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SPECIFICATIONS

LICENCE DATA

Serial number on the engine is stamped as shown in fig. 1

Serial numbers on the body are stamped as shown in fig. 2

CAR DIMENSIONS

As shown in fig. 3

ENGINE

SPECIFICATIONS

The two-stroke engine has two cylinders inclined 20° to the left and is air-cooled.

Engine, gearbox and rear axle forms a removable unit.

Bore and stroke : 63 mm (2 1/2")

Displacement : 393 cc (24 cu.in)

Compression ratio : 6.8/1

CYLINDERS

The cylinders are made of special cast iron and have exhaust ports and cooling fins.

CYLINDER HEADS

The cylinder heads are made of light alloy. The explosion chambers are complexformed with central spark plugs. There are no gaskets between cylinder heads and cylinders.

PISTONS

The pistons are made of light alloy and have a complex section.

CONNECTING RODS

The connecting rods are made of forged steel. The crankpin is force-fitted into the crankshaft webs. The big-end of the connecting rods is fitted on the crankpin by means of a roller-retainer. The small-end is fitted on the piston pin by means of a needle-retainer.

CRANKSHAFT

The crankshaft is made of forged steel and can be completely disassembled. The crankshaft is supported by two roller-bearings and a central ball-bearing.

DISTRIBUTION

Intake is provided by the crankshaft, who by its rotation opens and closes the intake ports in the crankcase, the transfer and exhaust by the piston ports and cylinders.

Inlet opens :	115° before TDC
Inlet closes :	60° after TDC
Exhaust opens :	70° before BDC
Exhaust closes :	70° after BDC
Transfer canals open :	54° before BDC
Transfer canals close :	54° after BDC

LUBRIFICATION

The engine lubrication is provided by the presence of oil in the fuel mixture.

CARBURETOR

The SOLEX AHCD 26 is of the horizontal type - The choke is hand controlled.

IGNITION SYSTEM

Each cylinder has its own ignition system : coil-contact breaker - condenser and spark plug. The centrifugal advance is mounted directly at the end of the crankshaft.

CRANKCASE

The crankcase is made of light alloy and consists of two parts.

TRANSMISSION

CLUTCH

Single dry plate type.

GEARBOX

The gearbox is located on the front of the engine.

It has three forward gears and a reverse gear.

Second and third gear are synchronised.

The differential assembly is incorporated in the gearbox.

Gear ratios :

First gear : 0,324 to 1 3,27 to 1

Second gear : 0,63 to 1 1,59 to 1

Third gear : 1,035 to 1 0,96 to 1

Reverse gear : 0,324 to 1 3,27 to 1

Rear axle ratio : 9/40 (Gleason)

REAR AXLE FRONT END STEERING LINKAGE

REAR AXLE

Independent wheels fitted on oscillating triangles linked by means of silentblocs - helicoidal

springs - telescopic, hydraulic shock absorbers situated in the centre of the above mentioned springs.

FRONT END

Independent wheels - helicoidal springs - telescopic, hydraulic, double acting shock-absorbers

STEERING LINKAGE

Rack system.

BRAKE ASSEMBLIES

The main brakes are hydraulic, operated by a pedal and control the four wheels.

The parking brake is mechanical and controlled by a cable with a differential system to balance

the brakes on the rear wheels.

Total braking surface : 64 sq. in 412 cm².

WHEELS AND TYRES

Five wheels with 4.40 x 10 tyres ; low pressure.

Inflation pressure		
Front 19	Rear 14	Spare-Wheel 19

ENGINE ASSEMBLY

REMOVAL OF ENGINE - GEARBOX REAR AXLE UNIT

- Disconnect the air-cleaner hose from the carburetor.
- Disconnect the throttle — choke — and startermotor cables.
- Disconnect the flexible brake hoses from the rear three-way union.
- Remove the bolts of the rear shockabsorbers.
- Disconnect the speedometer cable, fuel hose and spark-plug cables.
- Remove the rear cover.
- Remove the muffler.
- Disconnect the brake — and clutch control-cables.
- Disconnect the gearshift. 10.550 P from the gearshift 10.549 P.
- Disconnect the ignition — and startermotor wires.
- Unscrew the bolts assembling the gearbox/engine to the carrier.

REMOVAL OF GEARBOX/ENGINE ASSEMBLY

- Disconnect the air cleaner hose, throttle - choke - startermotor - and sparkplug cables, ignition wires and muffler.
- Remove the cover 12387 P from the gearboxcarrier.
- Remove the rearcover.
- Lift up the engine assembly by its hanging-point.
- Unscrew the bolts and the two stud nuts assembling the engine to the gearbox.
- Take care during the engine removal, that the engine is not leaning upon the gearbox mainshaft 12.379.

ENGINE DISASSEMBLY

- Place the engine on the support (Tool N° 1102 fig. 5).
- Remove the spark-plugs.
- Remove the ignition system cover and sparking distribution carrier.
- Remove the belt.
- Remove the centrifugal advance.
- Remove the carburetor.
- Remove the crankshaft-pulley by means of tool N° 1138.
- Remove the generator.
- Unscrew the nuts securing the fan-housing to the cylinder-assembly, remove the plate assembling fan-housing and exhaust manifold.
- Remove the fan-housing.
- Remove the clutch and the flywheel by means of tool N° 1118 - Fig. 6.
- Remove the cylinder-heads.
- Remove the cylinders and mark them.
- Remove the piston pin retainers Z. 7361.
- Remove the piston pin by means of toll 1115.
- The pistons are to be marked as they are to be re-installed in the same cylinder.
- Remove the upper-part of the crankcase by means of tool N° 1111.
- Remove the crankshaft.
- DURING ALL THESE OPERATIONS CARE MUST BE TAKEN THAT THE JOINING SURFACES BETWEEN UPPER CRANKCASE/CYLINDERS AND BETWEEN THE TWO CRANKCASE PARTS ARE NOT INJURED.

ENGINE ASSEMBLY

For assembling execute the reverse of the disassembly operations.

— Heat the crankcase parts about 15 minutes to a temperature of 250° F. Clean the joining surfaces and apply liquid joint (Hermetic).

— Install the crankshaft and control its free rotation.

— Place the upper part of the crankcase on the lower part. Before locking the ten bolts assembling the crankcase parts, put the spacers N° 10.373 and the seals N° 10.266 in place.

— Lock the ten bolts progressively as shown in fig. 7.

— New gaskets are to be placed between the crankcase and cylinders, after application of a liquid crankcase joint on both sides ("L'Hermetic").

— The pistons are to be placed in the corresponding cylinders and have to be so oriented, that the piston ring thrusts are on the opposite side of the exhaust ports.

By installing the cylinder heads care must be taken to place the hollow side of the explosion-chamber opposite exhaust side of the engine.

Grease the interior felt in the clutch side end of the crankshaft with ESSO SAE 140.

PISTON OR CYLINDER REPLACEMENT.

In case of replacement of a piston or cylinder, care should be taken that these parts belong to the same category.

Pistons are classified in categories after their outside diameter by a letter, which will be found on the lower inside of the piston.

Cylinders are classified after their bore by a letter, which will be found at the upper side of the cylinder.

It is necessary to install a piston of category A with a cylinder of category A, a piston of category B with a cylinder of category B and so on.

When installing oversize pistons and cylinders, the category-letters are followed by a number 1, 2 and 3 for first, second and third oversize. A piston A1 will be installed with a cylinder A1, a piston B1 with a cylinder B1 and so on.

PISTON RINGS.

Part number of piston rings are :

10529	for piston with original diameter
11883	» » » first oversize
11884	» » » second oversize
11885	» » » third oversize

FUEL SYSTEM CARBURETOR

SPECIFICATIONS

The SOLEX Carburetor (type 26 ACHD) (fig. 8) incorporates a "choke valve" as starting device.

The choke ensures starting, idling and driving away when the engine is cold. It may be used when the engine has not reached its normal working temperature. When the choke is in the "rich" position, the air valve closes completely the air openings in the choke valve and the maximum richness compatible with the size of the fuel jet is obtained. Once the engine is running, manifold depression lifts the air valve and uncovers the air orifices, which has the effect of weakening the mixture.

When the choke is in the intermediate position, which is indicated by a location of a lever, the holes drilled in the choke valve bring about a weakening of the mixture.

SLOW RUNNING

The slow running feeding of the engine is ensured by the slow running jet (g). The slow running speed adjustment screw allows the speed of the engine to be varied, and the volume control screw (w) allows variation of the slow running jet's delivery of fuel, allowing the richness of the mixture to be corrected with accuracy.

NORMAL RUNNING

For normal running, the fuel is provided by the main jet (Gg) and the air by the choke tube (K). The correct balance is automatically ensured by air entering through and being calibrated by the correction jet (a). Underneath the correction jet

is a tube called the " emulsion tube " (s), with lateral openings. The calibration of this part should not be touched.

The emulsion tube is combined with the correction jet.

MAINTENANCE

Clean periodically, whenever possible with compressed air, the jets and channels in the carburetor as well as the filter gauze.

IGNITION

Seeing the engine, ignition-side, the left breaker corresponds to the cylinder N° 1.

IGNITION REMOVAL

— Remove the ignition cover.

NOTE : It is possible to remove the breaker support and its carrier only by unscrewing the three screws Z. 3310 K. and the three nuts Z. 7318 K. or the whole assembly by unscrewing the carrier nuts.

— Remove the centrifugal advance system on the pulley by unscrewing the two screws Z. 3202 K.

— After re-assembling, the red mark on the cam must be at the same side as the red mark on the counter-balance.

KEY TO FIGURE N° 9

1. Three advance adjusting screws for cylinder N° 1.
2. Point spacing adjustment screw for cylinder N° 1.
3. Point spacing adjustment screw for cylinder N° 2.
4. Two advance adjusting screws for cylinder N° 2.
5. Stationary contact plate cylinder N° 2.
6. Stationary contact plate cylinder N° 1.
7. Advance adjusting plate cylinder N° 2.
8. Primary coil terminals.

POINT SPACING AND ADVANCE ADJUSTMENT

— Turn the cam until the beaker-points of cylinder N° 1 are fully opened.

— Adjust point spacing at 0,16" (0,4 mm) by means of screws Nb. 2.

— Adjust point spacing of cylinder N° 2 by means of screws N° 3.

— Connect a 12 V. bulb between the primary coil terminal of cylinder N° 1 and earth, turn the ignition key.

— When the (single) timing-mark A on the pulley (Fig. 10) is corresponding with the mark B on the distributor carrier, the light of the bulb is going out.

If this result has not been obtained, unscrew the screws N° 1, turn clocks-wise completely and return until the light is going out.

— For cylinder N° 2.

Connect the bulb between the primary coil terminal of cylinder N° 2 and earth.

When the (double) timing-mark C on the pulley (Fig. 11) is corresponding with the mark B on the distributor-carrier, the light of the bulb is going out. If this result has not been obtained, unscrew the advance adjusting plate (7) and follow the above-mentioned procedure.

