

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-353-7  
Relating to Exemptions under Section 27156  
of the Vehicle Code

Miller Catalyzer Corporation  
"Series 11000 and 12000 OBD II Compliant Three-way Catalytic Converters"

WHEREAS, Vehicle Code Sections 27156 and Section 2222(h), Title 13, California Code of Regulations, authorize the California Air Resources Board and its Executive Officer to exempt new aftermarket catalytic converters from the prohibitions of Vehicle Code Section 27156.

WHEREAS, Miller Catalyzer Corporation (Miller) of 3295 Depot Road, Hayward, California 94545, has applied to the Air Resources Board for exemption from the prohibitions in Vehicle Code Section 27156 to market its new aftermarket Series 11000 and 12000 three-way catalytic converters (TWCs) for installation on 2001 and older model year Mercedes-Benz, BMW, GM, and Toyota passenger cars equipped with on-board diagnostic II (OBD-II) systems as specified in Appendix D-353-7 and incorporated herein. The Series 12000 TWC as front catalytic converter (2 units) and Series 11000 as rear catalytic converters (2 units) will be used in multiple catalytic converter systems (4 units total) for Mercedes-Benz vehicles. Series 11000 will also be used for dual (2 units in parallel) or single (2 units in series) exhaust system applications for Mercedes-Benz vehicles. Furthermore, Series 11000 will be used for dual (2 units in parallel) and single (1 unit) exhaust applications for BMW, GM, and Toyota vehicles. Catalytic converters for Mercedes-Benz vehicles will be sold as a complete system only, and not as individual units.

The TWCs may also be installed on non-OBD II vehicles (1995 and older) similar in engine and exhaust configuration to those listed in Appendix D-353-7.

WHEREAS, pursuant to the authority vested in the Executive Officer by Health and Safety Code Section 39515 and in the Chief, Mobile Source Operations Division by Health and Safety Code Section 39516 and Executive Order G-02-003, Air Resources Board finds that the above aftermarket catalytic converters comply with the California Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h). The emissions performance of the catalytic converters was based on durability bench-aging by Delphi Energy and Chassis Systems using ARB-modified RAT-A bench-aging cycle for 75 hours, as specified in the "Optional Evaluation Procedures for New Aftermarket Non-original Equipment Catalytic Converters Equipped With On-Board Diagnostic II (OBD II) Systems."

WHEREAS, emissions tests conducted at the Automotive Testing Development Services, Inc. (ATDS), Ontario, California, using vehicles listed below showed that the vehicles met the applicable emission standards with Series 11000 and 12000 TWCs installed in place of the original equipment manufacturer (OEM) catalytic converters.

1. No changes are permitted to the catalytic converters as described in the application for exemption. Any changes to the catalytic converters or any of their components, and other factors addressed in this order must be evaluated and approved by the Air Resources Board prior to marketing in California.
2. Marketing of the catalytic converters using identifications other than those shown in the exemption application, and in this Executive Order, or marketing of the catalytic converters for application other than the ones shown in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of these products shall not be construed as an exemption to sell, offer for sale, or advertise any components of the catalytic converters as individual devices.

IT IS HEREBY RESOLVED that the above catalytic converters are exempt from the prohibitions in Vehicle Code Section 27156 for installation on the approved vehicle applications specified in Appendix D-353-7 subject to the following conditions:

| ATDS, Ontario, California |       |     |     |
|---------------------------|-------|-----|-----|
| 4.3L Mercedes-Benz Test   |       |     |     |
|                           | NMOG  | CO  | NOX |
| 100K Standard             | 0.090 | 4.2 | 0.3 |
| Test 1                    | 0.025 | 0.3 | 0.1 |
| Test 2                    | 0.026 | 0.3 | 0.1 |
| Average of Tests 1 & 2    | 0.025 | 0.3 | 0.1 |
| 2.8L BMW Test             |       |     |     |
| 50K Standard              | 0.125 | 3.4 | 0.4 |
| Test 1                    | 0.097 | 1.2 | 0.3 |
| Test 2                    | 0.081 | 1.0 | 0.4 |
| Average of Tests 1 & 2    | 0.089 | 1.1 | 0.3 |
| 3.1L GM Test              |       |     |     |
| 100K Standard             | 0.090 | 4.2 | 0.3 |
| Test 1                    | 0.076 | 1.1 | 0.1 |
| Test 2                    | 0.089 | 1.2 | 0.2 |
| Average of Tests 1 & 2    | 0.082 | 1.1 | 0.1 |
| Pass                      |       |     |     |

