

## 1 General Description

The Processor Electronics Unit (PEU) is designed to be mounted as part of a general PEU assembly comprising the PEU (an aluminium housing containing a PSU and one or two processor PCBs), an inner moulding, an outer moulding and an optional outer moulding extension.

When used with 180 and 250 display units, the PEU assembly is designed to be mounted as an integral part of the display unit, see Chapter 3 and Figures 4.1 and 4.3.

When used with a 340 split-cabinet or a customer specified console, the PEU assembly is designed to be mounted on a separate support tray which is fitted in the main body of the split cabinet/console, see Chapter 3 and Figure 4.2.

### 1.1 Physical Arrangements

When used with 180 and 250 display units, the inner moulding contains an ON/OFF switch module, joystick/trackerball module and an optional memory card module. The optional outer moulding extension contains an dedicated keyboard. See Figure 4.3.

When used with a 340 split-cabinet or a customer specified console, the control modules usually associated with the inner moulding of the PEU assembly (ON/OFF switch module, joystick/trackerball module and an optional memory card module) are mounted on a separate panel in front of the display monitor. The control modules of the inner moulding are replaced with surface mount connectors which are linked via suitable cables to the remotely located control modules. See Figure 4.2.

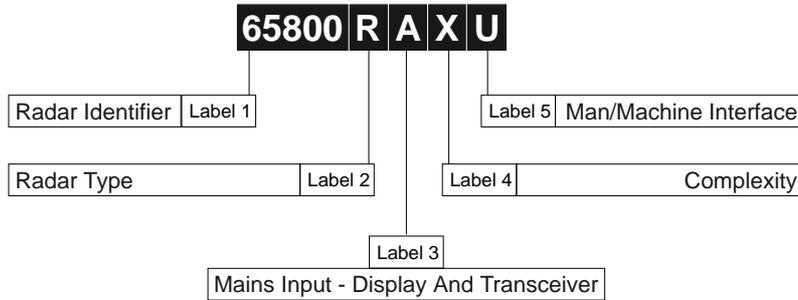
Refer to Chapter 5 for further details of individual control modules.

A number of connectors on the rear panel of the PEU provide for the input and output of the following services, see Figures 4.4. and 4.5:

- TSP - AC or DC Mains Input
- PLN - Remote pointer
- SKY - Interface Connections
- SKR - Monitor Power
- SKS - Monitor Video
- TSE - Serial I/P 1
- TSF - Serial I/P 2
- TSD - Serial O/P 1
- TSA - Transceiver I/O
- TSB - Interswitch Signals
- TSC - Compass Input

## 2 Unit Configurations

The type numbers for Processor Electronics Units are as follows:



Label 1      **BridgeMaster E Identifier** (fixed as **65800**)

Label 2      **Radar Type**

Label	Radar Type
<b>P</b>	Electronic Plotting Aid
<b>T</b>	Automatic Tracking Aid
<b>R</b>	Automatic Radar Plotting Aid

Label 3      **Mains Input** for the Display and Transceiver.

Label	Mains Input
<b>A</b>	110/240Vac, 50/60Hz Single Phase
<b>D</b>	24 - 32Vdc

Label 4      **Complexity**

Label	No of Cards*	RVAP	Compass Type
<b>N</b>	1	No	Standard
<b>R</b>	2	No	Standard
<b>T</b>	2	Yes	Standard
<b>V</b>	2	No	Special
<b>X</b>	2	Yes	Special

\*The number of cards relates to the number of Processor Cards in the Processor Electronics Unit. Two card systems consist of a common Display Processor card and a Radar Processor card.

Label 5 **Man/Machine Interface**

<b>Label</b>	<b>Pointer Type</b>	<b>Keyboard</b>	<b>Mounting/Fit*</b>	<b>Memory Card #</b>
<b>A</b>	Joystick	No	Desk	No
<b>B</b>	Trackerball	No	Desk	No
<b>C</b>	None	No	Desk	No
<b>J</b>	Joystick	No	Desk	Yes
<b>R</b>	Trackerball	No	Desk	Yes
<b>K</b>	Joystick	Yes	Desk	Yes
<b>L</b>	Trackerball	Yes	Desk	Yes
<b>S</b>	Joystick	No	Deck	Yes
<b>T</b>	Trackerball	No	Deck	Yes
<b>Y</b>	Joystick	Yes	Deck	Yes
<b>Z</b>	Trackerball	Yes	Deck	Yes
<b>U</b>	Joystick	No	Kit	Yes
<b>V</b>	Trackerball	No	Kit	Yes
<b>W</b>	Joystick	Yes	Kit	Yes
<b>X</b>	Trackerball	Yes	Kit	Yes

\***Deck** relates to the inclusion in pedestal mounted display unit.

**Kit** relates to a screened monitor module for fitting into a customer specified console.

**Desk** relates to inclusion in a desk mounted display unit.

\*Memory card units are always fitted to consoles, but are not required for all desk mounted displays

## **3 Installation and Commissioning**

### **3.1 Installation**

- Refer to Figures 4.1 and 4.2 for installation of this unit.

***Note** - Particular attention should be given to ensuring adequate connector clearance.*

### **3.2 Initialisation and Commissioning**

The Processor Electronics Unit is only part of a complete BridgeMaster E Series Radar, and cannot be operated independently. For details of complete system installations refer to the BridgeMaster E, Ship's Manual 65800010B.

After a complete system has been installed it must be Initialised and Commissioned as detailed in Chapter 4 of the BridgeMaster E, Ship's Manual.

