

TM 10-1681

WAR DEPARTMENT

Washington, April 10, 1943.

TM 10-1681, Maintenance Manual, Truck, 5-ton, 4x2, Cargo, MACK, (Model EH) published by the Mack Manufacturing Corporation, is furnished for the information and guidance of all concerned.

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By order of the Secretary of War:

G. C. MARSHALL,
Chief of Staff.

Official:

J. A. ELIO,

Major General,

The Adjutant General.

MAINTENANCE MANUAL

U. S. ARMY

MACK MODEL EH

5-TON 4x2 CARGO TRUCK

CHASSIS SERIAL NO'S.

EH ID 3976 thru 6525

U. S. A. REGISTRATION NO'S.

4410531 thru 4413080

CONTRACT W-670-ORD-3191

CONTRACT W-2425-QM-230

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MACK MANUFACTURING CORPORATION

Technical Service Department

L. I. City, N. Y., U. S. A.

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Division of Manual into Groups

This manual is divided into Groups, which correspond with the United States Army Ordnance Department Functional Group Code. Given un-

der each group below in small type, is a list of the main units described in each group.

General Data: Index, Division of Manual into Groups, Division of each Group into Sections, Oil & Water Capacities, and General Dimensions.

Operation: Instruments & Controls, and Operating Instructions.

Preventive Maintenance: Maintenance suggestions, and Preventive Maintenance Schedules.

Lubrication: Lubrication Chart, and Lubricating instructions.

- 01 Engine:** Cylinder block and heads, Crankshaft & bearings, Crankshaft oil seal, Pistons & rings, Piston pins, Connecting rods & bearings, Valves & springs, Valve lifters & guides, Valve tappets, Camshaft & bushings, Valve timing, Timing gears, Oil pump & gage, Oil filters, Manifolds, and Engine mountings.
- 02 Clutch:** Clutch disk, Pressure plate & springs, Release bearing, Pedal, and Pilot bearing.
- 03 Fuel:** Carburetor, Air cleaner, Fuel pump, and Governor.
- 04 Exhaust:** Muffler & pipes.
- 05 Cooling:** Thermostats, Water pump, and Fan & belts.
- 06 Electrical:** Generator & regulator, Starter & drive, Distributor & condenser, Ignition coil, Lighting switches, Ignition timing, Ignition tune-up, Headlamps, Spark plugs, and Battery.
- 07 Transmission:** Main drive pinion, Main shaft, Countershaft, Reverse shaft, Gears, and Bearings.
- 09 Propeller Shaft:** Universal joints.
- 10 Front Axle:** Axle Steering Knuckles, King Pins and Steering Geometry.
- 11 Rear Axle:** Axle shafts, Differential, Bevel pinion, Gears and Bearings.
- 12 Brakes:** Hand brake, Foot brakes, and Air compressor.
- 13 Wheels:** Bearings and Tires.
- 14 Steering:** Steering gear, Drag link, and Tie rod.
- 15 Frame:** Frame.
- 16 Springs:** Shackles and Shock absorbers.
- 18 Body and Cab:** Windshield, Cab top, Cab mounting, Seat, Handles, Locks, Doors, Windows, Glass and Paint.
- 23 Tools:** Standard tools furnished with vehicle.

Division of each Group into Sections

This manual is further subdivided as follows. Each group covering a major unit as Engine, Clutch, etc., is divided and described in Sec-

tions as given below. Some groups do not require this exact description but, in general, they are treated in the same manner.

1. Description and Principle of Operation:

Includes statement of type or design of unit used, and how it works. Uncommon features are mentioned especially.

2. Trouble Shooting and General Solutions:

Includes most common failures arising after reasonable service, or due to neglect in servicing or other conditions, and the possible solutions or remedies.

3. Adjustments:

Includes all possible adjustments that can be made without disassembling the unit. Methods of making adjustments are given. Adjustment figures include necessary fits as: measurements, clearances, etc., with tolerances to be maintained. Special tools needed are indicated.

4. Dis-assembly:

Includes step-by-step procedure to completely dis-assemble unit. Special tools needed are indicated.

5. Repairs:

Includes methods of effecting all possible repairs, fitting of parts and sizing: as broaching, lapping, grinding in place, etc. Special tools needed are indicated.

6. Lubrication:

Includes instructions for lubrication that can be accomplished only while the unit is dis-assembled. For other lubricating instructions, see "Lubrication" group.

7. Re-assembly:

Includes step-by-step procedure to re-assemble unit, but **only** where different from reverse of dis-assembly. Additional adjustments, not given under section 3 above, are included. Special tools needed are indicated.

8. Specifications:

Includes all specifications and other service data essential to proper maintenance. A summary of all adjustments listed in above items is given.

