

**WARNING: DEVIATION FROM THESE INSTALLATION INSTRUCTIONS MAY LEAD TO IMPROPER ENGINE OPERATION WHICH COULD CAUSE PERSONAL INJURY TO OPERATORS OR OTHER NEARBY PERSONNEL.**

**CAUTION:** See CAUTION notes regarding devices connected to the shutdown lead in section 9.0.

### **1.0 DESCRIPTION**

- 1.1 The Altronic III ignition system consists of these basic components:
1. Altronic III Unit - see drawing 309 301 for dimensions.
  2. Wiring Harness
  3. Ignition Coils - one per spark plug; use only the following types:  
501 061, 591 010, 591 040, 501 061-S, 591 010-S, 591 007, 591 011A, 591 011B, 591 012
  4. Engine Drive Member - Base Mount Unit: 560 001

### **2.0 ENGINE**

- 2.1 Set the engine so that no. 1 cylinder is at the desired ignition firing point.  
NOTE: See section 8.0 for Special Applications.

### **3.0 DIRECTION OF ROTATION**

- 3.1 Determine the rotation of the Altronic III unit (looking at the drive end of the Altronic III) for the engine being equipped. Even firing units can be used for either CCW or CW rotation.

### **4.0 BASE-MOUNT UNIT**

- 4.1 Attach engine drive member 560 001 to the end of the unit's flex coupling with the two spring pins provided.
- 4.2 Locate timing mark on the housing for the proper rotation (see drawing 309 302). Rotate the unit shaft until the red mark on the shaft lines up with the proper mark on the housing.
- 4.3 Maintaining the alignment of section 4.2, install the unit on the engine bracket. Slip the drive member 560 001 over the hub on the engine shaft; insert and tighten locking screw and nut. Secure the Altronic III unit to the engine bracket with four 3/8"-16 screws maintaining proper alignment. The flex coupling should not be elongated or compressed.
- 4.4 Final timing should be set using a timing light with the engine at operating speed.

**CAUTION:** FOR THE SAFETY OF OPERATING PERSONNEL, THE ENGINE MANUFACTURER'S SHIELD MUST BE IN PLACE COVERING THE FLEX COUPLING AND ENGINE DRIVE.

**5.0 FLANGE-MOUNT UNIT**

- 5.1 Locate timing mark on the housing for the proper rotation (see drawing 309 302). Rotate the unit shaft until the red mark on the shaft lines up with the proper mark on the housing.
- 5.2 Mount the unit to the engine drive keeping the two red marks lined up as close as possible. Install and tighten finger-tight two 3/8"-16 mounting bolts.  
NOTE: Once the unit is mounted, if the red lines cannot be made to meet by rotating the entire unit, remove the four screws which fasten the back cover assembly to the unit. The entire back cover assembly should then be pulled away from the unit about two inches. Slowly tilt the top of the back cover away from the unit keeping the internal plug (underside of circuit board) connected. Rotate the distributor gear until the two marks described above line up. Then reinstall the back cover to the unit, engaging the gears, and keeping the two red marks together. Securely tighten the four cover mounting screws.
- 5.3 Final timing should be set using a timing light with the engine at operating speed. The entire unit is rotated to adjust ignition timing.
- 5.4 Tighten the two 3/8"-16 mounting bolts.

**6.0 IGNITION COILS**

- 6.1 Use only the Altronic coils indicated in section 1.1.
- 6.2 Mount the ignition coils as close to the spark plugs as possible keeping the high-tension lead length to a minimum but also keeping temperature below 200°F. (95°C.) during operation.

