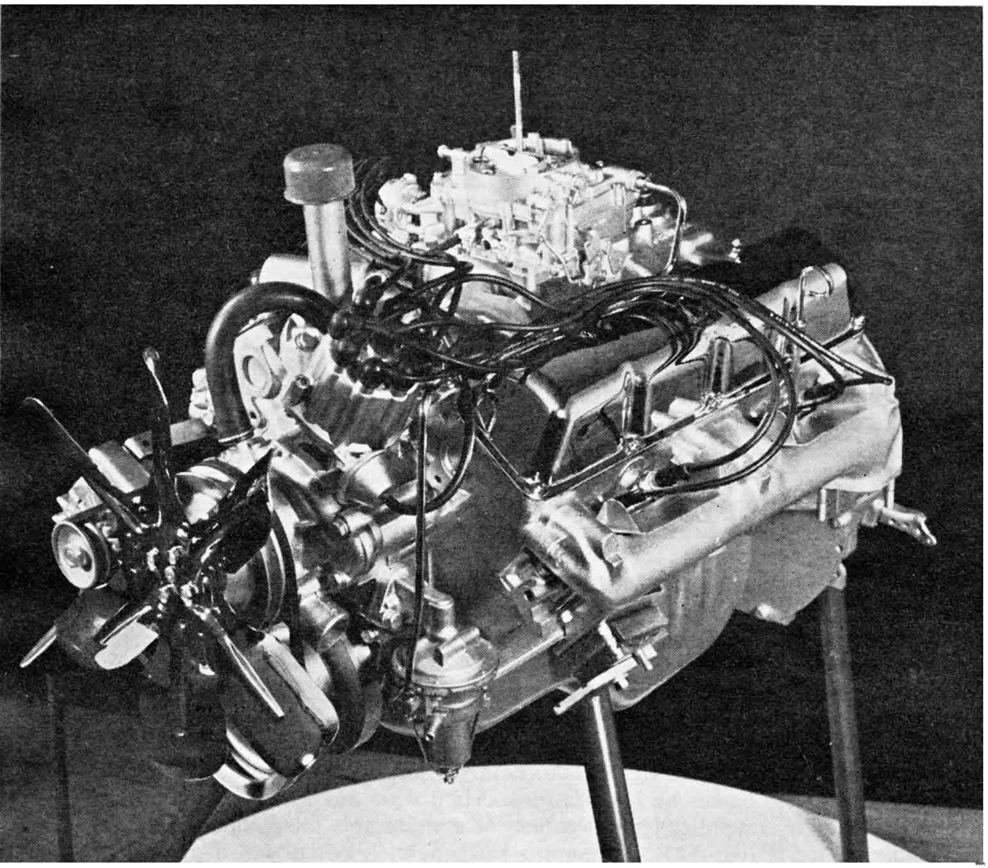
# RED-BLOODED AMERICAN!

**AMC'S 1966½ MODEL BOASTS NEW V-8 AND BEEFED-UP CHASSIS**



*Compact size of spanking new 290-inch V-8 is accentuated by familiar Carter 4-barrel.*


*Black-anodized grille, gold body, black roof will adorn first 1700 Rogue hardtop V-8s.*

AMERICAN MOTORS' long-awaited new V-8 is here at last. Offered at the present time only in the American, it's available in two versions – rated at 200 and 225 hp for the 2- and 4-barrel-carbureted engines respectively. Although bore and bore spacing are the same as on the existing 287/327 engines and the stroke is .03-inch longer, the new engine is .4-inch shorter, .1-inch narrower, 1.1-inch lower, and considerably lighter.

Details of the new engine are treated later in the text and in the spec table. But for fear it'll steal the limelight from what amounts to a 1966½ model of the American, we'll talk about the car itself first.

AMC wisely did lots of grooming and revamping of the American to accept at least 45 horses more than it's seen before. For a car that's going to be moving among fast company like Mustangs, the higher-capacity rear-axle assembly (but not the torque tube – Hotchkiss drive was retained) was borrowed from the Classic/Ambassador series.

The 10-inch flanged-drum brakes came, too, and for the first time on the American, front discs are optional (but only with the V-8). The V-8 automatic that we used to get performance figures had the discs, incidentally. They had a superb, confidence-inspiring feel, and exhibited no trace of pull or fade during approximately a dozen quick stops at each end of our quarter-mile run. Neither did the drum-braked 6 for that matter, but we didn't use the brakes as hard.

