MAINTENANCE MANUAL

PSD60-2R
FUEL QUANTITY TEST SET

MANUAL NUMBER: E6-0597-00 (75321)
REVISION: A1
DATE: 12/01/2010

WARNING: INFORMATION SUBJECT TO EXPORT CONTROL LAWS

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ELECTROSTATIC DISCHARGE GENERAL WARNINGS FOR ALL EQUIPMENT

CAUTION: THIS EQUIPMENT MAY CONTAIN ELECTROSTATIC DISCHARGE (ESD) SENSITIVE COMPONENTS. TO PREVENT ESD SENSITIVE EQUIPMENT FROM POSSIBLE DAMAGE, OBSERVE THE FOLLOWING PRECAUTIONS WHEN HANDLING ANY ESD SENSITIVE COMPONENTS, OR UNITS CONTAINING ESD SENSITIVE COMPONENTS:

a. Maintenance or service personnel must be grounded though a conductive wrist strap, or a similar grounding device, using a 1 MΩ series resistor for equipment protection against static discharge, and personal protection against electrical shock.

b. All tools must be grounded (including soldering tools) that may come into contact with the equipment. Hand contact will provide sufficient grounding for tools that are not otherwise grounded, provided the operator is grounded through an acceptable grounding device such as a wrist strap.

c. Maintenance or service of the unit must be done at a grounded, ESD workstation.

d. Before maintenance or service of the equipment, disconnect all power sources, signal sources, and loads connected to the unit.

e. If maintenance or service must be performed with power applied, take precautions against accidental disconnection of equipment components. Specifically, do not remove integrated circuits or printed circuit boards from equipment while the equipment has power applied.

f. All ESD sensitive components are shipped in protective tubes or electrically conductive foam. The components should be stored using the original container/package when not being used or tested. If the original storage material is not available, use similar or equivalent protective storage material.

g. When ESD sensitive components are removed from a unit, the components must be placed on a conductive surface, or in an electrically conductive container.

h. When in storage or not being repaired, all printed circuits boards must be kept in electrically conductive bags, or other electrically conductive containers.

i. Do not unnecessarily pick up, hold, or directly carry ESD sensitive devices.

Failure to comply with these precautions may cause permanent damage to ESD sensitive devices. This damage can cause devices to fail immediately, or at a later time without apparent cause.

Safety and Regulatory Information

Review this product and related documentation to familiarize yourself with safety markings and instructions before you operate this equipment.

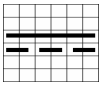
WARNING The **WARNING** notice denotes a hazard. It calls attention to a procedure, practice, or the like, that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

CAUTION The **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

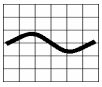
Caution (refer to accompanying documents). Attention – refer to the manual. This symbol indicates that information about usage of a feature is contained in the manual.

Equipment Markings

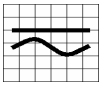
The following markings may appear on this equipment:



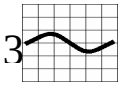
Direct current. This symbol indicates that the equipment requires direct current input.



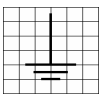
Alternating current. This symbol indicates that the equipment requires alternating current input.



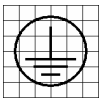
Both direct and alternating current. This symbol indicates that the equipment requires either ac or dc input at the same connector.



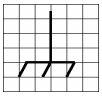
Three-phase alternating current. This symbol indicates that the equipment requires 3-phase ac input.



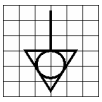
Earth (ground) terminal. This symbol indicates the ground (earth) terminal.



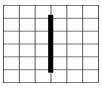
Protective conductor terminal. This symbol indicates the protective ground (earth) terminal.



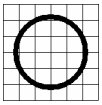
Frame or chassis terminal. This symbol indicates the frame or chassis terminal for connection to ground.



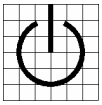
Equipotentiality. This symbol indicates an equipotentiality terminal.



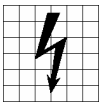
On (Supply). This symbol indicates that the power line switch is ON.



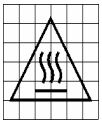
Off (Supply). This symbol indicates that the power line switch is OFF.



Standby. This symbol indicates that the power line switch is in STANDBY.

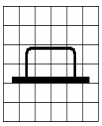


Caution, risk of electric shock. Danger – high voltage.

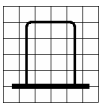


Caution, hot surface. Danger – high temperature surface.

Caution (refer to accompanying documents). Attention – refer to the manual. This symbol indicates that information about usage of a feature is contained in the manual.



In-position of a bistable push control. This symbol indicates the in (on) position of a bistable push control.



Out-position of a bistable push control. This symbol indicates the out (off) position of a bistable push control.

CE Mark. ™ of the European Community.

Fuse Symbol. To indicate a fuse.

Warnings

WARNING Do not use the equipment in a manner not specified in this manual!

WARNING Equipment should only be serviced by authorized personnel.

CLEANING WARNING

Keep the equipment dry to avoid damage to the equipment. To prevent damage, never apply solvents to the equipment housing. For cleaning, wipe the equipment with a cloth that is lightly dampened with water, mild detergent, or alcohol. Do not use aromatic hydrocarbons, chlorinated solvents, or methanol-based fluids.

DO NOT OPERATE IN EXPLOSIVE ATMOSPHERES

To avoid explosion, do not operate the equipment in an atmosphere of explosive gas.

WARNING Equipment contains no-rechargeable batteries. Use only 1.5-V size C alkaline cells. Never attempt to recharge these cells.

NOTE For EMC testing M17/84-RG223 double shielded coaxial cable, 4.5 m long, with BNC connectors, shielding terminated 360° at both end connectors, and unterminated at far end were used at terminals (ports) INDICATOR LOZ (J1), INDICATOR HIZ (J2), INDICATOR COMP (J3), TANK UNITS LOZ (J4), TANK UNITS HIZ (J5), AND TANK UNITS COMP (J6).

CAUTION This equipment is electrostatic discharge (ESD) sensitive. Use of the supplied ESD wrist strap with cord (JPN 90-0283-02), or equivalent, must be used at all times when operating this unit. See the manufacturer's instructions that come with each package for proper connection and use.

REVISION HISTORY – PSD60-2R MAINTENANCE MANUAL

E6-0597-00 / 10000015088 / 75321
06-0597-00 / 10000015089 / 3357

Revision	Date	Reason	Reference
60	04/07/09	Update drawings	J38229
61	09/30/09	Update dwgs change address	J39558
A0	09/30/10	Add 2-wire / 3-wire switch, update dwgs	500000001002
A1	12/01/10	Update dwgs	500000001250

REVISION HISTORY BY DRAWING NUMBER

MANUAL: PSD60-2R Fuel Quantity Test Set

REVISION: A1 – December 1, 2010

DRAWING NO.	REV. LEVEL	DRAWING NO.	REV. LEVEL
Safety and Regulatory Information	01		
Table of Contents	14		
Section I	14		
Section II	11		
Section III	16		

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SECTION I
GENERAL INFORMATION

1.1 INTRODUCTION

This manual provides maintenance information for the Aeroflex PSD60-2R Fuel Quantity Gauging System Test Set.

The PSD60-2R Fuel Quantity Gauging System Test Set is an instrument that permits complete functional checkout and calibration of an AC Fuel Gauging System, on or off the aircraft. The test set can accurately measure the capacitance of Tank Units, Compensators, or entire systems. The test set can also simulate capacitance values for the operation of Indicators, as well as measure the insulation resistance of Tank Units and cabling.

The insulation resistance measurement circuit normally operates in three terminal configuration. If a direct short is present from signal source to ground the system will display short. If a direct short is present from signal return to ground the systems reading is undefined.

Operation of the test set is essentially automatic (no manual nulling required). To evaluate a particular system, connect it to the applicable input. Panel controls are set to determine what is displayed on the digital display.

The test set is powered by 18 C sized alkaline batteries. The batteries may be replaced without need of test set recalibration. Battery condition is displayed on the digital readout.

The test set is shipped with a chassis ground cable. In order to properly test a system, specific aircraft interface cables are required but not furnished with the test set.

1.2 EQUIPMENT DESCRIPTION

Figure 1-1 shows the front panel of the test set. Refer to Table 1-1 for the description and function of each item.

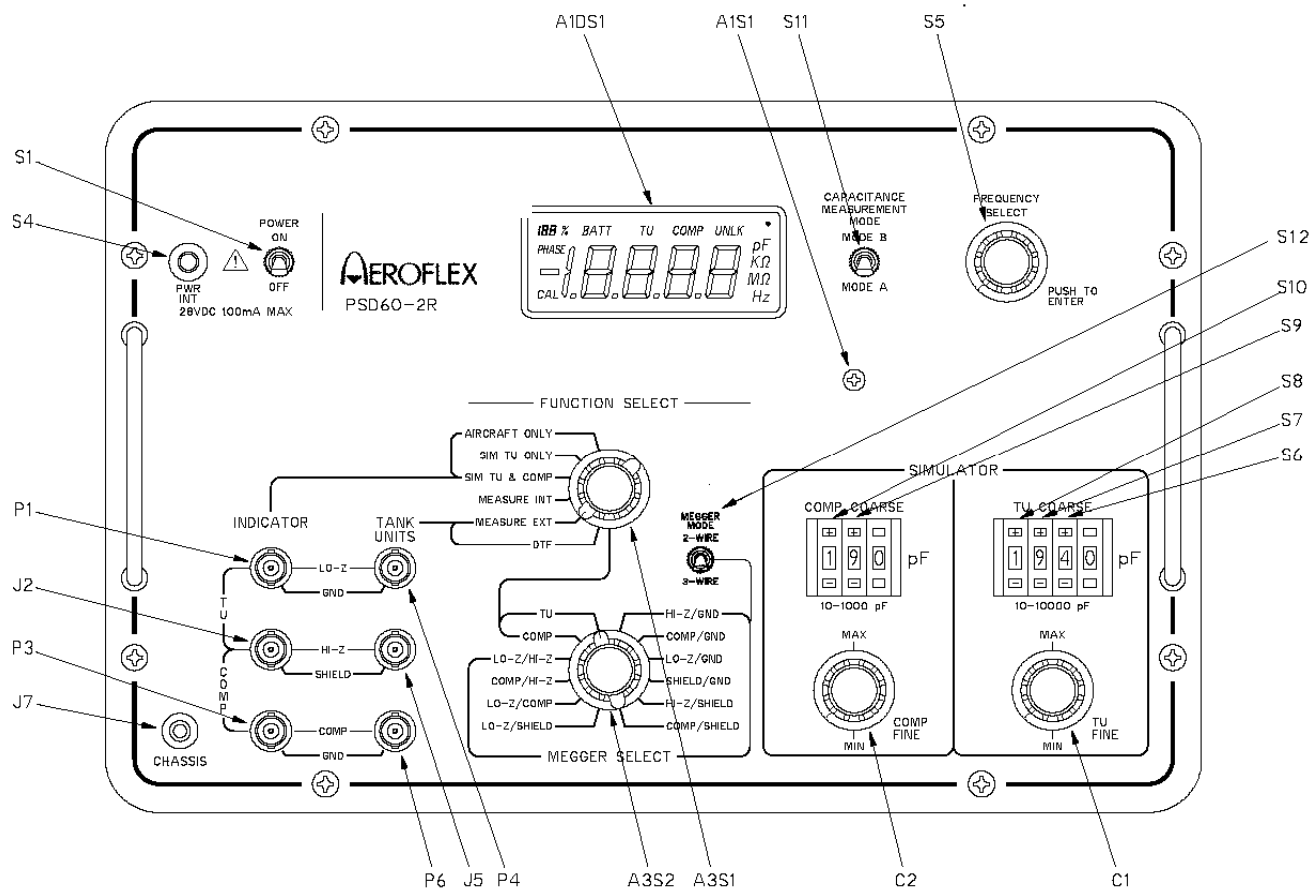


FIGURE 1-1

ITEM	FUNCTION	DESCRIPTION
S4	POWER INTERRUPT SWITCH	Turns power off when lid is closed regardless of the position of Power Switch
S1	POWER SWITCH	Applies power to the test set.
A3S1	FUNCTION SELECT	Used to select function to be performed.
	MEASURE EXT	Use to select measurement of TANK UNIT parameters through P4, J5, P6 and/or J7 depending on MEGGER SELECT switch (A3S2) position.
	MEASURE INT	Use to select measurement of SIMULATOR capacitance depending on SELECT switch S3 (TU or COMP) position.
	DTF	Sets the unit to measure distance to fault.
	SIM TU & COMP	Connects the two simulators to the INDICATOR jacks (P1, J2, & P3) for capacitance output.
	SIM TU ONLY	Connects the TU SIMULATOR to the INDICATOR TU jacks (P1 & J2) for capacitance output.
	AIRCRAFT ONLY	Disconnects both simulators from the INDICATORS jacks (P1, J2, & P3)
A3S2	MEGGER SELECT	Use to select parameter to measure depending on the position of the FUNCTION SELECT switch.
S12	MEGGER MODE 2-WIRE / 3-WIRE	Changes the Megger section from the 3-wire mode to the 2-wire mode. See Appendix A of the PSD60-2R Operation Manual for details of the 2-wire and 3-wire operation.
A1DS1	LCD Display	Displays: 1. Frequency of LO-Z signal. 2. Capacitance under test, either internal or external. 3. Insulation resistance of system wiring or unit under test. 4. Relative charge of the PSD60-2R batteries. 5. Capacitance measurement mode
A1S1	CALIBRATION MODE Switch	To put the unit in Calibration mode, the screw is removed and the switch beneath the screw hole is held depressed during power up.
P1	INDICATOR LO-Z	Allows connection from test set TU SIMULATOR to aircraft FQGs.
J2	INDICATOR HI-Z	Allows connection from test set SIMULATOR (TU, and COMP) HI-Z line to aircraft FQGs.
P3	INDICATOR COMP	Allows connection from test set COMP SIMULATOR to aircraft FQGs.
P4	TANK UNITS LO-Z	Allows connection from test set measurement circuits to aircraft tanks.

J5	TANK UNITS HI-Z	Allows connection from test set measurement circuits to aircraft tanks.
P6	TANK UNITS COMP	Allows connection from test set measurement circuits to aircraft tanks.
J7	CHASSIS	Access to PSD60-2R chassis ground. Normally required to connect the PSD60-2R to aircraft ground.
S5	FREQUENCY SELECT	Use to enter the LO-Z frequency. Also used to calibrate the unit
S6, S7 & S8	TU DECADE CAPACITOR	Increments TU SIMULATOR by 10, 100, or 1000 pF increments depending on decade chosen (increments are not calibrated)
S9 & S10	COMP DECADE CAPACITOR	Increments COMP SIMULATOR by 10 or 100 pF increments depending on decade chosen (increments are not calibrated)
S11	CAPACITANCE MEASUREMENT MODE	Used to select between measuring Mode B (magnitude capacitance) and Mode A (parallel capacitance).
C1	TU FINE	Rotate for fine adjustment of TU simulation capacitance.
C2	COMP FINE	Rotate for fine adjustment of COMP simulation capacitance.

NOTE: C1 and C2 have 180 degree rotation for minimum to maximum value with no stops. It is therefore possible to have an increasing value in either the clockwise or counter clockwise direction.

TABLE 1-1

1.3 UNPACKING AND INSPECTING EQUIPMENT

Exercise extreme care when unpacking the unit. Make a visual inspection of the unit for evidence of damage incurred during shipment. If a claim for damage is to be made, save the shipping container to substantiate the claim. When the equipment has been unpacked, return all the packing material to the container for future use in storing or shipping of the equipment. Remove any protective covers from connectors before using the equipment. Replace any covers on the connectors after using the PSD60-2R.

1.4 SPECIFICATIONS

Environmental Specifications

The environmental specifications are as follows:

Size:	16.5 cm H x 35.6 cm W x 26.9 cm D (6.5” H x 14” W x 10.6” D)
Mass (Weight):	5.4 kg (12 lbs.)
Container:	High-impact plastic
Operating Temperature:	-25 °C to +55 °C
Relative Humidity (Non-Condensing):	
	80% maximum for ≤ 30 °C
	Decrease linearly to 50% at 40 °C
	40 °C ≤ 50% maximum ≤ 55 °C
Operating Altitude:	≤ 2 000 m
IEC Overvoltage Category:	II
Pollution Degree:	2
Intrinsic Safety:	1 μJ @ 0.02 μF (normal operation)

Measurement Range

Capacitance Measurement Range

Range				Resolution
Low	0	-	199.99 ρF	0.01 ρF
Mid	200	-	1999.9 ρF	0.1 ρF
High	2,000	-	19,999 ρF	1 ρF
	20.00K	-	39.99 KρF	10 ρF
DTF	0	-	19,999 ρF	1 ρF
	20.00K	-	39.99 KρF	10 ρF

Resistance Measurement Mode (9 ranges)	10 mΩ to 1999 MΩ
	(optional) 2000 MΩ to 19999 MΩ

Measurement Accuracy

AC Capacitance:	
Mode A	Greater of +/- 0.1% of reading or 0.05 ρF from 0 – 39.99 KρF at 0° Phase Shift.
Mode B	Greater of +/- 0.1% of reading or 0.05 ρF from 0 – 39.99 KρF at 0° to 359° Phase Shift.
DTF	Greater of +/- 0.1% of reading or 2 ρF
Resistance:	Greater of 2% of reading or 0.1 ohm +/- 5% of reading for R > 2000 M ohm

Capacitance Simulators Range

Tank Unit:	10 ρF – 9900 ρF infinite resolution
Compensator:	10 ρF – 990 ρF infinite resolution. The capacitance simulators are calibrated to an exact value by using MEASURE INT TU or COMP and, therefore, are as accurate as the capacitance measurement circuitry.
Power	27 V, 150 mA maximum.
Batteries:	18 C sized Alkaline batteries 

1.5 ACCESSORIES SUPPLIED

The following is a list of accessories that are supplied with the PSD60-2R:

1. Ground strap cable, JPN 55-7002-00.
2. Operation Manual, JPN 06-0597-01.

1.6 EQUIPMENT REQUIRED BUT NOT SUPPLIED

The following is a list of equipment that is referenced in this manual but not supplied with a PSD60-2R:

1. Aircraft Interface Cabling

SECTION II
MAINTENANCE

2.1 GENERAL MAINTENANCE

CLEANING WARNING:

Keep the equipment dry to avoid damage to the equipment. To prevent damage, never apply solvents to the equipment housing. For cleaning, wipe the equipment with a cloth that is lightly dampened with water, mild detergent, or alcohol. Do not use aromatic hydrocarbons, chlorinated solvents, or methanol-based fluids.

CAUTION: THE PSD60-2R CONTAINS ESD SENSITIVE DEVICES. OPEN AND CALIBRATE AT ESD PROTECTED AREA ONLY.

A. Battery Replacement:: a "LO BAT" indication will illuminate on the digital display when batteries require replacement. Remove the front panel and replace used batteries with fresh alkaline batteries.

B. Calibration: The suggested calibration interval is 1 year. A test procedure, JPN 04-0597-00 is included in this manual. It contains a section that tests the units accuracy, a section that calibrates the unit, and a section that does complete testing of the unit. Periodic calibration and certification service is also provided by:

Aeroflex
14408 West 105th Street
Lenexa KS 66215-2316
Telephone: (800) 237-2831 / (913) 324-3103
Attn: Service Dept.

2.2 BILLS OF MATERIAL, ASSEMBLY DRAWINGS, SCHEMATICS & TEST PROCEDURE

To assist in the maintenance of the PSD60-2R, bills of material, assembly drawings, schematics and a test procedure are included in Section 3 of this manual.

SECTION III
DRAWINGS

3.1 BILLS OF MATERIAL, ASSEMBLY DRAWINGS, SCHEMATICS & TEST PROCEDURE

To assist in the maintenance of the PSD60-2R; bills of material, assembly drawings, schematics and a test procedure are included in this section of the manual.

DRAWING NUMBER	DESCRIPTION	REVISION
Drawing Section 1. Top Level Drawings		
01-0597-00 / 693	BOM, PSD60-2R	A2
25-0597-00 / 10000011851	Assy Dwg, PSD60-2R	AB
02-0597-00 / 10000011852	Schematic, PSD60-2R	AB
Drawing Section 2. A2 Simulator Board		
20-5919-00	BOM, A2 Simulator Board	3
25-5919-00	Assy Dwg, A2 Simulator Board	6
02-5919-00	Schematic, A2 Simulator Board	5
Drawing Section 3. Main Board		
20-6859-00	BOM, Main Board	10
25-6859-00	Assy Dwg, Main Board	11
02-6859-00	Schematic, Main Board	10
Drawing Section 4. Switch Board		
20-6859-10 / 18175	BOM, Switch Board	A0
25-6859-10 / 10000011859	Assy Dwg, Switch Board	AA
02-6859-10 / 10000011860	Schematic, Switch Board	AA
Drawing Section 5. I/O Board		
20-6859-20	BOM, I/O Board	1
25-6859-20	Assy Dwg, I/O Board	2
02-6859-20	Schematic, I/O Board	2
Drawing Section 6. Ground Cable		
55-7002-00 / 58345	Cable, Ground	A0
85-7002-00 / 10000011089	Dwg, Cable Ground	AA
Drawing Section 7. Test Procedure		
04-0597-00 / 10000011858	Test Procedure, PSD60-2R	AA

Material	RevLev	Description	Plnt	Key date
693	A2	PSD60-2R AC CAPACITANCE FUEL QTY	1100	12/01/2010

BOM	Use	Alt	Alternative Text	Base quantity	BUn	Valid from - to
00020898	Z			1.000	EA	03/18/2009 12/31/9999

Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	**0050**	**11789**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		CASE PLASTIC YEL MOD PSD60-2R		**L**	☐	☐	☒		
		0001 1		**1.000**	**EA**				
1	0060	11959		2.000	EA	☐		03/18/2009 - 12/31/9999	
		CBL POUCH 6X6 BLK CANVAS/MESH		L	☐	☐	☐		
		0001 2		2.000	EA				
1	**0070**	**16475**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		PSD60-2R BATTERY PACK ASSY		**L**	☐	☐	☒		
		0001 A 5		**1.000**	**EA**				
1	0080	17695		1.000	EA	☐		03/18/2009 - 12/31/9999	
		CAPACITANCE BOARD PSD60-2R		L	☐	☐	☒		
		0001 A 2		1.000	EA				
1	**0090**	**18173**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		PSD60-2R MAIN BD		**L**	☐	☐	☒		
		0001 A 1		**1.000**	**EA**				
1	0100	18175	A0	1.000	EA	☐		03/18/2009 - 12/31/9999	
		PSD60-2R SWITCH BD		L	☐	☐	☒		
		0001 A 3		1.000	EA				
1	**0110**	**18177**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		PSD60-2R I/O BD		**L**	☐	☐	☒		
		0001 A 4		**1.000**	**EA**				
1	0130	38312		4.000	EA	☐		03/18/2009 - 12/31/9999	
		CONN BNC RCPT BULKHEAD FRNT MN		L	☐	☐	☐		
		0001 P 1		1.000	EA				
		0002 P 3		1.000	EA				
		0003 P 4		1.000	EA				
		0004 P 6		1.000	EA				
1	**0140**	**38338**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		CONN BNC RCPT BULKHEAD FRONT M		**L**	☐	☐	☐		
		0001 J 2		**1.000**	**EA**				
		0002 J 5		**1.000**	**EA**				

Material	RevLev	Description	Plnt	Key date
693	A2	PSD60-2R AC CAPACITANCE FUEL QTY	1100	12/01/2010

BOM	Use	Alt	Alternative Text	Base quantity	BUn	Valid from - to
00020898	Z			1.000	EA	03/18/2009 12/31/9999

Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	0150	39047		1.000	EA	☐		03/18/2009 - 12/31/9999	
		CONN HOUS SR CRIMP .1SP 2 POS		L		☐	☐		
		0001 J 16		1.000	EA				
1	**0160**	**39049**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		CONN HOUS SR CRIMP .1SP 4 POS		**L**		☐	☐		
		0002 J 13		**1.000**	**EA**				
		0003 J 15		**1.000**	**EA**				
1	0170	41372		17.000	EA	☐		03/18/2009 - 12/31/9999	
		CONTACT FEMALE BOX CRIMP		L		☐	☐		
		0001 3		17.000	EA				
1	**0180**	**41611**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SWIT ROT ENCODER W/PSHBTN 32 P		**L**		☐	☐		
		0001 S 5		**1.000**	**EA**				
1	0190	41786		1.000	EA	☐		03/18/2009 - 12/31/9999	
		SWIT TOGGLE SPDT ON-NONE-ON		L		☐	☐		
		0001 S 1		1.000	EA				
1	**0200**	**41903**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SWIT TOG SPDT ON-NONE-ON SHRT		**L**		☐	☐		
		0001 S 11		**1.000**	**EA**				
		0002 S12		**1.000**	**EA**				
1	0210	41944		5.000	EA	☐		03/18/2009 - 12/31/9999	
		SWITCH THUMBWHEEL BCD 1-2-4-8		L		☐	☐		
		0001 S 6		1.000	EA				
		0002 S 7		1.000	EA				
		0003 S 8		1.000	EA				
		0004 S 9		1.000	EA				
		0005 S 10		1.000	EA				
1	**0220**	**41946**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SWITCH THUMBWHEEL END MOUNTING		**L**		☐	☐		
		0001 4		**2.000**	**EA**				
1	0230	41948	A1	2.000	EA	☐		03/18/2009 - 12/31/9999	
		SWITCH THUMBWHEEL -03 MOD		L		☐	☒		
		0001 5		2.000	EA				

Material	RevLev	Description	Plnt	Key date
693	A2	PSD60-2R AC CAPACITANCE FUEL QTY	1100	12/01/2010

BOM	Use	Alt	Alternative Text	Base quantity	BUn	Valid from - to
00020898	Z			1.000	EA	03/18/2009 12/31/9999

Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	**0240**	**42053**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SWITCH PUSHBUTTON SPST NC		**L**	☐	☐	☐		
		0001 S 4		**1.000**	**EA**				
1	0250	45342		1.000	EA	☐		03/18/2009 - 12/31/9999	
		JACK BANANA INS SLDR TERM GRN		L	☐	☐	☐		
		0001 J 7		1.000	EA				
1	**0260**	**47608**		**18.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		BATTERY ALKALINE 1.5V SIZE C		**L**	☐	☐	☐		
		0001 6		**18.000**	**EA**				
1	0270	51125 A0		1.000	EA	☐		03/18/2009 - 12/31/9999	
		FRT PNL PSD60-2R (MOD 4 & UP)		L	☐	☐	☒		
		0001 7		1.000	EA				
1	**0280**	**51805**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		BRKT KILL SWIT PSD90-1M		**L**	☐	☐	☒		
		0001 8		**1.000**	**EA**				
1	0290	58345 A0		1.000	EA	☐		03/18/2009 - 12/31/9999	
		CABLE GROUND STRAP		L	☐	☐	☒		
		0001 ACC 1		1.000	EA				
1	**0300**	**58812 A0**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SER TAG PSD60-2R AC CAPACITANC		**L**	☐	☒	☒		
		0001 9		**1.000**	**EA**				
1	0310	59202		1.000	EA	☐		03/18/2009 - 12/31/9999	
		PLACARD PSD50-2/PSD60-2R ERROR		L	☐	☒	☒		
		0001 27		1.000	EA				
1	**0320**	**59488 A0**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		OVRLY CASE PSD60-2R AC CAP FQT		**L**	☐	☐	☒		
		0001 10		**2.000**	**EA**				
1	0330	60746		1.000	EA	☐		03/18/2009 - 12/31/9999	
		PROG UCNTRLR PSD60-2R VR 1.03		L	☐	☒	☒		
		0001 A1U27		1.000	EA				
1	**0340**	**68617**		**1.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		MOUNT PSD90-1M CAL SELECT		**L**	☐	☐	☒		
		0001 11		**1.000**	**EA**				

Material	RevLev	Description	Plnt			Key date
693	A2	PSD60-2R AC CAPACITANCE FUEL QTY	1100			12/01/2010
BOM	**Use**	**Alt**	**Alternative Text**	**Base quantity**	**BUn**	**Valid from - to**
00020898	Z			1.000	EA	03/18/2009 12/31/9999

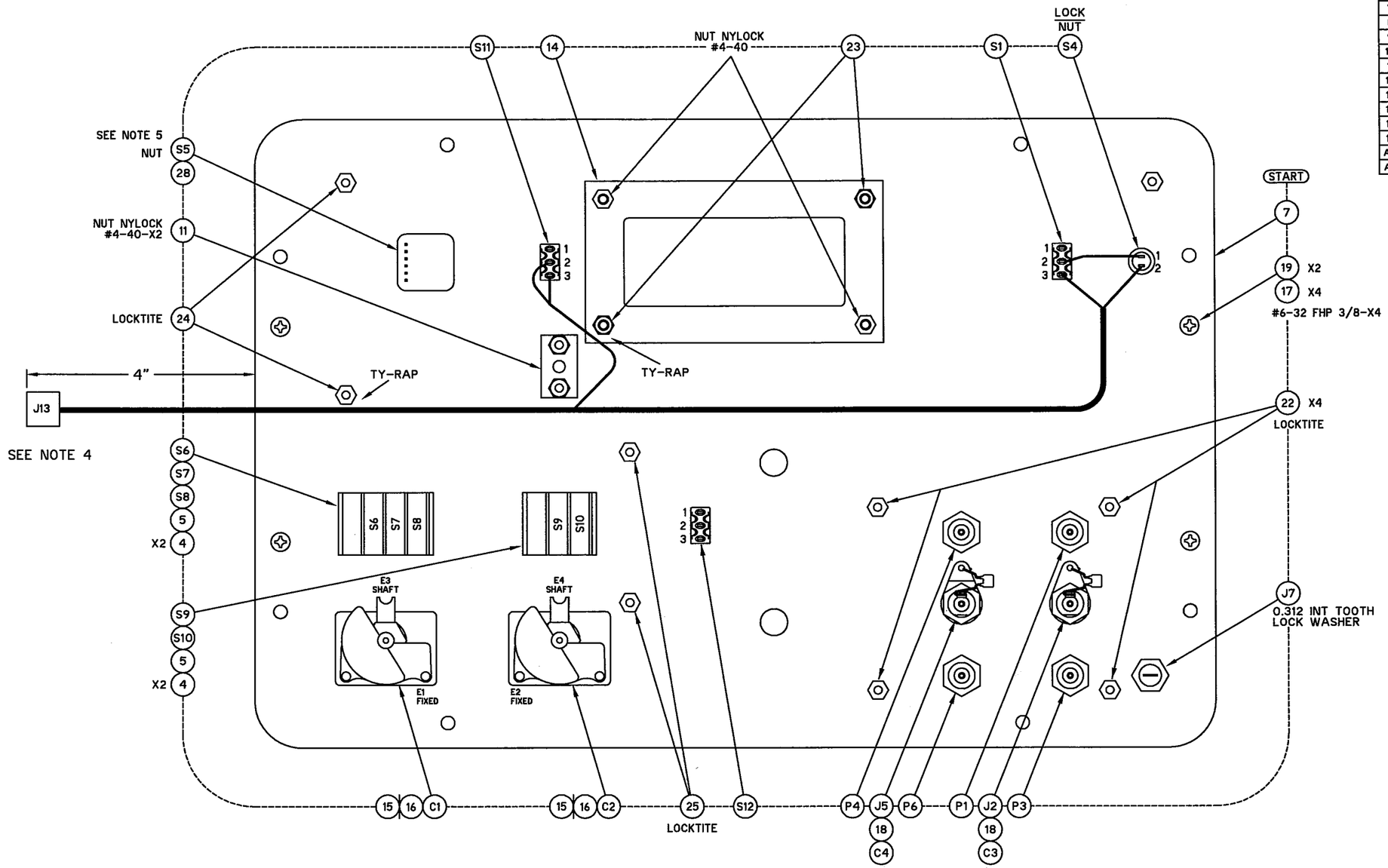
Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	0350	68622		8.000	EA	☐		03/18/2009 - 12/31/9999	
		BATTERY LIMITER PSD90-1M		L	☐	☐	☒		
		0001 12		8.000	EA				
1	**0360**	**68668**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		BATTERY COVER PSD60-2R AC CAP		**L**	☐	☐	☒		
		0001 13		**2.000**	**EA**				
1	0370	70927		1.000	EA	☐		03/18/2009 - 12/31/9999	
		LENS PSD60-2R (MOD 4 & UP)		L	☐	☐	☒		
		0001 14		1.000	EA				
1	**0380**	**70963**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		WASHER FLAT 3/8 NYLON .0625 TH		**L**	☐	☐	☐		
		0001 15		**2.000**	**EA**				
1	0390	70982		8.000	EA	☐		11/19/2010 - 12/31/9999	
		WASHER FLAT FIBRE .312OD X .17		L	☐	☐	☐	500000001196	
		0001 26		8.000	EA				
1	**0400**	**71393**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		WASHER SHOULDER .750 OD .375 I		**L**	☐	☐	☐		
		0001 16		**2.000**	**EA**				
1	0410	71751		4.000	EA	☐		03/18/2009 - 12/31/9999	
		FERRULE FOR .187 RND HANDLE AL		L	☐	☐	☐		
		0001 17		4.000	EA				
1	**0420**	**72038**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		HANDLE 3" C/C 1" HT #6-32 BLK		**L**	☐	☐	☐		
		0001 19		**2.000**	**EA**				
1	0430	72483		3.000	EA	☐		03/18/2009 - 12/31/9999	
		KNOB .980 OD RIBBED W/INDICATO		L	☐	☐	☐		
		0001 20		3.000	EA				
1	**0440**	**72487**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		KNOB .980 OD PTER W/INDCTR LIN		**L**	☐	☐	☐		
		0001 21		**2.000**	**EA**				
1	0450	72641		4.000	EA	☐		03/18/2009 - 12/31/9999	
		SPACER F/F #4-40 X .500		L	☐	☐	☐		
		0001 22		4.000	EA				

Material	RevLev	Description	Plnt			Key date
693	A2	PSD60-2R AC CAPACITANCE FUEL QTY	1100			12/01/2010
BOM	**Use**	**Alt** **Alternative Text**	**Base quantity**	**BUn**	**Valid from - to**	
00020898	Z		1.000	EA	03/18/2009	12/31/9999

Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	**0460**	**72644**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SPACER F/F #4-40 X .750		**L**	☐	☐	☐		
		0001 23		**2.000**	**EA**				
1	0470	72646		3.000	EA	☐		03/18/2009 - 12/31/9999	
		SPACER F/F #4-40 X .875		L	☐	☐	☐		
		0001 24		3.000	EA				
1	**0480**	**72649**		**2.000**	**EA**	☐		**03/18/2009 - 12/31/9999**	
		SPACER F/F #4-40 X 1.250 BRS/N		**L**	☐	☐	☐		
		0001 25		**2.000**	**EA**				
1	0490	75127		2.000	EA	☐		03/18/2009 - 12/31/9999	
		CAP VAR 3-25PF 7 DECK		L	☐	☐	☐		
		0001 C 1		1.000	EA				
		0002 C 2		1.000	EA				
1	**0520**	**39051**		**1.000**	**EA**	☐		**05/11/2010 - 12/31/9999**	
		CONN HOUS SR CRIMP .1SP 6 POS		**L**	☐	☐	☐		
		0001 J9		**1.000**	**EA**				
1	0530	74390		2.000	EA	☐		07/26/2010 - 12/31/9999	
		CAP MC 1000PF 100V 5% COG (.2		L	☐	☐	☐	500000000533	
		0001 C3		1.000	EA				
		0002 C4		1.000	EA				
1	**0540**	**4293**		**2.000**	**EA**	☐		**07/26/2010 - 12/31/9999**	
		LUG SOLDER FLAT 3/8 (.875L .5"		**L**	☐	☐	☐	**500000000533**	
		0001 18		**2.000**	**EA**				
1	0550	87955		3.000	EA	☐		07/26/2010 - 12/31/9999	
		WASHER INT TOOTH LOCK .385IDx.500OD		L	☐	☐	☐	500000000533	
		0001 28		3.000	EA				

*** End of List ***

REV	DESCRIPTION	DATE	ORIGIN	ECO/CM
1	SWAP ITEMS 6 & 7	07/93		–
2	BFG LOGO CHANGE	03/98	PK	–
3	SHOW PANEL MOUNTING HARDWARE	06/01/99	K GERKEN	–
4	ADDED CE MARKING TO FRONT PANEL	12/21/00	L. JOY	–
5	CORRECTED ARTWORK	01/03/01	S HUFFMAN	–
6	REDREW FOR QMC W/O TRUE-TYPE-FONTS	01/10/01	S HUFFMAN	–
7	ADDED NOTE 7	6/08/01	FAY T	–
8	REDESIGN UNIT	8/1/01	J TAYLOR	–
9	FIX PART NUMBER ERRORS	8/20/01	J TAYLOR	–
10	CHANGE TEXT ON S11	10/31/01	J TAYLOR	–
11	CHANGE TO GOODRICH LOGO	03/10/04	KSM	–
12	GENERAL CLEANUP, ADD NOTE 5, J13 TO 4"	6/30/04	DWM	–
13	CHANGE ITEM 18 TO A5	01/26/05	GSB	–
14	CHANGE TO AEROFLEX LOGO	01/17/06	KSM	–
15	CORRECT VIEW OF C1 AND C2	06/04/08	DS	–
16	CORRECTED SCREW LENGTH ON PAGE 2	08/20/09	S RANDALL	J39024
AA	ADD MEGGER 2/3 WIRE FUNCTION, NEW TITLE BLOCK	4/23/10	JMARR	500000000395
AB	ADD C3 & C4;ITM 18;'CE' MARKING TO FNT PNL OVRLY	06/09/10	JMARR	500000000533



NOTES:
1) BUILD PANEL IN ORDER SHOWN STARTING AT 'START' BUBBLE.
2) INSTALL A 1" PIECE OF 20AWG BUSS WIRE TO CENTERS OF P1, P3, P4 AND P6.
3) BEND SHIELD LEAD OF J2 AND J5 AWAY FROM CENTER CONDUCTOR APPROX. 0.05".
4) WIRE PANEL AFTER SHEET 1 IS COMPLETE
5) LOCK WASHER INSTALLED ON OUTSIDE OF PANEL.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: X.XX = ±0.01, X.XXX = ±0.005
ANGLES: ±1.0°
THIRD ANGLE PROJECTION
MATERIAL: N/A
FINISH: N/A

PROPRIETARY INFORMATION		
APPROVALS		DATE
DRAWN	TDL	08/92
ENG	S HUFFMAN	01/03/01
CHECKED	KSM	01/03/01
DOC TYPE	ZEM	
FILE NAME	10000011851.dwg	

AEROFLEX
14408 W. 105th ST.
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FAX: (913) 324-3103
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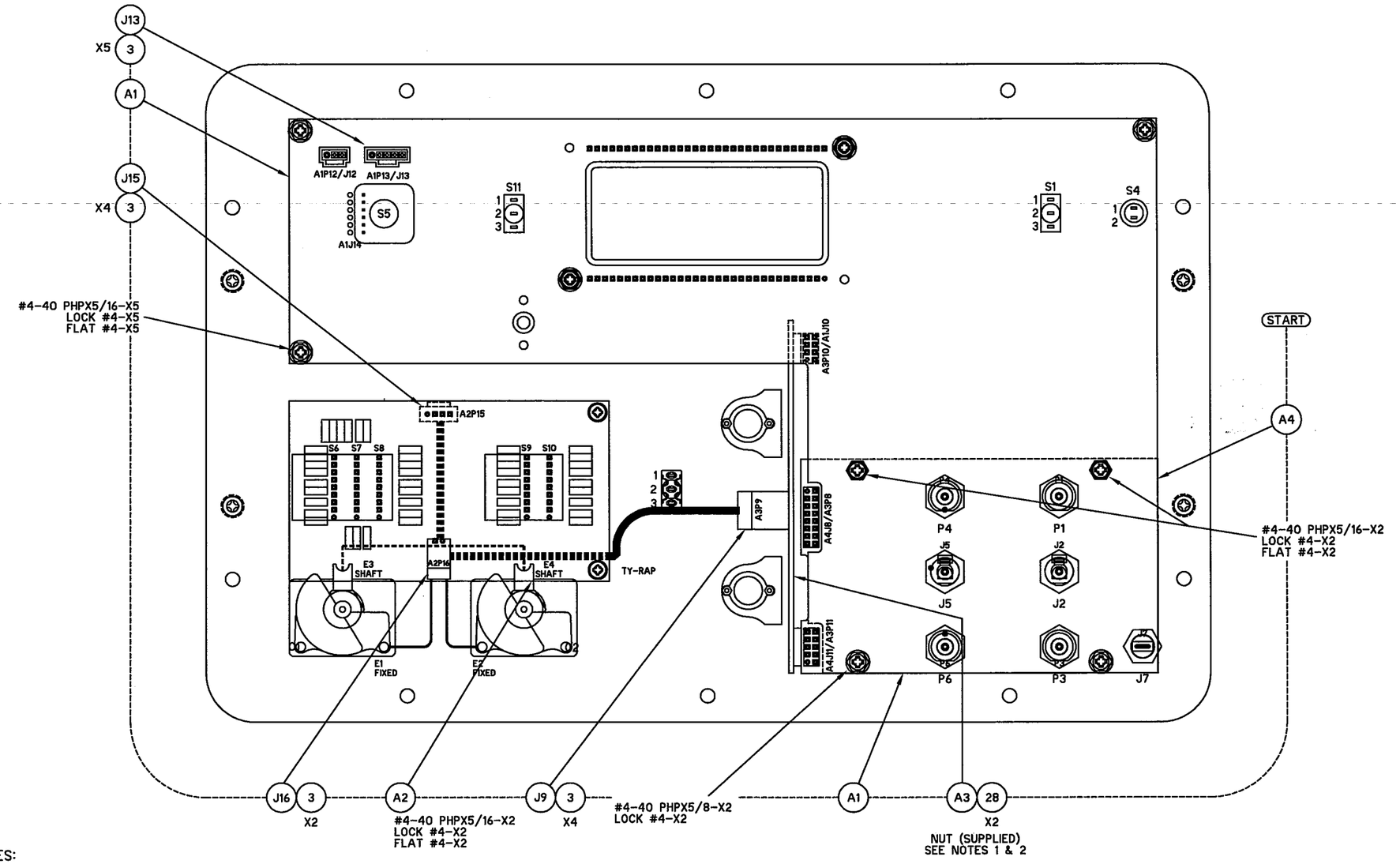
25-0597-00, ASSEMLY DWG
PSD60-2R

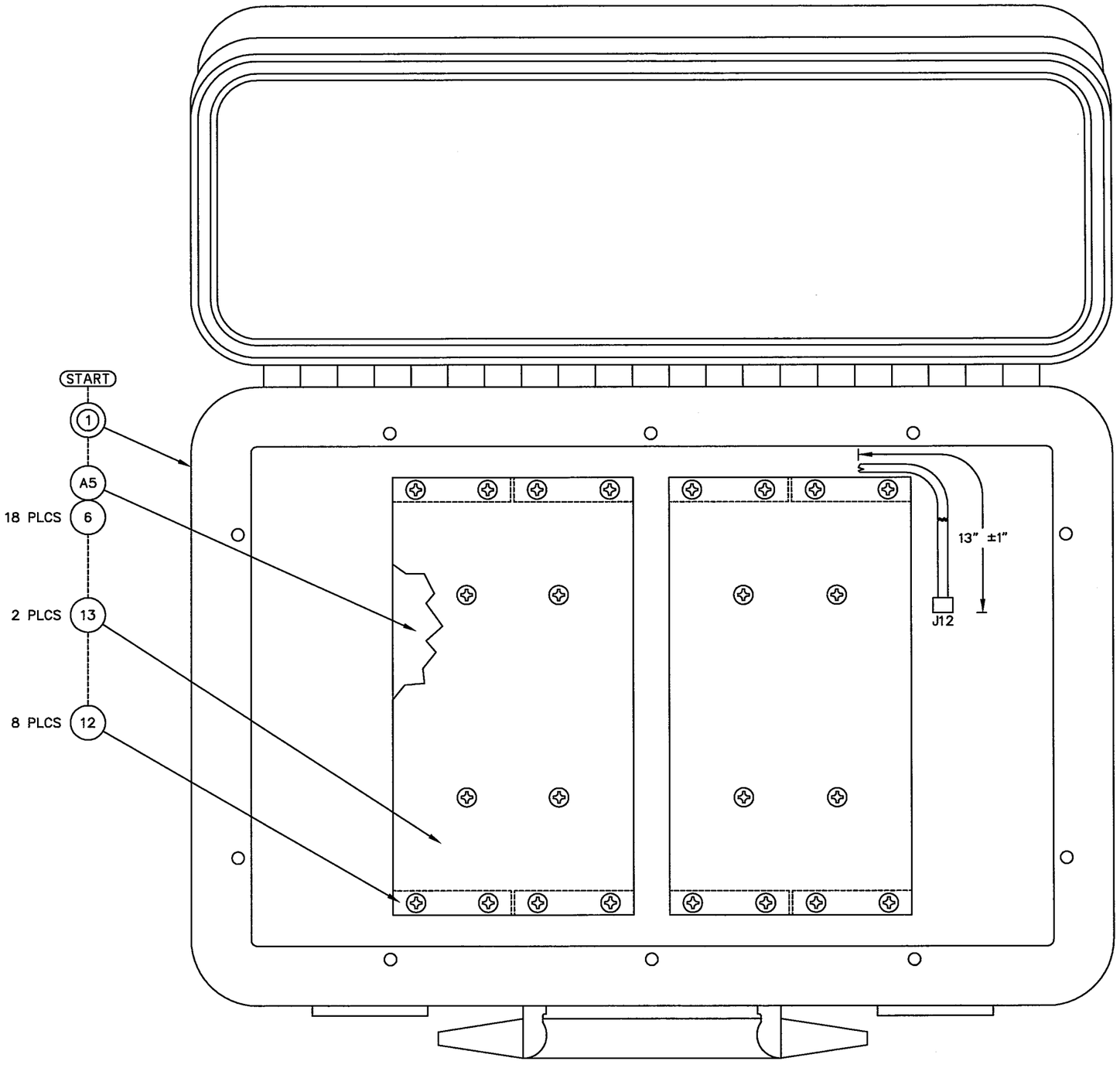
SIZE	CAGE NO.	DIR NO.	REV
B	41364	10000011851	AB

SHEET 1 of 4

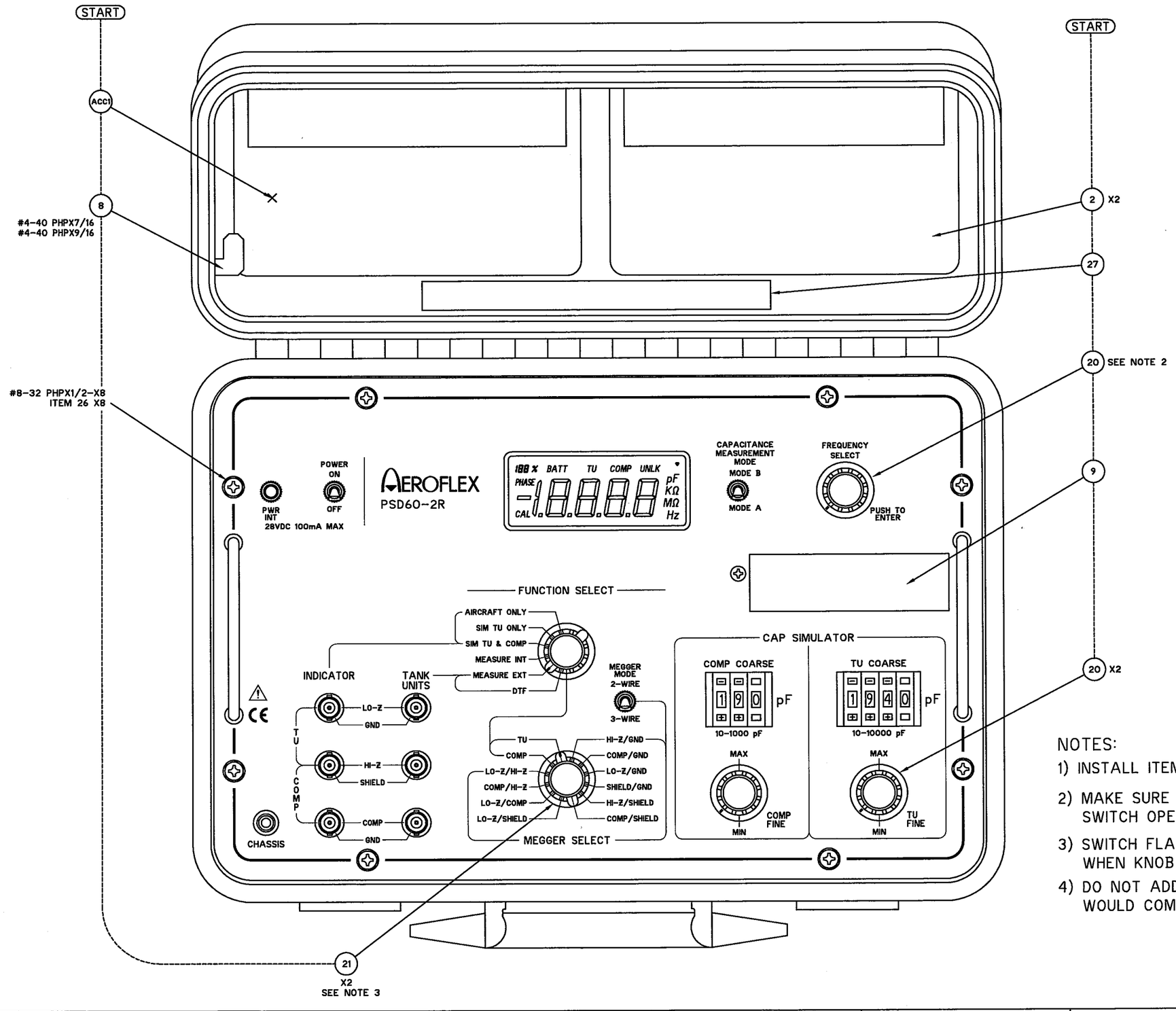


NOTES:
1) CAPTURE SWITCH WIRING WHEN ASSEMBLING BOARD.
2) LOCK WASHER INSTALLED ON OUTSIDE OF PANEL.

