

TM 10-1375

WAR DEPARTMENT TECHNICAL MANUAL

MAINTENANCE MANUAL FOR

CAR, FORDOR

SEDAN

FORD MODELS 2GA73C and 21A73C

NOTE.—This is a reprint of TM 10-1375, 5 July 1942. No distribution will be made to personnel possessing the original publication.

WAR DEPARTMENT • 5 JULY 1942

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F O R E W O R D

THIS book has been prepared to supply operators and maintenance mechanics with all the essential information for insuring the most efficient performance of the Ford Special Fordor Sedan. Detailed specifications and data concerning manufacturing limits and tolerances will be found in the last section of the book.

While a majority of these vehicles were equipped with Six Cylinder Engines, it was necessary to install Eight Cylinder Engines in some cases. Both types of engines have therefore been described in this book.

The Ford Parts Numbering System is designed so that a basic number is assigned to each unit in the vehicle. For example, all wheels and wheel parts are within the series of numbers ranging from 1000 to 1500, all brake parts have numbers ranging from 2000 up, front axle parts have numbers ranging from 3000 up, steering gear parts have numbers ranging from 3500 up, etc. Since these basic numbers have been shown on all drawings showing exploded views of the various assemblies in the car, the book has been laid out in sections which conform to the grouping of the Ford Parts Numbering System. Each section is, therefore, numbered with the Ford basic number of the particular assembly or part described in that section. This will not only simplify the task of locating the various units in the book but will also make it easier for inexperienced men to locate in the Parts Book any items which may be referred to in the following text.

A brief description is given in each section of the operating principle involved in the particular assembly being discussed so the drivers, as well as mechanics will have some knowledge as to the functioning of each unit. In addition, detailed instructions for removing and installing parts, effecting necessary adjustments quickly, and properly lubricating all parts, are covered.

WAR DEPARTMENT,
WASHINGTON 25, D. C., 5 JULY 1942.

TM 10-1375, Maintenance Manual for Car, Fordor
Sedan, Ford Models 2GA73C and 21A73C, is published for
the information and guidance of all concerned.

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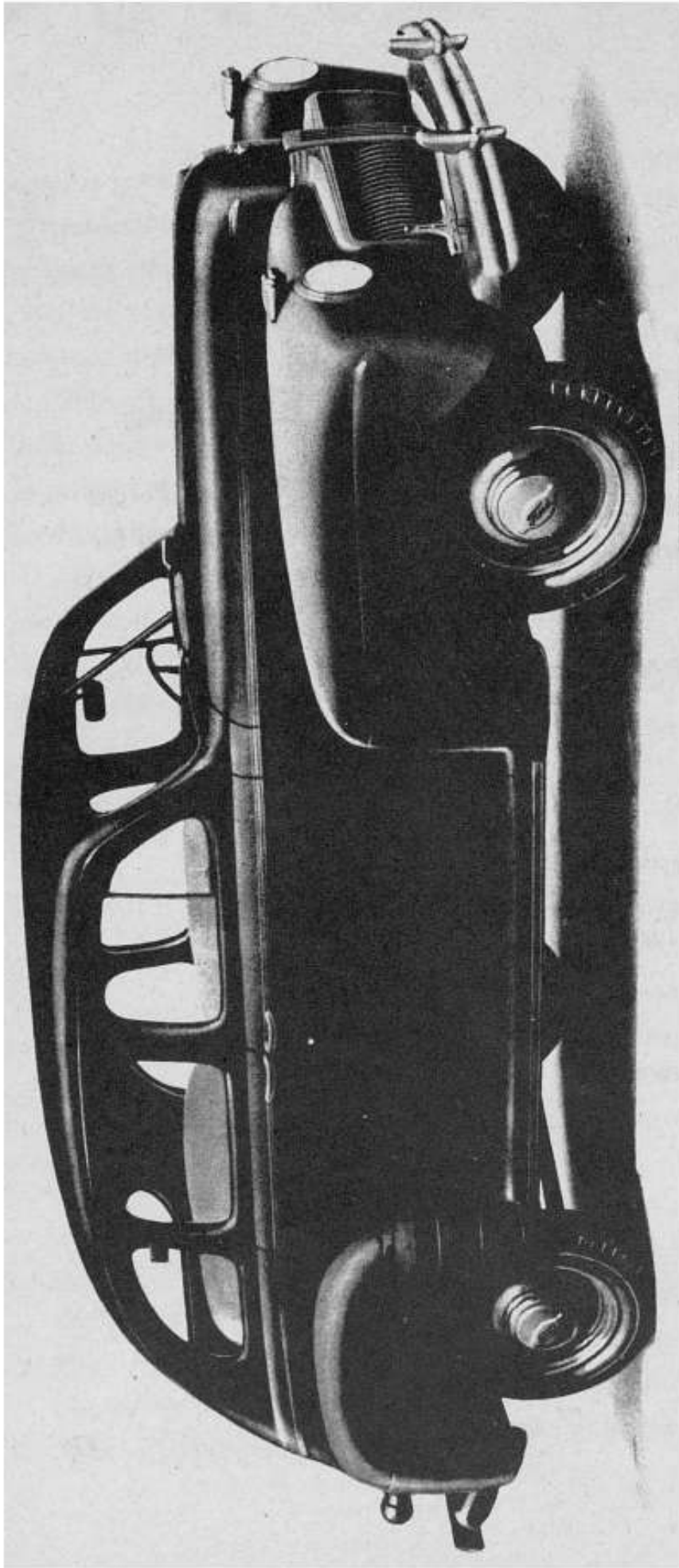
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Ford Fordor Sedan—Models 2GA-73 and 21A-73—Fig. 1

