



GAC CUMMINS ENGINE SOLUTIONS



GOVERNORS AMERICA CORP.

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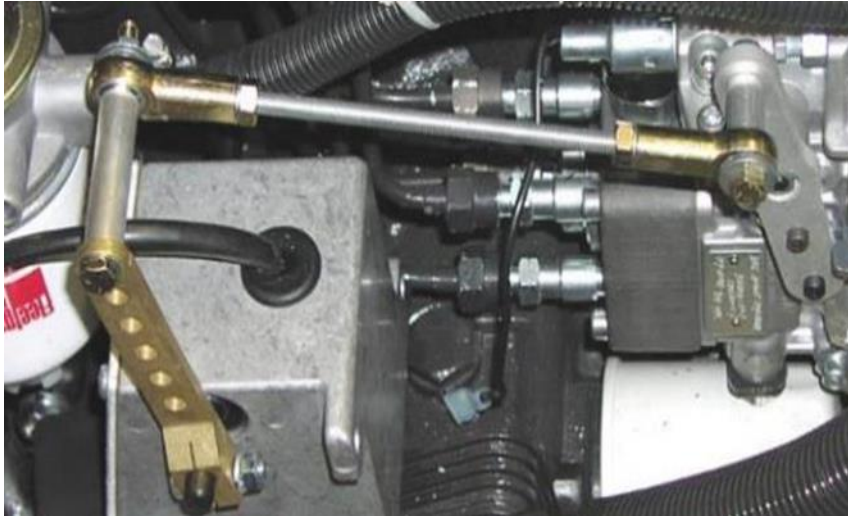


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CUMMINS 4A2.0, 4A2.3 AND 4AT2.3

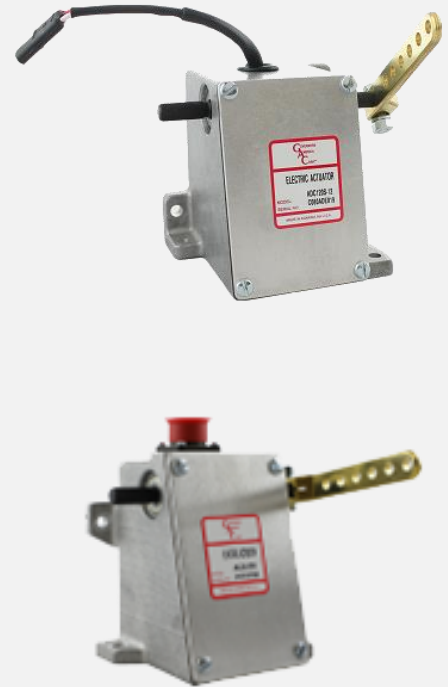
MARINE ENGINE GENERATOR

GAC's 120 Series actuators provide the best solution to adding an electromechanical actuator for the engine fuel control positioning for the Cummins 4A2.0 (122 in³), 28.6 HP, 4A2.3 (140.3 in³), 33 HP and 4AT2.3 (140.3 in³) 4 cylinder in line engines.



The actuator lever must have sufficient travel to shut down the engine when de-energized. [DETAILED INSTALLATION INSTRUCTIONS](#) are available on the GAC website.

120 SERIES



NOTE: All components are sold separately.

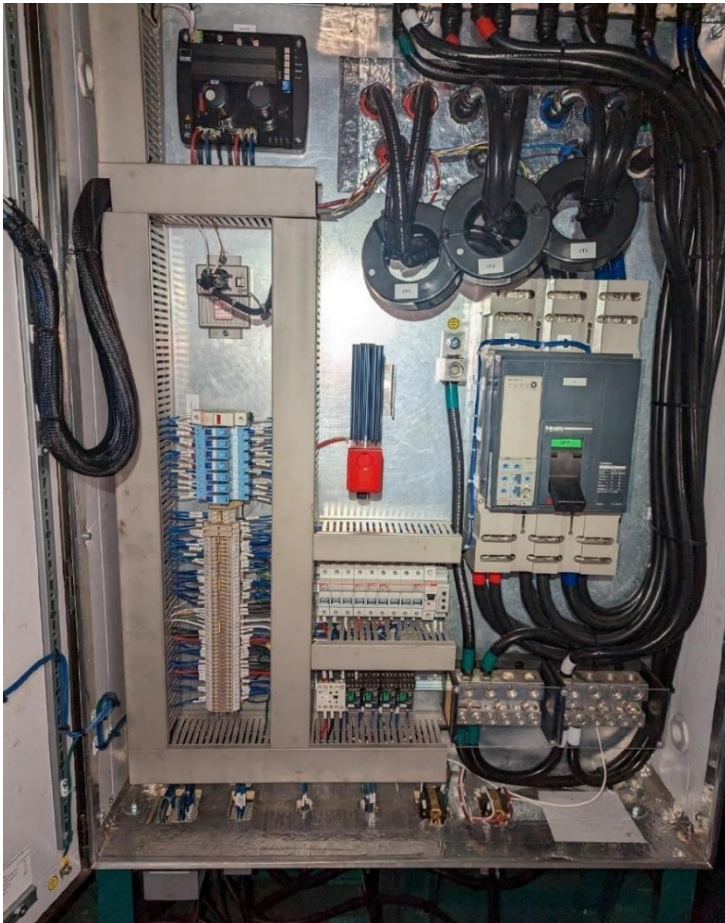
COMPONENT	PART NUMBER	DESCRIPTION
Actuator	120 Series	Universal Actuator includes Lever. Suitable for rotary or small in-line fuel pumps on small carburetors
Other Items	BK234, KT234, LKS234	Bracket, Hardware kit, Linkage

