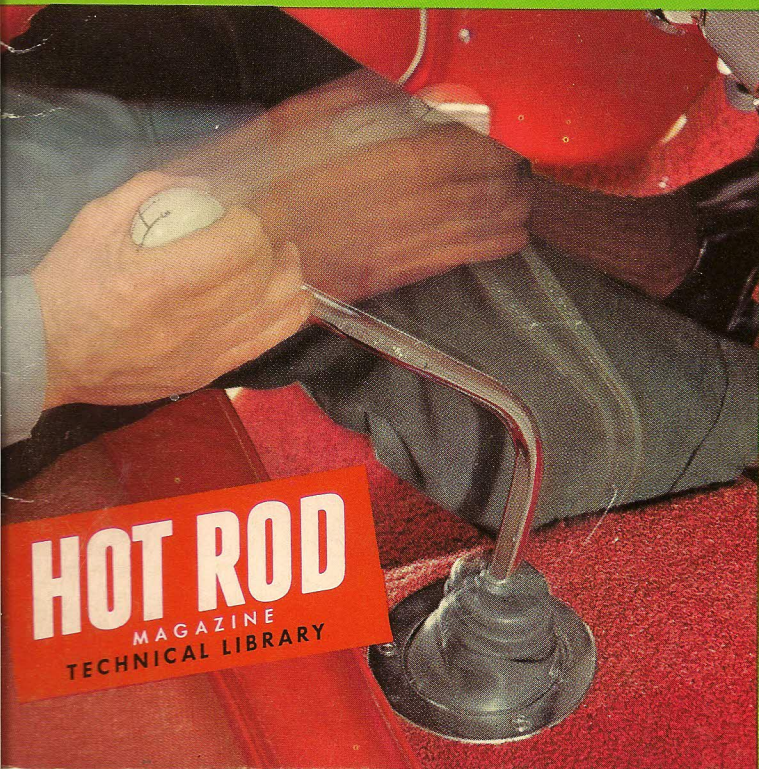
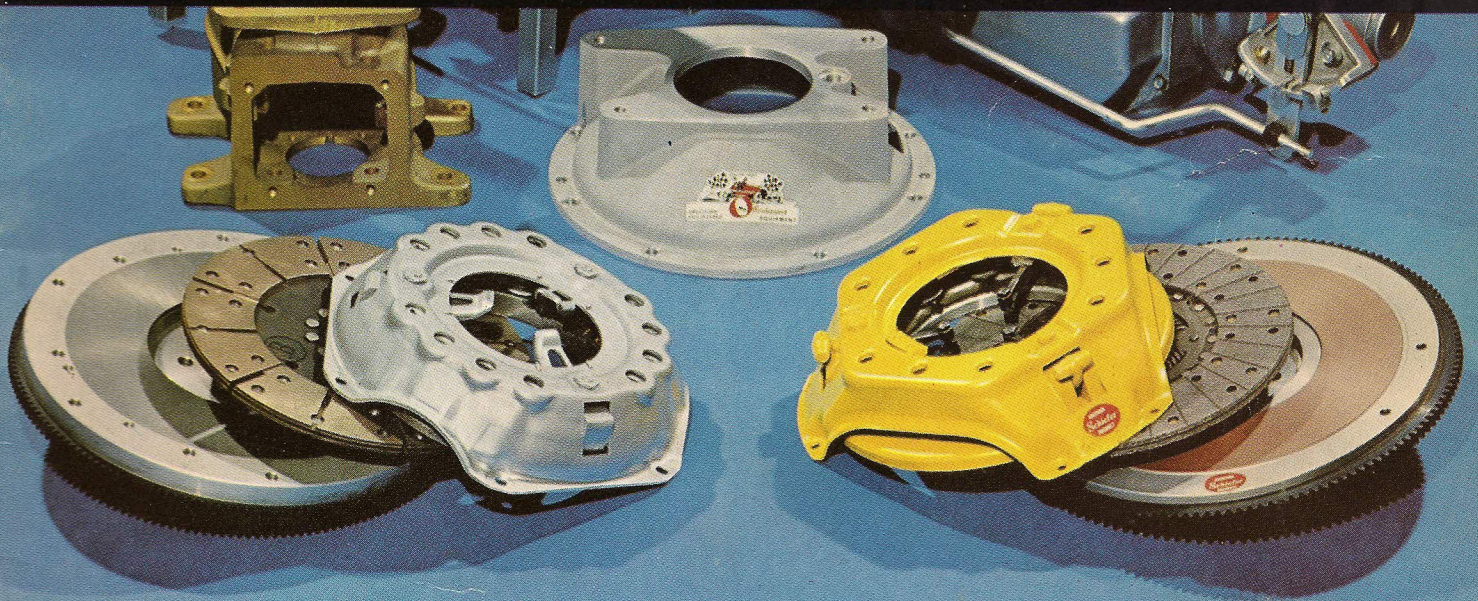


