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M Heritage

Model: All M Models

Production: From Start of Production

OBJECTIVES

After completion of this module you will be able to:

- Identify vehicles that make up the Motorsport Heritage.
- Familiarize yourself with the current M product line.

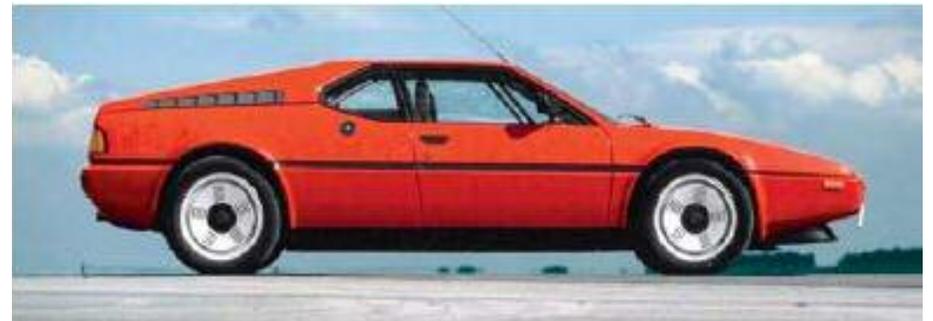
M Heritage

Since 1972, BMW M GmbH, the “Motorsport” division of BMW has been turning out some of the most powerful and legendary engine packages in the auto industry.



E26 M1

The M1 is a mid-engine race car that was produced by BMW. A production version was introduced to the public as the E26 M1 coupe and was hand-built under the Motorsport division. The vehicle was built (in limited production) from 1978 to 1981.



The M1’s engine has a displacement of 3.5L and was designated the M88. It is configured as a straight six and uses twin overhead cams, four valves per cylinder, and six individual throttle bodies with mechanical fuel injection.

Although the M88 propelled the M1 to a top speed of 165 mph and developed 277 hp in the production vehicle, turbocharged racing versions of the vehicle produced well in excess of 800hp.

The production version of the M88, the S38 was later installed in other BMW vehicles such as the E24 M6 and E28 M5. (See the Engine Section of this training material for more information.)

M5 Models

E28 M5

Based on the E28 5 Series and hand built in Dingolfing, this M5 was the first car to combine the everyday usability of a sedan with the performance of a sports car. At its introduction the first M5 was not only the fastest sedan at the time but also heralded the birth of a whole new segment.



Cylinders:	Six in-line
Capacity:	3.5 liters
0-62:	6.5 seconds
Top speed:	152 mph
Performance:	286 bhp
Torque:	340 Nm/240 lb-ft

Note: US version had 30 bhp less compared with the European due to the changes that allowed it to run on unleaded fuel with a catalytic converter.

E34 M5

The successor to the E28 came with one of the most powerful straight-six engines ever built by BMW. The exterior appearance was more individual with muscular front and rear aprons, contrasting side skirts and a unique wheel design. The E34 M5 far exceeded the sales figures of its predecessor.



Cylinders:	Six in-line
Capacity:	3.6 liters
0-62:	5.9 seconds
Top speed:	155 mph (electronically limited)
Performance:	310 bhp
Torque:	400 Nm/395 lb-ft

E39 M5

The E39 M5 effortlessly combined the concept of a luxury saloon with sports car technology and in so doing, attained the unanimous respect of enthusiasts and journalists. With the launch of E39, the traditionally understated appearance became more athletic and confident. The addition of muscular front and rear aprons coupled with more pronounced side skirts and 18-inch wheels served to reinforce the M5's sporty intentions. The E39 M5 was also the second M model to receive the now trademark M four-tailpipes (M Roadster was the first).



Cylinders:	V8
Capacity:	4941 cc
0-62:	5.3 seconds
Top speed:	155 mph (electronically limited)
Performance:	394 bhp
Torque:	516 Nm/380 lb-ft

E60 M5

The E60 M5 was introduced in October 2005 in the US market. It is currently the most powerful M5 of all time and the first to exhibit this power potential at first glance.