A front sway-bar was bolted on to control lean and weight transfer. All springs and shocks were redone to take care of the added weight and the different distribution. The front suspension was beefed up, and a boot was added to the ball joint for added protection between the 32,000-mile lubrications. This latter change will eventually become standard on 6s, too.

Standard tire size for V-8-equipped cars will be 6.95 x 14, with 7.35 x 14 optional – all on 5-inch rims – in place of the 6.45 x 14s for the 6.

Automatic transmissions for use with the V-8 will now use water cooling in place of air as for the 6. The 4-speed manual with 2.43, 1.76, 1.47 and 1.00 ratios, new to the American, is the same as offered on the Classic, Ambassador and Marlin. Standard final drive ratio is 3.15 to 1, with 2.87 optional on automatic-equipped cars only.

Rather interesting is that you can have the 4-speed or column-shift automatic as no-extra-cost options, but you'll have to buy the console if you want the Shift-Command (console shift) for the automatic. No 3-speed manual gearbox is offered.

All of these necessary and desirable changes to properly accommodate the

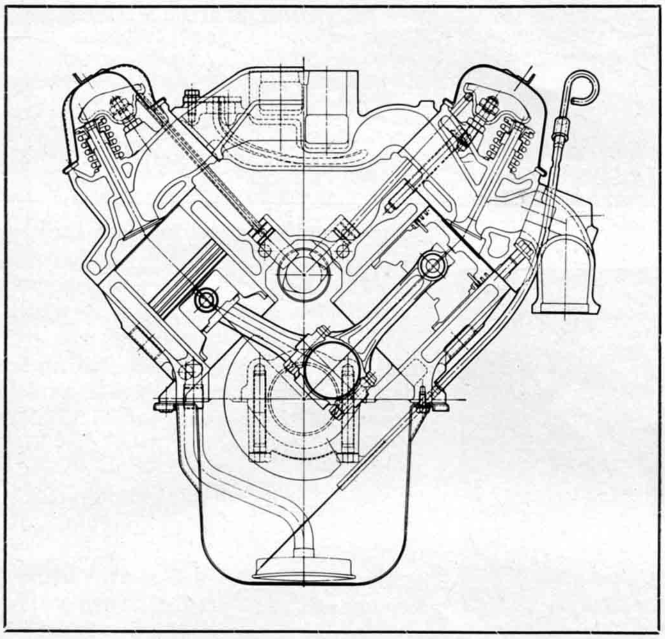
V-8 engine have increased weight over the 6 by about 260 or 290 pounds, depending on whether the transmission is automatic or 4-speed.

But what we feel to be the most significant news of all from AMC is the announcement that the first 1700 or so Americans to be offered with the new V-8 will be specially painted and distinctively trimmed Rogue hardtops. Among other *standard* equipment included in this sports package will be a handling package consisting of heavy-duty springs and shocks and 5½-inch-wide wheels.

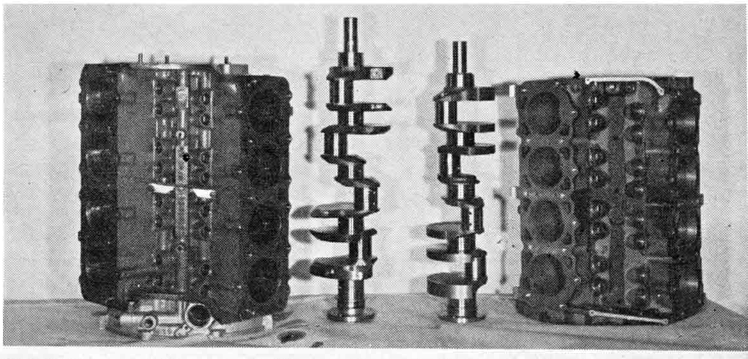
We drove a Rogue so equipped. While melting snow which wet the road in patches precluded our evaluating its handling abilities, it certainly *felt* as if it would corner on the proverbial rails. This suspension, while giving a somewhat firmer ride, definitely wasn't harsh and only showed its teeth when we crossed some railroad tracks. Here at last is an enthusiast's car – and a pretty good one – from American Motors.

Except for the 232 6-cylinder, all the V-8s we drove were 200-hp 2-barrels, the 4-barrels not being ready in time. As the chart shows, performance was considerably better than the 155-hp 232 – itself a lively engine.

