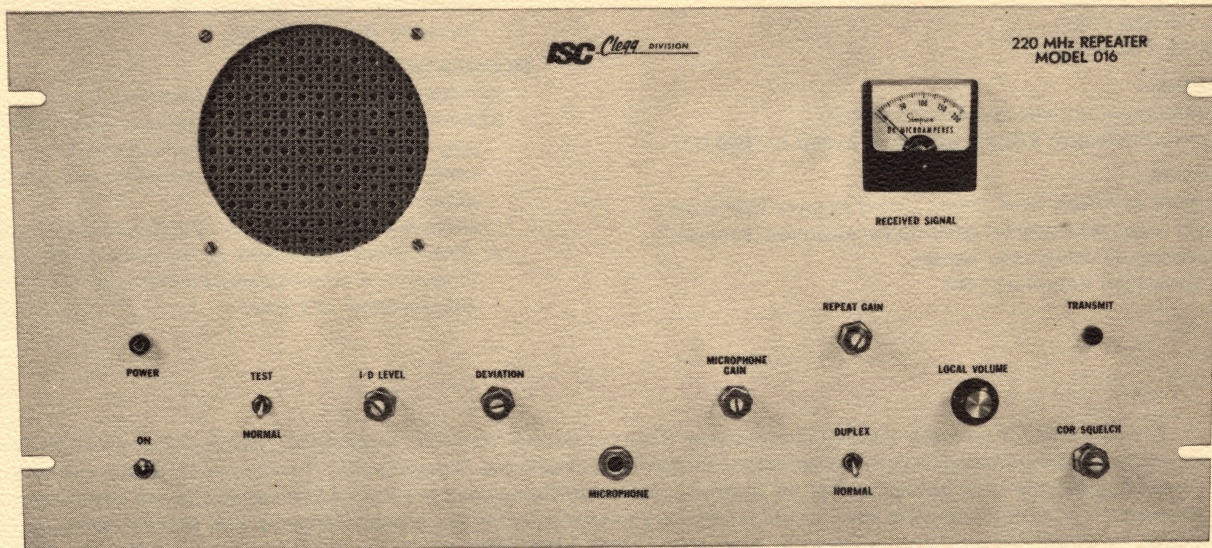


Clegg

220 MHz REPEATER Model 016



LIST \$1000.00

Self-contained Automatic Repeater

- COMPLETE WITH DUPLEXER
- SELF-CONTAINED MORSE IDENTIFIER
- OPERATES ON AC WITH INTERNAL SUPPLY

The Clegg Model 016 is a 220 MHz self-contained, automatic radio relay station designed to provide greatly increased communication range in VHF FM systems. Designed with conservatively rated, high quality components, it is intended to provide reliability and control flexibility to operate completely unattended for an indefinite long period of time. The unit includes an extremely stable, sensitive and selective single-conversion single-channel receiver combined with a stable 10 watt, spectral purity phase-modulated transmitter as well as the appropriate timing control and interface circuitry necessary for the normal repeater functions. The unit contains all power supply and voltage regulation circuitry required for operation from 115 V, 60 Hz power sources. A unique feature of the Model 016 is a self-contained automatic identification system easily programmable by the user for his specific call letters.

016 SPECIFICATIONS

RECEIVER SPECIFICATION

FREQUENCY—

- a) Crystal Controlled, any single channel from 220 MHz to 225 MHz (223.34 MHz Unless specified otherwise)
- b) Accuracy: Factory set to $\pm 0.0005\%$ (± 1 KHz) @ 68° F
- c) Temp. Stability: ± 1 KHz from 30° to 110° F

SENSITIVITY—

- .3 uV (max) for 12 db SINAD
- .45 uV (max) for 20 db QUIETING
- .25 uV (max) for SQUELCH and/or COR

SELECTIVITY—

- 6 db – 14 KHz (min)
- 60 db – 30 KHz (max)
- 80 db – 40 KHz (max)

LOCAL AUDIO—

- a) 1.5 Watts (min) to Panel Speaker at 5% THD
- b) Response to standard EIA deemphasis from 300 to 3000 Hz.

