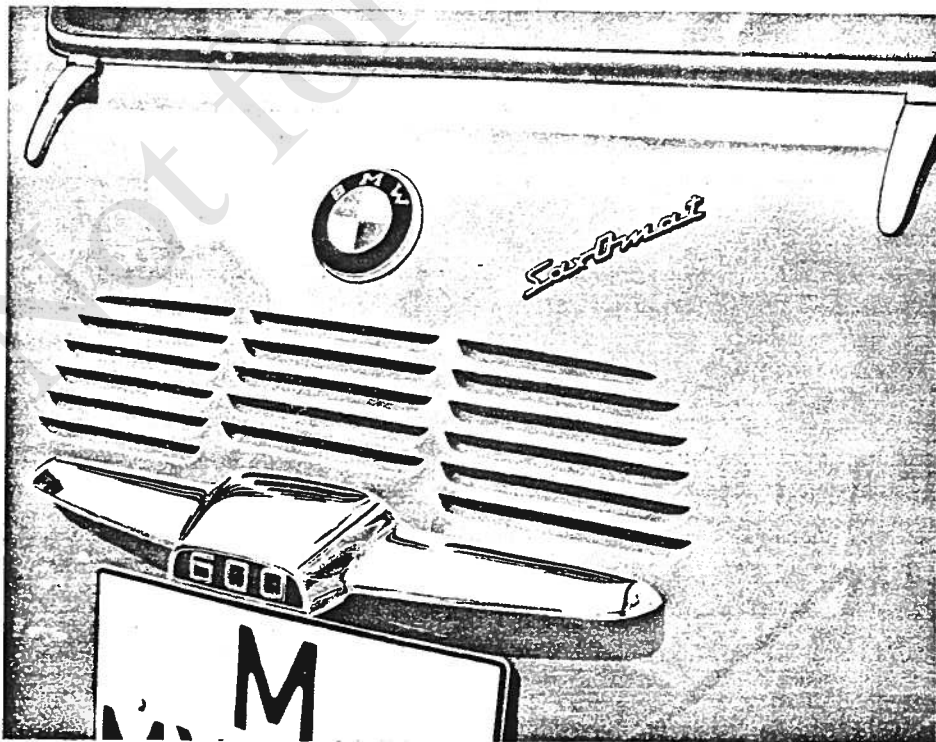


Sonderausstattung

Equipement spécial

Special Equipment

Equipo especial



Equipement spécial

S = Special Equipment

L'embrayage automatique trifuge « Saxomat »

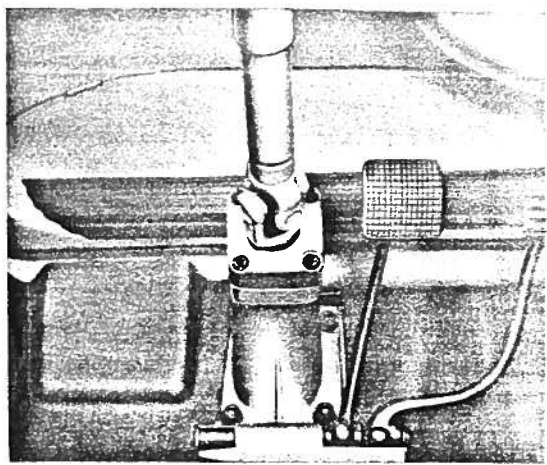
S 1 = The "Saxomat" Automatic Clutch System

Le freinage automatique facilite et agrandement la conduite du véhicule. La pédale de débrayage est éliminée.

Operation
This automatic clutch system greatly simplifies the handling of the vehicle by eliminating the clutch pedal.

Fig. 521

Fig. 521



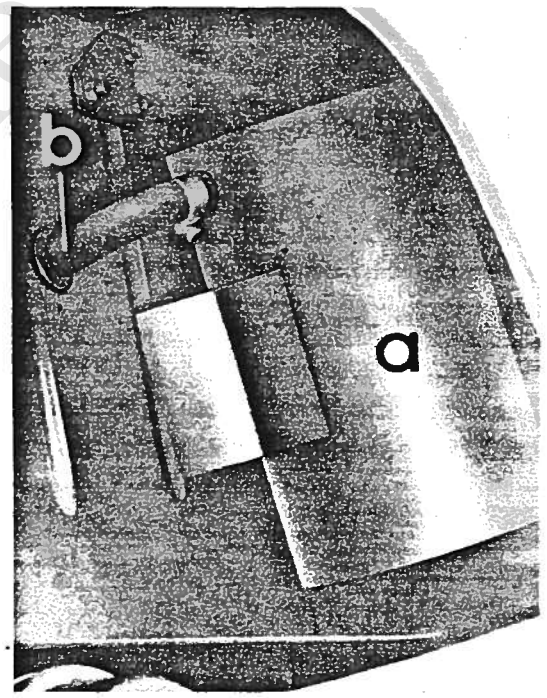
521

Quand le moteur est arrêté ou tourne à faible régime, le mécanisme est débrayé. Lors du départ, s'effectue automatiquement et avec douceur lorsque le régime du moteur s'élève sous l'action de l'accélérateur. Lorsque l'on opère le débrayage pendant la marche, le débrayage s'opère automatiquement sous l'effet d'un servomoteur actionné par la dépression dans le tube d'admission. Pour le cas où la dépression ne suffirait pas, une réserve d'air (sous le coffrage arrière gauche) est prévue pour compléter à cette insuffisance.