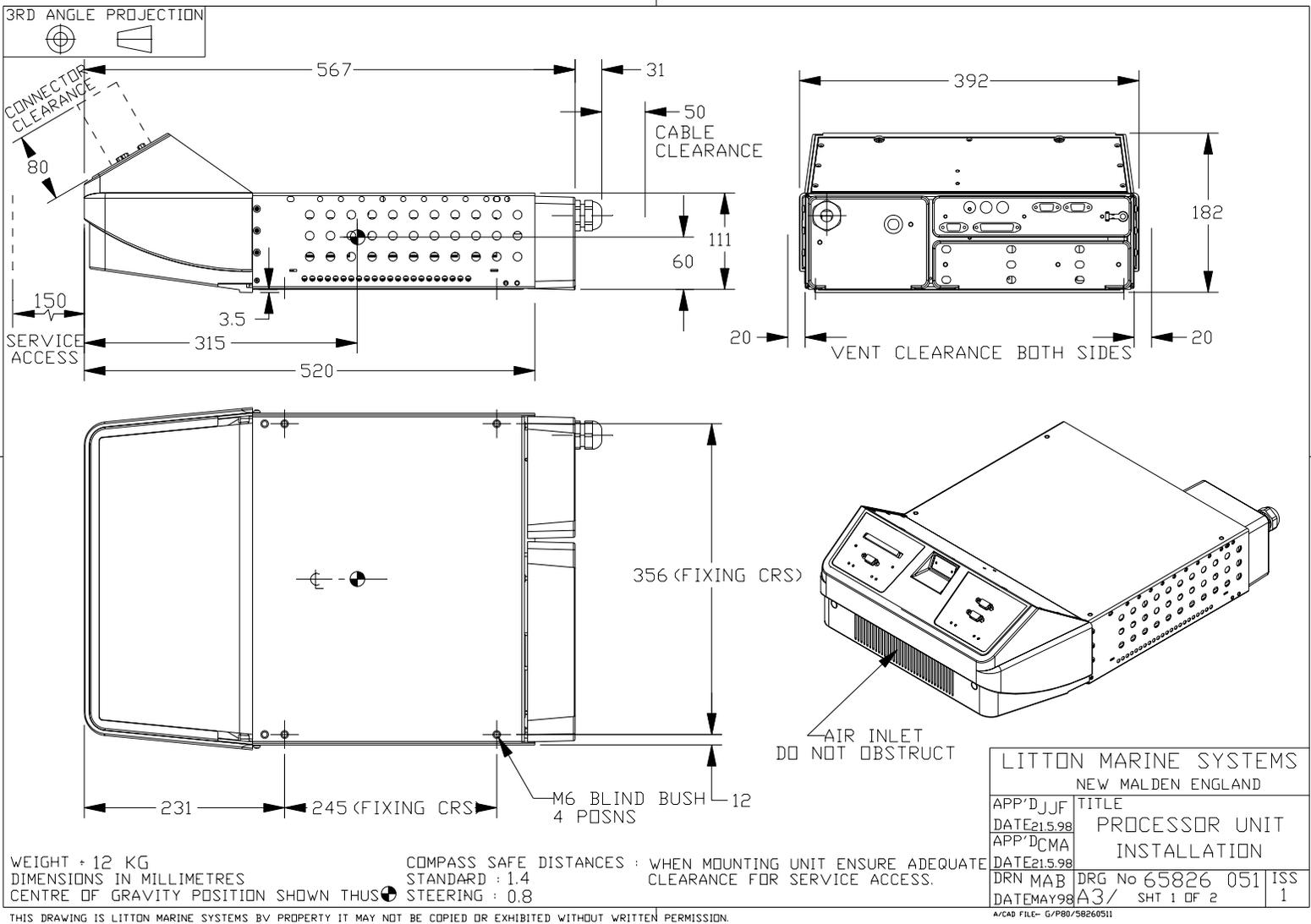


Figure 4.1 - Processor Unit Installation (Sheet 1 of 2)

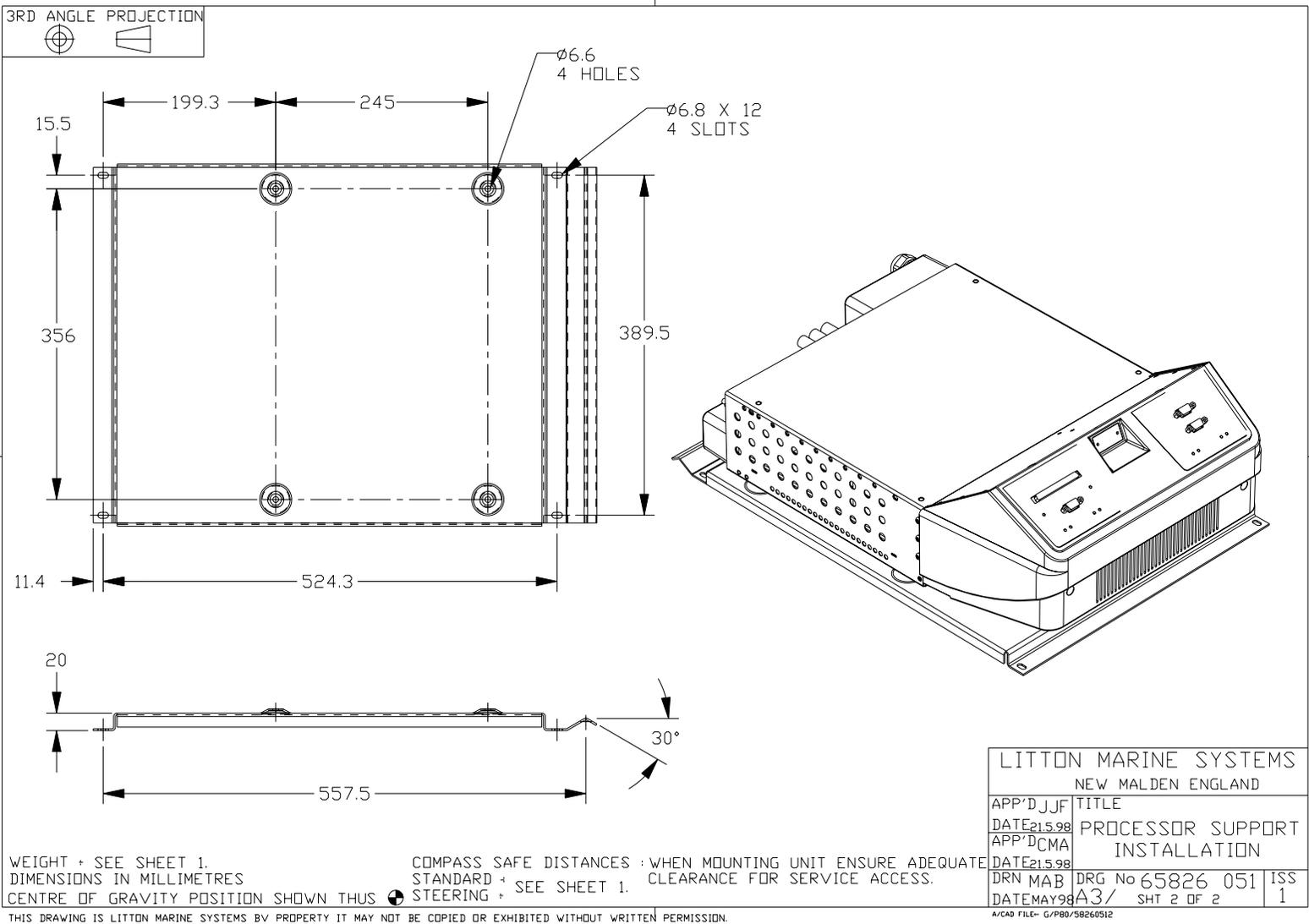


Figure 4.2 - Processor Unit Installation (Sheet 2 of 2)