Prominent front and rear aprons, paired with side sills and a powerful rear spoiler clearly distinguish the M5 from the E60 Series. A rear diffuser provides an additional power boost on the rear axle.

The V10 engine was derived from BMW-Williams Formula 1 engine. The S85 is an all-aluminum naturally-aspirated engine with 5.0L displacement that can rev up to 8,250 rpm and develop 400 bhp. This output can be increased to 500 bhp by pressing the power button on the center console.



Cylinders:	V10
Capacity:	4999 cc
0-62:	4.5 seconds
Top speed:	155 (electronically limited)
Performance:	400 bhp (500 bhp w/Power button)
Torque:	520 Nm/383 lb-ft

M6 Vehicles

E24 M6

The E24 M6 was introduced in 1987 as a 2 door coupe. It was equipped with the S38 six cylinder engine which produced 286 hp and had a top speed of 155mph (approximately). The M6 was available for only two years.



Cylinders:	Six in-line
Capacity:	3.6 liters
0-62:	6.5 seconds
Top speed:	155 mph
Performance:	286 hp(256hp in US)
Torque:	340 Nm/250 lb-ft

E63/E64 M6

BMW has been crafting sleek and fast coupes since 1936, but more strictly speaking the M6's heritage encompasses just four predecessors. The 3.0 CSL, the M1, a first-generation M6 and the 850CSi. All, to one degree or another, were products of BMW M, or BMW Motorsport as it was originally called.

Using much of the technology from the E60 M5, BMW E63/E64 M6 continues the proud tradition of performance coupes.



Cylinders:	V10
Capacity:	5.0 liters
0-62:	4.5 seconds
Top speed:	155(electronically limited)
Performance:	400 bhp (500 bhp w/Power button)
Torque:	520 Nm/383 lb-ft

M3 Vehicles

E30 M3

Produced between 1988 - 1991, the first M3 generation turned the world of racing upside down. One year prior, the M3 had been launched as a thoroughbred sports car for the road.

Powered by a four-cylinder four-valve engine, the original M3 showed its sporting ambitions in its exterior design. The flared wheel arches and a large rear spoiler gave it lots of road presence.



Cylinders:	Four in-line
Capacity:	2.3 liters
0-62:	6.8 seconds
Top speed:	145mph
Performance:	192hp
Torque:	230 Nm/169 lb-ft

E36 M3

Produced in two versions the first in 1995 and the later between 1996-2000. The second-generation M3 was offered as a complete model series.

First came the Coupé and two years later the Convertible and Sedan. And the engine received a nice boost, too: The four-valve six-cylinder engine delivered 240 hp.



	1995	1996-2000
Cylinders:	Six in-line	Six in-line
Capacity:	3.0 liters	3.2 liters
0-62:	6.1 seconds	5.9 seconds
Top speed:	128 mph	128 mph
Performance:	240hp	240hp
Torque:	305 Nm/225lb-ft	319 Nm/236 lb-ft

E46 M3

Produced between 2001 and 2006, the third generation of the M3 enters the stage with the M3 Coupé and the high-revving naturally aspirated engine delivering 333 hp at up to 8,000 rpm.

BMW once more introduced a true sports car, which, like its predecessor, was crowned “best handling car”. From 2001, BMW added the convertible version.



Cylinders:	Six in-line
Capacity:	3.2 liters
0-62:	4.8 seconds
Top speed:	155mph
Performance:	333hp
Torque:	355 Nm/262 lb-ft

E92 M3

Introduced in 2007, the current BMW M3 has a new naturally aspirated V8 engine, suspension and drivetrain, a convincing design and best-in-class performance, the latest generation of the BMW M3 is once again making headlines. As with all M vehicles, BMW delivers a true sports car with fantastic everyday usability. The new BMW M3 is currently available across the E9X model line up. It can be ordered as E92 Coupe, E90 Sedan or as a Convertible with the E93. This M3 features the successor of SMG III the M-DCT (M Double-Clutch Transmission with Drivelogic).



