In the 1980s, there was a "digital goldrush" in Amateur Radio. Until that time, CW and RTTY were the only non-voice modes of any consequence, aside from image modes.

In 1982, a group of US Amateurs began to experimentally operate a modified form of Marine TELEX, called AMTOR. As the popularity for that mode grew, computer networks were forming, and there was interest in interconnecting them. Some Canadian and US Amateurs began to experiment with using computer-style "data packets" on radio.

CW and RTTY offered no error correction. AMTOR offered a limited amount of error correction, and Amateurs were seeking an error free mode. With the error checking and correction features that had been developed for computer communication, data packets over radio seemed a natural solution.

There was considerable development in the devices that made packet radio possible. Initially there were dedicated terminal units that incorporated a packet modem within. As personal computers became more popular, the TNC was born, to connect a dumb terminal or computer to a radio transceiver. By 1984, the first stages of a nation-wide packet network had materialized. By the mid 1990s, massive, and sophisticated packet radio networks had been constructed and were beginning to decline. Amateurs were also busy imagining other data modes that would offer higher speed and/or accuracy.

All the while, Amateurs were interested in combining the functions found in their old RTTY and AMTOR equipment and the new packet mode. Two firms jumped into that market, and designed a totally new type of data controller. Those firms were Advanced Electronics Applications, of Washingtion state; and Kantronics, Inc. of Kansas. Other firms soon followed. This presentation will cover the history of one of the most popular units ever offered for this purpose, the AEA PK-232. It allowed the Amateur to operate in CW, RTTY, AMTOR and Packet modes, and other modes were added later.

The History of the AEA/Timewave PK-232 Datacontroller

1985

After several years of making RTTY terminals and TNCs, Advanced Electronic Applications offers the first multi-mode data controller, the PK-64. It is designed for use with the Commodore 64 computer.

With the onslaught of RS-232 capable computers, AEA designers begin to work on a design for a port-compatible data controller. It requires a complete new design, as the PK-64 circuitry is unsuitable for RS-232 interfacing, and much had been learned to improve the utility of a data controller.

1986

AEA finalizes the Pakratt PK-232 design and begins production. First units are assembled locally, but shortly is turned over to a jobber in Hong Kong for production with final Quality Control done at AEA. List price, $379.95. First edition doesn't have the FAX decoding capability, but that feature is added within a few months. Originally AEA wants the device to be known as the Pakratt. The name came from "Packet" and "Ratt", an acronymn for "radio automatic teletype. It never really caught on with the consumer, who preferred to call it the PK-232.

STBY

STBY MODE L FEC ASCII BAUDOT

ER

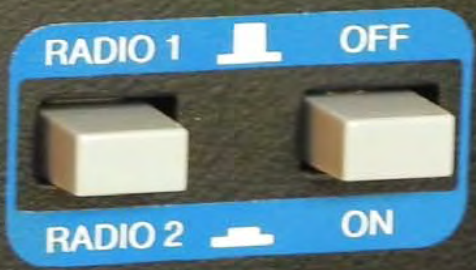ARQ CHECK PKT MORSE

MODE

Model PK-232

RADIO 1 OFF

RADIO 2 ON

Advanced Electronic Applications, Inc.

