

acc notes

advanced computer controls, inc.

2356 Walsh Avenue, Santa Clara, California 95051 (408) 727-3330

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RC-850 Controller Computer Interface

The Computer Interface option is now in the field! A long time in the making, '850 owners are being rewarded with more unique, new capabilities not available anywhere else, at any price - remote control, programming, and information access to their repeater system from their home computer. Other exciting additions in the upgrade include the Vocabulary Expansion Option, expanding the size of the speech vocabulary to over 530 words, and a new remote base interface to the ICOM IC-900 transceiver modules!

ACC continues to fulfill its original promise to keep the '850 controller the leading controller product in the world. Today's '850 barely resembles the original product introduced several years ago because of ACC's continuing innovation and invention in the area of repeater control. Yet even the very first '850 owner can (and has) upgraded his machine to today's performance. That's because ACC cares about you and your investment in our equipment. Rather than trying to obsolete your investment, we want to help you preserve it.

All registered owners have been contacted directly by mail with a complete specification of the board and V3.5 software, but reprinted below is a partial spec and terminal screen display examples.

V3.5 Software / Operational Description

• Bulletin Board System (BBS)

The user interface available through the serial ports resembles a packet BBS for familiarity and ease of use. It's menu driven with lots of on-line help.

Remote Repeater Control

All User, Control Op, and Programming commands may be entered through the serial ports with text command responses sent back to the port. The commands may be originated manually or automatically under remote computer control.

Message Editing

Programmable messages (speech, Morse code, etc.) stored in the controller may be viewed directly as text and may be reprogrammed by typing the letters, words, and other tokens

directly (i.e., "meeting tomorrow"). It isn't necessary to refer to vocabulary codes.

Downloading of Repeater Information

Various information may be downloaded from the controller. It may be presented for visual display on the screen or may be used as input to user written data processing programs to analyze repeater activity and site characteristics.

Front Panel Display - An enhanced version of the LED front panel display may be viewed on the remote terminal or computer screen. The Front Panel Display option is not necessary to employ this feature.

Command Log - A listing of commands tagged with time and date may be downloaded. The particular commands to be logged may be specified with programming commands (i.e., log patches, linking, Control Op commands, unlocks, etc., but not Touch-Tone pad test, demo message playback, etc.).

Metering Information - A display of the 16 VRT channel meter readings may be requested. The measurements are tagged with a user defined description (i.e., heat sink temp.). In addition, the stored highs and lows for each channel along with the time/date for each reading are displayed.

Activity Information - VRT channels 25-32, which provide ongoing running totals on aspects of repeater activity, may be viewed.

E²PROM Contents - The contents of the E²PROM (the reprogrammable memory which stores Programming information) may be downloaded to be processed by a separate program running on IBM PCs and compatibles to print Programming Sheets, documenting how the controller is programmed. Programming Sheet software will be available Winter '88.

Voice - Packet Mailbox

Electronic messages may be exchanged between the voice repeater and the serial ports. Messages may be sent, listed and killed from either port. Mail may be sent by typing the source and destination callsigns and the mailbox message number. The list of mail currently in the controller may be displayed, including the source and destination callsign, message, and the time and day of entry.

On-Line Help

Extensive on-line help is available for each command to get the user going quickly.

In addition, lists of the names of the controller's programmable messages and the words in the speech synthesizer's vocabulary can be viewed to assist in programming messages without having to refer to a manual.

Informational Text Message

A programmable text message may be viewed by users to provide information about the repeater system.

Security

Access to remote repeater control, message editing and downloading of E²PROM contents through the serial ports must be enabled by a Touch-Tone Control Operator level command. Each port has a programmable access timeout. Typically, access to these functions would be enabled by entering the Control Op command on a Touch-Tone command channel, such as the phone or the Control Receiver. If this security is not needed, access may be kept enabled by setting the access timer value to 0.

