

# Installation Instructions

*Altronic III<sup>NG</sup> Ignition System*

*For Medium Engines, 2-16 Cylinders*

*Form ALT III-NG II 10-20*



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**IMPORTANT SAFETY NOTICE:**  
**PROPER INSTALLATION, MAINTENANCE, REPAIR AND OPERATION OF THIS EQUIPMENT IS ESSENTIAL. THE RECOMMENDED PRACTICES CONTAINED HEREIN SHOULD BE FOLLOWED WITHOUT DEVIATION. AN IMPROPERLY INSTALLED OR OPERATING IGNITION SYSTEM COULD CAUSE PERSONAL INJURY TO OPERATORS OR OTHER NEARBY PERSONNEL.**

## 1.0 ALTRONIC III<sup>NG</sup> IGNITION SYSTEM – DESCRIPTION

1.1 The Altronic III<sup>NG</sup> ignition system consists of these basic components:

- 1.1.1 Altronic III<sup>NG</sup> Unit - see drawing 309301 for dimensions.
- 1.1.2. Wiring Harness
- 1.1.3. Ignition Coils - one per spark plug; use only the following types:  
501061, 591010, 591040, 501061-S, 591010-S, 591007,  
591011A, 591011B, 591012
- 1.1.4. Engine Drive Member - Base Mount Unit: 560001

### 2.0 ENGINE

2.1 Set the engine so that no.1 cylinder is at the desired ignition firing point.

### 3.0 DIRECTION OF ROTATION

3.1 Determine the rotation of the Altronic III<sup>NG</sup> unit (looking at the drive end of the Altronic III<sup>NG</sup>) 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 560001 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 309302). 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 560001 over the hub on the engine shaft; insert and tighten locking screw and nut. Secure the Altronic III<sup>NG</sup> 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.

### 5.0 FLANGE-MOUNT UNIT

- 5.1 Locate timing mark on the housing for the proper rotation (see drawing 309302). 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.
- 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<sup>NG</sup> units is as follows:

#CYLS	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

**CAUTION:** See **CAUTION** notes regarding devices connected to the shutdown lead in section 8.0.

**CAUTION:** For the safety of operating personnel, the engine manufacturer's shield must be in place covering the flex coupling and engine drive.

**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.

- 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 309303.
- 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 309303.
- 7.6 SHIELDED SYSTEM - For component layout and wiring for a shielded system, refer to wiring diagram 309304. See drawing 509025 for instructions of altering the length of a shielded primary harness.