OBD II compatibility tests performed on the same test vehicles showed that Series 11000 and 12000 TWCS do not affect the vehicle's ability to perform OBD II system monitoring. Emission test results in grams per mile are shown below.

| Vehicle | Model | Engine | Certification | Weight | Installed | Unit | Location  | Year | Displacement | Level | Category | Unit |
|---------|-------|--------|---------------|--------|-----------|------|-----------|------|--------------|-------|----------|------|
| GM      | 1999  | 3.1L   | LEV           | PC     | 11000 (1) |      | Underbody |      |              |       |          |      |
| BMW     | 1998  | 2.8L   | TLEV          | PC     | 11000 (1) |      | Underbody |      |              |       |          |      |
| MBZ     | 1998  | 4.3L   | LEV           | PC     | 12000 (2) |      | Front     |      |              |       |          |      |
|         |       |        |               |        |           |      | Rear      |      |              |       |          |      |

3. Any oral or written references to this Executive Order or its content by Miller Catalyzer Corporation, its principals, agents, employees, distributors, dealers, or other representatives must include the disclaimer that the Executive Order or the exemption it provides is not an endorsement or approval of any emission reduction claims for the catalytic converters and is only a finding that the catalytic converters are exempt from the prohibitions of Vehicle Code Section 27156.
4. Miller Catalyzer Corporation's installation instructions for the new catalytic converters must conform to requirements in Paragraphs I and X of the "Optional Evaluation Procedures for New Aftermarket Non-original Equipment Catalytic Converters Equipped With On-Board Diagnostic II (OBD II) Systems."
5. Upon installation, the catalytic converters must carry a manufacturer's warranty for 50,000 miles on the substrates and 50,000 miles or five years on the shell and end pipes.
6. Miller Catalyzer Corporation and its vendors may not advertise the new aftermarket catalytic converters as "high or easy flow" catalytic converters or use any phrase that could make them appear to perform better than an OEM catalytic converter.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after a ten day written notice of intention to revoke it, during which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request, and the order may not be revoked until a determination is made, after the hearing, that grounds for revocation exist.

Executive Order D-353-6 dated March 14, 2005, is hereby superseded and is of no further force and effect.

Executed at El Monte, California, this 10<sup>TH</sup> day of May 2005.