CLUTCHES TRANSMISSIONS REAR ENDS

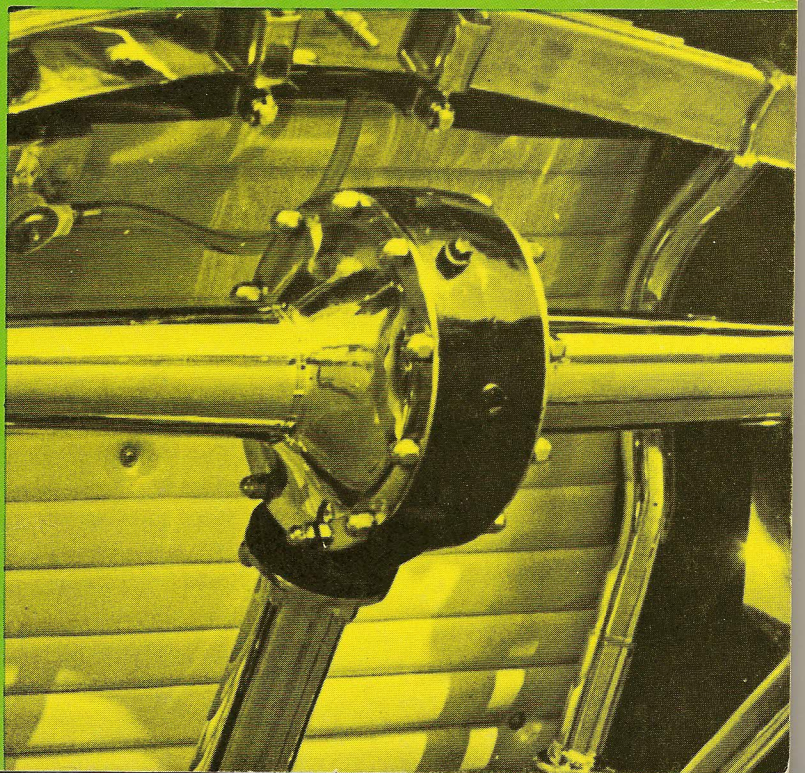
BY THE EDITORS OF HOT ROD MAGAZINE

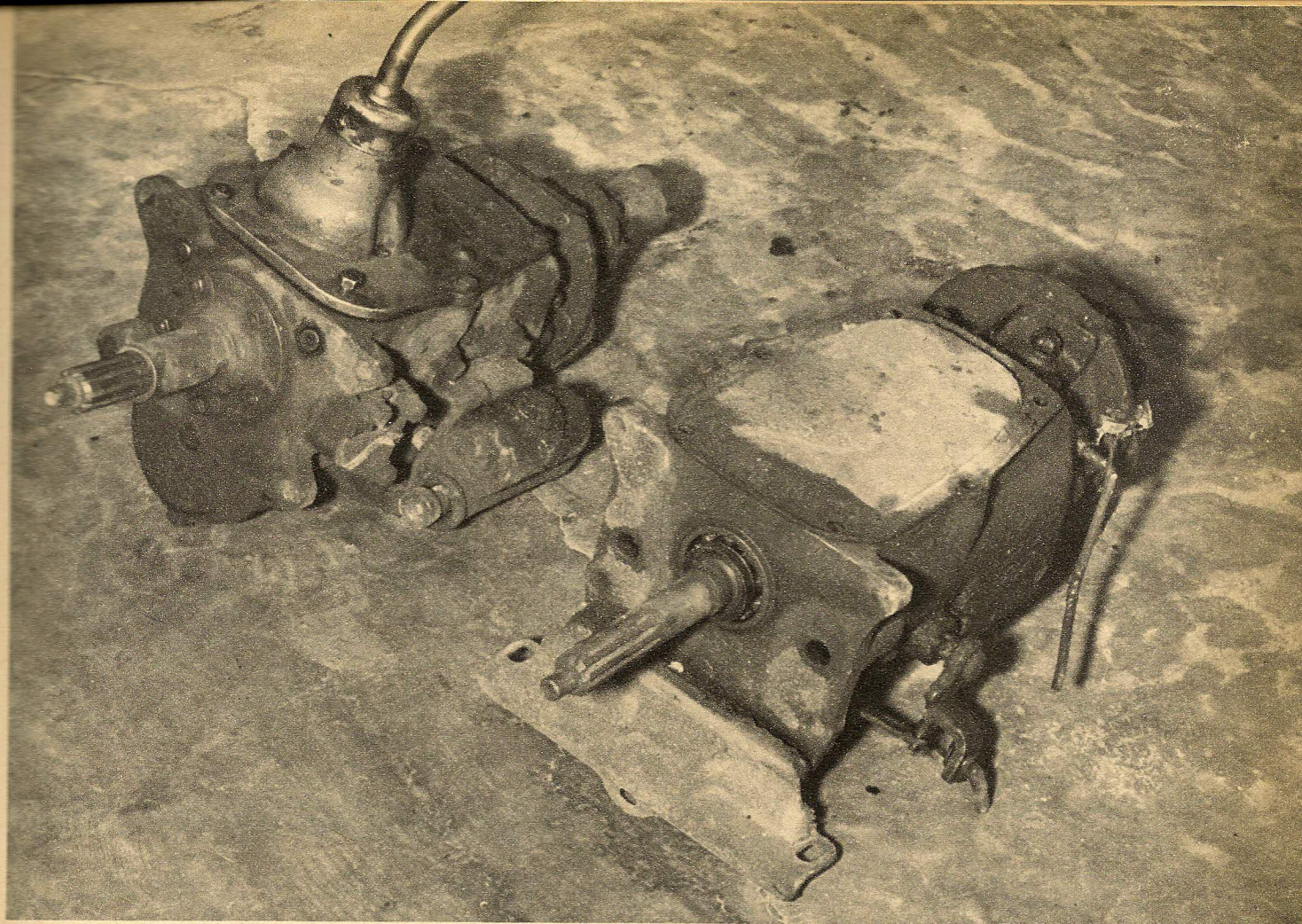


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These two Buick transmissions, one a stick-shift '36 through '38 and the other a side-shift '41 through '48, and a few Olds-trans parts can be combined to make one good transmission for competition or street use.

A planetary gear system is a compact gearset that has several ratio possibilities. Its output ratio depends on which of its three geared portions are used to drive it, which portion is driven, and which portion is held stationary. Because of their versatility and long life, planetary gearsets are used in all the automatic transmissions that use gears.

Basic parts of a planetary gearset are the sun gear, the planetary gears, and the ring gear. The planetary gears rotate around the sun gear's outer circumference and inside the ring gear's inner circumference. The ring gear is shaped like a small brake drum and has teeth on its inner surface. The number of planetary gears in the gearsets for different applications vary. Usually there are three or four. They rotate on steel pins supported by a carrier called a planetary cage.

To obtain the overdrive effect in the B-W overdrive, the sun gear is held stationary by a steel pin that slides in a slot in the adaptor plate, the transmission mainshaft rotates the planetary cage, and the planetary gears rotate the ring gear, which is connected to the overdrive's output shaft. Because of the numbers of teeth on the various gears, the result is that the transmission's mainshaft rotates .7 of a revolution for each revolution of the overdrive's output shaft. Therefore, the overdrive's output shaft rotates at a speed 1.42 times that of the mainshaft. Stated in another way, the transmission's mainshaft, and the engine's crankshaft when the transmission is in high gear, rotates thirty percent slower than the driveshaft. To disengage the overdrive and obtain direct drive through it, the sun gear is moved on its shaft to engage its teeth with matching teeth in the planetary carrier. This locks the gearset into a solid unit that causes the transmission's mainshaft and O.D. output shaft to rotate together.