ENGINE - GEARBOX - SUSPENSION REASSEMBLY

Fit the engine/gearbox/suspension unit under the body by introduction of the gear-shift 10.549 P in the central body-tunnel first of all.

— Fit lower shockabsorber bolts.

— Connect the speedometer cable and tighten the bolt Z. 7283 K.

— Connect parking brake cable on the left and right, just before locking shoe assemblies. Check if the cable is well mounted on the pulley of the hand brake lever.

- Connect the clutch cable to the clutch lever.
- Reconnect the throttle - and choke cables, by conducting them through the two holes in the rear panel (choke-cable under throttle-cable).
- Reconnect the shift-levers 10549 P and 10.550 P.
- Reconnect the flexible brake hoses to the rear three-way union.
- Reconnect the starter-motor cable and wire. Pass cable through the special trip on the gearbox cover.

- Fit the heater hose.
- Reconnect the two primary coil wires, the generator - and spark plug cables.
- Reconnect the air-cleaner hose.
- Fit the muffler, rear cover and bumper.
- Reconnect the licence-plate light wire.
- Bleed the brake system (See " BRAKES ").

TORQUE LIMITS

Central flywheel nut Z. 7350	58 Ft.lbs
Central pulley nut Z. 7249 K	32,5 Ft.lbs
Cylinder head nuts Z. 1101 K	21 Ft.lbs
Crankcase assembly nuts Z. 1100 K	8 Ft.lbs

CLUTCH - GEARBOX - DIFFERENTIAL

CLUTCH

CLUTCH ASSEMBLY AND CLUTCH DISC REMOVAL

NOTE : The position of the clutch assembly on the flywheel must be marked before removal.

For removal unscrew the six screws fitting the assembly to the flywheel.

PARTS INSPECTION

Inspect the disc for worn, loose, oil soaked facings, loose rivets and distortion.

Inspect the disc for sliding freely on the main shaft.

CHECKING CLUTCH ADJUSTMENT

(Fig. 12)

Reinstall the clutch assembly on the flywheel. Place the flywheel on a flat groundplate.

Adjust a dial-indicator at $2 \frac{3}{32}$ " (53 mm.) and check the distance between the upper face of the thrust-bearing and the groundplate on the three points of the bearing just overagainst the clutch release levers.

(Clearance 005"). The admitted distance is from : $2 \frac{3}{32}$ ".

(53 mm.) new to $2 \frac{13}{64}$ " (56 mm) used. If the distance exceeds $2 \frac{1}{4}$ " the disc has to be replaced. In case of replacing and if the thrust bearing is not parallel to the groundplate, adjust as follows.

Remove the assembly from the flywheel, remove and replace the screws Z. 7233 K and nuts 10.229 K.

Adjust by means of these screws and do not omit to secure the nuts 10.229 K.

REASSEMBLY

Use tool MT 1120.

Place the clutch assembly respecting the marks made before removal.

Fix it with two screws.

— Centre the clutch-disc by means of tool MT. 1117 (Fig. 13).

— Secure the assembly by tightening progressively.

GEARBOX - DIFFERENTIAL

REMOVAL

— Remove the wheels.

— Remove engine/gearbox/suspension unit.

— Remove the engine.

— Tighten the parking-brake and remove the two nuts securing the axle-shafts on the rubber universal joints (10.231)

— Remove the suspension-triangles, by driving out the two horizontal pivoting bolts.

— Remove the gearbox by unscrewing the nut securing the gearbox-nose (under the two springs) and the four nuts securing the gearbox by means of rubber blocks to the carrier.

Place the gearbox on the tool N° 1140.

— Remove rubber protection.

— Remove starting-motor.

— Disassemble the two rubber universal joints by driving out the cotter-pins and unscrewing the nuts.

GEARBOX DISASSEMBLY

— Remove the lockwasher, unscrew the nut while blocking the flange by means of tool MT. 1073 (Fig. 14).

- Remove the flange.
- Remove the upper cover of the gearbox, do not injure the gasket.
- Unscrew the six nuts of the differential cover.
- Remove the differential by means of tool 1060.
- If the right ball bearing is remaining in its housing it has to be removed by means of tools 1060 and 1082 (Fig. 15 - 16).

CARE MUST BE TAKEN THAT THE JOINING SURFACES OF THE DIFFERENTIAL COVER AND GEARBOX ARE NOT INJURED.

- Remove the springs of the gearbox-nose.
- Select the gears in neutral position.
- Remove the gearshift 10.549 P.
- Remove the gearbox-nose (10.060) and its gasket).

Reverse idler gear.

- Remove the reverse idler gear and shaft by means of tools 1051 and 1052.
- Take away the reverse idler gear and its thrust washers.

Main drive shaft.

- Remove the clutch release lever and release bearing by unfastening the two springs. The pivot axle must be removed downward.

— Unscrew the nut of the main drive shaft, keeping it from turning by means of tool 1074 placed between the two supports of the clutch release lever (fig. 18).

— Unscrew the nut of the intermediate ball bearing by means of the same use of tool MT. 1074 as above (Fig. 19).

— Unscrew the two retaining bolts of the two ball-bearing fixing strips.

— To remove the main drive shaft, place the tool 1062 between the seal (clutch side) and the nut of the intermediate ball bearing. Place the tool 1057 between the central wall and the third gear.

Remove the shaft by acting on tool 1055 (Fig. 20).

Remove the lockwasher, the third gear and its key.

NOTE : As soon as the seal is removed, take away tool 1062.

— Remove the ball-bearing from the shaft by means of a press and tool 1076.

— Remove the spacer, second gear and its key. Bevel pinion.

Remove the ball retaining plate 10.248, its gasket, the two springs and the balls.

— Unscrew the screws fitting the forks on the selector-shafts and remove the shafts.

— Remove the gear lock plunger between the selector-shafts.

— Unscrew the nut retaining the bevel pinion while keeping the first gear from turning by means of tool 1054 (Fig. 21).

— Remove the bevel pinion by means of tool 1055. Remove the bevel pinion through the differential-opening.

— Gather all parts remained in the gearbox.

— If necessary remove the ball-bearings 10.230 and 1511 by means of tool 1055 and its two washers (small diameter for the upper bearing, large diameter for the lower bearing) and fork-washer.

— The bevel pinion bearing is always removed with the shaft. Use a press and tool 1080 for its removal.

GEARBOX REASSEMBLY

Synchronizer.

Place the three strips 12.158 on the hub 12.159 and place this assembly on tool 1053.

Place the three rollers 10.262 and operating sleeve 10.016 by pushing it with a sudden knock.

Maintain the sleeve with the hub by means of tool 1056 placed in front of the key groove.

Bevel-pinion.

— Place the washer 10.836 on the bevel pinion.
— Press the ball-bearing 10.267 in position by means of tool 1059.

— Place the guide-sleeve 10.012 with its key, the spacer 10.219 and the key of synchronizer.

— Introduce the bevel pinion in the gearbox through the differential opening and place on it :

— The first gear (groove on the ball-bearing side).

— The second gear on its spacer (bevel side toward synchronizer). Synchronizer stop ring, the synchronizer still maintained by tool 1056.

Place the second stop ring and spacer on the third gear and fit the assembly on the bevel pinion.

— Place the washer 10.246 and draw the bevel pinion in the ball bearing 10.230 by means of tool 1061 (Fig. 22).

— Place lockwasher and tighten the nut keeping the bevel pinion from turning by means of tool 1054 acting on the first gear.

— Secure the nut.

— If the bevel pinion is not easy-turning give a slight plat on the tool 1147 mounted on the ball bearing groove 10.267.

— Put the selector-fork in the first gear and pass the selector shaft through the fork.

— Secure the fork-retaining screw.

— Place the gear lock plunger by means of tool 1065.

— Select gears in neutral position.

— Put the other fork in the synchronizer groove and place the selector-shaft.

— Secure the fork retaining screw.

— Reinstall the two balls, the springs, the gasket and the ball retaining plate.

Main drive shaft.

— Fit the front ball-bearing by means of a press in its housing.

— Fit the ball-bearing 10.268 on the main drive shaft by means of a press and tool 1076.

— Place the lockwasher and the ball-bearing retaining nut, but do not tighten.

— Place the main drive shaft in the gearbox and fit second gear key, the second gear, the spacer, the third gear key and the third gear.

— Draw the main-drive shaft in place by means of tool 1061 (fig. 24).

— Place the lockwasher and tighten the nut, keeping the shaft from turning by means of tool 1074 like during removal.

Tighten the intermediate nut.

Secure the intermediate ball-bearing with the two retaining strips, bolts, washers and nuts.

Reverse idler gear.

Place the tool 1052 in the ball-bearing housing, put on it the washer, reverse idler gear and the second washer.

Expel tool 1052 by means of the reverse idler shaft kept by tool 1051.

Orient the shaft in such a manner that its flat end enters in the gearbox nose.

Install a new oil seal (clutch side) by means of tool 1081 mounted on the clutch lever pivot axle.

GEARBOX NOSE ASSEMBLY (10.060)

When installing the nose on the gearbox, place the selector-lever in the selector-shafts, the flat end of the reverse idler shaft in its housing and the speedometer gear in the bevel pinion by means of a screw-driver.

Reinstall the suspension springs and rubber bushings as shown in fig. 26 (heavy spring above).

Place the clutch release lever and the gearshift.

DIFFERENTIAL DISASSEMBLY.

To remove the cover from the differential unit, use a press and tool 1142. If necessary remove the ball-bearing from the cover by means of a press and tool 1043. If the ball-bearing is to be removed from the differential-unit, use tool 1170.

If the right ball-bearing is to be removed from the differential unit, use tool 1042 turned 180°. Gather the washers Z. 7284 which are to be marked.

Unscrew the six ring gear cap screws.

Remove the ring gear and side cover.

Remove the pinion shaft and gears.

DIFFERENTIAL REASSEMBLY.

The six ring gear cap screws must be tightened to 14,5 - 18 foods/pounds.

Fit the ball-bearing 10.954 in the cover by means of tools 1169 and 1067.

Fit the differential in the cover and the opposite side ball-bearing to the cover by means of tools 1067 and 1069.

Applicate a liquid carter joint on the joining surfaces of the gearbox and cover.

Install the differential unit by means of tool 1050.

Secure the six nuts of the cover.

Assemble the rubber universal joints by reversing the assembly-operations.

The gasket of the gearbox cover must be without any defect.

GEARBOX INSTALLATION

Follow the reverse of the removal operations.

IMPORTANT

IN CASE OF REINSTALLING AFTER COLLISION CHECK THE PERFECT ALIGNMENT OF THE REAR-AXLE AS SHOWN IN FIG. 27.
CLEARANCE ADMITTED : 1/128".

For differential adjusting a special service information will be sent out under N° 21.

TORQUE LIMITS

Ring gear cap screws Z. 7338	7 - 8,5 ft.lbs
Nuts of the main drive shaft and bevel pinton Z. 7413 K	47 - 50,5 ft.lbs
Gearbox-nose nuts Z. 7034 K	14,5 - 18 ft.lbs

REAR AXLE SHAFTS - SUSPENSION

TRIANGULAR ASSEMBLY

REMOVAL

Remove the lower cover from the engine-carrier.