**7.0 PRIMARY WIRING**

7.1 The firing order of the Altronic III units is as follows:

NO. OF CYLINDERS	CCW ROTATION	CW ROTATION
2	A-C	A-C
3	A-B-C	A-C-B
4	A-B-C-D	A-D-C-B
5	A-B-C-D-E	A-E-D-C-B
6	A-B-C-D-E-F	A-F-E-D-C-B
8	A-B-C-D-E-F-H-I	A-I-H-F-E-D-C-B
10	A-B-C-D-E-F-H-I-J-K	A-K-J-I-H-F-E-D-C-B
12	A-B-C-D-E-F-H-I-J-K-L-M	A-M-L-K-J-I-H-F-E-D-C-B
16	A-B-C-D-E-F-H-J-K-L-M-N-P-R-S-T	A-T-S-R-P-N-M-L-K-J-H-F-E-D-C-B

- 7.2 Starting with lead "A" to the coil of #1 cylinder, the harness leads are connected in accordance with the engine's firing order to the positive (+) terminals of the coils - see wiring diagram 309 303.
- 7.3 A common ground lead connecting the negative (-) terminals of the coils must be run as shown in the diagrams and be connected as shown in the wiring diagrams.
- 7.4 All connections should be made using ring type terminals specified for 16 gauge wire and #10 stud size. Terminals should either be soldered to the wire or attached with an appropriate staking tool. All primary wiring should be protected from physical damage, vibration and temperatures in excess of 200°F. (95°C.).
- 7.5 If two ignition coils per cylinder are used, use parallel wiring as shown in wiring diagram 309 303.
- 7.6 SHIELDED SYSTEM - For component layout and wiring for a shielded system, refer to wiring diagram 309 304. See drawing 509 025 for instructions of altering the length of a shielded primary harness.

**8.0 SPECIAL APPLICATIONS**

8.1 Listed below are applications that have wiring different from the standard hook-up shown in section 7.0.

ENGINE	ALTRONIC III	ROTATION	A - B - C - D - E - F - H - I - J - K - L - M
Caterpillar G379	8B25H	CCW	8 - 5 - 4 - 7 - 2 - 3 - 6 - 1 Time unit to #8 cylinder.
Caterpillar G379	8T25H	CCW	1 - 8 - 5 - 4 - 7 - 2 - 3 - 6 Time unit to #1 cylinder.
Clark BA/HBA/HLA-8	8C25H	CCW	6 - 7 - 2 - 3 - 8 - 5 - 4 - 1 Time unit to #6 cylinder.
Clark RA/HRA-32	6A39H	CW	1 - 3 - 2 - 1 - 3 - 2 Tie two leads together to the coil(s) of each cylinder.
Cooper GMV/GMVA-4	6A29H	CCW	1L - 1R - X - 2L - 2R - X Leave leads C and F open circuited.
I-R PVG-6, XVG-6	8B29H	CW	1 - X - 2 - 4 - 3 - 5 - X - 6 Leave leads B and H open circuited.
I-R XVG-2	4G29H	CW	1 - X - 2 - X Leave leads B and D open circuited.
Roiline H2000	8B25H	CW	1L - 2R - 3L - 1R - 4L - 3R - 2L - 4R Unit must turn CW; time to #1L cylinder.
Roiline L3460, L4000	12H35H	CW	1R - 6L - 5R - 2L - 3R - 4L - 6R - 1L - 2R - 5L - 4R - 3L Unit must turn CW; time to #1R cylinder.

**9.0 SHUTDOWN WIRING**

9.1 The "G" harness lead is the switch or shutdown panel wire. It must be grounded to shut-off the ignition. See the CAUTION notes below.

9.2 For proper operation of Murphy tattletale switches or fuel valve, use panel adapter 501 213 as shown in drawing 509 062.

**CAUTION:** Altronic III units with 900 series circuit boards have an output voltage of 200-225 volts. This affects the hook-up to some instruments with input taps for different input voltages. It is advisable to check the voltage rating of all instruments connected to the ignition system shutdown lead. In particular, the Altronic 690 107 barrier requires hook-up to terminal 3 (175-350V.); and the 690 101-1 annunciator power supply must be exchanged for type 690 101-3. See Altronic Bulletin 32C for details.

