OPW

FUEL MANAGEMENT SYSTEMS

PV3500®

Fuel Site Controller

Service Manual

OPW Fuel Management Systems -
System and Replacement Parts Warranty Statement
Effective September 1, 2002

System and Replacement Parts Warranty

OPW Fuel Management Systems warrants that all OPW Tank Gauge and Petro Vend Fuel Control systems supplied by OPW Fuel Management Systems to the Original Purchaser will be free from defects in material and/or workmanship under normal use and service for a period of 12 months from the date of installation or 15 months from the date of shipment. Additionally, OPW Fuel Management Systems warrants that all upgrades and replacement parts (new and remanufactured) supplied by OPW Fuel Management Systems will be free from defects in material and workmanship under normal use and service for a period of 90 days from the date of installation or for the remainder of the system's original warranty, whichever is greater, as set forth in the first sentence of this statement. The foregoing warranties will not extend to goods subjected to misuse, neglect, accident, or improper installation or maintenance or which have been altered or repaired by anyone other than OPW Fuel Management Systems or its authorized representative.

The buyer's acceptance of delivery of the goods constitutes acceptance of the foregoing warranties and remedies, and all conditions and limitations thereof.

If a claim is made within the warranted time period that any equipment and/or remanufactured part is defective in material or workmanship under normal use and service, such equipment and/or remanufactured part shall be returned to OPW Fuel Management Systems, freight prepaid. If such equipment or remanufactured part is found by OPW Fuel Management Systems in its sole judgment, to be defective in material or workmanship under normal use and service, OPW Fuel Management Systems, shall, at its sole option, repair or replace such equipment and/or remanufactured part (excluding, in all instances, fuses, ink cartridges, batteries, other consumable items, etc.)

The warranties, as set forth above, are made expressly in lieu of all other warranties, either expressed or implied, including, without limitation, warranties of merchantability and fitness for any particular purpose and of all other obligations or liabilities on OPW Fuel Management Systems part. Further, OPW Fuel Management Systems neither assumes, nor authorizes any other person to assume for it, any other liability in connection with the sale of the systems, or any new/replacement part that has been subject to any damage from any act of nature or any *force majeure*.

The term "Original Purchaser" as used in these warranties shall be deemed to mean the authorized OPW Fuel Management Systems distributor to which the system or any new/replacement part was originally sold. These warranties may be assigned by the original purchaser to any of its customers who purchase any OPW Fuel Management Systems systems or new/replacement parts.

The sole liability of OPW Fuel Management Systems, for any breach of warranty, shall be as set forth above. OPW Fuel Management Systems does not warrant against damage caused by accident, abuse, faulty or improper installation or operation. In no event shall manufacturer's liability on any claim for damages arising out of the manufacture, sale, delivery or use of the goods exceed the original purchase price of the goods. In no event shall OPW Fuel Management Systems be liable for any direct, indirect, incidental or consequential damage or loss of product.

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Overview

This manual explains field-replaceable components of the PV3500 unit. It does not cover peripherals such as printers, scanners, keyboards or monitors.

Unless noted, only PV-trained individuals should attempt to replace the assemblies described in this book.

This book does not describe "board-level" repairs on the sub-systems. The suspect board or sub-assembly must be returned to Petro Vend for repair. Attempted repair of these assemblies by unauthorized persons may result in termination of warranty coverage.

Main mother board

The main processing board in the PV3500 (Figure 1) contains the main central processing unit (CPU), SIMM sockets containing the system RAM, a battery for preserving system settings when the unit is unplugged, and a variety of connectors to attach the other PV3500 subsystems.

