

1000 Mile Maintenance

Date. 19/6/41.

Vehicle No. C1225

Model. 1939.

Make. Ford.

DRIVERS
INITIALS.

Clean Vehicle

Check

Level of fuel in tank replen. if necessary

Level of oil in sump. " " "

water in radiator " " "

Tighten up loose bolts & nuts

Exam. tyres for cuts, damage or underinflation

Report on G17 any defects noticed req adjustment

Thoroughly clean all greasing points before operation

Lubricate (Jack axle before operation)

A Group. Steering

Drag link 1 nipple each end

Tie link 1 " " "

King pins 2 " " side

On completion check security of all joints

B Group. Shackles.

All spring shackles, (ensure grease proofing)

On completion check and report any loose,

worn or frozen shackles.

C Group. Springs

Spring leaves, clean, jack chassis frame

to take weight off spring hangers

and lubricate leaves with brush

check for broken leaves

check that leaves have not shifted

check centre bolts have not sheared

check (with spanner) U bolts for tightness

E Group.

Brake Linkage

Brake pedal shaft. 1 nipple

Rear brake shaft. 1 nipple each side

Oil joints & connections not fitted

with grease nipples

check security of all joints on

actuating linkage

D Group.

Clutch Linkage

Clutch release shaft. 1 nipple each side

clutch pedal 1 nipple

check pedal for free travel 1 1/2" to 2"

check clearance with floor boards

when in engaged position

F. Group. Propeller Shaft Components
 Propeller shaft splines
 Universal shaft bearings
 Universal joints (if fitted with grease nipples)

G. Group. Spring saddles.
 Spring saddles, 1 nipple on side. (unloaded tank shaft models)

H. Group. Engine
 Fan shaft bearings; on completion check belt for slackness
 Pump shaft on completion check gland for leakage
 Distributor shaft bearing; oil if not fitted with grease nipple, smear cam profile with grease
 Generator shaft bearing. (oil, 2 drops only)
 Starting motor shaft bearing (oil, 2 "
 Change engine oil

I Group. Fuel lines
 ① Check fuel pump for adjustment, drain sediment trap
 ② Check petcock tank, tap, pipeline & joints for leakage
 ③ Drain & refill and/or air filter (on can type)

J Group. Ignition
 Spark plugs, reset gaps as laid down in handbook
 " " clean porcelain & check for cracks.

K Group. (cont.) Check security of high tension leads.
 operation of automatic spark advance
 breaker points for clean surface

L. Group. Oil
 Check oil level & replenish if necessary
 in gear box, steering box, rear axle

L. Group. Battery (B Body) Lub. battery & door hinges, ^{oil} _{with stripping, scrubber & radiator shell, reset wheel, brake of motor, door locks}
 Test battery with hydrometer. 1.250 sp. grav

M. Group. Wheel alignment
 Check front wheel adjustment (to in)

N Group. Brakes.
 Road tests for equalization & effective stopping power
 Check hydraulic master cylinder for fluid level
 replenish if necessary to "4" from top
 with hydraulic brake fluid only.

Before turning out the above operations will be carried out and each item initialled & completed form attached to completed B2.

(Drivers must not attempt any mechanical adjustments or operations unless under supervision)

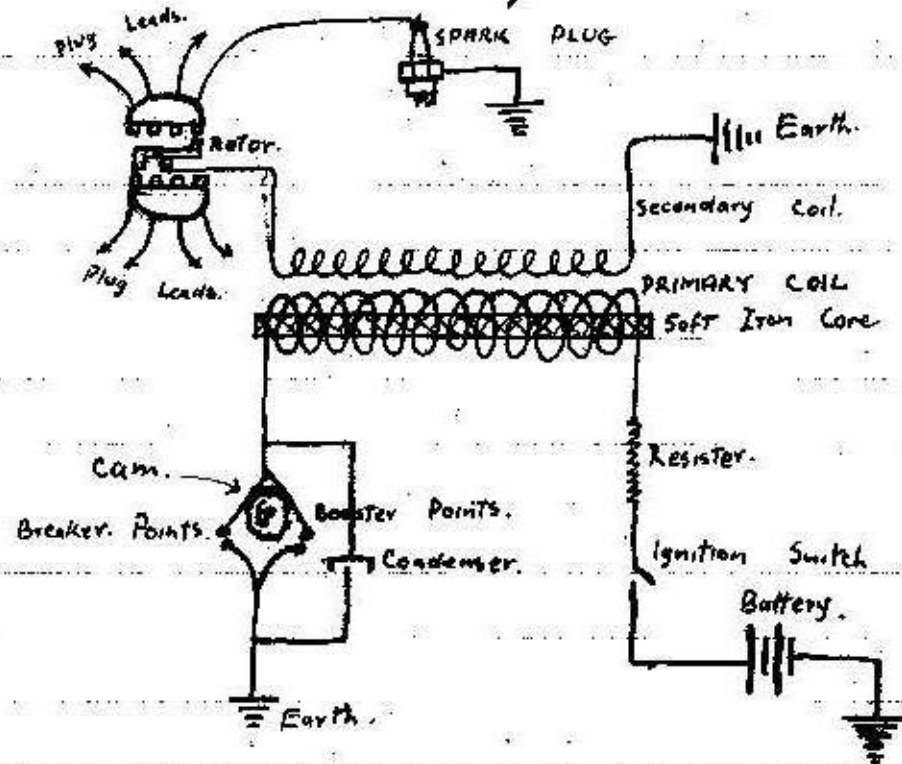
Coil Ignition Systems.

