GMC SYCLONE: A 'TWO-FACED' PONY TRUCK

By JOEL PIETRANGELO

PONTIAC, Mich. — General Motors Corp.'s new Syclone is designed to serve two masters.

"We believe there are two 'subsegments' in the performance-truck segment," says Kim Nielsen, Syclone marketing manager at GMC Truck Div. "One group of buyers are 'truckers' looking for more performance; and there's another group made up of 'car people' who are willing to cross over into the performance-truck market. Our original marketing goal was to hit both of these subsegments with the Syclone."

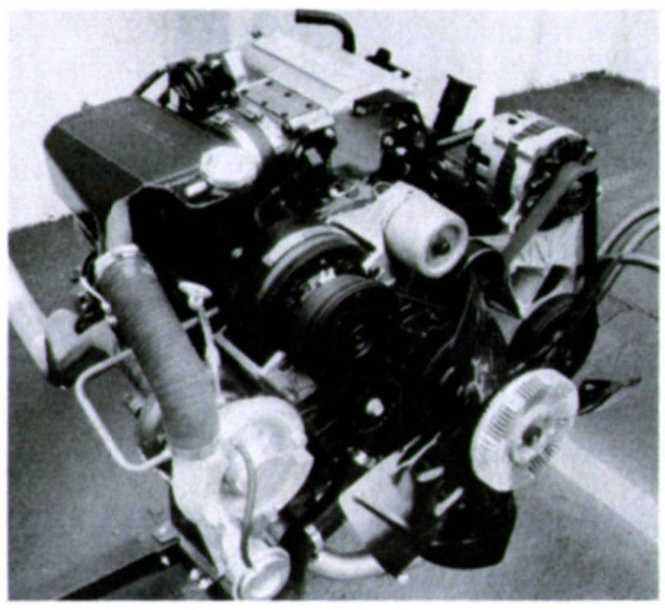
Powered by a turbocharged version of GM's 4.3L V-6, which delivers 280 hp at 4,400 rpm and 360 ft.-lbs. (488 Nm) of torque at 3,600 rpm, the Syclone is capable of sub-5-second 0-60 mph (97 km/h) runs— even on wet pavement — because the engine torque is put to the pavement by an all-wheel-drive (AWD) system.

The Syclone engine uses hypereutectic alloy pistons that are harder than those used in the Chevrolet Corvette's 5.7L L98 V-8 engine and is fitted with a high-volume, high-pressure oil pump.

In addition, Mr. Nielsen says the Syclone 4.3L gets completely new upper and lower intake manifolds that were engineered by GMC's outside partner, PAS Inc. of Troy, Mich. The normal 4.3L uses throttle-body fuel injection, but the Syclone engine gets multiport injection with Bosch fuel injectors and a Handy & Harman fuel rail.

The turbocharged 4.3L has a thick-wall, cast-iron exhaust manifold, engineered by PAS, which is joined to a new crossover pipe that measures about 3.5 ins. (89 mm) in diameter. The crossover leads to a new dual-exhaust system with two 2.5-in. (63.5-mm) tailpipes. The low-resistance mufflers are from Walker DynoMax.

The turbocharger is a Mitsubishi TD06 unit with a water-cooled center bearing. To round out the changes to the 4.3L V-6, GMC chose an AiResearch water-to-air intercooler to cool the pressurized intake air. The intercooler has its own heat exchanger mounted below the radiator and also boasts its own coolant supply.



FOUR HOT WHEELS

High-performance AWD Syclone compact pickup truck boasts a 280-hp turbocharged, intercooled version of GM's 4.3L V-6 engine.

The Syclone's 4-speed automatic transmission is a version of the Hydra-matic 700R4 that was "pulled ahead" from the '92-model Corvette program, Mr. Nielsen says. The Syclone transmission isn't electronically controlled like the one expected on the '92 Corvette, but it does use the valve-body and servo mechanisms from the future 'Vette gearbox.

"If Pizza Hut would buy a fleet of these, they could beat Domino's to the door every time," says John Rock, GMC general manager.

GMC's new truck uses a Borg-Warner transfer case with a viscous clutch and interaxle differential, the same unit found on the Oldsmobile Bravada sport/utility vehicle. Torque split is 35% front/65% rear. Also from the Bravada are 1-piece front and rear prop shafts with heavy-duty constant-velocity joints developed by PAS.

The rear axle has a limited-slip mechanical differential with a 3.42:1 final-drive ratio. The front differential also is a 3.42:1 unit that splits torque 50/50 right/left and is basically the same unit found on the GMC Safari/Chevy Astro AWD L-van.

The Syclone is based on the GMC S15 compact truck platform with a few alternations. Ride height is lowered 0.8 ins. (20.3 mm) in front and almost 3 ins. (76.2 mm) in the rear by using lower spring rates instead ofdrop spindles.

Kelsey-Hayes Co.'s Western Wheel Div. produces the Syclone's GM-designed 1648 aluminum, machine-finished wheels. Firestone supplies the tires.

