

ALTRONIC®, INC.
712 TRUMBULL AVENUE
GIRARD, OHIO 44420

ALTRONIC DIGITAL ANNUNCIATOR DC SERIES

INSTALLATION INSTRUCTIONS ADC II 3-86

WARNING: Read these instructions carefully before installing or operating the DC annunciator system. An improperly installed or operating shutdown system may not protect equipment to which it is applied, which consequently may pose the threat of personal injury to its operator. The sensor leads from this system operate at very low voltage and power levels and **MUST NOT CONTACT** any external voltage source. Damage to the system will result from connection between the sensor leads and the ignition system or any AC or DC power source.

1.0 DESCRIPTION

1.1 The Altronic DC digital annunciator is an electronic 8 or 24-point monitor and shutdown device. Power requirement is extremely low, allowing operation from capacitor-discharge ignition systems (DC-N series) or 12-24 VDC (DC-R series). The DC system consists of these components:

1. Annunciator Unit - DC Series
2. Cable Assembly - 693 206-1 or 693 207-1

For reliable operation, the following installation instructions must be adhered to strictly.

2.0 MOUNTING

2.1 Mount the Annunciator Unit inside a control panel or to a suitable flat surface so that the display is at convenient viewing height. A drilling template is provided. Be sure the panel door enclosure does not hit the three push button switches. The annunciator unit box must be grounded.

NOTE: Avoid mounting with display facing direct sunlight. Temperature range is -40°F to +175°F.

3.0 WIRING (SEE WIRING DIAGRAMS)

3.1 HIGH ENERGY CIRCUITS - The Cable Assembly provided plugs into the 37-pin connector of the Annunciator Unit and has terminated leads for connection to a suitable terminal strip. Five leads are separated in the Cable Assembly from all others (see Wiring Diagrams). It is recommended that these leads be wired to a separate terminal strip from the rest of the wiring. These leads are the higher energy circuit; accidental connection between these and the other harness wires can damage the annunciator unit.

3.2 LOW ENERGY CIRCUITS - The sensor leads are separated into two functional groups:

<u>DC-8</u>	<u>DC-24</u>	<u>Function</u>
10-13	10-17	Monitored points disarmed by start-up timer.
20-22 40	20-27 40-47	Monitored points not disarmed by start-up timer.

Wires from the terminal strip to the various engine sensors should be in good condition or replaced with new wiring. At the terminal strip end, termination should be made with a suitable terminal and crimping tool or by soldering.

CAUTION:

- a.) Use a separate terminal strip for the high energy leads (see wiring diagrams). Run sensor leads leaving the panel in a conduit separate from all other wiring and keep separate throughout the installation. Wiring to the sensors should have a grade of insulation capable of withstanding an AC voltage of 500V. rms. Sensor leads may be connected to any passive device using contacts. DO NOT connect sensor leads to any voltage producing element.
- b.) Sensors will be exposed to much lower voltages and currents than with the standard Murphy or similar type system. In the case of a field conversion where sensors have previously been used with Murphy tattletales, it is recommended that the sensors be checked frequently (see test procedure under OPERATION) when the DC system is first put into use. Sensor contacts may be burned or pitted from past exposure to ignition system primary voltage. It is advisable to replace such sensors.
- c.) If it becomes necessary to check sensor to terminal-strip wiring with an ohmmeter or other checker, first DISCONNECT the 37-pin connector from the back of the Annunciator unit. Applying voltage to the Annunciator through the sensor leads may damage the device. In addition, the area should be tested as non-hazardous before such testing commences.

4.0 OPERATION

4.1 OPERATING SEQUENCE

<u>DISPLAY</u>	<u>EQUIPMENT</u>	<u>FUNCTION</u>	<u>DESCRIPTION</u>
10-47	Down	Shutdown	Equipment shutdown caused by the number indicated. Number will remain until the fault is corrected and RESET button depressed.
00	Down	Reset	Before starting equipment, momentarily push the RESET button. A display reading of 00 indicates all sensors 20-47 are clear and the system is ready for start-up. Any number 20-47 indicates a faulted sensor that must be cleared before start-up.
80	Down	Battery Test	TEST button held depressed - indicates satisfactory battery voltage.
00	Down	Engine Purge	To purge engine without ignition firing, depress the STOP button, roll the engine to purge, then push RESET button. Engine can then be started provided display reads 00.
00	Running	Start-up	Start-up timer has points 10-17 disarmed. Points 20-47 are being monitored. Pushing the RESET button recycles the start-up timer. To cancel the start-up timer, hold RESET button in until 01 appears on the display (5-8 seconds).
01	Running	Normal Operation	All points 10-47 are being monitored. Transition from 00 to 01 indicates the end of the start-up timer interval.
89	Running	Voltage Test	TEST button held depressed - indicates satisfactory operating voltage.
09	Running	Sensor Test	TEST button released - a timed test period initiated for approximately 1.5 minutes. As a sensor is faulted, its number is latched on the display (but output signal is not activated). To move to the next point, first clear the sensor, then push the TEST button again. The display reverts to 09 until the next sensor is faulted. After the last test, push and hold RESET button in until 01 appears on the display (5-8 seconds).
01	Running	Normal Operation	Test period has ended; points 10-47 being monitored. DO NOT LEAVE EQUIPMENT UNLESS DISPLAY READS 01.

