

AMA Specifications—Passenger Car

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MANUFACTURER	OLDSMOBILE	CAR NAME	TORONADO
MAILING ADDRESS	LANSING, MICHIGAN	MODEL YEAR	1967
		ISSUED:	
		REVISED (●)	

NOTES:

1. The Specifications herein are those in effect at date of compilation and are subject to change without notice by the manufacturer.
2. UNLESS OTHERWISE INDICATED:
 - a. Specifications apply to standard models without optional equipment. Significant deviations are noted.
 - b. Nominal design dimensions are used throughout these specifications.

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BODY—TYPES AND STYLE NAMES—

Body type, number of passenger & style names; use manufacturer's code for series & body style.

<u>Body Type</u>	<u>No. of Passengers</u>	<u>Standard</u>	<u>Deluxe</u>
Hardtop Coupe	6	39487	39687

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GENERAL SPECIFICATIONS

(All dimensions in inches unless otherwise indicated)

MODEL		Additional Information Page No.:	39487	39687
Wheelbase (L101)			119.0	
Track	Front (W101)		63.5	
	Rear (W102)		63.0	
Maximum Overall Dimensions	Length (L103)		211.0	
	Width (W103)		78.5	
	Height (H101)		52.8	
Transmission (Specify trade name - opt., not available)	Manual - 3 speed	15	N.A.	
	Manual - 4 speed	15	N.A.	
	Overdrive	15	N.A.	
	Automatic	16	Std.	
Axle ratio	Manual - 3 speed	17	N.A.	
	Manual - 4 speed	17	N.A.	
	Overdrive	17	N.A.	
	Automatic	17	3.21	
Tire size		18	8.85 x 15	
Engine	Type, no. cyl., valve arr.	3	V-8 90° OHV	
	Fuel system (Carb., other)	10	CARBURETOR	
	Bore and stroke	3	4.125 x 3.975	
	Piston displ., cu. in.	3	425	
	Std. compression ratio	3	10.50:1	
	Max. bhp at engine rpm	3	385 @ 4800	
	Max. torque at rpm	3	480 @ 3200	

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GENERAL SPECIFICATIONS—DIMENSIONS

(All dimensions in inches unless otherwise indicated)
(Supplemental data available on request)

MODEL	SAE Ref. No.		
		39487	39687

FRONT COMPARTMENT

Shoulder room	W3	58.8	
Hip room	W5	62.2	
Max. eff. leg room - accelerator	L34	41.2	41.3
Effective head room	H61	37.9	
H Point to Heel point	H30	7.6	7.1

REAR COMPARTMENT

Shoulder room	W4	57.8	
Hip room	W6	55.6	
Minimum effective leg room	L51	35.5	36.6
Effective head room	H63	37.3	

LUGGAGE COMPARTMENT

Usable luggage capacity	V1	14.1	
Liftover height	H195		
Position of spare tire storage		Center Line of Car on Kickup Incline	
Method of holding lid open			

STATION WAGON—THIRD SEAT

Hip room	W86	NOT	
Effective leg room	L86		
Effective head room	H86	AVAILABLE	
Seat facing direction			

STATION WAGON—CARGO SPACE

MODEL	SAE Ref. No.	
Minimum distance between wheel houses at floor level	W201	
Rear end opening width at belt	W204	NOT
Floor length from back of front seat at floor level to inside of closed tail gate	L202	
Minimum horizontal distance from top rear of front seat back to inside of tail gate at belt	L204	AVAILABLE
Maximum height - floor covering to headlining at centerline of rear axle	H201	
Maximum height of rear opening - tail and lift gates open	H202	
Cargo volume index (cu. ft.) $\frac{W4 \times L204 \times H201}{1728}$	V2	

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ENGINE—GENERAL

Type, no. cyls., valve arr.	90° OHV V-8
Bore and stroke (nominal)	4.125 x 3.975
Piston displacement, cu. in.	425
Bore spacing (C/L to C/L)	4.625
No. system	L. Bank
(front to rear)	R. Bank
Firing order	1-3-5-7
Compres. ratio (nominal)	2-4-6-8
Cylinder Head Material	1-8-4-3-6-5-7-2
Cylinder Block Material	10.50:1
Cylinder Sleeve-Wet, dry, none	Cast Iron
Number of mounting points	Cast Iron
Front	None
Rear	One
Engine installation angle	Two
Taxable horsepower	0°
Dia ² xNo.Cyl.	54.45
2.5	
Publishing max. bhp* @ eng. RPM	385 @ 4800
Publishing max. torque* (lb. ft. @ RPM)	475 @ 3200
Recommended fuel regular - premium	Premium
Idle speed(spec. neutral or drive)	--
Manual	500
Automatic	

ENGINE—PISTONS

Material	Aluminum Alloy
Description and finish	Autothermic, Cam Grind Tin Plate, Steel Strut
Weight (piston only) oz.	23.460
Clearance (limits)	Top land
	Skirt
	Top
	Bottom
Ring groove depth	No. 1 ring
	No. 2 ring
	No. 3 ring
	No. 4 ring

* Max. bhp (brake horsepower) and max. torque corrected to 60° F and 29.92 in. Hg atmospheric pressure.