• Independent Dedicated Command Channels

Commands may be entered independently and simultaneously through the shared decoder on the main controller board and the two auxiliary decoders on the Computer Interface Board. Each auxiliary decoder may be assigned to replace a channel of the shared decoder with Programming commands.

Commands from each channel are acted on at their command evaluation point - when the command channel COS goes inactive, or after # if assigned to the phone. Command responses are directed to the repeater and link transmitters or the telephone.

Applications:

Connect to links/remotes for 100% coverage for incoming commands

Connect to Control Receiver so a transmission on the control channel doesn't steal the decoder from other channels

Connect to telephone audio so a call to the repeater doesn't steal the decoder from other channels (also, Touch-Tones will still mute over the air when someone is on the phone).

• ICOM IC-900 Remote Base / Link Support

The ICOM IC-900 band units are supported as an alternative to BCD controllable radios for frequency synthesized remotes and links. Only the ICOM band units are needed - not the fiber optic controller - for a cost effective multi-band remote. The FC-900 interface from ACC ties the repeater controller to the band units.

Connections to the FC-900 interface consist of RB CLK, RB DATA, RB STB, link COS, receive and transmit audio. The connection between the FC-900 interface and the IC-900 modules is simply the daisy-chained multiconductor cable

supplied by ICOM. The FC-900 interface mounts on top of the stacked band units.

One or two FC-900 interfaces, each controlling up to six band units, are supported. One interface may attach to link ports 1 and 2 and a second to ports 3 and 4 if desired. The FC-900 interface includes a remotely programmable CTCSS (PL) encoder.

Any two band units may be on at any time on each port pair. For example, ports 1/2 could have 10M, 6M, 2M, 220 and 440 MHz transceivers used as remotes, while ports 3/4 might have 220 MHz and 1200 MHz transceivers as synthesized links. Ports 1/2 could have the 10M and 2M remotes up, while 220 and 1200 MHz links are up on ports 3/4. (FC-900 available Fall '88)

• Rotor Control Board

The RCB-2 Rotor Control Board allows the RC-850 controller to control a Hygain/Telex CD-45-II, Ham IV or T²X Rotor System control unit.

• Vocabulary Expansion Option Over 530 Synthesized Speech Words

Including more amateur radio words, public service words, days of the week, months of the year, weather words, alternative inflections of key words, plus female words and sound effects. This upgrade gives the '850 vocabulary more words and more *useful* words than any other controller anywhere.

• Improvements to Version 3.42

Various aspects of V3.42 software have been improved based on suggestions from customers.

Terminal Screen Display Examples

The user interface at the '850 serial ports resembles a packet BBS so that it looks familiar to many and is easy to learn and use by all. This is the long form of the menu.

```
de WA6AXX 440 Repeater: Date 880830 Time 1347 1 active message(s)
Messages: L - List, S - Send, K - Kill
Files: W - What, D - Download
Control: C - Command entry, T - Text message entry
P - Print a programmable message
E - Edit a programmable message
F - Front Panel display
Misc: X - Short/Long menu, I - Information, H - Help
>
```

Type x to select the short form of the menu.

```
>>
de WA6AXX 440 Repeater
>
```

Help is just a keystroke away. Type H for help, or H and the letter of a specific command for help about that command.

```
>h
(H)elp
Help on any command may be requested by entering 'Hx'.
Arguments [x] - [L]ist, [S]end, [K]ill, [W]hat, [D]ownload,
[C]ommand entry, [T]ext message entry,
[P]rint a programmable message, [E]dit a programmable message,
[X] Short/Long menu, [I]nformation, [H]elp,
[F]ront Panel display, [A]ll.
```

```
de WA6AXX 440 Repeater
>hs
(S)end
Send a mailbox message to the voice repeater.
Arguments - recipient callsign, sender callsign, message number.
Example: For WA6AXX to send mailbox message number 2 to WB6KHP ...
S WB6KHP WA6AXX 2.
The recipient and sender callsigns must be stored in the
controller's non-volatile memory by the repeater owner
to be recognized. To see the available messages to be sent
[message 0-9], download [D] MAILMSG.S.TXT.
```

```
de WA6AXX 440 Repeater
>
```

