

"Actually, he has been seen doing the same things in public. People notice it at meetings, and warn other teenagers. A certain person named Hitman from NYC 2600 mention to someone to watch out for Emmanuel. The kid went back to Emmanuel and had Hitman banned from HOPE 6. I have always wonder where to of the teenagers that alway hung out with Emmanuel went. RedHackt and Mr.Ohm disappeared from the scene after being close friends with Emmanuel."

--- Very interesting comment on the "Steve Rambam" arrest at HOPE #6. (http://acidtrip.com/steverombom)

Table of Contents

- Page 2 / Central Control Program Instructions / #1 ESS (Part 4)
 - Instruction codes and flow charts for central control programming under a #1 ESS.
- ◆ Page 23 / GBPPR Electromagnetic Pulse Experiments
 - Tips and ideas for EMP warfare.
- Page 47 / DMS-Family Switch Commands & Tips
 Small collection of Nortel DMS switch commands and notes which may be useful for something.
- Page 49 / DMS-100 List of Home Numbering Plan Area Code Subtables Table (HNPACONT)
 First table in a series that handles the "NXX" assignments in a Nortel DMS-100.
- ◆ Page 55 / Extended Range FM Radio Receiver
 - Simple tweak to extend a radio's tuning range beyond the normal 88 108 MHz.
- + Page 59 / Bonus
 - Make: My Day
- + Page 60 / The End
 - Editorial and rants.

ISS 3, SECTION 231-001-102



I(0V000;V = Index Reg No.) A(2000) W(000001) S(200001)

Restrictions: The following instruction must not

(1) Specify K in the R subfield

(2) Be AKR or SKR.

C. Line Scan Combined Instructions

8.113 KMKUS(10370): The contents of the KR replace the contents of the ZR and set the C control flip-flops, which are then unaffected by the remaining actions of the instruction. Then, the contents of location M replace the contents of the BR. Bits 0 through 15 of the new contents of the BR and bits 0 through 15 of the contents of the LR are combined by the logical union (OR) function, and the result replaces the contents of bits 0 through 15 of the KR. (However, if bit 22 of the logic register L is a 1, which is the case if a scanner all-seens-well failure occurred on a previous WAS, MAS, KMKUS, or KMKXS, bits 0 through 15 of the complemented result replace the contents of bits 16 through 21 of the complemented result replace the contents of bits 16 through 21 of the addend KR. Bits 0 through 15 and bit 22 of the addend KR are ignored. Bits 9, 8, and 7 of the FR must be 110 in order that the contents of bits 16 through 21 of the addend KR be sent through the skew scanner translator to activate 2 of the 36 leads of the peripheral unit address bus. Bits 10, 11, 12, and 13 of the FR control the execute translators in selecting the CPD. A particular point within

SECTION 231-001-102

a CPD is chosen by bits 14, 15, and 16 of the FR that make a vertical range selection and bits 17, 18, 19, 20, 21, and 22 that make a horizontal range selection, thereby enabling the peripheral unit. A controller within the peripheral unit and a peripheral unit address bus are determined by using bits 10 and 14 of the FR as follows:

FR BIT 10	FR BIT 14	CONTROLLER	PERIPHERAL UNIT ADDRESS BUS
0	0	0	0
0	1	1	1
1	0	1	0
. 1	1	0	1

If bit position 6 of the FR contains a 1, the contents of the YR are cleared and the YR accepts an enable verify word. This word is a response via the CPD from the peripheral unit actually addressed. If the responding unit is not the unit addressed, an all-seems-well scanner check (wired) will cause a level F interrupt. If bit position 5 of the FR contains a 1, a wired-check is made. If an all-seems-well signal is not received as the result of a wired check, an improper address or scanner malfunction is indicated and a level F interrupt occurs. The contents of the LR are cleared after which (during a period of time extending beyond the cycle time of this instruction) bit positions 0 through 15 accept the information on the scanner answer bus from the peripheral unit. If a scanner all-seems-well failure occurs, bit 22 of the logic register is set.



Options: RM I(0V000;V = Index Reg No.) A(20000) W(00000 1) S(20000 1)

ISS 3, SECTION 231-001-102

Restrictions:

- (1) The following instruction must not be an input-output instruction.
- (2) KR (1 through 4 of 8.99 and 1, 4, 5, 6, 7 of 8.100).
- (3) FR (8.101 and 8.102).
- (4) YR (8.103 and 8.104).
- (5) LR (8.105 and 8.106).
- (6) Location M cannot be the PS.

D. Trunk Scan Combined Instructions

KMKXS(00372): The contents of the KR first replace the contents of the ZR and set the C 8.114 control flip-flops, which are then unaffected by the remaining actions of the instruction. Then, the contents of location M replace the contents of the BR. Bits 0 through 15 of the new contents of the BR and bits 0 through 15 of the contents of the LR are combined by the EXCLUSIVE OR function, and the result replaces the contents of bits 0 through 15 of the KR. (However, if bit 22 of the logic register L is a 1, which is the case if a scanner all-seems-well failure occurred on a previous WAS, MAS, KMKUS, or KMKXS, bits 0 through 15 of the accumulator K are made zeros.) Bits 16 through 22 of the KR are made zeros. Bits 16 through 21 of the new contents of the BR replace the contents of bits 16 through 21 of the addend KR. Bits 0 through 15 and bit 22 of the addend KR are ignored. Bits 9, 8, and 7 of the FR must be 110 in order that the contents of bits 16 through 21 of the addend KR be sent through the skew scanner translator to activate 2 of the 36 leads of the peripheral unit address bus. Bits 10, 11, 12, and 13 of the FR control the execute translators in selecting the correct CPD. A particular point within a CPD is chosen by bits 14, 15, and 16 of the FR that make a vertical range selection and bits 17, 18, 19, 20, 21, and 22 that make a horizontal range selection, thereby enabling the peripheral unit. A controller within the peripheral unit and a peripheral address bus are determined by using bits 10 and 14 of the FR as follows:

FR BIT 10	FR BIT 14	CONTROLLER	PERIPHERAL UNIT ADDRESS BUS
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	1

If bit position 6 of the FR contains a 1, the contents of the YR are cleared and the YR accepts an enable verify word. This word is a response via the CPD from the peripheral unit actually addressed. If the responding unit is not the unit addressed, an all-seems-well scanner check (wired) will cause a level F interrupt. If bit position 5 of the FR contains a 1, a wired-check is made. If an all-seems-well signal is not received as the result of a wired-check, an improper address or scanner malfunction is indicated and a level F interrupt occurs. The contents of the LR are cleared after which (during a period of time extending beyond the cycle time of this instruction) bit positions 0 through 15 accept the information on the scanner answer bus from the peripheral unit. If a scanner all-seems-well failure occurs, bit 22 of the LR is set.

SECTION 231-001-102



Options:

I(0V000;V=Index Reg No.) A(20000) W(00000 1) S(20000 1)

RM

Restrictions:

- (1) The following instruction must not be an input-output instruction.
- (2) KR (1 through 4 of 8.99 and 1, 4, 5, 6, and 7 of 8.100).
- (3) FR (8.101 and 8.102).
- (4) YR (8.103 and 8.104).
- (5) LR (8.105 and 8.106).
- (6) Location M cannot be the PS.

8.115 TUPMK(00246): If the C control flip-flops do not indicate arithmetic 0, a transfer is made to the address specified by bits 0 through 19 of the JR and the return address is placed in the JR. If the C control flip-flops indicate arithmetic 0, the contents of location M replace the contents of the BR and, after possible product masking and/or complementing, are combined by the logical product (AND) function with the contents of the KR. This result replaces the contents of the KR. Options occur only if a transfer is not executed.

CYCLE 2 MASK COMP 0Т8 0Т8 3T5 UВ мB PAR JR TRANSFER -CONDITION MET (Т8 MEM BOWR CYCLE 10T16 10T14 OT2 AOR UB JR PAR AOR AOL 3T5 CYCLE 1 21711 10T14 10116 MEN MASK COMP мB BR ADD, AND, OR, EX-OR ADDEND KR TRANSFER 18T20 CONDITION NOT MET 1 10T12 AUGEND KR KR LCJ **Options:** RM PL(00000 2) I(0V000;V=Index Reg No.) A(20000) PS(00001) S(20401) W(00000 1) S(20000 1) C(10000) ۷ **Restrictions**:

- (1) The following instruction must not
 - (a) Specify K in the R subfield
 - (b) Be AKR or SKR.
- (2) TUPMK cannot be executed from the CS.

E. Network Combined Instructions

8.116 TCGMX(00316): If the C control flip-flops indicate a state greater than zero, a transfer is made to the address represented in the ZR and the return address is stored in the JR. If the C control flip-flops indicate a state equal to or less than zero, the contents of location M replace the contents of the BR and, after possible product masking and/or complementing, set the C control flip-flops and replace the contents of the XR. Options occur only if transfer is not executed.

Note: The contents of the Z register are not changed.

Page 79

ISS 3, SECTION 231-001-102

SECTION 231-001-102



Restrictions: TCGMX cannot be executed from the call store.

8.117 TCMMF(00220): If the sign bit of the C control flip-flops is minus, a transfer is made to the address specified in bits 0 through 19 of the JR and the return address is placed in the JR. If the sign bit of the C control flip-flops is plus, the contents of location M replace the contents of the BR and, after possible product masking and/or complementing, set the C control flip-flops and replace the contents of the FR. Options occur only if transfer is not executed.