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POWER TEAMS

(Indicate whether standard or optional)

MODEL AVAILABILITY	ENGINE					TRANSMISSION	AXLE RATIO (Std. first) (Indicate A/C ratio)
	Displ. cu. in.	Carburetor	Compr. Ratio	BHP @ RPM	Torque @ RPM		
Toronado	425	4 Bbl.	10.50	385 @ 4800	475 @ 3200	Turbo Hydra-Matic	3.21

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ENGINE—RINGS

Function (top to bottom)	No. 1, oil or comp.	Compression
	No. 2, oil or comp.	Compression
	No. 3, oil or comp.	Oil
	No. 4, oil or comp.	None
Compression	Description - material, coating, etc.	Cast Iron-Upper Ring-Chrome Plate O.D. Taper Face Garmotox Lower Ring: Taper Face
	Width	#1 - .0775-.0780 #2 - .0770-.0780
	Gap	.013-.023
Oil	Description - material, coating, etc.	Two Rails - Spring Steel Chrome Plated Spacer: Cold Roll Steel Spacer
	Width	Rails: .0235-.0252 Spacer: .137-.134
	Gap	Rails: .015-.055 Spacer: .285
Expanders		None

ENGINE—PISTON PINS

Material		Steel SAE #1019	
Length		3.126	
Diameter		.9803 - .9807	
Type	Locked in rod, in piston, floating, etc.		Pressed in Rod
	Bushing	In rod or piston	None
		Material	--
Clearance	In piston		.0003 - .0005
	In rod		.0008 - .0016 Press
Direction & amount offset in piston			.075 to R.H. of Cylinder Bore Centerline

ENGINE—CONNECTING RODS

Material		SAE #1140 Steel
Weight (oz.)		31.80
Length (center to center)		6.996 - 7.000
Bearing	Material & Type	Moraine 400 (GM 3889M Aluminum) Steel Backed
	Overall length	.821 - .831
	Clearance (limits)	.0005 - .0026
	End play	(.004-.009) Preferred .002-.013 2 Rods per Crankpin

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ENGINE—CRANKSHAFT

Material			A.I.S.I. #1049 Modified		
Vibration damper type			Tuned Rubber		
End thrust taken by bearing (No.)			.004 - .008		
Crankshaft end play					
Main bearing	Material & type		Moraine 400 (GM 3889-M Aluminum)		
	Clearance		Steel Backed		
			1,2,3 & 4 .005-.0021 #5 .0020-.0034		
	Journal dia. and bearing overall length	No. 1	3.00 x .975		
		No. 2	3.00 x .975		
		No. 3	3.00 x 1.194		
		No. 4	3.00 x .975		
		No. 5	3.00 x 1.624		
		No. 6	--		
No. 7		--			
Dir. & amt. cyl. offset		2.4988 - 2.5003			
Crankpin journal diameter					

ENGINE—CAMSHAFT

Location		Center	
Material		GM 120M Alloy Cast Iron	
Bearings	Material	Steel Backed Babbitt GM 4195 or CGB #F-11	
	Number	5	
Type of Drive	Gear or chain		Chain
	Crankshaft gear or sprocket material		G.M. 85M, Sintered Iron ASTM B-310-56T, SAE 1118, 1140, 1141, 1146
	Camshaft gear or sprocket material		Die-Cast Aluminum SAE #308 - #101 Nylon Teeth Optional Cast Iron
	Timing chain	No. of links	48
		Width	
		Pitch	.500

ENGINE—VALVE SYSTEM

Hydraulic lifter (Std, opt, NA)		Standard
Valve rotator, type (intake, exhaust)		None
Rocker ratio		1.6:1
Operating tappet clearance (indicate hot or cold)	Intake	None
	Exhaust	None
Timing marks on flywheel, damper, other		

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ENGINE—VALVE SYSTEM (cont.)

