

GBPPR 'Zine



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"I want to warn Americans. As a people, you are very naive about Russia and its intentions. You believe because the Soviet Union no longer exists, Russia now is your friend. It isn't, and I can show you how the SVR is trying to destroy the U.S. even today and even more than the KGB did during the Cold War."

"This year, Helen, Ksenia, and I became U.S. citizens. We went through the same process as everyone else. The day that we became citizens was one of the very best in our lives. Ironically, as new citizens we have found ourselves easily being offended when we see how natural-born Americans take their liberties for granted. Sometimes I believe only someone who has lived in a corrupt society can truly understand the importance of America's liberties. I find this frustrating."

--- Quotes from former KGB/SVR officer Sergei Tretyakov in [Pete Earley's](#) book *Comrade J*. Sergei defected to the U.S. in October 2000.



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**SYSTEM DOCUMENTATION
DESCRIPTION AND ORGANIZATION
1 AND 1A ESS™ SWITCHES**

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INTERFACE FACILITIES AND SYSTEMS PRACTICES.	7	2.01 AT&T practices provide descriptive information for the ESS switches as well as procedures for the operation, maintenance, and testing of the ESS switches. Practices are identified by a 9-digit number. The first three digits specify the division; for example, the 231 division covers 1 and 1A ESS switches. The second three digits specify the layer (subdivision); for example, 231-048 covers 2-wire 1 and 1A ESS switches common recent change practices. The last three digits specify a particular practice; for example, 231-048-303 covers the 2-wire 1 and 1A ESS switches trunk recent change formats.
3. PROGRAM DOCUMENTS	7	2.02 A numerical index is prepared for each division of AT&T practices; for example, the numerical index for the 231-division is 231-000-000. Always consult the numerical index for a list of practices available as well as the latest issue available. In addition, an alphabetical index is prepared for some AT&T practice divisions. AT&T Practice 231-000-001 is the 231-division Alphabetical Index.
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1. GENERAL		
1.01 This practice provides an explanation of the available documentation for the 2-wire 1 and 1A ESS switches.		
1.02 This practice is reissued to make a general update.		
1.03 There are four categories of documentation for the 1 and 1A ESS switches which are useful in the central office:		

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2.03 Many practices are general purpose. Some of these are:

PRACTICE	TITLE
000-000-005	Master Numerical Index — All Divisions
000-010-010	General Plan
000-010-011	Ordering Information

TYPES OF CENTRAL OFFICE DOCUMENTS

2.04 The types of AT&T practices used in a central office are:

- Descriptions
- Operating Procedures
- Test and Measurement Procedures
- Maintenance Procedures
- AT&T TOPs (Task-Oriented Practices)
- Feature Documents

A. Descriptions

2.05 Descriptive information for the 2-wire 1 and 1A ESS switches consists of the following types:

- (1) General or overall system descriptions
- (2) Support descriptions—These cover such subjects as maintenance considerations for digital carrier trunk frame, acceptance test plan for 1A ESS switch, etc.
- (3) Software descriptions
- (4) Equipment descriptions and theory of operation.

Software Descriptions

2.06 In some cases, software descriptions are also referred to as SSDs (Software Subsystem Descriptions). SSDs are prepared for the 1A ESS switch. In those cases where the same practice will also cover 1 ESS switch, it is written as a document common to 1/1A ESS switches. SSDs are intended to provide a

description of an entire subsystem of the overall ESS software. For example, SSDs have been issued on the recent change, fault recovery, interrupt handling areas, etc. Software descriptions contain the following types of information:

- System functions and objectives of each function
- Block diagrams of functional arrangements
- Tabulated data and illustrations to support the description.

Equipment Descriptions and Theory of Operation

2.07 Equipment descriptions and theory of operation practices contain all or some of the following information depending upon the design and complexity of the equipment.

- Purpose and application of the equipment
- Description of how the equipment interfaces with other equipment
- Physical characteristics such as size, appearance, mounting, identification and location of components, arrangements, etc.
- Functional characteristics including identification of functional units generally on a block diagram basis
- Functional description of operation generally on a block diagram basis and options available capabilities
- Capabilities and options available
- Equipment maintenance philosophy
- Tabulated data and illustrations that support the descriptions.

B. Operating Procedures

2.08 Operating procedures provide information for the personnel-machine interface. For the 2-wire 1 and 1A ESS switches, these practices are of two types: the procedures for operating control panels, teletypewriters, etc., and recent change procedures.

The first type includes the following type of information:

- Identification of controls and built-in indicators and a description of the intended role of each
- Instructions covering the proper method of operating the product to achieve specific objectives
- Instructions for removing the product from service and for returning it to service
- Instructions covering calibrations and associated adjustments
- Tabulated data and illustrations that reinforce the instructions and descriptive information.

The recent change procedures are used to make changes to translations within the 2-wire 1 and 1A ESS switch memory. Translation information is that data within the ESS switch memory that provides to the generic program information about individual lines, trunks, service circuits, and other items which may require frequent change. Translation information varies from office to office and may change from day to day, so it must be readily changeable. Recent change procedures are provided in the form of recent change message formats to make these changes.

C. Test and Measurement Procedures

2.09 Test and measurement procedures provide instructions for verifying that the product is operating as intended and for identifying when adjustments and repairs are required. They contain the following types of information:

- Statements identifying: (1) the purpose of the test or measurement, (2) what the test or measurement is expected to prove, and (3) how the results can be used
- Customer-affecting circumstances which control application of the test or measurement
- Identification of tools and apparatus required
- Instructions for connecting apparatus to the product for test or measurement
- Instructions for performing the test or measurement, for adjusting controls as required, and

for analyzing measured values to determine the condition of the product

- Tabulated data and illustrations that reinforce the instructions.

D. Maintenance Procedures

2.10 Maintenance procedures provide the instructions for keeping the system in proper operating condition. They contain the following types of information:

- Nonprocedural (narrative) information pertinent to maintenance
- Identification of tools and apparatus required
- Instructions covering calibration, lubrication, inspection, checks, and adjustments associated with the product
- Actions to be taken in responding to and clearing an alarmed condition
- Instructions covering how to analyze and evaluate trouble reports and diagnostic messages
- Decision-action logic which may be used in isolating and clearing a fault and in restoring the product to an operable condition
- Instructions covering the proper method of removing and replacing components
- Identification of those items that should be returned for repair and instructions covering the repair of those that can be repaired in the field
- Tabulated data and illustrations that reinforce the instructions.

E. AT&T Task-Oriented Practices

2.11 AT&T TOPs (Task Oriented Practices) are maintenance procedure documents designed to support the operating telephone companies in:

- (1) Preparing the product for service
- (2) Operating the product, including the personnel-machine interface product

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- (3) Verifying that the product is operating as intended
- (4) Identifying when corrective action is required
- (5) Maintaining the system in an operable condition.

Each TOP provides instructions for performing the following work functions:

- Routine Maintenance—work done on a scheduled basis.
- Acceptance Testing—work done to verify that a newly installed system is operational.
- Company Order—work done to activate, change, or discontinue service.
- Trouble Clearing—work done to locate and correct system malfunctions.

A TOP is formatted to provide a document in which the user, in response to a stimulus (e.g., alarm, trouble report, service order), can readily access pertinent data necessary to successfully complete the task initiated by that stimulus. The data contained in TOP is of sufficient depth to support minimum-skill level users (step-by-step detailed information) but is also structured to enable experienced users to bypass detailed instructions for tasks that can be performed from memory. TOP data is limited to only that procedural information necessary to perform the task initiated by the stimulus.

F. Feature Documents

2.12 Feature documents provide a set of ESS switch documentation which is oriented to features as they relate to customers, administration, and maintenance areas. Primary emphasis is given to those features that are customer oriented. Each feature document uses a carefully organized format so that it provides similar coverage of each feature. The feature document system has the following general characteristics:

- It recognizes the fact that the feature, as such, is a major characteristic of a switching system

and is the basis for organization of a documentation system.

- It provides a single source for reference to all information concerning a feature. This document contains or references all system-wide information required by all user organizations.
- All features of an ESS switch are covered in a consistent manner.
- Information in the feature document will be updated when changes in the feature or its interactions occur.
- The feature document is listed in the 231-division index and is available to all legitimate users via standard practice distribution procedures.

Detailed information concerning feature documents is contained in AT&T Practice 231-090-011.

CENTRAL OFFICE PRACTICES (231-Division)

2.13 The 231-division AT&T practices contain the primary descriptive information and procedures for operation, maintenance, and testing of the 1 and 1A ESS switches. The information is covered as follows:

231-000-	Indexes and sections applicable to all types of 1 and 1A ESS offices
231-001-101 through 231-026-101	2-wire and 4-wire 1 ESS switch processor practices
231-030- through 231-038-	2-wire 1 and 1A ESS switch common equipment descriptions
231-045-	2-wire 1 and 1A ESS switch common software subsystem descriptions
231-048-	2-wire 1 and 1A ESS switch common translation descriptions. Starting with 1E6 and 1AE6 generic programs, recent change formats are covered in this subdivision through 1E8B and 1AE8A.04

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231-049-	2-wire 1 and 1A ESS switch common maintenance procedures and information	010-700-	Engineering complaint procedures
231-050- through 231-059-	2-wire 1 and 1A ESS switch common TOP is being covered in these subdivisions	032-173-301	Testing, replacing, handling, storing, and shipping circuit packs and semiconductor devices
231-090-	2-wire 1 and 1A ESS switch common feature documents	034-360-	Recorder—KS-19125L3 (AMA 1 ESS Switch)
231-100- through 231-160-	2-wire 1 ESS switch descriptive, operation, maintenance, and test practices	034-351-	Recorder — reproducer — KS-12068L6 (recorded announcements 1 ESS switch)
231-161- through 231-189-	2-wire 1 ESS switch TOP is covered in these subdivisions	040-	Relays
231-190-	2-wire 1 ESS switch feature documents	074-	Tools—catalogue information
231-300-	1A ESS switch program support descriptions	075-	Tools and materials (common usage)—maintenance, selection, and use
231-301-	1A ESS switch equipment descriptions	076-	Tools and materials—switching systems and power—maintenance, selection, and use
231-310-	1A ESS switch software subsystem descriptions	100-136-	Magnetic latching relay—timing test set J4735A
231-318-	1A ESS switch recent change formats for 1AE8A.05 and later generic programs	103-335-	Check of transmission test lines
231-319-	1A ESS switch growth descriptions will be covered in this subdivision	167-	Power plants, power units, and power supply
231-360- through 231-389-	1A ESS switch TOP is covered in these subdivisions	167-217-	111A DC power plant
231-390-	1A ESS switch feature documents.	167-624-	326A, B DC power plant
CENTRAL OFFICE PRACTICES (Other Than 231-Division)		167-670-	504B ASC power plant
2.14 The AT&T practice divisions which contain information pertaining to the 1 and 1A ESS switches are listed below. In most cases, this information will also apply to other systems. In the following listing, the division will always be listed and the subdivision will generally be listed. If only one document is referenced, the complete practice number will be given.		167-684-	610B DC power plant
		167-686-	660C DC power plant
		167-724-	806H ringing and tone power plant
		167-726-	808A ringing and tone power plant
		167-727-	812A ringing and tone power plant
		201-221-	ESS—type modular distributing frames
		201-222-	COSMIC (Common Systems Main Interconnecting Frame)

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<p>201-519- 13A Announcement System</p> <p>201-520- CSRAF (Common Systems Recorded Announcement Frame)</p> <p>201-653- E2A telemetry</p> <p>254-2 1A processor (Used with 1A ESS switch)</p> <p>254-200- 1A processor—general descriptive information</p> <p>254-201- 1A processor equipment descriptions</p> <p>254-251- through 254-253- 1A processor TOPs</p> <p>254-280- 1A processor software descriptions</p> <p>254-281- 1A processor growth descriptions</p> <p>254-3 3A processor (Used with EPSCS and E911 on 2-wire 1 ESS switch)</p> <p>254-300- 3A processor equipment descriptions</p> <p>254-302- 3B20D computer (Used with 1A ESS as an attached processor)</p> <p>254-340- 3A processor software descriptions</p> <p>254-341- 3B20D computer software</p> <p>660-470- 1 and 1A ESS offices with HILO 4-wire switching—terminal and through balance procedures</p> <p>660-476- 1 and 1A ESS offices—terminal and through balance procedures (non-HILO 4-wire)</p> <p>966-1 1 and 1A ESS switches general descriptive information</p>	<p>SCCS (SWITCHING CONTROL CENTER SYSTEM) PRACTICES</p> <p>2.15 The 2-wire 1 and 1A ESS switch practices for central office use, which are also usable at the SCCS, are not changed. The areas where central office practices require changing for SCCS use are covered in the 190 division. Practices unique to the SCCS are organized as follows:</p> <p>190-110- SCCS common application</p> <p>190-111- 4 ESS switch</p> <p>190-112- 1A ESS switch</p> <p>190-113- 2-wire 1 ESS switch</p> <p>190-115- 2 ESS switch</p> <p>190-116- 2B ESS switch</p> <p>190-117- 3 ESS switch</p> <p>190-120- PDSP (Peripheral data storage processor)—2-wire 1 ESS switch</p> <p>190-122- 5ESS switch</p> <p>190-130- SCCS administration</p> <p>201-653- E2A telemetry</p> <p>ENGINEERING TYPE BSPs</p> <p>2.16 The AT&T practice divisions which contain engineering type information for the 1 and 1A ESS switches are:</p> <p>790- Engineering administrative practices</p> <p>800- Cross-reference lists, administrative information, general equipment requirements for installation and manufacturing, and general performance requirements</p> <p>800-020-021 Checking list—floor plan data sheets</p> <p>801- Equipment design and general equipment requirements and engineering information—Common Systems</p>
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802-	Equipment design and general equipment requirements and engineering information—Power Systems	533-	Customer Premises Systems for ESS provided customer service including centrex
820-	Equipment design and general equipment requirements and engineering information (1 and 1A ESS switches)—see J-Specification in Part 4	622-515-	1 and 1A ESS switches operation and test procedures—ALIT (automatic line insulation test) teletypewriter channel
824-	Equipment design and general equipment requirements and engineering information—Operations Support Systems	662-518-	10A RSS operational and test procedures—ALIT TTY channel (1 and 1A ESS switches)
824-100-110 through 824-100-114	SCCS	999-	Customer Premises Systems—how-to-operate manuals
851-	Special Services Systems engineering design information		
851-103-	EPSCS (Enhanced private switched communication service)		

INTERFACE FACILITIES AND SYSTEMS PRACTICES

2.17 The AT&T practice divisions which contain information concerning facilities (such as TTY channels) and systems that interface with the 1 and 1A ESS switches are:

190-102-	CAROT 2 (centralized automatic reporting on trunks)
190-103-	CAROT 1
190-510-	EADAS (Engineering and Administrative Data Acquisition System)
190-540-	EADAS/NM (network management)
252-2	Service Observing and Service Evaluation System 1A
255-	10A RSS (Remote Switching System)
309-300	EPSCS (enhanced private switched communication service)—switched service network

3. PROGRAM DOCUMENTS

3.01 Program documents pertain to the design and interpretation of the generic program software. 1 ESS switch program documents use a 1A prefix and 1A ESS switch uses a 6A prefix. Program documents related to the 1A processor use a 5A prefix. Program documents for PDSP (peripheral data storage processor for the 1 ESS switch) use a 1A7 prefix and program documents for SCCS use a 1P prefix. The available program documents are:

- **PG-Generic Program Document:** The PG provides a listing of the generic program documents associated with each generic program. A listing and description of new features and FRs (failure reports) for that generic are also included. PG-1A019 covers the 2-wire 1 ESS switch (central control with centrex) and PG-1A020 covers the 2-wire 1 ESS switch (signal processor with centrex). PG-6A002 cover the 1A ESS switch.
- **IM-Input Message Manual:** The input message manual lists TTY messages that can be typed on the maintenance TTYs to request a system action or function. A description of the format and the use of each message, as well as cautions and expected results, are given for each message. The messages are arranged in alphanumerical order, and a topical index guides the reader to the specific message to be used. Some of the types of actions and functions that these messages request are:

- (a) To diagnose a system unit

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- (b) To initiate traffic counts
- (c) To trace a call
- (d) To read from or write into memory locations.

Recent change messages are covered in 231-division practices rather than the IMs. IM-1A001 cover the 1 ESS switch; IM-6A001 covers the 1A ESS switch; IM-1A700 covers PDSP; and IM-1P1xx covers SCCS.

- **OM-Output Message Manual:** The output message manual lists in alphanumeric order all the system output messages printed by the TTY. This document contains a description of each message, the reason each message was issued, the actions to be taken, if any, as a result of the message having been issued, and alarm indications that should accompany the message. OM-1A001 covers the 1 ESS switch; OM-6A001 covers the 1A ESS switch; OM-1A700 covers PDSP; and OM-1P1xx covers SCCS.
- **PR-Program Listing:** The PR consists of a computer generated sequential list of program instructions and related information for one or more program units identified by PIDENTs. A PIDENT is that segment of a program that is compiled as a unit by a compiler program (on a general purpose computer). Most PRs consist of a single PIDENT; only a few contain more than one. The listing produced as a result of this compilation becomes the PR or a part of it if PIDENTs are combined to perform a system function. No PIDENT is split between PRs. The PR contains an index sheet which lists the PIDENTs it contains and their issues, followed by the listings for each PIDENT.
- **PC-Program Change:** The PC is an interim document which is issued for each "point" issue of a generic program and supplements the existing program listing (PR). The document identifies and includes only the instructions of the (PIDENTs) affected by the generic program changes.
- **TLM-Trouble Locating Manual:** The TLM is a maintenance document which supplements the output message manual to help in locating troubles within system units. A TLM usually covers one functional unit of the system (for

example, program store, call store, etc.). The TLM lists trouble numbers that are matched with numbers generated by the system from the diagnostic results. The suspected faulty package(s) (location and type) and any special procedure are specified adjacent to each trouble number. Except for TLM-1A001 on trunks and TLM-1A121 on TTYs, a TLM carries the same number as the SD (schematic drawing) of the functional unit with which it is associated. A few system units do not have an associated TLM.