The front panel display available on your computer screen is an enhanced version of the controller's LED front panel display. But you can see it anytime - remotely!

```
de WA6AXX 440 Repeater
>f
*** WA6AXX 440 Repeater 'FRONT PANEL' DISPLAY ***
STATUS          CONTROL          AUDIO          I/O
E ENABLE        INPUTS          XMTX          OUTPUTS
A ACCESS MODE   COS            - RCVR        UF1
D TT ACCESS     - COS/LINK1   - LINK1       - UF2
IDENT          - COS/LINK2   LINK2         UF3
KERCH          - COS/LINK3   LINK3/SP1    UF4
E PRIM AP      - COS/LINK4   LINK4/CR     - UF5
E SEC AP       COS/CR        SPEECH/LM    UF6
E TERT AP      PL            PHONE        UF7
E PRIM EAD     USER PL      TONE        UF8
E SEC EAD      PHONE RING    PHONE
L UAD BANK0    OUTPUTS      RCVR         INPUTS
L UAD BANK1    PTT          SPEECH       UT1
L UAD BANK2    PTT/LINK1    TONE        - UT2
R LINK1        PTT/LINK2   - UT3
E LINK2        PTT/LINK3   L2 DTMF CHANNEL AL1
E LINK3        PTT/LINK4   0N MACRO SET  AL2
E LINK4        - PWR AMP    6.520S L1 FREQ - PHBZ
L LOCK        PHONE OFFHK  0.000- L2 FREQ
```

```
de WA6AXX 440 Repeater
>
```

Various files can be downloaded from the controller to be viewed or stored on your disk for data processing.

```
de WA6AXX 440 Repeater
>w
ACTIVITY.RDG  COMMAND .LOG  E2PROM .HEX
HELP .TXT     MAILMSG.S.TXT METER .RDG
MSGNAMES.TXT  MINMAX .RDG  WORDLIST.TXT
```

```
de WA6AXX 440 Repeater
>
```

Repeater activity information (VRT channels 25-32) can be downloaded.

```
>d activity.rdg
REPEATER ACTIVITY READINGS - 880830 1350
Chnl Total Description
-----
(25) 298 repeater receiver keyups
(26) 108 minutes of repeater activity
(27) 3 phone patches
(28) 4 mailbox accesses
(29) 29 command entries
(32) 3 message(s) in the mailbox
```

```
de WA6AXX 440 Repeater
>
```

The command log tracks the commands of interest, and is available for analyzing usage of the repeater's features.

```
de WA6AXX 440 Repeater
>d command.log
REPEATER COMMAND LOG - 880830 1352
Cmd Time Ch Arguments
-----
***DATE880829***
UL 1527 PH
HU 1529 PH
PAP 1637 RX 7273330
HU 1639 RX
PEAD 1657 RX 2
HU 1658 RX
PAP 1709 RX 7273414
HU 1709 RX
PAP 1712 RX 7273414
```

```
HU 1717 RX
COPA 1732 A1 254
COPA 1732 A1 271
HU 1732 A1
***DATE880830***
COPA 1331 A1 254
HU 1331 A1
COPA 1335 RX 271
COPA 1337 S1 031
```

```
de WA6AXX 440 Repeater
>
```

The sixteen metering channels can be downloaded to display current meter readings.

```
de WA6AXX 440 Repeater
>d meter.rdg
ANALOG METER READINGS - 880830 1351
Ch Reading Description
-----
(1) S9+30 rx s-meter
(2) +400 Hz rx freq. err.
(3) 15.6 Volts bat. volt.
(4) North rotor dir.
(5) 31 Watts forward pwr.
(6) 7 Watts refl. pwr.
(7) -
(8) -
(9) -
(10) -
(11) 1.9 Amps bat. chrg cur.
(12) -
(13) -
(14) -
(15) 115 degrees int. temp.
(16) 13.5 Volts int. volt.
```

```
de WA6AXX 440 Repeater
>
```

