

GBPPR 'Zine



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"A Bible and newspaper in every house, a good school in every district – all studied and appreciated as they merit – are the principle support of virtue, morality and civil liberty."

--- Quote from Benjamin Franklin (1706–1790) in March of 1778.

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Office Overload Controls Feature / #1 ESS – Part 2

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- (1) Service circuit overload
- (2) Outgoing and 2-way trunk overload
- (3) Network overload.

The detection of busy and/or blocking conditions occurs in the call processing client programs of the system.

Service Circuit Overload

4.11 When a call encounters a service circuit busy condition, queueing is usually done for the particular type of service circuit. An exception is that queueing is not done for transmitters. Transmitters are subject to preemption after a waiting period for start pulsing signals exceeding 4 to 5 seconds. Table D indicates those service circuits for which a queue is provided and the type of queue. If a queue does not already exist for the particular circuit, one is established, with this call being the first entry. Otherwise, the call is loaded into the existing queue. During the period of time that the queue exists, the service circuit idle list head cell is marked to inhibit seizures of idle equipment by calls not on the queue. Queue unloading occurs whenever a service circuit becomes available. The queue is unloaded sequentially (ie, the first call queued is unloaded first).

4.12 Special actions occur when there is a shortage of receivers. The first entry on a receiver

queue causes permanent-signal, partial-dial (PSPD) timing to be decreased. Normal PSPD timing is 16 to 24 seconds. Decreased PSPD timing causes the maximum receiver holding time for incoming trunks to be decreased. When a receiver overload occurs, permanent signal (PS) timing is reduced to 10 to 15 seconds and partial dial (PD) timing is reduced to 5 to 10 seconds.

4.13 If a call fails to seize a customer dial receiver, the call is placed on a queue and a receiver preemption request is made. This request will free a receiver being used only for supervision of an outgoing call during outpulsing. The call associated with the preempted receiver is then supervised by a special line ferrod scan.

4.14 When a receiver queue is established, a 100-second timer is started. If the queue overflows, a check is made to determine if the queue has existed for at least 100 seconds; if so, a receiver queue overload exists and office personnel are alerted via the following indications:

- (a) The **RCVR OVLD** lamp at the MCC is lighted.
- (b) A TOC01 output message containing overload data and traffic control status is printed on the maintenance and traffic TTYs. An audible

TABLE D

SERVICE CIRCUIT QUEUES

SERVICE CIRCUIT	QUEUE TYPE
Customer Dial Pulse Receiver	Fixed
Customer Receiver for <i>TOUCH-TONE</i> ® Dialing	Fixed
Trunk Receiver	Linked PMT
Regular Ringing Circuits	Linked Register
Special Ringing Circuits	Linked Register
Coin Control Circuits	Linked Register
Hi Tone	Linked Register
Low Tone	Linked Register

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alarm is sounded and a bell rings at the traffic TTY(s).

(c) A TOC02 output message, which also contains overload data and traffic control status, is printed on the maintenance and traffic TTYs every 15 minutes if the overload persists.

(d) Also, if not already in progress, the TC15 quarter-hour traffic report is activated to report traffic and overload measurements.

Outgoing and 2-way Trunk Overload

4.15 If an outgoing call fails to find an idle trunk in the primary group, successive alternate groups are tried until either an idle trunk is found or until all alternate groups are exhausted; in which case, overflow tone is given.

4.16 Certain trunk groups in an office can be designated as toll protected, and certain lines can be designated as toll essential. If the toll network protection program is activated via a TTY input message, only toll essential lines are permitted to access toll protected trunks. An attempted seizure of a toll protected trunk by a nontoll essential line will result in overflow tone being given to that line.

Network Overload

4.17 Network blockage conditions can cause a network overload. On an incoming call, if blocking on all possible paths occurs on the network path hunt from the incoming trunk to the terminating line, the trunk is given overflow; otherwise, the call is completed. On an outgoing call, if an idle trunk is found but the network path hunt blocks, another idle trunk and path are hunted. If blocking occurs the second time, the procedure is repeated once more. A third failure results in overflow being given to the originating line. An exception is network blockage experienced when connecting to a customer dial receiver. In this case, queueing (blocked dial tone queue) is done for an idle path. The blocked dial tone queue is unloaded every 2 seconds until the blockage is cleared or the customer(s) abandons.

Note: If the system is in a real-time overload, blocking retrials of trunk hunts are eliminated.

4.18 Every 3 minutes a count is made of the incoming matching loss failures to reserve talking

paths for incoming calls. Incoming matching loss failure counts are one of the measurements used for Line Load Control.

B. Software Overload

4.19 Various software items in the system are engineered according to the expected traffic load in the office during the average busy hour. A software overload exists when the demand on one or more of these items exceeds the supply or engineered capability. Engineered software items include the various system hoppers, call registers, and peripheral order buffers (POBs). Software overloads are handled by the call processing programs, executive control program, and the automatic overload control program. The strategies used for software overload controls are to eliminate nonessential tasks, to delay certain deferrable tasks, and to queue for particular software items. For discussion purposes, software is classified as either nonhopper type or hopper type software.

Nonhopper Overload

4.20 Some types of registers are engineered on a one-to-one basis with hardware; thus, if the hardware is available, so is the register. If registers (which are not engineered on a one-to-one basis with hardware) are not available, the call which made the request for the register is restored to a previous state and placed on a queue for the required software. Software items for which queueing is used are listed in Table E.

Note: When queueing is done for a call requiring trunk-to-trunk memory (TTM), a transmitter and outputting register are held for the call while on the TTM queue. Therefore, sufficient trunk-to-trunk memory must be available; otherwise, service may be seriously affected.

Hopper Overload

4.21 Hoppers are engineered to hold various numbers of entries. When a hopper fills up, hopper overload exists. Hopper overloads are handled differently in non-SP and SP offices. In a non-SP office, input-output work is accomplished via input-output programs, as previously discussed; whereas, input-output work in an SP office is handled by the SP. In a non-SP office, when an input-output program loads an entry into a hopper and finds the hopper full, a

TABLE E

SOFTWARE QUEUES (NONHOPPER)

SOFTWARE ITEM	QUEUE TYPE
Regular Ringing Register	Linked Register
Local Coin Overtime Register	Linked Register
Coin Zone Register	Linked Register
CAMA Register Port 0	Linked Register
CAMA Operator	Linked Register
AMA Output Buffer	Linked Register
Peripheral Order Buffer	Linked Register
Trunk-to-Trunk Memory (TTM)	Linked Register

direct transfer is made to the automatic overload control program to alleviate the overload condition.

4.22 In an SP office, the SP is unable to administer hopper overloads except for the LSRH. Therefore, except for LSRH overflows, the SP must request (via a K-level interrupt) that the automatic overload control program administer the hopper overload.

SP Hopper Overload

4.23 When the SP is unable to make a hopper entry because the hopper is full, the hopper is considered overloaded. The automatic overload control program, resident in the CC, must administer all hopper overloads (except for the LSRH) occurring in the SP. The SP obtains the immediate attention of the CC for a hopper overload condition by generating a K-level interrupt. When a K-level interrupt is generated because of a hopper overflow, all SP work is stopped. The SP hopper overflow condition is administered by the CC, which causes the SP work to be resumed after administering the overflow condition.

4.24 The CC has access to the entire SP call store and all of the SP registers. After a K-level interrupt, the automatic overload control program determines which hopper overflowed. The last entry in the overflowed hopper is inspected to determine the source of the entry. In most cases, the automatic

overload control program restores the memory associated with the hopper entry to the previous state (prior to overflow). After restoring the SP memory, the CC restarts the SP. The SP is usually restarted at the end of the current job (which resulted in overflow) since additional attempts could be made by the SP to load new entries, thus producing additional overflows. A request is made to unload the hopper in interject.

Non-SP Hopper Overload

4.25 Generally, if the input-output program which caused the hopper overflow looks for only one type of report and loads only one hopper, the remainder of the input-output job is skipped. If the input-output program looks for more than one type of report or loads more than one hopper, it is continued. The input-output jobs temporarily bypassed are listed in Table F, which also shows overload actions for the various hoppers. The general philosophy is to force another attempt to load the hopper and to request that the hopper be unloaded in interject.

4.26 The automatic overload control program contains hopper unloading routines for the LSRH and TSAH. The hopper unloading routines for generic programs prior to 1E6 are discussed separately, followed by a description of the Improved Overload Strategy implemented in 1E6 and later generic programs.

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TABLE F
HOPPER OVERLOAD ACTIONS

HOPPER	INPUT-OUTPUT JOBS BYPASSED	INTERJECT UNLOADING PRIORITY	SUCCESSIVE OVERLOADS POSSIBLE
Abandon Interdigital Time-out	None	6	Yes
Centrex Key (Note 1)	None	9	Not Likely
Dial Pulse Transmission	None	11	Yes
Hit Scan Result	None	13	Yes
K-Level Interrupt (Note 2)	N/A	Not Unloaded in Interject	N/A
Line Ferrod Disconnect	None	15	No
Line Service Request (Non-SP)	(Note 3)	Not Unloaded in Interject	No
Miscellaneous Scan (TSJR)	None	10	Yes
Multifrequency	None	1	Yes
Release Dial Tone	None	7	Yes
Revertive Digit Reception	None	2	Yes
Revertive Digit Transmission	None	8	No
Ring Tip	None	12	No
Step-by-Step	None	3	No
TOUCH-TONE® Service	None	4	Yes
Trunk Dial Pulse Reception	None	5	Yes
Trunk Seizure and Answer	None	14	Yes
	(Note 4)		

Note 1: Only offices with Centrex service have a Centrex key hopper.

Note 2: Only SP offices have a K-level interrupt hopper.

Note 3: Prior to the 1E4 generic program, line scanning was bypassed. The LSRH does not exist in the 1E4 and 1E5 generic programs. In 1E6 and later generic programs, a LSRH overload cannot occur since the Improved Overload Strategy incorporates a LIFO with pushout and time-out philosophy.

Note 4: Prior to the 1E4 generic program, line, trunk, and master scanning jobs were bypassed.

Note: Prior to the 1E4 generic program, the LSRH is unloaded on a FIFO basis. During a heavy traffic load or real-time overload, the LSRH can overflow causing line scanning to be temporarily suspended and originating service to be degraded. In the 1E4 and 1E5 generic programs, the LSRH is not used. Line service re-

quests are processed immediately after a service request is detected by line scanning. Requests not able to be processed due to an overload condition are ignored. In 1E6 and later generic programs, the Improved Overload Strategy (with a LIFO, pushout, and time-out strategy) is used for the LSRH. The Improved

Overload Strategy prevents the possibility of a LSRH overflow and maintains some degree of originating service.

Regulation of TSAH and LSRH Unloading Rate

4.27 Regulation of the TSAH and LSRH unloading rate is done by the automatic overload control program. Adjustments to the unloading rate limits are made according to central control overload conditions. In non-SP offices with 1E4 and 1E5 generic programs that do not use a LSRH, the automatic overload control program service request adjustments are applied during line scanning. The limits are decreased (to a minimum) as long as overload conditions persist, and they are increased gradually (to a maximum) when overload conditions subside. This regulation smooths the rate at which trunk and line service requests are presented for call processing and helps to preclude real-time overloads.

4.28 Prior to CTX-6, there were no controls for regulating the TSAH unloading rate. In CTX-6 and later generic programs, controls (based on the existing LSRH unloading controls) for the TSAH unloading are provided. This incoming trunk overload control applies only to non-step-by-step calls. There are no direct overload controls for incoming step-by-step calls; however, the incoming trunk overload control indirectly compensates for incoming step-by-step traffic by placing constraints on other types of trunk traffic. Basically, the incoming trunk overload control limits the number of incoming trunk seizures which will be processed each time the TSAH is unloaded. When the number of trunk service requests exceeds the limit, excess requests are queued until time becomes available for further processing. The limit is variable and decreases when E-to-E cycle time becomes excessively long.

4.29 The overall traffic acceptance rate is used to limit both incoming and originating traffic, with incoming traffic given priority. Adjustments to the unloading rate limits are made according to overload conditions. The value of the limits is based on a call store variable (A6MAX5).

Administration of A6MAX5

4.30 The contents of the call store word A6MAX5 control the rate at which entries are unloaded from the TSAH and LSRH. The variable A6MAX5

varies dynamically as a function of E-to-E cycle time. When a real-time overload does not exist, A6MAX5 is equal to its maximum value specified in the generic program. Maximum values specified are 224 in an SP office and 160 in a non-SP office. These values are the same for all generic programs.

4.31 When the E-to-E cycle time becomes excessive (last 3 E-to-Es >5.04 seconds), the automatic overload control program decreases the value of A6MAX5 by one-sixteenth (1/16) of its current value. At this point, a minor overload exists based on the E-to-E cycle time. The value of A6MAX5 is continuously decreased at 3-second intervals as long as the E-to-E cycle time remains excessive (ie, minor or major overload).

Note: The contents of A6MAX5 cannot go below a value of 15.

4.32 The value of A6MAX5 is increased by 1/16 of its current value when the average E-to-E cycle time decreases to less than 1.68 seconds as measured over a 5.04-second period. The value is continuously increased until A6MAX5 reaches its maximum value (ie, SP office = 224; non-SP office = 160).

Unloading the TSAH and LSRH

4.33 The unloading of the TSAH and LSRH are base level class C and class D tasks, respectively. Base level operations are discussed in paragraphs 2.30 through 2.37. It is important to note that there are two class Cs between each class D. (Refer to Fig. 7.) Each D-to-D cycle begins with the first class C following a class D and therefore has the form C-C-D. The number of service requests which may be processed during each class is determined as follows:

- First class C—The number of trunk seizures which may be processed is 1/32 of A6MAX5 plus one.
- Second class C—The number of trunk seizures which may be processed is 1/32 of A6MAX5 plus one, plus any remaining counts left from the first class C.
- Class D—Prior to the Improved Overload Strategy, the number of line service requests which may be processed is equal to the number of counts left over from the two preceding class Cs plus one. In this manner, even if the

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count already equaled the maximum due to the incoming traffic, one line origination is still processed. With the Improved Overload Strategy, the number of line service requests which may be processed is equal to the number of counts left over from the two preceding class Cs plus four, thus permitting a minimum of four line originations to be processed.

4.34 The equation for the trunk and line service requests accepted for processing during one D-to-D cycle, in the form C-C-D is $(1/32 A6MAX5+1)+(1/32 A6MAX5+r+1)+(rc+1 \text{ or } rc+4)$

where r = remaining counts from the first class C
and

rc = total remaining counts from both class Cs. The maximum value of A6MAX5 is 160 for a non-SP office and 224 for an SP office.

Note: Variable A6MAX5 is decreased by 1/16 of its current value every 3 seconds during a minor or major overload to a minimum of 15. After an overload subsides, A6MAX5 is increased by 1/16 of its current value until the maximum value is reached.

4.35 This implementation method insures that incoming traffic is given priority over originating traffic. This is desirable since more time and equipment is invested in an incoming call as compared to an originating call. This method also lessens the possibility of propagating an overload condition to other offices.