- **PK-Raw Data Document:** The PK program document specifies the type of diagnostic test performed and its expected unprocessed (raw data) as they are initially stored in memory. This document is associated with one of several maintenance programs which diagnose specific equipment units.

The PK supports the TLM for those cases where the trouble number cannot be found in the TLM or where the replacement of the equipment listed in the TLM does not correct the trouble. This may occasionally happen, particularly when the fault is marginal in nature.

In the event that the trouble number does not lead to the trouble, the maintenance personnel can request, via the maintenance TTY, that the diagnostic program be reexecuted and that the test results be printed in an unprocessed form. For trunks, raw data is requested via a diagnostic from the trunk and line test panel. The raw data document helps the attendant to interpret this test data by describing the various tests and their expected results.

A document with the letter abbreviation PK is followed by the same number used with the PR for the diagnostic program involved.

- **PK-Program Map:** The program map contains an alphabetical listing of all PIDENTs in a specific generic. Adjacent to the PIDENT are its issue and absolute octal starting and ending addresses. Normally, the program for each PIDENT consists of a single block of memory; however, when a program has been modified by patching, it may consist of more than one distinct block. To obtain the absolute address of an instruction in a program whose PR listing

is relocatable (as most are), it is necessary to add this relocatable or relative address to the absolute address of the beginning of that PIDENT.

Note: The program may definitely defines the contents of a program. It should be used as an authoritative source.

- **Parameter Listing:** Beginning with the 1E3/1AE4 generic programs, individual features were loadable in an office on an optional basis. Due to this, the parameter listing produced by the PDA (parameter data assembler) now contains absolute addresses for the optional feature groups added in a particular office. This section of the PDA listing must be used in conjunction with the Program Map to obtain actual program addresses.
- **PK-COMPOOL:** The COMPOOL record is a Common POOL of program information that is used jointly by all programs in a system. The use of the COMPOOL shortens and simplifies the individual system programs by using a common program where possible. Symbols that are used in many programs to refer to the same memory location, item, or constant are assigned in numerical values that are used universally. These values are stored in the COMPOOL. The COMPOOL record is a computer generated document listing these values. It also contains related information such as a tabulation of all PIDENTs that make a reference to each COMPOOL symbol.
- **PK-CIN (Change in Network):** PK-1A121-01 is a users manual for NTWK (network) and CIN macros. A CIN diagram describes the function of a CIN program by listing the transitions of the network paths between the lines and trunks involved in the particular CIN.
- **TLP—Trouble Locating Procedures (1A ESS switch only):** The TLP is provided by the diagnostic results post-processing program. This program provides an on-line facility for a common personnel—machine interface. There are several methods of automatic raw data analysis provided. The main output of this process is an ordered list (pack list) of suspected faulty equipment locations. This pack list is the first line maintenance aid

available to maintenance personnel to aid in the repair of faulty frames. Refer to AT&T Practice 254-280-230 for details.

4. DRAWINGS

4.01 Drawings provide information on the system hardware. The principle types of drawings are:

- **SD-Schematic Drawing:** The AD provides all the internal and external wiring connections of a circuit, along with a detailed list of all the circuit components used for that circuit. The SD is divided into well-defined sections. They are:

(a) **A Sheets**—The A sheets provide an index to the rest of the drawing; contains the apparatus index, lead index, and option index. The apparatus index provides a drawing location for a specific piece of circuit hardware such as resistors, relays, capacitors, keys, etc. The lead index provides a drawing location for any leads that interconnect to another circuit. Likewise, the option index gives drawing locations where the apparatus or wiring options may be found.

(b) **B Sheets**—The B sheets contain the FS (functional schematic) figures. These figures provide the point-to-point wiring information within the circuit. In some SDs, this point-to-point wiring is shown as individual leads; in newer SDs, the FS figures give symbol blocks with single line for multiple-wire connections. A table of lead designations and pin connections must be used with the symbol blocks.

(c) **C Sheets**—The C sheets provide apparatus figures which pertain to circuit hardware. Such information as hardware codes, frame location, drawing locations, and designations can be found in the C sheets. In the case of relays, keys, and jacks, the apparatus figures will indicate which terminals are connected and which ones are unassigned.

(d) **D Sheets**—The D sheets contain the drawing notes and the feature or option table. The D sheets also act as a catchall for any information which does not belong on any of the other sheets. The feature or option table gives a verbal description of all wiring

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and apparatus options which may be applied to the circuit.

- (e) *F Sheets*—The F sheets provide any circuit requirements that pertain to that particular SD. Such information may be in the form of any mechanical or electrical check that must be made on the circuit.
- (f) *G Sheets*—The G sheets provide the CAD figures. These figures show the interconnection of the leads with external terminations and their origination points within the circuit. In general, any lead terminating external to the circuit will go via a terminal strip or plug. These terminal strips, plugs, and distributing frame connections are shown in the CADs.
- *CD-Circuit Description*: The CD describes the operation of the circuit shown on associated SD, as well as the maintenance and testing information for the circuit in some cases. The CD and the associated SD have the same number.
- *J-Specification*: The J-Spec (J-specification) is the drawing that contains ordering information and many other hardware specifications for the frame. The ordering information is in the form of lists that may be provided for a particular frame. The lists of a frame give it flexibility to be used in a number of different environments.

In addition to providing ordering information, the J-Spec also contains other information about a frame. The following is a breakdown of different sections of the J-Spec and what can be found in each.

- (a) *Stocklist*—The stocklist is a table that provides a breakdown of all the hardware that is provided on a per-list basis.
- (b) *Equipment Views*—The J-Spec will provide a dimensioned front, rear, and side view of the equipment as well as sectionalized views of the equipment.
- (c) *Cross Reference to Wiring Figures*—Associated with each list is a wiring figure which will directly determine the external connections of the associated hardware.

- (d) *Methods of Surface Wiring and Formed Cable Assemblies*—The J-Spec of a frame will contain a table which will cross-reference to other drawings which show such information as local cable drawings, surface wiring drawings, and cable connecting drawings.

- (e) *Frame Subunits*—A frame being provided per a J-Spec will often contain other J-Spec units mounted within the frame. These units will carry the same J-Spec number but will be followed by a 2-letter suffix rather than the single letter suffix that the frame has.

- (f) *Generations of J-Specs*—As modifications and improvements are incorporated into a piece of equipment, the changes are reflected by new lists being added and others being rated A&M or MD.

- (g) *Frame PRACTICES*—In the engineering notes of the J-Spec there will be reference to the practice number of the frame in question. For 1 and 1A ESS switches, the frame practices are included in the 820 division.

- *The T-Drawing*: The T-drawing is usually associated with a similar group of J-Spec equipment. The T-drawing will provide all the external and internal wire connections of the circuit in question. Each T-drawing will have a table showing the J-Spec(s) with which it is associated. The information on the T-drawing is illustrated by sectionalizing the drawing and showing what is contained in each part. In each of the following items, the table in parentheses refers to a table in the T-drawing.

- (a) *Feature Table (Table E)*—This table lists the T-drawing figures which can be applied to the equipment in question. This table also contains a verbal description of each figure and option and when they are required.

- (b) *SD-T Cross Reference Table (Table C)*—This table provides a method of finding which T-drawing figures and options agree with which SD figures and options.

- (c) *Cabling (Table G)*—This table provides in tabular form all the cable connections from a particular frame or unit to all other circuits required for proper operation. The cabling

table provides cable size, point of origination, point of termination, and T-drawing figure that provides for the cable.

(d) **Fuse Requirements (Table F)**—Should any of the T-drawing figures require fusing, it will be listed in this table along with fuse potential, amp rating, fuse type, and designation.

(e) **Figures**—A T-drawing figure usually shows a terminal strip, plug, fuse panel, or any other location where a cable or wire is to leave the confines of the associated unit. These figures are useful when trying to find a terminal strip location or any other information about an external lead or group of leads.

(f) **Circuit Point-to-Point Wiring**—The B and C sheets provide in tabular form a listing of all the internal wire connections of the T-drawing figures.

Note: Should either the T, J, or SD drawing be known, the other two can be found by a series of cross-reference information on the drawings.

(1) The SD may be used to find the T-drawing because the T-drawing carries the same number as the SD. One SD can be the source for a family of T-drawings.

Example:

SD-1A119-01 Comm Bus Ckt
 T-1A119-27 Comm Bus Ckt LSF
 T-1A119-38 Comm Bus Ckt MT e/w SSD
 T-1A119-57 Comm Bus Ckt UTF & JF
 T-1A119-60 Comm Bus Ckt CPD
 Etc.

(2) The T-drawing can be cross-referenced to a SD or J drawing. To find the SD, refer to the T-drawing/SD drawing cross-reference chart. To find the J-Spec(s), refer to the T-drawing notes which will give equipment arrangements for the T-drawing.

(3) The J-Spec can point to a T-drawing via the list table. Each list provides for an associated T-drawing and figure.

- **ED-Equipment Drawing:** The ED drawing is similar in structure to the J-Spec. The ED can

be used to provide hardware. Some uses of EDs would be to provide connectorized cables, frame and aisle lighting equipment, cable rack assemblies, and frame iron work. Another use of the ED drawing is that of an information only drawing. These drawings provide no ordering information, but instead will provide such things as a typical layout of a grounding system, office spare circuit pack requirements, recommended cable rack layout, overall bus system layouts, etc.

- **CPS-Circuit Pack Schematic:** The CPS contains a schematic of the circuit pack, a component list, and circuit description. SD-1A102-01 covers the 1 ESS switch processor CPS and 1 and 1A ESS switches peripheral equipment CPS. SD-1A329-01 covers remreed CPS for the remreed network. SD-5A006 covers CPS information for the 1A processor. However, since approximately mid-1977, new CPSs have been issued as individual CPS drawings.

- **Apparatus Card Catalog:** This is a topical and descriptive card listing of all AT&T manufactured coded apparatus available for use. Apparatus cards give physical dimensions and electrical characteristics, as appropriate, for coded apparatus. Related specifications, SDs, etc., are also given.

5. OTHER DOCUMENTS

5.01 PA (program application) documents provide information necessary to engineer the software portion of an ESS switch. They also contain information for preparing input data, analyzing output data, and using the program.

- **PA-591001 Office Parameter Specification (2-Wire 1 ESS Switch):** This PA describes the input forms and data required for producing office parameter memory card modules.

- **PA-6A001 Office Parameter Specification (1A ESS Switch):** This PA describes the input forms and data required for producing office parameter memory.

- **PA-591003 Translations Output Configuration (2-Wire 1 ESS Switch):** This PA relates information between the ESS translation input

AT&T 231-000-010

forms and the ESS translation memory (translators). This PA can be used to determine data location in ESS translation memory.

- **PA-6A002 Translation Output Configuration (1A ESS Switch):** This PA relates information between the ESS translation input forms and the ESS translation memory (translators). This PA can be used to determine data location in ESS translation memory.
- **PA-591099 GRC (Growth Recent Change) Form Manual (2-Wire 1 and 1A ESS Switches):** This PA explains GRC forms and contains all the GRC form masters which may be reproduced as required.
- **PA-1A500 Auxiliary Programs (1 and 1A ESS Switches):** This PA provides condensed information on all aspects of the auxiliary programs in an easy to use and concise form.

5.02 Other documents pertaining to 2-wire 1 and 1A ESS switches are:

- **TG-1A Translation Guide (2-Wire 1 and 1A ESS Switches):** The TG-1A provides complete documentation of the software (translations) interface between the telephone company assignment requirements for lines, trunks, routing, charging, measurements, etc. Further, the document details the relationship of these

input requirements to the actual feature, option, or machine action desired.

- **PG-1 Parameter Guide (2-Wire 1 ESS Switch):** The PG-1 is used in the preparation of input data for the PDA. Its functional scope for parameter data is analogous to that of the TG-1A (Translation Guide) for translation data. The scope of the PG-1 includes almost all information covered in the current PA-591001, Volume 1. The actual layout of parameter data in program store (Mod 04) is not within the scope of the PG-1; this is left to the PA-591001, Volume 2. The PG-1 is not designed for manual engineering of call store.
- **PG-1A Parameter Guide (1A ESS Switch):** The PG-1A is used in the preparation of input data for the PDA. Its functional scope for parameter data is analogous to that of the TG-1A for translation data. The scope of the PG-1A includes almost all information covered in the current PA-6A001, Volume 1. The actual layout of parameter data in unduplicated call store is not within the scope of the PG-1A; this is left to the PA-6A002. The PG-1A is not designed for manual engineering of call store.
- **J1A063A-1 Trunk and Service Circuit Engineering Specification (2-Wire 1 ESS and 1A ESS Switches):** This specification provides circuit drawing and specification drawing information for standard applications of trunk and service circuits for various central office arrangements. Included is a numerical listing of SDs with associated trunk order codes.

SARTS Testing at Access Points Between Tandem Channel Units

Bellcore TN-TSY-000110 (Issue 1, Release 1, March 1985)

Introduction

These notes provide access point application guidelines and testing methods to permit Switched Access Remote Test System (SARTS) remote testing of circuits at access points between tandem channel units. Tandem channel units are used for interconnecting back-to-back digital channel banks (D-banks). The primary application of these channel units is for multi-facility trunks used in Foreign Exchange (FX) circuit applications. These testing methods are designed to use the present capabilities of SARTS (Generics 2.4 and 2PC1).

The signaling and transmission paths at this interface are described, and step-by-step procedures for signaling are given.

Tandem Interface Configuration

The voice frequency transmission between tandem channel units is four-wire 600 ohm. Signaling and supervision are carried through the connection on separate signaling leads, as well as simplex onto the transmission leads. Two signaling states are transmitted on the signaling leads and two states are transmitted on the simplex, as shown in *Figure 1*.

The signaling output leads from a channel unit are, an E-lead and a simplex on the T- and R-leads (the simplex lead is called E1). These leads follow the E-lead convention that an open is an *on-hook* and a ground represents an *off-hook*. Signaling inputs to a channel unit are on the Ex-lead, and a simplex on the T1- and R1-leads (the simplex lead is called Ex1). An open on these leads is detected as an *on-hook* and a ground an *off-hook*. This signaling convention is similar to the Type V E&M-lead interface. See *Notes on the Network*, BSP 781-030-100, Issue 2, December 1980.

The Ex-lead is carried out of the channel bank on the M-lead, and will appear on the M-point of the distributing frame terminal block.

Access Point Configuration

A 6-wire access point should be used between tandem channel units. Assuming the normal convention of the switch-end of the circuit at the "A" end of the circuit, the "EF" orientation should be used. However, if the switch is at the "Z" end of the circuit, then the "FE" orientation is required to use the following methods. The voice frequency connections that are carried through the A- and B-paths of the access point are wired in normal fashion.

The E- and Ex-leads, which are unique to tandem channel units, require special handling. They will be connected to the TC- and RC-paths of the access point, with the E-lead of each channel unit cross-connected to the Ex-lead of the other. This frogging of the E- and Ex-leads must be done on the E-side of the access point, as shown in *Figure 1*.

Access Configuration Code

The "MBA" configuration code will be used if the access point is wired "EF" and the "MAB" code used in those cases where the "FE" orientation must be used.

Signaling Format

It is recommended that the signaling format be shown as "NON" on the 703–line of the access point data. This signaling format is incorrect for a "MAB" or "MBA" configuration code, and it should give the tester a clue that this is a unique access point and will require special testing techniques. The tester should replace the "NON" with the "EMF" signaling format before sending the 703–line.

Wiring Confirmation Tests

Since the wiring of the E– and Ex–leads can lead to confusion, the wiring of the access point should be tested as part of the pre–service testing of the circuit. This can be done by checking that the equipment side channel Ex–lead is found on the E–lead at the access point, and that the equipment side Ex1–lead is simplexed on the A–pair. These checks are made by splitting the leads and measuring for a DC voltage on the leads in the "E" direction. On the A–pair, either a tip–to–ground or ring–to–ground measurement can be made in the "E" direction. The expected voltage on the E–lead or B–pair is about –34 VDC for a D1 or D4 channel bank and –9 VDC for a D3 channel bank.

Signaling Tests

Tandem channel units are rich in options. The methods given assume that the tandem channel units are correctly optioned. While incorrectly optioned channel units may work on an end–to–end basis, they will not work properly during these tests.

The signaling states for correctly wired FX circuits as seen at an access point between tandem channel units are listed in *Table 1*.

Towards Switch

These methods are designed to draw dial tone and outpulse towards the switch as a way of testing a FX circuit. Methods are given for loop–start and ground–start circuits.

Loop–Start

For loop–start circuits, the steps to draw dial tone and outpulse are given in *Chart 1*. *Chart 2* lists the steps required to draw dial tone and Touch–Tone address on a loop–start circuit.

Ground–Start

The steps to draw dial tone and dial pulse on a ground–start circuit are given in *Chart 3*. *Chart 4* gives the procedure to draw dial tone and Touch–Tone address on a ground–start circuit.

Towards Station

Procedures for ringing the station–end of a FX circuit are given in *Charts 5* and *Chart 6*. *Chart 5* is for use with loop–start circuits and *Chart 6* covers ground–start circuits. When ringing a station using these methods, the tester should remember that continuous ringing is supplied to the station. The ringing continues until either the customer answers or the tester removes the ground from the simplex circuit by use of the LOI/LP/CLSD/RL/B/ command.

Transmission Tests

To perform transmission tests on FX circuits, the circuit must be put in the off-hook state. For measurements between a tandem channel unit and the office-end of a circuit, the E-lead must be grounded in the direction towards the office-end channel unit. This will give a "loop closed" signal to the office-end channel unit. To make measurements towards the station-end, the M-lead must be grounded in the direction towards the station. This will be recognized by the station-end channel unit as a tip-ground signal, which will cause the station-end channel unit to close the tip lead, thus providing continuity on the transmission leads.