SIZE	CAGE NO.	DR NO.	REV.
B	41364	10000011851	AB
			SHEET 2 of 4



SIZE	CAGE NO.	DIR NO.	REV.
B	41364	10000011851	AB
			SHEET 3 of 4

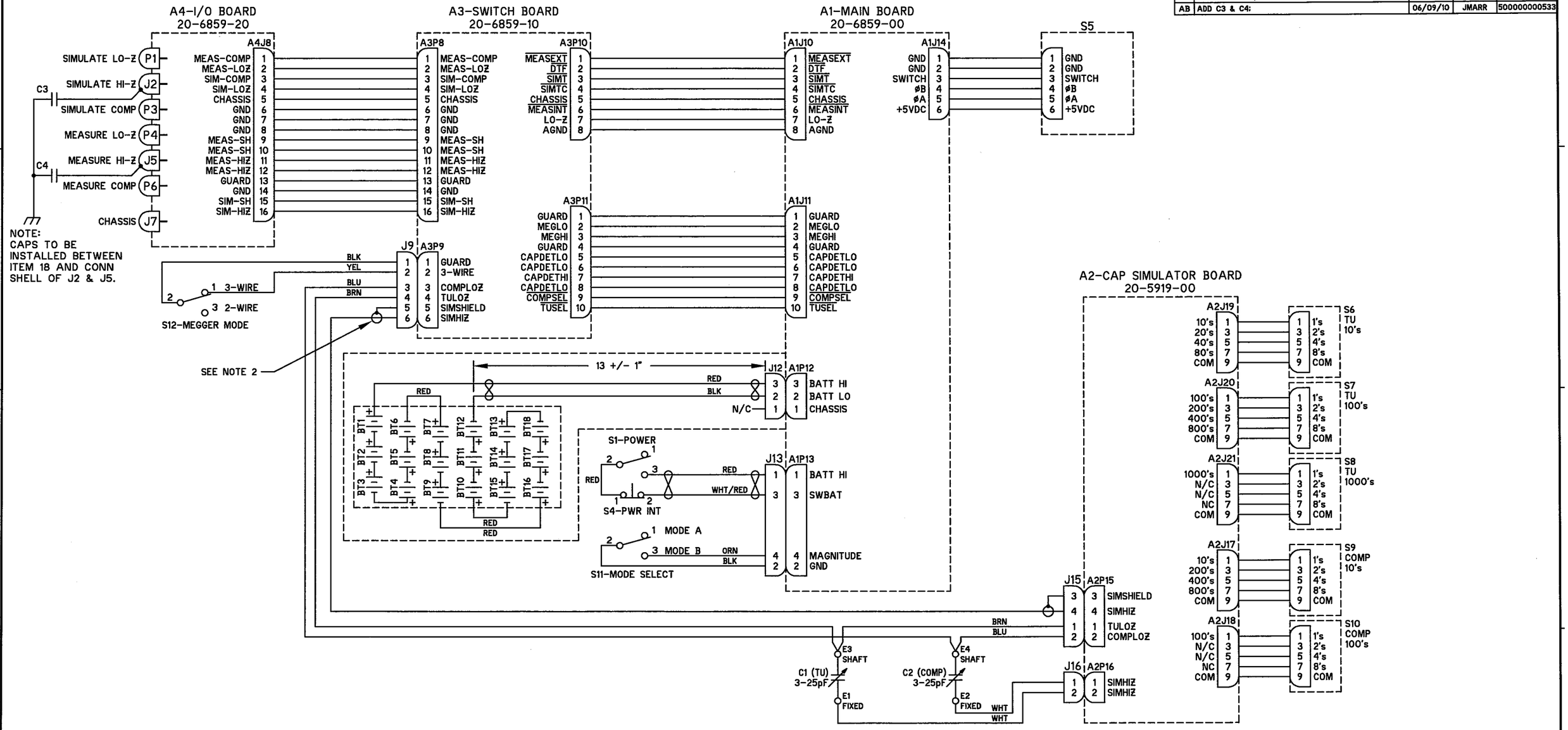


NOTES:

1) INSTALL ITEM 10 (2 EA) ON OUTSIDE OF CASE.
2) MAKE SURE KNOB IS UP FAR ENOUGH SO SWITCH OPERATES.
3) SWITCH FLAT SHOULD POINT TO 'COMP' WHEN KNOB POINTER IS ON 'TU'.
4) DO NOT ADD LOCKTITE TO ANYTHING THAT WOULD COME IN CONTACT WITH FRONT PANEL.

SIZE	CAGE NO.	DR NO.	REV.
B	41364	10000011851	AB
			SHEET 4 of 4

REV	DESCRIPTION	DATE	ORIGIN	ECO/CM
01	RELEASED DRAWING	7/26/01	JMARR	-
02	CHANGE TEXT ON S11, UPDATE TITLE BLOCK	10/31/01	J TAYLOR	-
03	CHANGED S11 WIRING	7/16/02	JMARR	-
04	ADDED E1 - E4 FOR C2 AND C3	7/2/04	DWM	-
05	ADDED LINES AROUND BATTERY PACK ASSY	1/26/05	GSB	-
06	CHANGE TO AEROFLEX LOGO	6/15/07	GCC	-
AA	ADD MEGGER 2/3 WIRE FUNCTION, NEW TITLE BLOCK	4/23/10	JMARR	500000000395
AB	ADD C3 & C4:	06/09/10	JMARR	500000000533



NOTES:
1) UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE 24AWG.
2) EXPOSED CENTER CONDUCTOR OF CABLE TO BE LESS THAN 0.375", BOTH ENDS.
3) ROUTE CABLES AS SHOWN ON ASSEMBLY DRAWING.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: XXX = ±0.01, XXXX = ±0.005
ANGLES: ±1.0°
THIRD ANGLE PROJECTION
MATERIAL: N/A
FINISH: N/A

PROPRIETARY INFORMATION

APPROVALS		DATE
DRAWN	JMARR	8/2/00
ENG.	JMARR	8/2/00
CHECKED	KSM	7/19/02
DOC TYPE	ZES	
FILE NAME	10000011852.dwg	

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02-0597-00 - SCHEMATIC PSD60-2R

SIZE	CAGE NO.	DWG NO.	REV
B	41364	10000011852	AB

SHEET 1 of 1

JcAIR INC.

NAME: CAPACITANCE BOARD PSD60-2R ASSY NO: 20-5919-00

REVISION: 03 DATE: 03/03/2005

ITEM/ SYMBOL	JcAIR PART NO.	DESCRIPTION	U/M	QTY	MANUFACTURER	MANF'S P/N
A2-1	09-5919-00	PCB CAPACITANCE PSD60-2R	EA	1.00	QMC	09-5919-00
A2C1	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	18.00	MURATA	RPE122COG200J100V
A2C2	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C3	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C4	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C5	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C6	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C7	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C8	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C9	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C10	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	18.00	MURATA	RPE122COG201F100V
A2C11	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C12	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C13	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C14	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C15	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C16	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C17	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C18	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C19	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C20	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C21	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C22	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C23	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C24	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C25	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C26	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C27	CG-1200-01	CAP MC 20PF 100V 5% COG (.2 SP)	EA	-		
A2C28	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C29	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C30	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C31	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C32	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C33	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C34	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C35	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C36	CG-1201-41	CAP MC 200PF 100V 1% (.2 SP)	EA	-		
A2C37	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	9.00	MURATA	RPE122COG202F100V
A2C38	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C39	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C40	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C41	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C42	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C43	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C44	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2C45	CG-1202-41	CAP MC 2000PF 100V 1% COG (.2 SP)	EA	-		
A2J17	31-4024-01	SWITCH THMBWHL CONNECTOR 9 PIN SLDR PCMT	EA	5.00	ALCO	B9LS
					AUGAT	B9LS

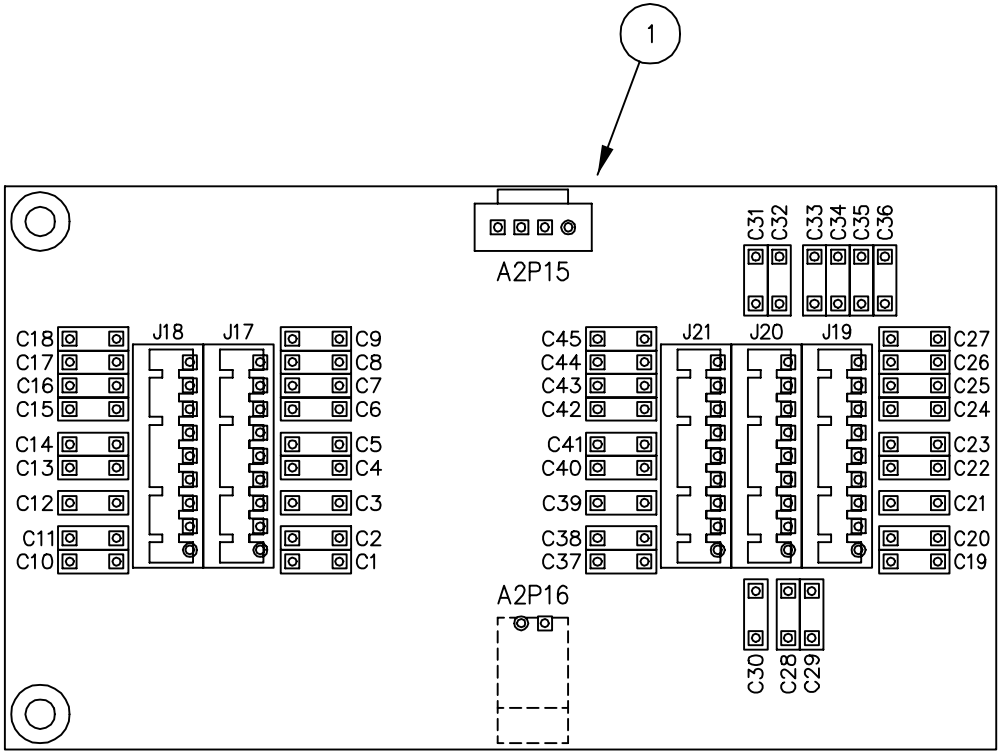
JcAIR INC.

NAME: CAPACITANCE BOARD PSD60-2R ASSY NO: 20-5919-00

REVISION: 03 DATE: 03/03/2005

ITEM/ SYMBOL	JcAIR PART NO.	DESCRIPTION	U/M	QTY	MANUFACTURER	MANF'S P/N
A2J18	31-4024-01	SWITCH THMBWHL CONNECTOR 9 PIN SLDR PCMT	EA	-		
A2J19	31-4024-01	SWITCH THMBWHL CONNECTOR 9 PIN SLDR PCMT	EA	-		
A2J20	31-4024-01	SWITCH THMBWHL CONNECTOR 9 PIN SLDR PCMT	EA	-		
A2J21	31-4024-01	SWITCH THMBWHL CONNECTOR 9 PIN SLDR PCMT	EA	-		
A2P15	30-1555-02	CONN HEADER STR SGL RW SHROUD .1SP 4 POS	EA	1.00	MOLEX	70543-0003
A2P16	30-1556-00	CONN HEADER RA SNGL RW SHROUD .1SP 2 POS	EA	1.00	MOLEX	70553-0001
REF1	02-5919-00	SCHEMATIC CAPACITANCE BD PSD60-2R	EA	-		
REF2	25-5919-00	ASSY DWG CAPACITANCE BD	EA	-		

REVISIONS			
REV	DESCRIPTION	DATE	ORIGIN
2	REDESIGN BOARD IN CAD	5/96	
3	UPDATE PER REV. 2 ARTWORK	9/11/00	
4	ENG REDESIGN FOR PSD60-2R MOD 4	7/5/01	JMARR
5	ADDED THE -10 NOTE TO NOTE 1	01/22/03	PK
6	CHANGE TITLE BLOCK	18JUN07	CORBIN



NOTES:
1) NOT ALL PARTS SHOWN ARE INSTALLED
REFER TO BILL OF MATERIALS 20-5919-00/-10
FOR PART INSTALLATION.

DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .XX ± 0.01 .XXX ± 0.005
FRACTIONS: ± 1/64
ANGLES: ± 1/2°

MATERIAL: FR-4 1 OZ 0.063 THK

FINISH: SEE NOTE 2

AEROFLEX PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	4/13/01
ENG. JMARR	5/21/01
CHECKED	

FILE NAME 09591900.DWG

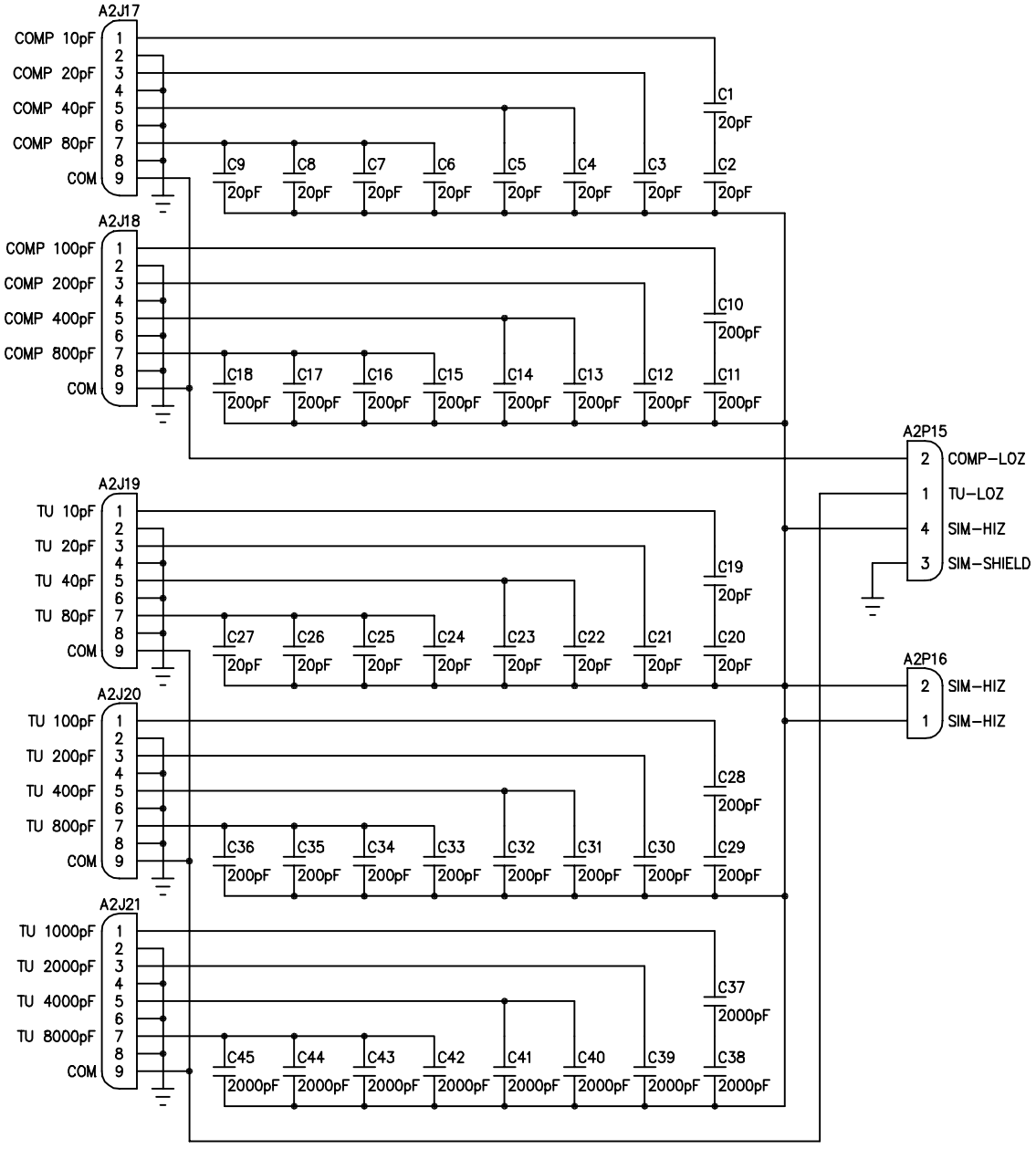
AEROFLEX
400 NEW CENTURY PKWY
NEW CENTURY, KS 66031 USA
PHONE: (913) 764-2452
FAX: (913) 782-5104
WEB: WWW.AEROFLEX.COM

A2 SIMULATOR BOARD

SIZE	CAGE NO.	DWG. NO.	REV.
A	41364	25-5919-00	6

SHEET 1 of 1

REVISIONS			
REV	DESCRIPTION	DATE	ORIGIN
1	MODIFIED APPLICATION BLOCK	10/93	JMARR
2	UNOFFICIAL REDESIGN CHANGE P/JMARR	--	JMARR
3	UNOFFICIAL REDESIGN CHANGE P/JMARR	--	JMARR
4	ENG REDESIGN FOR PSD60-2R MOD 4	7/5/01	JMARR
5	CHANGE TITLE BLOCK	18JUN07	CORBIN



NOTES:
1) REFER TO BILL OF MATERIALS P/N 20-5919-00 FOR PARTS.
2) ALL PARTS TO HAVE AN A2 PREFIX IF NOT ALREADY SO.

DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .XX ± 0.01 .XXX ± 0.005
FRACTIONS: ± 1/64
ANGLES: ± 1/2°

MATERIAL: N/A

FINISH: N/A

AEROFLEX PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	4/13/01
ENG. JMARR	7/5/01
CHECKED	

FILE NAME 02591900.DWG

AEROFLEX
400 NEW CENTURY PKWY
NEW CENTURY, KS 66031 USA
PHONE: (913) 764-2452
FAX: (913) 782-5104
WEB: WWW.AEROFLEX.COM

A2-SIMULATOR BOARD PSD60-2R

SIZE	CAGE NO.	DWG. NO.	REV.
A	41364	02-5919-00	5

SHEET 1 of 1

Assy: J20-6859-00 Desc: PSD60-2R MAIN BD Part Rev: 10 ECO Rev: 10

qrlProcessBOMs

Ref Des	Data Part #	Description	Part Rv	Qty	UM	SC	InvLoc	Eff Date	Obs Date
1	J09-6859-00	PCB PSD60-2R MAIN	06	1	EA	PA	10C1	1/1/1900	12/31/3999
2	J33-0024-02	FUSE CLIP PC MT 3AG FUSE 15A S	00	2	EA	PA	3D9	1/1/1900	12/31/3999
3	J95-6643-05	SPACER SWEDGED #4 X .312 BRASS	01	2	EA	PA	6E3	1/1/1900	12/31/3999
4	J92-6663-04	SPACER F/F #4 X .250 BRS .250	00	2	EA	PA	7E3	1/1/1900	12/31/3999
5	J76-3627-03	DIFFUSER LCD DISPLAY BACKLIGHT	00	1	EA	MA	S4	1/1/1900	12/31/3999
C 1	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 2	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 3	JCA-8151-64	CAP AL 150UF 35V 20% RADIAL	00	2	EA	PA	6F4	1/1/1900	12/31/3999
C 4	JCA-8151-64	CAP AL 150UF 35V 20% RADIAL	00	2	EA	PA	6F4	1/1/1900	12/31/3999
C 5	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 6	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 7	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 8	JCG-1102-01	CAP MC 1000PF 100V 5% COG (.2	00	3	EA	PA	9D3	1/1/1900	12/31/3999
C 9	JCG-1103-01	CAP MC .01UF 100V 5% COG (.2 S	01	1	EA	PA	8A6	1/1/1900	12/31/3999
C 10	JCG-1102-01	CAP MC 1000PF 100V 5% COG (.2	00	3	EA	PA	9D3	1/1/1900	12/31/3999
C 11	JCA-8100-75	CAP AL 10UF 50V 20% RADIAL	00	3	EA	PA	6F4	1/1/1900	12/31/3999
C 12	JCG-1471-01	CAP MC 470PF 100V 5% COG (.2 S	00	1	EA	PA	6F7	1/1/1900	12/31/3999
C 13	JCA-8471-61	CAP AL 470UF 10V 20% RADIAL	00	2	EA	PA	7D11	1/1/1900	12/31/3999
C 14	JCA-8471-61	CAP AL 470UF 10V 20% RADIAL	00	2	EA	PA	7D11	1/1/1900	12/31/3999
C 15	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 16	JCA-8101-63	CAP AL 100UF 25V 20% RADIAL	00	4	EA	PA	6F4	1/1/1900	12/31/3999
C 17	JCA-8101-63	CAP AL 100UF 25V 20% RADIAL	00	4	EA	PA	6F4	1/1/1900	12/31/3999
C 18	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 19	JCA-8101-63	CAP AL 100UF 25V 20% RADIAL	00	4	EA	PA	6F4	1/1/1900	12/31/3999
C 20	JCA-8101-63	CAP AL 100UF 25V 20% RADIAL	00	4	EA	PA	6F4	1/1/1900	12/31/3999
C 21	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 22	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 23	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 24	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 25	JCH-0270-20	CAP CK 27PF 200V 10%	00	2	EA	PA	6F5	1/1/1900	12/31/3999
C 26	JCH-0270-20	CAP CK 27PF 200V 10%	00	2	EA	PA	6F5	1/1/1900	12/31/3999
C 27	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 28	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 29	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 30	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999

Assy: J20-6859-00 Desc: PSD60-2R MAIN BD Part Rev: 10 ECO Rev: 10

qrlProcessBOMs

Ref Des	Data Part #	Description	Part Rv	Qty	UM	SC	InvLoc	Eff Date	Obs Date
C 31	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 32	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 33	JCV-0104-11	CAP PP .1UF 100VDC 10%	00	1	EA	PA	9D10	1/1/1900	12/31/3999
C 34	JCV-0223-14	CAP PP .022UF 400V 10% AXIAL	00	2	EA	PA	9A8	1/1/1900	12/31/3999
C 35	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 36	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 37	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 38	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 39	JCV-0223-14	CAP PP .022UF 400V 10% AXIAL	00	2	EA	PA	9A8	1/1/1900	12/31/3999
C 40	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 41	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 42	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 43	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 44	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 45	JCG-1222-41	CAP MC 2200PF 100V 1% COG (.2	00	2	EA	PA	7A8	1/1/1900	12/31/3999
C 46	JCG-1102-41	CAP MC 1000PF 100V 1% COG (.2	00	1	EA	PA	6D7	1/1/1900	12/31/3999
C 47	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 48	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 49	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 50	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 51	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 52	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 53	JCD-1104-40	CAP MP .1UF 50V 5%	00	3	EA	PA	3B4	1/1/1900	12/31/3999
C 54	JCG-1222-41	CAP MC 2200PF 100V 1% COG (.2	00	2	EA	PA	7A8	1/1/1900	12/31/3999
C 55	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 56	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 57	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 58	JCD-1104-40	CAP MP .1UF 50V 5%	00	3	EA	PA	3B4	1/1/1900	12/31/3999
C 59	JCG-1153-13	CAP MC .015UF 50V 10% X7R	01	1	EA	PA	6F7	1/1/1900	12/31/3999
C 60	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 61	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 62	JCD-1104-40	CAP MP .1UF 50V 5%	00	3	EA	PA	3B4	1/1/1900	12/31/3999
C 63	JCD-1105-48	CAP MP 1UF 63V 5% (RADIAL)	00	7	EA	PA	8A7	1/1/1900	12/31/3999
C 64	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 65	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 66	JCG-1331-01	CAP MC 330PF 100V 5% COG (.2 S	00	1	EA	PA	6F7	1/1/1900	12/31/3999

Assy: J20-6859-00 Desc: PSD60-2R MAIN BD Part Rev: 10 ECO Rev: 10

qrlProcessBOMs

Ref Des	Data Part #	Description	Part Rv	Qty	UM	SC	InvLoc	Eff Date	Obs Date
C 67	JCG-1102-01	CAP MC 1000PF 100V 5% COG (.2	00	3	EA	PA	9D3	1/1/1900	12/31/3999
C 68	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 69	JCG-1105-13	CAP MC 1UF 50V 10% X7R	00	1	EA	PA	5E8	1/1/1900	12/31/3999
C 70	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 71	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 72	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 73	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 74	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 75	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 76	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 77	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 78	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 79	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 80	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 81	JCA-8100-75	CAP AL 10UF 50V 20% RADIAL	00	3	EA	PA	6F4	1/1/1900	12/31/3999
C 82	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 83	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 84	JCA-8100-75	CAP AL 10UF 50V 20% RADIAL	00	3	EA	PA	6F4	1/1/1900	12/31/3999
C 85	JCG-1102-02	CAP MC 1000PF 200V 5% COG	00	1	EA	PA	ESTOC	1/1/1900	12/31/3999
C 86	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 87	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 88	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 89	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 90	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 91	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 92	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 93	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 94	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 95	JCG-1104-14	CAP MC .1UF 100V 10% X7R	01	57	EA	PA	2G1	1/1/1900	12/31/3999
C 96	JCG-1820-02	CAP MC 82PF 200V 5% COG (.2 SP	00	1	EA	PA	6B9	1/1/1900	12/31/3999
C 97	JCR-0014-00	CAP VR 6-50PF 50V	00	1	EA	PA	7A4	1/1/1900	12/31/3999
C 98	JCL-1220-30	CAP SM 22PF 50V 5% COG	00	1	EA	PA	10E2	1/1/1900	12/31/3999
CR 1	J07-6094-00	DIODE SIL 1N5819 SCHKY PKG=DO4	01	4	EA	PA	12G4	1/1/1900	12/31/3999
CR 2	J07-6183-00	DIODE REC 1N4150 S/S 75V PKG=D	01	4	EA	PA	12C2	1/1/1900	12/31/3999
CR 3	J07-5085-00	DIODE ZEN 1N5245 PKG=DO7 TMP=O	00	1	EA	PA	12F4	1/1/1900	12/31/3999
CR 4	J07-6183-00	DIODE REC 1N4150 S/S 75V PKG=D	01	4	EA	PA	12C2	1/1/1900	12/31/3999
CR 5	J07-6183-00	DIODE REC 1N4150 S/S 75V PKG=D	01	4	EA	PA	12C2	1/1/1900	12/31/3999
CR 6	J07-6094-00	DIODE SIL 1N5819 SCHKY PKG=DO4	01	4	EA	PA	12G4	1/1/1900	12/31/3999
CR 7	J07-6094-00	DIODE SIL 1N5819 SCHKY PKG=DO4	01	4	EA	PA	12G4	1/1/1900	12/31/3999

