

1879. 1874

E. C. Jefferson ~~490161~~ NX 110658
Eastern Command M.T. Course No 2
Artillery Wing
Warwick Farm

16th June 1941.

"D" Troop. 26th Battery
7th Field Regiment.

Maintenance

Maintenance as applied to an army vehicle is a term used to ably describe a complete system whereby vehicles are economically maintained in a state of mechanical efficiency. This includes routine maintenance and inspection.

Routine maintenance is a performance of certain necessary duties at specified periods or mileages to insure that wear & deterioration are reduced to an unavoidable minimum.

Inspection is necessary to ascertain

- (a) whether all component parts of the vehicle are in good working order.
- (b) the extent & cause of wear, deterioration, failure & damage.
- (c) whether routine maintenance

is being carried out efficiently and regularly performed by the personnel responsible for carrying it out

Daily Maintenance Form - (Sample)

Vehicle No. C1225

Date 16/6/41

Make Ford

Model 1939

Drivers Initials

1. Clean vehicle
2. Check level of fuel tank. (replenish if necessary)
3. Check water in radiator (do do do)
4. Check oil level in sump (do do do)
5. Tighten up any loose nuts & bolts.
6. Make any minor adjustments
7. Examine tyres for cuts, damage or underinflation.
8. Start motor & check :-
oil gauge, battery indicator, lights, horn & w. wiper.
9. Report on G.17 any defects noticed requiring mechanical adjustment

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Daily Maintenance Sheet

including ¹⁰⁰ ~~200~~ miles service

Date 16/6/41

Vehicle No. C1225

Model 1939

Make Ford

Driver's Initials

- Check
1. Clean vehicle
 2. Level in fuel tank (replen. if nec.)
 3. Water in radiator (- - -)
 4. Level of oil in sump (- - -)
 5. Tighten up any loose nuts & bolts
 6. Make any minor adjustments
 7. Exam. Tyres for cuts, damage or underinflation
 8. Start motor & check :- oil gauge, bty. etc etc
 9. Report on G.17. defects noticed etc etc

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Lubricate

(Jack side before operation.)

1. Drag links one nipple ea. end.
2. Tie rod one - - -
3. King pins two - - side.
4. all spring shackles. (ensure grease goes through a report any frozen shackles)
5. attend to all spec. points referred to in maker's handbook or chart.

Before turning out the above operations will be carried out and each item initialled & the completed form attached to completed G.2.

Weekly Maintenance Form

Date. 16/6/41.
Model. 1939.

Vehicle No. C1225
Make. Ford. Driver's Initials.

1. Clean battery of corrosion D.
2. Tighten all terminal clips after cleaning D.
3. Check acid level. (Bring level in each cell to 1/4" above plates by adding distilled water) only D.
4. Check security of battery carriers D.
5. Check & adjust tyre pressure in all tyres with pressure gauge. D.
6. Check wheel nuts for tightness D.
7. Check tool kit for freedom from rust & proper storage of contents. D.

500 Mile Maintenance

Date. 16/6/41.
Model. 1939.

Vehicle No. C1225
Make. Ford. Driver's Initials.

- Checks:-
1. Clean vehicle
 2. Level in fuel tank. (refill if nec.)
 3. water in radiator.
 4. oil level in sump (- - -)
 5. Tighten up loose nuts & bolts.
 6. Examine tyres for cuts, damage or undrift.
 7. Report on G.O. any defect noticed requiring mechanical adjustment.

Thoroughly clean all greasing points before operation

Lubricate (Jack up axle before operation.)

Group A Steering

on completion check security of all joints.

- { Drag links one nipple on each end
- { Tie rod - - - - side
- { King pins two - - - -

Group B. Shackles.

All spring shackles. (main & spare grease goes through, report any frozen shackles.)

500 Mile Maintenance (contd.)

Driver's
Initials.

Group C. Springs.

Spring leaves, clear (jack chassis up by frame, take weight off spring hangers, & lubricate leaves with brush.)

Group D. Clutch Linkage

Clutch release shaft. (one nipple each side of clutch housing)

Clutch pedal. (one nipple)

Group E. Brake Linkage

1. Brake pedal (one nipple)

2. Rear brake shaft. (one nipple each side)

3. Oil joints of connections of operating linkage not fitted with grease nipples.

4. Check security of all joints on actuating linkage.

Group F. Propeller Shaft Components

1. Propeller shaft splines.

2. Universal shaft bearing

3. Universal joints. if fitted with grease nipples.

500 Mile Maintenance (cont)

Driver's
Initials.

Group G. Spring Saddles.