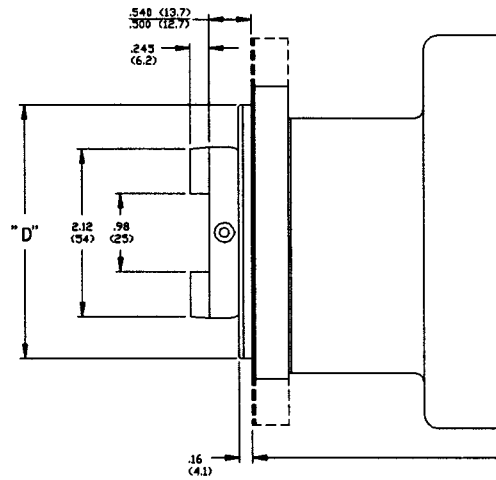
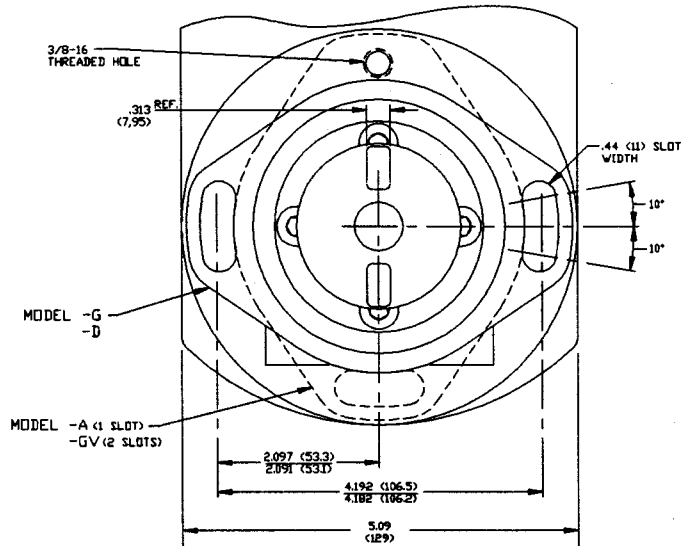
**CAUTION:** Re-calibration of speed sensing instruments connected to the Altronic III "G" lead may be required on 10 and 12-cylinder engines. When using an Altronic III unit with the 372 912H circuit board, use the 6-cylinder calibration for 12-cylinder applications, and use the 5-cylinder calibration for 10-cylinder applications. See Altronic Bulletin 32C for details.

**10.0 SECONDARY WIRING**

10.1 The spark plug leads should be fabricated from 7 mm, silicone insulated, tinned copper conductor with suitable terminals and silicone spark plug boot. Keep spark plug leads as short as possible and in all cases not longer than 20 inches (500 mm). Spark plug leads should be kept at least 2 inches (50 mm) away from any grounded engine part. In deep spark plug wells, use rigid, insulated extenders projecting out of the well.

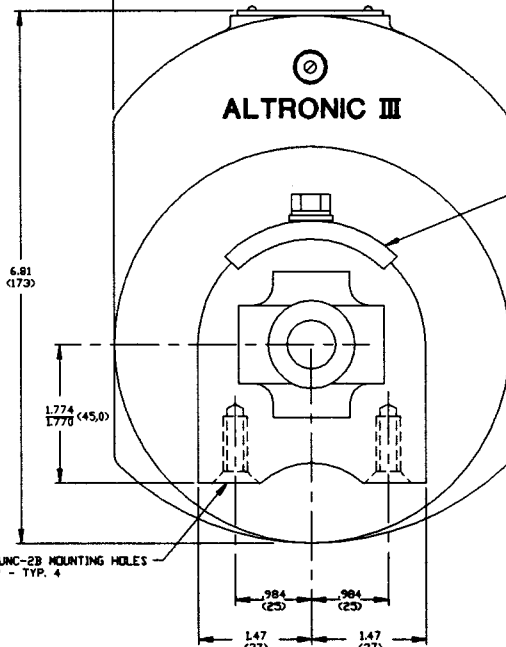
10.2 The use of a clear, silicone grease (such as Dow Corning DC-4, G.E. G-623 or GC Electronics Z5) is recommended for all high-tension connections and boots. This material helps seal out moisture and prevent corrosion from atmospheric sources.