Remove the cotter-pins and screws of the triangle pivot bolts. Do not yet remove the bolts.

Remove the wheel, disconnect the flexible brake hose and the parking brake cable.

Remove the cottar-pin, screw and bolt of the shock-absorber.

Unscrew the universal rubber joint nut, keeping the drum from turning by means of the parking brake.

Remove the pivot bolts of the triangle. The bolts will be found beside the central body tunnel inside the car. The upholstery has to be lifted for removal.

Remove the triangle.

INSTALLATION

See " removal " and operate in reverse manner. The screws of the pivot bolts must be tightened the triangles beeing kept in horizontal position to assure a right operation of the rubber bushings.

REMOVAL

The shock absorber is removed with the spring.

Lift up the rear seat upholstery to reach the shock absorber top nut.

Remove the wheel, supporting the hub and remove the shock absorber top nut (Fig. 28). Gather the washers and rubber bushings.

Unscrew the bottom bolt of the shock absorber.

INSTALLATION

See " Removal " and operate in reverse manner. The spring must be compressed by means of a press. It has to be placed between the two parts of tool 1518.

— Fit this unit on the shock absorber.

— Pass the completely drawn out piston rod through the rear seat opening and tighten the nut, keeping the piston rod from turning by means of a screwdriver.

Remove the tool.

Do not omit to place a cotter pin on the bottom bolt.

REAR SHOCK - ABSORBER OVERHAUL (Refer to spare-parts table)

Special tools needed :

FB 2723 : Wrench to remove the threaded cover.

F 1095 : Cap for piston-rod.

A cylindrical plug gage (reference disc. size 0.31496", 8 mm.)

Before disassembly the unit should be cleaned carefully.

DISASSEMBLY

1st Operation :

Put the unit on the bushing-housing at the bottom, in a vise equipped with copper protections. Remove the nut 10.630. Unscrew the threaded cover 10.501 by means of tool FB 2723. Remove the unit and turn it to pour out the oil and to draw out the interior tube with all parts and the bottom valve assembly 11.519.

2nd Operation :

Piston-rod disassembly.

Pour out the oil of the interior tube and draw out the piston-rod. Place the piston-rod in a vise equipped with lead protections. The piston shall be at the top.

Unscrew the nut 10.513 and remove all parts mounted on the piston-rod. This removal must be done upward in order to avoid the damage of the rubber parts.

CLEANING AND INSPECTION

All parts should be cleaned with alcohol and dried by compressed air **ONLY**.

We advise the replacement of the following parts at every shock absorber overhaul :

10517 - Piston-rod seal

10518 - Buffer

10520 - Piston gasket

10629 - Piston-rod seal

Inspect for score or scratch marks :

10498 - Interior tube

10499 - Piston

10507 - Piston-rod

Inspect for distortion :

10503 - Valve washer

10508 - Special washer

10509 - Valve washer

10586 - Valve washer

Inspect the inside diameter of the piston-rod guide 10502 with the reference disc.

ASSEMBLY

1st Operation

Place the piston-rod in a vise (with lead protections) as during the disassembly.

Put tool F 1095 which is to oil with shock-absorber oil on the thread of the piston-rod and place on the piston-rod the rubber buffer 10518. This one should have its chamfered downward (opposite piston).

Remove the tool and put in following order on the piston-rod. The special washer

10514 - (its elevation piston side)

10510 - Special washer

10512 - Spacer

11046 - Star formed spring (upward)

11661 - Spacer

10509 - Valve washer

10499 - Piston

10520 - Piston gasket

12835 - Spacer (on shock-absorbers with iron piston)

10508 - Special washer

10586 - Valve washer

10503 - Valve washer

10511 - Spring retainer

10726 - Spring

10513 - Nut

Screw the nut 10513 (Torque limit 50 inch/lbs) progressively and make sure that the spring retainer 10511 is well engaged on the nut 10513.

The nut should be locked by two knocks with a center punch.

2nd Operation

Oil the interior tube 10498 with shock absorber oil (see page 3) and engage the piston-rod in the tube in such a manner that the threaded part of the piston-rod **leaves** it at the notched end. Never engage the piston in the notched end of the tube, to avoid damage of the gasket.

3rd Operation

Place on the piston-rod in following order :

The piston-rod guide 10502

The spring 10728

Use the tool F 1095 to place the piston-rod seal 10517. The internal side of this seal should be greased with « MOLYKOTE » before installation.

Remove the tool and place the upper seal retainer 10515.

Use tool F 1095 again to place the (MOLYKOTE greased) seal 10629. Remove tool F 1095.

FILLING OPERATION

1st operation

Use for filling the shock-absorber 100 cm³ = 15,5 cu.inch « ESSO INVAROL J. 43 » oil.

Draw out the piston-rod upward (notched side of the tube) and fill up the tube untill 0,07 + 0,12" under the edge. Put the bottom valve assembly on the tube and place the body of the shock absorber over the interior tube.

2nd operation

Turn over this unit and finish the fill up, keeping the interior tube pressed downward.

Applicate a liquid joint on the thread of the cover 10501 and screw it by means of tool FB 2723. Screw the nut 10630.

HUBS AND AXLE SHAFTS

REMOVAL

- Remove the wheel
- Unscrew the axle shaft nut on the rubber universal joint.
- Unscrew the central nut, keeping the drum from turning by means of the parking brake.
- Remove the washer and cone 10.173 K.
- Remove the hub and brake drum if necessary by means of tool 1127 (Fig. 29).
- Remove the cone 10.172.
- Unscrew the four screws and remove the cover 10.063.
- Remove axle shaft and housing together.
- To remove the brake carrier disconnect the brake pipe and parking brake cable.
- Remove the axle shaft from its housing by means of tool 1130 (Fig. 30).
- Gather the dust ring 10.380 K.

— Remove the ball bearing 10.540 from the axle shaft by means of a press and tool 1135 (Fig 31).

— Remove the washer 10.174.

— Remove the ball bearing 1511 the same way as the ball bearing 10.540 (Fig. 32).

REASSEMBLY

— Fit the two ball bearings on the axle shaft by means of tools 1134 and 1133. Do not forget washer 10.174 (Fig. 33).

— Install a new oil seal in the housing by means of tool 1132.

— Fit the axle shaft in its housing by means of tools 1157 and 1133 (Fig. 34).

— Install if necessary a new oil seal in the cover 10.063 by means of tools 1157 and 1131.

— Install the dust ring 10.308 K by means of tools 1133 - 1136 and 1157.

Tool 1136 is used to limit the position of the dust ring (Fig. 35).

To install the unit, follow the reverse of the removal operations.

FRONT SUSPENSION

WHEEL ALIGNMENT

FRONT AXLE CHECKING

Before checking, control the following points :
The clearance of the ball sockets of the steering arms.

- The correct type-inflation. (see page 3).
- The clearance of the hub ball bearings.
- Regular type wear.
- The connection of the shock absorbers to the transverse member.

If any trouble is found, repair it before checking front axle.

CHECKING TOE - IN

- Put the car on a flat horizontal surface. (The car has to be stopped after a forward motion).
- Place the steering wheel in straight ahead position. (The central position rollers in the narrow part of the rack).
- The dimensions as shown in fig. 36 (A and A + 7/64) must be obtained between the two inside rim channels, the car being loaded (330 lbs).
- If this condition has not been obtained, remove the ball sockets from the shock-absorbers by means of tool 1101 (fig. 37).
- Unscrew the clamp maintaining the con. rod end (Fig. 38).
- Tighten to increase and unscrew to decrease the toe-in (each turn represents a toe-in change of 3/38).
- Tighten the clamp and fit the ball socket. If hereafter the car is not traveling straight ahead, see " steering adjustment ".

HUBS-DRUMS

REMOVAL

- Remove the grease cap.
- Remove the cotter-pin and spindle nut.
- Remove the drum by unscrewing the two screws fitting it to the hub.
- Remove the hub by means of tool 1127.
- It is also possible to remove the hub and drum together by means of tool 1127. In that case do not remove the two screws.
- Remove the hub ball bearing by means of a press and tools 1123 - 1124 and 1125.

REASSEMBLY

- Fit the ball bearings and seal in the hub by means of a press and tools 1123 - 1149, and 1150.
- The spacer has to be installed as shown in fig 39.
 - Put the hub on the spindle by means of tools 1151 and 1142.
 - Tighten the spindle nut to 44 - 58 foot-pounds.
 - Install the grease cap.
 - Install the drum.

REMOVAL

- Remove the wheel.
- Remove the ball socket of the steering arm by means of tool 1.101.
- Remove bolt Z. 7324.
- Disconnect the flexible brake hose.
- Unscrew the nut fitting the shock absorber to the transverse member by means of tool 1139 (Fig. 40).

— Remove the shockabsorber from the transverse member first and then from the ball socket.

DISASSEMBLY

Install the unit on tool 1155 combined with a press.

Fit the tool 1154 on the press (Fig. 41).

Remove the cotter-pin and nut 10.187, keeping the upper part of the shockabsorber by tool 1126.

Unscrew the nut by keeping down the bushing 10.320 by the press, to maintain the spring in position.

Raise the press.

— Remove the rubber cushion 10.320, the tube protection with the ball bearing 10.169 its ring 10.185 and the spring.

— Put the shockabsorber on the tool 1152 and unscrew the cover 10.318.

— Push the piston rod, to remove the oil.

— Remove the tube 10.280 with piston rod bearing 10.317.

— Remove the following parts :

The piston rod assembly 11801.

The seal 10.188.

The seal cup : 10.303.

The seal : 10.319.

The seal cup : 10.190.

The spring : 10.309.

— Remove the valve assembly 11.799, by turning the tube 180°. The parts must be cleaned in alcohol and dried with compressed air.

— Check if the valve part 10.316 moves freely in the valve body and check if there is no dirt between the washer 10.285 and the valve body.

— Change the gasket 10.286 and check if the piston rod shows no marks.

— Lubricate the inside of the tube with oil (See specification hereafter).

— Take 15,3 cu. inch shock absorber oil.

— Drive in the piston rod assembly 11.801, until the gasket 10.286 disappears in the tube.

— Reverse the tube so, that the piston forms bottom and fill up with oil until 1/2 " under the edge.

SHOCK ABSORBER OVERHAUL

— Put in the valve assembly 11.799.

— Reverse the exterior tube 11.818 and put it over the assembly.

— Maintain the piston rod in such a way that any movement of the valve 11.799 is avoided, reverse, place it on the support and fill up with the rest of the oil.

— Place the piston rod bearing after checking the condition of the gasket 10.287.

— The piston rod bearing must surpass the tube edge about 0,08" after reassembly. If this condition has not been obtained, the assembly is not well done.

— Install :

The spring : 10.309

The seal cup : 10.190

The seal 10.319 (fill with " MOLYKOTE G " grease).

The seal cup : 10.303.

The seal : 10188 (fill with " MOLYKOTE G " grease).