CUMMINS KTA19

GANTRY CRANE

A **container crane** at a Canadian port asked for help fine tuning its new EEG7000. Communicating with Deep Sea DSE 7410-04 controller, the support personnel were very satisfied with the reliability and precision provided by the GAC unit.

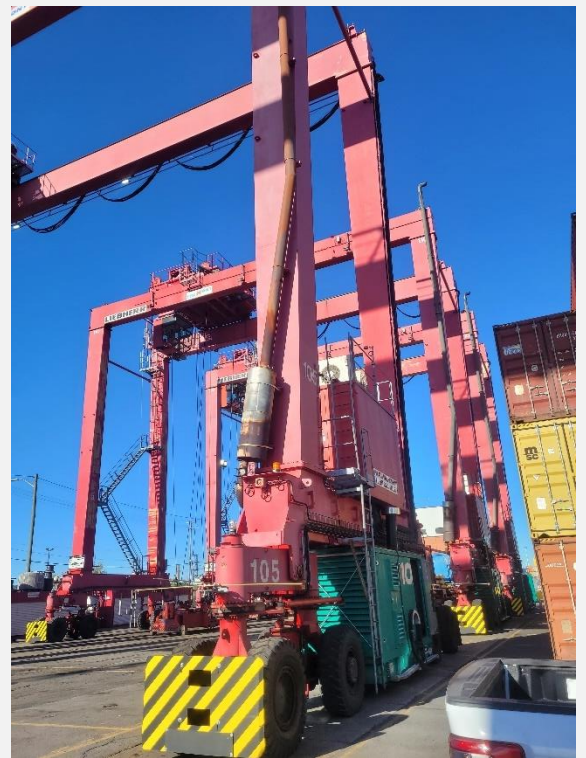
The customer chose the EEG7000 speed controller because it allows the end user to modify or reinstall the original settings without updating the load bank; they just upload GAC's free software and upload the saved configuration file and then, done. The EEG7000 replaced a Cummins (Onan) PCC3100 with integrated speed and voltage controller.



EEG7000



GANTRY CRANE



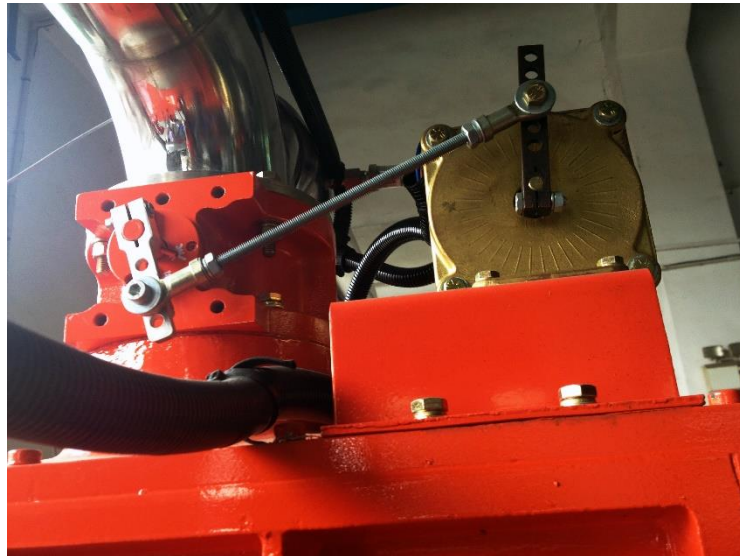
NOTE: All components are sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	EEG7000	Speed Controller

CUMMINS KT38 37.8

37.8L GASEOUS GEN SET 500KW

Camda New Energy Equipment Co. Ltd., a generator manufacturer, 500 kW gaseous gen-set built on the Cummins Kt38 37.8L engine uses the GAC ACB2001 controlled by the GAC ESD5330, specifically designed to run the ACB2001, ensures stability and smooth results.