Cylinders:	V8
Capacity:	4.0 liters
0-62:	4.7 seconds
Top speed:	155mph
Performance:	414hp
Torque:	400 Nm/295 lb-ft

M Roadsters and Coupes

Two generations of the M Coupe have been manufactured; one based on the E36/8 Z3 Coupe and the second on the E86 Z4 Coupe. Both available also in M Roadster form.

The first generation E36/8, the Z3 Coupe (1998 - 2002) combined an M coupe body design with the standard Z3 drivetrain, chassis and cosmetics. M Coupes built between 1998 and 2000 were fitted with the same engines used in the 1996 to 1999 BMW E36 M3.

The US models were fitted with the S52, a 240hp and 319 Nm (236 lb ft) 3.2 liter in-line 6 cylinder engine. In 2001, the M Coupe was reintroduced with the 3.2 liter S54 engine from the E46 M3. In M Coupe form it produced (333hp) and 355 Nm (262 lb.ft) of torque.

The BMW M Roadster was designed to be the performance version of the BMW Z3, and there were significant differences between the two variants. The body of the M Roadster had many slight differences, including front and rear bumpers, side gills, rear fenders, trunk, and mirrors.

Based on the E36 platform, the Z3 Roadster was designated E36/7. Many of the components were taken from the E30 and E36 M3 including the brakes and much of the suspension. The limited slip differential, a different gearbox, and strengthening of the chassis, set the vehicle apart from the series production model.



	1998-2000	From 2001
Cylinders:	Six in-line	Six in-line
Capacity:	3.2 liters	3.2 liters
0-62:	5.9 seconds	4.8 seconds
Top speed:	128 mph	155mph
Performance:	240hp	333hp
Torque:	319 Nm/236 lb-ft	355 Nm/262 lb-ft

M Roadster

The Z4 M Roadster was produced from 2006 to 2008. Although the basic concept and proportions are identical to those of the E85 LCI, the Z4 M Roadster differs considerably, not only in terms of performance. Some striking features include the precision lines of the hood as well as the front apron with large air inlets.

The Z4 M Roadster is equipped with the speed-sensitive variable differential lock as known from the E46 M3. The vehicle is equipped with a 6-speed manual gearbox with typical short shift paths (standard). An automatic gearbox was not be offered.



M Coupe

As the M Roadster the Z4 M Coupe was introduced to the market in 2006 and was produced until 2008.

BMW released a limited production of the second generation M Coupe referred to as E86.

The redesigned M Coupe is also based on the Z4. It uses the S54, 3.2 liter inline 6 cylinder engine (same as the E46 M3) producing 333 hp. It shares many components with the Z4 Roadster and with the E46 M3.



Cylinders:	Six in-line
Capacity:	3.2 liters
0-62:	4.8 seconds
Top speed:	155mph
Performance:	333hp
Torque:	355 Nm/262 lb-ft

M xDrive Vehicles

E70 X5 M and E71 X6 M

The BMW X5 M and the BMW X6 M are the first all-wheel-drive models to offer the M performance while combining dynamic driving experience and sporty design.

Both vehicles are powered by a newly-developed 4.4-liter V8 M engine delivering 555 hp at 6,000 rpm.

These vehicles accelerate to 60 mph from a standstill in 4.5 seconds. The V8 twin-turbo engine provides a maximum torque of 500 lb-ft from 1,500 rpm.

The S63 engine is the world's first engine with a pulse-tuned exhaust manifold combined with high-performance twin-scroll twin turbo technology.

BMW M engineers pushed the capabilities of xDrive and the Dynamic Performance Control system to manage the power and performance potential of these two new vehicles.

Thanks to careful tuning of xDrive, Dynamic Performance Control, and Dynamic Stability Control with M Dynamic Mode the X6 M and X5 M achieve maximum control over extreme cornering forces in all driving conditions.



Cylinders:	V 8
Capacity:	4.4 liters
0-62:	4.5 seconds
Top speed:	155mph
Performance:	555hp
Torque:	500 lb-ft

NOTES

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