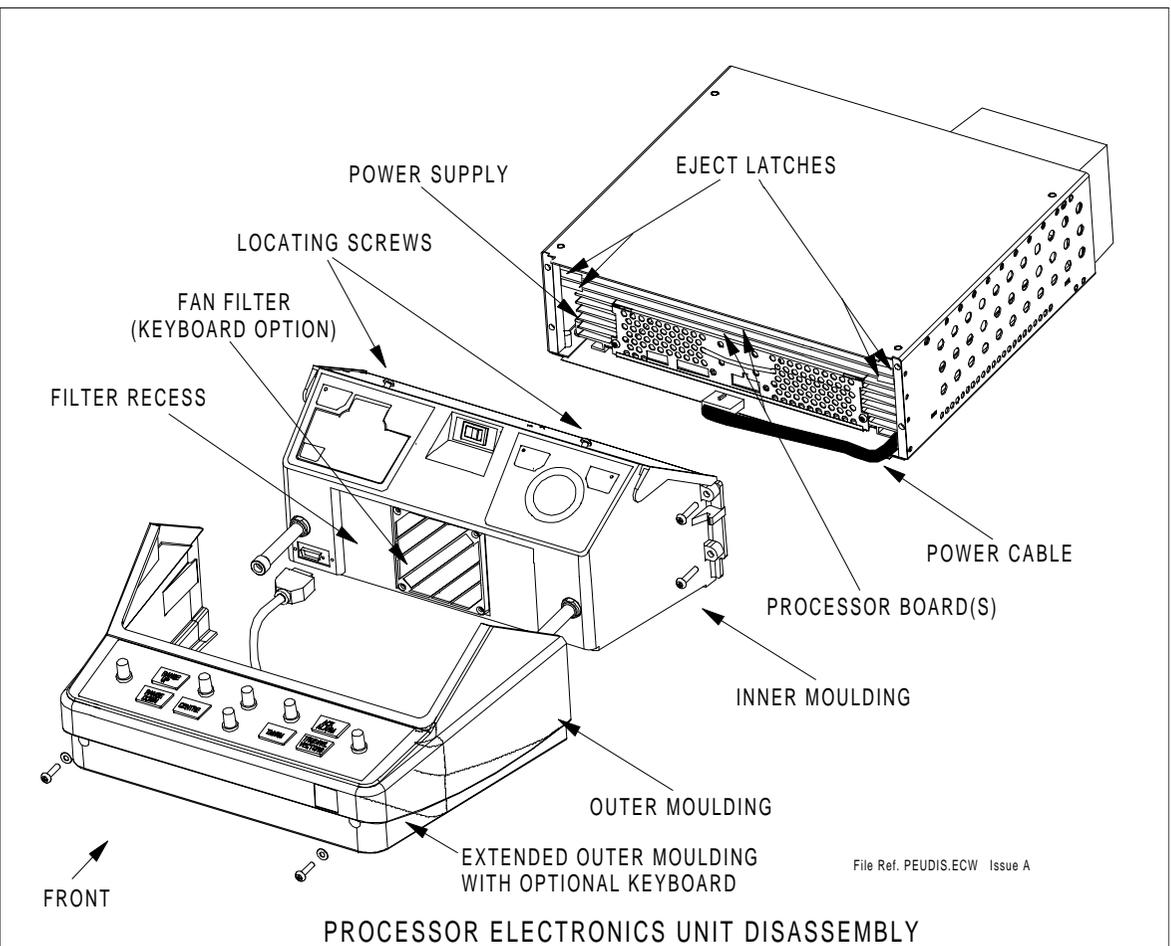


Figure 4.3 - Processor Electronics Unit - Disassembly

## 4 Technical Specification

### 4.1 Power Supplies

#### 4.1.1 Power Supply (AC)

Parameter	Detail	
Input voltage range	92 - 276V RMS	
Input voltage frequency range	47 to 64 Hz.	
Maximum Input power	Display Units (including Monitor, Processor Unit and Controls)	
	180 Display	230 VA
	250 Display	260 VA
	340 Display	280 VA
Transient protection	Overvoltage transient of up to 40 % above nominal input voltage with maximum duration of one second. Pulse transient of up to $\pm 1200$ V peak, with a rise time of 2 to 10 $\mu s$ and duration up to 20 $\mu s$ .	
Protection facilities	Output short circuit. High and low input voltage. Output overvoltage. Slow start.	
High voltage multiphase operation	Via a suitable transformer.	

#### 4.1.2 Power Supply (DC)

Parameter	Detail	
Input voltage range	22 to 32 V DC	
Maximum Input power	180 Display Unit	230W
	250 Display Unit	260W
	340 Display	280W
Transient Protection	Symmetrical (line-line) 500 V of duration 10 $\mu s$ (100 $\mu s$ rise/fall time). Line to ground 500 V of duration 60 $\mu s$ (1 $\mu s$ rise/fall time)	
Protection Facilities	Output short circuit. High and low input voltage. Slow start.	

## 4.2 Mechanical Specification

### 4.2.1 Weights and Dimensions

Component	Height (mm)	Depth (mm)	Width (mm)	Weight (kg)
Processor Electronics Unit	182	567	392	12

## 4.3 Compass Safe Distances

Component	Type No.	Standard	Steering
Processor Electronics Unit	65800	1.3 m	0.8 m
Brilliance Module	65826657	0.3 m	0.3 m
Memory Card Module	65826655	0.3 m	0.3 m
On-Off Switch Module	65826656	0.3 m	0.3 m
Joystick Module	65826658	0.3 m	0.3 m
Trackerball Module	65826654	0.3 m	0.3 m
Keyboard	65845050	0.5 m	0.3 m

## 4.4 Environmental Specification

To the requirements of the International Standard for Marine Navigational Equipment CEI/IEC 945 (1988) and Amendment 1 (1992).

## 5 Technical Description

The technical description of the Processor Electronics Unit is presented as a series of block diagrams which illustrate the basic functions as follows.