KEYBOARD
CONNECTOR

POWER
CONNECTOR

SIM SOCKETS
FOR MEMORY

LITHIUM
BATTERY

MAIN CPU

Figure 1 - Mother Board

ISA BUS
CONNECTORS

LOCAL BUS
CONNECTORS
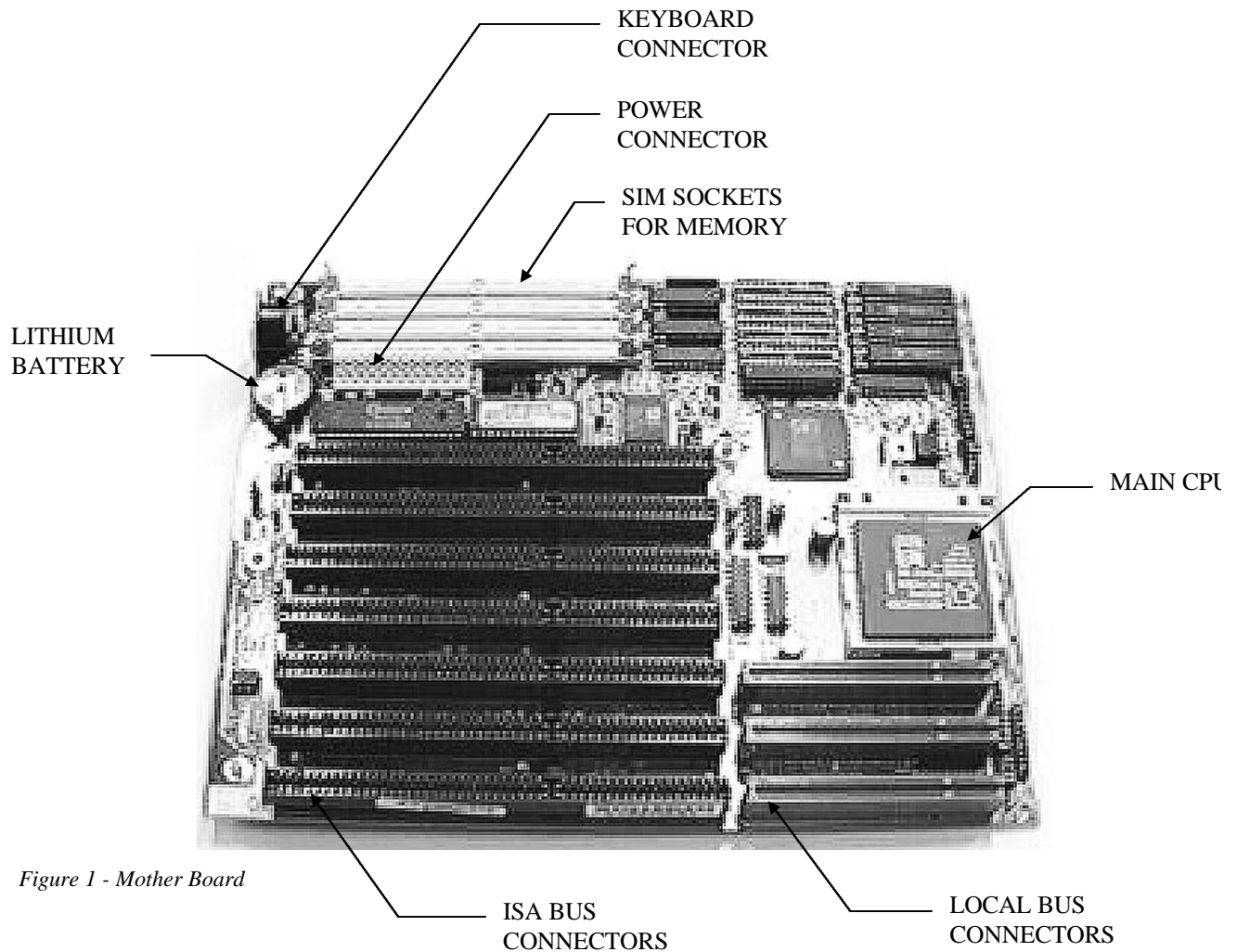
Mother Board information.

Uninterruptable Power Supply (UPS)

Power backup in your PV3500 comes from the UPS sub-system. The uninterruptable power supply consists of three elements: The UPS Controller Board, the UPS Battery Assembly and the UPS Keyboard/Display Assembly.

UPS Controller Board (20-0356)
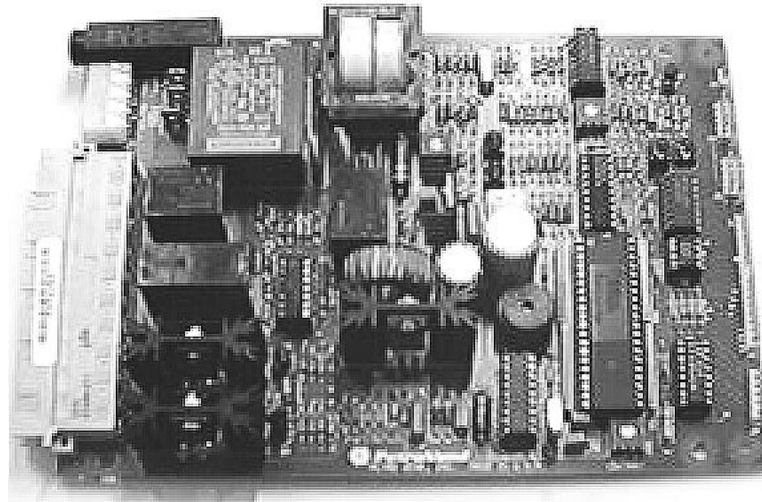
Figure 2 - UPS Controller Board

