CALIBRATION AND SERVICING HANDBOOK

Volume 2

9000

datron

INSTRUMENTS

MULTIFUNCTION CALIBRATOR

7.3 DC Voltage Specifications

7.3.1 DC Voltage Accuracy

Voltage Output	Accuracy [6] ±(% of Output + Floor) 1Year — Tcal ±5°C [1]	Compliance Current
0V - 320.0mV	0.006% + 4.16µV	< 6mA
0.32V - 3.2V	0.006% + 41.6µV	< 6mA
3.2V - 32.0V	0.0065% + 416µV	< 20mA
32.0V - 320.0V	0.0065% + 4.48mV	< 6mA
320.0V - 1050.0V	0.006% + 19.95mV	< 6mA

7.3.2 DC Voltage Value Spans *vs* Resolution

Absolute Resolution	Span of Values
1µV	-320.000 mV to +320.000 mV
10µV	-3.20000 V to +3.20000 V
100µV	-32.0000 V to +32.0000 V
1mV	-320.000 V to +320.000 V
10mV	-1050.00 V to +1050.00 V

7.3.3 Other DCV Specifications

Settling Time:	to within 10% of accuracy: 0.08s
Load Regulation:	For loads <2MΩ: add ($1400/R_{LOAD}$) % of output
Maximum Capacitance:	1000pF.

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C
[6] For loads < 2MΩ: add load regulation error.

7.4 AC Voltage Specifications

7.4.1 AC Voltage Accuracy

Voltage Output	Frequency Band [2] (Hz)	Accuracy [4] ± (% Output + Floor) 1 Year — Tcal [1] ± 5°C	Current Compliance	Total Harmonic Distortion (% of Output)
0V - 10.0mV	10 - 3k	0.04 + 384µV	6mA	0.06
	3k - 10k	0.04 + 512µV	6mA	0.10
	10k - 30k	0.06 + 960µV	6mA	0.13
	30k - 50k	0.09 + 1.92mV	6mA	0.20
	50k - 100k	0.20 + 5.12mV	6mA	0.32
10.0mV - 32.0mV	10 - 3k	0.04 + 96.0µV	6mA	0.06
	3k - 10k	0.04 + 128µV	6mA	0.10
	10k - 30k	0.06 + 240µV	6mA	0.13
	30k - 50k	0.09 + 480µV	6mA	0.20
	50k - 100k	0.20 + 1.28mV	6mA	0.32
32.0mV - 320.0mV	10 - 3k	0.04 + 19.2µV	6mA	0.06
	3k - 10k	0.04 + 25.6µV	6mA	0.10
	10k - 30k	0.06 + 48.0µV	6mA	0.13
	30k - 50k	0.09 + 96.0µV	6mA	0.20
	50k - 100k	0.20 + 256µV	6mA	0.32
320.0mV - 3.2V	10 - 3k	0.04 + 192µV	6mA	0.06
	3k - 10k	0.04 + 256µV	6mA	0.10
	10k - 30k	0.06 + 480µV	6mA	0.13
	30k - 50k	0.09 + 960µV	6mA	0.20
	50k - 100k	0.20 + 2.56mV	6mA	0.32
3.2V - 32.0V	10 - 3k	0.04 + 1.92mV	20mA	0.10
	3k - 10k	0.06 + 2.56mV	20mA	0.10
	10k - 30k	0.08 + 4.80mV	20mA	0.16
	30k - 50k	0.15 + 9.60mV	20mA	0.20
	50k - 100k	0.35 + 32.0mV	20mA	0.32
32.0V - 105.0V	10 - 3k	0.04 + 6.30mV	20mA	0.10
	3k - 10k	0.06 + 8.40mV	20mA	0.10
	10k - 30k	0.08 + 15.8mV	20mA	0.16
	30k - 50k	0.15 + 31.5mV	20mA	0.20
	50k - 100k	0.35 + 105mV	20mA	0.32
105.0V - 320.0V	40 - 100	0.05 + 19.2mV	6mA	0.50
	100 - 1k	0.05 + 19.2mV	6mA	0.32
	1k - 3k	0.08 + 19.2mV	6mA	0.32
	3k - 10k	0.08 + 32.0mV	20mA	0.32
	10k - 20k	0.12 + 48.0mV	20mA	0.32
	20k - 30k	0.15 + 64.0mV	20mA	0.32
320.0V - 800.0V	40 - 100	0.05 + 63.0mV	6mA	0.50
	100 - 1k	0.05 + 63.0mV	6mA	0.32
	1k - 3k	0.08 + 63.0mV	6mA	0.32
	3k - 10k	0.08 + 105mV	20mA	0.32
	10k - 20k [3]	0.12 + 158mV	20mA	0.32
	20k - 30k [3]	0.15 + 210mV	20mA	0.32
800.0V - 1050.0V	40 - 100	0.05 + 126mV	6mA	0.50
	100 - 1k	0.05 + 126mV	6mA	0.32
	1k - 3k	0.08 + 126mV	6mA	0.32
	3k - 10k	0.08 + 210mV	20mA	0.32
	10k - 20k [3]	0.12 + 315mV	20mA	0.32

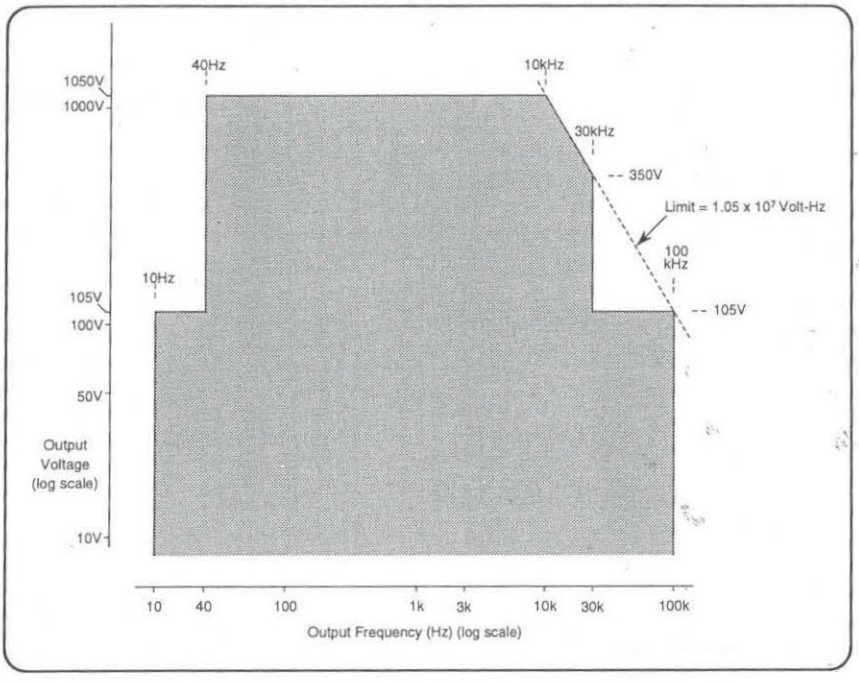
7.4.2 ACV Value Spans *vs* ACV Resolution

Absolute Resolution	Span of Values		
1µV	000.000 mV	to	320.000 mV
10µV	0.00000 V	to	3.20000 V
100µV	00.0000 V	to	32.0000 V
1mV	000.000 V	to	320.000 V
10mV	0000.00 V	to	1050.00 V

7.4.3 Frequency Spans *vs* Frequency Resolution

Absolute Resolution	Span of Frequencies		
1mHz	010.000 Hz	to	320.000 Hz
10mHz	0.01000 kHz	to	3.20000 kHz
100mHz	00.0100 kHz	to	32.0000 kHz
1Hz	000.010 kHz	to	100.000 kHz

7.4.4 Volt-Hertz Profile



7.4.5 Other ACV Specifications

Settling Time (to within 10% of accuracy):
≤105V: 0.08s
>105V: 0.5s

Load Regulation [5]:

For loads <|1MΩ| ≤105V add:
$[(1400/R_{LOAD}) + (C_{LOAD} \times F^2 \times 0.03)]$
% of output

For loads <|1MΩ| >105V add:
$[(1400/R_{LOAD}) + (C_{LOAD} \times F^2 \times 0.19 + C_{LOAD} \bullet 3E7)]$
% of output

Maximum Capacitance [5]:
1000pF; subject to Output Current Limitations at HF.

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C.
[2] Frequency Accuracy: 25ppm of output frequency.
[3] Availability of voltage and frequency combinations is subject to the Volt-Hertz limit (see V-Hz profile).
[4] For loads < |1MΩ| add load regulation error.
[5] To calculate C_{LOAD} limit from Current compliance specification, while using 9005 lead set, allow ≈ 30pF for lead set.

7.5 DC Current Specifications

7.5.1 DC Current Accuracy

Current Output	Accuracy ±(% of Output + Floor) **1Year** — Tcal ±5°C [1]	Compliance Voltage (at 9000 terminals)	Compliance Voltage (at 9005 lead end)
0A - 320.0µA	0.020 + 16.0nA	4V	4V
0.32mA - 3.2mA	0.020 + 96nA	4V	4V
3.2mA - 32.0mA	0.020 + 1.28µA	4V	4V
32.0mA - 320.0mA	0.020 + 9.60µA	4V	4V
0.320A - 3.2A	0.065 + 160µA	1.7V	1.7V
3.2A - 10.5A	0.060 + 1.20mA	1.7V	1.4V
10.5A - 20.0A [7]	0.060 + 4.80mA	1.7V	1.4V

7.5.2 DC Current Value Spans *vs* Resolution

Absolute Resolution	Span of Values
1nA	-320.000 µA to +320.000 µA
10nA	-3.20000 mA to +3.20000 mA
100nA	-32.0000 mA to +32.0000 mA
1µA	-320.000 mA to +320.000 mA
1µA	-3.20000 A to +3.20000 A
10µA	-20.0000 A to +20.0000 A

7.5.3 Other DCI Specifications

Settling Time:	to within 10% of accuracy: 0.08s
Maximum Inductance:	0 - 3.2mA : 50µH 3.2mA - 320mA : 30µH 320mA - 3.2A : 18µH 3.2A - 10.5A : 5.5µH 10.5A - 20A : 2.5µH

NOTES:
[1] Tcal = temperature at calibration. Factory calibration temperature = 23°C
[7] With output 'ON', maximum duty cycle of (>10.5A : ≤10.5A) is (1 : 4). Continuous output >10.5A will automatically reduce to <10.5A after 2 Minutes.

7.6 AC Current Specifications

7.6.1 AC Current Accuracy

Current Output	Frequency Band [2] (Hz)	Accuracy [8] ± (% Output + Floor) 1 Year — Tcal [1] ± 5°C	Compliance Voltage (VRMS at 9000 terminals)	Compliance Voltage (VRMS at 9005 Lead End)	Total Harmonic Distortion (% of Output)	Compliance Error (A/V) for Vc > 0.5VRMS
0A - 32.0µA	10 - 3k	0.07 + 900nA	4V	4V	0.10	60nA/V
	3k - 10k	0.10 + 1.8µA	4V	4V	0.25	600nA/V
	10k - 20k	0.20 + 6.0µA	4V	4V	0.40	2.4µA/V
	20k - 30k	0.25 + 9.0µA	4V	4V	0.60	5.4µA/V
32.0µA - 3.2mA	10 - 3k	0.07 + 300nA	4V	4V	0.10	60nA/V
	3k - 10k	0.10 + 600nA	4V	4V	0.25	600nA/V
	10k - 20k	0.20 + 2.0µA	4V	4V	0.40	2.4µA/V
	20k - 30k	0.25 + 3.0µA	4V	4V	0.60	5.4µA/V
3.2mA - 32mA	10 - 3k	0.07 + 3.2µA	4V	4V	0.10	0.5µA/V
	3k - 10k	0.10 + 6.4µA	4V	4V	0.25	4µA/V
	10k - 20k	0.20 + 12.8µA	4V	4V	0.40	15µA/V
	20k - 30k	0.25 + 22.4µA	4V	4V	0.60	32µA/V
32mA - 320mA	10 - 3k	0.08 + 32.0µA	4V	4V	0.10	2µA/V
	3k - 10k	0.10 + 48.0µA	4V	4V	0.25	4µA/V
	10k - 20k	0.20 + 64.0µA	4V	4V	0.40	15µA/V
	20k - 30k	0.25 + 96.0µA	4V	4V	0.60	35µA/V
320mA - 3.2A	10 - 3k	0.10 + 480µA	1.2V	1.2V	0.20	90µA/V
	3k - 10k	0.25 + 2.56mA	1.2V	1.2V	1.10	600µA/V
3.2A - 10.5A	10 - 3k	0.20 + 3.0mA	1.2V	1.0V	0.20	0.3mA/V
	3k - 10k	0.50 + 10.0mA	1.2V	1.0V	1.10	2.1mA/V
10.5A - 20.0A [7]	10 - 3k	0.20 + 6.9mA	0.9V	0.5V	0.30	0.3mA/V
	3k - 10k	0.50 + 23.0mA	0.9V	0.5V	1.50	2.1mA/V

7.6.2 AC Current Value Spans *vs* AC Current Resolutions

Absolute Resolution	Span of Values (RMS)
1nA	000.000 µA to 320.000 µA
10nA	0.00000 mA to 3.20000 mA
100nA	00.0000 mA to 32.0000 mA
1µA	000.000 mA to 320.000 mA
10µA	0.00000 A to 3.20000 A
100µA	00.0000 A to 20.0000 A

7.6.3 Frequency Spans *vs* Frequency Resolutions

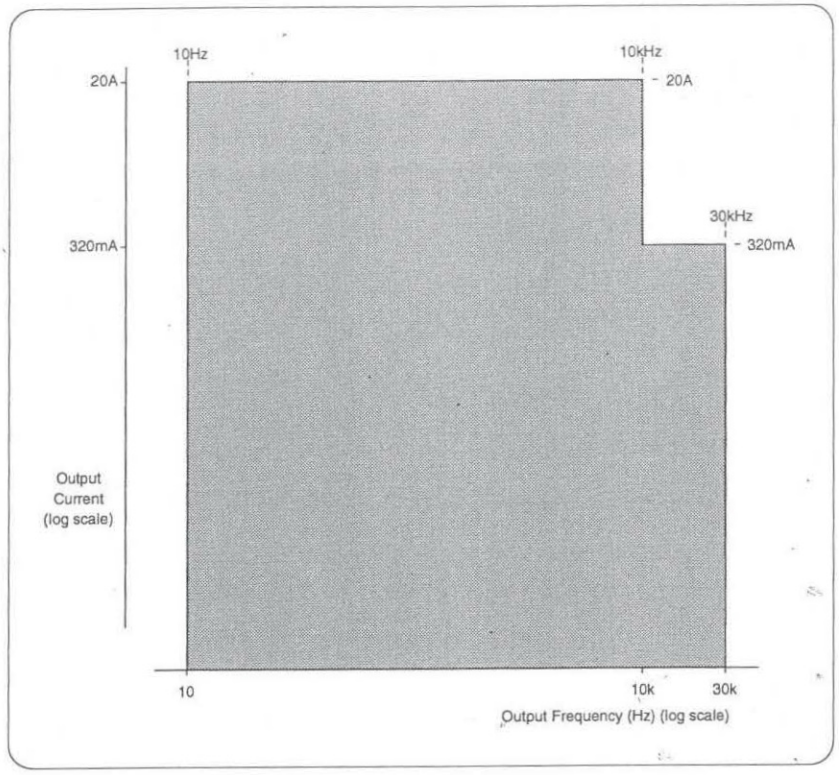
Absolute Resolution	Span of Frequencies
1mHz	010.000 Hz to 320.000 Hz
10mHz	0.01000 kHz to 3.20000 kHz
100mHz	00.0100 kHz to 30.0000 kHz

NOTES:
[1] Tcal = temperature at calibration. Factory calibration temperature = 23°C.
[2] Frequency Accuracy: 25ppm of output frequency.
[7] With output 'ON', maximum duty cycle of (>10.5A : ≤10.5A) is (1 : 4). Continuous output >10.5A will automatically reduce to <10.5A after 2 Minutes.
[8] Total uncertainty includes compliance errors for Voltage ≤0.5VRMS. Above 0.5V, add appropriate compliance error.

(Other ACI Specifications overleaf)

7.6 AC Current Specifications *(Contd.)*

7.6.4 AC Current — Amp-Hertz Profile



7.6.5 Other ACI Specifications

Settling Time:	to within 10% of accuracy: 0.08s
Maximum Inductance:	0 - 3.2mA : 50µH 3.2mA - 320mA : 30µH 320mA - 3.2A : 18µH 3.2A - 10.5A : 5.5µH 10.5A - 20A : 2.5µH

7.7 Resistance Specifications

7.7.1 Resistance Accuracy

Resistance Output	Accuracy	
	(Low Source Current) ±(% of Output + Floor) **1Year** — Tcal ±5°C [1]	(High Source Current) ±(% of Output + Floor) **1Year** — Tcal ±5°C [1]
0Ω - 40.0Ω	0.025 + 10.0mΩ	---
40.0Ω - 400.0Ω	0.020 + 20.0mΩ	0.015 + 20.0mΩ
400Ω - 4.0kΩ	0.015 + 80.0mΩ	0.015 + 80.0mΩ
4kΩ - 40.0kΩ	0.025 + 800mΩ	0.015 + 800mΩ
40.0kΩ - 400.0kΩ	0.025 + 8.0Ω	0.020 + 8.0Ω
400.0kΩ - 4.0MΩ	0.065 + 200Ω	0.025 + 200Ω
4.0MΩ - 40.0MΩ	0.150 + 2.0kΩ	0.050 + 2.0kΩ
40.0MΩ - 400.0MΩ	0.260 + 40.0kΩ	0.060 + 40.0kΩ

7.7.2 Resistance Span *vs* Resolution

Absolute Resolution	Span of Values
0.1mΩ	00.0000 Ω to 40.0000 Ω
1mΩ	000.000 Ω to 400.000 Ω
10mΩ	0.00000 kΩ to 4.00000 kΩ
100mΩ	00.0000 kΩ to 40.0000 kΩ
1Ω	000.000 kΩ to 400.000 kΩ
10Ω	0.00000 MΩ to 4.00000 MΩ
100Ω	00.0000 MΩ to 40.0000 MΩ
1kΩ	000.000 MΩ to 400.000 MΩ

7.7.3 Constant Source Current — Low Current and High Current Limits

Hardware Configuration Limits on Span of Output Resistance	Constant Source Current Limits	
	HI CURRENT Off	HI CURRENT On
00.0000 Ω to 40.0000 Ω	0.25mA to 3.5mA	N/A
040.001 Ω to 400.000 Ω	25µA to 320µA	250µA to 3.5mA
0.40001 kΩ to 4.00000 kΩ	25µA to 320µA	250µA to 3.5mA
04.0001 kΩ to 40.0000 kΩ	2.5µA to 32µA	25µA to 350µA
040.001 kΩ to 400.000 kΩ	250nA to 3.2µA	2.5µA to 35µA
0.40001 MΩ to 4.00000 MΩ	25nA to 320nA	250nA to 3.5µA
04.0001 MΩ to 40.0000 MΩ	8nA to 32nA	25nA to 350nA
040.001 MΩ to 400.000 MΩ	4nA to 32nA	25nA to 200nA

7.7.4 Other Resistance Specifications

Maximum Measurement Voltage:	8V; $I_{measure} \times R_{actual}$: ≤8V
Settling Time:	to within 10% of accuracy : 0 - 40kΩ : <0.08s 40kΩ - 4MΩ : <0.3s 4MΩ - 400MΩ : <1s
4-wire Lead Compensation:	Max total lead resistance : 50Ω Nominal lead resistance rejection: 10000:1

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C

7.8 Frequency Function Specifications

7.8.1 Frequency Function Accuracy

Frequency Output	Accuracy ±(ppm of Output Frequency) 1Year — Tcal ±5°C [1]	Mark/Period Ratio (%)
0.5Hz - 10.0MHz	25.0	50

7.8.2 High and Low Voltage Limits and Voltage Accuracy

Frequency Span	Output Voltage Vo	Accuracy (±Volts) 1Year — Tcal ±5°C [1]
0.5Hz to 10MHz	Vo ≤ 6Vpk	0.06V
0.5Hz to 1kHz	6Vpk < Vo ≤ 30Vpk	0.3V

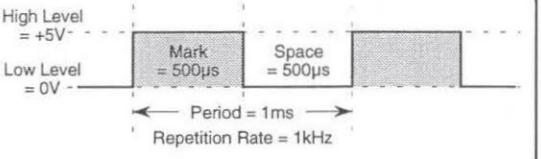


Fig. 7.8.1 Frequency Function — Default Output Waveshape

7.8.3 Frequency Spans *vs* Frequency Resolution

Absolute Resolution	Span of Frequencies			Output Voltage ≤6Vpk	Output Voltage >6Vpk
1mHz	000.500 Hz	to	320.000 Hz	*	*
10mHz	0.00050 kHz	to	1.00000 kHz	*	*
10mHz	1.00001 kHz	to	3.20000 kHz	*	---
100mHz	00.0005 kHz	to	32.0000 kHz	*	---
1Hz	000.001 kHz	to	320.000 kHz	*	---
10Hz	0.00001 MHz	to	3.20000 MHz	*	---
100Hz	00.0001 MHz	to	10.0000 MHz	*	---

7.8.4 Rise Times [9]

For signals ≤ 6Vpk: <20ns.
For signals > 6Vpk: <1.5µs.

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C
[9] Specified into loads R_L > 100kΩ in parallel with C_L ≤ 150pF.

7.9 Mark/Period Function Specifications

7.9.1 Pulse Width and Repetition Period Intervals Accuracy

Output Voltage	Interval	Accuracy ±(% of Output + Floor) 1Year — Tcal ±5°C [1]
Vo ≤ 6Vpk	Pulse Width: 0.30µs to 1999.99ms Repetition Period: 0.6µs to 2000ms	0.0025 + 10ns 0.0025
6Vpk < Vo ≤ 30Vpk	Pulse Width: 10µs to 1999.99ms Repetition Period: 1ms to 2000ms	0.0025 + 200ns 0.0025

7.9.2 High and Low Voltage Limits and Voltage Accuracy

Output Voltage Vo	Accuracy (±Volts) 1Year — Tcal ±5°C [1]
Vo ≤ 6Vpk	0.06V
6Vpk < Vo ≤ 30Vpk	0.3V

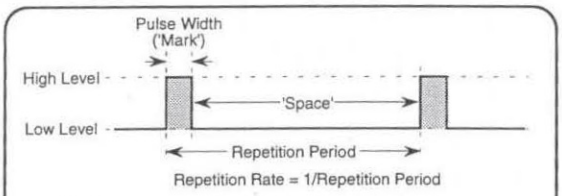


Fig. 7.9.1 Mark/Period Function — Generalized Output Waveshape Definition

7.9.3 Pulse Width Interval Spans *vs* Time Resolution

Absolute Resolution	≤6V pk	>6Vpk
100ns	000.3 µs to 999.9 µs*	010.00 µs to 990.0 µs**
100ns	00.0003 ms to 99.9999 ms*	00.0100 ms to 99.9999 ms**
1µs	000.001 ms to 999.999 ms	000.010 ms to 999.999 ms**
10µs	0000.01 ms to 1999.99 ms	0000.01 ms to 1999.99 ms

Notes * = *Maximum Pulse Width interval must be at least 0.3µs less than that of the set Repetition Period.*
** = *Maximum Pulse Width interval must be at least 10µs less than that of the set Repetition Period.*

7.9.4 Repetition Period Interval Spans *vs* Time Resolution

Absolute Resolution	≤6V pk	>6Vpk
100ns	000.6 µs to 999.9 µs	-----
100ns	00.0006 ms to 99.9999 ms	01.0000 ms to 99.9999 ms
1µs	000.001 ms to 999.999 ms	001.000 ms to 999.999 ms
10µs	0000.01 ms to 2000.00 ms	0001.00 ms to 2000.00 ms

7.9.5 Rise Times [9]

For signals ≤ 6Vpk: <20ns.
For signals > 6Vpk: <1.5µs.

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C
[9] Specified into loads R_L > 100kΩ in parallel with C_L ≤ 150pF.

7.10 % Duty Cycle Function Specifications

7.10.1 Introduction

Duty Cycle is a derived (relative) quantity which describes the Pulse Width / Repetition Period ratio of a pulsed waveform, expressed in the 9000 as a percentage. The values of Pulse Width and Repetition Period will change with frequency, while maintaining the same percentage ratio.

Hardware limitations drive the % Duty Cycle to a limit only when the Pulse Width and Repetition Period intervals reach their individual limits at particular frequencies. This means that any accuracy specification must be expressed in terms of constituent time intervals.

7.10.2 '% Duty' Value: Screen Setting Limits

$$00.05\% \leq \%\ \text{Duty} \leq 99.95\%$$

7.10.3 Repetition Period Interval Accuracy

Output Voltage	Interval	Accuracy ±(% of Output + Floor) 1Year — Tcal ±5°C [1]
Vo ≤ 6Vpk	100µs to 2000ms	0.0025
6Vpk < Vo ≤ 30Vpk	1ms to 2000ms	0.0025

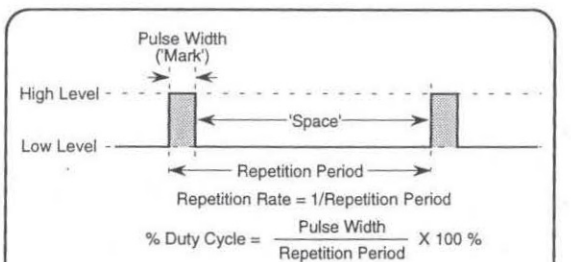


Fig. 7.10.1 % Duty Cycle Function — Generalized Output Waveshape Definition

7.10.4 Duty Cycle Accuracy

Output Voltage	Total Accuracy 1Year — Tcal ±5°C [1]
Vo ≤ 6Vpk	35ns
6Vpk < Vo ≤ 30Vpk [10]	225ns

7.10.5 High and Low Voltage Limits and Voltage Accuracy

Output Voltage Vo	Accuracy (±Volts) 1Year — Tcal ±5°C [1]
Vo ≤ 6Vpk	0.06V
6Vpk < Vo ≤ 30Vpk	0.3V

7.10.6 Repetition Period Interval Spans *vs* Time Resolution

Absolute Resolution	≤6Vpk		>6Vpk	
100ns	100.0 µs	to 999.9 µs	-----	
100ns	00.1000 ms	to 99.9999 ms	01.0000 ms	to 99.9999 ms
1µs	000.001 ms	to 999.999 ms	001.000 ms	to 999.999 ms
10µs	0000.01 ms	to 2000.00 ms	0001.00 ms	to 2000.00 ms

7.10.7 Rise Times [9]

For signals ≤ 6Vpk: <20ns.
For signals > 6Vpk: <1.5µs.

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C.
[9] Specified into loads R_L > 100kΩ in parallel with C_L ≤ 150pF.
[10] Minimum Mark or Space interval: 10µs.

7.11 Auxiliary Functions — Specifications

The Functions listed below are described as 'Auxiliary Functions' because they do not have their own individual front panel hard keys, but instead are accessed via the front-panel 'Aux' hard key, by screen selection from the 'Auxiliary Functions' menu.

Their specifications appear in the following sub-sections:

7.12 ..... Capacitance Function Specifications
7.13 ..... Conductance Function Specifications
7.14 ..... K-Type Temperature Function Specifications
7.15 ..... PRT Temperature Function Specifications
7.16 ..... Logic Pulses Function Specifications
7.17 ..... Logic Levels Function Specifications

7.12 Capacitance Specifications

7.12.1 Capacitance Accuracy

Capacitance Output	Accuracy ±(% of Output + Floor) 1Year — Tcal ±5°C [1] Stim Repetition Rate ≤ 350Hz	Stim Repetition Rate 350Hz to 1.5kHz
0.5nF - 4.0nF	0.3 + 15pF	0.6 + 30.0pF
4.0nF - 40.0nF	0.3 + 30pF	0.6 + 60.0pF
40.0nF - 400.0nF	0.3 + 160pF	0.6 + 320pF
400nF - 4.0µF	0.4 + 1.6nF	0.8 + 3.2nF
4.0µF - 40.0µF	0.5 + 16.0nF	1.0 + 32.0nF
40.0µF - 400.0µF	0.5 + 160nF	1.0 + 320nF
400.0µF - 4.0mF	0.5 + 1.6µF	1.0 + 3.2µF
4.0mF - 40.0mF	1.0 + 60µF	2.0 + 120µF

7.12.2 Capacitance Span *vs* Resolution

Absolute Resolution	Span of Values
0.1pF	0.5000 nF to 4.0000 nF
1pF	00.500 nF to 40.000 nF
10pF	000.50 nF to 400.00 nF
100pF	0.0005 µF to 4.0000 µF
1nF	00.001 µF to 40.000 µF
10nF	000.01 µF to 400.00 µF
100nF	0.0001 mF to 4.0000 mF
1µF	00.001 mF to 40.000 mF

7.12.3 Measurement and Discharge Current

Capacitance Output	Measurement Current Range	Maximum Discharge Current
0.5nF - 4.0nF	0.02µA to 500µA	1mA
4.0nF - 40.0nF	0.02µA to 500µA	5mA
40.0nF - 400.0nF	0.04µA to 1mA	10mA
400nF - 4.0µF	0.5µA to 1mA	10mA
4.0µF - 40.0µF	5µA to 3mA	10mA
40.0µF - 400.0µF	5µA to 3mA	10mA
400.0µF - 4.0mF	5µA to 3mA	10mA
4.0mF - 40.0mF	5µA to 3mA	10mA

7.12.4 Other Capacitance Specifications

Maximum Measurement Voltage:	±3.5V (except 40µF range which is limited to ±2.5V).
Settling Time:	to within 10% of accuracy : <0.08s
4-wire Lead Compensation:	Max total lead resistance : 10Ω

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C

7.13 Conductance Specifications

7.13.1 Conductance Accuracy

Conductance Output	Accuracy ±(% Output) 1Year — Tcal ±5°C [1]
2.5nS -25.0nS	0.40
25.0nS -250.0nS	0.20
250.0nS -2.5µS	0.12
2.5µS -25.0µS	0.05
25.0µS -250.0µS	0.05
250.0µS -2.5mS	0.04

7.13.2 Conductance Span *vs* Resolution

Absolute Resolution	Span of Values
0.1pS	02.5000 nS to 25.0000 nS
1pS	002.500 nS to 250.000 nS
10pS	0.00250 µS to 2.50000 µS
100pS	00.0025 µS to 25.0000 µS
1nS	000.002 µS to 250.000 µS
10nS	0.00001 mS to 2.00000 mS

7.13.3 Constant Source Current — Low Current and High Current Limits

Hardware Configuration Limits on Span of Output Conductance	Constant Current Source Limits HI CURRENT Off	HI CURRENT ON
02.5000 nS to 25.0000 nS	4nA to 32nA	2.5nA to 200nA
025.001 nS to 250.000 nS	8nA to 32nA	25nA to 350nA
0.25001 µS to 2.50000 µS	25nA to 320nA	250nA to 3.5µA
02.5001 µS to 25.0000 µS	250nA to 3.2µA	2.5µA to 35µA
025.001 µS to 250.000 µS	2.5µA to 32µA	25µA to 350µA
0.25001 mS to 2.00000 mS	25µA to 320µA	250µA to 3.5mA

7.13.4 Other Conductance Specifications

Maximum Measurement Voltage:	8V; $I_{measure} / \upsilon_{actual}$: ≤8V
Settling Time:	to within 10% of accuracy : 2.5nS - 250nS : <1s 250nS - 25µS : <0.3s 25µS - 2.5mS : <0.08s
4-wire Lead Compensation:	Max total lead resistance : 50Ω Nominal lead resistance rejection: 10000:1

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C

7.14 K-Type Temperature Specifications

7.14.1 K-Type Temperature Accuracy

Temperature Output (Screen Resolution Shown)	Accuracy [11] [12] ±(% of Output + Floor) 1Year — Tcal ±5°C [1]
Celsius:	
-0250.0°C - -0150.0°C	0.05 + 1.0°C
-0150.0°C - +1350.0°C	0.02 + 0.5°C

NOTE: To calculate the Model 9000's accuracy in °F (Fahrenheit) or K (Kelvin) proceed as folows:-

1. Convert the temperature in °F or K to °C using one of the following formulae as appropriate:

   $°C = K - 273$

   $°C = \frac{(°F - 32) \times 5}{9}$

2. Calculate the Model 9000's accuracy ($\Delta_{°C}$) at this °C temperature from the accuracy table above.

3. Convert $\Delta_{°C}$ back to °F or K using one of the following formulae as appropriate:

   $\Delta_K = \Delta_{°C}$

   $\Delta_{°F} = \frac{\Delta_{°C} \times 9}{5}$

Example:
To calculate accuracy at 2000°F

$°C = \frac{(2000 - 32) \times 5}{9} = 1093\,°C$

$\Delta_{°C} = (0.02\% \times 1093) + 0.5 = 0.72\,°C$

$\Delta_{°F} = \frac{0.72 \times 9}{5} = 1.30\,°F$

7.14.2 Other K-Type Specifications

Settling Time:	to within 10% of accuracy: 0.08s
Load Regulation:	$(1400/R_{LOAD})$ % of output
Maximum Capacitance:	1000pF.

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C.
[11] K-type compensated output determined from pre-defined tables based on Type K Reference Table NIST Monograph 125.
[12] For loads <1MΩ add load regulation error.

7.15 PRT Temperature Accuracy Specifications

7.15.1 PRT Temperature Accuracy

Temperature Output [13]	Accuracy ±(% of Output + Floor) 1Year — Tcal ±5°C [1]
Celsius: -200°C - +100°C +100°C - +850°C	 0.00 + 0.15°C 0.00 + 0.30°C
Fahrenheit: -328°F - +212°F +212°F - +1562°F	 0.00 + 0.27°F 0.00 + 0.54°F
Kelvin: 73K - 373K 373K - 1123K	 0.00 + 0.15K 0.00 + 0.30K

7.15.2 Constant Source Current — Low Current and High Current Limits

Hardware Configuration Limits on Span of Output Resistance	Constant Source Current Limits	
	HI CURRENT Off	HI CURRENT On
00.0000 Ω to 40.0000 Ω	0.25mA to 3.5mA	N/A
040.001 Ω to 400.000 Ω	25µA to 320µA	250µA to 3.5mA

7.15.3 Other PRT Temperature Specifications

Maximum Measurement Voltage:	8V; $I_{measure} \times R_{actual}$: ≤8V
Settling Time:	to within 10% of accuracy : <0.08s
4-wire Lead Compensation:	Max total lead resistance : 50Ω Nominal lead resistance rejection: 10000:1

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C.
[13] Temperature *vs* Resistance curve is based on DIN 43760 Standard for temperature coefficient for platinum wire (mean $\alpha = 0.00385\Omega/\Omega/°C$).

7.16 Logic-Pulses Function Specifications

7.16.1 Pulse Width and Repetition Period Intervals Accuracy

Interval		Accuracy ±(% of Output + Floor) 1Year — Tcal ±5°C [1]
Pulse Width:	0.30µs to 1999.99ms	0.0025 + 10.0ns
Repetition Period:	0.6µs to 2000.00ms	0.0025

7.16.3 Fixed High and Low Levels and Voltage — Accuracy

Selected Logic	Signal Level	Voltage	Accuracy (±Volts) 1Year — Tcal ±5°C [1]
TTL	High	+5.00 V	0.06
	Low	0.00 V	0.06
CMOS	High	+5.00 V	0.06
	Low	0.00 V	0.06
ECL	High	-0.90 V	0.06
	Low	-1.75 V	0.06

7.16.1 'Pulse Width' Interval *vs* Resolution

Absolute Resolution	Pulse Width		
100ns	000.3 µs	to	999.9 µs*
100ns	00.0003 ms	to	99.9999 ms*
1µs	000.001 ms	to	999.999 ms
10µs	0000.01 ms	to	1999.99 ms

Notes * = *Maximum Pulse Width interval must be at least 0.3µs less than that of the set Repetition Period.*

7.16.2 'Repetition Period' Interval *vs* Resolution

Absolute Resolution	Repetition Period		
100ns	000.6 µs	to	999.9 µs
100ns	00.0006 ms	to	99.9999 ms
1µs	000.001 ms	to	999.999 ms
10µs	0000.01 ms	to	2000.00 ms

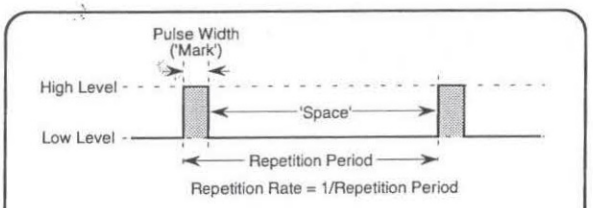


Fig. 4.16.1 Logic-Pulses Function — Generalized Output Waveshape Definition

NOTES: [1] Tcal = temperature at calibration. Factory calibration temperature = 23°C.

7.17 Logic-Levels Function Specifications

7.17.1 Logic-Levels Accuracy

The accuracy of each DC signal voltage is the same as that of the equivalent voltage in DC Voltage Function *(Sub-section 7.3)*.

7.17.2 Logic-Levels DC Signal Voltage Boundaries

Logic Type	Signal Level	Screen Indication	Default Value ('H' or 'L')	Boundaries	Adjustment Limits
TTL	High	**HIGH LVL**	+5.00V	V ≥ +2.00V	+5.50V
	Intermediate	— — — — —	---	+0.8V < V < +2.00V	---
	Low	**LOW LVL**	0.00V	V ≤ 0.8V	0.00V
CMOS	High	**HIGH LVL**	+5.00V	V ≥ +3.50V	+6.00V
	Intermediate	— — — — —	---	+1.5V < V < +3.50V	---
	Low	**LOW LVL**	0.00V	V ≤ 1.5V	0.00V
ECL	High	**HIGH LVL**	-0.9V	V ≥ -1.11V	0.00V
	Intermediate	— — — — —	---	-1.48V < V < -1.11V	---
	Low	**LOW LVL**	-1.75V	V ≤ -1.48V	-5.20V

T.O. 33K8-4-1087-1

TECHNICAL MANUAL

CALIBRATION PROCEDURE

FOR

MULTIFUNCTION CALIBRATOR

9000

(WAVETEK)



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MULTIFUNCTION CALIBRATOR

9000

(WAVETEK)

1 CALIBRATION DESCRIPTION:

Table 1.

Test Instrument (TI) Characteristics	Performance Specifications	Test Method
DC Voltage	Range: 0 to 1050 VDC	Compared against a Standard Voltage
	Accuracy: ±(% of setting + V)	
	0 to 320 mV ±(0.006% + 4.16 µV)	
	0.32 to 3.2 V ±(0.006% + 41.6 µV)	
	3.2 to 32 V ±(0.0065% + 416 µV)	
	32 to 320 V ±(0.0065% + 4.48 mV)	
	320 to 1050 V ±(0.006% + 19.95 mV)	
DC Current	Range: 0 to 20 A	Compared against a Digital Multimeter and a Standard Current Shunt
	Accuracy: ±(% of setting + A)	
	0 to 320 µA ±(0.02% + 16 nA)	
	0.32 to 3.2 mA ±(0.02% + 96 nA)	
	3.2 to 32 mA ±(0.02% + 1.28 µA)	
	32 to 320 mA ±(0.02% + 9.6 µA)	
	0.320 to 3.2 A ±(0.065% + 160 µA)	
	3.2 to 10.5 A ±(0.06% + 1.2 mA)	
	10.5 to 20 A ±(0.06% + 4.8 mA)	

Table 1. (Cont.)

Test Instrument (TI) Characteristics	Performance Specifications	Test Method
AC Voltage	Range: 0 to 1050 VAC	Compared to an AC Measurement Standard
	Accuracy: ±(% of setting + V)	
	(0 to 10 mV)	
	10 Hz to 3 kHz ±(0.04% + 384 µV)	
	3 to 10 kHz ±(0.04% + 512 µV)	
	10 to 30 kHz ±(0.06% + 960 µV)	
	30 to 50 kHz ±(0.09% + 1.92 mV)	
	50 to 100 kHz ±(0.2% + 5.12 mV)	
	(10 to 32 mV)	
	10 Hz to 3 kHz ±(0.04% + 96 µV)	
	3 to 10 kHz ±(0.04% + 128 µV)	
	10 to 30 kHz ±(0.06% + 240 µV)	
	30 to 50 kHz ±(0.09% + 480 µV)	
	50 to 100 kHz ±(0.2% + 1.28 mV)	
	(32 to 320 mV)	
	10 Hz to 3 kHz ±(0.04% + 19.2 µV)	
	3 to 10 kHz ±(0.04% + 25.6 µV)	
	10 to 30 kHz ±(0.06% + 48.0 µV)	
	30 to 50 kHz ±(0.09% + 96.0 µV)	
	50 to 100 kHz ±(0.2% + 256 µV)	
	(320 mV to 3.2 V)	
	10 Hz to 3 kHz ±(0.04% + 192 µV)	
	3 to 10 kHz ±(0.04% + 256 µV)	
	10 to 30 kHz ±(0.06% + 480 µV)	
	30 to 50 kHz ±(0.09% + 960 µV)	

Table 1. (Cont.)

Test Instrument (TI) Characteristics	Performance Specifications		Test Method
AC Voltage *(Cont.)*	Range: 0 to 1050 VAC		Compared to an AC Measurement Standard
	Accuracy: ±(% of setting + V)		
	50 to 100 kHz	±(0.2% + 2.56 mV)	
	(3.2 to 32 V)		
	10 Hz to 3 kHz	±(0.04% + 1.92 mV)	
	3 to 10 kHz	±(0.06% + 2.56 mV)	
	10 to 30 kHz	±(0.08% + 4.8 mV)	
	30 to 50 kHz	±(0.15% + 9.6 mV)	
	50 to 100 kHz	±(0.35% + 32 mV)	
	(32 to 105 V)		
	10 Hz to 3 kHz	±(0.04% + 6.3 mV)	
	3 to 10 kHz	±(0.06% + 8.4 mV)	
	10 to 30 kHz	±(0.08% + 15.8 mV)	
	30 to 50 kHz	±(0.15% + 31.5 mV)	
	50 to 100 kHz	±(0.35% + 105 mV)	
	(105 to 320 V)		
	40 to 100 Hz	±(0.05% + 19.2 mV)	
	100 Hz to 1 kHz	±(0.05% + 19.2 mV)	
	1 to 3 kHz	±(0.08% + 19.2 mV)	
	3 to 10 kHz	±(0.08% + 32 mV)	
	10 to 20 kHz	±(0.12% + 48 mV)	
	20 to 30 kHz	±(0.15% + 64 mV)	
	(320 to 800 V)		
	40 to 100 Hz	±(0.05% + 63 mV)	
	100 Hz to 1 kHz	±(0.05% + 63 mV)	
	1 to 3 kHz	±(0.08% + 63 mV)	

Table 1. (Cont.)

Test Instrument (TI) Characteristics	Performance Specifications	Test Method
AC Voltage *(Cont.)*	Range: 0 to 1050 VAC	Compared to an AC Measurement Standard
	Accuracy: ±(% of setting + V)	
	3 to 10 kHz ±(0.08% + 105 mV)	
	*10 to 20 kHz ±(0.12% + 158 mV)	
	*20 to 30 kHz ±(0.15% + 210 mV)	
	(800 to 1050 V)	
	40 to 100 Hz ±(0.05% + 126 mV)	
	100 Hz to 1 kHz ±(0.05% + 126 mV)	
	1 to 3 kHz ±(0.08% + 126 mV)	
	3 to 10 kHz ±(0.08% + 210 mV)	
	*10 to 20 kHz ±(0.12% + 315 mV)	
*Availability of voltage and frequency combinations are subject to the Volt-Hertz limits.		
AC Current	Range: 0 to 20 A	Compared to an AC Measurement Standard and AC Current Shunts
	Accuracy: ±(% of setting + A)	
	(0 to 32 µA)	
	10 Hz to 3 kHz ±(0.07% + 900 nA)	
	3 to 10 kHz ±(0.1% + 1.8 µA)	
	10 to 20 kHz ±(0.2% + 6 µA)	
	20 to 30 kHz ±(0.25% + 9 µA)	
	(32 µA to 3.2 mA)	
	10 Hz to 3 kHz ±(0.07% + 300 nA)	
	3 to 10 kHz ±(0.1% + 600 nA)	
	10 to 20 kHz ±(0.2% + 2 µA)	
	20 to 30 kHz ±(0.25% + 3 µA)	

Table 1. (Cont.)

Test Instrument (TI) Characteristics	Performance Specifications	Test Method
AC Current *(Cont.)*	Range: 0 to 20 A Accuracy: ±(% of setting + A)	Compared to an AC Measurement Standard and AC Current Shunts
	(3.2 mA to 32 mA) 10 Hz to 3 kHz ±(0.07% + 3.2 µA 3 to 10 kHz ±(0.1% + 6.4 µA) 10 to 20 kHz ±(0.2% + 12.8 µA) 20 to 30 kHz ±(0.25% + 22.4 µA)	
	(32 to 320 mA) 10 Hz to 3 kHz ±(0.08% + 32 µA) 3 to 10 kHz ±(0.1% + 48 µA) 10 to 20 kHz ±(0.2% + 64 µA) 20 to 30 kHz ±(0.25% + 96 µA)	
	(320 mA to 3.2 A) 10 Hz to 3 kHz ±(0.1% + 480 µA) 3 to 10 kHz ±(0.25% + 2.56 mA)	
	(3.2 to 10.5 A) 10 Hz to 3 kHz ±(0.2% + 3 mA) 3 to 10 kHz ±(0.5% + 10 mA)	
	*(10.5 to 20 A) 10 Hz to 3 kHz ±(0.2% + 6.9 mA) 3 to 10 kHz ±(0.5% + 23 mA)	
	*Continuous output >10.5 A will automatically reduce to <10.5 A after 2 minutes.	
Resistance	Range: 0 to 400 MΩ Accuracy: ±(% of setting +Ω)	Compared against Standard Resistors
	0 to 40 Ω: Low Source Current ±(0.025% +10 mΩ); High Source Current N/A 40 to 400 Ω: ±(0.02% +20 mΩ); ±(0.015% +20 mΩ) 400 to 4 kΩ: ±(0.015% +80 mΩ); ±(0.015% +80 mΩ)	

Table 1. (Cont.)

