CAR LIFE
ROAD TEST

1964 OLDSMOBILE Cutlass Holiday

AMONG THE NEW model debuts for 1964, there was only one blessed event. But it involved a multiple birth —quadruplets. Sired by Papa GM, the babies have been farmed out to Momma Chevrolet, Momma Pontiac, Momma Buick and Momma Oldsmobile for wet-nursing to maturity. Although the quads share many family characteristics, one of them exhibits not only the common genes but also a few individualistic traits which set it somewhat apart from its womb-mates.

That one is the young Oldsmobile F-85, which, like the youngsters at the Pontiac and Buick houses, has been given the name of a late lamented forebearer. But, as with the other two, only the name is the same.

Originally, the F-85 was a "second generation" or "senior" compact which grew within a year to intermediate size. It had a stance determined by a 112-in. wheelbase and 56-in. track. During its lifetime, it grew from 188.2 in. in overall length to 192.2 in., expanded 2 in. in width to 73.7 in., and inflated in box volume by 20 cu. ft. and in frontal area by 0.5 sq. ft.

From those beginnings, it has now taken a sizable jump in growth as it leaves adolescence behind. Wheelbase is now 3 in. longer, track is 2 in. wider front and rear, overall length has increased 10.8 in. (or 14.8 in. from the first model) and it's 2.3 in. higher. The F-85, in short, is now a standard-sized car which measures in all dimensions except wheelbase and height to within fractional inches of Oldsmobiles of the early 1950s, which in turn have grown to the class of large-sized cars.

It has been, of course, what automakers view as the public demand for bigger and better cars which has caused this increase in size. Whether the inclination of dealers to "sell a prospect up" to the next larger car is what the manufacturers mean by "public demand" is beside the point. The ▶

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fact is, the trend is away from the true compact car and the new F-85 is along what Oldsmobile planners believe to be the path of public preference.

The Understructure

Unlike the earlier unitized construction of the F-85, new models are built with separate frame and body structures. This is the A-body structure which GM shares without alteration among F-85, Chevelle, Special and Tempest; indeed, there is hardly so much as one extra bolt hole between brands.

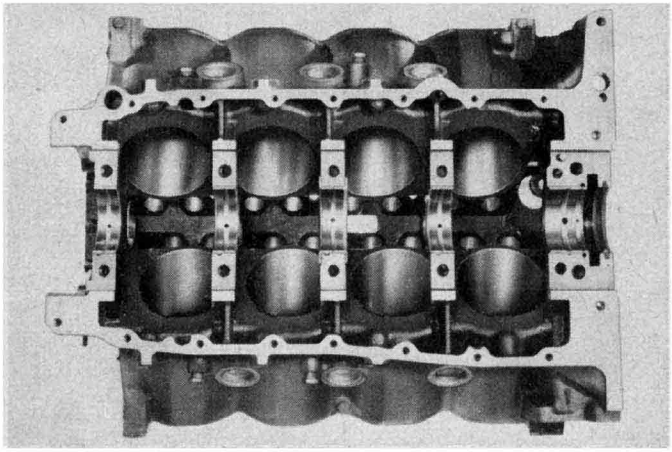
The frame itself is a perimeter type with welded-in torque box reinforcements where the side rails sweep inward at the front and rear wheels. It is constructed of C-section channel steel, with the parallel side rails located just inboard of the outer edges of the body rocker panels. The inner side of the frame rails between the torque boxes is open on sedan and station wagon models, but the convertible has an additional channel section welded on for fully boxed construction and additional strength. Full box-section construction is used at the forward end of the rails for suspension and engine mountings and at the rear kickup over the axle. Three cross-members serve as mountings and add to structural rigidity. A fourth cross-member, used to support the rear of the transmission, varies according to the transmission installed and is mounted in rubber to minimize vibration.

The body shell itself lacks little of being completely unitized in construction. Strength and torsional rigidity are assured by box-section construction of the rocker panel/floor sill, roof pillars, side rails and header for the roof panel, and double panel cowl bridge. All doors, hood and deck lid are double panel and full bracing and gusseting is incorporated around wheel wells, floor tunnel and other points of stress. The floor stamping is ridged and grooved where necessary for additional strength. It might be noted that the floor, rather than having the abrupt step-down from the sill, now gradually slopes from sill level.

