

MAINTENANCE.

Engine and Chassis.

It is of the utmost importance that there should be no leakage in the combustion chambers; all the carburettor and induction manifold joints, etc., must be kept absolutely tight.

When the Car is new, after the first 500 miles, the cylinder-head holding-down nuts should be tightened up gradually and uniformly, moving diagonally from back to front, and making the tightening up a progressive and uniform operation, so as not to strain the casting. This should be carried out when the engine is practically cold.

Faulty valves and piston rings will cause leakages in the cylinders themselves, which will result in loss of power; leakage past the piston rings may be caused by wear or loss of tension; such rings must be replaced. Rings which are sticking as a consequence of the car not being used for some considerable time also cause leakage, and may be loosened by means of a few drops of paraffin injected into the cylinders individually, or in the form of a spray through the air intake of the carburettor.

It will be found preferable to set the valve clearances between the rocker pad and the cam. The setting should be made when the peak of the cam is vertical.

The valve clearances differ considerably on various engine series, and they are taken, as mentioned above, between the camshaft itself and the rocker pad.

Generally the correct clearance will be found stamped on the camshaft, the figure being in millimetres or decimal fractions of a millimetre.

The clearance is from .32m/m. (13/1000ths inch to 1.0m/m. (40/1000ths inch) dependent upon the type of camshaft fitted.

The clearance as sent out by the London Depot when new, should be noted and adhered to. The clearance, if altered, is likely to result in noise of operation, and the easy starting of the engine is affected to a much greater degree than would be imagined.

Insufficient clearance will result in leakage and damage to the valve faces and seatings, but if discovered in good time may be remedied by correct adjustment, though possibly re-grinding may be necessary.

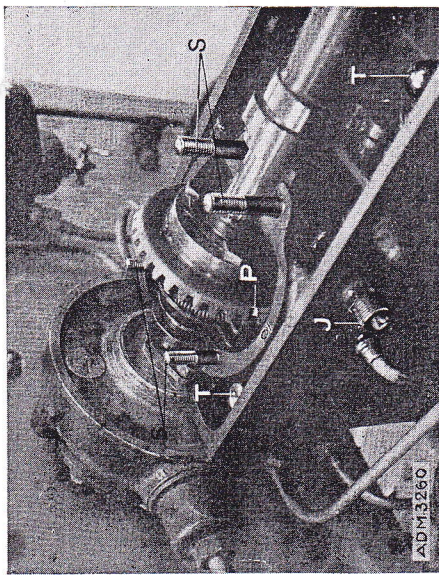


Fig. 14. LIFTING THE CYLINDER HEAD (3).

After the protecting cap R, Fig. 12, has been removed by loosening the nuts S, the camshaft is set at commencement of induction stroke in the first cylinder, as described on page 40. The marked tooth coincides with the flange mark "O".

After loosening all the holding down nuts T of the cylinder head, this is lifted and removed. During this operation care must be taken that the cylinder head gasket is not damaged.

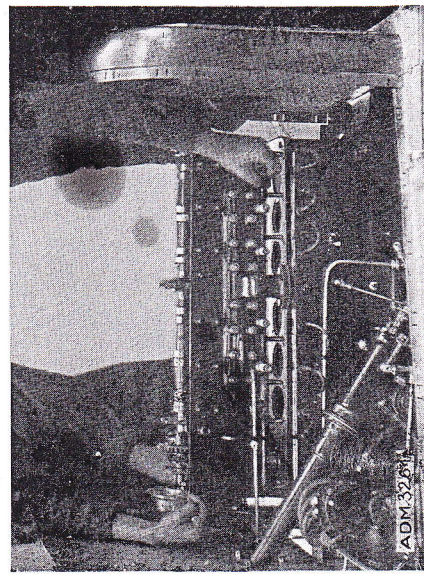


Fig. 15. LIFTING THE CYLINDER HEAD (4).

On new Cars, or after the valves have been ground in, the setting should be checked after about 500 miles. A feeler gauge is now being issued with every Chassis, so that this clearance may be readily checked.

Naturally when dismantling any part of the Car all the various items, if not already marked should have this done, so that they may be replaced in exactly the same order and position when re-assembling.

Valve-grinding is carried out in the usual manner, the cylinder head being first removed, when all work may be conveniently carried out on the bench. Finally, the parts should be thoroughly cleaned with paraffin or petrol, so that all traces of grinding paste are removed before re-assembly. Any carbon deposit which may have collected on the pistons or walls of the combustion chamber must be scraped off, due care being exercised that the surfaces are not damaged in the process.

If the engine receives proper treatment it will only be necessary to lift the cylinder head or remove the lower half crankcase for cleaning out the oil sump occasionally.

WHEN REMOVING THE CYLINDER HEAD (Figs. 12-15) or dismantling the camshaft, in order to prevent difficulties when re-assembling, the piston in the first cylinder should previously be set at top dead centre at the commencement of the induction stroke (Fig. 11) (note position of inlet cam *n*). The marked tooth *z* of the camshaft driving gear will then be exactly opposite the mark "o" on the induction side of the cylinder head (see Fig. 14).

When the camshaft or the cylinder head has been removed the engine must not be turned as the re-setting of the timing will then be complicated, but if the hints mentioned above are followed, re-assembly will be an easy matter.

The correct position of the magneto and lighting dynamo drive, respectively, in relation to the position of the crankshaft is shown by red marks painted across the Simms couplings (*, Fig. 11).

Average Valve Timing Measured on the Piston.

Inlet Opens	0.3 m/m before T.D. Centre.
Inlet Closes	13.1 m/m after B.D. Centre.
Exhaust Opens	16.05 m/m before B.D. Centre.
Exhaust Closes	2.25 m/m after T.D. Centre.
Maximum Ignition Advance	13 m/m.

The engine can also be exactly timed by means of graduations on the circumference of the flywheel. This means, however, is only employed in the factory.

These graduations are inspected through the orifice disclosed when the dynamo is removed; a pointer will be found which should coincide with a marked tooth on the flywheel. In earlier engines the graduations were visible through the plug situated just aft of the rear cylinder on the top of the clutch casing.

The tension on the clutch operated fan should be such that when the engine is ticking over at its slowest revolutions, it should be possible to hold the fan from revolving by holding the blade with the hand.

If it is desired to change a valve spring with the valve in position the piston should be brought to top dead centre, so that the valve cannot drop in the cylinder. A tool (which can easily be made up) should be used to press uniformly upon the cotter cup, at the same time holding the valve from opening with a piece of rod through the sparking plug orifice. The cotter itself can then be removed.

If a new cylinder-head gasket is fitted the following procedure must be adopted. After tightening the cylinder-head cap nuts the engine should be run until it is hot; after it has cooled down the cap nuts should be again progressively and uniformly tightened. Copper washers are used on the cylinder-head studs, and these harden under the action of the heat. When removing these copper washers they should be annealed.