GMC can build 14,000 Syclones a year, in Shreveport, La. Mr. Rock says GMC has 2,600 orders currently. ❑

NEW BMW: VIEW OF THE FUTURE

NIMES, France — The new 3-series sedan just out from BMW AG marks the first phase of a lineup replacement that will include a coupe and convertible.

The new 2-door will hit the market in about six months, followed by a convertible that replaces the cabriolet in 1992. A new M3 coupe also is in the works and a station wagon is also possible.

The 316i model uses a 1.6L double-overhead-cam (DOHC) 16-valve 4-cyl. engine that delivers 100 hp at 5,500 rpm and peak torque of 104 ft.-lbs. (141 Nm) at 4,250 rpm, using a 9.0:1 compression ratio. Bore is 84 mm and stroke is 72 mm.

The next step up is the 318i, featuring a 1.8L DOHC 16-valve 4-cyl. rated at 113 hp at 5,500 rpm and 120 ft.-lbs. (162 Nm) of torque at 4,250 rpm. It employs an 8.8:1 compression ratio and has a bore of 84 mm and a stroke of 81 mm. Both 4-cyl. powerplants were introduced within the last three years in the previous 3-series.

The top two performers in the lineup — the 320i and the 325i — use the same 2L and 2.5L inline 6-cyl. engines, respectively, that were introduced in BMW's 5-series earlier this year.

Both of the 6-bangers are configured in DOHC 24-valve form. The 2L unit delivers

150 hp at 5,900 rpm and maximum torque of 140 ft.-lbs. (190 Nm) at 4,700 rpm. The 2.5L job pumps out 192 hp at 5,900 rpm and peak torque of 181 ft.-lbs. (245 Nm) at 4,700 rpm.

A totally new 5-speed automatic transmission is available on the 320i, 325i and some '91-model 5-series cars. It always was developed as a 5-speed unit, says Dr. Wolfgang Reitzle, BMW's technical director and a member of the company's management board. The 5-speed automatic is supplied by Germany's Zahnradfabrik Friedrichshafen AG, (*See story below.*).

There are no immediate plans to put the 5-speed automatic on BMWs sold in North America. However, a BMW spokesman says a new electronically controlled 4-speed automatic transmission soon will be offered here.

The 316i and 318i also are available in Europe with the optional electronically controlled 4-speed automatic. All of the 3-series cars come with a standard 5-speed manual transmission. Both automatic transmissions include a 3-mode driving program.

Wheelbase of the new 3-series sedans is 106.3 ins. (270 cm) compared with 101.2 ins. (257 cm) on the previous car. Overall length is 174 ins. (443.3 cm) compared with 170.3 ins. (432.6 cm). Width increases to 66.9 ins. (169.8 cm) from 64.8 ins. (164.6 cm), and height rises to 54.8 ins. (139.3 cm) from 54.3 ins. (137.9 cm). BMW says rear-seat legroom is increased some 1.2 ins. (3 cm) in the new 3-series.

The proportions of the exterior design also are radically different than those of its predecessor. The front overhang is very short, the windshield has much more rake and the roofline rises toward the rear of the car. The backlight is sleeker and the decklid is shorter.

The kidney-shaped BMW grille is integrated with the metal as in the 5-series. Dual circular headlights remain, but now they are behind a glass cover for aerodynamic purposes. Coefficient of drag ranges from 0.29 on the 316i to 0.31 on the 325i. Doors wrap into the roof, aircraft style, and window glass is flush.

The front axle is moved significantly forward of the longitudinally mounted engine and this new ''inboard'' layout delivers a 50/50 front/rear weight distribution.

The 4-cyl.-equipped cars get front disc and rear drum brakes and 185/65/HR-15 tires. The 6-cyl. cars have discs all around. The 325i gets a standard Teves Mark IV antilock-braking system (ABS) and 205/60/ZR-15 tires. The ABS is optional on the 320i, which gets 205/60/VR-15 tires.

BMW introduces its new 3-series sedan. Coupe, cabrio on the way.

Prices start around $20,950 for the 316i; $23,700 for the 318i; $27,200 for the 320i; and $33,300 for the 325i. ❑

—Giancarlo Perini

ZF BRINGS OUT NEW 5-SPEED

Germany's Zahnradfabrik Friedrichshafen AG (ZF) introduces a new 5-speed automatic transmission for rear-drive passenger cars with engines rated up to 201 hp and 221 ft.-lbs. (300 Nm) of torque.

