

Lubrication and Maintenance

Job-No.

00 — 5

A. Lubricating Points

The vehicle is provided with the following grease fittings:

Front Axle:

- a) Two front nipples each and two rear nipples each at the support for the left and right control arms.
- b) Three nipples at the left and at the right steering knuckle.
- c) One nipple at the bearing of the steering relay arm.
- d) Two nipples each at the ball heads of the left and right tie-rod and of the center tie-rod.

Pedals:

Two nipples

Propeller Shaft:

- a) One nipple at the front of the flange.
- b) One nipple at the center of the universal joint and at the bearing.
- c) One nipple at the rear of the universal joint and at the slip coupling.

Rear Axle:

Two nipples

Hand Brake Cable:

One nipple left and right

Front and Rear Doors:

Left and right two nipples each

B. Oils and Greases for the Various Assemblies

The following oils and greases should be used for lubricating the various assemblies:

Engine:

maximum 4 liters engine oil
minimum 2.5 liters

Cooling Water Pump:

10 cc Hypoid Oil SAE as for the rear axle

Distributor:

for the lubricator engine oil
for the felt in the cam bore engine oil
for the grease sliver in the sliding rotor heel
..... BOSCH Ft 1 v 4 lubricating grease

Generator:

Engine oil

Transmission:

1.4 liters transmission fluid irrespective of the season

Front Wheel Hubs:

Each hub 65 g anti-friction bearing grease

Rear Axle:

2.25 liters Hypoid Oil SAE 90 irrespective of the season

Steering:

0.35 liters ATE original blue brake fluid or Lockheed brake fluid

Flash Direction

Signal Switch:

1 g Kollag grease M 1/2

Starter Cable,

Heater Cable:

Shell-Ambroleum cable grease

**Grease Nipples at
Front Axle, Rear Axle
and Propeller Shaft:**

Door Hinges:

**Trunk Compartment Lid
and Engine Hood Hinges:**

Anti-friction bearing grease

Details of types and makes of suitable and approved lubricants are given in our brochure "Fuels and Lubricants" (Betriebsstoffe). Our Export Service Department will gladly give any information required on the subject.

C. Lubrication and Maintenance Care

a) Initial Lubrication and Maintenance Procedure

After the first 50—100 km:

Check all wheel nuts for tightness and re-tighten, if necessary.

After the first 500 km (Service Book Sheet No. 1):

1. Clean wire coil in oil filter.
2. Drain engine oil (while oil is still **hot**) and replace with new oil (4 liters plus $\frac{1}{2}$ liter if oil filter is cleaned at the same time).
3. Drain oil in transmission case (while oil is still **hot**) and replace with new oil. Before draining, check oil level (must come up to filler hole); in case of oil loss, check for leaks.
4. Drain oil in rear axle housing (while oil is still **hot**) and replace with new oil. Before draining, check oil level (must come up to filler hole); in case of oil loss, check for leaks.
5. Check oil level in oiler at distributor and top up if necessary.
6. Check tappet clearance and readjust, if necessary.
7. Check the tension of the fan belt, re-tighten, if necessary.
8. Carburetor: Check all pipe unions, the screws at the cover of the start mechanism, the fixing nuts at the carburetor flange, the carburetor cover screws, the jet screws and the check valve at the foot of the accelerating pump for tightness and, if necessary, carefully re-tighten them evenly all round. Check oil level in shock absorber and, if necessary, top up.
9. Clean fuel filter element.
10. Clean the screen in the fuel pump.
11. Test foot and hand brake, readjust hand brake if necessary.
12. Check wheel nuts for tightness and re-tighten if necessary.
13. Check tire pressure and correct if necessary.

After the first 2000 km (Service Book Sheet No. 2):

1. Drain engine oil (while oil is still **hot**) and replace with new oil.
2. Check the tension of the fan belt, re-tighten if necessary.
3. Check all nuts of intake and exhaust manifold for tightness and re-tighten, if necessary.
4. Carburetor: Check all pipe unions, the screws at the cover of the start mechanism, the fixing nuts at the carburetor flange, the carburetor cover screws, the jet screws and the check valve at the foot of the accelerating pump for tightness and, if necessary, carefully re-tighten them evenly all round. Check oil level in shock absorber and, if necessary, top up.
5. Check contact gaps in the distributor and adjust if necessary; do not file contact points. Under no circumstances re-oil the felt in the cam bore before the car has done 24 000 km, since this may cause the contact points to foul up.
6. Check wheel nuts for tightness and re-tighten if necessary.
7. Check tire pressure, correct if necessary.
8. Check toe-in and camber and adjust if necessary.

