SECTION P

LUBRICATION

Correct lubrication of any piece of mechanism is of paramount importance, and in no instance is it of greater importance than in the correct choice of lubricant for a motorcar engine. Automobile engines have different characteristics, such as operating temperatures, oiling systems, size of oilways, clearance and similar technicalities.

As a result of research and exacting tests in the lubrication of motorcar engines, Alexander Duckham & Co. Ltd., in conjunction with the Nuffield Organization Research Department, have developed a new rapid heat-dispersing stabilised oil called N.O.L. Engine Oil. It is a free-flowing oil at atmospheric temperatures ; it maintains faultless lubrication under peak loading conditions at high temperatures ; it releases more engine power.

This oil, together with the special N.O.L. " E.P." Transmission Oil developed concurrently, is recommended for use on Morris cars.

If the recommended oils are not available we approve the use of the equivalent grades of lubricant indicated subsequently in this section.

The engine is tested on N.O.L. Engine Oil and the sump filled with N.O.L. Engine Oil on leaving the factory. Its continued use is recommended.

Before any oil of different make is used the sump should be drained. It is bad practice to mix lubricants.

The following is a list of the oils recommended :—

Reference	*Component*	*Climatic Conditions*	*Recommended Oil*
A	Engine and Air Cleaner	Temperate and tropical	N.O.L. " Thirty " Engine Oil
		Extreme cold from 32° F. down to 0° F.	N.O.L. " Twenty " Engine Oil
B	Gearbox, Steering Gearbox, Rear Axle	Temperate and tropical down to 20° F.	N.O.L. " E.P." Transmission Oil 140
C	Wheel Hubs	All conditions	Duckham's " Adcol " H.B.B. Grease
D	Steering Connections, King Pins, Propeller Shaft, Shackles, Clevis Pins, Lever Fulcrums, Road Springs	All conditions	Duckham's " Laminoid " Soft or Duckham's " Adcol " H.P.G. Grease
E	Cables and Control Points	All conditions	Duckham's " ZNOL " K.G. 16
F	Oilcan and Carburetter Dashpot	All conditions	N.O.L. " Twenty " Engine Oil

EXTREME CONDITIONS

When conditions are not normal and are outside the temperature ranges indicated in the tables, refer to the special recommendations dealing with extreme conditions detailed below.

Extreme cold conditions

Where a car is operated in temperatures which are consistently below zero Fahrenheit, the use of an oil of lower viscosity than that recommended for normal use is desirable, and under such conditions the use of N.O.L. " Ten " Engine Oil is recommended.

Equivalent grades of other manufacture are :—

Duckham's " Adcol " N.P.O.
" Castrol " Z.
" Essolube " 10.
" Filtrate " (regd.) Sub-Zero.
" Mobiloil " Arctic Special.
" Motorine " 10.
Silver " Shell."
" Sternol " W.W. 10.

Similar considerations apply in the case of the gearbox, rear axle and steering gearbox, where N.O.L. " E.P." Transmission Oil 80 should be used when temperatures consistently below 20° Fahrenheit (−6.7° C.) are encountered.

Equivalent grades of other manufacture are :—

Duckham's " Adcol " X.S. Press 80.

" Castrol " Hi-Press 80.

" Essoleum " Expee Compound 80.

" Filtrate " (regd.) 80.

" Mobiloil " G.X.W.

" Shell " E.P. Spirax 80.

" Motorine " E.P. 80.

" Sternol " Liquid Ambroleum E.P.

Special conditions

N.O.L. " Forty " Engine Oil is available for special cases where heavy wear has taken place in an engine, rendering the continued use of a thin oil unsatisfactory.

Note.—The high-pressure oils recommended, produced by different makers, differ considerably in their composition, and it is dangerous to replenish the axle with a different make of oil from that already in use. If a new make of oil is introduced, the axle must first be drained thoroughly and completely of all the old lubricant.