CYCLE 2 · 0Т8 **OT**8 6T8 JR 3T5 MASK СОМР UB MВ PAR TRANSFER CONDITION MET 0T8 BOWR мЕм CYCLE 2 CYCLE 3 10**T**16 10T14 0T2 AOR UB JR PAR AOR AOL 3T 5 CYCLE TRANSFER CONDITION NOT MET 21 T 1 1 10T16 10T14 мем BR MASK СОМР мB FR **Options:** RM LCJ I(0V000;V = Index Reg No.) PL(000002) PS(00001) A(20000) w(000001) S(20401) S(20000 1) C(10000)

Restriction: This instruction cannot be executed from the CS.

8.118 TAULM(00040): If the C control flip-flops do not indicate arithmetic 0, a transfer is made to the address specified in bits 0 through 19 of the ZR and the return address is placed in JR. If the C control flip-flops indicate arithmetic 0, the contents of the LR, possibly complemented, replace or are insertion masked into the contents of the BR, and the new contents of the BR replace the contents of location M.

Page 81

ISS 3, SECTION 231-001-102

SECTION 231-001-102



Restriction: This instruction cannot be executed from the CS.

F. Interrupt Combined Instructions

8.119 GBNHJ(05560)—GO Back to Normal, Inhibit H, and Reset J: This instruction (given at the completion of the J level interrupt program in place of EGBN), in addition to performing the functions of the instruction EGBN, will inhibit the H level interrupt (5-millisecond clock pulse) and reset the J level source flip-flop in interrupt source register B8NOIS.



ISS 3, SECTION 231-001-102

MAINTENANCE AND SPECIAL PURPOSE INSTRUCTIONS

8.120 BMAP(00106)—BR to Memory and Invert Address Parity: The parity bit computed (normally odd) on the address of location M is inverted (made even) to cause a CS parity check failure, which prevents the contents of the BR from replacing the contents of location M. The CC does not receive the all-seems-well CS check signal and a level D (CS reread failure) interrupt occurs. This instruction is used by maintenance programs as a test for the CS and CC parity circuits.



Options:

I(0V000;V = Index Reg No.) A(2000) W(000001) S(200001)

RM

8.121 BMOP(10102)—BR to Memory and Invert Overall Parity: The contents of the BR replace the contents of location M. The overall parity bit (normally odd) computed on location M and the contents of the BR are inverted and stored as the 24th bit of location M. If ES appears in the L subfield, the contents of the DA field replace the contents of the LR, but no insertion masking occurs. This instruction is used by certain maintenance programs as a test for the CS and CC parity circuits.



8.122 BN(00142)—BR to Nonmemory: The contents of the BR are sent to the nonmemory location specified by the address in the instruction. Nonmemory locations are control points in a CS, signal processor internal locations, and registers and control points internal to either CC. If ES appears in the L subfield, the contents of the DA field replace the contents of the LR, but no insertion masking occurs.

SECTION 231-001-102



8.123 LN(00140)—LR to Nonmemory: If neither ES nor PS masking is specified in the instruction, the contents of the LR, after possible complementing, replace or are insertion masked (EL) into the contents of the BR. The new BR contents replace the contents of the specified nonmemory location. If either ES or PS masking is called for in the instruction, the contents of the DA field replace the contents of the LR. The new contents of the LR, after possible product masking and/or complementing, replace or are insertion masked into the contents of the BR. The new contents of the BR replace the contents of the Specified nonmemory location.



8.124 FN(00150), JN(00160), KN(00152), XN(00162), YN(00170), ZN(00172)—Register to Nonmemory: The contents of the FR, JR, KR, XR, YR, or ZR, whichever is specified in the operation code after possible product masking and/or complementing, replace or are insertion masked into the contents of the BR. The new BR contents replace the contents of the specified nonmemory location. The nonmemory location represents some inspection point, flip-flop, etc.



8.125 MBOP(10202)—Memory to BR with Even Overall Parity: If the resultant DAR address specifies a CS location M, the overall parity bit stored in the 24th bit of this location (which, when stored, was computed on the CS memory address and the contents of the location) is expected to be even (instead of odd) when read by the CS reading check circuitry. If the parity is even, the contents of CS location M replace the contents of the BR. If the parity is odd, a level D (CS re-read failure), interrupt occurs. If the resultant DAR address specifies a PS location M, parity is checked and the instruction executed as if the instruction were MB. If PS is specified in the L subfield, the contents of the DA field replace the contents of LR, but no actual masking takes place.



I(0V000;V = Index Reg No.) A(20000) W(00000 1) S(20000 1)

Page 85

(no masking

takes place)

SECTION 231-001-102

8.127 NL(00324)—Nonmemory to LR: The contents of the specified nonmemory location replace the contents of the BR and, after possible complementing, set the C control flip-flops and replace the contents of the LR.



8.128 NK(00354)—Nonmemory to Accumulator: The contents of the specified nonmemory location replace the contents of the BR and, after possible product masking and/or complementing, replace the contents of the KR.



Restrictions: The following instruction must not be

(1) AKR or SKR

(2) One of the following instructions with K in the R subfield: CWR, AWRP, TR instructions.

8.129 NF(00226), NJ(00326), NX(00314), NY(00304), and NZ(00334)—Nonmemory to Register: The contents of the specified nonmemory location replace the contents of the BR and, after possible product masking and/or complementing, set the C control flip-flops and replace the contents of the FR, JR, XR, YR, or ZR, whichever is specified in the operation code.

Page 86

13



8.130 NBTA(00200)—Nonmemory to Data BR; Test Points A: Bits 0 through 11 of the resultant DAR number replace the contents of the address register in a CS identified by bits 12 through 17 of this resultant DAR number. Certain bits of the new contents of the address register activate group A test points, which generate a response that replaces the contents of the BR. (Bits 18 through 20 of the resultant DAR number must be 0.)

TEST POINTS	NONMEMORY	21111	BR	
*	LOCATION			

Options:

RM

8.131 NBTB(00204)—Nonmemory to Data BR; Test Points B: Bits 0 through 11 of the resultant DAR number replace the contents of the address register in a CS identified by bits 12 through 17 of this resultant DAR number. Certain bits of the new contents of the address register activate group B test points which generate a response that replaces the contents of the BR. (Bits 18 through 20 of the resultant DAR number must be 0.)



.....

I(0V000;V = Index Reg No.) A(20000) W(00000 1) S(20000 1)

SECTION 231-001-102

8.132 BG(00402)-BR to G Unit of Memory: The contents of the BR replace the contents of location M in the G unit.



8.133 LG(00400)-LR to G Unit of Memory: If neither ES nor PS masking is specified in the instruction, the contents of the LR, after possible complementing, replace or are insertion masked (EL) into the contents of the BR. The new contents of the BR replace the contents of location M in the G unit. If either ES or PS masking is called for in the instruction, the contents of the DA field replace the contents of the LR. The new LR contents, after possible complementing, replace or are insertion masked into the contents of the BR. The new contents of the BR replace the contents of location M in the G unit.



8.134 FG(00410) and KG(00412)—Register to G Unit of Memory: The contents of either the FR or KR, whichever is specified in the operation code after possible product masking and/or complementing, replace or are insertion masked into the contents of the BR. The new contents of the BR replace the contents of location M in the G unit.



8.135 BH(00502)—BR to H Unit of Memory: The contents of the BR replace the contents of location M in the H unit.



 Options:
 RM
 LCJ

 I(0V000;V = Index Reg No.)
 ES(00001)

 A(20000)
 (no effect exw(000001)

 S(200001)
 cept to set LR)

8.136 LH(00500)—LR to H Unit of Memory: If neither ES nor PS masking is specified in the instruction, the contents of the LR, after possible complementing, replace or are insertion masked (EL) into the contents of the BR. The new contents of the BR replace the contents of location M in the H unit. If either ES or PS masking is called for in the instruction, the contents of the DA field replace the contents of the LR. The new contents of the LR, after possible complementing, replace or are insertion masked into the contents of the BR. The new contents of the BR replace the contents of the contents of the BR. The new contents of the BR replace the contents of the DA field replace the contents of the contents of the BR. The new contents of the BR replace the contents of location M in the H unit.

SECTION 231-001-102 INSERT OT6 ОТ8 ота MB UB MASK COMP MASK LR 5T7 BF MEM LCJ RM **Options:** EL(000002) I(0V000; V = Index Reg No.)ES(00001) A(20000) PS(00005) W(000001) c(10000) S(20000 1)

8.137 FH(00510) and KH(00512)—FR or KR to H Unit of Memory: The contents of either the FR or KR, whichever is specified in the operation code, after possible product masking and/or complementing, replace or are insertion masked into the contents of the BR. The new contents of the BR replace the contents of location M in the H unit.



8.138 GKC(00272)—G Unit of Memory to Accumulator (Corrected): The contents of location M in the G unit, corrected by error detection and correction circuitry, replace the contents of the BR and, after possible product masking and/or complementing, replace the contents of the KR. The correction involved is the normal pocess occurring on all nonmaintenance instructions.



Restriction: The following instruction must not be

- (1) AKR or SKR
- (2) One of the following instructions with K in the R subfield: CWR, AWRP, TR instructions.