Assy: J20-6859-00 Desc: PSD60-2R MAIN BD Part Rev: 10 ECO Rev: 10

qrlProcessBOMs

Ref Des	Data Part #	Description	Part Rv	Qty	UM	SC	InvLoc	Eff Date	Obs Date
CR 8	J07-6094-00	DIODE SIL 1N5819 SCHKY PKG=DO4	01	4	EA	PA	12G4	1/1/1900	12/31/3999
CR 9	J07-7073-00	LED T1-3/4 NS-DIFFUSED 3.75V W	00	4	EA	PA	12C5	1/1/1900	12/31/3999
CR 10	J07-7073-00	LED T1-3/4 NS-DIFFUSED 3.75V W	00	4	EA	PA	12C5	1/1/1900	12/31/3999
CR 11	J07-7073-00	LED T1-3/4 NS-DIFFUSED 3.75V W	00	4	EA	PA	12C5	1/1/1900	12/31/3999
CR 12	J07-7073-00	LED T1-3/4 NS-DIFFUSED 3.75V W	00	4	EA	PA	12C5	1/1/1900	12/31/3999
CR 13	J07-6132-00	DIODE FJT1100/FJH1100 PKG=DO7/	02	2	EA	PA	12F6	1/1/1900	12/31/3999
CR 14	J07-6132-00	DIODE FJT1100/FJH1100 PKG=DO7/	02	2	EA	PA	12F6	1/1/1900	12/31/3999
CR 15	J07-6124-01	DIODE SIL 1N459A PKG=DO7	01	2	EA	PA	12G8	1/1/1900	12/31/3999
CR 16	J07-6124-01	DIODE SIL 1N459A PKG=DO7	01	2	EA	PA	12G8	1/1/1900	12/31/3999
CR 17	J07-6147-21	DIODE REC SB030 SCHOTTKY 0.6A	00	1	EA	PA	12H3	1/1/1900	12/31/3999
CR 18	J07-6183-00	DIODE REC 1N4150 S/S 75V PKG=D	01	4	EA	PA	12C2	1/1/1900	12/31/3999
DS 1	J37-0102-10	DISPLAY LCD CUSTOM PSD60-2R	01	1	EA	PA	1I2	1/1/1900	12/31/3999
F 1	J36-0019-13	FUSE .5A 250V FB	00	1	EA	PA	7C6	1/1/1900	12/31/3999
J 10	J30-1549-08	CONN HDR TOP-ENTRY DR 8 POS	01	1	EA	PA	8G2	1/1/1900	12/31/3999
J 11	J30-1549-10	CONN HDR TOP-ENTRY DR 10 POS	01	1	EA	PA	8C7	1/1/1900	12/31/3999
J 14	J30-1818-06	CONN HOUS BTM MT SR 6 POS	01	1	EA	PA	8A2	1/1/1900	12/31/3999
K 1	J32-0105-61	RELAY DPDT 4.5V 1 COIL LTCH 2-	01	1	EA	PA	10A2	1/1/1900	12/31/3999
L 1	J19-0063-00	CHOKE TOROID 20UH 1A PSD90-1M	00	2	EA	PA	2B5	1/1/1900	12/31/3999
L 2	J19-0063-00	CHOKE TOROID 20UH 1A PSD90-1M	00	2	EA	PA	2B5	1/1/1900	12/31/3999
L 3	J19-2016-30	INDUCTOR MOLDED 47UH 165MA 4.5	01	2	EA	PA	8F7	1/1/1900	12/31/3999
L 4	J19-2016-30	INDUCTOR MOLDED 47UH 165MA 4.5	01	2	EA	PA	8F7	1/1/1900	12/31/3999
P 12	J30-1555-01	CONN HDR STR SR SHRD .1SP 3 PO	00	1	EA	PA	2C3	1/1/1900	12/31/3999
P 13	J30-1555-02	CONN HDR STR SR SHRD .1SP 4 PO	00	1	EA	PA	2B2	1/1/1900	12/31/3999
Q 1	J07-0132-05	XSTR NPN MPS2222A PKG=TO226AA	00	3	EA	PA	12G3	1/1/1900	12/31/3999
Q 2	J07-0107-10	XSTR PNP MPSA63 PKG=T092 T=O	00	1	EA	PA	12G6	1/1/1900	12/31/3999
Q 3	J07-8032-00	XSTR MOSFET IRFD120 PKG=P4 T=M	00	1	EA	PA	12C2	1/1/1900	12/31/3999
Q 4	J07-0132-05	XSTR NPN MPS2222A PKG=TO226AA	00	3	EA	PA	12G3	1/1/1900	12/31/3999
Q 5	J07-0132-05	XSTR NPN MPS2222A PKG=TO226AA	00	3	EA	PA	12G3	1/1/1900	12/31/3999
R 1	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 2	JRB-0472-23	RES CF 4.7K QW 5%	00	4	EA	PA	6H5	1/1/1900	12/31/3999
R 3	JRB-0470-23	RES CF 47 QW 5%	00	1	EA	PA	2C1	1/1/1900	12/31/3999
R 4	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 5	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999

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R 6	JRB-0912-23	RES CF 9.1K QW 5%	00	1	EA	PA	5C9	1/1/1900	12/31/3999
R 7	JRB-0105-23	RES CF 1M QW 5%	00	1	EA	PA	7G3	1/1/1900	12/31/3999
R 8	JRB-0273-23	RES CF 27K QW 5%	00	1	EA	PA	7C9	1/1/1900	12/31/3999
R 9	JRB-0913-23	RES CF 91K QW 5%	00	1	EA	PA	7H11	1/1/1900	12/31/3999
R 10	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 11	JRB-0102-23	RES CF 1K QW 5%	00	4	EA	PA	2F3	1/1/1900	12/31/3999
R 12	JRB-0010-23	RES CF 1 QW 5%	01	2	EA	PA	3C2	1/1/1900	12/31/3999
R 13	JRB-0010-23	RES CF 1 QW 5%	01	2	EA	PA	3C2	1/1/1900	12/31/3999
R 14	JRB-0560-23	RES CF 56 QW 5%	00	1	EA	PA	6G1	1/1/1900	12/31/3999
R 15	JRB-0243-23	RES CF 24K QW 5%	00	1	EA	PA	5C7	1/1/1900	12/31/3999
R 16	JRB-0104-23	RES CF 100K QW 5%	00	1	EA	PA	2F2	1/1/1900	12/31/3999
R 17	JRB-0151-23	RES CF 150 QW 5%	00	1	EA	PA	5F9	1/1/1900	12/31/3999
R 18	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 19	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 20	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 21	JRC-2102-12	RES MF 21K EW 1%	01	1	EA	PA	8A2	1/1/1900	12/31/3999
R 22	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 23	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 24	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 25	JRC-9091-12	RES MF 9.09K EW 1%	01	1	EA	PA	5B6	1/1/1900	12/31/3999
R 26	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 27	JRB-0101-23	RES CF 100 QW 5%	00	2	EA	PA	7C6	1/1/1900	12/31/3999
R 28	JRC-2003-12	RES MF 200K EW 1%	01	1	EA	PA	5D7	1/1/1900	12/31/3999
R 29	JRC-1824-12	RES MF 1.82M EW 1%	00	3	EA	PA	7C3	1/1/1900	12/31/3999
R 30	JRC-2263-12	RES MF 226K EW 1%	01	2	EA	PA	9E8	1/1/1900	12/31/3999
R 31	JRC-1824-12	RES MF 1.82M EW 1%	00	3	EA	PA	7C3	1/1/1900	12/31/3999
R 32	JRC-2263-12	RES MF 226K EW 1%	01	2	EA	PA	9E8	1/1/1900	12/31/3999
R 33	JRC-1824-12	RES MF 1.82M EW 1%	00	3	EA	PA	7C3	1/1/1900	12/31/3999
R 34	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999

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R 35	JRC-1001-12	RES MF 1K EW 1%	01	1	EA	PA	8H5	1/1/1900	12/31/3999
R 36	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 37	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 38	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 39	JRC-2210-12	RES MF 221 EW 1%	01	1	EA	PA	5H2	1/1/1900	12/31/3999
R 40	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 41	JRC-4991-12	RES MF 4.99K EW 1%	01	1	EA	PA	8H6	1/1/1900	12/31/3999
R 42	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 43	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 44	JRB-0363-23	RES CF 36K QW 5%	01	1	EA	PA	5C9	1/1/1900	12/31/3999
R 45	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 46	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 47	JRC-4994-12	RES MF 4.99M EW 1%	00	1	EA	PA	1D8	1/1/1900	12/31/3999
R 48	JRZ-1029-05	RES PREC FXD 9K 300V .3W .05%	00	3	EA	PA	2D4	1/1/1900	12/31/3999
R 49	JRZ-1029-04	RES PREC FXD 1K 300V .3W .05%	00	3	EA	PA	6D8	1/1/1900	12/31/3999
R 50	JRB-0102-23	RES CF 1K QW 5%	00	4	EA	PA	2F3	1/1/1900	12/31/3999
R 51	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 52	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 53	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 54	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 55	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 56	JRC-2004-12	RES MF 2M EW 1%	00	1	EA	PA	5E4	1/1/1900	12/31/3999
R 57	JRZ-1029-05	RES PREC FXD 9K 300V .3W .05%	00	3	EA	PA	2D4	1/1/1900	12/31/3999
R 58	JRZ-1029-04	RES PREC FXD 1K 300V .3W .05%	00	3	EA	PA	6D8	1/1/1900	12/31/3999
R 59	JRB-0102-23	RES CF 1K QW 5%	00	4	EA	PA	2F3	1/1/1900	12/31/3999
R 60	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 61	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 62	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 63	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 64	JRZ-1029-05	RES PREC FXD 9K 300V .3W .05%	00	3	EA	PA	2D4	1/1/1900	12/31/3999
R 65	JRZ-1029-04	RES PREC FXD 1K 300V .3W .05%	00	3	EA	PA	6D8	1/1/1900	12/31/3999
R 66	JRB-0102-23	RES CF 1K QW 5%	00	4	EA	PA	2F3	1/1/1900	12/31/3999

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R 67	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 68	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 69	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 70	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 71	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 72	JRC-7501-12	RES MF 7.5K EW 1%	01	1	EA	PA	9D3	1/1/1900	12/31/3999
R 73	JRB-0472-23	RES CF 4.7K QW 5%	00	4	EA	PA	6H5	1/1/1900	12/31/3999
R 74	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 75	JRB-0302-23	RES CF 3K QW 5%	00	1	EA	PA	7C1	1/1/1900	12/31/3999
R 76	JRB-0203-23	RES CF 20K QW 5%	00	2	EA	PA	10F4	1/1/1900	12/31/3999
R 77	JRB-0106-23	RES CF 10M QW 5%	00	1	EA	PA	6F7	1/1/1900	12/31/3999
R 78	JRB-0204-23	RES CF 200K QW 5%	00	1	EA	PA	2C4	1/1/1900	12/31/3999
R 79	JRB-0203-23	RES CF 20K QW 5%	00	2	EA	PA	10F4	1/1/1900	12/31/3999
R 80	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 81	JRC-1401-12	RES MF 1.4K EW 1%	01	1	EA	PA	8A12	1/1/1900	12/31/3999
R 82	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 83	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 84	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 85	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 86	JRC-2001-12	RES MF 2K EW 1%	01	9	EA	PA	7D4	1/1/1900	12/31/3999
R 87	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 88	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 89	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 90	JRB-0103-13	RES CF 10K EW 5%	01	1	EA	PA	7A5	1/1/1900	12/31/3999
R 91	JRC-9092-12	RES MF 90.9K EW 1%	01	1	EA	PA	8F10	1/1/1900	12/31/3999
R 92	JRC-1002-12	RES MF 10K EW 1%	01	9	EA	PA	3E3	1/1/1900	12/31/3999
R 93	JRC-1692-12	RES MF 16.9K EW 1%	01	1	EA	PA	5D5	1/1/1900	12/31/3999
R 94	JRC-1501-12	RES MF 1.5K EW 1%	01	1	EA	PA	7B2	1/1/1900	12/31/3999
R 95	JRB-0471-23	RES CF 470 QW 5%	00	1	EA	PA	5B6	1/1/1900	12/31/3999
R 96	JRB-0473-23	RES CF 47K QW 5%	00	2	EA	PA	10C4	1/1/1900	12/31/3999
R 97	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999

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R 98	JRB-0473-23	RES CF 47K QW 5%	00	2	EA	PA	10C4	1/1/1900	12/31/3999
R 99	JRB-0472-23	RES CF 4.7K QW 5%	00	4	EA	PA	6H5	1/1/1900	12/31/3999
R 100	JRB-0472-23	RES CF 4.7K QW 5%	00	4	EA	PA	6H5	1/1/1900	12/31/3999
R 101	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 102	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 103	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 104	JRB-0752-23	RES CF 7.5K QW 5%	00	2	EA	PA	7B4	1/1/1900	12/31/3999
R 105	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 106	JRB-0103-23	RES CF 10K QW 5%	00	25	EA	PA	3D10	1/1/1900	12/31/3999
R 107	JRB-0752-23	RES CF 7.5K QW 5%	00	2	EA	PA	7B4	1/1/1900	12/31/3999
R 108	JRC-2262-12	RES MF 22.6K EW 1%	01	1	EA	PA	7E9	1/1/1900	12/31/3999
R 109	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 110	JRC-1023-12	RES MF 102K EW 1%	01	1	EA	PA	9C11	1/1/1900	12/31/3999
R 111	JRC-2002-12	RES MF 20K EW 1%	01	10	EA	PA	4A4	1/1/1900	12/31/3999
R 112	JRB-0101-23	RES CF 100 QW 5%	00	2	EA	PA	7C6	1/1/1900	12/31/3999
R 113	JRJ-0033-16	RES VR 10K 12T 10%	00	1	EA	PA	4E5	1/1/1900	12/31/3999
R 114	JRJ-0033-23	RES VR 500K 12T 10% TOP ADJ .2	00	1	EA	PA	7B3	1/1/1900	12/31/3999
RN 1	JRH-4103-12	RES RN 10K X 5 BUSSED	01	3	EA	PA	8A1	1/1/1900	12/31/3999
RN 2	JRH-4103-12	RES RN 10K X 5 BUSSED	01	3	EA	PA	8A1	1/1/1900	12/31/3999
RN 3	JRH-4103-12	RES RN 10K X 5 BUSSED	01	3	EA	PA	8A1	1/1/1900	12/31/3999
S 1	J31-5010-03	SWIT PSHBTN SPST OFF-MOM PCM .	00	1	EA	PA	9A4	1/1/1900	12/31/3999
S 2	J31-0010-04	SWITCH DIP SPST ROCKER SEALED	00	1	EA	PA	8A4	1/1/1900	12/31/3999
T 1	J19-7008-00	XFMR PWR +5V/0.35A +/-15V/30MA	00	1	EA	PA	7D8	1/1/1900	12/31/3999
TP1	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP10	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP11	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP12	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP13	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP14	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP15	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP16	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP17	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP18	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP19	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP2	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP20	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP21	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP22	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999

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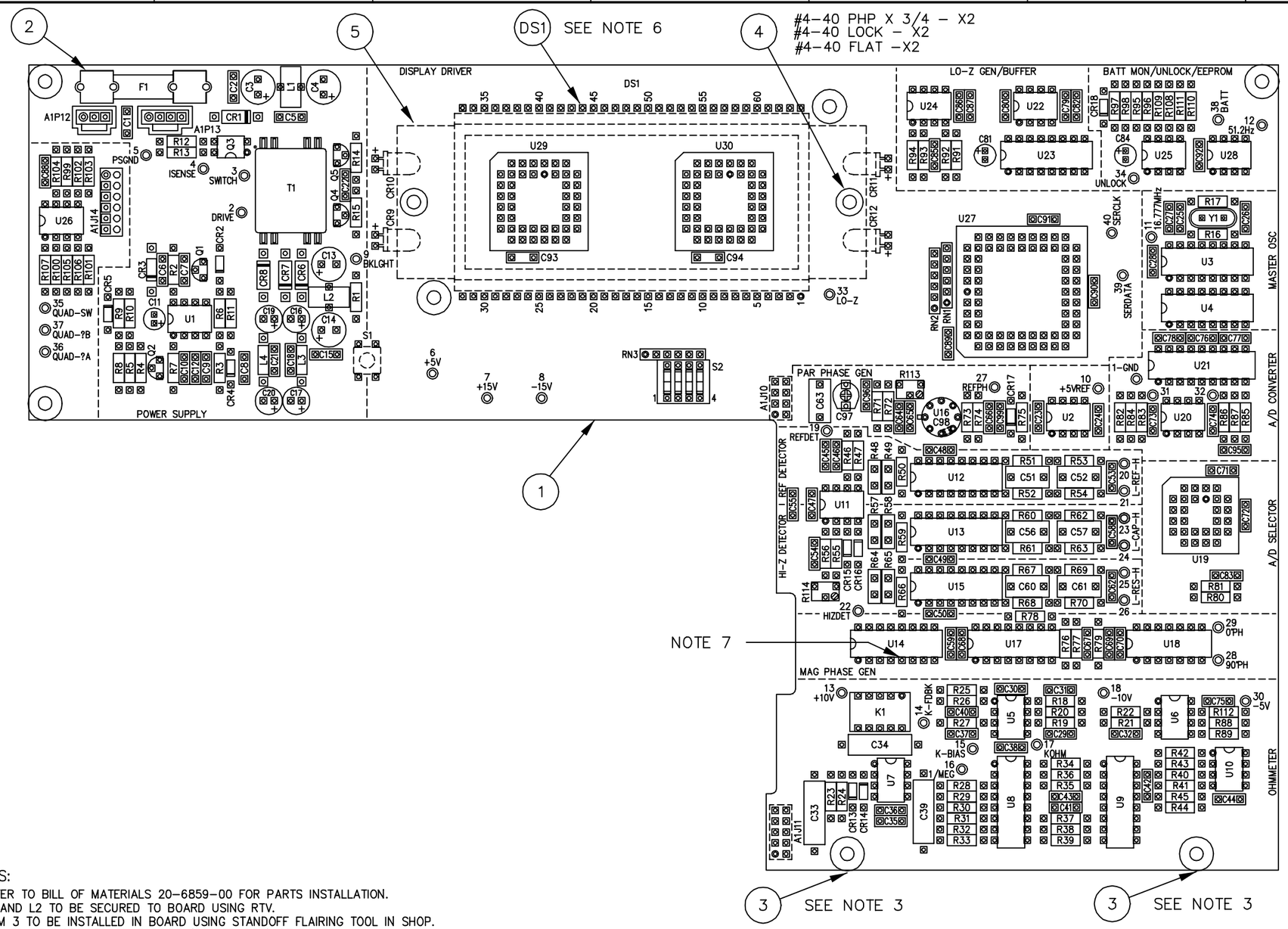
TP23	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP24	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP25	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP26	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP27	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP28	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP29	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP3	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP30	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP31	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP32	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP33	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP34	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP35	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP36	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP37	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP38	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP39	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP4	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP40	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP5	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP6	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP7	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP8	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
TP9	J08-5093-91	TST PNT LOOP PRFL WHT LG 1 POS	00	40	EA	PA	ESTOC	10/25/2007	12/31/3999
U 1	J12-8756-05	IC 2843A CNTRLR PKG=P08 TMP=I	00	1	EA	PA	12A3	1/1/1900	12/31/3999
U 2	J12-7805-00	IC REF02 VOLT REF PKG=P08 TMP=	01	1	EA	PA	12F9	1/1/1900	12/31/3999
U 3	J12-7921-00	IC 74HC4060 BINARY COUNTER PKG	00	1	EA	PA	11B7	1/1/1900	12/31/3999
U 4	J12-8389-50	IC 74HC390 BIN RIPPLE CNTR PKG	00	1	EA	PA	11H4	1/1/1900	12/31/3999
U 5	J12-8759-11	IC 2277 DUAL OP AMP PKG=P08 T=	00	1	EA	PA	12B4	1/1/1900	12/31/3999
U 6	J12-8268-00	IC 822A LP FET-INPUT OP AMP PK	00	6	EA	PA	11C7	1/1/1900	12/31/3999
U 7	J12-8736-00	IC 1150 OP AMP CHOP STABLZ PKG	00	1	EA	PA	11G9	1/1/1900	12/31/3999
U 8	J12-8372-01	IC 431 CMOS QUAD ANALOG SWITCH	00	2	EA	PA	12B1	1/1/1900	12/31/3999
U 9	J12-8372-01	IC 431 CMOS QUAD ANALOG SWITCH	00	2	EA	PA	12B1	1/1/1900	12/31/3999
U 10	J12-8268-00	IC 822A LP FET-INPUT OP AMP PK	00	6	EA	PA	11C7	1/1/1900	12/31/3999
U 11	J12-8719-20	IC 249 DUAL JFET OP AMP PKG=PO	00	1	EA	PA	12F3	1/1/1900	12/31/3999
U 12	J12-8372-03	IC 433 CMOS QUAD ANALOG SWITCH	00	5	EA	PA	12B6	1/1/1900	12/31/3999
U 13	J12-8372-03	IC 433 CMOS QUAD ANALOG SWITCH	00	5	EA	PA	12B6	1/1/1900	12/31/3999
U 14	J12-8372-03	IC 433 CMOS QUAD ANALOG SWITCH	00	5	EA	PA	12B6	1/1/1900	12/31/3999
U 15	J12-8372-03	IC 433 CMOS QUAD ANALOG SWITCH	00	5	EA	PA	12B6	1/1/1900	12/31/3999
U 16	J12-7136-02	IC 111 VOLT COMPARATOR PKG=TO5	00	1	EA	PA	12A1	1/1/1900	12/31/3999
U 17	J12-7190-10	IC 4046B PHASE-LOCKED LOOP PKG	00	1	EA	PA	12A5	1/1/1900	12/31/3999

Assy: J20-6859-00 Desc: PSD60-2R MAIN BD Part Rev: 10 ECO Rev: 10

qrlProcessBOMs

Ref Des	Data Part #	Description	Part Rv	Qty	UM	SC	InvLoc	Eff Date	Obs Date
U 18	J12-7181-00	IC 74HC74 DUAL FLIP/FLOP PKG=P	02	1	EA	PA	12A6	1/1/1900	12/31/3999
U 19	J12-8375-01	IC 407 ANALOG MULTIPLXR PKG=L2	00	1	EA	PA	12G11	1/1/1900	12/31/3999
U 20	J12-8268-00	IC 822A LP FET-INPUT OP AMP PK	00	6	EA	PA	11C7	1/1/1900	12/31/3999
U 21	J12-8758-00	IC 1210 A/D CONVRTR PKG=P18 T=	00	1	EA	PA	12A5	1/1/1900	12/31/3999
U 22	J12-8814-01	IC 2035 SERIAL PROG SINE WAVE	00	1	EA	PL	12B3	1/1/1900	12/31/3999
U 23	J12-8372-03	IC 433 CMOS QUAD ANALOG SWITCH	00	5	EA	PA	12B6	1/1/1900	12/31/3999
U 24	J12-8268-00	IC 822A LP FET-INPUT OP AMP PK	00	6	EA	PA	11C7	1/1/1900	12/31/3999
U 25	J12-8268-00	IC 822A LP FET-INPUT OP AMP PK	00	6	EA	PA	11C7	1/1/1900	12/31/3999
U 26	J12-8268-00	IC 822A LP FET-INPUT OP AMP PK	00	6	EA	PA	11C7	1/1/1900	12/31/3999
U 28	J12-8757-21	IC 25C040 EEPROM PKG=P08 TMP=I	00	1	EA	PA	12A3	1/1/1900	12/31/3999
U 29	J12-8769-02	IC 5483 LCD DISPLAY DRVR PKG=L	00	2	EA	PA	12C5	1/1/1900	12/31/3999
U 30	J12-8769-02	IC 5483 LCD DISPLAY DRVR PKG=L	00	2	EA	PA	12C5	1/1/1900	12/31/3999
XDS 1	J33-0097-01	SKT SIP 32 POS W-WRP .510 LG G	00	2	EA	PA	6A6	1/1/1900	12/31/3999
XU 19	J33-0013-28	SOCKET PLCC 28 PIN SOLDER TAIL	02	1	EA	PA	8H10	1/1/1900	12/31/3999
XU 27	J33-0013-68	SOCKET PLCC 68 PIN SOLDER TAIL	02	1	EA	PA	5F5	1/1/1900	12/31/3999
XU 28	J33-0008-08	SKT 8 PIN DIP OPEN LADDER MACH	01	1	EA	PA	3A3	1/1/1900	12/31/3999
XU 29	J33-0013-44	SOCKET PLCC 44 PIN SOLDER TAIL	02	2	EA	PA	10H4	1/1/1900	12/31/3999
XU 30	J33-0013-44	SOCKET PLCC 44 PIN SOLDER TAIL	02	2	EA	PA	10H4	1/1/1900	12/31/3999
Y 1	J44-0131-10	XTAL 16.777216 MHZ HC-49/US +/	00	1	EA	PA	8B2	1/1/1900	12/31/3999
ref 1	J02-6859-00	SCHEM PSD60-2R MAIN BD	10	0	EA	MD	ESTOC	1/1/1900	12/31/3999
ref 2	J25-6859-00	ASSY PSD60-2R MAIN BD	11	0	EA	MD	ESTOC	1/1/1900	12/31/3999



REVISIONS			
REV	DESCRIPTION	DATE	ORIGIN
3	RELEASE BOARD	07/01	JMARR
4	INCREASE NOISE IMMUNITY	9/01	JMARR
5	ADD FREQ CORRECTION	10/01	JMARR
6	CHANGE MAGNITUDE DEMODULATION SCHEME	11/01	JMARR
7	IMPROVE NOISE IMMUNITY, ADD C98	11/01	JMARR
8	ADD NOTE 5 (ADD R90 AN HOW TO INSTALL)	02/02	JMARR
9	ADDED NOTE 6 AND REF DESIGNATORS	09/18/02	D SELL
10	ADDED NOTE 7	07/06/05	A GARCIA
11	CHANGE TITLE BLOCK	18JUN07	CORBIN

NOTES:
1) REFER TO BILL OF MATERIALS 20-6859-00 FOR PARTS INSTALLATION.
2) L1 AND L2 TO BE SECURED TO BOARD USING RTV.
3) ITEM 3 TO BE INSTALLED IN BOARD USING STANDOFF FLAIRING TOOL IN SHOP.
4) C98 TO BE INSTALLED ON FARSIDE (SOLDER SIDE) OF BOARD.
5) ON REV. 6 BOARDS ONLY. PRIOR TO INSTALLING U23, CUT BOTH GND TRACES TO PIN 11 ON THE NEARSIDE OF BOARD. INSTALL U23 THEN INSTALL R90 ON FARSIDE OF BOARD BETWEEN PINS 5 AND 11.
6) WHEN INSTALLING DISPLAY ENSURE FILLER HOLE IS POSITIONED TOWARD CR11 & CR12.
7) INSTALL A JUMPER FROM U14-5 TO C50. (LEG CLOSEST TO TP 22) FOR REV. 6 BOARDS ONLY

DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .XX ± 0.01 .XXX ± 0.005
FRACTIONS: ± 1/64
ANGLES: ± 1/2°

MATERIAL: N/A

FINISH: N/A

AEROFLEX PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	5/10/01
ENG. JMARR	5/10/01
CHECKED	
FILE NAME 09685900.DWG	