Basic 180, 250 and 340 Displays - Block Diagram given at Figure 4.4

Display Processor - Block Diagram given at Figure 4.5

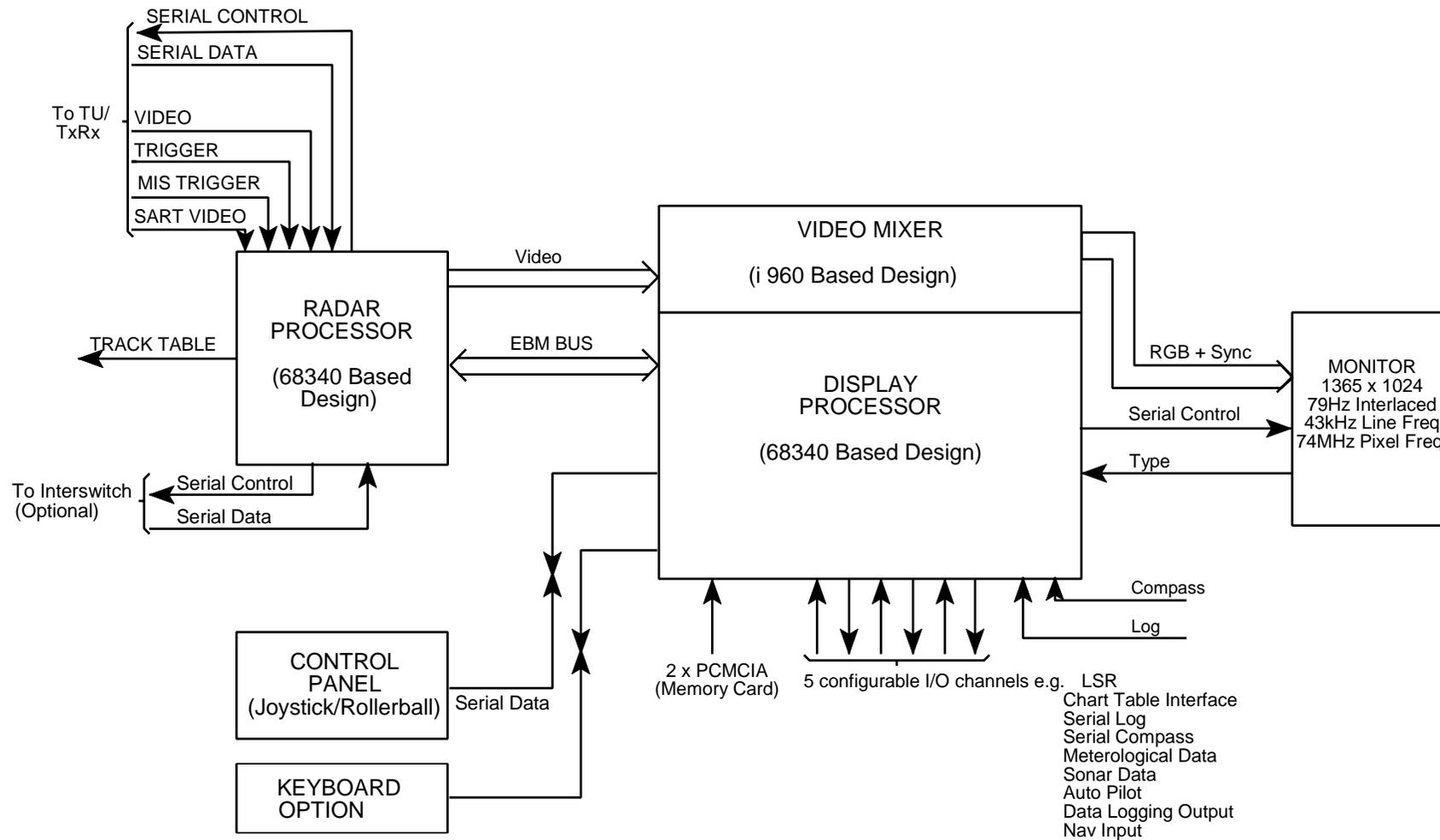
Radar Processor - Block Diagram given at Figure 4.6

The following circuit diagrams are also included.

Circuit Diagram 65800931 - Compass Board (Standard) given at Figure 4.7

Circuit Diagram 65800932 - Compass Board (Synchro) given at Figure 4.8

Circuit Diagram 65800918 - Input/Output (I/O) Board given at Figure 4.9



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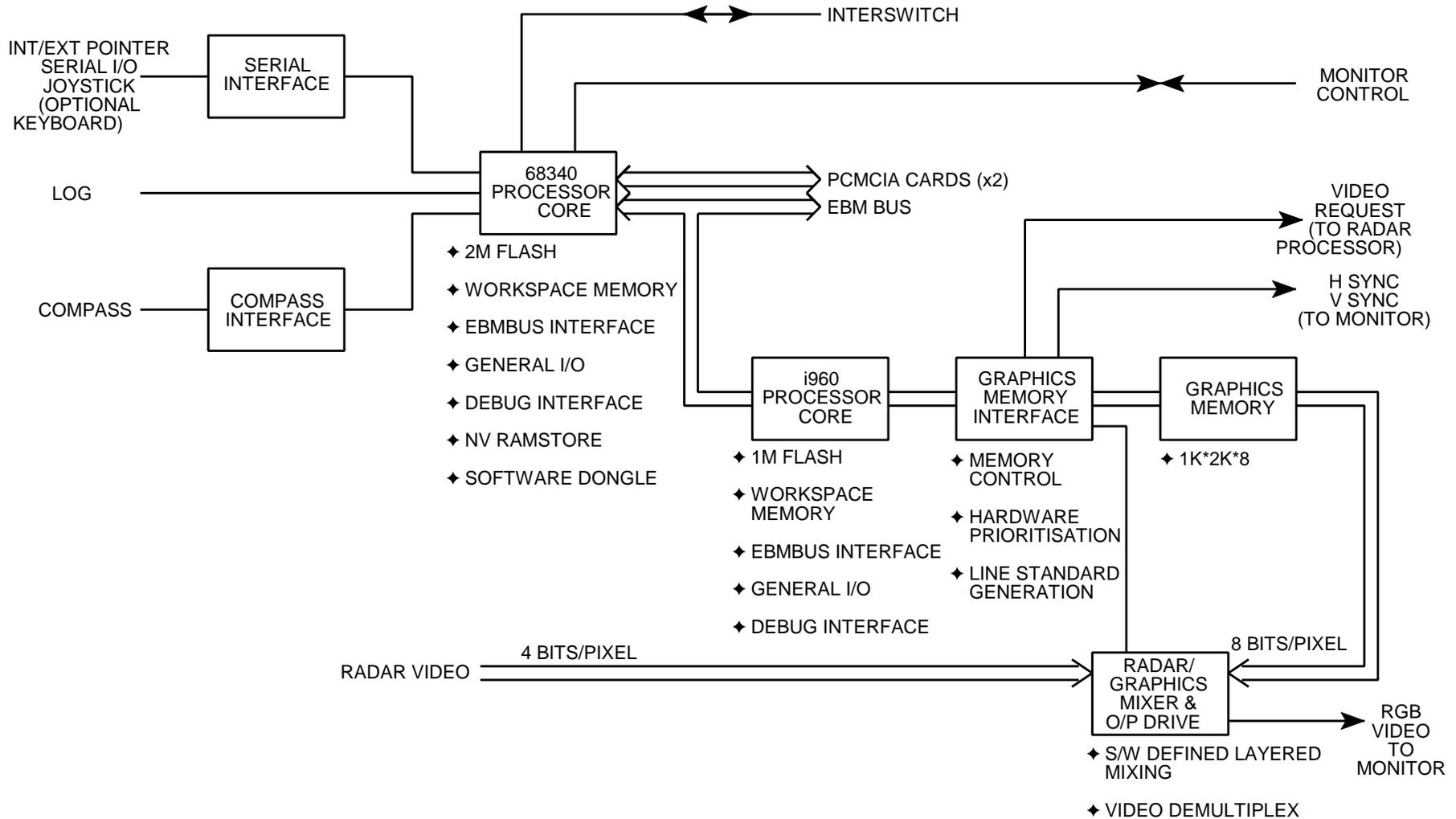
Figure 4.4 Basic 180, 250 and 340 Displays - Block Diagram