Any Touch-Tone commands can be entered from the serial port with text responses displayed on your screen.

```
de WA6AXX 440 Repeater
>c 13
Command executing ...
<speech> 2 METER -S OFF
de WA6AXX 440 Repeater
>c 6215
Command executing ...
<speech> 1 HUNDRED FIF- -TEEN DEGREES
de WA6AXX 440 Repeater
>c 41891
Command executing ...
<speech> REPEATER E
de WA6AXX 440 Repeater
>
```

The controller's programmable messages, such as IDs, tail messages, and the hundreds of others can be viewed as text on your screen.

```
de WA6AXX 440 Repeater
>p aid
<morse> W A 6 A X X / R

de WA6AXX 440 Repeater
>p pid1
<speech> THIS IS W A 6 A X X PAUSE REPEATER

>p spid
<speech> GOOD/F RTV/M/A/E/F PAUSE THIS IS <speech> W A 6 A
X X REPEATER PAUSE <morse> S C V

de WA6AXX 440 Repeater
>
```

Electronic mailbox messages can be exchanged between the computer port and the voice repeater. It isn't necessary to know callsign slot numbers - just enter callsigns directly and the controller looks them up!

```
de WA6AXX 440 Repeater
>s nu6p wa6axx 0
To From Date Time Message
NU6P WA6AXX TODAY 01:55pm Pse call me. (0)

de WA6AXX 440 Repeater
>l
To From Date Time Message
WB6KHP N6YU YESTERDAY 09:37pm Call me on the rprr. (3)
NU6P WA6AXX TODAY 01:55pm Pse call me. (0)

de WA6AXX 440 Repeater
>
```

The RC-850 controller's Computer Interface is the newest state-of-the-art in repeater control - brought to you by ACC.

RC-96 Part 68 Registration

The telephone interface on our new RC-96 controller has been registered with the FCC. It's registration number is HIJ257-1771-OT-E, with a ringer equivalence of .2A. It's no longer necessary to supply the registration number to the phone company unless they specifically request it, but there it is, just in case.

RC-96 or RC-85 ...

Which Controller is Best for Me?

Each of our mid-range controllers fills a somewhat different set of needs. We want you to choose - but it's really an easy choice!

The two units will sound the same on your repeater and will function nearly the same for your users. The main differences are in packaging.

If you want:

- The lowest cost unit with ACC's advanced controller features
- Availability in either rack mount cabinet, or board-only configuration for packaging in an existing enclosure
- Support of the Kenwood TS-711A or 811A transceivers as a remote base

Get the RC-85 controller!

If you want:

- Easiest cabling hookup and adjustments
- A front panel LED display and keypad
- The most extensive built-in lightning protection feasible
- Multiple CTCSS (PL) decoding capability
- An FCC registered telephone interface

Get the RC-96 controller!

Either way you get:

- All the same user, control operator, and programming capabilities
- ACC's quality design, construction, and product support
- Ongoing product enhancements

'96 or '85 - You win either way! For more details on the differences, request our '96/'85 comparison sheet.

RC-96 Touch-Tone Decoder

The decoder in the new '96 controller is capable of decoding up to 20 digits per second, allowing use with ultra-high speed autodialers. But there's always a tradeoff between decoding speed and voice talkoff. If your '96 fails on certain user's voices, clip diode CR16 and the decoder will slow down to a normal 10 digit per second rate and will be less likely to false.

Tarzan Yells on DVR

Michael Young, WB8CXO, recently heard an attention-getting commercial on an Akron radio station. The ad for potato chips included the Tarzan call made famous by Johnny Weismueller. The next time he heard it, he taped the Tarzan call and downloaded the recording into his Digital Voice Recorder.