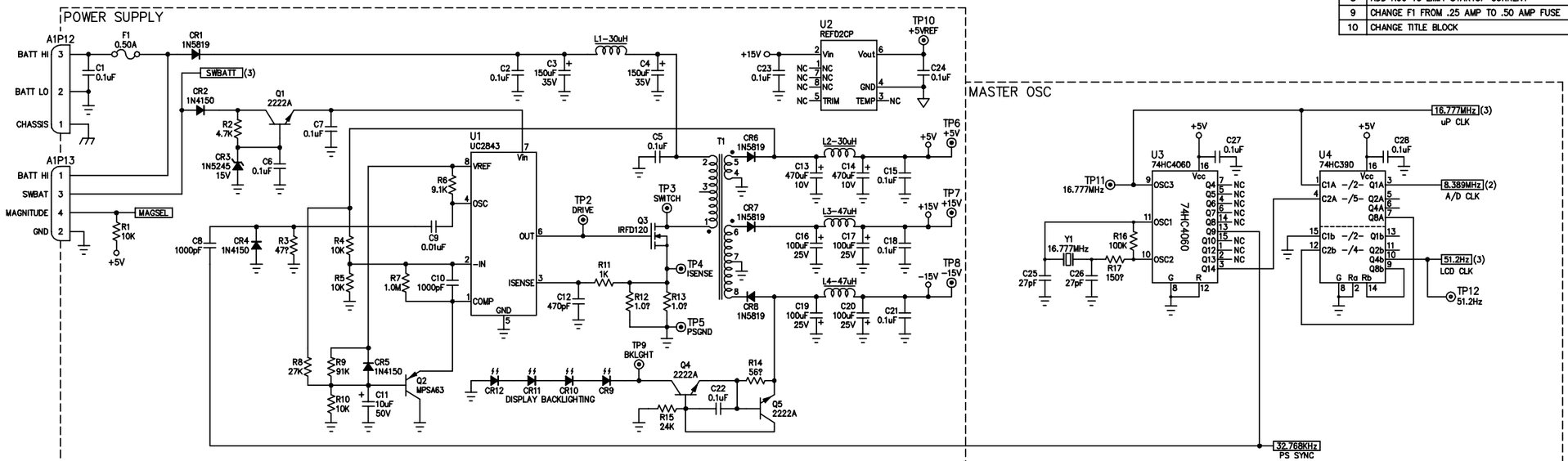
AEROFLEX
400 NEW CENTURY PKWY
NEW CENTURY, KS 66031 USA
PHONE: (913) 764-2452
FAX: (913) 782-5104
WEB: WWW.AEROFLEX.COM

MAIN BOARD
PSD60-2R

SIZE	CAGE NO.	DWG. NO.	REV.
B	41364	25-6859-00	11

SHEET 1 of 1

REVISIONS			
REV	DESCRIPTION	DATE	ORIGIN
3	RELEASE DRAWING	7/10/01	JMARR
4	CHANGE MEASRUMENT METHODOLOGY	9/10/01	JMARR
5	ADD FREQ CORRECTION	10/01	JMARR
6	CHANGE MAGNITUDE DEMODULATION SCHEME, ADD C98	11/01	JMARR
7	CHANGE COMPONENTS TO ADD STABILITY OVER FREQ.	12/01	JMARR
8	ADD R90 TO LIMIT STARTUP CURRENT	2/11/02	JMARR
9	CHANGE F1 FROM .25 AMP TO .50 AMP FUSE	07/02/04	DWM
10	CHANGE TITLE BLOCK	18JUN07	CORBIN



DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .XX ± 0.01 .XXX ± 0.005
FRACTIONS: ± 1/64
ANGLES: ± 1/2°
MATERIAL: N/A
FINISH: N/A

AEROFLEX PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	6/27/99
ENG. JMARR	12/17/01
CHECKED	
FILE NAME 02685900.DWG	

AEROFLEX
400 NEW CENTURY PKWY
NEW CENTURY, KS 66031 USA
PHONE: (913) 764-2452
FAX: (913) 782-5104
WEB: WWW.AEROFLEX.COM

SCHEMATIC MAIN BOARD PSD60-2R

SIZE	CAGE NO.	DWG. NO.	REV.
B	41364	02-6859-00	10

SHEET 1 of 3

LO-Z DETECTOR

HI-Z DETECTOR

LO-Z DEMOD

CAP DEMOD

A/D SELECTOR

A/D CONVERTER

PARALLEL PHASE GENERATOR

RES DEMOD

MAGNITUDE PHASE GENERATOR

LO-Z GEN

LO-Z BUFFER

SIZE	CAGE NO.	DWG. NO.	REV.
B	41364	02-6859-00	10

SHEET 2 of 3

05-0019-02

MICROCONTROLLER

DISPLAY DRIVER

A1J14
SWITCH 3
?A 5
?B 4
+5V 6
GND 1
GND 2

TP35 QUAD-SW
TP36 QUAD-?A
TP37 QUAD-?B
TP38 BATT
TP39 SERDATA
TP40 SERCLK

R99 4.7K
R100 4.7K
R101 10K
R102 10K
R103 10K
R104 7.5K
R105 10K
R106 10K
R107 7.5K
R108 22.6K
R109 20.0K
R110 102K
R111 20.0K
C88 0.1uF
C89-91 0.1uF
C92 0.1uF
C93 0.1uF
C94 0.1uF

U26A AD822
U26B AD822
U25B AD822

U27 PIC17C756
2 20 29 37 49 Vcc

(RB6) 47 QUAD-SW
(RB4) 56 QUAD-?A
(RB5) 55 QUAD-?B
(1) 16.777MHz 50 OSC IN
NC 51 OSC OUT
(2) ADCDATA (RC0) 34 ADCDATA
(2) ADCINT (RA0) 60 ADCINT
(2) ADCEN (RD7) 4 ADCEN
(1) MEGSHORT (RD2) 9 MEGSHORT
(1) KILOSHORT (RD3) 8 KILOSHORT
(2) UNLOCK (RB7) 48 UNLOCK
(RF4) 24 CHARGE
NC (RA1) 44 SPARE
NC (RA2) 45 SPARE
(2) LFSEL (RF3) 25 HFSEL
(1) MAGSEL (RF5) 23 PHASE
(2) PHSEL (RF6) 22 PHSEL
+5V (RG3) 31 REFHI
(RG2) 32 REFLO
(RB2) 54 OPTION1
(RB3) 57 OPTION2
(RB0) 59 OPTION3
(RB1) 58 OPTION4
(RC5) 63 SIMT
(RC6) 62 MEASINT
(RC2) 66 DTF
(RC3) 65 MEASEXT
(RC4) 64 SIMTC
(RA3) 46 CALSEL
(RC1) 67 COMPSEL
(RC0) 3 TUSEL
16 R
17 TEST
GND 19 30 36 53 68

DISPEN 7 (RD4)
SERCLK 39 (RG5)
SERDATA 38 (RG4)
DISPDATAB 33 (RG1)
NC 1 NC
NC 18 NC
NC 35 NC
NC 52 NC
EEPROMEN 6 (RD5)
WPROT 40 (RG7)
DOUT 41 (RG6)
LR 14 (RE2) LR (1,2)
MR 15 (RE3) MR (1)
HR 12 (RE0) HR (1,2)
ER 13 (RE1) ER (1,2)
MEG 61 (RC7) MEG (1)
A0 28 (RF0) A0 (2)
A1 27 (RF1) A1 (2)
A2 26 (RF2) A2 (2)
RELAYCOM 11 (RD0) RELAYCOM (1)
MEGRELAY 10 (RD1) MEGRELAY (1)
LOZEN 21 (RF7) LOZEN (2)
FREQEN 5 (RD6) FREQEN (2)

U28 25C040
(2) SERDATA 5 DIN
(2) SERCLK 6 CLK
CS 1
WPRO 3
DOUT 2
Vcc 8
HOLD 7
GND 4

U29 MM5483V
U30 MM5483V
Vdd 22
28 LOAD
24 CLK
25 DATA
21 OSCIN
2 GND
27 BPIN
DOUT 20 NC
BPOUT 26 NC
(1) 51.2Hz

DS1
MAIN UNITS: 5A 5B 5C 5D 5E 5F 5G
MAIN 10's: 4A 4B 4C 4D 4E 4F 4G
MAIN 100's: 3A 3B 3C 3D 3E 3F 3G
MAIN 1000's: 2A 2B 2C 2D 2E 2F 2G
10,000 MINUS PHASE
BP BP
BATT UNITS: 8A 8B 8C 8D 8E 8F 8G
BATT 10's: 7A 7B 7C 7D 7E 7F 7G
BATT 100
DP.0000 DP0.000 DP00.00 DP000.0
% BATT
CAL UNLK COMP TU HEALTH K M? Hz ? pF

P/O A1J10
DTF 2
MEASEXT 1
MEASINT 6
SIMTC 4
SIMT 3
CHASSIS 5 NC

P/O A1J11
COMPSEL 9
TUSEL 10

S1 CAL
S2 DISP RES, EN 20,000M?, DIS ERROR, EN FREQ
RN1 10K +5V
RN2 10K +5V
RN3 10K +5V

04-0627-00

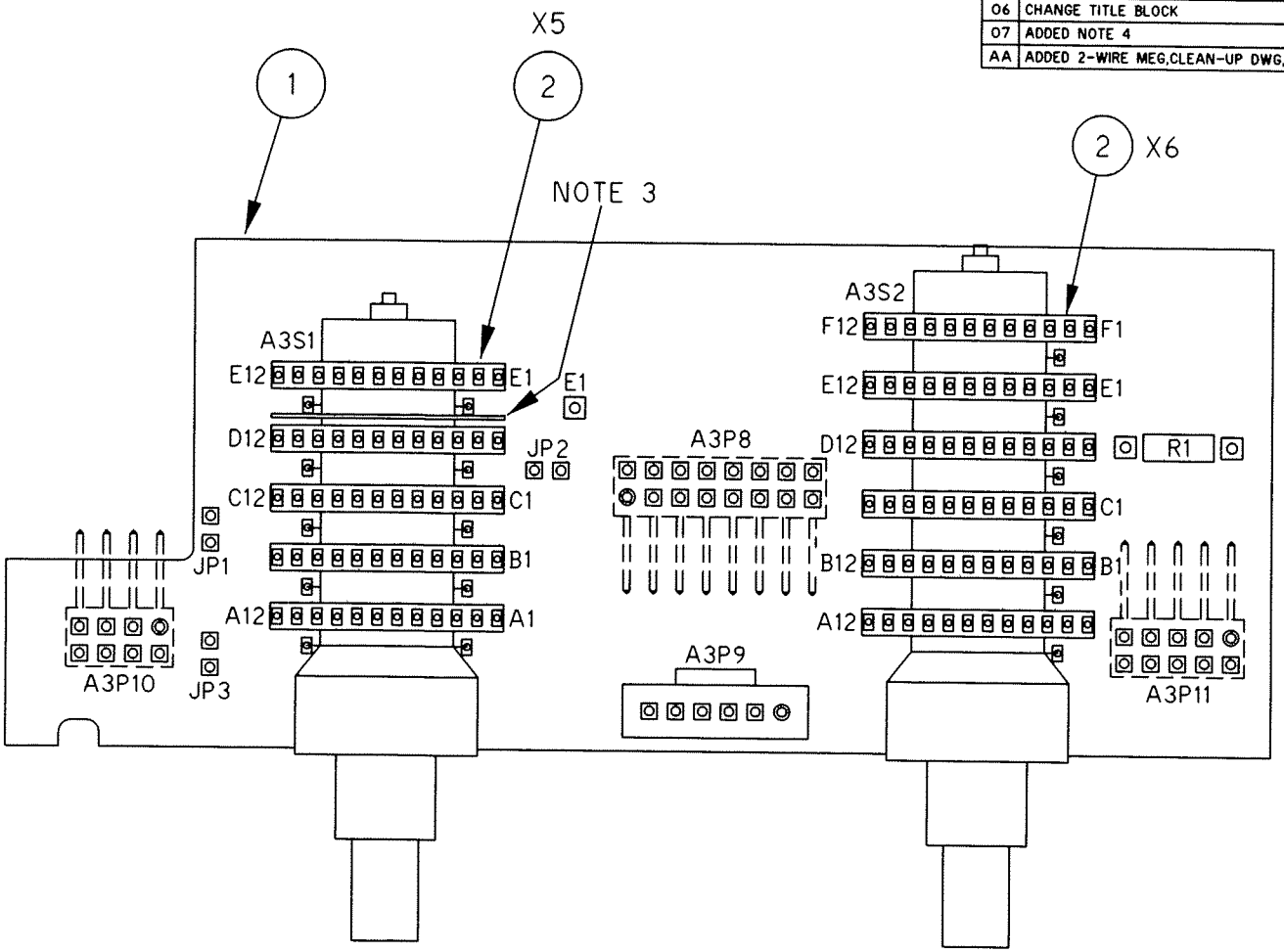
Material	RevLev	Description	Plnt	Key date
18175	A0	PSD60-2R SWITCH BD	1000	09/30/2010

BOM	Use	Alt	Alternative Text	Base quantity	BUn	Valid from - to
00004120	Z			1.000	EA	07/10/2007 12/31/9999

Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	0020	5377 A0		1.000	EA	☐		07/10/2007 - 12/31/9999	
		PCB PSD60-2R SWITCH		L		☐	☐		
		0001 1		1.000	EA				
1	0040	38905		1.000	EA	☐		07/10/2007 - 12/31/9999	
		CONN HDR STR SR SHRD .1SP 6 PO		L		☐	☐		
		0001 A3P 9		1.000	EA				
1	0050	39029		1.000	EA	☐		07/10/2007 - 12/31/9999	
		CONN POST HDR DR RA .23/.29 .1		L		☐	☐		
		0001 A3P10		1.000	EA				
1	0060	39030		1.000	EA	☐		07/10/2007 - 12/31/9999	
		CONN POST HDR DR RA .23/.29 .1		L		☐	☐		
		0001 A3P11		1.000	EA				
1	0070	39032		1.000	EA	☐		07/10/2007 - 12/31/9999	
		CONN POST HDR DR RA .23/.29 .1		L		☐	☐		
		0001 A3P 8		1.000	EA				
1	0080	41694		1.000	EA	☐		07/10/2007 - 12/31/9999	
		SWIT ROT 6 DECK 1 POLE 2-12 PO		L		☐	☐		
		0001 A3S 2		1.000	EA				
1	0090	41718		1.000	EA	☐		07/10/2007 - 12/31/9999	
		SWIT ROT 5 DECK 2 POLE ADJ PCM		L		☐	☐		
		0001 A3S 1		1.000	EA				
1	0100	45274		11.000	EA	☐		07/10/2007 - 12/31/9999	
		SKT FOR GRAYHILL SERIES 71 ROT		L		☐	☐		
		0001 2		11.000	EA				
1	0110	62058		1.000	FT	☐		07/10/2007 - 12/31/9999	
		WIRE,HOOK,TFE,30GA,SOLID,WHT		L		☐	☐		
1	0120	77000		1.000	EA	☐		07/10/2007 - 12/31/9999	
		RES CF 100K QW 5%		L		☐	☐		
		0001 R 1		1.000	EA				

*** End of List ***

REV	DESCRIPTION	DATE	ORIGIN	ECO/CM
03	RELEASE	7/10/01	JMARR	-
04	CHANGE NOTE 1 TO REFLECT GENERIC BILL\8/28/01	8/28/01	JMARR	-
05	ADDED NOTE 3	9/29/04	JMARR	-
06	CHANGE TITLE BLOCK	6/18/07	CORBIN	-
07	ADDED NOTE 4	9/24/08	MARK M.	J37198
AA	ADDED 2-WIRE MEG,CLEAN-UP DWG, NEW TITLE BLOCK	4/23/10	JMARR	500000000395



NOTES:
1) REFER TO BILL OF MATERIALS 20-6859-XX FOR PART INSTALLATION.
2) REFER TO SCHEMATIC, 02-6859-10, FOR SWITCH KEYING.
3) JUMPER E1 TO A3S1 D/E DECK SHIELD.
4) IF USED ON PSD50-2 (01-0986-00), INSTALL JP1, JP2, JP3.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS:
X.XX = ±0.01
X.XXX = ±0.005
ANGLES:
±1.0°
THIRD ANGLE PROJECTION
MATERIAL:
FINISH:

PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	4/17/01
ENG. JMARR	8/28/01
CHECKED T JARBOE	9/4/09
DOC TYPE ZEM	
FILE NAME 10000011861.dwg	

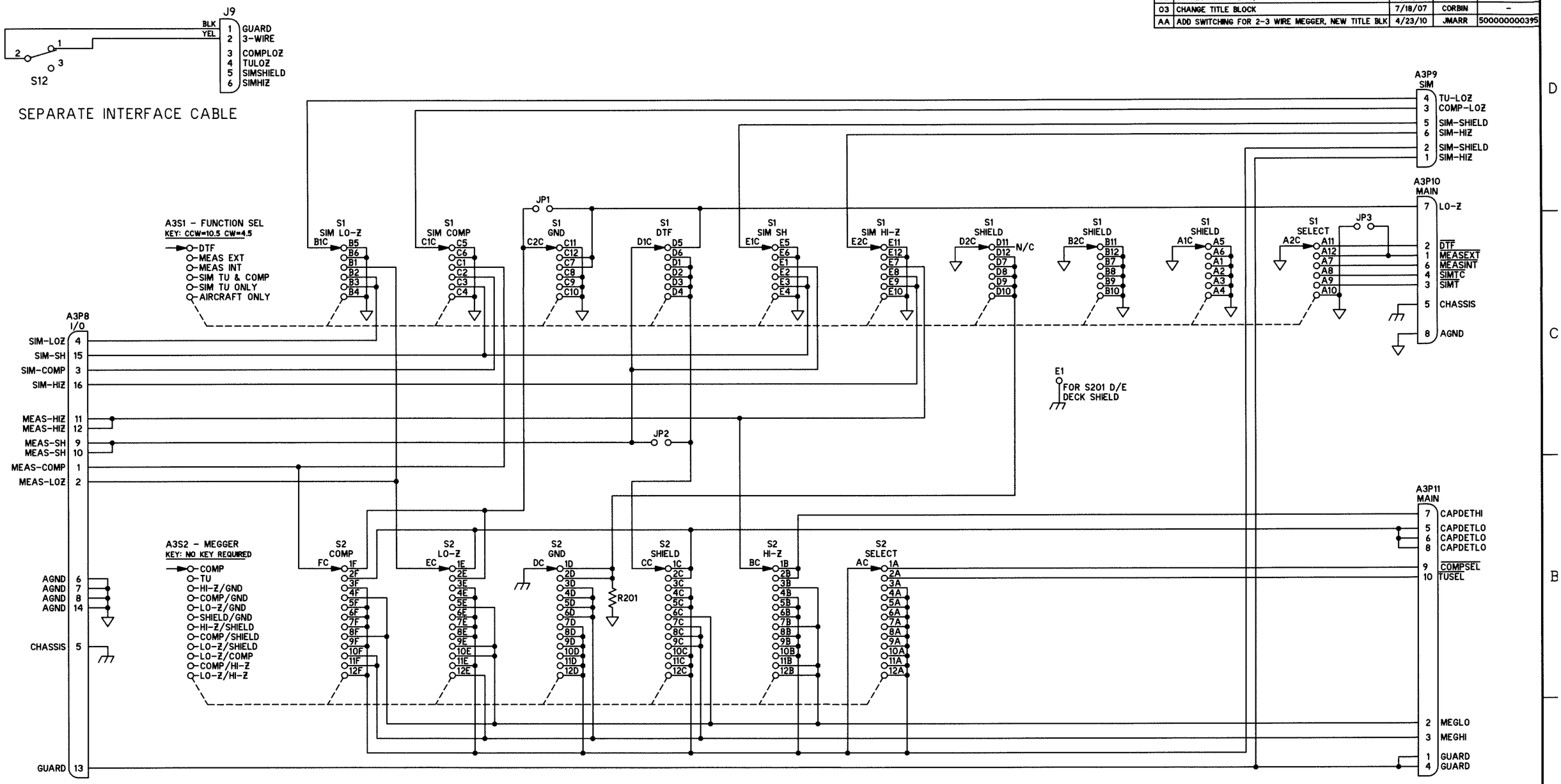
AEROFLEX
14408 W. 105th ST.
LENEXA, KS 66215-2316
PHONE: (913) 693-1700
FAX: (913) 324-3103
WEB: WWW.AEROFLEX.COM

09/25-6859-10 ASSY DWG SWITCH BOARD, PSD60-2R

SIZE	CAGE NO.	DIR NO.	REV.
A	41364	10000011859	AA

SHEET 1 of 1

REV	DESCRIPTION	DATE	ORIGIN	ECO/CM
01	RELEASE DRAWING	12/99	JMARR	-
02	CORRECT P11-9 & 10, REMOVE VALUE OF R201	8/21/01	JMARR	-
03	CHANGE TITLE BLOCK	7/18/07	CORBIN	-
AA	ADD SWITCHING FOR 2-3 WIRE MEGGER, NEW TITLE BLK	4/23/10	JMARR	500000000395



NOTES:

1) ALL PARTS TO HAVE A A3 PREFIX IF NOT ALREADY SO.
2) REFER TO BILL OF MATERIALS FOR PARTS INSTALLATION.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: X.XX = ±0.01, X.XXX = ±0.005
ANGLES: ±1.0°
THIRD ANGLE PROJECTION
MATERIAL: N/A
FINISH: N/A

PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	2/8/99
ENG. JMARR	2/8/99
CHECKED MAM	9/23/09
DOC TYPE ZES	
FILE NAME 10000011860.dwg	

AEROFLEX
14408 W. 105th ST.
LENEXA, KS 66215-2316
PHONE: (913) 693-1700
FAX: (913) 324-3103
WEB: WWW.AEROFLEX.COM

02-6859-10, SCHEMATIC SWITCH BOARD, PSD60-2R

SIZE	CAGE NO.	DWG NO.	REV
B	41364	10000011860	AA

SHEET 1 of 1

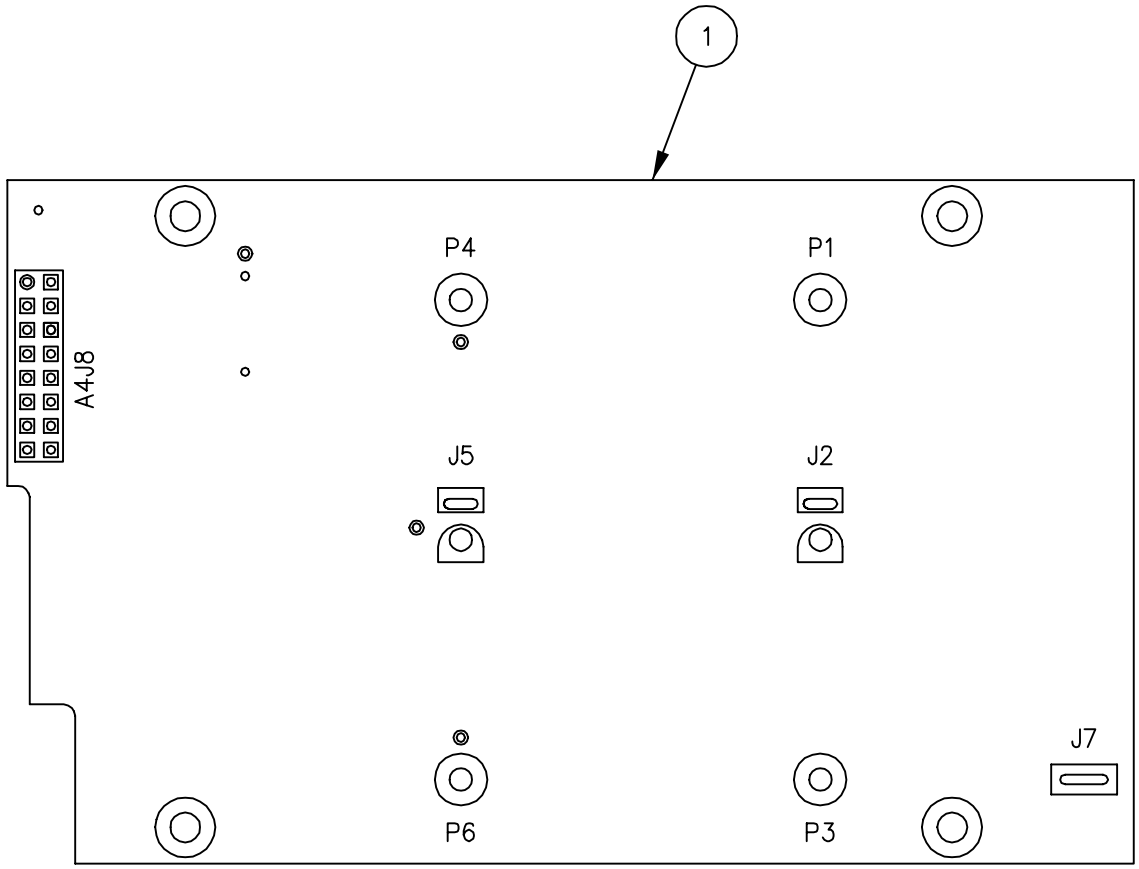
JcAIR INC.

NAME: PSD60-2R I/O BOARD ASSY NO: 20-6859-20

REVISION: 01 DATE: 06/15/2005

ITEM/ SYMBOL	JcAIR PART NO.	DESCRIPTION	U/M	QTY	MANUFACTURER	MANF'S P/N
1	09-6859-20	PCB I/O PSD60-2R	EA	1.00	QMC	09-6859-20
A4J8	30-1549-16	CONN HEADER TOP-ENTRY DBL ROW 16 POS	EA	1.00	BERG	68683-308
REF1	02-6859-20	SCHEMATIC I/O BOARD PSD60-2R	EA	-		
REF2	25-6859-20	ASSY DWG I/O BOARD PSD60-2R	EA	-		

REVISIONS			
REV	DESCRIPTION	DATE	ORIGIN
1	ENG RELEASE	8/14/01	JMARR
2	CHANGE TITLE BLOCK	18JUN07	CORBIN



NOTES:
1) REFER TO BILL OF MATERIALS 20-6859-20 FOR PART INSTALLATION.

DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .XX ± 0.01 .XXX ± 0.005
FRACTIONS: ± 1/64
ANGLES: ± 1/2°

MATERIAL: FR4 1 OZ 0.063 THK

FINISH: N/A

AEROFLEX PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	4/2/01
ENG. JMARR	4/2/01
CHECKED	

FILE NAME 09685920.DWG

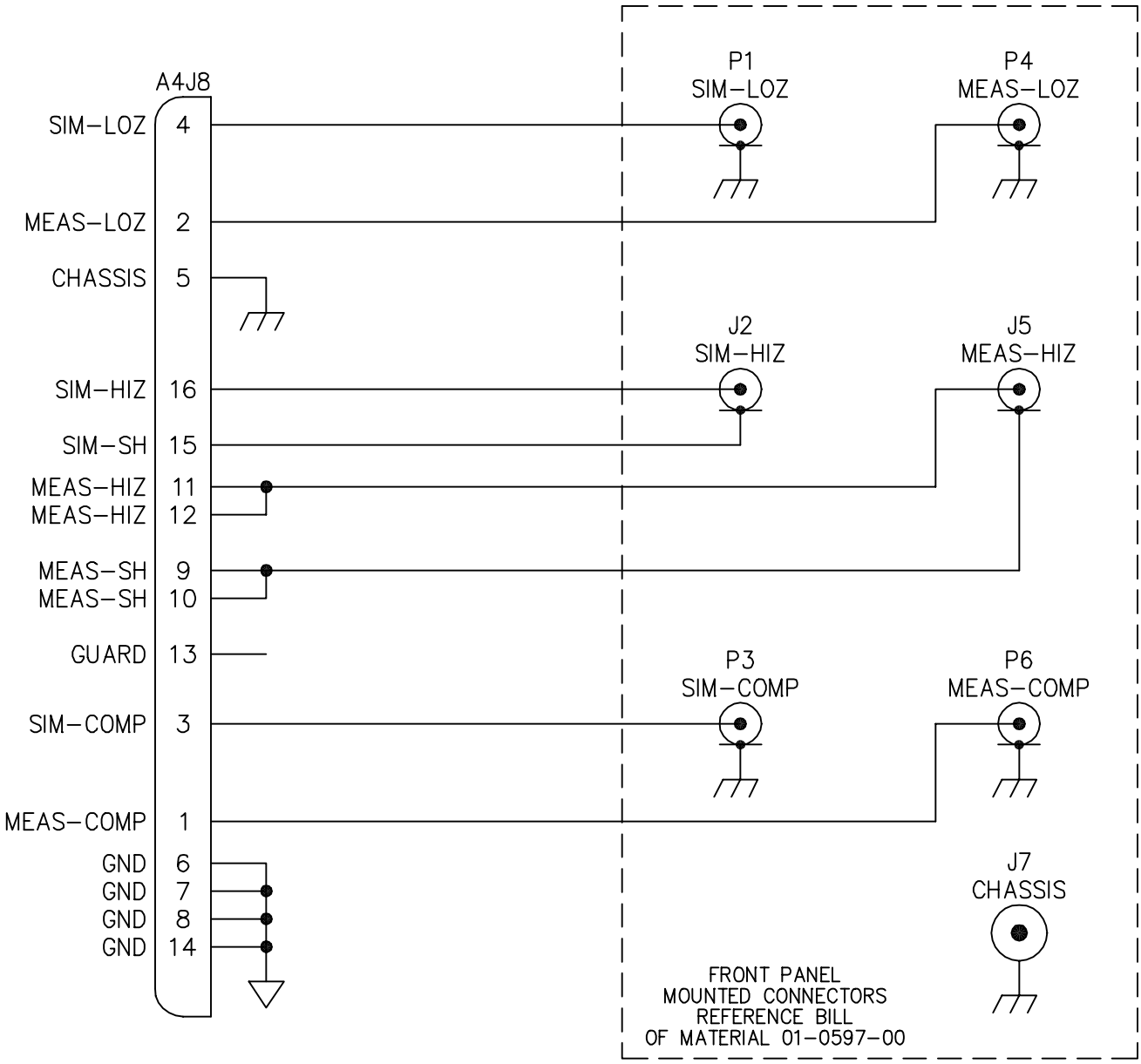
AEROFLEX
400 NEW CENTURY PKWY
NEW CENTURY, KS 66031 USA
PHONE: (913) 764-2452
FAX: (913) 782-5104
WEB: WWW.AEROFLEX.COM

A4-I/O BOARD
PSD60-2R

SIZE	CAGE NO.	DWG. NO.	REV.
A	41364	25-6859-20	2

SHEET 1 of 1

REVISIONS			
REV	DESCRIPTION	DATE	ORIGIN
1	ENG RELEASE	8/14/01	JMARR
2	CHANGE TITLE BLOCK	18JUN07	CORBIN



NOTES:

1) REFER TO BILL OF MATERIALS 20–6859–20
FOR PARTS INSTALLATION.

DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .XX ± 0.01 .XXX ± 0.005
FRACTIONS: ± 1/64
ANGLES: ± 1/2°

MATERIAL: N/A

FINISH: N/A

AEROFLEX PROPRIETARY INFORMATION

APPROVALS	DATE
DRAWN JMARR	4/2/01
ENG. JMARR	4/2/01
CHECKED	

FILE NAME 02685920.DWG

AEROFLEX
400 NEW CENTURY PKWY
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SCHEMATIC PSD60–2R
A4–1/O BOARD

SIZE	CAGE NO.	DWG. NO.	REV.
A	41364	02–6859–20	2

SHEET 1 of 1

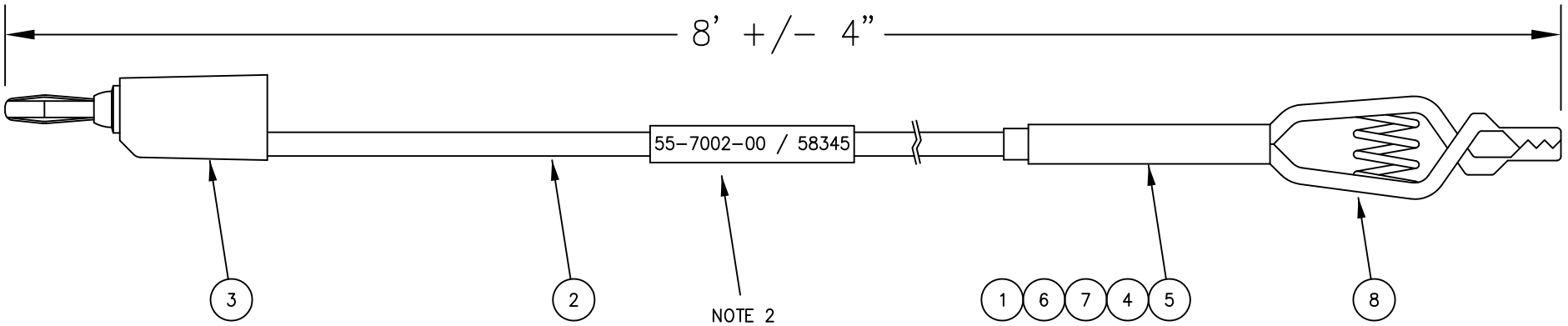
Material	RevLev	Description	Plnt	Key date
58345	A0	CABLE GROUND STRAP	1100	09/30/2010

BOM	Use	Alt	Alternative Text	Base quantity	BUn	Valid from - to
00012384	Z			1.000	EA	04/14/2009 12/31/9999

Lv	Item	Component no. / Description	SortStrng	Quant / Ict	Un / OD	Fix / Pha	Asm	Valid from - To / Change No.	Ex.
1	0010	4311		1.000	EA	☐		04/14/2009 - 12/31/9999	
		TERMINAL RING #6 22-16 AWG NYL		L	☐	☐	☐		
		0001 1		1.000	EA				
1	0020	29451		8.000	FT	☐		04/14/2009 - 12/31/9999	
		WIRE RUBBER 18 AWG GREEN 5000V		L	☐	☐	☐		
		0001 2		8.000	FT				
1	0030	45370		1.000	EA	☐		04/14/2009 - 12/31/9999	
		BANANA PLUG SINGLE STACKING GR		L	☐	☐	☐		
		0001 3		1.000	EA				
1	0040	55910		1.000	FT	☐		04/14/2009 - 12/31/9999	
		TUBING SHRINK BLACK .250 OD		L	☐	☐	☐		
		0001 4		1.000	FT				
1	0050	55912		1.000	FT	☐		04/14/2009 - 12/31/9999	
		TUBING SHRINK BLACK .375 OD		L	☐	☐	☐		
		0001 5		1.000	FT				
1	0070	71015		1.000	EA	☐		04/14/2009 - 12/31/9999	
		WASHER LOCK #6		L	☐	☐	☐		
		0001 6		1.000	EA				
1	0080	71104		1.000	EA	☐		04/14/2009 - 12/31/9999	
		SCREW PHP #6-32 X .188 SS		L	☐	☐	☐		
		0001 7		1.000	EA				
1	0090	71744		1.000	EA	☐		04/14/2009 - 12/31/9999	
		CLIP GENRL PURPOSE BRNSH COPPE		L	☐	☐	☐		
		0001 8		1.000	EA				

*** End of List ***

REV	DESCRIPTION	DATE	ORIGIN	ECO/CM
00	SPLIT 55 DRAWING OUT	14APR09	CORBIN	J38262
AA	CREATE DIR, UPDATE TITLE BLOCK	09/23/10	KEESE	5000000000512



NOTES:

1) CABLE MUST BE BUILT PER PRINT WITH NO DEVIATIONS INCLUDING PARTS.
2) MARK CABLE AS SHOWN.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS:
X.XX = ±0.01
X.XXX = ±0.005
ANGLES:
±1.0°
THIRD ANGLE PROJECTION

MATERIAL: N/A

FINISH: N/A

PROPRIETARY INFORMATION

APPROVALS		DATE
DRAWN	NHR	14APR09
ENG.	CORBIN	14APR09
CHECKED		

MATERIAL ASSOC. 58345 DOC TYPE ZEF

FILE NAME 10000011089.dwg

AEROFLEX
14408 W. 105th ST.
LENEXA, KS 66215-2316
PHONE: (913) 693-1700
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WEB: WWW.AEROFLEX.COM

85-7002-00 GROUND CABLE FUEL QUANTITY

SIZE	CAGE NO.	DWG. NO.	REV.
A	41364	10000011089	AA

SHEET 1 of 1

PSD60-2R TEST PROCEDURE / RECORD

Revision History

Revision	Date	Reason	Reference
26	4-12-05	Change sections 2.11 and 3.1	DCO 28747
27	6-18-07	Removed old logos and references	DCO 33111
28	10-19-07	Change required equipment list to reflect current equipment. Added data sheet to bottom of procedure. Added note in Purpose statement that test is for mod 6 or greater units.	DCO 35728
29	6-4-08	Add step to verify the TU and Comp cap simulator knobs are positioned correctly to match the Min Max on the front panel.	DCO 36573
30	12/11/08	Change resistance value measured to 18Ω/22Ω to match PTS-1 mod0 or mod1. Check that TU simulator can adjust from 1000pF to 8000pF.	DCO 36801
31	2/03/09	Add simulator check to section A.	DCO 37881
AA	12/2/09	Add tests 3.2 thru 3.4 for 2/3 wire Meg switch	500000000395

PSD60-2R TEST PROCEDURE / RECORD

S/N: _____
Tested By: _____
Date: _____
Mod Status: _____

PURPOSE

This specification defines the procedure to be used for the complete testing of the Aeroflex, PSD60-2R AC CAPACITANCE TESTER with **mod 6 or greater**. This procedure is to provide an orderly sequence of tests to insure a completely tested system.

REQUIRED EQUIPMENT

Description	Model (or equivalent)
VOLTMETER	Keithley 2000
SCOPE	TEKTRONIX TDS2012
POWER SUPPLY	0-50VDC 0.2A
FREQUENCY COUNTER	Agilent 53132A
TRANSFER STANDARD	Aeroflex PTS-1 (01-0978-50)
PROGRAMMABLE PHASE SHIFTER	Aeroflex PPS-1 (01-1054-00)
RESISTOR	1Ω 0.25W 1% Aeroflex (RF-1102-32)
CAPACITANCE METER	ANDEEN HAGERLING 2500A or equiv.

NOTE: This procedure has been set up with three sections.

Section A is for checking unit accuracy. If all of these test pass the unit can be returned to service.

Section B is the calibration section of the procedure and if any of the accuracy tests fail in section 'A' the unit must be calibrated using section 'B'. It is recommended that calibration be performed on an annual basis to insure the unit stays within the accuracy limits during field usage.

Section C is the complete testing of the unit. All new units from manufacturing must start at this section. If any rework has been performed on the unit in the field, the applicable tests in this section must be performed to ensure proper operation.

S/N: _____
Tested By: _____
Date: _____
Mod Status: _____

SECTION A - THIS SECTION TO BE PERFORMED TO TEST UNITS CALIBRATION AND MAY BE RETURNED TO SERVICE ONLY IF ALL TESTS PASS.

1.0 INTRINSIC SAFETY TESTS

____ 1.1 Set the Frequency to 5000 Hz and allow a warm up of 5 minutes.

MAX LO-Z DRIVE TEST

____ 1.2 Set the FUNCTION SELECT switch to the MEAS EXT TU position. With the voltmeter set for AC current, connect between TANK UNITS LO-Z (center) and GND (TANK UNITS LO-Z shell). Verify the ammeter indicates less than 10mA RMS. _____mA.

MAX MEGGER DRIVE TEST

____ 1.3 Set the FUNCTION SELECT switch to the MEASURE EXT position and the MEGGER SELECT switch to HI-Z/SHIELD. With the voltmeter set for DC current, connect between TANK UNITS SHIELD (HI-Z shell)(HI) and GND (TANK UNITS LO-Z (shell)(LO). Verify the ammeter indicates less than 8mADC. _____mA.

MAX OHMMETER DRIVE TEST

____ 1.4 With the voltmeter set for DC current, connect between TANK UNITS HI-Z (HI-Z center)(LO) and TANK UNITS SHIELD (HI-Z shell)(HI). Verify the ammeter indicates 5 +/- 0.2mADC after the display is done ranging. _____mA.

HI-Z INPUT PROTECTION TEST

____ 1.5 Set the FUNCTION SELECT switch to the MEASURE EXT TU position. With the power supply set for 15VDC connect the LO side to unit CHASSIS and the HI side through the mA meter to the TANK UNITS HI-Z (center) pin. Verify the ammeter indicates less than 8mA DC. _____mA.

MEGGER INPUT PROTECTION TEST

____ 1.6 Set the FUNCTION SELECT switch to the MEASURE EXT position and the MEGGER SELECT switch to HI-Z/SHIELD. With the power supply set for 15VDC connect the LO side to unit CHASSIS and the HI side through the mA meter to the TANK UNITS HI-Z (center) pin. Verify the ammeter indicates less than 8mA DC. _____mA.

NOTE: This reading must be taken within the first 5 secs. after applying the voltage while the ohmmeter is in the megohm mode of operation. After this time the unit will cycle between modes and the current will cycle between 7.5mA and 20mA.

2.0 AC CAPACITANCE ACCURACY TESTS

____ 2.1 On the main board place S2-4 to the ON position. Apply power to the unit by placing the POWER switch to the ON position. Set the FUNCTION SELECT switch to the MEAS EXT position, the MEGGER SELECT switch to TU position and the CAPACITANCE MEASUREMENT switch to MODE A. Set the Frequency to 5000 Hz and allow a warm-up of 5 min.

____ 2.2 With no connections made to the TANK UNITS HI-Z jack, verify the unit displays 0.00 +/- 0.02pF. _____pF.

____ 2.3 Connect the TRANSFER STANDARD (PTS-1) to the unit as follows. TANK UNITS HI-Z to CAP STANDARD HI-Z and TANK UNITS LO-Z to CAP STANDARD LO-Z and set to 180pF.

____ 2.4 Set the unit frequency to 10kHz and record displayed capacitance. _____pF.

____ 2.5 Set frequency to 300 Hz and verify the unit displays the value recorded in step 2.4 +/-0.03pF.

____ 2.6 Set the PTS-1 to 180pF and connect the PRECISION PHASE SHIFTER (PPS-1) and the PTS-1 to the unit as follows:

a. TANK UNITS HI-Z jack to the PTS-1 HI-Z jack.
b. TANK UNITS LO-Z jack to the PPS-1 LO-Z input jack.
c. PPS-1 LO-Z output jack to the PTS-1 LO-Z jack.

____ 2.7 Set the unit to 300Hz. Set the PPS-1 to 300Hz and adjust for a phase angle of 90°. Verify a displayed value of 0.00 +/-0.05pF on the unit.

____ 2.8 Set the unit and PPS-1 to 7500Hz at a phase angle of 90°, and verify a indicated value of 0.00 +/-0.05pF.

2.9 Remove the PPS-1, set the unit to 600Hz, place the CAPACITANCE MEASUREMENT switch to MODE A and measure the following cap values and verify they are within the given limits as indicated on the standard. Then place the CAPACITANCE MEASUREMENT switch to MODE B and measure the following cap values and verify they are within the given limits as indicated on the standard:

PASS	CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING
_____ a.	10pF	+/-	0.05pF	_____pF	_____pF	_____pF
_____ b.	180pF	+/-	0.10pF	_____pF	_____pF	_____pF
_____ c.	220pF	+/-	0.2pF	_____pF	_____pF	_____pF
_____ d.	500pF	+/-	0.3pF	_____pF	_____pF	_____pF
_____ e.	900pF	+/-	0.5pF	_____pF	_____pF	_____pF
_____ f.	1800pF	+/-	1.0pF	_____pF	_____pF	_____pF
_____ g.	2200pF	+/-	2pF	_____pF	_____pF	_____pF
_____ h.	5000pF	+/-	3pF	_____pF	_____pF	_____pF
_____ i.	9000pF	+/-	5pF	_____pF	_____pF	_____pF
_____ j.	18000pF	+/-	10pF	_____pF	_____pF	_____pF
_____ k.	39.00KpF	+/-	0.02KpF	_____KpF	_____KpF	_____KpF

2.10 Set the frequency of the PSD60 to 7500Hz, place the CAPACITANCE MEASUREMENT switch to MODE A and measure the following cap values and verify they are within the given limits as indicated on the standard. Then place the CAPACITANCE MEASUREMENT switch to MODE B and measure the following cap values and verify they are within the given limits as indicated on the standard:

PASS	CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING
_____ a.	10pF	+/-	0.05pF	_____pF	_____pF	_____pF
_____ b.	180pF	+/-	0.10pF	_____pF	_____pF	_____pF
_____ c.	220pF	+/-	0.2pF	_____pF	_____pF	_____pF
_____ d.	500pF	+/-	0.3pF	_____pF	_____pF	_____pF
_____ e.	900pF	+/-	0.5pF	_____pF	_____pF	_____pF
_____ f.	1800pF	+/-	1.0pF	_____pF	_____pF	_____pF
_____ g.	2200pF	+/-	2pF	_____pF	_____pF	_____pF
_____ h.	5000pF	+/-	3pF	_____pF	_____pF	_____pF
_____ i.	9000pF	+/-	5pF	_____pF	_____pF	_____pF
_____ j.	18000pF	+/-	10pF	_____pF	_____pF	_____pF
_____ k.	39.00KpF	+/-	0.02KpF	_____KpF	_____KpF	_____KpF

3.0 PARALLEL PHASE ANGLE ACCURACY TESTS

____ 3.1 Set the capacitance measurement mode switch to the MODE A position.

____ 3.2 Set the FUNCTION SELECT switch to the MEASURE EXT position and MEGGER SELECT switch to the TU position.

____ 3.3 Connect the TRANSFER STANDARD (PTS-1) and the PROGRAMMABLE PHASE SHIFTER (PPS-1) as follows…

a.) Connect the TANK UNITS LO-Z jack to the PPS-1 LO-Z input jack.
b.) Connect the PPS-1 LO-Z output jack to the PTS-1 cap standard LO-Z jack.
c.) Connect the TANK UNITS HI-Z jack to the PTS-1 cap standard HI-Z jack.

PARALLEL CAPACITANCE ACCURACY WITH PHASE AT 7500Hz

3.4 Set the unit and the PPS-1 to a frequency of 7500Hz and place the CAPACITANCE MEASUREMENT MODE switch to MODE A. Set the PPS-1 to the 0° angle and record the unit reading in the calculated measurement column. Calculate the 15 and 30° calculated measurements by multiplying the 0° calculated measurement by the cosine of the phase angle. Verify the readings are within the given limits.

PASS	CAP VALUE	PHASE ANGLE	LIMITS	CALCULATED MEASUREMENT	MODE A READING
_____ a.	180pF	0°	--------	_____ pF	--------
_____ b.	180pF	15°	+/-0.17pF	_____ pF	_____ pF
_____ c.	180pF	30°	+/-0.17pF	_____ pF	_____ pF
_____ d.	500pF	0°	--------	_____ pF	--------
_____ e.	500pF	15°	+/-0.5pF	_____ pF	_____ pF
_____ f.	500pF	30°	+/-0.5pF	_____ pF	_____ pF
_____ g.	2200pF	0°	--------	_____ pF	---------
_____ h.	2200pF	15°	+/-2pF	_____ pF	_____ pF
_____ i.	2200pF	30°	+/-2pF	_____ pF	_____ pF

MAGNITUDE CAPACITANCE ACCURACY WITH PHASE AT 4800Hz

3.5 Connect the PTS-1 and PPS-1 to the PSD60. Set the unit and the PPS-1 to a frequency of 4800Hz and place the CAPACITANCE MEASUREMENT MODE switch to MODE B. Set the PPS-1 to the 0° angle and record the unit reading in the calculated measurement column. Set the PPS-1 to the given angles and verify the readings are within the limits of the 0° measured value.

PASS	CAP VALUE	PHASE ANGLE	LIMITS	MEASURED CAPACITANCE	MODE B READING
_____ a.	180pF	0°	--------	_____ pF	--------
_____ b.	180pF	15°	+/-0.10pF	--------	_____ pF
_____ c.	180pF	30°	+/-0.10pF	--------	_____ pF
_____ d.	180pF	45°	+/-0.10pF	--------	_____ pF
_____ e.	180pF	60°	+/-0.10pF	--------	_____ pF
_____ f.	180pF	75°	+/-0.10pF	--------	_____ pF
_____ g.	180pF	90°	+/-0.10pF	--------	_____ pF
_____ h.	500pF	0°	--------	_____ pF	--------
_____ i.	500pF	15°	+/-0.3pF	--------	_____ pF
_____ j.	500pF	30°	+/-0.3pF	--------	_____ pF
_____ k.	500pF	45°	+/-0.3pF	--------	_____ pF
_____ l.	500pF	60°	+/-0.3pF	--------	_____ pF
_____ m.	500pF	75°	+/-0.3pF	--------	_____ pF
_____ n.	500pF	90°	+/-0.3pF	--------	_____ pF
_____ o.	2200pF	0°	--------	_____ pF	--------
_____ p.	2200pF	15°	+/-2pF	--------	_____ pF
_____ q.	2200pF	30°	+/-2pF	--------	_____ pF
_____ r.	2200pF	45°	+/-2pF	--------	_____ pF
_____ s.	2200pF	60°	+/-2pF	--------	_____ pF
_____ t.	2200pF	75°	+/-2pF	--------	_____ pF
_____ u.	2200pF	90°	+/-2pF	--------	_____ pF
SEE NOTE BELOW					
_____ v.	18000pF	0°	--------	_____ pF	--------
_____ w.	18000pF	15°	+/-10pF	--------	_____ pF
_____ x.	18000pF	30°	+/-10pF	--------	_____ pF
_____ y.	18000pF	45°	+/-10pF	--------	_____ pF
_____ z.	18000pF	60°	+/-10pF	--------	_____ pF
_____ aa.	18000pF	75°	+/-10pF	--------	_____ pF
_____ ab.	18000pF	90°	+/-10pF	--------	_____ pF

Note: When applying capacitances greater than 2200 pF insure that the LO-Z output amplitude switch on the PPS-1 is in the 300mV position after the PSD60 is done ranging.

4.0 SIMULATOR TESTS

SIMULATOR SECTION TESTS

____ 4.1 Apply power to unit, set frequency to 1050Hz, set the FUNCTION SELECT switch to the MEASURE INT position and the MEGGER SELECT switch to the TU position.

____ 4.2 Set the SIMULATOR COMP COARSE and SIMULATOR TU COARSE to 0 pF. Adjust C1 to maximum capacitance on the display and verify pointer, on the TU FINE knob, is at MAX. Then adjust TU FINE until the reading is 10.00pF +/- 0.05pF. Set MEGGER SELECT switch to COMP, adjust C2 to the maximum capacitance on the display and verify pointer, on the COMP FINE knob, is at MAX. Then adjust COMP FINE until the reading is 10.00pF +/- 0.05pF.

SIM CAP VALUE TEST AND AC CAP NULL TEST

4.3 Set the coarse knob to each of the following capacitances and verify the display indicates that capacitance. Record measurements in the table below.

SIMULATOR	MEASURED LIMITS	TU	COMP
0Pf	9.9 - 10.1pF	_____ pF	_____ pF
10pF	18 - 22pF	_____ pF	_____ pF
20pF	28 - 32pF	_____ pF	_____ pF
40pF	47 – 53pF	_____ pF	_____ pF
80pF	86.0 - 94.0pF	_____ pF	_____ pF
100pF	108.0 – 112.0pF	_____ pF	_____ pF
200pF	206.0 – 214.0pF	_____ pF	_____ pF
400pF	402.0 - 418.0pF	_____ pF	_____ pF
800pF	794.0 – 826.0pF	_____ pF	_____ pF

4.4 Set the TU FINE control to MAX and the TU Coarse to the following capacitances and record in the first column of the table below. Then set the TU FINE control to MIN and the TU Coarse to the following capacitances and record in the second column of the table below. . Ensure the MIN Readings are less than the MAX Readings by 2pF or more from each row. Note: If MIN readings are not less than MAX Readings by 2pF or more replace the appropriate cap(s) on the capacitance board (20-5919-00).

TU Coarse with TU FINE to MAX	MAX Readings	TU Coarse with TU FINE to MIN	MIN Readings
990pF	__ __ __ __ . __ pF	1000pF	__ __ __ __ . __ pF
1990pF	__ __ __ __ . __ pF	2000pF	__ __ __ __ . __ pF
2990pF	__ __ __ __ pF	3000pF	__ __ __ __ pF
3990pF	__ __ __ __ pF	4000pF	__ __ __ __ pF
4990pF	__ __ __ __ pF	5000pF	__ __ __ __ pF
5990pF	__ __ __ __ pF	6000pF	__ __ __ __ pF
6990pF	__ __ __ __ pF	7000pF	__ __ __ __ pF
7990pF	__ __ __ __ pF	8000pF	__ __ __ __ pF

5.0 OHMMETER ACCURACY TESTS

____ 5.1 Set the FUNCTION SELECT switch to the MEASURE EXT position and the MEGGER SELECT switch to the SHIELD/HI-Z position. With no connections to the front panel, verify the unit displays '**-Or.-**'.