The Clutch being of the dry type requires no special attention. If it becomes harsh or slips after much use, it is best to dismantle and clean it; the facings in particular must be thoroughly cleaned two or three times with clean petrol. Projecting parts of the facings must be removed, and paraffin should not be used for cleaning. Before re-assembling dry all parts thoroughly. A similar treatment should be carried out if oil has accidentally reached the clutch. Worn facings or even a broken spring will cause the clutch to slip.

The wear of the clutch plates allow the clutch pedal to move back towards the under-side of the floor-board.

If the clutch Pedal touches the floor-board, it will not allow the clutch to engage properly.

The rod between the clutch pedal IV/93, and the inter-

Viskositäts-Vergleichstabellen und Umrechnungen

11.5

Viskositätstabelle Umrechnung der dynamischen und kinematischen Viskosität

Engler [?E]	mm ² /s (cSt.)
1,00	1,00
2,00	10,00
5,00	40,00
10,00	75,00
20,00	150,00
30,00	230,00
40,00	300,00
50,00	380,00
60,00	460,00
70,00	530,00
80,00	610,00
90,00	680,00
100,00	760,00
150,00	1150,00
200,00	1500,00
250,00	1900,00
300,00	2300,00
350,00	2700,00
400,00	3000,00
450,00	3400,00
500,00	3800,00

Formelzeichen	Bezeichnung	Kohärente Einheiten	Inkohärente Einheiten	Umrechnung
η	dynamische Zähigkeit	Pa s mPa s	P cP	Pa s = 1 kg/s m 1 Pa s = 1Ns/m 1 mPa s = 10 ⁻³ Pa s 1 mPa s = 1 cP
ν	kinematische Zähigkeit	m ² /s mm ² /s	St. cSt.	1 St. = 1 m ² /s 1 cSt. = 1mm ² /s ν [m ² /s] = $\frac{\eta}{\rho}$ [Pa s] ρ [kg/m ³]

Umrechnung für Viskosität ab 60 mm² s⁻²?

vorhanden gesucht	mm ² /s ⁻²	?E	SR 1 (Redwood No 1)	SSU (Saybold Universal)
mm ² /s	1	7,580	0,247	0,216
?E	0,132	1	0,0326	0,0285
SR1	4,050	30,700	1	0,887
SSU	4,620	35,110	1,140	1

Stoffwerte einiger Heiz- und Schmieröle in Abhängigkeit von der Temperatur

Medium	Temperatur t [°C]	Dichte ρ [kg/m ³]	kinem. Viskosität ν [mm ² /s]	Heizwert Hu [MJ/kg]	Flammpunkt T [°C]
Heizöl					
Heizöl „EL“	20	860	≤ 6	≥ 42,0	> 55
Heizöl „L“	20	1100	≥ 17	≥ 37,7	> 65
Heizöl „M“	50	1200	≥ 75	≥ 37,7	> 65
Heizöl „S“	50/100	Hersteller- angaben	≥ 450/40	≥ 39,8	> 65
Heizöl „ES“	-	-	-	-	-
Schmieröle					
SAE 5 W	20/50/100	-	34/11/3,5	-	-
SAE 10 W	20/50/100	-	55/15/4,5	-	-
SAE 15 W	20/50/100	-	137/30/6,5	-	-
SAE 20 W	20/50/100	-	219/43/8,5	-	-
SAE 30	20/50/100	-	345/61/11	-	-
SAE 50	20/50/100	-	865/125/19	-	-

Änderungen im Sinne des technischen Fortschritts vorbehalten

◀ Zurück | Produkte | Allgemeines | Weiter ▶

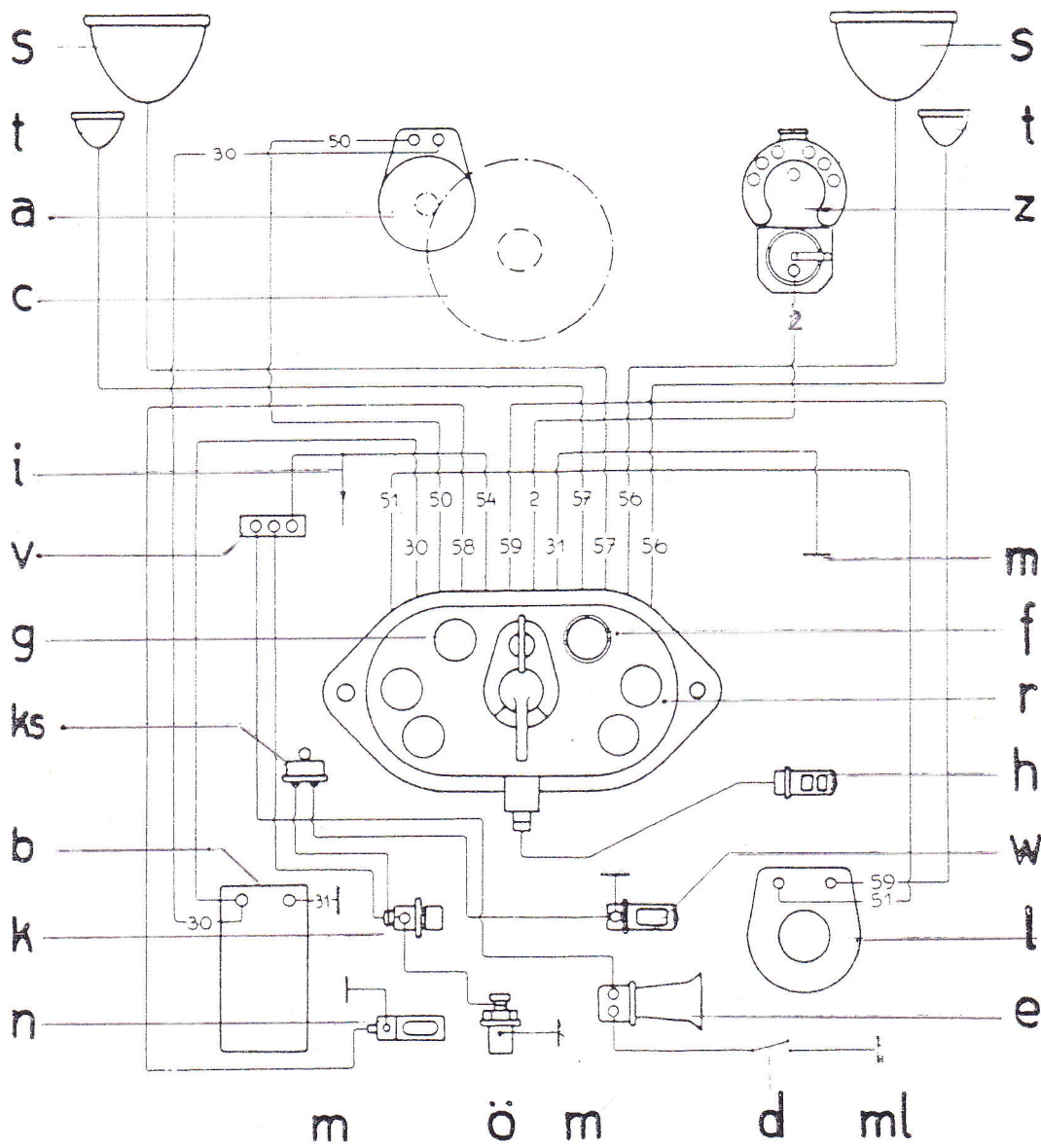


Abb. 10. Schaltungsschema.