CAUTION: Do not depend on faulting a sensor prior to rolling engine to prevent ignition. The proper procedure is given above under "Engine Purge". An engine that attempts to start unexpectedly can pose the risk of personal injury.

NOTE:

- a.) TEST cannot be used until the start-up timer interval ends (01 on the display).
- b.) A display reading of 09 means the system output will not activate (unless STOP button is pushed).
- c.) Do not leave a sensor number on the display after the last test; push the TEST button (09 on the display), then push and hold RESET button in until 01 appears on the display (5-8 seconds).
- d.) For a complete system test, allow the test timer interval to expire (display changes from 09 to 01). Then cause one sensor to fault and allow the system output to activate. This will test the entire DC system for correct operation upon a fault with minimal downtime.

4.2 START-UP TIMER - Controlled by small potentiometer adjustment on the back of the Annunciator unit.

TO INCREASE TIME INTERVAL, TURN CW (approximately 15 minutes maximum)
TO DECREASE TIME INTERVAL, TURN CCW (approximately 10 seconds minimum)

The timer cycle begins as soon as the annunciator is powered.

4.3 STOP - Depressing the STOP button initiates the output sequence regardless of annunciator operating mode. The display will retain the number indicated when the STOP button was depressed. STOP button may also be used to purge engine before start-up - see fourth item in 4.1 OPERATING SEQUENCE.

4.4 BATTERY - The DC Annunciator contains a special 5-year life battery. This should not be removed. When the monitored equipment is not operating, current draw from the battery is only 15 microamp (.000015 amp). When the annunciator is powered, there is no drain from the battery. If the equipment is to remain out of service for a prolonged period of time, disconnect the 37-pin connector from the Annunciator.

4.5 REMOTE CONTROL - The capability for remote STOP and remote RESET is provided by four additional wires in the cable assembly. If one or both of these features is needed, connect the appropriate pair of wires to a normally open switch (see Wiring Diagrams). The switch must be momentarily closed to cause the stop or reset function. NOTE: For normal operation, both switches must be open.