LSRH Unloading Administration

4.36 The contents of A6MAX5 control the rate at which entries are unloaded from the LSRH during base level class D as discussed in paragraphs 4.27 through 4.34. When an entry is removed from the LSRH, the originating line is connected to dial tone. If a customer dial receiver (CDR) is not available, the service request is placed on a CDR queue until a CDR is available. CDR queueing is discussed in paragraphs 4.11 through 4.14. In addition to the unloading rate during class D, no more than the number of hopper entries specified by A6MAX5 may be unloaded within 5 seconds. When that number is reached, LSRH unloading is suspended for the remainder of the current 5-second time period. The 5-second limit

guarantees that an excessive number of entries will not be allowed to be processed during periods of short E-to-E cycle times and/or light incoming traffic.

4.37 Prior to the Improved Overload Strategy, when LSRH unloading is suspended, new line service requests continue to be loaded into the LSRH. In such a case the LSRH could overflow. LSRH overflows are handled entirely by the SP in an SP office. In a non-SP office, since the LSRH is not unloaded in interject, line scanning is temporarily suspended. Supervision is reset for the line causing an LSRH overflow, and LSRH loading is stopped until space is available. With the Improved Overload Strategy, the LSRH cannot overflow and line scanning is not suspended.

TSAH Unloading Administration

4.38 A count is kept of the number of seizures processed each time the TSAH is unloaded during each class C visit. This count is compared to the current per-visit limit which specifies how many seizures may be processed. The limits are established as discussed in paragraphs 4.33 and 4.34. When the count of the number of trunk seizures processed equals the limit, the remaining entries in the TSAH are put on the incoming overload control queue.

4.39 During periods of heavy incoming traffic, the incoming overload control queue helps to maintain a high-call-completion rate by reducing the possibility of a TSAH overflow. In offices with generic programs prior to 1E4, when the TSAH overflows, line scanning, trunk scanning, and master scanning are temporarily suspended to prevent successive overloads, and a request is made to unload the TSAH in interject. In offices with 1E4 and later generic programs, scanning continues but any attempts to load the TSAH hopper are inhibited.

Incoming Overload Control Queue Unloading

4.40 The incoming overload control queue is unloaded during base level class C visits. Class C is the same class in which the TSAH is unloaded. Therefore, the limit on the number of trunk seizures processed from each class C visit is applied to the sum of the numbers processed from both the hopper and the queue. Because of this, the relative order of these two tasks is very important.

4.41 When the length of the queue is short ($Q\text{-length} < 16 \times \text{current processing limit}$), the

queue is served before the hopper. This forces more calls through the queue. However, a "first in-first out" order is maintained and, because the queue is relatively short, no incoming calls are delayed excessively.

4.42 When the incoming overload control queue reaches a length that is 16 times the number of seizures which may be processed in a class C visit, the hopper is served before the queue. This is done to prevent excessive delays when the queue is long. When the queue is long, the time an incoming call remains on the queue becomes excessive and results in sender time-outs and customer abandons. Since all incoming calls will be going through the queue when incoming traffic is very heavy, a high percentage of all incoming calls will be experiencing time-outs and abandons. This results in a significant decrease in the call-completion rate and inefficient call processing. By serving the hopper first, those calls which are processed have a shorter sender-holding time. Shorter sender-holding times reduce sender time-outs and customer abandons, thus increasing the call-completion rate. When the queue length causes a reversal of the order of service from queue first to hopper first, a TOC02 message is printed on the traffic, maintenance, and network management TTYs. The message will continue to be printed every 15 minutes until the condition no longer exists.

4.43 When the incoming overload control queue is unloaded, the entry unloaded will be the entry which has been there the longest period of time. The incoming overload queue is a linked path memory for trunks (PMT) queue. Since the time on the queue may be quite long, it is possible that a call unloaded from the queue may have abandoned or the originating office sender may have timed out while the call was on queue. Therefore, before processing a call unloaded from the incoming overload queue, a directed trunk scan is performed for the associated trunk to determine if that trunk is still off-hook. If the directed scan shows that the call unloaded from the queue has gone on-hook or sender time-out has occurred, the trunk is restored to the idle state. If the directed scan shows the trunk is in the off-hook state, the queue unloading routine will load the trunk network number (TNN) and the master scanner number (MSN) or trunk scanner number (TSN) into the appropriate register and return control to call processing.

Improved Overload Strategy

4.44 Prior to the Improved Overload Strategy, when an off-hook was detected, the LEN was

placed in the LSRH until the processor could service the request. During class D of base level, the processor would remove LENs on a FIFO basis (according to the algorithm using A6MAX5). The LENs would be connected to CDRs and given dial tone. If a CDR was not available, requests were placed on a CDR queue for the next available CDR. When a CDR became available, requests in the CDR queue would be served on a FIFO basis. If the CDR queue was filled, visits to the LSRH would cease. Furthermore, in non-SP offices, line scanning was performed in base level in such a way that the number of times lines were scanned would drop linearly with load. In fact, when the LSRH was full, line scanning would cease in both SP and non-SP offices. Thus, there were three major sources of delay for service to a dial tone connection: the scanner, the LSRH, and the CDR queue.

4.45 The No. 1 ESS was very sensitive to traffic under heavy loads. That is, as the load increased to the point where dial tone speed test failures occurred (ie, dial tone delay exceeded 3 seconds) a slight further increase in traffic would result in essentially all line originations experiencing dial tone delay. Furthermore, as the processor attempted to process the increasing load and retries from partial dials, calls would drop, line scans would plummet, and recovery would take a relatively long period of time with a significant decrease in the traffic load. These factors caused a new strategy to be developed to improve customer service and system performance during heavy loads and overload conditions.

4.46 The Improved Overload Strategy essentially consists of LIFO servicing of the LSRH (with pushout and time-out mechanisms), the elimination of the CDR queue as a source of delay, and the maintenance of the line scanning rate at a high level. These last two points imply that all delays to dial tone will appear at the LSRH and not at the CDR queue or line scanner where they cannot be controlled.

4.47 The Improved Overload Strategy is in effect continuously. With the Improved Overload Strategy, when a line service request is detected and entered in the LSRH, there are four possibilities:

- (1) The request is (essentially) served immediately.
- (2) The request is served after spending less than 20 seconds in the LSRH.
- (3) The request is buried in the LSRH and eventually pushed out.

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- (4) The request is buried in the LSRH and eventually timed out.

4.48 When an off-hook is detected, the LEN is placed in the LSRH. During base level class D, the central control (CC) checks to determine if CDRs or slots in the CDR queue are available. (The CDR queue now has an effective length of one.) If so, the CC removes LENs from the LSRH (one at a time on a LIFO basis) and connects each of them to a CDR or places, at most, one LEN per class D in the CDR queue. During base level class D, the CC removes LENs up to a certain maximum (determined by the algorithm using A6MAX5 discussed in paragraphs 4.27 through 4.37) or until a LEN is placed in the CDR queue. When the CDR queue is occupied, the CC does not serve the LSRH on that occurrence of class D. When the CC does serve the LSRH, the CC will attempt to remove a minimum of four LENs during one class D visit, but will stop when the CDR queue is active.

4.49 During normal traffic loads, requests in the LSRH are served (essentially) immediately without experiencing dial tone delays. As the traffic load increases, new requests are loaded in the LSRH and are unloaded on a LIFO basis. This causes older service requests to “age” in the LSRH until either served, timed out, or pushed out. Requests aging in the LSRH are checked every 10 seconds via a class E job. If a request is found to have been in the LSRH for 20 to 30 seconds, the request is removed from the LSRH and the LEN is placed back on line scanning. At this point, a service request from the timed-out LEN has an equal chance of being served first.

4.50 During very heavy traffic loads, the LSRH may become completely filled. In this event, the LEN in the last slot of the LSRH is pushed out by the next arriving request. The pushed-out LEN is placed back on line scanning and has an equal chance of being served first.

Note: In an SP office, when the LSRH is full, the SP is not stopped by the CC (as was done prior to the Improved Overload Strategy), but the scanning rate will decrease somewhat with load. However, even under extreme loads the scanning delay is negligible.

4.51 It is important to note that with the Improved Overload Strategy, a relatively long LSRH is used. The LSRH is sized at either roughly twice the

number of CDRs or 256, whichever is greater, up to a maximum of 1024. The actual length of the hopper was initially determined by deciding what magnitude of traffic would be allowed into the system and then calculating how large the hopper should be so that it would require at least 20 seconds for a request to be pushed out. This implies that the time-out mechanism is the governing factor because even under heavy loads very few requests will actually get pushed out. Thus, the time-out mechanism is equivalent to a dynamic hopper size.

4.52 With the Improved Overload Strategy the processor can operate nearer to the figure of 100-percent-normalized load. By definition, the 100-percent-normalized load would consume all available real time. Moreover, the processor can efficiently handle peaks in traffic above 100-percent occupancy for some period of time without producing a major degradation in service.

Note: The No. 1 ESS “capacity” is determined by setting the minimum E-to-E level (EMIN) beyond which service would degrade. Prior to the 1E6 generic program, EMIN has been set at 3500 for an SP office. However, all available real time is not consumed at 3500 E-E cycles. The Improved Overload Strategy has allowed the EMIN value to be lowered from 3500 to 3000 in an SP office thus increasing the processor capacity. The CC-only office EMIN value of 2300 is not affected by the implementation of the IOS and continues to realistically reflect office capacity.

C. Real-Time Overload

4.53 A real-time overload occurs when heavy traffic or system problems create so much work the central control is not able to complete its tasks within a certain time period. The automatic overload control program automatically attempts to alleviate a real-time overload by controlling the unloading rate of the line service request hopper (in non-SP offices) and the trunk seizure and answer hopper. The automatic overload control program also causes system tasks which are not critical to be postponed or eliminated. Such actions are based on traffic measurements or on direct measurements of the average time required for the central control to cycle through all base level classes A through E (known as the E-to-E cycle time). Base level operations and E-to-E cycle time are discussed in paragraphs 2.30 through

2.37. Central control real-time overloads are classed as (1) a heavy load, (2) a minor overload, and (3) a major overload.

Note: The Improved Overload Strategy reduces the probability of real-time overload occurrences during periods of increasing or heavy traffic.

Heavy Load

4.54 A heavy load exists in an SP office when less than 2000 E-to-E cycles occur during a 5-minute period. A heavy load exists in a non-SP office when less than 1200 E-to-E cycles occur during a 5-minute period. When a heavy load is detected, the automatic overload control program causes restore verify (RV) and false cross and ground (FCG) tests to be inhibited. A TOC01 or a TOC02 message is printed indicating a heavy load condition. For an initial change of state, a TOC01 message is printed, accompanied by three rings of the traffic TTY bell, and a minor alarm is sounded. For a continuing heavy load state, a TOC02 message is printed every quarter-hour. These messages also indicate tests that are inhibited. After the heavy load has subsided, the RV and FCG test are resumed. In an SP office, a heavy load no longer exists after 2150 E-to-E cycles occur during a 5-minute period. In a non-SP office, a heavy load no longer exists after 1300 E-to-E cycles occur during a 5-minute period.

Minor Overload

4.55 A central control minor overload exists when the time required for three consecutive E-to-E cycles exceeds 5.04 seconds (ie, average of last three E-to-E cycles > 1.68 seconds). When a minor overload occurs, the **CC OVLD** lamp is lighted and a TOC01 or TOC02 message is printed to indicate a minor overload. A TOC01 message is printed for an initial overload condition and a TOC02 message is printed for a continuing overload condition. During a minor overload, the automatic overload control program reduces the unloading rate of the trunk seizure and answer hopper and the line service request hopper to reduce the central control processing load. The RV and FCG tests are also inhibited. These actions are taken to increase real-time availability for the central control to complete its work within an acceptable time period; thus the objective is to decrease the average E-to-E cycle time to less than 1.68 seconds by eliminating and delaying work. If the minor overload

persists, the trunk seizure and answer hopper and the line service request hopper unloading rate is further reduced every 3 seconds (to a minimum rate). These unloading rates are discussed in paragraphs 4.27 through 4.43. As the minor overload subsides, the TSAH and LSRH unloading rates are gradually increased to a maximum value and the RV and FCG tests are resumed. When the real-time overload no longer exists, the **CC OVLD** lamp is extinguished.

Major Overload

4.56 A central control major overload exists when the time required for three consecutive E-to-E cycles exceeds 8.04 seconds (average of last three E-to-E cycles > 2.68 seconds). A major overload can occur even though minor real-time overload controls exist, because a surge in traffic may not manifest itself as an excessive real-time demand for a few seconds after the influx has occurred. For example, a significant amount of call processing time is required after the last digit is dialed and the call is given ringing. Therefore, during the first few seconds, the overload is initially detected as a minor overload. If the traffic demand is such that the real-time demand continues to increase during a minor overload, a major overload can occur.

4.57 When a major overload occurs, the same actions (if not already in effect) are taken as for a minor overload. The TSAH and LSRH unloading rates are reduced, the RV and FCG tests are inhibited, and the **CC OVLD** lamp (if not already on) is illuminated. A TOC01 or TOC02 message is printed indicating a major overload. Blocking retrials of trunk hunts are inhibited. In an SP office, unloading the LSRH is stopped. In a non-SP office having a generic program prior to 1E6, line scanning is stopped to increase real-time availability for call processing. Line scanning is not stopped in No. 1 ESS offices equipped with 1E6 and later generic programs since the Improved Overload Strategy uses the LIFO (with time-out and pushout strategy).

4.58 Recovery from a major overload results in gradual restoration of processing work presented to central control. As the real-time overload subsides, the major overload becomes a minor overload until no further real-time overload conditions exist. Recovery actions for an overload condition are accomplished in reverse order. Nonessential tasks which were suspended are restored. The unloading rate of the TSAH and LSRH is gradually increased

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and the RV and FCG tests are resumed. The **CC OVL** lamp is extinguished when no major or minor overload exists.

Real-Time Trigger of Emergency Action Phase

4.59 When the central control does not complete one E-to-E cycle within 14 seconds, it is unlikely that any actions of the automatic overload control program can alleviate the condition since a system failure has probably occurred. Therefore, when one E-to-E cycle has not been completed within the last 14 seconds, an emergency action (EA) phase is initiated. The purpose of an EA phase is to restore the system to an acceptable operating condition.

4.60 While an EA phase is in progress, nothing except reinitialization and auditing is performed. All maintenance interrupt levels except levels A, B, and certain J-level tasks (in non-SP offices) are inhibited during the EA phase. When an EA phase occurs, an EA02 output message is printed on the local and remote maintenance TTYs. The output message indicates which number phase is running and gives a code corresponding to the condition causing the phase. For a description of the EA facility, refer to item A(6) in Part 18.

D. Line Load Control

4.61 Line Load Control (LLC) provides a means of assuring originating service to essential lines during an overload condition by temporarily denying originating service to some or all nonessential lines. When active, LLC permits continuity of service to as many nonessential lines as possible and does not affect established calls or incoming calls. The three LLC modes (OFF, ON, and AUTOMATIC) are described in paragraphs 3.26 through 3.34. The associated **LLC ENAB** and **DT DEL** lamps are discussed in paragraphs 3.19 and 3.20. A summary of LLC is contained in Table C.