There are two types of ignition systems

(a) coil ignition (b) magneto.

Principle of ~~both~~ ^{all} coils are the same.

- all ~~both~~ have
- (1) a primary coil.
 - (2) a secondary coil.
 - (3) a soft iron core.



COIL IGNITION & DISTRIBUTOR CIRCUIT.

In the primary circuit the current passes from the battery through the ignition switch and a resistor to the coil, thence from the coil to the breaker points where the current is broken and so causes the sparks at the plugs. (Electro-motive force)

The secondary coil is wound round the primary coil, very fine wire being used. The current passing through the primary coil (low tension) reacts on the secondary coil and a high tension current results. By means of the rotor this current is passed to the various spark plugs.

Breaker Points (Ford).

In Ford engines the ~~breaker points~~ are there are two sets of breaker points. One set is the actual points that do the work and consequently get all the wear. The other set known as the booster points are put in position to help the other set, owing to the great speed,

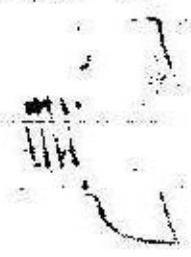
and high revolutions of the V8 engine. The left hand (or nearside) point is the breaker point and the right hand (or offside) point is the booster point. The gap for both points is $.014$ " to $.016$ ". Each point is adjustable, the near (or earth) side having the adjusting screw. Badly blackened points indicate a faulty condenser.

Distributor Unit. (Ford V8)

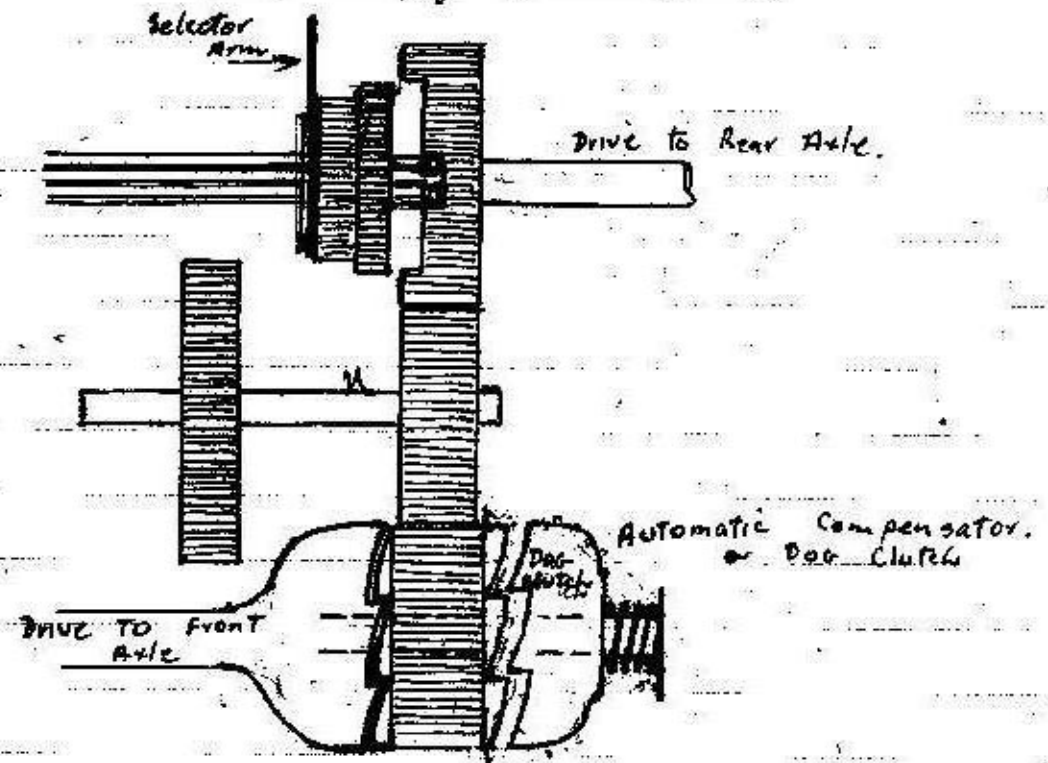
This unit contains the distributor, coil, condenser, rotor, in one unit, in direct drive from the front end of the cam-shaft. The condenser is the unit which stores the current up when the points are open and so, stops the current from jumping across the narrow gap. When this condenser becomes worn out a new one must be fitted so as to stop burning out the points. Also, in the distributor is the automatic spark advance device which requires little attention.