OTHER OIL MANUFACTURERS' EQUIVALENT GRADES

Reference	A		B	C	D	E	F
Component	Engine and Air Cleaner		Gearbox, Rear Axle and Steering Gearbox	Wheel Hubs and Fan Bearings	Chassis, Greasing, Nipples, etc.	Cables and Control Points	Oilcan and Carburetter
Climatic Conditions	**Temperate and tropical**	**Extreme cold from 32° F. down to zero F.**	**Temperate and tropical down to 20° F.**	**All conditions**	**All conditions**	**All conditions**	**All conditions**
" ADCOL " (Alexander Duckham & Co. Ltd.)	Duckham's " Adcol " N.P.X.X.	Duckham's " Adcol " N.P.X.	Duckham's " Adcol " X.S. Press 140	Duckham's " Adcol " H.B.B. Grease	Duckham's " Adcol " H.P.G. Grease	Duckham's ZNOL K.G.16 Grease	Duckham's " Adcol " N.P.X.
" CASTROL " (C. C. Wakefield & Co.)	" Castrol " X.L.	" Castrolite "	" Castrol " Hi-press	" Castrolease " Heavy	" Castrolease " Medium	" Castrolease " Brake Cable Grease	" Castrolite "
" ESSOLUBE " (Anglo-American Oil Co.)	" Essolube " 30	" Essolube " 20	" Essoleum " Expee Compound 140	Esso-Grease	Esso-Fluid Grease	Anti-freeze Grease	" Essolube " 20
" FILTRATE " (Edward Joy & Son Ltd.)	Medium " Filtrate " (regd.)	Zero " Filtrate " (regd.)	E.P. " Filtrate " (regd.)	" Filtrate " (regd.) R.B. Grease	High Pressure Solidified " Filtrate " (regd.) Oil	" Filtrate " (regd.) A.F. Grease	Zero " Filtrate " (regd.)
" MOBILOIL " (Vacuum Oil Co. Ltd.)	Mobiloil " A "	Mobiloil " Arctic "	Mobiloil " E.P."	Mobil Hub Grease	Mobilgrease No. 4	Mobilgrease No. 4	Mobiloil " Arctic "
" MOTORINE " (Price's Lubricants Ltd.)	Price's " Motorine " " M "	Price's " Motorine " " E "	Price's " Motorine " " E.P."	Price's " Belmoline " " C "	Price's " Belmoline " " D "	Price's " Belmoline " " H "	Price's " Motorine " " E "
" SHELL " (Shell Mex & B.P. Ltd.)	Double " Shell "	Single " Shell "	" Shell " Spirax E.P. 140	" Shell " Retinax R.B.	" Shell " Retinax C	" Shell " Retinax C	Single " Shell "
" STERNOL " (Sternol Ltd.)	" Sternol " W.W. 30	" Sternol " W.W. 20	" Sternol " Liquid Ambroleum E.P. 140	" Sternol " R.B. Grease	" Sternol " M.M. Grease	" Sternol " Anti-Freeze Grease	" Sternol " W.W. 20

NOTE :—It is bad practice to mix lubricants, particularly the high-pressure types now in use for rear axles, as they differ considerably in their composition. It is therefore dangerous to replenish the axle with a different make of oil from that in use without first draining off the axle. It is also advisable to carry out a similar procedure in the case of the other components.

EVERY 1000 MILES (1600 km.)

Inspect fluid level in brake supply tank on dash, and replenish if necessary with Lockheed Orange fluid.

Use oilcan on all brake lever joints and adjusting threads, also on control joints, door locks and hinges.