To Battery (-)
(black wire)

Battery cable
20-1524

To Battery
(+)

To QC1 on 20-0355
(red wire)

To QC4 on 20-0355
(black wire)
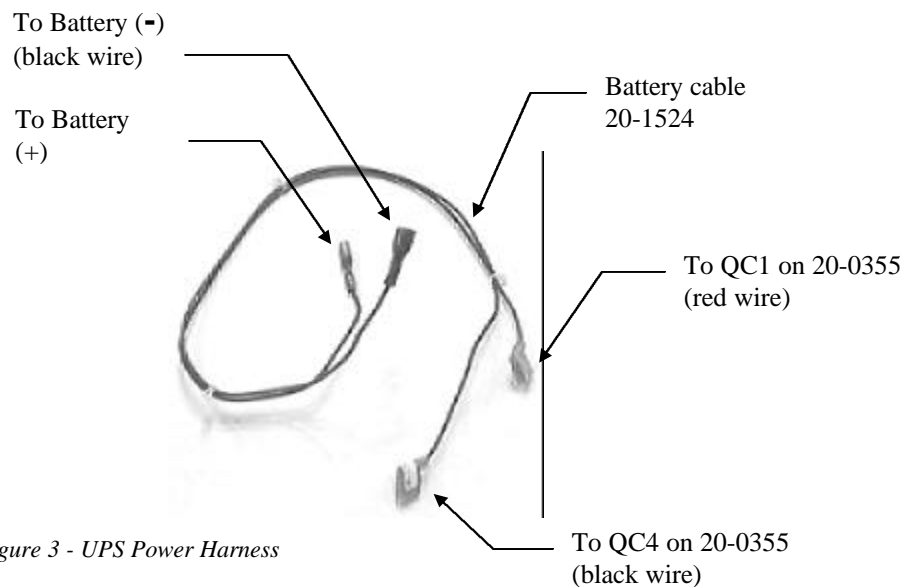
Figure 3 - UPS Power Harness

UPS Battery Assembly (20-4214)

Lead Acid
Battery 48-0200

Batterry (+)

Battery (-)
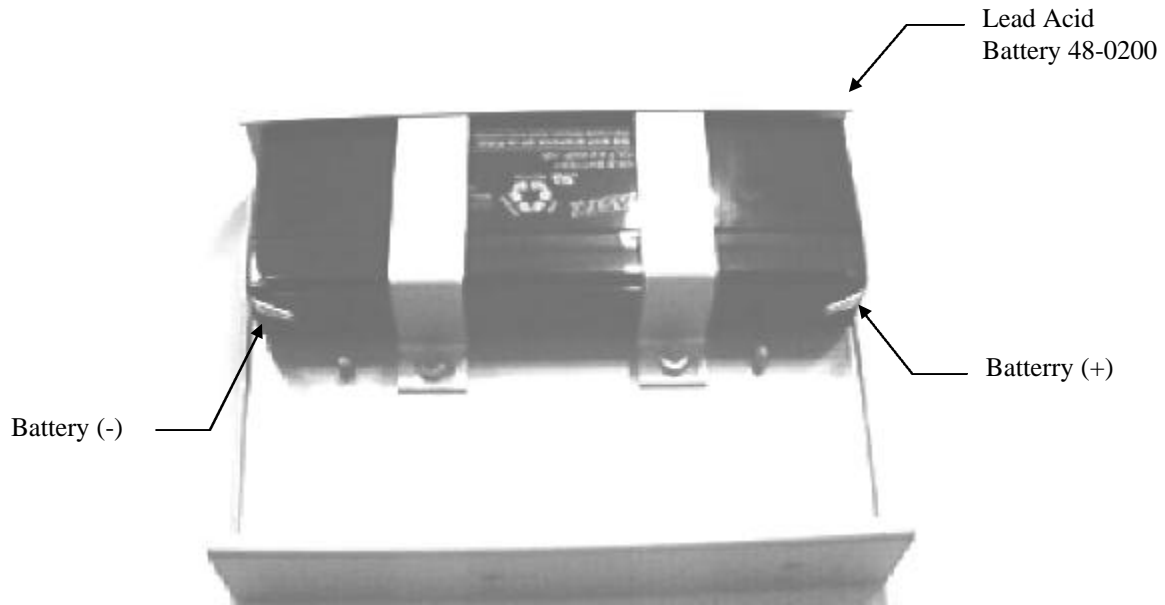
UPS Keypad/Display assemblies

