

rfc 2/70
rfc 2/70G

Owner's Manual

rfconcepts



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a division of Kantronics Co., Inc.

Additional Product Information

PO Box 11039, Reno NV 89510-1039

(702) 324-3290

FAX (702) 324-3289

International Inquiries FAX (913) 842-2021, Tel (913) 842-7745

Service and Product Support

Kantronics/rfconcepts

1202 E. 23rd Street, Lawrence, Kansas 66046

(913) 842-7745

Service / Technical Support (913) 842-4476

9 am - noon, 2 pm - 5 pm Central Time, Monday-Friday

FAX (913) 842-2021

Bulletin Board (913) 842-4678

300 - 14,400 (MNP, V.32BIS) N,8,1

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General Description

The RFC 2/70G is a dual-band power amplifier and dual-band receiver pre-amplifier combined as one. The RFC 2/70 is a dual-band power amplifier without pre-amplifiers. Many who live in congested metropolitan areas find the additional receiver gain unproductive due to channel noise level, so that is why we've offered the RFC 2/70 with or without pre-amplifiers. In less populated or RF quiet areas additional gain can be helpful.

The main features of the RFC 2/70 series are automatic keying and amplification of RF energy from your dual-band hand-held (HT). When the HT power output is sensed by either the 2-meter or 70-cm narrow band peak detector, the preamp is switched out and the power amplifier is switched on. The two front panel switches allow for independent selection of the power amp, pre-amp or both.

The RFC 2/70G features two GaAsFets as the pre-amplifiers, one for each band. FETs provide good gain and noise figure. An added feature is the addition of PIN diodes as protection circuitry at the front-end and output of the FETs.

In addition, the RFC 2/70 series feature fast coaxial relay switching, generally less than 20 ms. The relays are 50-ohm compatible, sealed and require low power to latch and control, making the RFC 2/70 series ideal for high-speed packet applications.

Specifications

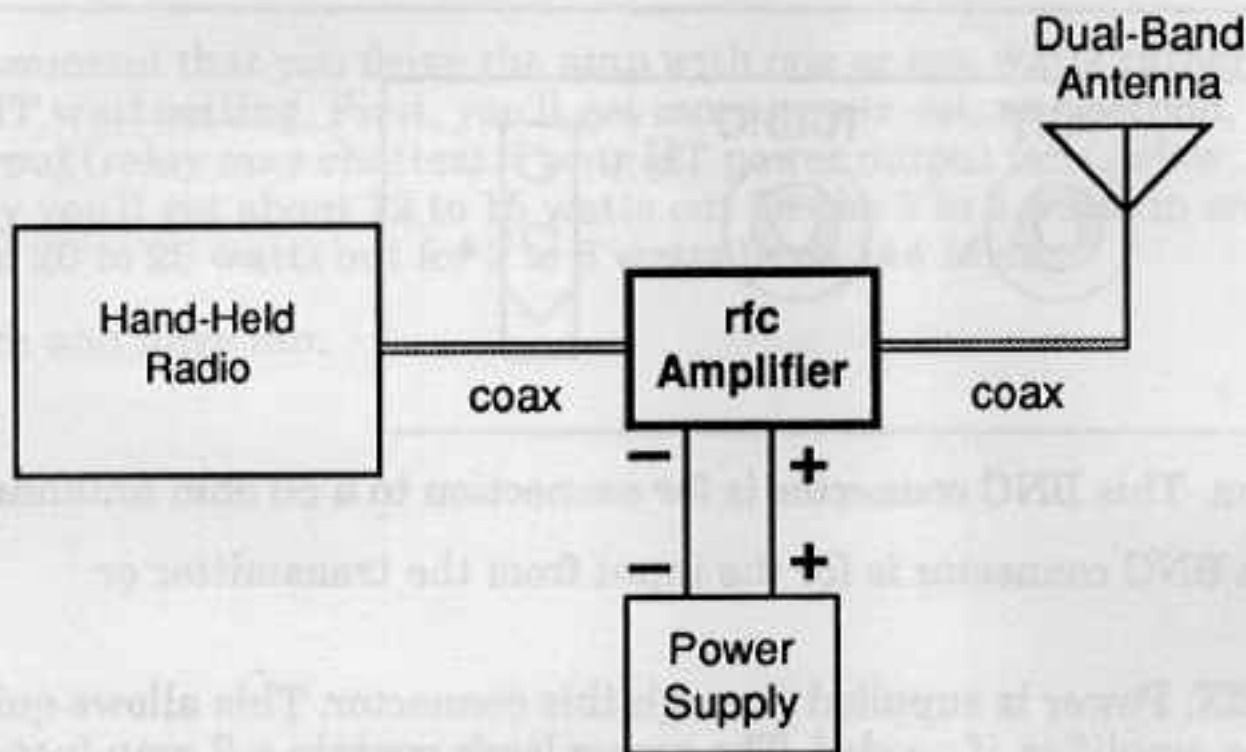
Frequency range	143-149 MHz and 430-450 MHz
Power	143-149: 5 W in = 30 W out* 430-450: 5 W in = 20 W out*
Minimum input	500 mW
Maximum input	7 Watts
Duty cycle	Intermittent (not for repeater service)
Mode	FM
GaAsFet Preamp [model 2/70G only]	143-149: Noise Figure: 1 to 3 dB Gain: 15 dB nominal 430-450: Noise Figure: 2 to 4 dB Gain: 10 dB nominal
Keying	Automatic – RF sensing, band selectable
TR switching	<20 ms
Input-output impedance	50 Ohms nominal
Voltage requirements	13.8 Vdc
Current requirements	<6 Amps
Size	3.5" x 2.0" x 8.0" (8.89 cm x 5.08 cm x 20.32 cm)

*output may vary by ± 1 dB

General Installation and Operating Instructions

The RFC 2/70 series was designed primarily to be used with HTs that have a power output of from .5 to 5 watts. Maximum input power is 7 watts. Installation is straightforward:

1. Attach a well regulated +12 VDC power supply capable of 6A to the supplied power cord with fuse, and then attach the end with supplied connector to the amplifier at the back panel. See panel diagram. **If power is supplied backward the in-line fuse will blow. If no fuse is installed the circuit board will be seriously damaged if the power is connected backwards.**
2. Attach a BNC coaxial cable between your HT and the RADIO port of the RFC (not provided).
3. Attach your antenna coax line to the ANTENNA port of the RFC.