8.139 *HKU(00276)—H Unit of Memory to Accumulator (Uncorrected):* The contents of location M in the H unit, uncorrected by error detection and correction circuitry, replace the contents of the BR and, after possible masking and/or complementing, replace the contents of the KR.



I(0V000; V = Index Reg No.)	PL(00000 2)
A(20000)	PS(00001)
W(000001)	C(10000)
S(20000 1)	

Restrictions: The following instruction must not be

(1) AKR or SKR

(2) One of the following instructions with K in the R subfield: CWR, AWRP, TR instructions.

8.140 XGKU(00252)—EXCLUSIVE OR of G Unit of Memory (Uncorrected) with Accumulator: The contents of location M in the G unit, uncorrected by the error detection and correction circuitry, replace the contents of the BR and, after possible product masking and/or complementing, are combined by the EXCLUSIVE OR function with the contents of the KR to form a number that replaces the contents of the KR.

SECTION 231-001-102



Restrictions: The following instruction must not

- (1) Specify K in the R subfield
- (2) Be AKR or SKR.

8.141 XHKC(00256)—EXCLUSIVE OR of H Unit of Memory (Corrected) with Accumulator: The contents of location M in the H unit, corrected by the error detection and correction circuitry, replace the contents of the BR and, after possible product masking and/or complementing, are combined by the EXCLUSIVE OR functions with the contents of the KR to form a number that replaces the contents of the KR.



ISS 3, SECTION 231-001-102

Restrictions: The following instruction must not

- (1) Specify K in the R subfield
- (2) Be AKR or SKR.

8.142 WNPS(00006)—Word to Location N in PS: Bit positions 0 through 11 of the resultant DAR number W represent six pairs of binary digits. Each pair is sent to its corresponding flip-flop at fixed nonmemory location N (specified by bits 12 through 15) in a PS identified by bit positions 16 through 19 of the same resultant DAR number W. Bit position 20 of the resultant DAR number W is ignored.



Options:

I(0V000;V =Index Reg No.)

RM

8.143 WV(00610)—Word to Miscellaneous Pulse Source Register: The resultant DAR number W, after possible product masking and/or complementing, replaces or is insertion masked into the contents of the BR and is sent to the miscellaneous pulse source register (VR) located on the buffer bus. The VR consists of control leads and/or flip-flops for various control functions, such as stopping and starting a signal processor and resetting the 5-millisecond clock. Wherever a 1 is sent, the corresponding position in VR will generate a pulse. Where zeros are sent, the corresponding positions in the VR are unaffected. To stop the signal processor, a pulse is sent from the VR every cycle. To start the signal processor, this train of pulses from the VR is discontinued. Bit positions 0, through 18 of the VR are each assigned a control function. Bit positions 19 through 23 are unequipped. Only three bit positions of the VR can be read by a program instruction bit positions 0 (stop signal processor 0), 2 (stop signal processor 1), and 8 (E stop). When read into a CC register, the remaining bits will appear as zeros. This instruction does not affect the C control flip-flops.



SECTION 231-001-102

8.144 *EMMS(00630)—Mismatch Sampling:* The resultant DAR number W, possibly complemented, replaces the contents of the BR and are then gated into the match control register (MACR) located on the buffer bus.



8.145 MBCS(00230)—Memory to BR and Parity to Sign of C Control Flip-Flops: The contents of CS location M replace the contents of the BR. The overall parity bit stored in the 24th bit of this memory location (which when stored was computed on the address of location M and its contents) replaces the contents of the sign bit of the C control flip-flops.



9. GLOSSARY

9.01 Alphabetic listing of instruction mnemonic codes are shown in Table A. Symbols and abbreviations used in the flow diagrams are shown in Fig. 3.

Note: Letters appearing in the operation codes (Table B) in the operation field have significant meaning. The definition of letters will not be provided in the glossary. The information is given in Parts 5, 6 and 7.

- 9.02 Abbreviations other than those shown in 9.01 are given below:
 - AND-Logical product
 - CC—Central control
 - DA-Data or address

EL-Insertion masking option in the L subfield

ES-Insertion masking option in the L subfield

L—May be located in the encoded instruction column of the PR that indicates the DA field is a relocatable address

OR-Logical union

PIDENT—Program identification

PL-Product masking option in the L subfield

ISS 3, SECTION 231-001-102

PR-Program listing

- S—Logic register option in the L subfield
- V—May be located in the encoded instruction column of the PR that indicates the
- #-Sharp sign located in the PR.
- PS—Product masking option in the L subfield location contains a reference into a transfer table

Page 95 95 Pages

GBPPR Electromagnetic Pulse Experiments

Project Overview

This article will discuss the construction of a very simple Electromagnetic Pulse (EMP) generator. This particular design won't be capable of destroying every computer in your neighborhood, but it will give the constructor a good overview of the concepts which make up electromagnetic pulse warfare. It should be noted that you will be working with *very dangerous* voltages and currents on this project. Muslims, Eurosavages, Digg posters – you will be immune to this. People with brains may wish to exercise caution.

The EMP device described in this article will work as follows:

A surplus high–voltage DC power supply will be used to generate an output voltage between 3,000 and 4,000 volts. This high–voltage will then charge an old 3,000 VDC, 8 μ F General Electric Pyranol capacitor (the "C") via a current limiting resistor. When the capacitor is fully charged, it will discharge via a spark gap. The spark gap circuit will be part of an inductive circuit (the "L") which, along with the capacitor, sets up a natural resonant frequency. To generate the actual emitted pulse, part of the LC–tank circuit will be made of fine wire, a lightbulb filament in this case. Since the lightbulb filament can't handle the high–current discharge from the pulse capacitor, it will be instantly vaporized. This "exploding wire" will essentially be turned into an electromagnetic pulse which is radiated from an impromptu parabolic dish antenna. That's the idea at least.

Since the resonant frequency of this particular EMP device is very low (20 kHz or so), it will actually do very little damage to any electronic devices in its path. Most "real world" EMP generators aim for the UHF or microwave RF bands by using tuned mechanical cavities. The shorter wavelength of microwave RF energy is ideal for being coupled into the circuit board traces in the target electronic device. The resonant frequency of this generator can be increased slighty by replacing the lightbulb with a long piece of small–gauge wire. Experiment with the length, composition, and diameter of the wire used.

An optional ferrite core transformer will also be described. When this ferrite core is placed over a power cord, or other similar exposed wire, the electromagnetic pulse can be *directly* injected into the target system. This is a much more efficient method than the "exploding wire" idea.

The most critical component in an EMP generator is the high–voltage pulse capacitor. The ideal capacitor will be non–polarized and with a low internal inductance and resistance. The internal resistance inside the pulse capacitor will determine how fast, and to what final level, it can discharge. Commerical pulse capacitors that are designed for this purpose are available, but their price is usually out of range for the hobbyist. Search amateur radio swapfests for old PCB high–voltage capacitors. You can usually pick them up for free due to the high cost of disposal, just don't let the hippies know or they'll try to tax amateur radio experimenters next. Several capacitors can be banked together in parallel to increase the energy output. You can also place low–voltage capacitors in series so they can handle higher voltages.

Exploding Wire Method



For more detailed information on EMP generators and construction information on a similar design, refer the book *Electronic Gadgets for the Evil Genius* (ISBN 0–07–142609–4) by Bob lannini, or see http://www.amazing1.com.

Construction Notes & Pictures



High–voltage power supply parts overview. The heart of the power supply is a General Electric 9T63Y2065G12 DC Power Supply. Its maximum output voltage is approximately 12,000 VDC at around 1 mA. It takes a standard 120 VAC input. A variac will be used to control the power supply's final output voltage by controlling the input AC voltage. If a variac is not available, it is possible to use the low–voltage secondary winding from a standard AC transformer to control the power supply's input AC voltage.

The other support componets are an AC line filter, a Radio Shack metal–oxide varistor, a panel–mount SO–239 RF connector, a green neon light, a two fuse holders (one panel–mount), an AC outlet, two binding posts (with rubber grommets), a solid–state relay, a surplus 0–120 VAC variac, a bunch of surplus ferrite cores, and an old military radio surplus voltage transformer. This will be turned into an isolation transformer for feeding the variac. Everything will be mounted inside an old ammo box.



And put it all together as so. The AC line filter and dual fuses are probably overkill, but they're a good idea when working with EMP devices. The isolation transformer is used to isolate the variac from the AC mains in case the "hot" and "neutral" lines are reversed.



Front panel rear view. After the input AC line filter, the "hot" voltage line passes through a solid-state relay. This relay will allow the high-voltage power supply to be remote controlled from a safe distance. The solid-state relay's remote control is nothing more than a 9 volt battery and a switch.



The isolation transformer is made by tapping a 110 VAC secondary winding. You can often find these transformers, or the military surplus radios they're inside, quite cheap at amateur radio swapfests. Their secondary windings can only handle a few milliamps of current though. There is a series 100 ohm resistor and 0.1 μ F AC-rated capacitor on the isolation transformer's primary winding to act as a "spike snubber" circuit. The use of an isolation transformer before the variac is not required, but highly recommended.

The power supply's high–voltage output is on the left via the binding posts. The binding posts are set inside rubber grommets to isolate them from the metal case. The maximum voltage this entire setup can handle before arcing over is only around 6,000 volts.