ESD5330



ACB2001



NOTE: All components are sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Actuator	ACB2001	24 V DC Heavy-duty Actuator
Speed Controller	ESD5330	Speed Controller for Heavy Duty Actuators

CUMMINS NT or KT SERIES ENGINE with PT PUMP and EFC FUEL SYSTEM or PT PUMP with MECHANICAL GOVERNOR

DIESEL GENERATORS AND COMPRESSORS

The 225 Series or ADB120E4-GAC actuators provide engine fuel control positioning on the Cummins NT and KT engines. The Cummins PT fuel system is controlled with either a mechanical governor or Normally Open or Normally Closed Electronic Fuel Control (EFC) system with its actuator integrated in the P.T. pump. These GAC has actuator / governor solutions for each control system offering Isochronous, Droop and Variable Speed operation.



[INSTALLATION INSTRUCTIONS ARE AVAILABLE ON THE GAC WEBSITE.](#)

NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Actuator	ADB120E4-GAC	120E4 Rotary Actuator for Fuel Metering
Speed Controller	EEG6500	EEG6500 Enhanced Electronic Controller

EEG6500



ADC225JS or ADB120E4-GAC



OPTIONAL ITEMS

EAM100



SYC6714



CUMMINS KT38

ALASKAN TUG BOAT

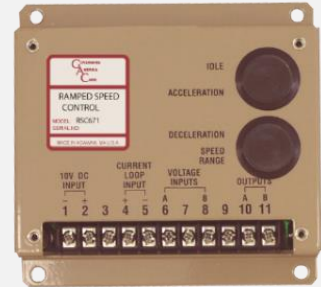
The *GLACIER WIND* of COOK INLET, AK needed more stable control of its 2 Cummins KT38 Engines: V12, 38L (2300 in3) Turbocharged / After-cooled engines. GAC had the answer with ramping control and a heavy-duty actuator.



ESD5221



RSC671



ADB120E4



NOTE: All components are sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controllers	ESD5221	2 Multi-V DC, Overspeed Switch, Overspeed LED, Selectable droop
Actuator	ADB120E4-GAC	120E4 Rotary Actuator for Fuel Metering
Other Items	RSC671	2 Speed Ramping Controllers

CUMMINS QSM11

DEEP WATER VESSEL

Ease of use, reliability, and system compatibility are hallmarks of GAC equipment.



A deep-water operations vessel had a question about a new piece of GAC equipment, the LSM201N load sharing module, recently added to a pair of auxiliary generators - QSM11 Cummins engines with the ISM Engine Control Module (ECM).

Balancing power distribution between engines is the primary function of the LSM. It can also provide power control through ramping and monitoring, accurately measuring true engine power.

When one of the two QSM11-DM engines reversed power it was easy to determine the cause. Out of the box the LSM201N interpreted the ECM increased voltage to be a request to decrease power. But the ECM translated increased voltage as a need to increase power. The LSM was built to allow a hardware solution of adding a jumper to change polarity, but like both GACs EEG7000 and the EEG7500 controllers, the ECM was also able to use software to match the LSM polarity. The issue was easily resolved, and the boat was quickly back in service.

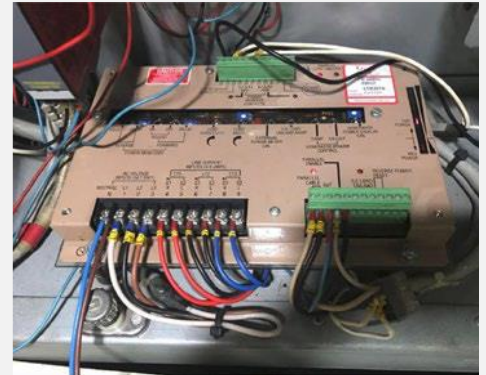
NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controllers	LSM201N	2 Multi-V DC, Overspeed Switch, Overspeed LED, Selectable droop

CUMMINS QSM11



LSM201N



CUMMINS QST30G with Bosch Inline Fuel Pump

REPLACING A PUMP TO GAIN CONTROL

GAC offers a complete electronic governing system conversion kit for the Cummins QST30G governing system using a GAC ADD175F actuator.