1. Spring saddles. one nipple each side (unless tail shaft models)

Group H. Engine

1. All joints of engine controls. (on completion check operation)

2. Fan shaft bearing (on completion check fan belt for slackness. 1")

3. Pump shaft bearing.

4. Distributor shaft bearing (oil if not fitted with grease cups or nipples.)

Group I. Fuel Line

1. Check fuel pump for sediment.

2. Check petrol tanks, caps & taps, fuel line & joints for leakage

Group J. Battery

Test with hydrometer to read not under 1.250

Any special points specified by maker

as regarding lubrication at 500 miles. Before turning out the above operations will be carried out and each item interchecked & the completed form attached to completion G 2.

Ford V8 Engines. Specifications

90° , 8 cylinder V type cast in blocks

~~Power~~ (85 H.P.) (95 H.P.)

Bore 3.062" 3.187"

Stroke 3.75" 3.75"

Horse-power. S.A.E rating 30 hp. 32.5 hp.

Brake horse-power (at 3800 R.P.M.) 85 hp. 95 hp.

Crank-shaft.

90° throw, 3 main bearings, replaceable type

Connecting Rods.

Full floating bearings of special bearing alloy.

Pistons

Lightweight cast alloy.

2 compression rings; 1 oil ring.

Full floating piston pin (or endgon pin)

Camshaft.

3 bearings, ball type, gear driven

Spark Plugs.

14 mm. gap. .025"

Timing order

1-3-4-8-6-3-7-2

Engine Lubrication

Full pressure feed to all main and connecting rod & cam shaft bearings
Gear type oil pump. Capacity 1.57 galls per min. at 2000 rpm.

Normal oil pressure is 30 lbs @ 2600 rpm.

Crank-case capacity is 4 quarts.

Grade of oil used is SAE 40.

Batteries

Construction

consists of a composition rubber case in which is a number of cells. Cells rest on small ridges above the bottom of each so that sludge can fall beneath cell and so avoid shorting. Each cell = 2 volts.

Cells consist of a number of lead acid plates which are kept apart by separators. The separators are made of light wood or glass. Battery plates are alternately positive or negative. Two bridges join respective + or - plates. Posts are fixed to each bridge and battery terminals are connected to posts. Cells are filled with special battery acid, specific gravity fully charged 1.250 to 1.290.

Case of batteries

Hydrometer used to test condition of battery.

Full battery spec. grav. 1.25 to 1.3.

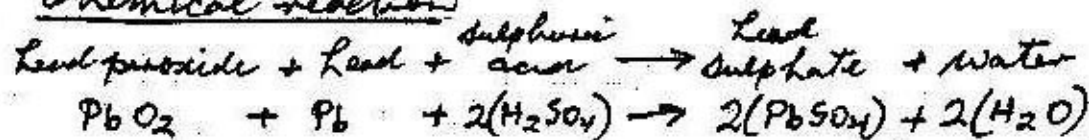
Fully discharged " " 1.15 to 1.8.

Plates are kept covered by about 1/2" and distilled water only is used to "top-up". Rain water is permissible and in extremes tap water is better than running battery without water. Terminals to be kept clean & free from corrosion, smear with vasoline. Keep terminals tight. Loose terminals cause shorting & blow lights. When changing battery never use a hammer or any other damaging tools. A battery is overloaded when it is used in an undercharged condition.

Equation - Chemical Action

	POSITIVE	ELECTROLYTE	NEGATIVE
Fully charged	PbO ₂	2(H ₂ SO ₄)	Pb.
" discharged	PbSO ₄	2(H ₂ O)	PbSO ₄

Chemical reaction



Starting Motor

Construction

The housing contains 2 field coils to which the main terminal is connected. Current is carried from fields to brushes. Field winding is fine insulated copper wire.

Armature shaft has commutator on one end and Bendix assembly gear on the other. Armature is wound with heavier wire. End plate holds brushes.

Bendix assembly consists of bendix spring, gear & stud. Armature shaft is threaded & gear is fitted to shaft base of Starting Motor

Excessive oil not be used, causes shorts between armature & field coils. Solenoid is the switch that connects the circuit to turn starter. Consists of a small coil and contact points which come together when dash-button is pressed.

Generator

Is much the same as a starting motor in construction, having brushes, commutator, field coils & armature. The armature winding is much lighter than in the starter.

Generator is turned by the fan belt (on Ford) which in turn is driven by the engine. $\frac{1}{2}$ hp power is needed to turn generator.