Completed front panel view. Main AC input is via the outlet shown. The SO–239 connector is for the remote control. The variac's knob and main input fuse are on the right.



Rear view showing the output high-voltage binding posts.



Parts for the remote control. All you need is a metal outlet box, a cover plate, a switch (with guard), a panel-mount SO-239 connector, a 9 volt battery with a snap and holder, a panel-mount LED and 470 ohm resistor, a 0.01 μ F capacitor, and assorted mounting hardware.



Put it together like so. An extra ferrite bead was slipped over the control's positive line.



Overview of the completed remote control. Connect it to the high–voltage power supply via a good length of RG–58 coax with PL–259 connectors on each end.



The spark gap will be made from two steel mouse balls. Ideally, you'd want non-ferrous materials and nickel or silver plated spark gap balls. Even better are commercial enclosed spark gaps, or even high-voltage solid-state switching.



Flatten one side of the mouse ball with a grinder and drill an appropriate hole for the thread tap. On this project, the mouse ball for the "hot side" (capacitor side) will have a #12–24 tap. The other mouse ball will have a 1/4"–20 tap.



For the "cold side" of the spark gap, use 1/4" brass, bronze, or copper hardware. It will be mounted on a small piece of wood which is then attached to the side of the pulse capacitor. The "inductive" elements are mounted to the spark gap via standard copper ground lugs. Use brass bolts with the head cut off for threaded brass rod. It's all kinda retarded, but it works.



Completed spark gap assembly. The gap hasn't been set yet. The air gap will be set at around 1 mm per 1,500 volts used. You can use a spark plug feeler gauge to help set the initial gap width. The split washers and nuts secure the mouse balls to their respective threads. The gap can then be further adjusted by turning the brass rod in and out, then tightening the securing hardware. The gap on this device was set to "spark" at around 3,500 VDC. This is slightly over the voltage rating on the pulse capacitor, but it should handle it. Be sure to fully discharge the pulse capacitor before adjusting the spark gap width.

The wooden spark gap holder is attached to the side of the pulse capacitor using some two-part epoxy putty.



The "exploding wire" holder will be made from an industrial heat lamp. These have a nice porcelain lamp base and parabolic reflector.



Rear view of the porcelain lamp base. This is what sets the maximum operating voltage on this EMP generator. This particular model lamp base could only handle around 6,000 VDC before arcing over.



Solder two pieces of #6 solid copper wire to the porcelain lamp base like so. You may wish to add a little "Q-Dope" to prevent high-voltage arcing between the two wires.



Next is the high–voltage input circuitry. The current limiting resistor(s) and RF choke need to be mounted on little standoffs to prevent arcing. These are secured to the side of the case with nylon hardware. Note the extra ferrite beads slipped over the incoming power lines. These help to suppress any "back–EMF" when the spark gap fires. The RF choke shown (red cylinder thing) is from an old switching power supply. Its value is around 8.5 μ H, which is probably too low for this application. Oh well.

The current limiting resistor(s) should have a high–voltage rating. Lower resistance values will charge the pulse capacitor faster, but this may stress your high–voltage current source. The time (in seconds) it takes for the capacitor to charge is approximately: t = C * V / I. Where C is the capacitor's value (Farads), V is the capacitor's charging voltage (Volts), and I is the capacitor's charging current (Amps).



Make a securing bracket for the pulse capacitor from some 1–inch wide alumimum bar stock, two pieces of 5/16" allthread, threaded couplers, and other assorted hardware. Drill two holes in the alumimum bar stock and place it so it can sandwich the capacitor to the bottom of the case.



Completed closeup. A large hole is cut into the front of the case and the porcelain lamp base is epoxied in place. The solid copper wires which make up the inductive elements of the circuit are clamped into the grounding lugs which attach to the "ground side" of the pulse capacitor and to the "cold side" of the spark gap. These wires will need to handle several hundreds (or even thousands) of amps, so exercise good, solid construction practices when securing them.



Completed overview.



Parts for the direct coupling transformer core. This is a total hack, but it does appear to work quite well. The split ferrite (or powdered iron) cores are a swapfest grab, so start looking out for those! You'll also need a 2–prong AC plug, some smaller sized grounding lugs, and an AC socket to lamp screw–in adapter thingy.



Wire it all up as shown. You'll want to put a little hot glue on the AC plug to keep the prongs from moving. Be sure the copper wire turns around the ferrite core are not shorted, or that they are so tightly wrapped they crush the brittle ferrite material. Experiment with the number of turns needed, but you'll have a hard time getting more than three. Slip some vinyl tubing over the copper wire for protection.



Screw the coupling ferrite transformer assembly into the lamp base as shown. Secure the other half of the ferrite core with a plastic sliding–jaw clamp.

This connection method didn't work out too well, as it was too heavy for the small lamp socket. You are better off just wiring the ferrite transformer directly off the spark gap.

To operate, just run your target's power, ground, Ethernet, etc. wire through the ferrite core and zap away! Be careful, as it is possible for the transformer's halves to shatter due to the induced current in the ferrite material.



Overview of the EMP generator and the high–voltage power supply connected together. Note the metal–armored power cord on the high–voltage power supply and the coaxial cable for the remote control. All the cables in the local area should be shielded to protect them from the electromagnetic pulse.

Various different lightbulbs were tried, and they didn't do too much except explode into little pieces. It looks like you'll need to have a pulse capacitor output in the hundreds of Joules to have any really significant results.

Another possible EMP option is to connect metal Slinkys to each side of the spark gap to act like antennas. This could help radiate the electromagnetic pulse a little bit more.



DMS–Family Switch Commands & Tips

Here are some random Nortel DMS-family switch commands and helpful hints gathered from various notes.

- Software Optionality Control (SOC) option NI00050 and NI00051 provide the "NATIONAL 2" circuit-switch data functionality on Basic Rate Interfaces (BRI). One of these SOCs main additions allows the features provisioned in the switch to automatically download to the phone's memory. If a BRI is not configured with its circuit-switch data set to "NATIONAL 2" then the phone options have to be manually programmed.
- Table TOFCNAME is where the list of all the NPA–NXXs that are programmed into the switch are located. Codes with the option "\$" are native to the switch. Codes with the option "NONNATIVE" are codes that are ported–in. Codes with the option "CODEHOLDER" are number pooled.
- In switches with Data Peripheral Processors (DPP), the AMADUMP command can be used to view the most current "RAW AMA OUTPUT". The information can be very informative to the trained eye.
- The command C7RENAME renames linkset, routeset, or network.
- Linksets can be manually BERT tested from the DMS C7BERT level. This level is very handy when isolating troubles on the DS0. A loop can be provided to the far-end by using the loop command when posting the LIU7 at the Peripheral Module (PM) level.
- The command AUTOPROC ALL STOP when executed at the Post-Release Software Manager (PRSM) level will stop autoapply.
- The command REXTEST SUSPEND ALL will suspend the Routine Exercises (REX) test until the next scheduled interval, it will also stop an active REX after it finishes the current node.
- "AMATEST" is the option that can be added on a line to generate a test AMA record. It is added in through SERVORD. To look at the log generated, access LOGUTIL and access the "AMAB 200" logs.
- TST %% at the "**IOC" level tests the NTFX34AA (SMART connector). The device must offline at the port level before the command can be issued.
- A super trunk group can have up to 220 trunk groups within it. The trunk groups that make up the super trunk group are defined in table SUPERTKG (Super Trunk Group).
- You can perform an OMSHOW using the entire info field enclosed in single quotes. Example: >OMSHOW DS1CARR MODAY 'HOST DTCI 9 1 C'
- The Query Location Routing Number (QLRN) command can be used to find out if a number is ported. QLRN NPANXXNNNN will query the Service Control Point (SCP) for the Home Location Routing Number (HOMELRN) of the line. If the number is ported, it will return the location routing number of the switch it is routed to. If the number is not ported, it will return the number being queried.
- Query Ported Directory Number (QPDN) is a command that will query the switch for numbers ported in and out of the switch.
- SCANF DELETE can be used to delete any files mistakenly named after nodes or devices in the switch. SCANF can also use wildcards (e.g., >SCANF SOIDNETO DELETE NOPROMPT NAME '*TMP')
- In a SuperNode Data Manager (SDM) the command WHO_IS_ON is the switch equivalent to QUSER on the DMS-100.
- MAPCI NODISP PRTMAP; MTC; etc can be used to print the entire Maintenance and Administration Position (MAP) screen while in the "No Display" mode. After entering the maintenance level with this command simply type PRINTMAP and the MAP display will print out exactly as if you were not in the "No Display" mode.

