“This [Federal Reserve] Act establishes the most gigantic trust on Earth. When the President [Woodrow Wilson] signs this Act, the invisible government by the Money Power, proven to exist by the Money Trust Investigation, will be legalized. The money power overawes the legislative and executive forces of the Nation and of the States. I have seen these forces exerted during the different stages of this bill.”


Table of Contents

♦ Page 2 / Centrex Data Link – Software Subsystem Description / #1A ESS
  ♦ Overview of the Centrex data link software used to administer Centrex links and services under a #1A ESS.

♦ Page 9 / Scotty's Spectrum Analyzer – IF Amplifier
  ♦ Construction overview for the IF amplifier module in Scotty Sprowls' spectrum analyzer project.

♦ Page 22 / Bonus
  ♦ Media Censorship

♦ Page 23 / The End
  ♦ Editorial and rants.
## CENTREX DATA LINK FEATURES

### SOFTWARE SUBSYSTEM DESCRIPTION (SSD)

2-WIRE NO. 1 AND NO. 1A ELECTRONIC SWITCHING SYSTEM

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL</td>
<td>2</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>2</td>
</tr>
<tr>
<td>PURPOSE OF THE CENTREX DATA LINK SOFTWARE</td>
<td>2</td>
</tr>
<tr>
<td>SCOPE OF SECTION</td>
<td>2</td>
</tr>
<tr>
<td>1. PIDENTS DESCRIBED IN SECTION</td>
<td>2</td>
</tr>
<tr>
<td>2. PIDENTS DESCRIBED IN SECTION</td>
<td>2</td>
</tr>
<tr>
<td>3. CENTREX DATA LINK SOFTWARE FUNCTIONAL DESCRIPTION</td>
<td>2</td>
</tr>
<tr>
<td>4. PIDENT FUNCTIONAL DESCRIPTIONS</td>
<td>2</td>
</tr>
<tr>
<td>PIDENT CNLP</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIDENT CXIO</td>
<td>4</td>
</tr>
<tr>
<td>PIDENT CXKY</td>
<td>5</td>
</tr>
<tr>
<td>PIDENT CXLO</td>
<td>6</td>
</tr>
<tr>
<td>PIDENT CXTA</td>
<td>7</td>
</tr>
</tbody>
</table>

### NOTICE

Not for use or disclosure outside the Bell System except under written agreement.

Printed in USA.
SECTION 231-045-175

CONTENTS PAGE

1. GENERAL

INTRODUCTION

1.01 The Centrex data link software performs control functions necessary to administer the Centrex data link and provides special Centrex call handling capabilities for Centrex services provided by a No. 1 or No. 1A Electronic Switching System (ESS).

1.02 When this section is reissued, the reason for reissue will be given in this paragraph.

1.03 Part 5 of this document provides a defined list of the abbreviations and acronyms as used herein.

PURPOSE OF THE CENTREX DATA LINK SOFTWARE

1.04 This software provides console key and lamp administration, controls the Centrex data link input/output operation, and controls calls to the attendant and call answering from any station.

SCOPE OF SECTION

1.05 This SSD provides an introduction to the Centrex data link software operating in a No. 1 or No. 1A ESS. Information unique to No. 1A ESS is so noted. Information unique to No. 1 ESS is not provided.

1.06 This section is based on the I66 (No. 1 ESS) and I66 (No. 1A ESS) versions of the generic program.

2. PIDENTS DESCRIBED IN SECTION

2.01 Table A provides a PIDENT to PR number cross reference listing for the programs described in this document.

2.02 The Centrex lamp and key program, PIDENTs CX10 and CXK, provides input/output (I/O) and console key signal processing. CX10 provides all normal nonmaintenance I/O functions, i.e., transmission of lamp orders and reception of key signals for the Centrex data link. CXK handles key signals from the Centrex console and processes supervision reports.

3. CENTREX DATA LINK SOFTWARE FUNCTIONAL DESCRIPTION

3.01 The Centrex data link provides a command/control interface between the ESS central processor and the attendant console located on the customer premises (Fig. 1). Key and lamp signal processing requires an orderly interchange of control information over the Centrex data link. Lamp order routines are provided to control operation of the Centrex console lamps. For console key operation, the ESS receives and responds via the data link. The data link software provides a buffering effect between the ESS call control processes and the call processing and control actions performed at the attendant console. Provision is also made for night service operation, i.e., for after hours service when the attendant is not on duty.