9. On sliding-roof version: retighten the screws at the sliding-roof slide rails and grease the slide rails.
10. Grease the engine hood hinges, engine hood safety hook, door hinges and trunk compartment lid hinges.
11. Check and grease the door check mechanisms.
12. Apply a little talcum to rubber draft excluders of the doors but do not in any case clean them with solvents or gasoline.
13. Test foot and hand brake on a test run.
At the same time give attention to body noise. Eliminate noise if any and re-tighten the set collars at the lock bolts if necessary.
Readjust hand brake and bleed brake system if necessary. If an ATE Power Brake T 50 is installed, this should also be bled.

After the first 4000 km (Service Book Sheet No. 3):

1. Carry out all lubricating and maintenance operations due every 4000 km.
2. Replace the paper element of the oil filter.
3. Check toe-in and camber and adjust, if necessary.

b) Regular Lubrication and Maintenance Care

Mileage	Location	Job
1)	Tires Crankcase	Check tire pressure and adjust if necessary. Check oil level and top up if necessary; do not exceed prescribed maximum.
4000 km	Oil filter ²⁾ Crankcase ²⁾ Front axle ³⁾ Pedals ³⁾ Rear axle ³⁾ Propeller shaft ³⁾ Joints for pedals and steering column gear shift and levers, cables, and linkages for hand-brake and carburetor Lines, connecting hoses and connections for engine oil, cooling water, fuel, brake fluid and vacuum ⁴⁾ Clutch Fuel filter Fuel pump Fan belt Exhaust pipe Exhaust manifold Battery ⁵⁾ Electrically-operated units Brakes Brake fluid reservoir	Clean wire coil. Drain oil with engine warm and replace (4 liters + ½ liters if oil filter is cleaned at the same time. Check the sealing ring of the drain plug for serviceability and, if necessary, replace. Use a grease gun to force grease into the following 21 grease nipples; the grease fittings should be cleaned beforehand: a) At the support for the right control arms 2 nipples in front and 2 nipples at the rear; b) At the support for the left control arms 2 nipples in front and 2 nipples at the rear; c) 3 nipples each at the right and left steering knuckle; d) 1 nipple at the bearing of the steering relay arm; e) 2 nipples each at the ball heads of the left and right tie-rod and of the center tie-rod. Use a grease gun to force grease into the grease nipples; the grease fittings should be cleaned beforehand. Grease. Front: the grease nipple at the flange. Center: the grease nipple at the universal joint and the grease nipple in the bearing. Rear: the grease nipple in the universal joint and the grease nipple at the splineway; do not overgrease at the splineway. Check and grease. Check for leaks, chafed spots and depressions. Check clutch pedal free play and adjust if necessary. Clean element. After backing out the fixing screw for the cover 2 turns, unscrew the plug and drain the water. Check tension and if necessary, retension. Check flange nuts at exhaust manifold for tightness and retighten if necessary. Clean heater valve shaft at the bearing surfaces by spraying with crude oil or penetrating oil and free up. Check acid level and acid density. Check for proper operation. Check foot brake and hand brake for proper operation and, if necessary, adjust hand brake. Check fluid level and, if necessary, fill up to 1 cm below the edge; if there is any major loss of fluid, check the brake system for leaks.

1) From time to time and before every long journey.

2) Every 2000 km when driving in cities only or on very dusty roads; observe specified grades of viscosity.

3) Every 2000 km on muddy roads or on slush-covered roads and also on very bad roads.

4) If an ATE Power Brake T 50 is installed.

5) At least every 4 weeks.