Test Instrument (TI) Characteristics		Performance Specifications		Test Method
Resistance *(Cont.)*		Range: 0 to 400 MΩ		Compared against Standard Resistors
		Accuracy: ±(% of setting +Ω)		
	4 to 40 kΩ	±(0.025% +800 mΩ)	±(0.015% +800 mΩ)	
	40 to 400 kΩ	±(0.025% +8 Ω)	±(0.02% +8 Ω)	
	400 kΩ to 4 MΩ	±(0.065% +200 Ω)	±(0.025% +200 Ω)	
	4 to 40 MΩ	±(0.15% +2 kΩ)	±(0.05% +2 kΩ)	
	40 to 400 MΩ	±(0.26% +40 kΩ)	±(0.06% +40 kΩ)	
Frequency:		Range: 0.5 Hz to 10 MHz		Compared to a Frequency Counter
		Accuracy: ±25 ppm		
Period		Range: 0.3 µs to 19999.99 ms		
		Accuracy: ±25 ppm + 10 ns		
Capacitance		Range: 0.5 nF to 40 mF		Compared to an RLC Digibridge
		Accuracy: @ ≤350 Hz; 0.5 to 4 nF, ±0.3% + 15 pF; 4 to 40 nF, ±0.3% + 30 pF; 40 to 400 nF, ±0.3% + 160 pF; 400 nF to 4 µF; ±0.4% + 1.6 nF; 4 to 40 µF, ±0.5% + 16 nF; 40 to 400 µF; ±0.5% + 160 nF; 400 µF to 4 mF, ±0.5% + 1.6 µF; 4 to 40 mF, ±1% + 60 µF		
		Accuracy: @ 350 Hz to 1.5 kHz 0.5 to 4 nF, ±0.6% + 30 pF; 4 to 40 nF, ±0.6% + 60 pF; 40 to 400 nF, ±0.6% + 320 pF; 400 nF to 4 µF, ±0.8% + 3.2 nF; 4 to 40 µF, ±1% + 32 nF; 40 to 400 µF, ±1% + 320 nF; 400 µF to 4 mF, ±1% + 3.2 µF; 4 to 40 mF, ±2% + 120 µF;		
Conductance		Range: 2.5 nS to 2.5 mS		Indirectly calibrated during Resistance and Current calibration
		Accuracy: 2.5 nS to 25 nS, ±0.4%; 25 nS to 250 nS, ±0.2%; 250 nS to 2.5 µS, ±0.12%; 2.5 µS to 250 µS, ±0.05%; 250 µS to 2.5 mS, ±0.04%		

2 EQUIPMENT REQUIREMENTS:

	Noun	Minimum Use Specifications	Calibration Equipment	Sub-Item
2.1	METER CALIBRATOR	Range: 0 to 1000 VDC Accuracy: ±15 ppm	Fluke 5700A	*H-P 3458A
2.2	NULL DETECTOR	Range: 0 to 30 VDC Accuracy: N/A	Fluke 845AB	
2.3	CURRENT SHUNT	Range: 100 µA to 20 ADC Accuracy: ±70 ppm, 100 µA through 100 mA and 20 A ranges; ±180 ppm, 1 and 10 A ranges (AFPSL certified)	Guildline 9211A	
2.4	DIGITAL MULTIMETER	Range: 0 to 110 mVDC; 20 Ω to 100 MΩ Accuracy: ±0.005%, VDC; Ω Accuracy is N/A because it is being used as a direct transfer device	Hewlett-Packard 3458A	Fluke 8506A
2.5	AC CURRENT SHUNT	Range: 1 mA to 20 A Accuracy: 10 Hz to 3kHz, ±0.02%; 3 to 10 kHz, ±0.03%; 10 to 20 kHz, ±0.06%; 20 to 30 kHz, ±0.08%	Fluke A45/AF	
2.6	AC MEASUREMENT STANDARD	Range: 0 to 1000 VAC Accuracy: 10 mV 10 Hz to 3 kHz, ±0.97%; 3 to 10 kHz, ±1.25%; 10 to 30 kHz, ±2.49%; 30 to 50 kHz, ±4.8%; 50 to 100 kHz, ±12.8% 30 mV 10 Hz to 3 kHz, ±0.09%; 3 to 10 kHz, ±0.116%; 10 to 30 kHz, ±0.215%	Fluke 5790A	

	Noun	Minimum Use Specifications	Calibration Equipment	Sub-Item
2.6	AC MEASUREMENT STANDARD *(Cont.)*	Range: 0 to 1000 VAC Accuracy: 30 to 50 kHz, ±0.41%; 50 to 100 kHz, ±0.28% 300 mV 10 Hz to 20 Hz, ±(0.021 +1.5 µV) (TAR 2.158:1); 20 Hz to 3 kHz, ±0.0115%; 3 to 10 kHz, ±0.012%; 10 to 30 kHz, ±0.019%; 30 to 50 kHz, ±0.03%; 50 to 100 kHz, ±0.071% 3.0 V 10 Hz to 20 Hz, ±0.02% (TAR 2.3:1); 20 Hz to 3 kHz, ±0.0115%; 3 to 10 kHz, ±0.012%; 10 to 30 kHz, ±0.019%; 30 to 50 kHz, ±0.03%; 50 to 100 kHz, ±0.071% 30 and 100V 10 Hz to 20 Hz, ±0.02% (TAR 2.3:1); 20 Hz to 3 kHz, ±0.0115%; 3 to 10 kHz, ±0.017%; 10 to 30 kHz, ±0.024%; 30 to 50 kHz, ±0.045%; 50 to 100 kHz, ±0.115% 300, 700 and 1000 V 40 Hz to 1 kHz, ±0.014%; 1 to 3 kHz, ±0.0215%; 3 to 10 kHz, ±0.0225%; 10 to 20 kHz, ±0.0325%; 20 to 30 kHz, ±0.0425%	Fluke 5790A	
2.7	STANDARD RESISTOR	Range: 10 Ω to 100 kΩ/step Accuracy: ±100 ppm, 10 Ω; ±57 ppm, 100 Ω through 100 kΩ steps	ESI SR 1010	

Noun	Minimum Use Specifications	Calibration Equipment	Sub-Item
2.8 STANDARD RESISTOR	Range: 10 MΩ steps Accuracy: ±170 ppm	ESI SR 1050	
2.9 FREQUENCY COUNTER	Range: 10 Hz to 10 MHz Accuracy: ±6 ppm	Hewlett-Packard 5345A	
2.10 RLC DIGIBRIDGE	Range: 10 nF to 1 mF Accuracy: ±0.1%	Genrad 1689-9751	
2.11 METAL FILM RESISTOR	Range: 15 kΩ Accuracy: ±1 %	As Available	

*The H-P 3458A may be used direct inplace of the Meter Calibrator and Null Detector.

3 PRELIMINARY OPERATIONS:

3.1 Review and become familiar with entire procedure before beginning calibration process.

WARNING

Unless otherwise designated, and prior to beginning the Calibration Process, ensure that all test equipment voltage and/or current outputs are set to zero (0) or turned off, where applicable. Ensure that all equipment switches are set to the proper position before making connections or applying power.

3.2 Connect the TI and all test equipment to a 115 V, 60 Hz POWER source. Set all power switches to the ON position. Allow for 30 minute warm-up period.

3.3 Press TI Mode key, then press MANUAL to place TI in the manual control mode.

4 CALIBRATION PROCESS:

NOTE

Unless otherwise specified, verify the results of each test and take corrective action whenever the test requirement is not met, before proceeding.

4.1 DC VOLTAGE CALIBRATION:

4.1.1 Connect equipment as shown Figure 1.

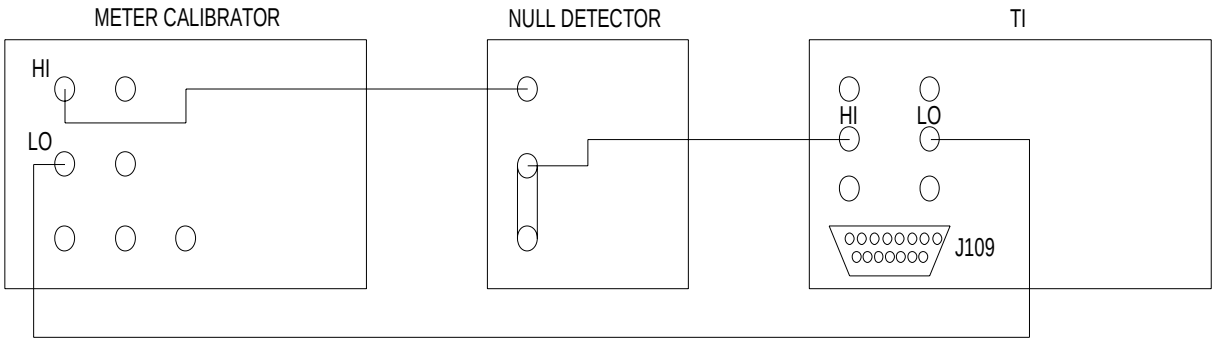


Figure 1.

4.1.2 Press TI V key, then press the screen key to select ⎓ V (VDC)).

4.1.3 Set Null Detector ZERO/OPR switch to ZERO.

4.1.4 While increasing Null Detector sensitivity to 10 µV with less than full scale deflection, adjust ZERO control for (0) zero indication. Return Null Detector RANGE switch to 1000 V and set ZERO/OPR switch to OPR.

4.1.5 Press TI keypad keys and function keys as necessary to obtain the first applied value listed in the Applied column of Table 2 and press the TI OUTPUT to ON and press the ± key as required to select polarity.

4.1.6 Set the Meter Calibrator controls for the first applied value listed in Table 2 and press OPR/STBY switch to OPR.

4.1.7 While increasing the Null Detector sensitivity with less than full scale deflection, edit the Meter Calibrator controls for a null indication on the Null Detector.

4.1.8 Return the Null Detector RANGE switch to the 1000 V position.

4.1.9 The Meter Calibrator display must indicate within the corresponding limits listed in Table 2.

4.1.10 Press the TI OUTPUT to OFF. Press the Meter Calibrator OPR/STBY switch to STBY.

4.1.11 Repeat steps 4.1.5 through 4.1.10 for each remaining value listed in Table 2.

Table 2.

Range	Applied (V)	Limits (V)
0 to 320 mV	300 m	299.9778 to 300.0222 m
	-300 m	-299.9778 to -300.0222 m
320 mV to 3.2 V	3	2.999778 to 3.000222
	1.5	1.4998684 to 1.5001316

Table 2. (Cont.)

Range	Applied (V)	Limits (V)
	-3	-2.999778 to -3.000222
	-1.5	-1.4998684 to -1.5001316
3.2 to 32 V	30	29.99763 to 30.00237
	-30	-29.99763 to -30.00237
32 to 320 V	200	199.98252 to 200.01748
	-200	-199.98252 to -200.01748
320 to 1050 V	1000	999.92005 to 1000.07995
	-1000	-999.92005 to -1000.07995

4.1.12 Verify step 4.1.10 is completed and disconnect the test setup.

4.2 DC CURRENT CALIBRATION:

4.2.1 Connect equipment as shown Figure 2.

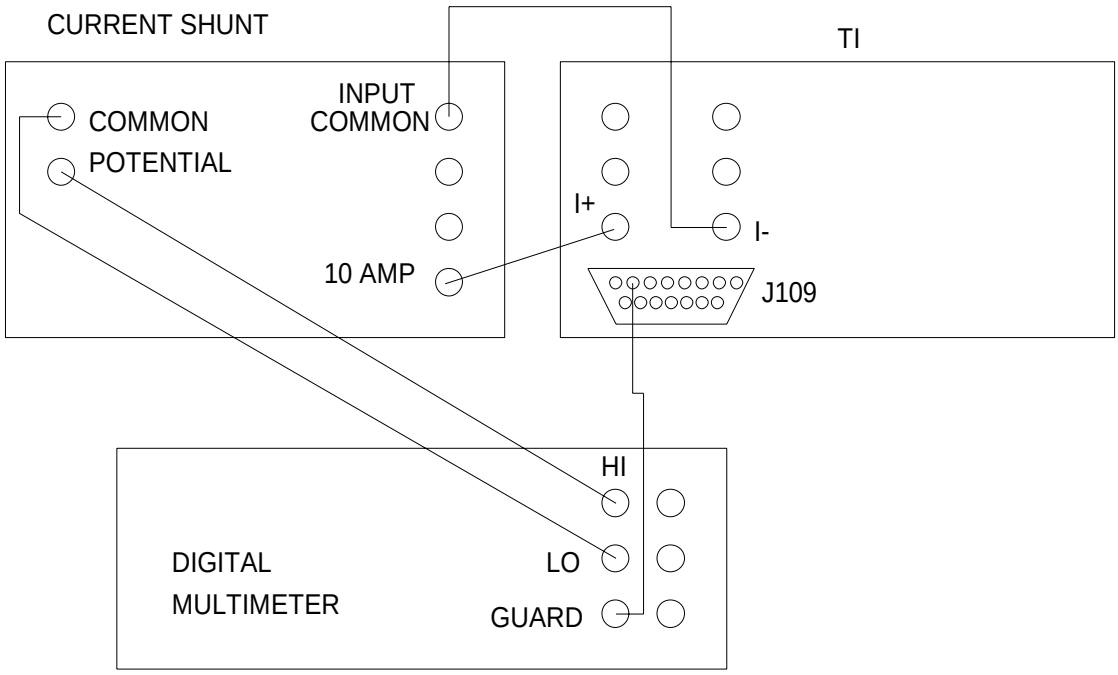


Figure 2.

4.2.2 Press TI A key,then press the screen key to select $\overline{---}$ A (ADC).

4.2.3 Install Current Shunt Shorting Plugs as necessary to measure the first corresponding Applied value listed in Table 3.

4.2.4 Press TI keypad keys and function keys as necessary to obtain the first applied value listed in the Applied column of Table 3 and press the TI OUTPUT to ON.

4.2.5 The Digital Multimeter must indicate within the corresponding mV limits listed in Table 3.

4.2.6 Press the TI OUTPUT to OFF.

4.2.7 Repeat steps 4.2.3 through 4.2.6 for each remaining value listed in Table 3.

Table 3.

Range (A)	Applied (A)	Limits (mV)
0 to 320 µ	100 µ	99.964 to 100.036
320 µ to 3.2 m	1 m	99.9704 to 100.0296
3.2 to 32 m	10 m	99.9672 to 100.0328
32 to 320 m	100 m	99.9704 to 100.0296
0.320 to 3.2	1	99.919 to 100.081
3.2 to 10.5	10	99.928 to 100.072
10.5 to 20	*20	19.9832 to 20.0168

*Disconnect connection to the Current Shunt 10 AMP terminal and connect it to the 100 AMP terminal.

4.2.8 Verify step 4.2.6 is completed and disconnect the test setup.

4.3 AC VOLTAGE CALIBRATION:

4.3.1 Connect the TI output HI and LO terminals to the AC Measurement Standard INPUT 2.

4.3.2 Press TI V key, then press the screen key to select ∿ V (VAC).

4.3.3 Set the AC Measurement Standard to AUTO RANGE.

4.3.4 Press TI keypad keys and function keys as necessary to obtain the first applied value listed in the Applied column of Table 4 and press the TI OUTPUT to ON.

4.3.5 The AC Measurement Standard must indicate within the limits listed in the Limits column of Table 4.

4.3.6 Press the TI OUTPUT to OFF.

4.3.7 Repeat steps 4.3.4 through 4.3.6 for each range and applied value listed in Table 4.

Table 4.

Range	Applied	Limits (V)
0 to 10 mV	10 mV @ 10 Hz	9.612 to 10.388 m
	10 mV @ 2.9 kHz	9.612 to 10.388 m
	10 mV @ 9.9 kHz	9.484 to 10.516 m
	10 mV @ 29 kHz	9.034 to 10.966 m
	10 mV @ 49 kHz	8.071 to 11.929 m
	10 mV @ 100 kHz	4.86 to 15.14 m
10 to 32 mV	30 mV @ 10 Hz	29.892 to 30.108 m
	30 mV @ 2.9 kHz	29.892 to 30.108 m
	30 mV @ 9.9 kHz	29.86 to 30.14 m
	30 mV @ 29 kHz	29.742 to 30.258 m
	30 mV @ 49 kHz	29.493 to 30.507 m
	30 mV @ 100 kHz	28.66 to 31.34 m
32 to 320 mV	300 mV @ 10 Hz	299.8608 to 300.1392 m
	300 mV @ 2.9 kHz	299.8608 to 300.1392 m
	300 mV @ 9.9 kHz	299.8544 to 300.1456 m
	300 mV @ 29 kHz	299.772 to 300.228 m
	300 mV @ 49 kHz	299.634 to 300.366 m
	300 mV @ 100 kHz	299.144 to 300.856 m
320 mV to 3.2 V	3 V @ 10 Hz	2.998608 to 3.001392
	3 V @ 2.9 kHz	2.998608 to 3.001392
	3 V @ 9.9 kHz	2.998544 to 3.001456
	3 V @ 29 kHz	2.99772 to 3.00228
	3 V @ 49 kHz	2.99634 to 3.00366

Table 4. (Cont.)

Range	Applied	Limits (V)
320 mV to 3.2 V *(Cont.)*	3 V @ 100 kHz	2.99144 to 3.00856
3.2 to 32 V	30 V @ 10 Hz	29.98608 to 30.01392
	30 V @ 2.9 kHz	29.98608 to 30.01392
	30 V @ 9.9 kHz	29.97944 to 30.02056
	30 V @ 29 kHz	29.9712 to 30.0288
	30 V @ 49 kHz	29.9454 to 30.0546
	30 V @ 100 kHz	29.863 to 30.137
32 to 105 V	100 V @ 10 Hz	99.9537 to 100.0463
	100 V @ 2.9 kHz	99.9537 to 100.0463
	100 V @ 9.9 kHz	99.9316 to 100.0684
	100 V @ 29 kHz	99.9042 to 100.0958
	100 V @ 49 kHz	99.8185 to 100.1815
	100 V @ 100 kHz	99.545 to 100.455
105 to 320 V	300 V @ 40 Hz	299.8308 to 300.1692
	300 V @ 990 Hz	299.8308 to 300.1692
	300 V @ 2.9 kHz	299.7408 to 300.2592
	300 V @ 9.9 kHz	299.728 to 300.272
	300 V @ 19 kHz	299.592 to 300.408
	300 V @ 30 kHz	299.486 to 300.514
320 to 800 V	700 V @ 40 Hz	699.59 to 700.41
	700 V @ 990 Hz	699.59 to 700.41
	700 V @ 2.9 kHz	699.38 to 700.62
	700 V @ 9.9 kHz	699.33 to 700.67

Table 4. (Cont.)

Range	Applied	Limits (V)
320 to 800 V *(Cont.)*	300 V @ 19 kHz	299.48 to 300.52
	300 V @ 30 kHz	299.34 to 300.66
800 to 1050 V	1000 V @ 40 Hz	999.37 to 1000.63
	1000 V @ 990 Hz	999.37 to 1000.63
	1000 V @ 2.9 kHz	999.07 to 1000.93
	1000 V @ 9.9 kHz	998.99 to 1001.01
	300 V @ 20 kHz	299.32 to 300.68

4.3.8 Verify step 4.3.6 is completed and disconnect the test setup.

4.4 AC CURRENT CALIBRATION:

4.4.1 Connect the Current Shunt Adapter to the AC Measurement Standard SHUNT and INPUT 2 LO jacks.

4.4.2 Set the AC Measurement Standard for AUTO Range, ET TRIG off, SHUNT key and MEDIUM Filter on.

4.4.3 Press TI A key, then press the screen key to select $\overline{---}$ A (ADC).

4.4.4 Connect the first AC Shunt listed in the Shunt column of Table 5 to the Current Shunt Adapter and TI. Refer to Figure 3 for proper connections.

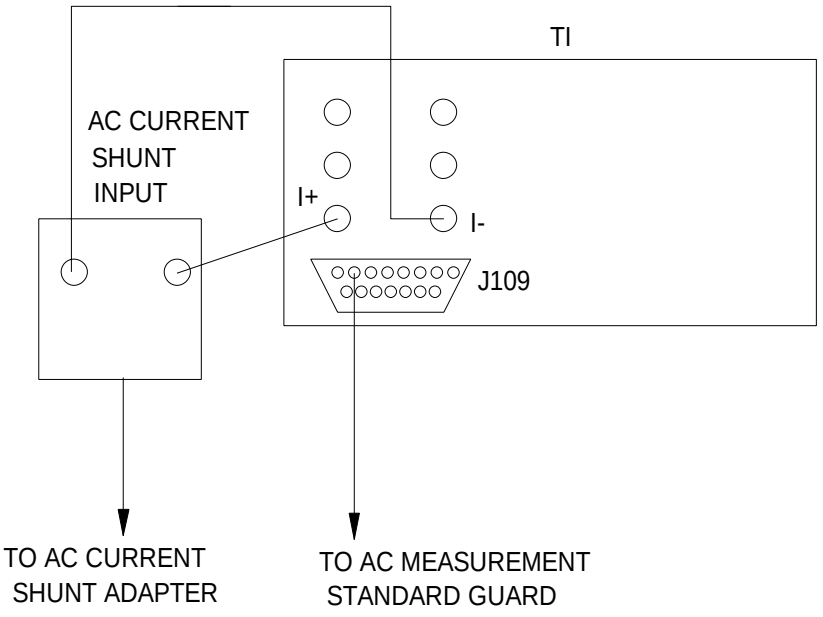


Figure 3.

4.4.5 Press TI keypad keys and function keys as necessary to obtain the first applied ADC value listed in the TI Applied column of Table 5 and press the TI OUTPUT to ON and press ± key if necessary for + output.

4.4.6 Press the AC Measurement Standard Set Ref softkey.

4.4.7 Press the TI OUTPUT ± key for - output.

4.4.8 Press the AC Measurement Standard Avg Ref softkey.

4.4.9 Depress the TI OUTPUT OFF switch.

4.4.10 Press TI A key, then press the screen key to select ∿ A (AAC).

4.4.11 Press TI keypad keys and function keys as necessary to obtain the first applied AAC value listed in the TI Applied column of Table 5 and press the TI OUTPUT to ON.

4.4.12 The AC Measurement Standard must indicate within the corresponding limits listed in the Limits column of Table 5.

4.4.13 Depress the TI OUTPUT OFF switch.

4.4.14 Repeat steps 4.4.3 through 4.4.13 for each remaining applied value listed in Table 5 for the 3 mA calibration.

4.4.15 Repeat steps 4.4.3 through 4.4.14 for each remaining applied value listed in Table 5.

NOTE

Allow at least 10 minutes for thermal stability before taking readings on the 3.2 10.5 and 20 A ranges.

Table 5.

TI Applied (ADC)	TI Applied (ACA)	Shunt	Limits
3 mA	3 mA @ 10 Hz	20 mA	±800 ppm
3 mA	3 mA @ 2.9 kHz	20 mA	±800 ppm
3 mA	3 mA @ 9.9 kHz	20 mA	±1200 ppm
3 mA	3 mA @ 19 kHz	20 mA	±2670 ppm
3 mA	3 mA @ 30 kHz	20 mA	±3500 ppm
20 mA	20 mA @ 10 Hz	20 mA	±860 ppm
20 mA	20 mA @ 2.9 kHz	20 mA	±860 ppm
20 mA	20 mA @ 9.9 kHz	20 mA	±1320 ppm

Table 5. (Cont.)

TI Applied (ADC)	TI Applied (ACA)	Shunt	Limits
20 mA	20 mA @ 19 kHz	20 mA	±2640 ppm
20 mA	20 mA @ 30 kHz	20 mA	±3620 ppm
200 mA	200 mA @ 10 Hz	200 mA	±960 ppm
200 mA	200 mA @ 2.9 kHz	200 mA	±960 ppm
200 mA	200 mA @ 9.9 kHz	200 mA	±1240 ppm
200 mA	200 mA @ 19 kHz	200 mA	±2320 ppm
200 mA	200 mA @ 30 kHz	200 mA	±2980 ppm
2 A	2 A @ 10 Hz	2 A	±1240 ppm
2 A	2 A @ 2.9 kHz	2 A	±1240 ppm
2 A	2 A @ 10 kHz	2 A	±3780 ppm
10 A	10 A @ 10 Hz	20 A	±2300 ppm
10 A	10 A @ 2.9 kHz	20 A	±2300 ppm
10 A	10 A @ 10 kHz	20 A	±6000 ppm
*20 A	20 A @ 10 Hz	20 A	±2345 ppm
20 A	20 A @ 2.9 kHz	20 A	±2345 ppm
20 A	20 A @ 10 kHz	20 A	±6150 ppm

*Continuous output >10.5 A will automatically reduce to <10.5 A after 2 minutes.

4.4.16 Disconnect the test setup.

4.4.17 Depress the AC Measurement Standard INPUT 2 key, connect the AC Measurement Standard INPUT 2 to the TI HI and LO output terminals, observing polarity. Set the AC Measurement Standard to AUTO RANGE.

4.4.18 Press TI V key, then press the screen key to select $\overline{---}$ V (VDC).

4.4.19 Press TI keypad keys and function keys as necessary to obtain 0.3 VDC, press the TI OUTPUT to ON.

4.4.20 Record the AC Measurement Standard reading as "0.3 VDC".

4.4.21 Press the TI OUTPUT to OFF.

4.4.22 Press TI V key, then press the screen key to select ∿ V (VAC).

4.4.23 Press TI keypad keys and function keys as necessary to obtain 0.3 VAC @ 10 Hz and press the TI OUTPUT to ON.

4.4.24 Record the AC Measurement Standard reading as "0.3 VAC @ 10 Hz".

4.4.25 Repeat steps 4.4.23 and 4.4.24 for frequencies of 2.9, 9.9, 19 and 30 kHz.

4.4.26 Calculate the AC-DC Difference by subtracting "0.3 DCV" from each "0.3 ACV" reading for each frequency. (Record each calculation as "AC-DC ERROR").

4.4.27 Press the TI OUTPUT to OFF.

4.4.28 Disconnect the AC Measurement Standard from TI.

4.4.29 Connect the Metal Film Resistor across TI I- terminal and J109 pin 8. Connect the AC Measurement Standard INPUT 2 across the Metal Film Resistor.

4.4.30 Press TI A key, then press the screen key to select ⎓ A (ADC), then press the TI Guarded Output key.

4.4.31 Press TI keypad keys and function keys as necessary to obtain 30 μADC and press the TI OUTPUT to ON.

4.4.32 Record the AC Measurement Standard indication as "30 μADC".

4.4.33 Press the TI OUTPUT to OFF.

4.4.34 Algebraically add the "30 μADC " reading and the "AC-DC ERROR" from 4.4.26 for each frequency, record these values as "EXPECTED READING 30 μADC"

4.4.35 Press TI A key, then press the screen key to select ∿ A (AAC), then press the TI Guarded Output key.

4.4.36 Press TI keypad keys and function keys as necessary to obtain 30 μAAC @ 10 Hz and press the TI OUTPUT to ON. Edit TI OUTPUT control keys until the AC Measurement Standard indicates the "EXPECTED 30 μAAC READING".

4.4.37 The TI must indicate within ±3.07% @ 10 Hz.

4.4.38 Depress the TI OUTPUT OFF switch.

4.4.39 Repeat step 4.4.36, 4.4.37 and 4.4.40 for 2.9, 9.9, 19 and 30 kHz, using the "AC-DC ERROR" calculated for each frequency.

4.4.40 The TI must indicate within ±3.07% @ 2.9 kHz, ±6% @ 9.9 kHz, ±10.2 % @ 19 kHz, ±30.23% @ 30 kHz of EXPECTED 30 μAAC READING.

4.4.41 Press TI OUTPUT OFF and disconnect the setup.

4.5 RESISTANCE CALIBRATION:

4.5.1 Press TI Ω key, then on the menu screen set HIGH CURRENT ON.

4.5.2 Connect equipment as shown in Figure 4 or 4A, use the applicable Standard Resistor and first applied value listed in Table 6.

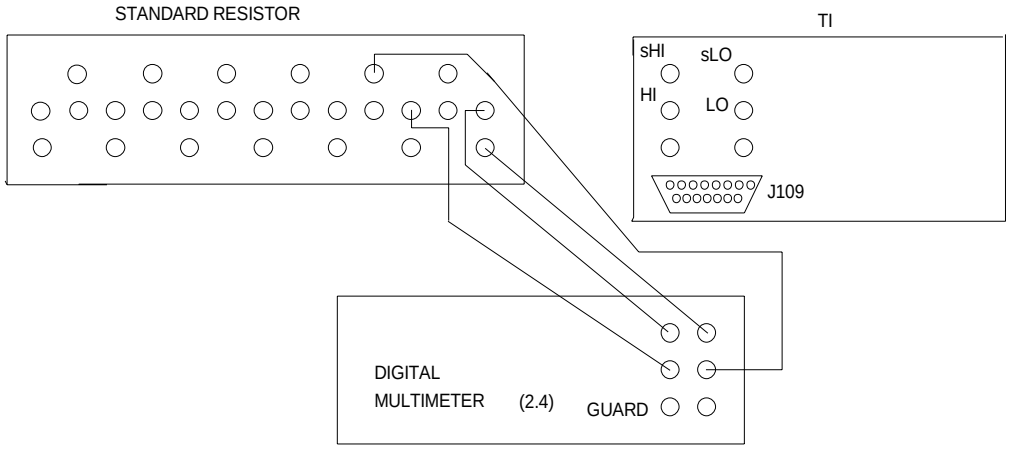


Figure 4.

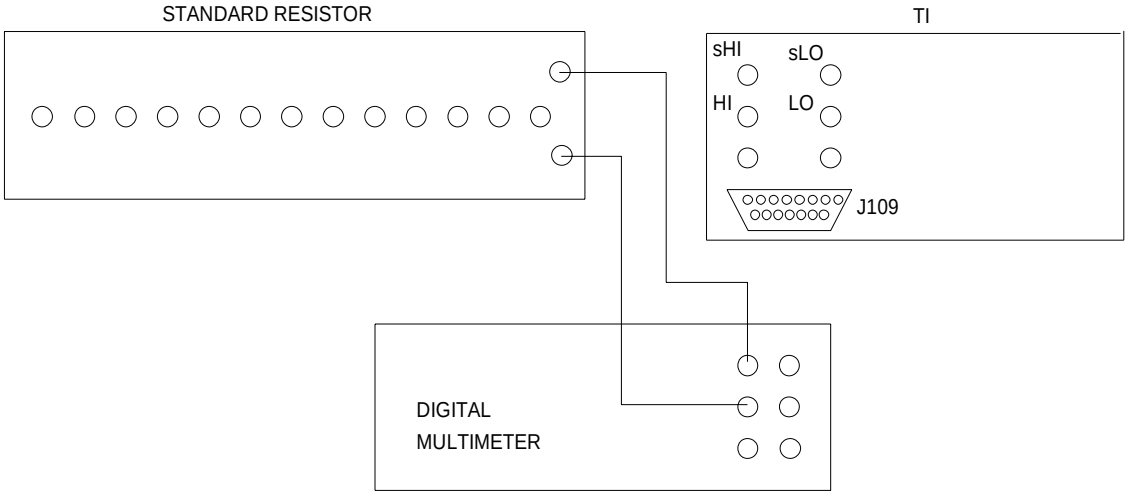


Figure 4A.

4.5.3 Manually select the first Digital Multimeter resistance range listed in Table 6.

4.5.4 Record the Digital Multimeter indication.

4.5.5 Disconnect test leads from the Standard Resistor and connect them to TI sHI, HI, sLO and LO, maintaining proper 4 wire configuration. Connect shorting straps between sHI and HI, sLO and LO. When using Figure 4A, connect TI HI and LO (2 wire configuration).

4.5.6 On TI, key in the value recorded in step 4.5.4 and set OUTPUT to ON.

4.5.7 The Digital Multimeter must indicate the value recorded in step 4.5.4 within the corresponding limits listed in Table 6.

4.5.8 Set TI OUTPUT to OFF.

4.5.9 Repeat steps 4.5.2 through 4.5.8 for each remaining value listed in Table 6.

Table 6.

Applied (Ω)	DMM (Range)	Limits
200	1 kΩ	±0.05 Ω
2 kΩ	10 kΩ	±0.38 Ω
10 kΩ	10 kΩ	±2.3 Ω
100 kΩ	100 kΩ	±28 Ω
2 MΩ	10 MΩ	±700 Ω
20 MΩ	100 MΩ	±15 kΩ
100 MΩ	100 MΩ	±100 kΩ

4.5.10 On TI menu screen set HIGH CURRENT OFF and repeat steps 4.5.2 though 4.5.9 using the values listed in Table 7.

Table 7.

Applied (Ω)	DMM (Range)	Limits
20	1 kΩ	±0.015 Ω
200	1 kΩ	±0.06 Ω
2 kΩ	10 kΩ	±0.38 Ω
10 kΩ	10 kΩ	±3.3 Ω
100 kΩ	100 kΩ	±33 Ω
2 MΩ	10 MΩ	±1.5 kΩ

4.5.11 Set TI OUTPUT to OFF and disconnect setup.

4.6 FREQUENCY CALIBRATION:

4.6.1 Connect TI HI and LO terminals to the Frequency Counter INPUT, observing polarity.

4.6.2 Using the key pad, program TI for 1.0 Vrms at the first frequency listed in Table 8 and set OUTPUT switch to ON.

4.6.3 Adjust the Frequency Counter controls as necessary to obtain a stable indication.

4.6.4 The Frequency Counter indication must be within the limits listed in the Limits column of Table 8.

4.6.5 Edit TI frequency to each value listed in Table 8 and repeat step 4.6.4.

Table 8.

TI Output	Limits (Hz)
1 V @ 10 Hz	9.99975 to 10.00025 Hz
1 V @ 1 kHz	.999975 to 1.000025 kHz
1 V @ 3 kHz	2.999925 to 3.000075 kHz
1 V @ 30 kHz	29.99925 to 30.00075 kHz
*1 V @ 1 kHz	0.999965 to 1.000035 ms
* Set the Frequency Counter to measure Time Interval A to B.	

4.6.6 Set TO OUTPUT to OFF and disconnect setup.

4.7 CAPACITANCE CALIBRATION:

4.7.1 Set RLC Digibridge FUNCTION to MEASURE. Connect the adapters to be used to the RLC Digibridge Adapter Cable ends and ensure the ends are NOT connected together. Press the TI C/D key. On the RLC Digibridge, press 1 6 8 9 = SHIFT OPEN. Keep Hands and all objects at least 10 cm from cable ends. On the RLC Digibridge, press START key and wait for the GO indicator to light.

4.7.2 Connect the two RLC Digibridge Adapter "+" connectors together and connect the two RLC Digibridge "-" connectors together and then connect the "+" and "-" leads together. Press 1 6 8 9 = SHIFT SHORT, then START and wait until the GO indicator lights. Disconnect the "+" and "-" leads from each other.

4.7.3 Press the RLC Digibridge C/D key and set the MEASURE MODE to CONT and Frequency to 300 Hz.

4.7.4 Connect the TI HI, sHI, LO and sLO terminals to the RLC Digibridge Adapter Cables with the necessary adapters, observing polarity.

4.7.5 Press TI Aux key then press the ⊣← softkey adjacent to the display.

4.7.6 Press TI keypad keys as necessary to obtain the first applied value listed in Table 9 and press the TI OUTPUT to ON.

4.7.7 The RLC Digibridge must indicate within the corresponding limits listed in Table 9.

4.7.8 Repeat steps 4.7.6 and 4.7.7 for each remaining value listed in Table 9.

Table 9.

TI Output	Limits (F)
10 nF	9.94 to 10.06 n
100 nF	99.54 to 100.46 n
1 µF	0.9944 to 1.0056 µ
10 µF	9.934 to 10.066 µ
100 µF	99.34 to 100.66 µ
1mF	0.934 to 1.066 m

4.7.9 Set TI OUTPUT to OFF, all POWER OFF, disconnect and secure all equipment.

CALIBRATION PERFORMANCE TABLE

Not Required

FAMILY TREE: 401092 ASSY FINISHED INST 9000 08 Nov 1994 DT9000-2.0

```
401092 ASSY FINISHED INST 9000
    |__401093 ASSY INSTRUMENT 9000
    |       |__401095 ASSY BEZEL 9000
    |       |       |__401150 ASSY PCB KEYPAD CONTROL 9000
    |       |       |       |__401147 ASSY RIBBON CABLE KEYPAD 9000
    |       |
    |       |__401096 ASSY PCB POWER 9000
    |       |       |__401090 ASSY FPGA POWER 9000
    |       |       |__401151 ASSY PCB POWER ATTEN 9000
    |       |       |__401183 ASSY POWER HEATSINK 9000
    |       |       |__401201 ASSY PCB POWER FUSE 9000
    |       |
    |       |__401097 ASSY PCB ANALOG 9000
    |       |       |__401091 ASSY FPGA ANALOG 9000
    |       |       |__401202 ASSY PCB ANALOG FUSE 9000
    |       |
    |       |__401098 ASSY PCB DIGITAL 9100
    |       |       |__401107 ASSY FPLD CLK GEN 9000
    |       |       |__401108 ASSY FPLD ADDR DEC 1 9100
    |       |       |__401109 ASSY FPLD ADDR DEC 2 9000
    |       |       |__401110 ASSY FPLD ADDR DEC 3 9000
    |       |       |__401111 ASSY FPLD KEY ENC 9000
    |       |       |__401112 ASSY FPLD ROTARY ENC 9000
    |       |
    |       |__401099 ASSY PCB INTERCONNECTION 9000
    |       |__401100 ASSY PCB MEMORY CARD 9000
    |       |__401101 ASSY PCB TERMINAL 9000
    |       |       |__400184 ASSY EARTH BRAID
    |       |
    |       |__401102 ASSY TRANSF MAINS 9000
    |       |       |__400184 ASSY EARTH BRAID
    |       |
    |       |__401103 ASSY RIBBON CABLE DIG 9000
    |       |__401104 ASSY RIBBON CABLE AN 9000
    |       |__401105 ASSY RIBBON CABLE I/C 9000
    |
    |__401106 ASSY FIRMWARE 9000
    |__401152 ASSY LEAD SET 9005
    |__401175 ASSY SUPPORT SOFTWARE 9010
    |       |__401184 ASSY SOFTWARE/HANDBOOK 9010
    |
    |__401200 ASSY SRAM CARD 9000
    |__401205 ASSY RACK TRAY 9000
    |__401216 ASSY FLASH CARD 9000
    |__440174 KIT 100V/120V 9000
    |__440175 KIT SOFT CARRY CASE 9000
```

Drawing Number	Datron 9000 Drawing Title	Number of sheets	Drawing Date	Notes	Drawing Number	9100 Fluke Drawing Title	Number of sheets	Drawing Date	Notes
					401351	9100 scope opt. main PCB	5	Jul-97	
					401351	9100 Scope opt. Edge, LF, HF	8	Jul-97	
					401352	9100 scope opt. daughter board	1	Jul-97	
					401352	9100 scope opt. daughter PCB	2	Jul-97	
401238	9100 PWR PCB assy	8	Jul-95						
401239	9100 Analog PCB reference	11	Jun-97		401239	9100 Analog PCB reference, DAC	11	Jan-95	
401239	9100 Analog PCB PCB assy	3	Apr-95		401239	9100 Analog PCB assy	4	Jan-95	
401239	Analog PCB self test	10	Apr-95						
401238	9100 PWR PCB O/P	8			401238	9100 PWR PCB assy HV	8	Jan-95	
401238	9100 PWR assy	5	Apr-95		401238	9100 PWR assy	5	Jan-95	
401102	9000 mains txfmr	1	Apr-95						
401101	9000 Terminal	2	May-94						
401101	9000 Terminal PCB assy	1	Nov-93						
401100	9100 Memory card PCB	1	Oct-94		401100	9100 Memory card PCB	1	Nov-93	
401100	9100 Memory Card socket	1	Oct-94		401100	9100 Memory Card socket	1	Nov-93	
401099	9000 interconnect	1	Oct-93		401099	9000 interconnect	1	Oct-93	
401099	9000 Interconnect, sw, GPIB	1	Nov-93		401099	9000 Interconnect, sw, GPIB	1	Nov-93	
401098	9100 Digital PCB	1	Jul-95						
401098	9100 Digital PCB assy	7	Oct-94						
401097	9000 Analog self test	10	Jun-95						
401097	9000 Analog PCB assy	3	Apr-95						
401096	9000 Power assy	5	Apr-95						
401151	9000 300V/1 KV atten	1	Nov-93		401151	9000 300V/1 KV atten	1	Nov-93	
401151	9000 300V/1 KV atten PCB	1	Nov-93		401151	9000 300V/1 KV atten PCB	1	Nov-93	
401150	9000 Keypad PCB assy	1	Feb-94		401150	9000 keypad PCB assy	1	Nov-93	
401150	9000 Control keypad encoder	1	Nov-95		401150	9000 Control keypad ecoder	1	Nov-93	
401097	9000 Analog PCB Reference, DAC	10	Feb-94						
401096	9000 Power PCB HV op and control	8	Mar-94						
401096	9000 Power PCB mains I/P	8	May-94						
401096	9000 Power assy	5	Apr-95						
401092	9000 Interconnect	1	Feb-94						
401092	9000 Interconnect	1	Sep-96						
401096	9000 Power PCB Current	8	Apr-95						
401095	9000 Bezel	1	Mar-96		401095	9100 Bezel	1	Nov-93	
					401211	9100 assy	1	Jan-95	
					401211	9100 Interconnect	2	Jan-95	
					401244	9100 Instrument assy	1	Jan-95	
					401346	9500 digital assy	1	Apr-97	
					401346	9500 Digital assy PCB	7	Apr-97	
					401214	9100 Terminal ass	2	Jan-95	
					401214	9100 Terminal ass	1	Jan-95	
					401201	9000 Power fuse PCB	1	Sep-94	
					401201	9000 Power fuse PCB assy	1	Sep-94	
					401243	9100 Assy Power heatsink	1	Jan-95	
					401651	9100 PHAC FPGA adapter	1	7-Jan	
					401651	9100 Phase acc. FPGA adapter	1	7-Jan	
					401363	9100 Opt 600 assy	2	Jan-97	
					401363	9100 Scope cal connect	1	Jul-97	
					401614	9100 HF assy	1	3-Jun	
					401614	9100 CATV amp replacement grand daughter	1	Jul-97	
					401410	Opt.135 instrument	1	Jan-98	
					401377	Opt.135 control PCB	1	Jan-98	
					401377	Opt. 135 control diagram	4	Jan-98	
					401378	Opt. 135 PCB assy	1	Jan-98	
					401378	Opt. 135 HV o/p	1	Jan-98	
					401411	9100 PWR option assy	1	Apr-98	
					401411	9100 PWR option	1	Apr-98	
					401412	9100 AUX Channel PCB	1	Apr-98	
					401412	9100 AUX Channel PCB DDS, Analog	5	Apr-98	
					401414	9100 AUX Voltage PCB	1	Apr-98	
					401414	9100 AUX Voltage PCB	1	Apr-98	
					401415	9100 PWR Option LF Txfmr	1	Dec-97	
					401415	9100 PWR option PCB	1	Apr-98	

WA9100 SERVICE NOTES 23/2 – 27/2 1998

1. DIP switch 7 UP
   Password for factory SELFTEST: 741258

2. When the SELFTEST is being used,
   tighter FACTORY LIMITS can be activated
   by pressing the top-right soft key.
   A small “f” appears on the screen.
   This indicates that the limits are tighter.

3. To skip the SELFTEST of the 9100 after power own,
   you need to press the middle soft key (under the screen)
   for about 2 seconds immediately after power on.

4. A06.038 } fuses (bottom)
   A06.039 }

5. P03.020 factory test } fuses
6. Soft keys 2 and 3 (top right) for
   Selection of test for oscilloscope option and test for opt 135

   DIP SWITCHES
   6 – Boot Enable
   7 – Factory Enable
   8 – Pass Enable

WA9100 23/2 – 27/2 1998

Sept 95 (before this date).

1. ECO 4963 oscilloscope option 250
2. F/W < 2.06

ECO1762 30V range DC -> bias current 240mV changed to 300m

ECO4944 When self-test fails P02.002 (before Oct. 95)

Remove resistor R251 (power board)

ECO4906? Output transistors may be another type (before Sept 9?)

Resistors need to be changed (see schematic).

ECO1706 Dec ’94 change F303 (500mA) to 1A

May ’95 check AC (R125 bad).

9508 (FATAL ERROR).

May ’95 high ohms (two resistors).

Oct ’95 option 100 noisy freq.

Replace crystal.

F/W 4.03 (last/latest version)

F/W 2.06 with 9010 version 1.

F/W 2.11 (last upgrade without instructions) opt 250

F/W 3.00 Change/modify analog PCB (H/W)

Serial number needs to be re-entered.

PASSWORDS 9000, 9100, 9500

12321 //Calibration Password

2>3>5>7

D1TR4N //Factory Cal Password

741258 //Factory Test Password

S101

1	0	CAL_EN_L	//Calibration Password 2>3>5>7
2			
3			
4			
5			
6	0	BOOT_EN_L	//Boot from PCMCIA (Upgrade firmware)
7	0	FACTORY_EN_L	//Factory Test Password 741258
8	1	PASS_EN_L	//Password request 2>3>5>7

1) 9100/9100E/9500 FACTORY Menu password that allow to modify serial number and to enable options in firmware Done

D1TR4N

2) 9100/9100E/9500 FACTORY Self-Test password that allow to run each Self-Test in manual mode, very useful for repairing! Done

741258 also toggle switch FACTORY_EN_L on the rear panel (S101- 7)

RECAL procedure after fitting new components

1. If the instrument is to be (re)calibrated:
   1.1 Turn on 9100 Give 2 minutes to stabilize
   1.2 Select Ω (Default is okay for this)
   1.3 Use a 4 Wire lead (I+ to HI I- to LO at DVM end)
   Into 1281 set to DCV 1V , filter on 7 ½ digit
   1.4 Adjust R308 until DVM reads 0.000V ± 2µV
   1.5 Cal machine as normal

2 If instrument is to be left "AS IS" ie it is not wished to recalibrate
   2.1 Do 1.1 – 1.3 above but give 20 minutes warm up
   If DVM reads -10µV < 0 < 10µV it can proceed
   Without recal. Go to 2.3
   2.2 Recal the machine as normal if 2.1 has failed
   2.3 Select 45Ω LO Current 4W on 9100, O/P on
   Select 7 ½ digit 10KΩ 4W on 1281 (which must have been zeroed and be in cal)
   Adjust R308 until 1281 reads 45.000Ω ± 0.003Ω
   2.4 Put 9100 on cal system and verify Ohms
   Function is in spec (<60%) If there any fails recal

DRAWING No
DA401092.