4. PIDENT FUNCTIONAL DESCRIPTIONS

PIDENT CNLP

4.01 CNLP provides a regulated interface between programs wishing to transmit console lamp orders and the input/output program, PIDENT CX10. All lamp order traffic, whether for call processing or maintenance, which takes place while the link is in service must use the control structures provided by CNLP.

Lamp Order Loading

4.02 On entry, the client requesting service is required to specify the location of a special 3-word block of call store memory called a lamp block located in the console register. The first word contains the lamp order number, the type of queue return), and a sanity check code, i.e., a defensive programming device used as a sanity check on the client information. The third word contains the link word for queueing.

4.03 Several checks are performed on the client-supplied lamp block. Both the frame number and sanity code are checked for validity. Invalid client information results in an error printout and no lamp order is transmitted. A check is also made to determine if the lamp block is on a queue.
Queueing is handled as required to ensure proper transmission sequencing.

4.04 The normal case is that the client is valid and not on a queue. If this is the case, a check is made to see if there is a queue for the data link over which the order is to be transmitted. Queue bits are maintained for this purpose. If queueing is required, the lamp block is placed at the bottom of the queue and notification is returned with the client return. The queueing logic retains a first-in, first-out sequence. For the no-queueing required case, control is given to a routine (CNBUFL) to send the lamp order to the output buffer. An attempt is made to load BUF0 (ie, the first buffer) for the particular link. If BUF0 is unavailable, an attempt is made for BUF1. If the load into BUF1 succeeds, a final check of BUF0 is made since J-level could have unloaded BUF0 in the meantime. If BUF0 is free, then the order is moved into it. In either case, if the order is successfully loaded, then the lamp bit is set. If the load fails, ie, both

---

**Table A**

<table>
<thead>
<tr>
<th>PIDENT</th>
<th>TITLE</th>
<th>NO. 1 PD</th>
<th>NO. 1A PR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXLO</td>
<td>Centrex Lamp and Key Program</td>
<td>1A163</td>
<td>6A163</td>
</tr>
<tr>
<td>CXKY</td>
<td>Centrex Input/Output Scan</td>
<td>1A163</td>
<td>6A163</td>
</tr>
<tr>
<td>CXLO</td>
<td>Line and Trunk Seizure—Centrex Attendant</td>
<td>1A164</td>
<td>6A164</td>
</tr>
<tr>
<td>CXTA</td>
<td>Trunk and Code Call Answer</td>
<td>1A165</td>
<td>6A165</td>
</tr>
<tr>
<td>CNLP</td>
<td>Centrex Lamp Control Program</td>
<td>1A166</td>
<td>6A166</td>
</tr>
</tbody>
</table>

---

**Fig. 1—System Interface**
buffers were unavailable, then the order is queued. Control is then given back to the client. Refer to the program listing for more detailed information.

Queue Unloading

4.05 Queue unloading is accomplished by a flagged J-level entry (CNLPQE) from PIDENT CXIO to make an interject request. Then the interject level entry (CNLPSQ) attempts to remove lamp orders from the queue and load them into the output buffers. Refer to the program listing for detailed information on the controlling sequences.

PIDENT CXIO

4.06 PIDENT CXIO is structured into five margin sections:

(a) Main entry
(b) All seems well (ASW) processing
(c) Key report processing
(d) Lamp order output
(e) Data link fault recognition and trouble reporting.

These sections are briefly described in the following paragraphs. For more detailed information on the individual control routines, refer to the CXIO program listing.

Main Entry

4.07 CXIO is the primary J-level entry to initiate centrex data link I/O processing. There are a maximum of eight data link frames in a No. 1A ESS; a different data link frame is processed on each entry. Upon entry, CXIO determines which frame is to be processed during this cycle. A frame index is examined to select the correct frame. Following a phase four emergency action recovery, the index found will equal zero. In this case the program will initialize (INIT) the index before proceeding.

4.08 Once the current frame has been found, the index is used to locate the address of the frame's I/O block. The control section of the I/O block is then used to scan the key signal present and ASW scan points. The scan results are stored for use by other sections of the program. If required (e.g., all frames processed), the frame index is updated to restart the process during the next cycle.