- IRR is the acronym for Inhibit Ring Reminder. The ring reminder feature notifies the customer that their phone is forwarded on incoming calls. IRR also solves some dialtone delay issues on Integrated Conference Bridge (ICB) channel banks.
- Sherlock in a data collection tool that automatically collects data after an outage. This data can be used to analyze the cause of the failure. Once Sherlock completes its data collection, it stores the information in a System Load Module (SLM) volume then compresses it in a dated compressed file. The compressed file ends with a "Z."
- SPMTKQRY The Spectrum Peripheral Module (SPM) trunk query tool provides information about provisioned circuits on a SPM. The parameters are: <subcommand> {ALL [<verbose ON> {verbose}], SPM <SPM number> {0 to 85}, [<verbose ON> {verbose}]}
- A FX32AA card is the storage media card found in an Input/Output Module (IOM). It houses the FX32BA which is the Disk Drive Unit (DDU) and the FX32CA which is the DAT tape drive. The NTFX40HB cable that is part of this assembly has a special configuration.
- QUERYPM CNTRS can be used at the Peripheral Module (PM) subsystem when a PM is posted. It is used to verify the firmware loadname on the PM. Each unit will display its "LOADABLE" and "EXECUTABLE" load. These must match. Also both units should have the same firmware load. If not, use the LOADFW INACTIVE UPGRADE command.
- The Message Switch (MS) not being able to read an Identification PROM (IDPROM), and generating MS105 logs, can be resolved by:
 - 1. Powering down the affected MS plane.
 - 2. Powering it back up and then reloading it.
- The command DEMOUNT at the Command Interpreter (CI) level and DMNT at the Device Independent Recording Package (DIRP) level are two different commands that complete two different tasks.
- QUERYCK at the clock level in the message switch will generate a summary of the external clock source for the switch.
- At the ENET level, the QUERYREX command followed by the plane number will generate a REX summary for the shelves in that plane.
- There are many different types of DS0 cards that can be inserted in an access node shelf. The two most commonly used cards are the NT4X65 and the NT4X67 card. The NT4X65 is commonly called the "EPSILON" card. It supports loop-start lines. The NT4X67 is commonly called the "OMEGA" card. This card supports loop, ground, and ISDN services.
- QLT, Query Logical Terminal is used to query a BRI. This command is equivalent to the QLEN command for standard analog or Centrex lines.

DMS-100 List of Home Numbering Plan Area Code Subtables Table (HNPACONT)

Table Name

List of Home Numbering Plan Area Code Subtables Table

Functional Description of Table HNPACONT

The Home Numbering Plan Area (HNPA) code subtables are as follows:

- The HNPACONT List of home numbering plan area code subtables table record.
- The HNPACONT.HNPACODE Home NPA code subtable record.
- The HNPACONT.ATTRIB Home NPA long-haul attribute subtable record.
- The HNPACONT.RTEREF Home NPA route reference subtable record.
- The HNPACONT.RTEMAP ISDN home NPA route reference subtable record.

Office parameter MAXSTS in table OFCENG (Office Engineering) sets the maximum number of HNPAs or Serving Numbering Plan Areas (SNPA) and Serving Translation Schemes (STS).

All HNPAs or SNPAs appear as the first 128 entries in the table.

Datafill Sequence & Meaning

Enter data in table SNPANAME (Serving Numbering Plan Area Name) before you enter data in table HNPACONT. If addition of a tuple to HNPACONT occurs when field SNPA is "Y", the system updates SNPANAME with the same tuple. If SNPA is "N", the system does not add the tuple to SNPANAME.

When you delete STS with field SNPA as "Y" from HNPACONT, the system does not delete the equivalent entry in SNPANAME.

CAUTION: Possible service degradation of Direct Inward System Access (DISA) calls. For correct DISA operation, you must enter data in table HNPACONT. Service degradation can occur when DISA calls are attempted and table HNPACONT is empty.

Table Size

0 to 1,000 tuples

Datafill

The following table describes datafill for table HNPACONT:

Table HNPACONT Field Descriptions

Field	Subfield	Entry	Explanation and Action
NPA or STS		000 to 999	Serving Translation Scheme Enter a SNPA or a STS code.
SNPA		Y or N	Serving Numbering Plan Area Enter "Y" or "N" to indicate if a specified STS in this table maps to a SNPA in table SNPANAME.

			A HNPA or SNPA appears in one of the first 128 positions. You can enter these positions at any time. Use SNPAs in:
			 * Line data * POTS * Virtual Facility Group (VFG) data * PBX trunk data * Table DNINV (Directory Number Inventory) * Table DNROUTE (Directory Number Route) * Table TOFCNAME (Terminating Office Name)
			Enter data in table SNPANAME before table HNPACONT. If you add a tuple to HNPACONT first and SNPA is "Y", the system updates the same tuple in table SNPANAME. If SNPA is "N" the system does not add the tuple to table SNPANAME.
NORTREFS		1 to 1,023	Number of Route References Enter "2" for the quantity of route reference numbers. The system extends field NORTREFS to the highest route index that subtable HNPACONT.RTEREF uses. An entry outside the range indicated for this field is incorrect.
NOAMBIGC		0 to 1,000	Number of Ambiguous Codes Enter the number of ambiguous codes required. An entry outside the range indicated for this field is incorrect.
OPTION		ARS	Enter option "ARS" to set the Automatic Route Selection.
OPTIONS		See Subfield	
	DMI	1 to 32,766	Digit Manipulation Index The DMI option enables the called number characteristics to be manipulated by use of table DIGMAN. This is an index into table DIGMAN.
	CALLTYPE	PUBLIC, PRIVATE	Call Type This subfield allows for switching of routing call-types on an as-needed basis.
			* Enter "PUBLIC" for public routing of calls. * Enter "PRIVATE" for private routing of calls.
RTELIST	CND:CNDSEL	MIGRATE	If the call is transferred to a route list or element based on the assignment of the MIGRATE line option to the terminating DN, enter "MIGRATE".
	NOT:CNDSEL	MIGRATE	If the call is transferred to a route list or element based on the assignment of the MIGRATE line option to the terminating DN, enter "MIGRATE".

OPTION = AF	λS		If the entry in field OPTION is "ARS", enter data in subfields ARS_OPTION and RR.
	ARS_OPTION	DEFAULT_RTEREF	Automatic Route Selection Option Enter DEFAULT_RTEREF to select the default that subtable HNPACONT.RTEREF defines.
	RR	0 to 1,023	Extended Route Reference Index Enter the extended route reference index.
	10DIG	Y or N	Enter "Y" if the system collects ten-digits before the system sends the call to the ARS default route. The ARS default route is an enforced ten-digit dialing environment.
			Enter "N" if user-dialed local calls are dialed as seven-digits. Calls dialed as 7D do not have a prefix or an area code. Enter "N" if toll calls are dialled as 1+10D. Calls dialed as 1+10D have a prefix and a full ten-digits. The ten-digits include the area code.

-End-

Datafill Example

The following example MAP display shows sample datafill for table HNPACONT. A switching unit with two NPAs, 613 and 819, and two STS codes, 001 and 002, appears in this example.

Field NORTREFS is 2. The system extends field NORTREFS to the highest route index that subtable HNPACONT.RTEREF uses. The system allocates memory for 20 ambiguous codes in HNPA 613.

Note: The system labels STS 001 as an ARS STS in the options field. Entry STS 001 does not have an ARS default route set. Entry STS 002 is also an ARS STS. Entry STS 002 has a default route. The default route is entry "5" in HNPACONT 002: RTEREF. The default route does not assume ten-digit digit collection. The 10DIG sub-option is "N".

STS	SNPA	NORTREFS	NOAMBIGC	R	FEREF	HN	PACODE	AT	TRIB	RT	EMAP	OPTIONS
001	N	2	2	(3)	(0)	(0)	(0)	(ARS) \$) \$
002	N	15	2	(3)	(0)	(0)	(0)	(ARS (DEFAULT_RTEREF 5 N) \$) \$
613	Y	932	20	(427)	(1)	(84)	(0)	\$
819	Y	81	3	(18)	(1)	(91)	(0)	\$

Additional Information

This section provides information on how to enter data in table HNPACONT for specified applications. This section also provides product description information for table HNPACONT.

Information Messages

If you delete a tuple in table HNPACONT, the system does not delete the same tuple from table SNPANAME.

Deletion of an area code from SNPANAME affects other entries. When deletion of an area code occurs, the system deletes the entry from HNPACONT. The system maintains the route and code references against the deleted tuple. These references are available when a new SNPA replaces the SNPA deleted in SNPANAME.

If you delete a tuple from SNPANAME, the system removes the same tuple from HNPACONT. The following messages appears:

WARNING: Failure to add a new tuple to replace the SNPA just deleted will leave table HNPACONT corrupted.

WARNING:

Failure to add a new tuple to replace the SNPA just deleted will leave table TOFCNAME corrupted.

If you attempt to replace the STS in HNPACONT after the tuple is deleted, the following message appears:

A SNPANAME tuple referenced by HNPACONT was deleted. Please add tuples back to SNPANAME before entering anything new.

If you attempt to delete a tuple from HNPACONT and the tuple is referenced in any of the screening tables, the delete command is unavailable. The following message appears:

WARNING: DELETING A TUPLE FROM A HEAD TABLE WILL DELETE ALL CORRESPONDING SUBTABLE DATA. SUBTABLE(S) WITH DATA: RTREF HNPACODE RTEMAP DO YOU REALLY WANT TO DELETE (Y/N) >Y SERVING_TRANSLATION_SCHEME ??? IS USED IN OTHER TABLES. USE TABREF TO GET POTENTIAL TABLE LIST. INCONSISTENT DATA DMO REJECTED

If you delete a tuple from HNPACONT and the tuple is not referenced in any of the screening tables, the tuple will be deleted. The following warning message appears:

WARNING: DELETING A TUPLE FROM A HEAD TABLE WILL DELETE ALL CORRESPONDING SUBTABLE DATA. SUBTABLE(S) WITH DATA: RTREF HNPACODE RTEMAP DO YOU REALLY WANT TO DELETE (Y/N) >Y THIS TABLE ATTRIB CAN NOT BE EXTENDED LCA AND CSS SCREENING TABLES DEALLOCATED WARNING: DELETIONS MAY CAUSE PROBLEMS IN OTHER TABLES REFERENCING STS OR SNPA IN PARTICULAR, IT IS IMPERATIVE THAT THE STS DELETED SHOULD NOT BE FOUND IN ANY OF THE FNPASTS SUBTABLES. IF THIS HAPPENS TO BE THE CASE, THEN ALL TUPLES WITH THE DELETED STS M*U*S*T ALSO BE DELETED.