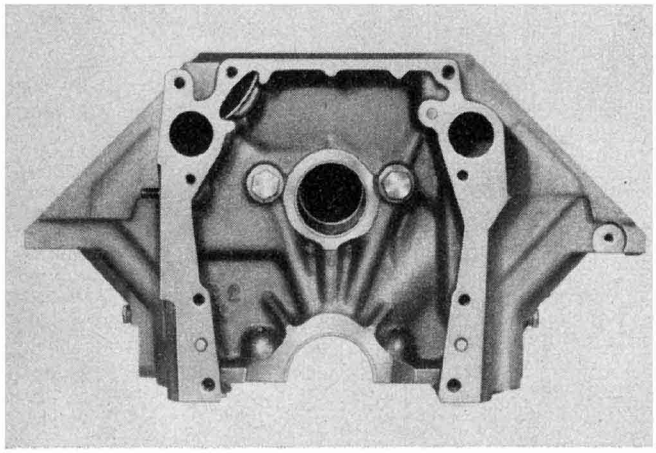
To this all-welded structure are attached the front and rear quarter-panels and grille, which contribute some measure of strength to the body in addition to providing, with the bumpers, the exterior styling differences between the four GM divisions. Seven soft butyl-rubber body mounts on each side of the shell (14 per car) allow the frame to absorb twist and vibration rather than transfer full road shock and noise to the interior. The body-frame design, in keeping with long-standing Oldsmobile philosophy of maximum comfort, results in nearly complete passenger compartment isolation.

Front suspension is by short upper and long lower control arms, an arrangement which is now virtually traditional. Both arms have thick rubber bushings at the inner pivots on the frame; the upper arm, inclined slightly to the front for anti-dive control, is attached by brackets atop the frame

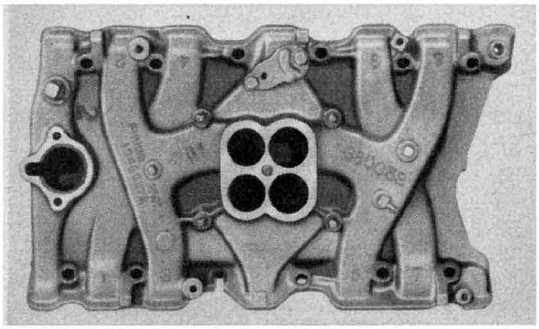
GENEROUS MAIN bearings are supported on rigid bulkheads in the sturdy 330 block lower end.



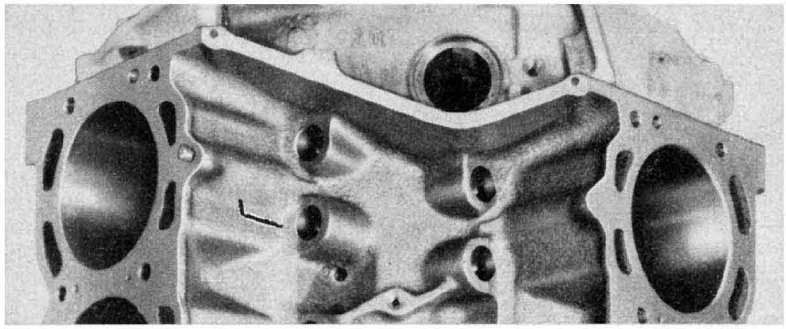
SPACE FOR timing gear and chain is cast into block, which uses flat plate for front cover.



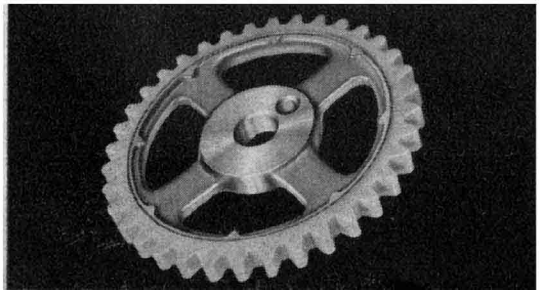
ONE-PIECE cast manifold adds rigidity to block, helps quiet engine noise.



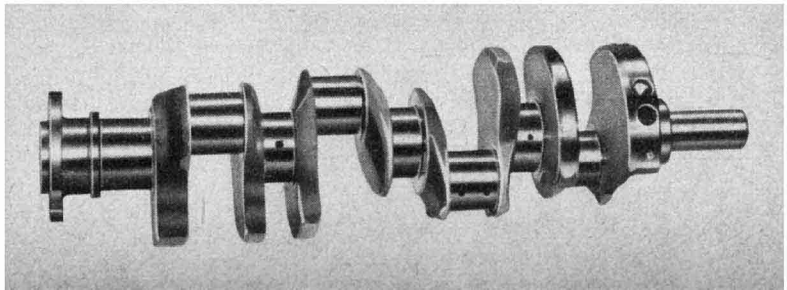
BLOCK DESIGN is called inverted "A frame" from horizontal bulkheads cast between cylinder banks.