SQUELCH/COR—

- a) Threshold adjustable from .25 uV (max) to more than 2 uV.
- b) Schmitt trigger providing 6-9 db hysteresis to prevent chopping or fluttering on fading input signals.
- c) TTL compatible output on COR

TRANSMITTER SPECIFICATION

FREQUENCY—

- a) Crystal Controlled, any single channel from 220 to 225 MHz (224.94 MHz Unless specified otherwise)
- b) Accuracy: Factory set to ± 0.0002 (± 400 Hz) @ 68° F
- c) Temp. Stability: ± 1 KHz max from 30° to 110° F

POWER OUTPUT—

- 10 watts (min) into 50 ohm resistive

SPECTRAL PURITY—

- a) All harmonics down 40 db
- b) None harmonic outputs down by more than 50 db
- c) Modulation spectrum meets all FCC and EIA specifications for Land Mobile Services.

MODULATION:

- a) Phase modulation at 1/32 of output freq.
- b) Audio processing with pre-clipping preemphasis and post clipping deemphasis weighted for maximum speech effectiveness consistent with spectrum constraints and minimum audio distortion.
- c) Deviation adjustable up to 12 KHz. Factory preset to 5 KHz.
- d) Speech clipping adjustable to more than 13 db. Factory preset to approx. 6 db on standard input signal from receiver. (4.5 KHz Deviation at 1 KHz)

INSTALLATION AND PHYSICAL DETAILS

The Model 016 is normally supplied as a complete Repeater system. Receiver, Transmitter, Control Circuitry and 60 Hz Power Supply are all contained on a standard relay-rack panel and chassis unit. A high quality, 6 cavity DUPLEXER is available from Clegg/ISC and is considered part of the system so that full performance of the REPEATER can be attained with a single antennae. For most installations the user will merely need to provide AC power, a suitable antenna with 50 ohm coaxial feed (Type N fitting), two short coaxial cables to interconnect REPEATER (BNC fittings) to DUPLEXER (Type N). ALL THE PERFORMANCE STANDARDS ARE BUILT IN – ALL THE NORMAL REPEATER PROBLEMS ARE DESIGNED OUT!

POWER REQUIREMENTS: 117 \pm 10 Volts, 60 Hz, 125 VA

PERMISSIBLE AMBIENT TEMP: 10° to 125° F

DIMENSIONS: Panel: Standard 19" X 8 $\frac{3}{4}$ " Rack Depth behind panel 16" max.
Net Weight: 15 pounds

CONTROL CIRCUITS

GENERAL:

Includes three independent timers to provide:

- a) Brief carrier hold after COR dropout. (.5 to 1 sec)*
- b) COR derived "Time Out" to preclude excessive transmission duration. (3 min)*
- c) "Time to Identify (ID)" to provide periodic ID. (2 min)*

Includes full programmable identification generator easily programmable with international Morse code by user. (Does not require complex diode matrix or use of Karnaugh maps)

Provides for simple interface with external wire or radio remote control to instantly Disable or Enable.