9. Tools:

Includes special tools, other than standard tools furnished with vehicle or common mechanic's tools, essential for the dis-assembly, repair, adjustment and re-assembly of the unit.

Capacities and Dimensions

Engine

Model	MACK	EN-354
Type	Gasoline	L-Head
Horsepower	A.M.A.	36.0
Displacement	Cu. In.	354
Bore	.....Inches	3 $\frac{7}{8}$
Stroke	.....Inches	5
Number of Cylinders		6
Engine Governed Speed	R.P.M.	2620

Capacities

Fuel Tank	.....Gallons	50
Engine Crankcase, Refill	.....Quarts	9
Oil Filters, extra	.....Quarts	5
Cooling System	.....Quarts	31
Transmission	.....Pints	21
Oil Bath Air Cleaner	.....Quarts	1 $\frac{1}{2}$
Rear Axle Differential	Pints	28
Steering Gear	Pints	.....5

Dimensions

Turning Radius, Right	Ft.-In.	33'-0"
Turning Radius, Left	Ft.-In.	32'-0"
Height Overall	.....Inches	114"
Width Overall	Inches	96"
Length Overall	Ft.-In.	22'-3 $\frac{5}{8}$ "
Weight of fully equipped truck without load	Pounds	9600
Road Clearance	.....Inches	10 $\frac{1}{16}$ "
Wheelbase	Inches	170"
Tire Size	.....Inches	9.00-20
Tire Inflation Pressure	Pounds	65

OPERATION

It is important to specify chassis number of vehicle when servicing same. Engine serial number should also be given. This is especially

important when ordering parts. The illustrations below will assist in locating the serial numbers.



Mack Model EH 5-ton 4x2 Cargo Truck



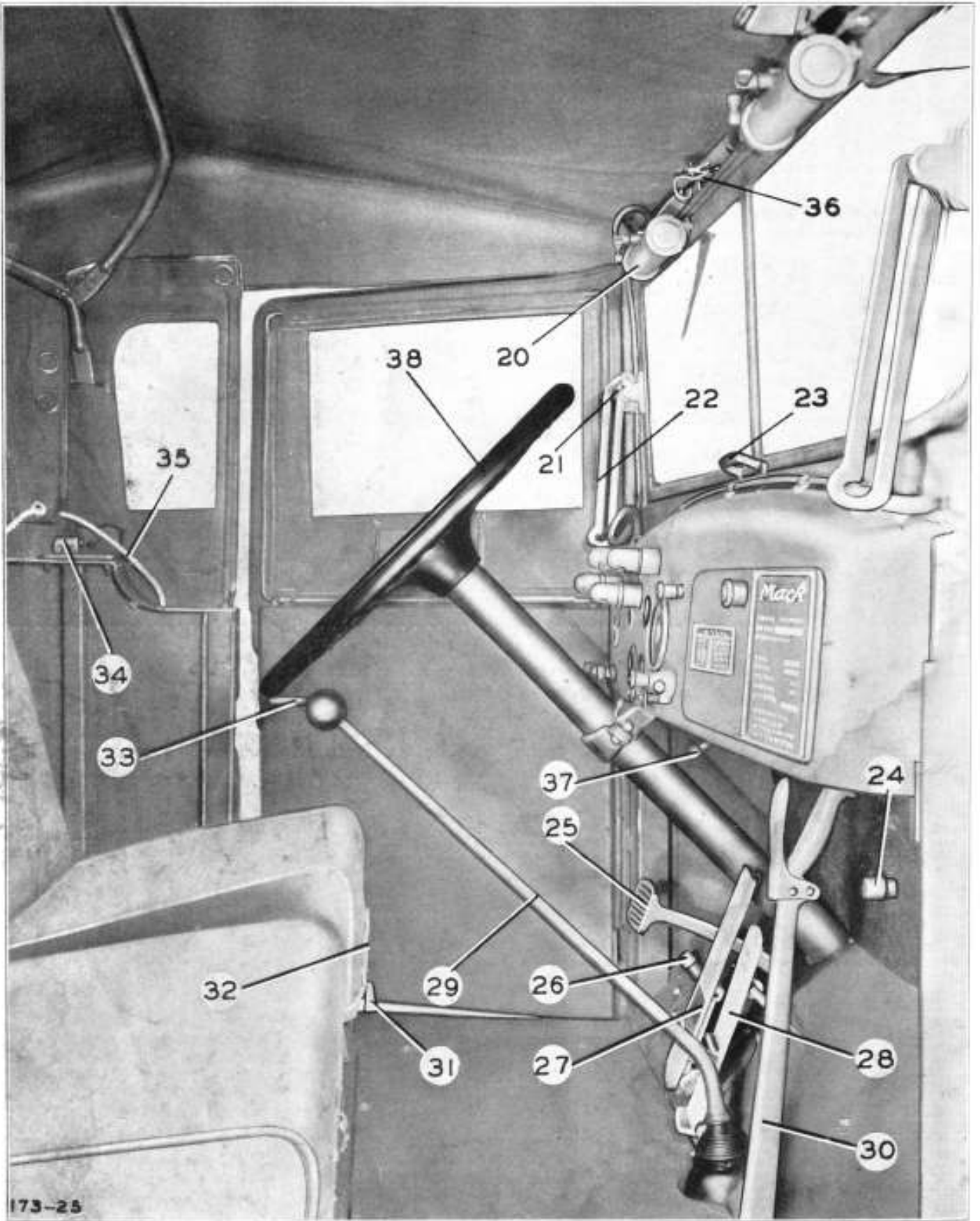
Chassis Serial Number stamped on rear end of left frame side member