TIMING GEAR for new engine has nylon covering on aluminum teeth.



CRANKSHAFT is forged steel and takes thrust on the number 3 bearing to eliminate oil leaks.



rails, while the lower arm is pivoted from the huge cross-member supporting the engine. Coil springs are 11.4 in. high, seat in the lower arm and a side rail bracket, and are concentric with double-acting Delco telescopic shock absorbers of 1 in. diameter. A stout, link-type stabilizer bar, of 0.875 in. diameter, is mounted forward and connects the two lower arms.

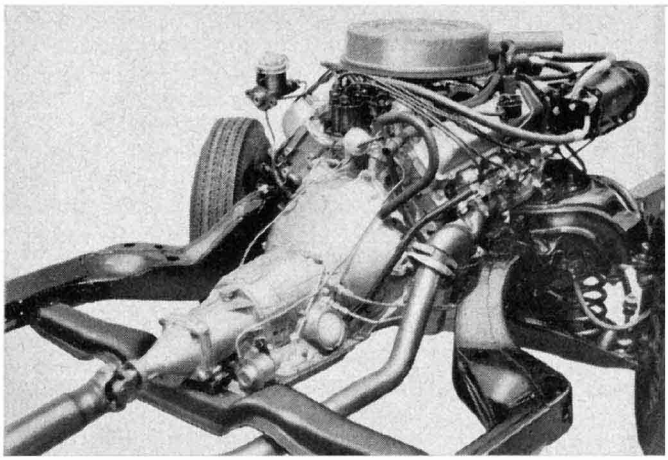
The redesigned ball joints use a full steel ball stud in a phenolic Teflon-lined housing at top, sintered-iron half bearings in a metal housing below. Joints are pre-lubricated for 6000 miles or 6 months, but are fitted with a new purgeable type seal which allows relubrication without seal replacement.

Coil springs are also used in the rear suspension, seated in a bracket atop the axle shaft and a top bracket welded between the frame side rail and the rear cross-member. The rear axle tubes are fixed to a pivoting carrier atop stamped steel track arms, which project rearward from the rear torque boxes and take up drive forces. Aft of the axle, the telescopic shock absorber mounts to a bracket below the axle tube and connects with the spring tower bracket. A second pair of stamped steel arms angle inward from mounting points just inboard of the spring towers to locate the differential housing via stout welded brackets. These arms take up the torque forces generated on acceleration. All pivots for the 4-link control arms use large soft rubber bushings for minimum harshness and noise transmission. Compression bumpers are attached to the forward edge of the axle tube carrier, permitting a wind-down moment under jounce that in turn results in minimum propeller shaft travel for maximum axle travel. Axle shaft housings are pressed in and welded to the differential carrier. Rear axles are of the semi-floating type, which means they must absorb the weight of the car in addition to the other forces at the wheel.

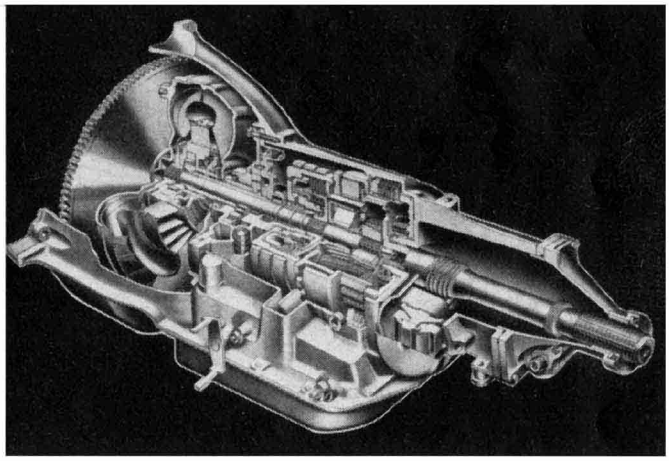
It is readily apparent, then, that the suspension geometry imparts a great deal of understeer, particularly during cornering roll. Under such maneuvers, there is an increase in wheelbase on the inner side which heightens this effect. Spring rates and shock absorber values vary between body styles and are, in line with a mushrooming trend, toward the extreme soft end of the scale. On the Cutlass, spring rates are 80 lb./in. at the front wheels and 95 lb./in. at the rear. Shock absorbers are calibrated to ease the mildest of jolts. The result is a smooth and flowing ride for the passengers over flat to moderately rough and broken road surfaces, at most normal speeds. But the high rear roll center (17.9 in.) and the softened suspension has its drawbacks for the enthusiast-type driver.