Coat the thread of the exterior tube with " HERMETIC " liquid joint and screw the cover 10.318.

USE AS SHOCKABSORBER OIL ONLY :

ESSO UNIVIS 43

ESSO INVAROL J. 43

REASSEMBLY

— Check the ball bearing 10.169 and lubricate with " ESSO BEARING GREASE ".

— Install the spring and tube protection reversing the removal operations.

Do not omit to fit the cotter-pin Z.4200 K.

— Enter the ball socket in the shock absorber before entering this one in the transverse member.

— Connect the flexible brake hoses and bleed them.

SUSPENSION ARMS

REMOVAL

- Remove the battery support
- Remove the bolts Z. 7324 K fitting the ball sockets on the shock absorber tubes.
- Remove the four bolts of the central support.
- Remove the four nuts of the two side supports.

DISASSEMBLY

- Remove the rubber protection 10.184.
- Remove the nut 10.182 K, lockwasher 10.193 K.
- Remove the washer 10.183.
- Unscrew the nut 10.180 K by means of tool 1.148.
- Remove the ball socket 10177 with its cup 10.178 and draw out the socket 10.179 or 12.350 with a slight pat.

— Unscrew the bolt Z. 7279 K and remove it with the spring-washer, washer 10.197 K, the clamps, the bushing and lockwasher.

REASSEMBLY

Follow in reverse manner the disassembly operations.

INSTALLATION

- Fit the ball sockets on the shock absorber tubes by means of bolts Z. 7324 and tighten them (Fig. 42).
- Place the rubber journals in the central support and fit the bolts without tightening.
- Fit the bushing and clamps without tightening the nuts.
- (Do not omit to fit the earthing cable).
- Put the car on his wheels and tighten all bolts and nuts as to obtain a tightening of the journals and bushings, in intermediate position of the suspension arms.
- Check the right position of journals in their supports.

STEERING LINKAGE

STEERING GEAR

REMOVAL

- Remove the battery.
- Remove the steering-wheel by means of tool 1146/3 (Fig. 43).
- Remove the strip retaining the steering column to the dashboard.
- Remove the wiring-protection.
- Unscrew the screw of the turn indicator switch cap and push it downward.
- Remove the spring retainer disconnect the wiring and remove the switch.
- Disconnect the two steering arms from the shock absorber by means of tool 1101. (Fig. 44).
- Remove the bolts securing the steering gear to the transverse member.

INSTALLATION

For installation follow the reverse of the removal operations.

Check that the spokes of the steering wheel are horizontal, when the rack is in its central position.

DISASSEMBLY

- Remove the rubber protection cap.
 - Remove the cap 10.138 K and the retainer 10.633.
 - Remove the threaded plug 10.632 and spring 12.050.
 - Remove the two ball joints 10.145 and their four cups 10.033.
- Remove the threaded plug 10.135 K (with the retainer Z. 7230, the spring 10.134 K and the sleeve 11.839).
- Remove the rack.

— Remove the screws Z. 7272 retaining the lock plate 10.130 K.

— Draw out the steering shaft with the adjusting bushing 10.782.

— To separate these parts, remove the threaded cap 10.131 K and the nut Z. 7404 K.

— Remove the ball bearing 10730 and the needle retainer by means of tools 1086 - 1089 and a press.

— To remove the bushing 10.137, drive a tube in the steering shaft housing. Use tool 1.091.

REASSEMBLY

— Place the ball bearing (tools 1087 - 1089 and a press) and the needle retainer (tools 1089 - 1086 and a press) in the adjusting bushing 10.782.

— Fit the steering shaft and lock the nut Z. 7404 K.

— Fit the cotter pin.

— Fit the threaded cap 10.131 K.

— Put the assembly in the steering gear housing. Place tool 1321 on the left side of the steering gear housing and drive in the rack.

— Eliminate the clearance between the steering shaft and rack by turning the adjusting bushing 10782. with tool 1.092.

— Lock the screws Z. 7272 K.

— Remove tool 1.321.

— Place the cup 10.135 K (with the retainer, the spring and the sleeve) and screw it until disappearance of the play between the steering shaft and the rack.

— Lock the nut Z. 7332 K.

NOTE : On cars with body number starting with 19.932 the operation above will be as follows : Place the nylon bushing 12.711 with its rollers

12.713, the spring 12.714 K, the cover 12.712 K and tighten the screws Z. 7257 K.

Turn hereafter the bushing 10.782 with the tool 1092 until the tool 1321 can be removed easily.

The rack is then well in centre.

— Place the cups 10.033 and the ball sockets 10.145.

— Place the spring 12.050 and screw in completely the plug 10.632 (torque 15 ft.lbs).

— Fit the retainer 10.633 and the cap 10.138 K.

INSTALLATION

Follow the reverse of the removal operations.

NOTE : The connecting rod ends can be disassembled. When reassembling, the cups 10.035 and the rubber protection 10.140 must be filled with :

“ ESSO MULTIPURPOSE GREASE H ”

STEERING ADJUSTMENT

If after the toe-in adjustment the car is not travelling straight ahead, adjust the rack central position by turning the eccentric screws 10.535.



BRAKES

GENERAL REPAIR INSTRUCTIONS

— To avoid defiling of the brake fluid or the penetration of air, take attention to the following points.

— Brush the parts before disconnecting.

— Close the flexible hoses and pipes with rubber plugs if disconnected.

— Use only alcohol for cleaning.

— Use only " LOCKHEED N° 5 " brake fluid.

— The linings must be kept free from any liquid or grease.

— The brake drum insides must be dry, smooth and clean.

— Replacement of brake shoes or brake drum re boring must always be done for the two front-wheels or rear wheels together.

TROUBLES	CAUSES
Insufficient braking The brake pedal feels " spongy "	Air has entered in the hydraulic system.
Excessive pedal travel ; by depressing the pedal several times, the travel is reduced.	Excessive clearance between brake shoes and drums.
The level in the oil tank falls quickly.	Leak in the hydraulic system.
The brake are getting hot ; the brake shoes do not return to the released position.	Insufficient free travel of the brake pedal - Insufficient tension of the brake shoes retracting springs - Restricted by pass port in the master-cylinder - swollen master cylinder piston cups Improperly adjusted parking brake.
Uneven, noisy and hard brakes.	The linings are greasy - Drums are out of round - Swollen wheel cylinder cups - Brake tubing injured or obstructed.

MASTER CYLINDER

REMOVAL

- Remove the battery support.
- Disconnect the stop-light wires.
- Disconnect the brake pipes and close them with rubber plugs.
- Remove the stop-light switch and three way union.
- Remove the screws fitting the master cylinder to its support.

OVERHAUL

- Disassemble the master cylinder and inspect the cylinder walls for scores, rust or out of round. If necessary replace the master cylinder body, do not hone it.

REASSEMBLY - (See fig. 45)

- Dip all internal parts in brake fluid.
- Fit the valve (1) and its spring (2).
- Fit the main cup (3) with the flat side toward the piston.
- Fit the piston (4) with its cup (5).
- Fit the washer (6) and the retainer (7) after compressing of the assembly.
- Check the free motion of the piston.

INSTALLATION

Follow the reverse of the removal operations.

WHEEL CYLINDER

REMOVAL (See fig. 46)

- Remove the drum with the hub.
- Remove the brake shoes and disconnect the brake pipe.

Close it with a rubber plug.

- Remove the two screws fitting the wheel cylinder to the brake carrier.

OVERHAUL

- Disassemble the wheel cylinder and inspect all parts as for the master cylinder.
- Replace worn or distorted parts.

REASSEMBLY

- Dip all internal parts in brake fluid.
- Fit the spring, the cups, the pistons and the rubber boots.
- Check the free motion of the piston.
- Tighten the bleederscrew and place its rubber plug.

INSTALLATION

Follow the reverse of the removal operations.

BLEEDING THE SYSTEM

- This operation is done for each of the four wheel cylinders.
- Inspect the fluid level in the oil tank.
- Begin the operation at the most distant and finish at the wheel cylinder that is the nearest to the master cylinder.

TO BLEED A WHEEL CYLINDER

- Brush the bleederscrew clean.
- Attach a drain tube to the bleederscrew.
- Submerge the free end of the tube in a container partially filled with clean brake fluid.
- Loosen the bleederscrew — (by means of a wrench) and depress the foot pedal slowly.
- Repeat this operation until air bubbles cease to appear in the fluid stream.
- Keep the pedal depressed and close the bleederscrew.
- Refill the master cylinder with clean fluid.

NOTE : Never use fluid which has been withdrawn from the system.

BRAKE SHOES

REMOVAL

- Remove the wheel and the drum.
- Remove the hold-down cups and the springs.
- Remove the parking brake cable (for rear wheels only and parking brake levers).
- Remove the brake shoes.

INSTALLATION

Follow the reverse of the removal operations.

FREE TRAVEL ADJUSTMENT

See fig. 47.

- To adjust the free travel of the brake pedal :
- Unscrew the nut B.
- Adjust the length of the master cylinder piston rod by screwing or unscrewing it.
- Lock the nut B.
- The free travel should be 1/4" - 3/4" (on the brake pedal pad).

PARKING BRAKE

PARKING BRAKE CONTROL HANDLE INSTALLATION

- Fit on the aluminium support from right to left :
- The starter control lever.
- The parking brake control handle with its toothed quadrant, which is to be placed against the stop of the support.
- The choke control lever.
- Fit the bolt and the nut.
- If the cable of the parking brake has not been removed fit it on the pulley.
- Fit the pulley by means of the pin on the parking brake handle and fit the cotter pins.
- Place the assembly on the central body tunnel and tighten the four screws.
- Adjust the parking brake.

— Pass the parking brake cable through the screw of the brake levers on the rear brake carrier and stretch it so, that the braking action starts on the second or third notch of the parking brake control handle.

— Lock the screw of the brake levers.

— For final adjustment acts on the adjusting sleeve of the cable housing and its lock nut.

BRAKE ADJUSTMENT

- Each brake shoe has to be adjusted separately.
- Unscrew the lock nut and tighten the adjusting bolt until the brake shoe blocks the wheel.
- Unscrew until the wheel turns freely.
- Check the brake pedal free travel.

For **removal** execute the reverse of the following reassembling operations.

REASSEMBLY

- Place the washer Z. 2102 K on the clutch pedal shaft.
- Place the bushing 10.652, the spring 10.653 K and the brake pedal on the clutch pedal shaft.
- Keep the bushing on the right side toward the shaft end.
- Place this assembly so in the support of the master cylinder that the brake pedal is situated between the two sides of the support and that the shaft end enters in its hole in the central body tunnel.
- Slide the bushing to the left until it is placed between the support sides.
- Place the spring retainer in its groove.
- Place the bushing 10.654 on the shaft (tunnel side) and fit the cable levers by means of the washer and lock nut.
- Connect the cable and fit the spring 12.532 K.