Repeater users on both his 2-meter and 220 MHz systems love hearing the occasional Tarzan call. While dining in a local restaurant, a ham patron even asked Mike to play Tarzan! Turning up the volume on his 220 HT, Mike had the repeater play the Tarzan track and the restaurant clientele roared with laughter. The Tarzan yell is usually accompanied by his call sign and is part of a Special ID on his RC-850 controller. Talk about celebrity recordings on DVRs!

Frequency Synthesized Remote Bases - Past And Present

One of the many capabilities our repeater controllers offer is the ability to attach additional transceivers to the repeater to allow remotely controllable linking to other bands and frequencies through the repeater channel.

The benefits include allowing the repeater user to work more than one band from a single radio, the ability to work distant repeaters and other stations by benefiting from the repeater's elevation, and a capability which has proven invaluable - the linking together of repeater systems and groups during emergencies.

We introduced this capability in 1982 with a generic interface to BCD-controllable radios. Among the rigs usable as remotes are thumbwheel controllable rigs such as the ICOM IC-22U, IC-2A, 3A, and 4AT, Azden PCS-2800, Drake UV-3, and many others. All the IC-22Us still in existence have been scarfed up for this purpose! While the interface is generic, there are disadvantages - it involves some work to wire up, and there is no line of similar BCD radios covering all the bands of interest (29-1200MHz).

There are various computer controllable transceivers available, but they are prohibitively expensive for the application because they are high performance multi-mode rigs.

ICOM's new IC-900 transceiver system offers a perfect solution. It has made available simple, relatively low cost, high performance transceivers for use as remotes. The band units are basic "dumb" synthesized transceivers, with the potential for a consistent, simple hookup through a suitable interface to our controllers with appropriate software.

Price List and Order Form

August 1988

Name: _____ Date: _____
 Repeater Organization: _____ Call Sign: _____
 Repeater Call: _____

Mailing Address: _____
 Shipping Address (not a P.O. Box): _____

Day phone #: _____ Alternate #: _____

Comments: _____

To speed processing of your order, please . . .

- ✓ Provide both a mailing and shipping address
- ✓ Provide both day and evening phone numbers where you can be reached
- ✓ Shipping address cannot be a P.O. Box (UPS does not deliver to P.O. Boxes)

Warranty periods are:
 RC-850 Repeater Controller - 2 years
 RC-96 Repeater Controller - 2 years
 RC-85 Repeater Controller - 2 years
 Digital Voice Recorder - 1 year
 ITC-32 Touch-Tone Control Board - 1 year

Limited Warranty - Advanced Computer Controls, Inc. warrants that the products manufactured by ACC will be free from defects in material and workmanship for the warranty period from the date of shipment. The liability of ACC is limited to replacing or repairing, at ACC's option, any defective products which are returned to ACC, Santa Clara, California. No case are products to be returned without first being inspected by ACC. The foregoing warranty shall not be voided if the products or parts have been subjected to misuse, accident, alteration, neglect, or other causes. ACC shall not be liable for expendable items with the products; (ii) for custom equipment or products produced to Buyer's specifications. ACC shall make the final determination as to the existence to any alleged defect.

EXCEPT AS HEREIN ABOVE PROVIDED, ACC MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. All implied warranties are limited in duration to the above stated warranty period. Some states do not allow the exclusion or limitation of incidental or consequential damages or on how long an implied warranty lasts.

PRICES - All prices are subject to change without notice. Prices do not include any taxes. Prices include packing suitable for domestic shipping. Export packing and freight are extra.

CANCELLATION AND DEFERRAL - Cancellation of or change to acknowledged orders are accepted only on terms that protect ACC against loss.

TITLE AND SHIPMENT - All shipments are F.O.B. ACC, Santa Clara, California. Title to the products and risk of loss shall pass to Buyer upon ACC's delivery to the carrier, regardless of any provisions for payment of freight or insurance which may be included in the invoice. Shipping charges shall be in accordance with ACC's provisions only. Shipping dates provided by ACC are approximate only. ACC shall not be liable for any loss, damage, or expense (consequential or otherwise) incurred by Buyer if ACC fails to meet specified delivery dates.