#### **8.0 SHUTDOWN WIRING**

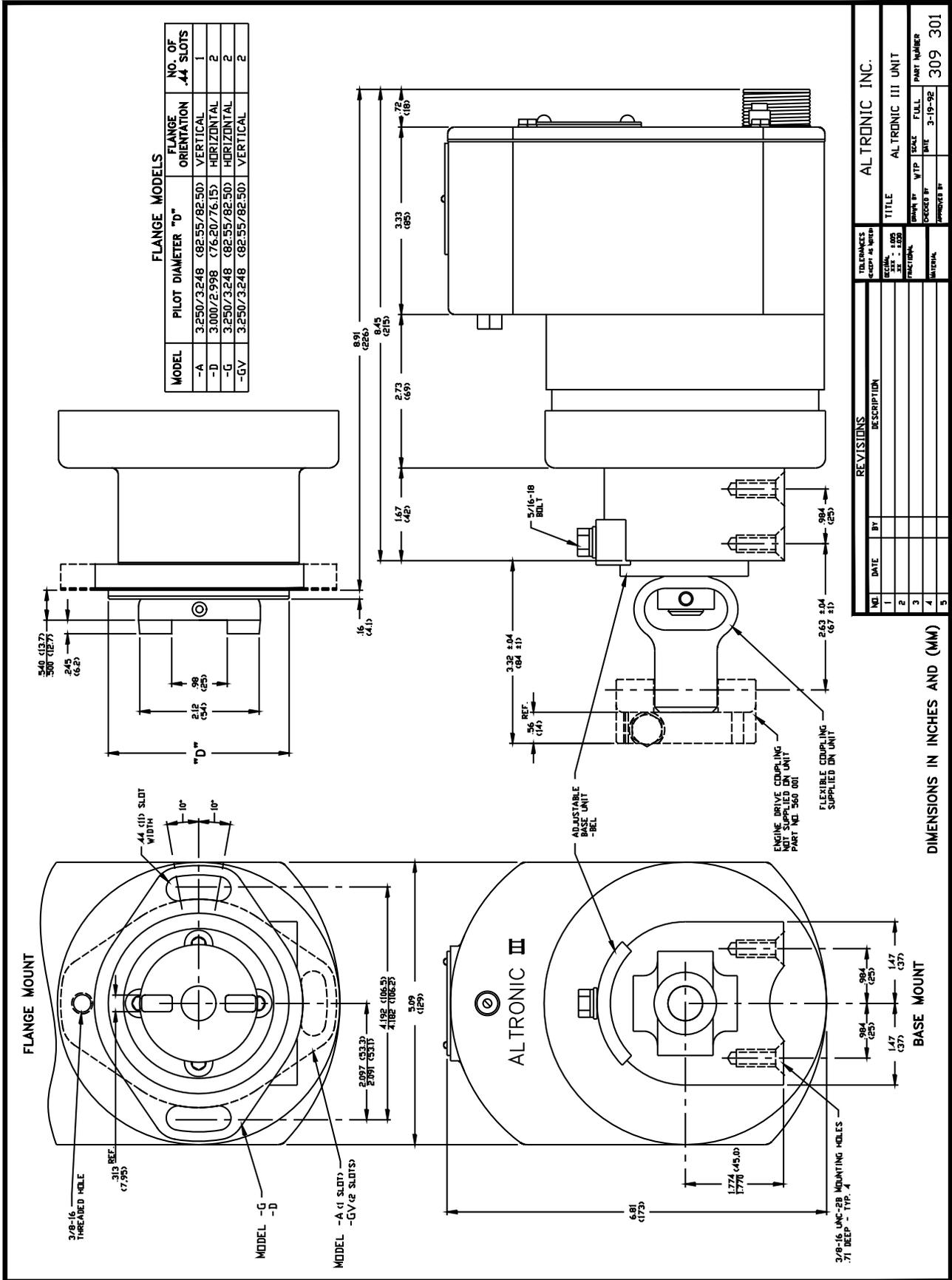
- 8.1 The "G" harness lead is the switch or shutdown panel wire. It must be grounded to shut-off the ignition. See the CAUTION notes below.
- 8.2 For proper operation of Murphy tattletale switches or fuel valve, use panel adapter 501213 as shown in drawing 509062.

#### **9.0 SECONDARY WIRING**

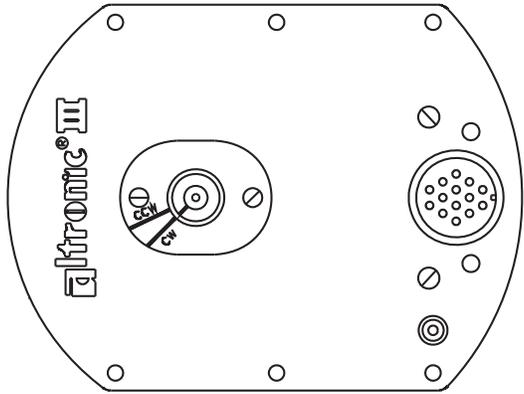
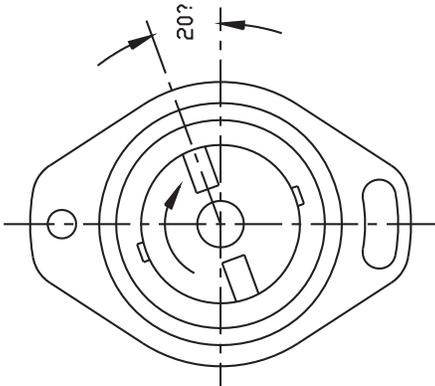
- 9.1 The spark plug leads should be fabricated from 7 mm, silicone insulated, tinned copper conductor with suitable terminals and silicone spark plug boot. Keep spark plug leads as short as possible and in all cases not longer than 20 inches (500mm). Spark plug leads should be kept at least 2 inches (50mm) away from any grounded engine part. In deep spark plug wells, use rigid, insulated extenders projecting out of the well.
- 9.2 The use of a clear, silicone grease (such as Dow Corning DC-4, G.E. G-623 or GC Electronics 25) is recommended for all high-tension connections and boots. This material helps seal out moisture and prevent corrosion from atmospheric sources.