Allen Lyons, Chief  
Mobile Source Operations Division

## Miller Catalyzer Corporation's BMW OBDII Applications Catalog • Cars

| Year | Make | Model                      | Cyl | Eng  | Level  | Miller Replacement Catalyst | Type                    | No. of Cats on Car | Monitored Cats       | Engine Family # | Miller Direct Fit part # |
|------|------|----------------------------|-----|------|--------|-----------------------------|-------------------------|--------------------|----------------------|-----------------|--------------------------|
| 1996 | BMW  | 318i, 318ti, 318is & Z3    | 4   | 1.9L | TIER 1 | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | TBM1.9VJGKEK    | 11770                    |
| 1996 | BMW  | 328i, 328s, 328c           | 6   | 2.8L | TLEV   | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | TBM2.8VJGKEK    | 11750                    |
| 1996 | BMW  | 740iL & 840Ci              | 6   | 4.4L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | TBM4.4VJGFEK    | 11610 & 11620            |
| 1996 | BMW  | 750iL & 850Ci              | 12  | 5.4L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | TBM5.4V8GFEK    | 11730 & 11710            |
| 1997 | BMW  | 318i, 318ti, 318is         | 4   | 1.9L | TLEV   | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | VBM1.9VJGKEK    | 11770                    |
| 1997 | BMW  | Z3                         | 4   | 1.9L | TIER 1 | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | VBM1.9VJGFEK    | 11770                    |
| 1997 | BMW  | Z3 2.8L                    | 6   | 2.8L | TLEV   | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | VBM2.8VJGKEK    | 11760                    |
| 1997 | BMW  | 328i, 328is, 328iC         | 6   | 2.8L | TLEV   | 11000                       | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | VBM2.8VJGKEK    | 11750                    |
| 1997 | BMW  | 540i, 740i, 740iL, & 840Ci | 8   | 4.4L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | VBM4.4VJGKEK    | 11610 & 11620            |
| 1997 | BMW  | 750iL & 850Ci              | 12  | 5.4L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | VBM5.4V8GFEK    | 11730 & 11710            |
| 1998 | BMW  | 318i, 318ti, 318s & Z3     | 4   | 1.9L | TLEV   | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | WBMXV01.9M44    | 11770                    |
| 1998 | BMW  | 328i, 328is, 328iC         | 6   | 2.8L | TLEV   | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | WBMXV02.8M52    | 11750                    |
| 1998 | BMW  | Z3, 323is & 323iC          | 6   | 2.8L | TLEV   | 11000                       | Single-Exh, Single Conv | 1                  | Monitored            | WBMXV02.8Z35    | 11760                    |
| 1998 | BMW  | M3 & 528                   | 6   | 2.8L | TLEV   | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | WBMXV02.8M52    | 11750                    |
| 1998 | BMW  | 540i, 740i & 740L          | 8   | 4.4L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | WBMXV04.4M62    | 11610 & 11620            |
| 1998 | BMW  | 750iL                      | 12  | 5.4L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh, Dual Convs    | 2                  | Both Convs Monitored | WBMXV05.4M73    | 11730 & 11710            |

The Series 12000 TWC as front catalytic converter (2 units) and Series 11000 as rear catalytic converters (2 units) will be used in multiple catalytic converter systems (4 units total) for Mercedes-Benz vehicles. Series 11000 will also be used for dual (2 units in parallel) or single (2 units in series) exhaust system applications for Mercedes-Benz vehicles. Furthermore, Series 11000 will be used for dual (2 units in parallel) and single (1 unit) exhaust applications for BMW and GM vehicles. Catalytic converters for Mercedes-Benz vehicles will be sold as a complete system only, and not as individual units.

## Miller Catalyzer Corporation's General Motors OBDII Applications Catalog • Cats

| Year | Make | Model   | Cyl | Eng  | Level  | Miller Replacement Catalyst | Type   | No. of Cats on Car | Monitored Cats | Engine Family No. | Miller Aftermarket Part No. |
|------|------|---|-----|------|--------|-----------------------------|--------|--------------------|----------------|-------------------|-----------------------------|
| 1996 | GM   | Corsica   | 4   | 2.2L | TLEV   | 11000                       | Single | 1                  | 1              | TGM2.22V8G2EK     | 11002                       |
| 1996 | GM   | Beretta   | 4   | 2.2L | TLEV   | 11000                       | Single | 1                  | 1              | TGM2.22V8G2EK     | 11078                       |
| 1996 | GM   | Cavalier, Sunfire                                 | 4   | 2.2L | TLEV   | 11000                       | Single | 1                  | 1              | TGM2.22V8G2EK     | 11300 or 11078              |
| 1996 | GM   | Grand Am, Sunfire                                 | 4   | 2.4L | TLEV   | 11000                       | Single | 1                  | 1              | TGM2.4VJG2EK      | 11078                       |
| 1996 | GM   | Achieva   | 4   | 2.4L | TLEV   | 11000                       | Single | 1                  | 1              | TGM2.4VJG2EK      | 11084                       |
| 1996 | GM   | Cavalier, Skylark                                 | 4   | 2.4L | TLEV   | 11000                       | Single | 1                  | 1              | TGM2.4VJG2EK      | 11300 or 11078              |
| 1996 | GM   | Grand Prix, Regal                                 | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | TGM3.8V8G2EK      | 11078                       |
| 1996 | GM   | Century   | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | TGM3.8V8G2EK      | 11085                       |
| 1996 | GM   | Bonneville, Le Sabre, Park Ave., Regency, Riviera | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | TGM3.8V8G2EK      | 11300                       |
| 1997 | GM   | Cavalier, Sunfire                                 | 4   | 2.2L | TLEV   | 11000                       | Single | 1                  | 1              | VCR122VJG2EK      | 11300                       |
| 1997 | GM   | Corsica   | 4   | 2.2L | TLEV   | 11000                       | Single | 1                  | 1              | VCR122VJG2EK      | 11002                       |
| 1997 | GM   | Beretta   | 4   | 2.2L | TLEV   | 11000                       | Single | 1                  | 1              | VCR122VJG2EK      | 11078                       |
| 1997 | GM   | Achieva, Cavalier, Sunfire                        | 4   | 2.4L | Tier 1 | 11000                       | Single | 1                  | 1              | VGM2.4JG1EK       | 11078                       |
| 1997 | GM   | Regal   | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | VGM3.8V8G2EK      | 11078                       |
| 1997 | GM   | Century   | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | VGM3.8V8G2EK      | 11300 or 11078              |
| 1997 | GM   | Grand Prix  | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | VGM3.8V8G2EK      | 11078                       |
| 1997 | GM   | Bonneville, Le Sabre, Park Avenue, Riviera        | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | VGM3.8V8G2EK      | 11368                       |
| 1997 | GM   | Regency   | 6   | 3.8L | TLEV   | 11000                       | Single | 1                  | 1              | VGM3.8V8G2EK      | 11300                       |