LIMITATION OF LIABILITY - ACC'S LIABILITY UNDER OR FOR BREACH OF THIS AGREEMENT SHALL BE LIMITED TO REFUND OF THE PURCHASE PRICE. IN NO EVENT SHALL ACC BE LIABLE FOR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS, LOSS OF PROFITS, OR FOR ANY SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, HOWEVER CAUSED, WHETHER FOR BREACH OF WARRANTY, BREACH OF CONTRACT, REPUDIATION OF CONTRACT, NEGLIGENCE, OR OTHERWISE.

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advanced computer controls, inc.

2356 Walsh Avenue, Santa Clara, California 95051
 (408) 727-3330

Price List and Order Form

All ACC Products are sold under Software License Agreement. Prices and specifications are subject to change without notice. Prices quoted in United States Dollar only.

August 1988

RC-850 REPEATER CONTROLLER with Version 3 Firmware

- RC-850 Repeater Controller in 19" rack mount cabinet (includes Telephone Interface and Voice Response Telemetry)
- with Plain Front Panel \$2555.00 List Price, \$2300.00 Discount Price*
 - with Front Panel Display 2890.00
 - Computer Interface Option (V3.5) 385.00
 - VEO Vocabulary Expansion Option (Cl-1 required) 85.00
 - RCB-2 Rotor Control Board (Cl-1 required) 85.00
 - CTCSS Subaudible Tone Decoder 110.00
 - Not installed 65.00
 - MC48 Local Microphone 95.00
 - FC-1 Frequency Control Board 55.00
 - M850 Manual Only (included in purchase) 45.00
- RC-850, TP-3 Telephone Interface, and VR-2 Voice Response Telemetry are also available in board-only configurations. Please call the factory for pricing.

RC-96 REPEATER CONTROLLER with Version 3 Firmware

- RC-96 Repeater Controller with one DIN cable \$1495.00 List Price, \$1350.00 Discount Price*
- TNP CTCSS Tone Panel Option with one tone installed 175.00
- EAT Each additional Tone (up to 7 additional) 45.00
- AD-1 Audio Delay Line Board Kit 165.00
- FC-1 Frequency Control Board 55.00
- CB Additional DIN Cable (one supplied with controller) 35.00
- CN Additional DIN Connector only 15.00
- M96 Manual Only (included in purchase) 25.00

RC-85 REPEATER CONTROLLER with Version 3 Firmware

- RC-85B Repeater Controller Board \$875.00 List Price, \$875.00 Discount Price*
- RC-85RM Repeater Controller in 19" rack mount cabinet 1105.00
- CTCSS Subaudible Tone Decoder 110.00
- Not installed 65.00
- AD-1 Audio Delay Line Board Kit 165.00
- FC-1 Frequency Control Board 55.00
- M85 Manual Only (included in purchase) 25.00

DIGITAL VOICE RECORDER

- Digital Voice Recorder (one channel, one block 64K byte memory) \$935.00 List Price, \$850.00 Discount Price*
 - Assembled and tested board only 1265.00
 - In 19" rack mount cabinet 100.00
 - MX-2 Add'l 64K byte memory (up to four blocks total)†
 - MX-3 Add'l 256K byte memory (up to four blocks total)†
 - CH-2 Second record/playback channel††
 - CH-3 Third record/playback channel††
 - MDVR Manual Only (included in purchase) 15.00
- † Memory may be expanded by the user in the field. Dynamic RAM required for operation. Either 4164 (64K bit) or 41256 (256K bit), 200 ns or faster (150 ns, 120 ns, etc.). Up to four blocks of 8 devices (32 total). Check current product filer for details.
- †† Factory upgradeable only.