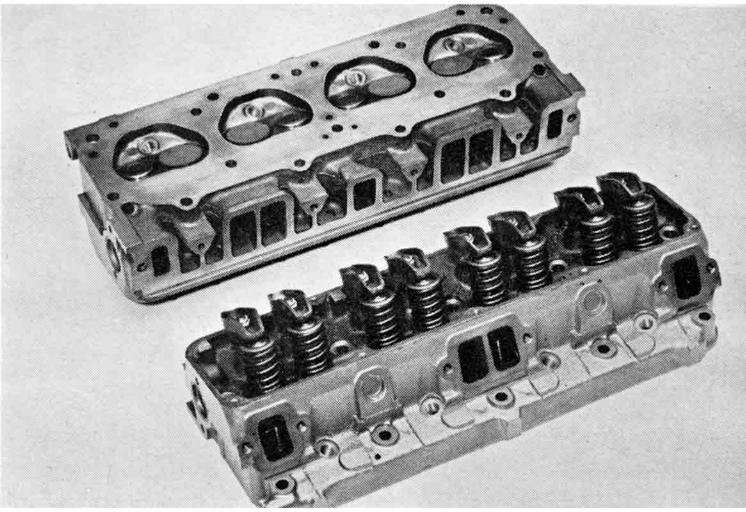
The 225-hp 4-barrel should give very satisfying performance right out of the box. For those who are certain to want more, the potential is there. From the



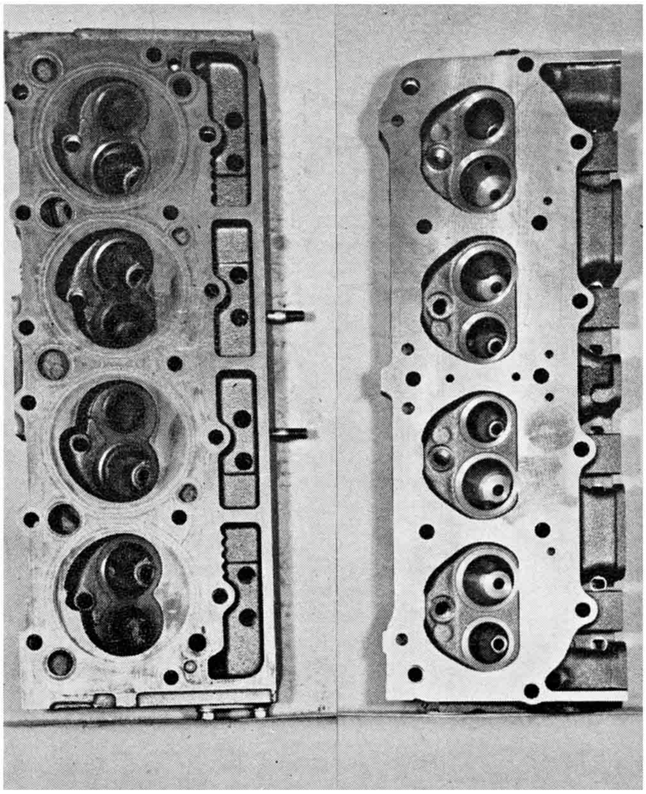
*Intake manifold serves as hydraulic lifter cover, eliminating separate stamping in this lightweight, straightforward design.*



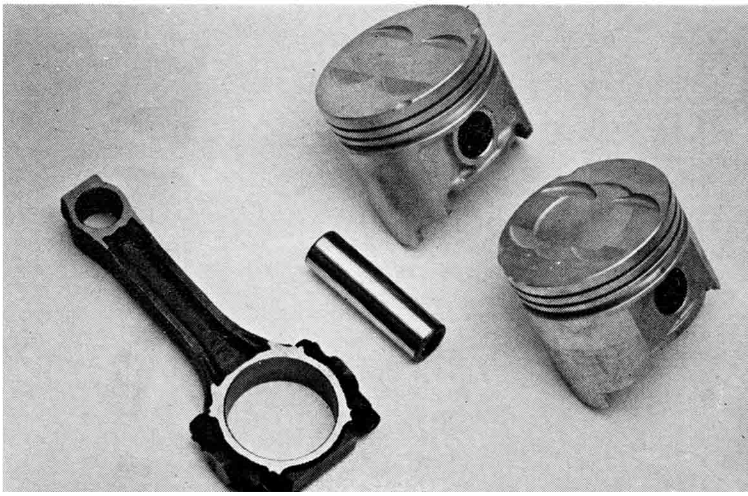
*Old 183-pound block and 62-pound crank (left) dwarf 156- and 55-pound new parts. Both blocks have 4.75-inch bore spacing.*