**CAUTION:** Altronic III<sup>NG</sup> units 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 690107 barrier requires hook-up to terminal 3 (175-350V.); and the 690101-1 annunciator power supply must be exchanged for type 690101-3. See Altronic Bulletin 32C for details.

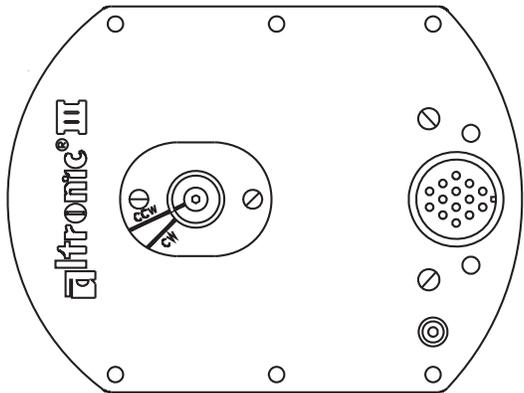
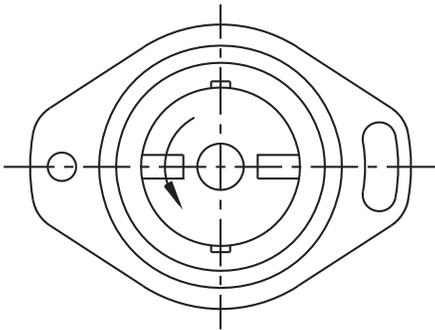
**CAUTION:** Re-calibration of speed sensing instruments connected to the Altronic III "G" lead may be required on 10 and 12-cylinder engines. When using an Altronic III unit with the 372912H circuit board, use the 6-cylinder calibration for 12-cylinder applications, and use the 5-cylinder calibration for 1a-cylinder applications. See Altronic Bulletin 32C for details.