FORD FORDOR SEDAN

GENERAL DATA

Ford Fordor Sedan	} 8 Cylinder } 6 Cylinder
Model	
Wheelbase	114"
Tread	58.0" Front—60.0" Rear
Length of Body	134.85"
Width of Body	60.34"
Length Overall	194.34"
Width Overall	73.52"
Height Overall	68.15"

ENGINE—6 CYLINDER

Type	L Head
Number of Cylinders	6
Bore	3.30"
Stroke	4.40"
Piston Displacement	226 Cu. Inches
Torque	180 lb. Ft. @ 1200 R.P.M.
Compression Ratio	6.70-1
Compression Pressure	165 lb. @ 2000 R.P.M.
Firing Order	1-5-3-6-2-4
Weight with clutch and transmission	610 lbs.

ENGINE—8 CYLINDER

Type	V-8, 90° "L" head
Number of Cylinders	8
Bore	3.062"
Stroke	3.75"
Piston Displacement	221 Cu. Inches
Torque	150 lb. Ft. @ 2000 R.P.M.
Compression Ratio	6.2-1
Compression Pressure	140 lbs. @ 2400 R.P.M.
Firing Order	1-5-4-8-6-3-7-2
Weight with clutch and transmission	609 lbs.

CAPACITIES

	6	8
Fuel Tank	17 gallons	17 gallons
Engine Crankcase	5 quarts	5 quarts
Cooling System	15 quarts	22 quarts
Transmission	2¾ pints	2¾ pints
Rear Axle	2½ pints	2½ pints
Oil Bath Air Cleaner	1 pint	1 pint

Engine Number is also the Serial Number

Number is stamped on top of Clutch Housing. To check number, raise mat in driver's compartment, and remove small plate which covers opening in toe board.

OPERATION TIPS

The natural inclination of every motor vehicle operator is to take pride in his vehicle, in its accelerating qualities, smoothness of operation and ability to travel further on less fuel. To a great extent, these factors are subject to the control of the vehicle operator and the following paragraphs point out the precautionary measures which should be followed to secure the most satisfactory results.