451000

451006 2

420119 2

401093

613015 4

N.B. SCREWS FITTED TEMPORARILY AT CHASSIS STAGE.

451020 2

451001

4
611132

NOTE : STRIKE OFF ONLY INCLUDED MOD LEVELS.

420074

WAVETEK LTD.
MODEL : 9000
SERIAL No: XXXXX

ADD NUMBER HERE

13 MIN

PART VIEW OF REAR PANEL
(TO SHOW POSITION OF RATING) LABEL.

420146
MARKED AS SHOWN

OPTION 50.

630417

ENSURE SWITCH ON BOTTOM OF DIGITAL EDGE TRACKERBALL IS SET TO POSITION '2' (MICROSOFT MODE). NO ADJUSTMENT NECESSARY ON LOGITECH TRACKERBALL.

450993

INSTALL FIRMWARE

401106

451051

611005 8

613029 8

4 450200

450224 4

900013

2 450201

451074
611132 4

450496

FIT WITH OFFSE
AWAY FROM CO

ISS	CHANGES
1.0	ECO.4340 RELEASED 12 OCT 93 IJL
1.1	ECO. 4372 NOTE RE: MOD LEVEL LABEL USE CLARIFIED. IJL 15 NOV 93
1.2	ECO 4467 451051 ADDED IJL 20 APR 94
1.3	ECO 4472 CAL SEAL LABEL MOVED FROM R.H. SCREW. MARKINGS FOR LABEL 420146 ADDED. IJL 26 APR 94
1.4	ECO.4582 451074 + 611132 X4 ADDED IJL. 11 AUG 94
1.5	ECO. 4663 450993 + 401106 ADDED IJL 13 OCT 94
1.6	ECO. 4707 PICTORIAL CHANGE - "METER" REMOVED FROM BEZEL. o/L. IJL 20 DEC 94
1.7	ECO. 4757 LOGO UPDATED ON 451051 IJL 7 FEB 95
1.8	ECO. 5232 OPTION 50 NOTE ADDED. IJL 3 SEP 96

18 SEP 1996

THIRD ANGLE PROJECTION	DRAWN IJL	DATE 30 JUL 93	DIMENSIONS MILLIMETRES
ALL BURRS TO BE REMOVED	CHECKED B.S.J.	DATE 18 OCT. 93.	SCALE —
	APPR.	DATE 1-11-93	NOT TO BE SCALED

TOLERANCES
DECIMAL TO 2 PLACES ± .1mm
DECIMAL TO 1 PLACE ± .2mm
WHOLE DIMENSIONS ± .4mm
ANGULAR ± ½°
UNLESS OTHERWISE STATED

MATERIAL —

FINISH —

TITLE
9000
FINISHED INSTRUMENT ASSY.

datron
INSTRUMENTS
NORWICH
ENGLAND

DRAWING No.
DA401092

SHEET 1 OF 1

DRAWING No. DC401092

CHANGES	
1.0	ECO.4340 RELEASED 28 OCT 93

22 FEB 1994

TERMINAL PCB ASSY 401101

J109

1	TC-EK+
2	TC-J+
3	TC-T+
4	IDO-L
5	
6	TC-K-
7	I-GU
8	LO-I+
9	
10	IDI-L
11	OV-F
12	TC-EJT-
13	
14	
15	

E1 sHi, E3 Hi, E5 I+, E2 sLo, E4 Lo, E6 I-, E9, E8, E10, E7, E11, E12, E13, E14

TERM.S.Lo, TERM.S.Hi, TERM.P.Lo, TERM.P.Hi, THERM.DRV, THERM.OP, TC.POS, TC.NEG

DISPLAY

HORIZONTAL DISPLAY PCB 410491

K-OUT-0, K-IN-0, K-IN-1, K-IN-2, K-IN-3, K-IN-4, K-IN-5, CHASSIS

VERTICAL DISPLAY PCB 410492

K-OUT-1, K-OUT-0, SPARE, K-IN-0, K-IN-1, K-IN-2, K-IN-3, K-IN-4, K-IN-5, CHASSIS

J102

J101

CONTROL KEYPAD PCB ASSY 401150

BEZEL ASSY. 401095

34-WAY RIBBON CABLE

J106

J103

1	LCD-D0
2	LCD-D1
3	LCD-D2
4	LCD-D3
5	LCD-ENB-H
6	LCD-YD-H
7	LCD-WF
8	LCD-LP-H
9	LCD-XSCL
10	+5V-F
11	OV-F
12	-VEE
13	-VLCD
14	OV-F

J601

60-WAY RIBBON CABLE

1	+12V-DISP
2	K-OUT-1
3	+12V-DISP
4	K-OUT-2
5	OV-F
6	K-OUT-3
7	OV-F
8	K-OUT-4
9	OV-F
10	K-OUT-5
11	OV-F
12	K-OUT-6
13	OV-F
14	K-OUT-7
15	OV-F
16	K-OUT-0
17	OV-F
18	K-IN-0
19	K-IN-1
20	K-IN-2
21	K-IN-3
22	K-IN-4
23	K-IN-5
24	K-IN-6
25	K-IN-7
26	K-S-1
27	K-S-0
28	+5V-F
29	LED-STBY-L
30	KEY-OFF-L
31	AN-LED-ON-L
32	CH-A
33	CH-B
34	+5VAF

J107 MEMORY CARD PCB ASSY 401100 J108

J107		J108	
1	OV-F	17	C_A16
2	C_D0	1	OV-F
3	C_D1	18	C_A17
4	C_D2	2	C_A1
5	C_D3	19	C_A18
6	C_D4	3	C_A2
7	C_D5	20	C_A19
8	C_D6	4	C_A3
9	C_D7	21	C_A20
10	C_WE	5	C_A4
11	C_D9	22	C_A21
12	C_D10	6	C_A5
13	C_D11	23	C1_WP_H
14	C_D12	7	C_A6
15	C_D13	24	C2_WP_H
16	C_D14	8	C_A7
17	C_D15	25	C1_CDL_L
18	OV-F	9	C_A8
19	C1_CE1_L	26	C1_CD2_L
20	C1_CE2_L	10	C_A9
21	C2_CE1_L	27	C2_CDL_L
22	C2_CE2_L	11	C_A10
23	REG_L	28	C2_CD2_L
24	MR_H	12	C_A11
25	C_WE_L	29	C1_BVDL_H
26	C_RD_L	13	C_A12
27	OV_F	30	C1_BVDH_H
28	+5V_F	14	C_A13
29	+5V_F	31	C2_BVD1_H
30	+5VAF	15	C_A14
31	+12V	32	C2_BVD2_H
32	+12V	16	C_A15

DIGITAL PCB ASSY 401098

J104

1	OV-F	18	AN-R-H-W-L
2	AN-D0	19	AN-DS-L
3	AN-D1	20	OV-F
4	OV-F	21	AN-CLK
5	AN-D3	22	AN-DS-MR-L
6	AN-D4	23	AN-I-OC-L
7	AN-D5	24	AN-OR-OFF-L
8	AN-D6	25	AN-LED-ON-L
9	AN-D7	26	OV-F
10	AN-A1	27	LCD-BL-ON-L
11	AN-A2	28	+5V-F
12	AN-A3	29	+5V-F
13	AN-A4	30	+12V-DISP
14	AN-A5	31	OV-F
15	AN-A6	32	+15V
16	AN-A7	33	-15V
17	AN-A8	34	-22V

J003 J002 J004 J001 J201

TERM-P-HI, TERM-S-HI, TERM-S-LO, TERM-P-LO, PH.IN-F, OV-F, OV-F, PH.OUT-F

TC-POS, TC-NEG, THERM.DRV, THERM.OP, IDI-L, IDO-L, OV-F

1			
2			
3	HV-S-Hi	28	TST-2-H
4	HV-P-Hi	29	TST-3-H
5		30	TST-4-H
6		31	TST-5-H
7		32	TST-6-H
8		33	OV-E11
9	HV-P-Lo	34	TST-OUT
10	HV-S-Lo	35	EXP-LV-OP
11	-16V	36	EXP-LV-FB
12	-70V	37	OV-1
13	+70V	38	OV-2
14	+15V	39	
15	OV-E12	40	
16	OV-E13	41	LO_I-
17	DAC-OUT-1	42	LO_I-
18	DAC-IN-4	43	B_EXP-P-Hi
19	DAC-OUT-4	44	B-EXP-S-Hi
20	HV-IP	45	B-EXP-S-Lo
21	EXP.ON-H	46	B-EXP-P-Lo
22	EXP.HV-FB	47	V-I-DRV
23	EXP-HV-IP	48	REF-OUT
24	TST-O-H	49	OV-E22
25	TST-1-H	50	OV-E23

ANALOG PCB ASSY 401097

50-WAY RIBBON CABLE

J701

1	-22V	18	AN-A8
2	-15V	19	AN-A7
3	+15V	20	AN-A6
4	OV-F	21	AN-A5
5	+12V-DISP	22	AN-A4
6	+5V-F	23	AN-A3
7	+5V-F	24	AN-A2
8	LCD_BLON_L	25	AN-A1
9	OV-F	26	AN-D7
10	AN-LED-ON	27	AN-D6
11	AN-OR-OFF	28	AN-D5
12	AN-I-OC-L	29	AN-D4
13	AN-DS-MR-L	30	AN-D3
14	AN-CLK	31	AN-D2
15	OV-F	32	AN-D1
16	AN-DS-L	33	AN-D0
17	AN-R-H-W-L	34	OV-F

J302 J701 J301 J801

LO-I+, I-GU, I-, I+, E302, E301

1	OV-F	18	AN-R-H-W-L
2	AN-D0	19	AN-DS-L
3	AN-D1	20	OV-F
4	AN-D2	21	AN-CLK
5	AN-D3	22	AN-DS-MR-L
6	AN-D4	23	AN-I-OC-L
7	AN-D5	24	AN-OR-OFF-L
8	AN-D6	25	AN-LED-ON-L
9	AN-D7	26	OV-F
10	AN-A1	27	LCD_BL_ON_L
11	AN-A2	28	+5V-F
12	AN-A3	29	+5V-F
13	AN-A4	30	+12V-DISP
14	AN-A5	31	OV-F
15	AN-A6	32	+15V
16	AN-A7	33	-15V
17	AN-A8	34	-22V

POWER PCB ASSY 401096

1	DIO1	31	DTRO-H
2	DIO5	32	+12V
3	DIO2	33	DSRO-H
4	DIO6	34	RTSO-H
5	DIO3	35	CTSO-H
6	DIO7	36	-12V
7	DIO8	37	D01
8	DIO4	38	D02
9	EOI	39	OV-F
10	REN	40	D03
11	DAV	41	D04
12	OV-F	42	OV-F
13	NRFD	43	D05
14	OV-F	44	D06
15	NDAC	45	OV-F
16	OV-F	46	D07
17	IFC	47	D08
18	OV-F	48	OV-F
19	SRQ	49	STROBE-L
20	OV-F	50	OV-F
21	ATN	51	ACKNLG-L
22	OV-F	52	+5V-F
23	OV-F	53	BUSY-H
24	CAL-EN-L	54	+5V-F
25	FACTORY-EN-L	55	INIT-L
26	PASS-EN-L	56	AUTO-FEED-L
27	BOOT-EN-L	57	SLCT-IN-L
28	OV-F	58	SLCT-H
29	RXDO-L	59	ERROR-L
30	TXDO-L	60	P-END-H

REAR PANEL

J601

J101 IEEE I/F

J103 CENTRONICS I/F

S101

8	PASS.EN
7	FACTORY_EN
6	BOOT.EN
1	CAL.EN

J102 RS232 I/F

INTERCONNECTION PCB ASSY 401099

E507 -7V5, E506 OV-CUR, E505 OV-CUR, E504 +7V5

CAPACITOR +, CAPACITOR +

E501 6V9 (19), E502 OV-CUR, E503 6V9 (17)

J501

1	11V7 (16)
2	OV-F
3	11V7 (14)
4	30V0 (13)
5	OV-F
6	30V0 (11)
7	
8	97V0 (10)
9	53V0 (9)
10	OV-P
11	53V0 (7)
12	97V0 (6)

17 18 18 19

MAINS Tx. ASSY 401102

J601

1	NEUTRAL
2	
3	LINE
4	

1 2 3 4 5 20 21

OV-A, 100V-A, 120V-A, NEUTRAL, 120V-B, ESCRN-A, ESCRN-B

3 6 4 9 5 7 10 8

POWER MODULE

LINE

datron INSTRUMENTS NORWICH ENGLAND

THIRD ANGLE PROJECTION	DRAWN	IJL	DATE	19JUL 93	DIMENSIONS IN MILLIMETRES	TOLERANCES: DECIMAL TO 2 PLACES ±·1mm; DECIMAL TO 1 PLACE ±·2mm; WHOLE DIMENSIONS ±·4mm; ANGULAR ± ½°	MATERIAL	TITLE	DRAWING No.
ALL BURRS TO BE REMOVED	CHECKED		DATE	23 OCT 93	SCALE —	UNLESS OTHERWISE STATED	FINISH	9000 INTERCONNECTION DIAGRAM	DC401092
	APPR.		DATE	1.11.93	NOT TO BE SCALED				SHEET 1 OF 1

DRAWING No.
DA401095

401150
450990
450988
614033 2
605230
450995
613029 10
615002 10

N.B. ENSURE ANY CONDUCTIVE POINTS ARE KEPT FREE FROM CONTAMINATION (i.e. FINGER PRINTS, OR OTHER POTENTIALLY DEGRADING AGENTS).

450998
450996
451032
450989
410491
450992

THICKER FACE HERE

ENSURE PINS ARE CROPPED FLUSH.

410492
7 620009
611006
800042
613050
8 611134
6 611130

REMOVE NYLATCH

ADD SCREW LOCK COMPOUND AFTER ASSY.

FIT C1 AND SOLDER BETWEEN PADS 11 AND 13.

FIT C2 AND SOLDER BETWEEN PADS 11 AND 12.

C2 C1

SOLDER THE TAG TO DISPLAY GROUND PLANE.

KEY PAD CONTROL PCB ASSY

DISPLAY

SOLDER WIRE CONNECTION BETWEEN BOARDS THUS

NB WIRES TO BE CUT SO THAT WITH A SINGLE TWIST THEY ARE OF EQUAL LENGTH FROM POINT WHERE THEY LEAVE DISPLAY OUTLINE.

MATT SURFACE THIS FACE. AND WIDER MATT AREAS TO BE IN POSITIONS MARKED THUS *

NOTES :
1. CLEAN GOLD PCB CONTACTS WITH SOLVENT CLEANING PADS 900054.
2. DO NOT TOUCH CONDUCTIVE BLACK 'PILLS' ON ELASTOMER PADS, CONTAMINATION REDUCES RELIABILITY.
3. CLEAN SURFACE OF DISPLAY AND INNER FACE OF ACRYLIC FILTER WITH CLEAN WIPE PART No. 800056 & ANTI-STATIC FOAM CLEANER 900057 TO ENSURE DUST FREE INNER FACES.

ISS	CHANGES
1.0	ECO.4340 RELEA... 11 OCT 93
1.1	ECO.4433 NOTES RE: CLEANING, MODIFIED. PART NOS 900... 900056 & 900... ADDED. IJL. 9 MAR
1.2	ECO.4473 611134 WAS 611129. FILTR... IJL 20 APR
1.3	ECO.4528 613050/611C ADDED. 613029 & 6150 WERE 2 OFF P... IJL 18 MAY
1.4	ECO.4665 OVERLAY 450... DELETED. IJL 13 OCT 9...
2.0	ECO 4707 ISSUE LEVEL UP. IJL 21 DEC
2.1	ECO. 4962 No. OFF PIN 620... WAS 6. IJL 31 OCT
2.2	ECO. 5075 C1/C2 RE-POSITIONED IN LINE WITH LATEST CONN... POSITION. IJL. 29 FEB

- 7 MAR 1996

THIRD ANGLE PROJECTION	DRAWN IJL	DATE 18 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ±.1mm; DECIMAL TO 1 PLACE ±.2mm; WHOLE DIMENSIONS ±.4mm; ANGULAR ± ½° UNLESS OTHERWISE STATED	MATERIAL —
ALL BURRS TO BE REMOVED	CHECKED BS JACKSON	DATE 6 OCT 93.	SCALE —		FINISH —
	APPR.	DATE 1 NOV 93	NOT TO BE SCALED		

TITLE
9000
BEZEL ASSY.

datron INSTRUMENTS NORWICH ENGLAND

DRAWING No.
DA401095

SHEET 1 OF 1

DRAWING NO
DA401150

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93
1.1	ECO 4434 540006 WAS 540022 PCB WAS ISS D 11 FEB 94

25 FEB 1994

SWAGE ON FRONT OF PCB AND SOLDER

614012 2

920277

A

L101

R105

Q102 Q103 Q101

C102 +

C103 C101

R104 R101 R102 R103

J102

FIT SHORT LEG TO SQUARE PAD

D102

U101

REMOVE LINK – CUT FLUSH WITH PCB

R106 R107

J101

D101

FIT D101 WITH GREEN MARK THIS END

410488-1

REMOVE EXISTING PINS AND FORM LINKS AS SHOWN USING 540002

401147

WRAP AND SOLDER AS SHOWN

540006

614012

VIEW ON "A"

NOTE: THIS BOARD IS VIEWED FROM THE REAR
ALL COMPONENTS SHOWN DOTTED
TO BE MOUNTED ON FRONT OF BOARD

THIRD ANGLE PROJECTION	DRAWN JD	DATE 25 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL	TITLE
ALL BURRS TO BE REMOVED	CHECKED AF	DATE 03 NOV 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH	9000 CONTROL KEYPAD PCB ASSEMBLY
	APPROVED RWF	DATE 03 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED		

datron WAVETEK
NORWICH ENGLAND
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DRAWING NO.
DA401150

SHEET 1 OF 1

DRAWING_NO
DC401150

ISS	CHANGES
1.0	ECO 4948 RELEASED 07 OCT 93
1.1	ECO 4934 NOT FITTED PINS E114, E115 ADDED 14 FEB 94
1.2	ECO 4962 SURPLUS PIN ON VERT DISPLAY KEY DELETED IJL 31 OCT 95

- 7 NOV 1995

26 J101 K_S_1
27 J101 K_S_0

7 J101
8 J101 K_OUT_4
9 J101
10 J101 K_OUT_5
11 J101
12 J101 K_OUT_6
13 J101
14 J101 K_OUT_7
15 J101
16 J101 K_OUT_0
2 J101 K_OUT_1
4 J101 K_OUT_2
5 J101
6 J101 K_OUT_3
0V_F

S140 S141 S142 S143 S144 S145 S146
S150 S151 S152 S153
S161 S162
S170 S171 S172 S173 S174 S175 S176
S120 S121 S122 S123 S124
S130 S131 S132 S133 S134 S135 S136

NOT FITTED
TL101

J102 2
J102 1

18 J101 K_IN_0
19 J101 K_IN_1
20 J101 K_IN_2
21 J101 K_IN_3
22 J101 K_IN_4
23 J101 K_IN_5
24 J101 K_IN_6
25 J101 K_IN_7

R106 270R 2%
R107 270R 2%

R106, R107 NOT FITTED

S177
+5V_F
0V_F

Q103 BC556
Q102 BC546

R105 22K 2%
R104 22K 1%

30 J101 KEY_OFF_L

R102 1K0 1%
1700 HLMP-D102

R101 470R 1%
D101 BARG 1204W
RED GRN
R103 1K0 1%

31 J101 AN_LED_ON_L
Q101 BC556

29 J101 LED_STBY_L

28 J101 +5V_F
34 J101
17 J101

33 J101 CH_B
32 J101 CH_A

E108 E109 E110 E111
ROTARY ENCODER
C101 100NF 63V

V101 DC TO AC INVERTER
AC1 AC2 COM POS NEG

1 J101 +12V_DISP
3 J101
L101 47UH
E112 E113
C102 10UF 50V
C103 100NF 63V

E114 E115

E101 E102 E103 E104 E105 E106 E107

E101 - E115 NOT FITTED

DISPLAY KEYS - VERTICAL

J102 3
J102 4
J102 5
J102 6
J102 7
J102 8
J102 9
J102 10

S110 S111 S112 S113 S114 S115

S100 S101 S102 S103 S104

DISPLAY KEYS - HORIZONTAL

DRAWN ALASTAIRF	DATE 30 NOV 92	TITLE 9000 CONTROL KEYPAD ASSY KEY MATRIX AND ROTARY ENCODER	
CHKD AF	DATE 25 OCT 93		
APPD AWF	DATE 01 NOV 93		

WAVETEK
NORWICH ENGLAND
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DRAWING_NO
DC401150
SHEET 1 OF 1

DRAWING NO
DA401096

1.0	ECO 4340 RELEASED 14 OCT 93	
1.1	ECO 4341 PCB WAS ISS C 14 OCT 93	
1.2	ECO 4355 FAN SLEEVES DELETED 03 NOV 93	
1.3	ECO 4365 PCB WAS ISS D 05 NOV 93	
1.4	ECO 4399 590063 WAS 2 OFF 611081,613013 & 615012 DELETED 16 DEC 93 IJL	
1.5	ECO 4482 J109 DELETED IJL 7 MAR 94	
1.6	ECO 4582 ASSY 401201 ADDED. 920126 WAS 11 OFF. 630024 WAS 80 OFF IJL AUG 94	
1.7	ECO 4828 R472 ADDED IJL 13 APR 95	

19 APR 1995

SEE SKETCH BELOW

R415, 420, 422, 424, 435, 437, 439 & R443 TWO BEADS PER LEAD
R115, 127, 248, 249, 308, 309, 403 R411, 461, 462, 501, 502 R530, 531, D111, 112, 413, 414 D415, 416, 517, 518, 522, 532, 534 D801. ONE BEAD PER LEAD

630024 84

SPACE R415, 420, 422, 424, R435, 437, 439 AND 443 2mm MIN. FROM OTHER COMPONENTS

K303, 306, 601 REMOVE VENT HOLE TAPE SEAL AFTER CLEANING

8 920126 F501–F508

TWISTED PAIR FROM HEATSINK/FAN ASSEMBLY – SEE SHT 4

THESE TWO ROWS OF COMPONENTS FITTED TO HEATSINK/FAN ASSEMBLY – SEE SHEET 4

4 920152

4 611016 4 615002 4 613029

4 630036 ADD BEADS ONE BEAD PER LEG R220, 238

3 590063

540002

FORM WITH LOOP AS SHOWN (4 POSITIONS)

630313

10 605061 U101, 103, 109, 203, 206, U302, 303, 307, 406, 525

NOTE REVERSE ORIENTATION OF D413, D414

Q306, 309, 407, 409, R316, 319 FITTED TO HEATSINK ASSEMBLY – SEE SHEET 5

401201

17 605059 U104, 105, 106, 107, 108, 202, U204, 205, 304, 305, 306, 308, U401, 402, 403, 404, 405

REMOVE BEAD FROM TP313

R472 MOUNT ON TOP OF U103

FORM TYWRAP INTO LOOP APPROX. 50 mm DIA.

7 605060 U501, 802, 803, 804, U805, 806, 807

420112

420098

R308 MUST NOT TOUCH K302 OR K305

401151 ENSURE ASSY IS MOUNTED AT RIGHT ANGLES TO PCB

605204

2 605127 J802, 803

410484–1

FIT E501, 502, 503 THUS:

E501 E502 E503

THIRD ANGLE PROJECTION	DRAWN JD	DATE 22 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm; DECIMAL TO 1 PLACE ± 0.2mm; WHOLE DIMENSIONS ± 0.4mm; ANGULAR ± 0.5°; UNLESS OTHERWISE STATED
	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.	MATERIAL ——
ALL BURRS TO BE REMOVED	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	FINISH ——

TITLE
9000
POWER ASSEMBLY

DRAWING NO.
DA401096

SHEET 1 OF 5

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DRAWING NO
DA401096

ISS	CHANGES
1.0	ECO 4340 RELEASED 14 OCT 93
1.1	ECO 4341 PCB WAS ISS C 14 OCT 93
1.2	ECO 4365 PCB WAS ISS D 05 NOV 93
1.3	ECO 4582 F301–F303 REPLACED BY PIGGYBACK ASSY Q402/Q413 REPOSITIONED 10 AUG 94 IJL

- 5 OCT 1994

METAL FACE

Q402 & Q413 FITTING

THIRD ANGLE PROJECTION

ALL BURRS TO BE REMOVED

DRAWN	JD	DATE 22 JUN 5
CHECKED	KB	DATE 21 OCT 5
APPROVED	RWF	DATE 01 NOV 5

DIMENSIONS IN MILLIMETRES

SCALE N.T.S.

NOT TO BE SCALED

TOLERANCES UNLESS OTHERWISE STATED

DECIMAL TO 2 PLACES ± 0.1mm
DECIMAL TO 1 PLACE ± 0.2mm
WHOLE DIMENSIONS ± 0.4mm
ANGULAR ± 0.5°

MATERIAL —

FINISH —

TITLE

9000
POWER ASSEMBLY

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DRAWING NO.
DA401096

DRAWING NO
DA401096

OLD R251 CONNECTION

LIFT THIS LEG OF R251 & SOLDER TO STARPOINT, AS SHOWN

STARPOINT

METHOD OF FITTING R104, R206, 218, 237, 515, 518

CUT TRACK FROM TP221 ON COMP SIDE OF PCB

FIT D119 & D120 USING PTFE SLEEVING 590004 OVER LEADS AND USE TP221 AS SUPPORT FOR MID-POINT

C232 SHOULD NOT TOUCH R206/207

METHOD OF FITTING R207, 215, 216, 232, 233, 234, & 235

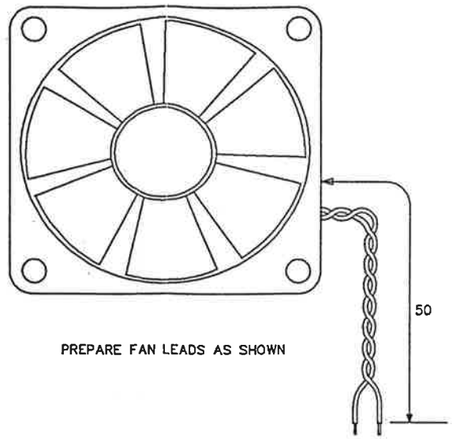
FIT MOUNTING BRACKET INTO RESISTOR (SHORT LEAD END). FIT SLEEVING 590004 TO LONG LEAD. SLEEVING MUST BE FLUSH WITH SHOULDER OF CLIP. FIT BEAD AND SOLDER INTO PCB AS SHOWN. ENSURE ASSY IS PRESSED DOWN FIRMLY.

ISS	CHANGES
1.0	ECO 4340 RELEASED 14 OCT 93
1.1	ECO 4341 PCB WAS ISS C 14 OCT 93
1.2	ECO 4365 PCB WAS ISS D 05 NOV 93
1.3	ECO 4399 D119,D120 ADDED TRACK CUT FROM TP221. 13 DEC 93 IJL
1.4	ECO 4482 J109 DELETED 7 MAR 94 IJL
1.5	ECO 4944 LEG OF R251 LIFTED & RE-SOLDERED TO STARPOINT IJL 6 OCT 95

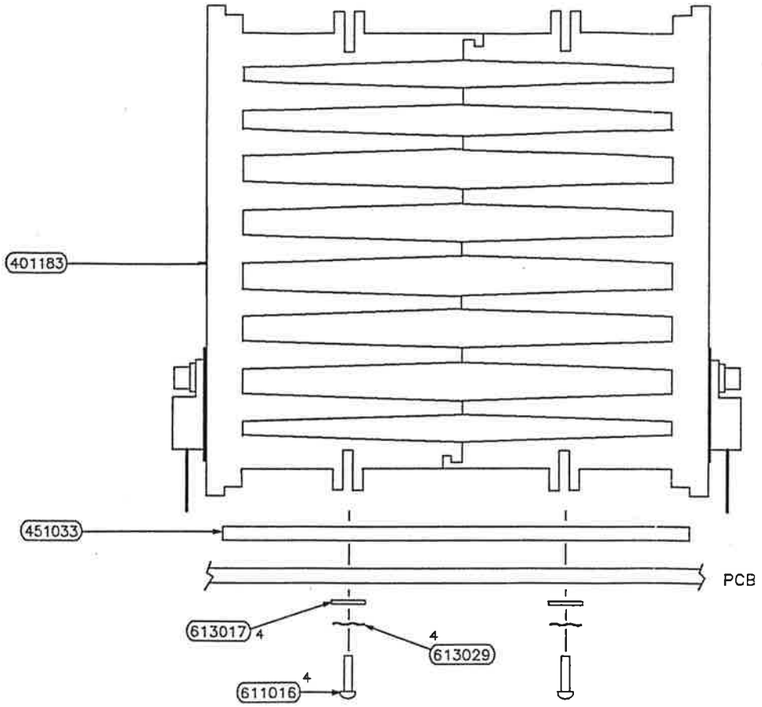
10 OCT 1995

THIRD ANGLE PROJECTION	DRAWN JD	DATE 22 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL	TITLE	datron WAVETEK NORWICH ENGLAND © COPYRIGHT 1990
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH	9000 POWER ASSEMBLY	DRAWING NO. DA401096
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED			SHEET 3 OF 5

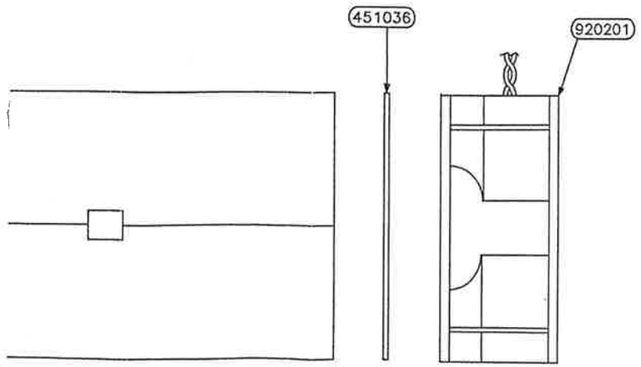
DRAWING NO
DA401096



PREPARE FAN LEADS AS SHOWN



FIT HEATSINKS TO PCB
AS SHOWN (4 PLACES)



NOTE ORIENTATION OF FAN

ISS	CHANGES
1.0	ECO 4340 RELEASED 14 OCT 93
1.1	ECO 4341 PCB WAS ISS C 14 OCT 93
1.2	ECO 4355 590094 WAS 590032 613017 x4 ADDED 03 NOV 93
1.3	ECO 4381 Q212/Q204/Q206 SILPADS WERE TYPE 'A'. 618023 & 900003 ADDED 30 NOV 93 IJL
1.4	ECO 4425 No OFF 613029 WAS 24 No OFF 613005 WAS 4 12 OFF 613007 ADDED 18 JAN 94 IJL
1.5	ECO 4482 RESISTOR ASSY (008043/J109) REMOVED. 7 MAR 94 IJL
1.6	ECO 4446 HEATSINKS 451008 & 451009 DELETED TOGETHER WITH ASSOCIATED CCT DEVICES & FIXINGS ASSY 401183 ADDED. IJL 14 APR 94
1.7	ECO 4718 PICTORIAL CHANGE TO SHOW NEW HEATSINK PROFILE IJL 13 DEC 94

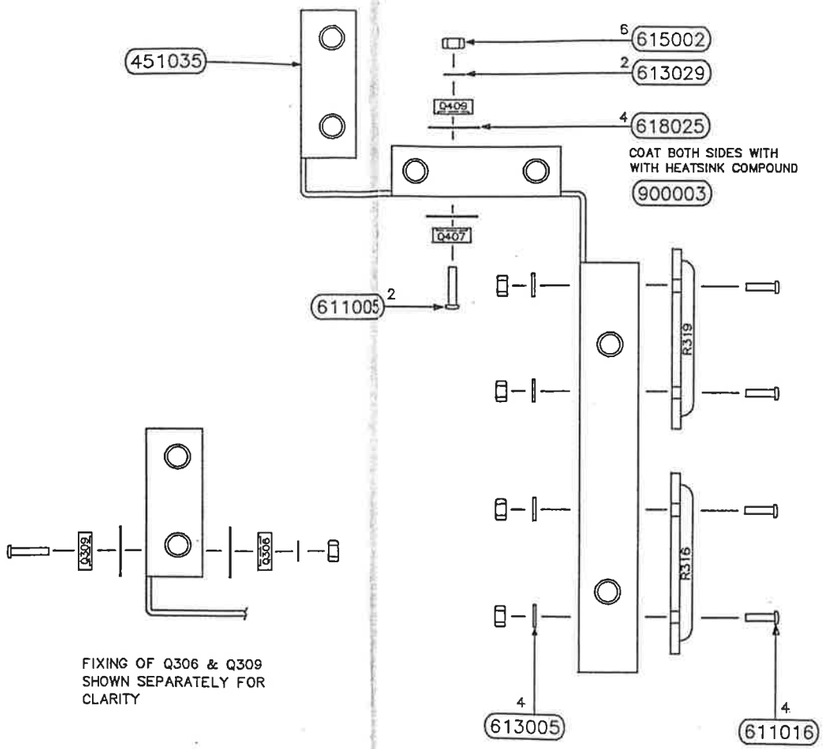
13 DEC 1994

THIRD ANGLE PROJECTION	DRAWN JD	DATE 22 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	MATERIAL ——	TITLE 9000 POWER ASSEMBLY	datron WAVETEK NORWICH ENGLAND © COPYRIGHT 1990
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.		FINISH ——		DRAWING NO. DA401096
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED			SHEET 4 OF 5

DRAWING NO
DA401096

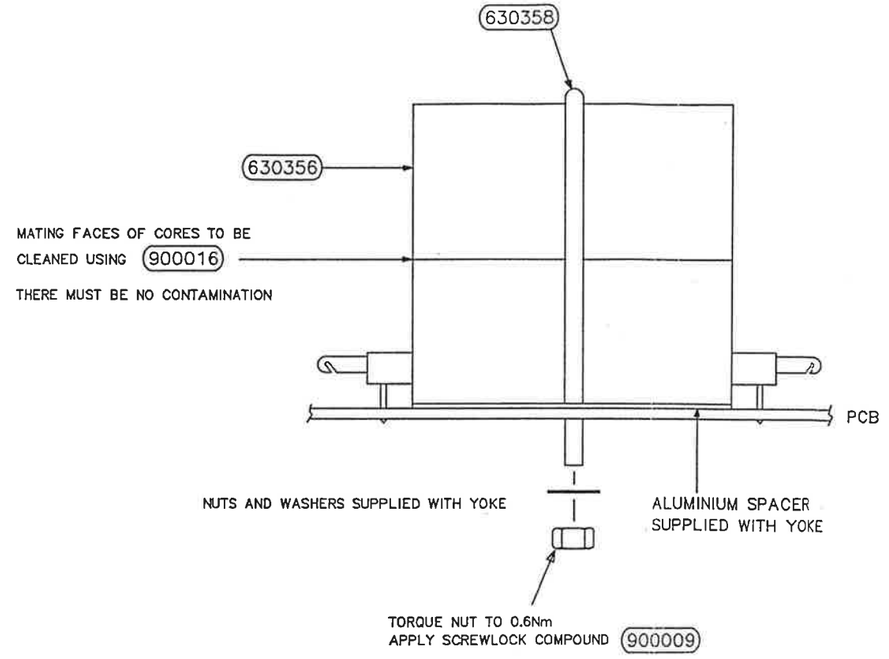
ISS	CHANGES
1.0	ECO 4340 RELEASED 14 OCT 93
1.1	ECO 4341 PCB WAS ISS C 14 OCT 93
1.2	ECO 4651 618025 WAS 618021 900003 ADDED IJL 1 NOV 94

- 9 NOV 1994 -



FIXING OF Q306 & Q309
SHOWN SEPARATELY FOR
CLARITY

N.B. TIGHTEN ALL SCREWS TO A TORQUE OF 0.6Nm



THIRD ANGLE PROJECTION	DRAWN JD	DATE 22 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL —	TITLE 900 POWER ASSEMBLY	DRAWING NO. DA401096
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH —		SHEET 5 OF 5
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED			

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DRAWING_NO
DC 401096

HV DC 1000V DC use HF KFORMER
HVAC 1KVAC 40Hz use LF KFORMER

VOLTAGE DOUBLER

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93
1.2	ECO 4355 U106, U107 WERE OP270FP 03 NOV 93
1.3	ECO 4377 A103 WAS 1K00 24 NOV 93 IJL
1.4	ECO 4399 A139 WAS 9K53 D119/D120 ADDED IJL 13 DEC 93
1.5	ECO 4482 A139 WAS 11K0 J109 & DAMPING RESISTOR COMMENT DELETED IJL 7 MAR 94

08 MAR 1994

300V/1KV ATTENUATOR PCB

300V/1KV ERROR AMP

OUTPUT RECTIFIER

INPUT RECTIFIER

V.C.A.

300V/1KV DC CONTROL AMP

DRAWN	JD	DATE	30 NOV 92
CHKD	KB	DATE	21 OCT 93
APPD	RWF	DATE	01 NOV 93

TITLE: 9000 POWER PCB ASSY HIGH VOLTAGE GENERATION & CONTROL

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DRAWING_NO DC 401096

SHEET 1 OF 8

DRAWING_NO
DC 401096

OVERCURRENT DETECTOR

COMPONENTS MARKED THUS * FITTED TO HEATSINK SUB-ASSY

300mV Adjusted R208

30V / 100V OUTPUT STAGE

BIAS ADJUST

30V / 100V ERROR AMP

30V/100V ATTENUATOR

NOT FITTED

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93
1.2	ECO 4399 C237 WAS 33PF CA_OVDRV LINE ADDED IJL 13 DEC 93
1.3	ECO 4446 HEATSINK COMPS MARKED THUS * IJL 13 APR 94
1.4	ECO 4966 D207,D211 WERE 10V R217,R236 WERE 221R IJL 28 SEP 95
1.5	ECO 4944 0V_27 WAS 0V_1 IJL 4 OCT 95

10 OCT 1995

DRAWN JD	DATE 30 NOV 92	TITLE: 9000 POWER PCB ASSY HIGH VOLTAGE OUTPUT AMPLIFIER
CHKD KB	DATE 21 OCT 93	
APPD AWF	DATE 01 NOV 93	

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DRAWING_NO DC 401096

SHEET 2 OF 8

DRAWING_NO
DC 401096

OUTPUT STAGES

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93
1.2	ECO 4356 R301 WAS 5K R327 WAS 22K6 C302 WAS 15pF C303 WAS 15pF C337 WAS 15nF 04 NOV 93
1.3	ECO 4365 K302 WAS G2A PCB WAS ISS D 05 NOV 93
1.4	ECO 4582 F301,F302 & F303 DELETED 9 AUG 94 IJL

- 5 OCT 1994

ERROR AMP

V-I

ACTIVE GROUND BUFFER

LO I OUTPUT STAGE (SHT4)

HI I OUTPUT STAGE (SHT4)

U307 DG408 1:8 MUX/DMUX

* NOT FITTED

NB: E311-E316 REPRESENT POSITIONS OF PINS E1-E6 RESPECTIVELY ON POWER FUSE PCB ASSY 401201 WHICH SOLDERS ONTO THIS ASSY

DRAWN Johnd	DATE 30 NOV 92	TITLE 9000 POWER PCB ASSY CURRENT CONVERTER
CHKD KB	DATE 21 OCT 93	
APPD AWF	DATE 01 NOV 93	

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DRAWING_NO DC 401096

SHEET 3 OF 8

DRAWING_NO
DC 401096

LOW CURRENT OUTPUT STAGE

HIGH CURRENT OUTPUT STAGE

OVER VOLTAGE DETECTOR

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93
1.2	ECO 4365 TP411, 412 ADDED PCB WAS ISS D 05 NOV 93
1.3	ECO 4380 R448 WAS 22K1 IJL 30 NOV 93
1.4	ECO 4411 Q405/R404, Q414/ R427 NOW KITS IJL 17 JAN 94
1.5	ECO 4446 HEATSINK COMPS MARKED THUS × IJL 13 APR 94
1.6	ECO 4582 Q402 & Q413 WERE BC337 IJL 9 AUG 94
1.7	ECO 4828 R472 ADDED IJL 12 APR 95

19 APR 1995

COMPONENTS MARKED THUS × FITTED TO HEATSINK SUB-ASSY

DRAWN JO	DATE 30 NOV 92	TITLE 9000 POWER PCB ASSY CURRENT OUTPUT STAGES
CHKD KB	DATE 21 OCT 93	
APPD AWF	DATE 01 NOV 93	

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DRAWING_NO
DC 401096

DRAWING_NO
DP 401096

FOR TRANSFORMER PRIMARY CONNECTIONS - SEE SHEET 6

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93
1.2	ECO 4365 TPS21 ADDED PCB WAS ISS D 05 NOV 93
1.3	ECO 4446 HEATSINK COMPS MARKED THUS * IJL 13 APR 94

- 6 MAY 1994

COMPONENTS MARKED THUS * FITTED TO HEATSINK SUB-ASSY

HV_PS_ON_H
HV_PS_OL_L
HVPS_POS
HVPS_NEG
FAN_POS
FAN_NEG
LCD_BL_ON_L

DRAWN	Jahnd	DATE 30 NOV 92
CHKD	KB	DATE 21 OCT 93
APPD	AWF	DATE 01 NOV 93

TITLE
9000 POWER PCB ASSY
POWER SUPPLIES

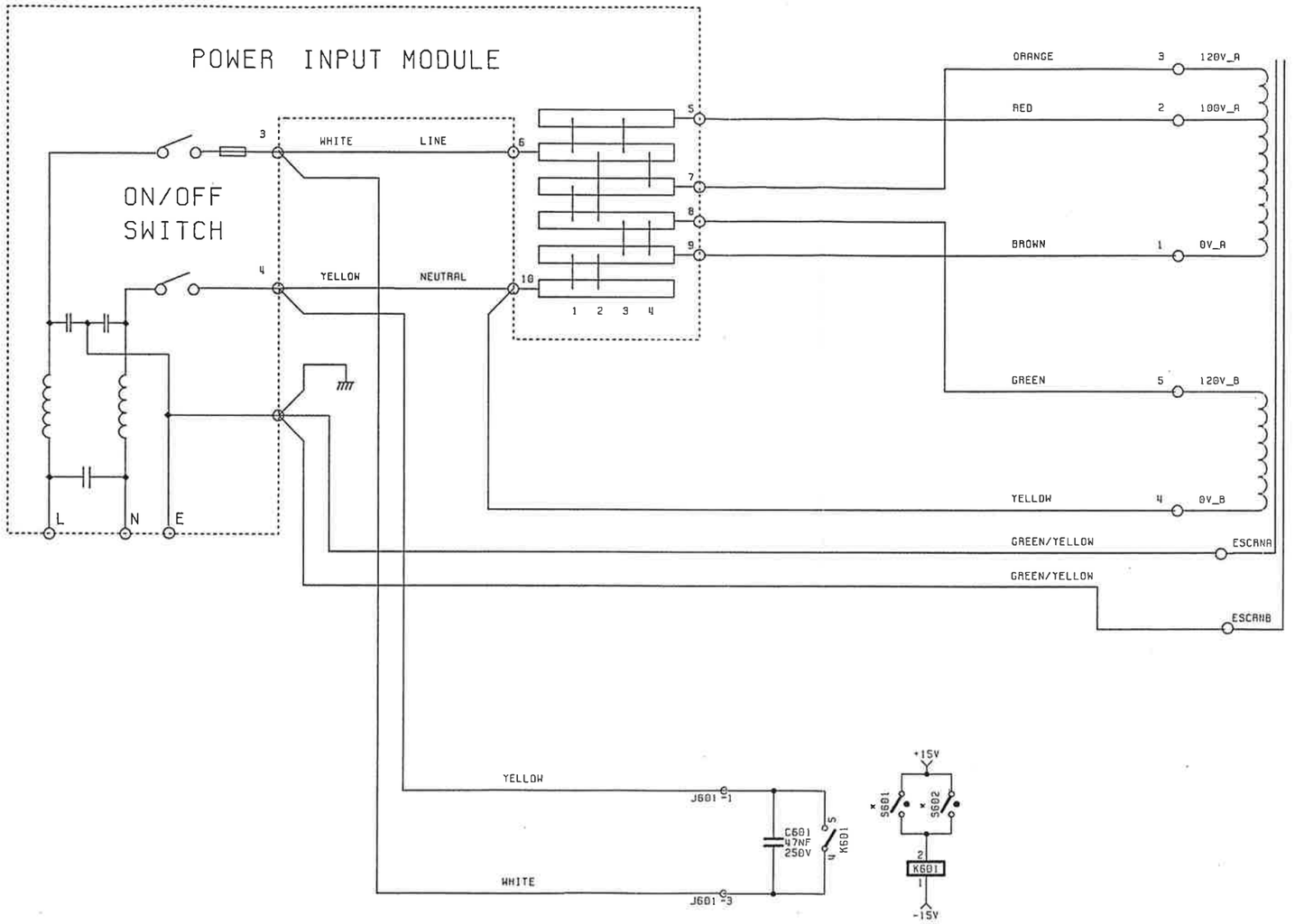
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DRAWING_NO
DC 401096

SHEET 5 OF 8

DRAWING_NO
DP 401096

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB AWS ISS 1 13 OCT 93
1.2	ECO 4365 C601 ADDED PCB WAS ISS D 05 NOV 93
1.3	ECO 4369 WHITE WAS RED 15 NOV 93 IJL
1.4	ECO 4446 HEATSINK COMPS MARKED THUS × IJL 13 APR 94



COMPONENTS MARKED THUS × FITTED
TO HEATSINK SUB-ASSY

- 6 MAY 1994

DRAWN Johnd	DATE 30 NOV 92	TITLE 9000 POWER PCB ASSY MAINS INPUT AND OVERTEMP CIRCUITS	
CHKD KB	DATE 21 OCT 93		
APPD AWF	DATE 01 NOV 93		

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DRAWING_NO
DC 401096
SHEET 6 OF 8

DRAWING_NO
DC 401096

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93
1.2	ECO 4365 TP801 ADDED PCB WAS ISS D 05 NOV 93