## Miller Catalyzer Corporation's General Motors OBDII Applications Catalog • Cats

| Year | Make | Model                                      | Cyl | Eng  | Level | Miller Replacement Catalyst | Type   | No. of Cats on Car | Monitored Cats | Engine Family No. | Miller Aftermarket Part No. |
|------|------|--|-----|------|-------|-----------------------------|--------|--------------------|----------------|-------------------|-----------------------------|
| 1998 | GM   | Saturn SL Sedan                            | 4   | 1.9L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV01.9002      | 11300                       |
| 1998 | GM   | Saturn SL Sedan                            | 4   | 1.9L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV01.9004      | 11300                       |
| 1998 | GM   | Sunfire, Chevrolet Cavalier                | 4   | 2.2L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV02.2023      | 11300                       |
| 1998 | GM   | Olds Cutlass, Grand AM                     | 4   | 2.4L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV02.4026      | 11078                       |
| 1998 | GM   | Chevrolet Malibu                           | 4   | 2.4L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV02.4026      | 11079                       |
| 1998 | GM   | Buick Skylark, Olds Achieva                | 4   | 2.4L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV02.4026      | 11084                       |
| 1998 | GM   | Sunfire, Chevrolet Cavalier                | 4   | 2.4L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV02.4026      | 11300                       |
| 1998 | GM   | Buick Century                              | 6   | 3.1L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.1044      | 11013                       |
| 1998 | GM   | Chevrolet Lumina, Olds Cutlass, Grand Prix | 6   | 3.1L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.1044      | 11078                       |
| 1998 | GM   | Chevrolet Malibu                           | 6   | 3.1L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.1044      | 11079                       |
| 1998 | GM   | Chevrolet Monte Carlo                      | 6   | 3.1L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.1044      | 11088                       |
| 1998 | GM   | Olds Intrigue                              | 6   | 3.8L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.8048      | 11013                       |
| 1998 | GM   | Buick Regal, Chevrolet Lumina, Grand Prix  | 6   | 3.8L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.8048      | 11078                       |
| 1998 | GM   | Chevrolet Monte Carlo                      | 6   | 3.8L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.8048      | 11079                       |
| 1998 | GM   | Buick Lesabre, Olds 88 Regency             | 6   | 3.8L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.8048      | 11340                       |
| 1998 | GM   | Bonneville, Buick Park Avenue              | 6   | 3.8L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV03.8048      | 11368                       |
| 1998 | GM   | Chevrolet Prizm                            | 4   | 1.8L | TLEV  | 11000                       | Single | 1                  | 1              | WNTXV01.8DXB      | 11989                       |

