APPLEJUICE™
RESERVE POWER SUPPLY

PLEASE READ THESE INSTRUCTIONS IN THEIR <u>ENTIRETY</u> BEFORE ATTEMPTING TO PLACE YOUR APPLEJUICE INTO OPERATION.

PRODUCT DESCRIPTION:

The Applejuice reserve power supply is designed to provide backup power for the Apple II* computer during power "flickers", prolonged outages and brownouts. It supplies three means of detecting a power failure and enough backup time to transfer the contents of memory to cassette or disk. This feature is achieved either by the operator or by utilizing the Applejuice's interrupt option. This is a signal from the Applejuice that can be used to generate an interrupt, a halt, or a reset instruction in the computer, or to operate any external device requiring less than 60 ma. Utilization of this feature may require generation of necessary software by the user. Refer to PP. 127-130 of your <u>APPLE II Reference Manual</u>* for an explanation of these features and the necessary pin-out for hard-wire connection of the Applejuice to the Apple in order to utilize the interrupt feature of the Applejuice.

*The names "APPLE", "APPLE II", "APPLE II+", "APPLESOFT", "INTEGER BASIC" Card, and" <u>APPLE II REFERENCE MANUAL</u>" are registered trademarks of APPLE COMPUTER, INC.

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INSTALLATION

1.   <u>Ensure</u> that both the Applejuice and Apple power switches are in the "OFF" position.

2.   Remove the top cover of the computer. Next, locate the Apple power supply. This is the large metal box located on the left side of the computer when the keyboard is facing you. Note the wire bundle exiting the front of the Apple power supply. Trace these wires to the point where they terminate in a plug connected to the rear corner of the Apple motherboard. To remove this plug from the motherboard, press in on the tabs located on either side of the plug and then pull straight up. When you have disconnected this plug from the motherboard, insert it into the socket on the Applejuice connector cable circuit board. This socket is identical to the socket on the Apple motherboard from which the plug was just removed.

3.   Locate the plug which terminates the <u>short</u> piece of ribbon cable on the Applejuice adaptor cable circuit board, and insert this plug into the socket on the Apple motherboard from which you removed the power supply connector cable.

4.   Locate a spot on the top of the Apple power supply to which the small circuit board on the Applejuice connector cable will reach easily with all the cables connected. Be sure that this spot is free of dirt and grease. Remove the paper backing from the adhesive tape on the bottom of the Applejuice connector cable circuit board and press the circuit board firmly down onto the Apple power supply. (NOTE: It is not necessary to affix the Applejuice adaptor cable circuit board to the Apple in order to use the Applejuice, but it is recommended that this be done in order to prevent the connecting cable being accidentally pulled loose during operation. If the Applejuice connecting cable is not to be affixed to the Apple power supply, do not remove the paper backing from the adhesive tape on the Applejuice connector cable circuit board.)

5.   Locate the <u>long</u> piece of ribbon cable on the Applejuice connector cable circuit board and route it out the nearest backplane slot of the Apple computer. Make certain that all cables are arranged so that they do not interfere with any peripheral boards being used.

6.   Locate the single blue wire which is connected to the long piece of ribbon cable by a single pin connector. This is the signal line through which the interrupt signal feature of the Applejuice is transmitted. If you do not desire to utilize this feature of the Applejuice, disconnect the blue wire from the ribbon cable and proceed to installation step 8.

7.   Tack solder the free end of the blue signal wire to the appropriate pin on whichever peripheral board you have decided to use. The connection can also be made by inserting it into the appropriate pin on one of the I/O slot edge connectors, although this method is not recommended because of its lack of mechanical integrity.

8.   Replace the Apple's top cover, being certain that it does not interfere with any of the connecting cables.

9.   Insert the plug which terminates the long piece of ribbon cable (which should be exiting one of the Apple's backplane slots) into the receptacle on the back panel of the Applejuice. The Applejuice is now ready to be placed into operation.

NOTES:

A.   All the connectors used in this unit are polarized, and care must be taken to ensure that they are properly aligned before attempting to insert them. Occasionally one of the pins in a connector may be slightly misaligned. This can be corrected by carefully straightening the pin with a small screwdriver and then gently working the plug back and forth in its receptacle until the pins align and the two connectors fit together. NEVER force a plug into a receptacle. Be certain that all connectors are fully inserted.

B.   If you are utilizing the Applejuice's interrupt feature and have elected to solder the interrupt line to a peripheral board, use extreme care in making the solder connection, as it is very easy to damage the components on a peripheral board by over-heating them with a soldering iron.

OPERATION

1. Turn the Apple A.C. power on. If the Apple's power indicator light (located on the keyboard) does not come on , immediately turn off the computer and check all connectors carefully. Place the Applejuice switch to the "ON" position.

2. The Applejuice is now in operation and will function automatically in event of a power outage, including re-setting itself when power is restored.

SWITCH FUNCTION DESCRIPTIONS

There are three positions on the Applejuice power switch:

ON/STANDBY - This is the normal operating mode of the supply. In this position the Applejuice will provide instantaneous support \ for your Apple in the event of a power outage and will trickle charge its batteries when normal power is present.

OFF - No support for the Apple or charging for the Applejuice occurs when the unit is off. The unit should be stored with the switch in this position.

CHARGE ONLY - When in this mode the Applejuice batteries are charged by the computer at a higher rate than in the ON/STANDBY position. However, the Applejuice is not supporting the Apple in this mode. It is imperative that the Applejuice be turned off before shutting off the computer, as the Applejuice will rapidly discharge if it is left in this mode with the Apple's A.C. power turned off, or with the Applejuice disconnected from the Apple.