12 NOV 1993

AN_INTFC

J801 -2 AN_D0
J801 -3 AN_D1
J801 -4 AN_D2
J801 -5 AN_D3
J801 -6 AN_D4
J801 -7 AN_D5
J801 -8 AN_D6
J801 -9 AN_D7
J801 -10 AN_A1
J801 -11 AN_A2
J801 -12 AN_A3
J801 -13 AN_A4
J801 -14 AN_A5
J801 -15 AN_A6
J801 -16 AN_A7
J801 -17 AN_A8
J801 -18 AN_R_H_W_L
J801 -19 AN_DS_L
J801 -21 AN_CLK
J801 -22 AN_OG_MR_L
J801 -23 AN_I_OC_L
J801 -24 AN_OP_OFF_L
J801 -25 AN_LED_ON_L
J801 -27 LCD_BL_ON_L [5]
J801 -32 +12V_DISP
J801 -30 +5V_F
J801 -28
J801 -29
J801 -1
J801 -20
J801 -26
J801 -31
J801 -33
J801 -34 -15V
-22V

AN_OG_MR_L
AN_CLK

U801
ACT1810
POWER ASSY INTERFACE

CLK 52
MR 51
ADR 1-8
AN_A1 42
AN_A2 43
AN_A3 44
AN_A4 45
AN_A5 46
AN_A6 47
AN_A7 48
AN_A8 50
DS 40
R/W 41
DET
I OV 23
PA OL 24
HV PS OL 26
TMP OL 27
OFF 28
INT 29
MODE 54
LED ON 10
UPDT 12
V ALYS DATA 0-7
AN_D0 30
AN_D1 31
AN_D2 33
AN_D3 34
AN_D4 35
AN_D5 36
AN_D6 37
AN_D7 39
V
30+300V 20
100+1KV 19
300+1KV 18
HV DC 17
HV NEG 16
TX HF 13
AC HF 9
HV DC 8
HV DC 2
HV AC 7
HV IP ON 6
HV PS ON 5
SEL I DET
LO 3
HI 1
I
300MA 68
3A 67
20A 65
3+20A 64
LO ON 63
HI ON 62
20A ON 61
IP ON 60
OP LP 59
TEST
3 58
4 57
5 56
6 22
EXP ON 53
SPARE 11

C801 1NF 100V
R809 10K0 1%
+5V_F
R801 10K0 1%
AN_I_OC_L J802-1
J802-2

AC_HF_H
HV_DC_H
HV_DC_L
HV_AC_L
HV_IP_ON_H
HV_PS_ON_H
DET_I_LO_L
DET_I_HI_L
3A+20A_H
I_IP_ON_H
TST_3_H
TST_4_H
TST_5_H
TST_6_H
EXP_ON_H
EXP_ON_L
3A_NOPLP_L
20A_NOPLP_L
3A+20A_L
113M+300M_NOPLP_L
I_OPLP_L

C804 100NF 63V
C805 100PF 100V
C807 100NF 63V
C809 100NF 63V
C810 220PF 100V
C802 100NF 63V

R823 10K0 1%
TMP_OL_L
I_OV_L
PA_OL_L
HV_PS_OL_L
D806 BZW04 11
D808 1N4148

NORMAL POSITION
J803-1
J803-2
J803-3

U802 74HCT00 GND
U807 4069U GND
U801 ACT1810 VCC1 VCC2 VCC3 VCC4 VPP GND1 GND2 GND3 GND4 GND5

R808 47K5 1%
R802 10K 2%

U803 LM324N
U804 LM324N
U805 LM324N
U806 LM324N
+15V_1
-15V_1

K102 K103 K104 K105 K106 K202 K201 K301 K302 K401 K402 K304 K305 K109 K303 K306 K307 K308

D801 1N5333B 3V3

R802 10K 2%
R802 10K 2%

TP801
U806 LM324N

U807

Q802 BC337
D804 1N4005
D805 1N4005

I_IP_ON_L [3]

DRAWN	Johnd	DATE 30 NOV 92
CHKD	KB	DATE 21 OCT 93
APPD	AHF	DATE 01 NOV 93

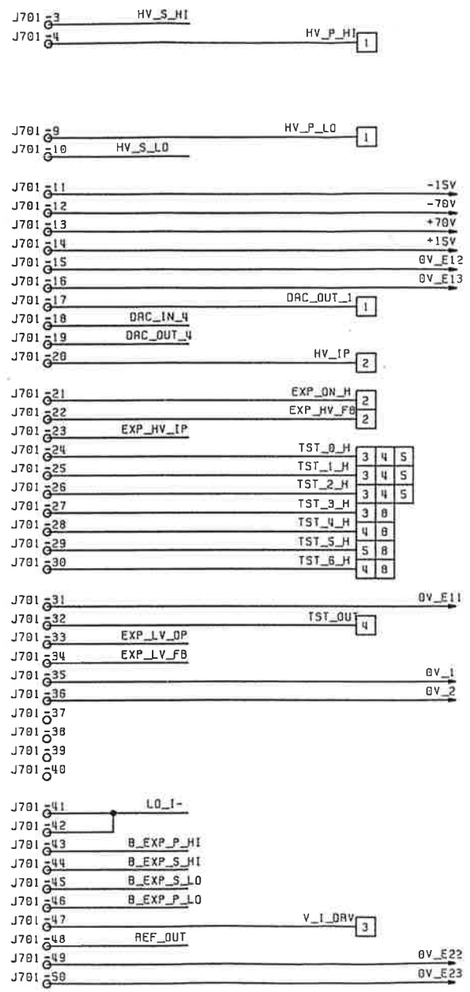
TITLE
9000 POWER PCB ASSY
H.V. & I- INTERFACE
&RELAY DRIVE

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DRAWING_NO
DC 401096
SHEET 8 OF 8

DRAWING_NO
DC 401096

ISS	CHANGES
1.0	ECO 4340 RELEASED 13 OCT 93
1.1	ECO 4341 PCB WAS ISS C 13 OCT 93



DRAWN Johnd	DATE 30 NOV 92	TITLE	9000 POWER PCB ASSY ANALOG CONNECTOR
CHKD KB	DATE 21 OCT 93		
APPD AWF	DATE 01 NOV 93		

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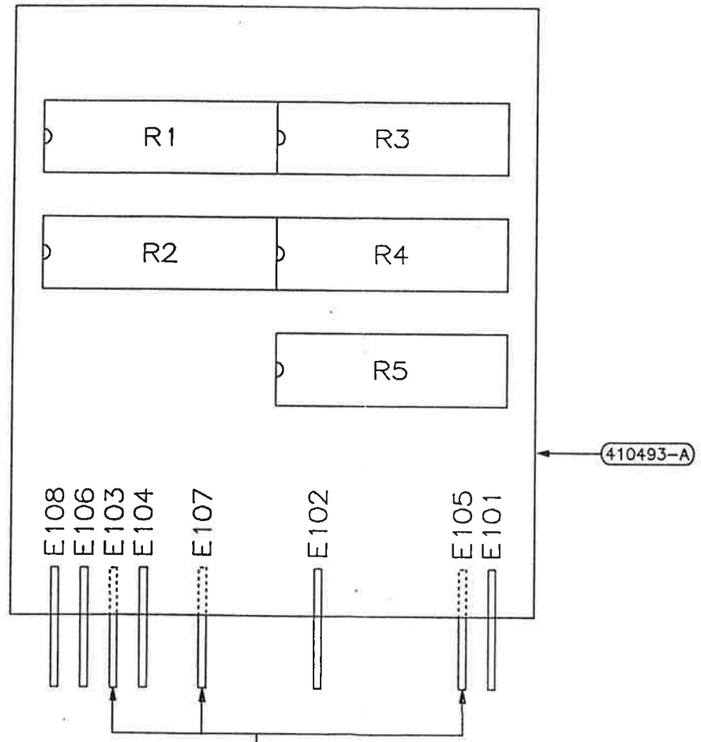
DRAWING_NO
DC 401096

SHEET 7 OF 8

DRAWING NO
DA401151

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93 MD

0 5 NOV 1993



THIRD ANGLE PROJECTION	DRAWN JD	DATE 24 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL	TITLE
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH	9000 POWER ATTEN. PCB ASSEMBLY
	APPROVED	DATE 1.11.93	DT TO BE SCALED	UNLESS OTHERWISE STATED		

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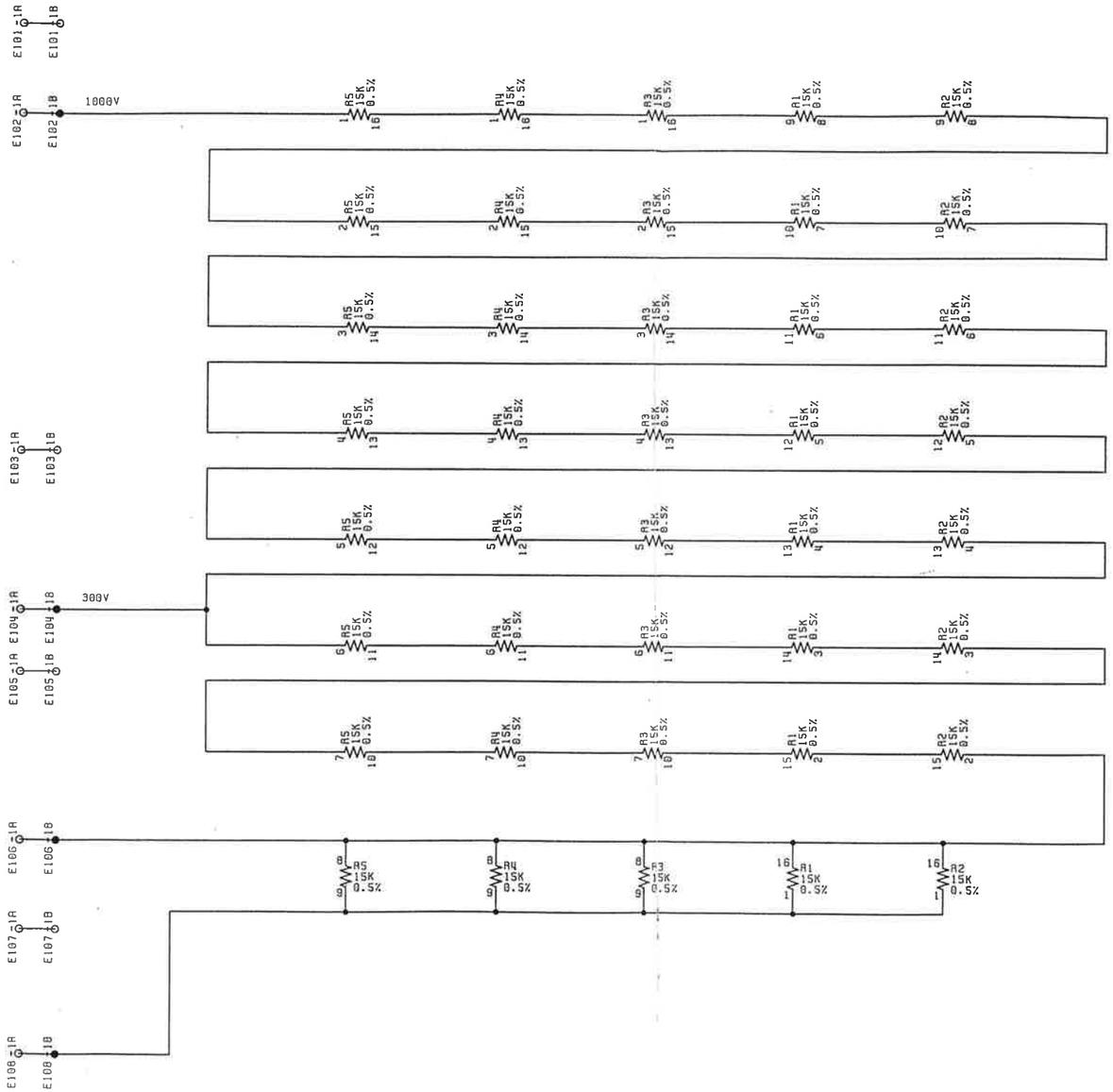
DRAWING NO.
DA401151

SHEET 1 OF 1

DRAWING_NO
DC401151

ISS	CHANGES
1.0	ECO 4348 RELEASED 07 OCT 93

0 5 NOV 1993



DRAWN JR	DATE 4.MAY.93	TITLE	9000 300V / 1KV ATTENUATOR PCB
CHKD KB	DATE 21 oct 93		
APPD Rick	DATE 1.11.93		

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DRAWING_NO
DC401151

SHEET 1 OF 1

DRAWING NO
DA401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4405 PCB WAS ISS E.1 21 DEC 93
1.3	ECO 4582 F001–F004,R004, R005,C001 & 900004 DELETED ASSY 401202 ADDED. IJL 11 AUG 94
1.4	ECO 4828 R680 ADDED IJL 10 APR 95

19 APR 1995

FIT ONE BEAD PER LEAD.
D002, 004, 315, 316.

630024
8

605205

605127

FIT UNDER U101

618018

CONNECT R128 TO STAR POINT ON COMPONENT SIDE AS SHOWN USING 540006

ENSURE THAT WIRE CANNOT GO OVER WASHER

SECURE WITH SPOT OF SILICON RUBBER WHERE SHOWN AT 'Y'

420112

401202

NOTE REVERSE ORIENTATION OF K303, K304

NOTE REVERSE ORIENTATION OF D603, D608 AND D105

Q613

R680

PCB

64 630036

FIT TWO BEADS PER LEAD
R204, 301, 306, 401, 402, 403, 404, 405, 406, 407, 420, 421, 513, 514, 527, 703

ADD LINK USING 540006

FROM J001–47 TO TP902 ON SOLDER SIDE OF PCB

ROUTE AS DIRECTLY AS POSSIBLE AVOIDING SOLDER PIPS

SECURE WITH SPOT OF SILICON RUBBER WHERE SHOWN AT 'X'

11 605070

U105, 106, 107, 801 802, 803, 804, 805 806, 807, 808

5 605059

U103, 110, 111, 904, 905

540002

420098

410485–E.2

THIRD ANGLE PROJECTION	DRAWN JD	DATE 29 MAR 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm; DECIMAL TO 1 PLACE ± 0.2mm; WHOLE DIMENSIONS ± 0.4mm; ANGULAR ± 0.5°; UNLESS OTHERWISE STATED	MATERIAL —	TITLE 9000 ANALOGUE PCB ASSEMBLY
ALL BURRS TO BE REMOVED	CHECKED CB	DATE 13 OCT 93	SCALE N.T.S.		FINISH —	
	APPROVED RWF	DATE 02 NOV 93	NOT TO BE SCALED			

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DRAWING NO
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OUTLINE OF U408

FIT C419 BETWEEN U408–3 & U408–16 AS SHOWN. SLEEVE LEAD TO PIN 3 USING (590004)

C419

POSN OF U501

SLEEVE THIS LEAD USING (590004)

POSN OF R503

C536

ADD C536 BETWEEN U501–3 & R503–1 (VIEWED FROM SOLDER SIDE)

SOLDER R424 AND R425 ON COMPONENT SIDE OF BOARD

U403 R423

ADD R423 IN SERIES WITH U403–8 AS SHOWN. DO NOT BEND LEAD OF IC CLOSE TO BODY.

SOLDER SIDE SHOWN

U701 C717 C704 C713 R706 D702 D703 R102 U101 R101 R710 R711 D409 D408 C715

U201 U202 U203 U209 C201 C204 C202 D201 D202 R201 R202

ADD LINK USING (540006)

CUT TRACK. FIT LINK ON COMP SIDE OF PCB BETWEEN VIA AND STAR POINT AS SHOWN. SECURE WITH SPOTS OF SILICON RUBBER WHERE SHOWN

(540006) (900004)

J001 2 1 50 49

U208 U207 C207 C206 U205 C203 U204 C208 C205

TP407 C127 C131 C146 C130 U116 R142 U114 U121 U119 U117 C137 C134 C136 C135 C132 R151 C151 C152 C147 R141 D104 R138 D105 C145 R125 D103 R130 R131 R126 R132 U118 C129 C126 C128 R420 R136 C133 C138 U120 C141 C140 C139 R124 R421 C125 L102 R143 R149

U510 R528 R529 C513 C515 C514 R527 U403 TP404 R423 Y401 U408 R411 C401 C402 D401 D402 R408 R417 R419 C403 U401 U405 R413 C405 C404 D411 D410 R415 R418 C417 R412 R414 C418 TP402 TP403 R409 U407 TP405 TP401 Q501 C406 D403 R410 R422 D407 D406 D405 D404 U404 R425 R405 U402 R424 R404 C407 U406 R416 D512 D511 TP506 Q508 Q507 R532 R531 R533 U501 R503 R505 C533 R501 C117 R117 R118 R119 C123 R121 R401 R402 U115 C116 TP410 R140 C408 C503 C118 C115 R116 R115 U111 U110 C150 R145 C149 C120 U107 U105 R104 TL103 TL102 TL101 TL104 TL105 R103 U113 U109 C110 C144 U102 C102 C101 C111 C112 U108 C121 U112 C122 R127 R128 R120 R114 R106 R105 U106 C113 C119 C114 C148 R146 R107 R108 C105 C104 U103 C103 R144 U502 R507 R508 C506 R509 C509 C508 C507 C505 C510 C504 R510 R502 D501 R511 U503 R506 R530 TP501 U504 C535 TP504 C524 C520 C519 C412 C411 U505 R523 C525 D503 Q505 Q506 R703 R204 R514 R513 TP503 C511 R512 C512 C530 R525 R526 U509 U508 U507 C532 D513 D514 C531 C529 J201

POSN OF U502

POSN OF U504

C537 C538

ADD C537, C538 THUS:
C537 : U504–5 – U504–4
C538 : U504–5 – U504–13

ADD LINK USING (540006) ROUTE TO AVOID SOLDER PIPS

VIEW ON SOLDER SIDE

POSN OF U105

LINK U107–2 TO R128 USING (540006)

POSN OF U107

POSN OF R128

SOLDER SIDE SHOWN

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4349 R423 ADDED 03 NOV 93
1.3	ECO 4405 TRACK CUT NOTES DELETED 21 DEC 93
1.4	ECO 4426 TRACK CUT AND LINK ADDED 21 JAN 94
1.5	ECO 4666 D501,R510 & R515 ADDED IJL 12 OCT 94
1.6	ECO 4828 R424 & R425 ADDED IJL 13 APR 95

19 APR 1995

THIRD ANGLE PROJECTION	DRAWN JD	DATE 29 MAR 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm	MATERIAL —	TITLE 9000 ANALOGUE PCB ASSEMBLY	DRAWING NO. DA401097
	CHECKED CB	DATE 13 OCT 93	SCALE N.T.S.	DECIMAL TO 1 PLACE ± 0.2mm			
	APPROVED RWF	DATE 02 NOV 93		WHOLE DIMENSIONS ± 0.4mm	FINISH —		SHEET 3 OF 3
ALL BURRS TO BE REMOVED			NOT TO BE SCALED	ANGULAR ± 0.5° UNLESS OTHERWISE STATED			

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DRAWING NO
DA401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4405 TRACK CUT NOTES DELETED 21 DEC 93
1.3	ECO 4582 F001–F004,R004, R005 & C001 REPLACED BY PIGGYBACK PCB ASSY. 11 AUG 94 IJL

- 5 OCT 1994

MOUNT R611 AND R672 IN PTFE CLOVERLEAF (620001)

MOUNT R608 AS SHOWN. DO NOT BEND LEADS CLOSE TO RESISTOR BODY

ADD R344 IN SERIES WITH U306–15 AS SHOWN – DO NOT BEND LEAD OF IC CLOSE TO IC BODY

ADD D804, 805 AS SHOWN – NOTE ORIENTATION – U811 8–11 & U811 11–14

R709 REMOVED

ADD WIRE LINK ON SOLDER SIDE USING (540006) U701–33 TO U701–37

BEND LEADS BELOW ENCAPSULATION

FIT C807–C810 ACROSS U801–10&11 U803–10&11, U805–10&11, U807–10&11 AS SHOWN (SOLDER SIDE)

LIFT U613 PIN 6. FIT R673 BETWEEN PIN 6 AND VACANT PAD. FIT C642 BETWEEN U613–6 AND U613–2.

THIRD ANGLE PROJECTION	DRAWN JD	DATE 29 MAR 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL	TITLE	DRAWING NO.
ALL BURRS TO BE REMOVED	CHECKED CB	DATE 13 OCT 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH	9000 ANALOGUE PCB ASSEMBLY	DA401097
	APPROVED RWF	DATE 02 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED			SHEET 2 OF 3

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DRAWING_NO
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ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4393 R151 WAS 243K IJL 14 DEC 93
1.3	ECO 4426 0V_26 WAS 0V_10 20 JAN 94
1.4	ECO 4456 C145 WAS 2P2F IJL 16 FEB 94

16 FEB 1994

MAIN DAC

TRIM DAC

DIGITAL INPUT

DRAWN	AF	DATE	18 NOV 92
CHKD	CB	DATE	13 OCT 93
APPD	AWF	DATE	01 NOV 93

TITLE
9000 ANALOG PCB
REFERENCE, DC DACS,
AC DAC & FILTER

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SHEET 1 OF 10

DRAWING_NO
DC401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS 0 06 OCT 93

AN_INTFC

U202 HM6264AP-15 STATIC RAM — RAM 8KX8 — A 0 8191

U201 PA4800 PHASE ACCUMULATOR

U203 HM6264AP-15 STATIC RAM — RAM 8KX8 — A 0 8191

U204 74HCT374 3-STATE D FF

U205 74HCT374 3-STATE D FF

U207 74HCT245 3-STATE TRNCVR

U208 74HCT245 3-STATE TRNCVR

DDS_WFAM

U201 PA4800 GND1 GND2 GND3 GND4 — VCC1 VCC2 VCC3

U202 HM6264AP-15 GND — U203 HM6264AP-15 GND

U204 74HCT374 GND — U205 74HCT374 GND

U207 74HCT245 GND — U208 74HCT245 GND — U209 74HCT00 GND

C201 100NF 63V — C202 100NF 63V — C203 100NF 63V

C208 30NF 50V — C204 100NF 63V — C205 100NF 63V

C206 100NF 63V — C207 100NF 63V

+5V_F — 0V_F

R201 4K7 2% — R202 4K7 2%

D201 IN4005 — D202 IN4005 — R204 10R FUS

PH_OUT_F J201-4 — TO REAR BNC CONNECTOR — J201-3

DDS_CLK — DDS_PH_JAM_H — DDS_REG_WR_L — DDS_RAM_EN_L — DDS_RAM_L_WR_L — DDS_RAM_U_WR_L — DDS_BUF_L_L — DDS_BUF_U_L — DDS_CNTRL

PHASE — RAM_DATA

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DRAWN AF	DATE 18 NOV 92	TITLE	9000 ANALOG PCB DDS - PHASE ACC., RAM, LATCHES & DAC INTERFACE
CHKD CB	DATE 13 OCT 93		
APPD AWF	DATE 01 NOV 93		

DRAWING_NO DC401097

SHEET 2 OF 10

DC401097

LEAD Z COMPENSATION

ISS	CHANGES
1.0	ECO 4340 RELEASED 08 OCT 93
1.1	ECO 4342 PCB WAS ISS 0 06 OCT 93
1.2	ECO 4358 R314 WAS KOVAR 04 NOV 93
1.3	ECO 4456 R334 WAS 5M62 IJL 16 FEB 94
1.4	ECO 4746 R308 & R310 WERE NOT FITTED R334 WAS 7M15 IJL 21 FEB 95

24 FEB 1995

DRAWN IL	DATE 18 NOV 92	TITLE 9000 ANALOG PCB LEAD Z COMPENSATION
CHKD CB	DATE 13 OCT 93	
APPD RWF	DATE 01 NOV 93	

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DRAWING_NO DC401097

SHEET 3 OF 10

DRAWING_NO
DC401097

401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS 0 06 OCT 93
1.2	ECO 4349 R423 ADDED 03 NOV 93
1.3	ECO 4426 0V_26 ON ST402 WAS 0V_10 ON ST401 20 JAN 94
1.4	ECO 4828 U404 WAS DG408 R415 WAS 1M00 R424 & R425 ADDED IJL 12 APR 95

19 APR 1995

TST_CNTRL

TST_0_H
TST_1_H
TST_2_H
TST_3_H
TST_4_H
TST_5_H
TST_6_H

U401 4028 4:10 DECODER

U402 DG408 ANLG 1:8 MUX/DMUX

TT101 VL_SET
TT103 DAC_REF_V
VH_SET
TT107
TT108

R424 1M0 1%

U403 DG408 ANLG 1:8 MUX/DMUX

TT301
TT302
TT303
HI_IMP_OUT
TT605
DAC_IN_2
TT304
TT608

R423 47R0 1%

U404 DG458 ANLG 1:8 MUX/DMUX

TT501
TT502
TT503
TT102
FREQ_PULSE
V_I_DRV
THERM_OP

R414 7K500 0.01%
R425 1M0 1%

0V_23

R413 1K 1%

DAC_OUT_1

U405 OP200GP

D410 1N4148

U504 DG211

TST_ACV_L

U702

D411 1N4148

U504 DG211

TST_OUT
AD_REF+

U405 OP200GP

+15V_13
+15V_20
-15V_20
-15V_13

R420 10R FUS
R401 10R FUS
C407 100NF 63V
C408 100NF 63V
R402 10R FUS
R421 10R FUS

+5V_F
+5V_11

R403 10R FUS
C409 100NF 63V
C410 10UF 50V

+15V_F
-15V_F

R404 10R FUS
C411 100NF 63V
C412 100NF 63V
R405 10R FUS

+15V_11
-15V_11

R406 10R FUS
C413 100NF 63V
C414 10UF 50V
C415 100NF 63V
C416 10UF 50V
R407 10R FUS

POWER
0V_11 TO 0V_19

TP406 STAR ST401 TP407
TP408
D409 11DQ04
D408 11DQ04
TP409

SENSE
0V_20 TO 0V_29

TP410 STAR ST402
TL401

+5V_11
+15V_11

D401 1N4148
D402 1N4148
R408 100R 1%

U408 CSS5008P 20BIT A-D CONV

C401 100NF 63V
C402 470NF 63V
C403 100NF 63V
C405 100NF 63V
C406 100NF 63V
D403 BZX79 C5V1
R410 1K82 1%
C404 100NF 63V
TP405 -5V_11

U406 DG409 ANLG MUX/DMUX

ADC_A0_H
ADC_A1_H
R416 10K 0.5%
D406 1N458A
D407 1N458A
D404 BZX79 C3V6
D405 BZX79 C3V6
R422 150R 1%

R411 10K0 1%
R412 10K0 1%
Y401 32K768Hz

U407 OP200GP

TP401
R415 100M 5%
R418 1K00 1%
C417 1UF 50V
C418 1UF 50V
R419 100R 1%

TP402
TP403
TP404
ADC_SCLK
ADC_SDATA
ADC_DRDY_L
ADC_CAL_H
ADC_CONV_H
C419 1NF 100V
ADC_CNTRL
THERM_DRV
R417 1K00 0.1%

DRAWN JD	DATE 18 NOV 92	TITLE
CHKD CB	DATE 13 OCT 93	9000 ANALOG PCB SELF TEST MONITOR
APPD AWF	DATE 01 NOV 93	

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DRAWING_NO
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SHEET 4 OF 10

DRAWING_NO
DC401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS 0 06 OCT 93
1.2	ECO 4456 RS07 WAS 7K50 IJL 16 FEB 94
1.3	ECO 4666 DS01, RS10 & RS15 ADDED IJL 12 OCT 94

13 OCT 1994

DDS SINE TO LOGIC LEVEL

PHASE LOCKED LOOP

FREQ/PULSE OUTPUT STAGE

US05 NOT FITTED

CS19, CS20 NOT FITTED

DRAWN AF	DATE 18 NOV 92
CHKD CB	DATE 13 OCT 93
APPD AWF	DATE 01 NOV 93

TITLE
9000 ANALOG PCB
FREQ FUNCTION PLL &
FREQ/PULSE OUTPUT STAGE

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DRAWING_NO
DC401097

DRAWING_NO
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ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4360 A668 NON FITTED 04 NOV 93
1.3	ECO 4393 A604 WAS 909R A603 WAS 2K03 A614 WAS 36R5 Q611 WAS U1898 IJL 14 DEC 93
1.4	ECO 4456 A651 WAS 27R4 IJL 16 FEB 94
1.5	ECO 4828 A680 ADDED IJL 7 APR 95

19 APR 1995

A669,670,671 NOT FITTED

DRAWN	AF	DATE	18 NOV 92
CHKD	CB	DATE	13 OCT 93
APPD	RWF	DATE	01 NOV 93

TITLE
9000 ANALOG PCB
ACTIVE Z

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DRAWING_NO
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SHEET 6 OF 10

DRAWING_NO
DC401097

ADC REGISTERS

INTERMEDIATE REGISTERS FOR DAC & CONTROL BITS

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS 0 06 OCT 93

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DRAWN	AF	DATE	18 NOV 92
CHKD	CB	DATE	13 OCT 93
APPD	AWF	DATE	01 NOV 93

TITLE: 9000 ANALOG PCB INTERFACE, PULSE GEN, DAC & ADC REGISTERS

DRAWING_NO: DC401097

SHEET 7 OF 10

DRAWING_NO
DC401097

ISS	CHANGES
1.0	ECO 4348 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93

DRAWN	AF	DATE	18 NOV 92
CHKD	CB	DATE	13 OCT 93
APPD	RWF	DATE	01 NOV 93

TITLE
9000 ANALOG PCB
CONTROL REGISTERS,
DRIVERS & RELAYS

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DRAWING_NO
DC401097

SHEET 8 OF 10

DRAWING_NO
DC401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4426 MISSING 0V_11 LABEL ADDED 21 JAN 94
1.3	ECO 4456 R907 & R908 WERE 10K X 8 IJL 16 FEB 94
1.4	ECO 4869 C910 WAS 15pF IJL 15 JUN 95

16 JUN 1995

EXP_LV_DP
FREQ_PULSE
EXP_LV_FB
K303
K304
LV_P_HI
V_CNTRL
U901 DG408 ANLG 1:8 MUX/DMUX
+15V_11
EXP_HV_IP
DDS_OUT
DAC_OUT_1
R911 100R 1%
R912 10K0 1%
V_PA_F0_H
V_PA_F1_H
V_PA_F2_H
TP901
HV_IP
0V_11
0V_20
0V_21
0V_11
R908 3K3 0.5%
R907 3K3 0.5%
V_I_DAV
V_3V+3MA+300MA_L
V_300MV+30MA+3A+20A_L
U902 OG211
R913 4K99 1%
C906 1NSF 100V
C910 22PF 100V
U905 LTC1150 CN8
U904 AD744JN
R914 150K 1%
R915 150K 1%
TP902
C909 220NF 63V
R916 100R 1%
C904 100NF 63V
C905 100NF 63V
C907 100NF 63V
C908 100NF 63V
-15V_11
0V_29
0V_24
0V_12
LV_P_LO
+5V_11
U901 DG408
U902 OG211
V+
V-
GND
VL

DRAWN AF	DATE 18 NOV 92	TITLE
CHKD CB	DATE 13 OCT 93	9000 ANALOG PCB LOW VOLTAGE SOURCE CIRCUITRY
APPD RWF	DATE 01 NOV 93	

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DRAWING_NO
DC401097

DRAWING_NO
DC401097

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4342 PCB WAS ISS D 06 OCT 93
1.2	ECO 4582 F001-F004,A004, A005 & C001 DELETED ANALOG FUSE ASST ADDED IJL 11 AUG 94

- 5 OCT 1994

J001 3 HV_S_HI
J001 4 HV_P_HI
J001 9 HV_P_LO
J001 10 HV_S_LO
J001 11 -15V
J001 12 -70V
J001 13 +70V
J001 14 +15V
J001 15 0V_E12
J001 16 0V_E13
J001 17 DAC_OUT_I → 1
J001 18 DAC_IN_4 → 1
J001 19 DAC_OUT_4 → 1
J001 20 HV_IP → 9
J001 21 EXP_ON_H → 3
J001 22

J001 23 EXP_HV_IP → 9
J001 24 TST_0_H
J001 25 TST_1_H
J001 26 TST_2_H
J001 27 TST_3_H
J001 28 TST_4_H
J001 29 TST_5_H
J001 30 TST_6_H
TST_CNTRL → 4 8
J001 31 0V_E11
J001 32 TST_OUT → 4
J001 33 EXP_LV_OP → 9
J001 34 EXP_LV_FB → 9
J001 35 0V_1
J001 36 0V_2
J001 37
J001 38
J001 39
J001 40
J001 41
J001 42
J001 43 B_EXP_P_HI
J001 44 B_EXP_S_HI
J001 45 B_EXP_S_LO
J001 46 B_EXP_P_LO
J001 47 V_I_DRV → 4 9
J001 48 REF_OUT → 1
J001 49 0V_E22
J001 50 0V_E23

THERM_OP 4
THERM_DRV 4
J003 3
J003 4
J003 5
ID1_L J003 6
ID0_L J003 7
J003 8
J003 9
J003 10

R018 1K03 1%
R019 1K00 1%
+5V_F
0V_F
D005 1N4148
D006 1N4148
DET_LO_0_L
DET_LO_1_L
D007 1N4148
D008 1N4148
0V_F
DET → 7

E001 SPARK GAP
E002 SPARK GAP
0V_11
4 K012 2 3
7 K012 9 8
TC_POS J003 1
TC_NEG J003 2
HV_P_HI
LV_P_HI
7 K001 9 8
2 3 4 K002
RGC_EXP_P_HI
LV_RGC_EXP_P_HI
K005 11 10 4 5 K005
K005 2 3 9 8 K005
E008
E007
3 K008 2 10 K008 11
TERM_P_HI J002 1
E003 SPARK GAP
E004 SPARK GAP
0V_11
HV_S_HI
J002 2
J002 3
K301
K006 5 4 10 11 K006
K006 2 3 9 8 K006
4 K001 2 9 8 7 K002
RGC_EXP_S_HI
LV_RGC_EXP_S_HI
E010
E009
8 K008 9 4 K008 5
R010 10R 1%
TERM_S_HI J002 4
R003 1M00 1%
0V_10
ENERGISE=RGC
DE-ENERGISE=EXP
ENERGISE=RGC/EXP
DE-ENERGISE=LOW V
ENERGISE=HIGH V
DE-ENERGISE=LOW V/RGC/EXP
ENERGISE=OUTPUT ON
ANALOG FUSE PCB ASSY 401202
J004 1
HV_S_LO
4 K003 2 3 4 K004
RGC_EXP_S_LO
LV_RGC_EXP_S_LO
4 K007 2 3
E012
E011
K010 5 4 3 2 K010
R011 10R 1%
TERM_S_LO J004 2
E005 SPARK GAP
E006 SPARK GAP
0V_11
HV_P_LO
LV_P_LO
7 K003 9 8 7 K004
RGC_EXP_P_LO
LV_RGC_EXP_P_LO
7 K007 9 8
E014
E013
K010 8 9 10 11 K010
TERM_P_LO J004 3
J004 4
J003 11
J003 12
K301

LV_P_HI 9
LV_P_LO 9
+15V
R001 4K75 1%
D001 1N4001
D002 1N5348 10V
D003 1N4001
R002 4K75 1%
10V D004 1N5348
-15V
0V_11
0V_11
RGC_P_POS 6
RGC_S_POS 3
RGC_GUARD 6
RGC_S_NEG 3
RGC_P_NEG 3

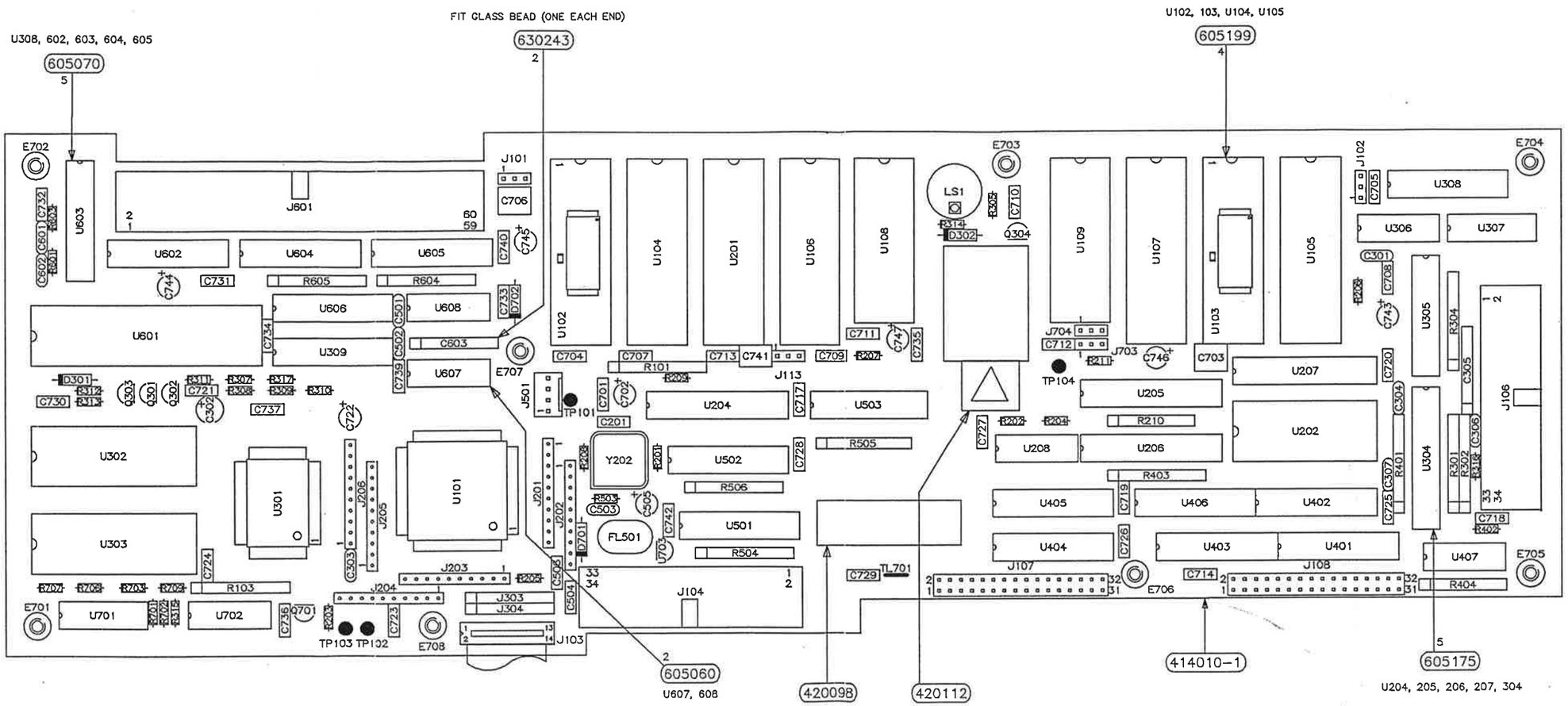
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DRAWN AF	DATE 18 NOV 92	TITLE	DRAWING_NO
CHKD CB	DATE 13 OCT 93	9000 ANALOG PCB OUTPUT SWITCHING, OPEN SENSE DETECT & ANALOG BUS	DC401097
APPD AWF	DATE 01 NOV 93		SHEET 10 OF 10

DRAWING NO
DA401098

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
1.2	ECO 4419 No off 605199 WAS 2 25 JAN 94 IJL
2.0	ECO 4525 PCB WAS ISS D JD 06 OCT 94
2.1	ECO 4878 U102/U103 MODIFIED PICTOR- IALLY IJL 13 JUL 95

19 JUL 1995



THIRD ANGLE PROJECTION ALL BURRS TO BE REMOVED	DRAWN JD	DATE 24 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5° UNLESS OTHERWISE STATED	MATERIAL ——	TITLE 9100 DIGITAL PCB ASSEMBLY
	CHECKED AF	DATE 12 OCT 93	SCALE N.T.S.		FINISH ——	
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED			

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DRAWING NO.
DA401098

SHEET 1 OF 1

DRAWING_NO
DC 401098

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS 155 C 05 OCT 93
1.2	ECO 4419 U102 - U105 WERE M27C4001-12 U104 & U105 WERE NOT FITTED TJL 25 JAN 94
2.0	ECO 4525 U102 & U103 WERE P28F020-120 U102-1 & U103-1 WERE ON J704-2 U104 & U105 WERE FITTED R506 MOVED TO SHT2 JD 06 OCT 94

10 OCT 1994

DATA
ADDRESS
CONTROL

+5V_F
R304 4K7 2%

U101
TMP68301F-16
16 BIT MICRO-CONTROLLER

U102
AM29F040-120
FLASH PROM 4MBIT

U103
AM29F040-120
FLASH PROM 4MBIT

U104
P28F010-120
FLASH PROM 1MBIT *

U105
P28F010-120
FLASH PROM 1MBIT *

U106
HM628128P-10
STATIC RAM

U107
HM628128P-10
STATIC RAM

U108
HN58C256P-20
EE PROM

U109
HN58C256P-20
EE PROM

COMPONENTS MARKED THUS *
ARE NOT FITTED

COM
CEN

DRAWN A.F.	DATE 18 JUN 92	TITLE 9100 DIGITAL PCB ASSY MICRO-CONTROLLER, PROM, RAM & CALIBRATION MEMORY.	DRAWING_NO DC 401098
CHKD AF	DATE 12 OCT 93		
APPD RWF	DATE 01 NOV 93		SHEET 1 OF 7

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DRAWING_NO
DC 401098

DATA
ADDRESS
CONTROL

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
2.0	ECO 4525 R208 TO R211 ADDED R506 WAS ON SHT1 TL201 REMOVED JD 06 OCT 94

10 OCT 1994

CALIBRATION FLASH PROM

U201
P28F010-120
FLASH PROM 1MBIT

PROM128kX8
A 0 131071
A1 12, A2 11, A3 10, A4 9, A5 8, A6 7, A7 6, A8 5, A9 27, A10 26, A11 23, A12 25, A13 4, A14 28, A15 29, A16 3, A17 2, A18 30
O0 13, O1 14, O2 15, O3 17, O4 18, O5 19, O6 20, O7 21
PROM3_L 22 G1
RD_L 24 EN
VWR_L 31 M2(WE)
16 NC
A.1.20V
A.1.20

EMULATION SOCKET

CLK_MICRO J205 5
HALT_OC_L J204 7
MR_OC_L J206 3
BERR_OC_L J202 7
DTACK_OC_L J204 4
BR_L J204 6
BG_L J205 2
BGACK_L J204 5
+5V_F J204 3, J204 9
J204 10
0V_F

D0 J201 1, D1 J201 2, D2 J201 3, D3 J202 1, D4 J201 4, D5 J205 10, D6 J202 2, D7 J205 9, D8 J206 7, D9 J206 6, D10 J206 8, D11 J206 10, D12 J205 8, D13 J206 9, D14 J205 7, D15 J205 6

J201 5 AS_L
J201 6 UDS_L
J202 3 LDS_L
J206 5 R_H_W_L
J203 8 FC0_L
J204 2 FC1_L
J203 9 FC2_L
J203 10 EMU_L

J203 7 A1, J206 2 A2, J205 1 A3, J203 6 A4, J205 4 A5, J205 3 A6, J203 5 A7, J206 1 A8, J203 4 A9, J206 4 A10, J202 10 A11, J203 3 A12, J201 9 A13, J202 8 A14, J202 9 A15, J203 2 A16, J201 10 A17, J203 1 A18, J202 6 A19, J201 8 A20, J202 4 A21, J201 7 A22, J202 5 A23

J201, J202, J203, J204, J205 AND J206 ARE NOT FITTED

MASTER OSCILLATOR

+5V_F
R201 10R 1%
C201 100NF 63V
0V_F
Y202 14.7456MHz CRYSTAL OSC
VCC OUT
GND EN
R101 4K7 2% 1
R505 4K7 2% 2
R208 47R 1%
CLK_MICRO

U204
22V10
FPLD 25NS LP
R_H_W_L
EEPROM_L
CARD_EN_L
DISP_MEM_L
DISP_REG_L
DISP_RDY_H
SGEN_L
R207 470R 1%
R209 47R 1%
CLK_DIV4
SGEN_DS_L

CLOCK DIVIDER, DTACK & STROBE GENERATOR

U208
UDS_L, R_H_W_L → R202 47R 1% → UWR_L
LDS_L → R204 47R 1% → LWR_L
AS_L
SGEN_L → SGEN_R_H_W_L

ADDRESS DECODER

U205
20V8
FPLD 25NS LP
AS_L
UDS_L
LDS_L
R_H_W_L
BOOT_EN_L
CAL_EN_L
A16, A17, A18, A19, A20, A21, A22, A23
R210 47R 2%
PROM1_L
PROM2_L
PROM3_L
RAM_L
DISP_MEM_L
DISP_REG_L
SGEN_L
R211 47R 1%
R506 4K7 2%
R205 1K0 1%
R203 1K0 1%
BERR_OC_L
DTACK_OC_L
U702

U206
20V8
FPLD 25NS LP
EEPROM_L
CARD_EN_L
C1_CE1_L
C1_CE2_L
C2_CE1_L
C2_CE2_L
W_H_R_L
RD_L
R206 4K7 1%
0V_F

U207
20V8
FPLD 25NS LP
WR_CNTRL_L
RD_STAT1_L
RD_STAT2_WHL_L
RD_STAT2_H_WHL_L
RD_KEY_L
RTC_AS_H
RTC_DS_H
GP1A_L

REAL TIME CLOCK

U202
80387MT
REAL TIME CLOCK MODULE
+5V_F
MR_OC_L 18
RTC_AS_H 14
RTC_DS_H 17
R_H_W_L 15
0V_F
RST
MOT (INT)
AS (ALE)
CE
DS (RD)
R/W (WR)
SQW 23 CLK_KEYS
INT 19 INT_1_OC_L
ADR/DATA
D0, D1, D2, D3, D4, D5, D6, D7

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DRAWN A.F.	DATE 18 JUN 92	TITLE 9100 DIGITAL PCB ASSY PROM, RTC, EMUL. SKT., CLOCKS & ADDRESS DECODE.	DRAWING_NO DC 401098
CHKD AF	DATE 12 OCT 93		
APPD AWF	DATE 01 NOV 93		SHEET 2 OF 7

DRAWING_NO
DC 401098

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
2.0	ECO 4525 U304-2 WAS ON R304-4 U307-2 WAS ON 0V_F U307-14 WAS ON U307-15 JD 06 OCT 94

10 OCT 1994

DATA
ADDRESS
CONTROL

LCD GRAPHICS CONTROLLER

* J304
* J303

U301 SED1351F L.C.D. GRAPHICS CONTROLLER

U302 HM62256P-12 STATIC RAM 32KX8

U303 HM62256P-12 STATIC RAM 32KX8

OPTREX DMF50174

HITACHI LMG6911

COMPONENTS MARKED THUS * ARE NOT FITTED

LCD DRIVE ADJUST -VE SUPPLY SWITCHING CIRCUIT

U309 74HCT374 3-STATE D FF

KEY ENCODER

U304 22V10 FPLD 25NS LP

U305 74HCT374 3-STATE D FF

U306 74HCT74 DUAL D FF

U307 74LS156 DUAL 2:4 DECODER

AUDIO PCB MTG.