## Miller Catalyzer Corporation's General Motors OBDII Applications Catalog • Cars

| Year | Make | Model                 | Cyl | Eng  | Level | Miller Replacement Catalyst | Type   | No. of Cats on Car | Monitored Cats | Engine Family No. | Miller Aftermarket Part No. |
|------|------|-----------------------|-----|------|-------|-----------------------------|--------|--------------------|----------------|-------------------|-----------------------------|
| 1998 | GM   | Saturn SW Wagon       | 4   | 1.9L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV01.9002      | 11300                       |
| 1998 | GM   | Saturn SC Coupe       | 4   | 1.9L | TLEV  | 11000                       | Single | 1                  | 1              | WGMXV01.9002      | 11300                       |
| 1999 | GM   | Buick Lesabre         | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Buick Park Avenue     | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8053      | 11078                       |
| 1999 | GM   | Buick Riviera         | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8053      | 11078                       |
| 1999 | GM   | Buick Regal           | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8053      | 11078                       |
| 1999 | GM   | Buick Regal           | 6   | 3.9L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Cadillac Catera       | 6   | 3.0L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.0061      | 11078                       |
| 1999 | GM   | Chevrolet Cavalier    | 4   | 2.2L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.2023      | 11300                       |
| 1999 | GM   | Chevrolet Cavalier    | 4   | 2.4L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.4027      | 11300                       |
| 1999 | GM   | Chevrolet Malibu      | 6   | 3.1L | LEV   | 11000                       | Single | 1                  | 1              | XGMV03.1043       | 11078                       |
| 1999 | GM   | Chevrolet Malibu      | 4   | 2.4L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.4027      | 11078                       |
| 1999 | GM   | Chevrolet Lumina      | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Chevrolet Monte Carlo | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Chevrolet Camaro      | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11340                       |
| 1999 | GM   | Olds Cutlass          | 6   | 3.1L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.1043      | 11078                       |
| 1999 | GM   | Olds Alero            | 4   | 2.4L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.4027      | 11078                       |
| 1999 | GM   | Olds Cutlass          | 4   | 2.4L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.4027      | 11078                       |
| 1999 | GM   | Olds Eighty-Eight     | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Olds Regency          | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Olds Intrigue         | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |
| 1999 | GM   | Pontiac Sunfire       | 4   | 2.2L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.2023      | 11078                       |
| 1999 | GM   | Pontiac Grand Am      | 4   | 2.4L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.4027      | 11310                       |
| 1999 | GM   | Pontiac Sunfire       | 4   | 2.4L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV02.4027      | 11300                       |
| 1999 | GM   | Pontiac Bonneville    | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11368                       |
| 1999 | GM   | Pontiac Bonneville    | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8053      | 11368                       |
| 1999 | GM   | Pontiac Firebird      | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11340                       |
| 1999 | GM   | Pontiac Grand Prix    | 6   | 3.8L | LEV   | 11000                       | Single | 1                  | 1              | XGMXV03.8049      | 11078                       |

# Miller Catalyzer Corporation's General Motors OBDII Applications Catalog • Cars

| Year | Make | Model                 | Cyl | Eng  | Level | Miller Replacement |  | Type   | No. of<br>Cats<br>on Car | Moni-<br>tored<br>Cats | Engine<br>Family No. | Miller<br>Aftermarket<br>Part No. |
|------|------|-----------------------|-----|------|-------|--------------------|--|--------|--------------------------|------------------------|----------------------|-----------------------------------|
|      |      |                       |     |      |       | Catalyst           |  |        |                          |                        |                      |                                   |
| 1999 | GM   | Saturn SL Sedan       | 4   | 1.9L | LEV   | 11000              |  | Single | 1                        | 1                      | XGMXV01.9004         | 11300                             |
| 1999 | GM   | Saturn SW wagon       | 4   | 1.9L | LEV   | 11000              |  | Single | 1                        | 1                      | XGMXV01.9004         | 11300                             |
| 1999 | GM   | Buick Century         | 6   | 3.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.4042         | 11078                             |
| 1999 | GM   | Buick Park Avenue     | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Buick Regal           | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Buick Lesabre         | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Buick Riviera         | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8051         | 11078                             |
| 1999 | GM   | Buick Park Avenue     | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8051         | 11078                             |
| 1999 | GM   | Buick Regal           | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8051         | 11078                             |
| 1999 | GM   | Chevrolet Monte Carlo | 6   | 3.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.4042         | 11078                             |
| 1999 | GM   | Chevrolet Camaro      | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11344                             |
| 1999 | GM   | Chevrolet Lumina      | 6   | 3.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.4042         | 11078                             |
| 1999 | GM   | Chevrolet Lumina      | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Chevrolet Monte Carlo | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Olds Alero            | 4   | 2.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV02.4025         | 11078                             |
| 1999 | GM   | Olds Cutlass          | 4   | 2.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV02.4025         | 11078                             |
| 1999 | GM   | Olds Alero            | 6   | 3.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.4042         | 11078                             |
| 1999 | GM   | Olds Intrigue         | 6   | 3.5L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.5064         | 11078                             |
| 1999 | GM   | Olds Intrigue         | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Olds Eighty Eight     | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Olds Regency          | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Pontiac Grand AM      | 4   | 2.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV02.4025         | 11078                             |
| 1999 | GM   | Pontiac Grand AM      | 6   | 3.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.4042         | 11078                             |
| 1999 | GM   | Pontiac Grand Prix    | 6   | 3.4L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.4042         | 11078                             |
| 1999 | GM   | Pontiac Firebird      | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11340                             |
| 1999 | GM   | Pontiac Grand Prix    | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11034                             |
| 1999 | GM   | Pontiac Bonneville    | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8048         | 11078                             |
| 1999 | GM   | Pontiac Grand Prix    | 6   | 3.8L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV03.8051         | 11078                             |
| 1999 | GM   | Pontiac Sunfire       | 4   | 2.2L | TLEV  | 11000              |  | Single | 1                        | 1                      | XGMXV02.2022         | 11300                             |