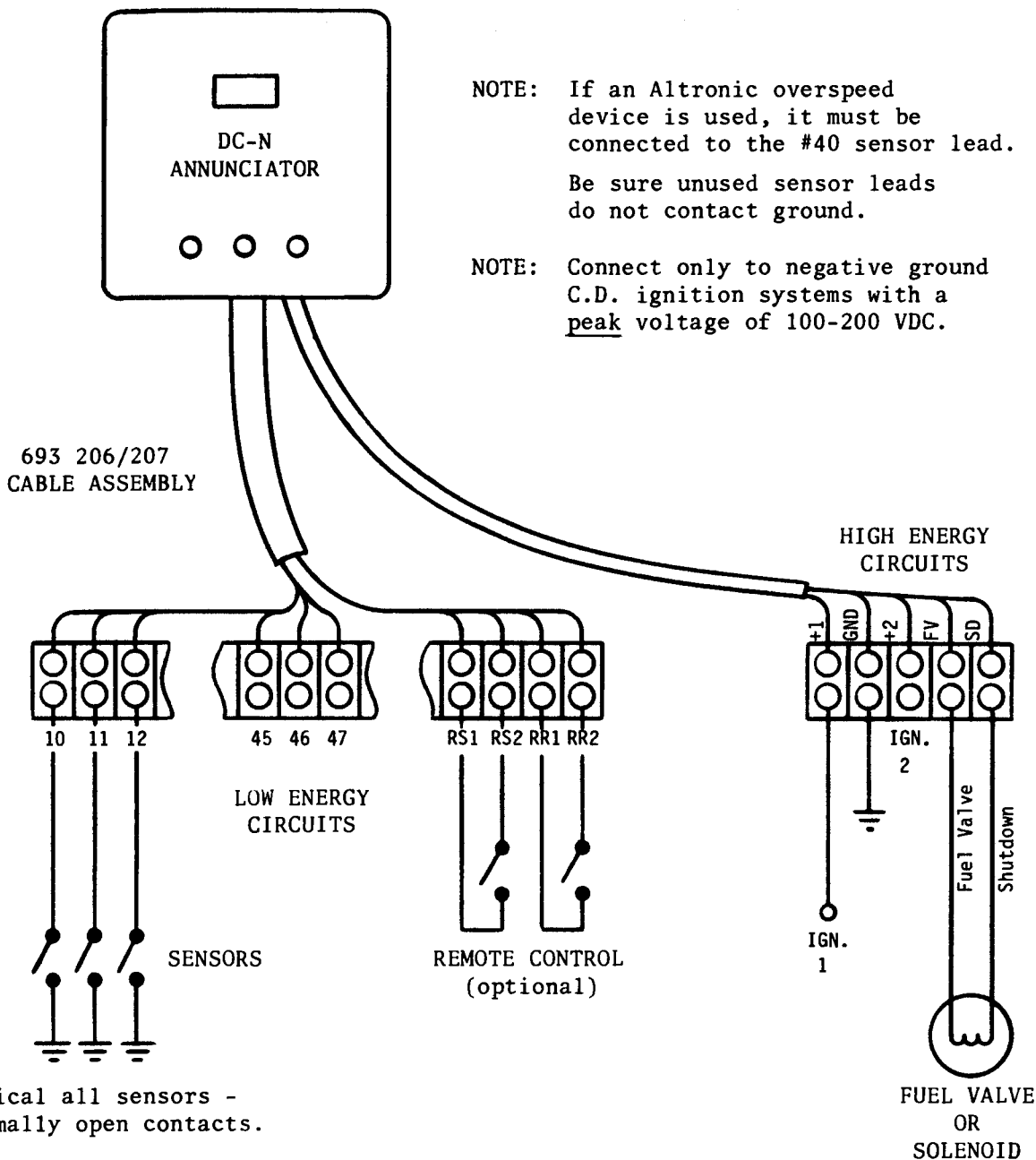
5.0 CABLE ASSEMBLY - 693 206, 693 207

5.1 CONNECTOR PIN DESIGNATION:

<u>Connector Pin</u>	<u>Lead or Display No.</u>	<u>W I R E C O L O R C O D E</u>		
		<u>Base Color</u>	<u>Wide Stripe</u>	<u>Thin Stripe</u>
1	43*	White	Red	Black
2	40	Red	Yellow	
3	45*	White	Red	Green
4	47*	White	Red	Blue
5	41*	White	Red	Brown
6	42*	White	Red	Red
7	Not Used			
8	Not Used			
9	Remote Stop	Red		
10	Remote Stop	Red	Black	
11	Not Used			
12	Remote Reset	White	Red	
13	Remote Reset	White	Black	Red
14	Not Used			
15	46*	White	Black	Gray
16	44*	White	Black	Violet
17	23*	White	Black	
18	20	White	Yellow	
19	25*	White	Green	
20	27*	White	Blue	
21	21	White	Brown	
22	22	White	Orange	
23	26*	White	Gray	
24	24*	White	Violet	
25	13	Black		
26	10	Yellow		
27	15*	Green		
28	17*	Blue		
29	11	Brown		
30	12	Orange		
31	16*	Gray		
32	14*	Violet		
33	+1	Red		
34	Gnd.	Green		
35	+2	Brown		
36	F.V.	White		
37	S.D.	Black		

*NOTE: Leads 14-17, 23-27 and 41-47 are not used in the 693 206 cable (8-pt.).

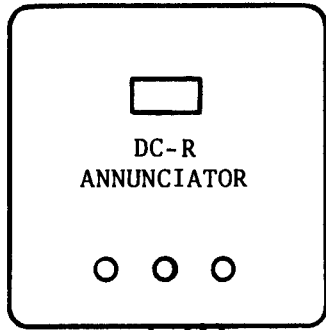
WIRING DIAGRAM - DC-8N-0, DC-24N-0



Typical all sensors - normally open contacts.

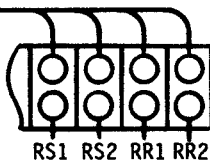
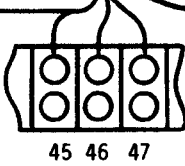
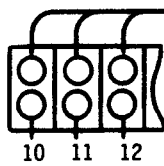
WARNING: Sensor leads from the annunciator MUST NOT CONTACT any external voltage source. Damage to the system will result from connection between the sensor leads and the ignition system or any AC or DC power source.

WIRING DIAGRAM - DC-8R-0. DC-24R-0

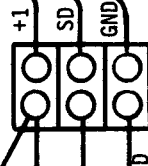


NOTE: If an Altronic overspeed device is used, it must be connected to the #40 sensor lead.
Be sure unused sensor leads do not contact ground.

693 206/207
CABLE ASSEMBLY



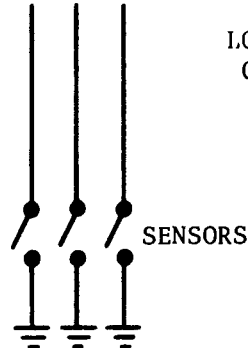
HIGH ENERGY
CIRCUITS



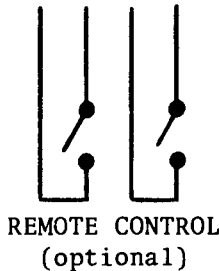
LEADS +2, FV
NOT USED

LOW ENERGY
CIRCUITS

+12-24
VDC



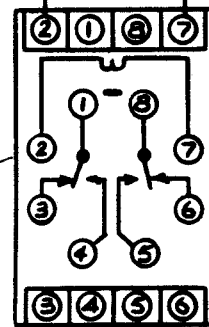
SENSORS



REMOTE CONTROL
(optional)

Relay Socket 610 065 for
Relays 610 063, 610 064.

610 064 is hermetically
sealed for Class 1, Group D,
Div. 2 locations.



Relay contacts shown in the normal run (energized) state. Contact state is the opposite on a fault signal or loss of 12-24 VDC power.

typical all sensors -
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