ILLUSTRATIONS

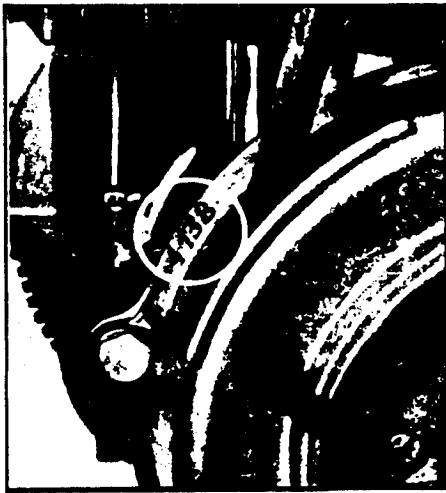


Fig. 1

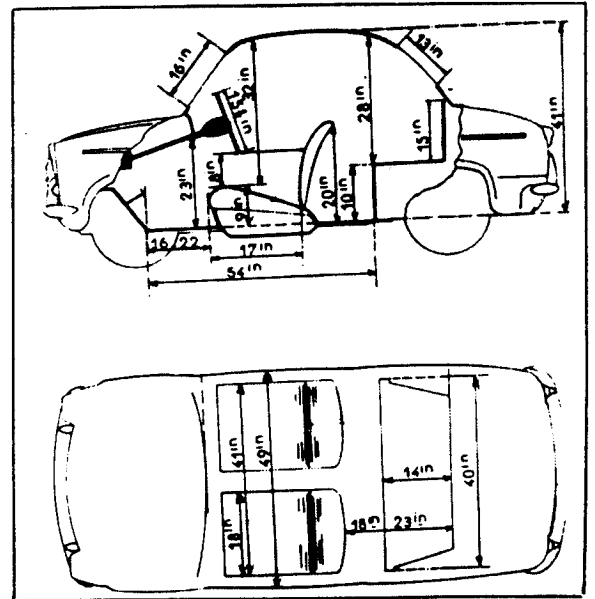


Fig. 3

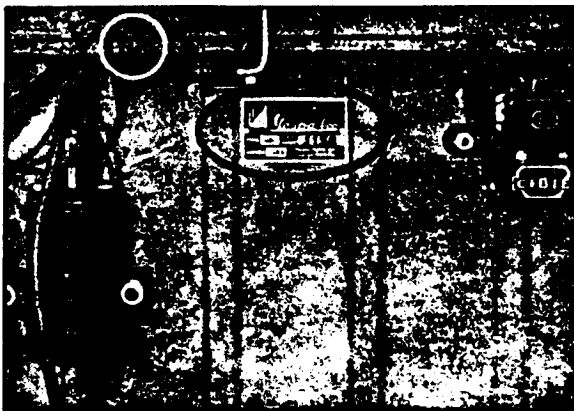


Fig. 2

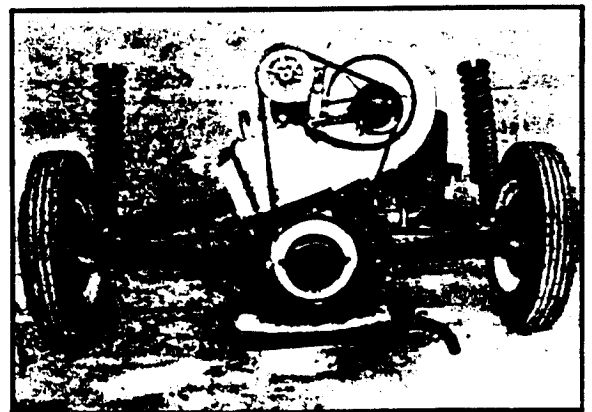


Fig. 4

Fig. 9

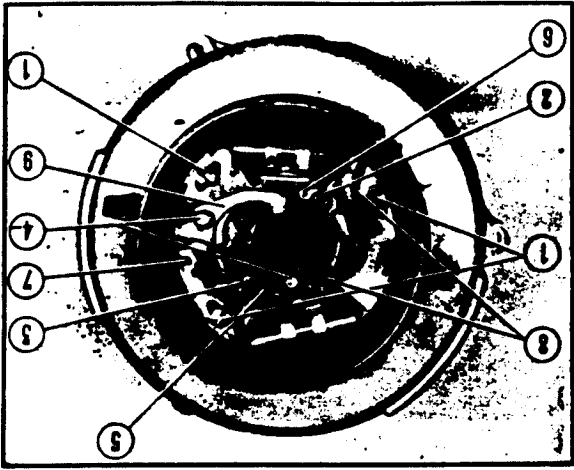


Fig. 8

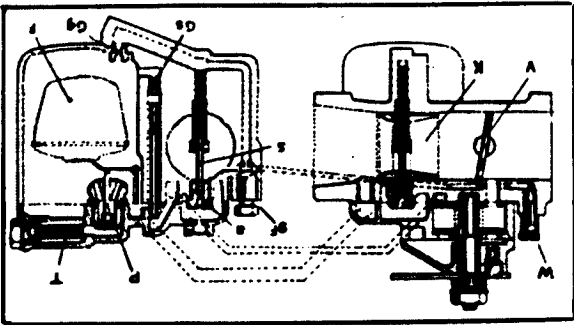


Fig. 7

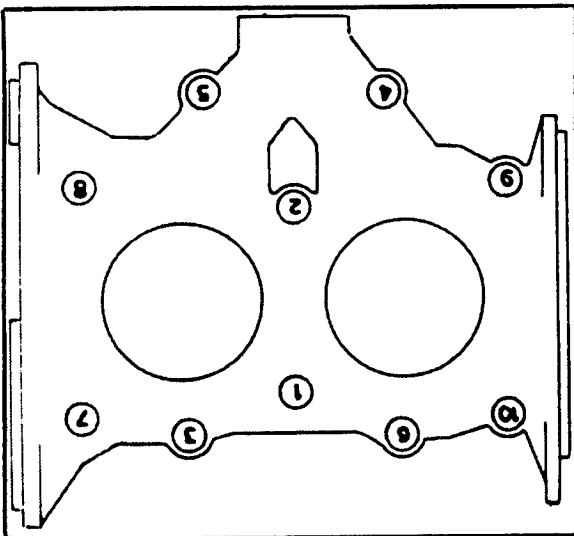


Fig. 6

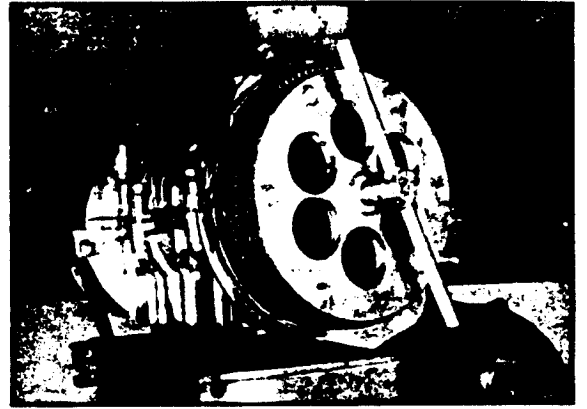
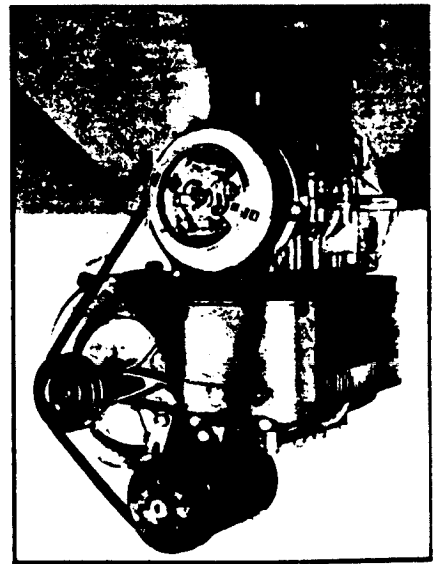