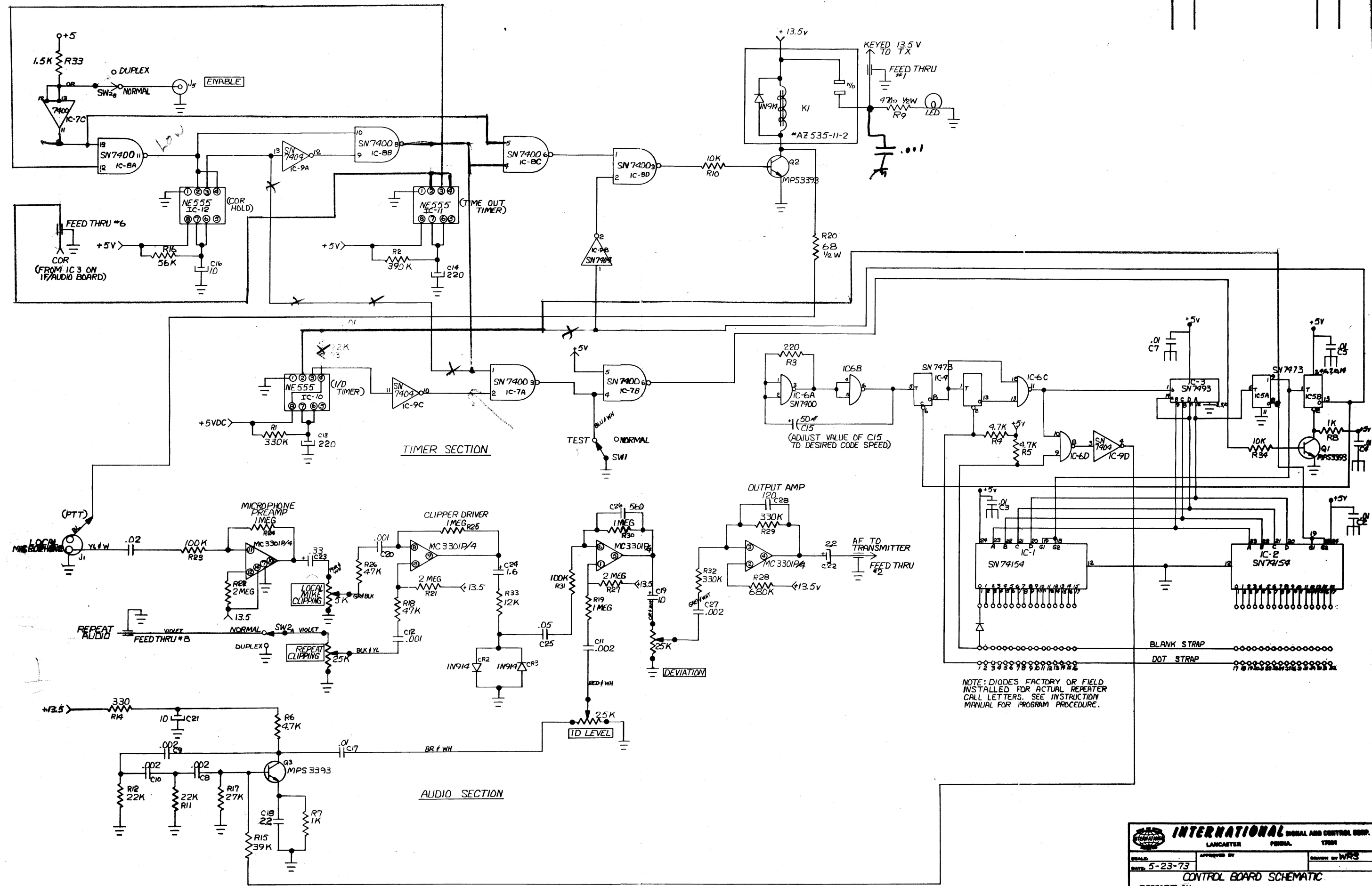
*Nominal factory preset times; may be field modified as desired by user.