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| Year | Make | Model                      | Cyl | Eng  | Level  | Miller Replacement Catalyst | Type                     | No. of Cats Monitored on Car | Engine Family #                   | Miller Direct Fil part #          |
|------|------|----------------------------|-----|------|--------|-----------------------------|--------------------------|------------------------------|-----------------------------------|-----------------------------------|
| 1996 | MBZ  | C220                       | 4   | 2.2L | TLEV   | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Both Convs Monitored              | TMB2.2VJGKEK 12580                |
| 1996 | MBZ  | C36                        | 6   | 3.6L | TIER 1 | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Both Convs Monitored              | TMB3.6VJGKEK 12780                |
| 1998 | MBZ  | E320, S320, SL320          | 6   | 3.2L | TIER 1 | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Right Conv Monitored Only         | TMB3.2VJGFEK 12640                |
| 1996 | MBZ  | S500, SL500, S420          | 8   | 5.0L | TIER 1 | 12000 Front, 11000 Rear     | Dual Exh., Multiple Conv | 4                            | Front Monitored, Rear Unmonitored | TMB5.0VJGFEK 12690, 12700 & 12710 |
| 1996 | MBZ  | S600, SL600                | 12  | 6.0L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh., Dual Convs    | 2                            | Both Convs Monitored              | TMB6.0VJGFEK 12480 & 12490        |
| 1997 | MBZ  | C230                       | 4   | 2.3L | TLEV   | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Both Convs Monitored              | VMB2.3VJGKEK 12610                |
| 1997 | MBZ  | C36                        | 6   | 3.6L | TIER 1 | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Both Convs Monitored              | VMB3.6VJGKEK 12780                |
| 1997 | MBZ  | E320, S320, SL320          | 6   | 3.2L | TIER 1 | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Right Conv Monitored Only         | VMB3.2VJGKEK 12640                |
| 1997 | MBZ  | S500, SL500, S420, & E420  | 8   | 5.0L | TLEV   | 12000 Front, 11000 Rear     | Dual Exh., Multiple Conv | 4                            | Front Monitored, Rear Unmonitored | VMB5.0VJGKEK 12690, 12700 & 12710 |
| 1997 | MBZ  | S600, SL600                | 12  | 6.0L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh., Dual Convs    | 2                            | Both Convs Monitored              | VMB6.0VJGFEK 12480 & 12490        |
| 1998 | MBZ  | SLK230                     | 4   | 2.3L | TIER 1 | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Both Convs Monitored              | WMBXV02.3GSJ 12580                |
| 1998 | MBZ  | C230                       | 4   | 2.3L | TLEV   | 11000 Left, 11000 Right     | Single Exh., Dual Convs  | 2                            | Both Convs Monitored              | WMBXV02.3GNU 12580                |
| 1998 | MBZ  | E320, CLK320               | 6   | 3.2L | LEV    | 11000 Left, 11000 Right     | Dual Exh., Dual Convs    | 2                            | Both Convs Monitored              | WMBXV06.0GNU 12640 & 12650        |
| 1998 | MBZ  | S320                       | 6   | 3.2L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh., Dual Convs    | 2                            | Both Convs Monitored              | WMBXV03.2GNU 12840 & 12850        |
| 1998 | MBZ  | SL320                      | 6   | 3.2L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh., Dual Convs    | 2                            | Both Convs Monitored              | WMBXV03.2GNT 12840 & 12850        |
| 1998 | MBZ  | E430, C43                  | 8   | 4.3L | LEV    | 12000 Front, 11000 Rear     | Dual Exh., Multiple Conv | 4                            | Front Monitored, Rear Unmonitored | WMBXV04.3GNB 12780 & 12790        |
| 1998 | MBZ  | S420, S500, CL500, & SL500 | 8   | 5.0L | TLEV   | 12000 Front, 11000 Rear     | Dual Exh., Multiple Conv | 4                            | Front Monitored, Rear Unmonitored | WMBXV05.0GNB 12690, 12700 & 12710 |
| 1998 | MBZ  | S600, SL600, CL600         | 12  | 6.0L | TIER 1 | 11000 Left, 11000 Right     | Dual Exh., Dual Convs    | 2                            | Both Convs Monitored              | WMBXV06.0GNU 12480 & 12490        |