Fig. 5



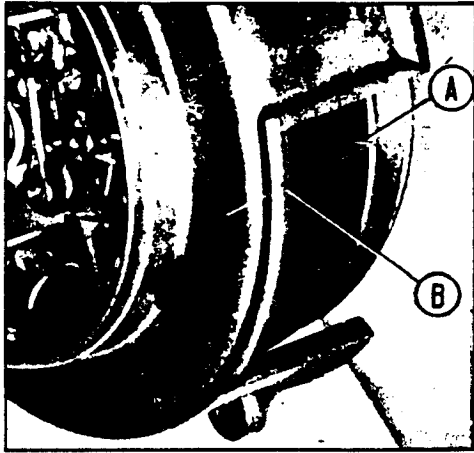


Fig. 10

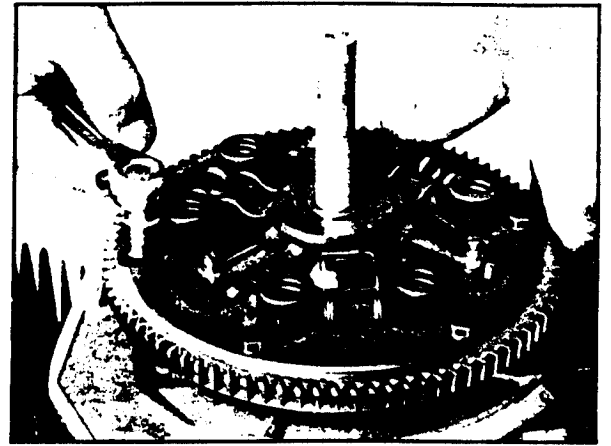


Fig. 13

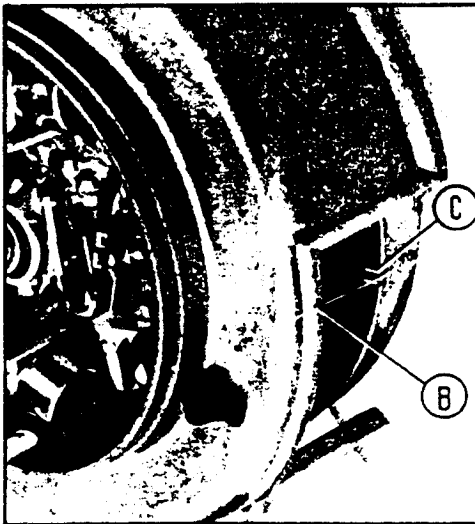


Fig. 11

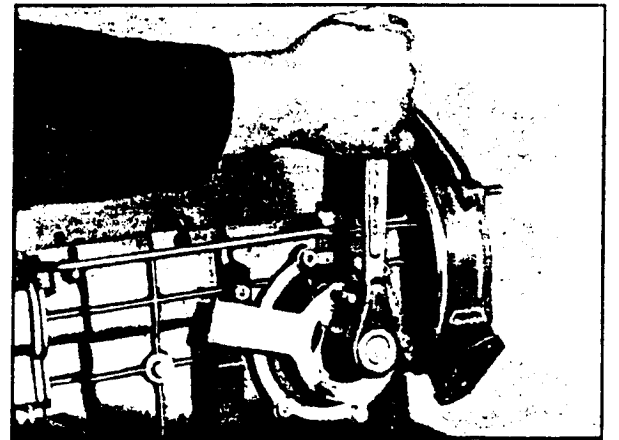


Fig. 14

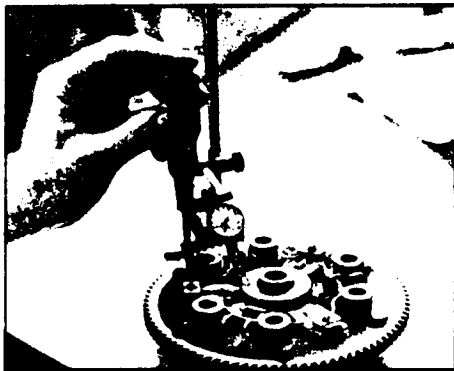


Fig. 12

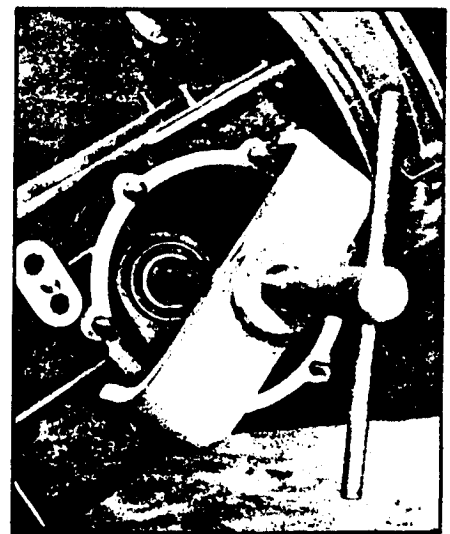


Fig. 15

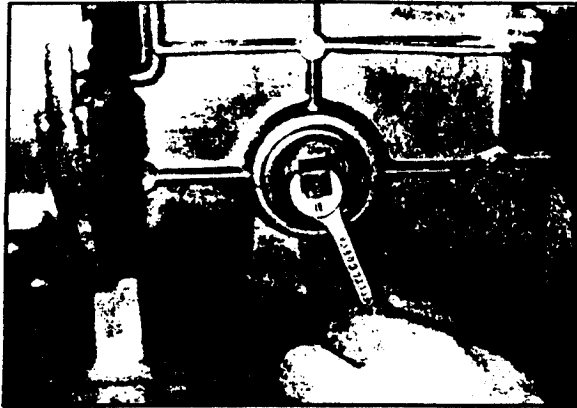


Fig. 16

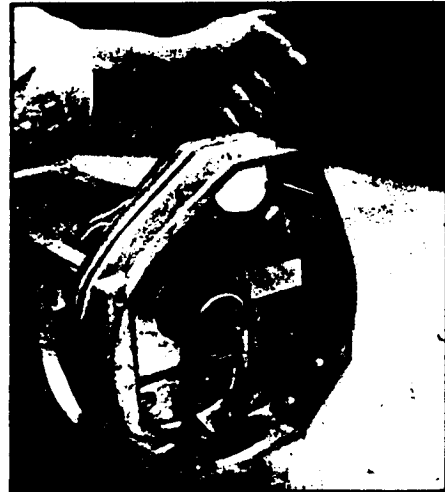


Fig. 19

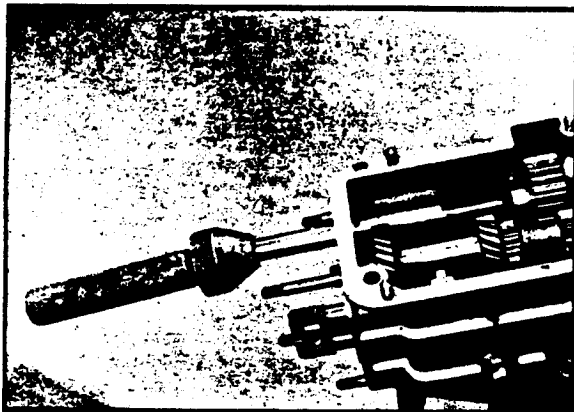


Fig. 17

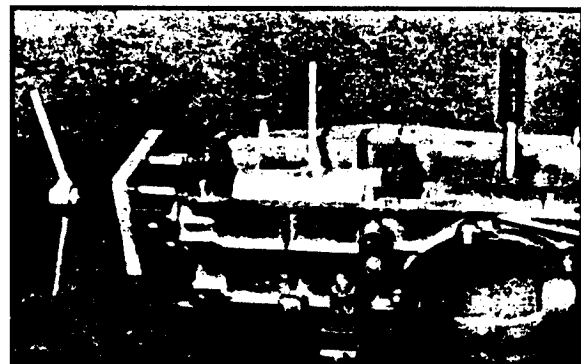


Fig. 20

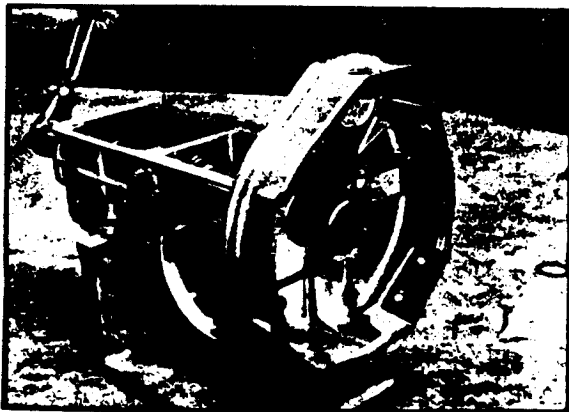


Fig. 18

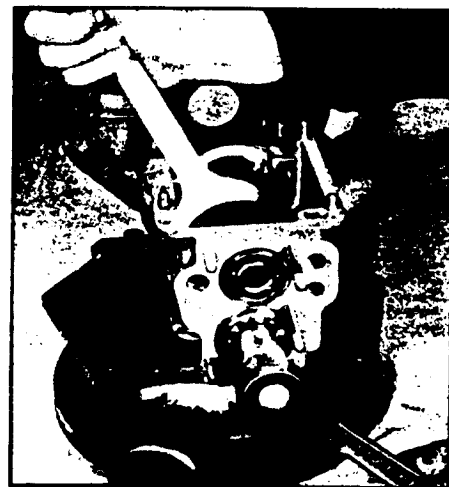


Fig. 21

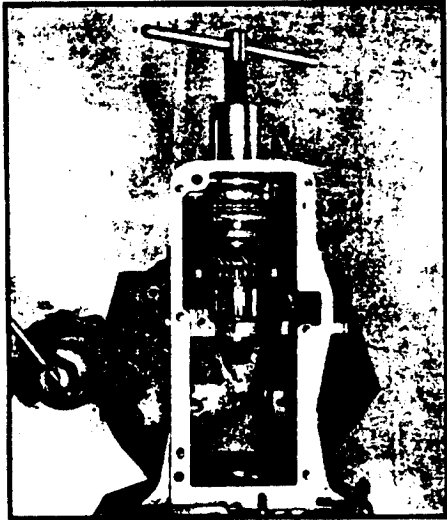


Fig. 22

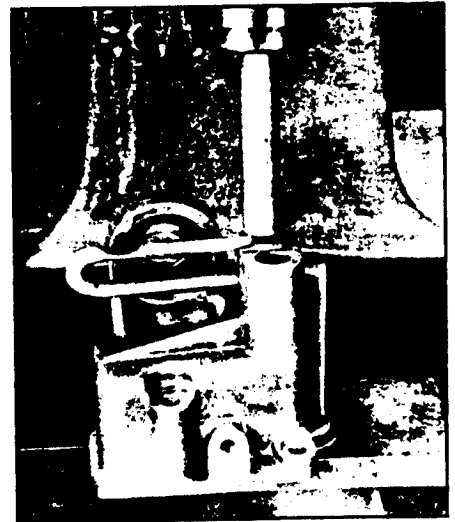


Fig. 25

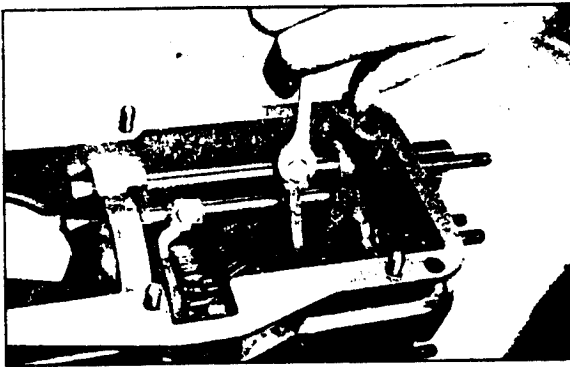


Fig. 23

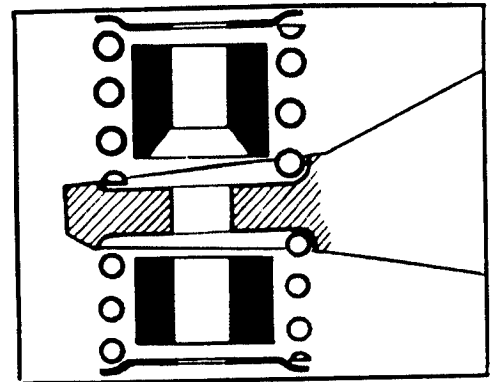


Fig. 26

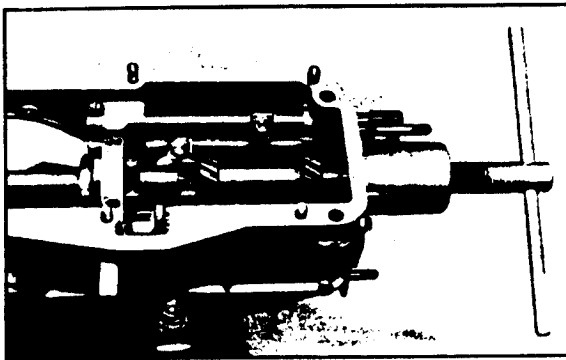


Fig. 24

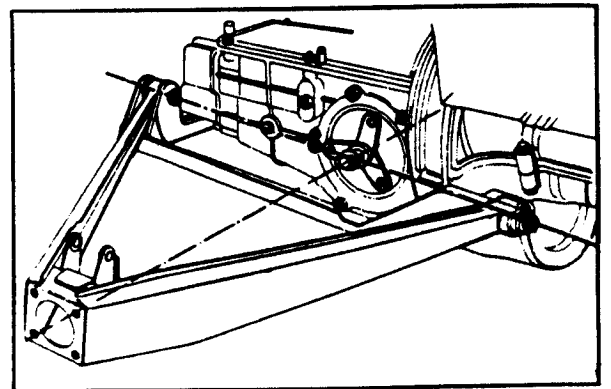


Fig. 27

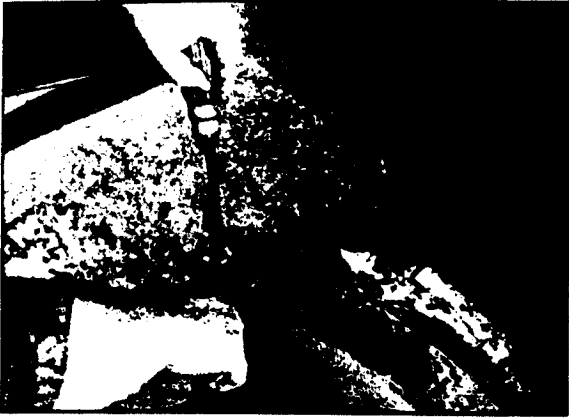


Fig. 28

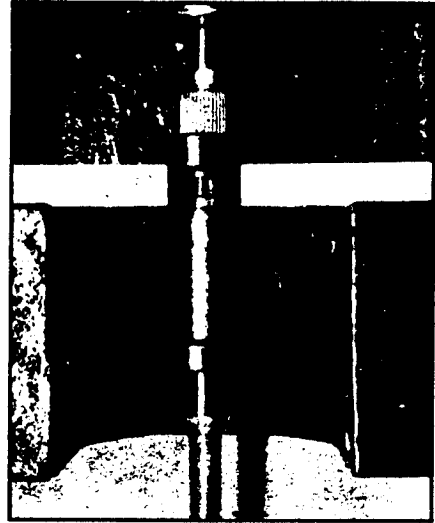


Fig. 31

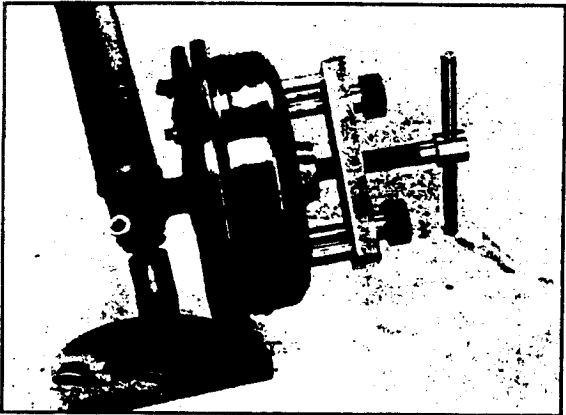


Fig. 29

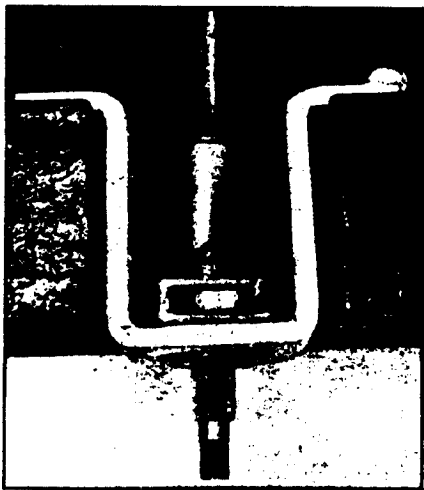


Fig. 30

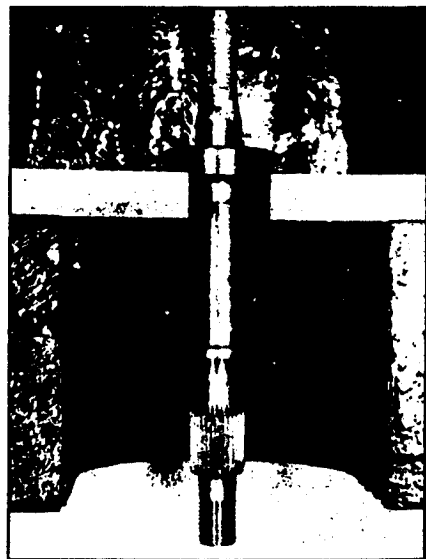


Fig. 32

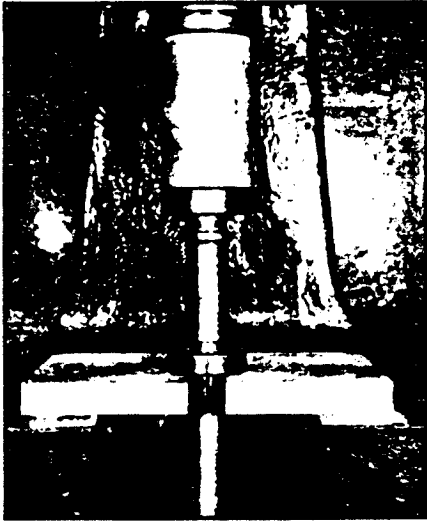


Fig. 33

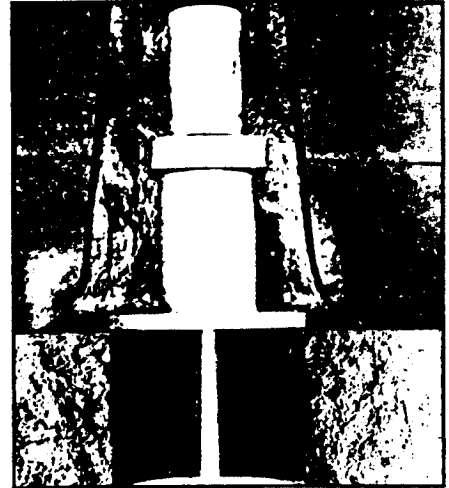


Fig. 35

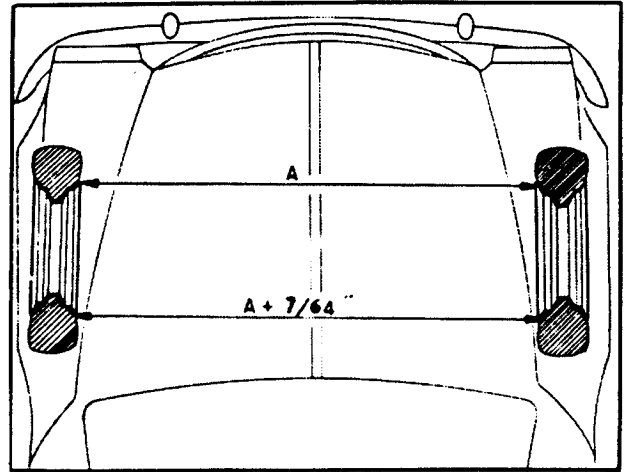


Fig. 36

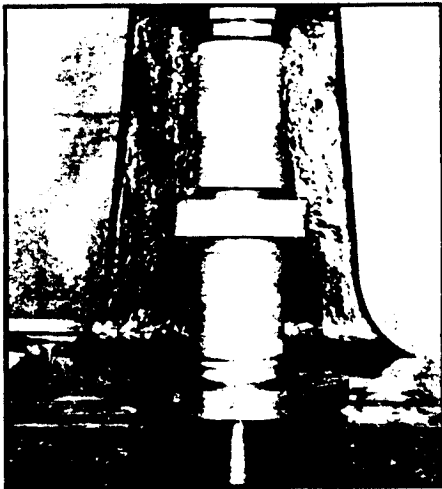


Fig. 34



Fig. 37



Fig. 38

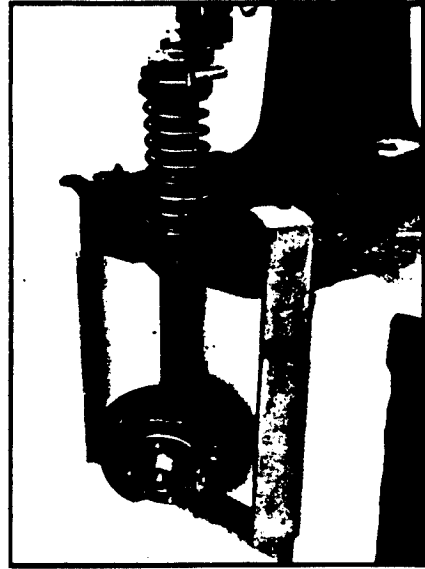


Fig. 41

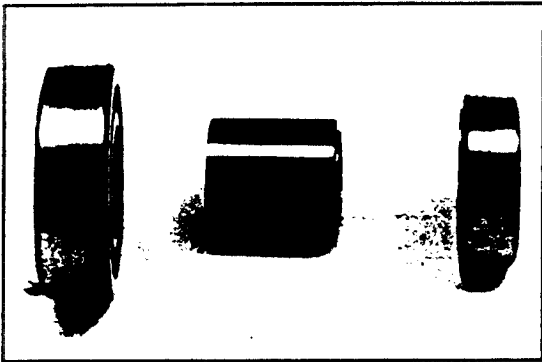


Fig. 39



Fig. 40

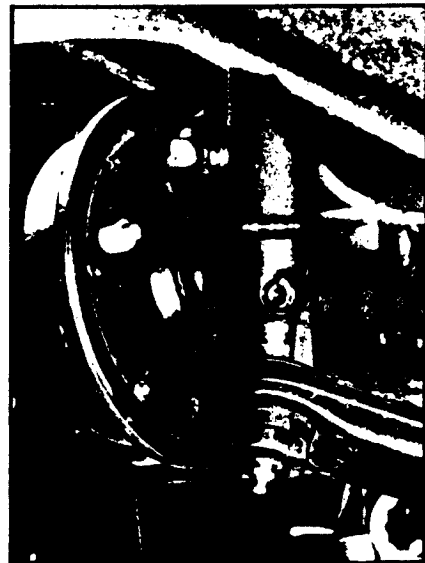


Fig. 42

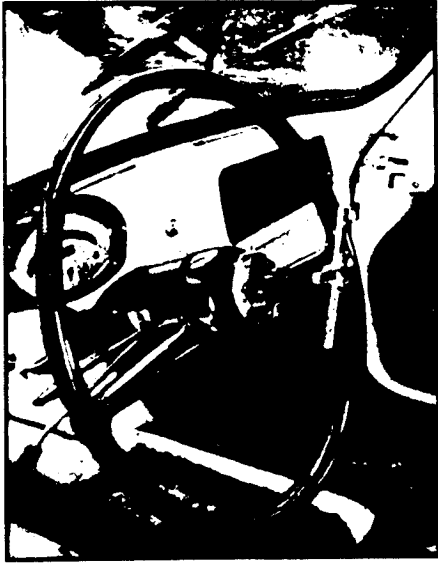


Fig. 43

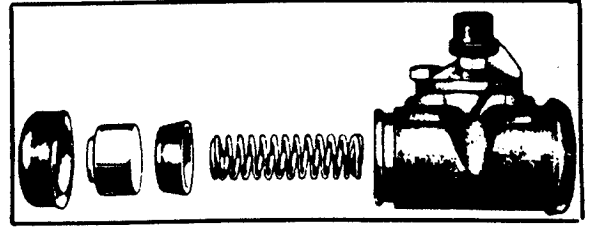


Fig. 46

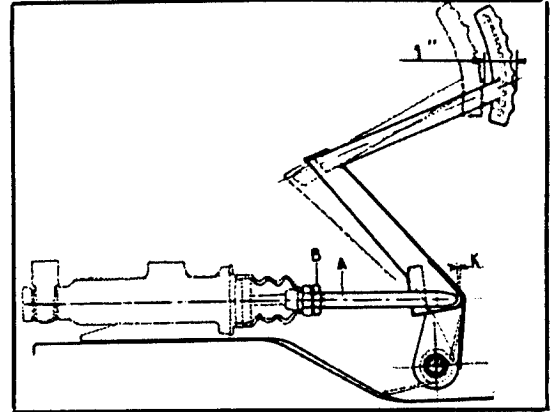


Fig. 47



Fig. 44

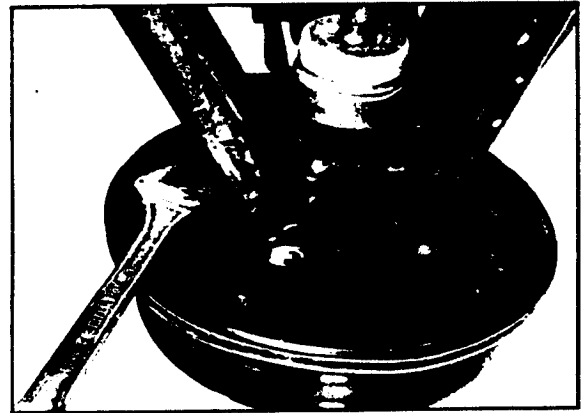


Fig. 48

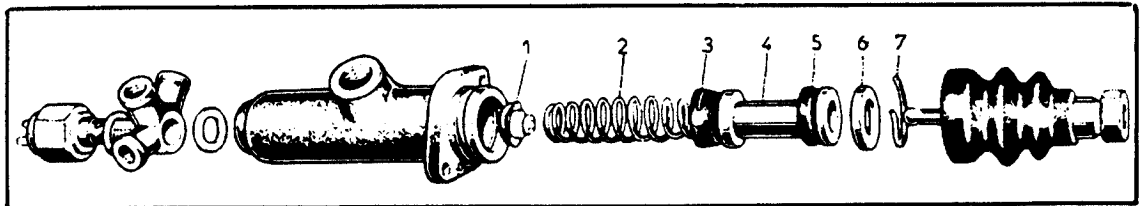



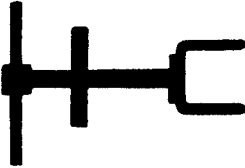

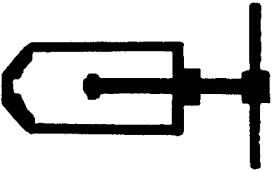


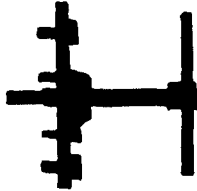
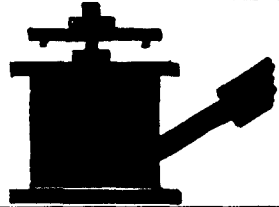





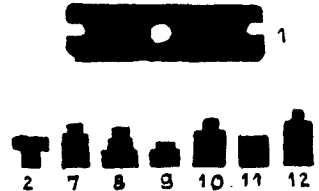







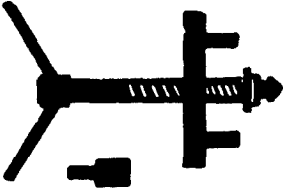


Fig. 45

ENGINE - FAN ASSY		
Number	Operation	Tool
MT 1102	Turn bearer for engine support table	
MT 1108	Fan shaft ball bearing extractor and crankshaft ball bearing race extractor	
MT 1109	Ball bearing race mouting plate and press nose	
MT 1111/1	Crankcase upper half extractor	
MT 1113	Fan ball bearing drift extractor	
MT 1115	Wrist-pin extractor	
MT 1116	Flywheel retaining wrench	
MT 1117	Clutch centering tool	

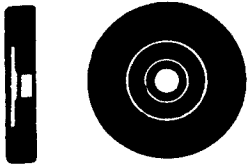
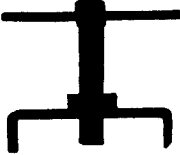





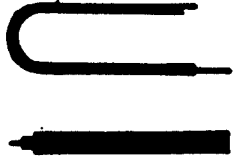
ENGINE - FAN ASSY

Number	Operation	Tool