PRICES AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Tel: (717) 299-3671

ISC *Clegg* DIVISION
3050 Hempland Road
Lancaster, Pennsylvania 17601

LTN	DESCRIPTION	REV	DATE



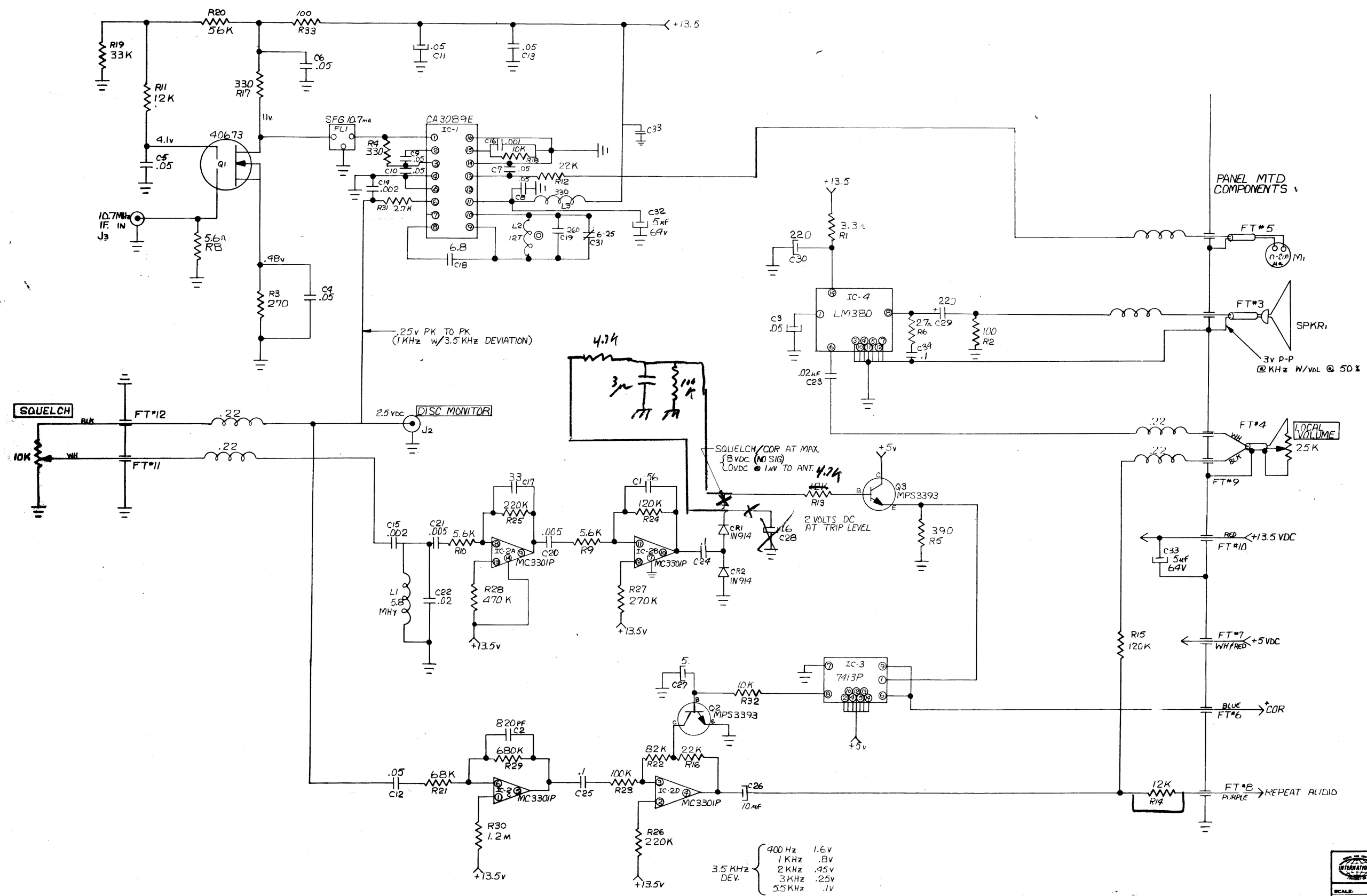
INTERNATIONAL SIGNAL AND CONTROL EQUIPMENT
 LANCASTER, PENNA. 17601

DATE: 5-23-73
 CONTROL BOARD SCHEMATIC
 REPEATER 016

APPROVED BY: [Signature]
 DRAWN BY: WRS