Model PK-232

SERIAL NO. 10510

POWER

+13 VDC

RX-IN
AUDIO 1

RADIO 1

5   1

RADIO 2

5   1

RX-IN
AUDIO 2

SCOPE/FSK

3   1
MARK   FSK N
5   4
SPACE   FSK R
2
GND
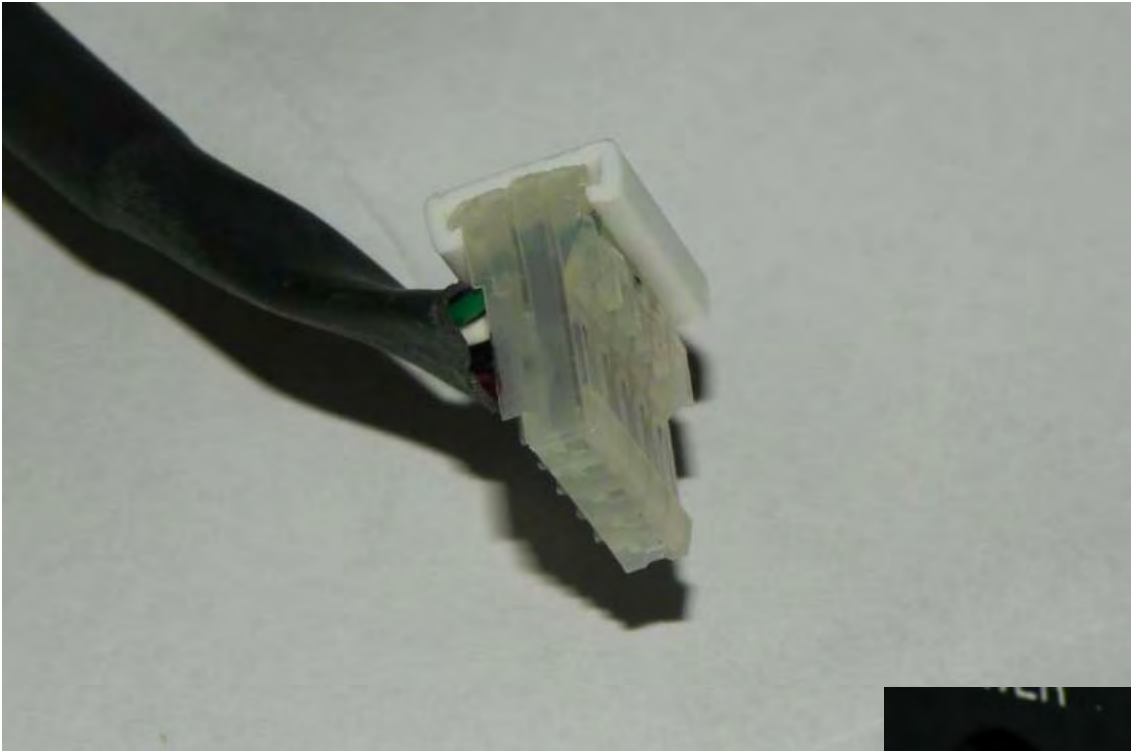
EXT MODEM