Chassis Name Plate located on instrument panel



Engine Serial Number stamped on left side of cylinder block



View of Cab Controls

Instruments and Controls

1. **GEAR SHIFT INSTRUCTION PLATE:** Shifting positions for the transmission are shown on this plate. Diagram is shown in "Group 07: Transmission" of this Manual.

2. **INSTRUMENT PANEL LAMPS:** Four lamps are provided to light the several gages and instruments.

These lamps can be lighted only by means of the panel light switch (12) and when the blackout lighting switch is in position "3".

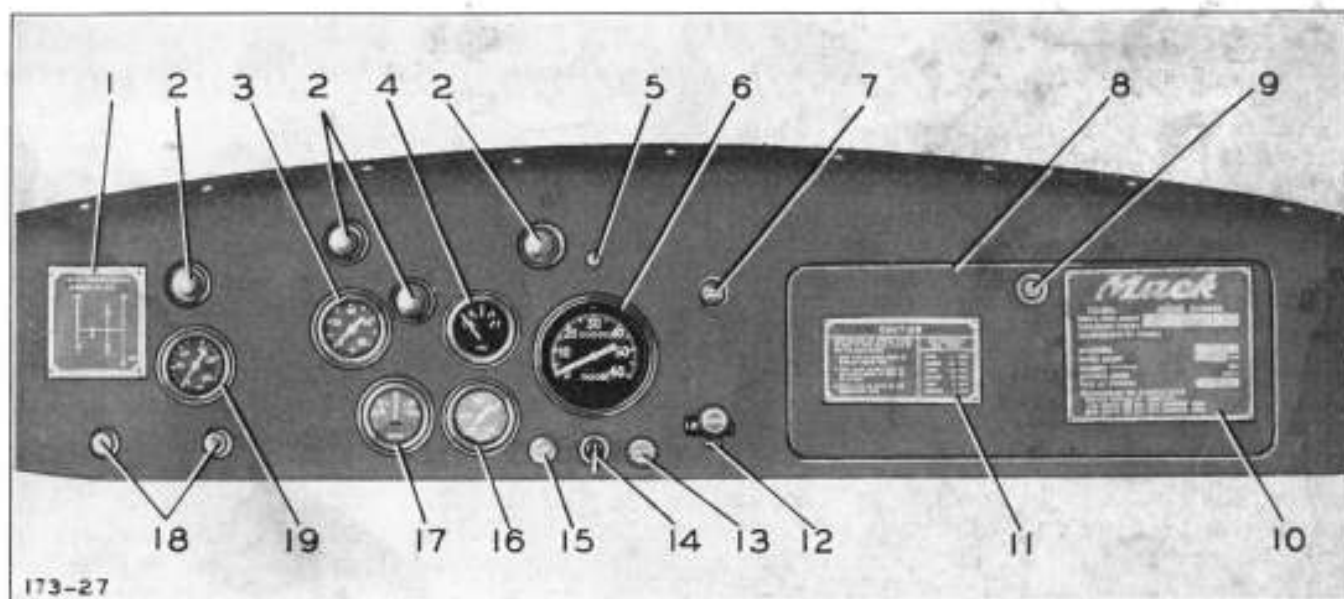
3. **OIL PRESSURE GAGE:** The oil pressure gage indicates the pressure of the engine lubricating oil. This gage should indicate approximately 45 to 60 lbs. at 2620 R.P.M. maximum speed and 10 to 20 pounds at 300 R.P.M. idling speed.

4. **FUEL GAGE:** This is an electrically operated gage and indicates the approximate level of the fuel in the tank whenever the ignition switch is turned "on". The current taken by the gage is negligible.

5. **HEADLAMP BEAM INDICATOR:** Located directly above the speedometer.

When the red light is "on", the high beam of the headlamp is lighted. When the light is out, the low beam is lighted or the headlights are "off".

6. **SPEEDOMETER:** The speedometer indicates road speed of the vehicle in miles per hour and total mileage traveled.