CW ROTATION



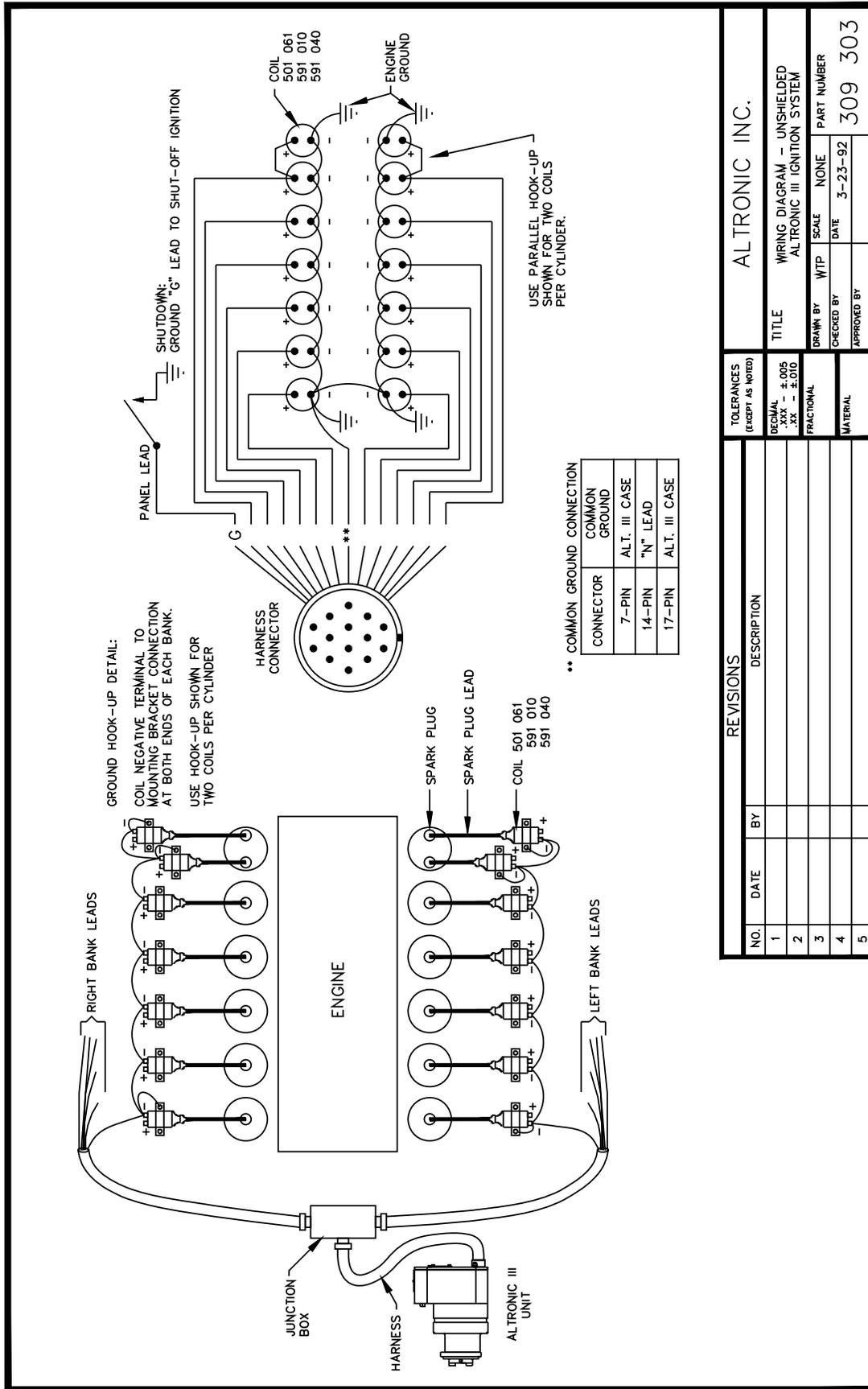
CCW ROTATION



REVISIONS		TOLERANCES UNLESS SPECIFIED AS SHOWN		ALTRONIC INC.	
NO.	DATE	BY	DESCRIPTION	DESIGN	TITLE
1				ALTRONIC III UNIT TIMING	
2					
3					
4					
5					