When the engine is standing still and as long as it idles, the clutch is disengaged. As soon as the engine speed is increased by depressing the accelerator pedal, the clutch engages automatically and smoothly, causing the vehicle to move off. Whenever the gears are shifted with the car running, the clutch is disengaged by means of a servo unit actuated by air-vacuum delivered from the intake tube. An air-vacuum reservoir (a) is provided (below the left rear wheel arch) for the event of the air-vacuum in the intake tube being insufficient to operate the system.

Fig. 522

Fig. 522



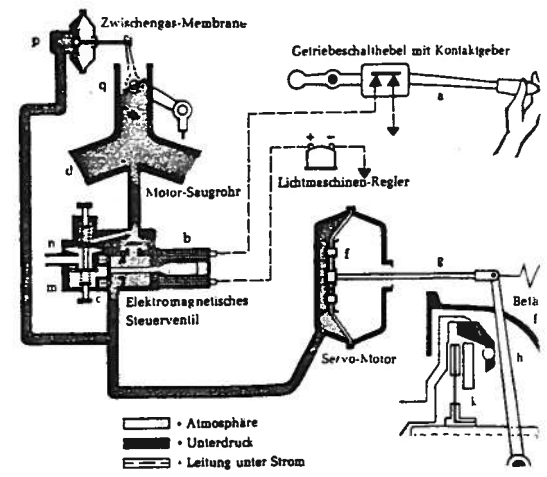
522

La commande du servo-moteur f s'effectue par la soupape c, à commande électromagnétique b, qui s'ouvre sous l'action du courant passant dans le tube d'admission d. Lorsque l'on touche le levier de commande, cette soupape relie le servo-moteur au tube d'admission d et le servo-moteur agit sur le mécanisme par une tringlerie g et h. Lorsque la soupape c ferme en coupant l'espace relié à l'air extérieur par la soupape de ventilation m.

The servo unit (f) is governed by the electromagnetic control valve (b), which is supplied with current whenever the gearshift lever is touched, in order to open the magnetic vacuum cut-in valve (c). This in turn connects the servo system to the intake tube (d) and causes the servo unit to disengage the clutch (k) by linkage rods (g) and (h), and simultaneously closes off atmosphere or outside air to the servo restrictor valve (m).

Fig. 523

Fig. 523



523

Après le passage de la première vitesse, le débrayage commence lorsqu'on relâche le levier de commande. Cette action coupe la liaison entre la dépression et le servo-système. Au même moment, la liaison est rétablie avec l'atmosphère et le servo-système. Cette action de la dépression et le débrayage qui en résulte s'opèrent en deux phases.

Re-engaging the clutch upon gear shifting starts with leaving the gearshift lever, by interrupting the electric circuit to the main control valve (b) and shutting-off the intake tube vacuum to the servo system by means of the vacuum valve (c). Simultaneously, the vacuum in the servo system is ventilated with atmosphere or outside air. The elimination of the vacuum and the clutch engagement caused herewith is performed in two stages.

du servo-moteur
 La première phase, la dépression du servo-moteur est très vite supprimée par le retour de la soupape de ventilation b lorsqu'on lâche le levier de commande. Dès lors, le couple moteur transmis alors au mécanisme, qui est fixé par la

Ventilation of servo unit
 During the first stage the air vacuum is after leaving the gearshift lever (a) and the herewith caused returning of the main control valve (b) in an instant eliminated to such an extent that the clutch comes into engagement. The amount of the clutch torque controlled

men

bsistant dans le servo-
être réglée au moyen de
de réduction m afin
olonté un réembrayage
ou très énergique.

Fig. 524

ème phase, la dépression
ns le servo-moteur se
essivement, par un petit
après environ 2 à 3
réembrayage est totale-
Ce retard ne se produit
e pour autant que l'on ne
de gaz. Pour empêcher
de patiner exagérément,
ngement de vitesse, ou
érations énergiques, le
de la dépression est
ne membrane n, soumise
ressort.

Fig. 525

ne agit contre l'effet de
e la soupape de réduction
donne brusquement des
ession dans la tubulure
diminue. La membrane
la tubulure d'admission,
— sous l'effet de son
la soupape m et accélère
u servo-moteur. Ainsi,
revient d'autant plus vite
le que l'on donne plus
les gaz après le passage.

