

Retrofit Ignition/Control Package for Caterpillar® 3500 Engines Equipped with SI/EIS Ignition Systems

Pre-engineered, engine-specific ignition and control system solution for legacy Caterpillar® 3500-series engines equipped with the SI or EIS ignition systems

Utilizes standard, cost-effective Altronic components, including:

- CPU-95 High Speed Gas Engine Digital Ignition System
- DET-1600 Detonation and Misfire Detection System
- DSG-1682DUPS Digital Setpoint Gauge

Incorporates custom ignition and detonation sensor harnesses for simple system installation and service

Delivers expanded user access to system diagnostics and configuration

Assured future upgrade path and system support from Altronic and its Aftermarket Distributor organization

Hazardous area certified for Class I, Division 2, Groups C and D

Many operators of the Caterpillar 3500 engine seek a cost-effective means of upgrading their legacy SI and EIS ignition and control systems with an Altronic-based ignition and instrumentation solution. This need has been driven by a desire for standardization with other Altronic-equipped engines, improved access to operating information and diagnostics, cost-effective access to service parts, and long-term product support.

Altronic has responded to this need with the development of an integrated, pre-engineered solution utilizing proven off-the-shelf components and a number of products specific to 3500-series engines. Available either as individual components, as part of a stand-alone Altronic Controls panel, or as part of a larger panel incorporating additional functionality, this package is designed with variants for each engine model (eight, twelve, and sixteen-cylinder configurations) to provide a maximum level of added capability and operating reliability while minimizing installation costs and associated downtime. These systems feature the standard CPU-95 ignition system and all of its performance and diagnostic features, the Altronic DET-1600 for advanced detonation and misfire control, along with a DSG-1682DUPS Digital Setpoint Gauge to assist in effectively emulating the configuration and function of the existing OEM systems. Engine-specific harnesses for both the ignition system and the accelerometers installed on each power cylinder are provided, along with an EZRail junction module.

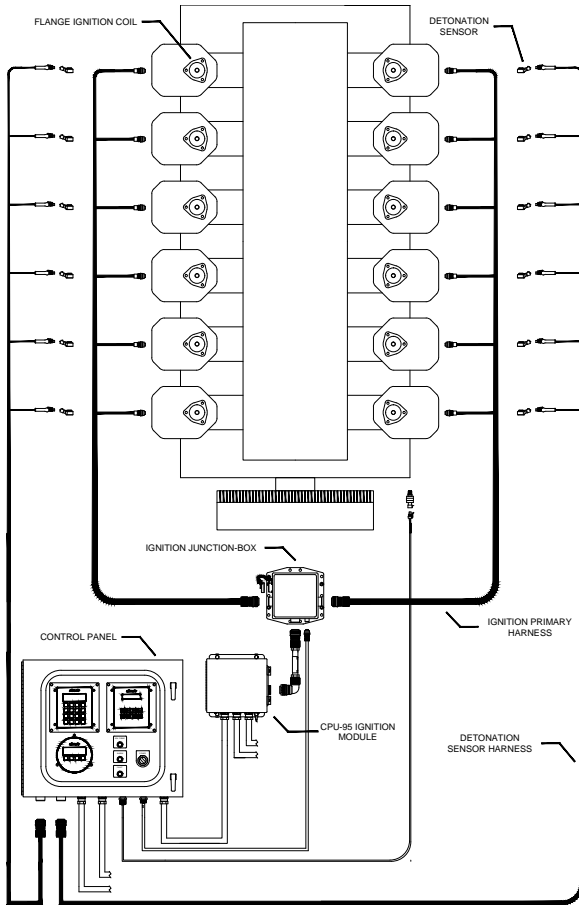
A retrofit of an SI-equipped engine replaces the existing Altronic III, Altronic Interface Box (AIB), and SI panel with the new hardware set – inclusive of new harnesses and an EZRail junction box. All of the ignition coils, valve covers, and secondary components are retained. While the electronic hardware package is identical for retrofitting an EIS engine, the retrofit also requires the replacement of the existing valve covers, secondary hardware, and ignition coils with those components utilized in the SI-based solution. Please see the reverse for a review of the Theory of Operation as well as a system diagram. Additional product specifications and information can also be found in the individual product brochures and technical documentation.



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System Diagram



Theory of Operation

The Altronic SI/EIS Ignition System Retrofit Package is specifically designed to emulate the control parameters of the existing ignition/control system. This is accomplished by biasing the ignition timing vs. engine RPM (internal to the CPU-95), as well as air manifold pressure (AMP), and the DET-1600 detonation control. These latter two inputs (AMP and detonation) are used as inputs into the DSG-1682DUPS and produce a scheduled/integrated 4-20mA output as an additional timing control input to the CPU-95 system. All of the associated RPM switch points, pressure setpoints, and detonation control parameters can be reproduced in the new system from the OEM data. Alternative control strategies, however, are available to the customer to further optimize the performance of their specific application.

Ordering Information

Altronic System Components						
Description	3508 SI	3512 SI	3516 SI	3508 EIS	3512 EIS	3516 EIS
CPU-95 Output Module	1	1	1	1	1	1
CPU-95 Display Module	1	1	1	1	1	1
Harness, Ignition to J-Box	1	1	1	1	1	1
Junction Box	1	1	1	1	1	1
Primary Harness	2	2	2	2	2	2
Magnetic Pickup	2	2	2	2	2	2
Cable - Magnetic Pickup	2	2	2	2	2	2
Magnet Button	1	1	1	1	1	1
Hall-Effect Pickup	1	1	1	1	1	1
Cable - Hall-Effect Pickup	1	1	1	1	1	1
Flange Ignition Coils	-	-	-	8	12	16
DET-1600 Control	1	1	1	1	1	1
Vibration Sensor	8	12	16	8	12	16
Sensor Harness	2	2	2	2	2	2
Cable - J-Box to DET	1	1	1	1	1	1
DSG-1682DUPS Digital Setpoint Gauge	1	1	1	1	1	1
Pressure Transducer, psia	1	1	1	1	1	1
Cable Assembly	1	1	1	1	1	1
Caterpillar System Components (Not Provided by Altronic)						
Valve Cover, 3RC	-	-	-	6	10	14
Valve Cover with Vent, 3RC	-	-	-	2	2	2
Valve Cover Seal	-	-	-	8	12	16
Oil Protection Tube	-	-	-	8	12	16
O-Ring, Oil Protection Tube (#1)	-	-	-	8	12	16
O-Ring, Oil Protection Tube (#2)	-	-	-	8	12	16
Retainer, Oil Protection Tube	-	-	-	8	12	16
Bolt, Oil Protection Tube	-	-	-	8	12	16
Washer, Oil Protection Tube	-	-	-	8	12	16
Spark Plug Extension	-	-	-	8	12	16

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