REVISION: K1060105

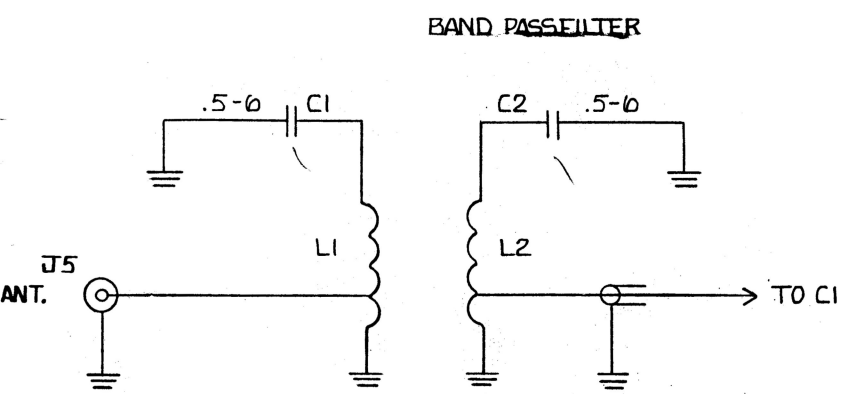
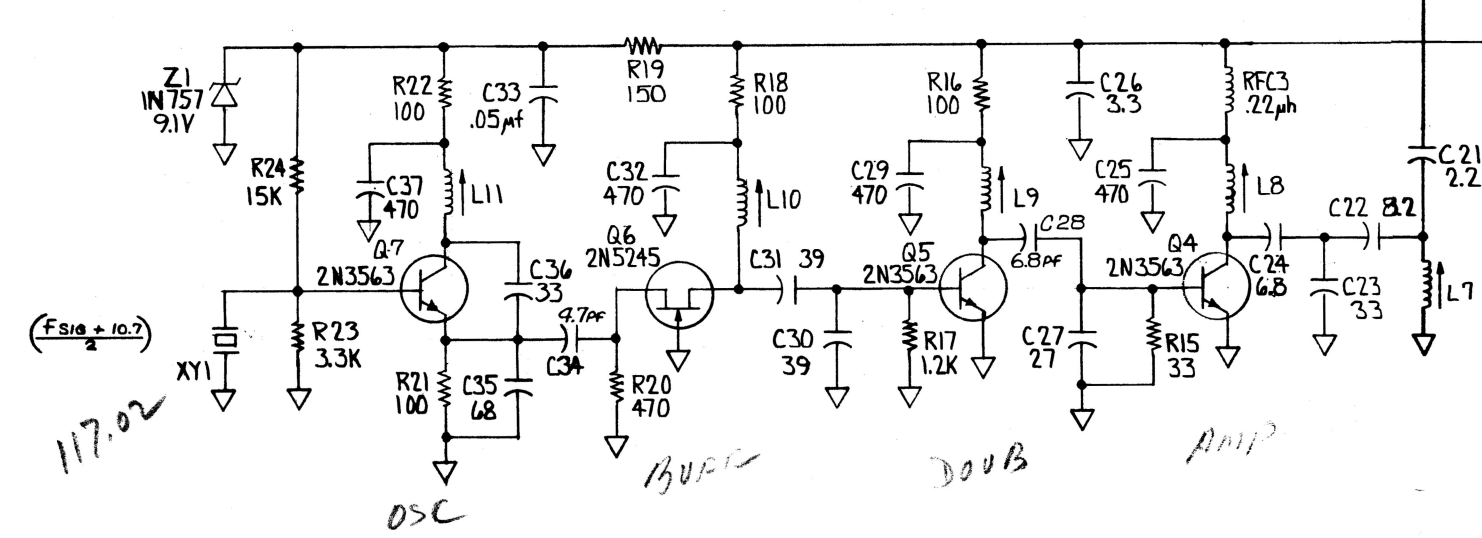
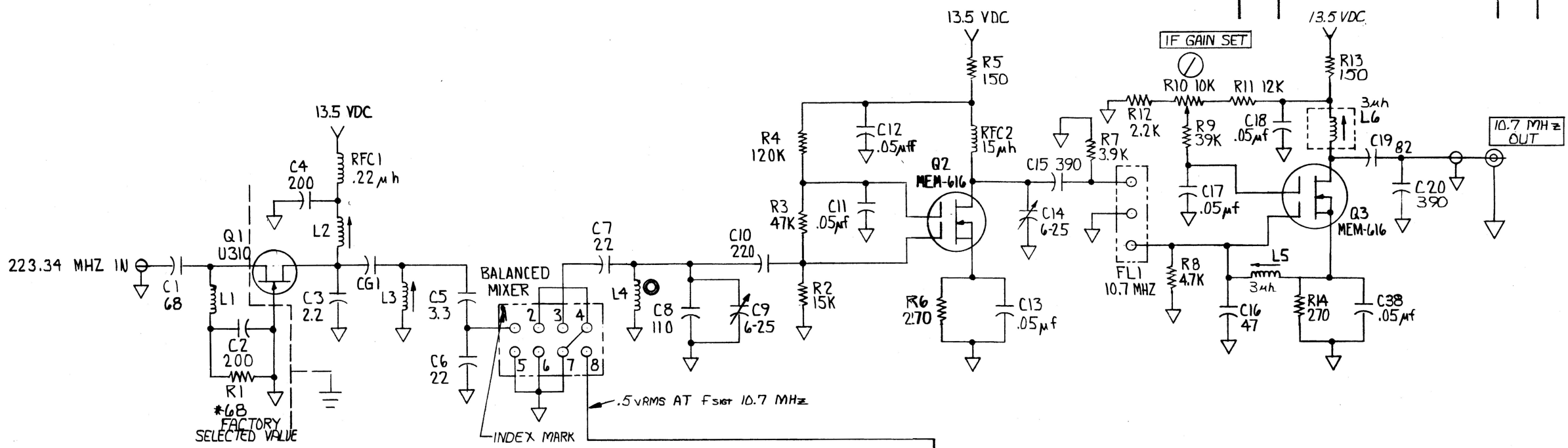
REVISIONS			
LYR	DESCRIPTION	DATE	APPROVAL