- | | | | |
|----|--|----|---|
| r | Schaltkasten mit Ladekontrolllampe f und Anlasserdruckknopf g. | k. | Ölkontrolllampe mit Ölkontrollapparat ö. |
| g | Zündapparat. | ö | |
| z | Lichtmaschine. | v | Abzweigdose. |
| l | Batterie. | i | Reserveanschluß für Innenbeleuchtung. |
| b | Scheinwerfer. | e | Lärminstrument mit Druckknopf d und Anschluß an Masse der Lenkung ml. |
| s | Seitenlampen | ml | |
| t | Schlußlampe. | a | Anlasser. |
| n | Schalter zum Einschalten der Instrumentenbrettlampen w. | c | Schwungradkranz. |
| ks | Handlampe. | m | Masse. |
| w | | f | Kontrolllampe |
| h | | | |

30 Batt +
 31 Batt -
 15 Zündung
 51 Ladestrom 2. Batt
 54 Bremslicht

56 Licht
 56a Fernlicht
 56b Abblendl.
 58 Rücklicht
 61 Ladekontrolle
 140 Hupe

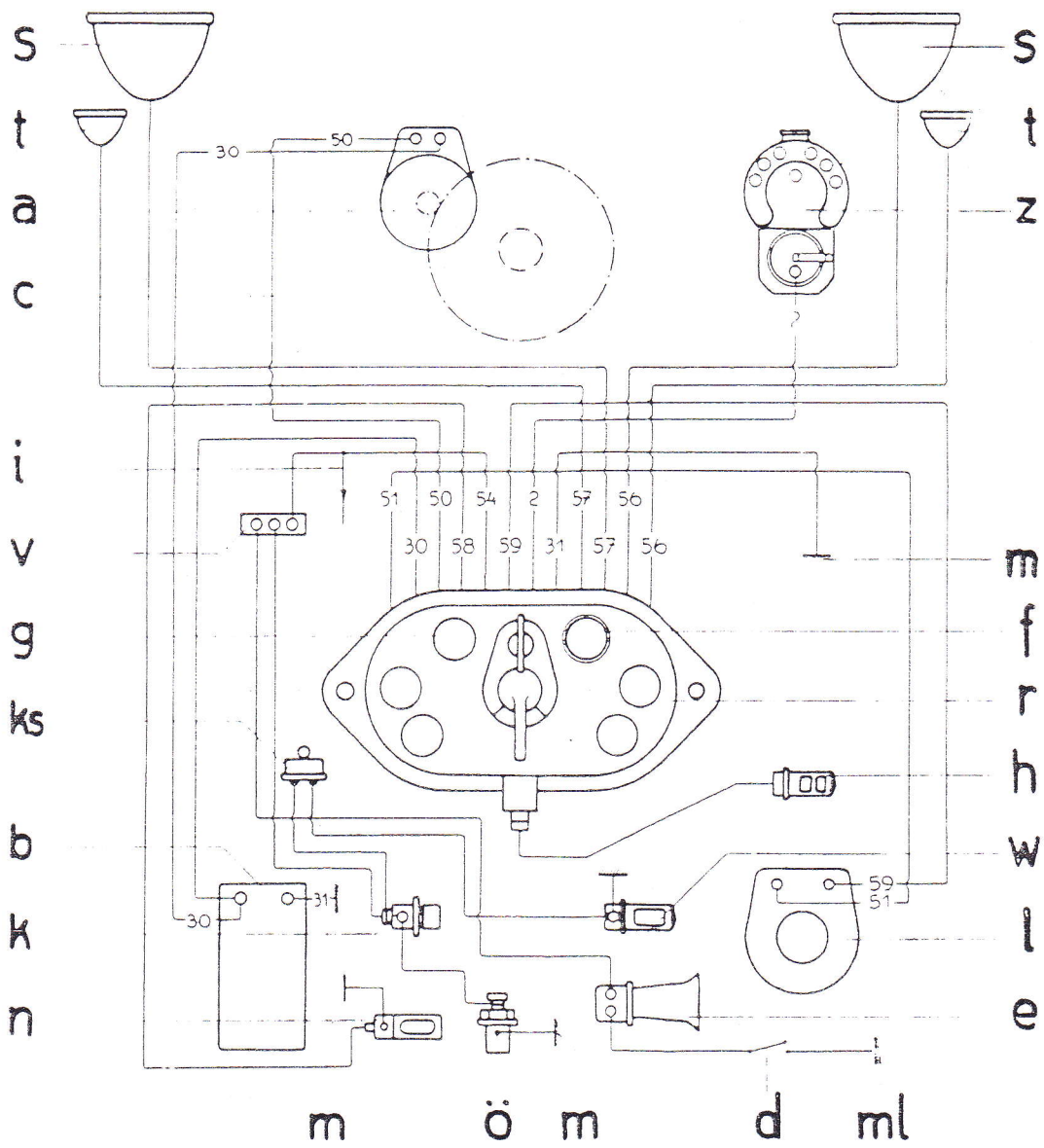
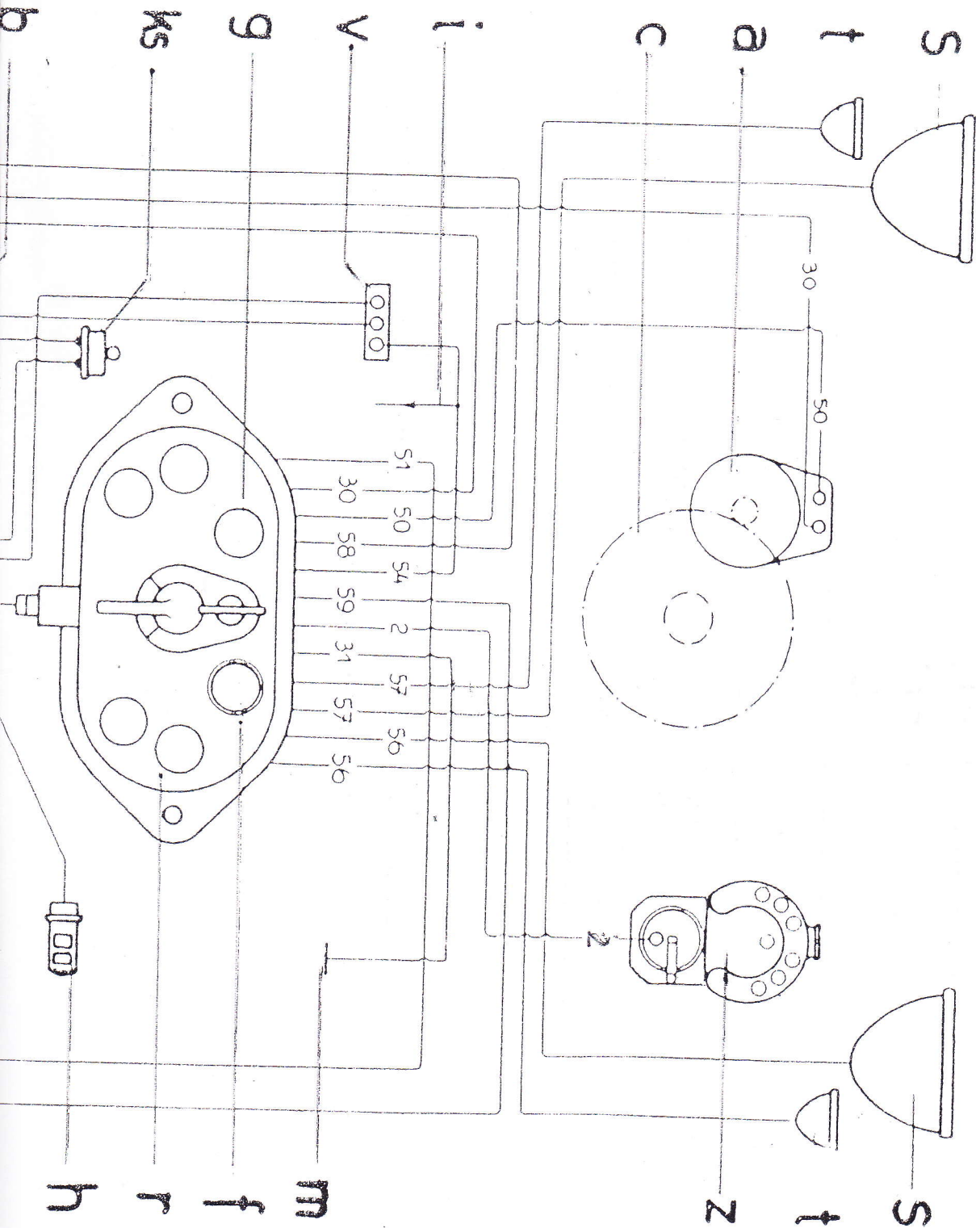