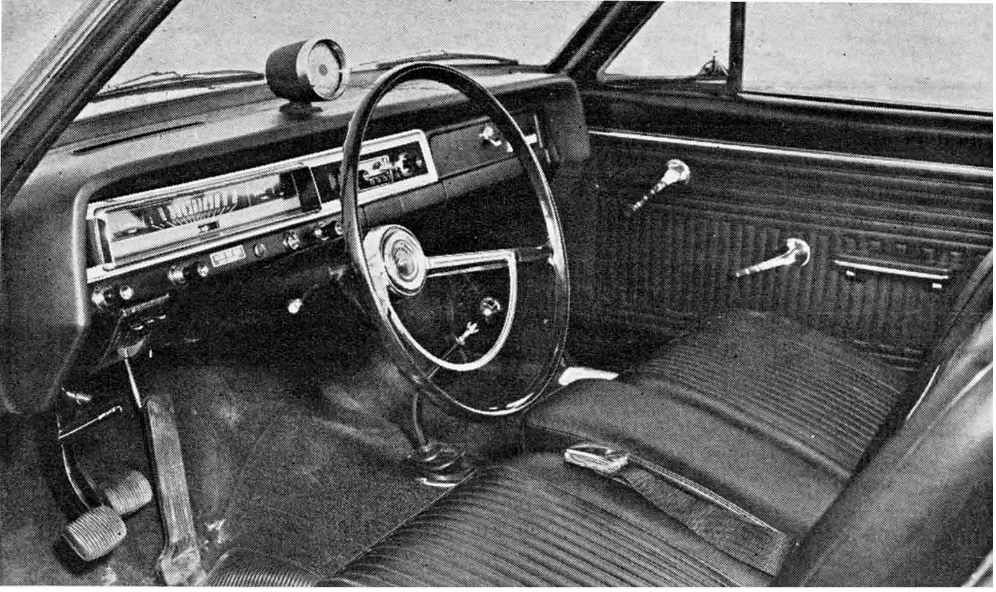
*Two views of new head reveal 4 each separate, large intake and exhaust ports. Latest design, fabrication techniques are used.*



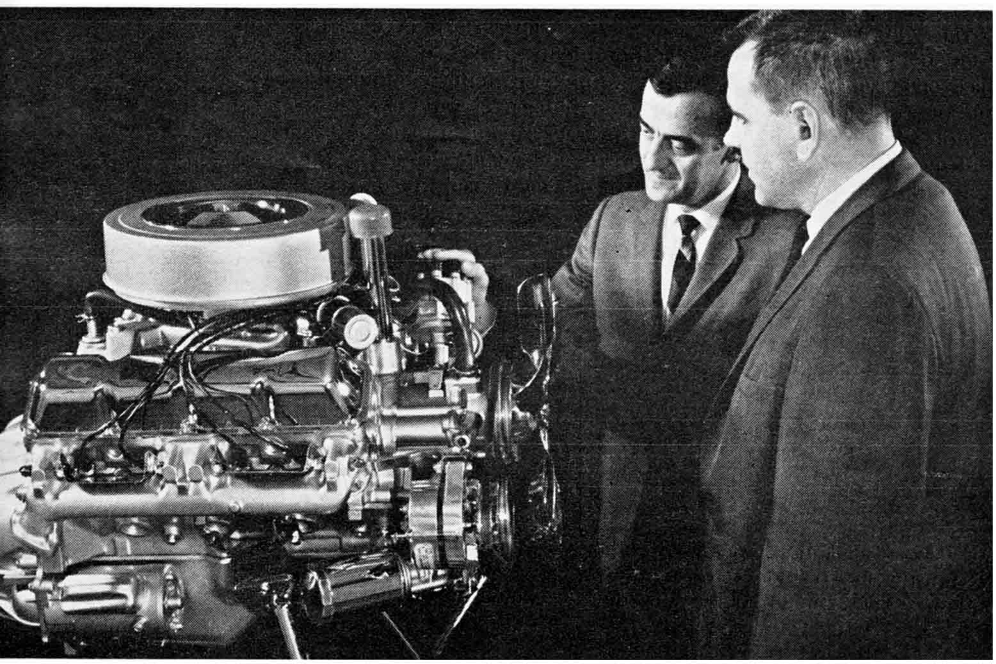
*Every ounce of cast iron in the new 41-pound head (right) serves useful purpose. Bulkier old head (left) weighs 52 pounds.*