Connects to J4
on the 20-0355
board

Connects to J6
on the 20-0355
board
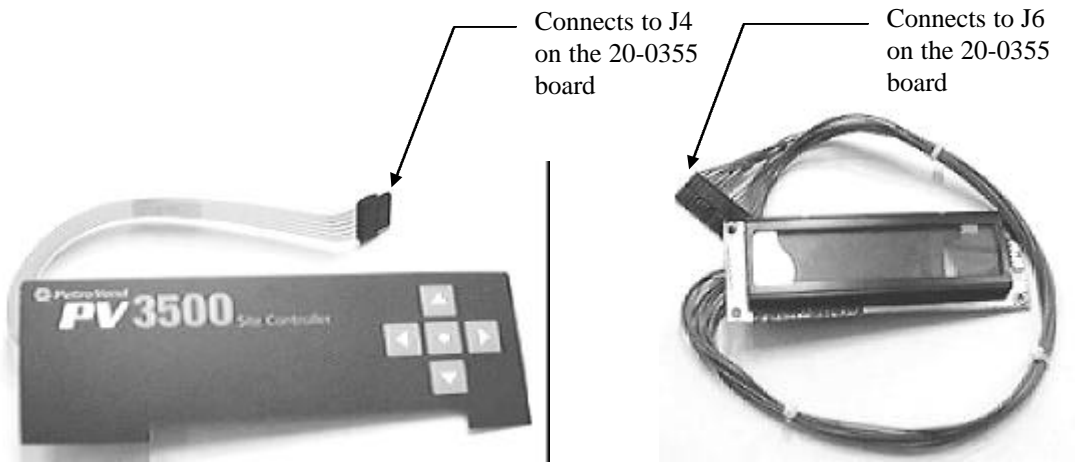
ISA "Daughter" Cards

Installation, All Types

1. Turn off the system power.

2. Wait untill the UPS powers down.

3. Disconnect the system unit from the power source.

4. Turn off and disconnect the any peripherals (monitor printer etc).

5. Remove the system cover.

6. Remove the bracket or knockout from an empty ISA slot (keep the bracket for future use).

7. Align the card with the card guide and gently insert the card into the slot. Be sure that the card is firmly seated in the slot.

8. Secure the card with the screw that was removed earlier.

9. Replace system cover.

10. Connect the system and any peripherals that were previously dis-connected.

11. Power up the system and peripherals.

Modem / Serial Card (20-0356)
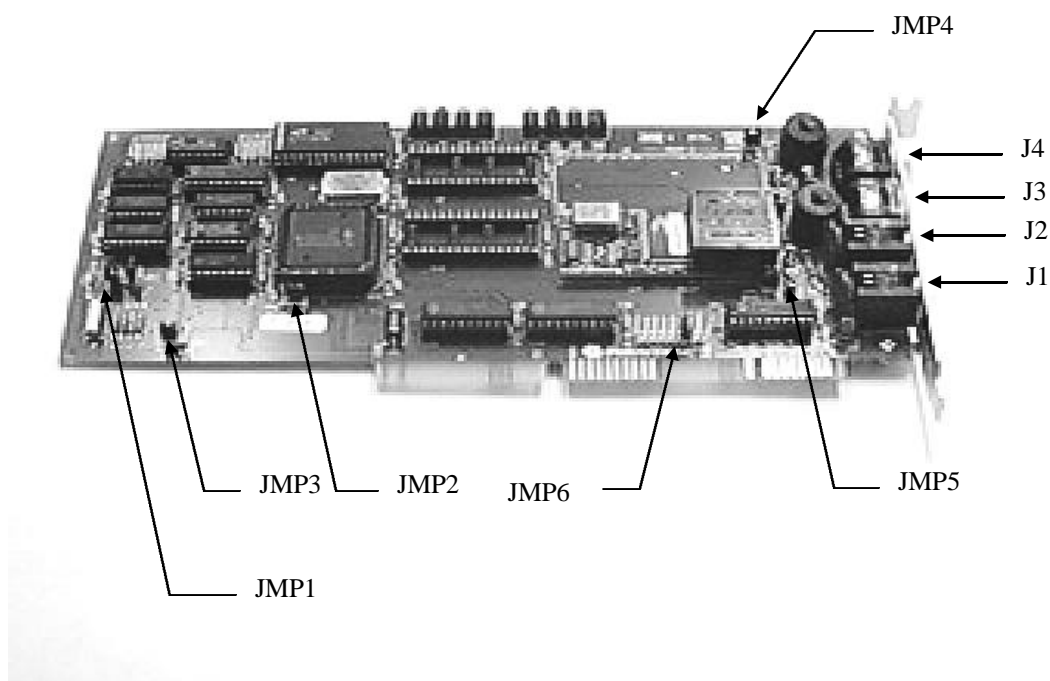
Description

