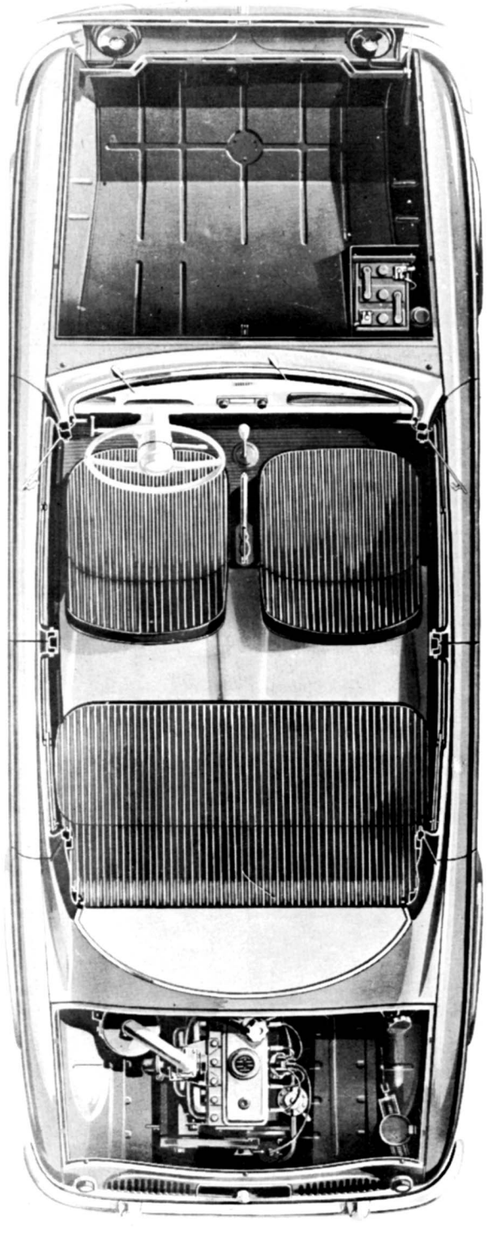


Top view cutaway reveals seating arrangement, rear engine placement, and wide luggage space under front hood.

SCI

ROAD TEST:

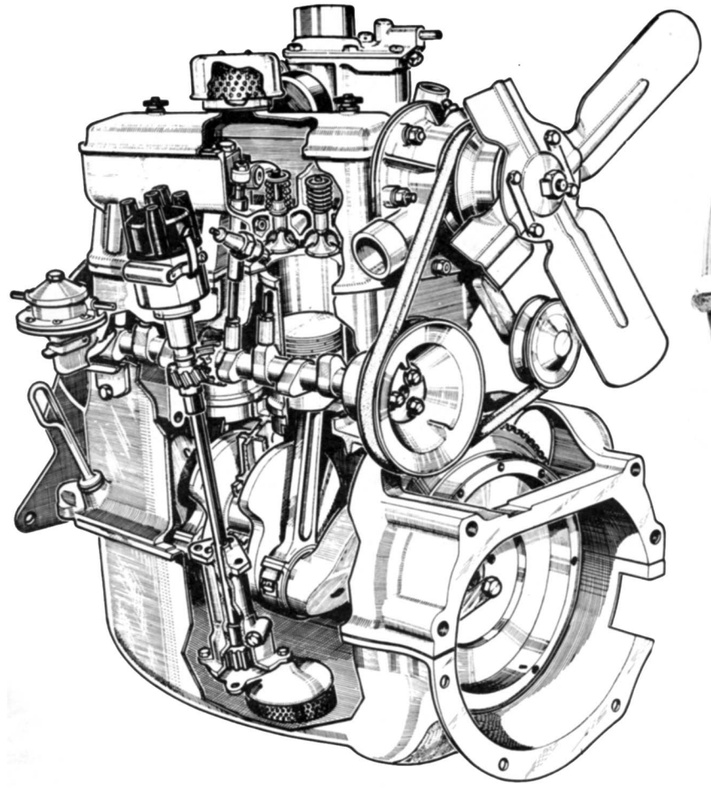
The Renault Dauphine

THE first time you climb into a Renault Dauphine and slam the door you will hear not a solid classic thud but a metallic clang that will remind you of every underpowered economy car you've ever driven. But do not let this first impression congeal into an immediate judgment. The Dauphine's displacement is just 845 cc's (51.4 cu. ins.) and its power-to-weight ratio is none too impressive on paper, but the car goes — far better than many machines with 1200 cc's or more.