Trouble in the Distributor - Tests.

- (1) First test the plugs for sparks by holding the high tension wire close to plug.
 - (2) Terminal on top of coil, (take wire to engine and try for sparks.
 - (3) Try ignition switch for loose wires.
- If resulting sparks still fails, trouble is then internally in the distributor.



Maximow Kensington (Four wheeled drive)
Auxiliary Gear Box.



The auxiliary gear box is used to drive the front wheels; to reduce gear ratios; and to provide front wheel compensation for the front wheels turning faster than the rear, for example, when cornering. Vehicle must be stopped before engaging aux. gear box.

It has two ratios; low & normal (or high) which drive is maintained also to reverse gear with the same ratios.

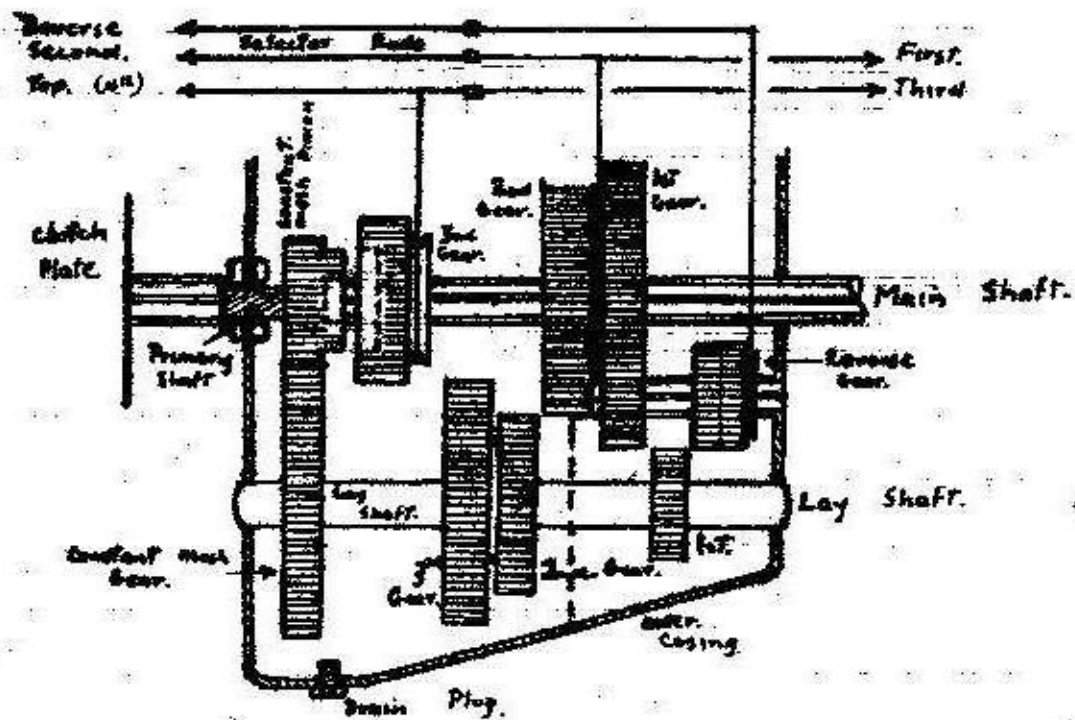
Grade of oil used is SAE 160., capacity $5\frac{1}{2}$ pints. The Automatic compensator is incorporated in the aux. gear box and takes the place of a third differential between front & rear driving axles. When the vehicle is on full lock the rear wheels "cut in" i.e. the front wheels travel further & faster than the rear wheels. This compensator by means of the sliding dog-clutch disengages the front wheel drive while on full lock (or whenever the front wheels travel faster than rear wheels). The drive is re-engaged with the front wheels are straightened up. To gain full advantage of the four-wheeled drive the vehicle should be kept in the straight ahead position. The dog-clutch operation can be both heard and felt.