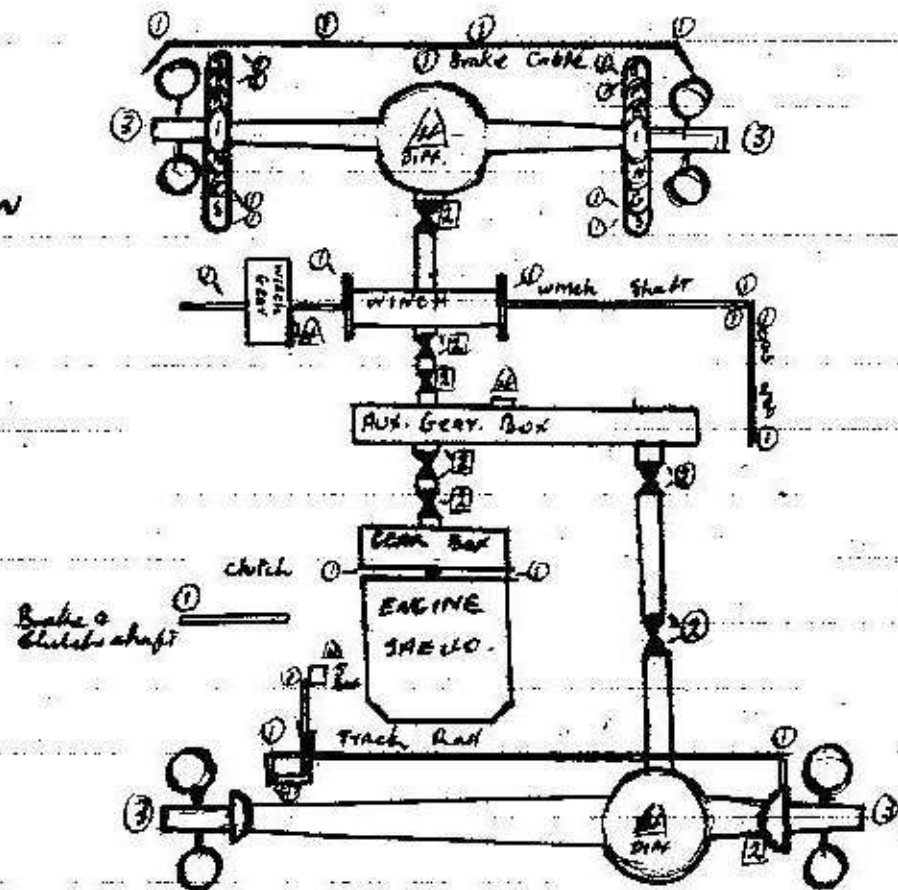
The generator is used to generate electricity to keep battery fully charged. The voltage is controlled at ~~at~~ by a special voltage control.

The cutout is attached to generator in order to stop battery being discharged through generator when engine is stationary.

One of generator is not to use too much oil. Overcharging will burn out points. Keep dirt & grit out of generator.

Maxson Herrington Tractors

LUBRICATION
CHART.