Abb. 10. Schaltungsschema.

- | | | | |
|----|--|---|---|
| r | Schaltkasten mit Ladekontrolllampe f und Anlasserdruckknopf g. | k | Ölkontrolllampe mit Ölkontrollapparat ö. |
| z | Zündapparat. | v | Abzweigdose. |
| l | Lichtmaschine. | i | Reserveanschluß für Innenbeleuchtung. |
| b | Batterie. | e | Lärminstrument mit Druckknopf d und Anschluß an Masse der Lenkung ml. |
| s | Scheinwerfer. | a | Anlasser. |
| t | Seitenlampen. | c | Schwungradkranz. |
| n | Schlußlampe. | m | Masse. |
| ks | Schalter zum Einschalten der Instrumentenbrettlampen w. | | |
| h | Handlampe. | | |



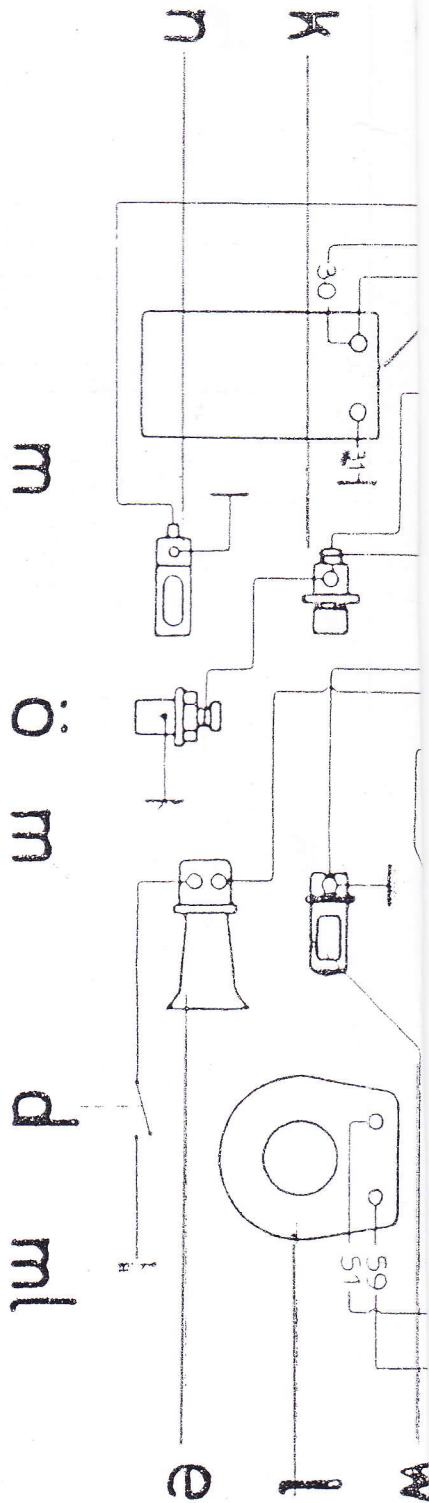


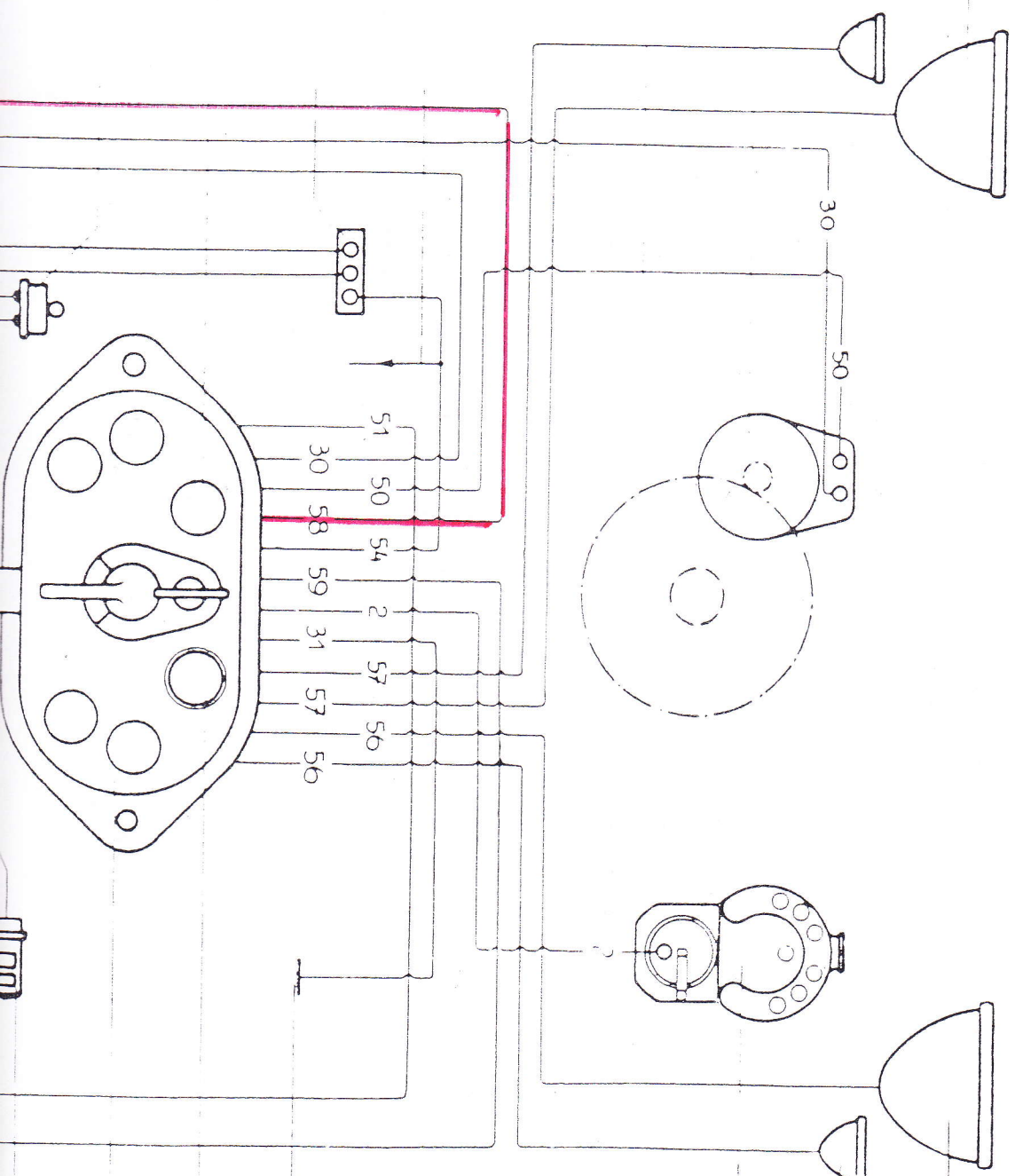
Abb. 10. Schaltungsschema.

- | | | | |
|----|--|---|--|
| r | Schaltkasten mit Ladekontrolllampe f und Anlasserdruckknopf g. | k | Ölkontrolllampe mit Ölkontrollapparat ö. |
| z | Zündapparat. | v | Abzweigdose. |
| l | Lichtmaschine. | i | Reserveanschluß für Innenbeleuchtung. |
| b | Batterie. | e | Lärminstrument mit Druckknopf d und Anschluß an Masse der Leuchtungs ml. |
| s | Scheinwerfer. | a | Anlasser. |
| t | Seitenlampen. | c | Schwungradkranz. |
| n | Schlußlampe. | m | Masse. |
| ks | Schalter zum Einschalten der Instrumentenbrettlampen w. | f | Kontrolllampe |
| w | Instrumentenbrettlampen w. | | |
| h | Handlampe. | | |

- 30 34H +
- 31 Bath -
- 45 Zündung
- 51 Ladestrom 2. Batt
- 54 Bremslicht

- 56 Licht
- 56a Fernlicht
- 56s Abblendl.
- 58 Rücklicht
- 61 Ladekontrolle
- 110 Hupe