"BREAKING IN"

Before attempting to start the engine or operate the vehicle, the careful driver will first make sure that there is sufficient water in the radiator and that the oil level in the crankcase is up to the "Full" mark on the dip stick. He will also examine each tire and see that it is brought up to the recommended tire pressure, if there is any indication of one or more of the tires being low. The good driver will also make certain there is an adequate supply of fuel in the tank.

One of the most important factors in the life of a motor vehicle is the care it receives during the first thousand miles of operation. For the first 500 miles, the new unit should not be driven in excess of 40 miles per hour. During this period the temperature indicator should be watched closely and if there is any tendency toward overheating, the operating speed should be reduced.

LUBRICANT

To avoid excessive or premature wear, clean lubricant of correct specifications must be used at the various points indicated on the lubrication chart.

All Ford products are designed to operate smoothly and without sharp knocks, rattles or metallic noises which indicate friction in any of the working parts. All unusual noises should therefore be investigated at once so the necessary corrective measures can be taken before serious damage results. If the noise seems due to an internal mechanical fault, the condition should be reported to a mechanic immediately and operation of the vehicle should be avoided until it has been released by a qualified technician.

TESTING BRAKES

The brakes should be tested daily soon after starting. Any faulty condition in the hydraulic brake system is readily apparent to the operator at the first application of the brake pedal, and the matter should be reported at once for correction.

FRONT WHEEL ALIGNMENT CHECK

The proper alignment of the front wheels is a most important factor in the steering of the vehicle. If hard steering is noticed, the first thing to check is inflation

of the front tires. If the tires are properly inflated and the vehicle tends to wander to the right or left, or the steering wheel shakes (shimmies) when the vehicle is in motion, have a mechanic inspect and make the necessary repairs.

BATTERY INSPECTION

Battery should be inspected frequently and terminal corrosion removed by scraping or using a solution of baking (bicarbonate) soda and water. After the terminals have been cleaned, they should be coated with vaseline or light grease.

ELECTRIC CIRCUIT TERMINALS

All electrical connections must be kept clean and tight. Bear in mind that corroded terminals, also loose and dirty ground connections will cause ultimate failure of the electrical system.

SPARK PLUGS

Check spark plugs frequently for loose connections or broken porcelain which will usually be indicated by that particular cylinder missing fire when the engine is operating under a heavy load or accelerating with a wide open throttle. Faulty spark plugs and wires should be replaced.

AIR CLEANER

Instructions for cleaning the oil bath type air cleaner are given on the decalcomania on the air cleaner. Under extremely dusty conditions, the air cleaner should be cleaned more frequently and refilled with new oil of the same viscosity as is used in the crankcase.

WORKING UNDER VEHICLE

When working under the vehicle, it is inadvisable to depend only upon a jack to support the weight. Use wooden blocks or wooden horse.

REPORTING MECHANICAL FAULTS

Report any mechanical trouble and have it corrected. Temporary repairs should be used only as an expedient.

REVERSING

Reverse as little as possible. Never reverse without sounding the horn and making absolutely sure that the way is clear.

TIRE INFLATION

Proper tire inflation not only produces the greatest number of miles per tire but helps to avoid accidents.

Unequally inflated tires result in poor steering, poor braking and excessive side sway on curves.

CHANGING TIRES

When changing tires, one or more of the wheels resting on the ground should be blocked securely with a rock or other suitable object. Do not depend upon the brakes to hold the vehicle while tires are being changed, since there is always the possibility of the brakes being thoughtlessly released.

SPINNING OF WHEELS

Spinning the drive wheels only digs them deeper into mud and snow. Rock the car forward and backward a few inches repeatedly until sufficient traction can be secured.

RACING THE ENGINE

Racing the engine causes excessive strain on the mechanism and premature wear. This is especially bad in cold weather when the engine is cold because the oil is thickened by low temperatures and does not circulate as rapidly as when warm.

ENGINE ACCELERATION

Accelerate gently. Tramping on the accelerator only forces more gasoline into the cylinders than can be effectively used, and under some conditions might result in the engine stalling.