5   1
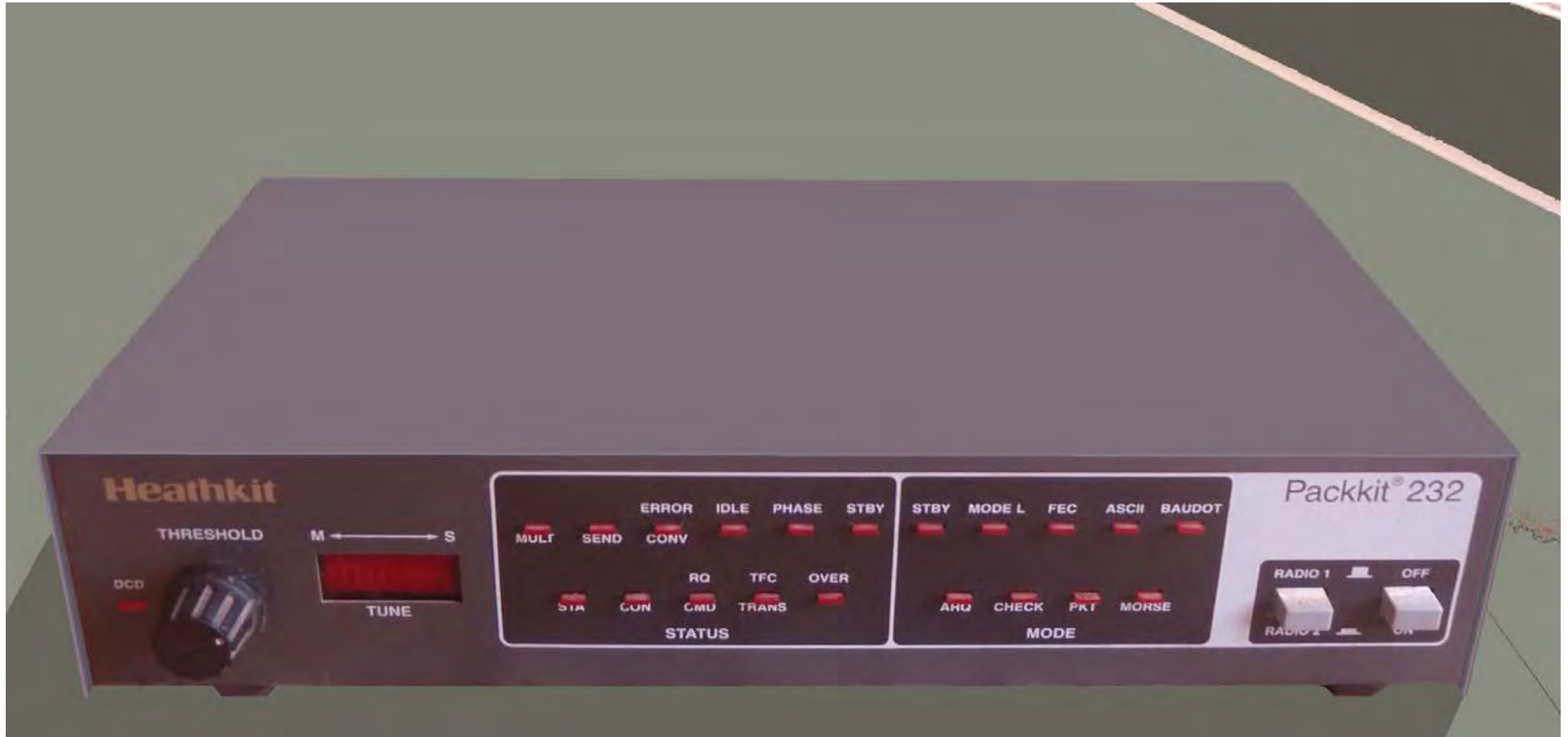
KEY
OUT

−   +

RS-232 I/O

AFSK
LEVEL

1987

AEA licenses the Heath Company to offer a kit version of the Pakratt, called the HK-232 Packkit. With the exception of some cosmetic differences, it is functionally identical to the PK-232.

1989

AEA introduces the PK-232MBX. The MBX has a PakMail "bulletin board" feature built into a daughter board, an upgraded PROM firmware, increased RAM memory, and a better battery memory backup arrangement.
(Continued)

Advanced Electronic Applications, Inc.