Mileage	Location	Job
8 000 km	Front ventilator ducts Oil filter Distributor Spark plugs Valves Fuel pump Transmission case Rear axle housing Road wheels ¹⁾ Road wheels Seats Window channels Door weather strips Door hinges Door locks, hood lock and trunk compartment lock Hood hinges, safety hook of the hood and hinges of the trunk compartment lid	Clean insect screen. Replace paper element. Check breaker contacts for dirt and correct gap and, if necessary, adjust. Clean and check electrode gaps. Check tappet clearance and adjust, if necessary. Check compression. Clean screen in cover. Check oil level (must come up to filler hole); in case of oil loss, check for leaks. Check oil level (must come up to filler hole); in case of oil loss, check for leaks. Balance and rotate ¹⁾ according to the diagram on Page 40 — 0/4. Check toe-in and camber and adjust if necessary. Re-tighten screws for seat rails. Clean and dust; keep free from grease. Remove rubber abrasion at folded plate by means of gasoline. Powder rubber draft excluders with talcum; under no circumstances clean with solvents or gasoline. Force grease into the grease nipples and re-tighten fixing screws. Check and if necessary re-tighten fixing screws at door locks and lock bolts, and if necessary also re-tighten set collars at lock bolts. Clean each of the hood lock and of the trunk compartment lid lock with gasoline, carefully grease, but do not put any oil in the keyholes ²⁾ . Keep the lock bolt of the door locks clean and free from oil, check the lock plate of the trunk compartment lid lock and adjust if necessary. Grease. Re-tighten lock fastening screws of the hood.
16 000 km	Battery Spark plugs Water pump Carburetor Intake and exhaust line Fuel pump Shock absorbers Main silencer Nuts, screws and cotter pins of steering, engine mounting, propeller shaft, and rear axle housing Hand brake cables	Clean terminals, check for tightness, and grease with acid-resisting grease. Replace Check oil level and top up if necessary. Clean and check. Check injection amount of accelerating pump. Check all pipe unions, the screws at the cover of the start mechanism, the fixing nuts at the carburetor flange, the carburetor cover screws, the jet screws and the check valve at the foot of the accelerating pump for tightness and, if necessary, carefully re-tighten them evenly all round. Check oil level in shock absorber and if necessary top up. Check all nuts for tightness and re-tighten if necessary. Check fixing nuts for tightness and re-tighten if necessary. Check for oil leaks. Only check the lower fixing nuts for tightness. Clean the bores at the bottom of the casing. Check over a pit or on a lifting platform and if necessary retighten nuts and screws. Apply some grease to the grease nipples.

¹⁾ Every 4000 km in exceptionally hot weather and continuous fast freeway driving.

²⁾ These locks can be provided with flake graphite (Edelgraphit-Gesellschaft mbH Godesberg Rhine).

Mileage	Location	Job
16 000 km	Front wheel bearings Transmission case Rear axle housing Steering housing ATE Power Brake T 50 ¹⁾ Windshield wiper ²⁾ Headlights	Replenish grease. Oil change (while oil is still <i>h o t</i>). Before draining check oil level (must come up to filler hole); in case of oil loss, check for leaks. Oil change (while oil is still <i>h o t</i>). Before draining check oil level (must come up to filler hole); in case of oil loss, check for leaks. Check oil level. Remove air cleaner and replace filter element. Grease linkage. Check adjustment.
24 000 km	Air cleaner ³⁾ Distributor Cooling system Brakes	Replace paper element and wash out housing with a gasoline-soaked cloth. Fill up oiler with engine oil. Remove distributor cap and rotor arm and put 3—4 drops of engine oil on the felt in the cam bore. Caution! Do not overlubricate since otherwise the contacts may foul up. Lightly grease distributor cam and check the grease sliver in the sliding heel, if necessary renew with Bosch grease Ft 1 v 4. Flush out and re-fill with treated water. Remove brake drums. Smooth the lining surfaces with emery cloth. Check drums, brake linings and dust caps of the wheel cylinders. Remove abrasion dust.
48 000 km	Distributor Generator Steering tube Tie-rods Brakes Road wheels Flash direction indicator switch	Check. Remove. Check collector for proper operation and, if necessary, turn off. Clean brush holders and replace brushes. Check jointing disk and replace if necessary. Check steering for play and adjust if necessary. Check joints and seals. Check brake master cylinder and brake wheel cylinders for leaks. Check power brake ¹⁾ for vacuum and leaks. Check for external damage. Grease notch plate and roller.
96 000 km	Rear wheel ball bearings	Replenish grease.

¹⁾ Installed only as an optional extra.

²⁾ It is also advisable to replace the rubber parts of the windshield wiper blades at intervals of 6 to 12 months, depending on the degree of wear.

³⁾ Only if the car is regularly driven over dusty roads.

D. Lubrication and Maintenance Chart