ENGINE IDLING

Permitting the engine to idle for long periods of time not only wastes gasoline, but has a tendency to foul the spark plugs.

ENGINE OVERHEATING

When engine is overheated, cold water should not be poured into the radiator unless the engine is running so that the water pumps will circulate and mix the cold water with the hot water before it strikes the cylinder block and head. When engine overheats, always check the fan belt first for slippage. Tighten the belt if it appears to be too loose. Also check the hose connections to see that they are tight.

SKIDDING

When traveling at high rates of speed on a loose gravel road, motor vehicles sometimes sway or skid dangerously. Loose gravel may be thrown under such conditions and injure pedestrians or break windows of passing vehicles. The brakes should be used with caution to bring the vehicle under control. To apply the brakes abruptly while skidding only increases skidding. Concentrate on steering the vehicle in the event a tire should blow out. Then remove the foot from the accelerator and use the brakes with caution.

APPLYING BRAKES

Applying brakes too rapidly results in excessive tire wear. It may also result in a dangerous skid when on wet or icy pavements.

STOPPING THE VEHICLE

Come to a gradual stop. Sudden stops, the same as sudden starts, waste gasoline and are dangerous to the passengers.

USE OF CLUTCH

Sudden engagement of the clutch, causing jerky starting or killing the engine, increases the strain on the clutch and other parts involved. Release the clutch pedal slowly so as to insure a gradual contact between clutch plates.

USE OF GEARS

Unnecessary speeding of the vehicle while in the lower gears, practically doubles gasoline consumption. Shift to high gear before 25 miles an hour is reached.

LOW GEAR

Low speed gear ratios are provided for use when the going is heavy. The best driver shifts into these lower ratios when necessary for most efficient vehicle operation. Always descend a hill in the same gear used in ascending it.

COASTING

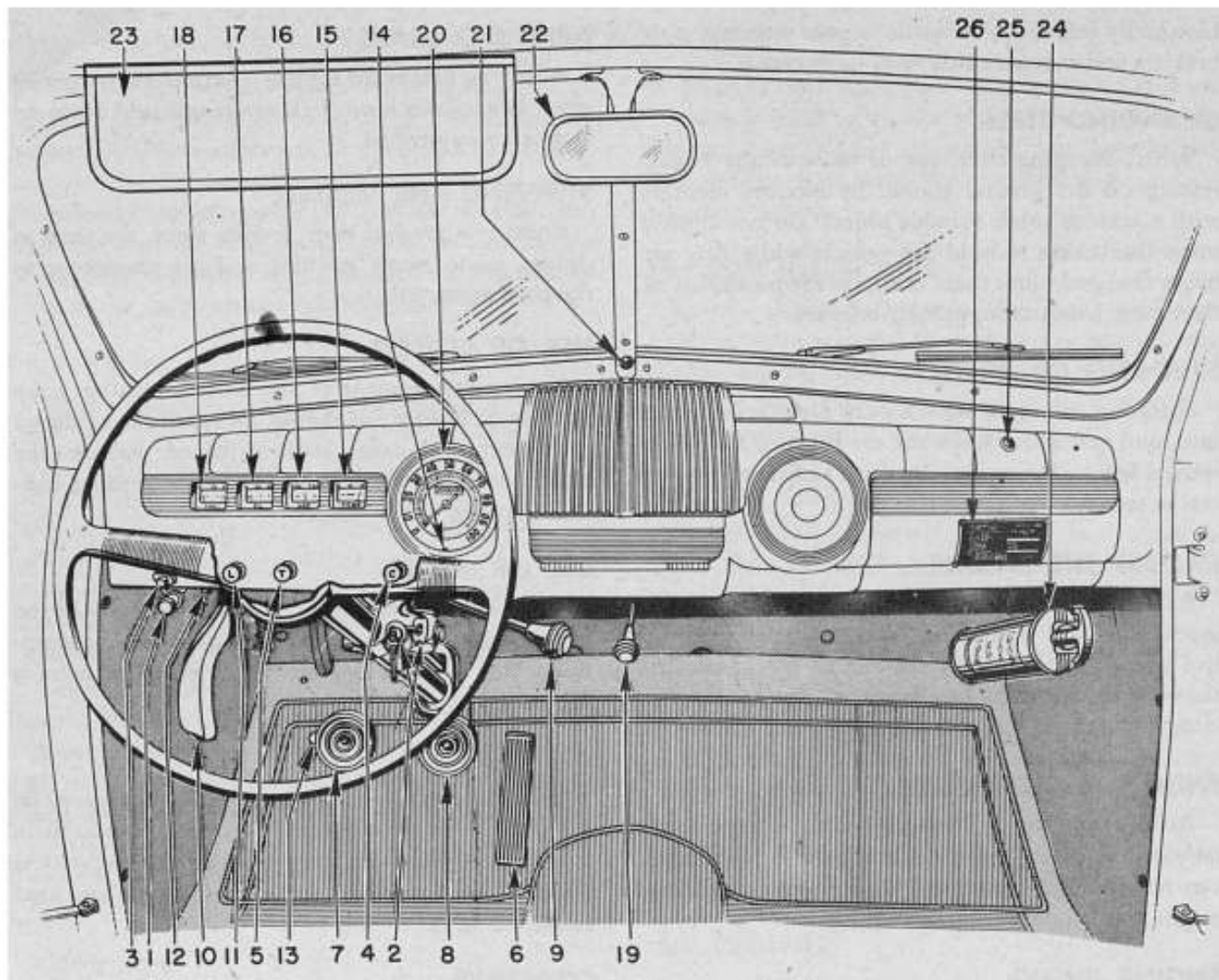
When going down grade, use engine compression to assist in maintaining control. Never disengage the clutch and coast down. This is extremely dangerous when an unforeseen emergency demands prompt stopping of the vehicle. Using the brakes when coasting usually results in burnt linings and, under extreme conditions, might render the brakes useless.