APPLEJUICE INDICATOR FUNCTIONS DESCRIPTION

A visual, an audible, and an electronic signal output are provided to alert the user when a power failure is occurring:

THE L.E.D. - The L.E.D. located on the Applejuice front panel is the visual indicator of a power failure. The L.E.D. will glow during an actual power outage to indicate that it is supporting the Apple computer.

THE SONALERT* - The audible indicator is a sonalert* located in the front panel of the Applejuice. It will emit a 2900 Hz tone which pulses at a 2 Hz rate (i.e. "beeps") when a power outage is occurring. There is a 1.0 second delay between the occurrance of a power failure and the activation of the sonalert. This delay involves the sonalert only. The Applejuice begins supporting the computer immediately upon detecting a power failure. The sonalert will shut off when power has been restored, or at approximately 80% of the Applejuice's charge life in order to conserve battery power in event of a long outage.

THE INTERRUPT SIGNAL - A low-going pulse approximately 0.25 seconds wide occurs after 90 seconds of continuous power interruption, and is generated every 90 seconds thereafter until 80% of the Applejuice's charge capacity has been exhausted. (Refer to the paragraph on PRODUCT DESCRIPTION for additional details.)

*The names "SONALERT" and "sonalert" are a trade mark of the Mallory Co.

GENERAL NOTES

1. The Applejuice must be turned off and disconnected before any repairs are attempted on the computer as shorting any voltage output may damage the unit and void the warranty.

2. In the event the Apple's power supply goes into it's overvoltage protective mode, the Applejuice must be switched off immediately. High static discharge and/or actual component failure are the chief causes of this condition although the former reason is usually only prevalent on the new 115/230v units.

3. An occasional "chirp" will occur immediately after the unit has been fully charged in the "CHARGE ONLY" mode or during extreme current demands on the Apple's power supply (i.e. simultaneous two disk copy). Both conditions are temporary, and may be safely ignored as they are not detrimental to the functioning of either the Apple or the Applejuice.

4. Switching the Applejuice to the on/standby position during a disk access may cause a reset. This only affects the computer when changing modes on the Applejuice and can be avoided by waiting until the disk has stopped running to turn the unit on.

5. Because the batteries in the Applejuice may have partially discharged since they left the factory, it is advisable to place the switch on the Applejuice to the CHARGE ONLY position immediately after connecting and checking the Applejuice, and allowing the batteries to charge for at least 6 hours before placing the Applejuice on-line.

6. After a continuous power outage in excess of rated backup time, it is advisable to recharge the Applejuice using the charge only position for quickest recovery, even though it will recover normally in the on/standby mode. Units should not be left discharged indefinitely.

7. Never connect or disconnect the Applejuice and the Apple when either unit is on.

8. The Applejuice has been tested with all current Apple peripherals. However, some other manufacturer's peripherals may draw too much current on the negative voltages and prevent proper operation.

9. For maximum backup time, all unused peripherals should be removed or disconnected, as they draw current at all times.

10. Applejuices sent in for repair should include the adapter cable and those units returned for warranty repair must be accompanied by a dated proof of purchase.

SPECIFICATIONS

BACKUP TIME: 25 minutes for the APS-2A* or 1 hour for the APS-3* with the following configuration and a single disk access at a normal charge state:

        48K Apple II or Apple II+
        Language Card
        Printer or Serial Card (excluding Silent Type 200)
        Disk Controller Card

Backup time is increased or decreased depending upon peripheral current requirements, disk usage, and state of charge. All parameters are rated at 25 degrees C temperature.

OUTPUTS AT FULL CHARGE:

        +11.25v $\pm$ 0.25v @ 500mA
        + 5v $\pm$ 0.10v @ 2000mA
        - 5v $\pm$ 0.25v @ 25mA
        -11.7v $\pm$ 0.5 v @ 25mA

ABSOLUTE MAXIMUM CURRENT OUTPUT:

        +11.25v ----- 2A(APS-2A)/2.5A(APS-3)
        + 5v   ----- 5A
        - 5v   ----- 30mA
        -11.7v ----- 40mA

OPERATING TEMPERATURE RANGE: -30 to +55 degree Cent.

SHORT PROTECTION: Internally fused on positive voltages and current foldback on negative voltages.

CHARGING CHARACTERISTICS (Recovery from completely discharged state): ON/STANDBY MODE - 22-26 hours; CHARGE ONLY MODE - 10-12 hours.

WEIGHT: 1.30 Kg.(APS-2A)/1.54Kg.(APS-3)

DIMENSIONS: 17.8 x 11.47 x 8 Cm

Specifications are subject to change without notice.
*Patent Pending.

WARRANTY INFORMATION

Control Technology, Inc. warrants that all units manufactured and sold shall be sold free from defects in material and workmanship and further agrees to repair or replace any unit that fails within 90 days from date of purchase. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL WARRANTIES. THE SELLER DOES NOT WARRANT THAT THE GOODS ARE MERCHANTIBLE OR FIT FOR ANY PARTICULAR PURPOSE.

All warranties are extended only to the original purchaser. The units must not be modified, repaired, or serviced by anyone other than Control Technology, Inc. Malfunction or damage caused by abuse, mis-use, negligence, weather and natural disaster is excluded from the terms of this warranty.

Except as contrary to applicable law, no other warranties either expressed or implied will be applicable to the described power supplies (units). Under no circumstances will Control Technology, Inc. be liable for consequential damage sustained in connection with its power supplies (units); and Control Technology, Inc. does not assume or authorize any representatives or any other person to assume for it any obligation or liability whatsoever other than as is expressly set forth hereinabove. THIS IS A LIMITED WARRANTY.