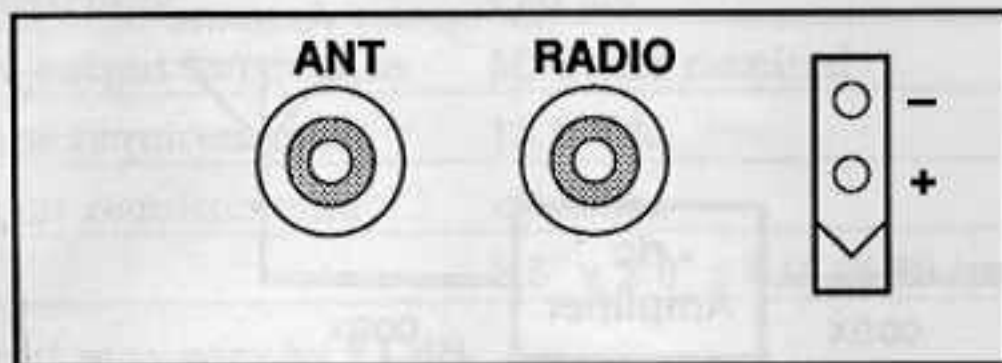
CAUTION: If you are expecting to operate both bands, you'll need to use a dual-band antenna. Check with your dealer. If you operate dual band without a dual-band antenna, you could damage the power transistors if you key up on the wrong band. Many good, inexpensive dual-band antennas exist for sale.

Second, while protection circuitry has been added, if you key the RFC without an antenna attached, you could damage the power transistors or GaAsFets. Please check that your antenna is attached and that it has the proper 50 ohms impedance.

Third, a very high VSWR or shorted antenna could cause damage. Proper antenna installation and use is your responsibility.

Finally, this unit is not designed for repeater service; do not use it in a one-hundred percent duty cycle application.

Rear Panel



ANT: Antenna. This BNC connector is for connection to a 50 ohm antenna.

RADIO: This BNC connector is for the input from the transmitter or transceiver.

2 PIN MOLEX: Power is supplied through this connector. This allows quick removal of the amplifier, if needed. The power leads contain a 7 amp fuse, which provides protection in case of an internal short circuit.

Operation

Power is applied to the amplifier circuitry by pressing the POWER switch on the front panel. See panel drawing. When the POWER LED is lit and the RFC 2/70 receives sufficient RF energy from your HT, the unit will automatically key. This is indicated by the illumination of the TX LED.

If you press the PREAMP switch (on RFC 2/70G models only), power is applied to the GaAsFet preamps. Received signals will then be boosted prior to reception by your HT. You may have the preamp switch on when you key your HT for transmit. The circuitry within the unit will sense the presence of RF power and protect and switch off the pre-amps.

Typical Operation

It is recommend that you drive the amp with one or two watts rather than the lowest HT watt setting. First, you'll get more power out, and second, the RFC may cut out (relay may chatter) if your HT power output falls below .5 watts. Normally you'll get about 12 to 15 watts out for the 2 to 3 watts in on 440 MHz and 20 to 25 watts out for 2 to 3 watts in on 144 MHz.

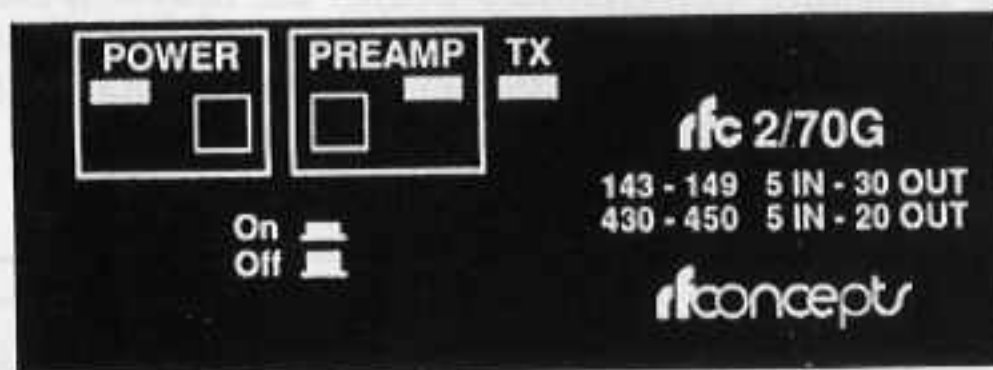
Good luck and have fun.

Front Panel

rfc 2/70



rfc 2/70G



Power LED: This LED will illuminate when power is applied to the amplifier.

POWER: When pushed in, this switch activates the power amplifier section.

PREAMP: [RFC 2/70G model only.] When pushed in, this switch turns on the GaAsFet preamps. It can be used even when the power amp section is off.

Preamp LED: [RFC 2/70G model only.] This LED will illuminate when the preamp is on.

TX LED: This LED will illuminate when the amplifier is transmitting.

Circuit Description, RFC 2/70G

The RFC 2/70G consists of four circuit sections: the relay switching paths, the RF input power sensing and control circuitry, two GaAsFet preamplifiers, and two power amplifiers.

The relays utilized are 50-ohm compatible, low in insertion loss and switch quickly, nominally 10 msec. When both the power amplifier and preamplifier sections are turned off, RF applied to the 2/70 is looped through the relays and back to the antenna port. Without power applied, both relays have their contacts in the normally closed positions and RF flows from RL1B through the preamp relays, RL2C and RL2B, and then through RL1C to the antenna. This is denoted in the schematic with RF flowing from RADIO terminal J2 through to ANTENNA terminal J3.