FIRE

A gasoline or oil fire in a motor vehicle must be handled quickly to avoid serious damage. In the event of such a fire, turn off the ignition and light switches immediately. Use the fire extinguisher as quickly as possible to extinguish the flames. If in the engine compartment, avoid raising the hood unless it is impossible to get at the flames in any other manner. If no fire extinguisher is available, smother the flames with a tarpaulin, blanket, coat, sand, dirt or other similar material.

ABUSE AND NEGLECT

Abuse and neglect of the vehicle entrusted to you will always result in premature repairs. Your efficiency as a driver can be effectively measured by the cost of repairs made and charged to the vehicle.



Instruments and Controls—Fig. 2

- | | |
|---|--------------------------------------|
| 1. Hood Release | 14. Light Beam Indicator |
| 2. Steering and Ignition Lock and Ignition Switch | 15. Temperature Gauge |
| 3. Starter Button | 16. Ammeter |
| 4. Carburetor Choke | 17. Oil Gauge |
| 5. Hand Throttle | 18. Fuel Gauge |
| 6. Accelerator | 19. Cowl Ventilator Lever |
| 7. Clutch Pedal | 20. Speedometer |
| 8. Brake Pedal | 21. Windshield Wiper Control Button |
| 9. Gear Shift Lever | 22. Rear View Mirror |
| 10. Hand Brake Lever | 23. Sun Visor |
| 11. Light Switch | 24. Fire Extinguisher |
| 12. Instrument Panel Light Switch | 25. Glove Compartment Release Button |
| 13. Light Beam Control Switch | 26. Nomenclature Plate |

OPERATING THE VEHICLE

(Driver's Instructions)

Before attempting to operate any motor vehicle with which the operator is not familiar, it is imperative that he familiarize himself with all the various controls.