ITC-32 INTELLIGENT TOUCH-TONE CONTROL BOARD

- ITC-32 Intelligent Touch-Tone Control Board \$315.00 List Price, \$275.00 Discount Price*
 - FC-1 Frequency Control Board 55.00
 - TP-3 Telephone Interface Option 200.00
 - M32 Manual Only (included in purchase) 15.00
- (for telephone line control, not an autopatch)
- Please specify repeater call sign: _____ (optional) (1-7 digits, excluding *, #, and D) and desired command code prefix: _____

The cost of a previously purchased manual is applicable as a credit toward your new equipment. Owner's supplements are shipped when controllers are ordered.

* To qualify for Discount Price, order may be accompanied by a minimum 20% deposit, with balance due prior to shipment, or payable via COD certified funds or VISA or Mastercard charge. Orders placed on company purchase orders requiring credit terms do not qualify for Discount Price.

① Subtotal \$ _____

② Credit for previously purchased manual \$ _____

③ California residents add sales tax (line 1 times 6, 6.5, or 7%) \$ _____

④ Shipping and insurance (UPS second day air): RC-850 - \$23.00 DVR - \$23.00 RC-96 - 15.00 RC-85RM - 13.00 RC-85B - 9.00 ITC-32 - 7.50 Accessories - 5.00 Manuals - no charge

⑤ C.O.D. charge (\$3 if applicable) \$ _____

⑥ TOTAL DUE \$ _____

⑦ Deposit enclosed \$ _____

⑧ BALANCE DUE \$ _____

METHOD OF PAYMENT

- Check or money order for total amount enclosed
- Deposit encl. w/ balance due prior to shipment
- Deposit encl. w/ balance due COD Cert Funds
- Charge to a VISA / Mastercard
- Company p. o. - subject to credit approval

P.O. # _____ (Hard copy required prior to shipment)

Credit card #: _____

Expiration date: _____

Name on card: _____ address: _____

Signature: _____

Thank you for your order!

This year at the Dayton Hamvention, we demonstrated software in our new RC-96 Repeater Controller and our prototype "FC-900 interface" controlling two of the IC-900 band units. The response from our current repeater controller owners was overwhelming!

We're nearing production on our interface which mates our controller's signals to the IC-900 band unit bus. Over time, we will be making available new software for our repeater controllers to support the IC-900 capability.

The First Repeater

In early 1940, what is believed to be the first licensed, unattended, automatic radio repeater system became operational in Contra Costa County in California.

Former Contra Costa County Sheriff's Department captain, George K. Burton, conceived the idea to improve radio coverage of the 750-sq.-mile county, 40 miles east of San Francisco.

Burton first thought of installing an elevated, remote VHF receiver linked to the dispatch center. He considered using a phone line to carry receive audio to the dispatching center, but five miles of line would have had to be built, and the cost was too high. Then Burton conceived the idea of a repeater: feed the receiver output to another transmitter on a second frequency to relay the signal to the dispatch center.

He gave the specifications to Fred M. Link at Link Radio. While the company designed and built the repeater, Burton applied for a license. The application was rejected.

Link helped smooth the way for the FCC to issue an experimental license. At the time, the rules didn't prohibit repeaters, but they didn't allow them, either. There hadn't been any.

The repeater was activated during the first quarter of 1940. The base station broadcast to the mobiles on 1,658 kHz. The mobiles transmitted on 35.22 MHz and were repeated out on 39.14 MHz.

Condensed from *Mobile Radio Tech.*, July, 1988.

How To Fund A Repeater

We often hear from people that would like to build a new repeater or upgrade their existing repeater to better serve their community or club, but they think they can't afford it. When a number of people are involved, it is possible to afford it - it may just take some creativity in figuring out how. The story of the West Valley Amateur Radio Association (Los Gatos, CA) shows creativity at work.

In 1981, a group of West Valley club members decided that they wanted the club to sponsor a new 2 meter repeater. The overall club members voted that the money couldn't come

from the club treasury. Not easily stopped, the group came up with an innovative way to raise new money. They created a new class of club member. For a donation of \$25 or more to the special fund, a member would become a Charter Repeater Member. The names of the Charter Members were inscribed on a plaque permanently put on display at the club station. Each week during the club's net, Charter Members are allowed to check in first.