4.62 Overloads in the processor or in the network can cause degradation of originating service due to either excessive dial tone delay time or excessive blocking on incoming path hunt failures. The system recognizes originating service degradation by measuring the degree and persistence of dial tone delays (based on dial tone speed tests) and the amount of incoming matching loss (network blocking) failures occurring. When LLC is enabled in either the manual or automatic mode, either excessive

dial tone speed test (DTST) delays or excessive incoming matching loss failures cause LLC to temporarily deny originating service to some or all nonessential lines, based on the degree and persistence of the overload. Once active, LLC denies and restores originating service to nonessential lines according to the results of DTST and incoming matching loss measurements. If some, but not all, nonessential lines are being temporarily denied originating service, originating service is temporarily denied to the nonessential line groups on a rotating basis. This allows all nonessential lines to have originating service for some periods of time. As the measured overload subsides, originating service is gradually restored until all lines have originating service.

Line Group Classification and Assignment

4.63 Generally, lines which may be required during an emergency may be designated as essential lines. Lines classified as essential are assigned to designated concentrator levels of the line link network (LLN). Up to 4 of the 16 verticals in the line scanner matrix may be designated as essential verticals and used for the assignment of essential lines. Each vertical represents a line group. The number of verticals can be expressed as a fraction (1/16, 1/8, 3/16, or 1/4) of the total line terminations in the office. The fractions can also be specified as a percent (6.25, 12.50, 18.75, or 25.00) of the total number of line terminations.

4.64 Parameter L4ESSL (specified by set card EVL) contains the number of essential verticals and which verticals are marked essential. The number of essential verticals designated may be from one to four. Verticals 0, 4, 8, and 15 of each line scanner row are possible essential verticals. The number of essential verticals specified determine which verticals are marked as essential. See Table G. L4ESSL contains a one in each bit position corresponding to the essential verticals which are not to be denied originating service when LLC is active. Refer to Fig. 10 for the data formats for the number of essential verticals designated. Each of the positions (corresponding to a particular vertical) containing a zero allows that vertical to be treated as nonessential when LLC is active.

Line Scan Mask

4.65 When LLC is active, one or more of the nonessential line groups are denied originating ser-

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TABLE G
DESIGNATED ESSENTIAL VERTICALS

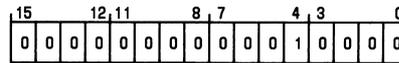
NO. OF ESSENTIAL VERTICALS	PART OF TOTAL VERTICALS		VERTICALS MARKED ESSENTIAL
	FRACTION	PERCENT	
1	1/16	6.25	4
2	1/8	12.50	8, 4
3	3/16	18.75	15, 8, 4
4	1/4	25.00	15, 8, 4, 0

vice by means of a 16-bit scan mask in call store. The bit positions correspond to the verticals in the office. A one in a particular bit position allows that corresponding vertical to be scanned. A zero inhibits scanning of that vertical. For example, a zero in bit position "n" of the scan mask disables the "n"th vertical in all line scanners of the office.

Note: The designated essential verticals (Fig. 10), as specified by L4SSL, cannot contain a zero. Each of the nonessential verticals can contain an entry of one or zero, depending on the overload conditions.

4.66 The 16-bit scan mask is updated as the measured overload varies. When LLC is active, LLC determines every 4 seconds if the scan mask should be updated. The type of updating depends on the originating traffic load in the office and the time elapsed since the last update. The line scan mask is updated to:

- Reduce the number of nonessential line groups served



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- Rotate the nonessential line groups served
- Increase the number of nonessential line groups served.

4.67 A printout of the line scan mask, which indicates the verticals currently being allowed and denied originating service, can be obtained at the maintenance or traffic TTYs by typing the input message LLC-MASK-PRINT. An LC02 output message containing a 16-bit representation of the verticals being allowed and/or denied originating service is printed. Ones in the LC02 printout represent verticals (line groups) which are allowed dial tone service. Zeros indicate line groups which are being denied dial tone service. An LC01 message containing the same information is automatically printed on the traffic TTYs when the first line groups are denied and again when all line groups are restored.

LLC Enable

4.68 No line groups are denied originating service unless LLC is enabled, either manually or automatically, and a measured overload is occurring. LLC mode selection and enablement is described in paragraphs 3.22 through 3.34. LLC is administered according to calculations based on the results of 3-second DTSTs and incoming matching loss (network blockage) measurements. DTSTs are performed every 4 seconds. Incoming matching loss is determined every 3 minutes by measuring the extent of network blockage affecting incoming calls.

Reducing Nonessential Line Groups Served

4.69 Three successive 3-second DTST failures cause LLC to remove originating (dial tone) service from 50 percent (rounded to the next 1/16) of the nonessential line groups currently able to receive dial tone. Similarly, if network blocking measurements indicate at least 10-percent blocking of incoming calls, LLC acts the same as for three 3-second DTST failures. Another three successive DTST failures or another 3-second period with greater than 10-percent blocking will result in a 50-percent (rounded to the next 1/16) decrease in the number of nonessential lines still served in an office. A total of four decreases will result in originating service being temporarily denied to all nonessential lines. Items 1 through 5 of Fig. 11 depict the quantity of nonessential line groups denied originating service based on DTST failures. Items 7 and 8 depict the reduction of nonessential line groups based on network blockage.

Note: Only one line group is classified as essential for the purpose of Fig. 11.

Increasing Nonessential Line Groups Served

4.70 When originating service is temporarily denied on the basis of network blockage, LLC will not restore any line group being denied originating service during the 3-minute interval; however, LLC may increase the number of line groups denied originating service based on DTST failures. If the network blockage is less than 10 percent after 3 minutes, the line group denied originating service for the longest time period has originating service restored following a successful DTST. For each successful DTST thereafter, LLC restores originating service to another nonessential line group.

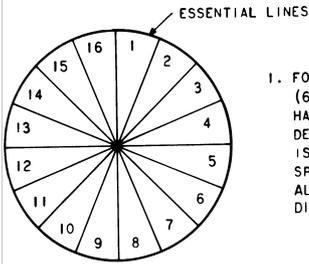
4.71 When originating service is temporarily denied on the basis of DTST failures, LLC restores originating service to the nonessential line group that has been denied the longest each time a DTST is successful.

4.72 In either case (DTST failure or network blockage), when a nonessential line group is restored to service, the first three DTSTs are not relevant if they fail. Thus, when a nonessential line group is restored, five consecutive DTST failures are possible without a further reduction in the nonessential line groups served. If the sixth DTST passes, originating service is restored to another nonessential line group. If the sixth DTST fails, 50 percent of the nonessential line groups in service will be denied service. Items 6 and 9 in Fig. 11 depict nonessential line groups being restored. Originating service is gradually restored in this manner until all nonessential line groups have originating service.

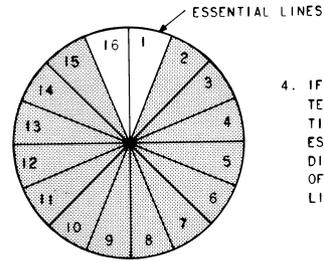
Rotating Nonessential Line Groups Served

4.73 Once per minute a check is made to determine if some, but not all, of the nonessential line groups are receiving originating service. If so, the two nonessential line groups that have had originating service for the longest period of time are denied originating service, and the two nonessential line groups that have been denied originating service for the longest period of time are given originating service. If only one line group is being denied, then that line group is either rotated or restored. Since line group rotation is accomplished once per minute and one line group may be restored for each successive

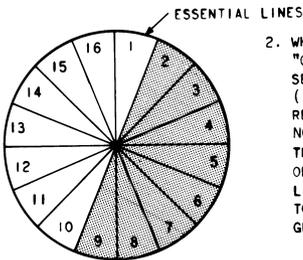
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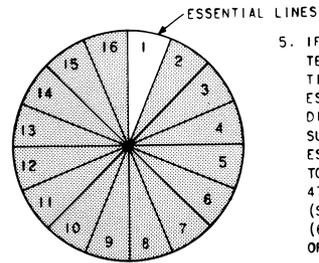
1. FOR EXAMPLE, AN OFFICE WITH 1/16 (6.25%) OF THE OFFICE LINES HAVING ESSENTIAL SERVICE IS DEPICTED AT LEFT. WHEN THE OFFICE IS OPERATING WITHOUT DIAL TONE SPEED DELAY OR NETWORK BLOCKAGE, ALL 16 LINE GROUPS CAN RECEIVE DIAL TONE.



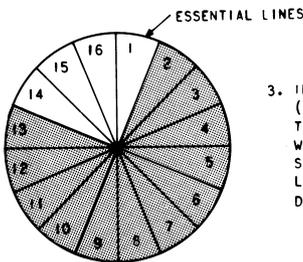
4. IF THE NEXT THREE SUCCESS TESTS FAIL, (12 SECONDS TIME) 50% OF THE REMAINING ESSENTIAL LINES WILL BE DENIED DIAL TONE. THE SHADED AREA OF THE OFFICE LINES) REPRESENTS LINE GROUPS DENIED DIAL T



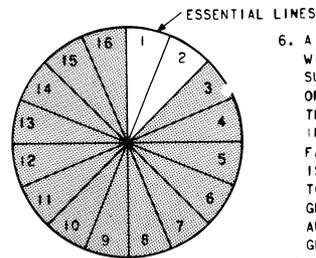
2. WHEN THE LLC FEATURE IS IN THE "ON" MODE, THREE SUCCESSIVE 3-SECOND DTS TEST FAILURES (11 SECONDS ELAPSED TIME) WILL REMOVE DIAL TONE FROM 50% OF THE NONESSENTIAL LINES ROUNDED UP TO THE NEXT 1/16 (6.25%) OF THE OFFICE. IN THIS EXAMPLE 8 LINE GROUPS ARE BEING DENIED DIAL TONE. SHADED AREA REPRESENTS LINE GROUPS DENIED DIAL TONE.



5. IF THE NEXT THREE SUCCESS TESTS FAIL, (12 SECONDS TIME) THE LAST GROUP OF ESSENTIAL LINES IS ALSO DENIED DIAL TONE. THUS, IN FOUR SUCCESSIVE DECREASES, ALL ESSENTIAL LINES ARE DENIED TONE IN A TOTAL ELAPSED 47 SECONDS. ONLY ESSENTIAL (SEE NONSHADED AREA) OR (6.25%) OF THE OFFICE IS OFFERED DIAL TONE.



3. IF THE NEXT THREE DTS TESTS FAIL, (12 SECONDS ELAPSED TIME) 50% OF THE REMAINING NONESSENTIAL LINES WILL BE DENIED DIAL TONE. THE SHADED AREA (75% OF THE OFFICE LINES) REPRESENTS LINE GROUPS DENIED DIAL TONE.

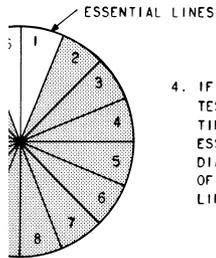


6. A GROUP OF NONESSENTIAL LINES WILL BE RESTORED WITH EACH SUCCESSFUL DTS TEST. WHEN A GROUP OF LINES IS RESTORED, THE NEXT THREE DTS TESTS ARE NON-REPEATED IF THEY FAIL. THUS, SIX SUCCESSIVE FAILURES, FOLLOWING A RESTORATION IS NECESSARY TO DENY DIAL TONE TO 50% OF THE NONESSENTIAL LINES IN SERVICE. THE UNSHADED AREA "2" DEPICTS THE FIRST GROUP RESTORED TO SERVICE FOLLOWING THE FIRST SUCCESSFUL DTS TEST.

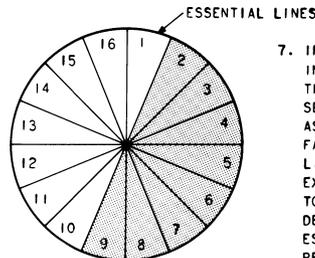
NOTE:
THE NUMBERS 1 THROUGH 16 REPRESENT THE LINE GROUPS ASSIGNED TO THE 16 VERTICALS IN AN OFFICE. THE LINE GROUP NUMBERS ASSIGNED DO NOT REPRESENT OR CORRESPOND TO THE PARTICULAR OFFICE VERTICALS. FOR THIS FIG., ONE LINE GROUP (1) IS CLASSED ESSENTIAL; THE REMAINING ARE NONESSENTIAL.

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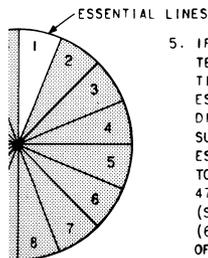
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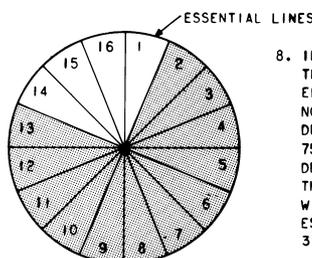
4. IF THE NEXT THREE SUCCESSIVE DTS TESTS FAIL, (12 SECONDS ELAPSED TIME) 50% OF THE REMAINING NON-ESSENTIAL LINES WILL BE DENIED DIAL TONE. THE SHADED AREA (87.5% OF THE OFFICE LINES) REPRESENT LINE GROUPS DENIED DIAL TONE.



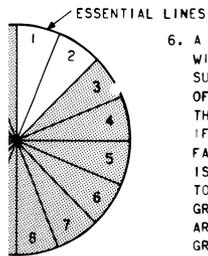
7. IF 10% NETWORK BLOCKAGE OCCURRED IN AN OFFICE WITH 1/16 (6.25%) OF THE OFFICE LINES HAVING ESSENTIAL SERVICE, THE RESULT IS THE SAME AS THREE SUCCESSIVE DTS TEST FAILURES. 50% OF THE NONESSENTIAL LINES, (8 LINE GROUPS IN THIS EXAMPLE) ARE BEING DENIED DIAL TONE SERVICE. WHEN DIAL TONE IS DENIED BASED ON BLOCKAGE, NON-ESSENTIAL LINE GROUPS WILL NOT BE RESTORED DURING THE 3-MINUTE INTERVAL.



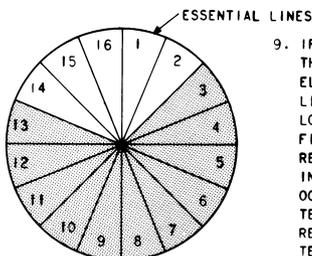
5. IF THE NEXT THREE SUCCESSIVE DTS TESTS FAIL, (12 SECONDS ELAPSED TIME) THE LAST GROUP OF NON-ESSENTIAL LINES IS ALSO DENIED DIAL TONE. THUS, IN FOUR SUCCESSIVE DECREASES, ALL NON-ESSENTIAL LINES ARE DENIED DIAL TONE IN A TOTAL ELAPSED TIME OF 47 SECONDS. ONLY ESSENTIAL LINES (SEE NONSHADED AREA) OR 1/16 (6.25%) OF THE OFFICE IS BEING OFFERED DIAL TONE.



8. IF THE NETWORK BLOCKAGE IS GREATER THAN 10% AFTER THREE MINUTES OF ELAPSED TIME, 50% OF THE REMAINING NONESSENTIAL GROUPS WILL BE DENIED DIAL TONE SERVICE. THUS, 75% OF THE OFFICE LINES ARE NOW DENIED DIAL TONE AS DEPICTED BY THE SHADED AREA. AGAIN, DIAL TONE WILL NOT BE RESTORED TO ANY NON-ESSENTIAL LINE GROUP DURING THE 3-MINUTE INTERVAL.