When DC supply power is applied to the amplifiers (J1), via the amp POWER Switch, the narrow-band peak detector circuits are made active and the POWER LED is lit. Whenever the power cable is applied to the RFC 2/70, full supply voltage is applied to the collectors of the power transistors. If DC power is applied backward, the in-line fuse will blow, clamped by the circuit protection diode, D14.

The RFC 2/70 will produce RF power whenever a 2-meter or 70-cm signal of 500 milliwatts or more is applied to the RADIO port. CAUTION: Don't apply more than 7 watts from your transceiver. For example, if a dual-band hand-held is attached and produces .5 watts, the 2-meter peak detector will turn on transistors Q1 and Q3. Q3 will in turn activate the coil of relay 1, thereby passing the input RF signal through RL1B to the 2-meter power amplifier. RF power from the power transistor, SRF3961, will then pass through relay contacts RL1C to the antenna.

The keying threshold for input RF signals is controlled by a comparator circuit. Resistor divider R15/R13 sets a level that must be exceeded by the DC level developed by the peak detector. The ratio is set at the factory for about .4 watts. Take the 2-meter circuit as an example. If a signal of more

than .5 watts is received, then the developed voltage at pin 3 of U1A will exceed that of the reference, R15/R13, and the operational amplifier, used here as a comparator, will turn on, thereby turning on the power amp circuitry.

Bias for the 2-meter power transistor, Q9, is gated by Q1, the pass transistor. When Q1 is on, DC voltage is applied across the 130-ohm, 2-watt, series-pass resistor, providing current to the base of Q9 in parallel with diode D13. This standard biasing arrangement 'just' turns on the power transistor, thereby allowing for 'class-B linear' operation and for operation with input power as low as 500 milliwatts. Biasing for the 70 cm amplifier is similar; when 70 cm RF is applied, the 70 cm peak detector activates U1B and Q2 supplying bias to the base of Q8, a MRF644.

RF entering the power amplifier section is routed to the 2-meter or 70 cm portion by the high-pass/low-pass duplexer combination. A similar combination exists as a combiner in the output section of the amplifiers. Only one transistor will be on at a time, so the output circuitry really acts as a RF frequency switch. Stripline sections and capacitors at the bases and collectors of the power transistors provide device impedance matching.

When the PREAMP Switch alone is activated on the front panel, DC power is supplied to the GaAsFet preamps. Pressing the PREAMP Switch ON turns on transistor Q5 which in turn activates relay contacts RL2B and RL2C, routing RF from the ANTENNA port to the preamps. Two-meter and 70-cm signals alike are amplified and passed on to the RADIO port. Recall, here the signal flow is reversed; RF from a distant radio enters the 2/70 ANTENNA port, is amplified by the GaAsFet preamp if it is on, and is then passed on via the RADIO port to your hand-held.

If power is applied to the amplifier sections as well as the preamps and an RF signal is supplied from your hand-held, the appropriate peak detector will sense the power, Q4 will be turned on and relays RL2C and RL2B will be turned off. The pre-amp is then switched out of the RF path. Pin diodes D11 and D10 protect the FETs during relay transition.

Theory Of Operation

While it may seem odd that operating class-B gives linear operation, under the right circumstances this is indeed true. You will note that each power amplifier has only one transistor so the unit is not operated in class-B in the usually audio sense, i.e. two transistors in push-pull. Instead, the transistor is biased such that conduction is over one-half of the RF cycle, and we rely on the high-Q of the output filters to remove essentially all but the fundamental component of the power signal. The result is that the output signal is a faithful reproduction of the input signal and essentially linear. Changing the conduction angle appreciably such that class-C operation occurs will distort the output considerably and exacerbate output matching.

Not surprising, the narrow-band peak detectors (NBPD) also make use of the Q of their tuned circuits. After analysis, it turns out as a rule of thumb that the equivalent circuit for the NBPD is an RF source with the high-Q tank loaded by a resistor one-half the value of the actual load resistor. So in our case the 100K load resistor looks like 50K. The high-Q tank circuit in the peak detectors filters out all but the fundamental frequency driving the circuit. The model and assumptions hold only as long as the Q is maintained. Hence, the output 'DC' voltage is proportional to the amplitude of the input RF signal. Narrow band AM detectors work the same way.

If you are experimentally minded or like to delve into the details about your equipment, a good reference on RF circuitry is *Communication Circuits: Analysis and Design*, by Clarke-Hess. This is an engineering text. More general material is presented in the *ARRL Handbook*.

KANTRONICS CO., INC.
LIMITED WARRANTY

Effective December 1, 1992

To be sure you will receive notice of future updates, new product information and prompt warranty service, please take a moment to fill in the Kantronics/rfconcepts Warranty Registration card **COMPLETELY** and return it along with a copy of proof of purchase (to establish purchase date) to Kantronics Co., Inc., 1202 East 23rd Street, Lawrence, Kansas 66046 USA. **Return of the Warranty Registration card and proof of purchase is a pre-condition to warranty coverage.**

1. WARRANTY. Kantronics Co., Inc. ("Kantronics") warrants to the first consumer purchaser ("you"), for the Applicable Warranty Period (as described below), that the Applicable Product (as described below) will be free from defects in material and workmanship.

2. REMEDY. Kantronics agrees that, for any Applicable Product found by Kantronics to be in violation of the warranty of Section 1 hereof within the Applicable Warranty Period, it will, at its option, repair or replace the defective Applicable Product at no charge to you, excluding in-bound shipping charges.