*Cast rod, pin, piston casting are basically same as used on AMC's big 6. Near piston goes in 200-hp V-8, far one in 225-hp.*



*Four on floor, tach (optional extra), buckets, hint performance. New 225-hp 4-barrel V-8, front discs (also extra), special handling package, H-D axle remove all doubt.*



*AMC's product information manager, Carl Chakmakian, chortles over their new baby to MT's Tech Editor. In place of hydraulic fan hub, air-conditioned cars use flex-blade fan.*

*Americans with 6-cylinder engines will continue to look same as before, but certain changes in front suspension, brought on by V-8 installation, will be incorporated.*

## TYPHOON V-8 ENGINE SPECIFICATIONS

| | 2-bbl. | 4-bbl. |
|---|---|---|
| Bore and stroke, ins. | 3.75 x 3.28 | 3.75 x 3.28 |
| Displacement, cu. ins. | 290 | 290 |
| Horsepower @ rpm | 200 @ 4600 | 225 @ 4700 |
| Torque, lbs.-ft. @ rpm | 285 @ 2800 | 300 @ 3200 |
| Compression ratio | 9.0:1 | 10.0:1 |
| Carburetion | Holley 2-bbl. | Carter 4-bbl. |
| Fuel recommended | Regular | Premium |

## ROGUE HARDTOP AUTOMATIC

### PERFORMANCE

| ACCELERATION (2 aboard) | 290 V-8 2-bbl. | (232 6-Cyl.) |
|---|---|---|
| 0-30 mph | 4.0 | (4.0) secs. |
| 0-50 mph | 7.7 | (8.9) secs. |
| 0-60 mph | 10.4 | (12.5) secs. |
| 0-75 mph | 16.1 | (21.5) secs. |

TIME AND DISTANCE TO ATTAIN PASSING SPEEDS

40-60 mph ..........5.6 (7.0) secs., 410 (513) ft.

50-70 mph ..........7.3 (9.5) secs., 640 (835) ft.

STANDING-START QUARTER-MILE: 17.6 (19.0) secs., 78 (72) mph

STOPPING DISTANCES: from 30 mph, 19 ft.; from 60 mph, 136 ft.

(Note: Both cars had optional power disc/drum brakes)

following description of the Typhoon 290, many will note the similarity to the 289 Ford engine, and everyone knows what can be done with that.

After first announcing its new 6 in mid-1964, American Motors has, in less than two years, changed over to modern slim-wall designs except for its 327. We don't think that one will be around in 1967, because the latest V-8 is designed for "significant displacement-size increases as future market conditions dictate."

The new Typhoon V-8 bears a much stronger resemblance in design philosophy to the 199 and 232 6-cylinder engines than to the existing V-8s. As with the 6s, slim-wall casting techniques are used throughout. This process hinges on an improved method of making cores which allows greater precision in casting. With conventional cores, designers have to specify thicker sections than are actually required just to take care of casting errors. The new block uses four hard cores in place of ten for the old, eliminating much of the possibility of core shift during casting. There's a 27-pound weight saving on the block alone over the 287 block.

In common with the Torque Command 6s, the crankshaft is a malleable-iron casting instead of a forging as used on existing V-8s. The five main bearings are 2.75 inches in diameter, versus 2.50 on the old engines, "to meet future needs of displacement increases." The new crank is shorter and seven pounds lighter.

The connecting rods are also malleable-iron castings and, except for one machining operation, are the same as used in the 232 6-cylinder engine. They've been shortened to a center-to-center length of 5.875 versus 6.375 inches on the other V-8s to reduce reciprocating weight. This still gives a rod-length-to-crank-radius ratio of nearly 3.6 to 1, which means low connecting-rod angularity and low friction.