- The 20-0356 is a versatile multi-channel communications board providing enhanced connectivity utilizing RS232 serial ports and in built modem modules.

- Each port on the modem/serial card uses a block of four consecutive 8 bit I/O addresses. The base I/O address is the first address of the first port on the board.

- All ports on the board share one IRQ and there is a IRQ poll register located at address base + 7.

- Each port has a 16550 uart with FIFO buffering.

- The first board (20-0356) is standard. A second board (20-0356) can be installed as an option (please ensure the jumpers are set correctly).

Card 1 Jumper Settings

JMP1	A8	CLOSED
	A7	OPEN
	A6	OPEN
	A5	CLOSED
JMP2	1 & 2	CLOSED
JMP3	2 & 3	CLOSED
JMP4	SPEAKER	CLOSED
JMP5	SPEAKER	CLOSED
JMP6	IRQ11	CLOSED

Card 1 Port Addresses

Port	Connector	Type	Address	IRQ #	COM #
J1	RJ11	MODEM	2C0 - 2C6	IRQ11	COM5
J2	RJ11	MODEM	2C8 - 2CE	IRQ11	COM6
J3	RJ45	RS232	2D0 - 2D6	IRQ11	COM7
J4	RJ45	RS232	2D8 - 2DE	IRQ11	COM8
Poll address			2C7		

Card 2 Jumper Settings

JMP1	A8	CLOSED
	A7	CLOSED
	A6	CLOSED
	A5	OPEN
JMP2	1 & 2	CLOSED
JMP3	2 & 3	CLOSED
JMP4	SPEAKER	CLOSED
JMP5	SPEAKER	CLOSED
JMP6	IRQ12	CLOSED

Card 2 Port addresses

Port	Connector	Type	Address	IRQ #	COM #
J1	RJ11	MODEM	240 - 246	IRQ12	COM9
J2	RJ11	MODEM	248 - 24E	IRQ12	COM10
J3	RJ45	RS232	250 - 256	IRQ12	COM11
J4	RJ45	RS232	258 - 25E	IRQ12	COM12
Poll address			247		

Connector Pinouts

Port	Connector	Type	Pin #	Direction	Designator
J1 & J2	RJ11	Telephone line	1		-
			2		TIP
			3		RING
			4		-
J3 & J4	RJ45	RS232	1	OUTPUT	RTS
			2	OUTPUT	DTR
			3	GROUND	GND
			4	OUTPUT	TX
			5	INPUT	RX
			6	INPUT	DCD
			7	-	-
			8	INPUT	CTS

Four-Port Serial Card (20-0352)