Fig. 526

e de gaz intermédiaires
trop forte du régime du
it le changement pourrait
te une action de débrayage
centrifuge, prolongeant
se du réembrayage. Un
e gaz intermédiaires évite
ient en élevant, pendant
nt de vitesse, le régime du
sus du point d'embrayage
centrifuge (1300 à 1600
action sur le papillon de
rateur.

ge
embrayage centrifuge est
dispositif de verrouillage
lors de panne du démar-
en marche du moteur en
véhicule ou en le laissant
ne pente et donnant la
'utiliser le moteur comme
parcage. Les cliquets de
ne peuvent supporter que
du couple moteur; ainsi,
t ne peut être occasionné
accidentelle d'un cliquet
hicule roule. Le verrouillage
dans le sens de rotation et
du régime du moteur. Ainsi,
aisse la voiture sur
ur, si elle est dans le
descente, une vitesse avant
t dans le sens de la montée,
arrière, afin que le moteur
r de frein.

Fig. 527

by the remaining vacuum in the servo
unit may with the aid of the servo
restrictor valve (m) be adjusted at will
for smoother or harsher clutch engage-
ment.

Fig. 524

During the second stage the remained
air vacuum in the servo unit is slowly
eliminated through a small jet, so as
to complete clutch engagement after
approximately three seconds. This re-
tarding action, however, can only be
accomplished as long as the car is not
accelerated. With the scope of avoid-
ing hampering clutch slippage for fast
acceleration after shifting, a spring-
loaded diaphragm (n) is provided,
which in this case eliminates the air
vacuum in an instant.

Fig. 525

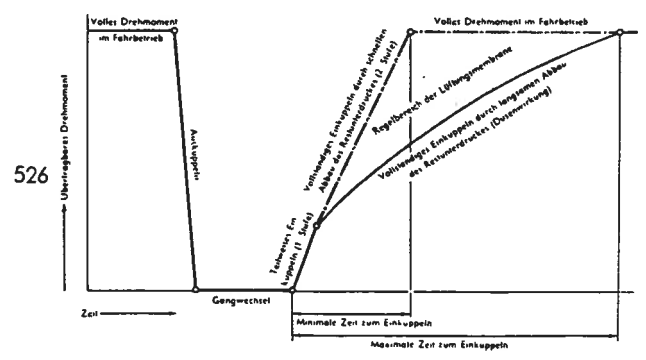
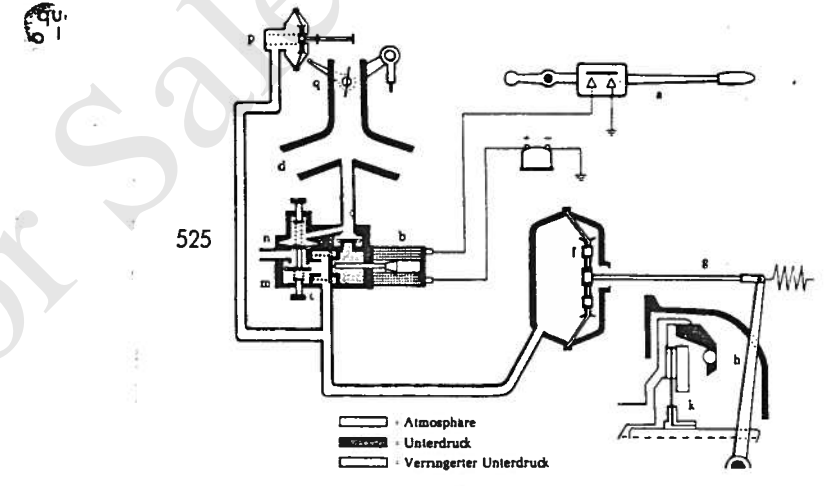
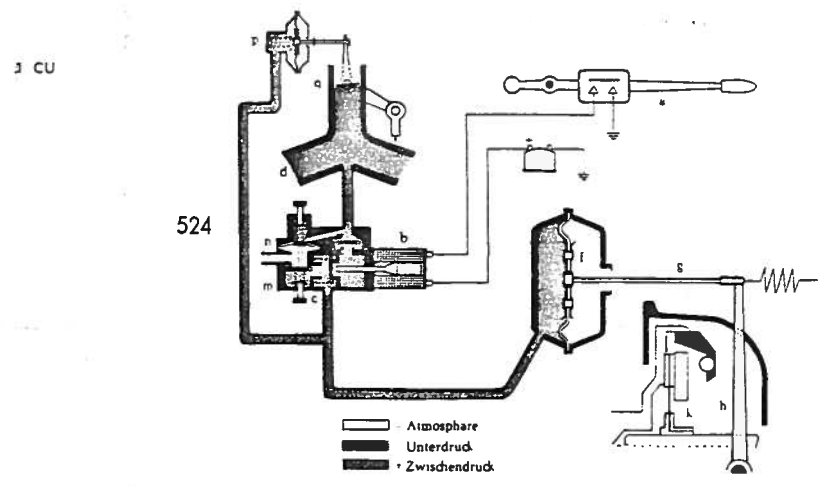
The diaphragm counterbalances the
closing pressure of the servo restrictor
valve (m) in response to the decrease
of the air vacuum power in the intake
tube due to sudden throttle openings.
Owing to the pressure the diaphragm
exerts on the servo restrictor valve (m),
the servo unit is quicker ventilated so
the clutch comes the sooner in complete
engagement, the faster the car is ac-
celerated.