ASW Processing

4.09 The ASW expected bits, set by the lamp portion of this program on the previous cycle, are checked. If none are found set, control is given to the key report portion of the program (KEY). When an ASW expected bit is found, a test is made on the scan data just received to see whether or not the ESS end of the data link has received the required ASW. The ASW scan point is driven by a binary cell which changes state each time a correct reply is received from the far-end data terminal. The program tests the current state of the ASW scan point against the last look state. If these states are the same, there has been an ASW failure and control is passed to the fault recognition portion of the program (ASWER). Once ASW processing has completed successfully, control is given to the key report (KEY) section of the program.

Key Report Processing

4.10 Key signals present are detected by passing the data link supervisory scan data (saved previously) through a key signal accept mask. Key flags, when found, prompt a hopper report for each data link requiring one. The following actions are taken for each reporting data link:

(a) Information row scan—obtains the data link shift register contents.
(b) Hopper loading—forms a 2-word hopper entry.
(c) Hopper test—a full hopper prompts a request for interject unloading.
(d) Data register reset—reset the shift register and process more key reports from other data links.

If interject unloading is requested, then (d) is not done. Once all links have been processed, control is given to the lamp order portion of the program (LAMP).
Lamp Order Output

4.11 If one or more of the data links have lamp data to be transmitted, then the appropriate data link shift register is loaded via the peripheral bus. Before the shift register is loaded, the program checks the data link busy scan point to see if the data link is in the correct state for receiving the transmit order. If busy, the DELAY subroutine is entered. Once lamp order processing has been completed for all links, control is returned to PIDENT E/TC.

Fault Recognition and Trouble Reporting

4.12 The ASW failure portion of this program (ASWFR) is entered when ASW did not occur as expected. This routine uses a failure index to select a program response based on the number of times ASW has failed for the link in question. Indexing through the failure table (FATBL) yields the following sequence:

(a) ASWF1—attempt retransmit, use same bus and central pulse distributor (CPD).
(b) ASWF2—test enable-sanity, regenerate if possible. May turn link off for excessive error count. If enable is OK, then switch CPD and bus.
(c) ASWF3—switch bus again.
(d) ASWF4—switch bus and CPD.
(e) ASWF5—generate a hopper trouble report and turn the link off.
(f) ASWF6—same as ASWF2, for now.
(g) ASWF7—same as ASWF5.
(h) ASWF8—same as ASWF5.

4.13 TBL is the general trouble routine to load a hopper maintenance report. This report causes the data link to be marked maintenance busy, the diagnostic program to be flagged, and a teletypewriter (TTY) report to be made.

PIDENT CXY

4.14 CXY interrogates a key signal received from a centrex console to determine what effect it will have on the state of the console and on any call on the console. Supervision reports associated with the loop keys are also investigated by this program. Other routines provided by CXY include those provided to turn the trunk busy and call waiting lamps on or off, to respond to headset in or out reports, and to provide the necessary checks on a centrex group before setting up a call to the group.

Centrex Console Keys and Lamps

4.15 The centrex console provides three sets of keys: loop keys, state keys, and call processing keys. The loop keys are used to switch the attendant talking connection to a selected loop circuit. The state keys are used to control the overall state of the console. The call processing keys are used by the attendant in the processing of a call.

4.16 A 5-bit code is used for key reports. The 32 possible codes have the following values:

(a) 00—no key report present
(b) 01—07—loop key report
(c) 08—15—state and call processing keys report to common key routines
(d) 16—31—call processing key report.

Inspection of the initial key report processing table (IKET) will show that some of the possible codes are legal or illegal depending upon the call state.

Supervision Reports

4.17 CXGSRE is the setup for processing a supervisory change on a loop. This routine will update key-state information, the lamp state, and if required, transmit the loop lamp order. Supervision reports are filed through a table of supervision reports and lamp/circuit actions required for each defined state. SUPTB is the start of this table, i.e., the lamp and state supervision matrix. CXY provides numerous entries and control routines which respond to both normal and abnormal actions taken at the centrex console. For more information, refer to the CXY program listing.
SECTION 231-045-175

PIDENT CXLO

4.18 CXLO handles the call processing actions required to control a callup to the point of establishing a talking connection between the calling party and the attendant. Calls terminating to the attendant may originate from within the centrex, from within the central office providing the centrex service, or from another central office. Call handling for these types of calls is briefly described in the following paragraphs. For more detailed information, refer to the CXLO program description.