Timing	Intake	Opens (°BTC)	21°
		Closes (°ABC)	77°
		Duration - deg.	278°
	Exhaust	Opens (°BBC)	71°
		Closes (°ATC)	31°
		Duration - deg.	282°
Valve opening overlap		52°	
Intake	Material		SAE #1041 SAE #1047 Steel
	Overall length		4.708
	Actual overall head dia.		2.067-2.057
	Angle of seat & face		30°
	Seat insert material		None
	Stem diameter		.3432-.3425
	Stem to guide clearance		.0010-.0027
	Lift (@ zero lash)		.431
	Outer spring press. and length	Valve closed (lb. @ in.)	76-84 - 1.670
		Valve open (lb. @ in.)	180-194 - 1.270
	Inner spring press. and length	Valve closed (lb. @ in.)	Damper
		Valve open (lb. @ in.)	--
Exhaust	Material		GM #N82152 Steel
	Overall length		4.665
	Actual overall head dia.		1.629 - 1.619
	Angle of seat & face		45° Seat 46° Face
	Seat insert material		None
	Stem diameter		34.27 - 34.20
	Stem to guide clearance		.0015 - .0032
	Lift (@ zero lash)		.433
	Outer spring press. and length	Valve closed (lb. @ in.)	76-84 - 1.670
		Valve open (lb. @ in.)	180-194 - 1.270
	Inner spring press. and length	Valve closed (lb. @ in.)	Damper
		Valve open (lb. @ in.)	--

ENGINE—LUBRICATION SYSTEM

Type of lubrication (splash, pressure, nozzle)	Main bearings	Pressure
	Connecting rods	Pressure
	Piston pins	Splash
	Camshaft bearings	Pressure
	Tappets	Pressure
	Timing gear or chain	Pressure
	Cylinder walls	Pressure

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ENGINE—LUBRICATION SYSTEM (cont.)

Oil pump type	Gear
Normal oil pressure (lb. @ engine rpm)	30-45 @ 1500 RPM
Oil pressure sending unit (elect. or mech.)	Electric
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, partial, other)	Full Flow
Filter replacement (element, complete)	Complete
Capacity of crankcase, less filter-refill (qt.)	5
Oil grade recommended (SAE viscosity and temperature range)	Above 32° F - SAE 10W30, SAE 20W Below 32° F - SAE 10W30, SAE 10W Below 0° F - SAE 5W20, SAE 5W
Engine Service Requirement (MM, MS, etc.)	

ENGINE—EXHAUST SYSTEM

Type (single, single with cross-over, dual, other)	Dual System
Muffler No. & type (reverse flow, straight thru, separate resonator)	Transverse Muffler and Tail Pipe Resonator
Exhaust pipe dia. (O.D., wall thickness)	Branch Main
Tail pipe diameter (O.D. & wall thickness)	

ENGINE— CRANKCASE VENTILATION SYSTEM

Type (ventilates to atmos., induction system, other)	Standard Optional	Positive Crankcase Ventilation None
Make and model		AC Dual Valve
Location		Valve Cover
Energy source (manifold vacuum, carburetor air stream, other)		Manifold Vacuum and Carburetor Air
Control Unit		Fixed Orifice
Discharges (to intake manifold, carb. air intake, air cleaner intake, other)		Intake Manifold & Air Cleaner
Complete system		Breather Cap
Flame arrestor (screen, check valve, other)		Screw

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ENGINE—EXHAUST EMISSION CONTROL

Type (Air injection, engine modifications, other)		Air Injection	
Air Injection Pump	Type	Vane	
	Displacement	19.3 Cu. In.	
	Drive ratio	1.25 to 1	
	Drive type	Belt	
	Relief valve (type)	Spring Loaded Poppet	
	Filter (describe)	Polyurethane	
Air Injection System	Air distribution (head, manifold, etc.)	Air Manifold	
	Point of entry	Cylinder Head Exhaust Port	
	Injection tube I.D.	.257	
	Check valve type	Diaphragm	
	Backfire protection (type)	Manifold Air Bleed Valve	
Carburetor	Make		
	Model		
	Barrel size		
	Idle speed	Drive Neutral	
Distributor	Aux. Adv. Systems (type)		
	Make		
	Model		
	Cent'fgal adv. in crank degrees @ eng. rpm.	Start (rpm)	
		Intermed. points deg. @ rpm	
		Max. deg.@rpm.	
	Vacuum adv. in. crank degrees @ eng. rpm	Start (in Hg)	
Intermed. points deg.@ in. Hg Max. deg.@ in.			
Vacuum Source		Ported	
Timing - Crank degrees @ rpm			
Cooling System (describe changes)		None	
Exhaust System (describe changes)		None	

Carburetor - Distributor and timing same as standard car.