6. A GROUP OF NONESSENTIAL LINES WILL BE RESTORED WITH EACH SUCCESSFUL DTS TEST. WHEN A GROUP OF LINES IS RESTORED, THE NEXT THREE DTS TESTS ARE NONRELEVANT IF THEY FAIL. THUS, SIX CONSECUTIVE FAILURES, FOLLOWING A RESTORAL IS NECESSARY TO DENY DIAL TONE TO 50% OF THE NONESSENTIAL GROUPS IN SERVICE. THE UNSHADED AREA "2" DEPICTS THE FIRST LINE GROUP RESTORED TO SERVICE FOLLOWING THE FIRST SUCCESSFUL DTS TEST.



9. IF THE NETWORK BLOCKAGE IS LESS THAN 10% AFTER THREE MINUTES OF ELAPSED TIME, THE NONESSENTIAL LINE GROUP DENIED DIAL TONE THE LONGEST WILL BE RESTORED WHEN THE FIRST DTS TEST IS SUCCESSFUL. THE REMAINING GROUPS WILL BE RESTORED IN A LIKE MANNER WITH EACH OCCURRENCE OF A SUCCESSFUL DTS TEST. WHEN THE FIRST GROUP IS RESTORED A MAXIMUM OF FIVE DTS TESTS MAY FAIL, BUT THE SIXTH DTS TESTS IS USED TO DETERMINE WHETHER TO DENY OR RESTORE. THE UNSHADED AREA "2" DEPICTS THE FIRST LINE GROUP RESTORED.

Fig. 11—Line Load Control Results

DTST (accomplished every 4 seconds), the probability is that a single line group being denied service will be restored to service before the time occurs for rotation. Rotating the nonessential line groups served is accomplished by updating the line scan mask.

4.74 When line groups are rotated, the number of DTSTs not relevant is six. On this basis, nine successive DTST failures would have to occur before additional nonessential line groups would be denied originating service immediately following rotation of line groups. Rotation actions always apply when at least two nonessential line groups are being served and at least two nonessential line groups are being denied. If this is not the case, certain actions are modified as mentioned in paragraph 4.73 for one line group being denied. If all nonessential line groups are either served or denied, it is not necessary to rotate any nonessential line group.

4.75 Some of the conditions and actions resulting from possible combinations of network blockage measurements and DTST results are summarized in Table H. In Table H, the number of nonessential lines denied and restored columns indicate the update actions required for the 16-bit scan mask word.

Note: The numbers in these two columns *do not* indicate the absolute number of nonessential lines being served or denied at any given time.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 Office Overload Controls are provided on a per office basis.

6. LIMITATIONS

OPERATIONAL

6.01 Not applicable.

ASSIGNMENT

6.02 For Line Load Control, a maximum of 1/4 of the line groups may be classed as essential. Refer to paragraph 4.05.

7. INTERACTIONS

STATIC

7.01 Not applicable.

DYNAMIC

7.02 Office Overload Controls attempt to preclude and alleviate system hardware, software, and real-time overloads. There can exist, under certain conditions, a limited interaction between Automatic Overload Controls and Line Load Control, since dial tone delays are one of the criteria for Line Load Control. When Line Load Control is enabled, Line Load Control actively denies and restores originating service to nonessential line groups based on dial tone speed tests and incoming matching loss measurements. Dial tone delays may be experienced due to either Automatic Overload Controls or heavy traffic. Dial tone delays may be caused by a delay in hopper unloading or a delay in processing. Sources of dial tone delays are listed in Table I. Line Load Control may be activated if Automatic Overload Controls delay either hopper unloading or entry processing.

7.03 If dial tone speed tests are inhibited (using input message DT-INH), Line Load Control is inhibited. If Line Load Control is on, the *LLC ENAB* lamp is extinguished. Also, a major alarm is sounded and a TOC01 output message is printed. If Line Load Control is actively denying service, all nonessential line groups being denied are restored to service. If Line Load Control is off when the input message is entered, a TOC02 output message is printed.

7.04 The Automatic Overload Controls interact with the Network Management Dynamic Overload Controls. For a detailed description of Network Management, refer to item A(1) in Part 18. The Dynamic Overload Controls (DOC) monitor the length of various queues that are administered by the automatic overload control program. When the length of these queues exceeds established thresholds, machine congestion (MC) signals are sent to subtending offices. The MC signals cause the subtending offices to route traffic away from the office experiencing congestion. The system criterion is to send an MC1 signal when the receiver attachment delay exceeds 1.2 seconds and to send an MC2 signal when the receiver attachment delay exceeds 2.4 seconds. The overload state in conjunction with the

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length of the incoming overload control and receiver queues is used to predict the receiver attachment delay. The queue entry thresholds for DOC signals generated by Network Management are given in Tables J, K, and L.

8. RESTRICTION CAPABILITY

8.01 Input message LLC-INH is used to inhibit Line Load Control. Refer to paragraph 3.15. Also, if dial tone speed tests are inhibited (using input message DT-INH), Line Load Control is inhibited. Refer to paragraph 7.03.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 Installation/addition/deletion procedures are not applicable to Office Overload Controls.

9.02 Set cards EVL and LLCS are required for Line Load Control. Refer to paragraphs 4.05 and 4.06.

10. HARDWARE REQUIREMENTS

10.01 Not applicable.

11. SOFTWARE REQUIREMENTS

Note: This part contains cost factors and determination of quantities. Central Office Equipment Engineering System (COEES) Planning and Mechanized Ordering Modules are the recommended procedures for developing these requirements. However, for planning purposes or if COEES is not available, the following guidelines may be used.

MEMORY

A. Fixed

11.01 The following memory is required for Office Overload Controls:

- (a) The **base generic program (program store)** requires approximately 110 words.
- (b) **Fixed parameters (program store)** require one word for the maximum value of A6MAX5.
- (c) One **compool defined word (call store)** is required for the variable value of A6MAX5.

B. Conditional

11.02 The following memory is required in an office:

- (a) One **program store** word is required for parameter L4ESSL (built via set card EVL) to specify the essential verticals.
- (b) One **program store** word is required for parameter L4LLCS (built via set card LLCS) to specify the state of Line Load Control after a system reinitialization.

Note: For parameter and set card engineering, refer to items C(1) and C(2) in Part 18.

C. Variable

11.03 Not applicable.

REAL TIME IMPACT

11.04 Table M contains the approximate real-time overhead cycle cost estimates applicable to Automatic Overload Control. Three additional cycles are added to every trunk seizure processed by the system. Every entry which is not processed immediately, but which must go through the queue, will consume approximately 75 additional cycles. Additional time is also required on each class C and D visit to determine the number of entries to be unloaded and to decide whether to process entries in the incoming overload queue before the trunk seizure and answer hopper or the hopper before the queue.

11.05 Line Load Control real-time overhead cycle costs are approximately:

- (a) LLC ON or AUTOMATIC mode (enabled)—75 cycles every 4 seconds
- (b) LLC active—250 cycles every 4 seconds.

11.06 The cycle times for the No. 1 ESS are as follows: 5.5 microseconds (0-percent speedup), 5.24 microseconds (5-percent speedup), or 5.0 microseconds (10-percent speedup). Clock speedup is available with 1E7 and base restarts of the 1E6 generic programs.

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TABLE H
LINE LOAD CONTROL ACTIONS

TIME FOR NETWORK OVERLOAD CALCULATION	TIME FOR ROTATION	(NOTE 1) NETWORK OVERLOADED	(NOTE 2) RESULT OF DTST	DTST FAILURE RESULTED IN CONTROL OVERLOAD (NOTE 3)	NUMBER OF NONESSENTIAL LINES DENIED AND/OR ROTATED N=NUMBER SERVED	NUMBER OF NONESSENTIAL LINES RESTORED OR ROTATED (NOTE 4)	CORRECTION NONRELEVANT DTST COUNT (NOTE 5)
ONCE/3 MIN	ONCE/MIN		ONCE/4 SEC				
Yes	Necessarily Yes	Yes	†	†	$N/2^* + 2$	2	+6
Yes	Necessarily Yes	No	Failure	Yes	$N/2^* + 2$	2	+6
Yes	Necessarily Yes	No	Failure	No	2	2	+6
Yes	Necessarily Yes	No	Success	Can't Occur	1	2	Zero, Then
No	Yes	†	Failure	Yes	$N/2^*+2$	2	+6
No	Yes	†	Failure	No	2	2	+6
No	Yes	Yes	Success	Can't Occur	2	2	+6
No	Yes	No	Success	Can't Occur	1	2	Zero, Then
No	No	†	Failure	Yes	$N/2^*$	0	None
No	No	†	Failure	No	0	0	None
No	No	Yes	Success	Can't Occur	0	0	None
No	No	No	Success	Can't Occur	0	1	Zero, Then

* Fractional results are rounded up to next integer.

† Answer can be yes or no without affecting resulting actions due to other conditions.

Notes:

1. Network Overload: Every 3 minutes (the average holding time of a call) a calculation is made to see if 10 percent or more of the incoming calls to an office experienced network blocking on the talking path during the last 3-minute period. If they have, the office is considered to have a network overload for the purpose of LLC during the next 3-minute period.
2. If dial tone delay exceeds 3 seconds during a dial tone speed test (DTST), the DTST is a failure. An indicator, which tells whether or not the last DTST succeeded, is updated every 4 seconds. This indicator is examined by line load control (LLC) every 4 seconds.
3. If three consecutive relevant DTST failures occur, LLC decreases the number of nonessential line groups served by one-half. Four such reductions result in temporary denial of originating service for all nonessential line groups.
4. Each successful relevant DTST causes originating service to be restored to the (one) nonessential line group which has been denied for the longest period of time. If the network is overloaded, no line group is restored. Every minute, the two nonessential line groups denied the longest are rotated with the two served the longest.
5. Nonrelevant DTST: While a line group is denied originating service, a backlog of originations may build up in the group. Restoration of the group can produce a surge of originations causing dial tone delay. This surge does not represent the steady state load of the office, so the first three DTSTs following restoration of a group are considered nonrelevant for LLC purposes. (The nonrelevant DTST count is kept in L4NRDT. If nonzero, the count is decremented by one following each DTST.)

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TABLE I
SOURCES OF DIAL TONE DELAY

CAUSE	RESULT
Trunk Seizure and Answer Hopper Overload Real-Time Overload CC Overload	Failure to Scan (Note)
Limited Unloading Rate CC Overload Emergency Action Phase	Hopper Unloading Delay
Queueing for a Receiver Queueing for a Network Path Queueing for a POB Queue Overflow	Entry Processing Delay

Note: In generic programs prior to 1E6 without the Improved Overload Strategy, line scanning was stopped during a major overload. In 1E6 and later generic programs (with the Improved Overload Strategy), line scanning is not stopped.

12. DATA ASSIGNMENTS AND RECORDS

TRANSLATION FORMS

12.01 Not applicable.

RECENT CHANGES

12.02 Not applicable.

13. TESTING

13.01 Not applicable.

14. OTHER PLANNING TOPICS

14.01 A value of one is recommended for set card EVL to specify one line group as essential for Line Load Control. A value of zero is recommended for set card LLCS to cause Line Load Control to be placed in the off state after system reinitialization.

14.02 To provide uniform service to all lines, Line Load Control should be inhibited (off) during

periods of normal operation. Preferential treatment should be restricted to disaster or emergency situations. During periods when there are no plant maintenance or traffic coverage, the automatic mode is appropriate.

ADMINISTRATION

15. MEASUREMENTS

15.01 Traffic measurements related to the Office Overload Controls feature are listed in Table N. The TC15 output message contains the current data for these measurements. The TC15 output message is printed every quarter-hour when an overload condition exists or when requested by the input message LS-QUARTER. For detailed descriptions of the traffic measurements listed in Table N, refer to items A(11) and C(3) in Part 18.

16. CHARGING

AUTOMATIC MESSAGE ACCOUNTING

16.01 Not applicable.

Office Overload Controls Feature / #1 ESS – Part 2

SECTION 231-190-190

TABLE J
INCOMING OVERLOAD QUEUE

OVERLOAD	DOC SIGNAL	THRESHOLD
No overload	MC1	33
No overload	MC2	66
Minor overload	MC1	19
Minor overload	MC2	38
Major overload	MC1	9
Major overload	MC2	18

TABLE K
MF RECEIVER QUEUE

DOC SIGNAL	THRESHOLD
MC1	Q length >40% of number of MF receivers
MC2	Q length >80% of number of MF receivers

TABLE L
DIAL PULSE AND REVERTIVE PULSE RECEIVER QUEUE

DOC SIGNAL	THRESHOLD
MC1	Q length >24% of number of DP/RP receivers
MC2	Q length >48% of number of DP/RP receivers

UNIFORM SERVICE ORDER CODES

16.02 Not applicable.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

Automatic Overload Control—This term refers to the Overload Protection and Control features designed, engineered, and automatically incorporated in system operations. Automatic overload controls for hardware, software, and real-time resources are inherent in system operations.

Base Level—The term “base level” refers to the operational level in which the central control accomplishes the majority of its work. Call processing is done in interrupt level L, known as base level.

Buffer—The term “buffer” refers to an area in memory used to temporarily store orders (output data) until they are executed.

Hopper—The term “hopper” refers to an area in memory used to temporarily store request entries (input data) until the entry can be processed.

Interject—A class of work, higher than any of the priority classes within base level.

Overload—An overload is a condition that occurs when there is an excessive demand for system resources available. Hardware, software, and real time are system resources.

Queue—A queue is an area in memory used to record a waiting list of work which temporarily cannot be completed or to record a list of entries which cannot be loaded into a hopper because the hopper is full.

18. REFERENCES

A. Bell System Practices

- (1) Section 231-090-305—Network Management Feature—2-Wire No. 1 and No. 1A Electronic Switching Systems
- (2) Section 231-045-100—Operational Software Control Structure—Software Subsystem Description—2-Wire No. 1 and No. 1A Electronic Switching Systems
- (3) Section 231-045-155—Queue and General Purpose Software Subsystem Description—2-Wire No. 1 and No. 1A Electronic Switching Systems
- (4) Section 231-045-165—Measurement Software Subsystem Description—2-Wire No. 1 and No. 1A Electronic Switching Systems
- (5) Section 231-045-200—Maintenance Control Software Subsystem Description—2-Wire No. 1 and No. 1A Electronic Switching Systems
- (6) Section 231-045-245—System Performance Software Subsystem Description—2-Wire No. 1 and No. 1A Electronic Switching Systems

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ISS 2, SECTION 231-190-190

TABLE M

**AUTOMATIC OVERLOAD CONTROL AND
INCOMING OVERLOAD CONTROL REAL-TIME CYCLE COSTS**

DESCRIPTION	CYCLES REQUIRED
Every trunk seizure: cycles required to determine if seizure must be placed on the queue.	3
Every trunk seizure placed on the queue: cycles required to administer traffic count and place the call on the queue.	30
Every class C: cycles required to calculate number of incoming trunk seizures to be unloaded this visit	4
Every class C: cycles required to determine if hopper or queue is to be unloaded first.	6
Every trunk seizure taken off the queue: cycles required to remove the call from the queue.	30
Every trunk seizure taken off the queue: cycles required to perform a directed scan to determine if trunk timed out or abandoned while on queue.	15

(7) Section 231-070-710—Dial Tone Speed Delay Network Administration—No. 1/1A Electronic Switching Systems

(8) Section 231-070-715—Matching Loss Network Administration—No. 1/1A Electronic Switching Systems

(9) Section 231-070-760—Office Overload Procedures Network Administration—No. 1/1A Electronic Switching Systems

(10) Section 231-070-805—Line Load Control Network Administration—No. 1/1A Electronic Switching Systems

(11) Section 231-070-510—Traffic Measurements—Quarter Hour Network

Administration—No. 1/1A Electronic Switching Systems

(12) Section 759-100-000—Subject Index—Central Office Equipment Engineering System (COEES)—Business Information System Programs

(13) Section 759-100-100—General Description—Central Office Equipment Engineering System (COEES)—Business Information System Programs.