Fig. 526

The shift speed balancing diaphragm
A considerable drop of the engine
speed during gear shifting is likely to
raise the governor weights, causing the
clutch to remain disengaged for an un-
desired length of time. This is avoided
by the shift speed balancing diaphragm
(p), which opens the throttle valve in
the carburetor as necessary as to main-
tain the engine speed somewhat above
the r.p.m.-rate, at which the centrifugal
clutch is engaged (approx. 1300-1600
r.p.m.).

The locking device
Moreover the centrifugal clutch posses-
ses a locking mechanism which in case
of starter failure allows to start the
engine by towing or pushing the vehicle,
or to use the engine as parking brake.
The locking pawls are mounted by
means of friction discs and can only
transmit approx. 30% of the engine
torque, so that damages by engage-
ment of the locking pawls with the
vehicle running are excluded. The
locking mechanism is only effective in
one direction of rotation and below
the engine idling speed. When parking
the vehicle in a downhill position, it is
therefore always necessary to engage
a forward gear or, when the car is in
uphill position, the reverse gear, so as
to use the engine as parking brake.

Fig. 527



S2 = Installation and Maintenance of the Saxomat

500 est livrée sur
omat. Pour des
montage après
considérations
ent donc
urage sur un
du Saxomat. Des
ers organes du
s être entrepris.
s sont à remplacer

The Limousine BMW 600 is on request available with the Saxomat system. The later installation on finished cars is not intended for economical reasons. The following indications therefore refer only to replacement operations on those vehicles which are already equipped with the Saxomat system. On principle no repairs should be carried out on the various components of the Saxomat system. Damaged parts are to be replaced by new ones.

Page centrifuge

Installation of centrifugal clutch

du volant doivent
. Avant de monter
dans l'embrayage
surer qu'il coulisse
trop de jeu, sur
lisser les rainures
bitée épaisse, qui
pouvoir atteindre
tures.

Tighten the flywheel mounting bolts to 43.4 foot-pounds torque. Before inserting the driven plate in the centrifugal clutch, check the driven plate for easy slippage on the splined shaft and for freedom from excessive clearance. Coat the grooves of the splined shaft with a mixture of viscous oil and graphite, taking care to absolutely avoid excessive lubrication as this is likely to forward oil to the clutch facings.

opérations de
normal, il
ar le disque
plateau et, par une
du dispositif de
en prise avec les

Place the driven plate, contrary to the usual practice to be followed for installing the conventional type of clutch, in position on the pressure plate and bring the locking plate with a counter-clockwise rotation in engagement with the pawls.

Fig. 528

Fig. 528

fuge doit alors, avec
nt posé, être monté
ucun cas il ne faut
isque dans le volant
embrayage.

Then fit the centrifugal clutch with the placed-on driven plate to the flywheel. Absolutely avoid inserting the driven plate first alone and installing the remaining clutch components afterwards.

Fig. 529

Fig. 529

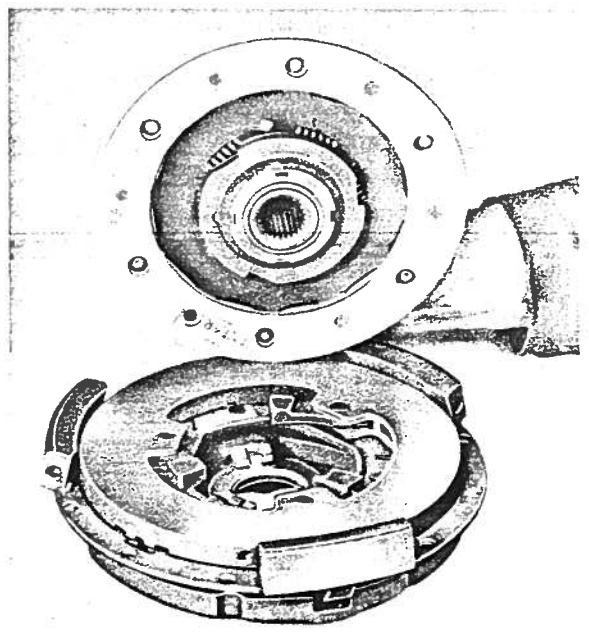
le volant, il n'y a pas
te d'une pression de
embrayage est assuré
masselottes et des
l. Après montage de
le volant et blocage
doit pouvoir tourner
e du sens de
Dans le sens
le, le disque
par les cliquets de

Since the centrifugal clutch is disengaged through the centrifugal weights and throw-out springs, no spring pressure must be subdued when installing the clutch in the flywheel. Upon tightening the clutch assembly to the flywheel, the driven plate must turn easily when being revolved contrary to the direction of engine rotation. When the driven plate is revolved in direction of engine rotation, it must be blocked by the engaging locking pawls.

