

1955

Police Patrol Car, The

William Donald Piercy

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

Recommended Citation

William Donald Piercy, Police Patrol Car, The, 45 J. Crim. L. Criminology & Police Sci. 748 (1954-1955)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in Journal of Criminal Law and Criminology by an authorized editor of Northwestern University School of Law Scholarly Commons.

THE POLICE PATROL CAR

WILLIAM DONALD PIERCY

The author is a graduate of the School of Criminology of the University of California and is now enrolled as a law student at Hastings College of Law. Prior to his enrollment in the University of California, Mr. Piercy served two tours of duty with the United States Air Force. His article was prepared as a special project during his senior year in the School of Criminology and presents an interesting and valuable analysis of the police patrol car.—EDITOR

The duties of the motorized patrolman, like the foot patrolman, are multifarious. They range from the pursuit and apprehension of criminals to the rendering of first-aid to the injured. To achieve maximum effectiveness, the car used by the motor patrolman must facilitate each of his many activities. Perfect suitability to every task may not be possible, but carefully made compromises will ensure that the patrolman's vehicle is an asset to him in every situation.

The primary intention of this paper is to ascertain those qualities which are most important in a patrol car and to assign a minimum standard of suitability to each. This matter is treated in Section 1. In Section 2, the vehicles available to the police are evaluated according to the conclusions of the preceding section.

Section 3 offers a specially designed vehicle for comparison with the stock automobile found to be most suitable. The advantages offered by each are contrasted and a conclusion formed.

This paper is limited in scope to the discussion of patrol cars in cities of fairly large populations. Different considerations and weights must be applied in the case of county and state patrol vehicles.

Section 1

EVALUATION FACTORS

In the evaluation of the police patrol car, such factors as effectiveness, economy, safety, comfort, and appearance have been selected as worthy of special discussion.

EFFECTIVENESS

In attempting to isolate the essential qualities of an effective patrol car, a brief examination of motor-patrol duties provides a basis for establishing the need for these qualities.

Emergency calls for service and the pursuit of fleeing vehicles indicate the need for a high degree of performance in the police vehicle. Routine patrol and observational duties require good visibility. Provision must also be made for carrying persons and special police equipment. These factors will be dealt with in turn.

Performance. Occasions which require hot pursuit, reports of crimes in progress,

and calls for help are not uncommon to the police. The need, in these cases, for a suitable level of patrol-car performance is readily apparent.

The question of the level of performance needed to achieve the greatest effectiveness now arises. Factors to be considered are speed, acceleration, braking power, cornering ability, and maneuverability. One further quality to be taken into account is that of dependability.

If it were not necessary to consider anything but the vehicle itself, the solution would be simple. It would consist of setting the standards as high as possible, thereby providing a patrol car that could perform like a racing machine. As will be seen, this could become an actuality. A police car could be built which would out-speed, out-accelerate, and out-handle any mass-produced car on the road.

The possible advantages of such a vehicle are worth examining. High performance could be utilized in only two types of operations: (1) in responding to emergency calls and (2) in hot pursuit of fleeing vehicles. It is doubtful that much time, if any, could be saved in the first instance. The conditions which cause the police to be tardy in response to a call are not found within the patrol car. Good judgement demands that cars not be driven at high speeds in congested areas. Even with the aid of red lights and siren a patrol car cannot be driven at its top speed. Due to better control and higher braking power the high-performance patrol car could be driven at slightly faster speeds but, since the average running time on emergency calls is usually less than five minutes, the time saved would be only a matter of seconds. Calls which require the immediate presence of the police are relatively infrequent, a fact which further reduces the small advantage of such a high-performance machine.

The second operation, that of pursuit, better demonstrates the advantages of superior performance. There is no doubt that the length of chases would be shortened considerably and thereby expose fewer persons to the hazards of speeding autos. Policemen would not need to merely "stay with the car" as they now do, hoping that the person stops of his own accord before he crashes or before the police are required to open fire. A powerful, good-handling patrol car could pass the fleeing vehicle within a short time and end the chase by forcing it to the curb. In addition, the knowledge of their slight chance to escape a traffic citation by flight would act as a deterrent upon many potential auto escapist.