The simple process of long-term recognition of the contributions of the Charter Members in the form of privileges raised the money needed for the purchase of equipment that continues to serve them now, many years later.

Win \$\$\$ For Your Repeater System

Write us. Describe the fund raising activity that led to the purchase of your repeater system or the activity you're using now to raise money for a system. In upcoming issues of ACC Notes we'll publish the most innovative, resourceful, and unique fund raising solutions as part of a new series on funding repeater systems. And we'll award the author with a gift certificate worth \$100 toward the purchase of any ACC product. Your fund raising efforts will go even further with ACC!

ACC and Mickey Mouse at Disneyland

The next time you visit Disneyland be sure to use the Disneyland Amateur Radio Club repeater. It's a split site system, with the receiver located on top of the *Matterhorn* and the transmitter located behind *It's a Small World*. It's on 146.34/94 MHz, usually carrier access but occasionally PL 1Z (100 Hz), and is controlled by an ACC RC-85 controller. There's an autopatch available - ask a control operator to bring it up for you.

The Disneyland Amateur Radio Club Repeater was founded in 1980 through a combined effort of the Disneyland ARC and Disneyland to provide a public service to the community and to all amateur radio operators residing in or visiting the southern California area. Feel free to use the repeater during your stay and while you are in the Disneyland area.

Tech Support Line

Just a reminder that our Technical Support Service is available for assistance with your ACC product weekdays between 9 a.m. and 12 noon, and between 12:30 p.m. and 3 p.m. Pacific time. The number is (408) 727-3414.

For Sale

The following excellent used or demo equipment and parts are for sale. Call or write.

ICOM IC-720A HF Transceiver - \$400
Apple Imagewriter I - \$100
256K Dynamic RAM Chips - \$6.50 each

220

Well, I guess that you've probably heard by now that the FCC has acted on reallocating 220-222 MHz to land mobile services. Amateurs and the League fought a good battle, but the FCC was clearly determined to act positively on its proposal, despite public protests. Their motivation was either a "payoff by monied interests", as many amateurs claim, or a legitimate, determined belief that narrow band technologies need virgin spectrum in order to develop on a practical basis. We support continuing efforts by the League and others, including Petitions for Reconsideration and possible legal action. These may lead to a reversal, but that seems unlikely at this point.

Now, perhaps, it's time to look back on what happened, what could have been done in retrospect, and what can be done now to prevent a repetition of the situation to other bands.

The threat to 220 has been known for at least a decade. Old proposals by the Commission and more recent Petitions for Rulemaking, as well as the band's status as shared co-primary with other services, made the threat clear. Yet, when Docket 87-14 was issued proposing the reallocation, only then did organized amateur radio get into gear to protect the spectrum.

We met the President of the League at a local

hamfest in 1984, shortly after Petitions for Rulemaking RM-4829 and 4831 were released for comment by the FCC. His attitude at the time was that the grass-roots amateur letter writing campaign underway (legitimate filing of comments by the public on Petitions for Rulemaking) was premature and unnecessary. He minimized the seriousness of the risk, indicating that the matter would need to proceed to a full-blown Notice of Proposed Rulemaking before anything would be acted on, and that could be years. Well it did, and has been, and we've lost part of our band. Only after amateur radio was massively shocked into being on the defensive by the NPRM was an organized campaign mounted by the League to defend our frequencies. And at that point, it was clearly too late.

What this points out to us is the need to mount an organized *offense*, concentrating on the bands most at risk in the future - perhaps 420-430, 902-928, and 1240-1300 MHz. The need for these bands should be thoroughly thought out and crystalized, their use should be encouraged, and then their use by amateur radio and the benefit to the public should be actively promoted to the public, the FCC and Congress. Only real, and publicized, usage of our frequencies at risk will allow us to keep them for the future of amateur radio. acc



advanced
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controls, inc.

2356 Walsh Avenue
Santa Clara, California 95051