J5

J4

J3

J2

J

JMP1   JMP2   JMP3
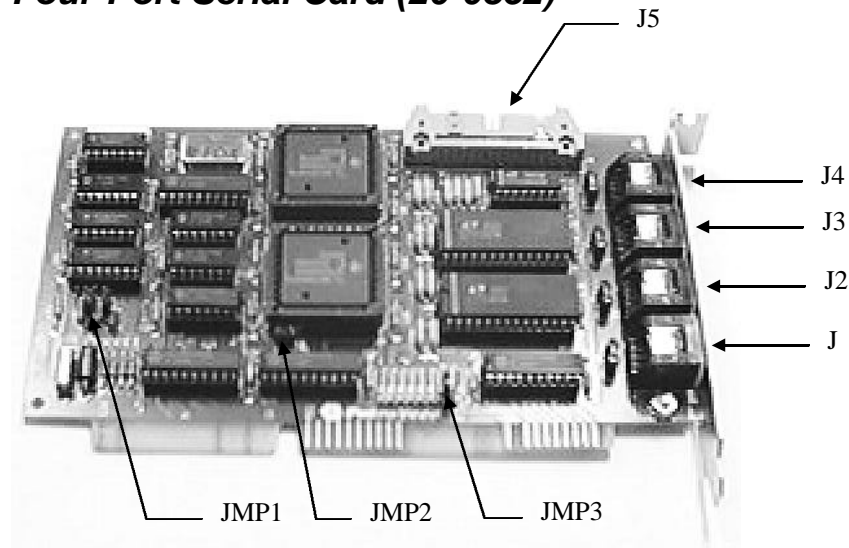
Overview

- The 20-0352 is a versatile multi-channel communications board providing enhanced connectivity utilizing RS232 serial ports.

- Each board has the following features

    - 4 RJ45 / RS232 serial ports

    - I/O address selectable

    - IRQ Selectable

- Each port on the serial card uses a block of 4 consecutive 8 bit I/O addresses (8 consecutive addresses used when a 4 port expansion card is installed). The base I/O address is the first address of the first port on the board.

- All ports on the board share one IRQ and there is a IRQ poll register located at address base + 7.

- Each port has a 16550 uart with FIFO buffering.

- Can be expanded to 8 ports using the 4 port expansion card (20-0351).

- There is a 26 pin ribbon connector (J5) which is used to connect to the 4 port serial expansion card (20-0351) connector (J5).

Jumper Settings

JMP1	A9	OPEN
	A8	CLOSED
	A7	OPEN
	A6	CLOSED
JMP2	2 & 3	CLOSED
JMP3	IRQ10	CLOSED

Port Addresses

Port	Connector	Type	Address	IRQ#	Com #
J1	RJ45	RS232	280 - 286	IRQ11	COM1
J2	RJ45	RS232	288 - 28E	IRQ11	COM1
J3	RJ45	RS232	290 - 296	IRQ11	COM1
J4	RJ45	RS232	298 - 2DE	IRQ11	COM1
Poll address			287		

Connector Pinouts

Port	Connector	Type	Pin #	Direction	Designator
J1 - J4	RJ45	RS232	1	OUTPUT	RTS
			2	OUTPUT	DTR
			3	GROUND	GND
			4	OUTPUT	TX
			5	INPUT	RX
			6	INPUT	DCD
			7	-	-
			8	INPUT	CTS

Four-Port Serial Expansion Card (20-0351)

Overview

- Used as a supporting board to allow 8 RS232 ports when used in conjunction with the 4 port serial card (20-0352).

- Same RJ45 pin outs as the 4 port serial car (20-0352).

- There is a 26 pin ribbon connector (J5) which is used to connect to the 4 port serial card (20-0352) connector (J5) using the 20-1417 cable.
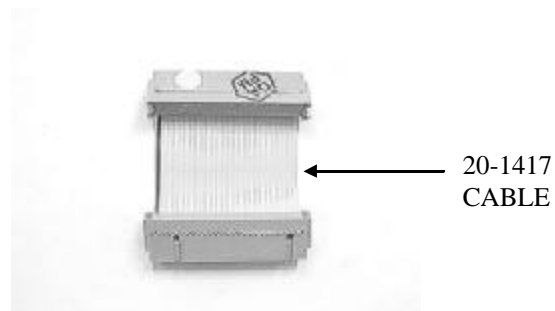

Port Addresses

Port	Connector	Type	Address	IRQ #	COM #
J1	RJ45	RS232	2A0 - 2A6	IRQ11	COM1
J2	RJ45	RS232	2A8 - 2AE	IRQ11	COM1
J3	RJ45	RS232	2B0 - 2B6	IRQ11	COM1
J4	RJ45	RS232	2B8 - 2BE	IRQ11	COM2

Connector Pinouts

Port	Connector	Type	Pin #	Direction	Designator
J1 - J4	RJ45	RS232	1	OUTPUT	RTS
			2	OUTPUT	DTR
			3	GROUND	GND
			4	OUTPUT	TX
			5	INPUT	RX
			6	INPUT	DCD
			7	-	-
			8	INPUT	CTS