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ENGINE—FUEL SYSTEM			(See supplemental page for Details of Fuel Injection, Supercharger, etc. if used)
Induction type: Carburetor, fuel injection, supercharger.			
			Carburetor
Fuel Tank	Refill capacity (gals.)	24	
	Filler location	Behind License Plate Rear Bumper	
Fuel Pump	Type (elec. or mech.)	Mechanical	
	Locations	Right Front on Block	
	Pressure range	7 3/4 - 9 PSI	
Vacuum booster (std., optional, none)		None	
Fuel Filter	Type	Sintered Bronze & Saran Type	
	Locations	Carburetor & Fuel Tank	
Carburetor	Choke type	Automatic	
	Intake manifold heat control (exhaust or water)	Exhaust	
	Air cleaner type	Standard	Paper
		Optional	None

CARBURETOR SUPPLEMENTARY INFORMATION						
Model Usage	Engine Displ.	Transmission	Carburetors		No. Used and Type	Barrel Size
			Make	Model		
Toronado	425	Turbo Hydra-Matic	Rochester	4 MV	1	Primary 1 3/8 Secondary 2 1/4

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ENGINE—COOLING SYSTEM

Type system (pressure, pressure vented, atmospheric, other)			Pressure
Radiator cap relief valve pressure			15 PSI
Circulation thermostat	Type (choke, bypass)		Choke
	Starts to open at (°F)		180°
Water pump	Type (centrifugal, other)		Centrifugal
	GPM @ 1000 pump rpm		22
	Number of pumps		1
	Drive (V-belt, other)		V-Belt
	Bearing type		Ball
By-pass recirculation type (internal, external)			External
Radiator core type (cellular, tube and fin, other)			Tube & Center
Cooling system capacity	With heater (qt.)		17.5
	Without heater (qt.)		16.5
	Opt. equipment-specify (qt.)		18.0 Air Conditioning
Water jackets full length of cylinder (yes, no)			Yes
Water all around cylinder (yes, no)			Yes
Radiator hose	Lower	Number and type (molded, straight)	1 Molded
		Inside diameter	1.75
	Upper	Number and type (molded, straight)	1 Molded
		Inside diameter	1.50
	By-pass	Number and type (molded, straight)	1 Molded
		Inside diameter	.7
Fan	Number of blades & spacing		4 @ 76°
	Diameter		18.00
	Ratio-fan to crankshaft rev.		.8486
	Fan cutout type		Clutch A/C Only
	Bearing type		Ball
*Drive belts (indicate belt used by letter)	Fan	A	51.86
	Generator or alternator	A	Same
	Water Pump	A	Same
	Power Steering		58.89
	Air Conditioning		53.30

* Drive Belt Dimensions	A	B	C	D	E	F	G	H	I	J	K
Angle of V	36°										
Nominal length (SAE)											
Width	.380										

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ELECTRICAL—SUPPLY SYSTEM

Battery	Make and Model		1980040
	Voltage Rtg. & Total Plates		12V - 78 Plates
	SAE Designation & Amp Hr. Rtg.		73 AH
	Location		Engine Compartment - Right Side
	Terminal grounded		Negative
Generator or Alternator	Make		Delco Remy
	Model		1100734
	Type and rating		42 AMP Diode Rectifying
	Output at engine idle (neutral)		Chart on Idle
	Ratio—Gen. to Cr/s rev.		2.444
Regulator	Make		Delco Remy
	Model		1119515
	Type		Vibrating Contact
	Cutout relay	Closing voltage @ generator rpm	None
		Reverse current to open	None
	Regu- lated	Voltage	13.5-14.4
		Current	None - Self Regulating
	Voltage test conditions	Temperature	120° F
		Load	Less Than 10 AMPS
		Other	Upper Contacts

ELECTRICAL—STARTING SYSTEM

Starting motor	Make		Delco Remy
	Model		1107354
	Rotation (drive end view)		Clockwise
	Engine cranking speed		Not Specified
	Test conditions		80° F
	No load test	Amps	70-105
		Volts	10.6
		RPM (min)	3800
Motor control	Switch (solenoid, manual)		Solenoid
	Starting procedure		Must be in park or neutral to start. Turn ignition key against spring load to full clockwise position.

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ELECTRICAL—STARTING SYSTEM (cont.)