B. TTY Input and Output Manuals

(1) Input Message Manual IM-1A001, No. 1 Electronic Switching System

(2) Output Message Manual OM-1A001, No. 1 Electronic Switching System.

Office Overload Controls Feature / #1 ESS – Part 2

SECTION 231-190-190

TABLE N
TRAFFIC MEASUREMENTS

ITEM MEASURED	TYPE	CODE	EQUIP GROUP OR OFFICE COUNT NO.
Originating Calls	PC	005	014
Incoming Calls	PC	005	015
Incoming Matching Loss	PC	005	016
DP Dial Tone Speed Tests	PC	005	017
TT Dial Tone Speed Tests	PC	005	018
DP Dial Tone Delays	PC	005	019
TT Dial Tone Delays	PC	005	020
Intraoffice Calls	PC	005	031
Intraoffice Calls	OVFL	005	032
Blocked Dial Tone Queue	PC	005	078
Blocked Dial Tone Delay	PC	005	087
Main Program Cycles ("E to E")	PC	005	126
Line Scan Completion	PC	005	127
Tandem Call Attempts	PC	005	131
Tandem Call Attempts	OVFL	005	132
Incoming Overload Control Queue	PC	005	148
Incoming Overload Control Queue	USAGE	005	150
Tandem First Failure to Match	PC	005	202
Incoming First Failure to Match	PC	005	205
MF Receiver Attachment Delay Recorder Test	PC	005	217
MF Receiver Attachment Delay Recorder Delays	PC	005	220
DP Receiver Attachment Delay Recorder Tests	PC	005	223
DP Receiver Attachment Delay Recorder Delays	PC	005	226
RP Receiver Attachment Delay Recorder Tests	PC	005	229
RP Receiver Attachment Delay Recorder Delays	PC	005	232
Preprogram Controls Affected Calls	PC	005	233
Flexible Controls Affected Calls	PC	005	234
Code Block Affected Calls	PC	005	236
Peripheral Order Buffer Queue	PC	005	376

Office Overload Controls Feature / #1 ESS – Part 2

ISS 2, SECTION 231-190-190

C. Other Documentation

(1) Parameter Guide PG-1—2-Wire No. 1 Electronic Switching System

(2) Office Parameter Specification PA-591001, No. 1A Electronic Switching System

(3) Translation Guide TG-1A.

Page 47
47 Pages

Simple UFO Detector

Overview

Ever wanted a device which you could point at an unknown light in the sky and have it tell you if it's an UFO?

Well, now you can build one! Kinda...

By adding a simple phototransistor to one of the eyepieces on an old pair of binoculars, and coupling the phototransistor's output into the "Simple Optical Receiver Project #1" from *GBPPR 'Zine*, Issue #87, you'll have a device which can be used to monitor any modulation(s) of the target light in the sky.

What makes this an "UFO detector" is the fact that some large commercial and military airplanes have lights (landing, navigation, etc.) which are modulated at 400 Hz.

In order to reduce weight (and increase efficiency) of an airplane's electrical system, they tend to use a 400 Hz modulated 120 VAC buss, as opposed to the standard 50/60 Hz 120 VAC you see from your wall outlet. The higher the frequency of the AC signal, the physically smaller the transformer needed to step-up or step-down the AC voltage. This equals a significant reduction in unnecessary weight for the airplane.

That was a pretty quick overview, and you can Google for hundreds of more articles on airplane electrical systems, but all you really need to know is that *SOME* of the lights on an airplane sound like a 400 Hz tone when you "listen" to them via a phototransistor-based optical receiver. Not all planes use a 400 Hz AC electrical system, with smaller airplanes being run from +12 or +24 VDC batteries. Since those smaller planes tend to have propellers, you should be able to use your ears to weed them out from UFOs. In some cases, it's possible to "hear" the vibration in the lights caused by the propeller.

Mirages and "floating" lights from atmospheric conditions or temperature inversions will tend to have a 50/60 Hz (or 100/120 Hz) modulation as the illumination source is often just regular lights on the ground.

Some filament-based car headlights will have a "brrrr..." modulation as the road vibrations modulate the headlights.

Military illumination and counter-IR flares may have a "crackling" modulation, but I don't have a way to test this right now.



Pictures & Construction Notes



Overview of the parts for the UFO detector.

Above is an old pair of Bushnell 7x35 binoculars and a 1-inch PVC cap.

The binoculars should have rubber eyepiece cups which can be unscrewed, as shown on the left.



Paint the inside of 1-inch PVC cap with some non-reflective paint.

Mask off the rim of the PVC cap so you have a clear area to glue the rubber eyepiece cup inside the cap.

You'll also want to drill a hole (either 3/8" or 1/2") for mounting a BNC jack in the center of the flat side of the PVC cap.

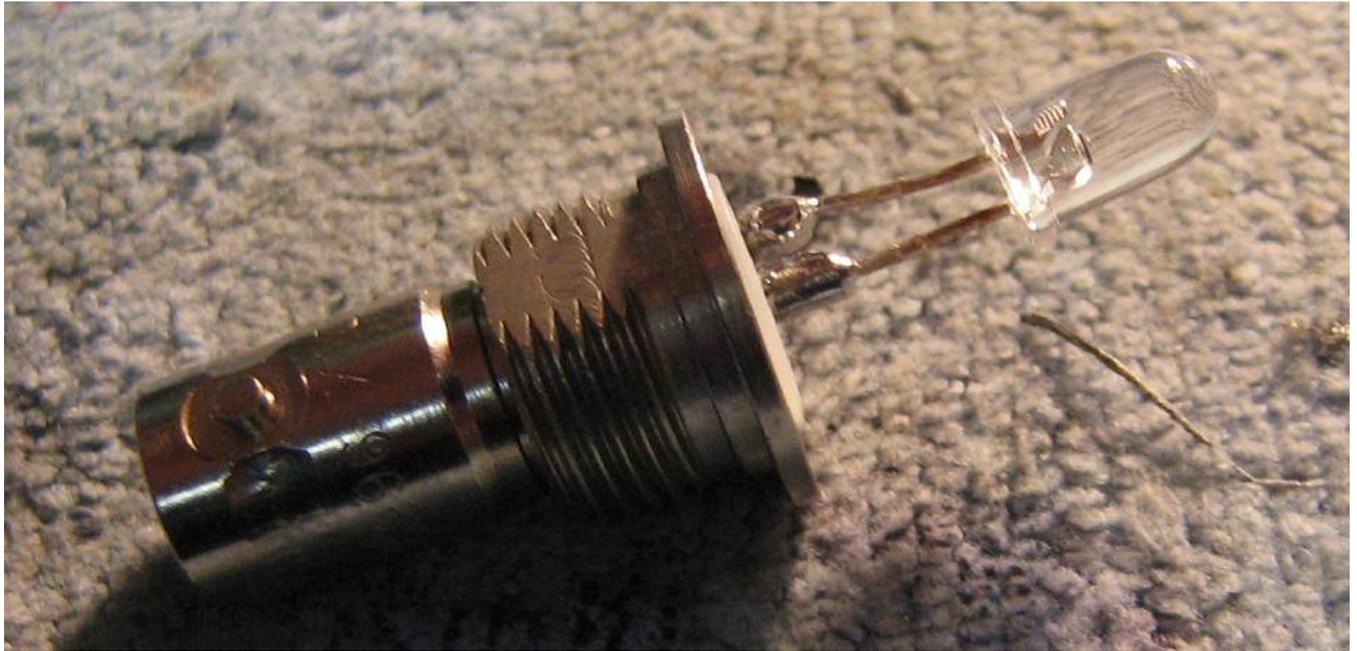


Glue the rubber eyepiece cup just inside the 1-inch PVC cap.

Be sure the eyepiece cup is flush with the top of the PVC cap.

Also be sure not to get any glue on the eyepiece cup's threads.

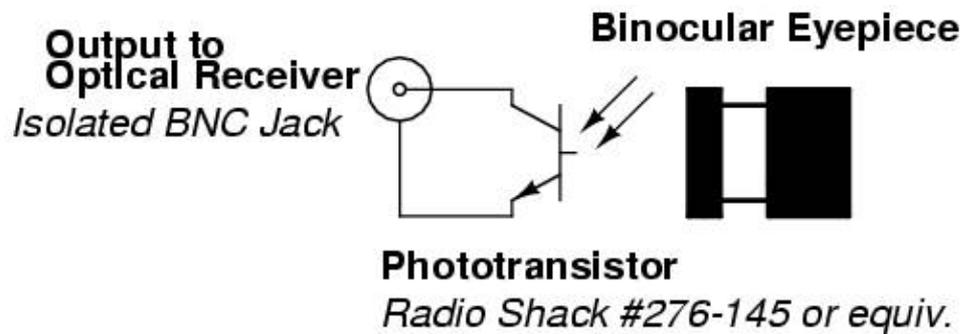
If you're lucky, you'll have a perfect fit. If the PVC cap is too large, you'll have to wrap a few layers of electrical tape around the eyepiece cup.



On the front of the PVC cap, an isolated BNC jack will be mounted.

The collector (flat-side) and emitter of the phototransistor (Radio Shack #276-145) will be attached to the isolated BNC jack. You'll need to guesstimate the phototransistor's final lead lengths.

An isolated BNC jack will allow for more options in configuring the phototransistor for the post-processing electronics, and is highly recommended.





Mounting the phototransistor inside the 1–inch PVC cap.

The phototransistor should be mounted just a few millimeters away from the glass of the eyepiece. You may want to fiddle and experiment with the final mounting distance.

Adjust the threading distance on the eyepiece to give you a bit of a "fine tune."



Completed UFO detector.

Screw the new eyepiece onto the binoculars and connect the output from the phototransistor to the optical receiver.

Test the unit by viewing a distant terrestrial light source you know is modulated at 60 Hz. While viewing the light source in the "normal" eyepiece of the binoculars, you should also "hear" the 60 Hz modulation of the light in the audio output from the optical receiver.

It's also possible to analyze the target light source via computer audio spectrum analysis software. This is a good way to create a catalog of known objects which you can quickly reference.

Another trick is to add a small piece of diffraction grating and a small color digital camera over the binocular eyepiece. This acts as a "poor man's spectroscope" and allows you to study the different wavelengths which make up the target light you are monitoring.

Sodium-vapor lamps, like those found in most streetlights, will have a strong color spectrum in the yellow-orange-red bands along with a distinct turquoise band. Neon lights tend to have a single color or several bands of distinct colors. Mercury-vapor lamps tend to have several bands in the blue-violet spectrum.

High-Current 24 VDC Power Supply

Overview

This is simple +24 VDC power supply project capable of supplying around 20 amps. It's based around two Cosel UAW250S-24 +24 VDC switching power supply modules operated in parallel. Each individual power supply module is capable of sourcing around 11 amps at +24 VDC, and two of them in parallel will give an easy 20 amps. A maximum of five units can be connected in parallel.

The Cosel UAW250S-24 switching power supplies themselves are very well constructed and can sometimes be found for fairly low cost on eBay. The modules contain voltage and current balance connection points for maintaining the proper voltage and current balancing when operating in parallel. The modules are also capable of "remote sensing." This allows the power supply to increase its output voltage to compensate for the resistive losses when using long DC power wires on a high current load. This makes the power supply ideal for powering high-current +24 VDC RF power amplifiers.

The power modules do require attention to detail when operating in parallel. If there isn't adequate airflow, fans should be added to blow cool air over the modules. There should also be a single-point common ground on the output. The 24 volt ground should also be isolated from the Earth/frame ground. These steps will help minimize interference from ground loops.

Each Cosel UAW250S-24 module will draw 6 amps on their AC input when run at full load. This means the AC mains should be able to handle at least 15 amps continuous. Each power supply module also has its own 10 amp fuse, EMI filter, output over-current limit, and thermal shut-down protection so there is no need to add these features externally.

When operating the Cosel UAW250S-24 modules in parallel, one unit will be designated the "master" unit while the other unit(s) will be the "slaves." The final output voltage should be tweaked *ONLY* on the master unit. The slave unit should have its voltage adjust potentiometer rotated all the way clockwise (when the terminal block is facing you).

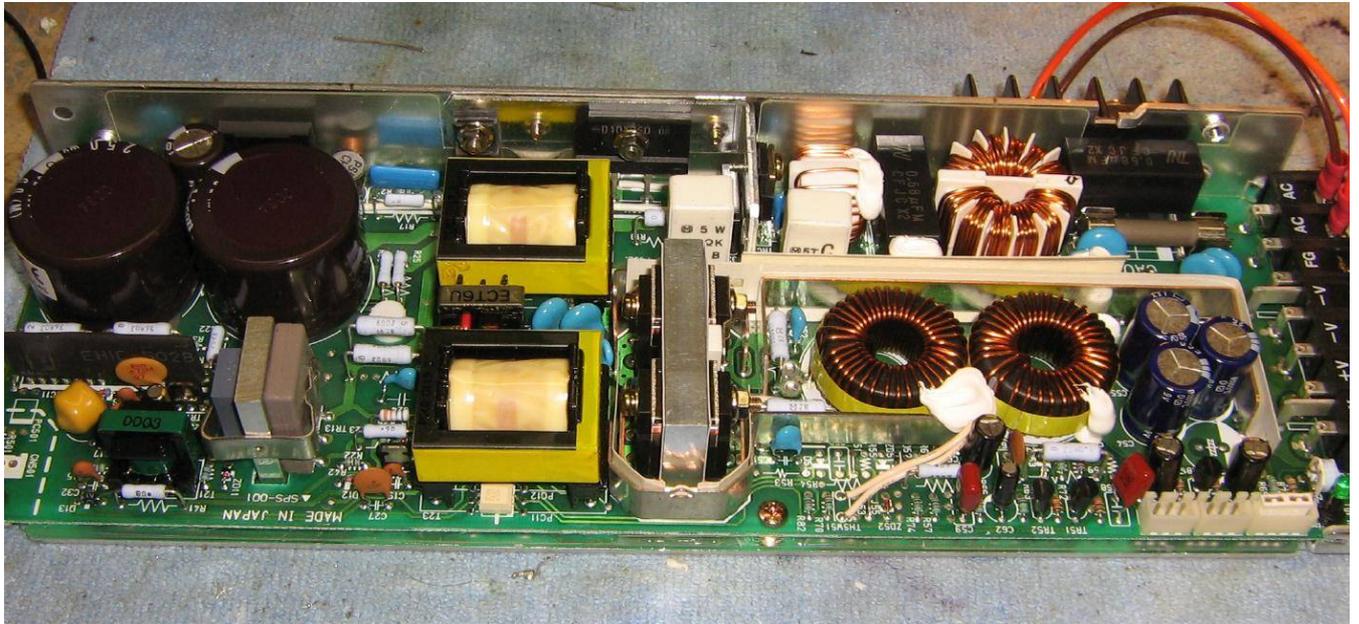
When using remote sensing in a parallel operation, the sensing wires should *ONLY* be connected to the master unit. The "Monitor +" & "Remote Sense +" and "Monitor -" & "Remote Sense -" terminals on the slave unit(s) should be shorted.

