State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-8-100
Relating to Certification of New Motor Vehicles

BAYERISCHE MOTOREN WERKE AG

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 Bayerische Motoren Werke AG exhaust emission control systems are certified as described below for passenger cars:

Emission Standard Category: Transitional Low-Emission Vehicle (TLEV)

Fuel Type: Gasoline

Engine Family: VBM2.8VJGKEK Displacement: 2.8 Liters (170.4 Cubic Inches)

Exhaust Emission Control Systems and Special Features:

Dual Three Way Catalytic Converters
Dual Heated Oxygen Sensors (two)
Sequential Multiport Fuel Injection
Secondary Air Injection

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

The TLEV certification exhaust emission standards for this engine family in grams per mile are:

| Miles | Non-Methane Organic Gas | Carbon Monoxide | Nitrogen Oxides | Formaldehyde | Carbon Monoxide (20°F) |
|---|---|---|---|---|---|
| 50,000 | 0.125 | 3.4 | 0.4 | 0.015 | 10.0 |
| 100,000 | 0.156 | 4.2 | 0.6 | 0.018 | n/a |

Reactivity Adjustment Factor (RAF) for NMOG Mass Emission: 0.98

The certification exhaust emission values set forth for non-methane organic gas (NMOG) reflect application of a 0.98 RAF for 1997 model-year TLEVs. The TLEV certification exhaust emission values for this engine family in grams per mile are:

| Miles | Non-Methane Organic Gas | Carbon Monoxide | Nitrogen Oxides | Formaldehyde | Carbon Monoxide (20°F) |
|---|---|---|---|---|---|
| 50,000 | 0.094 | 1.0 | 0.2 | 0.003 | 2.5 |
| 100,000 | 0.105 | 1.0 | 0.2 | 0.004 | n/a |

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying the listed vehicle models to the aforementioned exhaust emission standards based on its submitted plan to comply with the fleet average non-methane organic gas (NMOG) exhaust mass emission requirements as set forth 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 under the submitted NMOG fleet average compliance plan, if the manufacturer incurs a NMOG debit for the aforementioned model year based on the projected NMOG fleet average exceeding the value required by the above-referenced standards and test procedures, all incurred NMOG debits by the manufacturer shall be equalized as required by the standards and test procedures.

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, based on the evaporative emission phase-in compliance schedule submitted by the vehicle manufacturer, 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."

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 vehicle manufacturer has demonstrated compliance with the exhaust emission standards at 50 degrees Fahrenheit 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 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 4th day of April 1996.

R. B. Summerfield
Assistant Division Chief
Mobile Source Division

E.O.# A-8-100

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

**Manufacturer :** BMW **Exh. Engine Family :** VBM2.8VJGKEK **Evap. Fam:** VBM1045CYPAO
**All Eng Codes in Eng Fam:** CA ___ 49S ___ 50S X AB965 ___
**Exh Std:** CA Tier-1 ___ TLEV X LEV ___ ULEV ___ ZEV ___ ; US EPA Tier-1 X
**Evap Std:** 50K X Useful Life with R/L ___ **In-Use Exh Std:** Full In Use X Alt In Use ___
**Veh Class:** PC X LDT1 ___ LDT2 ___ MDV1 ___ MDV2 ___ MDV3 ___ MDV4 ___ MDV5 ___
**Single Cert Std for Multi - Class Eng Fam:** N/A
**Fuel Type (s):** Dedicated X Flex-Fuel ___ Dual Fuel ___ Bi - Fuel ___ Gasoline X Diesel ___
CNG ___ LNG ___ LPG ___ M85 ___ Other (specify) ___
**Emiss Test Fuel (s):** Indo ___ Ph2 X CNG ___ LPG ___ M85 ___ Other (specify) ___
Diesel: 13 CCR 2282 ___ 40 CFR86.113-90 ___ 40 CFR86.113-94 ___
**Service Accum:** Std AMA ___ Mod AMA ___ Mfr ADP X Other (specify) ___
**NMOG Test Procedure:** N/A ___ Std X Equiv ___ **R/L Test Proc:** SHED ___ Pt Source ___
**Hybrid:** Type A ___ B ___ C ___ , APU Cycle (e.g., Otto, Diesel, Turbine) ___
**Engine Configuration:** inline-6 **Displacement:** 2.8 Liters 170.4 Cubic Inches
**Valves per Cylinder:** 4 **Rated HP:** 190 @ 5 300 RPM
**Engine:** Front X Mid ___ Rear ___ **Drive:** FWD ___ RWD X 4WD-FT ___ 4WD-PT ___
**Exhaust ECS:** 2TWC, 2HO2S-2, SFI, AIR

| Engine Code (50 ST) | Vehicle Models | Trans. Type | ETW (lbs.) | DPA or RLHP (hp) | Ignition (ECM/PCM) Part No. | EGR System Part No. | Catalytic Converter Part No. |
|---|---|---|---|---|---|---|---|
| 2.8/5 A4 | 528iA | A4 | 3 750 | 7.1 | 1 744 385<br>1 740 499 | n.a. | 1 744 164 left<br>1 744 163 right |
| 2.8/5 M5 | 528i | M5 | 3 750 | 7.1 | | | 1 432 455 left<br>1 432 456 right |