These advantages, however, are opposed by some strong arguments. On the matter of police pursuit, the inquiry of whether it is better to allow a car to escape or to follow in hot pursuit, and thereby expose a number of people to hazards, may be fairly raised. This question merits some discussion in considering the effectiveness of the high-performance police vehicle.

Good judgement must be exercised by the officer when a situation of this sort develops. Some circumstances require hot pursuit; some demand that the fleeing car be allowed to escape. The proper course, bearing in mind the seriousness of the offense, is the one that endangers the fewest number of citizens.

Let us consider the circumstance of a person who, while driving just over the lawful speed limit, is signalled by the police to stop. Instead of pulling over, the driver increases his speed and heads down a busy street. As the officer speeds up, the

person goes even faster giving no indication of stopping. The policeman's duty to society requires that he abandon the chase in this situation, since there is a strong possibility that his siren will not be heard, and a serious accident will result. He can be fairly certain that the fleeing vehicle will reduce its speed once he quits the pursuit. The two-way radio offers a better recourse to the apprehension of this speeder.

A different set of circumstances may call for the opposite action. For example, an officer, seeing a car careen past at a high rate of speed, not out of control but apparently driven by a drunken person, has no reason to expect this driver to slow down. It is likely that a collision will occur before the car runs out of gas or the driver sobers up. Here the interests of society are best served by immediate pursuit of the fleeing auto by the police. The added hazard of two speeding cars is compensated by the screaming police siren which will serve as a warning to others.

It is only in this isolated and infrequent occurrence, however, that the high-performance patrol car would be of great use. It could shorten the chase considerably and thereby subject citizens to a smaller aggregate hazard. Viewing the high-performance car in the light of the foregoing discussion, its advantages, though positive, are rather slight in the overall evaluation of its effectiveness.

One additional factor operates to compromise the justification for a high-performance patrol car; a quasi-race car would tempt the driver to use the extra power in situations which do not call for it. Although it is probable that fewer traffic violators would attempt to escape, this rather small gain would be diminished by the numerous occasions in which patrolmen would pursue vehicles in unwarranted circumstances. The car would promote a sense of confidence which would cause the not-so-responsible patrolmen to chase cars at every opportunity. At other times the temptation to "step on it" would result in damaged public relations at best, and possibly a few damaged fenders as well.

In view of the undesirable consequences of the misuse of above-average power and the relatively slight advantage gained from its proper use, a compromise seems desirable. Certain minimum standards must be met, if the patrol car is to be effective. Speed and acceleration should be as great as the average car on the road. To place the standards lower would increase the number of traffic violators who attempt to outdistance the police; to raise the available power to greater-than-average standards would produce the previously mentioned disadvantages. Any doubt should be resolved in favor of greater power, however, when a choice must be made. Firm department policy should reduce the number of unwarranted chases.

The raising of standards of other high-performance factors seems justified if only effectiveness is to be considered. Superior braking power, maneuverability, and cornering ability would not be as likely to be misused as would excess horsepower. Except on straightaways, the patrol car would still be capable of overtaking a fleeing auto due to its "surefootedness" and ease of control.

Little need be said about the essential quality of dependability. Effectiveness, of course, is diminished if the vehicle cannot be relied upon, but as this is a universal goal in all vehicles, it requires no special discussion.

In summary, the performance factors that constitute effectiveness and their recommended standards are:

1. Speed average to superior
2. Acceleration average to superior
3. Braking power superior
4. Maneuverability superior
5. Cornering ability superior
6. Dependability essential

Visibility. The greatest part of patrol time is occupied in routine inspections and observations. Much of this duty is performed from within the patrol car. Because the performance of these tasks is dependent upon good vision, it necessarily follows that the patrol car should provide maximum visibility to its occupant.

Ideally, the driver should be positioned high enough to see over the tops of surrounding cars with 360 degrees of vision and with unimpaired overhead sight. The standards, however, need not be set so high. Current trends in mass-production vehicles have been toward the improvement of visibility, and the average auto is deemed satisfactory in this respect. Some new models provide overhead visibility through a sheet of tinted plastic in the forward roof section. This development offers some advantages in the police car.

Vision in the average vehicle is adequate, and this quality is mentioned primarily for exclusionary reasons. Panel trucks, for example, would not be suitable for patrol use because of the limited visibility present in such a body design.

