5%	2	841414-093	14632
R334	Same as R8			
R335	Not Used		· · · · · · · · · · · · · · · · · · ·	
R336	Same as R1			
R337	Same as R333			
R338	Same as R148			
R339	Same as R148			
R340	Resistor, Fixed, 68Ω , 5%	2	841414-045	14632

		ade tecto		\$ 1045 \$	QTY		mason proprocessors ,	At the same of the same of
REF	assame (1 · 麻饼 [PER	MANUFACTURERS	MFR.	RECM
DESIG	estable entrance S		DESCRIPTION		ASSY	PART NO.	CODE	VENDOR

R341	Same as R247				
R342	Same as R247				
R343	Same as R2				
R344	Same as R1				
R345	Same as R1				
R346	Same as R1				
R347	Same as R1				
R348	Same as R1				
R349	Same as R1				
R350	Same as R1				
R351	Same as R1				
R352	Same as R1				
R353	Same as R1				
R354	Same as R1				
R355	Same as R1				
R356					
R357					
R358					
R359					
R360	Same as R7				
R361	Same as R340				
R362					
R363	Same as R19				
R364					
R365	Not Used				
R366	Same as R50				
R367					
R368	Same as R5				
R369	Same as R5				
R370 R371	Same as R50				
R371	Same as R50 Same as R169				
R373					
R374	Same as R50				
R375					
R376	Same as R19				
R377	Same as R148				
R378	Same as R2				
R379	Not Used				
S1		~:			
S2	Switch/Dip SPST Side Actuated I Same as S1	мр		2 ADP-08S	95146
Tl	Transformer CPLG Audio 600CT	(500CT I) 4D 1	007	2 6777 120	
T2	Same as T1	DUUCI IMP=1	U%,	2 SPT-130	20462

REF			200	QTY PER	MANUFACTURERS	MFR,	RECM
DESIG		DESCRIPTION		ASSY	PART NO.	CODE	VENDOR

	\$4.400.83.03.830.88 <u>0</u>			REF DESIG PREFIX A2
Ul	Integrated Circuit, Microcontroller, Microcontroller Unit 16-BIT Timer 8 Channel 8-BIT	1	MC68GC11A0FN	04713
XU1	Socket 52-POS PLCC .050CTRS 1.050 X .20HT Polarized Surf	1	213-052-601	26742
U2	Integrated Circuit, TRI-State Octal D-Type Latch SOL-20 Wide Pkg	, 1	74HC373SOL20	02735
U3	Integrated Circuit,Octal TRI-State B!uffer, SOL-20 Wide Pkg	4	74HC244 SOL20	04713
U4	Integrated Circuit,Quad 2-Input NAND Gate S0-14N	1	74HC00 SO14	02735
U5	Integrated Circuit, RAM,8K X 8 Nonvolatile Time Keeping RAM 120NS=AT 28-Pin	1	DS1643-120	0B 0A9
XU5	Socket, IC 28 Pin .600 Row Spacing On .100 CTRS Gold Contact	2	O-628-SGT	\$5322
U6	Integrated Circuit, CMOS, Triple Three Input OR Gate SO-14 PLSTC PKG	1	74HC4075 SO14	02735
U7	Integrated Circuit, TRIPLE 3-Input NOR Gates	1	74HC27 SO14	02735
U8	Integrated Circuit,3-TO-8 Line Decoder	1	74HC138 SO16	02735
U9	Integrated Circuit, CMOS,Quad Buffer/Line Driver	2	74HC125 SO14	34371
U10	Integrated Circuit, Triple 3-Input AND Gate	1	74F11 SO14	04713
U11	Integrated Circuit, 1-OF-8 Decoder/Demultiplexer	1	74F138 SO16	04713
U12	EPROMProgrammed	1	842032	14632
XU12	socket, IC 32-PIN LOW PROFILE DIP Socket .600 Row Slpace Gold	1	O-632-SGT	S532
U13	Integrated Circuit, 16-BIT A/D Converter 20-Pin PLSTC DIP	1	DSP56ADC16S	04713
U14	Same as U3			
U15	Integrated Circuit,Octal D Flip-Flops With Clear SOL-20 Wide Pkg	1	74HC273 SOL20	
U16	Same as U9			
U17	Same as U3			
U18	Not Used			
U19	Same as U3			
U20	Integrated Circuit, Line Driver and Receiver Monolithic 8 Pin PKS	2	SN75155D	01295
U21	Integrated Circuit, CMOS, Hex Inverters Active Outputs	3	74AC04 SO14	04713
U22	Amplifier Ultra-High Frequency Op. Amp Gain Bandwidth 1.	1	NE5539D	18324
U23	Integrated Circuit, Dual D Flip-Flop With Preset and Clear	3	74HC74 SO14	04713
U24	Integrated Circuit, CMOS,14-Stage Binary Ripple Counter	- 2	74HC4020 SO16	34371
U25	Integrated Circuit, CMOS,Parallel-In/Serial-OUT 8-BIT Shift Register SO-1	1	74HC165 SO16	02735
U26	Integrated Circuit, /INV Hex Inverter	1	74HC04 SO14	04713
U27	Integrated Circuit, SYN Presettable Binary Counter	2	74AC161 SO16	34371