View of Instrument Panel

- | | | |
|----------------------------------|-------------------------------|--------------------------------|
| 1. Gear Shift Instruction Plate | 14. Ignition Switch | 27. Brake Application Valve |
| 2. Instrument Panel Lamps | 15. Choke Control | 28. Accelerator Pedal |
| 3. Oil Pressure Gage | 16. Temperature Gage | 29. Transmission Shifter Lever |
| 4. Fuel Gage | 17. Ammeter | 30. Hand Brake Lever |
| 5. Headlamp Beam Indicator | 18. Windshield Wiper Controls | 31. Seat Adjustment Lever |
| 6. Speedometer | 19. Air Pressure Gage | 32. Seat Cushion Cover Lacing |
| 7. Instrument Panel Light Switch | 20. Windshield Wipers | 33. Door Handle |
| 8. Glove Compartment | 21. Windshield Arm Screws | 34. Cab Roof Latch |
| 9. Glove Compartment Push Button | 22. Windshield Elevating Arms | 35. Cab Rear Curtain Rope |
| 10. Chassis Name Plate | 23. Windshield Grab Handle | 36. Cab Top Straps |
| 11. Caution Plate | 24. Starting Switch | 37. Cowl Ventilator Lever |
| 12. Blackout Switch | 25. Clutch Pedal | 38. Steering Wheel |
| 13. Throttle Control | 26. Headlamp Foot Switch | |

7. INSTRUMENT PANEL LIGHT SWITCH: This switch is used to put the instrument lights on, if light switch (12) is in the second "on" position.

8. GLOVE COMPARTMENT: A handy, roomy compartment located on the right side of the instrument panel.

9. GLOVE COMPARTMENT PUSH BUTTON: Pressure on the center of this button unlatches the glove compartment door giving access to the glove compartment interior.

10. CHASSIS NAME PLATE: Is located to the right of the center of the glove compartment door, and shows the model, chassis serial number, nomenclature, and weight and oil recommendations.

11. CAUTION PLATE: This caution plate carries instructions for locating three plugs to be opened for draining the cooling system. Also maximum permissible road speeds in each gear is given.

12. BLACKOUT SWITCH: The switch which controls the headlamps is designated a blackout switch.

It has one "off" and three "on" positions.

With the control knob all the way in, all lights are off.

Pulling the knob out to the first "on" position lights the blackout parking and blackout tail lamps and energizes the circuit to the stop lamp switch and to "TL" contact in trailer receptacle. When the stop lamp switch operates, the B.O. stop lamp lights and contact "SL" in the trailer receptacle is energized.

Pulling the switch to the second "on" position, which can be done only after the switch lock button is pressed, lights the blackout headlamp, instrument panel lights, B.O. parking, and B.O. tail lamp. Contact "TL" in the trailer receptacle is energized. Wire to stop light switch is energized and when switch closes B.O. stop light lights and contact "SL" in trailer receptacle is energized.

Pulling the switch knob to the third "on" position completes the same circuits as the second position.

13. THROTTLE CONTROL: The throttle control is used when starting the engine or making adjustments to the engine. When button is pushed in, the engine will run at idling speed.

14. IGNITION SWITCH: The ignition switch is turned "on" and "off" by means of the lever.

15. CHOKE CONTROL: Choke control should be used only when necessary.

Choke should be pulled out far enough to allow the engine to run smoothly during the warm-up period.

Choke should be pushed in as soon as possible after the engine is running smoothly. If choke is allowed to stay out, the fuel mixture will become too rich and may cause injury to the engine by allowing the unburned fuel to seep into the crankcase and dilute the lubricating oil.

16. TEMPERATURE GAGE: This gage indicates the temperature of the water in the cooling system. Temperature should range between 155°F. and 175°F. If temperature reaches 212°F., the vehicle should be stopped and the cause of this excessive rise corrected.

17. AMMETER: The ammeter indicates how much current the battery is receiving when the engine is running above idling speed.

When the engine is stopped, this ammeter will show the amount of current taken from the batteries by any lights which are turned on.

18. LEFT AND RIGHT HAND WINDSHIELD WIPER CONTROL VALVES.

19. AIR PRESSURE GAGE: The air pressure gage indicates the air pressure in the reservoir and pipe lines.

20. WINDSHIELD WIPERS: These wipers are the air operated type and are individually controlled by valves (19) on the instrument board.

21. WINDSHIELD ELEVATING ARM THUMB SCREW: These screws are provided to hold the windshield elevating arms in either a fixed open or closed position. Before the arms can be moved, these screws must be opened.

22. WINDSHIELD ELEVATING ARMS: The windshield can be opened outward (hinged at top) by moving the windshield elevating arms up and out. Both arms should be operated simultaneously in order to prevent glass breakage.