The self-adjusting brakes use 9.5-in. cast iron drums with circumferential cooling ribs. Sheet metal flanges surround the backing plates for splash protection. Drums are 2.5 in. wide in front, 2.0 in. at the rear, and shoes have a total lining area of 155.8 sq. in. The optional power assist unit is an integral vacuum booster and master cylinder, rather than the linkage booster arrangement previously used. Wheels are 14 x 5J on steel discs with a 5-bolt pattern. Standard tires are 7.00-14s, but since they are of barely adequate capacity the optional 7.50-14s would be a better choice. ▶

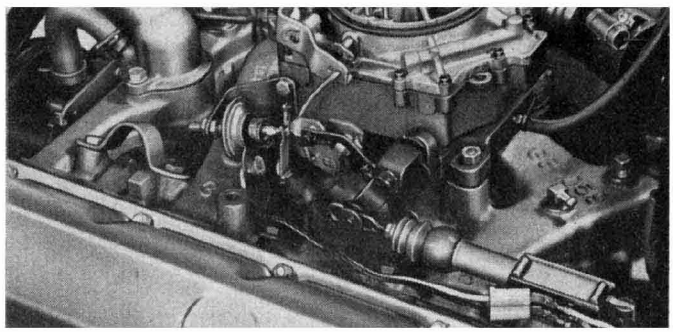
RUBBER-MOUNTED cross member supports new automatic transmission with additional rubber block.



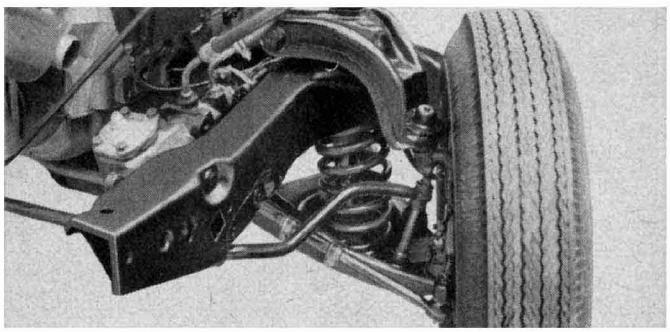
NEW JETAWAY automatic transmission is vacuum-controlled torque converter plus single gearset.



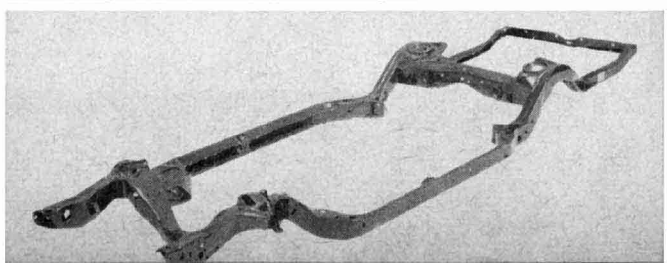
SWITCH ON throttle linkage operates solenoid in transmission to change stator vane angles.



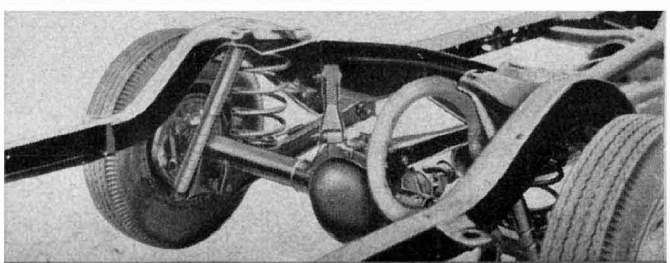
FRONT END is suspended via short and long arms, concentric coil and damper, stabilizer bar.



F-85 FRAME is perimeter type with welded torque boxes at front, rear kickups.



FOUR-LINK rear suspension has live axle with coil springs, incorporates high roll center.



STYLING OF Cutlass is handsome blend of squared-off lines, curved side window glass, which suggests last year's 88.

OLDS Cutlass

The Engine

While we thoroughly discussed Oldsmobile's new 330-cu. in. engine in the previous issue, a brief review of this interesting powerplant is in order. It is, as previously noted, the only "drawing board new" engine in the 1964 cars.