LA XERRA DERIGIERA

-	REF		State		QTY PER	MANUFACTURERS	MFR.	RECM	
	DESIG	A CONTRACTOR SECURITY		DESCRIPTION	ASSY	PART NO.	CODE	VENDOR	

U28	Same as U27			
U29	Same as U23			
U30	Integrated Circuit, Synchronous Binary Counter with	1	74HC161 SO16	02735
	Asynchronous Clear SO			
U31	Same as U23			
U32	Same as U21			
U33	Integrated Circuit, CMOS, Dual D Flip-Flop With PRESET AND CLEAR	1	74AC74CO14	02735
U34	Voltage Regulator3 TERM NEG Volt Regulator -5V	<u></u>	MC79M05CDT	04713
U35	Same as U24			
U36	Same as U21			
U37	Integrated Circuit,40 MHZ DSP Microprocessor with PLL 24-BIT 132-PIN PQF	1	DSP56002FC40	04713
U38	Same as U20			
U39	Integrated Circuit, /SRAMCMOS,32K X 8 20NS Access Time 28PIN SOJ	6	MT5C2568DJ-20	6Y440
U40	Same as U39			
U41	Same as U39			
U42	Integrated Circuit, /Sensing Undervoltage Sensing Rest	1	MC34064D-5	04713
	Operation W/1V Input			
U43	Not Used			
U44	Integrated Circuit, Differential Bus Transceiver	2	SN75176AD	01295
U45	Same as U39			
U46	Same as U39			
U47	Same as U39			
U48	Integrated Circuit, Octal D Flip-Flop with RESET SOL-20 PKG	, 2	74HCT273 SOL20	02735
U49	Integrated Circuit, Dual D Flip-Flop with SET and RESET	1	74HCT74 SO14	34371
U50	Same as U48			
U51	Integrated Circuit, /CONV D/A Monolithic 8-BIT HS Current Output	2	DAC0800LCM	27014
U52	Amplifier JFET-Input Dual OP AMP	7	MC34002D	04713
U53	Integrated Circuit, Quad 2-Input AND Gate	1	74HC08 SO14	02735
U54	Same as U52			
U55	Same as U51			
U56	EPROM Programmed	1	841678	14632
XU56	Same as XU5			
U57	Same as U44			
U58	Integrated Circuit, Dual 1-OF-4 Decoder/Demultiplexer	1	74F139 SO16	04713
U59	Integrated Circuit, /CONV D/A 16 Bit Audio D/A	1	AD1851R	24355
	Converter			
U60	Integrated Circuit, CMOS, Triple 2-Channel Analog Multiplexer/Demultiplexer	3	74HC4053 SO16	02735

REF		QTY PER	MANUFACTURERS	MFR.	RECM
DESIG	DESCRIPTION	ASSY	PART NO.	CODE	VENDOR

U61	Same as U52			
U62	Same as U60			
U63	Same as U52			
U64	Same as U52			
U65	Amplifier Single Low Noise OP AMP SO 8 PIN	3	NE5534D	18324
U66	Same as U65			
U67	Integrated Circuit, Dynamic Range Processor Dual	1	SSM-2122P	06665
	VCA 16-Pin DIP			
U68 -	Same as U60			
U69	Amplifier JFET-Input Operational Amplifier	2	MC34001D	04713
U70	Same as U69			
U71	Same as U52			
U72	Integrated Circuit, /AMP 1.5W Audio Power AMP	1	LM388n-1	27014
	14-PIN DIP			
U73	Not Used			
U74	Same as U52			
U75	Same as U65			
VR1	Not Used			
XTB1	Connector, Header, 13-POS Shrouded PC MT	1	ELFH13210	58982
Y1	Not Used			