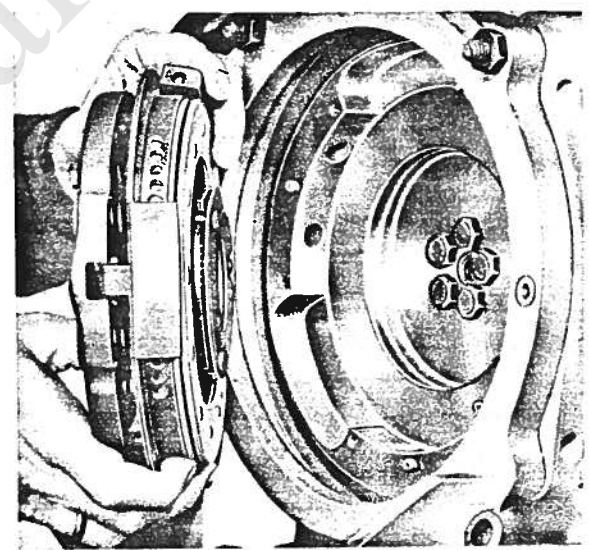
Fig. 530

Fig. 530

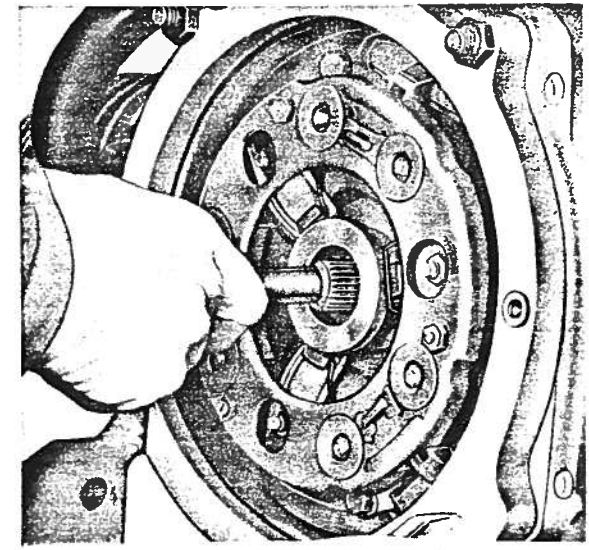
528



529



530



te es

ion

la tringlerie de débrayage

ins la position « débrayé ». écoupler la liaison entre le ervo-moteur a et la tringle de débrayage. Placer à la la tringle c avec le e à fond dans la ème de débrayage. Régler gle de telle sorte que le vo-moteur soit ramené de n arrière de sa butée de 'brayé», puis recoupler la rier.

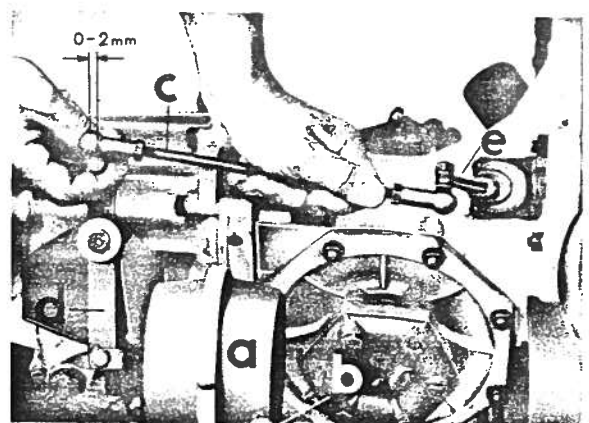
Fig. 531

Adjustment of clutch linkage

The adjustment of the clutch linkage is carried out in the released position. For this purpose, disconnect the lever (d) linked to the servo unit (a) from the clutch lever rod (c). Then move lever (d) and rod (c) together with the clutch lever by hand as far as they will go in the "release" direction. Thereupon adjust the linkage so the lever on the servo unit has for 0-2 mm (0-0.08") to be returned for connection to the rod.

Fig. 531

531



a soupape de commande

u 2000 km., une correction e de commande peut être le réembrayage après e vitesse inférieure est énergique. Dans ce cas, il a vis de réglage g de la réduction d'environ 1/2 à sens des aiguilles d'une rendre le réembrayage tournant cette vis g dans é, l'embrayage devient e.