Carrying Capacity. The effective police vehicle must afford suitable capacity for the carrying of needed accessories and police equipment. Provision must be made for the permanent installation of such equipment as the siren, gun rack, special lights, and radio. In some localities, the cold weather justifies the use of a heater. Space must be available for the fire extinguisher, first-aid kit, and other special equipment, and for property transportation.

Transportation of Persons. Even though patrol is by a solitary officer, the need for transporting fellow officers and prisoners frequently arises. For this reason, patrol cars should be capable of transporting no less than four persons. This figure is considered to be the minimum acceptable standard.

The transportation of prisoners presents a special problem. The average patrol car is no more escape-proof than any other auto. Officers are open to attack by their prisoners and even when they are handcuffed to some interior fixture there is no certainty that they will not wrench themselves free.

One-man patrol car operation aggravates the difficulties of prisoner transportation. A lone officer cannot be a watchful guard while he is driving the vehicle. For this reason the patrol wagon must be called in many arrests.

If provision for the secure transportation of prisoners were included in every patrol car, its effectiveness and the efficiency of patrol operations would be increased. It would not then be necessary for the officer to waste time in waiting for the patrol wagon and, although his trip to headquarters would absent him from his beat, only the time spent in a one-way trip could be considered a loss; the other half of the trip would be accounted for by the wasted time in awaiting the patrol wagon. The time thus spent away from his post would not amount to a significant total. The advantage of such a procedure lies in freeing the patrol wagon staff for reassignment.

In providing facilities for prisoner transportation, consideration might be given to the installation of sturdy rings to which the prisoner could be handcuffed. This method, however, would subject the prisoner to humiliating treatment. In addition, it would be inconvenient and, in the case of resistance to arrest, difficult for the officer to position the prisoner so that he could be properly handcuffed.

An escape-proof compartment for transporting the prisoner provides a more satisfactory solution. Only minor modifications are needed to provide such facilities in the average vehicle. For example, the conversion of the rear seat area of a sedan into a compartment suitable for prisoner transportation only requires: (1) the removal of all interior fixtures to prevent prisoners from opening the doors or windows and to prevent the fixtures from being ripped off and used as weapons, and (2) the installation of a transparent partition between the front and rear seat areas.

Plastic plexi-glass, a strong metal screen, or heavy safety glass may be used to separate the two compartments. Although plexi-glass partitions have been used successfully by some departments, the use of this easily scratched material is not advised since it is likely to be subjected to kicking and general abuse by the prisoners. A metal screen provides an inexpensive and durable separation, but it does not protect the driver from narrow jabbing weapons.

Although glass is breakable it is highly resistant to scratches, and it effectively separates the two compartments. By using a solid partition with a large window of fairly heavy shatter-proof glass, the likelihood of its being broken when kicked is greatly reduced.

Overall effectiveness is increased by an escape-proof compartment for prisoner transportation. The patrolman needs only to place his prisoners in the compartment and close the door; he is then free to concentrate on his driving and will need to give little attention to his prisoners. The provision of facilities for prisoner transportation in no way lessens the effectiveness of the patrol car in transporting passengers and fellow officers. The slight inconvenience of being locked into the back seat area is relatively unimportant.

Since the provision of effective public service is the goal, the use of the police car as an emergency ambulance deserves consideration. The care of injured persons is a police obligation, and nearly all departments require that their officers be trained in first-aid techniques. The police are invariably dispatched to accident scenes, and because they are usually close at hand, they are generally the first to arrive. Provision of ambulance service for the injured is a logical extension of normal police service. In many cities the police are exclusively responsible for the performance of this task.

Transporting the injured in patrol cars provides the same advantages as are gained by transporting prisoners in patrol cars. Ambulance crews would then be freed for reassignment. Also, injured persons would be transported to hospitals with less delay in a patrol car than in an ambulance.

Returned questionnaires for the 1954 *Municipal Year Book* contained reports from several departments that they had placed in operation vehicles capable of providing ambulance service. These reports indicate that the practicability of this service is recognized.

Investigation shows that the facilities needed in a patrol car to transport the injured do not interfere with routine patrol car functions. For example, a body design which would permit the transportation of the injured (e.g. a station wagon) would not adversely affect the transportation of passengers and prisoners. A folding rear seat may be installed which permits its being lowered flush with the rear deck when the vehicle is being used to carry a stretcher case.