3. EXCLUSIVE REMEDY. Repair or replacement of the Applicable Product, as provided herein, is the sole remedy available to you against Kantronics, and in no event will Kantronics be responsible for any other liability or damages or for incidental, special, or consequential damages, regardless of whether purported liability is predicated upon negligence, strict tort, contract, or other products liability theory and whether or not Kantronics is warned about the possibility of such liability or damages. **SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.**

4. DISCLAIMER. This Limited Warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume

for Kantronics any other liability in connection with the sale of its products. KANTRONICS SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE FOR ANY APPLICABLE PRODUCT. IF, HOWEVER, YOU ARE A CONSUMER WITHIN THE MEANING OF 15 U.S.C. § 2301(3), THE ABOVE DISCLAIMER OF IMPLIED WARRANTIES IS EFFECTIVE ONLY FOR PERIODS OUTSIDE THE APPLICABLE WARRANTY PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

5. APPLICABLE PRODUCTS AND PERIODS. Kantronics products are of two types – (1) hardware units and (2) firmware and software for operation of these units, whether incorporated into the units themselves or separate from the units as adjuncts or accessories to the units. Hardware units and the media containing firmware, software and documentation are sold to the consumer purchaser and become property of the purchaser. Firmware and software are licensed for use by the consumer purchaser in return for a fee included in the purchase price of the units and do not become the property of the consumer. (See separate License Agreement provided with these products). The products to which the warranty of Section 1 hereof applies (herein “Applicable Products”) and the periods during which the warranty shall apply to such products (herein, “Applicable Warranty Period”) are as follows:

Applicable Products:

UNITS:

KAM, KPC-2, KPC-3, KPC-4, Data Engine, DVR2-2, D4-10, KTU, rfc 2/70, rfc 2/70G, rfc 2/70H, rfc 2-23, rfc 2-217, rfc 2-117, rfc 2-317, rfc 2-417, rfc 4-32, rfc 4-110, rfc 4-310, rfc 3-22, rfc 3-211, rfc 3-112, rfc 3-312

Applicable Warranty Period:

One (1) year from date of purchase.

ACCESSORIES:

Anemometer, Rain Gauge, Temperature Sensor (for KTU units)

Applicable Warranty Period:

Sixty (60) days from date of purchase.

DE1200 modem, DE19K2/9K6 modem, DE Jumper Board,
MSK modem, Watchdog Timer

Applicable Warranty Period:

One (1) year from date of purchase.

MEDIA:

EPROMS, diskettes, video or audio cassettes, manuals (however bound), specification and other supplemental pages or any other media on which firmware, software or documentation are supplied

Applicable Warranty Period:

Thirty (30) days from date of purchase.

6. EXCLUSIONS. This Limited Warranty does not apply to the cosmetic appearance of the Applicable Product; to broken or cracked cabinets; to any accessory not supplied by Kantronics which is used with the Applicable Product; to any product that has been subject to misuse abuse or overvoltage; to any product that has been modified by non-Kantronics personnel unless specifically authorized in writing by Kantronics; or to any product damaged or impaired by shipping (whether or not caused by poor packaging), neglect, accident, wiring not installed by Kantronics, improper parameter settings which are cleared by performing a hard reset, or use in violation of instructions furnished by Kantronics or of generally accepted industry practice. Kantronics does not warrant that the functions contained in any software will meet your requirements or achieve your intended results; or that operation of any software will be uninterrupted or error-free or without effect upon other software used with it. Responsibility for the selection of the hardware and software program to achieve your intended results rests with you.

7. REMEDY PROCEDURE. Should you need to make a warranty claim, first contact the dealer from whom you purchased the product. If the dealer is unable to assist you, contact Kantronics Co., Inc., by mail at 1202 East 23rd Street, Lawrence, Kansas 66046 USA; by fax at 913-842-2021; or by phone at our Customer Support number 913-842-4476. Contact us prior to returning an Applicable Product to receive a Return Authorization Number. (As a practical matter, problems can often be solved in such a manner without the product having to be returned to Kantronics for repair or replacement.)

Return of any Applicable Product for the enforcement of rights under this Limited Warranty shall be at your expense. Any product returned for warranty service which Kantronics determines to be without defect or not covered by this Limited Warranty shall be subject to a minimum charge of one-half hour labor rate and the product will be returned to you at your sole expense. Please note, no warranty service will be provided until Kantronics has been furnished with your Warranty Registration card and copy of proof of purchase establishing purchase date.

8. NON-ASSIGNMENT. This Limited Warranty is not assignable by you. Any attempt to assign or transfer any of the rights, duties, or obligations hereof is void.

9. OTHER RIGHTS. This Limited Warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

Return/Repair Procedures

Consult the limited warranty policy in this manual for the service provisions offered by Kantronics at no charge. This warranty is considered to be in force only when the customer has submitted a completed warranty registration within 10 days of purchase, and when the stipulations of the warranty have been met. Violations of warranty clauses will automatically void the warranty and service or repairs will be charged to the owner.

Service outside the warranty will be charged at the cost of parts, labor, and return shipping. Units returned for service without a Return Authorization number will be subject to a minimum charge of 1/2 hour labor plus shipping and handling. Contact the Service Department (913-842-4476) to obtain a Return Authorization number. Repaired units will be returned via UPS C.O.D. These C.O.D. charges can be avoided by including your VISA or MasterCard number with your unit to be repaired. Shipping and repair may then be charged.

When service or repairs appear necessary, it may be wise to call or write Kantronics to determine if the problem can be solved without returning the unit.

When calling, report the product name and ask for the Amateur Radio Service Department. Should you find it necessary to call for assistance, please have the unit name and serial number available. (The serial number is found on the rear panel.)

The Service Department telephone hours are 9 am - noon and 2 pm - 5 pm Central Time 913-842-4476, Monday through Friday.

Returns to the factory for refund or exchange are strictly regulated. Any return for refund or exchange must be approved by the service department.

Additional International Support

International Returns

In case of unit problems, first contact the dealer from whom you purchased the product. If you must return a Kantronics/rfconcepts product to us, please observe the steps outlined below. It will save both you, the customer, and Kantronics/rfconcepts unnecessary difficulties and expense.