The Series 12000 TWC as front catalytic converter (2 units) and Series 11000 as rear catalytic converters (2 units) will be used in multiple catalytic converter systems (4 units total) for Mercedes-Benz vehicles. Series 11000 will also be used for dual (2 units in parallel) or single (2 units in series) exhaust system applications for Mercedes-Benz vehicles. Furthermore, Series 11000 will be used for dual (2 units in parallel) and single (1 unit) exhaust applications for BMW and GM vehicles. Catalytic converters for Mercedes-Benz vehicles will be sold as a complete system only, and not as individual units.

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| Year | Make   | Model           | Cyl | Eng      | Level  | Type | # of<br>Cats<br>on Car | Moni-<br>tored<br>Cats | Engine<br>Family # | Miller<br>Replacement<br>Catalyst # | Miller<br>Direct Fit<br>Part # |
|------|--------|-----------------|-----|----------|--------|------|------------------------|------------------------|--------------------|-------------------------------------|--------------------------------|
| 1996 | Toyota | Tercel, Paseo   | 4   | 1.5L     | Tier 1 | SEM  | 1                      | 1                      | TTY1.5VHGFEK       | 11000                               | 11989                          |
| 1996 | Toyota | Corolla         | 4   | 1.8L     | Tier 1 | SEM  | 1                      | 1                      | TTY1.8VJG1GK       | 11000                               | 11989                          |
| 1996 | Toyota | Camry           | 6   | 3.0L     | Tier 1 | SEM  | 1                      | 1                      | TTY3.0VJG1GK       | 11000                               | 11954                          |
| 1996 | Toyota | Celica          | 4   | 1.8L     | Tier 1 | SEM  | 1                      | 1                      | TTY1.5VHGFEK       | 11000                               | 11989                          |
| 1996 | Toyota | Avalon          | 6   | 3.0L     | Tier 1 | SEM  | 1                      | 1                      | TTY3.0VJG1GK       | 11000                               | 11975                          |
| 1997 | Toyota | Tercel, Paseo   | 4   | 1.5L     | Tier 1 | SEM  | 1                      | 1                      | VTY1.5VJGKEK       | 11000                               | 11989                          |
| 1997 | Toyota | Corolla         | 4   | 1.8L     | Tier 1 | SEM  | 1                      | 1                      | VTY1.8VJGFFK       | 11000                               | 11989                          |
| 1997 | Toyota | Camry           | 6   | 3.0L     | Tier 1 | SEM  | 1                      | 1                      | VTY3.0VJGKFK       | 11000                               | 11975                          |
| 1997 | Toyota | Avalon          | 6   | 3.0L     | Tier 1 | SEM  | 1                      | 1                      | VTY3.0VJGKFK       | 11000                               | 11975                          |
| 1997 | Toyota | Celica, Corolla | 4   | 1.6/1.8L | Tier 1 | SEM  | 1                      | 1                      | VTY1.8VJGFEK       | 11000                               | 11989                          |