Some limitations must be imposed, however, on both the prisoner and ambulance services; there would be occasions when the patrol car could not, or should not be used. Prisoner service is limited by vehicle capacity. In some instances, such as vice raids and riot calls, it is more practical to dispatch a patrol wagon to transport the arrested persons. Otherwise several officers would be required to drive to headquarters with a load of prisoners, temporarily depleting an entire area of available policemen. The patrol wagon could not be entirely dispensed with, but cases which require its large carrying capacity would be so infrequent that the staff could be given a full-time reassignment with provision for occasional runs.

The limited capacity of the patrol car, however, would not restrict its use as an ambulance, since no approved emergency ambulance is capable of carrying more than two stretchers at a time. On the contrary, when several persons must be transported to the hospital, the presence of patrol-car ambulances would greatly alleviate the emergency. Its limitations, rather, would be based on acceptable standards of emergency-ambulance service.

The modern well-equipped ambulance provides many special facilities such as ample dimensions, special heating and lighting, extensive oxygen and first-aid equipment, and other facilities that enable the treatment of the victim during the journey by highly qualified personnel. In the light of its basic purpose, the patrol-car ambulance could not possibly provide the services available in a modern well-staffed ambulance. For this reason, the patrol car should be limited in its ambulance functions to the transportation of the less seriously injured. Cases involving extensive injury such as broken backs, multiple compound fractures, hemorrhages, severe shock, and possible skull fractures, should not be transported by the police vehicle. The claim that a victim should be taken to the hospital as soon as possible, regardless of the available facilities in the patrol car, is not necessarily valid. At least one authority¹ claims that speed is essential only in the application of first-aid, and that, once the injured person has been initially treated, there is ordinarily no need of inordinate speed in getting him to the hospital. The transporting of a seriously injured person by an ill-equipped vehicle subjects the victim to far greater hazards (e.g., increased shock resulting from lack of suitable intermediate treatment) than if he were permitted to lie quietly and await the arrival of a well-equipped and well-staffed emergency ambulance.

Ambulances, like patrol wagons, could not be entirely dispensed with by having this service provided by patrol cars. By limiting their transporting activities to the less severe cases, they could, nevertheless, greatly reduce the number of calls for emergency ambulances, since most of the calls involve the less seriously injured.

¹ Carl B. Young, Jr. *First Aid and Resuscitation*, Charles C Thomas, Springfield, 1954.

Those cases which the police *did* handle would result in faster service for the injured and a reduction of the need for city-operated ambulances. This saving of personnel and equipment would be accomplished without substantial loss of police time; the efficiency and effectiveness of the service would also be promoted.

ECONOMY

The preceding section required lengthy discussion on many phases of effectiveness since this subject is so closely connected to the basic patrol-vehicle purpose and actual use. Less discussion will be needed in continuing the investigation of the remaining factors which should be considered in the evaluation of the patrol car. The necessary considerations in regard to economy involve (1) overall operating costs and (2) indirect economies through the reduction of city expenditures.

Overall Operating Costs. The operating cost of patrol cars will be considered in terms of (1) initial purchase cost, (2) resale price, (3) daily operating costs; and (4) length of useful service. These factors all influence the overall economy of a vehicle. They should be considered in the aggregate for purposes of evaluation; individual weight given to the four factors may result in false evaluations. As an example, Car A may be more economical than Car B in three of the factors. On the face of it, Car A would appear to be superior. Suppose, however, that Car B was considerably superior in the factor "resale price"; providing the other factors were reasonably close, Car B would be the more economical of the two.

A further mitigating factor is also present which may be included as factor 5. It will be discussed separately under the heading of:

Indirect Economics. If a vehicle is capable of indirectly producing budget reductions through superior efficiency and effectiveness, the monetary savings, when divided by the number of vehicles and adjusted for the time factor, can be subtracted from the overall operating costs of each vehicle. Thus, if the use of ten patrol cars yields such flexibility in assignment that the services of the following are no longer required,

1 patrol wagon officer	(\$ 4000	annual salary)
2 ambulance crewmen	(\$ 7000	total annual salaries)
1 ambulance	(\$ 1000	annual expense)

\$12,000

then \$1200 per annum can logically be credited to each patrol car. Flexibility of assignment can thus amount to great indirect economies and is an important factor to consider in the appraisal of the police patrol vehicle.