Called the Jetfire Rocket engine by Olds engineers, it is a cast iron V-8 with 90° banks of short deck design and relatively lightweight thinwall construction. Bore and stroke are 3.937 x 3.385 in., utilizing the 4.5-in. bore centers of the familiar 394-cu. in. Rocket engine (which, incidentally, started out as a 303-cu. in. engine with slightly smaller bore and longer stroke). It is, then, designed and built with a capability for significant displacement increases in the future.

Contributing to the lighter construction is a recently developed foundry technique called hot box coring, in which the sand core is baked in its core box rather than being removed to a drying area where it might be subjected to distortion. Because of the higher accuracy in casting possible, excess metal formerly needed to insure minimum tolerances is eliminated and better cooling results from the uniform cylinder wall and water jacket thicknesses.

The block incorporates a horizontal bulkhead or buttress between the two cylinder banks, giving it an inverted A configuration and providing a substantial increase in block rigidity without a significant increase in weight. A one-piece casting which combines a high-rise type intake manifold and the engine top cover provides additional rigidity for the block and, in conjunction with the bulkhead, plays an important part in suppressing engine noise.

Some weight reduction is realized by casting space for the timing gears directly into the block, and a flat steel plate serves as front cover. Aluminum is used for pistons, valve rocker shaft brackets, starter motor housing, ignition distributor body, fuel pump and oil filter bases, and camshaft gear (which uses nylon-covered teeth).

Both the crankshaft, supported by five rigid vertical bulkheads in the block, and the connecting rods are of forged steel. Main and rod bearings are a nickel-copper matrix with babbitt coating and are of generous size for durability. Main bearings 1, 2 and 4 are 0.975 in. wide, 3 (which takes the thrust) is 1.010 in., and 5 is 1.624 in. Connecting rod bearings are 0.821 in. wide. The Autothermic aluminum piston has an offset pin pressed into the rod for quiet operation. The depth of a circular depression in the piston top governs compression ratios, which are either 9.0:1 or 10.25:1. The top compression ring and oil ring rails are chrome-plated for durability and minimum oil consumption.

Combustion chamber design is a high-turbulence, modified wedge shape, with valves located on the bore centerline and spark plug centered in the air-fuel charge. Valves are 1.875 in. diameter for intake, 1.562 in. for exhaust, and operate in cast-in (rather than pressed-in) valve guides. A solid steel rocker arm shaft is used and the forged steel rocker arms are lubricated via hollow pushrods. Camshaft duration throughout the line is 250° on intake, 264° exhaust. The valve layout as well as the shorter deck height contribute to a shorter exhaust manifold. Ten bolts are used to position each valve cover to forestall oil leakage.

The high-performance version of this engine is standard for the Cutlass models and optional at extra cost for other F-85s and the new Jetstar 88 series. In this tune, a 4-barrel carburetor is used with the higher compression ratio and dual exhausts to develop 290 bhp at 4800 rpm. In standard form, with a 2-barrel carburetor and the lower compression ratio, it develops 230 bhp at 4400 rpm. With the 2-barrel and 10.25:1 compression, the rating is 245 bhp at 4800 rpm. These figures, it should be noted, are higher than previously reported because of cleaned up manifolding on the production engines, according to Olds engineers. The manifold work also increased torque 10 lb./ft. to 355 at 2800 in the HP version. The 330, at 575 lb., weighs 210 lb. more than the aluminum 215-cu. in. engine in previous F-85s and 100 lb. less than the 394 of the 88 series.

Except for the unique horizontal bulkhead, the engine blazes no new trails in engine design. It represents instead a high degree of refinement of present day metallurgic technology and engine design practices.

The Transmission

Three transmissions are available for F-85s: the familiar 3-speed manual with column-mounted lever and synchromesh on the top two speeds; a new Chevrolet-built 4-speed, fully synchromesh and utilizing the Hurst floor-mounted linkage; and the new 2-speed plus torque converter automatic, which Olds calls the "Jetaway" and has built by Detroit Transmission division.

The 4-speed, quite similar in many respects to the ubiquitous Warner Gear T-10 unit, will be analyzed in a subsequent road test, since it is shared by all the A-body cars except Buick Special. The Jetaway, however, has some interesting differences in the F-85 application, though it, too, is the basis for automatics in the Special and the Tempest.