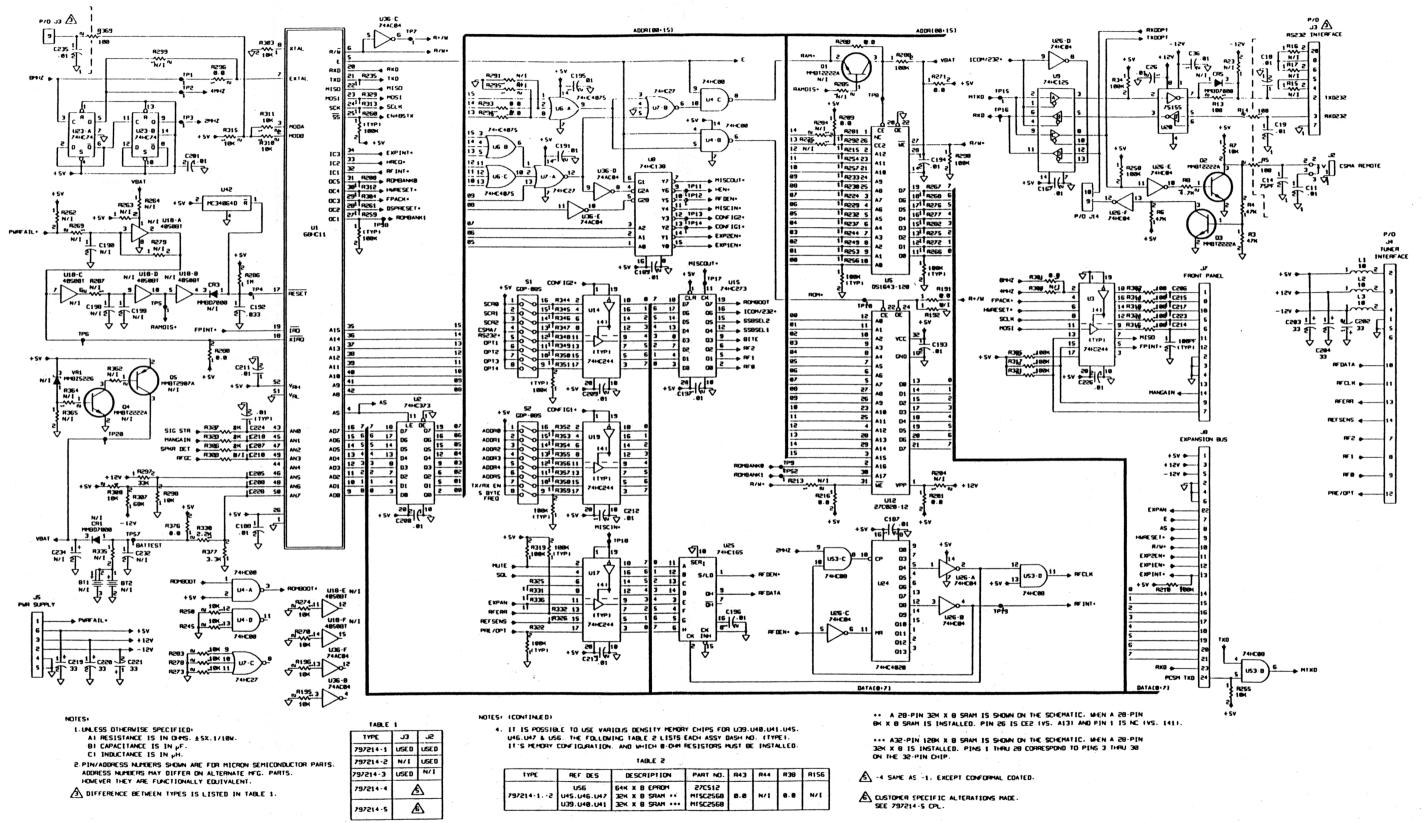
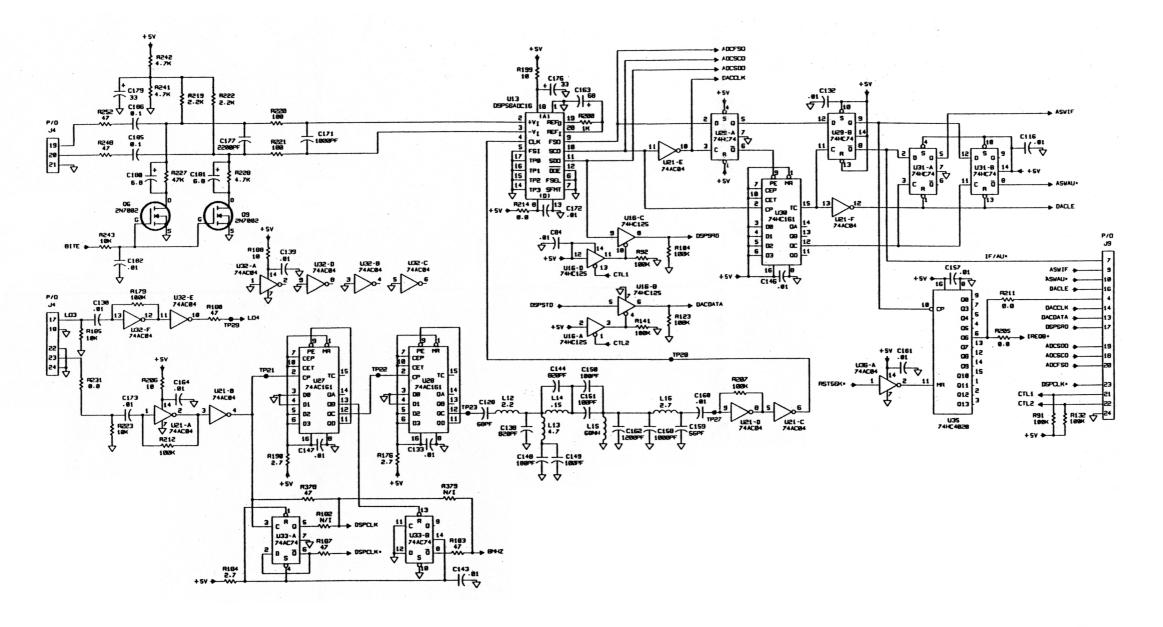