Intraoffice Calls to Attendant

4.19 Intraoffice calls are directed to the attendant when:

(a) A line within the central office (and possibly within the centrex group) dials a temporarily disconnected number in the centrex group and has been routed to attendant intercept.

(b) A centrex line dials a conference attendant access code.

(c) A centrex line dials 0.

(d) A centrex manual line originates.

(e) A line within the central office dials the centrex group listed directory number (LDN).

4.20 For a normal line to attendant call, CXLO assumes control of the call after digit collection has indicated the attendant as the terminating party. The program first attempts to seize a loop register via a call to the YASZLP routine in PIDENT CXYH. If an idle loop register cannot be found, busy tone is given to the calling line. If a loop register is obtained, it is initialized by the CXINLP subroutine. A check of the console group status is then made via a call to the CXCGST routine in PIDENT CXKY. Three returns are possible:

(a) Night service in effect

(b) Console group busy, i.e., the queue is full, so busy tone is given to the calling party

(c) Console group not busy and not in night service state; the call will progress.

4.21 For normal progression, the next step is to make the loop register master and release the originating register. Actions are then taken to obtain network paths and resources to provide audible to the calling party and, via the data link, alert the attendant that a call is present. Refer to the CXLO program listing for detailed control information on the general sequence described above.

Interoffice (ie, Incoming) Call to Attendant

4.22 Incoming calls which may be directed to the centrex attendant are as follows:

(a) Calls originating from a foreign exchange (FX) trunk

(b) Calls from an incoming trunk (ICT) which dialed a temporarily disconnected LDN in the centrex and was routed to attendant intercept

(c) Calls over a tie trunk to a conference attendant via a dialed conference access code

(d) A dial 0 call over a tie trunk

(e) Regular ICT calls to the centrex LDN.

4.23 As in the intraoffice case, CXLO assumes control of the call after digit collection has determined that the terminating party is the centrex attendant. For an FX call, (global CXPXAT) CXLO first attempts to obtain an idle loop register via a call to YASZLP (PIDENT CXYH). If an idle loop register cannot be found, the YFBSY routine in PIDENT YPTO is used to put the FX ICT on the high and wet list. If a loop register is obtained, it is initialized (CXINLP). Console group status is then determined via a call to CXCGST (PIDENT CXKY). The return from CXCGST may indicate that (1) night service is in effect or that (2) the console group is not on night service. The return does not handle the queue full condition (as described for the intraoffice case) since the FX call will be queued anyway. The loop register is now linked to the right of the incoming step-by-step register, the master register on the call. The loop register is made master and the incoming step-by-step register is released. The attendant call is completed in a manner similar to that for the intraoffice type.

4.24 Other entries in CXLO control the actions taken for the remaining types of incoming attendant calls and for night service actions. Special
actions are also taken if incoming trunk service observing is in effect. For more information, refer to the CXLO program listing.

PIDENT CXTA

4.25 With centrex service, when a call is made to the attendant and night service is in effect, a night station is rung and audible devices on the customer premises may be activated. Trunk answering makes it possible to answer this call by picking up at the night station or by dialing an answer code from any other non-inward restricted phone in the centrex group. CXTA controls the call once a station has dialed an answer code.

4.26 Centrex code calling allows a centrex station (or other station via a tie trunk or via the attendant) to dial an access code to a code caller circuit. Upon receiving second dial tone, the calling party dials a code assigned to the individual with whom the calling party wishes to speak. This code is then paged out over sound devices (or by some other signaling method, i.e., lights, horns, etc.) on the customer premises. The call is answered by the called party dialing an answer code from the most convenient phone. CXTA handles the answering activities associated with code calling.

Trunk Answer

4.27 When CXTA receives control of the call, the line attempting to answer has already dialed the answer code. When the originating party is a line, ring trip scans for the night station are turned off. But, a check is made to see if the night station has gone off-hook since the answer code was dialed before the scans were discontinued. If the night station has answered, then it gets the call and the line which dialed the answer code gets overflow. Also, should the originating line go on-hook before the answering station is connected, then overflow is given to the answering station. If network blocking prevents connection from the answering line (i.e., the line which dialed the answer code), then the answering line is given overflow. Trip scans for the night station are turned back on and the originating line is scanned for abandon. At this time another attempt may be made to answer by tripping the night station or by redialing the answer code as before. If the answer code is dialed but there is no call to be answered or night service is not in effect, then the station which dialed the answer code is given overflow.