1. All returns must be shipped to the factory at 1202 East 23rd Street, Lawrence, KS 66046 USA.
2. All expenses of returning item(s) to Kantronics/rfconcepts must be paid by you, including any duty/entry fees, whether the return is for warranty or non-warranty repair.
3. Usually, the best way to return item(s) to us is by mail. However, if you wish to use one of the courier services such as DHL, Federal Express, etc., be sure to use **DOOR-TO-DOOR** service. If you use one of these services, a commercial invoice may be required. Please check with your carrier before shipping.
4. Include in the description of the item(s) on the paperwork (whether postal or courier) the words:
"U.S. GOODS RETURNED FOR REPAIR/REPLACEMENT."
An *additional* description of "Amateur radio peripheral equipment", or "Data communications equipment", would be helpful. It would also be helpful (but not required) to include the code number 9801.00.1035 9 which tells U.S. Customs agents that the package contains "U.S. goods returned without improvement/enhancement". However, if the words "U.S. goods returned for repair/replacement" are on the paperwork, the number is not really necessary.
5. Provide a value for customs purposes. This is usually the value of the item(s) in their current condition. A \$0 value is not acceptable for U.S. Customs.

December 17, 1992

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6. Inside the package, with the item(s), include:

- a fax number (if available) in case we need to contact you
- a correct and full address for return
- method of payment to be used for any charges (if MasterCard or VISA, include expiration date).
- a brief description of the problem
- a reference to any conversations with the technical/sales staff about the problem
- and the Return Authorization number assigned.

7. For warranty repairs, we will pay the shipping charges to return the item(s) to you via **air parcel post**. If you wish return by courier service, include your account number. To be eligible for repair under warranty, we must have a record that you sent your Warranty Registration card and proof of purchase to Kantronics/rfconcepts, and the item(s) must still be within the warranty period at the time the return is authorized.

8. For non-warranty repairs, you must pay the return shipping charges.

Parts List

Ref. Part Name

C1	22pF
C2	470pF
C3	.1μF
C4	3.9pF
C5	470pF
C6	.1μF
C7	470pF
C8	470pF
C9	470pF
C10	470pF *
C11	470pF
C13	100pF *
C14	470pF *
C15	470pF *
C16	470pF *
C17	470pF *
C18	470pF *
C19	2-6pF *
C20	2-6pF *
C21	33pF *
C22	22pF
C23	10μF 35V
C24	7.5pF
C25	8.2pF
C26	100pF
C27	10μF 35V
C28	7.5pF
C29	2-15pF
C30	22pF
C31	22pF

Ref. Part Name

C32	30pF
C33	30pF
C34	.01μF
C35	470pF
C36	22pF
C37	2-15pF
C38	27pF
C39	3.9pF
C40	7.5pF
C41	470pF
C42	12-65pF
C43	150pF
C44	150pF
C45	200pF
C46	12-65pF
C47	470pF
C48	27pF
C49	27pF
C50	100pF
C51	10μF tant
C52	1μF tant *
C53	100pF
C54	.01μF
C55	10μF tant
C56	470pF
C58	15pF
C59	1pF
D1	1N6263
D2	1N6263
D3	1N4002 *

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Ref.	Part Name
D4	Red LED *
D5	Red LED
D6	1N4002
D7	1N914 *
D8	1N914
D9	Red LED
D10	MPN3404 *
D11	MPN3404 *
D12	1N4002
D13	1N4002
D14	1N5402
D15	1N6263 *
D16	1N6263 *
D17	1N914
D18	1N914
J1	MLX39-29-1028
J2	AMP227661-1
J3	AMP227661-1
L1	.065 μ H
L2	16-14 μ H
L3	6Turn#20 *
L4	2Turn#20 *
L5	.108 μ H
L6	.078 μ H
L8	.205 μ H
L9	.205 μ H
L11	.098 μ H
L12	.098 μ H
L14	.098 μ H
L15	99nH 019-132-07
L16	.165 μ H
L18	64nH

Ref.	Part Name
L19	18-15 μ H
L24	32-25 μ H
L25	32-25 μ H
Q1	PN2222
Q2	PN2222
Q3	PN2222
Q4	PN2222 *
Q5	PN2222 *
Q6	NE25337-L *
Q7	NE25337-L *
Q8	MRF644
Q9	SRF3961
R1	51 *
R2	1.2K
R3	100K
R4	1.2K
R5	100K
R6	100K
R8	1.2K
R10	2.2K
R12	2.2K
R13	100
R14	27
R15	3.3K
R16	2.2K
R17	2.2K
R18	2.2K *
R19	2.2K *
R20	2.2K *
R21	820 *
R22	820
R23	820