MT 1118	Flywheel extractor	
MT 1120	Clutch assembling special tool	
MT 1138	Distributor bearing pulley extractor	
MT 1168	Turbine retaining wrench (to tighten and loosen)	
MT 1234	Special tool for assembling the seal of the fan	
MT 1310	Assembling - adjusting clutch tool comparator	
MT 1314	Fan pulley removing tool	
MT 1315	Shaft and ball bearing fan re-assembling tool	









GEAR-BOX AND DIFFERENTIAL ASSEMBLY

Number	Operation	Tool
MT 1050	Tool the re-assembly the differential assy in the crank-case	
MT 1051	Special tool to remove and re-assembly the reverse idler shaft.	
MT 1052	Reverse idler shaft thrust washer placer	
MT 1053	Special tool to re-assemble synchronizer.	
MT 1054	Lock and unlock driving pinion.	
MT 1055	Main shaft and driving pinion ball bearing extractor.	
MT 1056	Synchroizer assembly retaining	
MT 1057	Special tool to remove drive speed gear on the main shaft.	

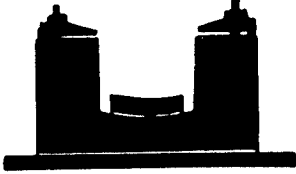

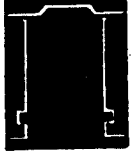



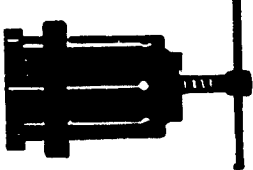
GEAR-BOX AND DIFFERENTIAL ASSEMBLY

Number	Operation	Tool
MT 1059	Driving pinion bush and ball bearing press base plate.	
MT 1060	Differential extractor.	
MT 1061	Main shaft and driving pinion extractor.	
MT 1062	Clutch side oil seal spacer extractor.	
MT 1065	Fork placing spacer.	
MT 1067	Tool to re-assembly ball bearing of differential housing	
MT 1069	Differential ball bearing re-assembling tool.	
MT 1070	Tool to re-assembly the seal on the speedometer driving pinion.	









GEAR-BOX AND DIFFERENTIAL ASSEMBLY

Number	Operation	Tool
MT 1072	Damper flange tool.	
MT 1073	Tool to re-assemble the flange on the damper.	
MT 1074	Main shaft retaining tool.	
MT 1076	Main shaft ball bearings and gears removing and installing bearing plate.	
MT 1077	Main shaft ball bearing and gears re-assembling plate.	
MT 1080	Driving pinion ball bearing and gears removing and re-assembling plate.	
MT 1081	Main shaft oil seal re-assembling tool.	
MT 1082	Differential ball bearing extractor (used with MT 1060).	




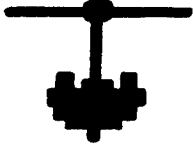

GEAR-BOX AND DIFFERENTIAL ASSEMBLY

Number	Operation	Tool
MT 1140	Gear box assembly support.	
MT 1141	Differential oil seal re-assembling bush (used with MT 1050).	
MT 1142	Differential ball bearing side housing special tool.	
MT 1143	Differential ball bearing re-assembling tool.	
MT 1147	Ball bearing re-assembling tool.	
MT 1169	Differential side bearing housing ball bearing re-assembling tool.	
MT 1170	Differential ball bearing extractor.	

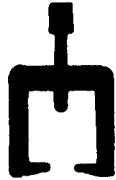





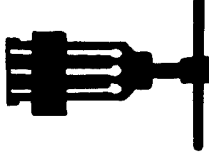

STEERING

Number	Operation	Tool
MT 1084	Steering tube bush installation	
MT 1085	Steering shaft support	