LS1 QMX-05

U308 16V8 FPLD 25NS QP

ROTARY ENCODER INTERFACE

WHEEL DIR/WHEEL INT
-/KEY INT
SPARE D
WHEEL/2
WHEEL/4 (F/B)
WHEEL DIR (F/B)
-/K_ON

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DRAWN A.F.	DATE 18 JUN 92	TITLE	DRAWING_NO
CHKD AF	DATE 12 OCT 93	9100 DIGITAL PCB ASSY DISPLAY, KEY, ENCODER & AUDIO INTERFACES.	DC 401098
APPD AWF	DATE 01 NOV 93		SHEET 3 OF 7

DRAWING_NO
DC 401098

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
2.0	ECO 4525 R404 ADDED JD 06 OCT 94

10 OCT 1994

DATA
ADDRESS
CONTROL

U403 74HCT244 3-STATE BUFFER — CARD_EN_L — A1 A2 A3 A4 — C_A1 C_A2 C_A3 C_A4
U406 74HCT244 3-STATE BUFFER — CARD_EN_L — A5 A6 A7 A8 — C_A5 C_A6 C_A7 C_A8
U401 74HCT244 3-STATE BUFFER — CARD_EN_L — A9 A10 A11 A12 — C_A9 C_A10 C_A11 C_A12
U402 74HCT244 3-STATE BUFFER — CARD_EN_L — A13 A14 A15 A16 — C_A13 C_A14 C_A15 C_A16
U403 74HCT244 3-STATE BUFFER — CARD_EN_L — A17 A18 A19 A20 — C_A17 C_A18 C_A19 C_A20
U406 74HCT244 3-STATE BUFFER — CARD_EN_L, R_H_W_L, RD_L — A21 — C_A21, C_WE_L, C_AD_L
+5V_F — R401 10K 2% (8), R401 10K 2% (5)

CARD_ADDRESS
CARD_CONTROL
CARD_DATA

U404 74HCT245 3-STATE TRNCVR — CARD_EN_L, W_H_R_L — G3 8ATX, 3EN1, 3EN2 — D8 D9 D10 D11 D12 D13 D14 D15 — C_D8 C_D9 C_D10 C_D11 C_D12 C_D13 C_D14 C_D15
U405 74HCT245 3-STATE TRNCVR — CARD_EN_L, W_H_R_L — G3 8ATX, 3EN1, 3EN2 — D0 D1 D2 D3 D4 D5 D6 D7 — C_D0 C_D1 C_D2 C_D3 C_D4 C_D5 C_D6 C_D7
U402 74HCT244 3-STATE BUFFER — RD_STAT1_L — D0 D1 D2 D3 — C1_WP_H, C2_WP_H, C1_CD_H, C2_CD_H
U401 74HCT244 3-STATE BUFFER — D4 D5 D6 D7 — C1_BVD1_H, C2_BVD1_H, C2_BVD2_H

+5V_F — R404 10K 2% (6)

+5V_F
C_D0 C_D1 C_D2 C_D3 C_D4 C_D5 C_D6 C_D7 C_D8 C_D9 C_D10 C_D11 C_D12 C_D13 C_D14 C_D15
J107 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
J107 28 29 30

C_A1 C_A2 C_A3 C_A4 C_A5 C_A6 C_A7 C_A8 C_A9 C_A10 C_A11 C_A12 C_A13 C_A14 C_A15 C_A16 C_A17 C_A18 C_A19 C_A20 C_A21
J108 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

+5V_F — R403 4K7 2% (3, 4, 5, 2, 6) — C_WE_L, C_RD_L
0V_F — J107 1, 18, 27
C1_CE1_L C1_CE2_L C2_CE1_L C2_CE2_L REG_L MR_H
J107 25 26 19 20 21 22 23 24

+5V_F — R401 10K 2% (4, 3)
+12V — J107 31, 32
C1_WP_H C2_WP_H
J108 23 24

+5V_F — R404 10K 2% (2, 3, 4, 5) — C1_CD_H, C2_CD_H
U407 (12, 13; 11; 1, 2; 3)
+5V_F — R401 10K 2% (1, 7, 2, 9) — C1_CD1_L, C1_CD2_L, C2_CD1_L, C2_CD2_L
J108 25 26 27 28
C1_BVD1_H C1_BVD2_H C2_BVD1_H C2_BVD2_H
J108 29 30 31 32
0V_F — J108 1

+5V_F — R403 4K7 1% (1, 8) — U407 (9, 10)

MEMORY CARD #1 & #2
CARD A0 TO LOW FOR U & L ACCESS

DRAWN A.F.	DATE 18 JUN 92	TITLE	9100 DIGITAL PCB ASSY JEIDA MEMORY CARD INTERFACE
CHKD AF	DATE 12 OCT 93		
APPD AWF	DATE 01 NOV 93		

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DRAWING_NO
DC 401098
SHEET 4 OF 7

DRAWING_NO
DC 401098

DATA
ADDRESS
CONTROL

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
1.2	ECO 4522 C505 WAS 10UF IJL 1 JUN 94
2.0	ECO 4525 C505 WAS 100uF C506 ADDED JD 06 OCT 94

10 OCT 1994

SIGNAL GENERATION INTERFACE PARALLEL & POWER INPUT

U501 74HCT245 3-STATE TANCVR
U503 74HCT244 3-STATE BUFFER
U502 74HCT244 3-STATE BUFFER
U502 74HCT244 3-STATE BUFFER

+5V_F
0V_F
SGEN_L
AD_L
D0 D1 D2 D3 D4 D5 D6 D7
A1 A2 A3 A4
A5 A6 A7 A8
KEY_OFF_L
CLK_ANLG
SGEN_DS_L
SGEN_R_H_W_L
AN_LED_ON_L
LCD_BL_ON_L
I_SGEN_L
COM_RXD1_H
COM_TXD1_H
MA_OC_L
AN_OP_OFF_L
AN_CLK
AN_DS_L
AN_R_H_W_L
AN_OG_MA_L
AN_I_OC_L
AN_TXD1_H
AN_RXD1_H
AN_LED_ON_L
AN_D0 J104-2
AN_D1 J104-3
AN_D2 J104-4
AN_D3 J104-5
AN_D4 J104-6
AN_D5 J104-7
AN_D6 J104-8
AN_D7 J104-9
AN_A1 J104-10
AN_A2 J104-11
AN_A3 J104-12
AN_A4 J104-13
AN_A5 J104-14
AN_A6 J104-15
AN_A7 J104-16
AN_A8 J104-17
AN_OP_OFF_L J104-24
AN_CLK J104-21
AN_DS_L J104-19
AN_R_H_W_L J104-18
AN_LED_ON_L J104-25
AN_OG_MA_L J104-22
LCD_BL_ON_L J104-27
AN_I_OC_L J104-23
AN_TXD1_H J104-32
AN_OG_MA_L J104-30
+15V J104-28
+12V_DISP J104-29
J104-1
J104-20
J104-26
J104-31
-22V J104-34
-15V J104-33
RS504 4K7 2%
RS505 4K7 2%
RS506 4K7 2%
C503 390PF 100V
RS503 47K 1%
C505 47UF 25V
FLS01 2N2F 250V
C504 100NF 63V
C506 100NF 63V
AN_SERIAL
COM

SIGNAL GENERATION INTERFACE SERIAL & POWER INPUT

RS232#1

+5V_F
0V_F
RS506 4K7 2%
AN_TXD1_H
AN_OG_MA_L
AN_I_OC_L
AN_RXD1_H
AN_OP_OFF_L
AN_LED_ON_L
J502-1 *
J502-2
J502-3
J502-4
J502-5
J502-6
J502-7
J502-8
J502-9
J502-13
J502-10
J502-11
+12V_DISP J502-12
+15V J502-14
-15V J502-15
-22V J502-16

COMPONENTS MARKED THUS * ARE NOT FITTED

RS232#2 DE-BUG

6 P_U_232
COM_RXD2_H
COM_TXD2_H
U608
U697
RXD2_L J501-1 *
TXD2_L J501-3
J501-2
J501-4
C501 390PF 100V
C502 390PF 100V
RS505 4K7 2%
RS304 4K7 2%
RS507 4K7 2%
RS101 4K7 2%

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DRAWN A.F.	DATE 18 JUN 92	TITLE 9100 DIGITAL PCB ASSY SIGNAL GEN. INTERFACES, & RS232#3 INTERFACE.
CHKD AF	DATE 12 OCT 93	
APPD AWF	DATE 01 NOV 93	

DRAWING_NO DC 401098
SHEET 5 OF 7

DRAWING_NO
DC 401098

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
2.0	ECO 4525 R604-7 WAS ON U605-4 R605-9 WAS ON U605-13 JD 06 OCT 94

10 OCT 1994

DATA
ADDRESS
CONTROL

GPIB CONROLLER & BUFFERS

U601 TMS9914A GPIB CONTROLLER
U602 DS75161AN GPIB TRANSCEIVER
U603 DS75160AN GPIB TRANSCEIVER

MR_OC_L, CLK_DIV4, INT_1_OC_L, GPIA_L, R_H_W_L, UWR_L
+5V_F, ACCGA, ACCRQ, TA, INT, A0R (A1 A2 A3 → AS0 AS1 AS2), CE, OBIN(OE), WE
D8 D9 D10 D11 D12 D13 D14 D15 → D7(LSB) D6 D5 D4 D3 D2 D1 D0(MSB)
ATN, EOI, SRQ, REN, IFC, DAV, NDAC, NRFD, CONT, TE
DIO1 DIO2 DIO3 DIO4 DIO5 DIO6 DIO7 DIO8
R602 68R 1% R601 68R 1%
C601 *INF 100V, C602 *INF 100V
J601 12 14 16 18 20 22 23 21 9 19 10 17 11 15 13 1 3 5 7 2 4 6 8

TO GPIB INTERFACE

COMPONENTS MARKED THUS*

ARE NOT FITTED.

REAR SWITCHES

U606 74HCT244 3-STATE BUFFER
AD_STAT1_L, CAL_EN_L, BOOT_EN_L, BARK_L, I_SGEN_L, SPARE INPUT
R605 4K7 2%
CAL_EN_L J601-24, FACTORY_EN_L J601-25, PASS_EN_L J601-26, BOOT_EN_L J601-27, J601-28

RS232#0 INTERFACE

P_U_232 → 5
COM_RXD0_H, COM_TXD0_H, COM_DTR0_L, COM_DSR0_L, COM_RTS0_L, COM_CTS0_L
U607, U608
RXD0_L J601-29, TXD0_L J601-30, DTR0_H J601-31, J601-32, DSR0_H J601-33, RTS0_H J601-34, CTS0_H J601-35, J601-36
+12V, -12V
C603 50V 220PF

CENTRONICS INTERFACE

U604 74HCT244 3-STATE BUFFER
CEN_D1 CEN_D2 CEN_D3 CEN_D4 → D01 J601-37, D02 J601-38, D03 J601-40, D04 J601-41
CEN_D5 CEN_D6 CEN_D7 CEN_D8 → D05 J601-43, D06 J601-44, D07 J601-46, D08 J601-47
J601-39, J601-42, J601-45, J601-48, J601-50

U605 74HCT244 3-STATE BUFFER
CEN_DST8_L, CEN_PAM_H, CEN_AUTO_FEED_L, CEN_SLCT_IN_L
STROBE_L J601-49, INIT_L J601-55, AUTO_FEED_L J601-56, SLCT_IN_L J601-57, SLCT_H J601-58
R604 100K 2%, R605 4K7 2%
CEN_ACK_L, CEN_BUSY_H, CEN_FLT_L
ACKNLG_L J601-51, BUSY_H J601-53, ERROR_L J601-59, P_END_H J601-60
J601-52, J601-54
C603 220PF 50V

COM
CEN

DRAWN A.F.	DATE 18 JUN 92	TITLE 9100 DIGITAL PCB ASSY REAR INTERFACES-SWITCHES, GPIB, CENTRONICS & RS232.	
CHKD AF	DATE 12 OCT 93		
APPD AWF	DATE 01 NOV 93		

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DRAWING_NO DC 401098
SHEET 6 OF 7

DRAWING_NO
DC 401098

POWER FAIL DETECTOR AND WATCHDOG

CONTROL

U701 LTC695N POWER SUPPLY MONITOR

Q701 BC556

R706 10R 1%
R701 10K 1%
R709 10R 1%
R702 10K 1%
R703 1K0 1%
R707 10R 1%
R505 4K7 2%
R103 4K7 2%
R101 4K7 2%

+12V_DISP
+5V_F
0V_F
VSTBY
WD_TOG
NV_EN_H
BARK_L
I_SGEN_L
MR_OC_L
HALT_OC_L
MR_H

U702
U407

COMPONENTS MARKED THUS * ARE NOT FITTED

EPROM J703 1-3
J704 1-3
12V FPROM
5V FPROM
A19

U101 TMP68301F-16
U102 AM29F040-120
U103 AM29F040-120
U104 P28F010-120
U105 P28F010-120
U106 HM628128P-10
U107 HM628128P-10
U108 HN58C256P-20
U109 HN58C256P-20
C701 100NF 63V
C702 47UF 25V
C743 47UF 25V
C704 100NF 63V
C705 100NF 63V
C706 1UF 50V
C707 100NF 63V
C708 100NF 63V
C703 1UF 50V
C709 100NF 63V
C710 100NF 63V
C711 100NF 63V
C712 100NF 63V
E701 E702 E703 E704 E705 E706 E707 E708

U201 P28F010-120
U202 803287HT
U204 22V10
U205 20V8
U206 20V8
U207 20V8
U208 74F32
C741 470NF 63V
C713 100NF 63V
C714 100NF 63V
C717 100NF 63V
C718 100NF 63V
C719 100NF 63V
C720 100NF 63V

U301 SED1351F
U302 HM62256P-12
U303 HM62256P-12
U304 22V10
U305 74HCT374
U306 74HCT74
U307 74LS156
U308 16V8
U309 74HCT374
C721 100NF 63V
C722 47UF 25V
C737 100NF 63V
C723 100NF 63V
C724 100NF 63V
C744 47UF 25V
C745 47UF 25V
C746 47UF 25V
C747 47UF 25V

U401 74HCT244
U402 74HCT244
U403 74HCT244
U404 74HCT245
U405 74HCT245
U406 74HCT244
U407 74HCT02
U501 74HCT245
U502 74HCT244
U503 74HCT244
C725 100NF 63V
C726 100NF 63V
C727 100NF 63V
C728 100NF 63V
C729 100NF 63V

U601 TMS99114A
U602 DS75161AN
U603 DS75160AN
U604 74HCT244
U605 74HCT244
U606 74HCT244
C730 100NF 63V
C731 100NF 63V
C732 100NF 63V
C733 100NF 63V
C734 100NF 63V
C742 100NF 63V
TL701
+15V
-15V
1N4148 D701
U703 LM78L12ACZ
D702 BZX79 C3V3
C739 100NF 63V
C740 100NF 63V
+12V
-12V
U607 DS1488
U608 DS1489
U702 74LS09
C735 100NF 63V
C736 100NF 63V

ISS	CHANGES
1.0	ECO 4340 RELEASED 05 OCT 93
1.1	ECO 4343 PCB WAS ISS C 05 OCT 93
1.2	ECO 4419 U104 & U105 WERE NOT FITTED IJL 25 JAN 94
1.3	ECO 4522 C702,C722 & C743 WERE 10UF IJL 1 JUN 94
2.0	ECO 4525 U102 & U103 WERE P28F020-120 U104 & U105 WERE FITTED E707, E708 ADDED C744 TO C747 ADDED C702 & C722 WERE 100uF JD 06 OCT 94

10 OCT 1994

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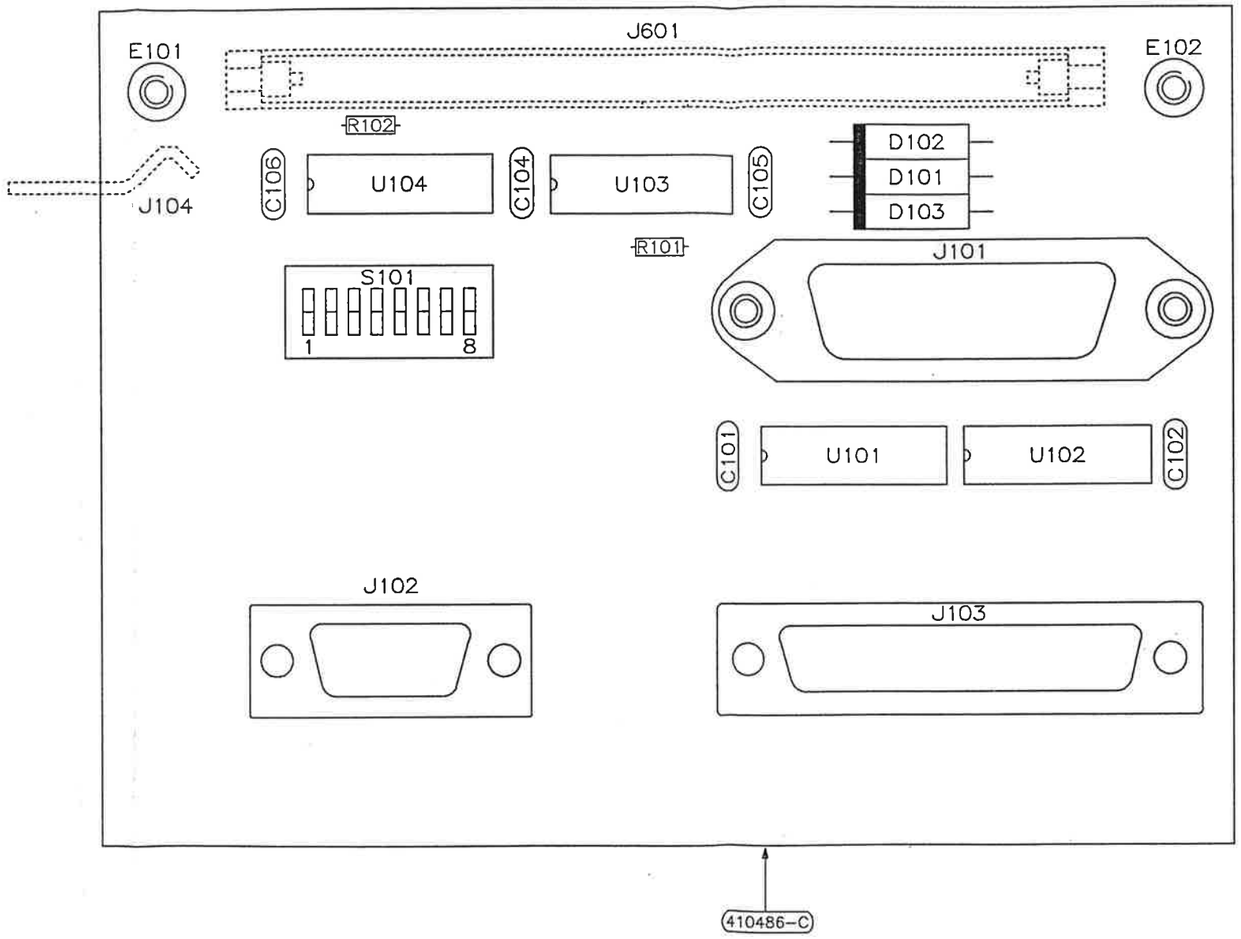
DRAWN A.F.	DATE 18 JUN 92	TITLE 9100 DIGITAL PCB ASSY POWER FAIL DETECTOR, WATCHDOG & POWER NET.
CHKD AF	DATE 12 OCT 93	
APPD AWF	DATE 01 NOV 93	

DRAWING_NO DC 401098
SHEET 7 OF 7

DRAWING NO
DA401099

ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4344 PCB WAS ISS B 06 OCT 93

MOUNT J104 & J601 ON REAR OF PCB
MAX COMPONENT HEIGHT 5mm
(EXCEPT CONNECTORS AND STANDOFFS)



THIRD ANGLE PROJECTION	DRAWN JD	DATE 25 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm	MATERIAL ——	TITLE 9000 INTERCONNECTION PCB ASSEMBLY	DRAWING NO. DA401099
	CHECKED AF	DATE 12 OCT 93	SCALE N.T.S.	DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm	FINISH ——		
ALL BURRS TO BE REMOVED	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	ANGULAR ± 0.5° UNLESS OTHERWISE STATED			SHEET 1 OF 1

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ISS	CHANGES
1.0	ECO 4340 RELEASED 06 OCT 93
1.1	ECO 4344 PCB WAS ISS 8 06 OCT 93

IEEE INTERFACE

J601 12, 14, 16, 18, 20, 22, 23 → 0V_F

J601 21	ATN	J101 11
J601 9	EOI	J101 23
J601 19	SRQ	J101 5
J601 10	REN	J101 10
J601 17	IFC	J101 22
J601 11	DAV	J101 17
J601 15	NDAC	J101 21
J601 13	NRFD	J101 9
		J101 20
		J101 8
		J101 19
		J101 6
		J101 18
		J101 7

0V_F → E104

U101 SP720AP ELECTRONIC PROTECTION ARRAY
IN1–IN14 → J601 37, 38, 40, 41, 43, 44, 46, 47
VCC → +5V_F
GND → 0V_F
C101 100NF 50V
D101 TVS505

U102 SP720AP ELECTRONIC PROTECTION ARRAY
IN1–IN8 → J601 1, 3, 5, 8, 2, 4, 6, 7
IN9–IN14 → J601 45, 48, 50, 49, 55, 56
VCC → +5V_F
GND → 0V_F
C102 100NF 50V
NOT FITTED

J601 1	DIO1	J101 1
J601 3	DIO2	J101 2
J601 5	DIO3	J101 3
J601 8	DIO4	J101 4
J601 2	DIO5	J101 13
J601 4	DIO6	J101 14
J601 6	DIO7	J101 15
J601 7	DIO8	J101 16
		J101 12
		J101 24

0V_F → E105

TO CABLE SCREEN
J104 1 → E101
E102

RS232 INTERFACE

J601 24	CAL_EN_L	
J601 25	FACTORY_EN_L	
J601 26	PASS_EN_L	
J601 27	BOOT_EN_L	
J601 28		

R101 10R 1%
S101 1–8 → 0V_F

J601 29	AXD0_L	J102 2
J601 30	TXD0_L	J102 3
J601 31	DTR0_H	J102 4
J601 32	+12V	J102 5
J601 33	DSR0_H	J102 6
J601 34	RTS0_H	J102 7
J601 35	CTS0_H	J102 8
J601 36	-12V	J102 9
		J102 10
		J102 11
		J102 12
		J102 13

J102 1 → 0V_F

U103 SP720AP ELECTRONIC PROTECTION ARRAY
IN1–IN14 → J601 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 43, 44
VCC → +12V
GND → 0V_F
C104 100NF 50V
C105 100NF 50V
D102 TVS512 12V
D103 TVS512 12V
-12V

CENTRONICS INTERFACE

J601 37	D01	J103 2
J601 38	D02	J103 3
J601 40	D03	J103 4
J601 41	D04	J103 5
J601 43	D05	J103 6
J601 44	D06	J103 7
J601 46	D07	J103 8
J601 47	D08	J103 9

J601 39, 42 → 0V_F
J601 45, 48, 50 → 0V_F

J601 49	STROBE_L	J103 1
J601 55	INIT_L	J103 16
J601 56	AUTO_FEED_L	J103 14
J601 57	SLCT_IN_L	J103 17
J601 58	SLCT_H	J103 13
J601 52, 54	+5V_F	J103 18
J601 51	ACKNLG_L	J103 19
J601 53	BUSY_H	J103 20
J601 59	ERROR_L	J103 10
J601 60	P_END_H	J103 11
		J103 15
		J103 12
		J103 21
		J103 22
		J103 23
		J103 24
		J103 25
		J103 26
		J103 27
		J103 28
		J103 29

R102 470R 1%

U104 SP720AP ELECTRONIC PROTECTION ARRAY
IN1–IN14 → J601 51, 53, 59, 60, 52, 54, 56, 57, 58, 55, 49, 50, 48, 45
VCC → +5V_F
GND → 0V_F
C106 100NF 50V

J103 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 → 0V_F

DRAWN	ALASTAIRF	DATE	30 NOV 92
CHKD	AF	DATE	12 OCT 93
APPD	AWF	DATE	01 NOV 93

TITLE: 9000 INTERCONNECTION PCB, SWITCHES, GPIB, CENTRONICS & RS232

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DRAWING_NO: DC401099

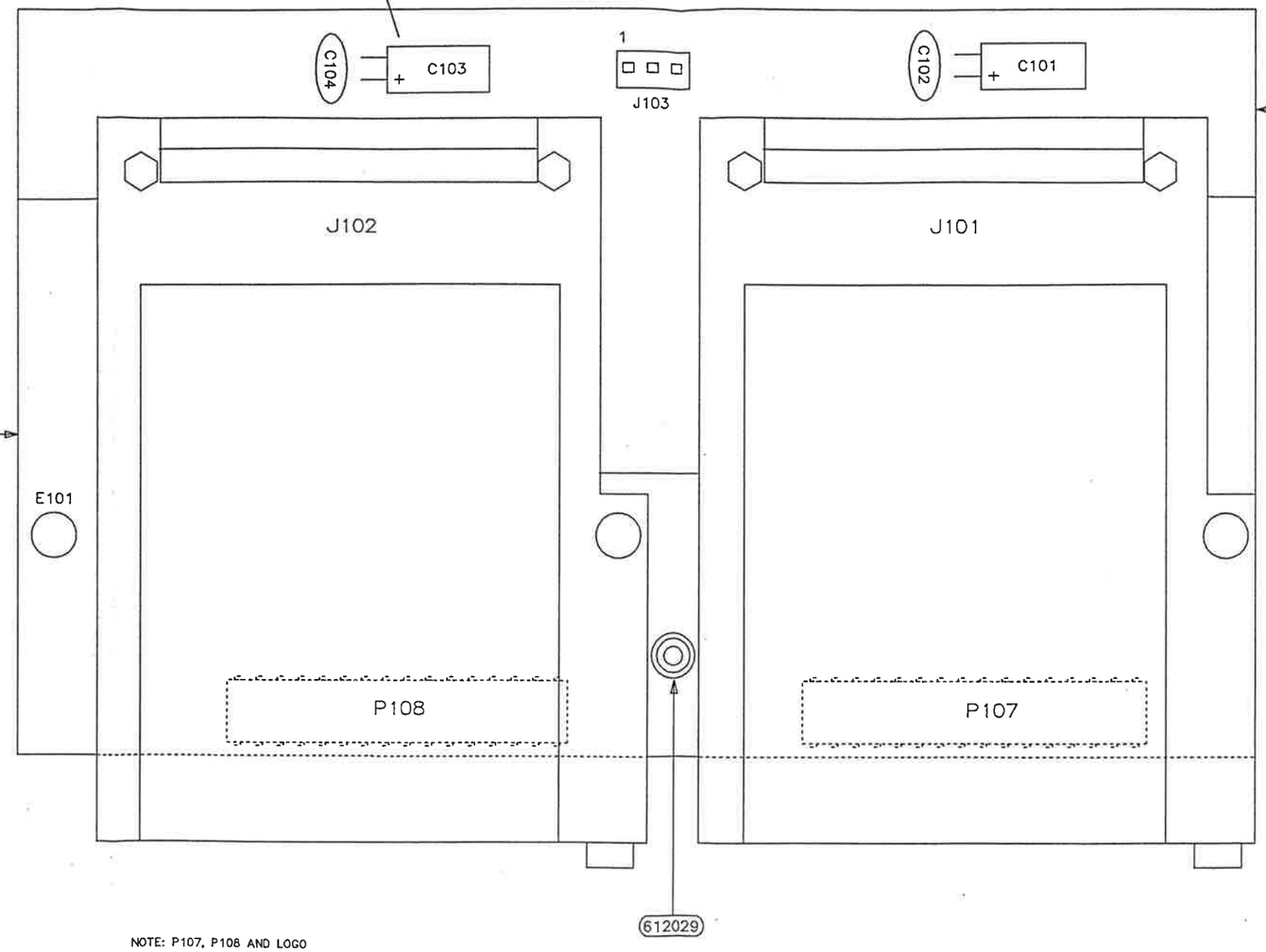
SHEET 1 OF 1

DRAWING NO
DA401100

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93
1.1	ECO 4522 NOTE ADDED RE POSITION OF C101 & C103 IJL 1 JUN 94
1.2	ECO 4667 C105–C107DELETED PCB WAS 410487–B C101/103 RESITED IJL 14 OCT 94

18 OCT 1994

NOTE : C101 & C103 LAY FLAT
TO MAINTAIN LOW PROFILE



NOTE: P107, P108 AND LOGO
ON OTHER SIDE OF PCB

THIRD ANGLE PROJECTION	DRAWN JD	DATE 25 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	MATERIAL —	TITLE 9100 MEMORY CARD PCB ASSEMBLY
ALL BURRS TO BE REMOVED	CHECKED AF	DATE 12 OCT 93	SCALE N.T.S.	UNLESS OTHERWISE STATED	FINISH —	
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED			

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DRAWING NO.
DA401100

SHEET 1 OF 1

DRAWING_NO
DC401100

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93
1.1	ECO 4522 C101 & C103 WERE 47NF IJL 1 JUN 94
1.2	ECO 4667 C101/C103 WERE 22UF 16V. C105,C106 & C107 DELETED. J103-2/3 TRACKED IJL 14 OCT 94

18 OCT 1994

+12V
J103 NOT FITTED
J103 1
J103 2 VPP
J103 3
P107 28 +5V_F
P107 29
P107 30

CARD_DATA
CARD_ADDR
CARD_CNTRL

P107 2 C_D0
P107 3 C_D1
P107 4 C_D2
P107 5 C_D3
P107 6 C_D4
P107 7 C_D5
P107 8 C_D6
P107 9 C_D7
P107 10 C_D8
P107 11 C_D9
P107 12 C_D10
P107 13 C_D11
P107 14 C_D12
P107 15 C_D13
P107 16 C_D14
P107 17 C_D15

P108 2 C_A1
P108 3 C_A2
P108 4 C_A3
P108 5 C_A4
P108 6 C_A5
P108 7 C_A6
P108 8 C_A7
P108 9 C_A8
P108 10 C_A9
P108 11 C_A10
P108 12 C_A11
P108 13 C_A12
P108 14 C_A13
P108 15 C_A14
P108 16 C_A15
P108 17 C_A16
P108 18 C_A17
P108 19 C_A18
P108 20 C_A19
P108 21 C_A20
P108 22 C_A21

P107 1
P107 18
P107 27
0V_F

P107 25 C_WE_L
P107 26 C_AO_L
P107 19 C1_CE1_L
P107 20 C1_CE2_L
P107 21 C2_CE1_L
P107 22 C2_CE2_L
P107 23 REG_L
P107 24 MR_H
P107 31 +12V
P107 32

P108 23 C1_WP_H
P108 24 C2_WP_H

P108 25 C1_CD1_L
P108 26 C1_CD2_L
P108 27 C2_CD1_L
P108 28 C2_CD2_L
P108 29 C1_BVD1_H
P108 30 C1_BVD2_H
P108 31 C2_BVD1_H
P108 32 C2_BVD2_H
P108 1
0V_F

J101
PCMCIA CARD CONNECTOR

0V_F	1	GND1	GND3	35	0V_F
C_D3	2	D3	CD1	36	C1_CD1_L
C_D4	3	D4	D11	37	C_D11
C_D5	4	D5	D12	38	C_D12
C_D6	5	D6	D13	39	C_D13
C_D7	6	D7	D14	40	C_D14
C1_CE1_L	7	CE1	D15	41	C_D15
C_A10	8	A10	CE2	42	C1_CE2_L
C_AO_L	9	OE	RFSH	43	
C_A11	10	A11	RFU1	44	
C_A9	11	A9	RFU2	45	
C_A8	12	A8	A17	46	C_A17
C_A13	13	A13	A18	47	C_A18
C_A14	14	A14	A19	48	C_A19
C_WE_L	15	WE_PGM	A20	49	C_A20
+5V_F	16	RDY_BSY	A21	50	C_A21
	17	VCC1	VCC2	51	+5V_F
VPP	18	VPP1	VPP2	52	VPP
C_A16	19	A16	A22	53	
C_A15	20	A15	A23	54	
C_A12	21	A12	A24	55	
C_A7	22	A7	A25	56	
C_A6	23	A6	RFU3	57	
C_A5	24	A5	RESET	58	0V_F
C_A4	25	A4	WAIT	59	MR_H
C_A3	26	A3	RFU4	60	
C_A2	27	A2	REG	61	REG_L
C_A1	28	A1	BVD2	62	C1_BVD2_H
	29	A0	BVD1	63	C1_BVD1_H
C_D0	30	D0	D8	64	C_D8
C_D1	31	D1	D9	65	C_D9
C_D2	32	D2	D10	66	C_D10
C1_WP_H	33	WP	CD2	67	C1_CD2_L
	34	GND2	GND4	68	
0V_F			CASE	69	0V_F

J102
PCMCIA CARD CONNECTOR

0V_F	1	GND1	GND3	35	0V_F
C_D3	2	D3	CD1	36	C2_CD1_L
C_D4	3	D4	D11	37	C_D11
C_D5	4	D5	D12	38	C_D12
C_D6	5	D6	D13	39	C_D13
C_D7	6	D7	D14	40	C_D14
C2_CE1_L	7	CE1	D15	41	C_D15
C_A10	8	A10	CE2	42	C2_CE2_L
C_AO_L	9	OE	RFSH	43	
C_A11	10	A11	RFU1	44	
C_A9	11	A9	RFU2	45	
C_A8	12	A8	A17	46	C_A17
C_A13	13	A13	A18	47	C_A18
C_A14	14	A14	A19	48	C_A19
C_WE_L	15	WE_PGM	A20	49	C_A20
+5V_F	16	RDY_BSY	A21	50	C_A21
	17	VCC1	VCC2	51	+5V_F
VPP	18	VPP1	VPP2	52	VPP
C_A16	19	A16	A22	53	
C_A15	20	A15	A23	54	
C_A12	21	A12	A24	55	
C_A7	22	A7	A25	56	
C_A6	23	A6	RFU3	57	
C_A5	24	A5	RESET	58	0V_F
C_A4	25	A4	WAIT	59	MR_H
C_A3	26	A3	RFU4	60	
C_A2	27	A2	REG	61	REG_L
C_A1	28	A1	BVD2	62	C2_BVD2_H
	29	A0	BVD1	63	C2_BVD1_H
C_D0	30	D0	D8	64	C_D8
C_D1	31	D1	D9	65	C_D9
C_D2	32	D2	D10	66	C_D10
C2_WP_H	33	WP	CD2	67	C2_CD2_L
	34	GND2	GND4	68	
0V_F			CASE	69	0V_F

+5V_F
C103 47UF 25V
C101 47UF 25V
0V_F
VPP
C102 47NF 50V
C104 47NF 50V
0V_F
E101
0V_F

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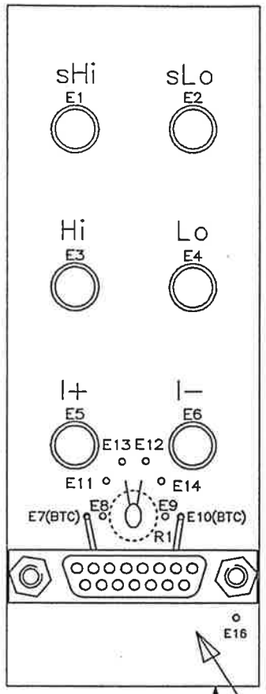
DRAWN ALASTAIRAF	DATE 30 NOV 92	TITLE 9100 MEMORY CARD ASSY JEIDA MEMORY CARD SOCKETS 1 & 2
CHKD AF	DATE 12 OCT 93	
APPD AWF	DATE 01 NOV 93	

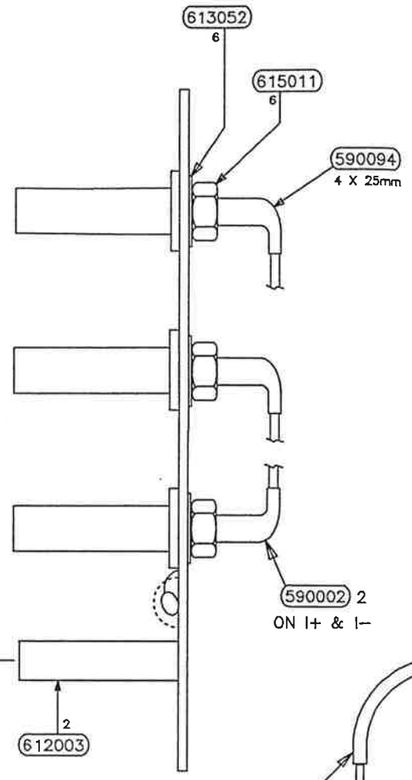
DRAWING_NO
DC401100
SHEET 1 OF 1

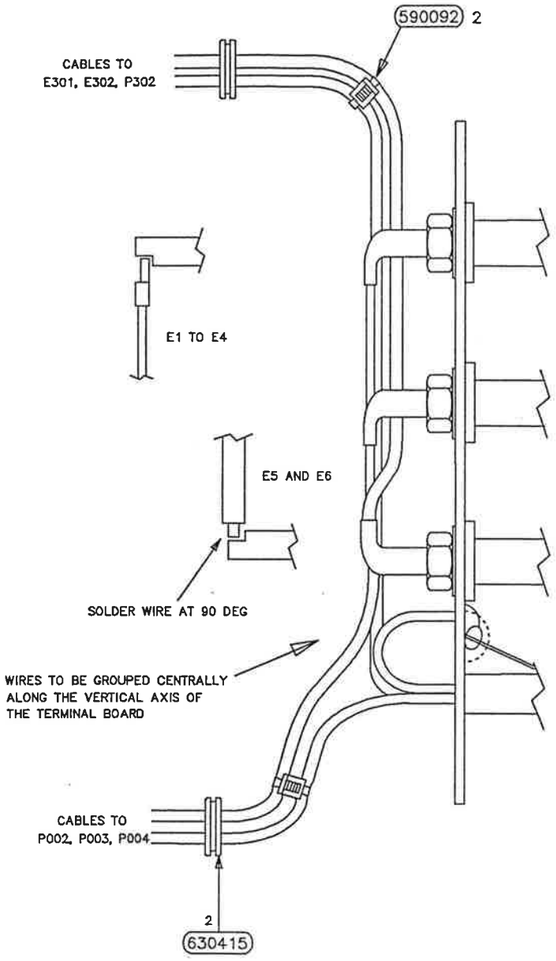
DRAWING NO
DA401101

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93
1.1	ECO 4449 PCB WAS ISS. B 590092, 590002 ADDED. 590094 WAS 590032. NOTE RE WIRING METHOD ADDED. R1 MOUNTING VIEWS ADDED. IJL 15 APR 94

- 6 MAY 1994

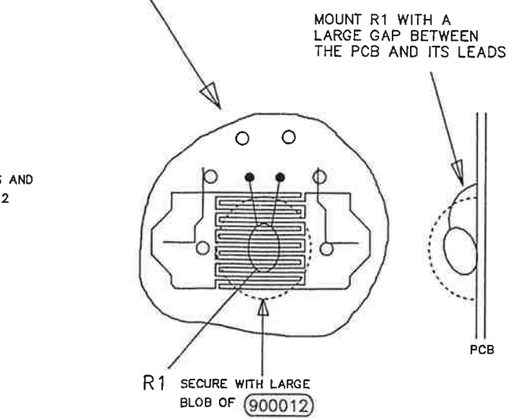






NOTE: GROMMETS TO BE FITTED ONTO CABLES BEFORE ASSY IS FITTED INTO CHASSIS

CONNECTORS TO BE FITTED ONTO CABLES AFTER ASSY IS FITTED INTO CHASSIS



FOR CABLE TYPES, LENGTHS AND CONNECTIONS – SEE SHEET 2

THIRD ANGLE PROJECTION	DRAWN JD	DATE 25 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL ——	TITLE 9000 TERMINAL PCB ASSEMBLY	DRAWING NO. DA401101
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH ——		SHEET 1 OF 2
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED			

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DRAWING NO
DA401101

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93
1.1	ECO 4449 CRIMP TOOL INFO. ADDED 605057 WAS 21 POSITION OF RIB REMOVED IJL 18 APR 94

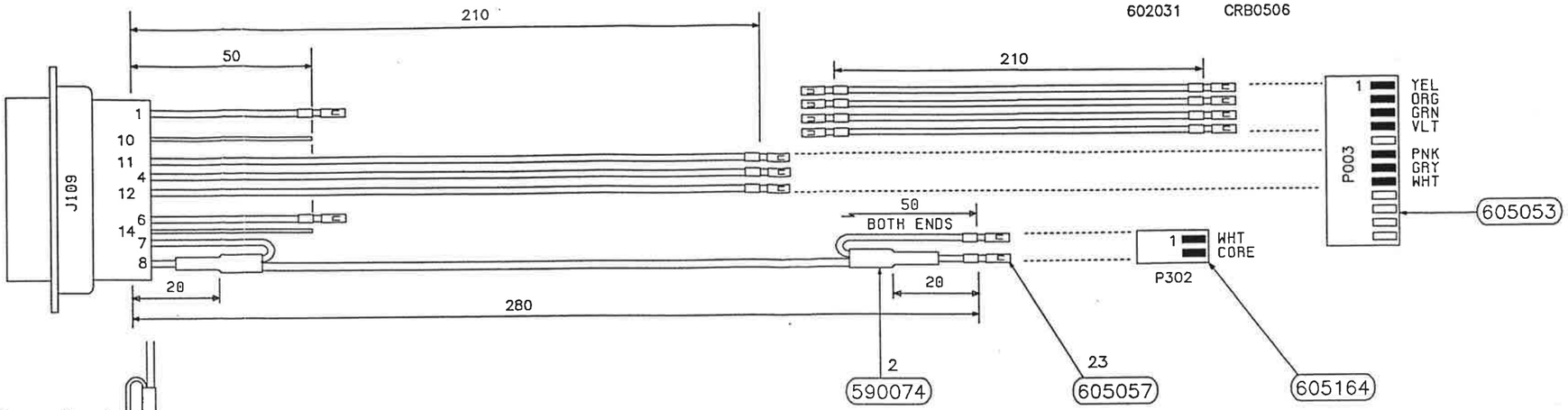
- 6 MAY 1994

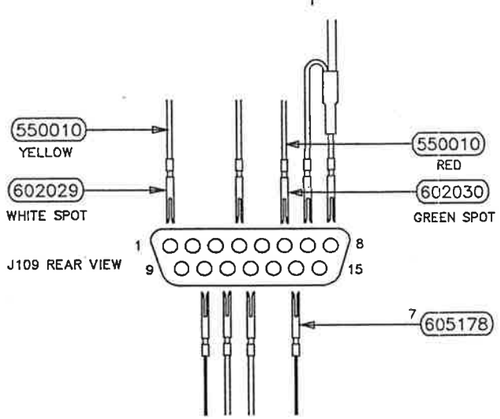
ALL CABLE LENGTHS ARE OVERALL LENGTH
PRIOR TO STRIPPING AND CRIMPING

CRIMP TOOLS :

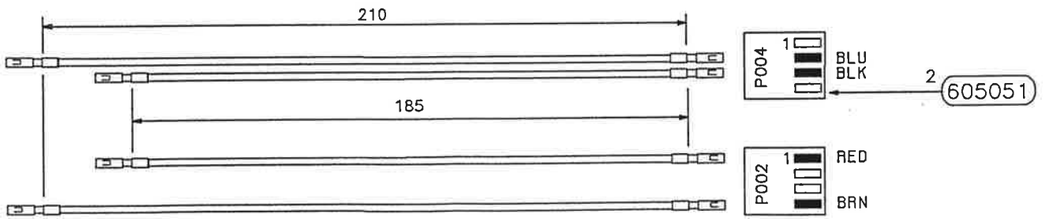
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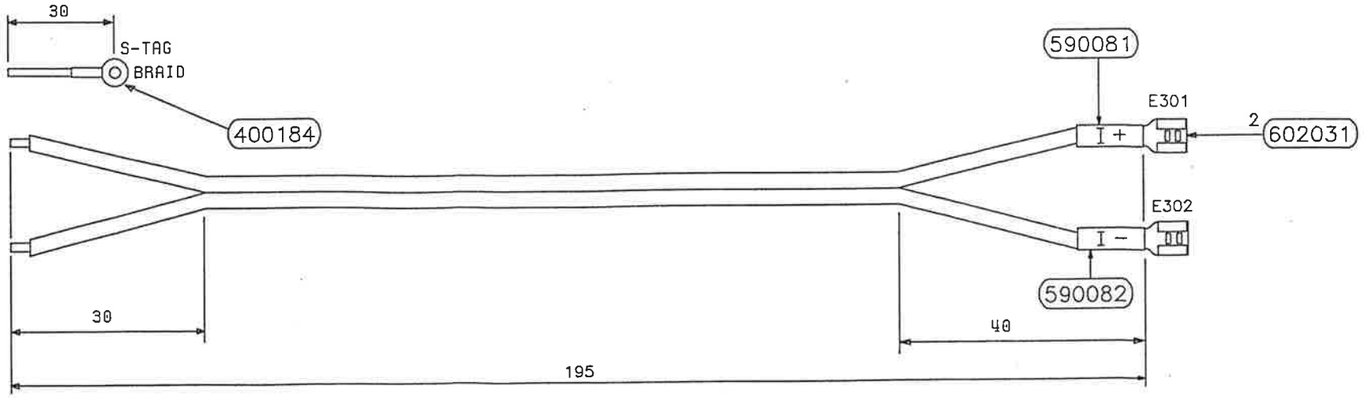
602031 CRB0506





FIT P002, P003, P004
AFTER ASSY IS FITTED
INTO CHASSIS





WIRING CHART

FROM	TO	PART NO	COLOUR
J109-1	E9	550010	YELLOW
J109-4	P003-7	512888	GREY
J109-6	E8	550010	RED
J109-7	SCREEN	512999	WHITE
J109-8	P302-2	560002	CORE
J109-10	E10	540002	BTC
J109-11	P003-6	513001	PINK
J109-12	P003-8	512999	WHITE
J109-14	E7	540002	BTC
P002-1	E3	512222	RED
P002-4	E1	512111	BROWN
P003-1	E14	512444	YELLOW
P003-2	E11	512333	ORANGE
P003-3	E12	512555	GREEN
P003-4	E13	512777	VIOLET
P004-2	E2	512666	BLUE
P004-3	E4	512000	BLACK
P302-1	SCREEN	512999	WHITE
E301	E5	550011	CLEAR (I+)
E302	E6	550011	CLEAR (I-)
S-TAG	E15	400184	BRAID

THIRD ANGLE PROJECTION	DRAWN JD	DATE 25 JUN 93	DIMENSIONS IN MILLIMETRES	TOLERANCES	MATERIAL ——	TITLE 9000 TERMINAL PCB ASSEMBLY
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE N.T.S.	DECIMAL TO 2 PLACES ± 0.1mm DECIMAL TO 1 PLACE ± 0.2mm WHOLE DIMENSIONS ± 0.4mm ANGULAR ± 0.5°	FINISH ——	
	APPROVED RWF	DATE 01 NOV 93	NOT TO BE SCALED	UNLESS OTHERWISE STATED		

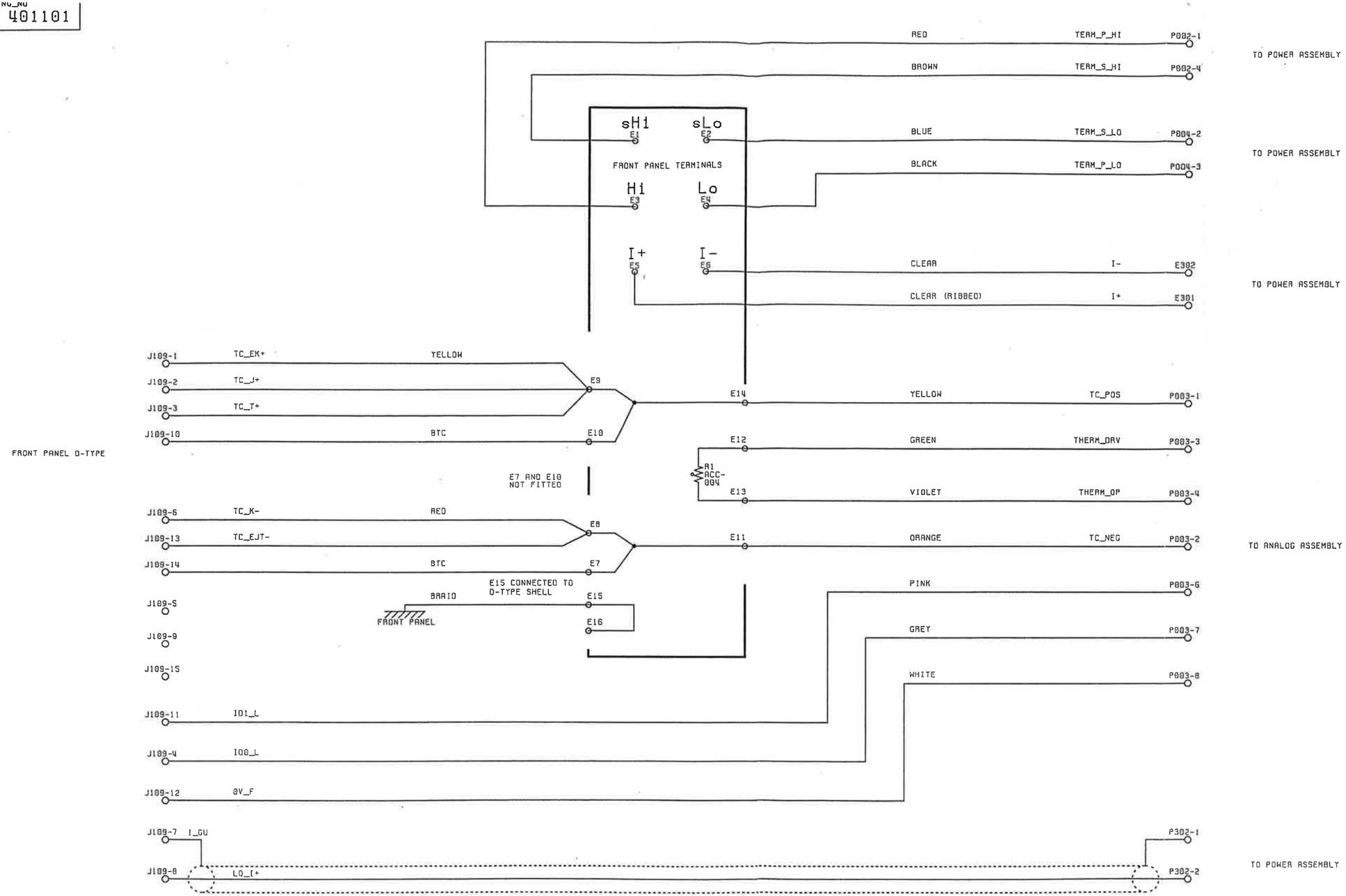
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DRAWING NO. DA401101

DRAWING_NO
DC 401101

ISS	CHANGES
1.0	ECO 4340 RELEASED 07 OCT 93

05 NOV 1993



DRAWN	JR	DATE	11th MAR 93
CHKD	KB	DATE	21/4/93
APPD		DATE	

TITLE
9000
TERMINAL PCB ASSY

detron
WAVETEK
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DRAWING_NO
DC 401101

SHEET 1 OF 1

DRAWING No
DA401102

ISS	CHANGES
1.0	ECO.4340 RELEASED 15 OCT 93
1.1	ECO.4369 WIRES FROM PIN3 OF FOWN MODULE WERE RED IJL 15NOV93
1.2	ECO.4435 SELECTED WIRE LENGTHS REDUC CRIMP TOOL RE ADDED IJL 9 MAR94
1.3	ECO.4562 NOTES ADDED TO AID PRODUCTION. IJL 13JUL94
2.0	ECO.4722 ISS. LEVEL UPDA IJL. 16 DEC9
3.0	ECO.4795 602023 + 602034 ADDED. EARTH WIRING MODIFIED. IJL. 5APR95

19 APR 1995

USE CRIMP TOOL No. HTR 244-5A POSITION B.