Motor Drive	Engagement type			Solenoid Over-running Clutch
	Pinion meshes (front, rear)			Front
	Number of teeth	Pinion		9
		Flywheel	Manual	166
			Auto.	166
	Flywheel tooth face width		Manual	.438
			Auto.	.438

ELECTRICAL—IGNITION SYSTEM

Cail	Transistorized - Std., Opt., N.A.		C.D. Option	
	Make		Delco Remy	
	Model		1115221	
	Amps	Engine stopped		4.0
Engine idling		2.2		
Distributor	Make		Delco Remy	
	Model		111151	
	Cent'fgal adv. in crankshaft degrees @ engine rpm (nominal)	Start (rpm)		0°-2° @ 1200 RPM
		Intermediate points deg. @ rpm.		7°-11° @ 1200 RPM
		Max. deg. @ rpm.		16°-20° @ 4200 RPM
	Vacuum adv. in crankshaft degrees @ in. Hg. (nominal)	Start (in. Hg.)		8°-10° in. Hg
		Intermediate points, deg. @ in. Hg.		8°-13 1/2° @ 14 in. Hg
		Max. deg. in. Hg.		20° @ 20 in. Hg.
	Breaker gap (in.)		.016	
	Cam angle (deg.)		28°-32°	
Breaker arm tension (oz.)		19-32		
Timing	Crankshaft deg. @ rpm.		7 1/2° @ 850 RPM	
	Mark location		Pulley Hub	
Spark Plug	Make		AC	
	Model		AC 44S	
	Thread (mm)		14 mm	
	Tightening torque (lb. ft.)		.30	
	Gap		.30	
Cable	Conductor type		Resistance	
	Insulation type		Neoprene	
	Spark plug protector		Hypalon	

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ELECTRICAL—SUPPRESSION

Locations & type	Resistance core cable spark plug and coil leads. Bypass condensers at alternator, regulator and coil on radio equipped cars.
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ELECTRICAL—INSTRUMENTS AND EQUIPMENT

Speed-ometer	Make	AC
	Trip odometer (yes, no)	No
Charge indicator—type		Ammeter
Temperature indicator—type		Electric Gauge
Oil pressure indicator—type		Indicator Lamp
Fuel indicator—type		Electric
Other Brake		Indicator Lamp
Windshield wiper	Make	Delco Appliance
	Type—Standard	2 Speed Electric
	Type—Optional	None
	Vacuum booster provision	No
	Washer provision	Yes
Horn	Type	Vibrating
	Number used	Two
	Amp draw (each)	5.2-5.7

DRIVE UNITS—CLUTCH (Manual Transmission)

Make & type		
Type pressure plate springs		
Total spring load (lb.)		NOT
No. of clutch driven discs		
Clutch facing	Material	AVAILABLE
	Outside & inside dia.	
	Total eff. area (sq. in.)	
	Thickness	
	Engagement cushioning method	
Release bearing	Type & method of lubrication	
Torsional damping	Methods: springs, friction material	

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DRIVE UNITS—TRANSMISSIONS

Manual 3-speed (std. or opt.)	N.A.
Manual 4-speed (std. or opt.)	N.A.
Manual with overdrive (std. or opt.)	N.A.
Automatic (std. or opt.)	Std.

DRIVE UNITS — MANUAL TRANSMISSION

Number of forward speeds		
Transmis- sion ratios	In first	
	In second	NOT
	In third	
	In fourth	AVAILABLE
	In reverse	
Synchronous meshing, specify gears		
Shift lever location		
Lubricant	Capacity (pt.)	
	Type recommended	
	SAE vis- cosity number	Summer
		Winter
		Extreme cold

DRIVE UNITS— MANUAL TRANSMISSION WITH OVERDRIVE

For transmission data see manual transmission section

Type (planetary or other)		
Manual lockout (yes, no)		
Downshift accelerator control (yes, no)		NOT
Minimum cut-in speed		
Gear ratio		AVAILABLE
Lubricant	Capacity (pt.) (Overdrive only)	
	Separate filler (yes, no)	
	Type recommended	
	SAE vis- cosity number	Summer
		Winter
		Extreme cold

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DRIVE UNITS—AUTOMATIC TRANSMISSION

Trade name	Turbo Hydra-Matic					
Type describe	Fully Automatic 3-Speed Torque Converter					
Method of Selection (Lever, Push Button or other)	Lever					
Selector Pattern	P Park	R Reverse	N Neutral	D Drive	S Super	L Low
List gear ratios Selector Pattern and indicate which are used in each selector position	-	-	-	2.48	2.48	2.48
	-	-	-	1.48	1.48	-
	-	2.08	-	1.00	-	-
Max. upshift speeds—drive range	1-2 48 MPH			2-3 80 MPH		
Max. kickdown speeds—drive range	2-1 24 MPH			3-2 70 MPH		
Torque converter	Number of elements		Three			
	Max. ratio at stall		1.8 High Angle		2.2. Low Angle	
	Type of cooling (air, liquid)		Water			
Lubricant	Capacity—refill (pt.)		24 Dry 5.5 Refil			
	Type recommended		Type "A" Automatic Transmission Fluid AQ-ATF Suffix "A"			
Special transmission features	Driven through a chain from engine mounted converter				Chain Length 46.5" Chain Width 2.0" Chain Pitch .3755"	

DRIVE UNITS—PROPELLER SHAFT

Number used	Two (1 Piece L. 2 Piece R.)	
Type (exposed, torque tube)	Exposed	
Outer diameter x length* x wall thickness	Manual 3-speed transmission	N.A.
	Manual 4-speed transmission	N.A.
	Overdrive transmission	N.A.
	Automatic transmission	1.29 x 23.53 x N.A.