While unlike the earlier Hydra-Matic transmissions, the Jetaway incorporates much that is familiar in the multi-disc clutches, bands and planetary gearset of the single shaft, band-to-clutch automatic gearshift. Low and reverse gears have a ratio of 1.76:1 and the drive clutches for these gears are equipped with five plates. High gear is direct. The torque converter, with a ratio of 2.7:1 at stall, is a three-element design which incorporates variable stator vanes. These have two settings—a normal low position of 32° and a high angle of 54°—providing additional torque amplification when in the high setting.

TWO-DOOR hardtop has normal rear window although 4-door sedan is fitted with stylish concave glass *a la* Starfire.

Upshifting is controlled by engine vacuum, which actuates an aneroid modulator assembly which works the hydraulic shifting valve. Use of vacuum control eliminates mechanical connections (and subsequent adjustments) between engine and transmission. It also matches upshift speed to the varying vacuum level of the engine over a wide range of operating temperatures. The aneroid modulator, a bellows device which reacts to changes in barometric pressure, compensates for engine vacuum variations at higher altitude levels to maintain optimum shifting.

Stator vane angles are controlled electrically, by a switch on the throttle linkage which actuates a solenoid within the gearbox when the carburetor is opened more than 45°. The solenoid, in turn, operates a valve in the hydraulic control to route hydraulic pressure to the vane-actuating piston. A second electrical switch combined within the carburetor dash pot also opens the stator blades at idle rpm to minimize creep.

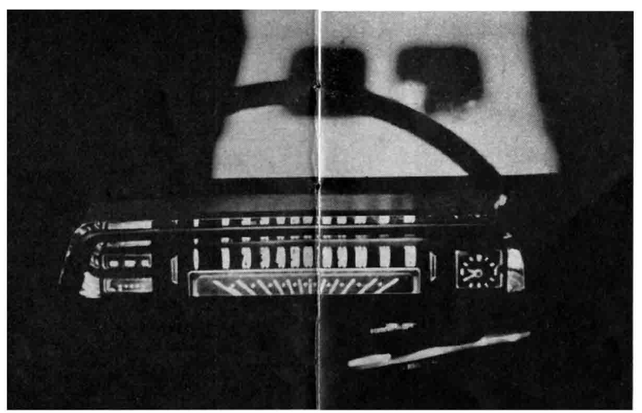
Kickdown is also controlled electrically, using the same throttle linkage switch but operating a separate solenoid which actuates the regulator valve for a downshift. Floorboarding the accelerator between 11 and 55 mph not only shifts to low gear, but it also opens the stator blades for a greater torque increase.

Using a die-cast aluminum case, the transmission assembly weighs 152 lb., an increase of 17 lb. over the earlier F-85 automatics. Shift pattern is now P-R-N-D-L, with stop-locks for park, reverse and low, when moving from neutral or drive. Transmission oil is cooled by routing it through a heat exchanger located in the bottom tank of the engine radiator. ▶

KNIFE EDGE fender ridge ends in an abruptly angular rear quarter.

WIRE WHEEL covers look real but completely block inflation valve.

INSTRUMENT cluster is almost identical to 1963 models.



TACHOMETER ON console was accurate but difficult to read in that location.

CRISP LINE of front fender juts ahead of recessed grille, lights.

SCOTT MALCOLM PHOTOS

OLDS Cutlass

Final drive ratios with the automatic transmissions are 3.08:1 with the HP 290-bhp engine, 2.78 with the 230-bhp engine and 3.23 when the optional Buick-derived 225-cu. in. V-6 engine is specified. For the manual transmissions, 3.23 is standard with the 290 and 3.08:1 with the 230.

Testing the Cutlass

For our test car, we secured a Cutlass Holiday with the 290-bhp engine and Jetaway transmission in order to fully evaluate both these new components along with the A-body structure. Oldsmobile uses the name Holiday to designate hardtops and the Cutlass is the top series in the F-85 line. Our car was a factory pool car which had been driven from Lansing to Los Angeles; there were 5100 well broken-in miles registered on the odometer.

Finished in deep metallic green with an interior complementing in richly done, 2-tone dark greens, it was indeed a handsome car. Still, though we had the car nearly 10 days before it appeared in dealer showrooms, we were struck by the complete lack of attention it commanded. Styling, which members of our staff felt was quite tasteful, apparently is not exciting. Then too, with its crisply tailored knife-edge fender treatment and recessed grille, it bears a striking resemblance to the 1963 Dynamic 88—all the more apparent because there is only a foot difference in length.