DESIGN	SCALE	PART NUMBER
DATE	DATE	309 302
CHECKED BY	DATE	
APPROVED BY	DATE	



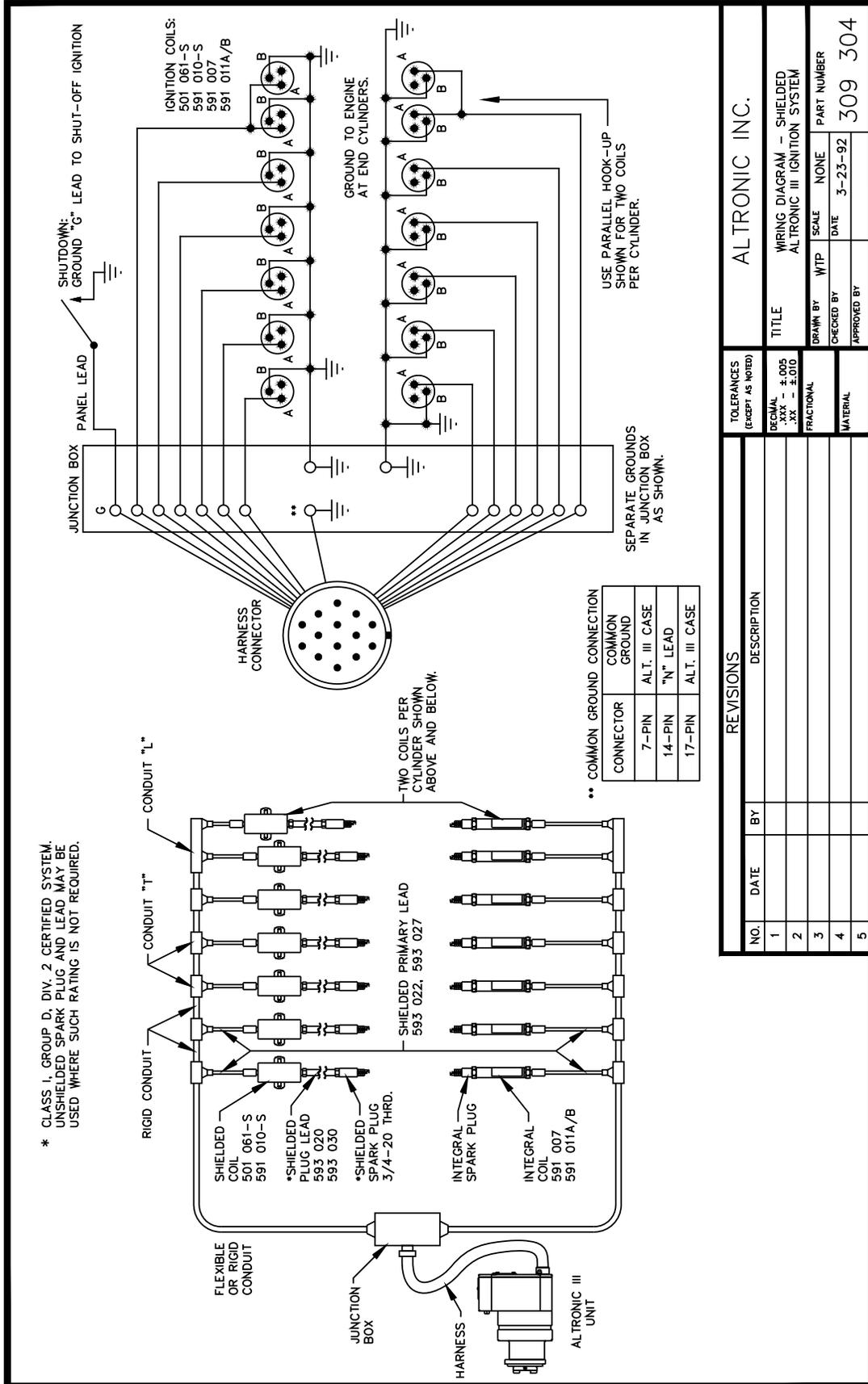
NO.		DATE	BY	DESCRIPTION
1				
2				
3				
4				
5				

TOLERANCES (EXCEPT AS NOTED)	
DECIMAL	.XXX - ±.005 .XX - ±.010
FRACTIONAL	
MATERIAL	

ALTRONIC INC.	
TITLE	WIRING DIAGRAM - UNSHIELDED ALTRONIC III IGNITION SYSTEM
DRAWN BY	WTP
CHECKED BY	SCALE NONE
DATE	3-23-92
PART NUMBER	309 303
APPROVED BY	



NO.		DATE	BY	DESCRIPTION
1				
2				
3				
4				
5				

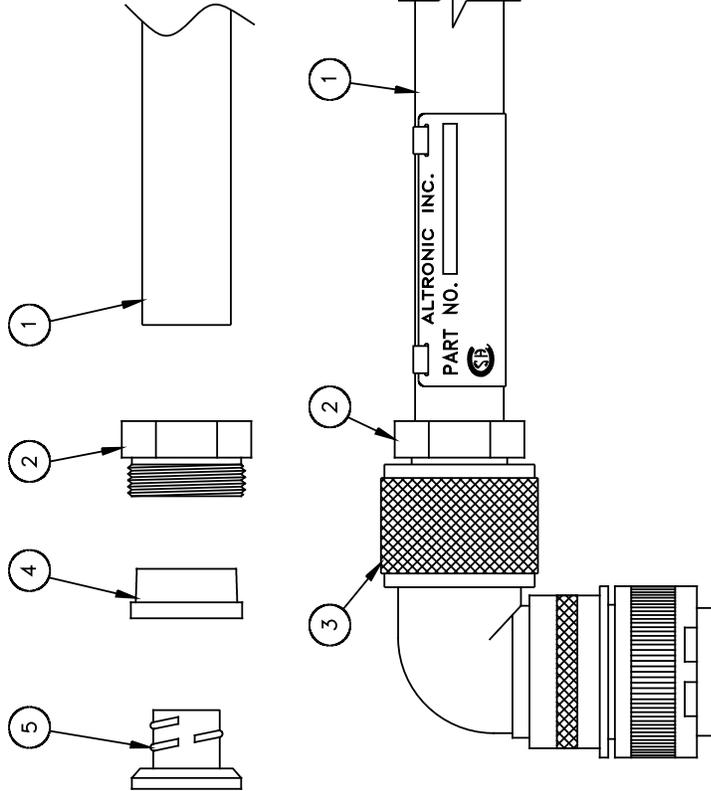
REVISIONS				
NO.	DATE	BY	DESCRIPTION	
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2				
3				
4				
5				