2 605161 920285 630414 400184

512444

605071 — YELLOW × 270mm — WHITE × 240mm — 512999

LOOSELY TWIST THIS PAIR TOGETHER

GRN/YEL WIRE CUT TO 210mm AND ENDS STRIPPED 5mm.
OTHER WIRES CUT TO 170mm AND ENDS STRIPPED 4.5mm.

300044

602023

602034

920279

FITTED WITH 240V SHOWING THROUGH APERTURE. 920280

YELLOW
WHITE
RED
ORANGE
BROWN
YELLOW ×85mm
GRN/YEL
GRN/YEL
YELLOW
GREEN
WHITE WIRE ×65mm

602023 8 — USE MOLEX CRIMP TOOL HTR 1031E POSITION A.

920278 603005 7 590012

PINS 3,4,5,6, 8,9,10.

590033 2

BOTH SIDES 590092 2

SECURE WIRE LOOM TO TRANSFORMER SLOT WRAPPING TIE-RAP OVER RUBBER SLEEVING, AS STRAIN RELIEF, ALLOWING A 15 mm LOOP

BLUE (6)
VIOLET (7)
GREY (8)
WHITE (9)
BLACK (10)
SPARE (11)
BROWN/WHITE (12)
RED/WHITE (13)
ORANGE/WHITE (14)
YELLOW/WHITE (15)
GREEN/WHITE (16)
BLUE/WHITE

605053

605057 11

ALIGN WIRE MARKERS NEATLY, HERE.

WIRES CUT TO 230mm. AND ENDS STRIPPED 3mm.

2 590092

USE JIG TO FORM LEADS

CUT THESE LEADS TO 125mm

APPLY LOCKING COMPOUND TO 'MATING SHANK'.

900009

451016 3

17 18 18 19

CSK THIS SIDE.

PASS WIRES THROUGH BLOCK BEFORE CRIMPING.

ALIGN CABLE MARKERS NEATLY, HERE.

451015

590029

SLEEVE ENTIRE JOINT WITH 35mm. (3 POSNS)

NB. ALL WIRES FROM TRANSFORMER SHOULD BE MEASURED AFTER SECURING WITH TYRAPS TO BOBBIN THEN MEASURING LENGTHS REQUIRED FROM TYRAP POINT.

THIRD ANGLE PROJECTION	DRAWN IJL	DATE 2JUL93	DIMENSIONS IN MILLIMETRES	TOLERANCES: DECIMAL TO 2 PLACES ±.1mm; DECIMAL TO 1 PLACE ±.2mm; WHOLE DIMENSIONS ±.4mm; ANGULAR ± ½°	MATERIAL —
ALL BURRS TO BE REMOVED	CHECKED KB	DATE 21 OCT 93	SCALE —	UNLESS OTHERWISE STATED	FINISH —
	APPR.	DATE 1 Nov 93	NOT TO BE SCALED		

TITLE
9000
MAINS TRANSFORMER ASSY.

datron INSTRUMENTS NORWICH ENGLAND

DRAWING No. DA401102

SHEET 1 OF 1

WAVETEK LTD PARTS LIST 24-Aug-95 DESC: ASSY FINISHED INST 9000 DRG NO: LP401092-1 REV: 15 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
	401093-1	ASSY INSTRUMENT 9000	WAVETEK	SEE DRG		EA	1
	401106-1	ASSY FIRMWARE 9000	WAVETEK	SEE DRG		EA	1
	401152-1	ASSY LEAD SET 9005	WAVETEK	SEE DRG		EA	1
	401175-1	ASSY SUPPORT SOFTWARE 9010	WAVETEK	SEE DRG		EA	-
	401200-1	ASSY SRAM CARD 9000	WAVETEK	SEE DRG		EA	-
	401205-1	ASSY RACK TRAY 9000	WAVETEK	SEE DRG		EA	-
	401216-1	ASSY FLASH CARD 9000	WAVETEK	SEE DRG		EA	-
	420074-1	LABEL MOD RECORD 1281	RS COMPONENTS	606-226		EA	1
	420119-1	LABEL CAL STICKER	CJM LABELS	SEE DRG		EA	2
	420146	LABEL 63.5 X 25.4 SILVER/PE	BRADY	LAT-21-773-1		EA	1
	420148-1	CERTIFICATE CALIBRATION 9000	WAVETEK	SEE DRG		EA	-
	440174-1	KIT 100V/120V 9000	WAVETEK	SEE DRG		EA	-
	440175-2	KIT SOFT CARRY CASE 9100	WAVETEK	SEE DRG		EA	-
	450200-1	MOULDED FOOT 1061	KG PRECISION	SEE DRG		EA	4
	450201-2	TILT STAND PLATE 1061	FARNELL TECH	SEE DRG		EA	2
	450224-2	FOOT PAD 1061	RYDALE	SEE DRG		EA	4
	450496-1	STAND TILT 1281	FARNELL TECH	SEE DRG		EA	1
	450993-1	OVERLAY TERMINAL 9000	TRIMCRAFT	SEE DRG		EA	1
	451000-2	COVER TOP 9000	PROPAK	SEE DRG		EA	1
	451001-2	COVER BOTTOM 9000	PROPAK	SEE DRG		EA	1
	451006-1	REAR FINISHER 9000	ADSUM	SEE DRG		EA	2
	451017-2	PACKING BOX 9000	SUTTON A E	SEE DRG		EA	1
	451020-1	EXTRUSION SIDE FINISHED 9000	PROPAK	SEE DRG		EA	2
	451051-2	OVERLAY LEADSET 9005	TRIMCRAFT	SEE DRG		EA	1
	451074-1	FUSE COVER PLATE 9000	PROPAK	SEE DRG		EA	1
	611005	SCREW M3 X 12 POZIPAN SZP	GKN	SEE DRG		EA	8
	611132	SCREW M3 X 8 POZIRCSK SZP	GKN	SEE DRG		EA	8
	613015	WASHER M5 SQ SPRING SZP	GKN	SEE DRG		EA	4
	613029	WASHER M3 CRINKLE SS	GKN	SEE DRG		EA	8
	630225	BAG ANTI STATIC PINK	OK INDUSTRIES	400G 457X736X1080		EA	1
	630373-1	SILICA GEL SELF-IND 50G	GEEJAY CHEMICALS	SEE DRG		EA	2
	630417	PC TRACKER BALL	LOGITECH	TRACKMAN VISTA	S	EA	-
	850283-1	HANDBOOK OPERATORS 9000	CROWE	SEE DRG		EA	1
	850284-3	HANDBOOK USERS VOL1 9000	CROWE	SEE DRG		EA	1
	850285-1	HANDBOOK USERS VOL2 9000	CROWE	SEE DRG		EA	1
	850295-1	HANDBOOK OPERATORS GERMAN 9000	CROWE	SEE DRG		EA	-
	850919-2	LEAFLET UNPACKING INSTRUCTIONS	WAVETEK	SEE DRG		EA	1
	900013	ADHESIVE CYANOCRYLATE	LOCTITE	496		AR	1
	920012	MAINS LEAD IEC 6A	BELLING LEE	L1949		EA	1
	920288	FUSE 3.15A 250V 20mm (T)	SCHURTER	001.2509		EA	1
	920293	FUSE 500mA 250V TR5 (F)	WICKMANN	19370-500		EA	2
	920294	FUSE 500mA 250V 20mm (F)	SCHURTER	0034.1513		EA	2
	920295	FUSE 4A 250V 20mm (F)	SCHURTER	0034.1522	A	EA	2

End

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WAVETEK LTD PARTS LIST 31-Oct-95 DESC: ASSY BEZEL 9100 DRG NO: LP401095-2 REV: 2 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C1	104048	CAP CM 1NF 20% 100V	PHILIPS	CW15A102M	A	EA	1
C2	104049	CAP CM 100NF 20% 50V	PHILIPS	CW20C104M	A	EA	1
	401150-1	ASSY PCB KEYPAD CONTROL 9000	WAVETEK	SEE DRG		EA	1
	410491-1	PCB KEYPAD DISP HORZ 9000	MANCHESTER CIRCUITS	SEE DRG	G1	EA	1
	410492-1	PCB KEYPAD DISP VERT 9000	MANCHESTER CIRCUITS	SEE DRG	G1	EA	1
	450988-1	BEZEL 9000	ADSUM	SEE DRG		EA	1
	450989-1	DISPLAY SEAL 9000	JSC TECHNIC	SEE DRG		EA	1
	450990-1	KEYPAD SET 9000	JSC TECHNIC	SEE DRG		EA	1
	450992-2	DISPLAY FILTER 9000	CHARVO	SEE DRG		EA	1
	450995-2	OVERLAY CONTROL PANEL 9100	SCREENCRAFT	SEE DRG		EA	1
	450996-3	BADGE LOGO WAVETEK 9000	BANBURY PLASTICS	SEE DRG		EA	1
	450998-1	SPIN KNOB MOULDING 9000	ADSUM	SEE DRG		EA	1
	451032-1	SCREEN DIG PCB 9000	FARNELL TECH	SEE DRG		EA	1
	605230	SOCKET PCB 10-WAY 2mm	HARWIN	M22-6111022	S	EA	1
	611006	SCREW M3 X 10 POZIPAN SZP	GKN	SEE DRG		EA	1
	611130	SCREW K25 X 8 POZIFLNG SZP ST	ASP	LN1441PZ-K25X8Z	S	EA	6
	611134	SCREW K18 X 6 POZICSK SZP ST	ASP	LN1443PZ-K18X6Z	A	EA	8
	613029	WASHER M3 CRINKLE SS	GKN	SEE DRG		EA	10
	613050	SOLDER TAG 6 BA	ROSS COURTNEY	201026		EA	1
	614033-1	SPACER 6.3x9.5x6.8LG	SPEAR ENGINEERING	SEE DRG		EA	2
	615002	NUT FULL M3 SZP	GKN	SEE DRG		EA	10
	620009	PIN VERO 1.0mm SS	RS COMPONENTS	433-854		EA	7
	800042	DISPLAY LCD 320X240 BLU/WHT	HITACHI	LMG6911RPBC	S	EA	1
	900054	PADS SOLVENT CLEANING	RS COMPONENTS	557-067		AR	1
	900056	CLEAN ROOM WIPES	RS COMPONENTS	712-444		AR	1
	900057	CLEANER ANTI-STATIC FOAM	RS COMPONENTS	497-022		AR	1

End

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DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R101	050108	RES MF 470R 1% .12W 100PPM	NEOHM	LR0204 470R 1%	A	EA	1
R102	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	2
R103	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	-
R104	050128	RES MF 22K 1% .12W 100PPM	NEOHM	LR0204 22K 1%	A	EA	1
R105	090176	RES PACK 22K X 4 2%	AB	770-83-22K	A	EA	1
R106	00000N	NOT FITTED	WAVETEK	00000N		EA	51
R107	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C101	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	2
C102	180060	CAP AE 10UF 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	1
C103	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
D101	220056	DIODE LE RED/GRN SM	STANLEY	BRPG1204W		EA	1
D102	220044	DIODE LE RED HIEFF	GI	HLMP1700		EA	1
Q101	250018	TRAN PNP	MOTOROLA	BC556	A	EA	2
Q102	240029	TRAN NPN	MOTOROLA	BC546	A	EA	1
Q103	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
U101	290186	MODULE INVERTER LCD 12 TO 300V	TDK	CXA-L10L		EA	1
L101	370036	CHOKE RF 47UH 235mA	SIGMA	15-10-1037-10		EA	1
J101	401147-1	ASSY RIBBON CABLE KEYPAD 9000	WAVETEK	SEE DRG		EA	1
J102	604133	PLUG PCB 10-WAY 2mm HEADER	HARWIN	M22-2011005	S	EA	1
E101	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E102	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E103	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E104	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E105	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E106	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E107	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E108	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E109	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E110	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E111	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E112	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E113	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E114	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E115	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TL101	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S120	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S121	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S122	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S123	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S124	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S130	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S131	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S132	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S133	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S134	00000N	NOT FITTED	WAVETEK	00000N		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
S135	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S136	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S140	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S141	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S142	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S143	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S144	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S145	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S146	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S150	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S151	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S152	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S153	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S161	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S162	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S170	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S171	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S172	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S173	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S174	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S175	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S176	00000N	NOT FITTED	WAVETEK	00000N		EA	-
S177	00000N	NOT FITTED	WAVETEK	00000N		EA	-
	410488-1	PCB KEYPAD CONTROL 9000	MANCHESTER CIRCUITS	SEE DRG	A	EA	1
	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	1
	540006	WIRE 1/.4 PTFE 250V BLK	BICC	SEE DRG	A	AR	1
	614012-1	SPACER M3 CLEAR X 5	SWIFT ENGINEERING	SEE DRG		EA	2
	614032-1	SPACER 9.9x12.7x4.4LG	SPEAR ENGINEERING	SEE DRG		EA	1
	920277	ROTARY ENCODER OPTICAL 64PULSE	BOURNS	ENA1J-B20.R00064	S	EA	1

End

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R102	008096	RES MG 3M3 5% .5W 2.5KV	PHILIPS	VR37-3M3-5		EA	1
R103	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	3
R104	008046	RES WW 10R 5% 2.5W	WELWYN	W21 10R 5%		EA	4
R107	041824	RES MF 1M82 1% .12W 100PPM	MEC	H8 1M82 1% 100PPM	A	EA	1
R111	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	14
R113	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	7
R114	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	-
R115	006751	RES MO 750R 2% 1W	E-SIL COMPONENTS	FP1 750R 2%		EA	2
R116	090105	RES PACK 100R X 4 2%	BECKMAN	L08-3S-101	A	EA	3
R118	011508	RES MF 15R0 1% .12W 50PPM	MEC	H8 15R0 1% 50PPM	A	EA	2
R119	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R120	015111	RES MF 5K11 1% .12W 50PPM	MEC	H8 5K11 1% 50PPM	A	EA	2
R121	012002	RES MF 20K0 1% .12W 50PPM	MEC	H8 20K0 1% 50PPM	A	EA	3
R122	011508	RES MF 15R0 1% .12W 50PPM	MEC	H8 15R0 1% 50PPM	A	EA	-
R125	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	-
R126	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	-
R127	006751	RES MO 750R 2% 1W	E-SIL COMPONENTS	FP1 750R 2%		EA	-
R128	013012	RES MF 30K1 1% .12W 50PPM	MEC	H8 30K1 1% 50PPM	A	EA	5
R129	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R131	012210	RES MF 221R 1% .12W 50PPM	MEC	H8 221R 1% 50PPM	A	EA	3
R132	012002	RES MF 20K0 1% .12W 50PPM	MEC	H8 20K0 1% 50PPM	A	EA	-
R133	015111	RES MF 5K11 1% .12W 50PPM	MEC	H8 5K11 1% 50PPM	A	EA	-
R134	012210	RES MF 221R 1% .12W 50PPM	MEC	H8 221R 1% 50PPM	A	EA	-
R135	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	1
R136	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-
R137	008101	RES MG 1M2 5% .5W 2.5KV	PHILIPS	VR37-1M2-5		EA	1
R138	005474	RES MO 470K 2% .5W	E-SIL COMPONENTS	TR5 470K 2%		EA	1
R139	019531	RES MF 9K53 1% .12W 50PPM	MEC	H8 9K53 1% 50PPM	A	EA	1
R142	012002	RES MF 20K0 1% .12W 50PPM	MEC	H8 20K0 1% 50PPM	A	EA	-
R143	090137	RES PACK 3K3 X 8 0.5%	BECKMAN	698-3-R3K3D		EA	1
R144	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	-
R145	043324	RES MF 3M32 1% .12W 100PPM	MEC	H8 3M32 1% 100PPM	A	EA	1
R146	013012	RES MF 30K1 1% .12W 50PPM	MEC	H8 30K1 1% 50PPM	A	EA	-
R147	011822	RES MF 18K2 1% .12W 50PPM	MEC	H8 18K2 1% 50PPM	A	EA	2
R148	011822	RES MF 18K2 1% .12W 50PPM	MEC	H8 18K2 1% 50PPM	A	EA	-
R149	013012	RES MF 30K1 1% .12W 50PPM	MEC	H8 30K1 1% 50PPM	A	EA	-
R201	012431	RES MF 2K43 1% .12W 50PPM	MEC	H8 2K43 1% 50PPM	A	EA	2
R205	011501	RES MF 1K50 1% .12W 50PPM	MEC	H8 1K50 1% 50PPM	A	EA	3
R206	008102	RES WW 5K1 5% 6W	WELWYN	W22 5K1 5%		EA	1
R207	008104	RES WW 12K 5% 7W	VTM	210-0 12K 5%		EA	1
R208	065010	RES CT 500K TOP ADJ M/T	BOURNS	3296W-1-504		EA	1
R209	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	11
R210	012212	RES MF 22K1 1% .12W 50PPM	MEC	H8 22K1 1% 50PPM	A	EA	2
R211	013321	RES MF 3K32 1% .12W 50PPM	MEC	H8 3K32 1% 50PPM	A	EA	1
R212	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	13

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DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R213	014758	RES MF 47R5 1% .12W 50PPM	MEC	H8 47R5 1% 50PPM	A	EA	2
R214	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R215	008103	RES WW 6K8 5% 4W	VTM	206-0 6K8 5%		EA	3
R216	008105	RES WW 15K 5% 7W	VTM	210-0 15K 5%		EA	3
R217	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	2
R218	008046	RES WW 10R 5% 2.5W	WELWYN	W21 10R 5%		EA	-
R219	008091	RES MF 1R 1% .6W	PHILIPS	MRS25-1R0-1	A	EA	2
R220	015620	RES MF 562R 1% .12W 50PPM	MEC	H8 562R 1% 50PPM	A	EA	2
R221	013921	RES MF 3K92 1% .12W 50PPM	MEC	H8 3K92 1% 50PPM	A	EA	2
R222	008091	RES MF 1R 1% .6W	PHILIPS	MRS25-1R0-1	A	EA	-
R223	013921	RES MF 3K92 1% .12W 50PPM	MEC	H8 3K92 1% 50PPM	A	EA	-
R230	012210	RES MF 221R 1% .12W 50PPM	MEC	H8 221R 1% 50PPM	A	EA	-
R231	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	4
R232	008105	RES WW 15K 5% 7W	VTM	210-0 15K 5%		EA	-
R233	008103	RES WW 6K8 5% 4W	VTM	206-0 6K8 5%		EA	-
R234	008103	RES WW 6K8 5% 4W	VTM	206-0 6K8 5%		EA	-
R235	008105	RES WW 15K 5% 7W	VTM	210-0 15K 5%		EA	-
R236	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	-
R237	008046	RES WW 10R 5% 2.5W	WELWYN	W21 10R 5%		EA	-
R238	015620	RES MF 562R 1% .12W 50PPM	MEC	H8 562R 1% 50PPM	A	EA	-
R245	013010	RES MF 301R 1% .12W 50PPM	MEC	H8 301R 1% 50PPM	A	EA	1
R246	011210	RES MF 121R 1% .12W 50PPM	MEC	H8 121R 1% 50PPM	A	EA	1
R247	090206	RES PACK 15K X 8 0.5%	BECKMAN	698-3-R15KD		EA	1
R248	000108	RES CF 1R0 5% .25W	NEOHM	CFR25 1R0 5%	A	EA	2
R249	000108	RES CF 1R0 5% .25W	NEOHM	CFR25 1R0 5%	A	EA	-
R250	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	7
R251	016812	RES MF 68K1 1% .12W 50PPM	MEC	H8 68K1 1% 50PPM	A	EA	1
R252	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R254	012431	RES MF 2K43 1% .12W 50PPM	MEC	H8 2K43 1% 50PPM	A	EA	-
R255	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R256	013012	RES MF 30K1 1% .12W 50PPM	MEC	H8 30K1 1% 50PPM	A	EA	-
R257	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	-
R258	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	-
R259	013012	RES MF 30K1 1% .12W 50PPM	MEC	H8 30K1 1% 50PPM	A	EA	-
R260	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	10
R262	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R263	019098	RES MF 90R9 1% .12W 50PPM	MEC	H8 90R9 1% 50PPM	A	EA	1
R264	014758	RES MF 47R5 1% .12W 50PPM	MEC	H8 47R5 1% 50PPM	A	EA	-
R265	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R266	017500	RES MF 750R 1% .12W 50PPM	MEC	H8 750R 1% 50PPM	A	EA	1
R267	012212	RES MF 22K1 1% .12W 50PPM	MEC	H8 22K1 1% 50PPM	A	EA	-
R268	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R301	090239	RES PACK 3K3 X 8 0.5% COPPER L	BECKMAN	1698-180-0		EA	1
R302	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-
R303	012001	RES MF 2K00 1% .12W 50PPM	MEC	H8 2K00 1% 50PPM	A	EA	2

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R304	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	-
R305	017501	RES MF 7K50 1% .12W 50PPM	MEC	H8 7K50 1% 50PPM	A	EA	1
R306	011620	RES MF 162R 1% .12W 50PPM	MEC	H8 162R 1% 50PPM	A	EA	1
R307	011500	RES MF 150R 1% .12W 50PPM	MEC	H8 150R 1% 50PPM	A	EA	4
R308	008002	RES WW 4R7 5% 2.5W	WELWYN	W21 4R7 5%		EA	1
R309	008046	RES WW 10R 5% 2.5W	WELWYN	W21 10R 5%		EA	-
R310	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R311	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R313	080179	RES FL 330R 0.1% 3PPM	VISHAY	S102J 330R00 0.1%	A	EA	1
R315	011108	RES MF 11R0 1% .12W 50PPM	MEC	H8 11R0 1% 50PPM	A	EA	2
R316	080177	RES FL 0R0333 1% 10PPM	VISHAY	317396 33m3R 1%10PPM	S	EA	1
R317	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	5
R318	011108	RES MF 11R0 1% .12W 50PPM	MEC	H8 11R0 1% 50PPM	A	EA	-
R319	080176	RES FL 0R005 1% 10PPM	VISHAY	317396 5mR 1% 10PPM	S	EA	1
R320	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	-
R323	008093	RES MF 820R 1% .6W	PHILIPS	MRS25-820R-1	A	EA	2
R324	008093	RES MF 820R 1% .6W	PHILIPS	MRS25-820R-1	A	EA	-
R325	008092	RES MF 1R2 1% .6W	PHILIPS	MRS25-1R2-1	A	EA	2
R326	008092	RES MF 1R2 1% .6W	PHILIPS	MRS25-1R2-1	A	EA	-
R327	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	4
R328	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R329	012001	RES MF 2K00 1% .12W 50PPM	MEC	H8 2K00 1% 50PPM	A	EA	-
R330	011302	RES MF 13K0 1% .12W 50PPM	MEC	H8 13K0 1% 50PPM	A	EA	2
R331	011500	RES MF 150R 1% .12W 50PPM	MEC	H8 150R 1% 50PPM	A	EA	-
R332	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R333	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R334	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	-
R335	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	-
R336	080178	RES FL 10R 0.1% 3PPM	VISHAY	S102J 10R000 0.1%	A	EA	3
R337	080178	RES FL 10R 0.1% 3PPM	VISHAY	S102J 10R000 0.1%	A	EA	-
R338	080178	RES FL 10R 0.1% 3PPM	VISHAY	S102J 10R000 0.1%	A	EA	-
R339	013329	RES MF 3R32 1% .12W 50PPM	MEC	H8 3R32 1% 50PPM	A	EA	1
R340	011302	RES MF 13K0 1% .12W 50PPM	MEC	H8 13K0 1% 50PPM	A	EA	-
R341	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R342	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R343	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R344	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R345	050114	RES MF 1K5 1% .12W 100PPM	NEOHM	LR0204 1K5 1%	A	EA	1
R401	018250	RES MF 825R 1% .12W 50PPM	MEC	H8 825R 1% 50PPM	A	EA	2
R402	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R403	007100	RES MO 10R 2% 2W	E-SIL COMPONENTS	FP2 10R 2%		EA	2
R404	239125-1	TRAN JFET N-CHAN KIT 415uA	WAVETEK	230002 TO DRG		S2	1
R405	008047	RES MF 470R 1% .6W	PHILIPS	MRS25-470R-1		EA	2
R406	008047	RES MF 470R 1% .6W	PHILIPS	MRS25-470R-1		EA	-
R408	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R409	018250	RES MF 825R 1% .12W 50PPM	MEC	H8 825R 1% 50PPM	A	EA	-
R410	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R411	007100	RES MO 10R 2% 2W	E-SIL COMPONENTS	FP2 10R 2%		EA	-
R412	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R414	011500	RES MF 150R 1% .12W 50PPM	MEC	H8 150R 1% 50PPM	A	EA	-
R415	008034	RES WW 0R15 10% 2.5W	WELWYN	W21 0R15 10%		EA	2
R416	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R417	011300	RES MF 130R 1% .12W 50PPM	MEC	H8 130R 1% 50PPM	A	EA	2
R418	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	-
R419	008041	RES MF 3R9 5% .3W	PHILIPS	SFR25-3R9-5		EA	2
R420	008099	RES WW 0R1 5% 6W	WELWYN	W22 0R10 5%	S	EA	6
R421	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R422	008099	RES WW 0R1 5% 6W	WELWYN	W22 0R10 5%	S	EA	-
R423	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R424	008099	RES WW 0R1 5% 6W	WELWYN	W22 0R10 5%	S	EA	-
R425	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R426	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R427	239124-1	TRAN JFET N-CHAN KIT 735uA	WAVETEK	230002 TO DRG		S2	1
R428	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R429	013328	RES MF 33R2 1% .12W 50PPM	MEC	H8 33R2 1% 50PPM	A	EA	1
R431	011300	RES MF 130R 1% .12W 50PPM	MEC	H8 130R 1% 50PPM	A	EA	-
R432	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	-
R433	008041	RES MF 3R9 5% .3W	PHILIPS	SFR25-3R9-5		EA	-
R434	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R435	008099	RES WW 0R1 5% 6W	WELWYN	W22 0R10 5%	S	EA	-
R436	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R437	008099	RES WW 0R1 5% 6W	WELWYN	W22 0R10 5%	S	EA	-
R438	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R439	008099	RES WW 0R1 5% 6W	WELWYN	W22 0R10 5%	S	EA	-
R440	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R442	011500	RES MF 150R 1% .12W 50PPM	MEC	H8 150R 1% 50PPM	A	EA	-
R443	008034	RES WW 0R15 10% 2.5W	WELWYN	W21 0R15 10%		EA	-
R444	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R446	017502	RES MF 75K0 1% .12W 50PPM	MEC	H8 75K0 1% 50PPM	A	EA	3
R447	090095	RES PACK 47K X 4 2%	BECKMAN	L08-3S-473	A	EA	2
R448	011373	RES MF 137K 1% .12W 50PPM	MEC	H8 137K 1% 50PPM	A	EA	1
R449	045113	RES MF 511K 1% .12W 50PPM	MEC	H8 511K 1% 50PPM	A	EA	1
R453	090095	RES PACK 47K X 4 2%	BECKMAN	L08-3S-473	A	EA	-
R454	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R455	012748	RES MF 27R4 1% .12W 50PPM	MEC	H8 27R4 1% 50PPM	A	EA	2
R456	012748	RES MF 27R4 1% .12W 50PPM	MEC	H8 27R4 1% 50PPM	A	EA	-
R457	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	-
R458	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R459	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R460	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R461	008033	RES WW 100R 5% 2.5W	WELWYN	W21 100R 5%		EA	2
R462	008033	RES WW 100R 5% 2.5W	WELWYN	W21 100R 5%		EA	-
R463	090105	RES PACK 100R X 4 2%	BECKMAN	L08-3S-101	A	EA	-
R464	090105	RES PACK 100R X 4 2%	BECKMAN	L08-3S-101	A	EA	-
R465	016811	RES MF 6K81 1% .12W 50PPM	MEC	H8 6K81 1% 50PPM	A	EA	1
R466	008017	RES MF 0R47 10% .5W	STC	RN05/R47/10		EA	2
R467	008017	RES MF 0R47 10% .5W	STC	RN05/R47/10		EA	-
R472	050148	RES MF 1M0 1% .12W 100PPM	NEOHM	LR0204 1M0 1%		EA	1
R501	007393	RES MO 39K 2% 2W	E-SIL COMPONENTS	FP2 39K 2%		EA	2
R502	007393	RES MO 39K 2% 2W	E-SIL COMPONENTS	FP2 39K 2%		EA	-
R503	001223	RES CF 22K 5% .5W	NEOHM	CFR50 22K 5%		EA	2
R504	001223	RES CF 22K 5% .5W	NEOHM	CFR50 22K 5%		EA	-
R505	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R506	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R508	005204	RES MO 200K 2% .5W	E-SIL COMPONENTS	TR5 200K 2%		EA	4
R509	005204	RES MO 200K 2% .5W	E-SIL COMPONENTS	TR5 200K 2%		EA	-
R511	005204	RES MO 200K 2% .5W	E-SIL COMPONENTS	TR5 200K 2%		EA	-
R512	005204	RES MO 200K 2% .5W	E-SIL COMPONENTS	TR5 200K 2%		EA	-
R513	018459	RES MF 8R45 1% .12W 50PPM	MEC	H8 8R45 1% 50PPM	A	EA	2
R514	011501	RES MF 1K50 1% .12W 50PPM	MEC	H8 1K50 1% 50PPM	A	EA	-
R515	008036	RES WW 3R3 5% 2.5W	WELWYN	W21 3R3 5%		EA	2
R516	011501	RES MF 1K50 1% .12W 50PPM	MEC	H8 1K50 1% 50PPM	A	EA	-
R517	018459	RES MF 8R45 1% .12W 50PPM	MEC	H8 8R45 1% 50PPM	A	EA	-
R518	008036	RES WW 3R3 5% 2.5W	WELWYN	W21 3R3 5%		EA	-
R519	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R520	090132	RES PACK 4K7 X 4 2%	BECKMAN	L08-3S-472	A	EA	1
R527	000518	RES CF 5R1 5% .25W	NEOHM	CFR25 5R1 5%	A	EA	1
R528	016198	RES MF 61R9 1% .12W 50PPM	MEC	H8 61R9 1% 50PPM	A	EA	2
R529	016198	RES MF 61R9 1% .12W 50PPM	MEC	H8 61R9 1% 50PPM	A	EA	-
R530	007510	RES MO 51R 2% 2W	E-SIL COMPONENTS	FP2 51R 2%		EA	2
R531	007510	RES MO 51R 2% 2W	E-SIL COMPONENTS	FP2 51R 2%		EA	-
R532	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R533	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R534	017502	RES MF 75K0 1% .12W 50PPM	MEC	H8 75K0 1% 50PPM	A	EA	-
R535	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R536	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R537	017502	RES MF 75K0 1% .12W 50PPM	MEC	H8 75K0 1% 50PPM	A	EA	-
R541	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R542	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	-
R543	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R544	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R545	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R546	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R547	014752	RES MF 47K5 1% .12W 50PPM	MEC	H8 47K5 1% 50PPM	A	EA	2
R801	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R802	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R808	014752	RES MF 47K5 1% .12W 50PPM	MEC	H8 47K5 1% 50PPM	A	EA	-
R809	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R823	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
C101	140040	CAP PP 10NF 10% 2KV	STEATITE	MKP 1841-310/20 5		EA	2
C102	140040	CAP PP 10NF 10% 2KV	STEATITE	MKP 1841-310/20 5		EA	-
C103	140048	CAP PP 47NF 10% 1K6V	STEATITE	MKP 1841-347/13 5	A	EA	2
C104	140048	CAP PP 47NF 10% 1K6V	STEATITE	MKP 1841-347/13 5	A	EA	-
C105	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	4
C106	180063	CAP AE 100UF 20% 50V	NIPPON CHEMI-CON	KMEVB100/50M	A	EA	4
C107	110026	CAP PE 6N8F 20% 100V	WIMA	FKS2 6800 20% 100V		EA	1
C108	180063	CAP AE 100UF 20% 50V	NIPPON CHEMI-CON	KMEVB100/50M	A	EA	-
C110	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	38
C111	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C114	180040	CAP AE 10UF 20% 100V	RUBYCON	100LLA10M	A	EA	2
C115	100120	CAP CP 12PF 2% 100V NPO	PHILIPS	2222 683 10129		EA	2
C116	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	4
C117	180040	CAP AE 10UF 20% 100V	RUBYCON	100LLA10M	A	EA	-
C118	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C119	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	-
C120	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	10
C121	110039	CAP PE 470NF 20% 63V	WIMA	MKS2 0.47 20% 63V		EA	4
C122	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C123	110039	CAP PE 470NF 20% 63V	WIMA	MKS2 0.47 20% 63V		EA	-
C124	100478	CAP CP 4P7F .25PF 100V NPO	PHILIPS	2222 683 09478		EA	2
C125	100478	CAP CP 4P7F .25PF 100V NPO	PHILIPS	2222 683 09478		EA	-
C126	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	-
C127	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C128	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C129	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C130	100561	CAP CP 560PF 10% 100V 2C2	PHILIPS	2222 630 19561		EA	1
C131	104080	CAP CM 330PF 10% 200V NPO	AVX	SR212A331KAA		EA	1
C132	104089	CAP CM 560PF 10% 100V NPO	AVX	SR211A561KNA		EA	1
C201	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	15
C202	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C203	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C204	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C209	180051	CAP AE 22UF 20% 400V	NIPPON CHEMI-CON	KMEVB22/400M	A	EA	1
C210	110068	CAP PE 220NF 10% 400V	WIMA	MKS4 0.22 10% 400V		EA	2
C211	100472	CAP CP 4N7F 10% 100V 2C2	PHILIPS	2222 630 19472		EA	4
C214	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C215	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C216	102330	CAP CD 33PF 5% 500V NPO	MURATA	DD07-63CH330J500	A	EA	3
C217	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C223	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	5