ADDITIONAL CONSIDERATIONS

Grouped together under this heading are miscellaneous factors which do not influence either effectiveness or economy sufficiently to be included in those sections. They will be discussed under the titles of safety, comfort, and convenience.

Safety. Because the patrol car must sometimes be operated at high speeds, certain safety factors should be present in the vehicle.

(1) Power. If other evaluations of power are excluded and safety alone is considered, superior horse-power must be deemed an asset. In driving at high speeds certain hazards will occur, and the availability of above-average acceleration may be well used in avoiding stationary and mobile obstacles. Control is implemented by superior power when the vehicle is cornering, another provision of added safety.

(2) Roadability. Superior cornering, maneuvering, and road-holding qualities not only contribute to effectiveness; they also provide a higher level of safety. A car that is capable of greater cornering speeds is not required to exceed its safety margin in a chase with a less roadable car. Although the escaping car may be driven at its top capacity, the patrolman need not fully utilize his car's performance in overtaking the escapist.

(3) Ease of Control. At high speeds safety is greatly influenced by the certain and quick response of the car to the control of the driver. Even though a vehicle offers superior performance and roadability, this is not proof of safety. The patrol car must additionally offer a high level of trustworthiness and facility in control.

(4) Braking Power. Every vehicle should be equipped with good brakes. In the case of the police car, this need is increased, since safety is of added importance in a vehicle that is occasionally operated at high speeds.

(5) Visibility. Any impairment of vision results in diminished safety. The patrolman must be able to command a wide view of the road in front of him in order to see better and thus avoid dangers.

(6) Basic Design.² In considering safety, emphasis should be placed upon accident prevention. The patrol car, however, also must be evaluated in regard to minimizing the effects of collisions, since the demands placed upon the police vehicle are such that they are more susceptible to accidents than are other cars. The patrol car should provide a high degree of safety to its occupants in the events of a crash. Since head-on collisions and roll-overs are generally more serious accidents, factors which would minimize the effects of these mishaps are worthy of note.

Injuries to the human body as a result of being struck (or striking against something) vary according to these elements: (1) amount of force upon the body, (2) length of time over which this energy is expended, (3) surface area of the damaging instrument, (4) surface area of the body part which is struck, and (5) the vulnerability of that body part. The second and third elements are of primary consideration in evaluation of safety in vehicles. Their recognition demands that attention be given to the (1) provision of a collapsible "egg-crate design" dashboard to absorb the energy of a crash and (2) the relocation of knobs, handles, and similar fixtures which offer a reduced (and therefore more dangerous) surface striking area.

The basic design should also be evaluated in regard to frame and body rigidity, strength, and resistance to direct force. The top, for example, should have sturdy supports so that, in the event of a rollover, it will not be crushed flat. A further consideration should be the security of door latches, since great hazards are created in a rollover when the doors fly open.

² For a comprehensive and authoritative discussion on the subject see William W. Harper, "Prevention and Reduction of Injuries in Traffic Collisions," *Journal of Criminal Law, Criminology, and Police Science*, 43 (4): 515-29 (Nov.-Dec. 1952).

(7) *Seat Belts.* If it were necessary to select only one accident injury-minimizing feature for consideration, the installation of seat belts would be unhesitatingly recommended. By satisfactorily dealing with all but the "total force" factor of the injury elements, the seat belt provides a high degree of safety for the occupant at a low initial expense.

Maximum safety is furnished if the waist strap is supplemented by a suitable shoulder harness. Care must be taken to fasten the seat belt securely to the chassis; attachment to the seat is not satisfactory. Procedures should also be adopted that will insure personnel compliance with this safety provision.

Comfort and Convenience. Whenever possible, effort should be made to provide for the comfort and convenience of the motor patrolman. A car that affords a comfortable and well-organized base of operation increases morale and provides other benefits to the department such as the effectiveness of patrol. A warm, enclosed driver's compartment, a comfortable seat with an easily donned seat belt, ease of entry and exit, simplicity of vehicle operation, accessibility to equipment, and provision of a single all-purpose key are illustrations of factors which should be given consideration.

Appearance. Inasmuch as esthetic appearance is largely a matter of personal taste, no recommendation is made except to mention that the patrol car should present a dignified, functional, and business-like appearance.