*Center to center of universal joints, or to centerline of rear attachment.

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DRIVE UNITS—PROPELLER SHAFT (cont.)

Inter-mediate bearing	Type (plain, anti-friction)		None
	Lubrication (fitting, prepack)		None
Universal joints	Make		Saginaw
	Number used		4 Joints
	Type (ball and trunnion, cross, other)		(2) Ball Spline Rzeppa (Inboard) (2) Rzeppa (Outboard)
	Bearing	Type (plain, anti-friction)	Ball
		Lubric. (fitting, prepack)	Prepacked (Permanent)
Drive taken through (torque tube or arms, springs)			Not Applicable
Torque taken through (torque tube or arms, springs)			Not Applicable

DRIVE UNITS—REAR AXLE

Description			
Limited Slip differential, type			
Drive Pinion Offset			
No. of differential pinions			
Ring gear O.D. (std. ratio)			
Pinion adjustment (shim, other)			
Pinion bearing adj. (shim, other)			
Wheel bearing type			
Lubricant'	Capacity (pt.)		
	Type recommended		
	SAE viscosity number	Summer	
		Winter	
		Extreme cold	

REAR AXLE RATIO TOOTH COMBINATIONS

(See page 4 for axle ratio usage)

Axle ratio		3.21
No. of teeth	Pinion	14
	Ring gear	45

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MODEL 39487

DRIVE UNITS—WHEELS

Type & material		Spider SAE 1015 Rim SAE 1010
Rim (size and flange type)	Std.	15 x 6JK
	Opt.	15 x 6JK
Attachment	Type (bolt or stud)	Stud
	Circle diameter	5.00 In.
	Number and size	5

DRIVE UNITS—TIRES

Standard (List option below)	Size & ply	8.85 x 15 (Low Profile)
	Type - Nylon, etc.	
Rev./mile at 50 mph.		724 @ 60 MPH
Inflation press. (cold)	Front	24
	Rear	24
Optional tires - size and ply		

BRAKES—SERVICE

Type (duo-servo, disc, balanced, etc.)			Duo-Servo
Self adjusting (std., opt., N.A.)			Standard
Hydraulic system type (single, dual, etc.)			Dual
Power brake make & type (remote, integral, etc.)			Bendix; Integral
Effective area (sq. in.) *			208.6
Gross lining area (sq. in.) **			212
Swept drum area (sq. in.) ***			328.2
Percent brake effectiveness—front			68 to 74
Drum or Rotor	Diameter	Front	11.00
		Rear	11.00
	Type and material		Drum: Cast Iron
	Rotor (vented or solid)		
	No. pistons per caliper		
Wheel cyl- inder bore	Front	1 1/8	
	Rear	7/8	
Master cylinder bore			1"
Available pedal travel			4.52
Line pressure at 100 lb. pedal load			1125 PSI
Shoe clearance adjustment			.015 per shoe

* Excludes rivet holes, grooves, chamfers, etc.

(Continued)

** Includes rivet holes, grooves, chamfers, etc.

*** Total swept area for four brakes:

Widest lining contact width for each brake x its drum circumference.

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MODEL _____ TORONADO

DRIVE UNITS—WHEELS

Type & material	
Rim (size and flange type)	Std.
	Opt.
Attachment	Type (bolt or stud)
	Circle diameter
	Number and size

DRIVE UNITS—TIRES

Standard (List option below)	Size & ply	
	Type - Nylon, etc.	
Rev./mile at 50 mph.		
Inflation press. (cold)	Front	
	Rear	
Optional tires - size and ply		N.A.

BRAKES—SERVICE

Type (duo-servo, disc, balanced, etc.)			Disc Frt: Drum Rear	
Self adjusting (std., opt., N.A.)			Self Adjusting	
Hydraulic system type (single, dual, etc.)			Dual	
Power brake make & type (remote, integral, etc.)			Bendix - Integral - Tandem	
Effective area (sq. in.) *			38.4 Frt.	80 Rear
Gross lining area (sq. in.) **			40.8 Frt.	84 Rear
Swept drum area (sq. in.) ***			222 Frt.	138 Rear
Percent brake effectiveness—front			64 To 72	
Drum or Rotor	Diameter	Front	11.3	
		Rear		
	Type and material		Rotor: Cast Iron	Drum: Cast Iron
	Rotor (vented or solid)		Vented	
	No. pistons per caliper		2	
Wheel cyl- inder bore	Front	2.06		
	Rear	.88		
Master cylinder bore			1.00	
Available pedal travel			4.5	
Line pressure at 100 lb. pedal load			1575	
Shoe clearance adjustment			.001	.015 per shoe

* Excludes rivet holes, grooves, chamfers, etc.