S t a c k s



S t z

m f r h

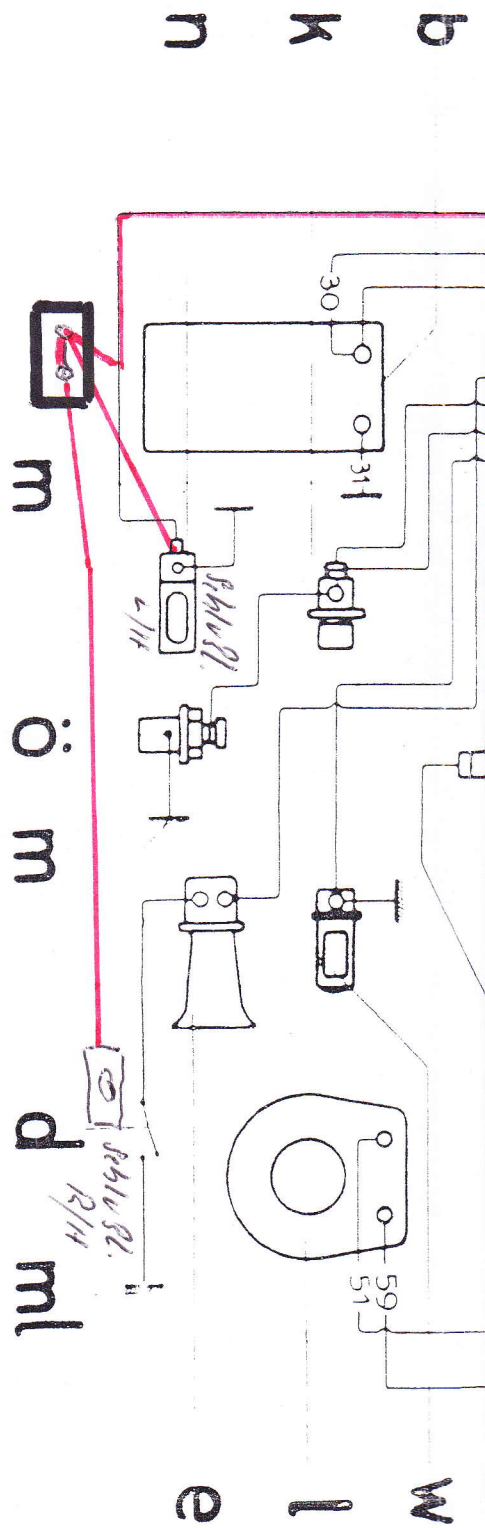
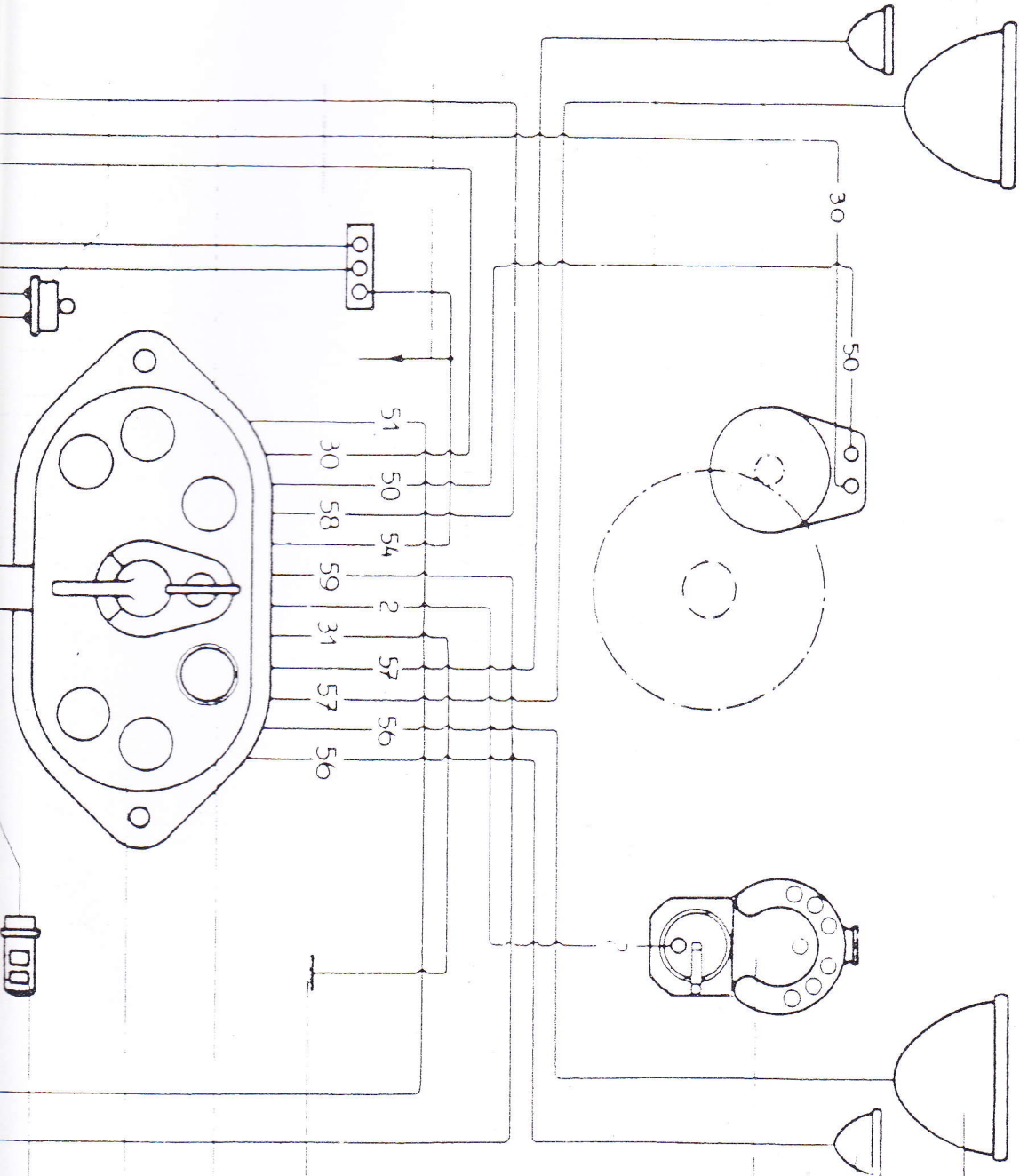


Abb. 10. Schaltungsschema.

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|----|--|---|--|
| r | Schaltkasten mit Ladekontrolllampe l und Anlasserdruckknopf g. | k | Ölkontrolllampe mit Ölkontrollapparat ö. |
| z | Zündapparat. | v | Abzweigdose. |
| l | Lichtmaschine. | i | Reserveanschluß für Innenbeleuchtung. |