The effect the overdrive has on a car's final drive ratio is the same as if the car's rear axle gears had been replaced with a set that have a ratio .7 times the original set. In effect, 4.11 gears become 2.87 gears, 3.90 gears become 2.73, 4.56 gears become 3.19, which would be an excellent dragging and normal driving combination, 4.89 gears become 3.40, and so on.

The overdrive has several controls, some of them depending on electricity for their actuation and others being activated by the rotation of some of their parts that are driven by the driveshaft. The entire setup is rendered operative or inoperative by a push-pull cable control located on the instrument panel. When the cable's handle is in its out position, the overdrive is inoperative. With the handle in, the overdrive will shift to its high ratio whenever the car is traveling faster than approximately 27 mph and the throttle is lifted to momentarily relieve engine torque from the transmission's input shaft. The overdrive will stay engaged until the car is allowed to decelerate to approximately 21 mph, when it disengages automatically. After the overdrive disengages, its over-running clutch can function again and the car "free-wheels" as long as driveshaft speed exceeds transmission mainshaft speed. Under this condition the over-running clutch will transmit torque from the transmission to the driveshaft but not from the driveshaft to the transmission.

The high final drive ratio provided by the overdrive isn't conducive to outstanding high-gear performance. To compensate for this, a kickdown switch, generally actuated by the throttle pedal, is incorporated in the overdrive's electrical system to enable the driver to disengage the overdrive and return the car to direct drive at will by merely moving the

SOURCE, MODELS, PRICE and ADAPTABILITY

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CADILLAC	'32-'50	'32-'50	'32-'50	'49-'63		'38-'54	'38-'54		'39-'53	'39-'53	'49-'60	'38-'54	'49-'55	'38-'54	'38-'54	'37-'54		'38-'54		'38-'54		'38-'54	'37-'54	'37-'54	'49-'62		
CHEVROLET	'49-'63	'40-'63	'40-'63	'51-'63		'49-'63	'55-'63	'58-'63	'40-'63	'40-'63	'55-'62	'49-'63		'49-'63	'49-'63	'49-'63		'49-'64	'58-'64	'49-'59		'49-'63	'49-'63	'49-'63	'51-'63	'55-'63	
CHEVY II		'62-'63	'62-'63	'62-'63		'62-'63						'62-'63		'61-'62	'61-'62	'62-'63		'62-'64				'62-'63			'62-'63		
CHRYSLER PRODUCTS	'57-'62	'57-'63	'39-'63			'57-'63	'62-'64	'62-'63	'57-'62			'61-'63		'61-'62	'61-'62	'57-'62		'61-'64				'62-'63		'57-'63			
CORVAIR				'60-'63	'60-'63												'60-'63										
FALCON- COMET	'60-'63	'60-'63	'60-'63	'60-'63		'60-'63			'60-'63		'60-'62	'60-'63		'60-'63	'60-'63	'60-'63			'63-'64						'60-'63		
FORD- MERCURY	'32-'62	'32-'63	'32-'63	'51-'62		'40-'63	'49-'63	ALL 4- SPEED	'49-'63	'49-'63	'51-'62	'40-'63	'51-'62	'40-'63	'40-'63	'40-'63		'40-'64	'61-'64	'40-'59		'52-'63	'40-'63	'40-'63	'51-'62	'49-'63	
LANCER- VALIANT		'62-'63										'62-'63		'62	'62			'62-'64				'61-'63					
LINCOLN	'40-'55	'40-'55	'40-'55	'49-'60		'49-'51					'49-'54	'49-'51	'49-'54	'49-'51	'49-'51	'49-'55		'49-'51		'49-'51			'40-'55	'40-'55	'49-'60		
NASH- RAMBLER	'50-'63	'50-'63	'50-'63	'49-'55							'49-'59		'49-'55											'49-'63	'49-'55		
OLDSMOBILE	'49-'50	'49-'50	'41-'63	'49-'63		'49-'50 ¹			'49-'50	'49-'50	'49-'60	'49-'50		'49-'50	'49-'50	'49-'50 '61-'62 ¹		'49-'50 '61-'64 ¹		'49-'50		'49-'50 ¹	'49-'50 ¹	'49-'50	'49-'62		
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STUDEBAKER	'49-'63	'49-'63	'49-'63	'51-'63		'49-'63			'47-'63	'49-'63													'49-'63	'49-'63			

¹ Olds 85 Only

² Buick Special Only