Front Axle and Front wheel Universal Joint

The front axle driving assembly consists of a standard Ford V8 truck's differential gear. The housing is identical except it is off centre to the left to allow clearance with the engine sump.

The front wheel universals are of the constant velocity type.

Four Speed Gear Box



Component Parts of Gear Box

1. Outer casing and cover plate.
2. Drain and filler plugs.
3. Primary shaft, primary shaft pinion.
4. Lay shaft, containing constant mesh gear, 3rd, 2nd & 1st gears, (all fixed,) pinions.
5. Main shaft, (splined) on which slide &
6. Selector gears, 1st and 2nd (joined as one gear)



Component parts of gear box. (cont)

7. Selector gear. 3rd which has top gear (4th) as a female gear which slides on to the primary shaft pinion making a straight through drive.

These two selector gears can slide freely on the main shaft but when rotated, the main shaft rotates also.

- 8. Selector forks and selector rods.
- 9. Bearings (plain ball bearings).
- 10. Reverse gear pinion

The primary shaft fits into a splined bearing on the main shaft, and runs freely.

Purpose of a Gear Box

- (1) To maintain engine revolutions.
- (2) To provide a neutral position.
- (3) To provide a reverse gear.

Gear Reduction is obtained by a smaller pinion driving a larger gear.

Maintenance of Gear box. (1) all nuts & bolts tight.

- (2) See that gears are properly meshing.
- (3) Oil at correct level. Grade SAE 160.

Carrying personnel in backs of lorries.

Personnel shall sit back to back, feet towards the side boards.

10-12 cwt utilities	6 persons.
1 ton van	10 "
30 cwt short wheel-base	12 "
30 cwt long wheel-base	15 "
3 ton lorry	15 "

Under no circumstances are the above numbers to be exceeded.

Table of Maximum Speeds.

Motor-cycles.	45 mph.
Cars.	45 "
Vans:- 12-15 cwt.	30 "
" 1 ton.	25 "
Lorries. 30 cwt & 3 ton	25 "
" 4 wheels.	25 "
" 6 " (dual rear.)	20 "
Ambulances	35 "

Tractors (wheeled) or other vehicle, 15 to 20 "

(towing, pneumatic tyres or tractors 15)

Table of Maximum Speeds (continued)

Towing steel tyred field equipment on trailers	6-8 mph
Towing anti-aircraft trav. platform	12-15 "
Towing rubber padded wheeled medium artillery equipment.	10-12 "
Towing steel tyred art'y. equip't:	4-6 "
Tractors (caterpillar) towing medium artillery equipment.	3 1/2 "
Canonics m/gun. (tract.)	20. "
Tanks light. (")	20. "
" medium (")	8 "
Armoured cars.	25 "

March Discipline

March discipline includes everything that affects the efficiency of man or machine during the march e.g. arrangements for food, fuel oil & water, inspection of vehicles, proper loading of transport, strict observance of the correct distances & speeds and many similar details. Slackness in march discipline leads to discomfort of troops, congestion of roads, lateness of arrival and general inefficiency. All ranks must therefore maintain a high standard of march discipline and the longer and more trying the march, the more strictly must it be observed.

Organisation and Rules for Movement.

When moving a column of vehicles they are divided into blocks of five each block composed, as far as possible, of vehicles of similar type

A pace setter consisting of a chosen driver is detailed to lead and maintain the speed ordered. The O.C., out ahead in his car does not set the pace. He is free to act independently. The distance to be kept between vehicles is also laid down and should never be less than 20 yards. In Australia, the distance between vehicles is obtained by multiplying the speed in mph by 1.5. e.g. at 20 mph the distance is 30 yards.

A distance of 200 yards is to be kept between blocks. These distances are maintained in order to prevent sudden checks and allow overtaking vehicles to pass. They must, therefore, be kept as closely as the condition and gradient of the road permits. It is important that drivers maintain an even speed and avoid sudden changes of speed.