All of the controls and instruments are illustrated

in Figure 2. It will be observed that each item has been numbered so as to assist the reader in locating the various items as they are described in the following paragraphs:



Fig. 3



Fig. 4

HOOD RELEASE KNOB No. 1—The knob marked "Hood" is located directly below the instrument panel to the left of the steering column. After releasing the hood by pulling out the release knob, Fig. 3 it is necessary to push in on the secondary catch underneath the hood, shown in Fig. 4, before the hood can be raised.

IGNITION SWITCH & LOCK No. 2 is located on the steering column support bracket. This is a coincidental steering and ignition lock. The steering gear cannot be locked nor the key removed while the ignition switch is on. Pushing the switch lever to the "On" position closes the ignition circuit so that the current will flow to the ignition coil and distributor. Pushing the switch lever to the "Off" position breaks the circuit and will stop the engine.

STARTER SWITCH BUTTON No. 3 is located at the lower left corner of the instrument panel. When this button is pressed in, current is supplied to the magnetic starter switch which in turn closes the circuit to the starter motor.

CARBURETOR CHOKE No. 4 is the control button marked "C" located underneath the speedometer in the instrument panel and directly above the ignition switch. When this control button is pulled out, it reduces the amount of air going through the carburetor and thus provides a richer mixture. It also opens the throttle slightly so the engine idle speed is increased. When the engine is warm, it is not necessary to pull out the choke button when starting, in fact this control should only be used when the weather is sufficiently cold to cause difficulty in starting. The choke button should be pushed in to its stop as soon as the engine is sufficiently warm to run smoothly.

HAND THROTTLE No. 5 is the control button marked "T". It is located in the instrument panel to the left of the steering column and directly underneath the oil gauge. Pulling this button outward opens the carburetor throttle and increases the speed of the engine. During cold weather this control should be pulled out approximately $\frac{1}{4}$ " so the engine will idle somewhat faster until it is thoroughly warmed up. This control can also be used when it is desirable to run the engine at a constant speed.

FOOT ACCELERATOR No. 6 is located to the right of the brake pedal. It is a treadle type lever which actuates the linkage connected to the carburetor throttle plate and thus increases the speed of the engine.

CLUTCH PEDAL No. 7 is located to the left of the steering column. Pressing on this pedal causes the tension exerted by the clutch pressure plate springs to be released. This disengages the engine from the transmission so the transmission gears the operator desires to use can be meshed easily.

It is good practice to disengage the clutch before starting the engine as this will not only enable the starter to crank the engine more easily in cold weather but will also prevent the vehicle from moving in the event the transmission gearshift lever has been unknowingly left in gear.

Do not drive with the foot resting on the clutch pedal as this will cause premature wear of the clutch facings and clutch throw-out bearing.

BRAKE PEDAL No. 8 is located to the right of the steering gear and is connected by a rod to the piston in the brake Master Cylinder. When the pedal is pressed downward the piston forces fluid from the Master Cylinder through connecting tubes to cylinders at each of the four wheels which in turn expand the brake shoes.

TRANSMISSION SHIFT LEVER No. 9 is located directly underneath the steering wheel on the right-hand side and is used to engage the transmission gears in the various speeds provided by the transmission. There are three forward speeds and reverse as indicated in Fig. 6. Lever positions for the various gear changes are discussed in detail under Operating Instructions.

HAND BRAKE No. 10 is located underneath the instrument panel on the extreme left-hand side of the body. It actuates the brake shoes located in the rear brake only. This lever should be pulled toward the driver as far as possible whenever the vehicle is parked. After starting the engine and placing the transmission in gear, the brakes should be released by pushing the lever forward as far as possible. **CAUTION**—Never drive the car with the lever pulled backward. Make sure it has been pushed forward as far as it will go.

LIGHT SWITCH No. 11 is the control button marked "L" located in the instrument panel to the left of the throttle button and directly underneath the fuel gauge. It has two "ON" positions. When pulled out to the first position it turns on the black-out lights, only. The button on the side of the switch knob must then be pressed before the switch can be pulled