| b | Batterie. | e | Lärminstrument mit Druckknopf d und Anschluß an Masse der Leuchung ml. |
| s | Scheinwerfer. | a | Anlasser. |
| t | Seitenlampen | c | Schwungradkranz. |
| n | Schlußlampe. | m | Masse. |
| ks | Schalter zum Einschalten der Instrumentenbrettlampen w. | | |
| h | Handlampe. | | |

S t a c i v g ks



S t z

m f r h

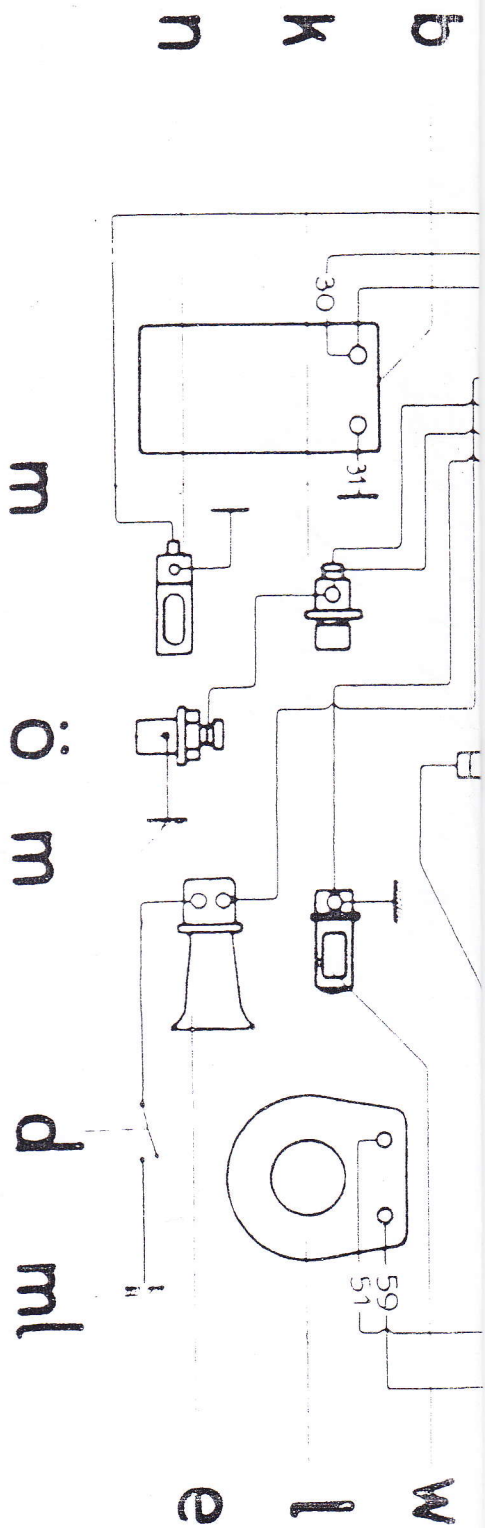


Abb. 10. Schaltungsschema.