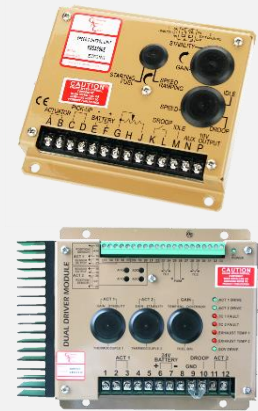
The kit is designed for the QST30G / 30.5L, V121 / 760 to 1500 HP / 567 to 1119 kW - Bosch in-line pump with EDC governor.



Converting to the GAC system requires installation of an ADD175F actuator on each pump with a KT197 adapter kit, installing a K-Type thermocouple in the exhaust stream of each bank, and connecting the actuators, position feedback sensors and thermocouples to the DDM101 module and ESD5111 or ESD5221 speed controller.

The DDM101 uses the input from the two thermocouples and two position sensors to balance and maintain an equal output from both banks of the engine while being controlled by a single governor.

CONTROLLERS



175 SERIES ACTUATOR



SUPPORTING ITEMS



[Installation Instructions](#) available on the GAC website.

NOTE: This solution is not compatible with Cummins PCC controller or Bosch injection pump mounted actuators.



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Actuators	ADD175F , CH1243	Pump Mounted Actuator with Position Feedback Sensor
Installation Kit	KT197	Bosch EDC Governor Adaptor Kit (2 required)
Magnetic Pickup	MSP678, CH1204	Magnetic Speed Pickup: 5/8" and harness
Thermocouple	STE101	K-Type Thermocouples (2)
Speed Controllers	ESD5111 or ESD5221	Isochronous, Variable Speed, Droop Speed Controller
	DDM101	Dual Driver Module

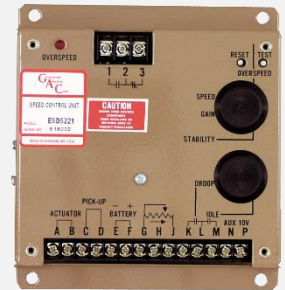
CUMMINS B4

TAYLOR MACHINE WORKS FORKLIFT

CUMMINS B4.5T-C99 on this 10-ton Taylor forklift uses a GAC ESD2300 series electronic speed controller to provide superior speed regulation over a variable RPM range and an immediate, precise response to transient load changes. The electronic foot pedal interface provides the load signal while a ring gear mounted magnetic Pickup provides the speed input.



ESD2349



FP202



NOTE: All components sold separately.

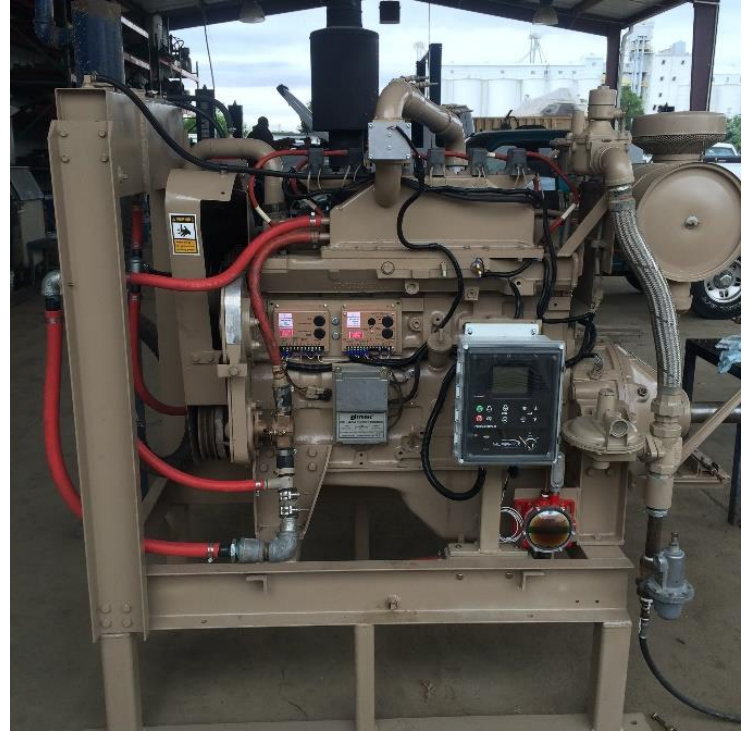
COMPONENT	PART NUMBER	DESCRIPTION
Speed Controllers	ESD2349	2 Multi-V DC, Overspeed Switch, Overspeed LED, Selectable droop
Other Items	FP202	2 Speed Ramping Controllers

GASEOUS PUMP SYSTEMS

PSS Governor Services (PSS) updated Cummins irrigation pump drives on 2 systems. These aftermarket gaseous engines are now controlled by GAC integrated actuator/throttle body assemblies ATB throttle body actuators, RSC671 programmable ramp generators, and ESD5526E governor speed controllers