4.28 If the incoming call is a trunk, similar actions are taken as described above. For an FX trunk, audible to the calling line is provided by the originating office.

Code Call Answer

4.29 For code calling, digit analysis recognizes the code call access code and connects the originating party to the code calling circuit. CXTA is entered when digit analysis recognizes a code call answer code from some station within the centrex. CXTA performs the actions necessary to connect the originating party to the answering station. For more information, refer to the program listing.

5. ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASW</td>
<td>All Seems Well</td>
</tr>
<tr>
<td>CPD</td>
<td>Central Pulse Distributor</td>
</tr>
<tr>
<td>ESS</td>
<td>Electronic Switching System</td>
</tr>
<tr>
<td>FX</td>
<td>Foreign Exchange</td>
</tr>
<tr>
<td>ICT</td>
<td>Incoming Trunk</td>
</tr>
<tr>
<td>I/O</td>
<td>Input/Output</td>
</tr>
<tr>
<td>LDN</td>
<td>Listed Directory Number</td>
</tr>
<tr>
<td>SSD</td>
<td>Software Subsystem Description</td>
</tr>
<tr>
<td>TTY</td>
<td>Teletypewriter</td>
</tr>
</tbody>
</table>
Overview

This is my version of the Intermediate Frequency (IF) amplifier for Scotty Sprowls' Modularized Spectrum Analyzer (MSA) project. The original IF amplifier design is SLIM–IFA–33.

The IF amplifier module consists of two separate Mini–Circuits ERA–3SM+ MMIC amplifiers with a common +12 VDC power input connector. The MMICs have a bandwidth of over 4 GHz, so a 40 MHz low–pass filter is included in each output. Scotty’s original design used Mini–Circuits ERA–33SM MMICs, but ERA–3SM+ MMICs are easily found on eBay.

At 10.7 MHz, the single stage gain is approximately 23 dB, with a 1 dB compression point output of greater than +12 dBm and noise figure less than 3 dB. 35 mA of bias current (for each amplifier) is required to maintain these specifications. With +12 volts input to the module, a total of 251 ohms dropping resistance is required. The dropping resistance is split into two, with two parallel 330 ohm resistors in series with a 82 ohm resistor. The 308 mW of power dissipation is also split between the two sets of resistors. Using split resistors allows for more input DC power filtering.

The original module design was given the suffix "−33" because it specified using the Mini–Circuits ERA–33SM MMIC. However, other MMIC’s can be substituted with appropriate bias resistor changes.

After Scotty designed the first SLIM–IFA–33 module, it was determined that component tolerances were not tight enough to guarantee consistant bandwidth characteristics. Therefore, later revisions changed the band–pass filter in each output stage to a 40 MHz 3–pole low–pass filter.

Ahead of the IF amplifier (on the 2nd mixer’s IF output) is a circuit called a diplexer. Wideband frequencies (and noise) exiting the 2nd mixer at the IF port will "see" a dual–path at the junction of L1 and C1. Frequencies higher than 33 MHz follow C1 and get absorbed by the 50 ohm resistor load. Frequencies lower than 33 MHz follow L1 and are sent off to the IF amplifier stage. This circuit gives the mixer a constant 50 ohm impedance over a very wide frequency range, reducing the chances of intermodulation distortion. The diplexer can be easily redesigned for any crossover frequency point.

### 33 MHz Diplexer

![Diplexer Diagram](image)

From 2nd Mixer’s IF port.

To IF amplifier input.

- L1, L2 = 330 nH
- C1, C2 = 68 pF
Internal view of a M/A–Com 7N201 800–900 MHz band isolator.

The isolator will be taken apart and used to hold a circuit board for the 33 MHz diplexer circuit.

This is optional, but the diplexer should be mounted as close to the mixer's IF output as possible.
Completed 33 MHz diplexer circuit board mounted inside the isolator's body.

The input (mixer IF output) is via the male SMA connector.