Figure J-2. Type 797214-5 Digital Control Assembly (A2) Schematic Diagram 581839 (Sheet 1 of 4) (D)



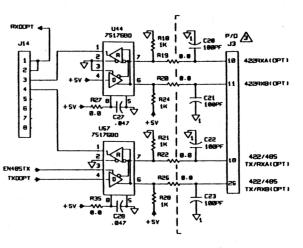


Figure J-2. Type 797214-5 Digital Control Assembly (A2) Schematic Diagram 581839 (Sheet 2 of 4) (D) J-25

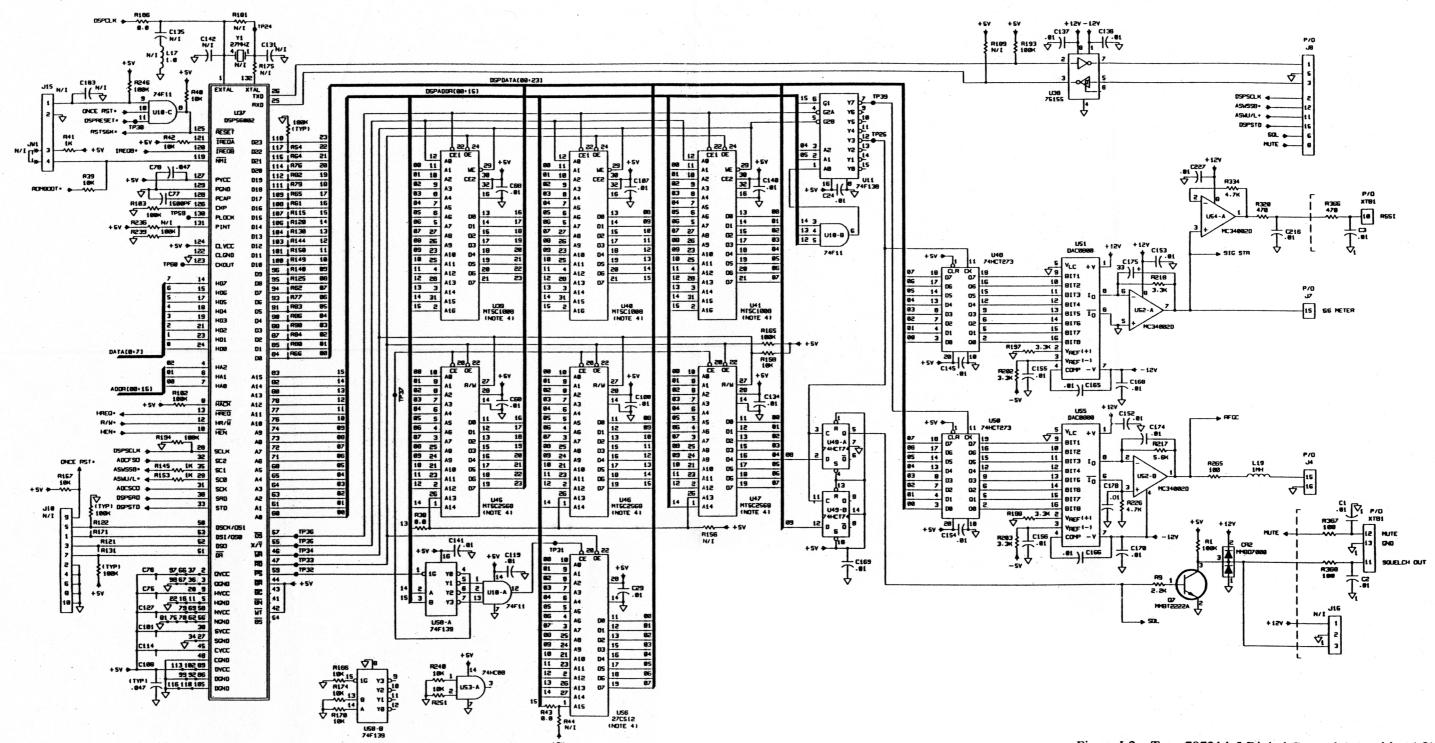