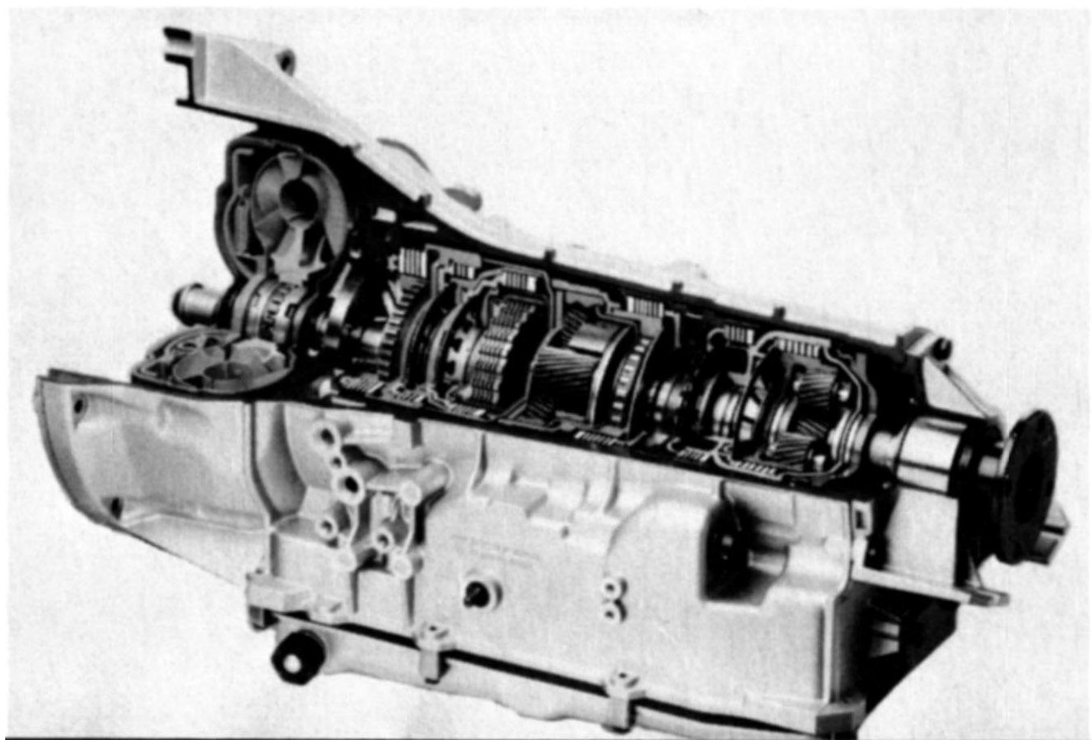
It is installed in certain '91-model BMW 5-series cars and is optional on the new BMW 320i and 325i. In both applications, it is available only on European cars.

Dubbed the 5HP 18, the new gearbox is designed with an electro-hydraulic control unit, a hydrodynamic torque converter with lock-up clutch and a 5-speed planetary-gear set. These main components, says ZF, can be adapted to a range of vehicles and engines to achieve the optimum transmission for each application.

ZF says the unit is compatible with 4-wheel-drive designs because a transfer case can be mixed with the new transmission. The electro-hydraulic control unit offers drivers three shift patterns: economy, sporty/performance or manual select. It constantly monitors ''all relevant vehicle and transmission data and the program selected by the driver,'' ZF says, and can be used in conjunction with an antilock-braking system and diagnostic system.

The hydrodynamic torque converter operates in all forward gears and reverse. It can be locked up between second and fifth gear, depending on road speed and accelerator position. When the converter is in its lock-up state, power is mechanically distributed to the planetary gears in the rear of the unit. Gear sets are selected via free wheels and hydraulically actuated multidisc clutches and brakes.

Germany's ZF rolls out a new RWD 5-speed automatic gearbox.



The electronic-control unit (ECU) gets continuous data on road speed and engine and transmission operation. Depending on the program mode, the ECU processes the data and always selects the optimum gear for driving conditions through the flexibility of shift timing, oil pressure and engagement of the lock-up clutch.

If the ECU malfunctions, ''an emergency program that triggers auxiliary operations on a step-by-step basis automatically cuts in,'' says ZF.

ZF also claims the 5HP 18 is so compact — with an installation length of 26.32 ins. (66.8 cm) — that it can fit in the same space as a conventional 4-speed automatic transmission. The new ZF 5-speed automatic weighs in at 169.8 lbs. (77 kg) without transmission oil. ❑

—Joel Pietrangelo

GM UPGRADES ITS 3.1L V-6 ENGINE

General Motors Corp. plans to introduce an improved version of its transverse-mounted 3.1L passenger-car V-6 engine sometime in 1993, sources say.

GM sources say the revised V-6, called the Generation III, will eclipse the existing powerplant in several areas, including exhaust-emissions characteristics, low-end power, responsiveness and fuel economy. That upgrade also means GM intends to market the 3.1L at least through the 1990s.

The Gen III V-6 will continue to be produced at GM plants in Tonawanda, N.Y., and Ste. Catharines, Ontario, Canada, the sources add.

The 60° V-6 belongs to a family of engines that includes the 2.8L longitudinally mounted compact-truck iteration and the transversely mounted double-overhead-cam 24-valve Series 3400 high-performance engine. The 2.8L truck engine is expected to be dropped after the current model year.

GM sources add the company has no plans to cut output of V-8 engines, even with the likelihood of tougher U.S. fuel-economy standards. ❑

—Ward's Engine Update