The Dauphine's first sally in competition, in the last Mille Miglia, surprised a lot of people. Before the race some critics, with other axes to grind, predicted sourly that the Dauphine's rear engine would give it "too much weight at the rear — dangerous oversteer." But the little Renault swept the 751 to 1000 cc class. Trintignant, Rosier and Paul Frere, crack grand prix drivers, brought their Dauphines in second, third and fourth, first place went to a Belgian girl named Gilberte Thiron who averaged 65.85 for a thousand miles over drenched roads and under streaming skies. Mlle. Thiron, who held the car at its 74-mph top speed most of the way, obviously did not share the critics' qualms about its handling characteristics.

Probably the only other people who weren't surprised by the Dauphine's stamina and stability were Renault's management, engineers and test crews. They put five years of development into the new car and shook it down to the last squeak and rattle over more than two million test miles. Besides, the Dauphine embodies the experience gained from the production of nearly 800,000 copies of the 4CV Renault.

The Dauphine does not supercede the sassy little 4CV, but instead plugs the gap between the 4CV and the "big" two-liter Fregate. It is, in a real sense, a luxury version of the 4CV. To step from a 4CV to a Dauphine is to move from a car that is small and feels small to one that is not precisely big but feels as though it is. The Dauphine is



Telltale louvers in the rear just above bumpers are the only indication that the Dauphine is a rear engined vehicle.

Engine's identical to 4CV save for larger bore. Crank is carried in 3 mains and camshaft sits high in block reducing pushrod lengths.

At an actual 45 mph, Dauphine enters test curve tenaciously gripping road surface.

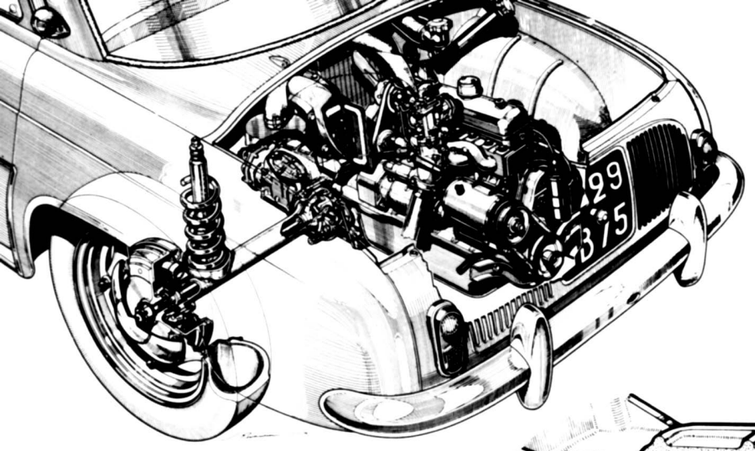
Slipping through turn, body does not ride flat but maintains a normal relationship to suspension.

roomier in every dimension, quieter, smoother, faster, holds the road better and is less subject to side winds. And these points of superiority hold when you compare it not only with the 4CV but with many of its direct competitors.

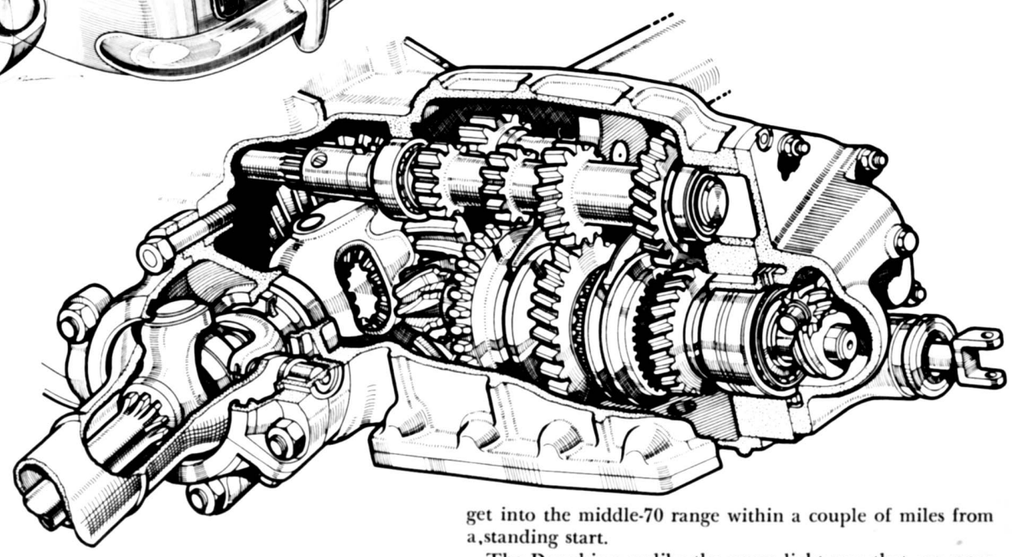
Probably the most important single criterion in the light-car class is size. There is little point in buying a four-five passenger car if it has no leg room for the rear-seat passengers, and certainly such cars have been built. But the Dauphine isn't one of them. Even with the front semi-bucket seats in full retreat — 5.25 inches adjustment is available — leg room in the rear is adequate for all but very tall riders. The front-wheel arches in this compact car do encroach upon front-passenger leg room, but in this case it's no hardship. The fact that there's no hump for transmission or driveshaft means that the entire floor area is uncluttered and useable.