Ref. Part Name

R24 10 *
R25 180 1/8W *
R26 180 1/8W *
R27 10K
R28 10 1/2W
R29 22
R31 10 1/2W
R32 22
R34 130 2W
RL1 RELAY
RL2 RELAY *

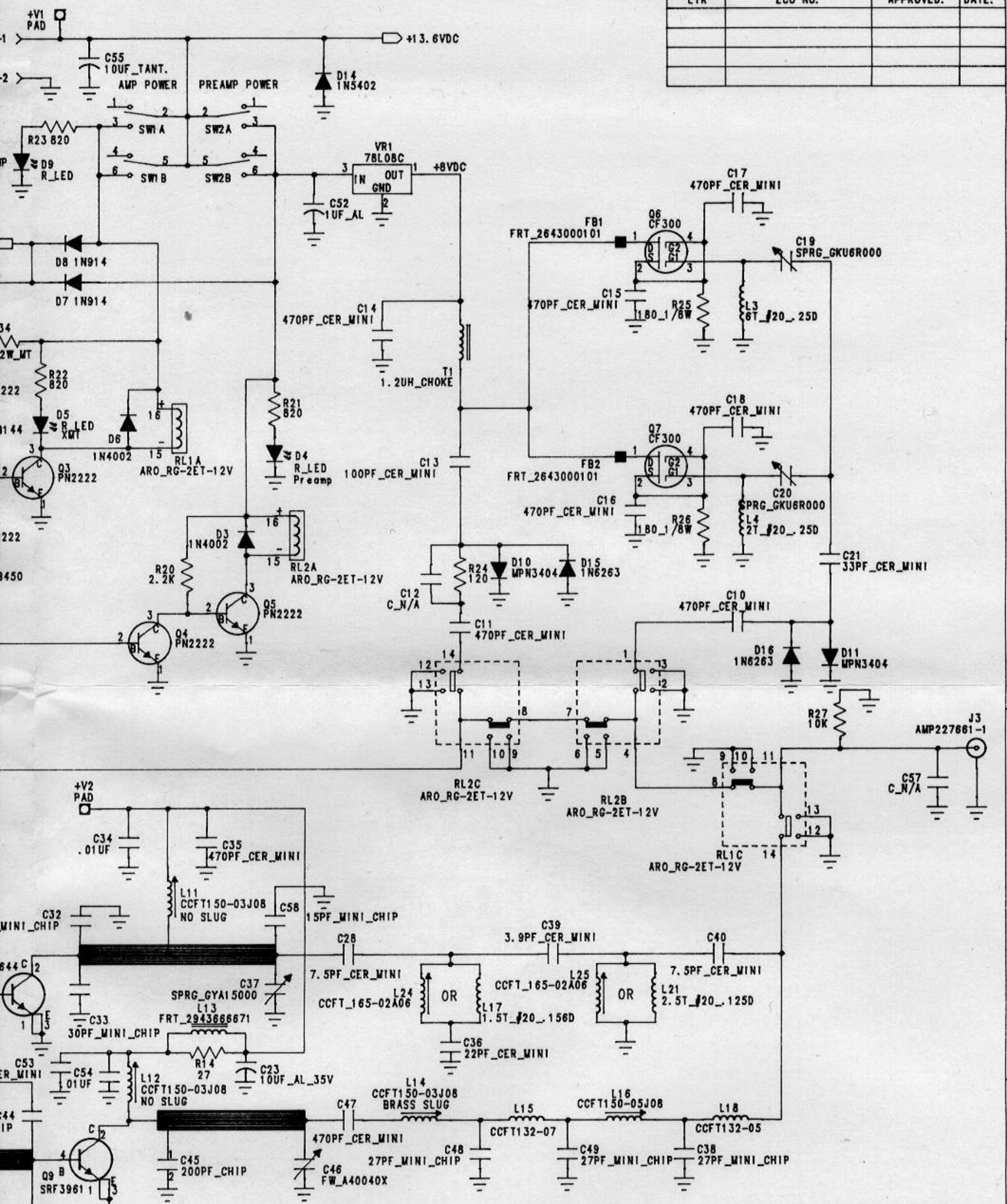
Ref. Part Name

SW1 Push-Push
SW2 Push-Push *
T1 1.2 μ H *
U1 LM358
VR1 78L08C *

* not used in 2/70

Part values subject to
change without notice.

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



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C

B

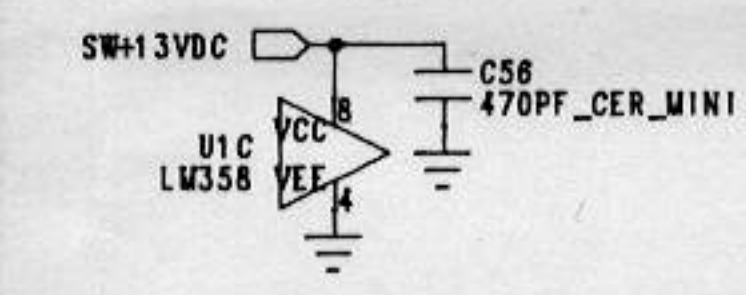
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RELEASED:	DATED:

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SCALE:			SHEET: 1 OF



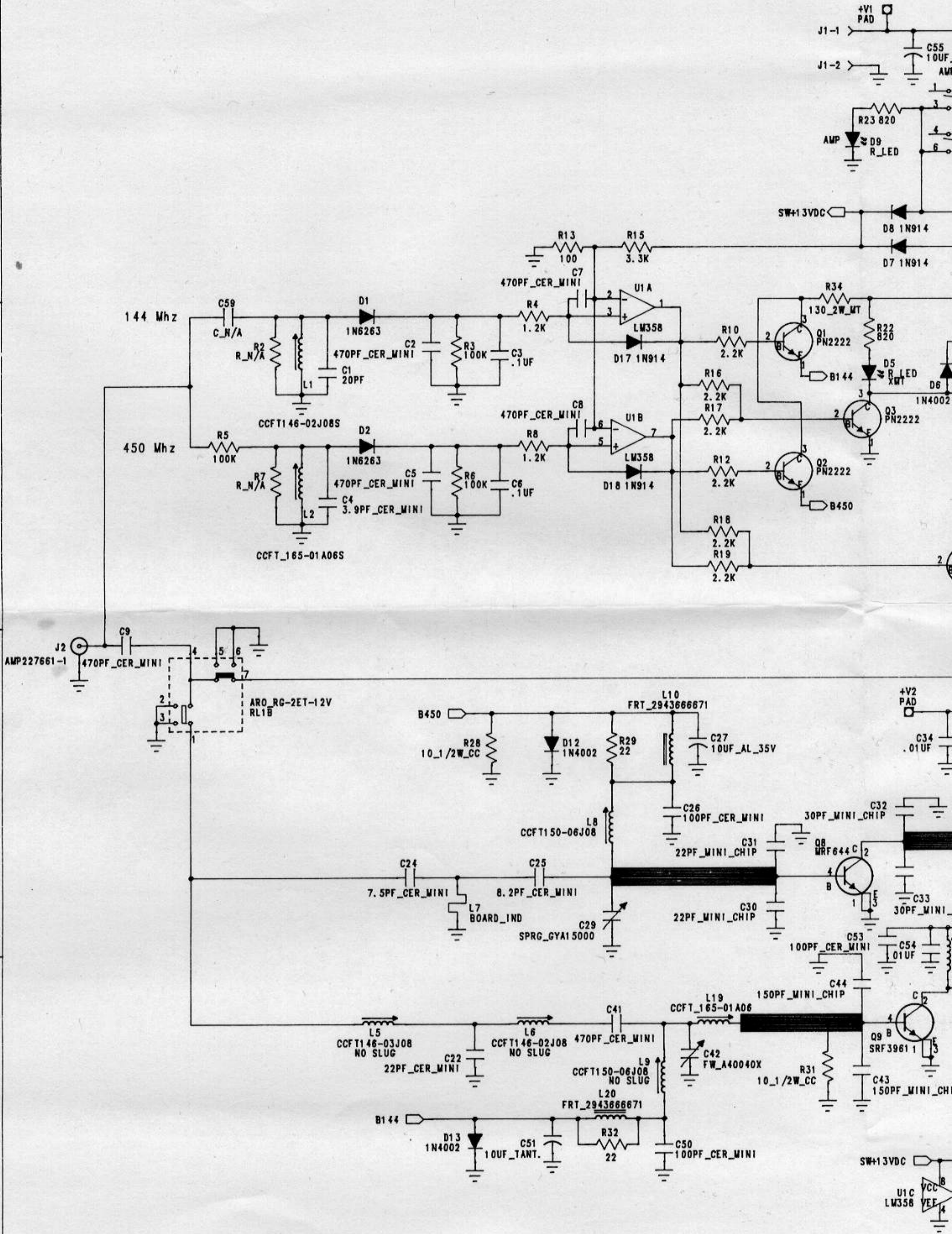
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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1993