INTERNATIONAL SIGNAL AND CONTROL CORP.
LANCASTER PENNA. 17601

SCALE: APPROVED BY: DRAWN BY: WRS
DATE: 5-22-73
I.F. & AUDIO BD-RCVR SCHEMATIC
RPT-220A
DRAWING NUMBER: X 0160305

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVAL



NOTE:
 1. UNLESS NOTED ALL UNITS OF RESISTANCE IN OHMS & 1/4 W
 2. UNLESS NOTED ALL UNITS OF CAPACITANCE IN PICOFARADS

INTERNATIONAL SIGNAL AND CONTROL CORP.
 LANCASTER PENNA. 17601

SCALE: NONE
 DATE: 5-21-73

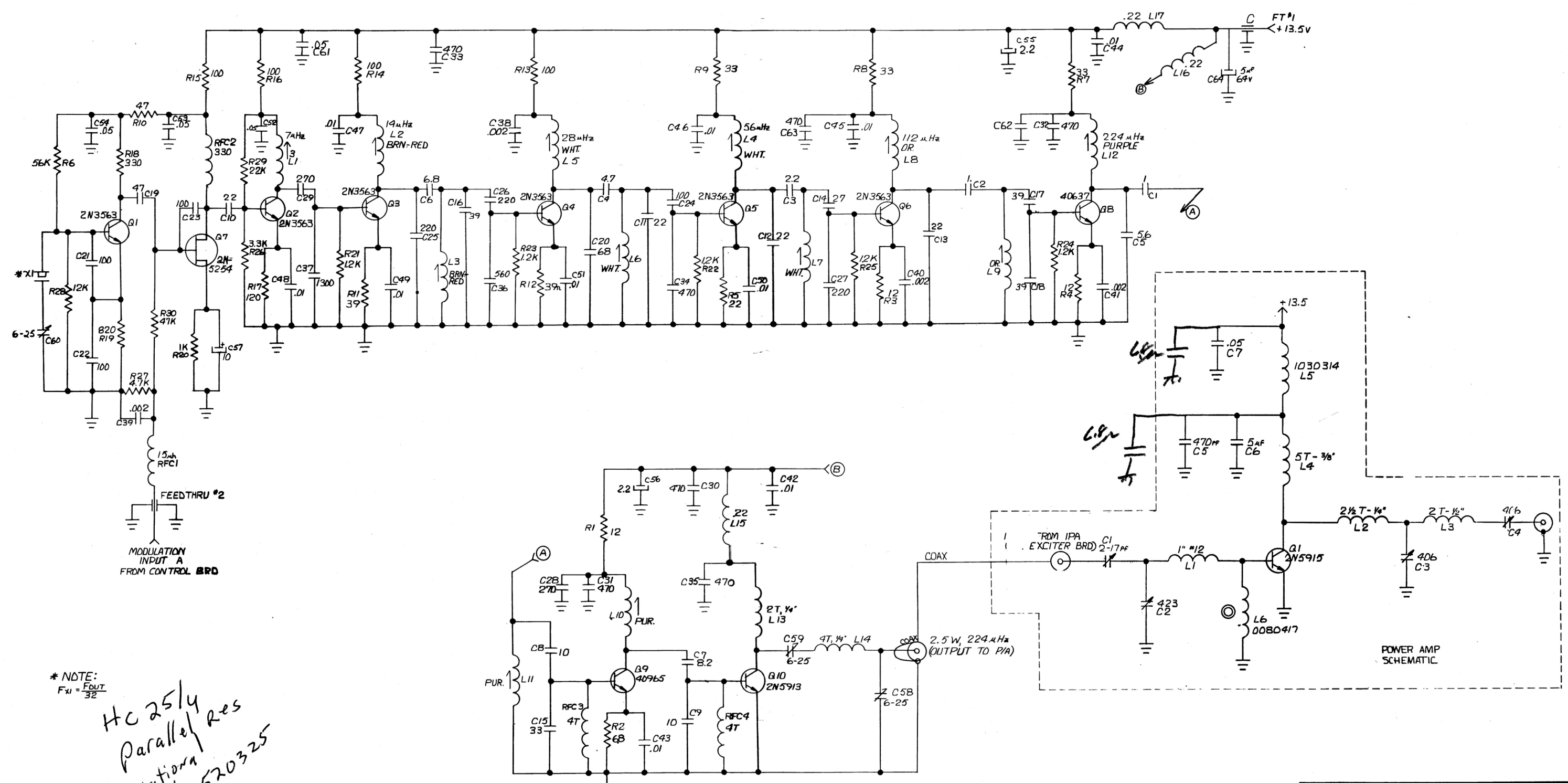
APPROVED BY: [Signature]
 DRAWN: [Signature]

SCHEMATIC DIAGRAM - RECEIVER FRONT END
REPEATER 220 A

DRAWING NUMBER: **10160205**

RECEIVER
 FRONT END

REVISIONS			
NO.	DESCRIPTION	DATE	BY



* NOTE:
 $F_{in} = \frac{F_{OUT}}{32}$
 HC 25/4
 Parallel Res
 International
 Cat # 520325
 00190 F/32

2N2857

INTERNATIONAL SIGNAL AND CONTROL CORP.
 LABCASTER PENNA. 17001

APPROVED BY: _____
 DATE: 5-28-73
 DRAWN BY: WRS

TRANSMITTER EXCITER
 REPEATER 016

DRAWING NUMBER: 0160505