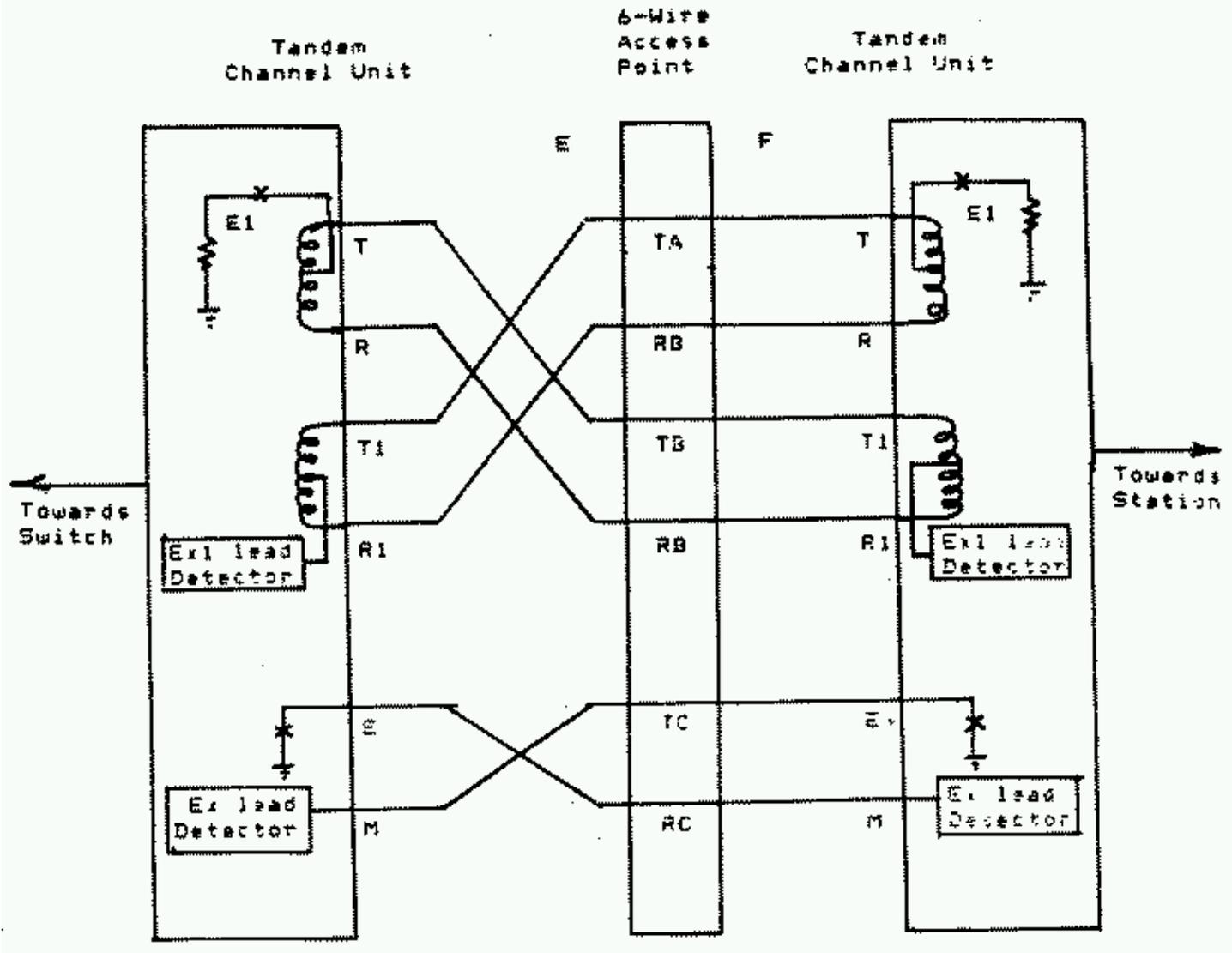


Figure 1: Back-to-Back Tandem Channel Unit Connection

Table 1:

Foreign Exchange Signaling States at Access Points Between Back-to-Back Tandem Channel Units

Signaling Towards Switch-End (E Direction)

Circuit Condition	E-Lead	A-Pair Simplex	Circuit Type
Loop Closed	Ground	Open	Loop-Start
Loop Open	Open	Open	Loop-Start
Loop Closed	Ground	-	Ground-Start
Loop Open	Open	-	Ground-Start
Ring Grounded	-	Ground	Ground-Start
Ring Not Grounded	-	Open	Ground-Start

Signaling Towards Station-End (F Direction)

Circuit Condition	M-Lead	B-Pair Simplex	Circuit Type
Ringing	Ground	Ground	Loop-Start
Not Ringing	Open	Open	Loop-Start
Tip Grounded	Ground	-	Ground-Start
Tip Not Grounded	Open	-	Ground-Start
Ringing	-	Ground	Ground-Start
Not Ringing	-	Open	Ground-Start

-End-

Chart 1: Dial Pulse to Switch (Loop-Start)

SARTS Command	Result
G01/E/A&B/	Establish test direction towards switch.
L01/LP/OPN/RL/A/	Split voice frequency circuit.
G07/TLK/	Establish talk line.
H12/	Set up talk and listen paths.
E01/E/E/GRD/	Grounds E-lead towards switch causing loop closure to the switch and drawing dial tone. Tester should hear dial tone.
E03/E/S/tel#/10/58/	Puts circuit on-hook followed by off-hook, dial tone detection, and outpulsing. Test should hear ringback followed by answer.
E07/E/	Office-end channel unit opens loop to office to put circuit in an on-hook state.

-End-

Chart 2: Touch-Tone to Switch (Loop-Start)

SARTS Command	Result
G01/E/A&B/	Establish test direction towards switch.
L01/LP/OPN/RL/A/	Split voice frequency circuit.
G07/TLK/	Establish talk line.
H12/	Set up talk and listen paths.
E01/E/E/GRD/	Grounds E-lead towards switch causing loop closure to the switch and drawing dial tone. Tester should hear dial tone.
E04/S/tel#/SUPVN E/	Puts circuit on-hook followed by off-hook, dial tone detection, and Touch-Tone addressing towards the switch. Tester should hear ringback followed by answer.
E07/E/	Office-end channel unit opens loop to office to put circuit in an on-hook state.

-End-

Chart 3: Dial Pulse to Switch (Ground-Start)

SARTS Command	Result
G01/E/A&B/	Establish test direction towards switch.
L01/LP/CLSD/RL/A/	Split voice frequency circuit.
G07/TLK/	Establish talk line.
H12/	Set up talk and listen paths.
E01/M/E/OPN/	Opens tip-ground signaling path to station-end channel unit. Prevents PBX ringing for PBXs that ring on tip-ground with open-loop.
E01/E/E/GRD/	Grounds E-lead towards switch causing loop closure to the switch.
L01/LP/CLSD&GRD/RL/A/	Causes the office-end channel unit to give a ring-ground to the switch. This will draw dial tone.
E03/E/S/tel#/10/58/	Opens loop then closes loop, detects dial tone, and outpulses. The circuit will "pump" during the open-loop interval. Tester should hear ringback followed by answer.
L01/LP/CLSD/RL/A/	Removes ring-ground signal by putting an open on the Ex1 signaling path. The office-end channel unit autonomously remove the ring-ground towards the switch when tip-ground is detected.
E07/E&M/	Returns the E&M-leads to normal, the office-end channel unit opens the loop to the switch putting the circuit in the on-hook state.

-End-

Chart 4: Touch-Tone to Switch (Ground-Start)

SARTS Command	Result
G01/E/A&B/	Establish test direction towards switch.
L01/LP/CLSD/RL/A/	Split voice frequency circuit.
G07/TLK/	Establish talk line.
H12/	Set up talk and listen paths.
E01/M/E/OPN/	Opens tip-ground signaling path to station-end channel unit. Prevents PBX ringing for PBXs that ring on tip-ground with open-loop.
E01/E/E/OPN/	Sends open-loop signal to office-end channel unit to ensure that the circuit is on-hook.
E01/E/E/GND/	Sends closed-loop signal to office-end channel unit.
L04/S/tel#/GST/SUPVN A/	After minimum of 4 seconds, applies ground to the simplex which translates to ring-ground in the office-end channel unit. This should draw dial tone, if dial tone is detected, then Touch-Tone addressing is sent towards office-end channel unit. Tester should hear ringback followed by answer.
E07/E&M/	Returns the E&M leads to normal, the office-end channel unit open the loop to the switch putting the circuit in the on-hook state.

-End-

Chart 5: Ring Towards Station (Loop-Start)

SARTS Command	Result
G01/F/A&B/	Establish test direction towards station.
L01/LP/CLSD/RL/B/	Split voice frequency circuit.
G07/TLK/	Establish talk line.
H12/	Set up talk and listen paths.
E01/E/E/OPN/	Opens loop closure signaling path to keep an answer at the station from drawing dial tone.
L01/LP/CLSD&GRD/RL/B/	Station-end channel unit sends continuous ringing to station. When station goes off-hook and returns loop closure to the station-end channel unit, the channel unit locally trips ringing. However, if the station goes on-hook before the following command is executed, ringing will resume.
L01/LP/CLSD/RL/B/	Removes ringing signal to station-end channel unit. If this command is not executed, ringing will resume when station is put on-hook.
G09/	Restores circuit to normal.

-End-

Chart 6: Ring Towards Station (Ground-Start)

SARTS Command	Result
G01/F/A&B/	Establish test direction towards station.
L01/LP/CLSD/RL/B/	Split voice frequency circuit.
G07/TLK/	Establish talk line.
H12/	Set up talk and listen paths.
E01/M/F/GND/	Causes station-end channel unit to send tip-ground to station. Note: Some PBXs recognize a tip-ground as a ringing signal.
L01/LP/CLSD&GRD/RL/B/	Station-end channel unit sends continuous ringing to station. When station goes off-hook and returns loop closure to the station-end channel unit, the channel unit locally trips ringing. However, if the station goes on-hook before the following command is executed, ringing will resume.
L01/LP/CLSD/RL/B/	Removes ringing signal to station-end channel unit. If this command is not executed, ringing will resume when station is put on-hook.
G09/	Restores circuit to normal.

-End-

Infrared Tracking Spray Experiments

Overview

An easy way to covertly track a vehicle, package, or person is to use some type of invisible tracking powder or liquid. The Soviets did this back in the late 1970s and early 1980s by using a substance called "spy dust." Spy dust turned out to be a combination of nitrophenyl pentadien (NPPD) and luminol. This yellowish, odorless powder "glowed" when illuminated with the right wavelength of ultraviolet light. This concept was very useful to the KGB as they could sprinkle some spy dust on a person, doorknob, steering wheel, sidewalk, etc. and then monitor their movements by setting up certain "choke points" while performing routine foot surveillance.

For this project, we'll try to develop a similar technique. While amateur "spy shops" now sell consumer ultraviolet tracking powder, the powder still relies on the need for external ultraviolet illumination. This could be a problem for the amateur espionage enthusiast as the proper ultraviolet lamps and long-range optics are expensive and bulky.

For our homebrew method, we'll be using standard infrared OmniGlow Cyalume lightsticks. These lightsticks are available at most high-end sporting goods stores or even some military surplus outlets. They act just like the normal "snap & shake" lightsticks, just that their light output is in the non-visible infrared spectrum. These lightsticks are commonly used at night by the military to mark friendly forces or landing and drop zones. Because the lightsticks operate in the infrared spectrum, they show up just fine when using light-amplifying night vision goggles. They will also show up using standard black-and-white CCD video cameras or color video cameras with the infrared filter removed. The handheld night vision viewer project in *GBPPR 'Zine* Issue #33 would be perfect for this.

This means you can extract the liquid from an infrared lightstick and put it into a spray bottle. You can then "spray" your target person or vehicle, and track them using a small CCD camera with a video monitor. Those old, clunky VHS video cameras from the 1980s are perfect for use while tracking vehicles as you can use the camera's stock zoom lens and viewfinder to follow the target vehicle.

While all this may sound too good to be true, there are a few things to keep in mind:

1. The liquid in the Cyalume lightsticks has a very distinct smell (Phenol), so be careful not to spray too much. You may also want to remember this scent in case this tracking method is used against you.
2. Standard pump-style spray bottles tend to "dribble" when you first use them. This could easily alert your target by the large liquid drips. It's best to pre-charge the spray bottle or try to develop some type of aerosol dispensing application.
3. The liquid in the Cyalume lightsticks can stain some clothing and will leave a somewhat sticky residue. Again, be careful not to use too much, and try to test this ahead of time.
4. When activated and exposed to air, the liquid in the Cyalume lightsticks doesn't seem to last very long. Usually only a couple hours, so plan ahead for this. The spent liquid should also "glow" when illuminated with an external ultraviolet light.
5. This technique can also be used by victims to mark their attackers. For instance, give it to your 12-year-old son whenever he attends a HOPE conference in New York. He could then spray anyone who tries to molest him. I'd imagine the staff of *\$2600 Magazine* would light up like the Sun when viewed in infrared...

Construction Notes & Pictures



Overview of what's needed.

Both "visible-light" and infrared OmniGlow Cyalume lightsticks are shown above, along with a simple pump-style spray bottle. A visible-light lightstick will be used for these examples as the infrared ones are kinda expensive and they will also be easier to photograph.



Snap and shake the lightstick as normal.

Google for "Cyalume lightsticks" for a lot more information on how they work and the chemicals they use.

Another possible idea using infrared Cyalume lightsticks is to pour the liquid into a "hollowed-out" eyeglass frame. This technique might be able to defeat surveillance or face recognition cameras which don't contain any infrared filtering. This method will also easily pass through security checkpoints when active-infrared camera jamming countermeasures (infrared LEDs) usually won't.



Now, cut-off one end of the lightstick and pour the liquid contents into the spray bottle. The lightstick's label says the liquid is non-toxic.

You'll probably want to filter the remnants of the Cyalume lightstick's glass capsule before pouring.

In the center, was a test spray onto an old t-shirt.



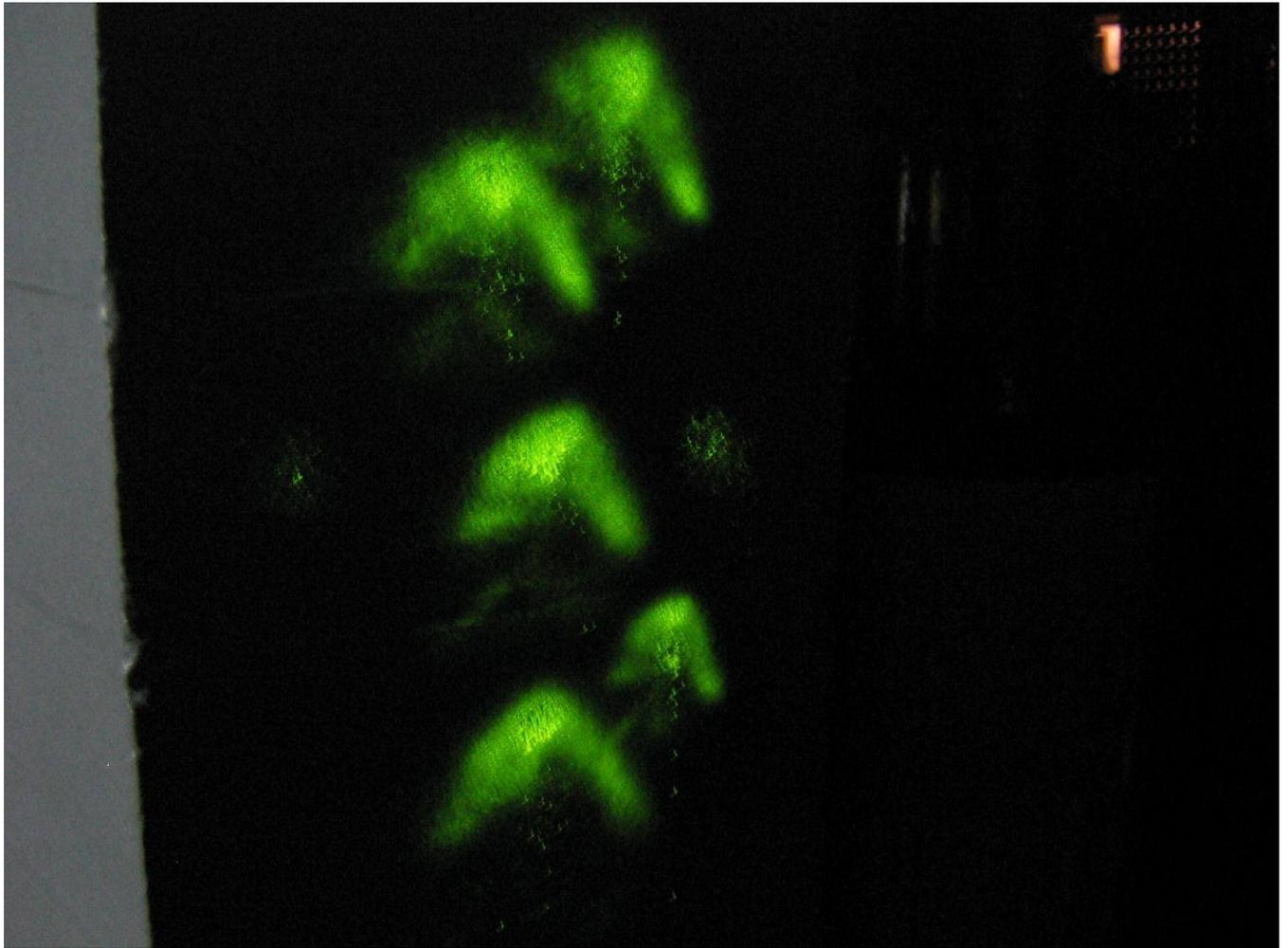
Same scene as above, but photographed in the dark and with no flash.

Keep in mind this is a visible-light lightstick. The infrared one would appear basically the same when using a night-vision device or CCD camera.



Test spray onto a painted chimney surface.

The dried liquid does have the same "sticky" feel like you get when you remove stickers from a surface. The liquid can also effect the paint, even removing it in some cases.