On the level, speed can be uniformly maintained

but it varies on hills. Such variations should be taken up gradually down the column. On approaching hills, the leading vehicle increases speed to get a run at the grade. The distance should be opened out to allow each vehicle to take the hill independently. About 200 yards after passing the crest, the leading vehicle must slow down so as to collect the column again. When approaching a town, level crossing, bridge, etc. the leading vehicle likewise slows up to close up the column. When the rear of the column is clear, the speed is again increased to normal. Double-banking of vehicles is forbidden. Every driver must know the route & destination. Guides will be placed at road intersections to direct the column. They will be dropped by the leading vehicle & picked up by the rear vehicle. Motor-cyclists may be usefully employed

on this duty. Touch must be kept from front to rear of the column. This is important. Vehicles passing dismounted troops should do so at a slow pace in order to minimize the discomfort caused them. The commander of a unit or sub-unit will decide as to the appropriate time to avert other traffic, taking into consideration the nature and width of the road, the amount of oncoming traffic & the length of his own column. The fact that the commander has decided to avert does not absolve each individual driver from the responsibility of deciding when he can avert with safety. Strict attention must be paid to signals and orders passed down the column and to the usual civilian traffic signals. In this respect each driver must act as if moving independently although he is part of a column.

of vehicles. A man should be detailed to ride in the rear of every vehicle to give the driver information of any vehicle wishing to pass and to report stoppages in rear. If this is not possible owing to loads, the rear vehicle of each group, at least, should carry this man at the rear.

Halts. A short halt will be made soon after starting to collect the column and make sure all engines are running satisfactorily. Thereafter, halts will be made as decided by the O.C. and may be prearranged on a time basis or decided by him whilst personally in lead of the column. When the halt is universal notice will be given by the signal "prepare to halt". Vehicles close up to a distance laid down generally 2 yards for wheeled vehicles and must pull well into the nearside of the road.

When there is danger from air observation advantage will be taken of all cover available on both sides of the road. Vehicles will be parked up at various angles, under trees etc, to break up the uniform appearance of the column. Halts will not be made on bridges or at road junctions. The nearest vehicle should not be less than 15 yards from any road junction, side turning or level crossing. Traffic control will be instituted at both head and tail of column and elsewhere as may be deemed necessary. A space should be left in the column for vehicles which have fallen out; vehicles rejoining the column at a halt will come up slowly into their places. During halts, NCO's & drivers will look around their vehicles and carry out the procedure of "inspect & maintain". Adjustments taking longer

than the period of the halt must be left to the fitter and must not delay the column.

Break-downs.

If a vehicle cannot keep its place in a convoy, the driver will pull into the side of the road and signal on the vehicles behind him. If the vehicle is capable of rapid repair, the vehicle will follow the column as soon as it is repaired. If repair is not possible the vehicle will either be taken in tow or left in charge of its driver until the aid of a breakdown lorry can be procured. In such cases the transport load or stores of the disabled vehicle if they are of an important or valuable nature should be transferred to a spare vehicle. If a vehicle breaks down on the roadway, it must immediately be hauled to the side of the road. Whenever possible a breakdown vehicle with fitters

and tools should follow in rear of the column, parking this, better personnel should well in the last being to assist drivers to deal with minor faults and casualties. A casualty will be either repaired on the spot or taken in tow by the breakdown vehicle. Breakdown vehicles should carry a red flag and will always be the last vehicle of the column on the road. It is a matter of "esprit-de-corp" to bring all lame ducks home to roost at the end of the day. Vehicles left behind after falling out must not be driven at a fast pace to try & catch up the column. They must wait until the next halt to regain their places. Motor cyclists travelling in rear should report breakdowns to the O.C. and report again when the vehicle has regained its place.

Turning about is often the cause of badly ditched vehicles. It should only be carried out on roads over 25' wide when there is little traffic and even then should be rarely be attempted. One vehicle only must be turned at a time. It is nearly always better to make a complete ~~about~~ circuit by leading the column round another road, if turning places have not been provided.

Night Movement.

M.T. can move at night at a slow pace with restricted lights and in some cases with no lights at all. It will be usual to have headlights and keep side & tail lights burning. Distances between vehicles must be closer than by day, but not less than 15 yards. Windcreens may be opened to aid vision of drivers and sheets of white paper pasted on the