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## Processor Electronics Units

A3 page 4-1 1/12 Figure 4.4, discard this A4 sheet.



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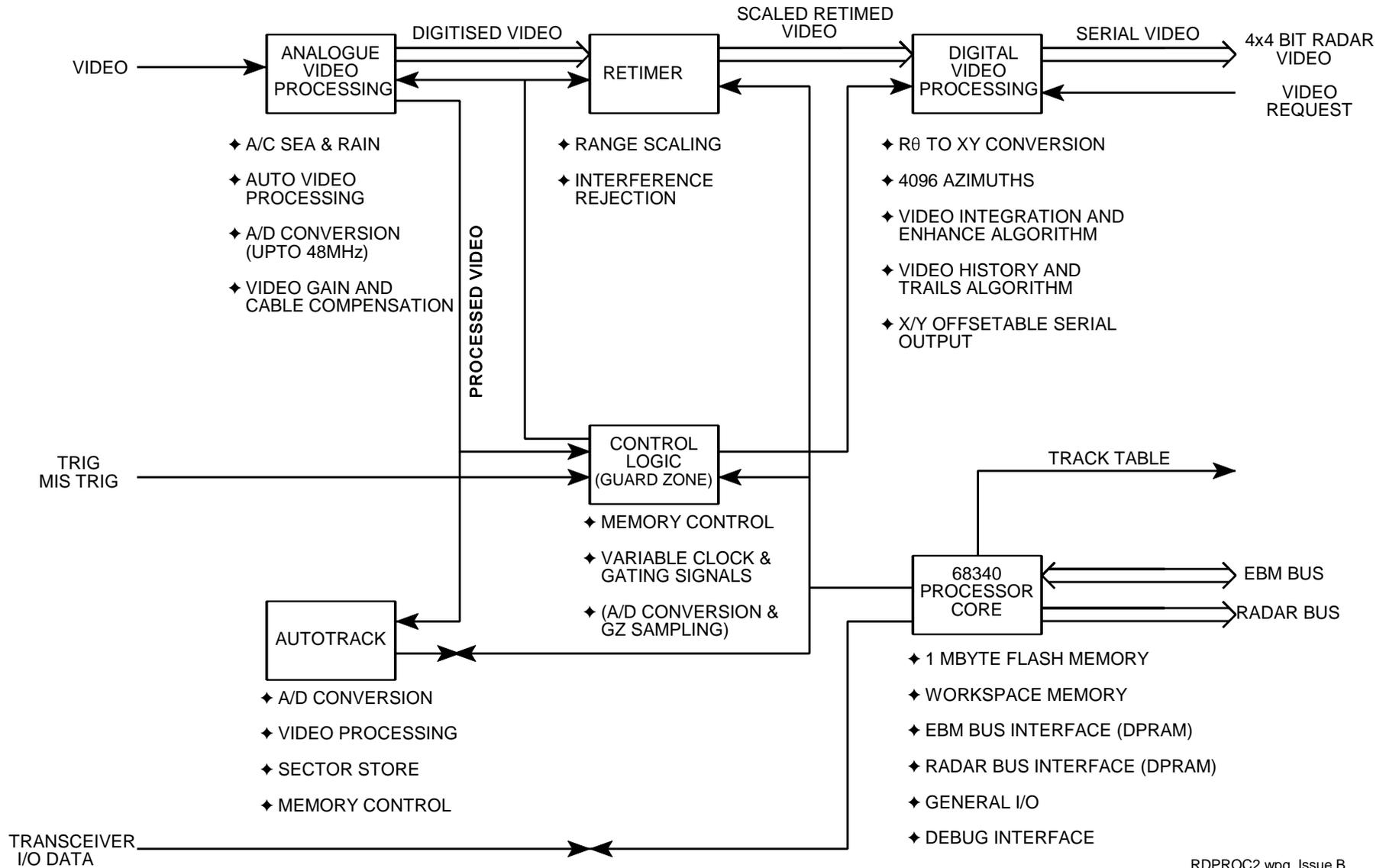
Figure 4.5 Display Processor - Block Diagram

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## Processor Electronics Units

A3 page 4-13/14 Figure 4.5, discard this A4 sheet.



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Figure 4.6 Radar Processor - Block Diagram

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## Processor Electronics Units