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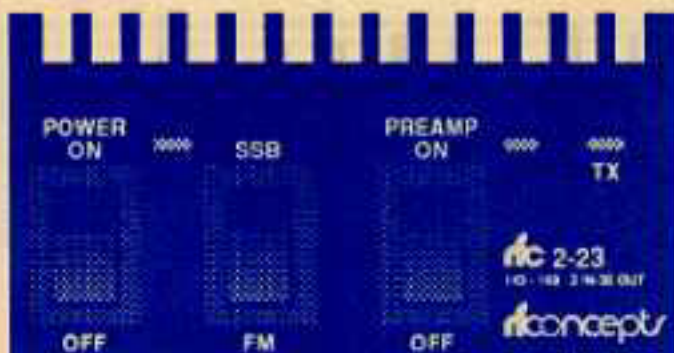
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International (913) 842-7745

RF Data Communications Specialists

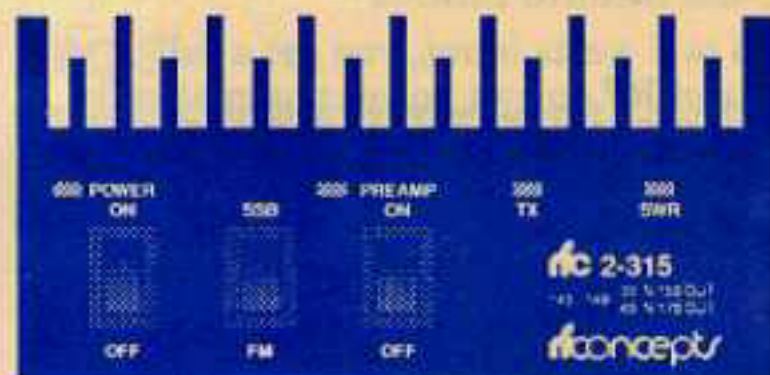
rfc 2-23



rfc 2-23 - The compact, low-power amplifier

Designed for use with 2-meter HTs, this amp's small size and low power requirements make it excellent for portable use. With 2 watts in you get 30 watts of RF output power; the receive GaAsFET preamplifier will typically produce 15 dB of gain. Size: 6.5 x 3.5 x 2 inches (16.5 x 8.9 x 5.1 cm). Weight: 1.5 lb (0.68 kg). Power supply requirement: 4 A at 13.8 VDC.

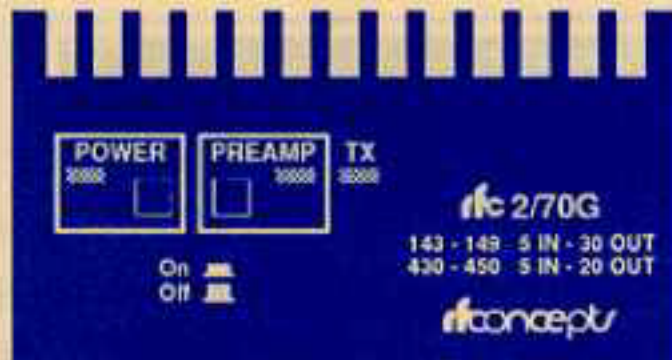
rfc 2-315



rfc 2-315 - Added power for your 2-meter hamshack transceiver

This rfconcepts amp boosts typical transceiver output power up to 170 watts. With 30 watts of input, the amp delivers 150 watts; with 40 watts of input, it develops 170 watts. The rfc 2-315 also includes a receive GaAsFET preamp with typically 18 dB of gain. Size: 11.5 x 6 x 3 inches (29.2 x 15.2 x 7.6 cm). Weight: 5 lb (2.27 kg). Power supply requirement: 22 A at 13.8 VDC. Other models for the 144, 220 and 430 MHz are also available.

rfc 2/70G



rfc 2/70G - The popular dual-band amp for your HT

The rfc 2/70G provides RF amplification for your dual-band HT while transmitting or receiving. With five watts of drive on 2 meters or 70 cm, you'll get 30 watts out on 2 m and 20 watts out on 70 cm. The amp also features two GaAsFETs to amplify received signals on both bands. Size: 3.5 x 2 x 8 inches (8.9 x 5.1 x 20.3 cm). Weight: 1-7/8 lb (0.85 kg). Power supply requirement: 6 A at 13.8 VDC.

rfc 2/70H



rfc 2/70H - The popular high-power, dual-band amp for your shack

The rfc 2/70H boosts power from 20 watts to 200 watts output on 2 meters and 125 watts on 70 cm. Size: 8 x 12 x 4 inches (20.3 x 30.5 x 10.2 cm). Weight: 11 lb (5.0 kg). Power supply requirement: 40 A at 13.8 VDC.