FLANGE MOUNT



FLANGE MODELS

MODEL	PILOT DIAMETER "D"	FLANGE ORIENTATION	NO. OF .44 SLOTS
-A	3.250/3.248 (82.55/82.50)	VERTICAL	1
-D	3.000/2.998 (76.20/76.15)	HORIZONTAL	2
-G	3.250/3.248 (82.55/82.50)	HORIZONTAL	2
-GV	3.250/3.248 (82.55/82.50)	VERTICAL	2

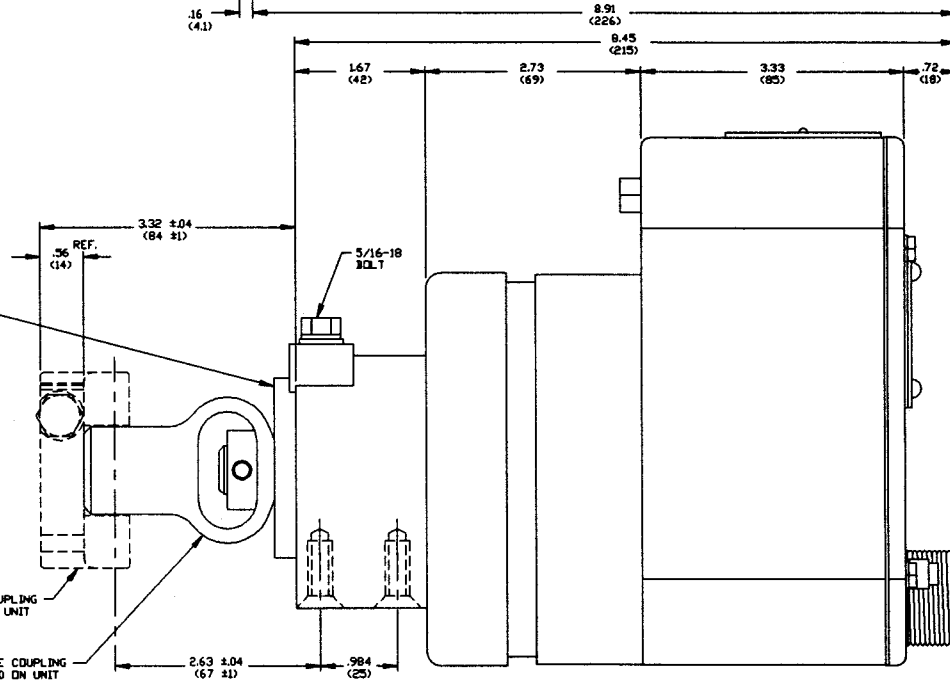


BASE MOUNT

ADJUSTABLE  
BASE UNIT  
-REL

ENGINE DRIVE COUPLING  
NOT SUPPLIED ON UNIT  
PART NO. 360 001

FLEXIBLE COUPLING  
SUPPLIED ON UNIT



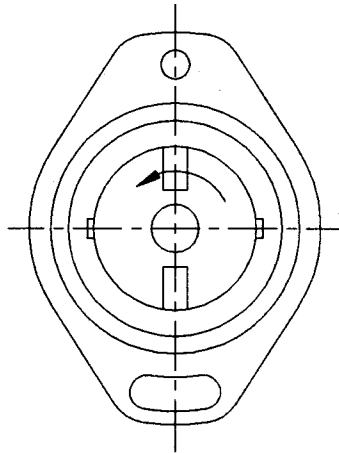
DIMENSIONS IN INCHES AND (MM)