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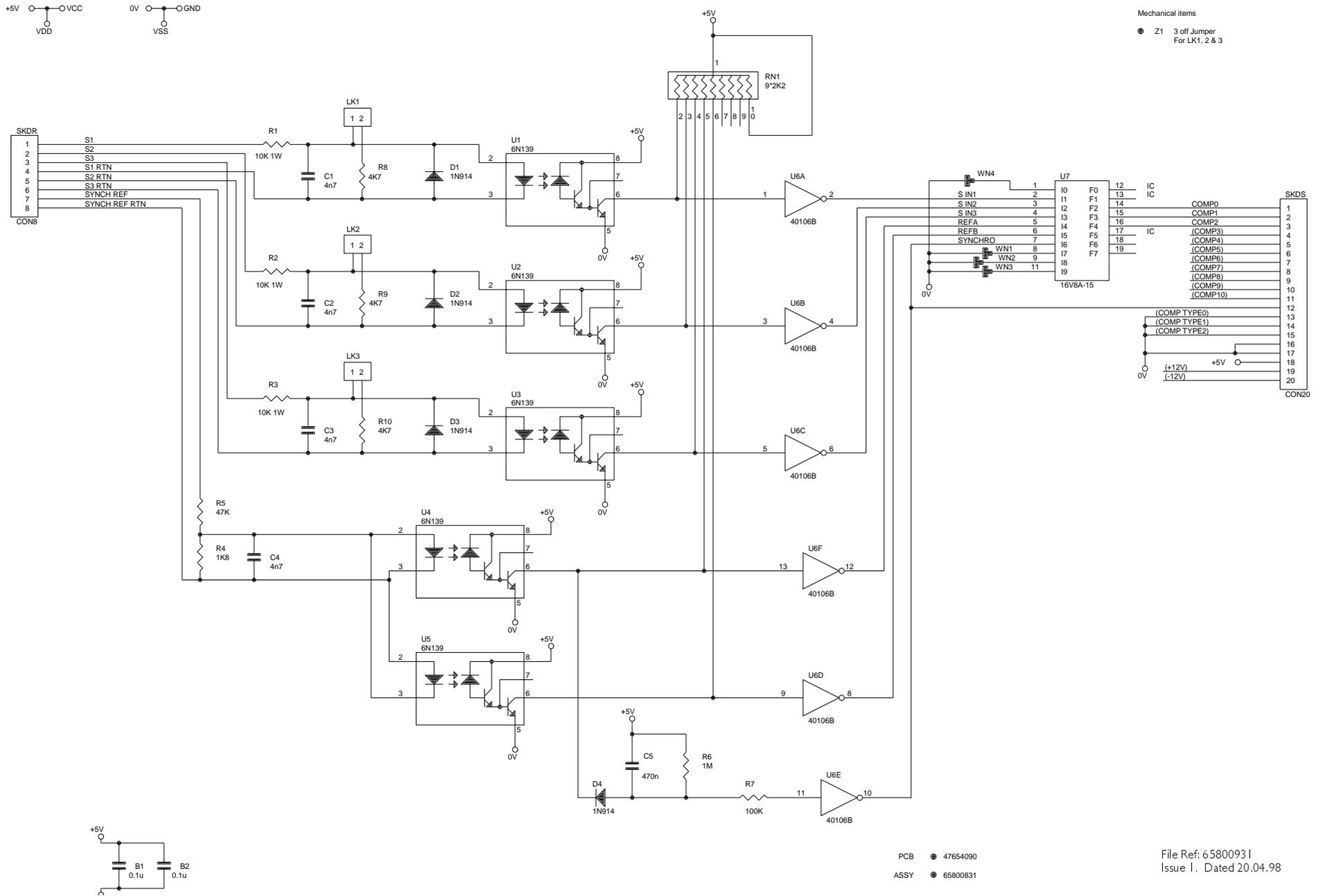


Figure 4.7 Circuit Diagram 65800931 - Compass Board (Standard)

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## Processor Electronics Units

A3 page 4-17/18 Figure 4.7, discard this A4 sheet.



VCC ○+5V GND ○0V

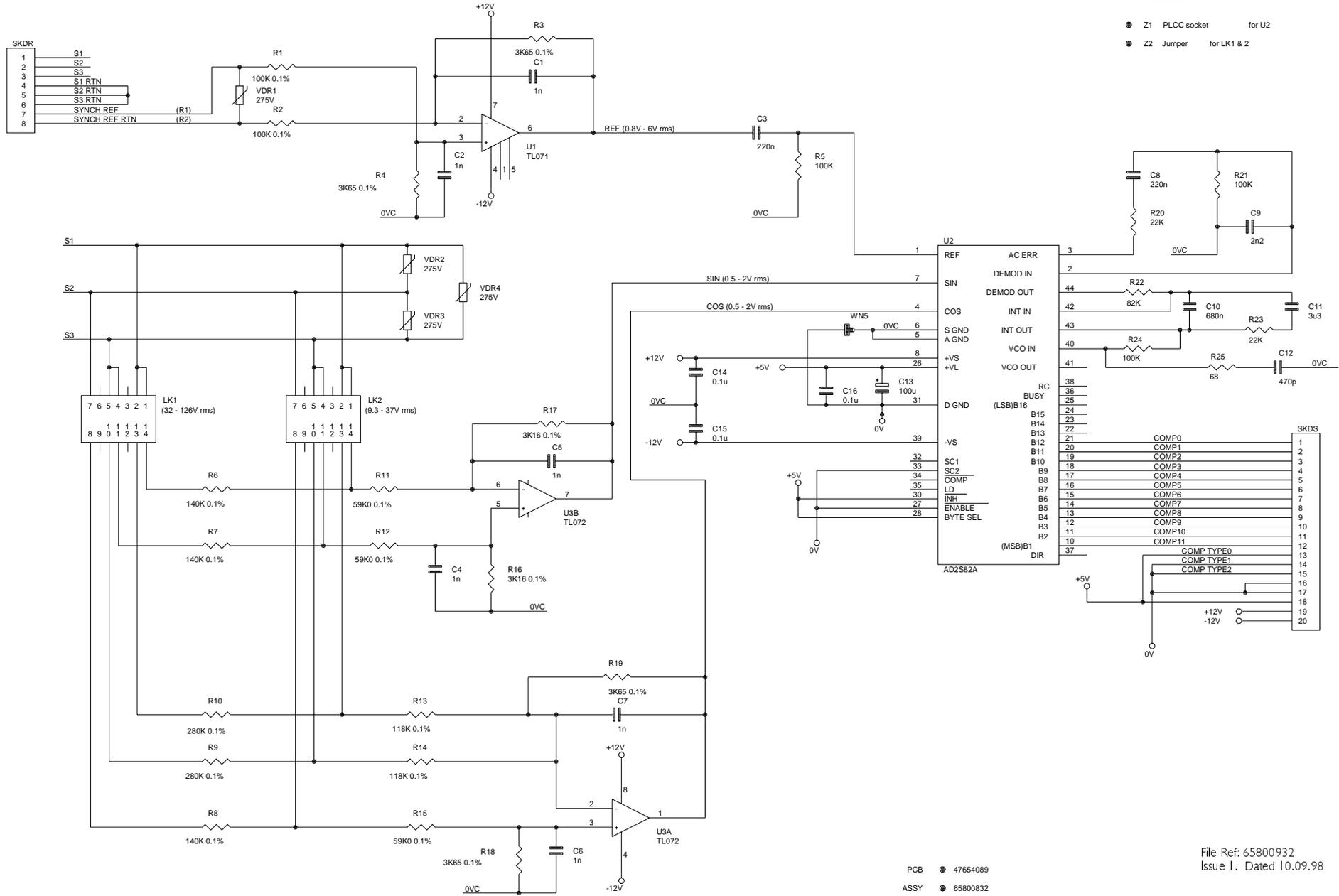


Figure 4.8 Circuit Diagram 65800932 - Compass Board (Synchro)