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C224	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	-
C225	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C226	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	2
C227	100472	CAP CP 4N7F 10% 100V 2C2	PHILIPS	2222 630 19472		EA	-
C228	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C229	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C230	00000N	NOT FITTED	WAVETEK	00000N		EA	26
C231	110068	CAP PE 220NF 10% 400V	WIMA	MKS4 0.22 10% 400V		EA	-
C232	102330	CAP CD 33PF 5% 500V NPO	MURATA	DD07-63CH330J500	A	EA	-
C233	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C234	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	-
C235	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	-
C236	102478	CAP CD 4P7F .5PF 500V NPO	BECK	CD08CG04P7DSCR	A	EA	1
C237	102270	CAP CD 27PF 20% 500V NPO	BECK	CD10CG27P0MSCR	A	EA	1
C238	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C239	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C242	100180	CAP CP 18PF 2% 100V NPO	PHILIPS	2222 683 10189		EA	1
C243	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C244	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C245	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C302	100220	CAP CP 22PF 2% 100V N150	PHILIPS	2222 683 34229		EA	1
C303	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C304	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C305	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C307	100120	CAP CP 12PF 2% 100V NPO	PHILIPS	2222 683 10129		EA	-
C308	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C309	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C310	110050	CAP PE 22NF 10% 63V	WIMA	MKS2 0.022 10% 63V		EA	3
C311	110020	CAP PE 47NF 20% 63V	WIMA	MKS2 0.047 20% 63V		EA	1
C312	104045	CAP CP 1UF +80%-20% 50V	PHILIPS	CZ30C 105Z		EA	1
C319	102330	CAP CD 33PF 5% 500V NPO	MURATA	DD07-63CH330J500	A	EA	-
C320	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C321	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C322	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C323	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C324	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C325	110040	CAP PE 33NF 20% 63V	WIMA	MKS2 0.033 20% 63V		EA	2
C326	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C327	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C328	110015	CAP PE 15NF 20% 63V	WIMA	MKS2 0.015 20% 63V		EA	1
C329	110050	CAP PE 22NF 10% 63V	WIMA	MKS2 0.022 10% 63V		EA	-
C330	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C331	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C332	100560	CAP CP 56PF 2% 100V N150	PHILIPS	2222 683 34569		EA	1
C333	102471	CAP CD 470PF 20% 500V N4700	BECK	CD10EM470PMSCR	A	EA	1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C335	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C336	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C337	110050	CAP PE 22NF 10% 63V	WIMA	MKS2 0.022 10% 63V		EA	-
C401	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C402	180044	CAP AE 220UF 20% 50V	NIPPON CHEMI-CON	KMEVB220/50M	A	EA	2
C404	100471	CAP CP 470PF 10% 100V 2C2	PHILIPS	2222 630 19471		EA	1
C405	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C406	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C407	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C408	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C412	110039	CAP PE 470NF 20% 63V	WIMA	MKS2 0.47 20% 63V		EA	-
C414	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C415	110040	CAP PE 33NF 20% 63V	WIMA	MKS2 0.033 20% 63V		EA	-
C417	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C421	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C422	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C424	110039	CAP PE 470NF 20% 63V	WIMA	MKS2 0.47 20% 63V		EA	-
C425	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C426	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C427	100338	CAP CP 3P3F .25PF 100V NPO	PHILIPS	2222 683 09338		EA	1
C428	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	1
C429	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C430	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C431	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C432	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C433	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C434	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C435	100472	CAP CP 4N7F 10% 100V 2C2	PHILIPS	2222 630 19472		EA	-
C436	100472	CAP CP 4N7F 10% 100V 2C2	PHILIPS	2222 630 19472		EA	-
C437	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C438	104079	CAP CM 220PF 5% 200V NPO	AVX	SR212A221JAA		EA	-
C501	180073	CAP AE 100UF 20% 385V	PHILIPS	2222 057 58101	A	EA	2
C502	180073	CAP AE 100UF 20% 385V	PHILIPS	2222 057 58101	A	EA	-
C503	180049	CAP AE 330UF 20% 100V	NIPPON CHEMI-CON	KMEVB330/100M	A	EA	2
C504	180049	CAP AE 330UF 20% 100V	NIPPON CHEMI-CON	KMEVB330/100M	A	EA	-
C506	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C507	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C508	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C509	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C512	180044	CAP AE 220UF 20% 50V	NIPPON CHEMI-CON	KMEVB220/50M	A	EA	-
C513	180027	CAP AE 2200UF 20% 50V	NIPPON CHEMI-CON	KMEVB2200/50M	A	EA	2
C514	180027	CAP AE 2200UF 20% 50V	NIPPON CHEMI-CON	KMEVB2200/50M	A	EA	-
C515	180063	CAP AE 100UF 20% 50V	NIPPON CHEMI-CON	KMEVB100/50M	A	EA	-
C516	180063	CAP AE 100UF 20% 50V	NIPPON CHEMI-CON	KMEVB100/50M	A	EA	-
C517	180075	CAP AE 3300UF 20% 25V	NIPPON CHEMI-CON	KMEVB3300/25M	A	EA	1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C518	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C519	110035	CAP PE 220NF 20% 63V	WIMA	MKS2 0.22 20% 63V		EA	2
C520	110035	CAP PE 220NF 20% 63V	WIMA	MKS2 0.22 20% 63V		EA	-
C521	180054	CAP AE 1UF 20% 100V	NIPPON CHEMI-CON	KMEVB1/100M	A	EA	3
C522	180054	CAP AE 1UF 20% 100V	NIPPON CHEMI-CON	KMEVB1/100M	A	EA	-
C523	180054	CAP AE 1UF 20% 100V	NIPPON CHEMI-CON	KMEVB1/100M	A	EA	-
C524	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C525	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C601	110069	CAP PE 47NF 20% 250V X2 RATED	PHILIPS	2222-330-40473		EA	1
C801	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	-
C802	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C804	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C805	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C807	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C809	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C810	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	-
D101	200020	DIODE FR 0.5A 1K6V	GI	RGP02-16E		EA	4
D102	200020	DIODE FR 0.5A 1K6V	GI	RGP02-16E		EA	-
D103	200020	DIODE FR 0.5A 1K6V	GI	RGP02-16E		EA	-
D104	200020	DIODE FR 0.5A 1K6V	GI	RGP02-16E		EA	-
D105	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	27
D106	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	22
D107	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D108	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D109	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D110	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D111	213008	DIODE TS 24V 5/500W	UNITRODE	TVS524	A	EA	3
D112	213008	DIODE TS 24V 5/500W	UNITRODE	TVS524	A	EA	-
D113	220010	DIODE SB	HP	1N6263	A	EA	4
D114	220010	DIODE SB	HP	1N6263	A	EA	-
D115	220010	DIODE SB	HP	1N6263	A	EA	-
D116	220010	DIODE SB	HP	1N6263	A	EA	-
D117	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	12
D118	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D119	210075	DIODE ZN 7V5 400mW	MOTOROLA	BZX79C7V5	A	EA	2
D120	210075	DIODE ZN 7V5 400mW	MOTOROLA	BZX79C7V5	A	EA	-
D201	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D202	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D203	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D204	211150	DIODE ZN 15V 1.3W	PHILIPS	BZV85C15	A	EA	1
D205	214029	DIODE ZN 2V5 REF	NATIONAL	LM336Z-2.5	S	EA	1
D206	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D207	210150	DIODE ZN 15V 400mW	MOTOROLA	BZX79C15	A	EA	2
D208	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D209	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
D210	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D211	210150	DIODE ZN 15V 400mW	MOTOROLA	BZX79C15	A	EA	-
D214	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D215	210047	DIODE ZN 4V7 400mW	MOTOROLA	BZX79C4V7	A	EA	2
D216	210082	DIODE ZN 8V2 400mW	MOTOROLA	BZX79C8V2	A	EA	1
D217	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D218	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D219	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D220	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D221	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D222	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D223	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D224	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D229	210068	DIODE ZN 6V8 400mW	MOTOROLA	BZX79C6V8	A	EA	2
D230	210068	DIODE ZN 6V8 400mW	MOTOROLA	BZX79C6V8	A	EA	-
D231	210047	DIODE ZN 4V7 400mW	MOTOROLA	BZX79C4V7	A	EA	-
D303	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D304	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D305	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D306	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D308	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D309	213011	DIODE VR 1V4 250mW	PHILIPS	BZV86-1V4		EA	5
D310	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D311	213011	DIODE VR 1V4 250mW	PHILIPS	BZV86-1V4		EA	-
D312	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D313	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D314	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D315	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D316	210056	DIODE ZN 5V6 400mW	MOTOROLA	BZX79C5V6	A	EA	1
D317	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D318	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D319	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D401	213011	DIODE VR 1V4 250mW	PHILIPS	BZV86-1V4		EA	-
D402	213011	DIODE VR 1V4 250mW	PHILIPS	BZV86-1V4		EA	-
D409	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D410	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D411	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D412	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D413	200026	DIODE GP 3A 100V	MOTOROLA	1N5401	A	EA	2
D414	213025	DIODE ZN 3V3 5W	MOTOROLA	1N5333B	A	EA	3
D415	200026	DIODE GP 3A 100V	MOTOROLA	1N5401	A	EA	-
D416	213025	DIODE ZN 3V3 5W	MOTOROLA	1N5333B	A	EA	-
D501	209013	DIODE BR 1A5 600V	GI	W06G	A	EA	2
D502	209013	DIODE BR 1A5 600V	GI	W06G	A	EA	-
D503	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
D504	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D507	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D508	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D510	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D512	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D513	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D514	209015	DIODE BR 4A 800V	INT RECTIFIER	GBU4K		EA	1
D515	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D516	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D517	213009	DIODE TS 15V 5/500W	UNITRODE	TVS515	A	EA	2
D518	213009	DIODE TS 15V 5/500W	UNITRODE	TVS515	A	EA	-
D519	200036	DIODE FR 15A 100V X2	PHILIPS	BYV42E-100	S	EA	1
D521	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D522	213006	DIODE TS 5V 5/500W	UNITRODE	TVS505	A	EA	1
D523	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	1
D524	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
D525	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
D526	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
D527	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D528	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D529	210120	DIODE ZN 12V 400mW	MOTOROLA	BZX79C12	A	EA	1
D530	210220	DIODE ZN 22V 400mW	MOTOROLA	BZX79C22	A	EA	1
D531	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D532	213008	DIODE TS 24V 5/500W	UNITRODE	TVS524	A	EA	-
D533	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D534	213016	DIODE TS 12V 5/500W	UNITRODE	TVS512	A	EA	1
D535	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D536	210100	DIODE ZN 10V 400mW	MOTOROLA	BZX79C10	A	EA	-
D537	200005	DIODE SB 200mA 30V	PHILIPS	BAT85		EA	1
D801	213025	DIODE ZN 3V3 5W	MOTOROLA	1N5333B	A	EA	-
D804	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D805	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D806	213011	DIODE VR 1V4 250mW	PHILIPS	BZV86-1V4		EA	-
D807	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D808	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
Q101	240009	TRAN NPN TO18	MOTOROLA	2N5550	A	EA	1
Q102	250037	TRAN PNP 300V TO92	MOTOROLA	MPSA92	A	EA	3
Q103	240018	TRAN NPN	MOTOROLA	MJE340	A	EA	3
Q105	250009	TRAN PNP TO92	MOTOROLA	2N5401	A	EA	1
Q106	240032	TRAN NPN	MOTOROLA	BF393		EA	4
Q108	250025	TRAN PNP	MOTOROLA	MJE350		EA	3
Q201	250025	TRAN PNP	MOTOROLA	MJE350		EA	-
Q202	240018	TRAN NPN	MOTOROLA	MJE340	A	EA	-
Q203	240032	TRAN NPN	MOTOROLA	BF393		EA	-
Q204	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
Q205	240029	TRAN NPN	MOTOROLA	BC546	A	EA	15
Q206	250018	TRAN PNP	MOTOROLA	BC556	A	EA	12
Q207	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q208	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q209	250025	TRAN PNP	MOTOROLA	MJE350		EA	-
Q210	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q211	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q212	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q213	230121	TRAN MOSFET N-CHAN	SIEMENS	BUZ80	A	EA	1
Q214	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q215	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q216	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q217	240018	TRAN NPN	MOTOROLA	MJE340	A	EA	-
Q301	230036	TRAN JFET N-CHAN	SILICONIX	J108	A	EA	1
Q302	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q303	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q304	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q306	240031	TRAN NPN	MOTOROLA	BD139		EA	6
Q307	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q309	250021	TRAN PNP	MOTOROLA	BD140	A	EA	4
Q311	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q312	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q401	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q402	240031	TRAN NPN	MOTOROLA	BD139		EA	-
Q403	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q404	250021	TRAN PNP	MOTOROLA	BD140	A	EA	-
Q405	239125-1	TRAN JFET N-CHAN KIT 415uA	WAVETEK	230002 TO DRG		S2	-
Q406	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q407	250021	TRAN PNP	MOTOROLA	BD140	A	EA	-
Q408	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q409	240031	TRAN NPN	MOTOROLA	BD139		EA	-
Q410	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q411	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q412	240031	TRAN NPN	MOTOROLA	BD139		EA	-
Q413	240031	TRAN NPN	MOTOROLA	BD139		EA	-
Q414	239124-1	TRAN JFET N-CHAN KIT 735uA	WAVETEK	230002 TO DRG		S2	-
Q415	250021	TRAN PNP	MOTOROLA	BD140	A	EA	-
Q416	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q417	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q418	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q419	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q420	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q421	240031	TRAN NPN	MOTOROLA	BD139		EA	-
Q422	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q423	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
Q424	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q425	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q426	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
Q427	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q428	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q429	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q430	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q431	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q432	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q433	230065	TRAN JFET I LIM 4m7A	SILICONIX	J511		EA	1
Q434	230118	TRAN JFET P-CHAN	NATIONAL	J177	A	EA	1
Q501	240032	TRAN NPN	MOTOROLA	BF393		EA	-
Q502	250037	TRAN PNP 300V TO92	MOTOROLA	MPSA92	A	EA	-
Q503	250037	TRAN PNP 300V TO92	MOTOROLA	MPSA92	A	EA	-
Q505	230064	TRAN MOSFET P-CHAN	MOTOROLA	MTP2P50	A	EA	1
Q506	240032	TRAN NPN	MOTOROLA	BF393		EA	-
Q508	230063	TRAN MOSFET N-CHAN	MOTOROLA	MTP2N85	A	EA	1
Q511	250020	TRAN PNP	MOTOROLA	TIP32C		EA	1
Q512	240034	TRAN NPN	MOTOROLA	TIP31C		EA	1
Q513	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q802	240014	TRAN NPN TO92	MOTOROLA	BC337	A	EA	1
U101	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	5
U103	280196	IC DIG SWITCH ANLG 4NC	SILICONIX	DG412DJ		EA	1
U104	260065	IC LIN OP AMP	ANALOG DEVICES	OP27FP	A	EA	2
U105	260087	IC LIN OP AMP BIFET	MOTOROLA	MC34081BP		EA	1
U106	260159	IC LIN OP AMP DUAL BIFET HS	ANALOG DEVICES	AD712JN	S	EA	1
U107	260168	IC LIN OP AMP DUAL FAST	ANALOG DEVICES	OP271EZ	S	EA	1
U108	260139	IC LIN OP AMP LOFFSET DRIFT	ANALOG DEVICES	AD707KN		EA	1
U109	260161	IC LIN OP AMP V CONTROLLED	ANALOG DEVICES	SSM-2018P	S	EA	1
U202	260075	IC LIN V COMP DUAL	NATIONAL	LM2903N	A	EA	2
U203	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U204	260154	IC LIN OP AMP LOW NOISE FAST	ANALOG DEVICES	OP37FP	S	EA	1
U205	260156	IC LIN OP AMP LOW POWER	TEXAS	TLC271CP	S	EA	1
U206	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U301	280187	IC DIG SWITCH ANLG 4NO	SILICONIX	DG411DJ		EA	1
U302	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U303	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U304	260162	IC LIN OP AMP DI FET HS	BURR BROWN	OPA602BP	S	EA	1
U305	260057	IC LIN OP AMP	PHILIPS	NE5534N		EA	1
U306	260065	IC LIN OP AMP	ANALOG DEVICES	OP27FP	A	EA	-
U307	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	3
U308	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	1
U401	260166	IC LIN OP AMP DUAL FET IP	TEXAS	TLE2082CP		EA	1
U402	260165	IC LIN OP AMP SINGLE SUPPLY	MOTOROLA	MC34071P	A	EA	1
U403	260106	IC LIN OP AMP DUAL	MOTOROLA	MC34082P		EA	2

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
U404	260106	IC LIN OP AMP DUAL	MOTOROLA	MC34082P		EA	-
U405	260075	IC LIN V COMP DUAL	NATIONAL	LM2903N	A	EA	-
U406	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U501	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	5
U502	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
U503	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
U504	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
U505	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U801	401090-1	ASSY FPGA POWER 9000	WAVETEK	SEE DRG		EA	1
U802	280166	IC DIG NAND2 X4	TEXAS	SN74HCT00N	A	EA	1
U803	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U804	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U805	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U806	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U807	280017	IC DIG INV X6	MOTOROLA	MC14069UBCP	A	EA	1
T101	300041-1	TRANSF LF 9000	SIGA	SEE DRG		EA	1
T102	300042-1	TRANSF HF 9000	SIGA	SEE DRG		EA	1
K102	330029	RELAY 2PCO 24V	MATSUSHITA	DS2E-DC24V		EA	3
K103	330044	RELAY 2PCO POWER 24V	OMRON	G2R-24-24VDC	S	EA	6
K104	330030	RELAY 4PNO 24V	MATSUSHITA	S4-24V		EA	2
K105	330044	RELAY 2PCO POWER 24V	OMRON	G2R-24-24VDC	S	EA	-
K106	330044	RELAY 2PCO POWER 24V	OMRON	G2R-24-24VDC	S	EA	-
K109	330029	RELAY 2PCO 24V	MATSUSHITA	DS2E-DC24V		EA	-
K201	330030	RELAY 4PNO 24V	MATSUSHITA	S4-24V		EA	-
K202	330070	RELAY 2PCO 24V	MATSUSHITA	TQ2-24V		EA	5
K301	330070	RELAY 2PCO 24V	MATSUSHITA	TQ2-24V		EA	-
K302	330029	RELAY 2PCO 24V	MATSUSHITA	DS2E-DC24V		EA	-
K303	330071	RELAY 1PNO POWER 24V	MATSUSHITA	JT1A-S-DC24V	A	EA	3
K304	330044	RELAY 2PCO POWER 24V	OMRON	G2R-24-24VDC	S	EA	-
K305	330044	RELAY 2PCO POWER 24V	OMRON	G2R-24-24VDC	S	EA	-
K306	330071	RELAY 1PNO POWER 24V	MATSUSHITA	JT1A-S-DC24V	A	EA	-
K307	330044	RELAY 2PCO POWER 24V	OMRON	G2R-24-24VDC	S	EA	-
K308	330070	RELAY 2PCO 24V	MATSUSHITA	TQ2-24V		EA	-
K401	330070	RELAY 2PCO 24V	MATSUSHITA	TQ2-24V		EA	-
K402	330070	RELAY 2PCO 24V	MATSUSHITA	TQ2-24V		EA	-
K601	330071	RELAY 1PNO POWER 24V	MATSUSHITA	JT1A-S-DC24V	A	EA	-
L101	370044	CHOKE 27mH	TOKO	187LY-273J	S	EA	2
L102	370044	CHOKE 27mH	TOKO	187LY-273J	S	EA	-
L401	370001	CHOKE RF 10UH 510mA	SIGMA	10-10-0525-10	A	EA	2
L402	370001	CHOKE RF 10UH 510mA	SIGMA	10-10-0525-10	A	EA	-
W401	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	4
W402	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	-
W403	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	-
J302	604085	PLUG PCB 2-WAY .1"	MOLEX	22-29-2021		EA	3
J501	604086	PLUG PCB 12-WAY .1"	MOLEX	22-29-2121		EA	1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
J601	604042	PLUG PCB 4-WAY .156" GD PL	MOLEX	09-72-2041		EA	1
J701	604131	PLUG PCB 50-WAY .1"x.1" LP	3M	2550-6002UN	S	EA	1
J801	604124	PLUG PCB 34-WAY .1"x.1" 90DEG	3M	3431-5302UN	S	EA	1
J802	604085	PLUG PCB 2-WAY .1"	MOLEX	22-29-2021		EA	-
J803	604046	PLUG PCB 3-WAY .1"	MOLEX	22-10-2031		EA	1
E101	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E102	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E103	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E104	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E105	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E106	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E107	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E108	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E301	601016	TERMINAL TAB 6.3 PCB VERT	TAKBRO	PCB1-250HTD		EA	2
E302	601016	TERMINAL TAB 6.3 PCB VERT	TAKBRO	PCB1-250HTD		EA	-
E311	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E312	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E313	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E314	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E315	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E316	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E501	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	1
E502	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	-
E503	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	-
E504	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	-
E505	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	-
E506	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	-
E507	450985-2	BRACKET POWER CONNECTION 9000	QUALITETCH	SEE DRG		S7	-
E508	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E509	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TL101	604085	PLUG PCB 2-WAY .1"	MOLEX	22-29-2021		EA	-
TL102	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TP101	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	67
TP102	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP103	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP104	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP105	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP106	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP108	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP109	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP110	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP111	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP112	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP202	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP203	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
TP204	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP205	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP206	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP207	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP211	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP212	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP213	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP214	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP215	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP216	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP217	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP218	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP219	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP220	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP221	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP222	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP223	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP301	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP302	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP303	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP304	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP305	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP306	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP307	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP308	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP309	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP310	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP311	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP312	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP313	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP314	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP401	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP402	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP403	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP404	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP405	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TP406	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TP407	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TP408	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TP409	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP410	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP411	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP412	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP501	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP502	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
TP510	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP511	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP512	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP513	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP514	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP515	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP516	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP517	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP518	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP519	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP520	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP521	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP801	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
S601	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
S602	401183-2	ASSY POWER HEATSINK 9000	WAVETEK	SEE DRG		SM	-
F501	920084	FUSE 500mA 250V 20mm (T)	BELLING LEE	L2080A/.500		EA	4
F502	920084	FUSE 500mA 250V 20mm (T)	BELLING LEE	L2080A/.500		EA	-
F503	920084	FUSE 500mA 250V 20mm (T)	BELLING LEE	L2080A/.500		EA	-
F504	920084	FUSE 500mA 250V 20mm (T)	BELLING LEE	L2080A/.500		EA	-
F505	920143 >	FUSE 3.15A 250V 20mm (T)	BELLING LEE	L2080A/3.15		EA	4
F506	920143	FUSE 3.15A 250V 20mm (T)	BELLING LEE	L2080A/3.15		EA	-
F507	920143	FUSE 3.15A 250V 20mm (T)	BELLING LEE	L2080A/3.15		EA	-
F508	920143	FUSE 3.15A 250V 20mm (T)	BELLING LEE	L2080A/3.15		EA	-
	401151-1	ASSY PCB POWER ATTEN 9000	WAVETEK	SEE DRG		EA	1
	401201-1	ASSY PCB POWER FUSE 9000	WAVETEK	SEE DRG		EA	1
	410484-1	PCB POWER 9000	KELAN CIRCUITS	SEE DRG	G5	EA	1
	420098	LABEL SERIAL/ASSY No	BRADY	DAT-G4-502		EA	1
	420112-1	LABEL SSD WARNING 12 X 12mm	BRADY	SSW8D	A	EA	1
	451033-1	INSULATOR HEATSINK 9000	TUFNOL	SEE DRG		EA	1
	451035-1	HEATSINK SENSE RES 9000	FARNELL TECH	SEE DRG		EA	1
	451036-1	GASKET FAN 9000	BDK INDUSTRIAL	SEE DRG		EA	1
	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	-
	590004	SLEEVE PTFE 1mm BLK	HELLERMANN	FE10BK		AR	1
	590063	CABLE TIE 3.7 X 290 mm	PANDUIT	PLT31		EA	3
	605059	SOCKET PCB 8-WAY DIL	JERMYN	J23-18008	A	EA	17
	605060	SOCKET PCB 14-WAY DIL	JERMYN	J23-18014	A	EA	7
	605061	SOCKET PCB 16-WAY DIL	JERMYN	J23-18016	A	EA	10
	605127	SOCKET LINK 2-WAY .1" BLK	ASSMANN	AKSPL-G		EA	2
	605204	SOCKET PCB 68-WAY JLCC	BURNDY	QILE68P-41OT		EA	1
	611005	SCREW M3 X 12 POZIPAN SZP	GKN	SEE DRG		EA	2
	611016	SCREW M3 X 8 POZIPAN SZP	GKN	SEE DRG		EA	12
	613005	WASHER M3 INT SHAKP SZP	GKN	SEE DRG		EA	4
	613017	WASHER M3 PLAIN NYL	PLASTIC SCREWS	SEE DRG		EA	4
	613029	WASHER M3 CRINKLE SS	GKN	SEE DRG		EA	10
	615002	NUT FULL M3 SZP	GKN	SEE DRG		EA	10

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
	618025	PAD INSUL MICA TO220	MOTOROLA	T07743A001		EA	4
	630024	BEAD CERAMIC 16 SWG	PARK ROYAL PORCELAIN	No2/D0006		EA	97
	630036	BEAD CERAMIC 18 SWG	PARK ROYAL PORCELAIN	No1/D0005		EA	4
	630313	LABEL DANGER HIGH VOLTAGE	CIRCUITAPE	V223		EA	1
	630356	PM62 TRANSF CORE AL9200	SIEMENS	B65684-A0000-R027		EA	1
	630358	PM62 YOKE/PLATE	SIEMENS	B65685-A2000-X000		EA	1
	900003	HEATSINK COMPOUND	RS COMPONENTS	554-311		AR	1
	900009	LOCKING COMPOUND	LOCTITE	222		AR	1
	900016	CLEANING FLUID	RS COMPONENTS	556-654		AR	1
	920126	FUSE HOLDER PCB 20mm	BELLING LEE	L1426		EA	8
	920152	HEATSINK TO-220	AAVID	542502T00000		EA	4
	920201	FAN 24V AXIAL	PAPST	614		EA	1
	920207	RESISTER MTG BRACKET	VTM	18141		EA	7
ST301	99912S	STAR-POINT 12 NOT FITTED	WAVETEK	99912S		EA	2
ST501	99916S	STAR-POINT 16 NOT FITTED	WAVETEK	99916S		EA	1
ST502	99912S	STAR-POINT 12 NOT FITTED	WAVETEK	99912S		EA	-

End

WAVETEK LTD PARTS LIST 15-Jun-95 DESC: ASSY PCB ANALOG 9000 DRG NO: LP401097-1 REV: 12 PAGE NO: 1

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DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R001	014751	RES MF 4K75 1% .12W 50PPM	MEC	H8 4K75 1% 50PPM	A	EA	3
R002	014751	RES MF 4K75 1% .12W 50PPM	MEC	H8 4K75 1% 50PPM	A	EA	-
R003	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	6
R010	050088	RES MF 10R 1% .12W 100PPM	NEOHM	LR0204 10R 1%	A	EA	2
R011	050088	RES MF 10R 1% .12W 100PPM	NEOHM	LR0204 10R 1%	A	EA	-
R018	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	11
R019	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R101	014751	RES MF 4K75 1% .12W 50PPM	MEC	H8 4K75 1% 50PPM	A	EA	-
R102	019091	RES MF 9K09 1% .12W 50PPM	MEC	H8 9K09 1% 50PPM	A	EA	1
R103	014990	RES MF 499R 1% .12W 50PPM	MEC	H8 499R 1% 50PPM	A	EA	1
R104	090234-1	RES NTWK 1K+2K+4K+8K+81K+ 0.1%	SFERNICE	SEE DRG	S	EA	1
R105	090205	RES PACK 10K X 8 0.5%	BECKMAN	698-3-R10KD		EA	3
R106	080135	RES FL 18K 0.1% 3PPM	VISHAY	S102J 18K000 0.1%	A	EA	1
R107	014320	RES MF 432R 1% .12W 50PPM	MEC	H8 432R 1% 50PPM	A	EA	1
R108	012210	RES MF 221R 1% .12W 50PPM	MEC	H8 221R 1% 50PPM	A	EA	1
R114	080134	RES FL 9K 0.1% 3PPM	VISHAY	S102J 9K0000 0.1%	A	EA	1
R115	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	6
R116	013010	RES MF 301R 1% .12W 50PPM	MEC	H8 301R 1% 50PPM	A	EA	1
R117	011621	RES MF 1K62 1% .12W 50PPM	MEC	H8 1K62 1% 50PPM	A	EA	2
R118	014991	RES MF 4K99 1% .12W 50PPM	MEC	H8 4K99 1% 50PPM	A	EA	3
R119	014991	RES MF 4K99 1% .12W 50PPM	MEC	H8 4K99 1% 50PPM	A	EA	-
R120	012742	RES MF 27K4 1% .12W 50PPM	MEC	H8 27K4 1% 50PPM	A	EA	2
R121	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	11
R122	015110	RES MF 511R 1% .12W 50PPM	MEC	H8 511R 1% 50PPM	A	EA	1
R124	015620	RES MF 562R 1% .12W 50PPM	MEC	H8 562R 1% 50PPM	A	EA	1
R125	090230-1	RES NTWK 5K+7K246+10K87+ 0.1%	SFERNICE	SEE DRG	S	EA	1
R126	014998	RES MF 49R9 1% .12W 50PPM	MEC	H8 49R9 1% 50PPM	A	EA	1
R127	090238	THERMISTOR PTC 1K 2% 3000PPM	IRC	RGT-1-102-G		EA	1
R128	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-
R130	013011	RES MF 3K01 1% .12W 50PPM	MEC	H8 3K01 1% 50PPM	A	EA	1
R131	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	4
R132	011822	RES MF 18K2 1% .12W 50PPM	MEC	H8 18K2 1% 50PPM	A	EA	1
R136	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R138	012741	RES MF 2K74 1% .12W 50PPM	MEC	H8 2K74 1% 50PPM	A	EA	2
R140	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	10
R141	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R142	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R143	014323	RES MF 432K 1% .12W 50PPM	MEC	H8 432K 1% 50PPM	A	EA	1
R144	041005	RES MF 10M0 1% .12W 100PPM	STEATITE	MK2010MFC	A	EA	3
R145	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-
R146	011621	RES MF 1K62 1% .12W 50PPM	MEC	H8 1K62 1% 50PPM	A	EA	-
R149	045114	RES MF 5M11 1% .12W 100PPM	STEATITE	MK25M11FC	A	EA	1
R151	013163	RES MF 316K 1% .12W 50PPM	MEC	H8 316K 1% 50PPM	A	EA	1
R152	012742	RES MF 27K4 1% .12W 50PPM	MEC	H8 27K4 1% 50PPM	A	EA	-
R201	090132	RES PACK 4K7 X 4 2%	BECKMAN	L08-3S-472	A	EA	3

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R202	090132	RES PACK 4K7 X 4 2%	BECKMAN	L08-3S-472	A	EA	-
R204	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	13
R301	008100	RES MF 470R 5% 0.33W FUSIBLE	PHILIPS	NRF25-470R-5	S	EA	2
R302	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	-
R303	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	5
R304	090168	RES PACK 1K X 4 2%	AB	770-83-1K	A	EA	3
R305	090175	RES PACK 1M X 4 2%	BECKMAN	L08-3S-105	A	EA	3
R306	008100	RES MF 470R 5% 0.33W FUSIBLE	PHILIPS	NRF25-470R-5	S	EA	-
R307	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	-
R308	063104	RES CT 100K TOP ADJ S/T	BECKMAN	72PR100K	A	EA	1
R309	090168	RES PACK 1K X 4 2%	AB	770-83-1K	A	EA	-
R310	042214	RES MF 2M21 1% .12W 100PPM	MEC	H8 2M21 1% 100PPM	A	EA	1
R311	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	8
R312	090175	RES PACK 1M X 4 2%	BECKMAN	L08-3S-105	A	EA	-
R313	090167	RES PACK 100K X 4 2%	BECKMAN	L08-3S-104	A	EA	1
R314	090239	RES PACK 3K3 X 8 0.5% COPPER L	BECKMAN	1698-180-0		EA	3
R315	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	-
R316	090130	RES PACK 15K X 4 2%	BECKMAN	L08-3S-153	A	EA	1
R317	090133	RES PACK 6K8 X 4 2%	BECKMAN	L08-3S-682	A	EA	1
R318	090166	RES PACK 470K X 4 2%	AB	770-83-470K	A	EA	1
R319	014322	RES MF 43K2 1% .12W 50PPM	MEC	H8 43K2 1% 50PPM	A	EA	2
R320	014322	RES MF 43K2 1% .12W 50PPM	MEC	H8 43K2 1% 50PPM	A	EA	-
R321	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	-
R322	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R323	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R324	043924	RES MF 3M92 1% .12W 100PPM	MEC	H8 3M92 1% 100PPM	A	EA	2
R325	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R326	011213	RES MF 121K 1% .12W 50PPM	MEC	H8 121K 1% 50PPM	A	EA	3
R327	090170	RES PACK 470R x 4 2%	BECKMAN	L08-3S-471	A	EA	1
R328	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	2
R329	013920	RES MF 392R 1% .12W 50PPM	MEC	H8 392R 1% 50PPM	A	EA	2
R330	013920	RES MF 392R 1% .12W 50PPM	MEC	H8 392R 1% 50PPM	A	EA	-
R331	014328	RES MF 43R2 1% .12W 50PPM	MEC	H8 43R2 1% 50PPM	A	EA	-
R332	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	3
R333	090176	RES PACK 22K X 4 2%	AB	770-83-22K	A	EA	4
R334	041005	RES MF 10M0 1% .12W 100PPM	STEATITE	MK2010MFC	A	EA	-
R335	041404	RES MF 1M40 1% .12W 100PPM	MEC	H8 1M40 1% 100PPM	A	EA	1
R336	015111	RES MF 5K11 1% .12W 50PPM	MEC	H8 5K11 1% 50PPM	A	EA	1
R337	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R338	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R339	011212	RES MF 12K1 1% .12W 50PPM	MEC	H8 12K1 1% 50PPM	A	EA	2
R340	011212	RES MF 12K1 1% .12W 50PPM	MEC	H8 12K1 1% 50PPM	A	EA	-
R341	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	4
R342	041005	RES MF 10M0 1% .12W 100PPM	STEATITE	MK2010MFC	A	EA	-
R343	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R344	050109	RES MF 560R 1% .12W 100PPM	NEOHM	LR0204 560R 1%	A	EA	1
R401	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R402	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R403	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R404	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R405	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R406	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R407	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R408	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R409	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R410	011821	RES MF 1K82 1% .12W 50PPM	MEC	H8 1K82 1% 50PPM	A	EA	1
R411	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R412	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R413	090144	RES PACK 1K X 8 1%	BECKMAN	698-3-R1KF		EA	1
R414	080171	RES FL 7K5 0.01% 3PPM	VISHAY	S102J 7K5000 0.01%	A	EA	1
R415	000107	RES HM 100M 5% .25W	ALLEN BRADLEY	CB 100M 5%	A	EA	1
R416	090205	RES PACK 10K X 8 0.5%	BECKMAN	698-3-R10KD		EA	-
R417	050160	RES MF 1K 0.1% .12W 15PPM	WELWYN	RC55Y1K0B		EA	1
R418	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R419	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R420	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R421	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R422	011500	RES MF 150R 1% .12W 50PPM	MEC	H8 150R 1% 50PPM	A	EA	1
R423	050108	RES MF 470R 1% .12W 100PPM	NEOHM	LR0204 470R 1%	A	EA	1
R424	050148	RES MF 1M0 1% .12W 100PPM	NEOHM	LR0204 1M0 1%		EA	2
R425	050148	RES MF 1M0 1% .12W 100PPM	NEOHM	LR0204 1M0 1%		EA	-
R501	050076	RES MF 10K0 0.1% .12W 50PPM	MEC	H8 10K0 0.1% 50PPM		EA	1
R503	090168	RES PACK 1K X 4 2%	AB	770-83-1K	A	EA	-
R505	014752	RES MF 47K5 1% .12W 50PPM	MEC	H8 47K5 1% 50PPM	A	EA	1
R506	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R507	017871	RES MF 7K87 1% .12W 50PPM	MEC	H8 7K87 1% 50PPM	A	EA	1
R508	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R509	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R510	013321	RES MF 3K32 1% .12W 50PPM	MEC	H8 3K32 1% 50PPM	A	EA	1
R511	090206	RES PACK 15K X 8 0.5%	BECKMAN	698-3-R15KD		EA	1
R512	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R513	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R514	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R515	017500	RES MF 750R 1% .12W 50PPM	MEC	H8 750R 1% 50PPM	A	EA	1
R523	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-
R525	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R526	013651	RES MF 3K65 1% .12W 50PPM	MEC	H8 3K65 1% 50PPM	A	EA	1
R527	080062	RES MF 1M 0.25% 5PPM	PRECISION RESISTIVE	PR1/4TC5 1M 0.25%		EA	1
R528	090205	RES PACK 10K X 8 0.5%	BECKMAN	698-3-R10KD		EA	-
R529	080048-2	RES FL 10K1 0.1% 3PPM	VISHAY	S102C TO DRG	A	EA	1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R530	006510	RES MO 51R 2% 1W	E-SIL COMPONENTS	FP1 51R 2%		EA	1
R531	050097	RES MF 56R 1% .12W 100PPM	NEOHM	LR0204 56R 1%	A	EA	2
R532	050097	RES MF 56R 1% .12W 100PPM	NEOHM	LR0204 56R 1%	A	EA	-
R533	050128	RES MF 22K 1% .12W 100PPM	NEOHM	LR0204 22K 1%	A	EA	1
R603	018451	RES MF 8K45 1% .12W 50PPM	MEC	H8 8K45 1% 50PPM	A	EA	1
R604	018250	RES MF 825R 1% .12W 50PPM	MEC	H8 825R 1% 50PPM	A	EA	1
R605	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R606	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R607	012749	RES MF 2R74 1% .12W 50PPM	MEC	H8 2R74 1% 50PPM	A	EA	1
R608	050161	RES MF 285K 0.5% .12W 5PPM	PRECISION RESISTIVE	PR1/8ATC5 285K 0.5%	S	EA	1
R609	080173	RES FL 28K5 0.1% 3PPM	VISHAY	S102J 28K500 0.1%	A	EA	1
R610	080172	RES FL 2K85 0.1% 3PPM	VISHAY	S102J 2K8500 0.1%	A	EA	1
R611	050162	RES MF 1M425 0.5% .12W 10PPM	PRECISION RESISTIVE	PR1/8TC10 1M425 0.5%	S	EA	2
R614	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R615	090017	RES NTWK 100K x 7 2%	BECKMAN	L08-1S-104	A	EA	1
R616	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	-
R617	016818	RES MF 68R1 1% .12W 50PPM	MEC	H8 68R1 1% 50PPM	A	EA	1
R618	011501	RES MF 1K50 1% .12W 50PPM	MEC	H8 1K50 1% 50PPM	A	EA	1
R619	090095	RES PACK 47K X 4 2%	BECKMAN	L08-3S-473	A	EA	1
R620	090237	RES PACK 680R x 4 2%	BECKMAN	L08-3S-681	A	EA	1
R623	090175	RES PACK 1M X 4 2%	BECKMAN	L08-3S-105	A	EA	-
R624	011301	RES MF 1K30 1% .12W 50PPM	MEC	H8 1K30 1% 50PPM	A	EA	1
R625	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R628	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R630	044753	RES MF 475K 1% .12W 50PPM	MEC	H8 475K 1% 50PPM	A	EA	2
R631	015622	RES MF 56K2 1% .12W 50PPM	MEC	H8 56K2 1% 50PPM	A	EA	1
R632	044753	RES MF 475K 1% .12W 50PPM	MEC	H8 475K 1% 50PPM	A	EA	-
R633	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	-
R634	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R635	013328	RES MF 33R2 1% .12W 50PPM	MEC	H8 33R2 1% 50PPM	A	EA	2
R636	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	-
R637	014750	RES MF 475R 1% .12W 50PPM	MEC	H8 475R 1% 50PPM	A	EA	3
R638	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R639	014750	RES MF 475R 1% .12W 50PPM	MEC	H8 475R 1% 50PPM	A	EA	-
R640	012211	RES MF 2K21 1% .12W 50PPM	MEC	H8 2K21 1% 50PPM	A	EA	-
R641	013328	RES MF 33R2 1% .12W 50PPM	MEC	H8 33R2 1% 50PPM	A	EA	-
R642	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R643	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R644	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R645	011003	RES MF 100K 1% .12W 50PPM	MEC	H8 100K 1% 50PPM	A	EA	-
R646	012002	RES MF 20K0 1% .12W 50PPM	MEC	H8 20K0 1% 50PPM	A	EA	1
R647	012001	RES MF 2K00 1% .12W 50PPM	MEC	H8 2K00 1% 50PPM	A	EA	1
R648	090227-1	RES NTWK 2K85+28K5+285K+ 0.1%	SFERNICE	SEE DRG	S	EA	1
R649	012741	RES MF 2K74 1% .12W 50PPM	MEC	H8 2K74 1% 50PPM	A	EA	-
R650	016811	RES MF 6K81 1% .12W 50PPM	MEC	H8 6K81 1% 50PPM	A	EA	1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R651	000108	RES CF 1R0 5% .25W	NEOHM	CFR25 1R0 5%	A	EA	1
R652	011502	RES MF 15K0 1% .12W 50PPM	MEC	H8 15K0 1% 50PPM	A	EA	-
R655	011211	RES MF 1K21 1% .12W 50PPM	MEC	H8 1K21 1% 50PPM	A	EA	1
R657	011213	RES MF 121K 1% .12W 50PPM	MEC	H8 121K 1% 50PPM	A	EA	-
R659	043924	RES MF 3M92 1% .12W 100PPM	MEC	H8 3M92 1% 100PPM	A	EA	-
R660	013320	RES MF 332R 1% .12W 50PPM	MEC	H8 332R 1% 50PPM	A	EA	-
R661	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R662	090131	RES PACK 10K X 4 2%	BECKMAN	L08-3S-103	A	EA	-
R663	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R664	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R665	041004	RES MF 1M00 1% .12W 50PPM	MEC	H8 1M00 1% 50PPM	A	EA	-
R666	011213	RES MF 121K 1% .12W 50PPM	MEC	H8 121K 1% 50PPM	A	EA	-
R667	014750	RES MF 475R 1% .12W 50PPM	MEC	H8 475R 1% 50PPM	A	EA	-
R668	090228-1	RES NTWK 162K+16K31+1K802 0.1%	SFERNICE	SEE DRG	S	EA	1
R669	00000N	NOT FITTED	WAVETEK	00000N		EA	22
R670	00000N	NOT FITTED	WAVETEK	00000N		EA	-
R671	00000N	NOT FITTED	WAVETEK	00000N		EA	-
R672	050162	RES MF 1M425 0.5% .12W 10PPM	PRECISION RESISTIVE	PR1/8TC10 1M425 0.5%	S	EA	-
R673	050104	RES MF 220R 1% .12W 100PPM	NEOHM	LR0204 220R 1%	A	EA	1
R680	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	1
R701	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	6
R702	011008	RES MF 10R0 1% .12W 50PPM	MEC	H8 10R0 1% 50PPM	A	EA	-
R703	008094	RES MF 10R 5% 0.33W FUSIBLE	PHILIPS	NRF25-10R-5	S	EA	-
R706	012212	RES MF 22K1 1% .12W 50PPM	MEC	H8 22K1 1% 50PPM	A	EA	1
R707	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R708	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R710	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R711	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
R801	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R802	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R803	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R805	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R806	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R807	090151	RES PACK 3K3 X 4 2%	BECKMAN	L08-3S-332	A	EA	1
R808	090176	RES PACK 22K X 4 2%	AB	770-83-22K	A	EA	-
R809	090176	RES PACK 22K X 4 2%	AB	770-83-22K	A	EA	-
R810	090132	RES PACK 4K7 X 4 2%	BECKMAN	L08-3S-472	A	EA	-
R811	090176	RES PACK 22K X 4 2%	AB	770-83-22K	A	EA	-
R812	016192	RES MF 61K9 1% .12W 50PPM	MEC	H8 61K9 1% 50PPM	A	EA	1
R907	090239	RES PACK 3K3 X 8 0.5% COPPER L	BECKMAN	1698-180-0		EA	-
R908	090239	RES PACK 3K3 X 8 0.5% COPPER L	BECKMAN	1698-180-0		EA	-
R911	011001	RES MF 1K00 1% .12W 50PPM	MEC	H8 1K00 1% 50PPM	A	EA	-
R912	011002	RES MF 10K0 1% .12W 50PPM	MEC	H8 10K0 1% 50PPM	A	EA	-
R913	014991	RES MF 4K99 1% .12W 50PPM	MEC	H8 4K99 1% 50PPM	A	EA	-
R914	011503	RES MF 150K 1% .12W 50PPM	MEC	H8 150K 1% 50PPM	A	EA	2

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R915	011503	RES MF 150K 1% .12W 50PPM	MEC	H8 150K 1% 50PPM	A	EA	-
R916	011000	RES MF 100R 1% .12W 50PPM	MEC	H8 100R 1% 50PPM	A	EA	-
C101	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	87
C102	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C103	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C104	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C105	100338	CAP CP 3P3F .25PF 100V NPO	PHILIPS	2222 683 09338		EA	1
C110	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	7
C111	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C112	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C113	100220	CAP CP 22PF 2% 100V N150	PHILIPS	2222 683 34229		EA	3
C114	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C115	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C116	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	-
C117	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	-
C118	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C119	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C120	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	-
C121	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C122	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C123	100270	CAP CP 27PF 2% 100V N150	PHILIPS	2222 683 34279		EA	1
C125	130092	CAP PS 560PF 1% 630V	PHILIPS	2222 427 45601		EA	1
C126	100478	CAP CP 4P7F .25PF 100V NPO	PHILIPS	2222 683 09478		EA	3
C127	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C128	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C129	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C130	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C131	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C132	100100	CAP CP 10PF 2% 100V NPO	PHILIPS	2222 683 10109		EA	4
C133	100180	CAP CP 18PF 2% 100V NPO	PHILIPS	2222 683 10189		EA	1
C134	100100	CAP CP 10PF 2% 100V NPO	PHILIPS	2222 683 10109		EA	-
C135	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	-
C136	100100	CAP CP 10PF 2% 100V NPO	PHILIPS	2222 683 10109		EA	-
C137	100120	CAP CP 12PF 2% 100V NPO	PHILIPS	2222 683 10129		EA	1
C138	100100	CAP CP 10PF 2% 100V NPO	PHILIPS	2222 683 10109		EA	-
C139	100688	CAP CP 6P8F .25PF 100V NPO	PHILIPS	2222 683 09688	A	EA	1
C140	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C141	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C144	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C145	100478	CAP CP 4P7F .25PF 100V NPO	PHILIPS	2222 683 09478		EA	-
C146	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C147	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C148	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	7
C149	110040	CAP PE 33NF 20% 63V	WIMA	MKS2 0.033 20% 63V		EA	1
C150	110030	CAP PE 1NF 20% 100V	WIMA	FKS2 1000 20% 100V		EA	1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C151	102270	CAP CD 27PF 20% 500V NPO	BECK	CD10CG27P0MSCR	A	EA	3
C201	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C202	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C203	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C204	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C205	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C206	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C207	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C208	104088	CAP CI 30NF 50V DIL20	ROGERS CORP	303A20		EA	1
C301	102270	CAP CD 27PF 20% 500V NPO	BECK	CD10CG27P0MSCR	A	EA	-
C302	102270	CAP CD 27PF 20% 500V NPO	BECK	CD10CG27P0MSCR	A	EA	-
C303	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C304	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C305	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C306	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	8
C307	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C308	100330	CAP CP 33PF 2% 100V N150	PHILIPS	2222 683 34339		EA	3
C310	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C311	100220	CAP CP 22PF 2% 100V N150	PHILIPS	2222 683 34229		EA	-
C312	110039	CAP PE 470NF 20% 63V	WIMA	MKS2 0.47 20% 63V		EA	1
C313	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C314	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C315	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	3
C316	100330	CAP CP 33PF 2% 100V N150	PHILIPS	2222 683 34339		EA	-
C317	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C318	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	-
C319	100680	CAP CP 68PF 2% 100V N150	PHILIPS	2222 683 34689		EA	1
C320	100472	CAP CP 4N7F 10% 100V 2C2	PHILIPS	2222 630 19472		EA	1
C323	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C324	110041	CAP PE 10NF 20% 100V	WIMA	FKS2 0.01 20% 100V		EA	2
C325	110041	CAP PE 10NF 20% 100V	WIMA	FKS2 0.01 20% 100V		EA	-
C401	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C402	110051	CAP PE 470NF 10% 63V	WIMA	MKS2 0.47 10% 63V		EA	1
C403	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C404	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C405	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C406	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C407	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C408	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C409	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C410	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	8
C411	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C412	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C413	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C414	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C415	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C416	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C417	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C418	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C419	104048	CAP CM 1NF 20% 100V	PHILIPS	CW15A102M	A	EA	5
C503	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C504	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C505	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C506	140078	CAP PP 1NF 5% 100V	WIMA	FKP2 1000 5% 100V		EA	1
C507	100221	CAP CP 220PF 2% 100V N750	PHILIPS	2222 683 58221		EA	-
C508	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	-
C509	110050	CAP PE 22NF 10% 63V	WIMA	MKS2 0.022 10% 63V		EA	1
C510	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C511	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C512	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C513	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C514	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C515	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C519	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C520	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C524	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C525	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C529	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C530	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C531	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C532	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C533	100478	CAP CP 4P7F .25PF 100V NPO	PHILIPS	2222 683 09478		EA	-
C534	100470	CAP CP 47PF 2% 100V N150	PHILIPS	2222 683 34479		EA	-
C535	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C536	100390	CAP CP 39PF 2% 100V N150	PHILIPS	2222 683 34399		EA	1
C537	104026	CAP CM 47NF +80%-20% 50V	AVX	SR175E473ZAA	A	EA	2
C538	104026	CAP CM 47NF +80%-20% 50V	AVX	SR175E473ZAA	A	EA	-
C601	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C602	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C603	130090	CAP PS 1NF 1% 63V	LCR	EXFS HR 1NF 63V	S	EA	1
C604	130091	CAP PS 10NF 1% 63V	LCR	EXFS/HR 10NF 1% 63V	S	EA	1
C605	120050	CAP PC 100NF 5% 63V	WIMA	MKC2 0.1 5% 63V	S	EA	1
C606	120018	CAP PC 1U5F 10% 63V	ASHCROFT	M2B15201B		EA	1
C607	120054-1	CAP PC 10UF +0/-5% 63V	ASHCROFT	SEE DRG	S	EA	2
C608	140044	CAP PP 10NF 20% 400V	STEATITE	MKP 1841-310/40 6	A	EA	1
C611	130071	CAP PS 150PF 1% 160V	LCR	HSQ 150P/1-7/160	A	EA	1
C612	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C613	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C614	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C615	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C616	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C617	100471	CAP CP 470PF 10% 100V 2C2	PHILIPS	2222 630 19471		EA	1
C618	100151	CAP CP 150PF 2% 100V N150	PHILIPS	2222 683 34151		EA	1
C619	120054-1	CAP PC 10UF +0/-5% 63V	ASHCROFT	SEE DRG	S	EA	-
C620	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C621	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C622	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C623	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C624	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C625	100681	CAP CP 680PF 10% 100V 2C2	PHILIPS	2222 630 19681		EA	1
C626	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C627	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C628	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C629	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C630	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C631	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C632	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	1
C633	110058	CAP PE 68NF 10% 63V	WIMA	MKS2 0.068 10% 63V		EA	1
C634	120026	CAP PC 680PF 20% 100V	WIMA	FKC2 680 20% 100V		EA	1
C635	120029	CAP PC 6N8F 20% 100V	WIMA	FKC2 6800 20% 100V		EA	1
C636	120051	CAP PC 47NF 5% 63V	WIMA	MKC2 0.047 5% 63V	A	EA	1
C637	100272	CAP CP 2N7F 10% 100V 2C2	PHILIPS	2222 630 19272		EA	3
C638	100272	CAP CP 2N7F 10% 100V 2C2	PHILIPS	2222 630 19272		EA	-
C639	100272	CAP CP 2N7F 10% 100V 2C2	PHILIPS	2222 630 19272		EA	-
C640	110020	CAP PE 47NF 20% 63V	WIMA	MKS2 0.047 20% 63V		EA	1
C641	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C642	100560	CAP CP 56PF 2% 100V N150	PHILIPS	2222 683 34569		EA	1
C701	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C702	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	2
C703	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C704	100330	CAP CP 33PF 2% 100V N150	PHILIPS	2222 683 34339		EA	-
C705	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C706	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C707	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C708	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C711	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	-
C712	100332	CAP CP 3N3F 10% 100V 2C2	PHILIPS	2222 630 19332		EA	1
C713	100101	CAP CP 100PF 2% 100V N150	PHILIPS	2222 683 34101		EA	-
C714	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C715	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	-
C716	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C717	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C801	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C802	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C804	110035	CAP PE 220NF 20% 63V	WIMA	MKS2 0.22 20% 63V		EA	2