- | | | | |
|----|--|---|---|
| f | Schaltkasten mit Ladekontrolllampe f und Anlasserdruckknopf g. | k | Ölkontrolllampe mit Ölkontrollapparat ö. |
| z | Zündapparat. | v | Abzweigdose. |
| l | Lichtmaschine. | i | Reserveanschluß für Innenbeleuchtung. |
| b | Batterie. | e | Lärminstrument mit Druckknopf d und Anschluß an Masse der Lenkung ml. |
| s | Scheinwerfer. | a | Anlasser. |
| t | Seitenlampen | c | Schwungradkranz. |
| n | Schlußlampe. | m | Masse. |
| ks | Schalter zum Einschalten der Instrumentenbrettlampen w. | | |
| h | Handlampe. | | |

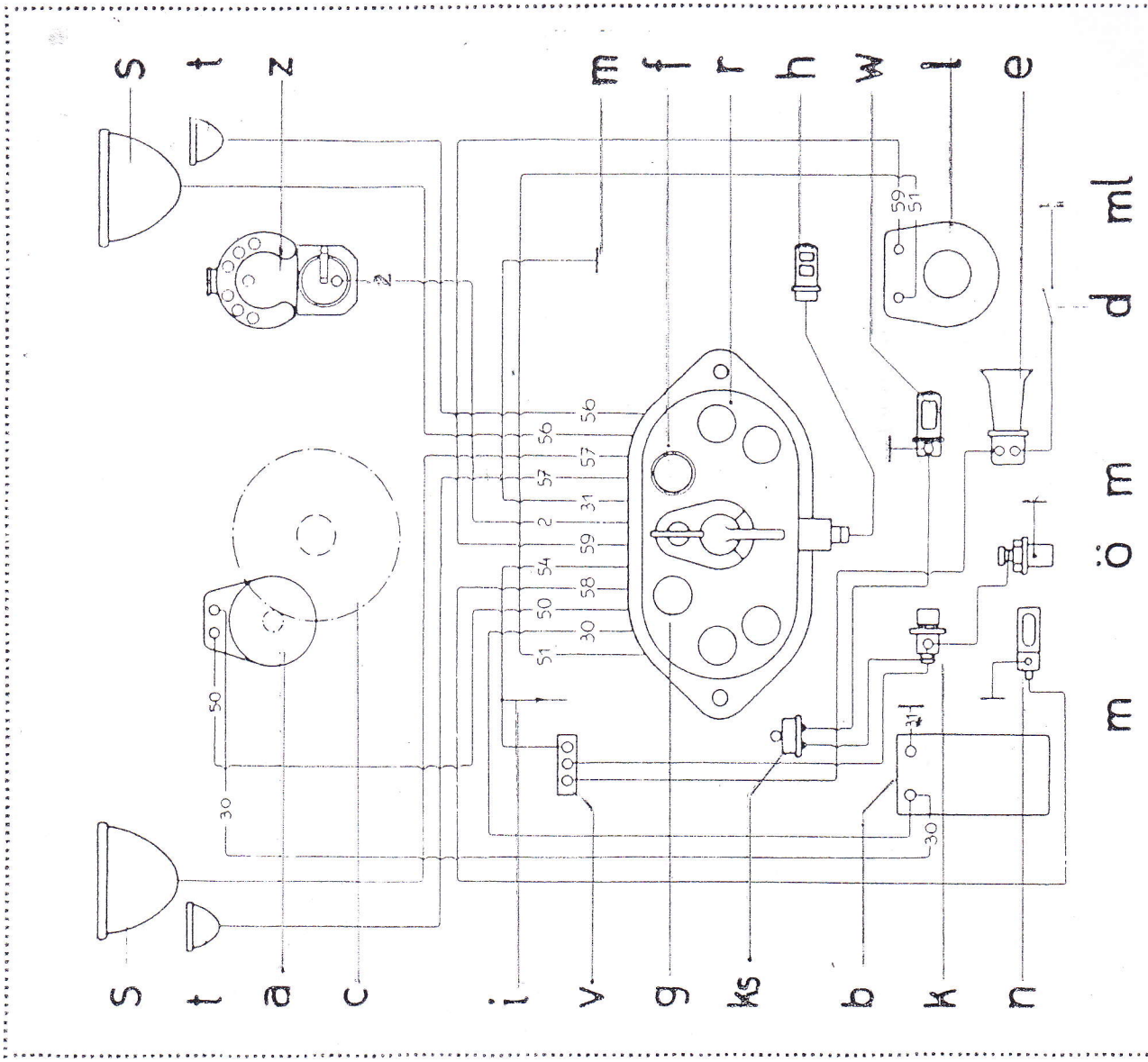
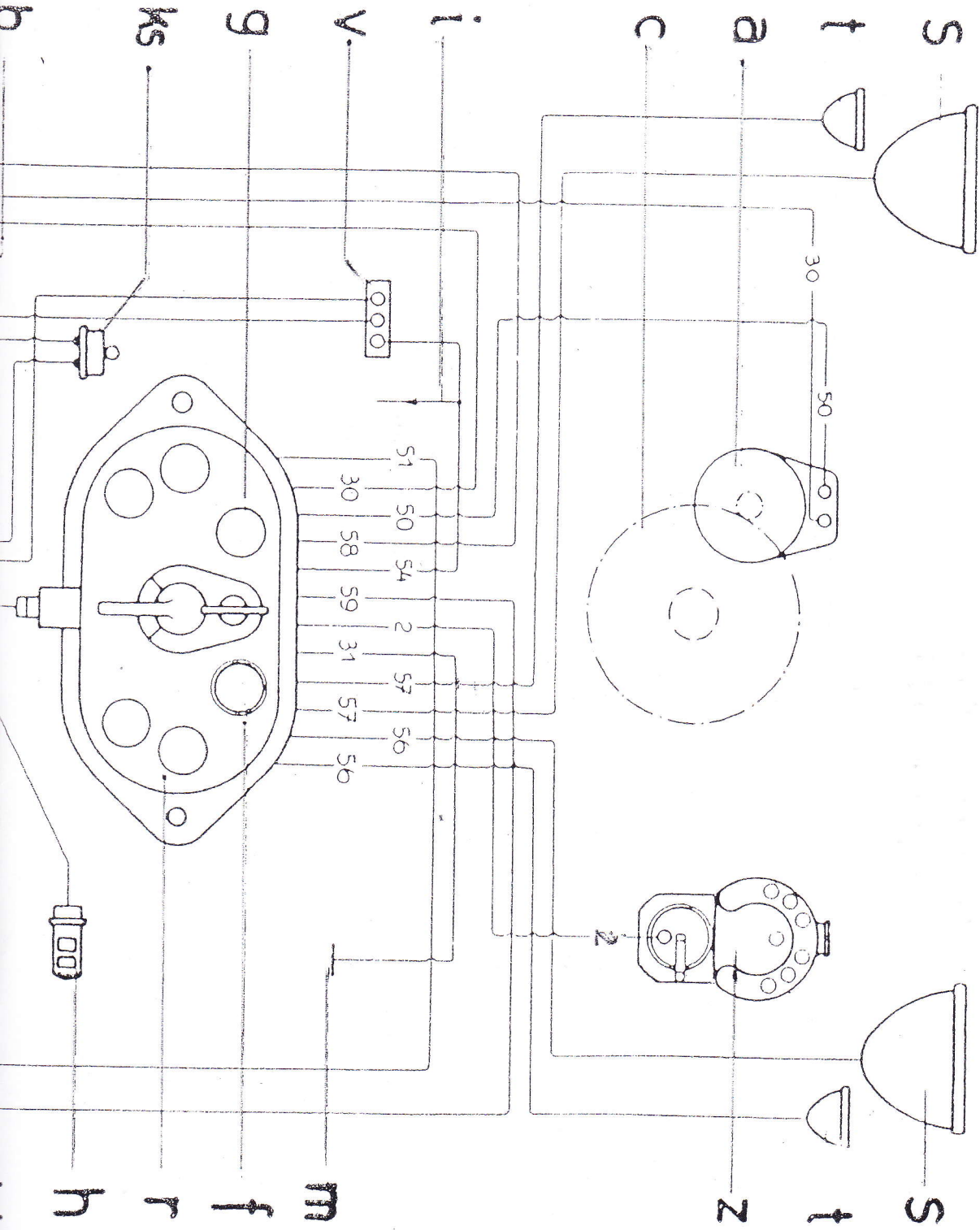