Section 2

EVALUATION OF PRESENTLY AVAILABLE VEHICLES

Body Types. Using the previously enumerated factors of evaluation, the principal vehicular body types available to the police will be considered, and the one which offers the greatest advantages will be selected as the type most suitable for police purposes.

A table has been prepared for this purpose, and the selected body types have been rated according to their suitability. Some factors, in which considerable variation is present are rated as:

- A Excellent
- B Superior
- C Average
- D Below average

Other factors, in which the quality is grossly absent or present are rated as satisfactory (S) or unsatisfactory (U).

If the transportation of prisoners and injured persons is considered highly desirable, the station-wagon type of body is obviously the most suitable. In the light of the previous discussion, it is recommended that this type of vehicle be used for all patrol-car tasks. The fact that depreciation is slightly higher than average in this vehicle is insignificant, considering the gain in flexibility of assignment.

If prisoner transportation is to be provided, but not ambulance service, the four-door sedan offers the same general advantages as the station wagon; either may be recommended. Two-door sedans are not as suitable as four-door sedans for prisoner transportation because a satisfactory partition cannot be easily installed, due to

EVALUATION OF AVAILABLE BODY TYPES

	Recom- mended	Jeep	Conver- tible	Coupe	Panel Truck	Stand-up Delivery	2 Door Sedan	4 Door Sedan	Station Wagon
Speed	C-B	D	C	C	D	D	C	C	C
Acceleration	C-B	D	C	C	D	D	C	C	C
Braking power	B	C	C	C	D	D	C	C	C
Cornering	B	B	C	C	D	D	C	C	C
Maneuverability	B	A	C	C	D	D	C	C	C
Visibility									
Top up	B	D	D	B	D	D	B	B	B
Top down	A	A	A	—	—	—	—	—	—
Carrying capacity									
Permanent eqpt.	S	U	S	S	S	S	S	S	S
Special eqpt.	S	U	S	S	S	S	S	S	S
Transportation of:									
Passengers	S	S	S	U	S	S	S	S	S
Prisoners	S	U	U	U	S	S	U	S	S
Injured	S	U	U	U	S	S	U	U	S
Purchase cost	C	B	C	C	C	C	C	C	C
Resale price	C	C	C	C	D	D	C	C	D
Length of service	C	B	C	C	B	B	C	C	C
Operating cost	C	B	C	C	D	C	C	C	C
Safety	S	U	U	S	S	U	S	S	S
Comfort	S	U	U	S	S	U	S	S	S
Appearance	S	U	U	S	S	U	S	S	S

the folding front seat. A two-door station wagon is also unsuitable for the same reason; even if a permanent partition is installed, and the rear door used for passengers and prisoners, the resulting inconvenience would limit its usefulness.

The remaining body types are clearly unsuitable for general patrol service in a large city, although some of them offer distinct advantages in specialized tasks.

*Makes.*³ Four-door station wagons of sufficient length for ambulance service are made by most automobile manufacturers. The selection of the most suitable vehicle need not involve much more consideration than (1) overall operating cost, (2) performance, and (3), appearance, since other qualities are similar from a police viewpoint.

The more expensive makes offer the advantages of increased power and luxury, but the high overall cost reduces their suitability for police service. The Ford and Chevrolet model are recommended since their only limitation is in power. If this disadvantage is considered important, the Mercury offers ample power to meet most needs at a relatively small initial expenditure.

Ford also produces a "Police Special" which can be purchased on special order. Its major distinction is the substitution of a Mercury for the Ford engine. Upon request, the factory will install heavy-duty chassis springs, shock absorbers, and clutch, a dual exhaust system, and high-output generator, and will make other modifications to meet special needs. Most of these factory-modified police cars are supplied in the four-door sedan model, but there is no reason why the four-door, all steel station wagon (Ford "Country Sedan") could not be used. Of the available mass-produced automobiles, this vehicle would come closest to meeting the recommended standards.

³ Based on vehicles manufactured in 1954.

Section 3

THE SPECIAL PATROL CAR

The need for a specialized police patrol car is discussed and a specific design is proposed and evaluated.