This diplexer circuit will be suitable for a spectrum analyzer with a 10.7 or 21.4 MHz IF.
Overview of the IF amplifier circuit board.

On the input to the IF amplifier is an optional OMRON G6Z-series SPDT RF relay. This allows the input of an external IF frequency, such as from an external mixer or tuner. This can be a very handy feature for increasing the frequency response of the spectrum analyzer.

The two little black round devices are the Mini−Circuits ERA−3SM+ MMICs. The dot near one of the pins is the RF input.

A 3 dB attenuator pad on the output of the final ERA−3SM+ helps the total circuit "see" a 50 ohm load, and will help swamp out and impedance mismatches from the resolution filter stage the IF amplifier will drive.
Alternate view.

All the capacitors and inductors in the RF chain of this circuit must be surface-mount for proper operation.

The circuit board should also have a large ground plane and proper RF circuit layout (isolated inputs/outputs and clean DC power).

The two 3-pole 40 MHz low-pass filters help to limit the frequency range, and hence noise, of this IF amplifier circuit.
The bias resistor for the MMICs was split into two for additional supply decoupling and filtering.

They'll need to dissipate around 300 mW total power, so using 1/4 watt resistors is recommended.

Try to use 1% tolerance metal–film resistors, but it's not necessary.
Alternate view.

The SMA jack along the bottom is for the remote IF input, which will be from a future panel-mounted connector.

That input is selected by energizing the RF relay.

1000 pF feed-through capacitors supply the amplifier's main +12 VDC input (right-side) and the +5 VDC for the relay (bottom).
Finished case overview.

The lid of the case has a few stick-on ferrite EMI absorption plates (Digi-Key Part: 240–2264–ND). These are optional, but the idea is to help reduce the chance of the internal cavity resonating, which can turn the amplifier into an oscillator.

Check the IF amplifier for proper operation by monitoring the overall current draw. It should be a steady 70 mA or so. Any more than this, or any sign of current "spiking," could indicate that the circuit is oscillating and is not properly functioning.

Each MMIC should have a steady +3.2 VDC on its output leg when powered from +12 VDC and properly biased.
Tracking generator plot of the IF amplifier module.

The zero spur is on the left.

Center frequency is 51.3 MHz. 10 MHz per horizontal division, 10 dB per vertical division.

RF input power to the amplifier was around –60 dBm.

The low-pass filtering starts around 40 MHz.
Tracking generator plot of the IF amplifier module.

The zero spur is on the left.

Center frequency is 98.5 MHz. 20 MHz per horizontal division, 10 dB per vertical division.

RF input power to the amplifier was around −60 dBm.
Tracking generator plot of the IF amplifier module.

The zero spur is on the left.

Center frequency is 486.3 MHz. 100 MHz per horizontal division, 10 dB per vertical division.

RF input power to the amplifier was around –60 dBm.
Scotty’s Spectrum Analyzer

IF Amplifier
MSA Equiv. SLIM-IFA-33

+12 VDC

82Ω / 1/4W

0.1 µF

2x 330Ω 1/8W

1000 pF Feed-Through

Mini-Circuits ERA-3SM+

Mini-Circuits ERA-3SM+

0.1 µF

1000 pF

3.3 µH

3.3 µH

1000 pF

1000 pF

330 nH

330 nH

18Ω

300Ω

300Ω

3 dB Att. Pad

IF Output

OMRON G6Z-1FE

Optional

1N4001

1000 pF Feed-Through

External IF Input

External Mixer Select

SPST

+5 VDC

RF Relay

50Ω MicrostripLine

Ferrite Bead

3.3 µH is Digi-Key 445-1053-1

330 nH is Digi-Key M1171CT

Mixer Select

+5 VDC
I.F. Amplifier

Original SLIM-IFA-33 Schematic

Data for each Stage

- Band Width (0.1 dB) = 9 MHz to 15 MHz
- Band Width (1 dB) = 5 MHz to 30 MHz
- Band Width (3 dB) = 3 MHz to 40 MHz

Each Stage Gain at 10.7 MHz = 20.0 dB

1 dB Compression = +13 dBm out

Noise Figure (NF) is about 2.0 dB

Revision A:

- Change L1, L2 from 330 nH to 3.3 uH
- Change L27, L37 from 3.3 uH to 330 nH
- Change C10, C11 from 68 pF to 1000 pF
- Delete C9, C19, L29, L39
- Add C26, C36 100 pF
- Change C28, C38 from 680 pF to 100 pF

Document: SKSLIM-IFA-33

For: I.F. Amplifier

Part No.: SLIM-IFA-33

Parts List: PLSLIM-IFA-33

Scotty Sprowls

Pg. 1 of 1
The above is from:

The latest thing is online news sites shutting down the comment sections on their stories, especially when the public catches onto their bullshit...