If you add a replacement for the deleted tuple into table SNPANAME, the following message appears:

REPLACEMENT OF KEY ??? IN TABLE HNPACONT WITH KEY ??? SUCCEEDED. TUPLE ADDED

After this message appears, both tables correctly display the new tuple.

The STSs are necessary for Integrated Business Network (IBN) private networks. Table IBNXLA (IBN Translation) defines the STSs.

Each HNPA has the following subtables:

- Subtable HNPACODE Home NPA code subtable specifies the translation for each of the 1,000 codes (000 to 999). The system initializes the 1,000 codes to vacant code.
- Subtable RTEREF Home NPA route reference subtable specifies the translations associated with each of the route reference indexes. The home NPA code table specifies these route references indexes.

The system assigns each line, incoming trunk group, and two–way trunk group to 1 of the 128 serving home NPA codes.

Table TRKGRP stores the SNPA for a normal trunk group for each incoming and two-way trunk group.

Table LINEATTR stores the SNPA for a line and the line attribute assigned to the line.

Table IBNLINES stores the SNPA for an IBN line.

Table IBNXLA stores the STS code for an IBN line.

Field NPA changes and allows between one and seven-digits instead of the previous three-digit value. When the office parameter ACTIVE_DN_SYSTEM in table OFCENG is "NORTH_AMERICA", expect a three-digit NPA.

For DMS–100 domestic offices, the tuple verification phase that adds to the table allows the entry of only three–digits.

Partitioned Table Editor Feature

In DMS offices with feature BC1459 Partitioned Table Editor (PTE), the operating company can allow a user to edit specified tuples of table HNPACONT. If the user is from outside the operating company, the user edits using PTE. This feature allows an authorized user to edit the tuples of the following subtables at the authorized positions of table HNPACONT.

- Subtable HNPACONT.HNPACODE
- Subtable HNPACONT.ATTRIB
- Subtable HNPACONT.RTEREF

The user must own the STS to access a tuple in table HNPACONT.

For example, the datafill example for table DATAOWNR can be as follows:

Key		Owner
STS	001	CARLING

In this condition, the authorized user, CARLING, can access the tuples with a key 001. User CARLING cannot view table HNPACONT tuples unless other users own these tables. Table OWNER classifies these tuples as public.

The operating company uses the PTE feature to limit edit access to a table for a specified user to the following restrictions:

- Deny tuples
- Read-only tuples
- Change–only tuples
- Add and delete tuples

Set the PTE access for users outside the operating company. The below table is an example of the PTE access settings:

Recommended PTE Access Settings Level Table Name Action Table HNPACONT Change or read-only access. Subtable HNPACONT.HNPACODE Add or delete tuples access. Subtable HNPACONT.ATTRIB Add or delete tuples access. Subtable HNPACONT.RTEREF Add or delete tuples access. Subtable HNPACONT.RTEMAP Add or delete tuples access.

See the description of table OWNER for more information on the Customer Data Change (CDC) feature tables.

Extended Range FM Radio Receiver

<u>Overview</u>

Common RF audio and telephone technical surveillance devices ("bugs") often operate in the commercial FM broadcast band between 88 and 108 MHz. The major reason for doing this is so that you can receive your surveillance device on a consumer FM radio, without the need for a specialized communications receiver. Another reason for using this band, which most people may not realize, is that if you set your surveillance device to operate at the *same* frequency of a remote FM broadcast station, you can then use that station's signal to "block" the reception of *your* surveillance device outside a limited local target area. At some range, say up to 200 feet or so, your little RF bug will have a *stronger* received signal power then that of a 100,000 watt FM broadcast station 20 miles away. This "snugging" technique is often used by the more experienced surveillance technicians.

One major drawback of using the FM broadcast band for surveillance devices – other than the fact anyone can listen in – is that consumer FM receivers are all made to receive and demodulate a *wideband* FM signal. When receiving a *narrowband* signal, like that from an audio bug, the receiver will have very low output audio power. The good news is that you can get around this by just turning up the volume, or if you are a perfectionist, you can modify the radio to receive narrowband FM by tapping the (typically) 10.7 MHz IF signal and running it into an external communications receiver like an AOR AR8000. It is also possible to make your own narrowband FM demodulator. These can be made from a Motorola MC3357 or MC3361 FM demodulator chip. These IF chips, and the IF filters they require, can often be found in old 49 MHz cordless phones or baby monitors. Refer to the MC3357 or MC3361 datasheets for for information on those.

Frequency Range Modification

What this modification will do is to "shift" the radio's received frequency *up* a few megahertz so you can tune into FM signals slightly above 108 MHz. FM bugs operating around 110 MHz are easy to construct, and now you'll be able to properly receive them. This method can also be adjusted to make the radio tune *down* a few megahertz below 88 MHz. The modification only effects the radio's FM local oscillator, and there is no need for any major electrical work. A schematic for an optional narrowband FM demodulator will be shown at the end. This can be used with a tapped 10.7 MHz IF output from the radio.

For this modification to work, you **must** use an analog tuned receiver!

Construction Notes & Pictures



This particular modification will be done to a General Electric Model No. 7–4215A "under-the-cabinet" FM radio. This radio was chosen for a number of particular reasons. It has good receiver sensitivity due to the filtering and the fact that it uses the AC power line as the antenna. It also has very good audio output power, and they can be found at most thrift stores.



Open up the radio, and locate the main FM/AM tuning capacitor. It will most likely be a clear plastic box that is somehow physically connected to the tuning dial. On top of this will be four little trimmer capacitors. The four trimmer capacitors are for trimming the FM & AM local oscillator frequency, and the FM & AM antenna input match. For this modification, we'll only need to slightly adjust the FM local oscillator.



This modification works by tweaking the local oscillator frequency so when the radio displays a *lower* frequency, say 106.7 MHz, it is actually receiving a *higher* frequency, say 110.7 MHz. The entire retuning process is quite simple. First, tune the radio to a strong station transmitting around the "high" end of the band between 107 – 108 MHz. Any station will do, just as long as the received signal is strong and you can remember what song is playing! Next, tune the radio down a few megahertz in frequency, being sure that there are no interfering stations. With the radio on this new frequency, begin to *slowly* rotate one of the four trimmer capacitors on the main tuning capacitor using a plastic or insulated "tweaking" tool. Rotate the trimmer about a quarter–turn in each direction, and listen for the "higher frequency" radio station to appear on this new lower frequency. If the received frequency doesn't appear to change, return the trimmer capacitor to its original location, and move onto the next trimmer.

On the Toko tuning capacitor shown in the above picture, the FM local oscillator trimmer capacitor was labeled **C2** and it needed to be rotated about a 1/8–turn clockwise (with the Toko label facing you) for a 2 MHz change. Other brand tuning capacitors should also be adjustable in this method.

If needed, you can also adjust the FM antenna input match trimmer capacitor for a better antenna impedance match and higher received signal strength.





3 Day Weekend - Watch the Weekend

From: http://www.makezine.com/blog/archive/2007/05/3_day_weekend_watch_the_w.html



It's a three day weekend and if you haven't had a chance to watch the weekend projects podcast, now is the time. You can watch the video and read the pdf and learn about brain waves and how to make a brain machine!

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Posted by Bre (May 28, 2007) 1:35 PM MAKE Podcast, Weekend Projects | Permalink | Comments (0)

No, it's Memorial Day you fucking lisp-talking, AIDS-spreading, idea-stealing, limp-wristed, clueless faggot asshole.



Make: My Day

End of Issue #38



Any Questions?

Editorial and Rants

Here's where rap music, thug behaviour, and gangstas' come from...

Does Participation in Intergroup Conflict Depend on Numerical Assessment, Range Location, or Rank for Wild Chimpanzees?

From: www.wjh.harvard.edu/~mnkylab/publications/animalcommunication/doesparticipation.pdf

By Michael L. Wilson, Marc D. Hauser & Richard W. Wrangham

Male chimpanzees, *Pan troglodytes*, engage in cooperative territorial defence and sometimes kill members of neighbouring communities. Observations of intergroup interactions suggest that escalation of aggression depends on numerical assessment, with lethal attacks occurring when numerical advantage reduces the costs of attacking. To gain a better understanding of the factors guiding participation in intergroup conflict, we conducted a series of playback experiments with the Kanyaware chimpanzee community of the Kabale National Park, Uganda. We tested whether the response to the playback of the 'pan-hoot' call of a single extragroup male depended on the number of adult males in the listening party, the location of the speaker relative to the territory edge, and each male's agonistic rank. These playbacks elicited cooperative responses, with the nature of the response depending on the number of adult males in the playback of adult males in the party.