Headroom, front and rear, is generous and the rear seat is wide enough for three adults to ride comfortably, if not cozily. The luggage space, under the hood at the front, has a very useful seven cu. ft. capacity. This is achieved in part by mounting the spare tire and rim in a separate drawer-like container under the front of the car — a logical solution to the problem of what to do with the space-robbing thing, and one that's likely to be widely copied.

About equal in importance to space in a light car is pace, and just where the Dauphine gets the degree of urge it has — enough for it to run away from cars with several hundred cc's more displacement — is pretty hard to figure. It gets no less mysterious when you raise the rear deck lid and take a good look at the tiny, far from radical engine. But the brawn you want is somehow always there, instantly responsive to the throttle. On long grades the car's eager top-gear pulling power is so disproportionate to the size of the power plant that it's laughable. Acceleration for passing in top gear is very good up to about 55 actual mph. Beyond this point the curve flattens out markedly, but you can still



Engine, transmission, and final drive sit snugly in rear compartment. Independent axles swing at inboard ends, and accelerating and braking torque is controlled by needle bearing trunnions at these pivots.



Constant mesh transmission and final drive sit at head of engine as one unit. All three forward speeds are indirect, and top two gears can be shifted instantly without clashing.

With the Dauphine, Renault swept the 751 to 1000 cc class at the last Mille Miglia competition. A Belgian girl, Gilberte Thiron, averaged 65.85 for thousand miles in the wet.

get into the middle-70 range within a couple of miles from a standing start.

The Dauphine, unlike the many light cars that are more reluctant than ready, tugs at the reins and asks to be driven hard. The engine winds and winds, and with great willingness goes way beyond its nominal 4250 rpm peaking speed. According to calculations that include the test car's loaded wheel radius, the engine was turning about 4750 rpm at our highest clocked speed of 74.5 mph, and it still felt limber, free and fully capable of 6000.

It's interesting, incidentally, to note the importance that a couple of thousand break-in miles can have on speed and acceleration. Our test car was one of the first two Dauphines to reach the West Coast, and the same machine was tested by another automotive magazine when the odometer registered about 2000 miles. When we ran it, it had gone another 2000 miles, and the difference in the results is fairly striking:

	2000 miles	4000 miles
0-30 mph, secs.	8.1	6.7
0-60 mph, secs.	37.7	30.5
Top speed, mph	72.0	74.5

At our top speed the speedometer was indicating 76 mph, which seems only slightly optimistic. But this was just because the needle was pegged at that point. Actually the speedometer is very liberal indeed, and before the needle stalled was running about eight mph off toward the far end of the scale.

The Dauphine's chassis is very well conceived and in spite of the rear engine location and the heavy loading of the rear wheels, oversteering tendencies are barely perceptible most of the time; perceptible but not remotely inconvenient when you hurl the car hard into corners. The car does not perform Porsche-pirouette power-slides with any great eagerness and feels far better when it goes through

Hanging from the light alloy cylinder head the bunch of bananas exhaust converges directly into muffler beneath belly pan. Note accessibility of engine.

the bends with all four treads biting the pavement. This it does up to very high speeds with complete composure and it feels no less secure tracking a right-angle bend at 40 mph than it does at 20. This observation was confirmed by my wife and kids who rode the rear seat during a brisk cruise on winding mountain roads. Constant fast cornering did not even jostle them.

Actually, although the Dauphine is definitely a fast-cornering car, it's one of those taut jobs that feels faster than it really is. This illusion is a result of the car's grip on the road, its high degree of roll stiffness, and its quick, accurate steering. To the car's occupants the body feels absolutely flat under *all* cornering conditions, whether it's on the biting or sliding side of a drift. It feels, in short, like a good sports car.

The only defect in the ride — which digests chuckholes with typical continental gusto—is its response to cross winds. The 4CV gets pushed around considerably by side winds, and the Dauphine inherits some of this tendency. When you're traveling flat-out at 70 mph or more, a lightness enters the ride, and the need for concentration on the controls reaches a level that does not exist at lower speeds. The car can be bumped significantly off its course by gusty cross winds, and surface irregularities that normally have no meaning become factors to contend with.