KAM Plus



KAM Plus - The HF/VHF all-mode TNC

With two radio ports, the Kantronics All Mode Plus (KAM Plus) supports CW, RTTY, ASCII, NAVTEX/AMTEX, AMTOR, (ARQ, FEC, SELFEC, CCIR-476, and 625), Pactor or Packet on HF while running Packet on VHF at the same time! Standard features include 128 K RAM, 1 Megabit EPROM, lithium battery, and on-board clock. The KAM Plus, an enhanced version of the industry-standard KAM, is the unit of choice by discriminating amateurs demanding high performance and flexibility of operation. Size: 1-3/4 x 6 x 9 inches (4.5 x 15.3 x 23 cm). Weight: 2-1/2 lb (1.1 kg). Power supply requirement: <200 mA at 12 VDC.

KPC-3



KPC-3 - The high-performance, low-power, small-sized TNC

This TNC for both new and experienced users features a dual-level command set with 23 and 130 commands respectively and incorporates the Kantronics full-featured PBBS. Standard features include low power requirement (<15 mA at 6 - 25 VDC), battery-backed RAM, and small size (0.8 x 5.2 x 5.2 inches. 2.1 x 13.3 x 13.3 cm). Weight: 11 oz (0.32 kg).

KPC-4



KPC-4 - The first true dual-port TNC

The KPC-4 contains two built-in 1200 baud modems, 32 K of RAM, and the Kantronics KA-Node networking firmware, making it ideal as a local packet switch. Size: 1-3/4 x 6 x 8 inches (4.5 x 15.3 x 20.3 cm). Weight: 2-1/4 lb (1.02 kg). Power supply requirement: 200 mA at 12 VDC.

KTU



KTU - The Kantronics Telemetry Unit for gathering weather or other data

Coupled with a temperature sensor (included) and optional anemometer and rain gauge, the KTU is set to gather and store local weather data. Then, on demand, you or other packet operators may download data in tabular form from the KTU, even remotely! A telemetry node eprom, which allows users to calibrate individually-selected sensors for tabular presentation, is also available. The KTU is compatible with packet network nodes and TNCs and may be attached directly to your home computer. Size: 1-3/4 x 6 x 8 inches (4.5 x 15.3 x 20.3 cm). Weight: 2-1/4 lb (1.02 kg). Power supply requirement: <45 mA at 11-20 VDC.

D4-10



D4-10 – 19,200 baud off the shelf

The D4-10 is a high speed, wide bandwidth, medium powered UHF FM transceiver designed to work with the Kantronics Data Engine. It is G3RUH compatible for 9600 baud, with channel one crystallized for 430.55 MHz. The D4-10 uses PIN diodes for fast T/R switching, has an output of 10 watts, and requires a 12 VDC supply. Size: 1-3/4 x 6 x 8 inches (4.5 x 15.3 x 20.3 cm). Weight: 2 lb (0.91 kg).

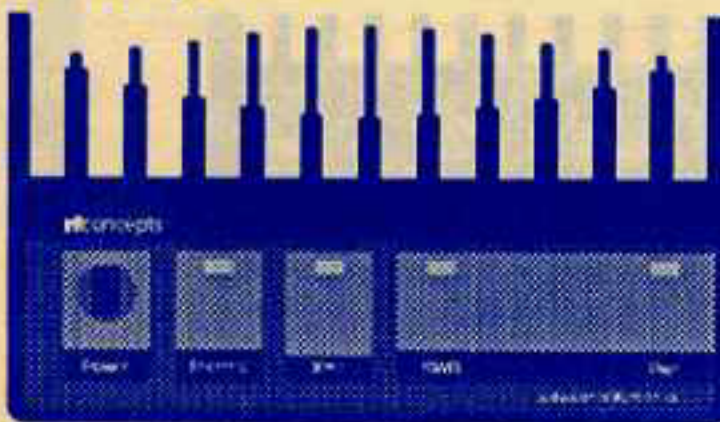
Data Engine



Data Engine – The general-purpose, high-speed, dual-port TNC

The Data Engine may be configured with as many as two of the following modems in any pair combination: 1200, 9600, and 19,200 baud (even two 19,200 baud modems). With two modems installed, the Data Engine is capable of simultaneous operation on both ports. A 19,200 baud modem combined with a D4-10 UHF FM transceiver creates a high performance 19,200 baud off-the-shelf packet system! Standard firmware includes KA-Node for networking (free G8BPQ and JNOS firmware available via the factory bulletin board). The Data Engine is shipped with 64K of RAM, lithium battery, and V40 processor running at 10 MHz. Size: 1-3/4 x 6 x 9 inches (4.5 x 15.3 x 23 cm). Weight: 2-1/2 lb (1.1 kg). Power supply requirement: varies depending on modem configuration.

HT Amplifiers



VHF1-60 – High-power RF amplifier for 2-meter handie talkies

Given 1 to 8 watts input, you get a full 60 watts of RF output power automatically. When operated with a dual-band HT, the amp automatically senses 2-meter input and produces 60 watts. When 70-cm input is present, the VHF1-60 leaves the amplifier off, passing the signal directly to the antenna without amplification.

UHF-50 – High-power RF amplifier for 70-cm handie talkies

Given 3 to 8 watts input, you get a full 50 watts of RF output power automatically. When operated with a dual-band HT, the UHF-50 automatically senses a 70-cm input and produces 50 watts; when a 2-meter input is present, the UHF-50 passes the signal directly to the antenna without amplification.

Both amps feature thermal sensing circuits which cause amplifier shut-down when temperatures exceed 131 degrees F (55 degrees C); thermal LEDs indicate shutdown. Built-in SWR detection drives automatic level control circuits (ALC) that reduce power output when an antenna mismatch exists.

Compact size makes these amps well-suited for mobile or stationary installation. Size: 5 x 9 x 2.9 inches (12.7 x 22.9 x 7.4 cm). Weight: 4.2 lb (1.9 kg). Power supply requirement: 12 A at 13.8 VDC.