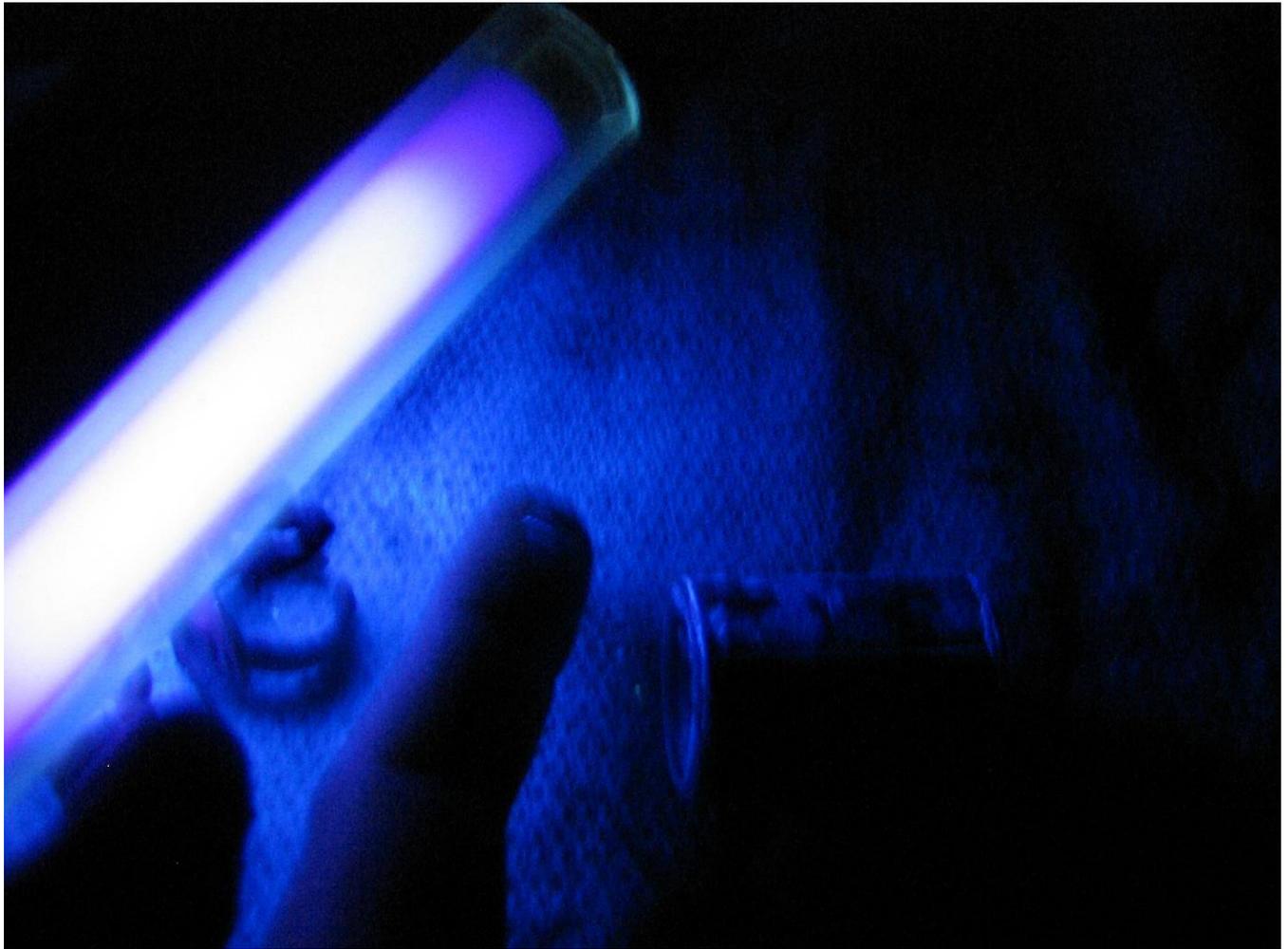
Same seen, but with without the lights or a flash.

Note the large dribbles you get when you first pump the spray bottle. This should be kept in mind when trying to be used covertly.



Believe it or not, Toys–R–Us used to sell a "Spy–Tech Invisible Detection Kit" back in the early 1990s.

The kit included a battery operated ultraviolet light, some ultraviolet tracking powder, an ultraviolet ink pad and pen, and some stamps to secretly mark documents.



The ultraviolet tracking powder consists of a very-fine white substance (cornstarch?) which fluoresces when exposed to ultraviolet light. The phosphor powder which coats the inside of fluorescent lights bulbs may also be adapted.

The powder sticks to your fingers even after you wipe them with a cloth or on your clothes.

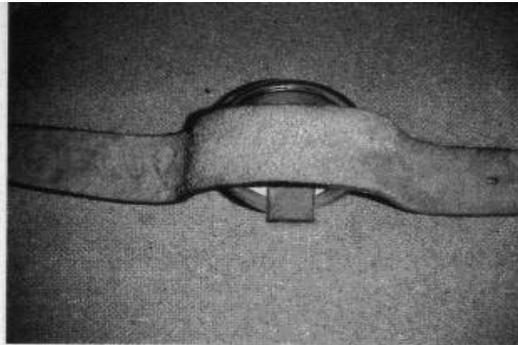
This powder is also useful for marking electronic alarm or lock keypads to help determine which keys are frequently used.

Mix the tracking powder with some petroleum jelly to help make it more water resistant during vehicle tracking applications.

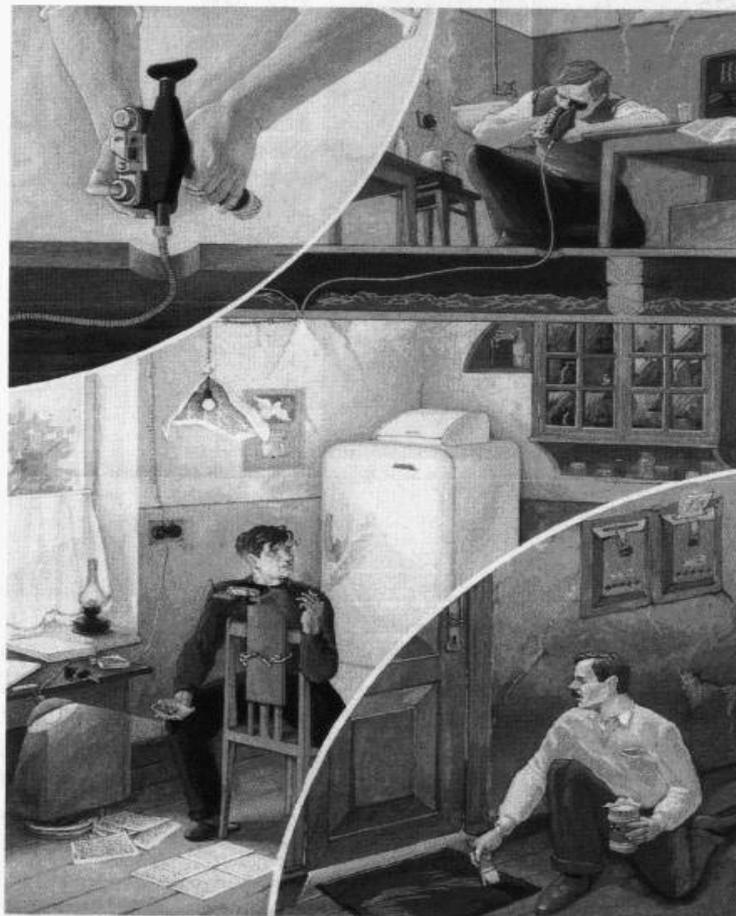
From Antonio and Jonna Mendez's *Spy Dust*



1. A flask of spy dust, with a brush for its application.



2. KGB counterintelligence officers carried flasks of spy dust in their belts.



3. A KGB artist's rendition of how spy dust was applied (the man painting the doormat). The man on the chair is photographing documents, and he is being surveilled by the man upstairs.

GPS Delay Spoofing Experiments

Overview

So the child molesters at *\$2600 Magazine* recently held their latest Horny Old Pedophiles Everywhere (HOPE) conference in New York City. *Yawn*. There was some confusion this year after the Gay Pedo Posse decided to name the conference "The Last HOPE." It seems that most people (i.e., no real hackers) took this literally, actually thinking this would be the last of *\$2600 Magazine's* biggest cash cows. *Hah!* Like the last thing those rich, clueless idiots need is more money! I'm sure Kevin Mitnick or Jello Biafra could always pitch in a few million dollars when things get rough financially... In reality, however, this conference naming scheme was actually meant to imply that this was *Eric Corley's* last HOPE.

You see, Ms. Corley isn't going to be with us much longer. Especially if him and his little band of ACLU and EFF lawyers keep on molesting those 12-year-old boys. For some reason, their parents don't seem to appreciate that sort of thing...

Operation

The main trick when performing targeted depopulation, just like in magic, is being in two places at once.

While I don't know how to to *that*, I can fake it! And that's all you really need to convince the court system that you are, in fact, "non-guilty."

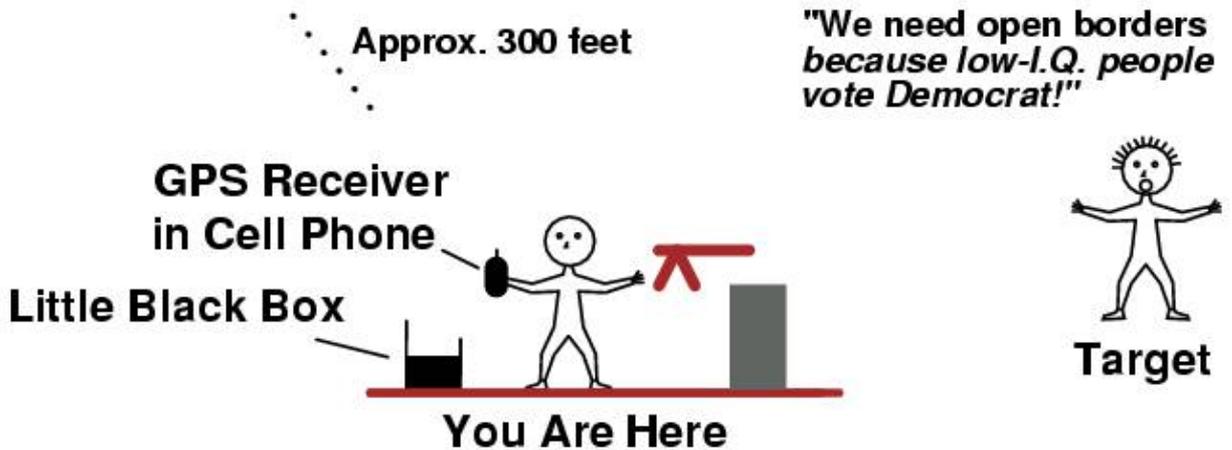
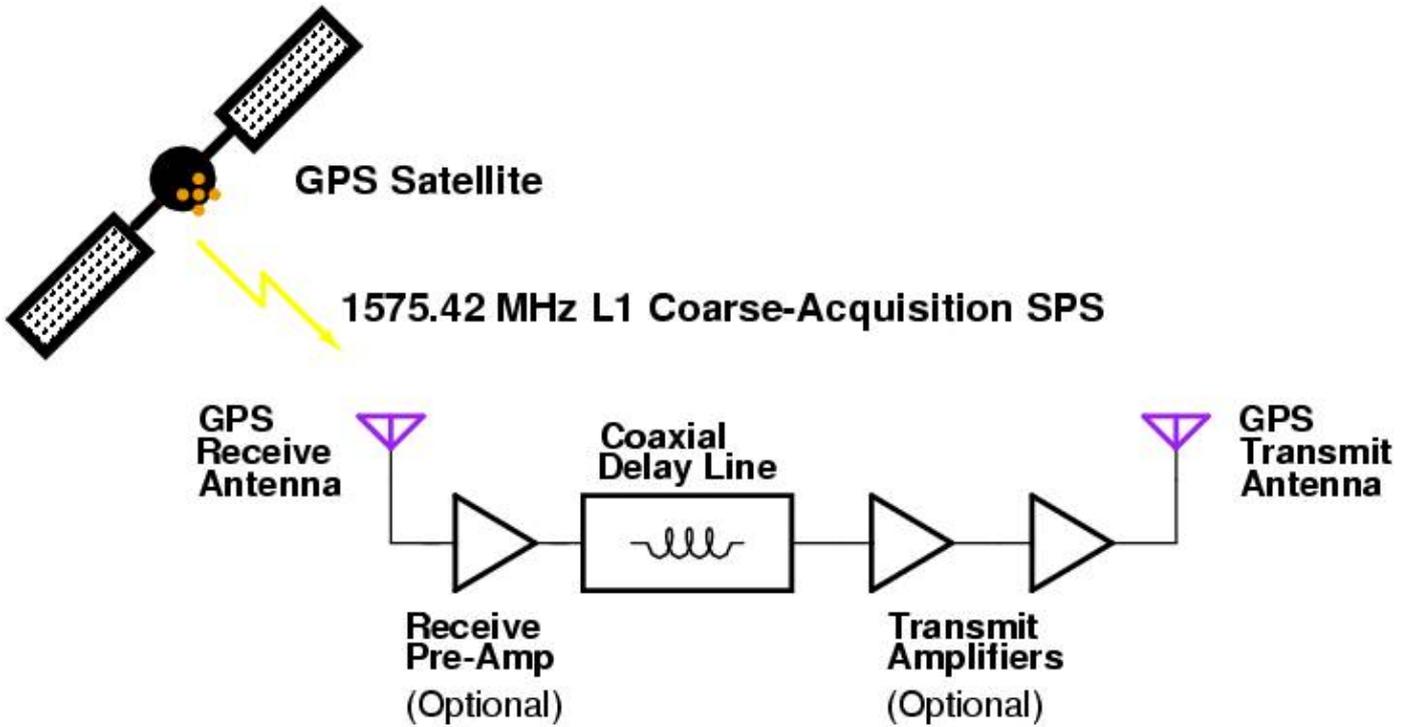
GPS basically works by transmitting a precisely timed psuedo-random "noise" signal from an orbiting satellite down to your GPS receiver. Inside your receiver, a similar psuedo-random "noise" signal is also generated. The GPS receiver tries to sync the phase of these two signals together. Since the distance to the satellite is known, the amount of phase-shift (time) that this syncing process takes can be calculated into a distance. When taking into account multiple satellites and multiple readings, your global longitude and latitude coordinates can be determined.

The GPS calculations are based around the speed-of-light (electromagnetic radiation) through the atmosphere and ionosphere. If we could somehow alter that speed, we could also alter the final determined coordinates.

Now, how in the *hell* are we going to alter the speed-of-light, especially with only a hacker's budget? Simple, we'll make a "RF delay line" out of some scrap coaxial cable. Our "delay box" project will receive the weak GPS signal at one end, delay the signal to approximately 60 – 80 percent the speed-of-light over a distance of several hundred feet, then we'll amplify this delayed GPS signal, and finally transmit it to our target GPS receiver. Since this "new" signal has been artificially "delayed" in its journey from the orbiting satellite, the GPS receiver will think that it is actually someplace where it isn't. Your new GPS coordinates will be a few hundred feet off from where you actually are.

This overall concept does appear to work, but it's still very experimental. And no, encrypting the signal will have no effect on the outcome, as this is a "layer one" physical attack. The only way to really prevent this type of "spoofing" is to use a very directional GPS receiver antenna or an antenna system with very sharp nulls towards the horizon and proper polarization. Also, since the transmitted "delayed" signal can have a higher received power level than a signal received *directly* from the GPS satellite (approx. -130 dBm), GPS receivers should start tracking the received power.

Block Diagrams



Construction Notes & Pictures



Homebrew coaxial delay line.

This is approximately 233-feet of surplus Belden 9269 RG-62A/U coaxial cable. Yes, the 93 ohm impedance is wrong, but it will still work and it can be had for free as businesses get rid of their old ARCnet and IBM 3270 terminal networks.

We'll wind the coax around an AC extension cord thingy.



Completed coaxial delay line with BNC connectors added to each end.

Belden 9269 RG-62A/U coaxial cable has a velocity of propagation equal to 84% the speed-of-light and a nominal delay of 1.21 nanoseconds per foot.

This entire delay line assembly will "slow" the received GPS signal by approximately 282 nanoseconds. This corresponds to a final 275-foot "error" on the GPS receiver. This delay line's total attenuation loss will be around 26 dB.

Standard 50 ohm impedance Belden 8216 RG-174 coax has a nominal delay of 1.54 nanoseconds per foot. RG-174's narrow diameter also makes it ideal for constructing physically small delay lines, but it will have much more attenuation loss.



Parts for the GPS receive antenna.

For this experiment, the first thing we'll construct is the GPS receive antenna. This is the antenna which will receive the direct satellite transmissions and will be mounted on a mast away from the delay box. This GPS antenna is a slight modification from the one in the October 2002 *QST* article "An Inexpensive External GPS Antenna" by Mark Kesauer (N7KKQ).

This article is available online at www.arrl.org/tis/info/pdf/0210036.pdf. Study it very carefully before constructing this version of the antenna. We'll be replacing the PC board antenna elements in the original article with a piece of UT-141 semi-rigid coax. It will also be mounted inside a 3-inch diameter PVC pipe enclosure.

The parts shown above are, from the left, 0.032-inch thick brass sheet (K&S #253) cut into a 3-inch diameter disk, a piece of 3-inch PVC pipe for use as a template, a 3/4-inch pipe floor stand, a flat 3-inch PVC cap, a panel-mount BNC connector, and some UT-141 coax.