IDE /Floppy/Two-Serial /One-Parallel Card (75-2014)
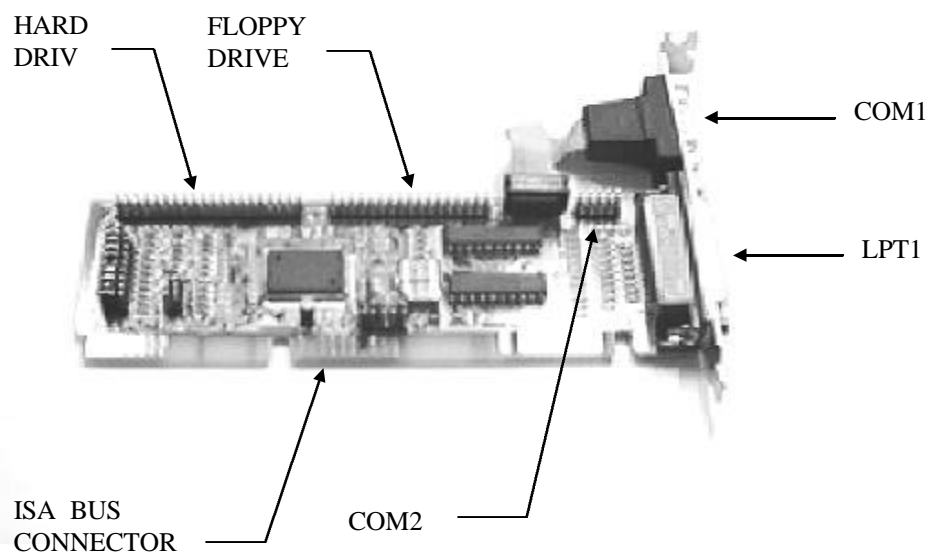
Overview

This card is a multi-function card which controls the hard drive(s), the floppy drives, 2 RS232 serial ports and a parallel printer port.

COM1 is used for local connection to Lap Top Computers for configuration and software updates.

COM2 connects directly to the internal Uninterruptable Power Supply connector J7 using a ribbon cable (20-1531).

LPT1 connects to the optional journal printer.

Observe polarity of ribbon cable and connectors (Red wire Pin 1).

The layout of the card may vary but the connector types and pin numbers should stay the same.

Hard disk IDE connector is a 40 pin header

Floppy disk drive is a 34 pin header

Port addresses

Port	Connector	Type	Address	IRQ #	COM #
COM1	DB9 MALE	RS232	3F8 - 3FF	IRQ4	COM1
COM2	10 PIN HEADER	RS232	2F8 - 2FF	IRQ3	COM2
LPT1	DB25 FEMALE	PARALLEL	378-37F	IRQ5	LPT1

Connector Pinout

Port	Connector	Type	Pin #	Direction	Designator
COM1	DB9 MALE	RS232	1	OUTPUT	DCD
			2	INPUT	RX
			3	OUTPUT	TX
			4	OUTPUT	DTR
			5	GROUND	GND
			6	INPUT	DSR
			7	OUTPUT	RTS
			8	INPUT	CTS
			9	INPUT	RI
LPT1	DB25 FEMALE	TTL	1	INPUT	STROBE
			2	OUTPUT	D0
			3	OUTPUT	D1
			4	OUTPUT	D2
			5	OUTPUT	D3
			6	OUTPUT	D4
			7	OUTPUT	D5
			8	OUTPUT	D6
			9	OUTPUT	D7
			10	INPUT	ACK
			11	INPUT	BUSY
			12	INPUT	NO PAPER
			13	INPUT	SELECT +
			14	INPUT	AUT FEED
			15	I/O	ERROR
			16	INPUT	INIT
			17	INPUT	SELECT -
			18-25	GROUND	GND

VGA Monitor Card (75-2013)

MONITOR

ISA BUS
CONNECTOR
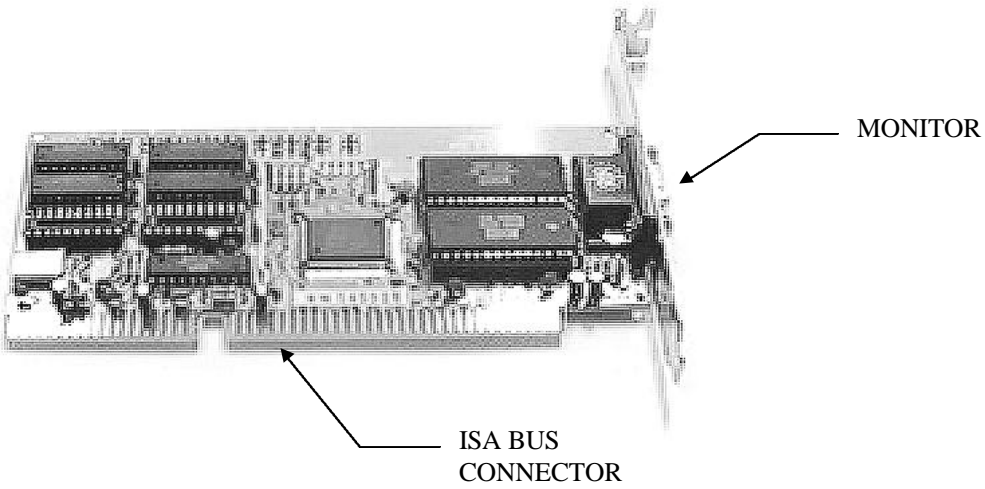
14400 baud modem card (75-2016)