** Includes rivet holes, grooves, chamfers, etc.

*** Total swept area for four brakes:
 Widest lining contact width for each brake x its drum circumference.

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BRAKES—SERVICE (cont.)

Brake lining	Drum or Disc		Drum
	Bonded or riveted		Riveted
	Front Wheel	Material	Marshall Pri. H-3152R: Sec. H-3152F
		Size (length x width x thickness)	12.00 x 2.75 x .20
		Prim. or out-board	
		Second. or in-board	12.00 x 2.75 x .29
		Segments per shoe	One
	Rear Wheel	Material	Marshall Pri. H3144. Sec. H-3152F
		Size (length x width x thickness)	12.00 x 2.00 x .20
		Prim. or out-board	
		Second. or in-board	12.00 x 2.00 x .29
		Segments per shoe	One

BRAKES—PARKING

Type of control		Suspended Pedal
Location of control		Left Drivers Compartment
Operates on		Rear Brakes
If separate from service brakes	Type (internal or external)	NOT
	Drum diameter	
	Lining size (length x width x thickness)	SEPARATE

FRAME

Type and description (Separate frame, unitized frame, partially - unitized frame)	Boxed perimeter frame extending to rear of passenger compartment. Frame integral construction back of passenger compartment.
---	--

STEERING

Manual (std., opt., NA)			N.A.	
Power (std., opt., NA)			Standard	
Adjustable steering wheel (tilt, swing, other)		Type and description	Tilt and Travel Type	
		(std., opt., NA)	Optional	
Wheel diameter		Manual	N.A.	
		Power	15.5	
Turning diameter	Outside front	Wall to wall (l. & r.)	N.A.	
		Curb to curb (l. & r.)	43.0	
	Inside rear	Wall to wall (l. & r.)	N.A.	
		Curb to curb (l. & r.)	N.A.	
Outside wheel angle with inside wheel at 20°			18.2°	
Manual	Gear	Type		
		Make		NOT
		Ratios	Gear	
			Overall	AVAILABLE
	No. wheel turns			

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MODEL _____ TORONADO

BRAKES—SERVICE (cont.)

Brake lining	Drum or Disc		Disc Frt	Drum Rear
	Bonded or riveted		Riveted	Riveted
	Front Wheel	Material	Marchall	D-7123
		Size (length x width x thickness)	Prim. or out-board	5.34 x 1.9 x .43
		Second. or in-board	5.34 x 1.9 x .42	
		Segments per shoe	One	
	Rear Wheel	Material	Marshall	Pri H-3144 Sec H-3152F
		Size (length x width x thickness)	Prim. or out-board	9.00 x 2.00 x .20
		Second. or in-board	12.00 x 2.00 x .29	
		Segments per shoe	One	

BRAKES—PARKING

Type of control		
Location of control		
Operates on		
If separate from service brakes	Type (internal or external)	
	Drum diameter	
	Lining size (length x width x thickness)	

FRAME

Type and description (Separate frame, unitized frame, partially - unitized frame)	
---	--

STEERING

Manual (std., opt., NA)				
Power (std., opt., NA)				
Adjustable steering wheel (tilt, swing, other)		Type and description		
		(std., opt., NA)		
Wheel diameter		Manual		
		Power		
Turning diameter	Outside front	Wall to wall (l. & r.)		
		Curb to curb (l. & r.)		
	Inside rear	Wall to wall (l. & r.)		
		Curb to curb (l. & r.)		
Outside wheel angle with inside wheel at 20°				
Manual	Gear	Type		
		Make		
		Ratios	Gear	
			Overall	
	No. wheel turns			

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STEERING (cont.)