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## Processor Electronics Units

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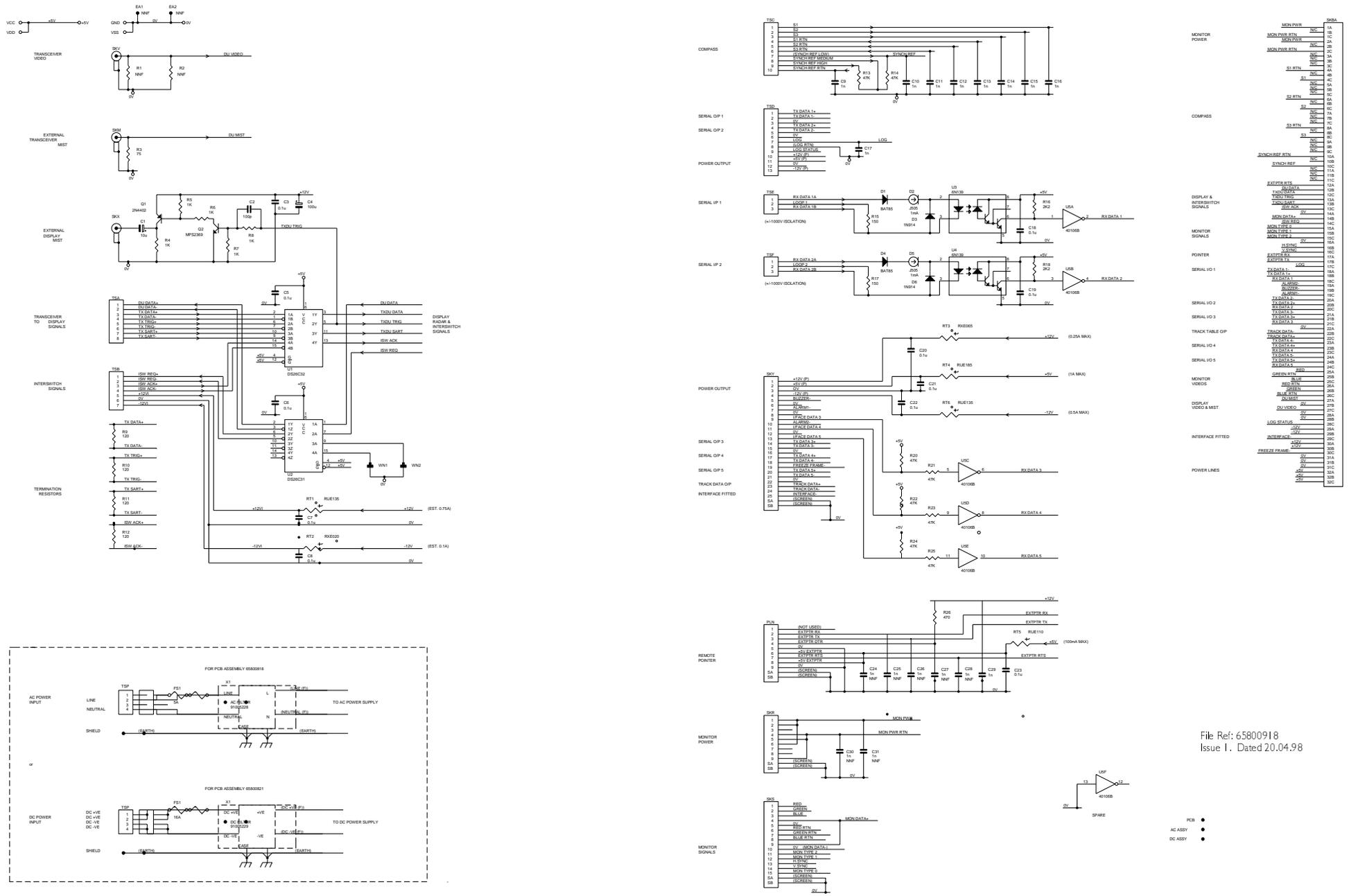


Figure 4.9 Circuit Diagram 65800918 - Input/Output (I/O) Board

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## Processor Electronics Units

A3 page 4-21/22 Figure 4.9, discard this A4 sheet.

## 6 Replacement Spares

Refer to Chapter 6 for a full list of replacement spares.