Three Black men attacked Marc Adams and his girlfriend after he finished work in Charlottesville, Virginia.

_C–Ville Weekly_ responded by censoring – then closing – the comment section on their own story.

Change!
“The real menace of our Republic is the invisible government, which like a giant octopus sprawls its slimy legs over our cities, states and nation. To depart from mere generalizations, let me say that at the head of this octopus are the Rockefeller–Standard Oil interests and a small group of powerful banking houses generally referred to as the international bankers. The little coterie of powerful international bankers virtually run the United States government for their own selfish purposes.

They practically control both parties, write political platforms, make catspaws of party leaders, use the leading men of private organizations, and resort to every device to place in nomination for high public office only such candidates as will be amenable to the dictates of corrupt big business.

These international bankers and Rockefeller–Standard Oil interests control the majority of the newspapers and magazines in this country. They use the columns of these papers to club into submission or drive out of office public officials who refuse to do the bidding of the powerful corrupt cliques which compose the invisible government. It operates under cover of a self–created screen [and] seizes our executive officers, legislative bodies, schools, courts, newspapers and every agency created for the public protection.”

---- 1922 quote from John Francis Hylans while he was the sitting Mayor of New York City (1917–1925).
In Africa, drought continues for the sixth consecutive year, adding terribly to the toll of famine victims. During 1972 record rains in parts of the U.S., Pakistan and Japan caused some of the worst flooding in centuries. In Canada’s wheat belt, a particularly chilly and rainy spring has delayed planting and may well bring a disappointingly small harvest. Rainy Britain, on the other hand, has suffered from uncharacteristic dry spells the past few springs. A series of unusually cold winters has gripped the American Far West, while New England and northern Europe have recently experienced the mildest winters within anyone’s recollection.

Scientists have found other indications of global cooling. For one thing there has been a noticeable expansion of the great belt of dry, high-altitude polar winds—the so-called circumpolar vortex—that sweep from west to east around the top and bottom of the world. Indeed it is the widening of this cap of cold air that is the immediate cause of Africa’s drought. By blocking moisture-bearing equatorial winds and preventing them from bringing rainfall to the parched sub-Sahara region, as well as other drought-ridden areas stretching all the way from Central America to the Middle East and India, the polar winds have in effect caused the Sahara and other deserts to reach farther to the south. Paradoxically, the same vortex has created quite different weather quirks in the U.S. and other temperate zones. As the winds swirl around the globe, their southerly portions undulate like the bottom of a skirt. Cold air is pulled down across the Western U.S. and warm air is sent up to the Northeast. The pollution of six comes of

"Global cooling" causes the polar vortexes to move south.
Time Magazine, January 6, 2014

"Global warming" causes the polar vortexes to move south.

(pjmedia.com/eddriscoll/2014/01/07/time-magazine-swings-both-ways)

The science is settled! Change!
Floor Statement of Senator Reid on Nuclear Option

April 26, 2005

For the past several months, the Senate has operated under a nuclear cloud. As a result of the Senate's decision to reject a small number of President Bush's judicial nominees, the Republican majority has threatened to break the Senate rules, violate over 200 years of Senate tradition and impair the ability of Democrats and Republicans to work together on issues of real concern to the American people.

It is astounding that Republicans would precipitate this destructive confrontation, especially since this President has a better confirmation rate than any of his recent predecessors. The Senate has confirmed 205 of President Bush's judicial candidates and turned back only ten, a 95% confirmation rate. Ten rejected judges -- only seven of whom are currently before the Senate -- does not seem reason enough for Republicans to break the Senate rules.

My Republican colleagues claim that nominees are entitled to an up–down vote. That claim ignores history, including recent history. Throughout the years, many judicial nominees have been denied up–down votes. For example, according to the Senate Historian, Republicans filibustered Lyndon Johnson's nomination of Abe Fortas to be Chief Justice.