____ 5.2 Set S2-2 to the ON position if not already so and cycle power.

____ 5.3 Connect the TRANSFER STANDARD to the unit as follows. With a coax connect the TANK UNITS HI-Z jack to the PTS-1 MEG STANDARD HI-Z jack and jumper both CHASSIS together. Set the MEG STANDARD SOURCE switch to HI-Z/SHIELD and the PSD60 MEGGER SELECT switch to the SHIELD/HI-Z position.

5.4 Measure the following resistor values and verify they are within the given limits as indicated on the standard.

PASS	RES VALUE		LIMITS	STANDARD	READING
_____ a.	18Ω/22Ω	+/-	0.22Ω	_____Ω	_____Ω
_____ b.	180Ω	+/-	1.80Ω	_____Ω	_____Ω
_____ c.	220Ω	+/-	2.2Ω	_____Ω	_____Ω
_____ d.	1800Ω	+/-	18.0Ω	_____Ω	_____Ω
_____ e.	2.2KΩ	+/-	0.022KΩ	_____KΩ	_____KΩ
_____ f.	18KΩ	+/-	0.180KΩ	_____KΩ	_____KΩ
_____ g.	22KΩ	+/-	0.22KΩ	_____KΩ	_____KΩ
_____ h.	100KΩ	+/-	1.00KΩ	_____KΩ	_____KΩ
_____ i.	180KΩ	+/-	1.80KΩ	_____KΩ	_____KΩ
_____ j.	220KΩ	+/-	2.2KΩ	_____KΩ	_____KΩ
_____ k.	1800KΩ	+/-	18.0KΩ	_____KΩ	_____KΩ
_____ l.	2.2MΩ	+/-	0.022MΩ	_____MΩ	_____MΩ
_____ m.	10MΩ	+/-	0.100MΩ	_____MΩ	_____MΩ
_____ n.	18MΩ	+/-	0.180MΩ	_____MΩ	_____MΩ
_____ o.	22MΩ	+/-	0.22MΩ	_____MΩ	_____MΩ
_____ p.	180MΩ	+/-	1.80MΩ	_____MΩ	_____MΩ
_____ q.	220MΩ	+/-	2.2MΩ	_____MΩ	_____MΩ
_____ r.	1800MΩ	+/-	18.0MΩ	_____MΩ	_____MΩ
_____ s.	2200MΩ	+/-	55MΩ	_____MΩ	_____MΩ
_____ t.	18000MΩ	+/-	450MΩ	_____MΩ	_____MΩ

____ 5.5 Set S2-1 through 4 to the OFF position if not already so.

SECTION B - THIS SECTION TO BE PERFORMED TO ENSURE A COMPLETELY CALIBRATED UNIT

1.0 CALIBRATION

SET UP

____ 1.1 Set S2-4 to the ON position, set the FUNCTION SELECT switch to the MEASURE EXT position, the MEGGER SELECT switch to the TU position, the capacitance measurement mode switch to A and set the frequency to 10 kHz.

____ 1.2 Connect the TRANSFER STANDARD (PTS-1) to the unit as follows.

a. TANK UNITS HI-Z to the cap standard HI-Z.
b. TANK UNITS LO-Z to the cap standard LO-Z.
c. Set the PTS-1 for 180 pF and record the displayed capacitance. _____pF.

____ 1.3 Set frequency to 300 Hz and adjust R114 for the value recorded in step 1.2.c +/-0.01pF.

____ 1.4 Set the PTS-1 to 180pF and connect the PRECISION PHASE SHIFTER (PPS-1) and the PTS-1 to the unit as follows:

a. TANK UNITS HI-Z jack to the PTS-1 HI-Z jack.
b. TANK UNITS LO-Z jack to the PPS-1 LO-Z input jack.
c. PPS-1 LO-Z output jack to the PTS-1 LO-Z jack.

____ 1.5 Set the unit to 300Hz. Set the PPS-1 to 300Hz and adjust for a phase angle of 90°. Adjust R113 for an indicated value of 0.00 +/-0.01pF on the unit.

____ 1.6 Set the unit and PPS-1 to 7500Hz at a phase angle of 90°, and adjust C97 for an indicated value of 0.00 +/-0.02pF.

____ 1.7 Repeat steps 1.5 and 1.6 until limits are met.

____ 1.8 Place S2-3 to the OFF position if not already so.

____ 1.9 Apply/cycle power to the unit and verify any ERROR codes on the display. If the unit powers up with no errors or Er 6, you may calibrate the unit. If any of the following errors appear in the display, perform the corrective action below prior to calibration.

CODE	ERROR	CORRECTIVE ACTION
Er 1	LO-Z SHORT	NO OR LOW REFHI (TP20) / REFLO (TP21) SIGNAL
Er 2	INVALID FUNCTION	U27-46 PIN TIED LOW
Er 6	CAL DATA ERROR	CALIBRATION DATA CORRUPT IN EEPROM (U28)
Er 7	A/D ERROR	U21 NOT COMMUNICATING TO U27
Er 8	STACK ERROR	LIKELY FAILURE OF U27
Er 9	DIV BY 0 ERROR	LIKELY FAILURE OF U21 OR U27
Er 10	SWITCH ERROR	FUNCTION SWITCH (A3S1, A3S2) SELECTION INVALID
-Er-	INVALID FUNCTION	FUNCTION SWITCHES NOT IN A VALID MODE
	%BATT DISPLAYS LO	BATTERIES LO, % CHARGE CIRCUIT FAILURE
	%BATT DISPLAYS **Er**	PLACE S2-3 TO THE OFF POSITION

____ 1.10 Remove cal screw from the front panel and depress the cal switch under the screw. Cycle power with the cal switch depressed until the display test is over.

____ 1.11 Verify the **CAL** annunciator is displayed and allow the unit to stabilize for a minimum of 15 minutes before proceeding with the calibration.

____ 1.12 Set the Frequency for 5000 Hz and ENTER. Place the FUNCTION switch to MEASURE EXT and the MEGGER SELECT switch to HI-Z/SHIELD. Set the PTS-1 MEGGER SOURCE switch to SHIELD/HI-Z and connect CHASSIS to CHASSIS of the unit.

MEGGER CALIBRATION

____ 1.13 Apply the following resistances using the PTS-1 and adjust the FREQUENCY SELECT knob for the correct display reading. Use a BNC short for 0Ω. Adjust resistances to values indicated on the PTS-1 correction chart. The step is indicated in the % charge area of the display and is incremented by depressing the FREQUENCY SELECT knob after the adjustment has been made. If the knob is inadvertently depressed, keep pressing it until you are back to the correct step.

STEP	APPLIED RESISTANCE	ADJUST FOR	CALIBRATING
0	SHORT	0+/-4	OHMS LR 0Ω (OFFSET)
1	SHORT	0+/-4	OHMS MR 0Ω (OFFSET)
2	SHORT	0+/-4	OHMS HR 0Ω (OFFSET)
3	SHORT	0+/-4	OHMS ER 0Ω (OFFSET)
4	OPEN	0+/-4	MEG OHMS LR ∞Ω (OFFSET)
5	OPEN	0+/-4	MEG OHMS MR ∞Ω (OFFSET)
6	OPEN	0+/-4	MEG OHMS HR ∞Ω (OFFSET)
7	OPEN	0+/-4	MEG OHMS ER ∞Ω (OFFSET)
8	180Ω	CAL STD	OHMS LR (SLOPE)
9	1800Ω	CAL STD	OHMS MR (SLOPE)
10	18KΩ	CAL STD	OHMS HR (SLOPE)
11	180KΩ	CAL STD	OHMS ER (SLOPE)
12	1800KΩ	CAL STD	MEG OHMS LR (SLOPE)
13	18MΩ	CAL STD	MEG OHMS MR (SLOPE)
14	180MΩ	CAL STD	MEG OHMS HR (SLOPE)
15	1800MΩ	CAL STD	MEG OHMS ER (SLOPE)
16	-----	---	STORE INFORMATION

AC CAPACITANCE CALIBRATION

____ 1.14 Set the FUNCTION SELECT switch to the MEASURE EXT TU position. Connect TANK UNITS LO-Z jack to the PTS-1 CAP STANDARD LO-Z jack. When needed, connect TANK UNITS HI-Z to the PTS-1 HI-Z jack. Apply the given capacitances to the unit and adjust the FREQUENCY SELECT knob to the capacitances indicated on the PTS-1 correction chart.

STEP	APPLIED CAPACITANCE	ADJUST FOR	CALIBRATING
0	0pF	0+/-2	PARALLEL AC CAP LF LR 0pF (OFFSET)
1	0pF	0+/-2	PARALLEL AC CAP HF LR 0pF (OFFSET)
2	0pF	0+/-2	PARALLEL AC CAP LF MR 0pF (OFFSET)
3	0pF	0+/-2	PARALLEL AC CAP HF MR 0pF (OFFSET)
4	0pF	0+/-2	PARALLEL AC CAP LF HR 0pF (OFFSET)
5	0pF	0+/-2	PARALLEL AC CAP HF HR 0pF (OFFSET)
6	180pF	CAL STD	PARALLEL AC CAP LR (SLOPE)
7	1800pF	CAL STD	PARALLEL AC CAP MR (SLOPE)
8	18000pF	CAL STD	PARALLEL AC CAP HR (SLOPE)
9	0pF	0+/-2	MAG RES LF LR ZERO (OFFSET)
10	0pF	0+/-2	MAG RES HF LR ZERO (OFFSET)
11	0pF	0+/-2	MAG RES LF MR ZERO (OFFSET)
12	0pF	0+/-2	MAG RES HF MR ZERO (OFFSET)
13	0pF	0+/-2	MAG RES LF HR ZERO (OFFSET)
14	0pF	0+/-2	MAG RES HF HR ZERO (OFFSET)
15	0pF	0+/-2	MAG CAP LF LR ZERO (OFFSET)
16	0pF	0+/-2	MAG CAP HF LR ZERO (OFFSET)
17	0pF	0+/-2	MAG CAP LF MR ZERO (OFFSET)
18	0pF	0+/-2	MAG CAP HF MR ZERO (OFFSET)
19	0pF	0+/-2	MAG CAP LF HR ZERO (OFFSET)
20	0pF	0+/-2	MAG CAP HF HR ZERO (OFFSET)
BEFORE PROCEEDING ANY FURTHER SEE NOTE BELOW			
*21	180pF @ 90°	180pF @ 0°	MAG GAIN LR (SEE NOTE BELOW)
*22	1800pF @ 90°	1800pF @ 0°	MAG GAIN MR (SEE NOTE BELOW)
*23	18000pF @90°	18000pF @ 0°	MAG GAIN HR (SEE NOTE BELOW)
24	-----	-----	STORE INFORMATION

*** NOTE:** ON STEPS 21 THRU 23 CONNECT THE PTS-1 AND PPS-1 AS IN STEP 1.4. SET THE PPS-1 TO 5000HZ AND 0° AND RECORD THE READING DISPLAYED ON THE PSD60, THEN SET THE PPS-1 FOR 90° AND CALIBRATE THE PSD60 FOR THE READING PREVIOUSLY TAKEN.

____ 1.15 Cycle power and replace cal screw. The unit is now calibrated.

SECTION C - THIS SECTION TO BE PERFORMED TO ALL NEW AND REWORKED UNITS TO ENSURE COMPLETE FUNCTIONALITY

1.0 MAIN BOARD TESTS

____ 1.1 Remove J12 from the main board and apply the power supply set for 24VDC and limited to 300mA to A1P12-2 (LO) and A1P12-3 (HI).

POWER SUPPLY OUTPUTS

1.2 Apply power to unit and verify the following voltages and ripple with respect to TP5. Ripple measured with scope on 2mS/div and does not include switching power supply spikes.

____ a.	TP6	+5.000 +/- 0.100VDC	RIPPLE <50mV P to P	_____VDC
____ b.	TP7	+14.50 +/- 0.50VDC	RIPPLE <50mV P to P	_____VDC
____ c.	TP8	-14.50 +/- 0.50VDC	RIPPLE <50mV P to P	_____VDC

POWER SUPPLY SYNC

____ 1.3 Monitor TP2 with the frequency counter and verify the frequency is 32.768KHz +/- 25Hz. _____ KHz.

P.S. FREQUENCY w/o SYNC

____ 1.4 While monitoring TP2, momentarily short pins 11 and 12 of U3 on the main board and verify the frequency is between 20.0 and 30.0 KHz. When done remove short and cycle unit power. _____ KHz.

MAXIMUM SUPPLY OUTPUT CURRENT

1.5 Using the DVM verify the following:

____ a. Connect the voltmeter across the 1Ω resistor. Connect the 1 ohm resistor between TP6 (HI) and TP5 (LO) and verify less than 250mVDC. _____ mVDC

____ b. Move the 1Ω resistor to TP7 (HI) and TP5 (LO) and verify less than 250 mVDC. _____ mVDC

____ c. Move the 1Ω resistor to TP5 (HI) and TP8 (LO) and verify less than 250 mVDC. _____ mVDC

____ d. Move the 1Ω resistor to TP5 (HI) and TP9 (LO) and verify 10mV +/-2mVDC. _____ mVDC

____ e. Remove resistor and voltmeter.

CONTROLLER PRE-REGULATOR (Q401)

____ 1.6 Verify the voltage at U1-7 is between 12 and 16VDC. _____ VDC.

LCD SEGMENT TEST

____ 1.7 Cycle power and verify all display segments are on for approximately 2 sec.

____ 1.8 After 2 sec. verify the software version is displayed for approximately another 2 secs.

SUPPLY INPUT VOLTAGE/CURRENT TESTS.

1.9 Verify the following:

____ a. With the power supply set for 24VDC, verify the input current is less than 80mA. _____ mA.

____ b. With the power supply set to 12VDC verify the input current is less than 150mA and TP6 (+5V) is within 20mV of step 1.2.a. _____mA _____VDC.

____ 1.10 Set the power supply for 24VDC and cycle power.

REFERENCE VOLTAGE TESTS

1.11 Apply power to unit and verify the following voltages and ripple with respect to TP1.

____ a.	TP10	+5.00 +/- 0.05VDC	RIPPLE <50mV P to P	_____	VDC
____ b.	TP30	-5.00 +/- 0.10VDC	RIPPLE <50mV P to P	_____	VDC
____ c.	TP13	+10.00 +/- 0.20VDC	RIPPLE <50mV P to P	_____	VDC
____ d.	TP18	-10.00 +/- 0.20VDC	RIPPLE <50mV P to P	_____	VDC

MASTER OSCILLATOR

1.12 With the frequency counter verify the following frequencies.

____ a.	TP11	16.777MHZ +/- 3KHz	MASTER CLOCK	_____	MHz
____ b.	U4-3	8.389MHZ +/- 1.5KHz	A/D CLOCK	_____	MHz
____ c.	TP12	51.2HZ +/- 0.1Hz	LCD CLOCK	_____	Hz

NOTE: At this point if any error code is displayed, set S2-3 to the ON position.

1.13 Set S2-4 to the ON position and cycle power.

LO-Z GENERATOR

1.14 Connect the voltmeter and distortion analyzer to TP33 (HI) and TP1 (LO). Place the FUNCTION switch to MEAS EXT TU, set the frequency to 5000 Hz and verify the following:

____ a. With the voltmeter verify 2.60 Vrms +/- 0.15Vrms. _____Vrms
____ b. The distortion is less than 1.0%. _____%
____ c. Set the frequency to 300 Hz.
____ d. Verify the distortion is less than 1.0%. _____%
____ e. With the voltmeter verify 3.00 Vrms +/- 0.10Vrms. _____Vrms
____ f. Set the frequency to 10000 Hz.
____ g. With the voltmeter verify 2.00 Vrms +/- 0.15Vrms. _____Vrms
____ h. Verify the distortion is less than 1.0%. _____%
____ i. Set the voltmeter to measure AC current. Connect the meter between TP33 (HI) and TP1 (LO) and verify the current is <10mAAC RMS. _____mA

PHASE LOCK LOOP

1.15 Place the FUNCTION switch to MEAS EXT TU.

1.16 With a frequency counter monitor TP33 and adjust to the following frequencies:

NOTE: Make sure that the UNLOCK light is not displayed when measuring frequencies. By pressing the FREQUENCY SELECT button the PSD60 will cycle between selecting the frequency and entering the frequency.

SELECTED FREQUENCY	MEASURED LIMITS	MEASURED FREQUENCY	UNLOCK OUT
200 HZ	200 HZ +/- 0.1 Hz	_____ Hz	____
250 HZ	250 HZ +/- 0.1 Hz	_____ Hz	____
300 Hz	300 Hz +/- 0.1 Hz	_____ Hz	____
350 Hz	350 Hz +/- 0.1 Hz	_____ Hz	____
400 Hz	400 Hz +/- 0.1 Hz	_____ Hz	____
800 Hz	800 Hz +/- 0.2 Hz	_____ Hz	____
1600 Hz	1600 Hz +/- 0.3 Hz	_____ Hz	____
3200 Hz	3200 Hz +/- 0.6 Hz	_____ Hz	____
6400 Hz	6400 Hz +/- 1.2 Hz	_____ Hz	____
12750 Hz	12750 Hz +/- 2.4 Hz	_____ Hz	____

1.17 Set the frequency for 1000Hz.

LO-Z DETECTOR

____ 1.18 With the voltmeter monitor TP19 (HI) and TP1 (LO) and verify 6.57Vrms +/- 0.3Vrms. _____Vrms

____ 1.19 With the voltmeter monitor TP21 (LO) and TP20 (HI) and verify 1.18VDC +/- 0.06VDC. _____VDC

HI-Z DETECTOR

____ 1.20 Set up unit as follows: MEASURE EXT TU, and connect the PTS-1 set up for 10pF AC capacitance.

____ 1.21 With the scope monitor TP22 and verify a 1.0KHz sign wave from approximately -19mV to 19mV in amplitude. (This amplitude represents 10.00pF)

____ 1.22 With the voltmeter monitor TP24 (LO) and TP23 (HI) and verify 2.45mVDC per 1pF of capacitance of the standard +/-2mV.

1.23 Set the unit for MEASURE EXT TU and apply 10pF AC from the PTS-1 and verify the following:

____ a. The heartbeat the in upper right corner of the display is flashing about a 0.5 Hz rate.
____ b. The **pF** indicator is displayed.
____ c. The display is indicating approximately 10pF of capacitance.

____ 1.24 Cycle power with the Cal switch depressed until the display test is over. Set the frequency for 5000Hz and enter. Place the FUNCTION switch to the MEASURE EXT TU position. Adjust first 6 steps to 0 +/- 2pF. Cycle thru remaining steps until step 0 is reached, by depressing the Frequency Select Knob, and cycle power.

____ 1.25 If the preceding tests all pass, perform **SECTION B** to calibrate the unit. DO NOT fill out Section B at this time and when completed return to the next step (step C.1.26) and continue with the following tests.

BATTERY MONITOR TESTS

1.26 Cycle power, set frequency to 5kHz, set the power supply to the following voltages and verify the % battery charge on the display. Monitor voltages between TP1 (LO) and Anode of CR2 (HI).

	INPUT	% CHARGE
____ a.	26.33 VDC	95 +/-3%
____ b.	20.64 VDC	50 +/-3%
____ c.	15.58VDC	10 +/-3%

____ 1.27 Verify when the supply is slowly brought down to 14.2VDC, (do not undershoot), the display indicates **LO BATT.**

____ 1.28 Set the power supply to 24 V and cycle power

2.0 SIMULATOR TESTS

SIMULATOR SECTION TESTS

____ 2.1 Apply power to unit, set frequency to 1050Hz, set the FUNCTION SELECT switch to the MEASURE INT position and the MEGGER SELECT switch to the TU position.

____ 2.2 Set the SIMULATOR COMP COARSE and SIMULATOR TU COARSE to 0 pF. Adjust C1 to maximum capacitance on the display and verify pointer, on the TU FINE knob, is at MAX. Then adjust TU FINE until the reading is 10.00pF +/- 0.05pF. Set MEGGER SELECT switch to COMP, adjust C2 to the maximum capacitance on the display and verify pointer, on the COMP FINE knob, is at MAX. Then adjust COMP FINE until the reading is 10.00pF +/- 0.05pF.

SIM CAP VALUE TEST AND AC CAP NULL TEST

2.3 Set the coarse knob to each of the following capacitances and verify the display indicates that capacitance. Record measurements in the table below.

SIMULATOR	MEASURED LIMITS	TU	COMP
0Pf	9.9 - 10.1pF	_____ pF	_____ pF
10pF	18 - 22pF	_____ pF	_____ pF
20pF	28 - 32pF	_____ pF	_____ pF
40pF	47 – 53pF	_____ pF	_____ pF
80pF	86.0 - 94.0pF	_____ pF	_____ pF
100pF	108.0 – 112.0pF	_____ pF	_____ pF
200pF	206.0 – 214.0pF	_____ pF	_____ pF
400pF	402.0 - 418.0pF	_____ pF	_____ pF
800pF	794.0 – 826.0pF	_____ pF	_____ pF

2.4 Set the TU FINE control to MAX and the TU Coarse to the following capacitances and record in the first column of the table below. Then set the TU FINE control to MIN and the TU Coarse to the following capacitances and record in the second column of the table below. . Ensure the MIN Readings are less than the MAX Readings by 2pF or more from each row. Note: If MIN readings are not less than MAX Readings by 2pF or more replace the appropriate cap(s) on the capacitance board (20-5919-00).

TU Coarse with TU FINE to MAX	MAX Readings	TU Coarse with TU FINE to MIN	MIN Readings
990pF	__ __ __ __ . __ pF	1000pF	__ __ __ __ . __ pF
1990pF	__ __ __ __ . __ pF	2000pF	__ __ __ __ . __ pF
2990pF	__ __ __ __ pF	3000pF	__ __ __ __ pF
3990pF	__ __ __ __ pF	4000pF	__ __ __ __ pF
4990pF	__ __ __ __ pF	5000pF	__ __ __ __ pF
5990pF	__ __ __ __ pF	6000pF	__ __ __ __ pF
6990pF	__ __ __ __ pF	7000pF	__ __ __ __ pF
7990pF	__ __ __ __ pF	8000pF	__ __ __ __ pF

SIMULATOR ACCURACY TESTS

2.5 Set FUNCTION SELECT switch to MEASURE INT TU position.

2.6 Connect the INDICATOR TU LO-Z and HI-Z panel connectors to the Andeen Hagerling 2500A. Connect the 60-2R Chassis GND to AH 2500A chassis.

____ 2.7 Adjust the TU SIMULATOR to each of the following capacitances. Record these measurements, then place the FUNCTION SELECT switch to SIM TU ONLY and verify the AH 2500A indicates the simulated capacitance within the limits given. Only the TU section of the table below will be filled out at this time.

SIMULATOR SETTING	MEASURED LIMITS	SIMULATED CAP	AH 2500A TU	SIMULATED CAP	AH 2500A COMP
20pF +/- 1pF	+/- 0.02pF	_____ pF	_____ pF	_____ pF	_____ pF
50pF+/- 1pF	+/- 0.05pF	_____ pF	_____ pF	_____ pF	_____ pF
100pF+/- 1pF	+/- 0.10pF	_____ pF	_____ pF	_____ pF	_____ pF
200pF+/- 1pF	+/- 0.20pF	_____ pF	_____ pF	_____ pF	_____ pF
500pF+/- 1pF	+/- 0.50pF	_____ pF	_____ pF	_____ pF	_____ pF
1000pF+/- 1pF	+/- 1.00pF	_____ pF	_____ pF	_____ pF	_____ pF
2000pF+/- 1pF	+/- 2.00pF	_____ pF	_____ pF	----------	----------
5000pF +/- 1pF	+/- 5.00pF	_____ pF	_____ pF	----------	----------
9900pF +/- 1pF	+/- 9.90pF	_____ pF	_____ pF	----------	----------

_____2.8 Verify when the FUNCTION switch is in the AIRCRAFT ONLY position that the 2500A indicates 0.00 +/- 0.05pF.

2.9 Set the PSD60 TU SIMULATOR for 0pF. Move the AH 2500A LO-Z Plug to the INDICATOR COMP jack and install a shorting BNC plug to the INDICATOR LO-Z Jack.

_____2.10 Verify when the FUNCTION switch is in the AIRCRAFT ONLY position that the 2500A indicates 0.00 +/- 0.05pF.

____ 2.11 Adjust the COMP SIMULATOR to each of the capacitances listed in the above table. Record these measurements, then place the FUNCTION SELECT switch to SIM TU & COMP and verify the AH 2500A indicates the simulated capacitance within the limits given. Enter values in table of step 2.6.

____ 2.12 Adjust the Comp Simulator to 100pF and the TU Simulator to 200pF. Place the MEGGER SELECT switch to comp position and the function select switch to Sim TU & Comp and verify the AH2500A indicates the simulated comp capacitance +/-0.1pF. Place the MEGGER SELECT SWITCH to the TU position. Remove the BNC short from the indicator Lo-Z Jack and place it on the Indicator Comp Jack. Move the AH2500A Lo-Z plug to the Indicator Lo-Z Jack and verify the AH2500A indicates the simulated TU capacitance +/-0.2pF.

3.0 MEGGER SELECT SWITCH TESTS

Note: **2-3 WIRE SWITCH POSITIONS ON APP IF MOD 8 IS INSTALLED**. (SKIP 3.3)

MEGGER SELECT TESTS

3.1 Apply power to unit, set to MEASURE EXT mode, place the MEGGER MODE switch to 3-WIRE, and set option switch, S2-2 on the main board, to the ON position. Connect the three TANK UNITS jacks to the appropriate MEG STANDARD jacks on the PTS-1 and set for 18000MΩ. Set the MEGGER SELECT switch on the PSD60 and the SOURCE switch on the PTS-1 to the following positions and verify the resistance is within 450MΩ of the standard. (STANDARD = _____MΩ.)