Solid state disk card

RAM
CHIPS

LITHIUM
BATTERY

ISA BUS
CONNECTOR

Notes:

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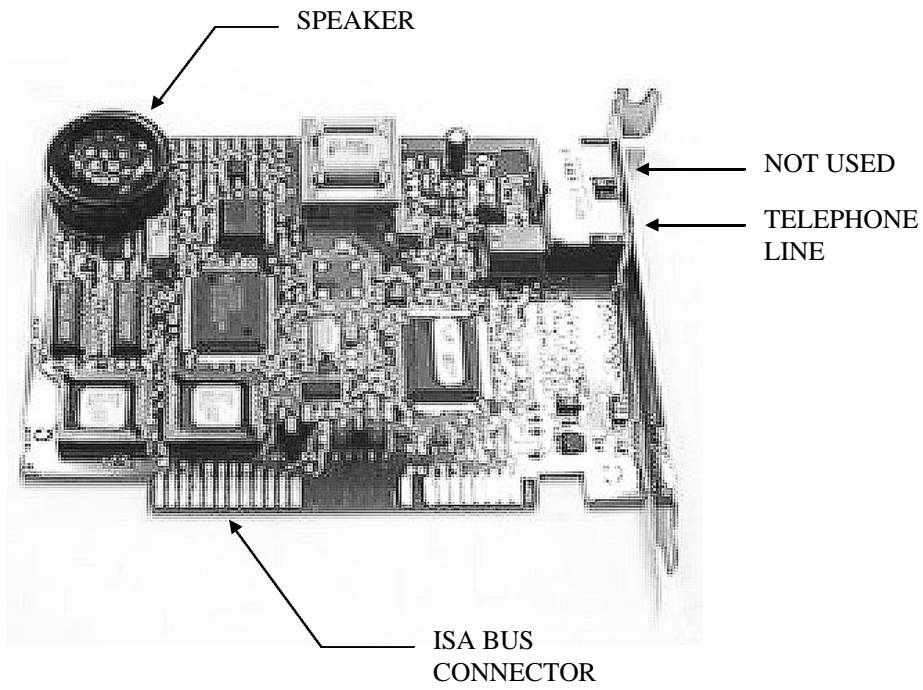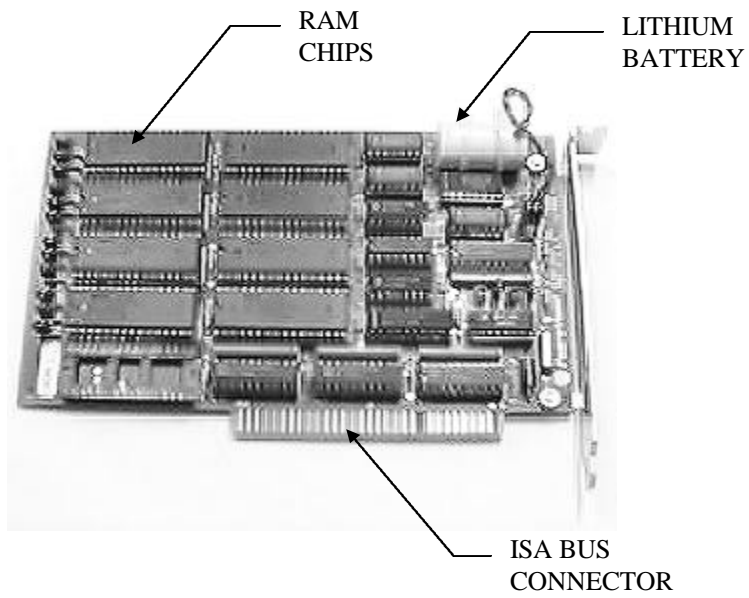
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