During the Clinton Administration, almost 70 judicial nominees were bottled up in the Judiciary Committee and never received floor votes. In addition, Republicans engaged in explicit filibusters on the floor against a number of Clinton judges, and defeated a number of President Clinton's executive branch nominees by filibuster. Some of the loudest proponents of the nuclear option opposed cloture on those nominees.

America is paying attention to this hypocrisy. Our citizens are alarmed at what the Republican majority is planning to do. According to a Washington Post–ABC News poll released yesterday, Americans oppose by 2 to 1 changing the rules to make it easier for the President to stack the courts with radical judges.

The American people have rejected the nuclear option because they see it for what it is -- an unconstitutional abuse of power.

Regardless of political affiliation, Americans understand that this is a partisan power grab. Nearly half of the Republicans polled opposed any rules changes, joining eight in 10 Democrats and seven in 10 independents.

Over the last several months, I have spent a lot of time reaching across the aisle and talking with my colleagues about how to avoid this nuclear catastrophe. My door has always been open to responsible Republicans who do not want the Senate to head down this unproductive path.

I wrote to the Majority Leader on March 15 and expressed a willingness to find a way out. The Majority Leader replied two days later that he would offer a compromise for resolving this issue. One month later Democrats still await that proposal.
Now it appears that Republican leaders are not interested in compromise. The Majority Leader stated earlier today that he will not accept any compromise that does not provide for the confirmation of all of President Bush’s controversial nominations – including those that were previously rejected by the Senate.

Karl Rove, currently the Deputy White House Chief of Staff, has stated that the President will settle for nothing less than a 100 percent confirmation rate.

These are not positions that allow for compromise.

These are not positions that allow the Senate to proceed with the work of the American people.

There are positions that force a confrontation. These are positions that divert attention from the problems real Americans face – high gas prices, poor schools, inadequate health care coverage.

These positions demonstrate that Republican leaders are fiddling while Rome is burning.

Republican leaders don’t want compromise. Republican leaders don’t want Democrats to have a voice in this debate. Republican leaders don’t want any check on their quest for absolute power. They want total victory.

95% of President Bush’s nominees have been confirmed, but that isn’t good enough. The Majority Leader wants to break the rules and turn the Senate into a rubber stamp for the President. Ultimately this is about removing the last check in Washington against complete abuse of power — the right to extended debate.

Once that last check is gone, the radical right will be able to place one of their own on the Supreme Court. This is all about the Supreme Court. The radical right is angry with the decisions of Justices Anthony Kennedy and Sandra Day O’Connor, both of whom were appointed by Ronald Reagan. The radical right wants a different kind of Supreme Court – one that would roll back equality, liberty and the rights of all Americans.

Many of us understand who elected us to this body – the people sent us here, not Karl Rove, not James Dobson and not radical elements of our society.

There is a way to avoid the nuclear shutdown. I have outlined a proposal to my Republican colleagues in an effort to protect our independent judiciary and to preserve the Founding Fathers’ vision of the Senate.

I will keep the details of my conversations with other Senators private, but I want to talk about why compromise is necessary.

Democrats stand united against the unconstitutional nuclear option. We have a responsibility to protect checks and balances, not violate them. My offer protects those checks and balances.

My offer also renews procedures to allow home state Senators to have a meaningful say in who sits on the federal courts in their states. Those procedures encourage consultation and leads to the nomination of consensus judges, judges who can be confirmed unanimously in most cases.
Democrats have confirmed 95% of the President's judicial nominees. The ten that were denied confirmation previously lack a commitment to the fundamental rights and liberties we hold so dear. But, to ensure that the Senate remains a check on the President's power, especially for the Supreme Court, we are willing to compromise on this subject.

I believe my proposal strikes the right balance – it protects our democracy and the independence of our federal courts, it protects the American people and lets us do their business, and it breaks a partisan stalemate that is unnecessary and divisive.

I want to emphasize that any potential compromise is contingent on a commitment that the nuclear option will not be exercised in any form during this Congress. The threat to break the Senate rules must end.

Harry Reid helped pass the 'nuclear option' on November 21, 2013. Change!

(democrats.senate.gov/2005/04/26/floor-statement-of-senator-reid-on-nuclear-option)