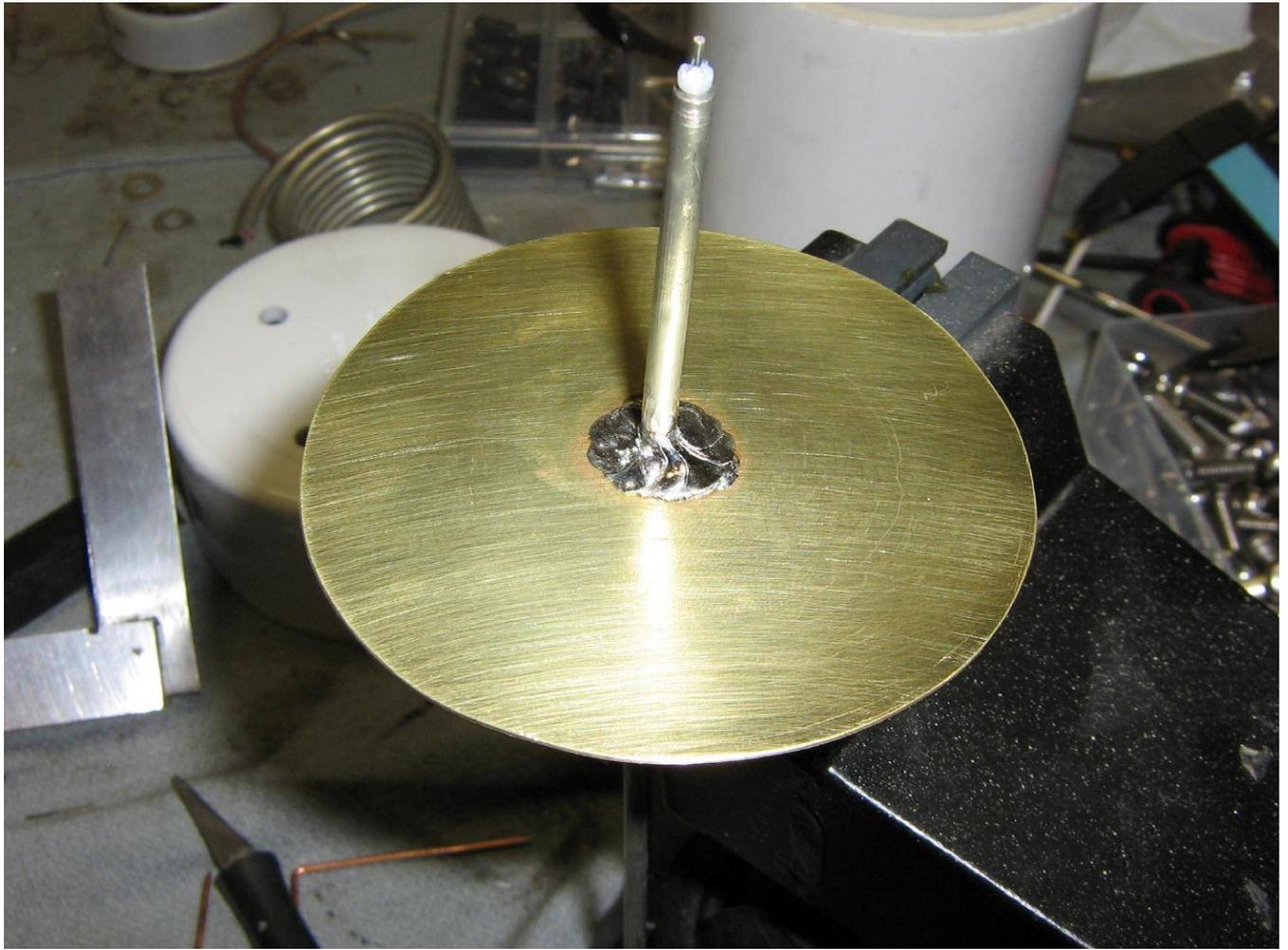


Begin the antenna construction as shown.

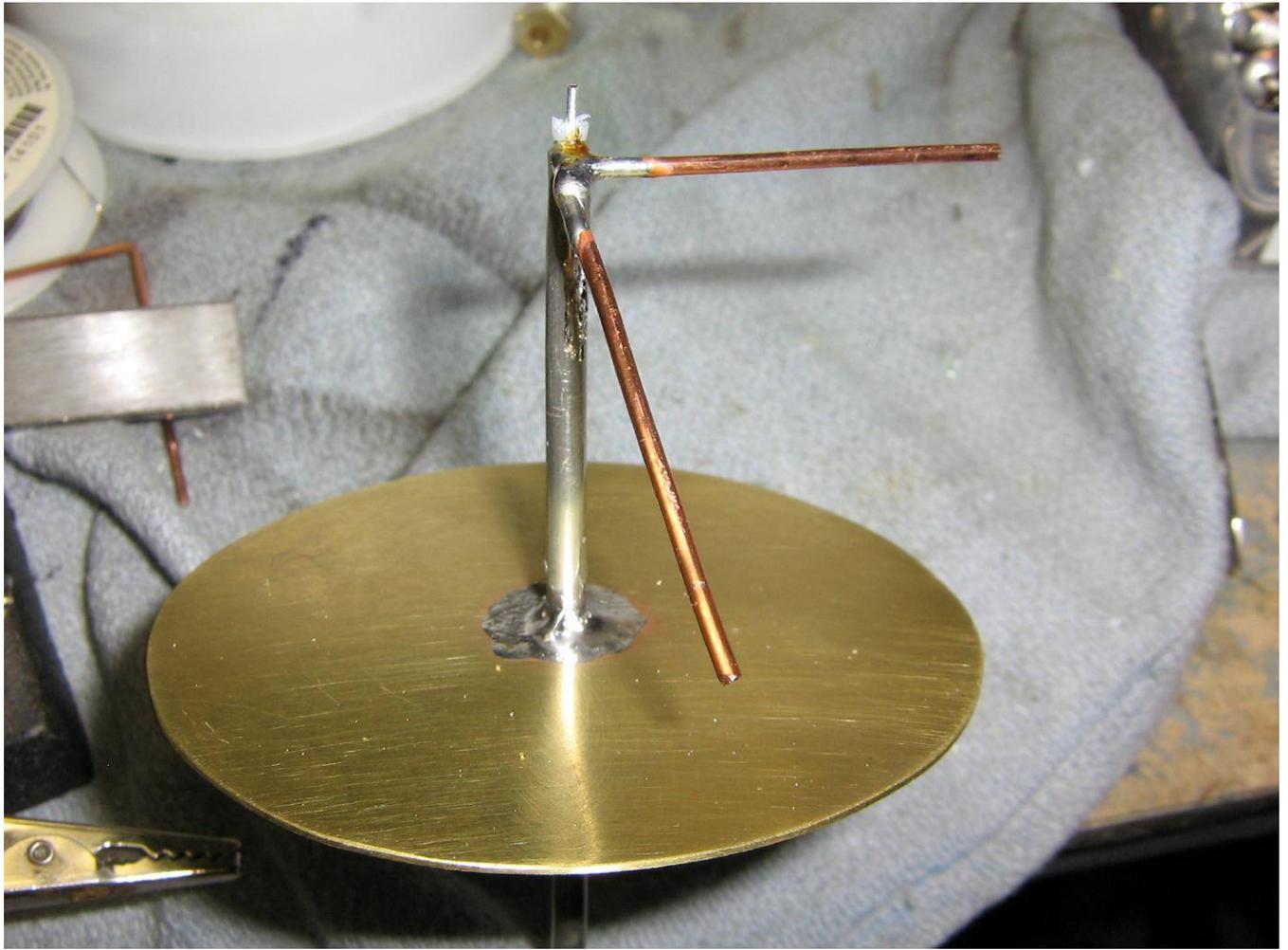
On the left, is the pipe floor stand with a large hole drilled in it to fit the panel-mount BNC connector. The PVC cap has been drilled so the pipe floor stand can be attached to the bottom to act as a mast mount. The larger hole allows the panel-mount BNC connector and coax to feed the antenna.

On the upper-right is a length of 3-inch diameter PVC pipe which will be used for the antenna's enclosure.

A hole has been drilled in the center of the 3-inch diameter brass sheet to pass the UT-141 coax.

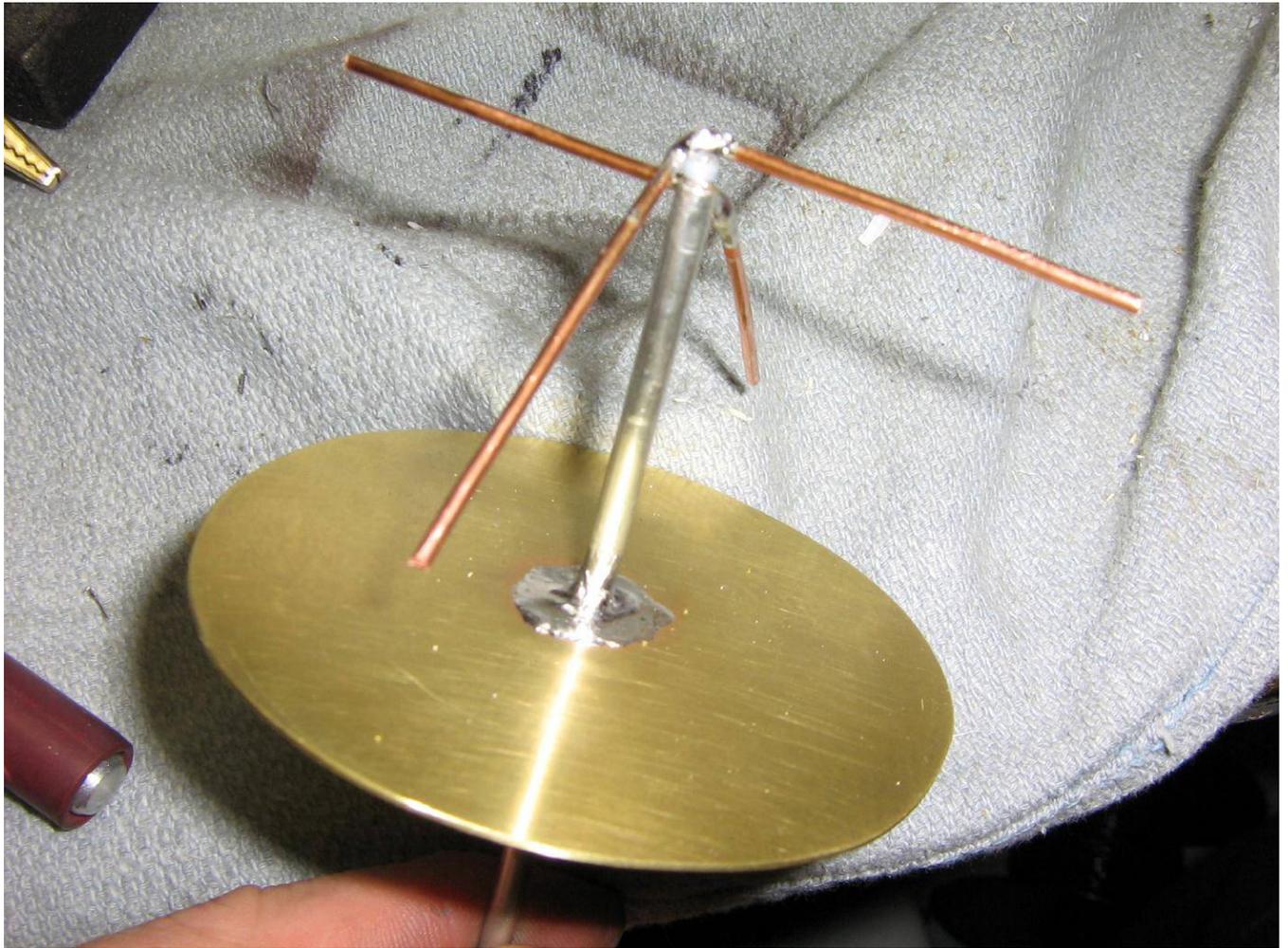


Solder the UT-141 coax to the brass sheet as shown. The distance from the brass ground plane to the shield-end of the UT-141 coax is 1.78-inches.



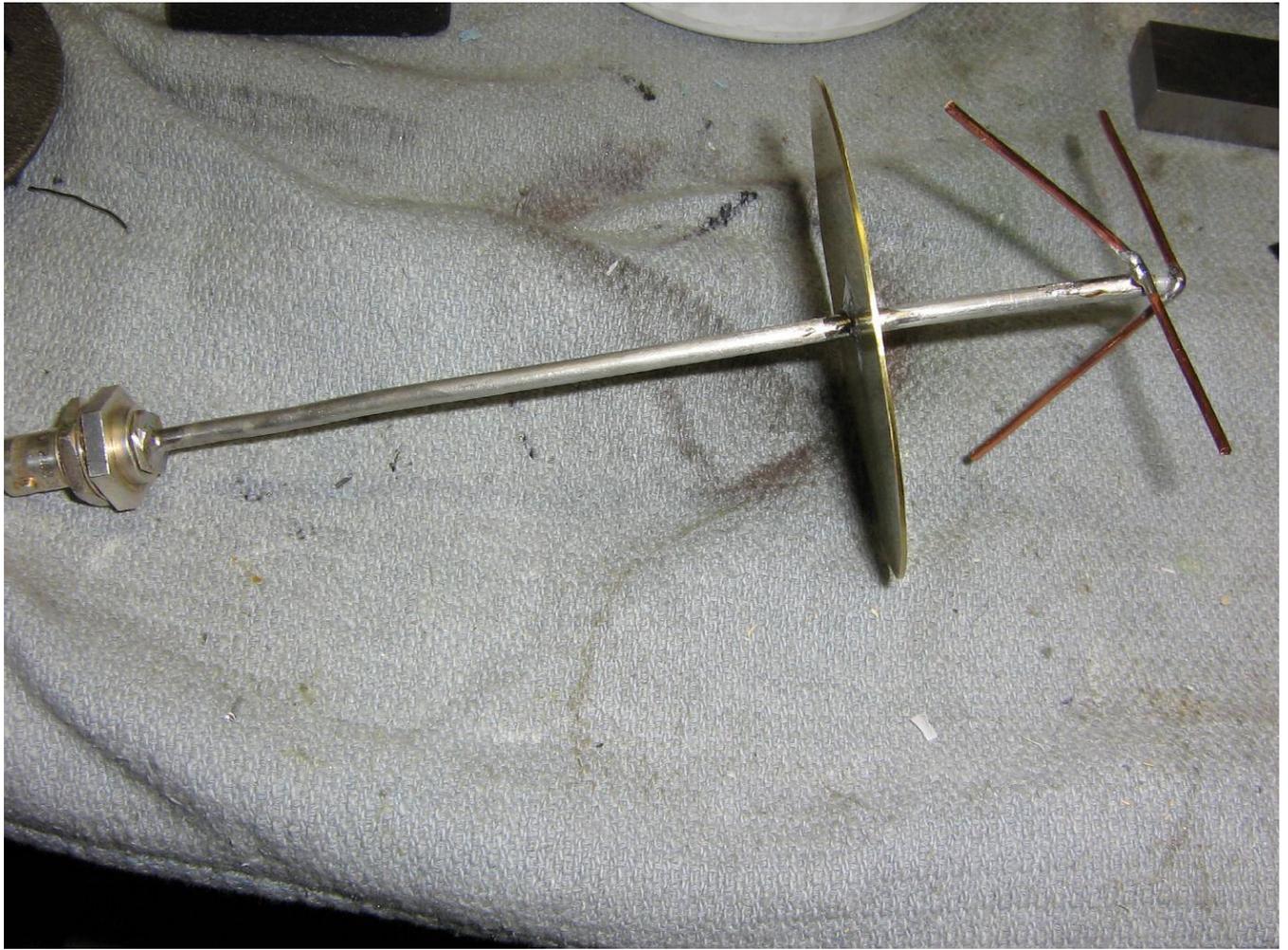
First #14 copper wire antenna element added to the UT-141's shield.

Follow the instructions in the *QST* article for adding each antenna element. The horizontal element will be 1.51-inches long and the 45° "down" element will be 1.82-inches long. You may have to trim the horizontal elements down slightly to fit inside the 3-inch PVC pipe enclosure.



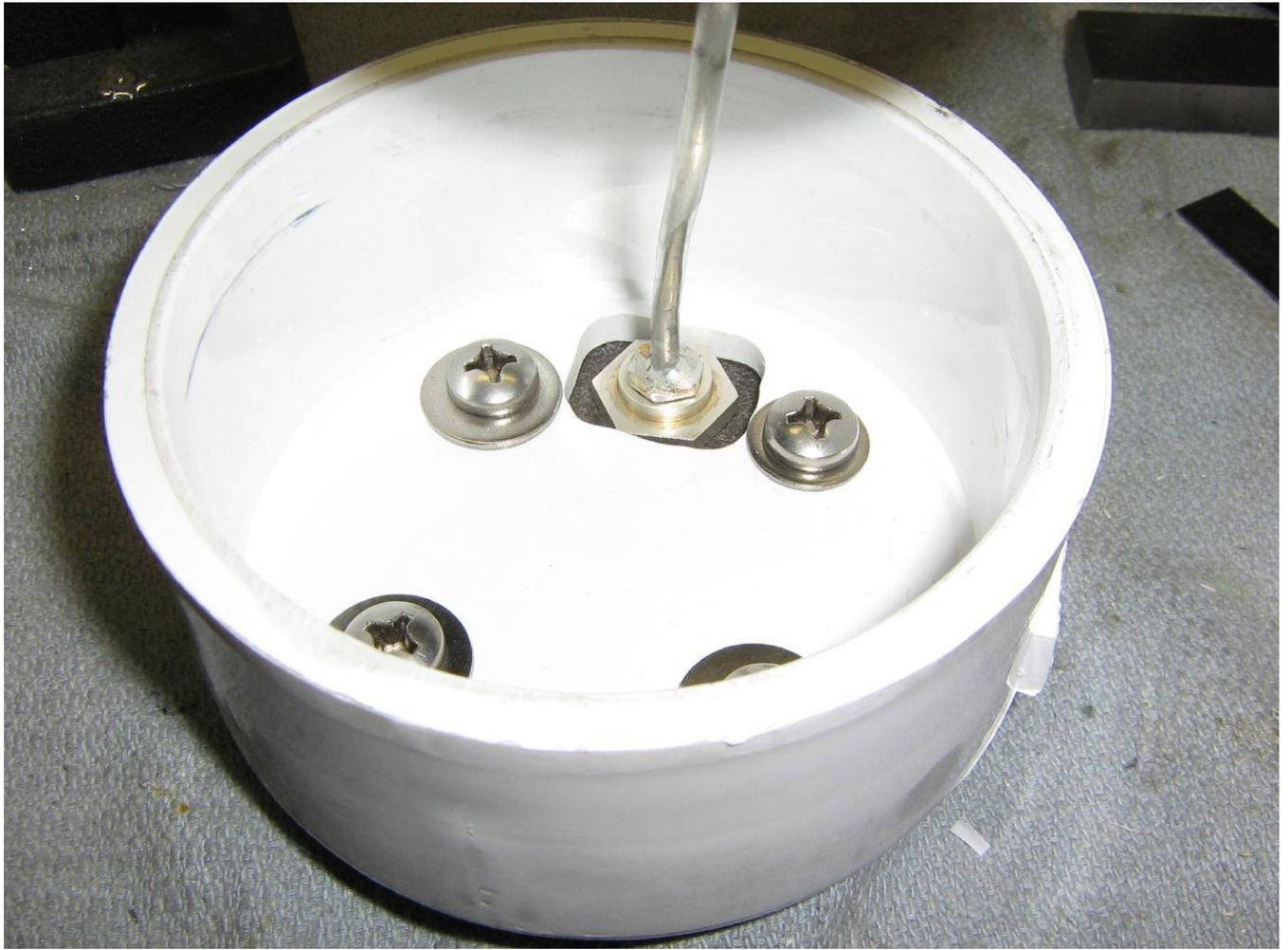
Second #14 copper wire antenna element added to the UT-141's center conductor.