Parties with three or more males consistently joined in a chorus of loud vocalizations and approached the speaker together. Parties with fewer adult males usually stayed silent, approached the speaker less often, and travelled more slowly if they did approach. In contrast to many territorial species, the location of the simulated intruder did not affect the response. Although high–ranking males might be expected to benefit more from repelling outside males, both high– and low–ranking males showed a similar pattern of response. Each male responded as if he benefited from repelling intruders, but only if he had strength in numbers. This pattern of response is consistent with cooperation based on mutualism.

The Liberal Attack on Freedom of Speech

May 27, 2007 - From: www.townhall.com

by Robert Knight

It's been 43 years since student protester Mario Savi ignited the "free speech movement" at Berkeley with his famous address urging students "to put your bodies upon the gears and upon the wheels, upon the levers, upon all the apparatus -- and you've got to make it stop!"

Today, liberals are still trying to stop "the machine," but they're not aiming at the government or university officials. The "machine" they are trying to stop is public opinion that disagrees with theirs. The American left has adopted a totalitarian mindset; they're actively working to stamp out dissent.

Did you know that the same liberal group that helped to get Don Imus fired for his offensive "ho" remark tried to get Rush Limbaugh censored from the Armed Forces Network? Or that this group, Media Matters, which reportedly is backed by anti–American financier George Soros, has declared war on conservative talk radio? Imus, who is not a conservative, was merely the test case.

Let's look at some other ways that liberals are trying to stifle free speech.

1) Targeting churches. "Project Fair Play," a program of Barry Lynn's Americans United for the Separation of Church and State, is seeking informants to monitor churches for evidence that pastors are engaging in political speech.

2) Reviving the "Fairness Doctrine." Frustrated by the dominance of conservative talk radio, liberals are trying to re-enact an old law that expired in 1986 requiring broadcasters to provide
"balance." In 2004, Rep. Louise Slaughter (D-NY) tried to reinstate the Fairness Doctrine. Now, Rep. Dennis Kucinich (D-OH) is talking about reviving it. The idea is to force stations to air leftists like AI Franken if they want to continue airing conservatives like Rush Limbaugh, Mark Levin or Sean Hannity.

3) Restricting grass-roots lobbying. The Executive Branch Reform Act of 2007 (H.R. 984), sponsored by Rep. Henry Waxman (D–CA), requires Executive Branch officials to keep copious records of their contact with public citizens. The danger is that fine-wary officials will simply restrict their dealings with citizens. A similar action aimed at Congress was defeated last year. But these are the malignant stepchildren of the McCain–Feingold Act (2002), which effectively prohibits private entities from advertising on issues within 30 days of an election.

4) Sponsoring a federal "hate crimes" bill that will greatly expand the scope of federal power and lay the foundation for "thought crime" and suppressing speech. Similar laws are being wielded in Canada, Great Britain, and Sweden to eliminate public discourse critical of homosexuality. In that spirit, the English House of Lords recently enacted a law prohibiting private, religious schools from teaching the Biblical doctrine that homosexuality, like other out–of–wedlock sex, is a sin. As attorney Scott Lively notes, this repeals the religious freedom guarantee in the Magna Carta (1215), the legal fountainhead of individual rights.

5) Using the Public Broadcasting Service (PBS) as a liberal mouthpiece, while shutting out conservative voices. PBS abruptly canceled "Islam Versus Islamists: Voices from the Muslim Center," a documentary that had been slated as part of the America at a Crossroads series, which began airing in April. Although PBS denies any political motive, film maker Martyn Burke says the network first demanded that he fire conservative co-producer Frank Gaffney and then nixed the segment.

6) Insisting that only ideologically predictable scientists are heard on the topic of "man-made" global warming. For example, the Weather Channel features The Climate Code with Dr. Heidi Cullen, who calls for decertifying any meteorologist who won't toe the line on human-caused "climate change."

This short list is by no means exhaustive. Using actual government power or merely a compliant media, liberals are trying to reestablish the kind of information monopoly that they enjoyed before the Internet, talk radio, and other conservative outlets provided alternatives.

In closing, let's revisit Mario Savi's adventures. Most people don't recall that, among other things Savi said that December day in Berkeley, he assailed authorities for not allowing him to show certain "movies" in Sproul Hall.

Liberals have a soft spot for porn, because it helps undermine the moral order that facilitates personal responsibility, and thus, independence from the elites. The problem, Savi said, was "a lot of squeamish moral mothers for a moral America and other people on the outside."

Yes, those people. They need to be dealt with.

Oook! Oook!

New Twist in Classroom Race Relations

May 19, 2007 - From: www.middletownjournal.com

by Kathleen Parker

CHARLESTON, S.C. — In a new twist in American race relations, a federal court has ruled that a white teacher in a predominantly African–American school was subjected to a racially hostile workplace.

The case concerned Elizabeth Kandrac, who was routinely verbally abused by black students at Brentwood Middle School in North Charleston. Their slurs make shock jock Don Imus look like a church deacon.

Nevertheless, despite frequent complaints, school officials did nothing to intervene on Kandrac's behalf, arguing that the racially charged profanity was simply part of the students' culture. If Kandrac couldn't handle cursing, school officials told her, she was in the wrong school.

Kandrac finally filed a complaint with the Equal Employment Opportunity Commission (EEOC) and subsequently brought a lawsuit against the Charleston County School District, the school's principal and an associate superintendent. Last fall, jurors found that the school was a racially hostile environment to teach in and that the school district retaliated against Kandrac for complaining about it.

The defendants sought a new trial, but U.S. District Judge David C. Norton recently affirmed the verdict. However, he did not support the jury's findings of \$307,500 in damages for lost income and emotional distress.

Although Kandrac clearly suffered –– she was suspended from her job shortly after a story about her EEOC complaint appeared in the local newspaper, and her contract was not renewed –– her case didn't meet evidentiary requirements for damages. The judge said a new trial would have to determine damages, but the school district and Kandrac settled for \$200,000.

While the dollars-and-cents issue may have been of paramount importance to school and district officials -- and would have lent heft to the verdict -- the more compelling issue for students, parents and society is the idea that a particular group of people can be allowed to behave in a grossly uncivil and threatening way by virtue of their racial "culture."

The key legal question was whether a school could be held responsible for students' behavior. In this case, the black children of Brentwood had been given a pass for their behavior because vulgar language was considered normal for their culture.

Defense attorney Alice Paylor told jurors that the kids heard this same language at home and there was "no magic pill" to make them behave. Paylor is probably right about that, though a magic paddle might have worked wonders.

Back in the day, if a student talked the way these did, he or she would have received a well-deserved thwack, been suspended and sent home to face the wrath of his or her father. That process likely would have put a swift end to the tribal tyranny now often tolerated in the service of self-esteem.

Let's be clear: What these children called this teacher is beyond reprehensible and could be only be construed as hostile and threatening. Other white teachers and students corroborated Kandrac's account, including a male war veteran who testified he would rather return to Vietnam than to Brentwood.

Kandrac's attorney, Larry Kobrovsky, argued that the repeated use of "white" made these slurs racists in nature. But school officials insisted that because black students were equally abusive to otherblacks, the language wasn't inherently racist.

Here's what we know without question: If majority white students had used similar language toward black students and teachers, the case would have been plastered on the front page of The New York Times until heads rolled.

A black Kandrac would have a million–dollar book deal, a movie contract and hundreds of interviews to juggle. Her oppressors and those who passively facilitated her abuse would have been pilloried by the media — their faces all over the evening news — while the reverends AI and Jesse organized protests.

But a white Kandrac — who faced a daily barrage of insults, who had books and desks thrown at her and her bicycle tires punctured — was treated like an incompetent wimp. She was just a lousy teacher out for money, the defense attorney said.

Though Kandrac lost her job, the real losers are the children deprived of an education by the actions of a tyrannical few. And the worst racists are those teachers and administrators who denied these empowered brats the expectation of civilized behavior.

So Long Church/State Separation: University of Michigan to Fund Muslim Footbaths

May 30, 2007 - From: www.debbieschlussel.com

by Debbie Schlussel

Forget about the Constitutionally mandated separation of church and state . . . at least when it comes to mosque and state.

When students return in the fall, the University of Michigan–Dearbornistan is set to have Muslim footbaths in at least two locations.

And your tax funds are paying for it.

Last week, Kay Pepin, University of Michigan–Dearborn Director of Facilities Planning, and Terry Gallagher, a U of M–Dearborn spokesman, confirmed to me that plans are in the works to build Muslim footbaths (they refer to them as "foot–washing stations") in both the University Center and Fairlane Center buildings at the university.

When I asked why the footbaths were being installed, Gallagher told me that this is "an accommodation to a significant portion of our student body and their friends and visitors in accordance with our mission." He said that it is a growing trend with Boston University, Cal State–Fullerton, University of Wisconsin–Madison, and Washington University of St. Louis, all installing footbaths. "We wanted to be part of that trend in accommodating Muslim students."

But when I asked Gallagher what portion of the U–M Dearborn is Muslim, he said that the most recent information the school has is from a 2004 survey of incoming freshman. The survey only identified 11% of students as Muslims, whereas 37% of incoming freshman were Roman Catholic. When I asked if there was any accommodation or money spent on Catholic students, he could not identify any.

Gallagher said the foot baths are the result of "years of ongoing negotiations with the Muslim Student Association." The Chicago Tribune exposed the radical Muslim Student Association (MSA) as an American branch of the Egyptian terrorist group, Muslim Brotherhood, which took part in the murder of Egyptian President Anwar El–Sadat as well as the shootings at the Temples at Luxor.

