File

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-328-1
Relating to Certification of New Motor Vehicles

IMPCO TECHNOLOGIES, INC.

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapter 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That 1997 model-year Impco Technologies, Inc. exhaust emission control systems are certified as described below for medium-duty vehicles:

Emission Standard Category: Low-Emission Vehicle (LEV)

Fuel Type: Dual-Fuel Compressed Natural Gas (CNG) or Gasoline

Engine Family: VTJ5.7AZN7EK Displacement: 5.7 Liters (350 Cubic Inches)

Exhaust Emission Control Systems & Special Features:

Dual Three Way Catalytic Converters
Dual Heated Oxygen Sensors (two)
Exhaust Gas Recirculation
Sequential Multiport Fuel Injection (Gasoline)
Throttle Body Fuel Injection (CNG)

Vehicle models, transmissions, engine codes and evaporative emission control families are listed on attachments.

The certification exhaust emission standards for this engine family in grams per mile are: (The standards in parentheses are for gasoline.)

Test Weight (lbs.)	Miles	Non-Methane Organic Gases	Carbon Monoxide	Nitrogen Oxides	Formaldehyde
5751-8500	50,000	0.195 (0.39)	5.0 (5.0)	1.1 (1.1)	0.022 (0.022)
	120,000	0.280 (0.56)	7.3 (7.3)	1.5 (1.5)	0.032 (0.032)

The CNG certification exhaust emission values set forth for non-methane organic gases (NMOG) reflect application of a reactivity adjustment factor (RAF) for CNG-fueled medium-duty LEVs, and the addition of the product of the methane exhaust emission value and a RAF for methane emission of CNG-fueled medium-duty LEVs.

Reactivity Adjustment Factor for NMOG Mass Emission: 0.43

Reactivity Adjustment Factor for Methane Mass Emission: 0.0047

The certification exhaust emission values for this engine family in grams per mile are: (The values in parentheses are for gasoline.)

Test Weight (lbs.)	Miles	Non-Methane Organic Gases	Carbon Monoxide	Nitrogen Oxides	Formaldehyde
5751-8500	50,000	0.040 (0.16)	2.1 (2.0)	0.7 (0.3)	0.003 (0.003)
	120,000	0.046 (0.18)	2.5 (2.6)	0.8 (0.4)	0.003 (0.003)

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying the listed vehicle models to the 50,000-mile evaporative emission standards applicable to 1980 through 1994 model-year vehicles in the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles," and the listed vehicle models comply with those standards.

BE IT FURTHER RESOLVED: That the listed vehicle models shall not be subject to the running loss and useful life standards set forth in the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles" pursuant to provisions in the said standards and test procedures applicable to small-volume manufacturers.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" for the aforementioned model year (Title 13, California Code of Regulations, Section 2235).

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high-altitude requirements and highway emission standards, and with the California Inspection and Maintenance emission standards in place at the time of certification, as stipulated in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Emission Control and Smog Index Label Specifications" for the aforementioned model year (Title 13, California Code of Regulations, Section 1965).

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "Malfunction and Diagnostic System Requirements--1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty vehicles and Engines" (Title 13, California Code of Regulations, Section 1968.1) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed vehicles, the manufacturer has submitted and the Executive Officer hereby approves the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2035 et seq.).

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachment.

Executed at El Monte, California this 18th day of March 1997.

R. B. Summerfield, Chief
Mobile Source Operations Division

E.O.# A-328-1

1997 MODEL-YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: IMPCO Technologies, Inc. Exh Eng Fam: VTJ5.7AZN7EK Evap Fam: VTJ1098ASMBA
All Eng Codes in Eng Fam: CA___ 49S___ 50S X AB965___
Exh Std: CA Tier-1___ TLEV___ LEV X ULEV___ ZEV___; US EPA Tier-1___
Evap Std: 50K X Useful Life with R/L__ In-Use Exh Std: Full In Use__ Alt In Use X
Veh Class(es): PC___ LDT1___ LDT2__ MDV1__ MDV2___ MDV3 X___ MDV4___ MDV5___
Single Cert Std for Multi-Class Eng Fam: N/A (specify:N/A,LDT1,MDV1,MDV2,MDV3,MDV4)
Fuel Type(s): Dedicated__ Flex-Fuel__ Dual-Fuel X Bi-Fuel__ Gasoline X__ Diesel__
CNG X__ LNG__ LPG__ M85__ Other (specify)_____
Emiss Test Fuel(s): Indo X Ph2__ CNG X LPG__ M85___ Other (specify)_____
Diesel: 13 CCR 2282__ 40 CFR 86.113-90__ 40 CFR 86.113-94__
Service Accum: Std AMA__ Mod AMA__ Mfr ADP__ Other(specify): ADF(CNG); C/A GM DF(GAS)
NMOG Test Procedure: N/A___ Std__ Equiv X__ R/L Test Proc: SHED N/A Pt Source N/A
Hybrid: Type A__ B__ C__, APU Cycle (e.g., Otto, Diesel, Turbine): N/A
Engine Configuration: V8__ Displacement: 5.7 / Liters 350 / Cubic Inches
Valves per Cylinder: 2__ Rated HP 215 HP @ 4500 RPM (CNG); 255 HP @ 4600 RPM (GAS)
Engine: Front X__ Mid___ Rear___ Drive: FWD___ RWD X 4 WD-FT___ 4WD-PT___
Exhaust ECS (e.g., MFI, EGR, TC, CAC): 2TWC / 2HO2S(2) / EGR / SFI/ TBI
(use abbreviations per SAE J1930 SEP91)

Engine Code (also list CA/49ST/50ST)	Vehicle Models (if coded see attachment)	Trans. (M5, A4, etc.)	ETW or Test Wt.	DPA or RLHP	Ignition (ECM/PCM) Part No.	EGR System Part No.	Catalytic Converter Part No.
01 (50ST)	GM Sierra Chevrolet C-Pickup	A4	7000	15.3	16213205 (BNHR)/ 16256465-OPER 16256475-ENG 16243559-TRANS	17096188	25160620