**continued on page 70**

# AMERICAN V-8

*continued from page 40*

Pistons for the engine are notable for having high-mounted pins to reduce piston rocking with the accompanying wear and friction. There are actually two different pistons, one called a "Conformatic" for use on the 2-barrel engine, and the other an "Autothermic" for the 4-barrel engine.

The Conformatic piston has a cast-in steel ring for dimensional control at varying temperatures. The Autothermic pistons use a pair of steel struts that give greater thermal control plus added strength to the piston itself. Both are flat-topped with double valve reliefs for interchangeability between banks. The 2-barrel piston has a depression machined in the crown to yield a lower compression ratio. The top ring, like those on the new 6s, is a Parco-coated, molybdenum-filled design for more scuff resistance and quicker break-in.

The high mounting position of the piston pin has other benefits, too. It permits the designer to choose a longer rod to further reduce angularity, or he may reduce the distance between the centerline of the crankshaft and the cylinder head gasket surface, which would result in a smaller and lighter block. The designers of the Typhoon V-8 evidently chose the latter as being the more desirable.

The slim-wall casting method is also used for making the cylinder heads, which results in an 11-pound weight saving per head. The new combustion chamber is of the now quite universally used wedge configuration, where the old chamber was kidney-shaped. The heads are of the 8-port design; that is to say, there's a separate intake and exhaust port for each combustion chamber. This, and the fact that ports within the head are generous-sized and fairly direct, improve breathing (and volumetric efficiency) over the old design.

Valve diameters are 1.787 and 1.406 inches for the intakes and exhausts respectively – the same as used on the old V-8s and new 6s. But lift is now .425-inch instead of .375, and duration is 266 degrees in place of 244. Overlap has nearly doubled, being raised to 44 degrees from 23. This and the fact that the compression ratio has been raised slightly to 9.0 to 1 leads us to believe – regardless of what the true power outputs may be – that the actual *difference* is much greater than the 2 hp indicated by the published figures of 200 hp and 198 hp for the new and old engines respectively.

The new valve gear uses stud-mounted stamped rocker arms working on spherical seats. This, of course, eliminates the rocker-arm shaft, pedestals, spacer springs, and hold-down bolts, which gets rid of much weight, cost and complexity. Part of the increased valve lift comes from the use of a 1.6 instead of a 1.5-to-1 rocker-arm ratio with the remainder being obtained at the cam lobe itself. The new hydraulic valve lifters feature individual metering systems that feed oil through the hollow pushrods to lubricate the rocker-arm pivots and valve ends.

A bonus feature has been incorporated in the valve-spring retainer and oil deflector on the new engine. The steel valve-spring retainer is snap-attached to a nylon deflector, resulting in positive valve-stem oil control which prevents excessive oil loss through the valve guides. Rather unusual is the use of a hardened and angle-ground spring seat which induces valve rotation to substantially increase valve life.

Something about the new engine the average owner might not appreciate – but that mechanics surely will – is the accessory section. A weight-saving aluminum die-cast housing sandwiched between the cast-iron water-pump housing and the cylinder block puts the distributor, fuel pump, and oil pump and filter right up front where they can be easily reached for service. It also provides a neat place to hang the alternator, power-steering pump, air-conditioning compressor, and – when and where required – the Air-Guard exhaust emission control air pump.

Somewhat similar to what Chrysler does on their racing hemis, these engines are mass-balanced. After the engine is completely assembled, the whole thing is dynamically balanced by adding or removing weight from the flywheel or torque-converter housing and the vibration damper at the front of the engine. AMC claims this produces an ultra-smooth, quiet-running engine.

The result of all this labor is a very modern engine that features enough flexibility in displacement to meet AMC's needs in the foreseeable future. It has every promise of giving the customer dependable service, with long life and low maintenance. Economy is more than commensurate with the power it delivers. With a weight of only 540 pounds complete with manual transmission flywheel, it's 83 pounds lighter than the 287 it replaces, and is one of the lightest in the industry.

The fact that there are no less than 17 parts or groups of parts (such as main-bearing cap bolts) interchangeable with the 232 Torque Command 6, plus the savings in iron and chips brought on by the slim-wall process and the substitution of castings for forgings, make this an exceptionally economical engine to produce. Some estimate savings as high as 30% overall on engines when the program gets in full swing.

This new engine for the American improves its competitive position (*both* interpretations apply) and, coming when it does, puts a much-needed bee in the corporate bonnet. —***John Ethridge***