However, the Dauphine's steering is instantly responsive at all speeds. Its gearing is by rack and pinion and reacts to a fingertip's pressure, although it's fitted with centering springs for pushing the front wheels back to dead-ahead aim. Although all specifications that we've seen for the Dauphine state that this steering requires 3.5 turns from lock to lock, our test car called for one turn more. But this lock is tremendous and permits a 28-ft. turning circle. The steering has the feel and behavior of a three-turn setup, and it's every bit as fast as it needs to be.

(Continued on page 58)

TOP SPEED:

Two-way average	74.5 mph
Fastest one-way run	75.3 mph

ACCELERATION:

From zero to	
30 mph	6.7
40 mph	11.1
50 mph	17.8
60 mph	30.5
70 mph	71.0
Standing ¼ mile	24.3

SPEED RANGES IN GEARS:

I	zero to indicated 25 mph
II	8 (idle) to indicated 50 mph
III	15 to indicated 76 mph

SPEEDOMETER CORRECTION:

Indicated	Actual
30	26.5
40	35.8
50	44.8
60	54.0
70	62.5

FUEL CONSUMPTION:

Hard driving	36.5 mpg during acceleration and top speed runs.
Average driving (under 60 mph)	38.0 mpg. Steady speeds under 45 mph, 49.7 mpg.

BRAKING EFFICIENCY:

(10 successive emergency stops from 60 mph, just short of locking wheels)

1st stop	60
2nd stop	55
3rd stop	58
4th stop	60
5th stop	50
6th stop	55
7th stop	53
8th stop	55
9th stop	58
10th stop	60

SUMMATION: SLIGHT FADE, ALMOST IMMEDIATE RECOVERY

SPECIFICATIONS

POWER UNIT:

Type	In-line four, water cooled
Valve arrangement	Overhead, pushrod operated
Bore & Stroke (Engl. & Met.)	2.28 x 3.15 ins; 58 x 80 mm.
Bore/Stroke Ratio	1.38 to one
Displacement (Engl. & Met.)	51.4 cu. ins.; 845 cc.
Compression Ratio	7.25 to one
Carburetion by	One single-throat Solex
Max. bhp @ rpm	32 at 4250
Max. Torque @ rpm	48.4 at 2000
Battery	6V, 75/90 ampere-hours

DRIVE TRAIN:

Transmission ratios I	3.7
II	1.8
III	1.07
Final drive ratio (test car)	4.37; 4.68 to one overall top gear ratio
Axle torque taken by	Pivot pins (trunnions) in swing-axle U-joints

CHASSIS:

Wheelbase	89.0 ins.
Front Tread	49.0 ins.
Rear Tread	48.0 ins.
Suspension, front	Coil spring, unequal length wishbones, torsion stabilizer bar
Suspension, rear	Independent by coil springs and swing axles
Shock absorbers	Double-acting tubular, front & rear
Steering type	Rack and pinion with centering springs
Steering wheel turns L to L	4.45
Turning diameter	28 ft.
Brake type	Leading and trailing shoe hydraulic
Brake lining area	139 sq. ins.
Wheel studs, circle diam.	13 ins.
Tire size	5.00 x 15

GENERAL:

Length	155 ins.
Width	60 ins.
Height	57 ins.
Weight, test car	1430 lbs. (full fuel tank)
Weight distribution, F/R	39.2/60.8
Weight distribution, F/R, with driver	41.6/58.4 (one occupant)
Fuel capacity—U. S. gallons	8.4

RATING FACTORS:

Bhp per cu. in.	.584
Bhp per sq. in. piston area	1.84
Torque (lb-ft) per cu. in.	.942
Pounds per bhp — test car	47.6
Piston speed @ 60 mph	2090 fpm
Piston speed @ max bhp	2230 fpm
Brake lining area per ton (test car)	194 sq. ins.

Dauphine

(Continued from page 31)

One of the big factors in the Dauphine's excellent showing in the Mille Miglia had to be its brakes. Based on the ready-to-go weight of our test car, these brakes offered 194 sq. ins. of lining area per ton, a rather fantastically high figure. They naturally produce terrific stopping distances. During our standard fade test, which consists of ten successive emergency stops from 50 mph, they faded only slightly. In most cases, the time required to get back to 50 mph after a test stop was enough to bring the brakes back to their original retarding power. Although pedal travel was almost entirely used up by the tenth stop, the car's braking distances were exactly as good as they had been originally.