Driving the Cutlass immediately rekindled all the old feelings about Olds. It had all of the rump-pampering ease of ride that Oldsmobiles have always had. There was that impression of isolation from all such mundane matters as the highway or the hills.

The seats, upholstered in pleated vinyl to match the door paneling, were the last word in comfort. With the 4-way power adjustment for each front bucket seat, the driver and passenger could quickly and easily find the optimum attitude for long-range ease. Leg and knee room in back, nevertheless, was quite adequate—more like a large car than was previously the case with F-85s. The seat belts were equipped with the newly developed Borg-Warner spring rollers, worked over by Oldsmobile stylists to incorporate an arty double bail; these wound up the outboard strap with a snap once the belt was unbuckled. Unfortunately, however, the belts were poorly mounted for safety, with the bolt eyeplate flat atop the sill and too far forward.

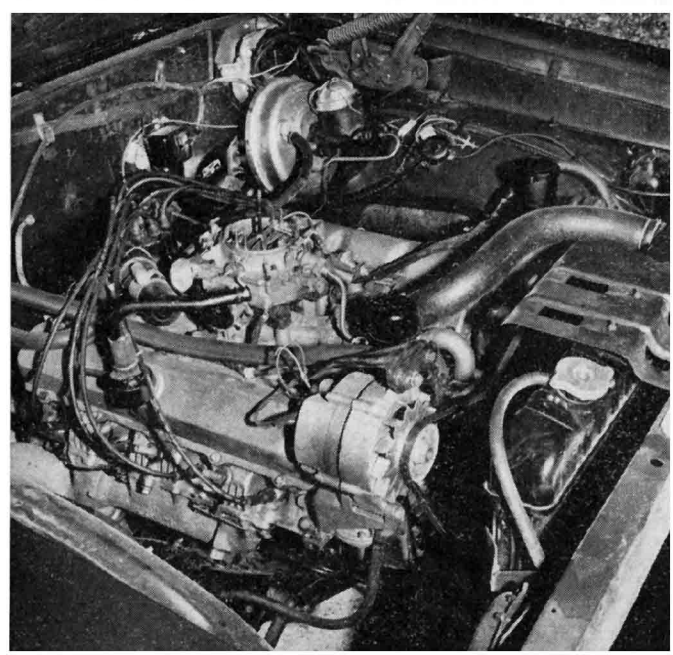
The designed-in understeer is, to our tastes, excessive and has a disconcerting tendency to increase with harder pushing. (One Olds chassis engineer said, with a straight face, that the suspension geometry "reduced excessive oversteer.") The faster the cornering speed attempted, the greater the tendency to plow off the outside of the curve. It was necessary to develop a technique of turning the corner before you actually arrived, then letting tire scrub gradually pull the car around. Earlier F-85s, which had a similar suspension layout, scored better here because of the shorter wheelbase.

Exuberant cornering caused excessive body lean, due to the supple suspension, while normal air pressures in the tires compounded the unpleasantness by making them howl in protest. Increased air pressure in the front tires would have helped the situation (as would a strong anti-roll coupling at the rear) but we were unable to reach the valves, either to check or to add to the pressures, without pulling off the imitation wire wheel covers. They are, however, nicely done and could almost be confused for the real thing.

It is in the power train that the Cutlass rekindles memories of those earlier-day Oldsmobiles which dominated the performance field. In 290-bhp tune, it is the most powerful engine to be installed in an A body, with the exception of Pontiac's just-in-time GTO version that carries the big 389-cu. in./348-bhp engine. It is notably quiet and smooth, churning out power up to 5000 rpm consistently and without strain. With the gearing in our test car, an actual 60 mph could be maintained all day, as the engine was turning only 2500 rpm. With 300 rpm yet in hand before reaching the torque peak (high gear and standard axle ratio), it is obvious that the engine is well designed to handle modern highway traffic situations. In Low range, the full 355 lb./ft. are produced at 38.4 mph, which means that in slow-moving traffic full power can be tapped by a quick downshift to take advantage of fleeting openings. While piston travel and consequent wear index are slightly higher than the engines it replaced, good long service life can still be expected of it because of its additional ruggedness and seemingly effortless power output.

TRUNK SIZE is large enough for most vacations in spite of space-robbing spare tire location.

ENGINE ROOM is large enough for any accessories or for bigger powerplant than narrow 330.