The power supply modules have AC mains in-rush current protection, but avoid rapidly turning the units on and off.

Output over-current protection is built into the power supply modules. It will come into effect when the output current draw of the module reaches 105% of its rated current. The power supply module will automatically recover when the over-current fault condition is corrected.

Output over-voltage protection is also built into the power supply modules. It will come into effect when the output voltage of the module reaches 115-140% of its rated voltage. The power supply module should be shut down for a minimum of five minutes after an over-voltage fault condition occurs.

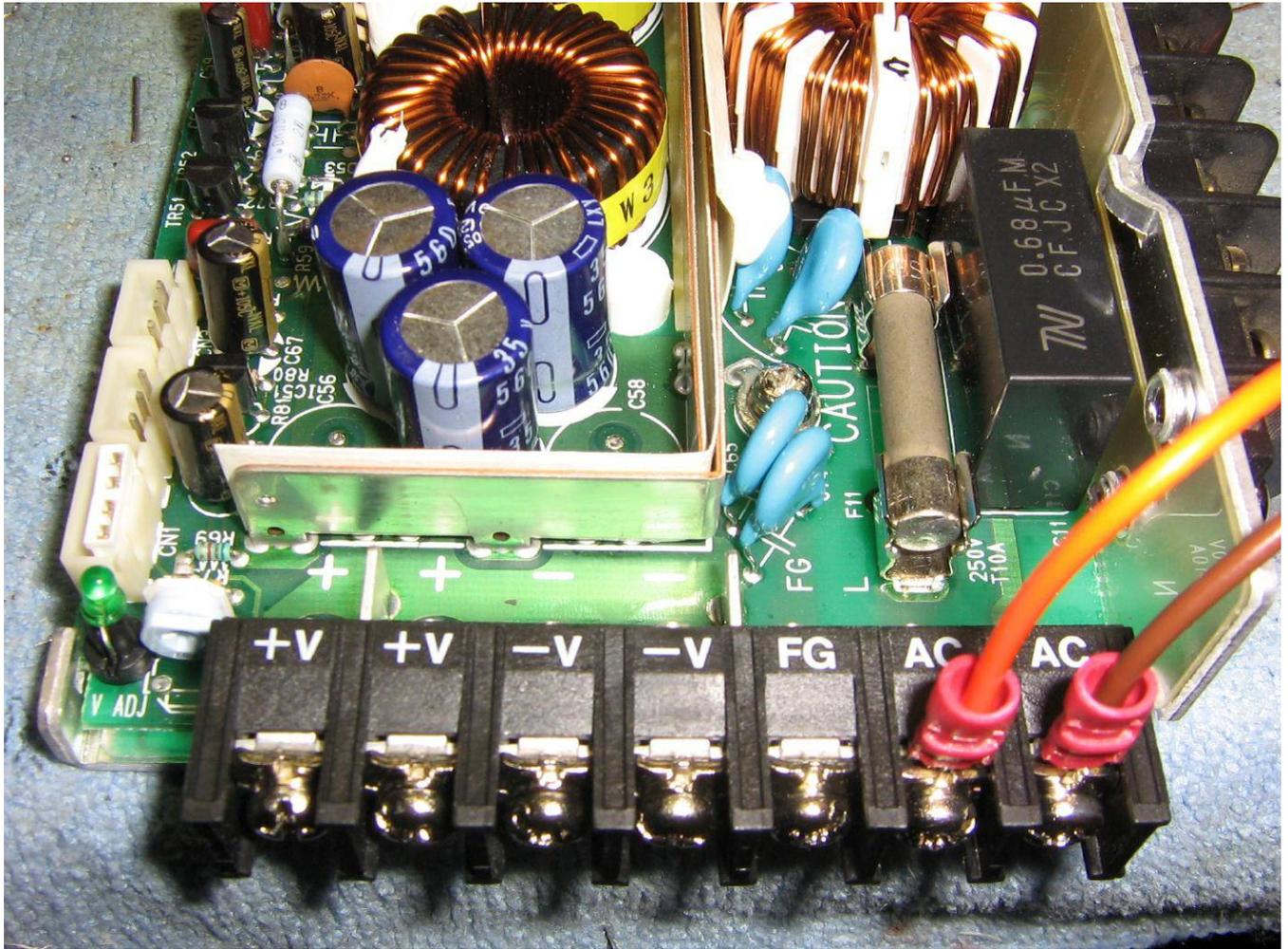
Pictures & Construction Notes



Overview of one of the Cosel UAW250S-24 switching power supplies.

The open-frame modules are designed to be attached to a metal surface for further heatsinking.

Additional forced-air cooling should be used if the power supply modules will be run at full load for an extended period of time.



Overview of the edge-mounted input/output voltage terminal connections.

120 VAC mains input is on the right.

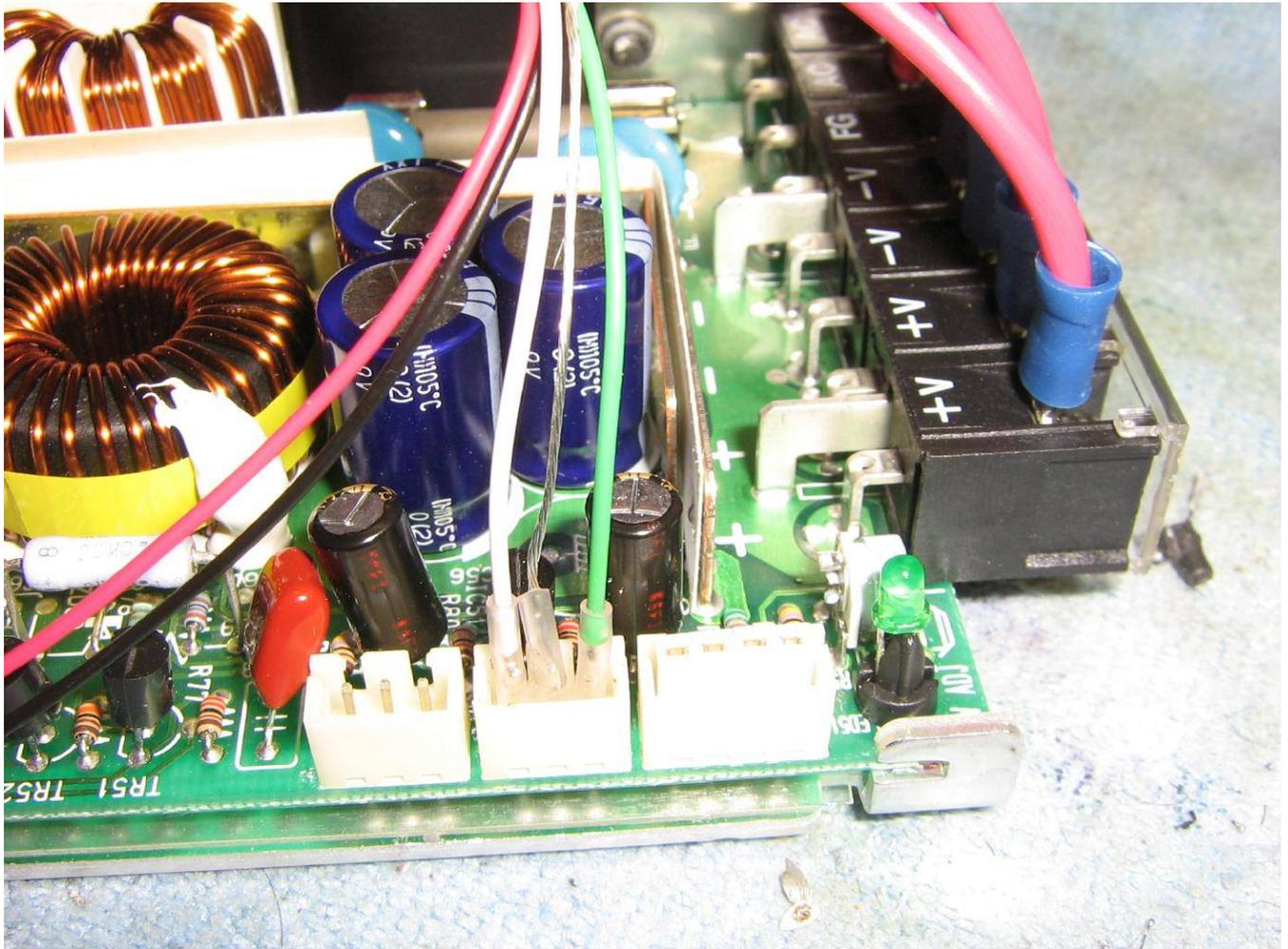
+24 VDC outputs are on the left.

The pinout for the connections are (from left-to-right):

<u>Terminal Number</u>	<u>Label</u>	<u>Description</u>	
1	V+	Output +	(1 & 2 are connected together)
2	V+	Output +	
3	V-	Output -	(3 & 4 are connected together)
4	V-	Output -	
5	FG	Frame Ground	(Earth ground from AC mains)
6	AC	AC Mains Input - Live	(Black wire - usually)
7	AC	AC Mains Input - Neutral	(White wire - usually)

The output voltage adjust potentiometer (light blue) is to the left of the terminal block. Output voltage is increased by turning the potentiometer clockwise and is decreased by turning the potentiometer counterclockwise.

The green LED lights when the unit is powered.



Remote sensing and voltage/current balance connections on the slave unit.

I didn't have the proper matching connector for these terminals so I just soldered the wires to the exposed pins.

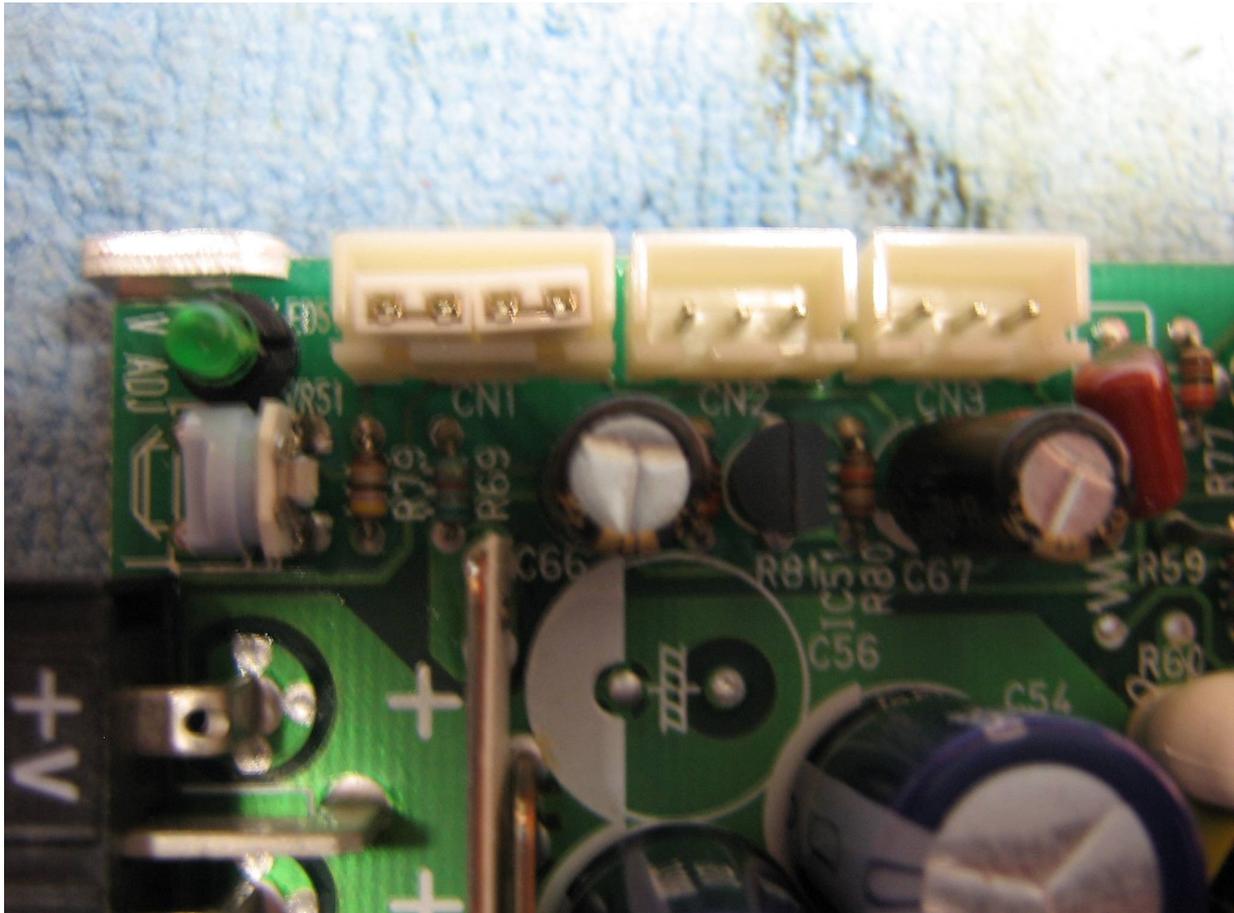
The "Monitor +" & "Remote Sensing +" (pins 8 & 9) terminals are shorted together, so are the "Monitor -" & "Remote Sensing -" (pins 10 & 11) terminals.

The GREEN wire goes to the Voltage Balance connection on the master unit.

The WHITE wire goes to the Current Balance connection on the master unit.

The BARE wire goes to the common Voltage Balance/Current Balance Ground on the master unit.

These connections are mandatory when operating the units in parallel to maintain proper voltage and current balancing between the master and slave unit(s).



Overview of the CN1 (left), CN2 (center), and CN3 (right) terminals.