REVISIONS			TOLERANCES (EXCEPT AS NOTED)		ALTRONIC INC.	
NO.	DATE	BY	DECIMAL DIM - .005 DIM - .002	FRACTIONAL	TITLE	PART NUMBER
1					ALTRONIC III UNIT	
2						
3						
4						
5						

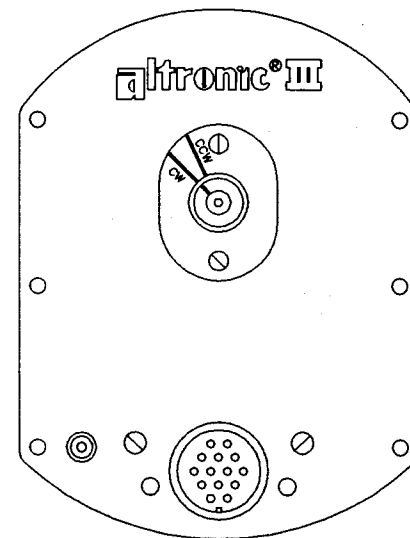
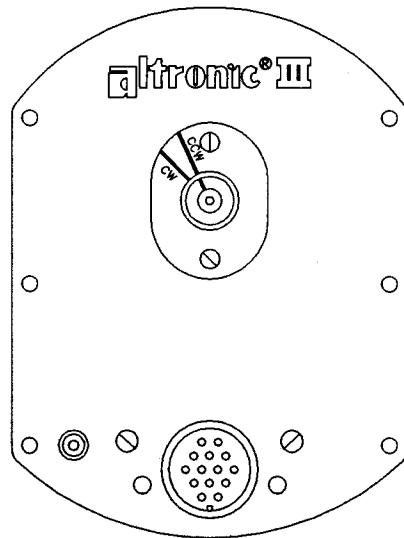
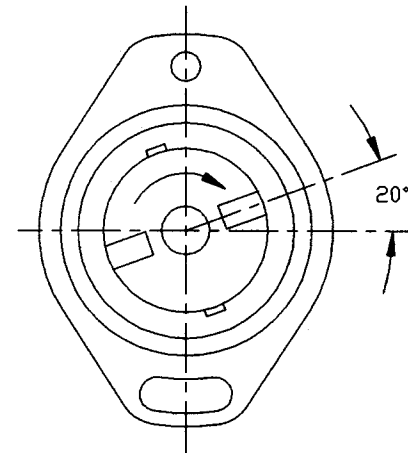
  