ATBT2



ESD5221

RSC671



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Actuator	ATBT2	Throttle Body Actuator
Speed Controller	ESD5526E	Isochronous, Variable Speed, Droop Speed Controller
Other Items	RSC671	Ramp Speed Control Module

CUMMINS KTAA-50 L4

CUMMINS INDIA LTD. LOCOMOTIVE

This C.I.L. Diesel Electric Locomotive needed overspeed control. GAC combined their LCC107B controller with the ADB120E4 fuel metering actuator to give them the control they needed. Designed specifically for locomotive use, the LCC107B provides Closed Loop PID Speed Control with Overspeed Sensing, Start Fuel Adjustments, Speed Selects and Excitation Control.



ADB120E4



LCC107B



LCC107B in Control Cabinet



ADB120E4 Fuel Metering Actuator



C.I.L. KTTA-50-L4 ENGINE INSTALLATION



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	LCC107B	Locomotive Speed and Load Control for Cummins KTA50
Actuator	ADB120E4-GAC	120E4 Rotary Actuator for Fuel Metering

GASEOUS IRRIGATION GENERATOR

GAC worked with Johnson Irrigation, a third-generation full-service engine and generator support house, to determine the optimal Gaseous control system for their irrigation engines. The combination of GACs throttle body and EDG5500 speed controller provided a smooth result.



ATB652T2N



EDG5500



NOTE: All components sold separately

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	EDG5500	Electronic Speed Controller with built in display
Actuator	ATB652T2N	65 mm Integrated Actuators/Throttle Body

C1400 DIESEL

GENERATOR

This retrofit included changing out the governor and AVR and connecting into a Deep Sea DSE controller on this C1400. High end horsepower also retrofit with the same on Cummins C1675, and C825s. GAC easily supports Deep Sea and other main panels.



ESD5520E



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5520E	24 V DC, Two-element speed switch, Speed ramping, Starting fuel control, Unique actuator power drive circuit, dynamic start

CUMMINS 855 NA (14L)

GENERATORS, COMPRESSORS, OTHERS

GAC's solution to transforming your diesel engine to a gaseous fueled engine uses a GAC ATB throttle body, speed controller, and customer supplied IMPCO carburetor to upgrade to gaseous fuel.



ATB652T2N



ESD5526E



ADAPTERS



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5526E	Isochronous, Variable Speed, Droop Speed Controller
Actuator	ATB652T2N	65 mm Integrated Actuators/Throttle Body
Other Items	KT425 , KT855	Mounting Kits

CUMMINS KTA50-G9 – 2220 HP, 50L, V16

CONTROL EMERGENCY WATER COOLING SYSTEM

DCML installed a KTA50-G9 engine with a PT fuel system and EFC actuator, controlled by an ESD5500E series speed control, to drive a water pump to displace 3600m3 of water per hour (over 951,000 gallons per hour). The pump runs on an automated system and comes on-line with a power failure or other interruption.

The ESD5500E is programmed to re-start in idle speed for 20 seconds then accelerate under speed ramp control to 1800 RPM. The rate of acceleration is set to correspond with the opening rate of the water repression valve. The system is programmed to run for one hour each day to confirm function and ensure its availability in the event of an emergency.



ESD5500E



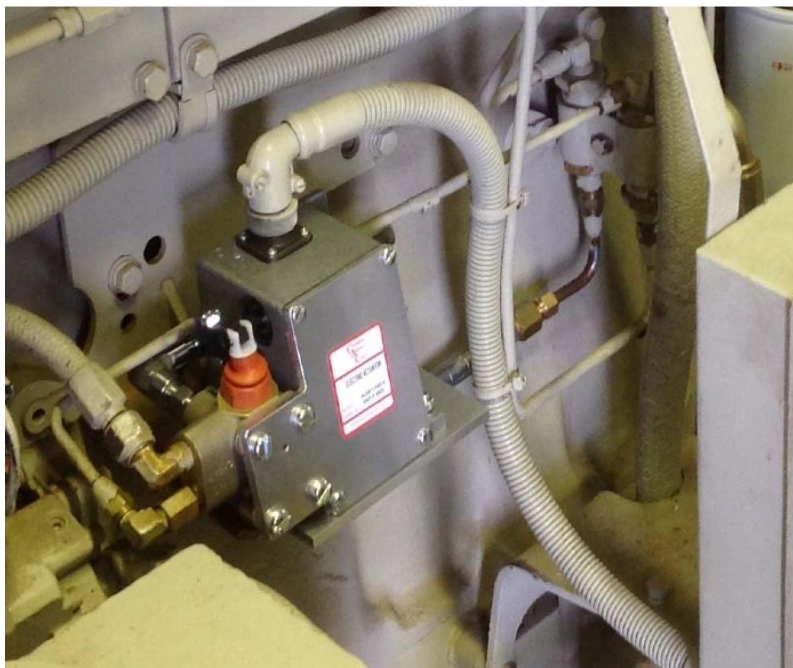
NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5500E	Series Isochronous, Variable Speed, Droop Speed Control