Power	Type (coaxial, linkage, etc.).			Linkage
	Make			Sag. Strg. Gear
	Gear	Type		Rack Piston
		Ratios	Gear	17.5:1
			Overall	17.8:1
	Pump driven by			Pulley
Number wheel turns			3.4 Lock to Lock	
Linkage	Type			Parallelogram
	Location (front or rear of wheels, other)			Rear
	Drag link (trans. or longit.)			Transverse
	Tie rods (one or two)			Two
Steering Axis	Inclination at camber (deg.)			11° at 0° Camber
	Bearings (type)	Upper		Ball Joint
		Lower		Ball Joint
		Thrust		Ball Joint
Wheel Alignment (range at curb weight and preferred)	Caster (deg.)			Range -1 1/2° to -2 1/2°
	Camber (deg.)			Range -1/4° to +1/2°
	Toe-in (outside track inches)			0 to +1/16
Steering spindle & joint type				Ball Joint
Wheel spindle	Diameter	Inner bearing		3.6600-3.6594
		Outer bearing		
	Thread size			1-20
	Bearing type			Ball Bearing

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SUSPENSION—GENERAL

(See Supplemental page for details on Air Suspension)*

Provision for car leveling		Front Torsion Bar Adjustment
Provision for brake dip control		Counter Dive Design of Suspension
Provision for acc. squat control		No Torque at Rear
Special provisions for car jacking		None
Shock absorber front & rear	Type	Direct Acting
	Make	Delco
	Piston dia.	1 inch
Other special features		

SUSPENSION—FRONT

Type and description		Independent Torsion Bar
Spring	Type	Torsion Bar
	Material	SAE 5160 H
	Size (coil design height & I.D.; bar length x dia.)	1.112" Dia. x 58.95" Long
	Spring rate (lb. per in.)	540 in. lbs./deg.
	Rate at wheel (lb. per in.)	162
Stabilizer	Type (link, linkless, frameless)	Link
	Material & bar diameter	SAE 1070 1.00"

SUSPENSION—REAR

Type and description		Single Leaf Springs - 4 Shock Absorbers
Drive and torque taken through		Front
Spring	Type	Single Leaf
	Material	SAE 5160
	Size (length x width, coil design height & I.D.; bar length & dia.)	64" Long x 3.00" Wide
	Spring rate (lb. per in.)	152
	Rate at wheel (lb. per in.)	157
	Mounting insulation type	Rubber bushings frt. & rear eye & rubber insulator at axle
	If leaf	No. of leaves
		Shackle (comp. or tens)
Stabilizer	Type (link, linkless, frameless)	None
	Material	None
Track bar type		None

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BODY—MISCELLANEOUS INFORMATION

Drs. hinged (front, rear)	Front doors	Front
	Rear doors	N.A.
Type of finish (lacquer, enamel, other)		Lacquer
Hood counterbalanced (yes, no)		Yes
Hood release control (internal, external)		External
Vehicle Indent. No. location		L.H. Front Pillar Post
Engine No. location		None
Theft protection - type		Key Type Starting
Vent window control method (crank, friction pivot)	Front	None
	Rear	None
Seat cushion type	Front	Zig Zag
	Rear	Zig Zag
	3rd seat	None
Seat back type	Front	Zig Zag
	Rear	Zig Zag
	3rd seat	None
Windshield glass type (i.e., single curved - laminated plate)		Compound Curve
Side glass type (i.e., curved - tempered plate)		Curve
Backlight glass type (i.e., compound curved - tempered plate, three piece)		Curved One Piece
Windshield glass exposed surface area		1291.6
Side glass exposed surface area		1798.2
Backlight glass exposed surface area		1304.5
Total glass exposed surface area		4475.3

LAMP HEIGHT AND SPACING

Height above ground to center of bulb	Headlamp	Highest *	
		Lowest	NOT
	Tail	Highest	
		Lowest	AVAILABLE
Distance from C/L of car to center of bulb	Headlamp	Inside	
		Outside *	
	Tail	Inside	
		Outside	
	Directional	Front	
		Rear	

* If single headlamps are used enter here.

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CONVENIENCE EQUIPMENT

(Indicate whether standard, optional or NA on each series)

Power windows	Side Windows	Optional
	Vent Windows	N.A.
	Backlight or tailgate	N.A.
Power seats (specify type as well as availability)		Optional - 6 Way Power **
Reclining front seat back		N.A. Optional (Passenger Only)
Front seat headrest		Optional
Radios (specify type as well as availability)		Deluxe and AM-FM - Optional
Rear seat speaker		Optional
Power Antenna		Optional
Clock		Standard
Air Conditioner (specify type and availability)		Optional
Speed warning device		Optional
Speed control device		Optional
Ignition lock lamp		N.A.
Back up lamp		Standard
Dome lamp		Standard
Glove compartment lamp		Standard
Prkg. brake signal lamp		Standard
Luggage compartment lamp		Optional
Underhood lamp		Optional
Courtesy lamp		Standard
Map lamp		N.A.
Auto. trans. quad. lamp		Standard
Emergency flasher lamp		N.A.
Cornering light lamp		Optional
Dual Brake Warning		Standard

(**) 4 Way Power available with special bucket seat only

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