The new transmission handled this power output faultlessly and indeed performed almost as well as a 3-speed. The normal objections to a 2-speed automatic are almost completely overcome with the variable-vane feature; where there is usually a decided gap demanding another gear, the extra torque amplification in this transmission provides instead a smooth transition. It is particularly well suited to normal traffic conditions, where extra power is on tap for passing without the need to downshift and increase rpm to the red line. Interestingly, our best acceleration times were recorded by leaving the shift lever in Drive, even though it then was difficult to make a clean start without excessive wheelspin. When standing starts were made in Low, there was perfect traction without wheelspin, but times were slower throughout.

It should be noted that the power brakes gave us rapid retardation, recording a deceleration rate of 23 ft./sec./sec. during both our crash stops from 80 mph (with severe nose dive). However, a sensitive toe was necessary to forestall locking the right front wheel, inducing a slewing stop, and to sense the slight fading which was present both times. The power steering, without which the car's handling would have been quite objectionable, made control an effortless matter. While only 4.3 turns were required between locks, it still seemed to take a lot of attention to steer a straight course. The tilting wheel option, which we feel is an excellent aid to driving comfort and control, was not fitted, but the standard position for the 16-in. wheel seemed well placed for most drivers.

Oldsmobile, as in the past, will offer rugged-duty options designed for owners who pull trailers, and which will also do a great deal to upgrade the car's handling without too great a sacrifice in riding comfort. This option list includes oversize tires and 15-in. wheels, stiffer spring rates, heavy-duty shock absorbers, and an expanded selection of rear axle ratios. Other heavy-duty options are listed for police use and may be somewhat difficult for the private owner to secure. Such equipment, however, would have provided sufficient damping to have avoided the clanging scrape picked up by the radiator support bracket when our test car porpoised over a mild "thank-you-m'am" road irregularity.

Our road test results testify to the fact that the Cutlass, besides being standard-sized in dimensions, will be running with larger cars carrying larger engines. Although its handling qualities may not appeal to the enthusiast who takes his driving seriously, the Cutlass will be a most desirable car for his Aunt Matilda who insists on traditional Oldsmobile plushness, comfort and good breeding. ■

CAR LIFE ROAD TEST

1964 OLDSMOBILE
F-85 Cutlass Holiday

SPECIFICATIONS

List price	$2791
Price, as tested	n.a.
Curb weight, lb	3299
Test weight	3705
distribution, %	56/44
Tire size	7.00-14
Tire capacity, lb @ 24 psi	3900
Brake swept area	268.6
Engine type	V-8, ohv
Bore & stroke	3.937 x 3.385
Displacement, cu in	330
Compression ratio	10.25
Carburetion	1 x 4
Bhp @ rpm	290 @ 4800
equivalent mph	116
Torque, lb-ft	355 @ 2800
equivalent mph	68

DIMENSIONS

Wheelbase, in.	115.0
Tread, f and r	58.0
Over-all length, in.	203.0
width	73.8
height	53.7
equivalent vol, cu ft	464.0
Frontal area, sq ft	22.1
Ground clearance, in.	5.8
Steering ratio, o/a	20.7
turns, lock to lock	4.1
turning circle, ft.	41.0
Hip room, front	2 x 23
Hip room, rear	52
Pedal to seat back, max.	44
Floor to ground	10
Luggage vol, cu ft.	18.3
Fuel tank capacity, gal.	20.0

EXTRA-COST OPTIONS

Radio, auto. trans., wsw tires, seat belts, power steering, power brakes, tinted glass, outside mirror, wire wheel covers.

GEAR RATIOS

3rd ( ) overall	
2nd (1.00)	3.08
1st (1.76)	5.42
1st (1.76 x 2.70)	14.64

PERFORMANCE

Top speed (4600), mph	111
Shifts, @ mph (auto.)	
3rd ( )	
2nd ( )	
1st (4300)	59

ACCELERATION

0-30 mph, sec.	3.4
0-40	5.2
0-50	7.2
0-60	9.4
0-70	12.7
0-80	16.6
0-100	26.7
Standing ¼ mile, sec.	16.9
speed at end, mph	81

FUEL CONSUMPTION

Normal range, mpg. 14-17

SPEEDOMETER ERROR

30 mph, actual	28.4
60 mph	56.0
90 mph	84.9

CALCULATED DATA

Lb/hp (test wt)	12.8
Cu ft/ton mile	135
Mph/1000 rpm	24.1
Engine revs/mile	2490
Piston travel, ft/mile	1602
Car Life wear index	38.8

PULLING POWER

Max. gradient, %	
70 mph (2nd)	17.5
50 (2nd)	28.5
30 (1st)	37.0
Total drag at 60 mph, lb	150