CUMMINS NT and KT Engines with EFC System

GENERATOR

This linear, proportional, electric fuel metering servo is designed for use on Cummins engines with PT fuel systems. The actuator is energized by signals from a speed control unit and can deliver fuel at rates up to 770 kg/h (1700 lbs/h).



ESD5522E



ADB120E4



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Actuator	ADB120E4-GAC	Rotary Actuator for Fuel Metering with BK115
Speed Controller	ESD5522E	24 V DC, Two-element speed switch, Speed ramping, Starting fuel control, Unique actuator power drive circuit, dynamic start
Other Items	MSP6724	Magnetic Speed Pickup

NTA855 DIESEL ENGINE CONVERTED TO GAS

GENERATOR

Jubilee built the single engine generator using the connection between the DSE generator control panel and the ESD6550 speed controller to control the fuel relay.

This allows the speed controller to operate independently of the generator controller with normal shutdown and emergency shutdown removing power from the governor to stop the engine.



EEG6550



ATB652T2F14



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controllers	EEG6550	Enhanced Electronic Digital Governor
Actuator	ATB652T2F14	65 mm Integrated Actuators/Throttle Body with Feedback Sensor

CUMMINS VT1710 ENGINE

IRRIGATION ENGINE SOLUTION

The Cummins VT1710 Engine requires two gaseous throttle body Actuator, each receiving equal fuel levels. The Dual Driver Module (DDM101) is used to regulate the fuel in each bank using its fuel and exhaust temperature balance.

Using the DDM101, none, one, or two actuators can have droop. Two [thermocouples](#) measure, track, and therefore trim the balance based on exhaust temperatures.



ESD5111



ATB652T2F14



DDM101



STE101



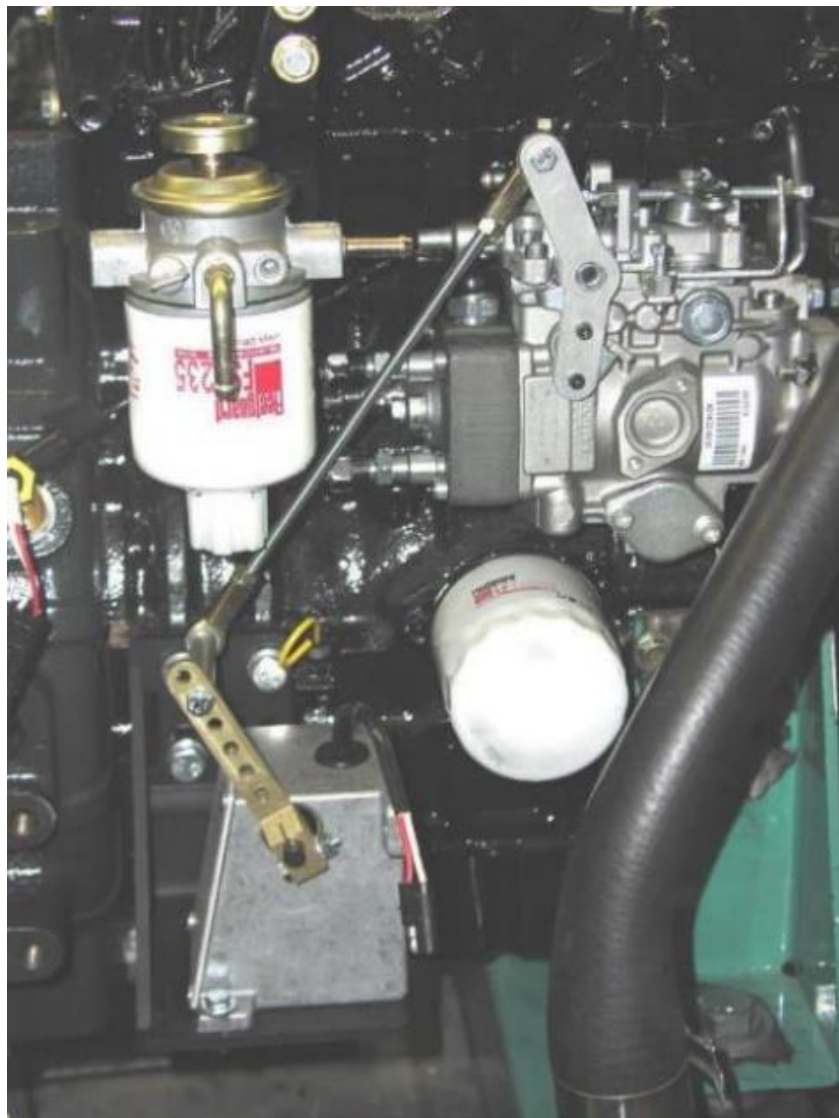
NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5111	Isochronous, Variable Speed, Droop Speed Controller
Actuator	ATB652T2F14	65 mm Integrated Actuators/Throttle Body with Feedback Sensor
Other Items	DDM101 STE101	Dual Driver Module Exhaust Gas Temperature Sensor