DRAWN BY	VTP	SCALE	FULL	PART NUMBER
CHECKED BY		DATE	3-19-92	309 301
APPROVED BY				

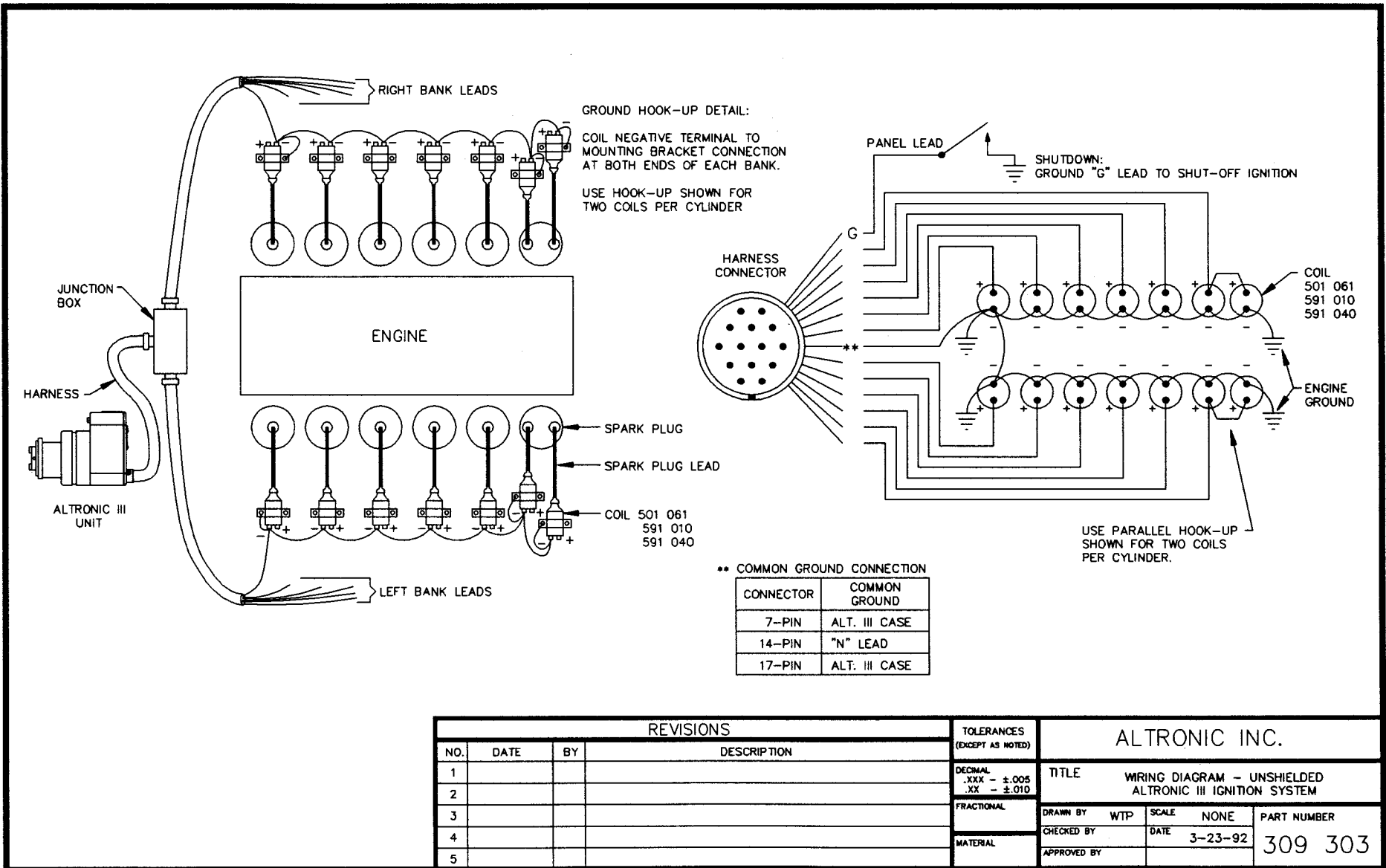
CCW ROTATION



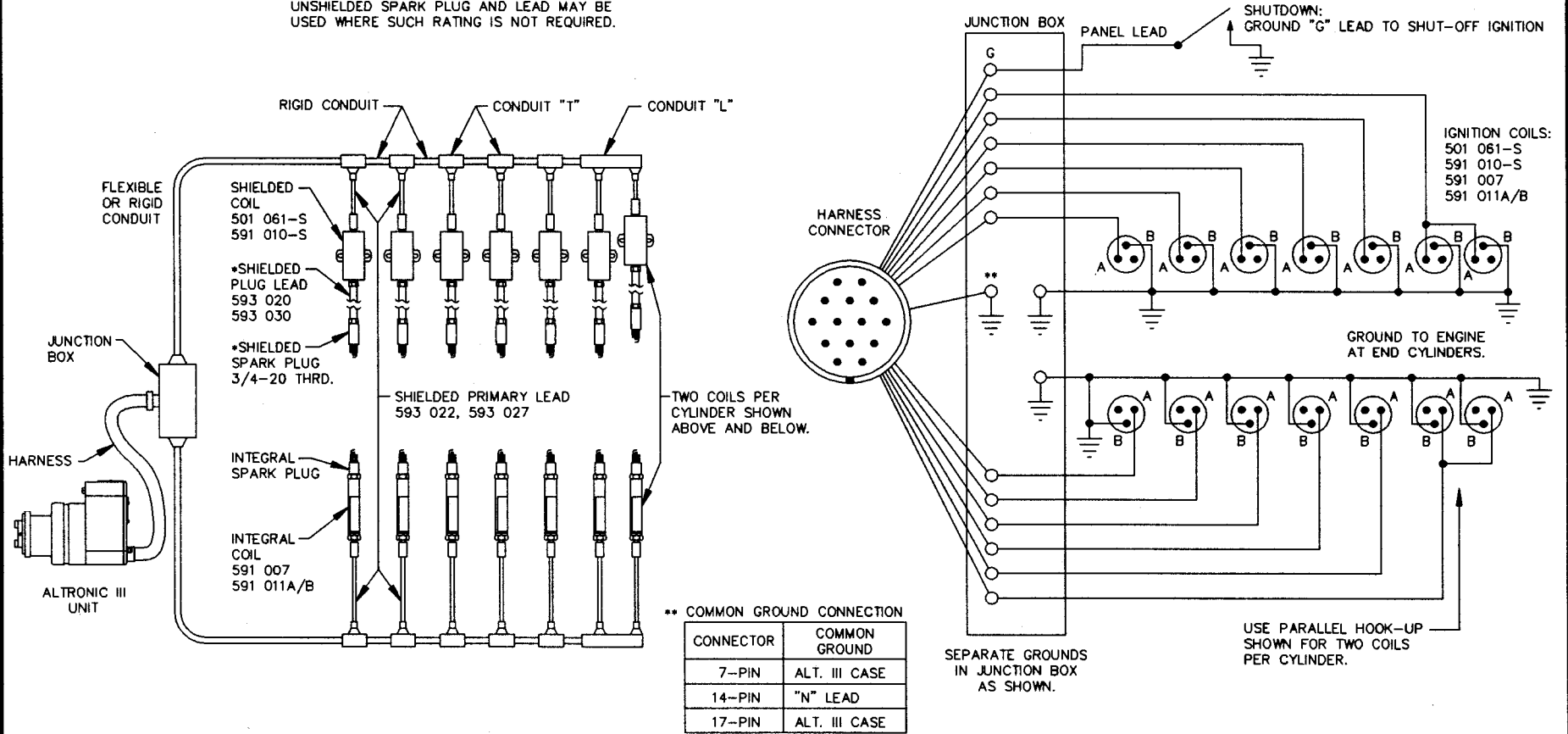
CW ROTATION



REVISIONS				TOLERANCES		ALTRONIC INC.	
NO.	DATE	BY	DESCRIPTION	EXCEPT AS NOTED		TITLE	
1				RECOMM.		ALTRONIC III UNIT TIMING	
2				CHECK		DRAWN BY WTP	
3				FRAC.		SCALE NONE	
4				MATERIAL		DATE 3-23-92	
5				APPROVED BY		PART NUMBER 309 302	