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| Year | Make   | Model          | Cyl | Eng  | Level  | Type | # of<br>Cats<br>on Car | Moni-<br>tored<br>Cats | Engine<br>Family # | Miller<br>Replacement<br>Catalyst # | Miller<br>Direct Fit<br>Part # |
|------|--------|----------------|-----|------|--------|------|------------------------|------------------------|--------------------|-------------------------------------|--------------------------------|
| 1998 | Toyota | Tercel         | 4   | 1.5L | Tier 1 | SEM  | 1                      | 1                      | WTYXV01.5BBA       | 11000                               | 11989                          |
| 1998 | Toyota | Corolla        | 4   | 1.8L | TLEV   | SEM  | 1                      | 1                      | WTYXV01.8DXB       | 11000                               | 11939                          |
| 1998 | Toyota | Camry, Avalon  | 6   | 3.0L | LEV    | SEM  | 1                      | 1                      | WTYXV03.0GXB       | 11000                               | 11975                          |
| 1999 | Toyota | Tercel, Paseo  | 4   | 1.5  | Tier 1 | SEM  | 1                      | 1                      | XTYXV01.5BBA       | 11000                               |                                |
| 1999 | Toyota | Corolla        | 4   | 1.8L | TLEV   | SEM  | 1                      | 1                      | XTYXV01.8DXB       | 11000                               | 11939                          |
| 1999 | Toyota | Solara, Avalon | 6   | 3.0L | Tier 1 | SEM  | 1                      | 1                      | XTYXV03.0BBA       | 11000                               | 11954 or 11975                 |
| 1999 | Toyota | Celica         | 4   | 2.2L | TLEV   | SEM  | 1                      | 1                      | XTYXV02.2DXD       | 11000                               | 11939                          |
| 2000 | Toyota | Echo           | 4   | 1.5L | LEV    | SEM  | 1                      | 1                      | YTYXV01.5FFA       | 11000                               | 11939                          |
| 2000 | Toyota | Corolla        | 4   | 1.8L | LEV    | SEM  | 1                      | 1                      | YTYXV01.8FFA       | 11000                               | 11939                          |
| 2000 | Toyota | Camry, Solara  | 6   | 3.0L | Tier 1 | SEM  | 1                      | 1                      | YTYXV03.0BBA       | 11000                               | 11975 or 11989                 |
| 2000 | Toyota | Celica         | 4   | 1.8L | TLEV   | SEM  | 1                      | 1                      | YTYXV01.8DDC       | 11000                               | 11939                          |
| 2000 | Toyota | Celica         | 4   | 1.8L | TLEV   | SEM  | 1                      | 1                      | YTYXV01.8DDB       | 11000                               | 11939                          |

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| Year | Make   | Model         | Cyl | Eng      | Level  | Type | # of<br>Cats<br>on Car | Moni-<br>tored<br>Cats | Engine<br>Family # | Miller<br>Replacement<br>Catalyst # | Miller<br>Direct Fit<br>Part # |
|------|--------|---------------|-----|----------|--------|------|------------------------|------------------------|--------------------|-------------------------------------|--------------------------------|
| 2001 | Toyota | Echo, Corolla | 4   | 1.5/1.8L | LEV    | SEM  | 1                      | 1                      | 1TYXV01.5FFA       | 11000                               | 11939                          |
| 2001 | Toyota | Solara, Camry | 6   | 3.0L     | Tier 1 | SEM  | 1                      | 1                      | 1TYXV03.0BBA       | 11000                               | 11989                          |
| 2001 | Toyota | Celica        | 4   | 1.8L     | TLEV   | SEM  | 1                      | 1                      | 1TYXV01.8DDC       | 11000                               | 11939                          |
| 2001 | Toyota | Celica        | 4   | 1.8L     | TLEV   | SEM  | 1                      | 1                      | 1TYXV01.8DDB       | 11000                               | 11939                          |