	SOURCE	RESISTANCE
____ a.	HI-Z/GND	_____MΩ
____ b.	COMP/GND	_____MΩ
____ c.	LO-Z/GND	_____MΩ
____ d.	SHIELD/GND	_____MΩ
____ e.	HI-Z/SHIELD	_____MΩ
____ f.	COMP/SHIELD	_____MΩ
____ g.	LO-Z/SHIELD	_____MΩ
____ h.	LO-Z/COMP	_____MΩ
____ i.	COMP/HI-Z	_____MΩ
____ j.	LO-Z/HI-Z	_____MΩ

2/3 WIRE MEGGER SWITCH TESTS

____ 3.2 Set the MEGGER SELECT switch on the PSD60 and the SOURCE switch on the PTS-1 to HI-Z/SHIELD and connect a jumper between the TANK UNITS LO-Z and HI-Z shields. Verify the display indicates '–SH–'.

____ 3.3 With the jumper still in place, toggle the MEGGER MODE switch to the 2-WIRE position, and verify the unit again displays the 18000MΩ reading per step 3.1.

____ 3.4 Remove jumper.

4.0 DISTANCE TO FAULT TESTS

DTF TESTS

____ 4.1 Connect a coax between TANK UNITS HI-Z of the UUT and the HI-Z jack on the PTS-1. Connect CHASSIS of the two units together and place the toggle switch on the PTS to DTF ZERO.

____ 4.2 Verify when the FUNCTION SELECT switch is placed in the DTF position, the display indicates '----' for approximately 3 - 4 seconds, then displays 0 +/- 1pF.

____ 4.3 Set the PTS toggle switch to the DTF position, measure the following cap values and verify they are within the given limits as indicated on the standard:

NOTE: Round standard value down to nearest whole number

PASS	CAP VALUE		LIMITS	STANDARD	READING
_____ a.	10pF	+/-	1pF	_____pF	_____pF
_____ b.	180pF	+/-	1pF	_____pF	_____pF
_____ c.	220pF	+/-	1pF	_____pF	_____pF
_____ d.	500pF	+/-	1pF	_____pF	_____pF
_____ e.	900pF	+/-	1pF	_____pF	_____pF
_____ f.	1800pF	+/-	2pF	_____pF	_____pF
_____ g.	2200pF	+/-	2pF	_____pF	_____pF
_____ h.	5000pF	+/-	6pF	_____pF	_____pF
_____ i.	9000pF	+/-	10pF	_____pF	_____pF
_____ j.	18000pF	+/-	19pF	_____pF	_____pF
_____ k.	39.00KpF	+/-	0.04KpF	_____KpF	_____KpF

5.0 CAP ACCURACY TESTS

0pF BASIC ACCURACY TEST

5.1 Place the unit in MEASURE EXT and with nothing connected to the unit, set the unit to each of the frequencies listed below and verify the displayed capacitance is within the limits given. Place the CAPACITANCE MEASUREMENT switch to MODE A (parallel) and MODE B (magnitude) to obtain both readings for each capacitance measured.

PASS	FREQUENCY	LIMITS	TU MODE A	TU MODE B	COMP MODE A	COMP MODE B
_____ a.	300Hz	+/-0.02pF	_____ pF	_____ pF	_____ pF	_____ pF
_____ b.	600Hz	+/-0.02pF	_____ pF	_____ pF	_____ pF	_____ pF
_____ c.	1200Hz	+/-0.02pF	_____ pF	_____ pF	_____ pF	_____ pF
_____ d.	2400Hz	+/-0.02pF	_____ pF	_____ pF	_____ pF	_____ pF
_____ e.	4800Hz	+/-0.02pF	_____ pF	_____ pF	_____ pF	_____ pF
_____ f.	9600Hz	+/-0.02pF	_____ pF	_____ pF	_____ pF	_____ pF

CAP BASIC ACCURACY AT 300Hz

5.2 Connect the PTS-1 to the TANK UNITS COMP jack, set the unit to MEASURE EXT COMP and set the frequency to 300Hz. Measure the following cap values and verify they are within the given limits as indicated on the standard. Place the CAPACITANCE MEASUREMENT switch to MODE A and MODE B to obtain both readings for each capacitance measured.

PASS	CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING
_____ a.	10pF	+/-	0.05pF	_____ pF	_____ pF	_____ pF
_____ b.	180pF	+/-	0.10pF	_____ pF	_____ pF	_____ pF
_____ c.	220pF	+/-	0.2pF	_____ pF	_____ pF	_____ pF
_____ d.	500pF	+/-	0.3pF	_____ pF	_____ pF	_____ pF
_____ e.	900pF	+/-	0.5pF	_____ pF	_____ pF	_____ pF
_____ f.	1800pF	+/-	1.0pF	_____ pF	_____ pF	_____ pF
_____ g.	2200pF	+/-	2pF	_____ pF	_____ pF	_____ pF
_____ h.	5000pF	+/-	3pF	_____ pF	_____ pF	_____ pF
_____ i.	9000pF	+/-	5pF	_____ pF	_____ pF	_____ pF
_____ j.	18000pF	+/-	10pF	_____ pF	_____ pF	_____ pF
_____ k.	39.00KpF	+/-	0.02KpF	_____ KpF	_____ KpF	_____ KpF

CAP BASIC ACCURACY AT 2400Hz

5.3 Set the unit to a frequency of 2400Hz. Measure the following cap values and verify they are within the given limits as indicated on the standard.

PASS	CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING
_____ a.	10pF	+/-	0.05pF	_____ pF	_____ pF	_____ pF
_____ b.	180pF	+/-	0.10pF	_____ pF	_____ pF	_____ pF
_____ c.	220pF	+/-	0.2pF	_____ pF	_____ pF	_____ pF
_____ d.	500pF	+/-	0.3pF	_____ pF	_____ pF	_____ pF
_____ e.	900pF	+/-	0.5pF	_____ pF	_____ pF	_____ pF
_____ f.	1800pF	+/-	1.0pF	_____ pF	_____ pF	_____ pF
_____ g.	2200pF	+/-	2pF	_____ pF	_____ pF	_____ pF
_____ h.	5000pF	+/-	3pF	_____ pF	_____ pF	_____ pF
_____ i.	9000pF	+/-	5pF	_____ pF	_____ pF	_____ pF
_____ j.	18000pF	+/-	10pF	_____ pF	_____ pF	_____ pF
_____ k.	39.00KpF	+/-	0.02KpF	_____ KpF	_____ KpF	_____ KpF

CAP BASIC ACCURACY AT 9600Hz

5.4 Set the unit to a frequency of 9600Hz. Move the PTS-1 to the TANK UNITS TU jack and place the MEGGER SELECT SWITCH to TU. Measure the following cap values and verify they are within the given limits as indicated on the standard.

PASS	CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING
_____ a.	10pF	+/-	0.05pF	_____ pF	_____ pF	_____ pF
_____ b.	180pF	+/-	0.10pF	_____ pF	_____ pF	_____ pF
_____ c.	220pF	+/-	0.2pF	_____ pF	_____ pF	_____ pF
_____ d.	500pF	+/-	0.3pF	_____ pF	_____ pF	_____ pF
_____ e.	900pF	+/-	0.5pF	_____ pF	_____ pF	_____ pF
_____ f.	1800pF	+/-	1.0pF	_____ pF	_____ pF	_____ pF
_____ g.	2200pF	+/-	2pF	_____ pF	_____ pF	_____ pF
_____ h.	5000pF	+/-	3pF	_____ pF	_____ pF	_____ pF
_____ i.	9000pF	+/-	5pF	_____ pF	_____ pF	_____ pF
_____ j.	18000pF	+/-	10pF	_____ pF	_____ pF	_____ pF
_____ k.	39.00KpF	+/-	0.03KpF	_____ KpF	_____ KpF	_____ KpF

5.5 Connect the PTS-1 and PPS-1 to the PSD60 as follows. Connect the unit HI-Z to the PTS-1 HI-Z jack, the unit LO-Z to the PPS-1 LO-Z INPUT jack and the PPS-1 LO-Z OUTPUT jack to the LO-Z jack of the PTS-1.

PARALLEL CAPACITANCE ACCURACY WITH PHASE AT 1200Hz

5.6 Set the unit and the PPS-1 to a frequency of 1200Hz and place the CAPACITANCE MEASUREMENT MODE switch to MODE A. Set the PPS-1 to the 0° angle and record the unit reading in the calculated measurement column. Calculate the 15 and 30° calculated measurements by multiplying the 0° calculated measurement by the cosine of the phase angle. Verify the readings are within the given limits.

PASS	CAP VALUE	PHASE ANGLE	LIMITS	CALCULATED MEASUREMENT	MODE A READING
_____ a.	180pF	0°	--------	_____ pF	--------
_____ b.	180pF	15°	+/-0.17pF	_____ pF	_____ pF
_____ c.	180pF	30°	+/-0.17pF	_____ pF	_____ pF
_____ d.	500pF	0°	--------	_____ pF	--------
_____ e.	500pF	15°	+/-0.5pF	_____ pF	_____ pF
_____ f.	500pF	30°	+/-0.5pF	_____ pF	_____ pF
_____ g.	2200pF	0°	--------	_____ pF	---------
_____ h.	2200pF	15°	+/-2pF	_____ pF	_____ pF
_____ i.	2200pF	30°	+/-2pF	_____ pF	_____ pF

PARALLEL CAPACITANCE ACCURACY WITH PHASE AT 4800Hz

5.7 Set the unit and the PPS-1 to a frequency of 4800Hz. Set the PPS-1 to the 0° angle and record the unit reading in the calculated measurement column. Calculate the 15 and 30° calculated measurements by multiplying the 0° calculated measurement by the cosine of the phase angle. Verify the readings are within the given limits.

PASS	CAP VALUE	PHASE ANGLE	LIMITS	CALCULATED MEASUREMENT	MODE A READING
_____ a.	180pF	0°	--------	_____ pF	--------
_____ b.	180pF	15°	+/-0.17pF	_____ pF	_____ pF
_____ c.	180pF	30°	+/-0.17pF	_____ pF	_____ pF
_____ d.	500pF	0°	--------	_____ pF	--------
_____ e.	500pF	15°	+/-0.5pF	_____ pF	_____ pF
_____ f.	500pF	30°	+/-0.5pF	_____ pF	_____ pF
_____ g.	2200pF	0°	--------	_____ pF	---------
_____ h.	2200pF	15°	+/-2pF	_____ pF	_____ pF
_____ i.	2200pF	30°	+/-2pF	_____ pF	_____ pF

MAGNITUDE CAPACITANCE ACCURACY WITH PHASE AT 600Hz

5.8 Connect the PTS-1 and PPS-1 to the PSD60. Set the unit and the PPS-1 to a frequency of 600Hz and place the CAPACITANCE MEASUREMENT MODE switch to MODE B. Set the PPS-1 to the 0° angle and record the unit reading in the measured capacitance column. Set the PPS-1 to the given angles and verify the average readings are within the limits of the 0° measured value.

NOTE: Because of the low frequency the 180pF readings will bounce about +/-0.06pF, and the 500pF readings will have a bounce of +/-0.1pF.

PASS	CAP VALUE	PHASE ANGLE	LIMITS	MEASURED CAPACITANCE	MODE B READING
_____ a.	180pF	0°	--------	_____ pF	--------
_____ b.	180pF	15°	+/-0.2pF	----------	_____ pF
_____ c.	180pF	30°	+/-0.2pF	----------	_____ pF
_____ d.	180pF	45°	+/-0.2pF	----------	_____ pF
_____ e.	180pF	60°	+/-0.2pF	----------	_____ pF
_____ f.	180pF	75°	+/-0.2pF	----------	_____ pF
_____ g.	180pF	90°	+/-0.2pF	----------	_____ pF
_____ h.	500pF	0°	--------	_____ pF	--------
_____ i.	500pF	15°	+/-0.5pF	----------	_____ pF
_____ j.	500pF	30°	+/-0.5pF	----------	_____ pF
_____ k.	500pF	45°	+/-0.5pF	----------	_____ pF
_____ l.	500pF	60°	+/-0.5pF	----------	_____ pF
_____ m.	500pF	75°	+/-0.5pF	----------	_____ pF
_____ n.	500pF	90°	+/-0.5pF	----------	_____ pF
_____ o.	2200pF	0°	--------	_____ pF	--------
_____ p.	2200pF	15°	+/-2pF	----------	_____ pF
_____ q.	2200pF	30°	+/-2pF	----------	_____ pF
_____ r.	2200pF	45°	+/-2pF	----------	_____ pF
_____ s.	2200pF	60°	+/-2pF	----------	_____ pF
_____ t.	2200pF	75°	+/-2pF	----------	_____ pF
_____ u.	2200pF	90°	+/-2pF	----------	_____ pF
SEE NOTE BELOW					
_____ v.	18000pF	0°	--------	_____ pF	--------
_____ w.	18000pF	15°	+/-10pF	----------	_____ pF
_____ x.	18000pF	30°	+/-10pF	----------	_____ pF
_____ y.	18000pF	45°	+/-10pF	----------	_____ pF
_____ z.	18000pF	60°	+/-10pF	----------	_____ pF
_____ aa.	18000pF	75°	+/-10pF	----------	_____ pF
_____ ab.	18000pF	90°	+/-10pF	----------	_____ pF

Note: When applying capacitances greater than 2200 pF insure that the LO-Z output amplitude switch on the PPS-1 is in the 300mV position after the PSD60 is done ranging.

MAGNITUDE CAPACITANCE ACCURACY WITH PHASE AT 9600Hz

5.9 Connect the PTS-1 and PPS-1 to the PSD60. Set the unit and the PPS-1 to a frequency of 9600Hz and place the CAPACITANCE MEASUREMENT MODE switch to MODE B. Set the PPS-1 to the 0° angle and record the unit reading in the calculated measurement column. Set the PPS-1 to the given angles and verify the readings are within the limits of the 0° measured value.

PASS	CAP VALUE	PHASE ANGLE	LIMITS	MEASURED CAPACITANCE	MODE B READING
_____ a.	180pF	0°	--------	_____ pF	--------
_____ b.	180pF	15°	+/-0.10pF	----------	_____ pF
_____ c.	180pF	30°	+/-0.10pF	----------	_____ pF
_____ d.	180pF	45°	+/-0.10pF	----------	_____ pF
_____ e.	180pF	60°	+/-0.10pF	----------	_____ pF
_____ f.	180pF	75°	+/-0.10pF	----------	_____ pF
_____ g.	180pF	90°	+/-0.10pF	----------	_____ pF
_____ h.	500pF	0°	--------	_____ pF	--------
_____ i.	500pF	15°	+/-0.3pF	----------	_____ pF
_____ j.	500pF	30°	+/-0.3pF	----------	_____ pF
_____ k.	500pF	45°	+/-0.3pF	----------	_____ pF
_____ l.	500pF	60°	+/-0.3pF	----------	_____ pF
_____ m.	500pF	75°	+/-0.3pF	----------	_____ pF
_____ n.	500pF	90°	+/-0.3pF	----------	_____ pF
_____ o.	2200pF	0°	--------	_____ pF	--------
_____ p.	2200pF	15°	+/-2pF	----------	_____ pF
_____ q.	2200pF	30°	+/-2pF	----------	_____ pF
_____ r.	2200pF	45°	+/-2pF	----------	_____ pF
_____ s.	2200pF	60°	+/-2pF	----------	_____ pF
_____ t.	2200pF	75°	+/-2pF	----------	_____ pF
_____ u.	2200pF	90°	+/-2pF	----------	_____ pF
SEE NOTE BELOW					
_____ v.	18000pF	0°	--------	_____ pF	--------
_____ w.	18000pF	15°	+/-10pF	----------	_____ pF
_____ x.	18000pF	30°	+/-10pF	----------	_____ pF
_____ y.	18000pF	45°	+/-10pF	----------	_____ pF
_____ z.	18000pF	60°	+/-10pF	----------	_____ pF
_____ aa.	18000pF	75°	+/-10pF	----------	_____ pF
_____ ab.	18000pF	90°	+/-10pF	----------	_____ pF

Note: When applying capacitances greater than 2200 pF insure that the LO-Z output amplitude switch on the PPS-1 is in the 300mV position after the PSD60 is done ranging.

6.0 FINAL TESTS

____ 6.1 Insure all internal hardware is installed and secure.

____ 6.2 Perform Section B to calibrate the unit.

____ 6.3 Remove battery cable from MAIN board and power with an external power supply set for 24VDC. J12-3 is HI and J12-2 is LO. Turn unit on and allow to burn in for a minimum of 24HRS.

____ 6.4 After burn-in, verify unit is still operational and assemble unit back in case.

____ 6.5 Perform section A of this procedure to test accuracy of unit.

____ 6.6 Verify the operation of the kill switch by ensuring power to UUT is removed when the case lid is closed.

____ 6.7 Apply Cal Void label over Calibration Screw.

PSD60-2R TEST RECORD

☐ **AS FOUND**
☐ **AS LEFT**

PSD60-2R MOD 6 OR GREATER CALIBRATION DATA SHEET

S/N: _____ _____
Tested By: _____ _____
Date: _____ _____
Mod Status: _____ _____

1.0 INTRINSIC SAFETY TESTS

MAX LO-Z DRIVE TEST
1.2 Verify the ammeter indicates less than 10mA RMS. _____mA.

MAX MEGGER DRIVE TEST
1.3 Verify the ammeter indicates less than 8mADC. _____mA.

MAX OHMMETER DRIVE TEST
1.4 Verify the ammeter indicates 5 +/- 0.2mADC after the display is done ranging. _____mA.

HI-Z INPUT PROTECTION TEST
1.5 Verify the ammeter indicates less than 8mA DC. _____mA.

MEGGER INPUT PROTECTION TEST
1.6 Verify the ammeter indicates less than 8mA DC. _____mA.

2.0 AC CAPACITANCE ACCURACY TESTS

2.2 With no connections made to the TANK UNITS HI-Z jack, verify the unit displays 0.00 +/- 0.02pF. _____pF.
2.4 10kHz displayed capacitance. _____pF
2.5 300 Hz verify the unit displays the value recorded in step 2.4 +/-0.03pF. _____pf.
2.7 300Hz phase angle of 90°. Verify a displayed value of 0.00 +/-0.05pF. _____pf.
2.8 7500Hz phase angle of 90°, Verify a displayed value of 0.00 +/-0.05pF. _____pf.

2.9 600Hz MODE A and MODE B Capacitance accuracy table.

CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING	PASS
10pF	+/-	0.05pF	_____ pF	_____ pF	_____ pF	☐ a.
180pF	+/-	0.10pF	_____ pF	_____ pF	_____ pF	☐ b.
220pF	+/-	0.2pF	_____ pF	_____ pF	_____ pF	☐ c.
500pF	+/-	0.3pF	_____ pF	_____ pF	_____ pF	☐ d.
900pF	+/-	0.5pF	_____ pF	_____ pF	_____ pF	☐ e.
1800pF	+/-	1.0pF	_____ pF	_____ pF	_____ pF	☐ f.
2200pF	+/-	2pF	_____ pF	_____ pF	_____ pF	☐ g.
5000pF	+/-	3pF	_____ pF	_____ pF	_____ pF	☐ h.
9000pF	+/-	5pF	_____ pF	_____ pF	_____ pF	☐ i.
18000pF	+/-	10pF	_____ pF	_____ pF	_____ pF	☐ j.
39.00KpF	+/-	0.02KpF	_____ KpF	_____ KpF	_____ KpF	☐ k.

PSD60-2R TEST RECORD

2.10 7500Hz MODE A and MODE B Capacitance accuracy table.

CAP VALUE		LIMITS	STANDARD	MODE A READING	MODE B READING	PASS
10pF	+/-	0.05pF	_____ pF	_____ pF	_____ pF	☐ a.
180pF	+/-	0.10pF	_____ pF	_____ pF	_____ pF	☐ b.
220pF	+/-	0.2pF	_____ pF	_____ pF	_____ pF	☐ c.
500pF	+/-	0.3pF	_____ pF	_____ pF	_____ pF	☐ d.
900pF	+/-	0.5pF	_____ pF	_____ pF	_____ pF	☐ e.
1800pF	+/-	1.0pF	_____ pF	_____ pF	_____ pF	☐ f.
2200pF	+/-	2pF	_____ pF	_____ pF	_____ pF	☐ g.
5000pF	+/-	3pF	_____ pF	_____ pF	_____ pF	☐ h.
9000pF	+/-	5pF	_____ pF	_____ pF	_____ pF	☐ i.
18000pF	+/-	10pF	_____ pF	_____ pF	_____ pF	☐ j.
39.00KpF	+/-	0.02KpF	_____ KpF	_____ KpF	_____ KpF	☐ k.

3.0 PARALLEL PHASE ANGLE ACCURACY TESTS

3.4 PARALLEL CAPACITANCE ACCURACY WITH PHASE AT 7500Hz

CAP VALUE	PHASE ANGLE	LIMITS	CALCULATED MEASUREMENT	MODE A READING	PASS
180pF	0°	--------	_____ pF	--------	☐ a.
180pF	15°	+/-0.17pF	_____ pF	_____ pF	☐ b.
180pF	30°	+/-0.17pF	_____ pF	_____ pF	☐ c.
500pF	0°	--------	_____ pF	--------	☐ d.
500pF	15°	+/-0.5pF	_____ pF	_____ pF	☐ e.
500pF	30°	+/-0.5pF	_____ pF	_____ pF	☐ f.
2200pF	0°	--------	_____ pF	---------	☐ g.
2200pF	15°	+/-2pF	_____ pF	_____ pF	☐ h.
2200pF	30°	+/-2pF	_____ pF	_____ pF	☐ i.

3.5 MAGNITUDE CAPACITANCE ACCURACY WITH PHASE AT 4800Hz

CAP VALUE	PHASE ANGLE	LIMITS	MEASURED CAPACITANCE	MODE B READING	PASS
180pF	0°	--------	_____ pF	--------	☐ a.
180pF	15°	+/-0.10pF	--------	_____ pF	☐ a.
180pF	30°	+/-0.10pF	--------	_____ pF	☐ a.
180pF	45°	+/-0.10pF	--------	_____ pF	☐ a.
180pF	60°	+/-0.10pF	--------	_____ pF	☐ a.
180pF	75°	+/-0.10pF	--------	_____ pF	☐ a.
180pF	90°	+/-0.10pF	--------	_____ pF	☐ a.
500pF	0°	--------	_____ pF	--------	☐ a.
500pF	15°	+/-0.3pF	--------	_____ pF	☐ a.
500pF	30°	+/-0.3pF	--------	_____ pF	☐ a.
500pF	45°	+/-0.3pF	--------	_____ pF	☐ a.
500pF	60°	+/-0.3pF	--------	_____ pF	☐ a.
500pF	75°	+/-0.3pF	--------	_____ pF	☐ a.
500pF	90°	+/-0.3pF	--------	_____ pF	☐ a.
2200pF	0°	--------	_____ pF	--------	☐ a.
2200pF	15°	+/-2pF	--------	_____ pF	☐ a.

PSD60-2R TEST RECORD

3.5 cont CAP VALUE	PHASE ANGLE	LIMITS	MEASURED CAPACITANCE	MODE B READING	PASS
2200pF	30°	+/-2pF	--------	_____ pF	☐ a.
2200pF	45°	+/-2pF	--------	_____ pF	☐ a.
2200pF	60°	+/-2pF	--------	_____ pF	☐ a.
2200pF	75°	+/-2pF	--------	_____ pF	☐ a.
2200pF	90°	+/-2pF	--------	_____ pF	☐ a.
18000pF	0°	--------	_____ pF	--------	☐ a.
18000pF	15°	+/-10pF	--------	_____ pF	☐ a.
18000pF	30°	+/-10pF	--------	_____ pF	☐ a.
18000pF	45°	+/-10pF	--------	_____ pF	☐ a.
18000pF	60°	+/-10pF	--------	_____ pF	☐ a.
18000pF	75°	+/-10pF	--------	_____ pF	☐ a.
18000pF	90°	+/-10pF	--------	_____ pF	☐ a.

4.0 OHMMETER ACCURACY TESTS

4.4 OHMMETER ACCURACY CHART

RES VALUE		LIMITS	STANDARD	READING	PASS
18Ω/22Ω	+/-	0.22Ω	_____ Ω	_____ Ω	☐ a.
180Ω	+/-	1.80Ω	_____ Ω	_____ Ω	☐ a.
220Ω	+/-	2.2Ω	_____ Ω	_____ Ω	☐ a.
1800Ω	+/-	18.0Ω	_____ Ω	_____ Ω	☐ a.
2.2KΩ	+/-	0.022KΩ	_____ KΩ	_____ KΩ	☐ a.
18KΩ	+/-	0.180KΩ	_____ KΩ	_____ KΩ	☐ a.
22KΩ	+/-	0.22KΩ	_____ KΩ	_____ KΩ	☐ a.
100KΩ	+/-	1.00KΩ	_____ KΩ	_____ KΩ	☐ a.
180KΩ	+/-	1.80KΩ	_____ KΩ	_____ KΩ	☐ a.
220KΩ	+/-	2.2KΩ	_____ KΩ	_____ KΩ	☐ a.
1800KΩ	+/-	18.0KΩ	_____ KΩ	_____ KΩ	☐ a.
2.2MΩ	+/-	0.022MΩ	_____ MΩ	_____ MΩ	☐ a.
10MΩ	+/-	0.100MΩ	_____ MΩ	_____ MΩ	☐ a.
18MΩ	+/-	0.180MΩ	_____ MΩ	_____ MΩ	☐ a.
22MΩ	+/-	0.22MΩ	_____ MΩ	_____ MΩ	☐ a.
180MΩ	+/-	1.80MΩ	_____ MΩ	_____ MΩ	☐ a.
220MΩ	+/-	2.2MΩ	_____ MΩ	_____ MΩ	☐ a.
1800MΩ	+/-	18.0MΩ	_____ MΩ	_____ MΩ	☐ a.
2200MΩ	+/-	55MΩ	_____ MΩ	_____ MΩ	☐ a.
18000MΩ	+/-	450MΩ	_____ MΩ	_____ MΩ	☐ a.

This is a complete and accurate record of all tests.

_____