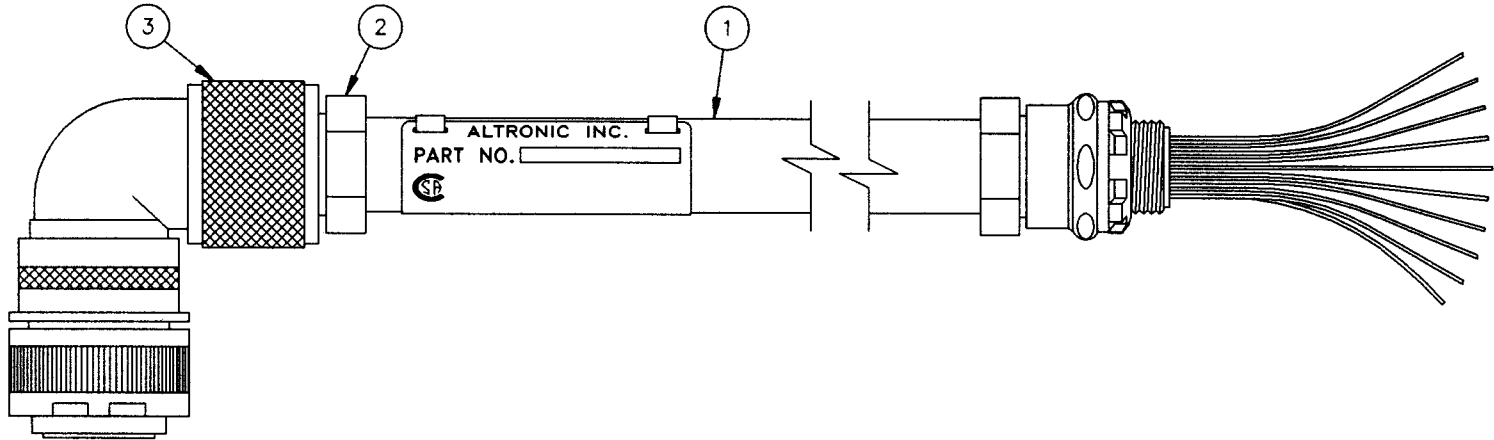
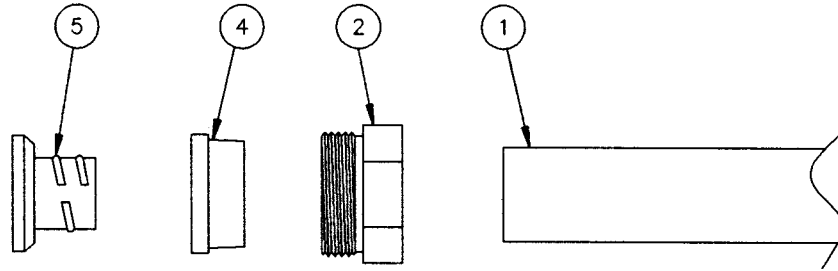
\* CLASS I, GROUP D, DIV. 2 CERTIFIED SYSTEM.  
UNSHIELDED SPARK PLUG AND LEAD MAY BE USED WHERE SUCH RATING IS NOT REQUIRED.



REVISIONS				TOLERANCES (EXCEPT AS NOTED)		ALTRONIC INC.		
NO.	DATE	BY	DESCRIPTION	DECIMAL	FRACTIONAL	TITLE		PART NUMBER
1				.XXX - ±.005		WIRING DIAGRAM - SHIELDED ALTRONIC III IGNITION SYSTEM		309 304
2				.XX - ±.010		DRAWN BY	SCALE NONE	
3						CHECKED BY	DATE 3-23-92	
4						APPROVED BY		
5								

**TO SHORTEN HARNESS**

1. LOOSEN AND DISENGAGE NUT (2) AND REMOVE CONDUIT (1) COMPLETELY FROM CONNECTOR AND HARNESS ASSEMBLY (3).
2. REMOVE ITEMS (5), (4), AND (2) IN THAT ORDER FROM CONDUIT (1). NOTE THREADS ON (5).
3. CUT CONDUIT TO LENGTH WITH HACKSAW AND DRESS WITH FILE TO INSURE A CLEAN, SQUARE END. REMOVE FILINGS FROM INSIDE CONDUIT.
4. REINSTALL ITEMS (2), (4), AND (5) IN THAT ORDER.
5. INSTALL REASSEMBLED CONDUIT INTO (3) AND TIGHTEN (2).



REVISIONS				TOLERANCES (EXCEPT AS NOTED)		ALTRONIC INC.			
NO.	DATE	BY	DESCRIPTION	DECIMAL		TITLE		PART NUMBER	
1	3-14-92	WTP	REDRAWN ON CAD	.XXX	± .005	SHIELDED HARNESS CONDUIT LENGTH ADJUSTMENT		509 025	
2				.XX	± .010				
3				FRACTIONAL		DRAWN BY	DWA	SCALE	NONE
4				MATERIAL		CHECKED BY		DATE	5-28-85
5						APPROVED BY			