Fig. 532

Adjustment of main control valve

After 600 to 1200 miles a readjustment of the main control valve may become necessary. The need for this re-setting is indicated by a harsher clutch engagement, when shifting to lower gears. In this case rotate the adjusting screw (g) for the servo restrictor valve approx. one half to one turn in a clockwise direction, so as to render the clutch engagement smoother. Turning the adjusting screw counterclockwise makes the clutch engagement harsher.

Fig. 532

se

Elektroimán	Conexión para el diafragma de gases intermedarios	Tornillo regulador de la vólculo reductora
Electromagnet	Connection to compensating diaphragm	Adjusting screw fo servo restrictor valv
Electro-aimant	Raccord au diaphragme de gaz intermédiaires	Vis de réglage de la soupape de réduction

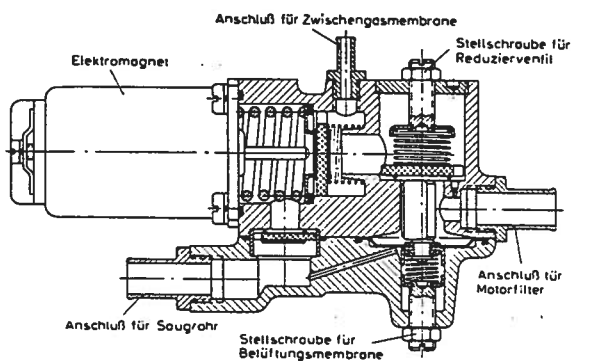
ig our la membrane, la vis g sert au embrayage lorsque l'on z immédiatement après la vitesse. En la tournant es aiguilles d'une montre, u, en sens inverse, on e totale de l'embrayage. ections électriques f à la gnétique de la soupape nverties dans le modinement.

Fig. 533

The adjusting screw (h) for the diaphragm, located opposite the adjusting screw for the servo restrictor valve, serves to adjust the clutch engagement for instant acceleration after gearshifting. Turning this screw clockwise accelerates clutch engagement, and turning counterclockwise retards it. The two electric connections for the solenoid of the main control valve may be interchanged at will without affecting the proper function of the main control valve.

Fig. 533

532



Raccord au tuyau d'admission	Vis de réglage du diafragme d'aération	Raccord au filtre du moteur
Connection to intake tube	Adjusting screw for vent diaphragm	Connection to engine filter
Conexión para tubo de aspiración	Tornillo regulador para diafragma de ventilación	Conexión para filt del motor

Dispositif de gaz inter-

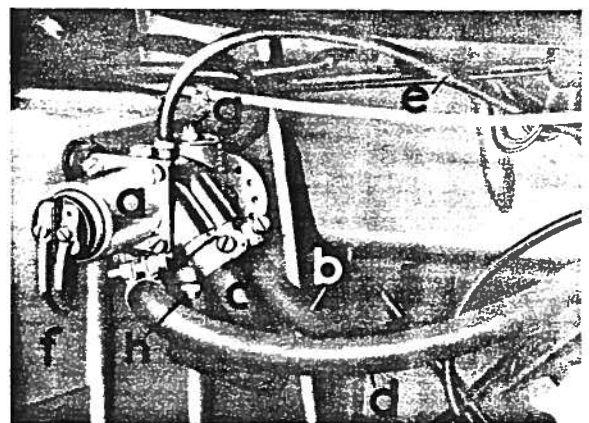
gaz intermédiaires doit es réglage correct de la ommande et le moteur

izontale, frein desserré, première vitesse et on sur le levier jusqu'à ce que le moteur doit tenir age soit atteint (environ régime est correct si, he ensuite le levier de rs engagé en première, it l'impulsion qui la m. Si l'impulsion açant la voiture m. — le régime est trop e cas, il faut limiter course de la membrane ns le sens opposé aux

Adjusting shift speed balancing unit

The regulation of the engine speed during gear shifting should only be carried out after the correct adjustment of the main control valve, when the engine has attained its normal operating temperature. With the car on a level position and released brakes shift into first gear and leave the hand on the gearshift lever (approx. 20 seconds) until the speed the engine should develop during the shifting process, is attained. This is the case when upon leaving the gearshift lever an impulse is created so as to move the vehicle some inches forward. If this impulse is too vehement, so that the car rolls farther than 20 inches, this is an indication that the r.p.m.-rate is too high. Then it will be necessary to slightly reduce the dia-

533



tre, l'écrou e sur la
 as d'impulsion (ou
 est trop bas. Il faut
 u e sur la tringle b
 uilles d'une montre
 e la membrane
 ouverture du

Fig. 534

phragm stroke by counterclockwise
 turning the adjuster nut (e) on the rod
 (b). If no impulse is given or only an
 insufficient one, the r.p.m.-rate is too
 low. In this event turn the adjuster nut
 (e) on the rod clockwise so as to in-
 crease the stroke of the diaphragm and
 the opening angle of the throttle valve.