The picture looks confusing, but the *QST* article provides much more detail. It will also make more sense while you are actually building it.



Final GPS receive antenna construction.

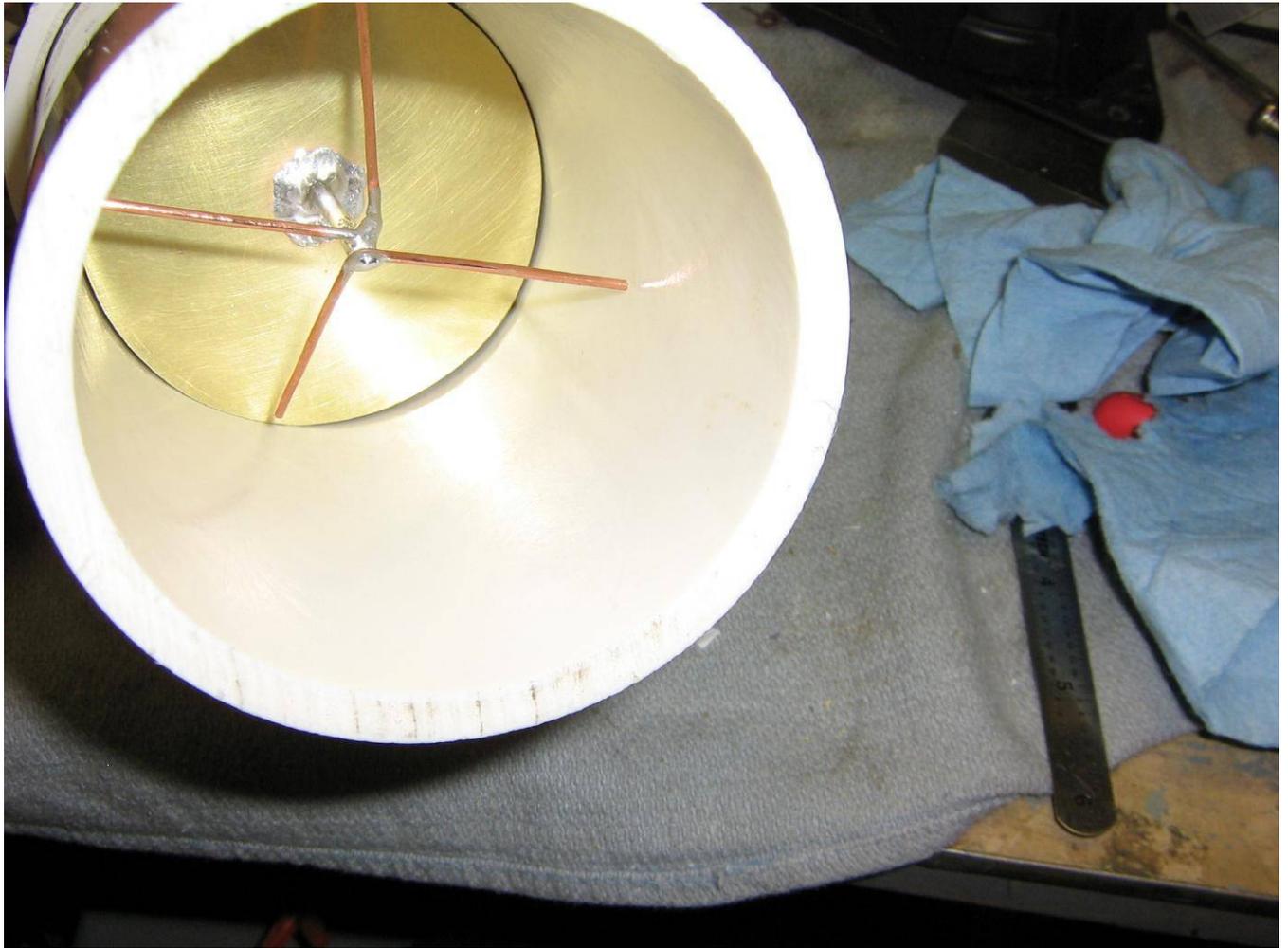
Solder the UT-141 into the panel-mount BNC connector with enough "slack" to allow you to adjust the antenna's final position inside the PVC enclosure.



Use stainless steel hardware to mount the floor pipe stand to the PVC cap as shown. Also mount the panel-mount BNC connector at this time, making sure that the locking nut is very secure.



Finished GPS receive antenna without the PVC enclosure.



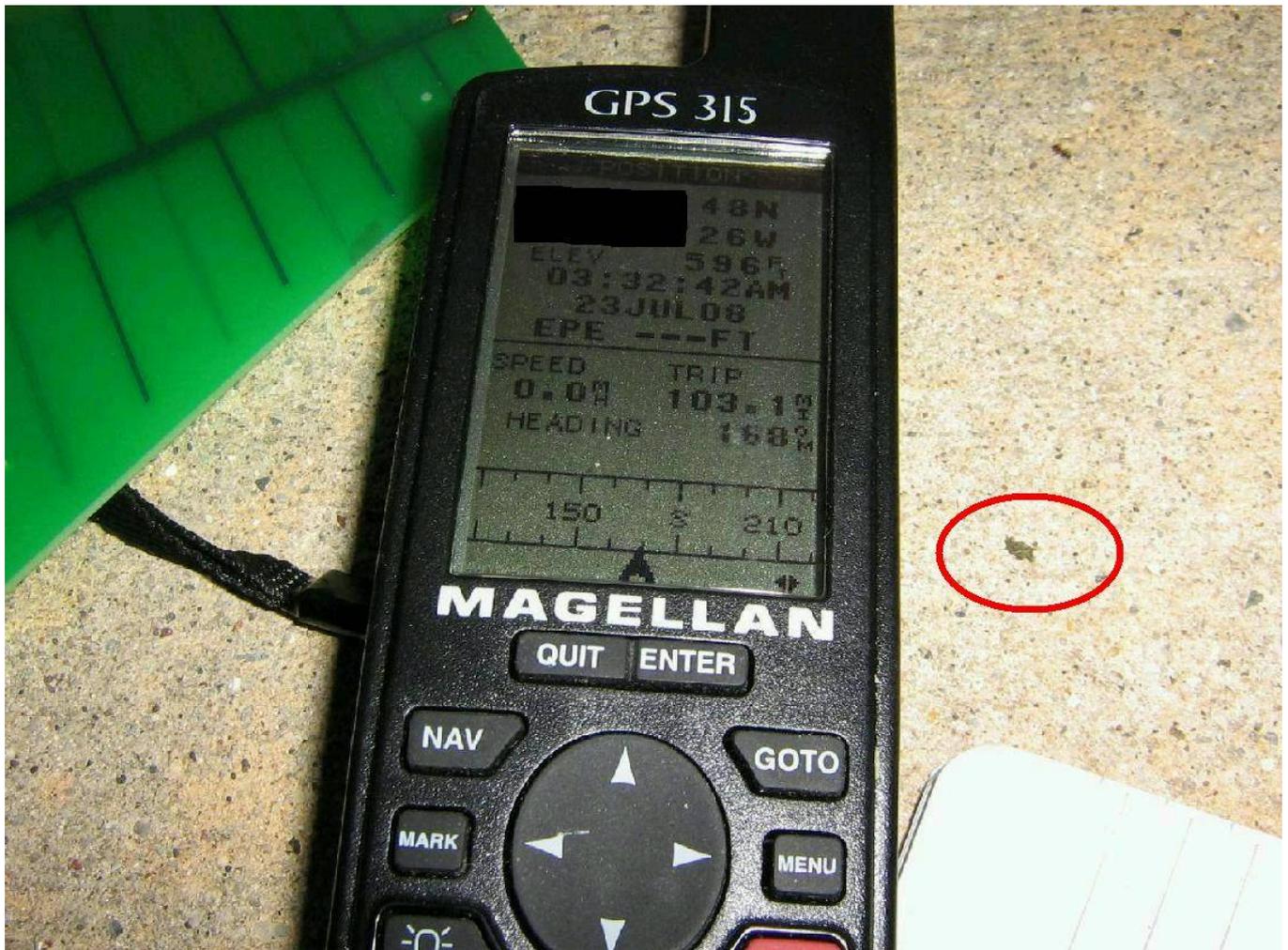
Finished GPS receive antenna inside a 12-inch long piece of 3-inch diameter PVC pipe. You may have to trim the elements down a little bit for it to fit. This shouldn't effect the antenna's overall performance too much.

Add another PVC cap to finish off the project.



Completed GPS receive antenna overview.

The antenna can now be mounted to the top of a mast made out of standard 3/4" galvanized plumbing pipe.



Initial GPS delay spoofing testing. Completely passive (antenna to delay line to antenna). No active amplifier elements used.

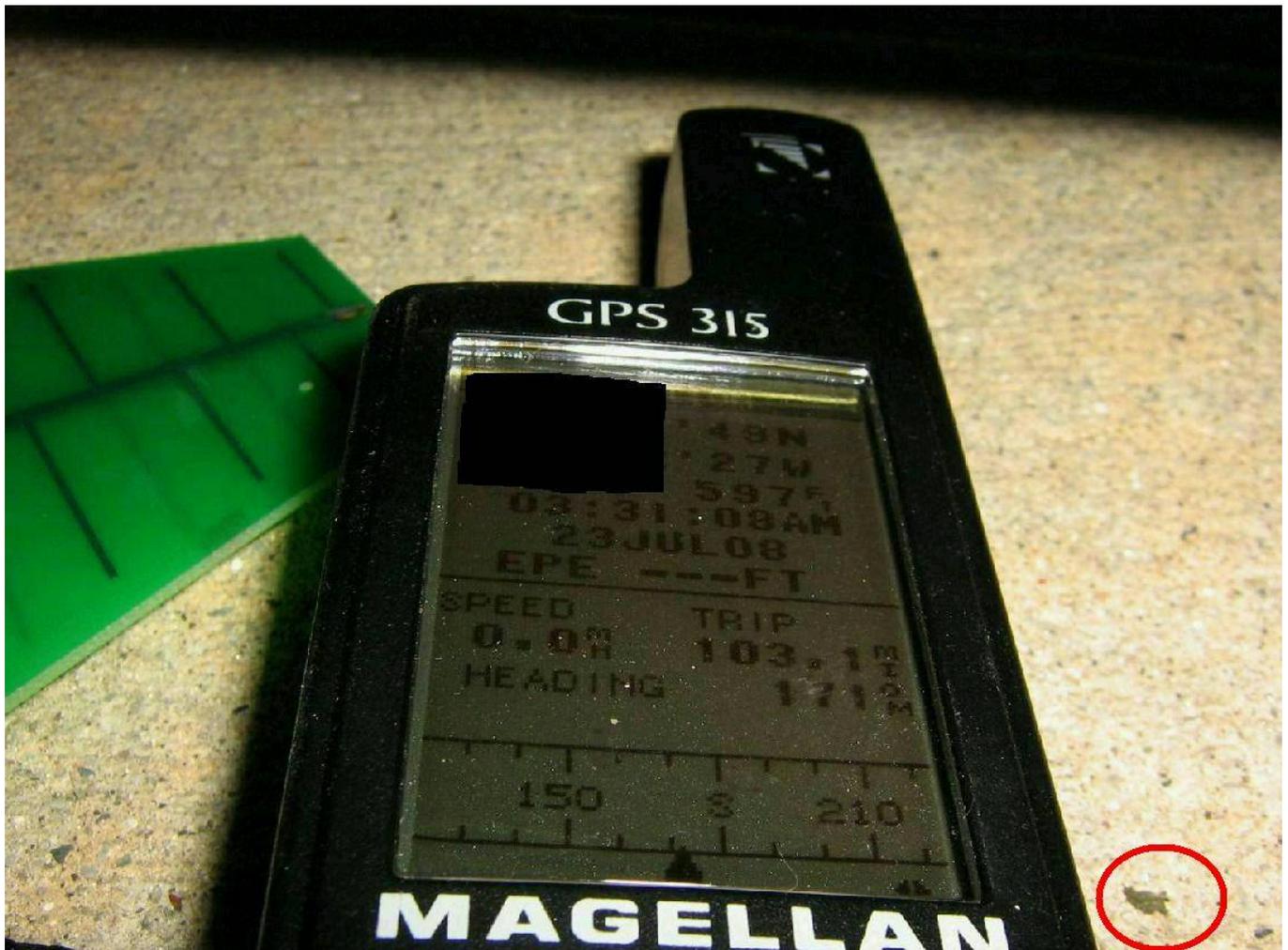
The GPS receive antenna was mounted on a 8-foot high mast placed about 10-feet away from the testing location. The delay line was added inbetween, and the output sent to a Ramsey Electronics LPY2 Yagi antenna placed next to the target GPS receiver.

The (censored) starting non-spoofed coordinates are:

Latitude : XX° XX' 48" North
Longitude : XX° XX' 26" West

The circled spot on the concrete will be used to reference the GPS receiver's position so you know it hasn't been moved.

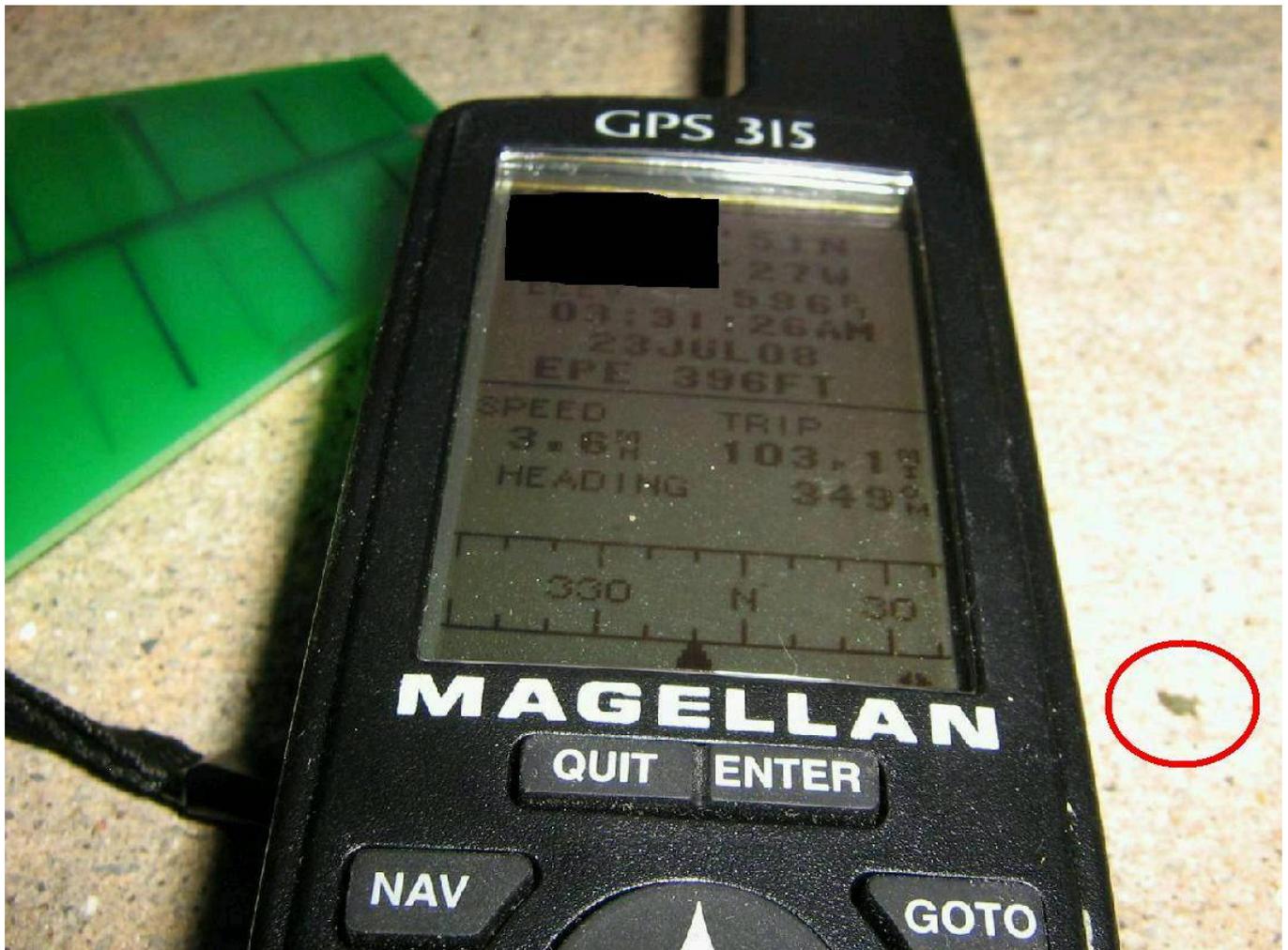
(The GPS receiver times will be off after I realized the camera angle sucked.)



The delay line is now connected and the GPS receiver was shielded from receiving a direct satellite signal.

After 30 seconds or so, the spoofed coordinates are now:

Latitude : XX° XX' 49" North
Longitude : XX° XX' 27" West



About a minute later, the "spoofed" coordinates now read:

Latitude : XX° XX' 51" North
Longitude : XX° XX' 27" West

Also note the high Estimated Position Error (EPE), 396–feet. Also, for some reason, the GPS receiver thinks it is traveling 3.6 miles per hour.