CUMMINS 3A1.4 & 3A1.7 3 CYLINDER ENGINES

GENERATORS AND COMPRESSORS

[DETAILED INSTALLATION INSTRUCTIONS](#) are available on the GAC website for the 120 Series Installation Instructions and Parts List for Cummins 3A1.4 and 3A1.7 provide an electromechanical actuator used for engine fuel control positioning.



120 SERIES



HARDWARE



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Actuator	ADC120S	Universal Actuator for rotary or small in-line fuel pumps
Other Items	BK233, KT233, LKS233	Mounting hardware

6BTA ENGINE WITH CONTROL PANEL SUPPORTED BY ESD5500E

GENERATOR

A failed Power Command panel upgraded with a new DSE panel and upgraded to the ESD5500E controller. This one was being upgraded by at a Rugby Club.



ESD5500E



6BTA

**Bosch Inline Pump, Diesel
173 HP @ 2500 RPM, B5.9**

NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5500E	Multi-V DC controller (Volvo Part Number 3817999)

CUMMINS 6B/5.9L

MARINE PROPULSION / GENERATOR DRIVE

This Bosch Inline Pump, Diesel 173 HP on the Cummins 6B profited from an upgrade to an electronic governor.



ESD5500E



ADC225S



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5500E	Multi-V DC controller (Volvo Part Number 3817999)
Actuator	ADC225S or ADD175A	Rotary output, linear torque, proportional servo (Volvo Part Number 3838271)
Other Items	KT175-A-R or KT275, and MSP6724	Mounting kits and Magnetic Speed Pickup

CUMMINS 4B (T) and 6B (T)

AGRICULTURAL / INDUSTRIAL EQUIPMENT

The 120 Series is a precise electronic actuator designed for use on a Cummins 4B(T) & 6B(T) engine equipped with a CAV/DPA injection pump. GAC and CAV recommend replacing the idling and governor springs of the DPA fuel injection pump when applying external governors.

CAV DPA ROTARY PUMP



CUMMINS B Series



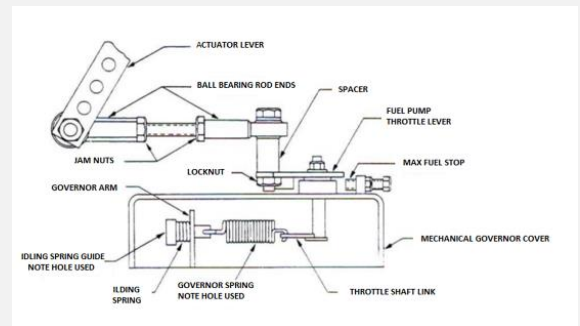
ESD5500E



120 SERIES



LINKAGE



NOTE: All components sold separately.

COMPONENT	PART NUMBER	DESCRIPTION
Speed Controller	ESD5500E	Also use ESD2210, ESD5111, ESD5500E, or EEG6500
Actuator	ADC120S	Universal Actuator for rotary or small in-line fuel pumps
Other Items	MSP6728C	Magnetic Speed Pickup

REPLACEMENT RECOMMENDATIONS

The following are suggestions for possible solutions to upgrades. Your solution may vary. Call GAC for more information.