The pinout for the CN1 connections are (from left-to-right):

<u>Terminal Number</u>	<u>Description</u>	
8	Monitor +	Short 8 & 9 together on slave unit.
9	Remote Sensing +	
10	Remote Sensing -	Short 10 & 11 together on slave unit.
11	Monitor -	

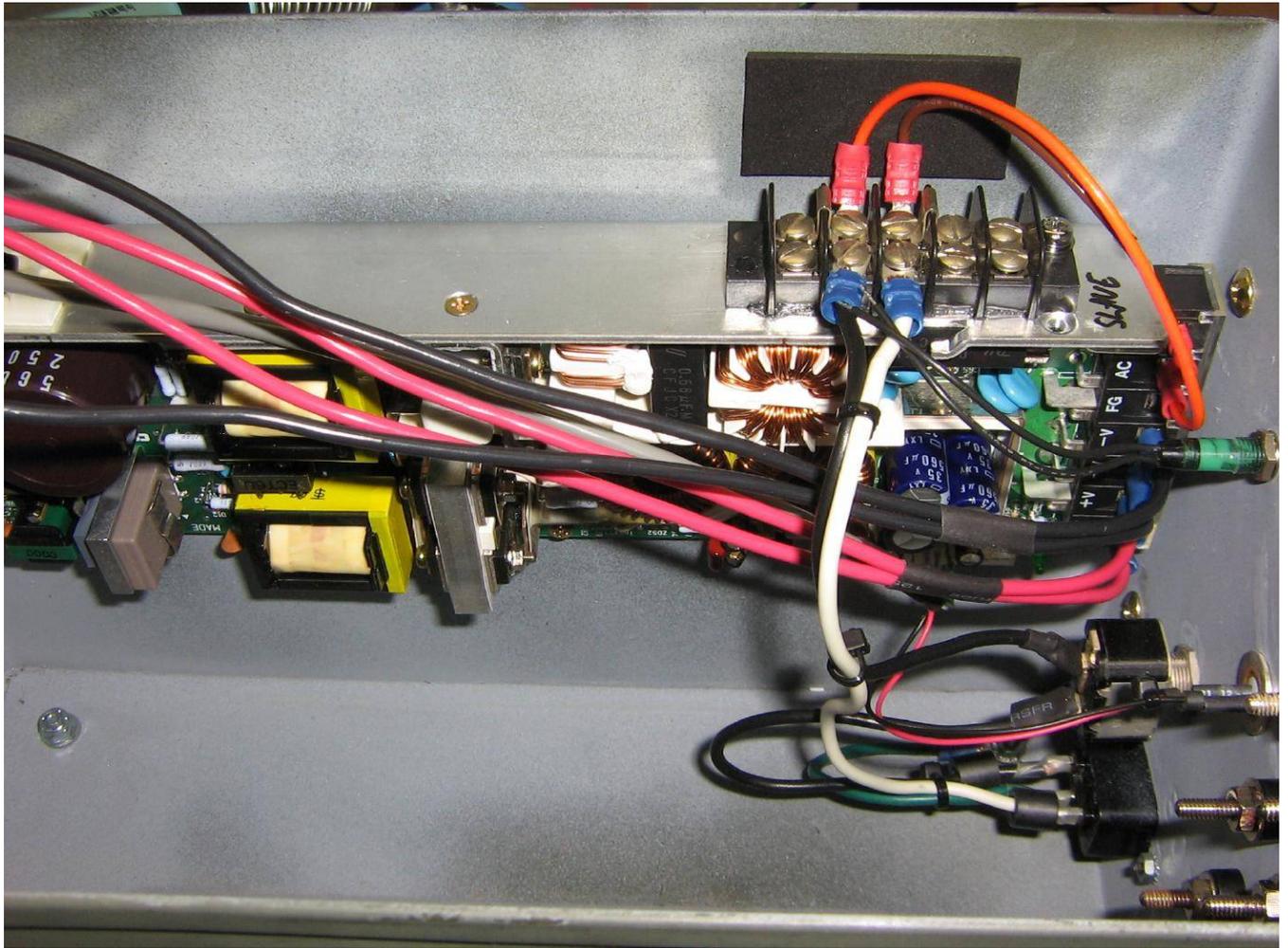
The pinout for the CN2 connections are (from left-to-right):

<u>Terminal Number</u>	<u>Description</u>
12	Voltage Balance (VB)
13	Voltage Balance/Current Balance Ground
14	Current Balance (CB)

The pinout for the CN3 connections are (from left-to-right):

<u>Terminal Number</u>	<u>Description</u>
15	Voltage Balance (VB)
16	Voltage Balance/Current Balance Ground
17	Current Balance (CB)

The CN2 and CN3 terminals are the same.



Mounting the slave unit in an old ammo case.

A small little terminal block was attached to the unit for a common point to attach the incoming 120 VAC mains.

Ferrite beads were added over the incoming AC mains wires.

The power supply modules have several threaded M4 screw attachment points.

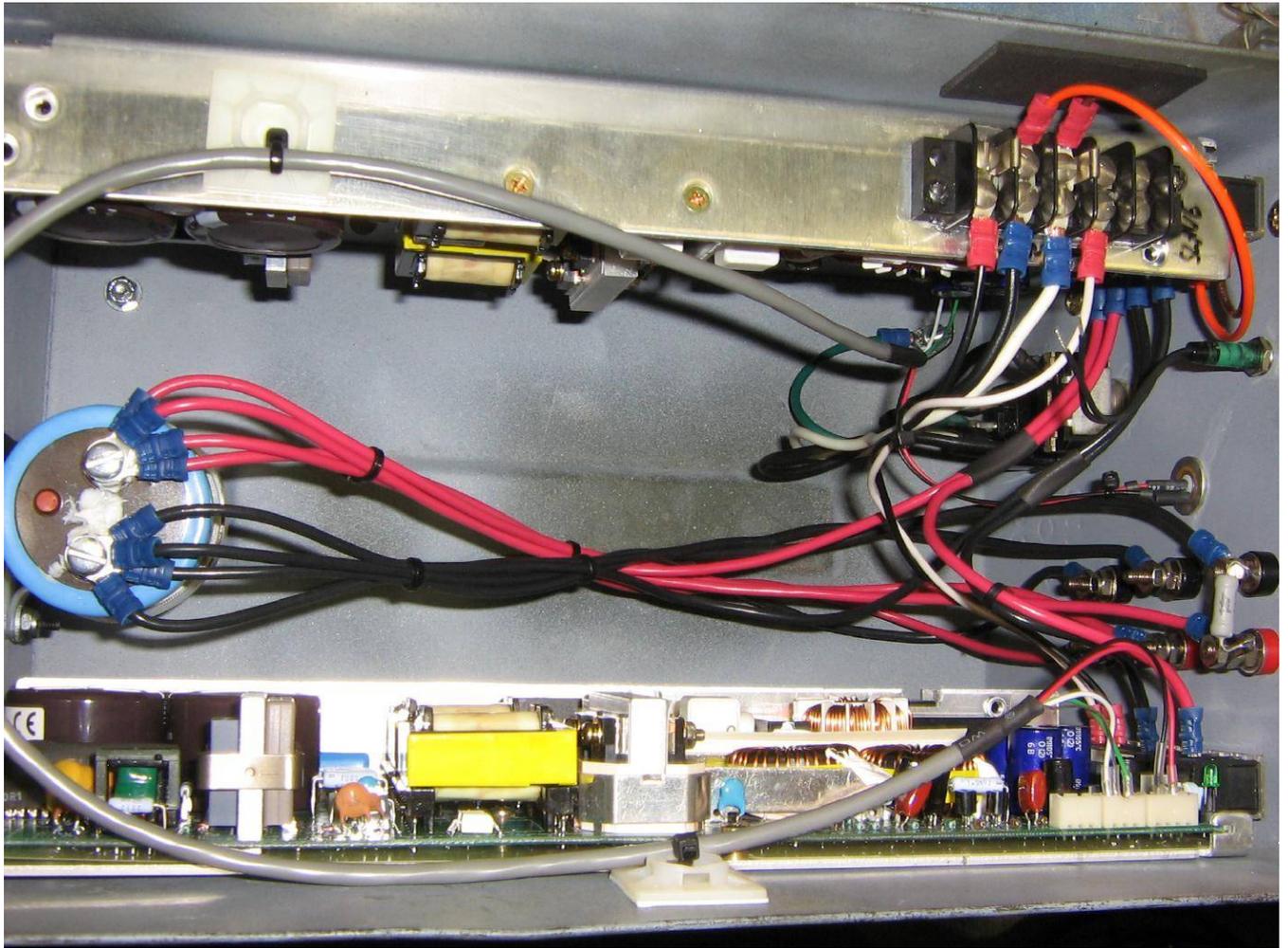


Behind the front-panel overview.

A standard 120 VAC IEC connector is along the bottom for the AC mains input. A SPST power switch is just above that. A green neon lamp acts as a power indicator.

An isolated BNC jack (middle – to the right of the power switch) is used for the remote sensing connections. An isolated connection is *required* as the remote sensing should take place only at the load. The small RED wire from the BNC jack center goes to the "Remote Sensing +" (pin 9) terminal on the master unit, and the small BLACK wire goes to the "Remote Sensing -" (pin 10) terminal on the master unit.

Standard banana jacks (mounted 3/4-inch apart) will be used for the +24 VDC outputs.



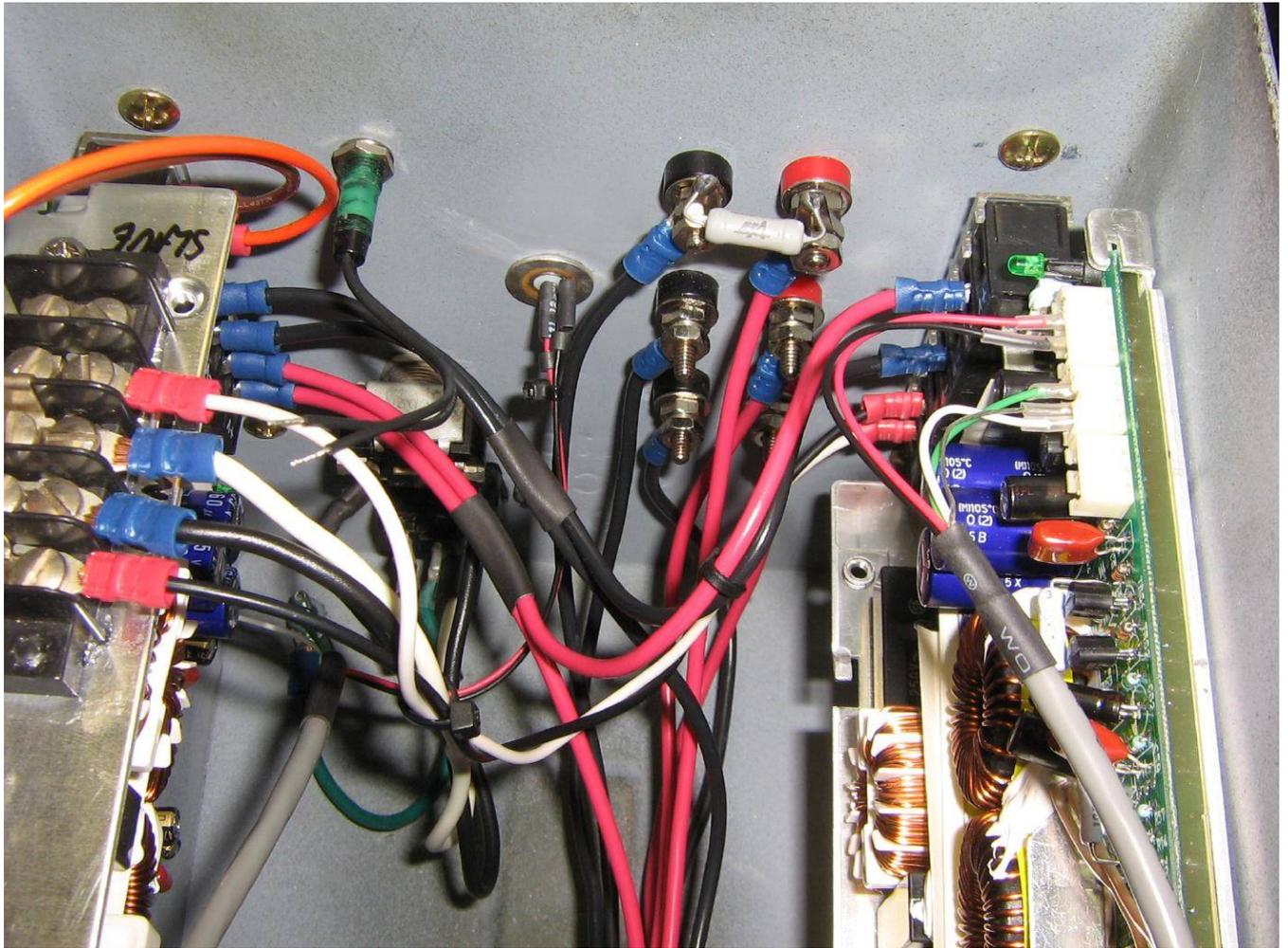
Wiring overview.

The slave unit is on top, the master unit along the bottom.

The two units are wired in parallel ($V+$ on the master to $V+$ on the slave, $V-$ on the master to $V-$ on the slave) with the other $V+$ and $V-$ connections going to an optional 10,000 μF filter capacitor.

This capacitor adds a little extra filtering in case of a current spike and also acts as the connection point for the single-point ground system.

The AC mains and DC output wires should be as physically separate as possible.



Behind the front-panel overview, wiring complete.

Slave unit is on the left, master unit is on the right.

Two ferrite beads were added over the remote sense wires.

Output wiring should be with heavy-gauge wires (#12 or #14) and properly crimped ring terminals. Add a bit of solder to the ring terminals for extra resiliency.

A 3 kohm, 5 watt resistor was added across one of the +24 VDC output terminals to drain the filter capacitor when the power is off.



Completed power supply overview.

The three sets of banana jacks are for the +24 VDC outputs.

120 VAC mains comes in via the IEC connector on the bottom-right. The Cosel UAW250S-24 power supply modules will work from 85 VAC to 270 VAC without the need for any reconfiguration.

The isolated BNC jack is for remote sensing at the load. To use the remote sensing feature, run shielded wires or piece of coax from the +/- power connections at the load to the remote sense input BNC jack (center pin is +) on the power supply.

As the load draws more current and the power supply's output voltage begins to sag, the remote sense feature will slightly increase the output voltage from the two power supply modules to compensate for this.

If the remote sense feature is not used, it must be connected back to one of the +24 VDC outputs. This is shown above with a small BNC jumper cable and a BNC-to-banana jack adapter.

Terrorism		
Terrorism	IED (Improvised Explosive Device)	Suspicious substance
Al Qaeda (all spellings)	Abu Sayyaf	AQAP (AL Qaeda Arabiana Peninsula)
Terror	Hamas	AQIM (Al Qaeda in the Islamic Maghreb)
Attack	FARC (Armed Revolutionary Forces Colombia)	TTP (Tehrik-i-Taliban Pakistan)
Iraq	IRA (Irish Republican Army)	Yemen
Afghanistan	ETA (Euskadi ta Askatasuna)	Pirates
Iran	Basque Separatists	Extremism
Pakistan	Hezbollah	Somalia
Agro	Tamil Tigers	Nigeria
Environmental terrorist	PLF (Palestine Liberation Front)	Radicals
Eco terrorism	PLO (Palestine Liberation Organization)	Al-Shabaab
Conventional weapon	Car bomb	Home grown
Target	Jihad	Plot
Weapons grade	Taliban	Nationalist
Dirty bomb	Weapons cache	Recruitment
Enriched	Suicide bomber	Fundamentalism
Nuclear	Suicide attack	Islamist
Chemical weapon		
Biological weapon		
Ammonium nitrate		
Improvised explosive device		
Weather/Disaster/Emergency		
Emergency	Ice	Mud slide or Mudslide
Hurricane	Stranded/Stuck	Erosion
Tornado	Help	Power outage
Twister	Hail	Brown out
Tsunami	Wildfire	Warning
Earthquake	Tsunami Warning Center	Watch
Tremor	Magnitude	Lightening
Flood	Avalanche	Aid
Storm	Typhoon	Relief
Crest	Shelter-in-place	Closure
Temblor	Disaster	Interstate
Extreme weather	Snow	Burst
Forest fire	Blizzard	Emergency Broadcast System
Brush fire	Sleet	
	Cyber Security	
Cyber security	2600	Hacker
Botnet	Spammer	China
DDOS (dedicated denial of service)	Phishing	Conficker
Denial of service	Rootkit	Worm
Malware	Phreaking	Scammers
Virus	Cain and abel	Social media
Trojan	Brute forcing	
Keylogger	Mysql injection	
Cyber Command	Cyber attack	
	Cyber terror	

Excerpt from the Department of Homeland Security's 2011 *Analyst's Desktop Binder* discussing keywords for their "Media Monitoring Capability."