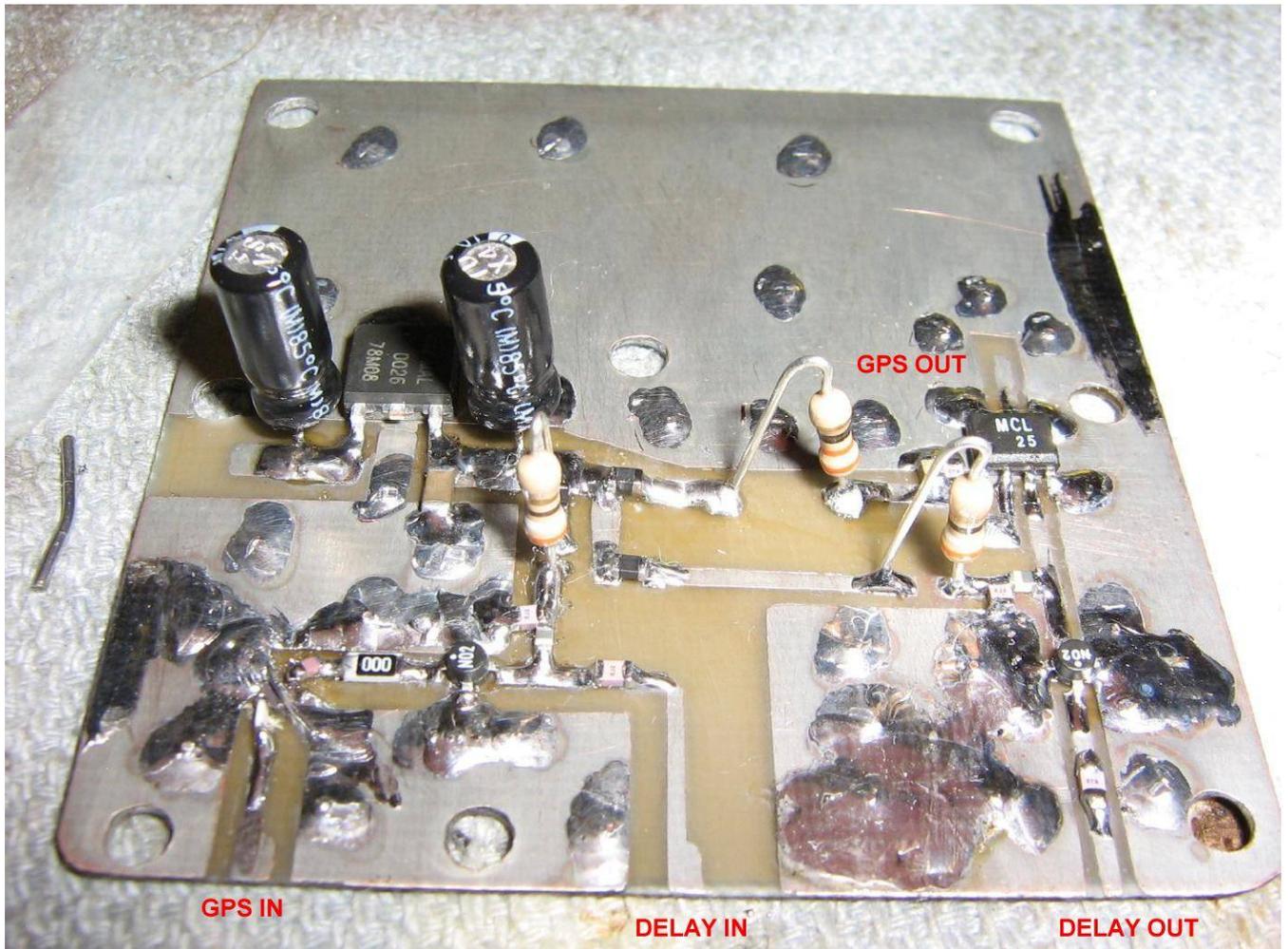
Censored Terraserver overhead picture of the testing location.

The green spot in the lower-right is the "non-spoofed" starting point and the upper-left one is the final "spoofed" coordinates.

The spoofed location is approximately 311-feet *northwest* from the actual GPS receiver's location. This is fairly close to our estimated "error" of 275-feet.



"So you moved some GPS coordinates a few hundred feet, what's the big deal?"

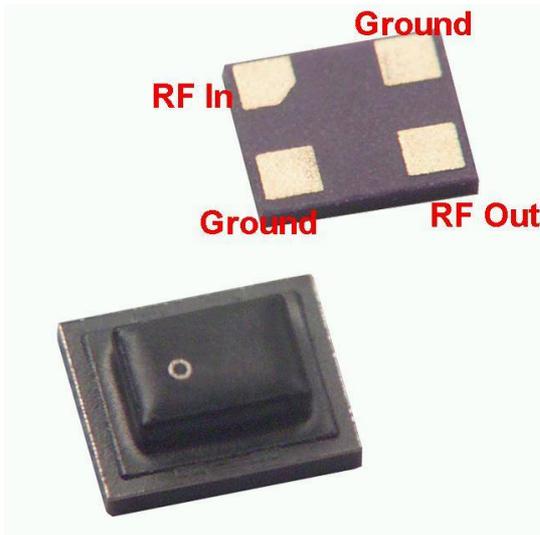


Active amplifier PC board overview.

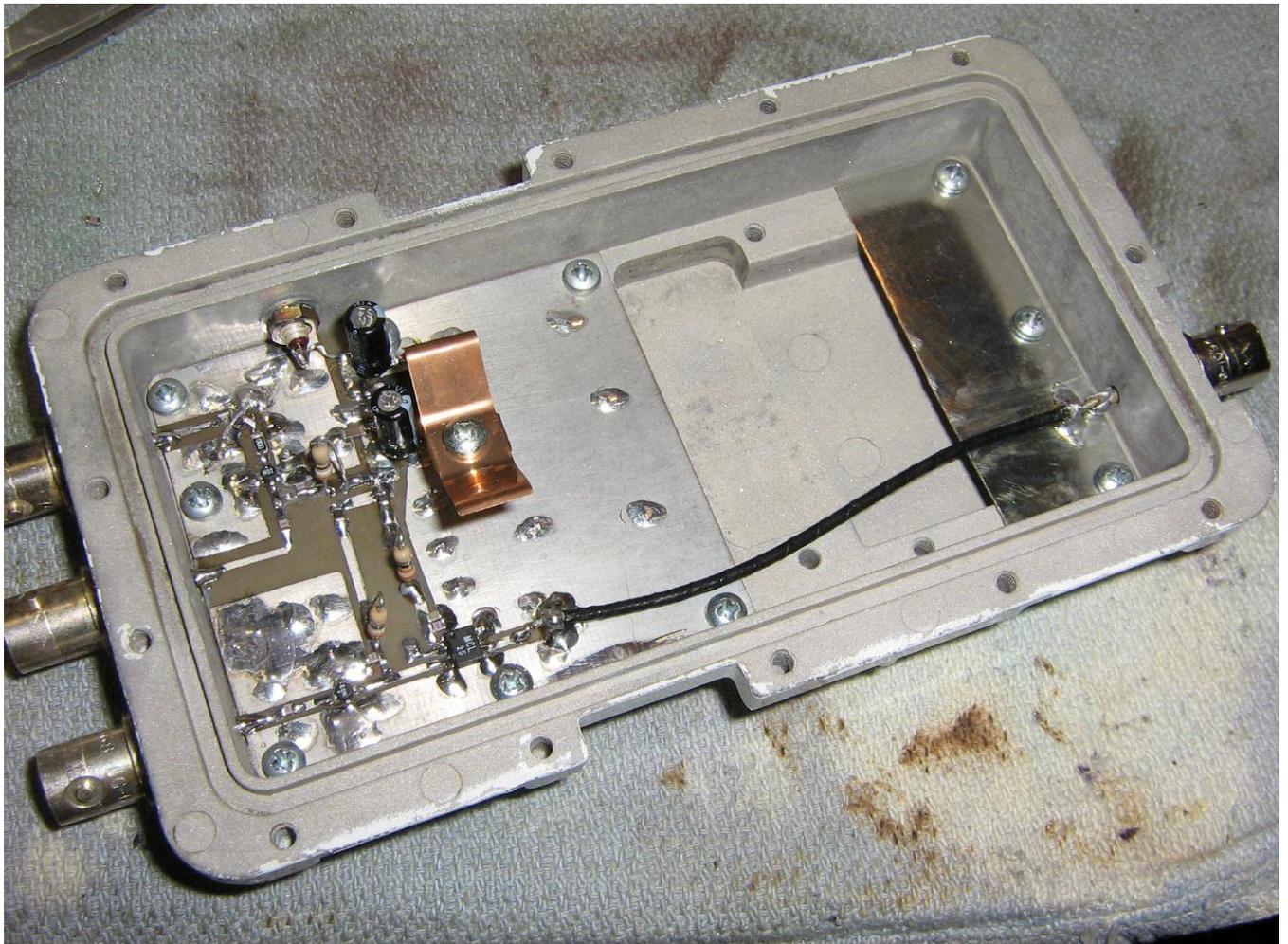
A H.P./Agilent INA-02186 low-noise MMIC receive pre-amplifier is on the lower-left. The INA-02186's RF input is fed through a Panasonic EFCH1575TCB1 GPS bandpass filter, which is an absolute *pain* to solder, so we'll make it optional.

The INA-02186's RF output is then sent to the coaxial delay line. The other end of the delay line is amplified by another INA-02186 low-noise MMIC and a Mini-Circuit's VNA25. The final output is then sent to the GPS transmit antenna.

For some reason, this circuit doesn't seem to work. The test target GPS receiver could not lock onto a signal. It's probably better to use lower-gain MMIC stages or stick with no active amplifiers and just use directional GPS antennas on each end.



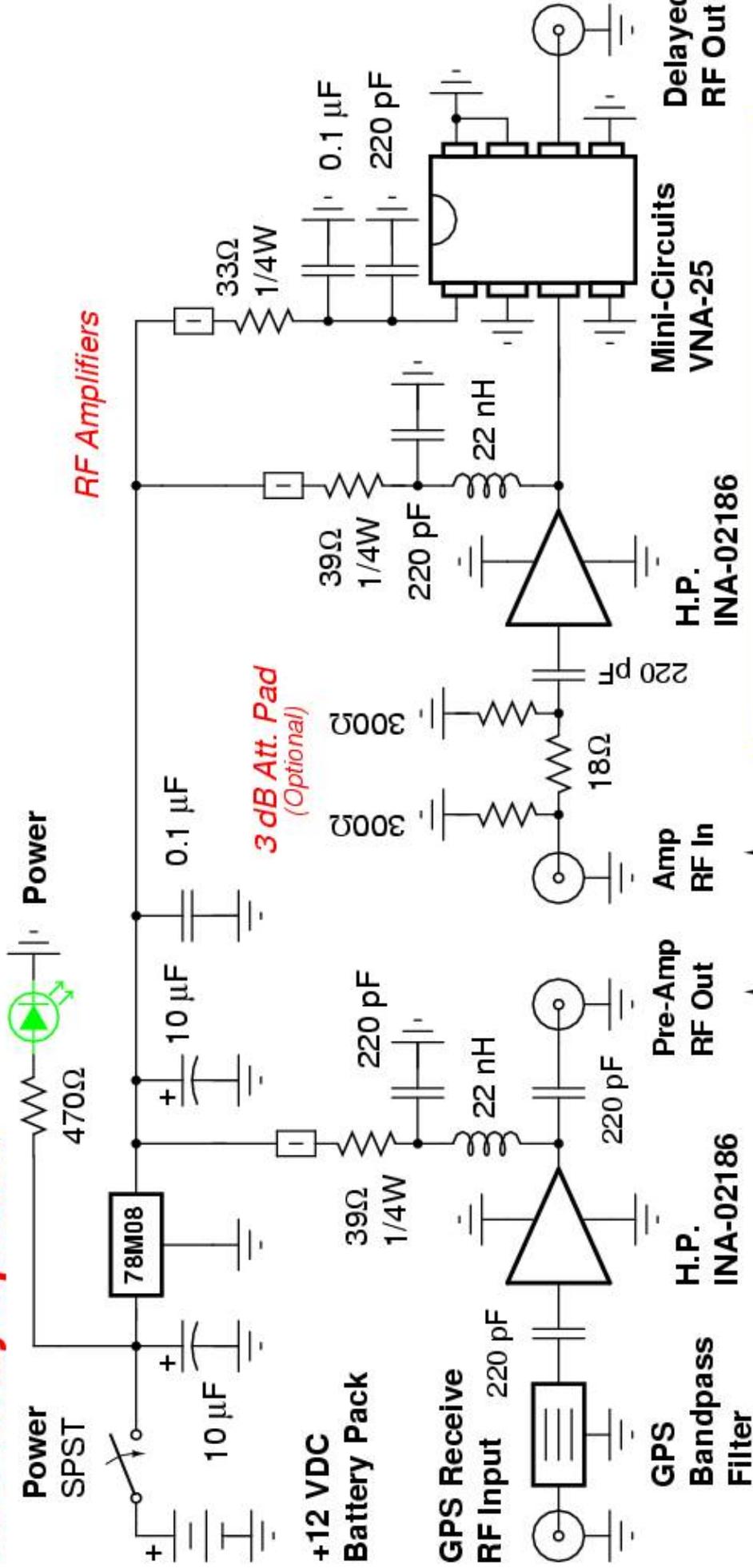
Pin-out of the Panasonic EFCH1575TCB1 GPS bandpass filter.



Overview of the amplifier PC board mounted in an old California Amplifier MMDS downconverter case.

A BNC connector is mounted to the rear of the case for the RF output and a piece of tin acts as the ground plane for soldering the coax.

GPS Delay Spoof



 Ferrite Bead
 GPS Filter is Panasonic EFCH1575TCB1 or Digi-Key P13013CT-ND
 Remove the delay for use as a standard GPS receive pre-amplifier.

Bonus



End of Issue #53



Any Questions?

Editorial and Rants

Another reason to always carry a personal cellular phone jammer, or even a gun!

They will help to protect your family from nigger-thugs and Democrat Obama-voters.

Dad Who Shielded Daughter in Attack at Valleyfair Recovering, Wife Says

July 16, 2008 – From: www.startribune.com

By Jim Adams, Star Tribune

A woman whose husband was severely beaten trying to protect his daughter from being molested as the family left Valleyfair said Tuesday they remain traumatized and are still healing from bruises and injuries.

Eight young men are accused of taking turns stomping on and kicking the head of the 41-year-old man, who was knocked unconscious as his wife and three daughters tried to help him. Prosecutors say more serious charges could be brought against the men if the man's injuries are permanent.

"He is hanging in there," said his wife, who asked that the family not be identified out of fear for their safety. She didn't recognize their attackers: "I never seen them a day before in my life."

Shakopee police said serious felony assaults are unusual at the amusement park, which normally has a handful of misdemeanor assaults each summer. The park said Tuesday that 22 security guards were on duty the evening of the assault, July 4, when the fair closed at midnight, and that safety is a priority.

Police arrested seven of the suspects in the Valleyfair parking lot that night and the eighth escaped. Police did not have a good description of that suspect but would like help finding him.

Six men and a 14-year-old boy were charged July 8 with third-degree felony assault. More serious charges, and possibly a sex assault charge, may be filed after police finish their investigation, Scott County Attorney Patrick Ciliberto said Tuesday.

"This type of violence cannot be accepted in our community," he said. "We had a family at the fair enjoying the holiday. Behavior like this is personal to our community."

Ciliberto said Valleyfair has had "no assault of this magnitude" since he took office in 2002. He said the father was taken to Ridges Hospital in Burnsville for a fractured eye socket bone and other injuries. His office was told Monday that doctors were waiting for the man's swelling to subside before checking for permanent injuries, which could justify more serious charges.

The couple was nearing the exit gate with their three daughters at about midnight on July 4, when two young men approached and slapped the youngest girl, about 12, on her buttocks. Her father yelled at the men, one of whom pulled out a cell phone and called for others to join in on the assault.

The wife said she and her daughters tried to protect her husband, and are still recovering from being punched. Her husband has been home from the hospital for a week.

She said she couldn't say more for fear of hurting the prosecution's case.

The assault "was an isolated incident. This has not happened before," said Valleyfair spokeswoman Rachel Onken. "We are a very safe park." She said the guards handled the incident as they were trained and no immediate security changes are planned.

Shakopee Police Capt. Jeff Tate said Valleyfair has "a skirmish once in a while. We usually don't see anything escalate like this." He said park security officers do a good job and that this is the only felony assault this year. He said a domestic assault occurred in the Valleyfair parking lot in May and two juveniles were charged in June with disorderly conduct and misdemeanor assault.

One of the suspects, Darris D. Evans, allegedly punched a man in the face as the group left the unconscious father. Evans, 20, of Brooklyn Park, is charged with a misdemeanor assault for that offense, Tate said.

Besides Evans, five other men and an unnamed juvenile were charged with third-degree felony assault. The five are Derry D. Evans, 19, Minneapolis; Devondre Evans-Lewis, 18, of Columbia Heights; Terry L. Arnold, 22, Brooklyn Park; Andrew D. Shannon, 19, of Minneapolis, and Anthony C. Gildersleeve, 20, Edina.

Bail was set at \$40,000 to \$60,000 each and all the suspects posted bail bonds, a jail official said.

A check of state records show that two of the suspects have prior felony charges. Arnold and Evans-Lewis were arrested in an Eagan prostitution sting and charged in April with promoting prostitution in Dakota County. Arnold pleaded guilty in May. Arnold also was convicted of two misdemeanor assaults in 2005 and 2006.

Gildersleeve was convicted in March 2008 of carrying a pistol without a permit in a public place, a misdemeanor. Derry Evans was convicted of escaping from custody in January 2008. He was also convicted in May 2008 of disorderly conduct, a gross misdemeanor.



Guys accused of molesting 12-year-old and ganging up on her dad. One other has still not be apprehended; another is 14 and not shown.

Top, left to right: Terry Arnold, Andrew Shannon, D. Evans-Louis.

Bottom, left to right: Derry Evans, Darris Evans, Anthony Gildersleeve.

Murder all undocumented Canadians!

Illegals Threaten Survival of U.S.

August 11, 2008 – From: www.newsmax.com

It's hard to believe that we enlightened, practical, eyes-wide-open Americans are living in a fable, a virtual fairy tale – but more and more evidence is making the case that we are.

The "fairy tale" I refer to is actually a witty satire written by the brilliant author/politician Jonathan Swift in 1726. Because it was such an entertaining piece, it became a famous childrens story; but that was not the original intention of the author. Swift himself said "The chief end I propose to myself in all my labors is, to vex the world rather than divert it."