MT 1086	Needle and ball bearing removing and needle bearing installation.	
MT 1087	Gear shaft ball bearing installation.	
MT 1088	Steering eccentric adjusting.	
MT 1089	Eccentric replacing support.	
MT 1090	Ball stud bearing installation.	
MT 1091	Steering assembly support.	



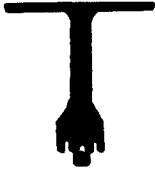





STEERING

Number	Operation	Tool
MT 1092	Eccentric adjusting wrench.	
MT 1093	Adjusting threaded bush wrench.	
MT 1098	Steering rod extractor.	
MT 1146/3	Steering wheel extractor.	
MT 1321	Special bush for centering the rack on the steering box.	

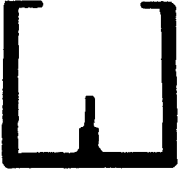

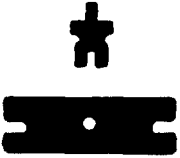
FRONT SUSPENSION AND HUB

Number	Operation	Tool
MT 1101	Bal joint pivot N 10315 extractor.	
MT 1123	Front hub ball bearing re-assembling.	
MT 1124	Hub ball bearing removing tool (for ball bearing N 10541).	
MT 1125	Hub ball bearing removing tool (for ball bearing N 10695).	
MT 1126	Upper shock absorber mounting retaining wrench.	
MT 1127	Drum and hub extractor.	
MT 1128	Spindle ball bearing extractor.	
MT 1129	Tool for assembling the dust cover on the hub.	









FRONT SUSPENSION AND HUB

Number	Operation	Tool
MT 1137	Tool to re-assembly the washers on the brake shoes eccentric.	
MT 1139	Front shock absorber locking wrench.	
MT 1148	Ball joint pivot securing nut wrench.	
MT 1149	Front hub ball bearing and oil seal re-assembling tool (ball bearing N 10540).	
MT 1150	Front hub ball bearing re-assembling tool (used with a press) - (ball bearing N 10541).	
MT 1151	Spindle support to install the hub.	
MT 1152	Suspension unit assembly support.	
MT 1154	Suspension unit spring replacer set.	



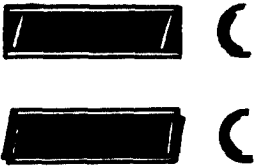
FRONT SUSPENSION AND HUB

Number	Operation	Tool
MT 1155	Suspension unit spring placer auxiliary set.	
MT 1158	Brake shoes placing pliers (front and rear).	
MT 1178	Ball stud placer set (to be used with a press).	



REAR SUSPENSION AND HUB

Number	Operation	Tool
MT 1130	Hub and shaft removing tool.	
MT 1131	Hub flange oil seal removing	
MT 1132	Oil seal placing tool.	
MT 1133	Shaft ball bearing placing (tube).	
MT 1134	Shaft ball bearing placing (plate).	
MT 1135	Shaft ball bearing placing (plate).	
MT 1136	Dust proof cup placing.	
MT 1137	Shaft placing (in rear hub).	

REAR SUSPENSION AND HUB

Number	Operation	Tool
MT 1158	Brake shoes placing pliers (front & rear).	
MT 1180	Special tool for assembling the seal on rear axle shaft	
MT 1318	Special tool for removing and re-assembling rear suspension spring.	

TOOLS FOR DIFFERENT OPERATIONS

Number	Operation	Tool
MT 1296	Chocke cable locking wrench.	
MT 1297	Speedometer cable locking tool.	
MT 1298	Door deflector nut removing tool.	