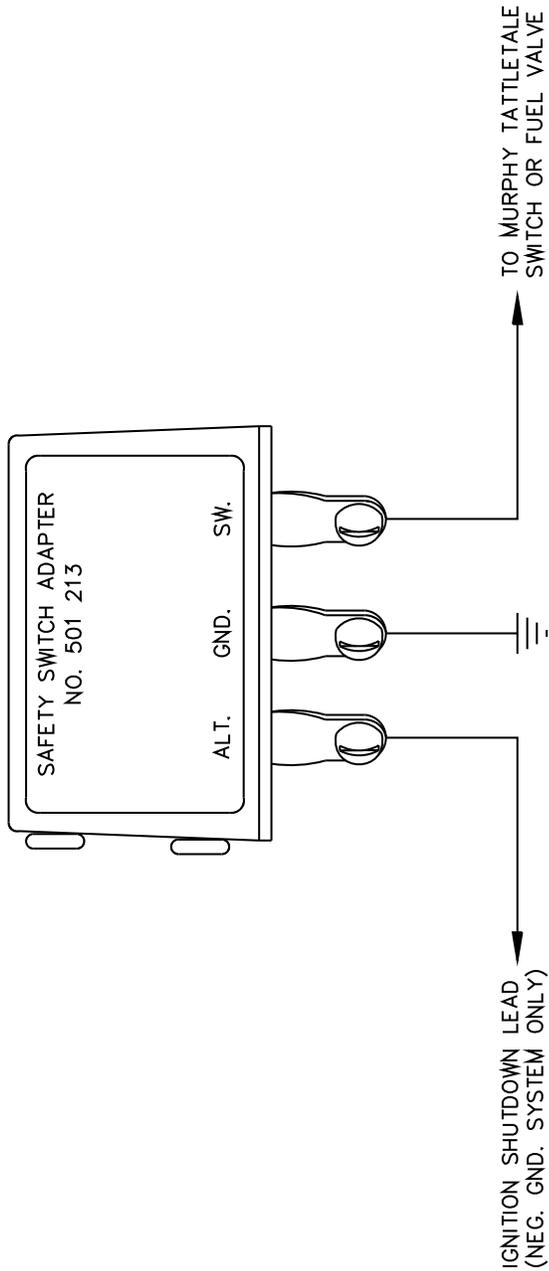
ALTRONIC INC.				
TOLERANCES (EXCEPT AS NOTED)				
DECIMAL	.XXX - ±.005	TITLE	WIRING DIAGRAM - SHIELDED ALTRONIC III IGNITION SYSTEM	
FRACTIONAL	.XX - ±.010	DRAWN BY	WTP	SCALE
MATERIAL		CHECKED BY		DATE
		APPROVED BY		3-23-92
				PART NUMBER
				309 304

**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	TITLE	PART NUMBER
1	3-14-92	WTP	REDRAWN ON CAD	SHIELDED HARNESS CONDUIT LENGTH ADJUSTMENT	509 025
2				DRAWN BY DWA	SCALE NONE
3				CHECKED BY	DATE 5-28-85
4				APPROVED BY	
5					



NO.		DATE		BY		REVISIONS		DESCRIPTION	
1									
2									
3									
4									
5									

TOLERANCES (EXCEPT AS NOTED)				ALTRONIC INC.			
DECIMAL .XXX - ±.005 .XX - ±.010		FRACTIONAL		MATERIAL		TITLE	
DRAWN BY		WTP		SCALE		NONE	
CHECKED BY		DATE		3-25-92		PART NUMBER	
APPROVED BY						509 062	