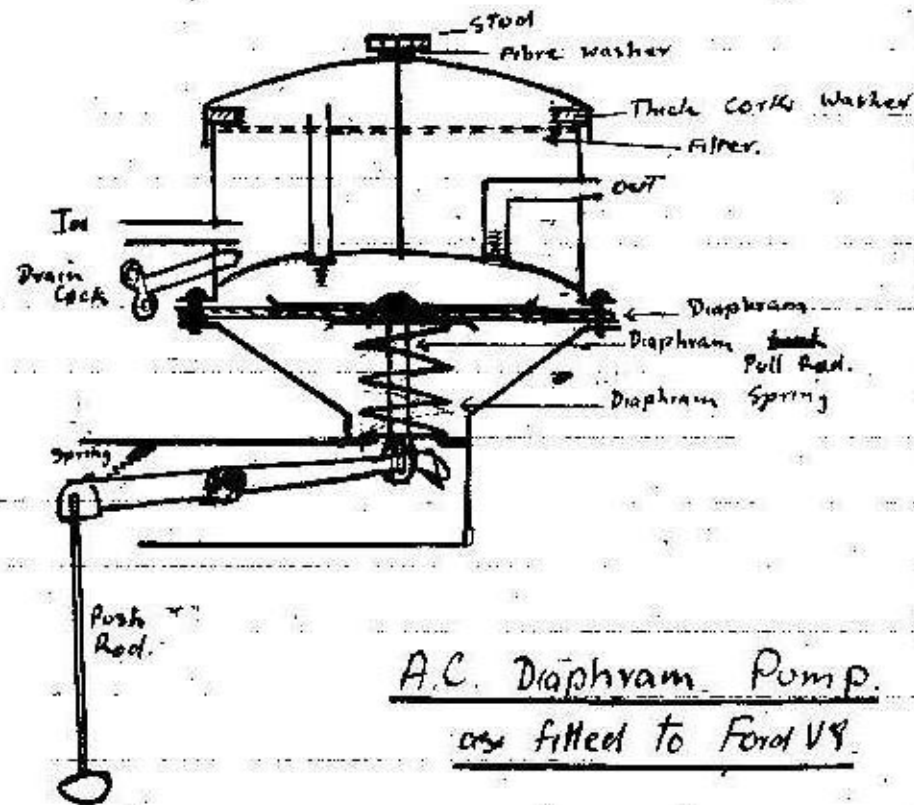


- ① Lubricate every 100 miles chassis grease MG2
- ② Universal joints, lub. every 500. MG5
- ③ workshop jobs.
- △ Spman 90. C140. S140.

Maxson Herrington Lubrication

Chassis MG 2. or chassis grease
 Universals MG 5
 Gear box SAE 160.
 Aux. gear box SAE 160. }
 Differentials Spman 90. or G.H. (Hypon)
 Sump SAE 40
 Springs. Clean with keros & lubricate
 with graphite, thick grease or old oil
 Winch gear. Lubricate every 1000 miles
 wire rope to be cleaned & oiled

Fuel Pump.



There are two types of pump.

- ① Mechanically operated with diaphragms
- ② Electric pump.

In all diaphragm pumps the principle is the same for operation.

Fuel Pump.

A fuel pump in good condition should draw petrol from the tank (after running out of petrol) if the starter button is operated continuously for 30 secs. Failure to supply fuel is caused by broken or obstructed fuel line.

Causes (1) Air leaks at top cover set screw.
(2) Air leaks at top cover.

Fibre washer only at set screw or cork washer at cover.

(3) Leaks at flex-pipe connections or pipe.

(4) Leaks at drain cocks.

(5) Dirty screen filter.

(6) Loose valve plug.

(7) Warped valves.

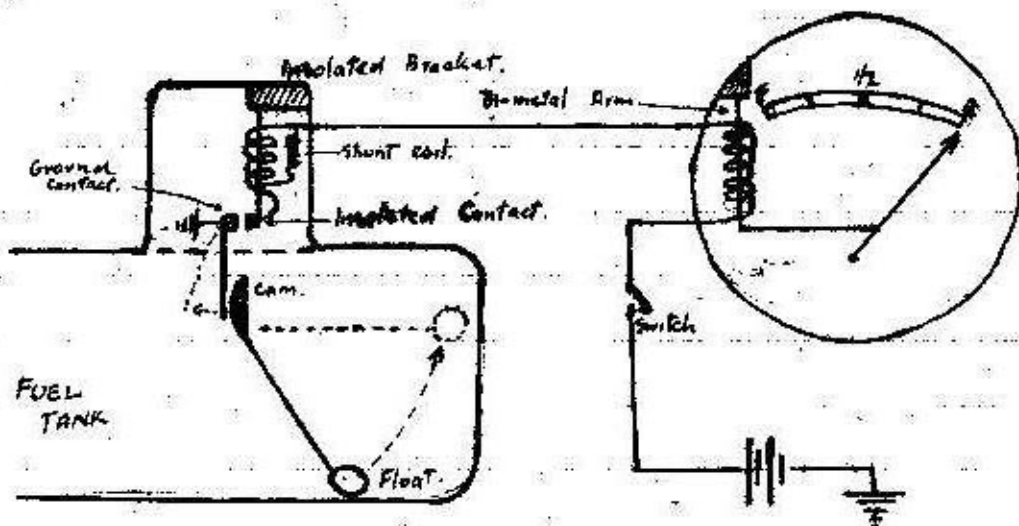
(8) Punctured diaphragm.

Connect pressure is about 3 lbs. A stream about 1 ft. long should flow out if line to carburetor is disconnected & starter motor operated. Air bubbles are a sure sign of leaks in the fuel line.

Fuel Pump trouble - tests

- (1) Disconnect fuel line at carburettor.
- (2) Turn motor with starter motor. A stream about 1ft long should result. If only bubbles & no petrol check drain cock and pump cover stud for tightness. If tight (3) Disconnect flex fuel pipe from main petrol pipe. Place finger over end of flex fuel line and suction should be felt. If no suction trouble is in pump. Check flex fuel line. Pump must be dismantled & inspected for internal trouble.

Fuel Gauge. (Electric)



Oil Gauge. (Electric)