Fig. 534

Adjustment of electric contactor in gearshift lever

à 0,25 mm. On le
 squ'à la butée la
 leur (les 2 contacts
 en la redesserrant
 l'un tiers de tour.
 écrou.

Fig. 535

The distance between the contacts should be from 0.008" to 0.010". To adjust for this distance, screw the contactor sleeve (a) down to the stop position (the two contacts touch each other). Then back off the sleeve one third of a turn and retain this adjustment by tightening the counter nut.

Fig. 535

Air cleaner

sur la soupape de
 lavé à la benzine
 ré au jet d'air sous
 ent enduit d'huile.

The air filter fitted to the main control valve should every 2,500 miles be cleaned in a suitable solvent, blown out with compressed air and slightly moistened with oil.

Electromagnetic fuel shut-off cock

nt d'allumage,
 tique permet au
 au carburateur. Un
 onducteur, saillis-
 depuis le robinet,
 in jaune (12v/2w)
 npteur quand le
 le niveau réserve.

When the ignition switch is turned on, the magnetic valve allows fuel to flow to the carburetor. A semi-conducting sending unit, projecting in the fuel tank from the cock, causes a yellow indicator light (12 V / 2 W) located in the speedometer dial to flash on when the fuel level has lowered down to the reserve supply position.

riques, les contacts
 ordements doivent
 de leur bon état
 ce que la soupape
 l'alimentation en
 it privée de tension

The electric leads should be checked for proper conditions, correct terminal contact and appropriate connections, since the magnetic valve shuts off the fuel supply, as soon as it receives no voltage. If the terminal e (green lead from the ignition coil) is supplied with voltage and the magnetic valve fails to open despite the voltage feed, the fault resides within the magnetic valve. If the reserve supply warning light does not come on though the lamp and the leads are in correct conditions, the semi-conducting sending unit must be replaced with a new one. Repairs on sending unit and magnetic valve can only be carried out by the manufacturer of these accessories.

ique ne s'ouvre pas
 rne e (câble vert
 e d'allumage) se
 le défaut réside
 : soupape magné-
 -jaune du niveau
 : pas lorsque la
 e trouvent en bon
 er le transmetteur

ues:
 steur)
 i de bobine
 age droite, borne 15)
 x jaune)

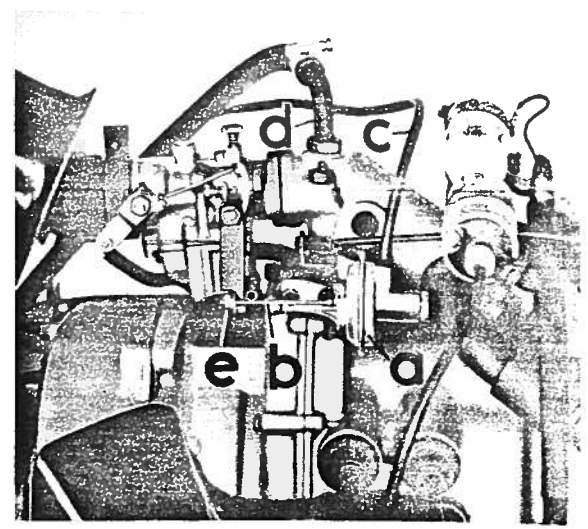
Fig. 536

Lead terminals

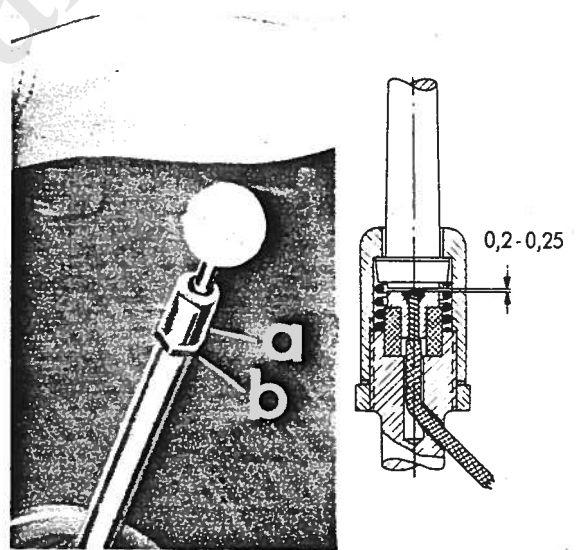
- a = brown (valve)
- b = green (valve)
- c = green or grey (sending unit)
- d = brown (ground; right-hand ignition coil mounting)
- e = green (right ignition coil, terminal 15)
- f = grey (yellow indicator light)