Abb. 10. Schaltungsschema.

r Schaltkasten mit Ladekontrolllampe f Ölkontrolllampe mit Ölkontroll-
 g und Anlasserdruckknopf s apparat ö

z	Zündapparat.	y	Abzweigdose.
l	Lichtmaschine.	i	Reserveanschluß für Innenbeleuchtung.
b	Batterie.	e	Lärminstrument mit Druckknopf d und Anschluß an Masse der Lenkung ml.
s	Scheinwerfer.	ml	Masse.
t	Seitenlampen.	a	Anlasser.
n	Schlußlampe.	c	Schwungradkranz.
ks	Schalter zum Einschalten der Instrumentenbrettlampen w.	m	Masse.
w	Instrumentenbrettlampen w.	f	Kontrolllampe
h	Handlampe.		

30	Batt +	56	Licht	27
31	Batt -	56a	Fernlicht	
15	Zündung	56s	Abblendl.	
51	Ladestrom 2. Batt	58	Rücklicht	
54	Bremslicht	61	Ladekontrolle	
		110	Hupe	



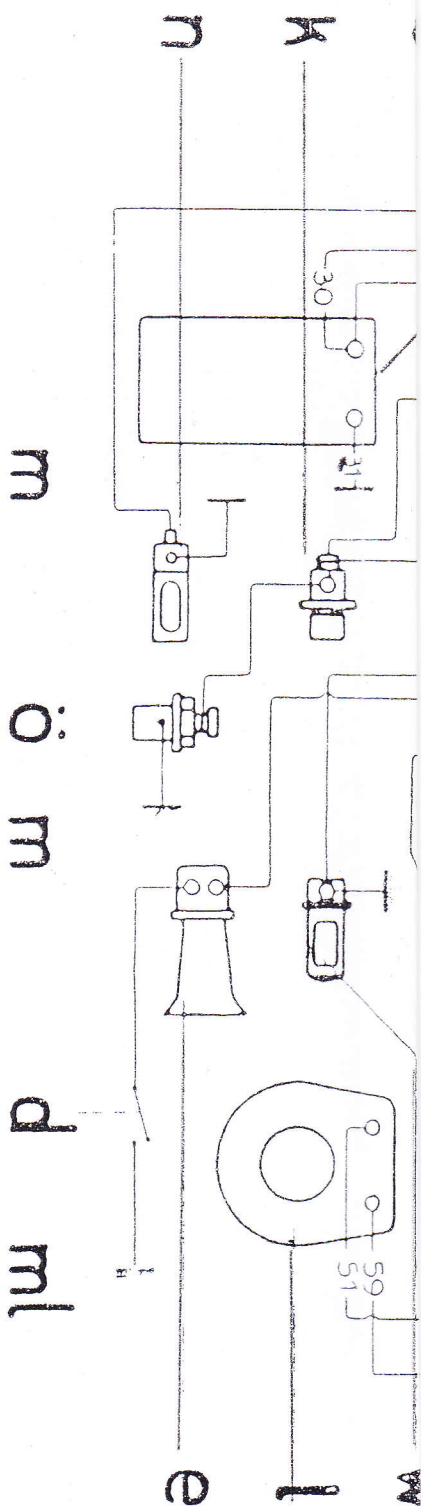


Abb. 10. Schaltungsschema.

- | | | | |
|----|--|---|---|
| r | Schaltkasten mit Ladekontrolllampe f und Anlasserdruckknopf g. | k | Ölkontrolllampe mit Ölkontrollapparat ö. |
| z | Zündapparat. | v | Abzweigdose. |
| l | Lichtmaschine. | i | Reserveanschluß für Innenbeleuchtung. |
| b | Batterie. | e | Lärminstrument mit Druckknopf d und Anschluß an Masse der Leuchte ml. |
| s | Scheinwerfer. | a | Anlasser. |
| t | Seitenlampen | c | Schwungradkranz. |
| n | Schlußlampe. | m | Masse. |
| ks | Schalter zum Einschalten der Instrumentenbrettlampen w. | F | Kontrolllampe |
| w | Instrumentenbrettlampen w. | | |
| h | Handlampe. | | |

- | | | | | | |
|----|-------------------|---|-----|---------------|----|
| 30 | Batt | f | 56 | Licht | 27 |
| 31 | Batt | - | 569 | Fernlicht | |
| 45 | Zündmg | | 565 | Abblendl. | |
| 51 | Ladestrom 2. Batt | | 58 | Rücklicht | |
| 54 | Bremslicht | | 61 | Ladekontrolle | |
| | | | 70 | Horn | |