Model PK-232MBX

THRESHOLD   M ◄─────► S

DCD

TUNE

PAKRATT 232

ERROR   IDLE   PHASE   STBY

MULT   SEND   CONV

RQ   TFC   OVER

STA   CON   CMD   TRANS

STATUS

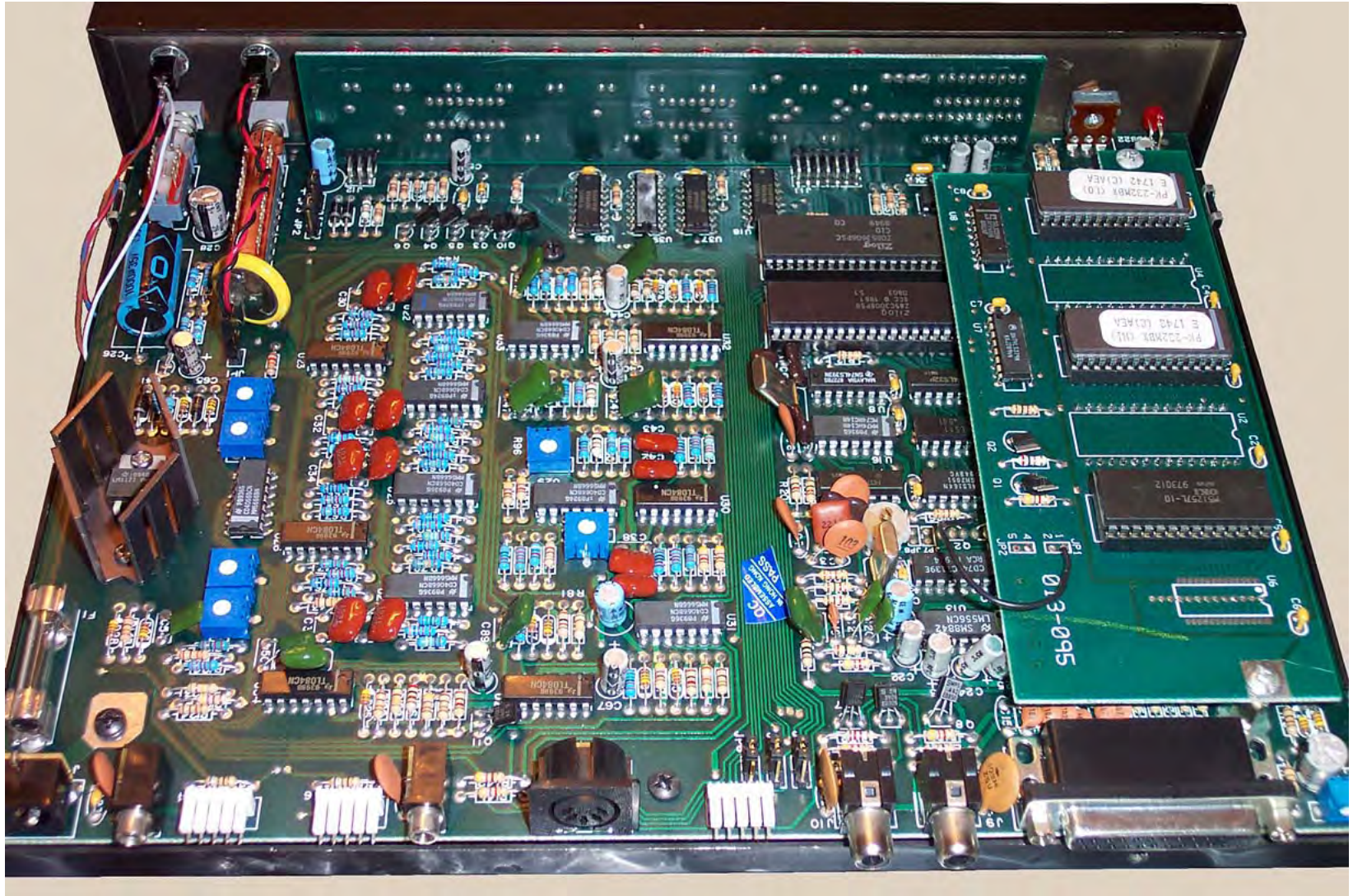STBY   MODEL   FEC   ASCII   BAUDOT

ARQ   SELFEC   PKT   MORSE

MODE

RADIO 1   OFF

RADIO 2   ON

1989

Later in the year, AEA redesigns the main circuit board and integrates the PakMail circuitry with the other circuits. The indicator LEDs are now multi-colored, rather than the original all red LEDs. Also the jumper used to disconnect the backup battery is moved to the bottom of the board and an access hole is provided so that the operator does not have to remove the cabinet housing in order to connect or disconnect it. Last unit with red LEDs and daughterboard is serial # 45932.