Gallagher insists that he's confident that "none of our Muslim students is involved in terrorism." But last year, I received numerous death, rape and torture threats against me, my parents, and grandparents from University of Michigan–Dearborn student Lola Elzein, a Lebanese Shi'ite Muslim. Ms. Elzein was visited by the FBI and admitted to making the threats. Mohammed Fouad Abdallah, another Lebanese Shi'ite Muslim, used University of Michigan–Dearborn computers to send me rape, torture, and death threats in the name of Hezbollah. His home was raided by four FBI agents, and he admitted to making the threats.

And last week, Syed Maaz Shah—a student who was Secretary of the Muslim Student Association at the University of Texas–Dallas–-was convicted of illegally possessing firearms when he attended a Muslim terrorist training camp and sought to kill Americans.

The University of Michigan MSA has a Muslim Accommodations Task Force, which was headed by Nadia Bazzy of the infamous Hezbollah–supporting Lebanese Shi'ite Bazzy family. Many Bazzys have been involved in Hezbollah there—and here. And the MSA Muslim Accommodations Task Force has more goals in mind:

Ramadan Iftar Accommodations; Eid Holidays; Prayer Room and Break Accommodations; Faculty Sensitivity Training; Jummah; Surveys / Advocacy; Halal Food

The MSA of U of M–Dearborn says that a "Reflection Room" was established for Muslim students, at MSA's request. I wonder what would happen if Christian or Jewish students went there to pray or hang out.

Gallagher confirmed that University of Michigan–Dearborn Vice Chancellor Robert G. Behrens made the decision to install the footbaths. Behrens was the sole decisionmaker. He did not have to go before a committee of University Regents to get the approval orconsult with anyone else.

Behrens refused to speak with me regarding this Unconstitutional waste of tax dollars on behalf of the "Religion of Peace," but his secretary, Judy Modelski, had some interesting talking points to try to dissuade me from thinking this was a Muslim footbath. "It can also be used for changing diapers of and washing babies," she told me. "And there's a third use, but I can't remember what it is."

But spokesman Gallagher confirmed that there is no other use for the footbaths, other than for Muslims to wash their feet before prayer. You'd think they'd get their stories straight at the University of Michigan–Dearborn. Regardless, what mother would wash her baby in a deep bath where people washed their feet and the baby could drown? And what person would wash their feet in a bath where diapers had been changed? It simply doesn't make sense.

In a letter to an angry alumnus, Vice Chancellor Behrens wrote that the University of Michigan–Ann Arbor construction, in 1841, of a chapel makes these Muslim footbaths okay. But that was a non–denominational chapel where anyone could go for any reason, even for non–religious purposes. As U–M/Dearborn spokesman Gallagher acknowledged, these footbaths are being built as an accommodation to Muslims and no other religion uses them.

When I asked Gallagher why a religious accommodation was being made for Muslims, he informed me that if another religion approaches U of M–D, it will consider the request. But universities are constitutionally barred from endorsing a religion or even two religions.

The footbaths, so far, will cost \$27,000 to install. But count on it to cost more. Since only one set of footbaths is being installed at each of the two locations, Gallagher confirmed to me that each will be installed in only one bathroom. That means that, in order to comply with laws against gender discrimination, each sex will be entitled to a footbath in its respective bathroom. Expect the cost to double to at least \$54,000––\$54,000 of tax money spent for a religious accommodation in violation of the separation between church and state.

That money is coming from the University of Michigan–Dearborn general fund. That means, if you are a taxpayer, you're paying for them, as the general fund is made up of federal and state monies and paid tuition fees.

\$2,000 of that has already been spent, paying architectural firm Niagara Murano, LLC, of swanky Birmingham, Michigan to "design" the footbaths. When I asked why an architectural firm was needed instead of a plumber, Gallagher told me that an architect was consulted to make the footbaths compliant with the Americans with Disabilities Act.

Amazing. They care about compliance with all of the other laws, just not the most important one--the Constitutional prohibition of establishing a national religion.

I asked Gallagher if he's aware that these footbaths are likely to be the subject of a lawsuit by some brave Michigan taxpayer, who detests being forced to fund Islam and the demands of an American manifestation of the Muslim Brotherhood.

He said, "We're prepared to defend that if it happens." That means more of your tax dollars at work for the "Religion of Peace."

The question is: Where and when will a Michigan taxpayer finally say enough is enough and file suit? Will the ACLU take the case? (Fat chance.)

And when will America wake up?

Contact University of Michigan–Dearborn Vice Chancellor Robert G. Behrens to protest the Unconstitutional public funding of Muslim footbaths:

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Office of the Vice Chancellor
Robert G. Behrens
1090 Administration Building
Dearborn, MI 48128
Phone: (313) 593-5110
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"But... But... All the threads on Slashdot saying there is no liberal media bias are marked +5 Informative!"

Associated (with terrorists) Press Headline – Before:



We don't want the truth getting out there now, do we?

More proof that "peaceful" leftists are the new Nazis. That little bit of text in the beginning was added *after* people started complaining.



Zionism was and remains a racist ideology

by Ben Heine

Thu Apr 05, 2007 at 07:08:02 PM PDT

The text of this diary was removed due to copyright violation. To be clear, the fact that the images stay is in no way an endorsement of their content - MissLaura



Avigdor Lieberman by Ben Heine

Ben Heine's diary :: ::



Massacres by Ben Heine

- --> This essay originally appeared on Alarabonline
- --> The images are by Ben Heine. See his Blog

Tags: troll diary (all tags)

Barak Obama's Church "About" Page – Before:

Home http://web.archive.or	org/web/20060411204951/http://www.tucc.org/about.htm	~ ©
Home	About Us	
Home About Us AkiBA Bookstore Bulletin CFABS Community Computer Center Contact Us Job Opportunities Ministries Ministries Ministry Services Mission MLK Fair Music Online Contributions Pastor Pastoral Staff Scholarships Service Times	About Us We are a congregation which is Unashamedly Black and Unapologetically Christian Our roots in the Black religious experience and tradition are deep, lasting and permanent. We are an African people, and remain "true to our native land," the mother continent, the cradle of civilization. God has superintended our pilgrimage through the days of slavery, the days of segregation, and the long night of racism. It is God who gives us the strength and courage to continuously address injustice as a people, and as a congregation. We constantly affirm our trust in God through cultural expression of a Black worship service and ministries which address the Black Community. Trinity United Church of Christ adopted the Black Value System written by the Manford Byrd Recognition Committee chaired by Vallmer Jordan in 1981. We believe in the following 12 precepts and covenantal statements. These Black Ethics must be taught and exemplified in homes, churches, nurseries and schools, wherever Blacks are gathered. They must reflect on the following concepts: 1. Commitment to God 2. Commitment to the Black Community 4. Dedication to the Pursuit of Education 5. Dedication to the Pursuit of Education 5. Dedication to the Pursuit of Excellence 6. Adherence to the Black Work Ethic 7. Commitment to Self-Discipline and Self-Respect 8. Disavowal of the Pursuit of "Middleclassness" 9. Pledge to make the fruits of all developing and acquired skills	
Trumpet Magazine Upcoming Events Women's Conf Ub Youth Updates	 Pledge to make the fruits of all developing and acquired skills available to the Black Community Pledge to Allocate Regularly, a Portion of Personal Resources for Strengthening and Supporting Black Institutions Pledge allegiance to all Black leadership who espouse and embrace the Black Value System Personal commitment to embracement of the Black Value System. 	
	The Pastor as well as the membership of Trinity United Church of Christ is committed to a 10-point Vision :	

Barak Obama's Church "About" Page – After:



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Trinity United Church of Christ adopted the Black Value System written by the Manford Byrd Recognition Committee chaired by Vallmer Jordan in 1981. We believe in the following 12 precepts and covenantal statements. These Black Ethics must be taught and exemplified in homes, churches, nurseries and schools, wherever Blacks are gathered. They must reflect on the following concepts:

- 1. Commitment to God
- 2. Commitment to the Black Community
- 3. Commitment to the Black Family
- 4. Dedication to the Pursuit of Education
- 5. Dedication to the Pursuit of Excellence
- 6. Adherence to the Black Work Ethic
- 7. Commitment to Self-Discipline and Self-Respect
- 8. Disavowal of the Pursuit of "Middleclassness"
- 9. Pledge to make the fruits of all developing and acquired skills available to the Black Community
- 10. Pledge to Allocate Regularly, a Portion of Personal Resources for Strengthening and Supporting Black Institutions
- 11. Pledge allegiance to all Black leadership who espouse and embrace the Black Value System
- 12. Personal commitment to embracement of the Black Value System.

See... I can crop pictures too!



From:

patdollard.com/2007/03/19/lets-be-clear-im-being-coerced-by-an-enemy-of-the-american-military



"The picture shows that this soldier has been thru Survival School and learned his lessons well. He's giving the sign of "coercion" with his left hand. These hand signs are taught in survival school to be used by POW's as a method of posing messages back to our intelligence services who may view the photo or video. This guy was obviously being coerced into shaking hands with Hillary Clinton. It's ironic how little she knew that he would so inform us about the photo –– perhaps because she's never understood our military to begin with."

Heh. You stupid cunt.