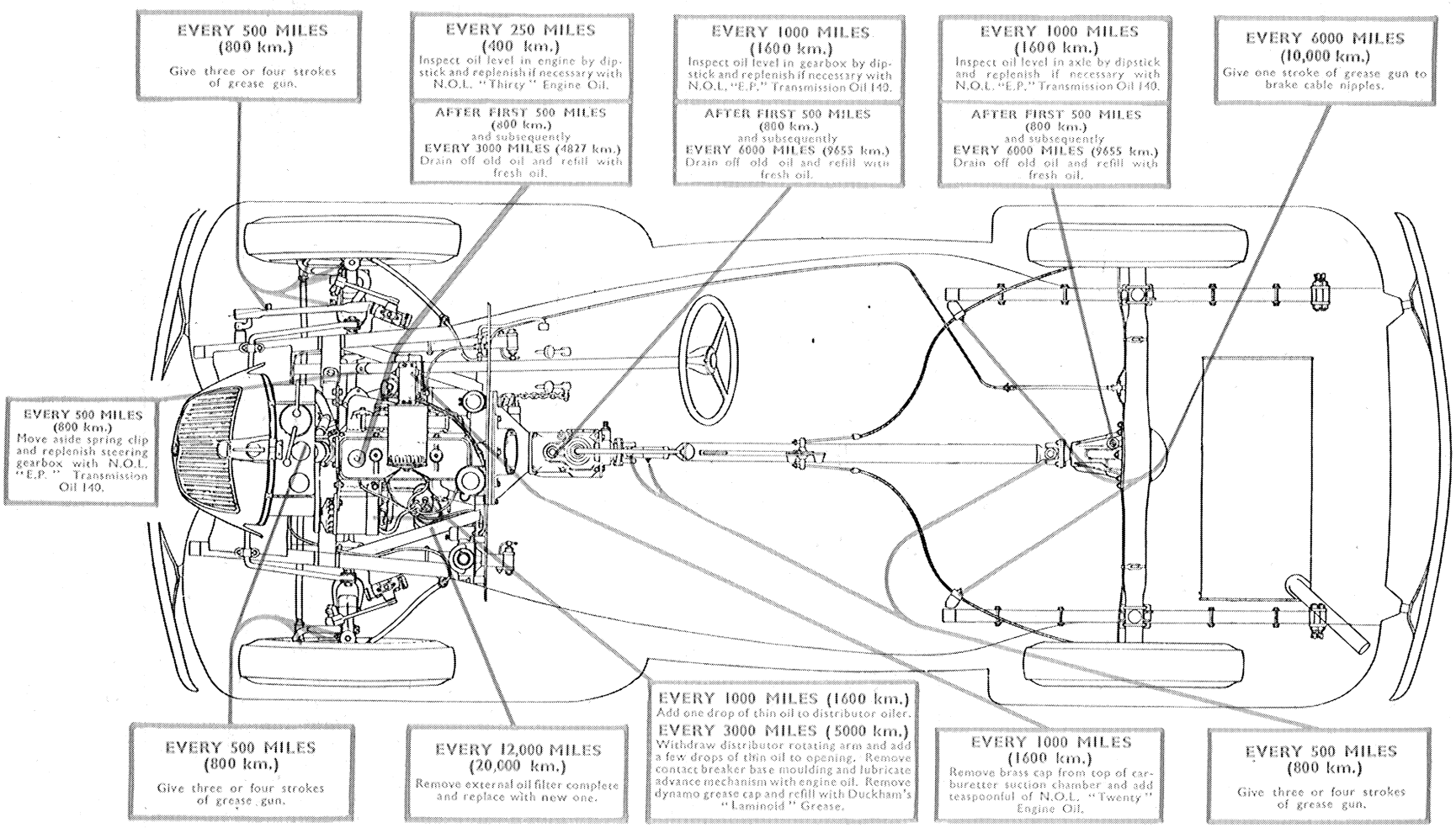
EVERY 6000 MILES (10,000 km.)

Remove, clean and re-oil engine air cleaner.

Remove wheel hub discs and give hub nipple one stroke with grease gun.

EVERY 12,000 MILES (20,000 km.)

Examine fluid level in shock absorbers, and replenish with Luvax piston-type fluid if necessary.



NOTE :—In extreme conditions of cold consistently below 32° F. (0° C.) and down to 0° F. (—17.8° C.) use N.O.L. "Twenty" engine oil in engine.

In extreme conditions of cold consistently below 0° F. (—17.8° C.) use N.O.L. "Ten" engine oil in engine.

In extreme conditions of cold consistently below 20° F. (—6.7° C.) use N.O.L. "E.P." transmission oil 80 in gearbox, steering gearbox and rear axle.