06 24 2015
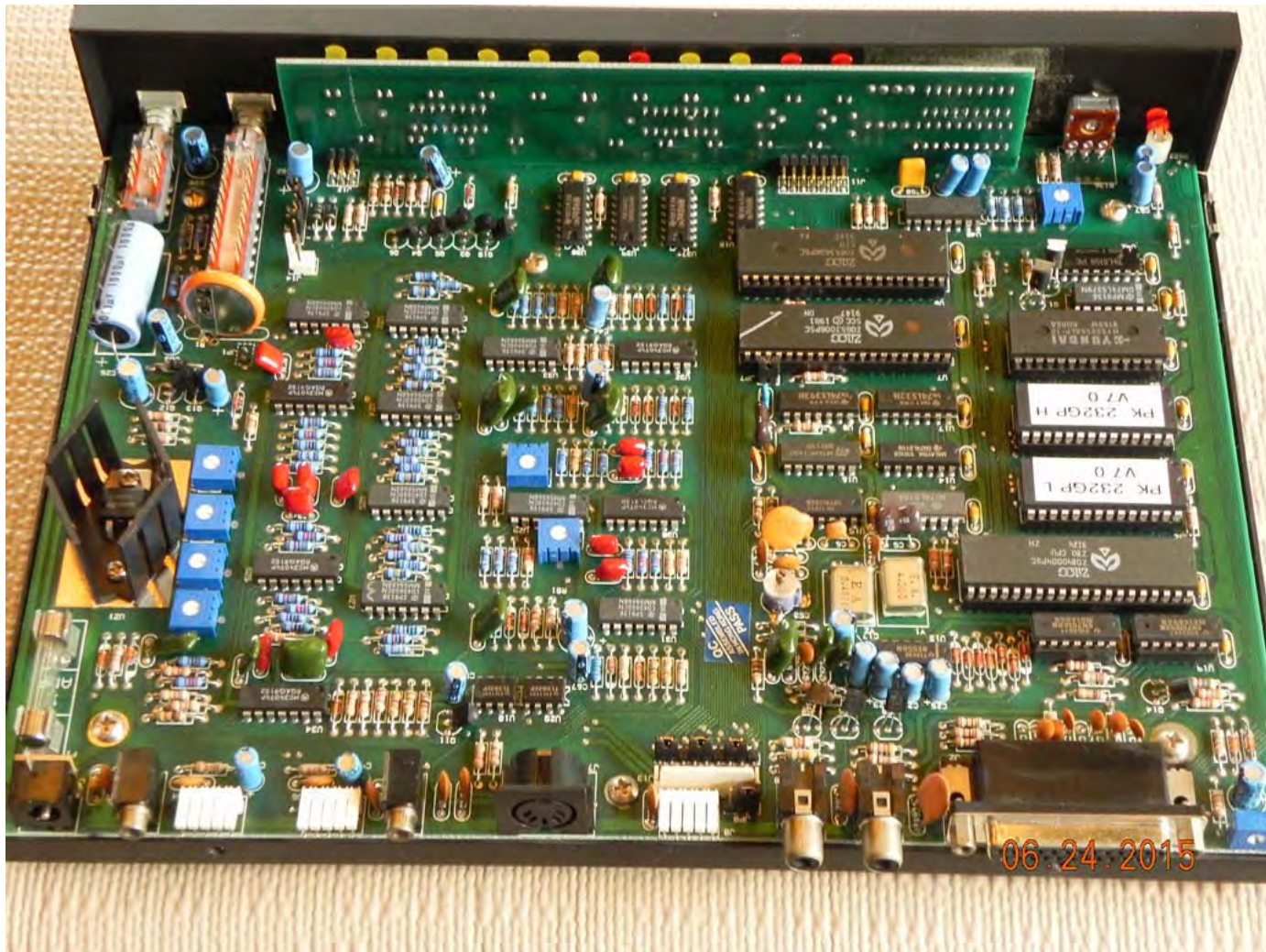
1991

A PROM upgrade is developed, improving the operation of several modes. This upgrade is made available to owners of previous PK-232MBX models.

1993

Another PROM upgrade. This one added
PACTOR mode, as well as a Gateway Mode.
This is the Version 7.0 upgrade.

1995

PROM upgrade adds GPS capability. A GPS receiver can be attached to the unit with a special "Y" cable at the serial port.

1996

AEA has been designing and marketing data controllers of a more sophisticated type, such as the DSP-1232, DSP-2232 and the PK-900, and discontinues the PK-232. AEA shortly thereafter goes out of business.

1997

Timewave purchases the AEA data products line and assembles and sells the remaining stock of AEA PK-232 parts as finished units.

1998

Timewave designs a DSP upgrade board for the PK-232 and offers for sale both the upgrade board for previous owners, and also an updated PK-232 called the PK-232/DSP. The newer design consumes less power than previous models, has a hardware reset switch, and a data overload indicator LED.
(continued)