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C806	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C807	104048	CAP CM 1NF 20% 100V	PHILIPS	CW15A102M	A	EA	-
C808	104048	CAP CM 1NF 20% 100V	PHILIPS	CW15A102M	A	EA	-
C809	104048	CAP CM 1NF 20% 100V	PHILIPS	CW15A102M	A	EA	-
C810	104048	CAP CM 1NF 20% 100V	PHILIPS	CW15A102M	A	EA	-
C904	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C905	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C906	110029	CAP PE 1N5F 20% 100V	WIMA	FKS2 1500 20% 100V		EA	1
C907	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C908	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C909	110035	CAP PE 220NF 20% 63V	WIMA	MKS2 0.22 20% 63V		EA	-
C910	100220	CAP CP 22PF 2% 100V N150	PHILIPS	2222 683 34229		EA	-
D001	200002	DIODE GP 1A 50V	NATIONAL	1N4001	A	EA	2
D002	213001	DIODE ZN 10V 5W	MOTOROLA	1N5347B		EA	4
D003	200002	DIODE GP 1A 50V	NATIONAL	1N4001	A	EA	-
D004	213001	DIODE ZN 10V 5W	MOTOROLA	1N5347B		EA	-
D005	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	37
D006	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D007	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D008	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D103	210120	DIODE ZN 12V 400mW	MOTOROLA	BZX79C12	A	EA	3
D104	210075	DIODE ZN 7V5 400mW	MOTOROLA	BZX79C7V5	A	EA	2
D105	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D201	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	5
D202	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D301	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D302	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D303	210120	DIODE ZN 12V 400mW	MOTOROLA	BZX79C12	A	EA	-
D304	210120	DIODE ZN 12V 400mW	MOTOROLA	BZX79C12	A	EA	-
D305	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D306	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D307	210030	DIODE ZN 3V0 400mW	MOTOROLA	BZX79C3V0	A	EA	2
D308	210030	DIODE ZN 3V0 400mW	MOTOROLA	BZX79C3V0	A	EA	-
D309	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D310	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D311	210043	DIODE ZN 4V3 400mW	MOTOROLA	BZX79C4V3	A	EA	1
D312	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D313	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D314	210091	DIODE ZN 9V1 400mW	MOTOROLA	BZX79C9V1	A	EA	2
D315	213001	DIODE ZN 10V 5W	MOTOROLA	1N5347B		EA	-
D316	213001	DIODE ZN 10V 5W	MOTOROLA	1N5347B		EA	-
D317	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D318	210091	DIODE ZN 9V1 400mW	MOTOROLA	BZX79C9V1	A	EA	-
D319	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D401	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
D402	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D403	210051	DIODE ZN 5V1 400mW	MOTOROLA	BZX79C5V1	A	EA	1
D404	210036	DIODE ZN 3V6 400mW	MOTOROLA	BZX79C3V6	A	EA	2
D405	210036	DIODE ZN 3V6 400mW	MOTOROLA	BZX79C3V6	A	EA	-
D406	200008	DIODE GP 200mA 125V	NATIONAL	1N458A	A	EA	6
D407	200008	DIODE GP 200mA 125V	NATIONAL	1N458A	A	EA	-
D408	200028	DIODE SB 1A 30V	INT RECTIFIER	11DQ04		EA	4
D409	200028	DIODE SB 1A 30V	INT RECTIFIER	11DQ04		EA	-
D410	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D411	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D501	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D503	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D511	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D512	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D513	210130	DIODE ZN 13V 400mW	MOTOROLA	BZX79C13	A	EA	1
D514	210075	DIODE ZN 7V5 400mW	MOTOROLA	BZX79C7V5	A	EA	-
D601	210047	DIODE ZN 4V7 400mW	MOTOROLA	BZX79C4V7	A	EA	2
D602	210047	DIODE ZN 4V7 400mW	MOTOROLA	BZX79C4V7	A	EA	-
D603	200008	DIODE GP 200mA 125V	NATIONAL	1N458A	A	EA	-
D604	200008	DIODE GP 200mA 125V	NATIONAL	1N458A	A	EA	-
D605	210068	DIODE ZN 6V8 400mW	MOTOROLA	BZX79C6V8	A	EA	2
D606	210068	DIODE ZN 6V8 400mW	MOTOROLA	BZX79C6V8	A	EA	-
D607	200008	DIODE GP 200mA 125V	NATIONAL	1N458A	A	EA	-
D608	200008	DIODE GP 200mA 125V	NATIONAL	1N458A	A	EA	-
D609	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D610	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D611	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D612	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D613	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D614	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D615	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D616	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D617	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D618	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D701	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D702	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D703	200006	DIODE GP 1A 600V	NATIONAL	1N4005	A	EA	-
D704	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D801	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D802	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D803	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D804	200028	DIODE SB 1A 30V	INT RECTIFIER	11DQ04		EA	-
D805	200028	DIODE SB 1A 30V	INT RECTIFIER	11DQ04		EA	-
Q101	240029	TRAN NPN	MOTOROLA	BC546	A	EA	5
Q102	250018	TRAN PNP	MOTOROLA	BC556	A	EA	5

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
Q301	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q302	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q501	230074	TRAN JFET P-CHAN	NATIONAL	J271	A	EA	2
Q505	240031	TRAN NPN	MOTOROLA	BD139		EA	1
Q506	250021	TRAN PNP	MOTOROLA	BD140	A	EA	1
Q507	240014	TRAN NPN TO92	MOTOROLA	BC337	A	EA	1
Q508	250011	TRAN PNP TO92	MOTOROLA	BC327	A	EA	1
Q601	230074	TRAN JFET P-CHAN	NATIONAL	J271	A	EA	-
Q602	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	7
Q603	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	-
Q604	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	-
Q606	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q607	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q608	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q609	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q610	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	-
Q611	230122	TRAN JFET N-CHAN	SILICONIX	J109	A	EA	1
Q612	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	-
Q613	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	-
Q614	230002	TRAN JFET N-CHAN	SILICONIX	J304	A	EA	-
Q801	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q802	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
U101	290181-1	IC LIN MOD PREC REF BURNT IN	WAVETEK	SEE DRG		EA	1
U102	260130	IC LIN OP AMP DUAL LOFFST LP	ANALOG DEVICES	OP200GP		EA	5
U103	260168	IC LIN OP AMP DUAL FAST	ANALOG DEVICES	OP271EZ	S	EA	1
U105	280157	IC DIG DAC12 LATCH MULT	ANALOG DEVICES	AD7545AKN		EA	3
U106	280157	IC DIG DAC12 LATCH MULT	ANALOG DEVICES	AD7545AKN		EA	-
U107	280157	IC DIG DAC12 LATCH MULT	ANALOG DEVICES	AD7545AKN		EA	-
U108	280190	IC DIG SWITCH ANLG 2NO 2NC	SILICONIX	DG413DJ		EA	3
U109	260130	IC LIN OP AMP DUAL LOFFST LP	ANALOG DEVICES	OP200GP		EA	-
U110	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	6
U111	260106	IC LIN OP AMP DUAL	MOTOROLA	MC34082P		EA	1
U112	260159	IC LIN OP AMP DUAL BIFET HS	ANALOG DEVICES	AD712JN	S	EA	3
U113	280190	IC DIG SWITCH ANLG 2NO 2NC	SILICONIX	DG413DJ		EA	-
U114	280215	IC DIG DAC12 MULTI	MICRO POWER SYSTEMS	MP7623KN	S	EA	1
U115	280205	IC DIG MUX 4:1 ANLG X2	SILICONIX	DG409DJ	A	EA	4
U116	260147	IC LIN OP AMP HIGH SPEED	ANALOG DEVICES	AD843JN	A	EA	1
U117	260167	IC LIN BUFF AMP 180MHz LP	ELANTEC	EL2002CN	S	EA	1
U118	260134	IC LIN OP AMP FET IP F/SET	ANALOG DEVICES	AD744JN		EA	4
U119	280218	IC DIG SWITCH ANLG 2NO 2NC	SILICONIX	DG613DJ		EA	2
U120	260134	IC LIN OP AMP FET IP F/SET	ANALOG DEVICES	AD744JN		EA	-
U121	260134	IC LIN OP AMP FET IP F/SET	ANALOG DEVICES	AD744JN		EA	-
U201	280213	IC DIG PHASE ACCUM 48BIT 20MHz	GEC	CLA5554	S	EA	1
U202	280155	IC DIG RAM STAT 8KX8 150NS	HITACHI	HM6264ALP-15	A	EA	2
U203	280155	IC DIG RAM STAT 8KX8 150NS	HITACHI	HM6264ALP-15	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
U204	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	9
U205	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U207	280134	IC DIG TRNCVR8 3S	PHILIPS	PC74HCT245P	A	EA	2
U208	280134	IC DIG TRNCVR8 3S	PHILIPS	PC74HCT245P	A	EA	-
U209	280166	IC DIG NAND2 X4	TEXAS	SN74HCT00N	A	EA	1
U301	260159	IC LIN OP AMP DUAL BIFET HS	ANALOG DEVICES	AD712JN	S	EA	-
U302	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	-
U303	260162	IC LIN OP AMP DI FET HS	BURR BROWN	OPA602BP	S	EA	2
U304	260163	IC LIN OP AMP CHOPPER	TEXAS	TLC2652CP	S	EA	3
U305	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	-
U306	280190	IC DIG SWITCH ANLG 2NO 2NC	SILICONIX	DG413DJ		EA	-
U307	260158	IC LIN OP AMP BIFET HS	ANALOG DEVICES	AD711JN	S	EA	2
U308	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	-
U309	260091	IC LIN COMP QUAD	NATIONAL	LM339N		EA	1
U310	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	5
U401	280035	IC DIG DECODER BCDTODEC	MOTOROLA	MC14028BCP	A	EA	1
U402	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	7
U403	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U404	280234	IC DIG MUX 8:1 ANLG FAULT PROT	SILICONIX	DG458DJ	A	EA	1
U405	260130	IC LIN OP AMP DUAL LOFFST LP	ANALOG DEVICES	OP200GP		EA	-
U406	280205	IC DIG MUX 4:1 ANLG X2	SILICONIX	DG409DJ	A	EA	-
U407	260130	IC LIN OP AMP DUAL LOFFST LP	ANALOG DEVICES	OP200GP		EA	-
U408	280206	IC DIG ADC 20BIT SERIAL	SEQUOIA TECHNOLOGY	CS5508BP	S	EA	1
U501	260080	IC LIN V COMP	NATIONAL	LM311N		EA	1
U502	280197	IC DIG PHASE LOCKED LOOP	PHILIPS	74HCT4046AP		EA	1
U503	280141	IC DIG COUNT8 SYNC BIN PL DN	SGS-THOMSON	M74HC40103B1N		EA	1
U504	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	4
U505	00000N	NOT FITTED	WAVETEK	00000N		EA	-
U507	260042	IC LIN OP AMP DUAL	PHILIPS	NE5532N		EA	1
U508	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U509	280218	IC DIG SWITCH ANLG 2NO 2NC	SILICONIX	DG613DJ		EA	-
U510	260130	IC LIN OP AMP DUAL LOFFST LP	ANALOG DEVICES	OP200GP		EA	-
U601	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U602	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U603	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U604	280205	IC DIG MUX 4:1 ANLG X2	SILICONIX	DG409DJ	A	EA	-
U605	260159	IC LIN OP AMP DUAL BIFET HS	ANALOG DEVICES	AD712JN	S	EA	-
U606	260162	IC LIN OP AMP DI FET HS	BURR BROWN	OPA602BP	S	EA	-
U607	260163	IC LIN OP AMP CHOPPER	TEXAS	TLC2652CP	S	EA	-
U608	260163	IC LIN OP AMP CHOPPER	TEXAS	TLC2652CP	S	EA	-
U609	280205	IC DIG MUX 4:1 ANLG X2	SILICONIX	DG409DJ	A	EA	-
U610	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U611	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U612	280198	IC DIG SWITCH ANLG 4NC	SILICONIX	DG442DJ		EA	1
U613	260158	IC LIN OP AMP BIFET HS	ANALOG DEVICES	AD711JN	S	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
U614	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	-
U701	401091-1	ASSY FPGA ANALOG 9000	WAVETEK	SEE DRG		EA	1
U702	280017	IC DIG INV X6	MOTOROLA	MC14069UBCP	A	EA	1
U703	280089	IC DIG SHIFTR8 LATCH8 3S	MOTOROLA	MC14094BCP	A	EA	3
U704	280089	IC DIG SHIFTR8 LATCH8 3S	MOTOROLA	MC14094BCP	A	EA	-
U705	280089	IC DIG SHIFTR8 LATCH8 3S	MOTOROLA	MC14094BCP	A	EA	-
U706	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U707	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U708	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U801	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U802	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	4
U803	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U804	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U805	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U806	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U807	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U808	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U809	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U810	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U811	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U812	260039	IC LIN OP AMP QUAD	NATIONAL	LM324N	A	EA	-
U901	280204	IC DIG MUX 8:1 ANLG	SILICONIX	DG408DJ	A	EA	-
U902	280167	IC DIG SWITCH ANLG 4NO	SILICONIX	DG211CJ		EA	-
U904	260134	IC LIN OP AMP FET IP F/SET	ANALOG DEVICES	AD744JN		EA	-
U905	260164	IC LIN OP AMP CHOPPER	LINEAR TECHNOLOGY	LTC1150CN8	S	EA	-
K001	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	9
K002	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K003	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K004	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K005	330057	RELAY 2PNO 2PNC LATCH 12V	MATSUSHITA	S2-L-12V		EA	2
K006	330057	RELAY 2PNO 2PNC LATCH 12V	MATSUSHITA	S2-L-12V		EA	-
K007	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K008	330030	RELAY 4PNO 24V	MATSUSHITA	S4-24V		EA	2
K010	330030	RELAY 4PNO 24V	MATSUSHITA	S4-24V		EA	-
K012	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K301	330067	RELAY 4PNO 12V	MATSUSHITA	S4-L-12V		EA	1
K302	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K303	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
K304	330048	RELAY 2PCO LATCH 12V	MATSUSHITA	TQ2-L-12V	A	EA	-
L102	370045	CHOKE RF 470UH 144mA	SIGMA	05-10-1707-05		EA	1
J001	604131	PLUG PCB 50-WAY .1"x.1" LP	3M	2550-6002UN	S	EA	1
J002	604033	PLUG PCB 4-WAY .1"	MOLEX	22-29-2041		EA	3
J003	604086	PLUG PCB 12-WAY .1"	MOLEX	22-29-2121		EA	1
J004	604033	PLUG PCB 4-WAY .1"	MOLEX	22-29-2041		EA	-
J201	604033	PLUG PCB 4-WAY .1"	MOLEX	22-29-2041		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
J701	604124	PLUG PCB 34-WAY .1"x.1" 90DEG	3M	3431-5302UN	S	EA	1
J802	604085	PLUG PCB 2-WAY .1"	MOLEX	22-29-2021		EA	1
E001	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E002	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E003	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E004	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E005	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E006	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E007	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E008	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E009	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E010	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E011	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E012	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E013	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E014	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E701	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TL101	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	6
TL102	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	-
TL103	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	-
TL104	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	-
TL105	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	-
TL401	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	-
TP301	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	27
TP302	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP303	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP305	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP401	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP402	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP403	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP404	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP405	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP406	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP407	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP408	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP409	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP410	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP501	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP503	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP504	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP506	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TP604	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP605	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP607	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP701	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
TP702	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP703	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP801	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP802	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP901	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP902	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
Y401	800024	CRYSTAL 32.768KHz	IQD	A103A-32.768KHz		EA	1
Y701	800041	CRYSTAL OSC 20MHz 25PPM	NEWPORT TECH	NC90089	S	EA	1
	401202-1	ASSY PCB ANALOG FUSE 9000	WAVETEK	SEE DRG		EA	1
	410485-E	PCB ANALOG 9000	MANCHESTER CIRCUITS	SEE DRG	G4	EA	1
	420098	LABEL SERIAL/ASSY No	BRADY	DAT-G4-502		EA	1
	420112-1	LABEL SSD WARNING 12 X 12mm	BRADY	SSW8D	A	EA	1
	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	1
	540006	WIRE 1/.4 PTFE 250V BLK	BICC	SEE DRG	A	AR	1
	590004	SLEEVE PTFE 1mm BLK	HELLERMANN	FE10BK		AR	1
	605059	SOCKET PCB 8-WAY DIL	JERMYN	J23-18008	A	EA	5
	605070	SOCKET PCB 20-WAY DIL	JERMYN	J23-18020	A	EA	11
	605127	SOCKET LINK 2-WAY .1" BLK	ASSMANN	AKSPL-G		EA	1
	605205	SOCKET PCB 84-WAY JLCC	BURNDY	QILE84P-410T		EA	1
	618018	PAD MNTG TO18 X 5.5mm	JERMYN	TO18-006	A	EA	1
	620001	CLOVERLEAF SMALL PTFE	SEALECTRO	011-6808-040599		EA	1
	630024	BEAD CERAMIC 16 SWG	PARK ROYAL PORCELAIN	No2/D0006		EA	8
	630036	BEAD CERAMIC 18 SWG	PARK ROYAL PORCELAIN	No1/D0005		EA	64
	900004	SILICONE RUBBER COMPOUND	RS COMPONENTS	555-588		AR	1
ST401	99908S	STAR-POINT 08 NOT FITTED	WAVETEK	99908S		EA	1
ST402	99910S	STAR-POINT 10 NOT FITTED	WAVETEK	99910S		EA	1

End

WAVETEK LTD PARTS LIST 11-Jul-95 DESC: ASSY PCB DIGITAL 9100 DRG NO: LP401098-2 REV: 1

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DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R101	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	8
R103	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R201	050088	RES MF 10R 1% .12W 100PPM	NEOHM	LR0204 10R 1%	A	EA	2
R202	050096	RES MF 47R 1% .12W 100PPM	NEOHM	LR0204 47R 1%	A	EA	6
R203	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	6
R204	050096	RES MF 47R 1% .12W 100PPM	NEOHM	LR0204 47R 1%	A	EA	-
R205	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	-
R206	050120	RES MF 4K7 1% .12W 100PPM	NEOHM	LR0204 4K7 1%	A	EA	2
R207	050108	RES MF 470R 1% .12W 100PPM	NEOHM	LR0204 470R 1%	A	EA	1
R208	050096	RES MF 47R 1% .12W 100PPM	NEOHM	LR0204 47R 1%	A	EA	-
R209	050096	RES MF 47R 1% .12W 100PPM	NEOHM	LR0204 47R 1%	A	EA	-
R210	090242	RES PACK 47R x 4 2%	BECKMAN	L08-3S-470	A	EA	1
R211	050096	RES MF 47R 1% .12W 100PPM	NEOHM	LR0204 47R 1%	A	EA	-
R301	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	3
R302	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R304	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R305	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	-
R307	050123	RES MF 8K2 1% .12W 100PPM	NEOHM	LR0204 8K2 1%	A	EA	1
R308	050119	RES MF 3K9 1% .12W 100PPM	NEOHM	LR0204 3K9 1%	A	EA	1
R309	050116	RES MF 2K2 1% .12W 100PPM	NEOHM	LR0204 2K2 1%	A	EA	1
R310	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	-
R311	050115	RES MF 1K8 1% .12W 100PPM	NEOHM	LR0204 1K8 1%	A	EA	1
R312	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	-
R313	050110	RES MF 680R 1% .12W 100PPM	NEOHM	LR0204 680R 1%	A	EA	1
R314	050096	RES MF 47R 1% .12W 100PPM	NEOHM	LR0204 47R 1%	A	EA	-
R315	050128	RES MF 22K 1% .12W 100PPM	NEOHM	LR0204 22K 1%	A	EA	1
R316	050100	RES MF 100R 1% .12W 100PPM	NEOHM	LR0204 100R 1%	A	EA	1
R317	050126	RES MF 15K 1% .12W 100PPM	NEOHM	LR0204 15K 1%	A	EA	1
R401	090163	RES NTWK 10K x 8 2%	BECKMAN	L09-1S-103	A	EA	-
R402	050120	RES MF 4K7 1% .12W 100PPM	NEOHM	LR0204 4K7 1%	A	EA	-
R403	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R404	090046	RES NTWK 10K X 7 2%	BECKMAN	L08-1S-103	A	EA	1
R503	050132	RES MF 47K 1% .12W 100PPM	NEOHM	LR0204 47K 1%	A	EA	1
R504	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R505	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R506	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R601	050098	RES MF 68R 1% .12W 100PPM	NEOHM	LR0204 68R 1%	A	EA	2
R603	050098	RES MF 68R 1% .12W 100PPM	NEOHM	LR0204 68R 1%	A	EA	-
R604	090121	RES NTWK 100K X 8 2%	BECKMAN	L09-1S-104	A	EA	1
R605	090179	RES NTWK 4K7 X 8 2%	BECKMAN	L09-1S-472	A	EA	-
R701	00000N	NOT FITTED	WAVETEK	00000N		EA	50
R702	050124	RES MF 10K 1% .12W 100PPM	NEOHM	LR0204 10K 1%	A	EA	1
R703	00000N	NOT FITTED	WAVETEK	00000N		EA	-
R706	050088	RES MF 10R 1% .12W 100PPM	NEOHM	LR0204 10R 1%	A	EA	-
R707	00000N	NOT FITTED	WAVETEK	00000N		EA	-

WAVETEK LTD PARTS LIST 20-Jun-96 DESC: ASSY PCB POWER ATTEN 9000 DRG NO: LP401151-1 REV: 1 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R1	090250	RES PACK 15K x 8 0.5%	OHMTEK	TDP16031502D	S	EA	2
R2	090250	RES PACK 15K x 8 0.5%	OHMTEK	TDP16031502D	S	EA	-
R3	090206	RES PACK 15K X 8 0.5%	BECKMAN	698-3-R15KD		EA	3
R4	090206	RES PACK 15K X 8 0.5%	BECKMAN	698-3-R15KD		EA	-
R5	090206	RES PACK 15K X 8 0.5%	BECKMAN	698-3-R15KD		EA	-
E101	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	1
E102	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
E103	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
E104	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
E105	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
E106	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
E107	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
E108	604036	PLUG PCB 10-WAY	AMP	163740-8	S	SA	-
	410493-A	PCB POWER ATTENUATOR 9000	MANCHESTER CIRCUITS	SEE DRG	G4	EA	1

End

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DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R709	050112	RES MF 1K0 1% .12W 100PPM	NEOHM	LR0204 1K0 1%	A	EA	-
C201	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	34
C301	100391	CAP CP 390PF 10% 100V 2C2	PHILIPS	2222 630 19391		EA	5
C302	180060	CAP AE 10UF 20% 50V	NIPPON CHEMI-CON	KMEVB10/50M	A	EA	1
C303	100102	CAP CP 1NF 10% 100V 2C2	PHILIPS	2222 630 19102		EA	1
C304	100391	CAP CP 390PF 10% 100V 2C2	PHILIPS	2222 630 19391		EA	-
C305	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C306	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C307	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C501	100391	CAP CP 390PF 10% 100V 2C2	PHILIPS	2222 630 19391		EA	-
C502	100391	CAP CP 390PF 10% 100V 2C2	PHILIPS	2222 630 19391		EA	-
C503	100391	CAP CP 390PF 10% 100V 2C2	PHILIPS	2222 630 19391		EA	-
C504	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C505	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	8
C506	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C601	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C602	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C603	104052	CAP NTWK 220PF X 7 10%	MURATA	B8XCO117-33N		EA	1
C701	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C702	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C703	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	2
C704	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C705	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C706	110046	CAP PE 1UF 20% 50V	WIMA	MKS2 1.0 20% 50V	A	EA	-
C707	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C708	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C709	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C710	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C711	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C712	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C713	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C714	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C717	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C718	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C719	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C720	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C721	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C722	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C723	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C724	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C725	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C726	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C727	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C728	00000N	NOT FITTED	WAVETEK	00000N		EA	-
C729	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C730	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C731	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C732	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C733	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C734	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C735	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C736	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C737	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C739	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C740	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C741	110051	CAP PE 470NF 10% 63V	WIMA	MKS2 0.47 10% 63V		EA	1
C742	110042	CAP PE 100NF 20% 63V	WIMA	MKS2 0.1 20% 63V		EA	-
C743	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C744	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C745	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C746	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C747	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
D301	210270	DIODE ZN 27V 400mW	MOTOROLA	BZX79C27	A	EA	1
D302	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	2
D701	200001	DIODE GP 75mA 75V	NATIONAL	1N4148	A	EA	-
D702	210033	DIODE ZN 3V3 400mW	MOTOROLA	BZX79C3V3	A	EA	1
Q301	250018	TRAN PNP	MOTOROLA	BC556	A	EA	2
Q302	240029	TRAN NPN	MOTOROLA	BC546	A	EA	2
Q303	250018	TRAN PNP	MOTOROLA	BC556	A	EA	-
Q304	240029	TRAN NPN	MOTOROLA	BC546	A	EA	-
Q701	00000N	NOT FITTED	WAVETEK	00000N		EA	-
U101	280208	IC DIG MICROCNTRLR 16BIT 16MHZ	TOSHIBA	TMP68301F-16	A	EA	1
U102	401249-1	ASSY PCB FPROM TSOP-DIP 9100	WAVETEK	SEE DRG		EA	2
U103	401249-1	ASSY PCB FPROM TSOP-DIP 9100	WAVETEK	SEE DRG		EA	-
U104	00000N	NOT FITTED	WAVETEK	00000N		EA	-
U105	00000N	NOT FITTED	WAVETEK	00000N		EA	-
U106	280211	IC DIG RAM STAT 128KX8 100NS	HITACHI	HM628128P-10	A	EA	2
U107	280211	IC DIG RAM STAT 128KX8 100NS	HITACHI	HM628128P-10	A	EA	-
U108	280210	IC DIG EEPROM 32KX8 200NS	HITACHI	HN58C256P-20	A	EA	2
U109	280210	IC DIG EEPROM 32KX8 200NS	HITACHI	HN58C256P-20	A	EA	-
U201	280212	IC DIG FPROM 128KX8 120NS	AMD	AM28F010-120PC	A	EA	1
U202	290184	MODULE CLOCK CALENDAR	BENCHMARQ	BQ3287MT	A	EA	1
U204	401107-1	ASSY FPLD CLK GEN 9000	WAVETEK	SEE DRG		EA	1
U205	401108-3	ASSY FPLD ADDR DEC 1 9100	WAVETEK	SEE DRG		EA	1
U206	401109-1	ASSY FPLD ADDR DEC 2 9000	WAVETEK	SEE DRG		EA	1
U207	401110-1	ASSY FPLD ADDR DEC 3 9000	WAVETEK	SEE DRG		EA	1
U208	270130	IC DIG OR2 X4	NATIONAL	74F32PC	A	EA	1
U301	280209	IC DIG CONTROLLER LCD GRAPHICS	SEIKO-EPSON	SED1351F		EA	1
U302	280174	IC DIG RAM STAT 32KX8 120NS	HITACHI	HM62256P-12	A	EA	2
U303	280174	IC DIG RAM STAT 32KX8 120NS	HITACHI	HM62256P-12	A	EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
U304	401111-1	ASSY FPLD KEY ENC 9000	WAVETEK	SEE DRG		EA	1
U305	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	2
U306	280160	IC DIG FLIP FLOP D X2	TEXAS	SN74HCT74N	A	EA	1
U307	270071	IC DIG DECODER 2:4 OC X2	NATIONAL	DM74LS156N	A	EA	1
U308	401112-1	ASSY FPLD ROTARY ENC 9000	WAVETEK	SEE DRG		EA	1
U309	280136	IC DIG FLIP FLOP D 3S	PHILIPS	PC74HCT374P	A	EA	-
U401	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	9
U402	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U403	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U404	280134	IC DIG TRNCVR8 3S	PHILIPS	PC74HCT245P	A	EA	3
U405	280134	IC DIG TRNCVR8 3S	PHILIPS	PC74HCT245P	A	EA	-
U406	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U407	280170	IC DIG NOR2 X4	TEXAS	SN74HCT02N		EA	1
U501	280134	IC DIG TRNCVR8 3S	PHILIPS	PC74HCT245P	A	EA	-
U502	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U503	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U601	280158	IC DIG CONTROLLER GPIB	TEXAS	TMS9914ANL		EA	1
U602	270101	IC DIG BUFF8 GPIB CNTRL	NATIONAL	DS75161AN		EA	1
U603	270100	IC DIG BUFF8 GPIB DATA	NATIONAL	DS75160AN		EA	1
U604	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U605	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U606	280137	IC DIG BUFF4 3S X2	PHILIPS	PC74HCT244P	A	EA	-
U607	270128	IC DIG LINE DRVR X4	NATIONAL	DS1488N	A	EA	1
U608	270129	IC DIG LINE RCVR X4	NATIONAL	DS1489N	A	EA	1
U701	290185	IC DIG MONITOR PROCESSOR PSU	LINEAR TECHNOLOGY	LTC695N	A	EA	1
U702	270073	IC DIG AND2 OC X4	NATIONAL	DM74LS09N	A	EA	1
U703	260079	IC LIN REG 12V	NATIONAL	LM78L12ACZ		EA	1
J101	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J102	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J103	605226	SOCKET PCB 14-WAY 1.25mm ZIF	MOLEX	39-51-3144		EA	1
J104	604132	PLUG PCB 34-WAY .1"x.1" 90DEG	3M	2534-5002UN	S	EA	2
J106	604132	PLUG PCB 34-WAY .1"x.1" 90DEG	3M	2534-5002UN	S	EA	-
J107	604128	PLUG PCB 32-WAY .1"x.1" HEADER	SAMTEC	TSW-116-07-L-D		EA	2
J108	604128	PLUG PCB 32-WAY .1"x.1" HEADER	SAMTEC	TSW-116-07-L-D		EA	-
J113	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J201	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J202	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J203	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J204	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J205	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J206	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J303	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J304	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J501	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J502	00000N	NOT FITTED	WAVETEK	00000N		EA	-

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
J601	604125	PLUG PCB 60-WAY .1"x.1" 90DEG	3M	2560-5002UN	S	EA	1
J703	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J704	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E101	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E102	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E103	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E301	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E302	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E303	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E304	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E305	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E306	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E307	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E308	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E309	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E701	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E702	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E703	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E704	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E705	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E706	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E707	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E708	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TL301	00000N	NOT FITTED	WAVETEK	00000N		EA	-
TL701	620013-1	TEST LOOP	WAVETEK	SEE DRG		EA	1
TP101	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	4
TP102	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP103	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
TP104	620007	TEST POINT TERMINAL	MICROVAR	TYPE C30		EA	-
Y202	800040	CRYSTAL OSC 14.7456MHz 100PPM	NEWPORT TECH	NC2100T/14.7456/H	S	EA	1
FL501	920262	FILTER EMI WIDE BAND	MURATA	DSS310H-55B222M250	S	EA	1
LS1	920267	BUZZER ELECTROMAGNETIC	STAR	QMX-05		EA	1
	414010-1	PCB DIGITAL 9100	MANCHESTER CIRCUITS	SEE DRG	G1	EA	1
	420098	LABEL SERIAL/ASSY No	BRADY	DAT-G4-502		EA	1
	420112-1	LABEL SSD WARNING 12 X 12mm	BRADY	SSW8D	A	EA	1
	605060	SOCKET PCB 14-WAY DIL	JERMYN	J23-18014	A	EA	2
	605070	SOCKET PCB 20-WAY DIL	JERMYN	J23-18020	A	EA	5
	605175	SOCKET PCB 24-WAY DIL 0.3P	HARWIN	D2924	A	EA	5
	605199	SOCKET PCB 32-WAY DIL 0.6P	HARWIN	D2832-01		EA	4
	630243	BEAD GLASS 2.4 X 0.81 X 1.8	MANSOL PREFORMS LT	M5363B/3		EA	2

End

WAVETEK LTD PARTS LIST 19-Jan-96 DESC: ASSY PCB INTERCONNECTION 9000 DRG NO: LP401099-1 REV: 3 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R101	050088	RES MF 10R 1% .12W 100PPM	NEOHM	LR0204 10R 1%	A	EA	1
R102	050108	RES MF 470R 1% .12W 100PPM	NEOHM	LR0204 470R 1%	A	EA	1
C101	104025	CAP CM 100NF +80%-20% 50V	AVX	SR175E104ZAA	A	EA	5
C102	104025	CAP CM 100NF +80%-20% 50V	AVX	SR175E104ZAA	A	EA	-
C104	104025	CAP CM 100NF +80%-20% 50V	AVX	SR175E104ZAA	A	EA	-
C105	104025	CAP CM 100NF +80%-20% 50V	AVX	SR175E104ZAA	A	EA	-
C106	104025	CAP CM 100NF +80%-20% 50V	AVX	SR175E104ZAA	A	EA	-
D101	213006	DIODE TS 5V 5/500W	UNITRODE	TVS505	A	EA	1
D102	213016	DIODE TS 12V 5/500W	UNITRODE	TVS512	A	EA	2
D103	213016	DIODE TS 12V 5/500W	UNITRODE	TVS512	A	EA	-
U101	290187	IC DIG ELECT PROTECTION ARRAY	HARRIS	SP720AP		EA	3
U102	00000N	NOT FITTED	WAVETEK	00000N		EA	2
U103	290187	IC DIG ELECT PROTECTION ARRAY	HARRIS	SP720AP		EA	-
U104	290187	IC DIG ELECT PROTECTION ARRAY	HARRIS	SP720AP		EA	-
J101	605238-1	SOCKET PCB 24-WAY IEEE 5.5PINS	CAMBRIDGE CONNECTORS	SEE DRG		EA	1
J102	604135	PLUG PCB 9-WAY 'D' 4-40 I/S	HARTING	09 66 161 6702	S	EA	1
J103	605232	SOCKET PCB 25-WAY 'D' 4-40 I/S	HARTING	09 66 351 6502	S	EA	1
J104	00000N	NOT FITTED	WAVETEK	00000N		EA	-
J601	604126	PLUG PCB 60-WAY .1"x.1" HEADER	3M	3372-6302UN	S	EA	1
E101	612026-1	STANDOFF M3 X 6	SWIFT ENGINEERING	SEE DRG		EA	2
E102	612026-1	STANDOFF M3 X 6	SWIFT ENGINEERING	SEE DRG		EA	-
E104	612047	STANDOFF 4-40 X 0.187"	SPEAR ENGINEERING	1790-2		EA	2
E105	612047	STANDOFF 4-40 X 0.187"	SPEAR ENGINEERING	1790-2		EA	-
S101	700139	SWITCH 1PST X 8 DIL	OMRON	A6D-8100		EA	1
	410486-C	PCB INTERCONNECTION 9000	MANCHESTER CIRCUITS	SEE DRG	G1	EA	1

End

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WAVETEK DATRON DIVISION PARTS LIST 14-Oct-94 DESC: ASSY PCB MEMORY CARD 9000 DRG NO: LP401100-1 REV: 2 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
C101	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	2
C102	104026	CAP CM 47NF +80%-20% 50V	AVX	SR175E473ZAA	A	EA	2
C103	180065	CAP AE 47UF 20% 25V	NIPPON CHEMI-CON	KMEVB47/25M	A	EA	-
C104	104026	CAP CM 47NF +80%-20% 50V	AVX	SR175E473ZAA	A	EA	-
P107	605225	SOCKET PCB 32-WAY .1"x.1" 90DG	SAMTEC	BCS-116-L-D-HE	S	EA	2
P108	605225	SOCKET PCB 32-WAY .1"x.1" 90DG	SAMTEC	BCS-116-L-D-HE	S	EA	-
J101	604134	PLUG PCB 68-WAY PCMCIA/JEIDA	ITT	DICMJ2-68P-RPC-ER	S	EA	2
J102	604134	PLUG PCB 68-WAY PCMCIA/JEIDA	ITT	DICMJ2-68P-RPC-ER	S	EA	-
J103	00000N	NOT FITTED	WAVETEK	00000N		EA	2
E101	00000N	NOT FITTED	WAVETEK	00000N		EA	-
	414012-1	PCB MEMORY CARD 9100	MANCHESTER CIRCUITS	SEE DRG	G1	EA	1
	451037-1	INSULATOR MEMORY CARD 9000	KENSULAT	SEE DRG		EA	1
	612029-1	STANDOFF M3 X 12	SWIFT ENGINEERING	SEE DRG		EA	1

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End

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
R1	090211	THERMISTOR NTC 10K	AMETEK-RODAN	ACC-004	A	EA	1
E1	451024-1	TERMINATAL POST 9000	SWIFT ENGINEERING	SEE DRG		EA	6
E2	451024-1	TERMINATAL POST 9000	SWIFT ENGINEERING	SEE DRG		EA	-
E3	451024-1	TERMINATAL POST 9000	SWIFT ENGINEERING	SEE DRG		EA	-
E4	451024-1	TERMINATAL POST 9000	SWIFT ENGINEERING	SEE DRG		EA	-
E5	451024-1	TERMINATAL POST 9000	SWIFT ENGINEERING	SEE DRG		EA	-
E6	451024-1	TERMINATAL POST 9000	SWIFT ENGINEERING	SEE DRG		EA	-
E7	00000N	NOT FITTED	WAVETEK	00000N		EA	9
E8	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E9	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E10	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E11	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E12	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E13	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E14	00000N	NOT FITTED	WAVETEK	00000N		EA	-
E15	612003-1	STANDOFF M3 X 20	SWIFT ENGINEERING	SEE DRG		EA	2
E16	00000N	NOT FITTED	WAVETEK	00000N		EA	-
	400184-2	ASSY EARTH BRAID	WAVETEK	SEE DRG		EA	1
	410489-1	PCB TERMINAL 9000	MANCHESTER CIRCUITS	SEE DRG	A	EA	1
	512000	WIRE 7/.2 PTFE 1KV BLK	BICC	SEE DRG	A	AR	1
	512111	WIRE 7/.2 PTFE 1KV BRN	BICC	SEE DRG	A	AR	1
	512222	WIRE 7/.2 PTFE 1KV RED	BICC	SEE DRG	A	AR	1
	512333	WIRE 7/.2 PTFE 1KV ORG	BICC	SEE DRG	A	AR	1
	512444	WIRE 7/.2 PTFE 1KV YLW	BICC	SEE DRG	A	AR	1
	512555	WIRE 7/.2 PTFE 1KV GRN	BICC	SEE DRG	A	AR	1
	512666	WIRE 7/.2 PTFE 1KV BLU	BICC	SEE DRG	A	AR	1
	512777	WIRE 7/.2 PTFE 1KV VLT	BICC	SEE DRG	A	AR	1
	512888	WIRE 7/.2 PTFE 1KV GRY	BICC	SEE DRG	A	AR	1
	512999	WIRE 7/.2 PTFE 1KV WHT	BICC	SEE DRG	A	AR	1
	513001	WIRE 7/.2 PTFE 1KV PNK	BICC	SEE DRG	A	AR	1
	540002	WIRE 1/.7 TINNED COPPER 22SWG	BICC	SEE DRG	A	AR	1
	550010	CABLE 2-CORE 7/.2 TYPE K PVC	OMEGA	EXPP-K-24S		AR	1
	550011	CABLE 2-CORE 322/0.1 OFC PVC	ESD	401816X		AR	1
	560002	CABLE CO-AX 7/34AWG 2.54 DIA	RAYFAST	5026A1311-0		AR	1
	590002	SLEEVE NP 3 X 25MM BLK	HELLERMANN	H30 X 25MM BLK		EA	2
	590031	SLEEVE HS 3.2mm YLW	RS COMPONENTS	399-502		AR	1
	590074	SLEEVE SOLDER DIAM.3.0	RAYFAST	CWT-3		EA	1
	590081-1	HEATSHRINK MARKER I+	HELLERMANN	SEE DRG		EA	1
	590082-1	HEATSHRINK MARKER I-	HELLERMANN	SEE DRG		EA	1
	590092	CABLE TIE 2.5 X 115 MM	RICHCO	WIT-18R		EA	2
	590094	SLEEVE HS 3mm BLK ADH LINED	RS COMPONENTS	399-861		AR	1
	602029	SOCKET PIN 'D' CHROMEL THERMO	OMEGA	SMTC-CH-S		EA	1
	602030	SOCKET PIN 'D' ALUMEL THERMO	OMEGA	SMTC-AL-S		EA	1
	602031	CONN UNINS CRIMP 6.4MM	TAKBRO	LTO-6.0T-250N		EA	2
	605051	SOCKET HOUSING 4-WAY .1"P	MOLEX	22-01-2045		EA	2

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DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
	605053	SOCKET HOUSING 12-WAY .1"P	MOLEX	22-01-2125		EA	1
	605057-1	CRIMP TERM .100 GD PL REEL	MOLEX	08-56-0120 TO DRG		EA	23
	605164	SOCKET HOUSING 2-WAY .1"P	MOLEX	22-01-2025		EA	1
	605178	SOCKET SOLDER BUCKET	AMP	66569-3		EA	7
	605233	SOCKET PAN 15-WAY 'D' SHELL	AMP	164532-4	S	EA	1
	606040	SCREWLOCK D TYPE M3	SOURIAU	8630-01		EA	1
	612003-1	STANDOFF M3 X 20	SWIFT ENGINEERING	SEE DRG		EA	-
	613052	WASHER M4 CRINKLE SS	GKN	SEE DRG		EA	6
	615011	NUT FULL M4 SZP	GKN	SEE DRG		EA	6
	630415	GROMMET DIAPHRAGM 12.5 PN HOLE	ROBERT MOSS	19433	S	EA	2
	900012	ADHESIVE EPOXY RAPID	CIBA-GEIGY	ARALDITE RAPID		AR	1

End

WAVETEK LTD PARTS LIST 04-Apr-95 DESC: ASSY TRANSF MAINS 9100 DRG NO: LP401102-3 REV: 0 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
	300044-2	TRANSF MAINS 9000	SIGA	SEE DRG		EA	1
	400184-2	ASSY EARTH BRAID	WAVETEK	SEE DRG		EA	1
	451015-2	TERMINATION BLOCK 9000	TUFNOL	SEE DRG		EA	1
	451016-1	TERMINATION POST 9000	SPEAR ENGINEERING	SEE DRG		EA	3
	512444	WIRE 7/.2 PTFE 1KV YLW	BICC	SEE DRG	A	AR	1
	512999	WIRE 7/.2 PTFE 1KV WHT	BICC	SEE DRG	A	AR	1
	590012	INSULATING BOOT	BELLING LEE	L1867		EA	1
	590029	SLEEVE HS 9.0mm BLK	HELLERMANN	SFM9-3BK		AR	1
	590033	SLEEVE NP 5 x 25mm BLK	HELLERMANN	H50 X 25mm BLK		EA	2
	590092	CABLE TIE 2.5 X 115mm	RICHCO	WIT-18R		EA	4
	602023	CONN UNINS CRIMP 4.8mm	TAKBRO	LTO-1.0T-187N-5		EA	9
	602034	TERMINAL M3 RING	THOMAS & BETTS	DRA3Y		EA	1
	603005	CONN COVER 4.8mm	RS COMPONENTS	533-263		EA	7
	605053	SOCKET HOUSING 12-WAY .1"P	MOLEX	22-01-2125		EA	1
	605057-1	CRIMP TERM .100 GD PL REEL	MOLEX	08-56-0120 TO DRG		EA	11
	605071	SOCKET HOUSING 4-WAY .156"P	MOLEX	09-91-0400		EA	1
	605161	CRIMP TERM .156 GD PL SMALL	MOLEX	08-56-0108		EA	2
	630414	GROMMET DIAPHRAGM 25.5 PN HOLE	ROBERT MOSS	19439	S	EA	1
	900009	LOCKING COMPOUND	LOCTITE	222		AR	1
	920278	MAINS INLET MODULE 6A	SCHURTER	CG46.5101.151	S	EA	1
	920279	MAINS INLET FUSE DRAWER 20mm	SCHURTER	4305.0006	S	EA	1
	920280	MAINS INLET V SELECT INSERT	SCHURTER	4305.0048.01	S	EA	1
	920288	FUSE 3.15A 250V 20mm (T)	SCHURTER	001.2509		EA	1

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End

WAVETEK LTD PARTS LIST 05-Apr-95 DESC: ASSY LEAD SET 9005 DRG NO: LP401152-1 REV: 4 PAGE NO: 1

DESIG	PART NO	DESCRIPTION	PRINC MANUF	MANUF PART NUMBER	CLASS	UM	QUANTITY
	420098	LABEL SERIAL/ASSY No	BRADY	DAT-G4-502		EA	1
	451042-2	WORKMAT RUBBER COATED 9005	DALE	SEE DRG		EA	1
	451048-1	CABLE ASSY MOULDED 9005	TEKDATA	SEE DRG		EA	1
	451050-1	PACKING BOX 9005	SUTTON A E	SEE DRG		EA	1
	451058-4	SCREEN WORKMAT 9105	PROPAK	SEE DRG		EA	1
	611085	SCREW M4 X 6 POZIPAN SBKZP	GKN	SEE DRG		EA	2
	612067	SPACER M4 X 8 F/F HEX	HARWIN	R40-1000802		EA	2
	613020	WASHER M4 PLAIN SZP	GKN	SEE DRG		EA	2
	613021	WASHER M4 INT SHAKP SZP	GKN	SEE DRG		EA	2
	613052	WASHER M4 CRINKLE SS	GKN	SEE DRG		EA	2
	630290	BAG GRIPPER 5" X 7.5"	ABBOTS PACKAGING	CODE 128		EA	4
	850930-2	LEAFLET CONTENTS LIST 9005	WAVETEK	SEE DRG		EA	1
	920248-1	ADAPTOR 4mm GOLD RETRACTABLE	MULTI-CONTACT	SEE DRG		EA	6
	920285-1	LEAD THERMOCOUPLE K TYPE	TEKDATA	SEE DRG		EA	1
	920287-2	LEADS 4mm SAFETY 9105	MULTI-CONTACT	SEE DRG		EA	1

End

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