Fig. 536

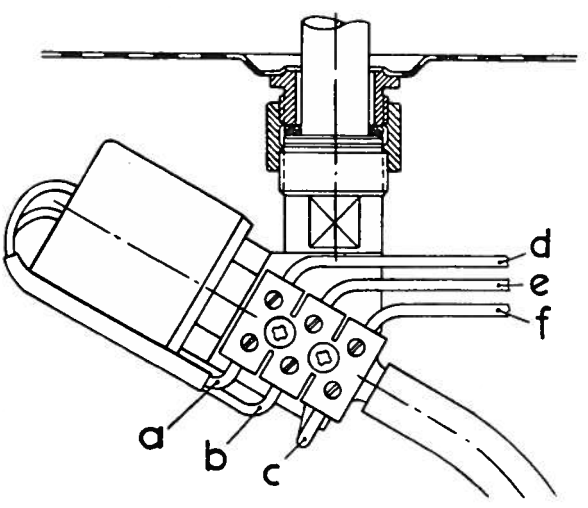
534



535



536



S3 = Eliminating Troubles on the Saxomat

Troubles, possible causes and remedies:

- Slipping centrifugal clutch with full throttle openings (immediately after the shifting and later on).
- a) Oil on facings. — Replace facings and eliminate oil leaks.
 - b) Defective centrifugal clutch, caused by overheating or by damaged coupling parts. — Replace centrifugal clutch.
 - c) Improper adjustment of clutch control linkage. — Reset and check if with engine speeds above 2000 r.p.m. free travel is provided in the clutch linkage.
2. Excessive slipping time after shifting.
- a) Servo restrictor valve too near to closed position. — Readjust the setting.
 - b) Set screw for vent diaphragm too far from closed position. — Readjust the setting.
3. Grinding clutch with stationary car, which tends to creep.
- a) Engine idling speed too high. — Readjust engine idling speed.
 - b) Clutch plate hub sticking on main drive shaft splines. — Recondition splines, eventually replace clutch plate.
 - c) Bent clutch plate or warped or broken facings. — Replace clutch plate.
 - d) Improper adjustment of centrifugal clutch or return spring ineffective. — Replace centrifugal clutch.
4. Clutch fails to stand still on gear shifting only.
- a) Incorrect adjustment of clutch linkage. — Check adjustment and reset.
 - b) Leakages in the flexible lines or on the vacuum reservoir. — Eliminate leakages.
 - c) Damaged rubber bellows in servo unit. — Replace servo unit.
5. Clutch fails to disengage on gear shifting with car running.
- a) Open circuit in lead to control valve solenoid. — Eliminate cause of open circuit, eventually replace fuse.
 - b) Contact surfaces in gearshift lever pitted or dirty. — Clean contact surfaces and if necessary replace gearshift lever.
 - c) Damaged solenoid in main control valve. — Replace solenoid.
 - d) Interruption or heavy leakage of a flexible line. — Replace the hose.
 - e) Damaged rubber bellows in servo unit. — Replace servo unit.
6. Clutch fails to engage after gear shifting.
- a) Sticking contactor or bridged by foreign bodies. — Clean contactor and recondition. Eventually replace gearshift lever.
 - b) Lead from contactor to control valve solenoid grounded. — Eliminate grounded condition and if necessary, replace the lead with a new one.
7. Grabbing clutch.
- a) Oil or grease on facings. — Replace facings (use original facings recommended by the factory).
 - b) Improper adjustment of centrifugal clutch. — Replace centrifugal clutch.
 - c) Warped friction surfaces on pressure plate or flywheel. — Reface or replace flywheel, or replace centrifugal clutch.
8. Engine speed fails to increase during the gear shifting process.
- a) Flexible line from main control valve to shift speed balancing diaphragm interrupted. — Replace the hose in question.
 - b) Damaged shift speed balancing diaphragm. — Replace diaphragm.
 - c) Operating linkage connecting shift speed balancing diaphragm to carburetor improperly adjusted. — Readjust the linkage.
 - d) Binding carburetor links. — Recondition carburetor links.
9. Clutch remains constantly disengaged.
- a) Contact surfaces of contactor in gearshift lever in permanent contact (bridge formation). — Clean contacts on gearshift lever. Readjust contact gap.
 - b) One of the two leads from solenoid to gearshift lever or to battery is grounded. The electric circuit is then always closed and the servo unit permanently connected to the vacuum source in the intake tube. — Check leads for correct insulation.
- When this trouble appears with the vehicle on the road, the following provisory remedy is suggested for reaching the next service shop: Disconnect one lead from the solenoid and continue driving with the gears in second or third.
10. Fuel supply to carburetor is insufficient or interrupted.
- a) The plastic plate in the valve piston of the electromagnetic fuel shut-off cock is warped or swollen, so that the fuel passage in the petcock is narrowed on this spot. — If this trouble appears while the vehicle is on the road, the following provisory remedy can be made: Remove the fuel hose from the valve and keep the hose opening shut. Insert a thin wire hook (paper clip, etc.) in the fuel tap, beneath the piston, so as to raise it slightly, and reinstall the fuel hose. The fuel tap should then be replaced on the next opportunity.