1998
The MBX daughter board is also redesigned to be more efficient and take less space in the controller, allowing more room for upgrade boards. Once again it is possible to upgrade an early PK-232 to the MBX model.
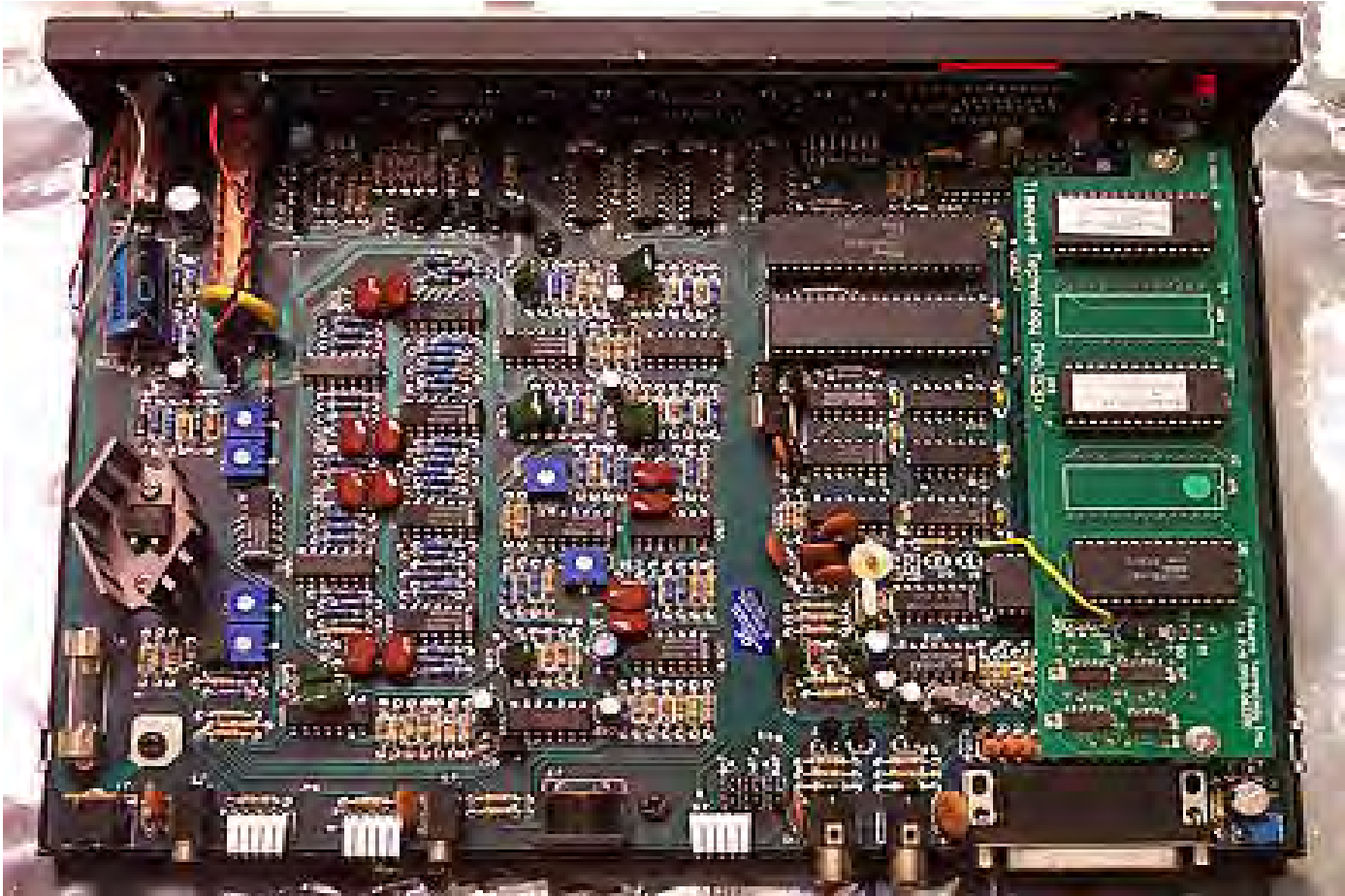
2001

With the increased interest in sound card decoding for data modes, Timewave designs and sells an upgrade board to allow passing receiver audio through the controller directly to a computer sound card. The switching is done by software making it possible to work the hardware modes as well as software modes from the keyboard. Complete unit with sound card switching built in is the PK-232/PSK. List price is approximately $550.

2005

Timewave designs a retrofit to the data input circuit. It converts the RS-232 bus to USB for use with newer computers. The old DB-25 connector is removed and a new sub-board with a USB jack is added in its place.

2011

Timewave introduces a new PK-232 model, the PK-232/SC. This model incorporates the time-tested basic functionality of the PK-232 with a built-in sound card, USB port, and a rig control interface. An upgrade kit is available to modify older PK-232s.

Timewave

OVL

DCD

THRESHOLD

TUNE

M ←——→ S

PK-232SC+

		ERROR	IDLE	PHASE	STBY
MULT	SEND	CONV			

MAIL		RQ	TFC	OVER
STA	CON	CMD	TRANS	

STATUS

STBY	MODE L	FEC	ASCII	BAUDOT

ARQ	SELFEC	PKT	MORSE

MODE

SC

PK-232

RADIO 1

OFF

RADIO 2

ON

Other Popular Modifications to Older PK-232s:

- Improved Grounding/Bonding for Noise
   Reduction
- Conversion to Coin-Cell Battery
- External Battery Disconnect Switch
- Hardware Data Invert Switch
- Hardware Reset Switch
- Retuning for Improved Performance in Single
   Mode - for instance: RTTY or FAX

MODE

RADIO 2 ON

Model PK-232MBX

FEC   ASCII   BAUDOT

Off   Nor

BAT   INV

RADIO 1   OFF

SELFEC   PRT   MORSE

RADIO 2

MODE