Figure J-2. Type 797214-5 Digital Control Assembly (A2) Schematic Diagram 581839 (Sheet 3 of 4) (D) J-27

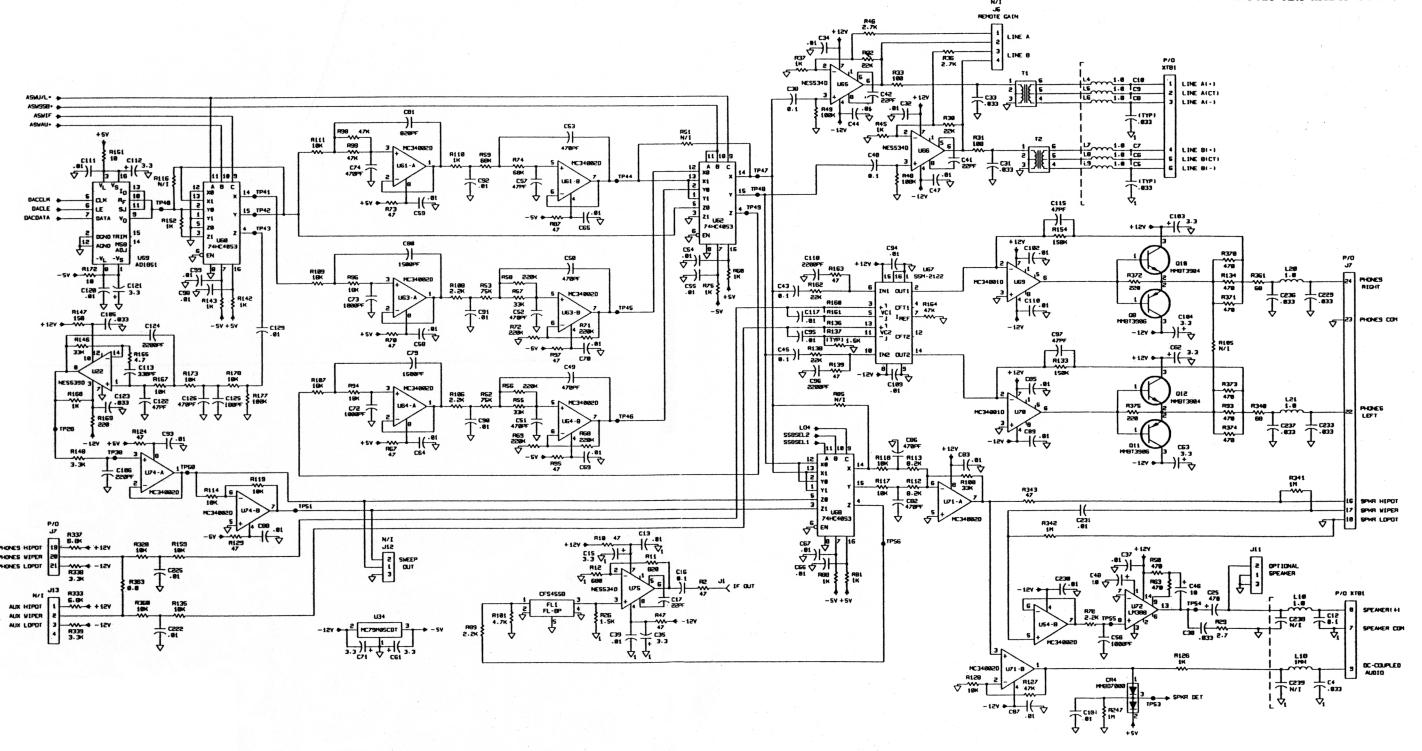


Figure J-2. Type 797214-5 Digital Control Assembly (A2) Schematic Diagram 581839 (Sheet 4 of 4) (D) J-29