ENGINE CONFIGURATION TO REPLACE					RECOMMENDED GAC SOLUTION		
ENGINE MODEL	FUEL	FUEL SYSTEM	ACTUATOR	SPEED CONTROL	ACTUATOR	SPEED CONTROL	KIT
B3.9-C	Diesel	PES4A95D4 20RS2880 (P3000)	RSV475 1250AOC825R	RSV Mechanical Governor	ADD175A-12	ESD5500 or EEG6500	KT175-RS-R
B3.3	Diesel	Bosch VE			ALN050-12 or -24	ESD5120, ESD5520, EEG6500	KT130
B Series	Diesel	CAV			ADC120S	ESD5111	
C8.3	Diesel		DYNA 8000		ADC225S-12		BK267
C8.3-P	Diesel		DYN1-10653-001-0-24 or DYN5-30000		225 Series	EEG7000	
G-745, 12.1L	Gaseous				ATB652T2N14-24, ATB652T2F14-24	AFR 210 or ESD5526	MXMBxx
GT 5.9L	Gaseous		DYNC-11020-300-0-24	DYNA1-10654-000-24	ADC120S-24	ESD5111	
LTA-10G1	Diesel	EFC				Normally Closed use EEG6550, ESD5522E, ESD5120 Normally Open use ESD5119 or ESD5160	
NT855C	Diesel		Barber Colman AGD-130E4		ADB120E4-GAC		
NT855	Diesel	PT	DYNA8000		ADC225JS	ESD5111	BK267
NT855	Diesel	PT	DYNA8200		ACB225	ESD5111	BK267, CH1210
NT855	Diesel	PT	3408325 normally closed EFC	3044196	ADB120E4-GAC	EEG7000, 6550, ESD5522E, ESD5120	PG112 Plug
NT855GS	Diesel		EG-3P		ADC225JS-24	ESD5111	
NT855G2	Diesel		Cummins EFC		ADB120E4-GAC	ESD5111	BK114
NTA855	Diesel	PT	AGB130E4	ECD67-5111	ADB120E4	ESD5111	BK114
NTA855M	Diesel	PT Pump	Mechanical governor		225 Series	ESD5111, ESD5500E or EEG6500	
NTA855G	Diesel		Woodward DYNA 11103-0-0-24		ADC225S	ESD5111	BK267

ENGINE CONFIGURATION TO REPLACE					RECOMMENDED GAC SOLUTION		
ENGINE MODEL	FUEL	FUEL SYSTEM	ACTUATOR	SPEED CONTROL	ACTUATOR	SPEED CONTROL	KIT
NTA855GS1	Diesel		AGD200	ECD67-7000	ADB120E4	ESD5111	
QSC 8.3	Diesel		DC 10502-0000012		ALN050-12	ESD5120	Starter plate BK266
QSK19 (GTA19-G4 gen set)	Gaseous		Woodward ProAct 75		ADB335 or ACB2001	ESD5330 (if not replacing the Pro Act 75 torque motor, must use EEG7500)	
QST30	Diesel	Cummins			ADD175F (qty. 2)	ESD5111 (qty. 2)	DDM101 See the QST30 replacement instructions on GAC website.
V12-500-GS	Diesel	PT fuel pump	PSG governor	Woodward 8510-255	ADC225JS	ESD5111	
1710	Diesel	PT hydraulic governor			ADC225JS	ESD5111	
3406	Gaseous		8290-195 Flow Tech (68mm, 4-20mA input)		ATB sized to need	ESD5330	
4B	Diesel	Zexel Pump			ADD175A/KT175-RS-R-Zexel	ESD5111	KT175-RS-R-Zexel
4B4.5	Diesel	VE Pump			ALN050	ESD5500	
5.9L	Gaseous		Woodward PF 42 actuator		ATB401T1N-12	ESD5526E	
5.9L	Diesel	CAV			ALN050 or 225 Series		
5.9L	Diesel	VE Pump	Woodward A061N421 (Cummins 8250-1504)		ALN050 or ADC225S	ESD5120 or ESD5111	
6BT	Diesel		APECS 8250-1504	APECS	ALN050-12	ESD5120, 5520 or EEG6500	KT130
6BT 5.9	Diesel	Stanadyne DB4			ADC100-12	ECC328, ESD2402, ESD5520, ESD5120, ESD5570, EEG6500, EEG6550, EEG7000, or EEG7500	
6CTA8.3-G2	Diesel				ADD175A		
6C.T6	Diesel	Bosch In Line	DYNA 8000		ADC225S-12 or -24	ESD5111, ESD5500E or EEG6500	BK267



SOLUTIONS THAT OUTLIVE THE LIFE OF THE ENGINE

GAC OFFERS PROVEN RESULTS

GAC provides cost-effective solutions that offer the greatest potential for improvements in both engine efficiency and emissions while providing many features.

Governors America Corp. (GAC) is a leading provider of innovative engine control products worldwide. As a veteran-owned and operated family business, our dedication and focus on our customers' needs has shaped GAC into a vertically integrated company with complete design, development and manufacturing capabilities.

Our mission is to provide trusted solutions for the innovative equipment that powers and builds our world. GAC's market-focused efforts provide precise electromechanical and electronic engine devices and speed control systems globally.