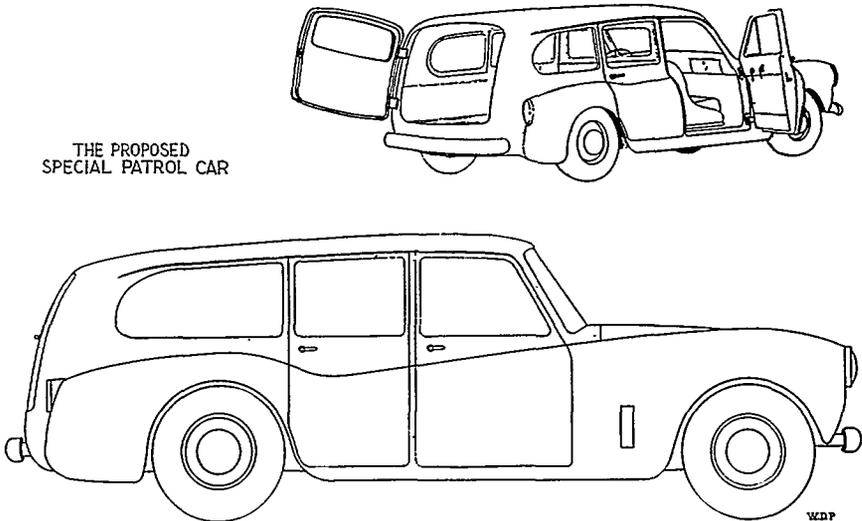
THE NEED

A critical examination of the factory modified and Mercury-powered Ford "Country Sedan", which will be regarded as the most suitable available vehicle, reveals that certain recommended standards have not been met. These inadequacies are found chiefly in the area of performance. The brakes, although satisfactory for normal driving, could be improved. Likewise, the cornering ability and maneuverability offered by this vehicle would not provide the officer with as effective a patrol car as he should have. Further justification for the proposal of a special patrol car is that even a satisfactory product must be continuously improved and developed to keep pace with ever-increasing standards of efficiency.

THE PROPOSED SPECIAL PATROL CAR

Description. The special patrol car would be smaller than the recommended Ford model; the wheelbase would be some five inches less (110 vs. 115½), the overall length approximately twenty-one inches less (177 vs. 198), and slightly less in height (61½ vs. 64). Due to reduced size, the weight would be lessened, and by the provision of an engine of similar power (160 H. P.) the speed and acceleration would be improved. Braking power would also be improved by the decreased weight. The brakes would nevertheless be of increased size and capacity in order to provide excellent stopping qualities. Brakes which were designed for a far heavier car would fit this need.

THE PROPOSED
SPECIAL PATROL CAR



By positioning the engine, transmission, and driver's compartment farther toward the rear, the fore and aft weight distribution would be more equitable. When coupled with stiffer suspension and a slightly lower center of gravity, the cornering ability would be greatly increased. The proper distribution of fore and aft weight would lighten the load on the front wheels to such an extent that the steering ratio could be altered to provide faster and more responsive control. The shortened wheelbase, the better control, and the stiffened suspension add up to greater maneuverability.

Other than these changes, the remainder of the car would be very similar to the recommended Ford model. Safety would be increased through the gain in performance factors and by meeting the standards previously described, but such other factors as capacity for equipment, transportation of persons, and comfort would remain essentially the same.

Evaluation. The principal disadvantage to such a proposal would be the matter of economy. Initial cost would be from thirty per cent to fifty per cent higher, and the resale price would be reduced because of the car's specialized nature. Operating costs would be reduced, (assuming there were no "bugs" present in the design) due to the decreased weight, but the length of useful service could not be expected to be improved. In summation, the special would not offer a bright picture from an economy viewpoint.

The question now arises as to whether the advantages held by the proposed special patrol car are sufficiently great to overcome the increased cost. This must be answered in the negative. Economy is too important an item to minimize. Budgets must be met, and it is the duty of a police-administrator to purchase the greatest effectiveness for the least amount of money.

Assuming that the overall expense of such an automobile was only twenty per cent higher, (which it would almost certainly exceed), the choice must still be made in favor of the more inexpensive mass-production vehicle. At this hypothetical price difference between the vehicles, the fact that five specials would cost as much as six Fords makes the increase of effectiveness seem rather small. The infrequent need for superior performance, the principal advantage of the special vehicle, does not seem to justify the increased expense.