That is, he wanted to focus his society on its folly. And that he did, eloquently. But little could he have imagined how accurately he would picture our society in America today. It's startling. It's disheartening. And its threatening to our very survival.

Remember? In Swifts satire, a traveler named Gulliver finds himself in Lilliput, surrounded by a race of people universally 1/12 his size. Though he wishes them no harm, and in fact is quite friendly toward the little people, his size intimidates them. So they conspire to get him drunk and lying on the ground – at which time they crawl all over him, staking him to the ground with countless little ropes. And when he comes to, hes helpless.

You may not yet get the connection. But here are recent facts, revealed by none other than the *Los Angeles Times*, the truth teller in one of Americas unofficial "sanctuary cities" for illegal aliens.

- 40 percent of all workers in L.A. County (10.2 million people) are working for cash and not paying taxes. This is because they are predominantly illegal immigrants working without a green card.
- 95 percent of warrants for murder in Los Angeles are for illegal aliens.
- 75 percent of people on the most wanted list in Los Angeles are illegal aliens.
- Over 2/3 of all births in Los Angeles County are to illegal alien Mexicans on Medi-Cal, whose births were paid for by taxpayers.
- Nearly 35 percent of all inmates in California detention centers are Mexican nationals here illegally.
- Over 300,000 illegal aliens in Los Angeles County are living in garages.
- The FBI estimates half of all gang members in Los Angeles to be illegal aliens from south of the border.
- Nearly 60 percent of all occupants of HUD properties are illegal.
- 21 radio stations in L.A. are Spanish speaking.
- Of 10.2 million people in L.A. County, 5.1 million speak English, 3.9 million speak Spanish.

All these alarming facts have been duly reported by the newspaper that favors current sanctuary-promoting Mayor Villaraigosa and makes sure that anti-immigration enforcement demonstrations featuring angry shouts in Spanish and under Mexican flags – in American streets and parks – get ample coverage. So don't doubt the figures.

Add to those some more recent stats:

- Less than 2 percent of illegal aliens are picking our crops, but 29 percent are on welfare.
- Over 70 percent of the United States' annual population growth (and over 90 percent of California, Florida, and New York) results from immigration.
- 29 percent of inmates in federal prisons are illegal aliens.

Are you beginning to see why I can't get the story of Gulliver out of my mind?

Do you not see America as the benign giant up north that fails to defend its own borders or enforce its own laws, that looks the other way while some of its own citizens actually encourage the influx of illegals to do low-paying jobs, thinking it won't matter seriously, and simply feeling compassion toward poor Latinos who seek a better life?

Can't we Americans, uniquely generous and welcoming and compassionate toward those less fortunate, see that our generosity is being horribly abused, that our economy is being overwhelmed, that whatever benefits might have derived from crop pickers and day laborers and kitchen workers have long since been washed away by an avalanche of the illiterate, the unskilled, the dependent, and the even the violent and criminal?

Can't we see that, like the drowsy Gulliver, we must rouse ourselves – quickly and decisively – and tear away any restrictions to the observance of our laws? That regardless of any cost economically, near or long term, we must root out all who are here illegally, and insist that they become Americans the old-fashioned way, legally and responsibly? And if they've committed crimes, in addition to illegal entry in the first place, they be deported immediately, out of our prisons and off our taxpayer support, and never allowed to return?

What kind of sleepy, addled, politically correct, bleeding–heart fools have we become? Even Hispanic–Americans, who became citizens legally and have contributed greatly to our society, beyond question, must recognize that 14 million invaders from south of the border, many hurrying to have babies at our expense just to anchor them as citizens here, are creating an unwelcome, unflattering, and very dangerous burden on them, too!

Look, millions of us really care about a dad sneaking in to make money for his family, about a poor woman bringing a child for hospital care, about a responsible teen hoping for some kind of future. Question: How many can come move in to your house, at your personal expense? Isn't there some kind of limit to what even caring people can shoulder, all at once? Responsible legislators can enact rules allowing for us, the overburdened taxpayers, to cooperate with foundations and pro bono medics to help the most needy without completely dissolving all laws and saying Come one, come all!

And how many trained jihadists do you reckon have joined the incoming throngs, to imbed in our cities and await instructions for the next 9/11?

If we don't elect representatives, from president to Congress, to city halls and county supervisors, who will act to rid this country of criminals and enforce our borders, we are fools, and worse, headed for our place on the shelf beside the fabled Gulliver.

One horrible difference, though: Gulliver escaped and continued his travels. We won't.

Illegal spic, driving illegally, kills a man and only get 180 days in jail!

Moped Accident Aftermath Continues

August 18, 2008 – From: www.newsvirginian.com

By Jimmy LaRoue

A woman involved in a July 4 traffic accident that killed a moped driver was given the maximum sentence Monday in Waynesboro General District Court.

Nora Quezada, who drove without a Virginia driver's license, received a 180–day jail sentence from Judge William D. Heatwole, citing the serious nature of the incident and that she was in the United States illegally.

Quezada, listed on the accident report as living at 38 Brandon Ladd Circle in Waynesboro, was heading north on North Delphine Avenue when a 2004 Yamaha moped driven by James Michael Baber, 50, turned south on North Delphine from Sixth Street and into the path of Quezada's vehicle, a 2000 Ford Windstar, at about 10 p.m. July 4.

Baber was taken first to Augusta Medical Center in Fishersville and then airlifted to the University of Virginia Medical Center in Charlottesville, where he later died from his injuries.

Neither Quezada nor the two children in the vehicle with her suffered injuries as a result of the accident. She was not charged with any additional offenses related to the accident.

At the time of the accident, Quezada was driving 30 mph in a 35–mph zone, according to the police report.

Initially, police said Baber had suffered a severe head injury. However, Baber's death certificate says the cause of death was multiple blunt force trauma. According to medical reports from Augusta Medical Center and U.Va., Baber, who was not wearing a helmet at the time of the accident, suffered severe injuries to his aorta, liver, pancreas, spleen and esophagus, but no injuries to his head. After reports of the incident appeared in local newspapers citing head injuries in Baber's death, the Waynesboro City Council passed a law requiring moped riders to wear helmets.

At the time of the accident, Waynesboro police said there was nothing at the accident scene to suggest alcohol had played a factor in the crash.

Baber's sister, Debbie Arnold, as well as other members of his family, showed up in court.

After the hearing, Arnold expressed mixed feelings with the outcome, but said something needs to be done with people in the U.S. illegally.

"It has very much devastated us," Arnold said.

She said that while Baber didn't suffer any head injuries, she's pleased that the City Council passed the helmet ordinance.



Joe Biden's Wikipedia Entry Before His Nomination:

Then in September 1987, the campaign ran into serious trouble when he was accused of **plagiarizing** a speech by **Neil Kinnock**, then-leader of the **British Labour Party**.^[23] Though Biden had correctly credited the original author in all speeches but one, the one where he failed to make mention of the originator was caught on video.^[24] Within days, it was also discovered that, while at Syracuse Law School, Biden had plagiarized a law review article in a class paper he wrote. Biden said the act was inadvertent due to his not knowing the proper rules of citation, and Biden was permitted to retake the course after receiving a grade of F in the course. Biden also released at the same time the record of his grades as an undergraduate which were C's and D's with the exception of two A's in physical education, one B in a course on English writers and an F in ROTC during his first three semesters. His grades improved later in his undergraduate career but were not exceptional.^[25] Further, when questioned by a New Hampshire resident about his grades in law school Biden had claimed falsely to have graduated in the "top half" of his class, (when he actually graduated 76th in a class of 85) that he had attended on a full scholarship, and had received three degrees. In fact he had received a single B.A. in history and political science and had not received a full scholarship.^[26]

Faced with these revelations, Biden withdrew from the nomination race on September 23, 1987, saying his candidacy had been overrun by "the exaggerated shadow" of his mistakes.^[27] After Biden withdrew from the race it was learned that the Dukakis campaign had secretly made a video showcasing the Biden/Kinnock comparison and distributed it to news outlets. Dukakis fired John Sasso, his campaign manager and long-time Chief of Staff.^{[28][29]}

http://en.wikipedia.org/wiki/Joe_Biden



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From: <http://newsbusters.org>

His undergraduate grade entries have been removed along with other subtle changes.



O _ A M A B I _ _ _ D E N



"We have that very narrow maritime border between the United States, and the 49th state, Alaska, and Russia. They are our next door neighbors. We need to have a good relationship with them. They're very, very important to us and they are our next door neighbor."

— Censored quote from the September 11, 2008 interview of Sarah Palin by ABC News' Charlie Gibson. Several "news" websites the following day, including Fark.com, ran misleading headlines saying "Sarah Palin is calling for war with Russia."

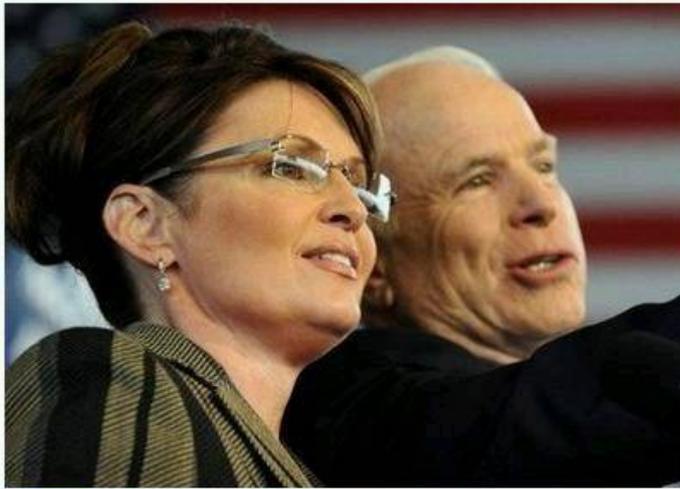
Censored and uncensored transcript comparisons are available here:
<http://marklevinshow.com/gibson-interview/>

There is no liberal bias in the media!

Gov. Sarah Palin

▶ [Play Slideshow](#)

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Sat Sep 6, 9:09 AM ET

◀ 51 of 523 ▶

Republican presidential candidate John McCain and running mate Sarah Palin during a campaign rally in Sterling Heights, Michigan. The US presidential race was shaping up as a battle over whether a strong character trumps solid policies as McCain attacked his Democratic rival as too weak and Barack Obama worked to refocus voters on the issues. (AFP/Robyn Beck)

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From: news.yahoo.com

Huh? What solid policies? The clueless Marxist Muslim nigger has yet to mention a *single* "solid policy" issue.



"Dat Obongo sure haz gud poly-ceeds!"

The 50 Lies as Told by Barack Hussein Obama

So, why would anyone vote for this person?

Share the following with everyone in your e-mail address book

1.) *Selma got me born*

WRONG, your parents felt safe enough to have you in 1961 – Selma had no effect on your birth, as Selma was in 1965.

2.) *Father was a goat herder*

WRONG, he was a privileged, well-educated youth, who went on to work with the Kenyan Government.

3.) *Father was a proud freedom fighter*

WRONG, he was part of one of the most corrupt and violent governments Kenya has ever had.

4.) *My family has strong ties to African freedom*

WRONG, your cousin Raila Odinga has created mass violence in attempting to overturn a legitimate election in 2007, in Kenya. It is the first widespread violence in decades.

5.) *My Grandmother has always been a Christian*

WRONG, she does her daily Salat prayers at 5am according to her own interviews. According to the *New York Times*: "I am a strong believer of the Islamic faith,' Ms. Obama, 85, said in a recent interview in Kenya." Not to mention, Christianity wouldn't allow her to have been one of 14 wives to 1 man.

6.) *My name is African Swahili*

WRONG, your name is Arabic and 'Baraka' (from which Barack came) means 'blessed' in that language. Hussein is also Arabic and so is Obama.

7) *I never practiced Islam*

WRONG, you practiced it daily at school, where you were registered as a Muslim and kept that faith for 31 years, until your wife made you change, so you could run for office.

8.) *My school in Indonesia was Christian*

WRONG, you were registered as Muslim there and got in trouble in Koranic Studies because you were making faces (check your own book).

9.) *I was fluent in Indonesian*

WRONG, not one teacher says you could speak the language.

10.) *Because I lived in Indonesia, I have more foreign experience*

WRONG, you were there from the ages of 6 to 10, and couldn't even speak the language. What did you learn at that age was how to watch cartoons.

11.) *I am stronger on foreign affairs*

WRONG, except for Africa (surprise) and the Middle East (bigger surprise), you have never been anywhere else on the planet and thus have NO experience with our closest allies. You seek to disarm America while our avowed enemy, Iran, will not subject itself to a nuclear ban. Top Hamas political adviser Ahmed Yousef said the Hamas terrorist group 'supports Obama's foreign policy vision'.

12.) *I blame my early drug use on ethnic confusion*

WRONG, you were quite content in high school to be Barry Obama, no mention of Kenya and no mention of struggle to identify – your classmates said you were just fine.

13.) *An Ebony article moved me to run for office*

WRONG, *Ebony* has yet to find the article you mention in your book. It doesn't, and never did, exist.

14.) *A Life Magazine article changed my outlook on life*

WRONG, *Life* has yet to find the article you mention in your book. It doesn't, and never did, exist.

15.) *I won't run on a national ticket in '08*

WRONG, here you are, despite saying, live on TV, that you would not have enough experience by then, and NOW you are all about having experience first.

16.) *Present votes are common in Illinois*

WRONG, they are common for YOU, but not many others have 130 NO VOTES.

17.) *Oops, I miss voted*

WRONG, only when caught by church groups and Democrats, did you beg to change your miss vote.

18.) *I was a professor of law*

WRONG, you were a senior lecturer ON LEAVE.

19.) *I was a Constitutional lawyer*

WRONG, you were a senior lecturer ON LEAVE.

20.) *Without me, there would be no ethics bill*

WRONG, you didn't write it, introduce it, change it, or create it.

21.) *The ethics bill was hard to pass*

WRONG, it took just 14 days from start to finish.

22.) *I wrote a tough nuclear bill*

WRONG, your bill was rejected by your own party for its pandering and lack of all regulation – mainly because of your nuclear donor, Exelon, from which David Axelrod came.

23.) *I have released my state records*

WRONG, as of March, 2008, state bills you sponsored or voted for have yet to be released, exposing all the special interests pork hidden within.

24.) *I took on the asbestos Altgeld Gardens mess*

WRONG, you were part of large group of people who remedied Altgeld Gardens. You failed to mention anyone else but yourself, in your books.

25.) *My economics bill will help America*

WRONG, your 111 economic policies were just combined into a proposal which lost 99–0, and even YOU voted against your own bill.

26.) *I have been a bold leader in Illinois*

WRONG, even your own supporters claim to have not seen BOLD action on your part.

27.) *I passed 26 of my own bills in one year*

WRONG, they were not YOUR bills, but rather handed to you, after their creation by a fellow Senator, to assist you in a future bid for higher office.

28.) *No one contacted Canada about NAFTA*

WRONG, the Canadian Government issued the names and a memo of the conversation your campaign had with them.

29.) *I am tough on terrorism*

WRONG, you missed the Iran Resolution vote on terrorism and your good friend Ali Abunimah supports the destruction of Israel. You state you will open friendly communication with the leader of Iran who is attempting to develop nuclear weapons to destroy us, but refuse to speak to FOX News. You are against provisions of the PATRIOT act which would all wiretapping of the phones of suspected terrorists in the USA.

30.) *I am not acting as President yet*

WRONG, after the NAFTA memo, a dead terrorist in the FARC, in Colombia, was found with a letter stating how you and he were working together on getting FARC recognized officially.

31.) *I didn't run ads in Florida*

WRONG, you allowed national ads to run 8–12 times per day for two weeks – and you still lost.

32.) *I won Michigan*

WRONG, no you didn't.

33.) *I won Nevada*

WRONG, no you did not.

34.) *I want all votes to count*

WRONG, you said let the delegates decide.

35.) *I want Americans to decide*

WRONG, you prefer caucuses that limit the vote, confuse the voters, force a public vote, and only operate during small windows of time.

36.) *I passed 900 bills in the State Senate*

WRONG, you passed 26, most of which you didn't write yourself.

37.) *My campaign was extorted by a friend*

WRONG, that friend is threatening to sue if you do not stop saying this. Obama has stopped saying this.

38.) *I believe in fairness, not tactics*

WRONG, you used tactics to eliminate Alice Palmer from running against you.

39.) *I don't take PAC money*

WRONG, you take loads of it.

40.) *I don't have lobbyists*

WRONG, you have over 47 lobbyists, and counting.

41.) *My campaign had nothing to do with the 1984 ad*

WRONG, your own campaign worker made the ad on his Apple in one afternoon.

42.) *My campaign never took over MySpace*

WRONG, Tom, who started MySpace, issued a warning about this advertising to MySpace clients.

43.) *I inspire people with my words*

WRONG, you inspire people with other people's words.

44.) *I have passed bills in the U.S. Senate*

WRONG, you have passed A BILL in the U.S. Senate – for Africa, which shows YOUR priorities.

45.) *I have always been against the Iraq war*

WRONG, you weren't in office to vote against it AND you have voted to fund it every single time, unlike Kucinich, who seems to be out gutting you Obama. You also seem to be stepping back from your departure date – AGAIN.

46.) *I have always supported universal health care*

WRONG, your plan leaves us all to pay for the 15,000,000 who don't have to buy it.

47.) *I only found out about my investment conflicts via mail*

WRONG, both companies you site as having sent you letters about this conflict have no record of any such letter ever being created or sent.

48.) *I am as patriotic as anyone*

WRONG, you won't wear a flag pin and you don't put your hand over your heart during the Anthem. There is a Cuban Flag with Che Guevara Displayed at Barack Obama Campaign Office which you allow to be displayed. You voted against making English the official language of the United States. You voted to give illegal aliens social security benefits, which would bankrupt the social security system for Americans legally paying into it.

49.) *My wife didn't mean what she said about pride in country*

WRONG, your wife's words follow lock-step in the vain of Rev. Wright and Louis Farrakhan, in relation to their contempt and hatred of America.

50.) *Wal-Mart is a company i wouldn't support*

WRONG, your wife has received nearly a quarter of a million dollars through Treehouse, which is connected to Wal-Mart.

After reading all the above, how could any person in their right mind vote for Barack Hussein Obama?

Pass it on please!