LOL!

End of Issue #95



Any Questions?

Editorial and Rants



Maybe these Pakistanis are on to something? LOL!

If this little girl would have drawn of picture of "my two daddies," she and her "parents" would have been paraded around like heros in the Jew media. Draw a gun, and well... Jail time! Better hope your kid doesn't draw a picture of the Sun or you might get raided for running an illegal nuclear weapons program!

Man Shocked by Arrest After Daughter Draws Picture of Gun at School

February 24, 2012 – From: therecord.com

by Dianne Wood

KITCHENER [Canada] -- A Kitchener father is upset that police arrested him at his children's school Wednesday, hauled him down to the station and strip-searched him, all because his four-year-old daughter drew a picture of a gun at school.

"I'm picking up my kids and then, next thing you know, I'm locked up," Jessie Sansone, 26, said Thursday.

"I was in shock. This is completely insane. My daughter drew a gun on a piece of paper at school."

The school principal, police and child welfare officials, however, all stand by their actions. They said they had to investigate to determine whether there was a gun in Sansone's house that children had access to.

"From a public safety point of view, any child drawing a picture of guns and saying there's guns in a home would warrant some further conversation with the parents and child," said Alison Scott, executive director of Family and Children's Services.

Waterloo Regional Police Insp. Kevin Thaler said there was a complaint from Forest Hills public school that "a firearm was in a residence and children had access to it. We had every concern, based on this information, that children were in danger."

Their concern wasn't based on the drawing alone, he said.

Neaveh, the child who made the drawing, also made comments about it that raised more flags.

Sansone thinks police overreacted. He didn't find out until hours after his arrest what had actually sparked the incident.

He said he went to the school Wednesday afternoon to pick up his three children. He was summoned to the principal's office where three police officers were waiting. They said he was being charged with possession of a firearm.

He was escorted from the school, handcuffed and put in the back of a cruiser.

At the same time, other police officers went to his home, where his wife and 15-month-old child were waiting for his return.

They made his wife come to the police station while the other three children were taken to Family and Children's Services to be interviewed.

"Nobody was given any explanation," said his wife, Stephanie Squires. "I didn't know why he was being arrested."

"He had absolutely no idea what this was even about. I just kept telling them, 'You're making a mistake.'"

At the police station, Sansone talked to a lawyer who said only that he was being charged with possession of a firearm, Sansone said.

He kept asking questions. He was given a blanket and told he would appear before a judge in the morning to post bail.

"I was getting pretty scared at that point," Sansone said. "It seemed like I was actually being charged at this point."

He was forced to remove his clothes for a full strip search.

Several hours later, a detective apologized and said he was being released with no charges, Sansone said.

The detective told him that his four-year-old daughter had drawn a picture of a man holding a gun. When a teacher asked her who the man was, the girl replied, "That's my daddy's. He uses it to shoot bad guys and monsters."

"To be honest with you, I broke down," Sansone said. "My character got put down so much. I was actually really hurt, like it could happen that easy."

"How do you recognize a criminal from a father?"

He said he thought he had good relations with the principal who offered him a job last year counselling students at the school.

"We're educated," he said. "I'm a certified PSW (personal support worker) and a life issues counsellor. I go into schools to try to make a difference."

After he was released, Sansone was asked to sign a paper authorizing a search of his home. He signed, even though he didn't have to, he said.

"I just think they blew it out of proportion," Squires said. "It was for absolutely nothing. They searched our house upside down and found nothing. They had the assumption he owned a firearm."

"The way everything happened was completely unnecessary, especially since we know the school very well. I don't understand how they came to that conclusion from a four-year-old's drawing."

Scott, of Family and Children's Services, said the agency was obligated to investigate after getting a report from the school.

"Our community would have an expectation if comments are made about a gun in a house, we'd be obligated to investigate that to ensure everything is safe."

If there's a potential crime that's been committed, the agency must call in police, she said.

"In the end, it may not be substantiated. There may be a reasonable explanation for why the child drew that gun. But we have to go on what gets presented to us."

"I'm sure this was a very stressful thing for the family," she acknowledged.

The school principal, Steve Zack, said a staff member called child welfare officials because the law requires them to report anything involving the safety or neglect of a child.

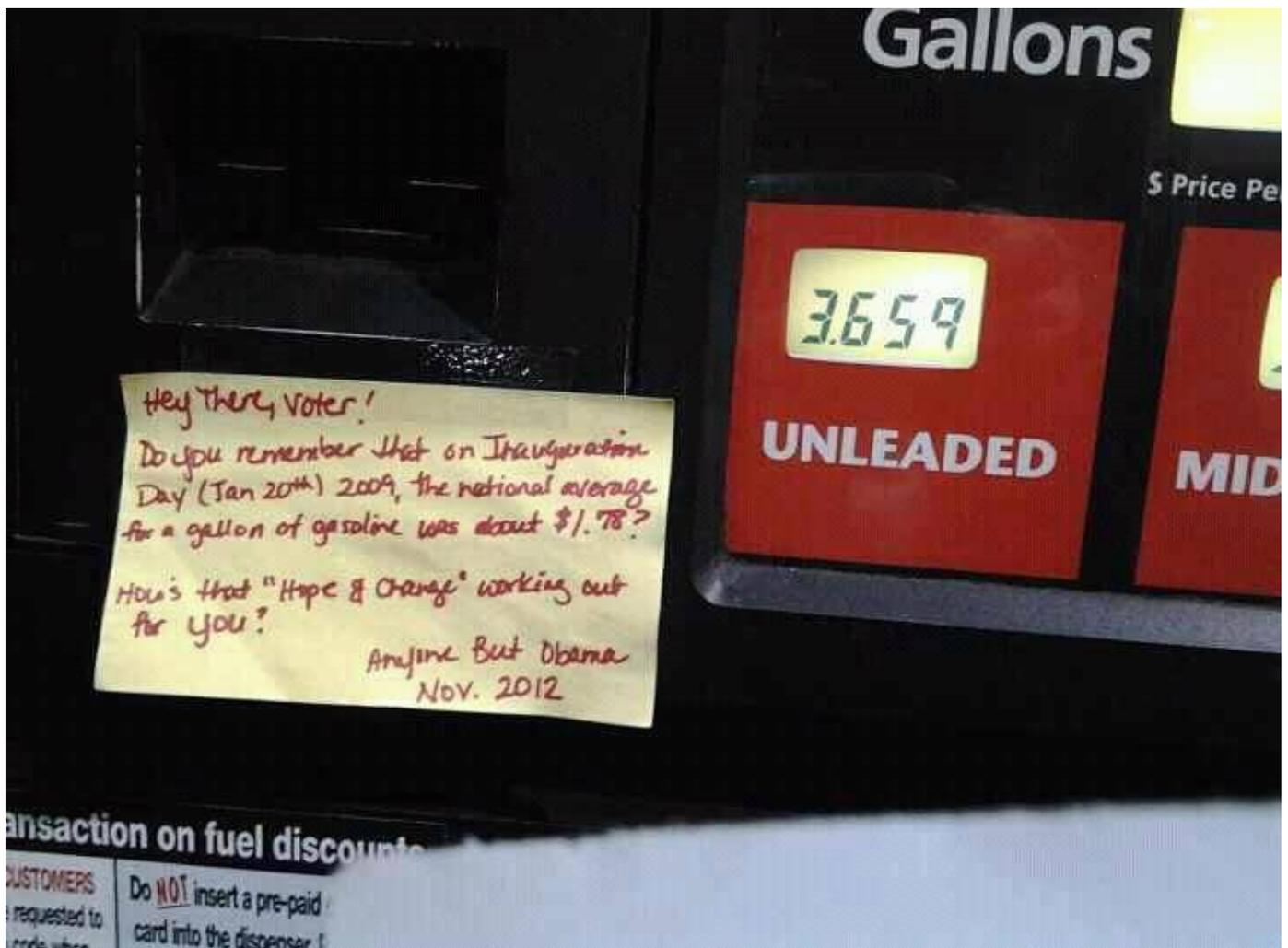
The agency chose to involve police, he said.

"Police chose to arrest Jessie here. Nobody wants something like this to happen at any time, especially not at school. But that's out of my hands."

Sansone says he got into some trouble with the law five years ago, and was convicted of assault and attempted burglary. But he's put all that behind him. He never had any firearms-related charges.

As for the strip search, Thaler said it was done "for officer safety, because it's a firearms-related incident.

"At the point in the investigation when it was determined it was not a real firearm, the individual was released unconditionally," he said.



Let's play a game of Guess the Race. Note the words "Saudi Arabia" in the article's title...

Teen from Saudi Arabia to Face Federal Charges in E-Cigarette Incident

February 22, 2012 – From: oregonlive.com

by Helen Jung

A man who was arrested Tuesday after defying a flight attendant's orders to turn off an "e-cigarette" is to make his first court appearance this afternoon on a federal charge of interfering with flight crew members and attendants.

Yazeed Mohammed Abunayyan, 19, of Saudi Arabia is also accused of of "yelling profanities and swinging his fist at the flight attendant, hitting or attempting to hit several passengers, and speaking or singing about Usama bin Laden and his hatred of women," according to the indictment.

He was taken into custody after Continental Flight 1118, which was headed to Houston, turned around and landed back at Portland International Airport. Abunayyan had allegedly refused to turn off an electronic cigarette -- in which a lithium battery heats a liquid nicotine solution to create a vapor for inhaling -- and "was not cooperative," according to authorities.

A passenger on the flight shot a cellphone video as Abunayyan was handcuffed on the airplane.

This is Abunayyan's second brush with the law in a two-day period. Abunayyan was arrested on Feb. 19 by Ashland police after leading them on a low-speed car chase west of the Southern Oregon University campus.

During the 20-minute encounter, he nearly hit a pedestrian and rammed two police cars, according to a Feb. 21 Ashland Daily Tidings story. The story quotes a witness who compared the chase to the "Grand Theft Auto" video game. After he high-centered the car, Abunayyan was arrested on accusations of driving under the influence of intoxicants, assault on a public safety officer, three counts of first-degree criminal misconduct, reckless driving and five counts of recklessly endangering another person.

He was released from the Jackson County Jail on Feb. 20 after posting \$6,500 of his \$65,000 bail. The Jackson County District Attorney's office is still reviewing the case and has not formally charged him, said District Attorney Mark Huddleston.



[Monitor Yazeed Mohammed Abunayyan on Arrestly.com](#)

Charges:

USM HOLD (U)

Booking Information

SWIS ID:	762238
Name:	Abunayyan, Yazeed Mohammed
Age:	19
Gender:	Male
Race:	White

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Yazeed Mohammed Abunayyan's Mugshot & Booking Info

Note his race is listed as "White" when he is clearly an Arab!

Change!



No money for White kids who want to study and learn – plenty of money to bribe niggers to attend school. Note that this has NOTHING to do with actual learning and more about teacher's unions maintaining their access to "free" government handouts. Remember, we didn't have these problems in schools 70 years ago and there were plenty of poor White kids... This money would be better spent bribing them not to reproduce...

Cincinnati High School Paying Students to Come to School

February 13, 2012 – From: cleveland.cbslocal.com

CINCINNATI, Ohio (CBS Cleveland) -- A Cincinnati high school is paying its students to come to school.

The Dohn Community High School has launched a \$40,000 incentive program to get students to come to class.

The school's CEO Ken Furrier told CBS Cleveland that students will get Visa gift cards for showing up everyday for school, being on time for class and not getting into trouble. Seniors would get \$25 while underclassmen would get \$10.

The school would also put \$5 into a savings account for the student that earns a gift card.

"Our student population is 90 percent poverty," Furrier told CBS Cleveland. "Money is important to them. We can't teach them if they're not here."

Despite taking criticism for the program, Furrier brushes it aside.

"I think the thing that many parents have to realize is that these kids are very poor," Furrier said. "They don't have all the benefits suburban kids have."

Dohn students have come around to the idea, excited about being rewarded for coming to school.

"I'm very excited to get the money," 16-year-old student Arneqka Lester told the paper. "It makes me want to come to school on time, not that I don't. But some students don't have the money and this will help them. It's a good idea".

The school is trying out this new idea after the Ohio Department of Education designated the school an "academic emergency" on its report card. About 14 percent of students graduated from Dohn during the 2010–2011 school year.

Furrier said the program -- which began Monday -- has already seen benefits. Class attendance yesterday was up by 15 percent compared to Friday.



"Sheet dawg... Ahs don't be needin' no whitey 'riffmattick!"

Photos from the Library of Congress of Anacostia High School (District of Columbia) in 1939.



These students did not need to be paid to attend school.

Note the boys wearing their ROTC uniforms.

And it starts...

*There is only **ONE** reason for Democrats not wanting people to show an ID to vote. It's so illegal aliens can vote too! Funny, liberals have no problems with the government running our healthcare, but when the same government asks them show a valid (free) ID so our elections can be fair – they stomp their feet and pout!*

Owning a firearm is also right, but they still make you shown an ID to purchase (and carry) a weapon. Don't count on liberals protesting that...

Voter ID laws discriminate against Blacks and Hispanics – in the same way burglar alarms do!

Judge Who Ordered Halt to Voter ID Law Signed Walker Recall Petition

March 6, 2012 – From: greenbaypressgazette.com

MADISON – A Wisconsin judge who filed a temporary injunction against the states new voter identification law also signed a petition seeking the recall of GOP Gov. Scott Walker, who was a staunch supporter of the law.

The Milwaukee Journal Sentinel reported Tuesday that Dane County Circuit Judge David Flanagans signature appears in a recall petition dated Nov. 15. It also lists his wife, who circulated the petition.

The newspaper reports that Maureen McGlynn Flanagan confirmed she circulated the petition and that her husband signed it.

Flanagans temporary injunction on Tuesday prevents the law from being in effect for the April 3 presidential primary.

The NAACP's Milwaukee branch and immigration rights group Voces de la Frontera filed their lawsuit last year. A five-day trial on whether there should be a permanent injunction is scheduled for April 16.

Flanagan had first denied an injunction request in February, saying NAACP plaintiffs did not sufficiently demonstrate irreparable harm for an injunction. The NAACP's lawsuit included 40 affidavits describing plaintiffs difficulties with complying with the law. But Flanagan at the time said the affidavits did not sufficiently demonstrate irreparable harm to justify the injunction. A hearing scheduled for April was supposed to focus on new plaintiff testimony.

Flanagans motion orders the Government Accountability Board and Gov. Scott Walker to immediately cease any effort to enforce or implement the law pending the April 16 trial.

NAACP Attorney Richard Saks said he feels good about the decision, but he wouldn't comment further.

Government Accountability Board spokesman Reid Magney had no immediate comment on the judges order. A spokeswoman for the state Department of Justice, which represented GAB in the case, did not immediately return messages seeking comment.

There are four lawsuits against the states new voter ID law, which went into effect in February. All of them are pending.