## 7 Wiring Diagrams

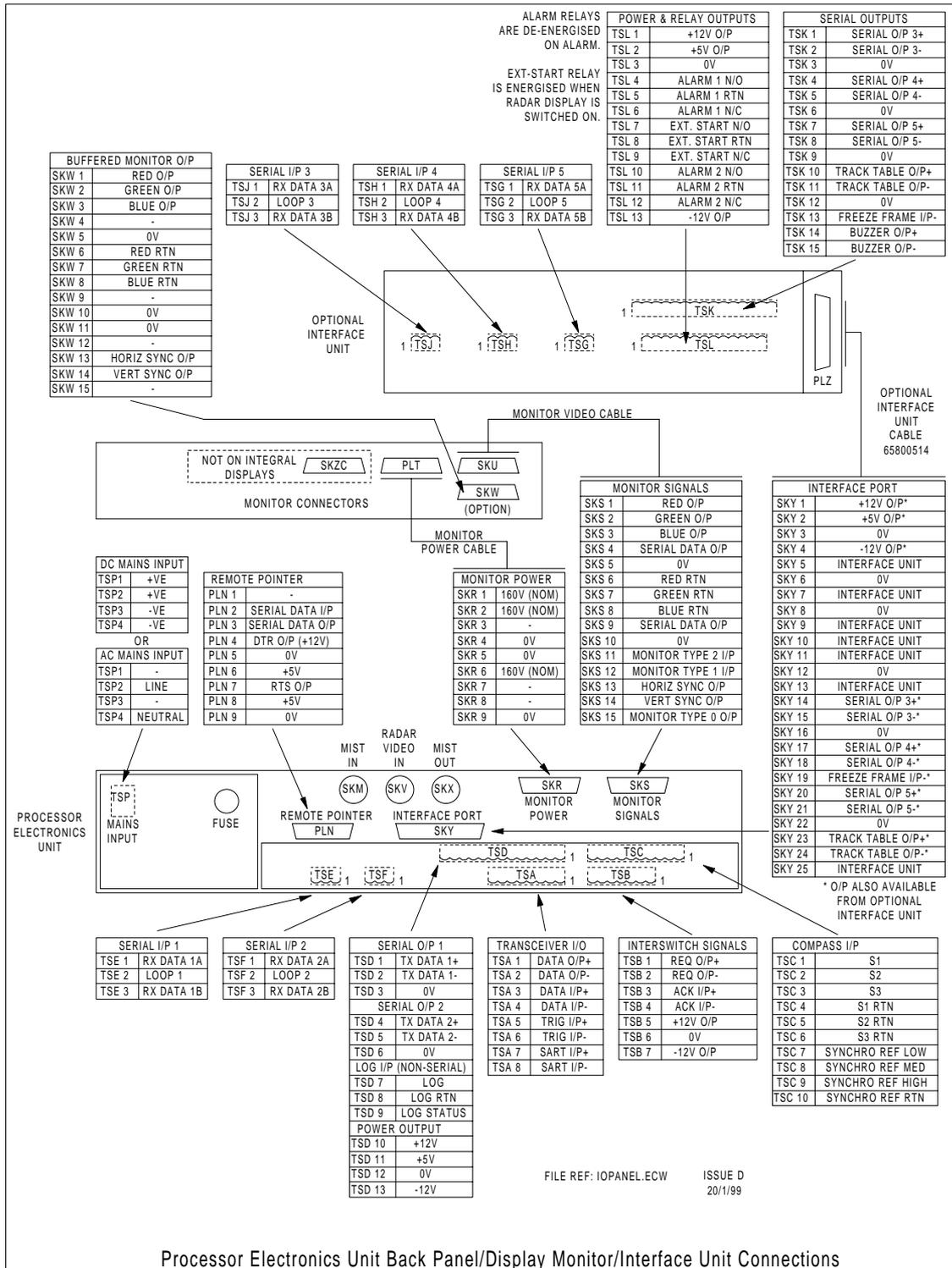
Refer to Ship's Manual 65800010B Chapter 3 for complete system installation diagrams.

The wiring diagrams Included in this section are as follows:

- Figure 4.4 Inter-unit Cabling:  
Processor Electronics Unit Rear Panel/Interface Unit Connections
- Figure 4.5 Interconnection Diagram - Processor Electronics Unit

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## Processor Electronics Units



Processor Electronics Unit Back Panel/Display Monitor/Interface Unit Connections

**Figure 4.10** - Inter-unit Cabling:  
 Processor Electronics Unit Rear Panel/Interface Unit Connections

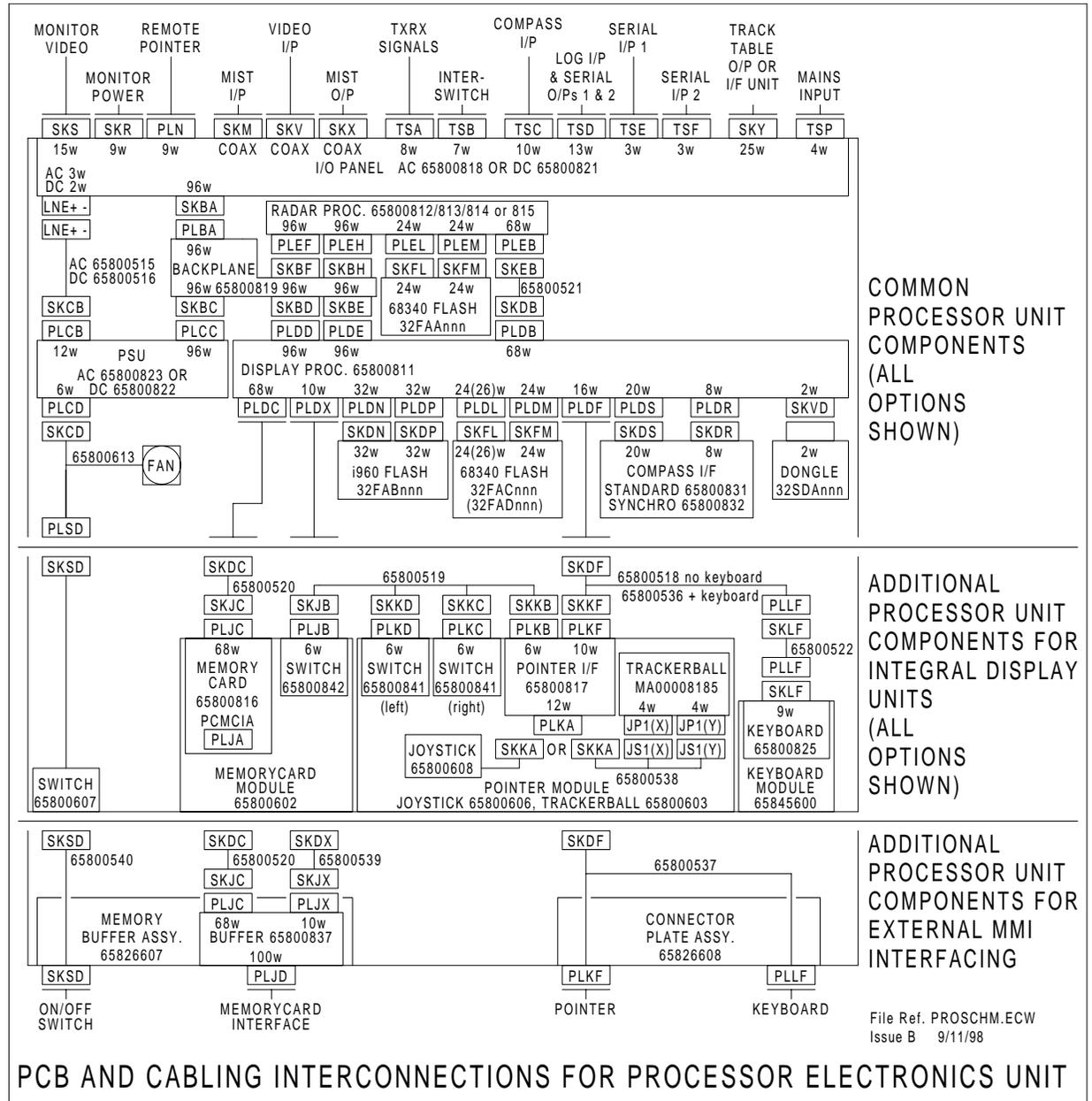


Figure 4.11 Interconnection Diagram - Processor Electronics Unit

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## Processor Electronics Units

A3 page 4-25/26 Figure 4.11, discard this A4 sheet.