ENGINE

With hardly any use of light alloys, the Dauphine still is a very light automobile. But it isn't light enough to give it the kind of power-to-weight ratio that would lead you to expect gutty performance. What it does it does by virtue of sheer ingenious design. Its tiny water-cooled, in-line four-cylinder engine will not force the textbooks to be rewritten, but it is nevertheless representative of the very best in conventional modern engine practice. Short and rigidly made, it can get all the reliability from its three main

Model in cutaway Dauphine shows car roominess despite small outward size.

bearings that other engines might derive from five. The camshaft is located as high as possible in the block, to permit short pushrods and minimal reciprocating weight in the value train. The head is a well water-jacketed light alloy casting with shrunk-in valve seats. Among the most significant details are the wet cylinder liners, water jacketed throughout their length. They're long-wearing to start with and can be replaced over and over again, giving the engine a Methuselan life expectancy. From the standpoint of service accessibility, the Dauphine engine is second to none, and the low cost of a ring and valve job is a downright joke.

GEARBOX

Coupled to the forward, flywheel-end of the engine is the combined transmission and final-drive housing. The shift mechanism follows the familiar American three-speed pattern and the synchromesh on the top two ratios (top is also indirect) is absolutely unbeatable. You can slash the shift lever up and down as fast as you please, and you can't outwit the synchro — it's completely positive and instantly effective. The shift lever itself is on the flaccid side for sure; even when engaged in a gear the lever can be sloshed around loosely. This is not compatible with the usual concepts of perfection, but it works perfectly well and we learned to live with it during the first 15 minutes in the car, just as we learned to evade the lever's tendency to snap at the hand that guides it as soon as the clutch is let out.

The lever, furthermore, is several inches too short. Unless you are very tall or have the arms of an anthropoid you have to bend forward every time you shift. And some people who have driven the Dauphine complain that the brake and clutch pedals are too close together for comfort. However, owners who would like to see these details modified are free to have an offset welded to the clutch pedal and a longer shift lever installed. This custom tailoring should cost less than $5.

CLUTCH

The clutch pedal can be dispensed with entirely at a cost of $100, the price of the Ferlec electromagnetic automatic clutch. We have driven a 4CV so equipped and can vouch for the convenience that the Ferlec clutch provides. It is subject to two forms of control, generator output and pressure on the shift lever. You can leave the lever in gear at idling speeds, then step on the throttle, and the clutch engages when the generator cuts in. When you're under way, you have only to touch the shift lever to cause the clutch to disengage. You learn to remove your hand entirely from the lever before applying throttle; if you don't, the clutch will remain disengaged and you'll just race the engine. With a little practice this becomes a welcome accessory for drivers of the shiftless sort.

The Dauphine's front suspension is

of conventional coil spring and wishbone type, and the rear suspension is the simplest of swing-axle independent layouts. But it's rugged, it provides terrific road adhesion, and needle-bearing trunnions nail axle torque right at the inboard U-joints. Changes in passenger load — and, consequently, in rear-wheel camber — have no observable effect on the car's handling qualities.

In terms of basic lines and finish, the Dauphine is an attractive and appealing car, with nothing in its overall look to type it as a rear-engine machine. The Cadillac-style air intakes on the rear fenders are realies rather than falsies. The recessed part of the body that blends into them was added to the original design when it was found that the body aerodynamics were "too good"—that more air flowed past the intakes than into them. The intakes feed cool air to the radiator and then to the engine; the air is finally discharged through louvers at the rear of the body.

APPOINTMENTS

Unlike most rear-engine cars, the Dauphine is notable for near-total lack of engine noise in the passenger space. Only when you wind the engine tight are the rear-seat riders likely to remember that they're sitting next door to the engine room. An extremely simple but adequate system of hot-air ducts warms the passenger space and supplies the defrosting slots, and Dauphines for the U. S. export market come equipped with a blower to boost the circulation of warm air. An admirable detail is the location of the six-volt battery. This vital but often abused component sits in the luggage compartment, far from the destructive heat of the engine.

Operating economy is, of course, one of any light car's main reasons for being. We expected good fuel consumption in the Dauphine, but what we actually got was startling. The very worst gas mileage figures, taken during acceleration and top speed runs, was 36.5 mpg. During average around-town driving we recorded 41.3 mpg and at a steady 40 mph we got just under 50 mpg!

For running economy — as well as space, performance, roadholding, comfort, silence and braking — the Dauphine is a supremely satisfying light car and it stands among the leaders in its field. In spite of the metallic resonance when you shut the doors, the car sounds and is strong, solid and well-knit in every other way. And it's a real ball to drive. #