

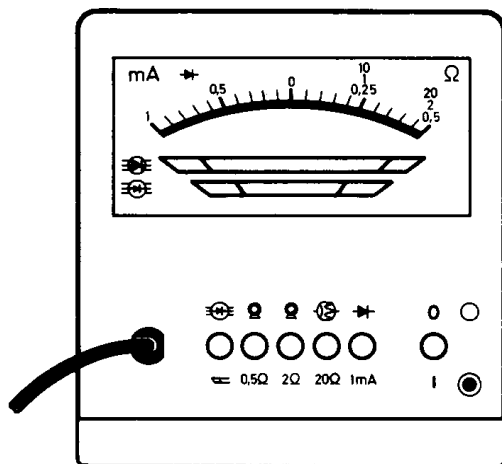
Bedienungsanweisung
Operating Instructions
Instructions d'emploi

Instrucciones de manejo
Istruzioni per l'uso

Drehstromgenerator-Prüfgerät Alternator Tester Vérificateur de diodes Comprobador de alternadores Apparecchio di prova per alternatori

0 684 201 200

WPG 012.00



BOSCH

**Bosch - Die Prüftechnik
QUALITÄTSMANAGEMENT-
SYSTEM**

DQS-zertifiziert nach DIN EN ISO
9001
Reg.-Nr. 61404-02.

**Bosch - Test Technology
QUALITY SYSTEM**

certified by DQS according to DIN
EN ISO 9001
Reg.No. 61404-02.

**Bosch - La technique
d'essais et de contrôle
SYSTÈME QUALITÉ**

certifié par la DQS conformément
a DIN EN ISO 9001
N° d'enreg. 61404-02.

**Bosch - La técnica en la
comprobación
SISTEMA DE LA CALIDAD**

certificado de la DQS de acuerdo
con DIN EN ISO 9001 N° de reg.
61404-02.

**Bosch - Tecnica di prova
SISTEMA QUALITA**

certificato dalla DQS in accordo
con DIN EN ISO 9001
N. reg. 61404-02.



Inhalt	Seite	Indice	Página
1. Allgemeines	4	1. Generalidades	16
2. Aufbau	4	2. Estructura	16
2.1 Frontplatte (Bild 1)	4	2.1 Placa frontal (fig. 1)	16
2.2 Rückseite (Bild 2)	4	2.2 Lado posterior (fig. 2)	16
3. Spannungsversorgung	4	3. Alimentación de tensión	16
4. Prüfung	4	4. Ensayo	16
4.1 Meßprogramm	6	4.1 Programa de medición	18

Contents	Page	Indice	Pagina
1. General	8	1. Generalità	20
2. Construction	8	2. Struttura	20
2.1 Front panel (Fig. 1)	8	2.1 Piastra frontale (figura 1)	20
2.2 Back (Fig. 2)	8	2.2 Lato posteriore (figura 2)	20
3. Power supply	8	3. Alimentazione della tensione	20
4. Testing	8	4. Controllo	20
4.1 Test program	10	4.1 Programma di misurazione	22

Contenance	Page
1. Généralités	12
2. Construction	12
2.1 Devant de l'appareil (fig. 1)	12
2.2 Dos de l'appareil (fig. 2)	12
3. Alimentation en courant électrique	12
4. Contrôle	12
4.1 Programme de mesure	14

1. Allgemeines

Mit dem Prüfgerät können an Drehstromgeneratoren der Größen G, K, N, T und U folgende Komponenten überprüft werden:

- Gleichrichtersatz
Leistungsdioden
Erregerdioden
- Ständerwicklung
- Läuferwicklung
- Einzeldioden

2. Aufbau

2.1 Frontplatte (Bild 1)

1. Anzeigeinstrument
2. Netztafter (Netzspannung Ein-Aus)
3. Programmtasten für
Leistungs- und Erregerdiodenprüfung (eingebaut und angeschlossen)
Ständer-Wicklungswiderstandsprüfung
Läufer-Wicklungswiderstandsprüfung
Einzeldiodenprüfung
4. Anschlußkabel

2.2 Rückseite (Bild 2)

1. Netzkabel
2. Netzsicherung 0,315 AM

3. Spannungsversorgung

Das Prüfgerät wird vom Lichtnetz mit Spannung 220 V/ 50Hz versorgt und über den Netzschalter Bild 1, Pos. 2 "Ein- bzw. Aus-" geschaltet.

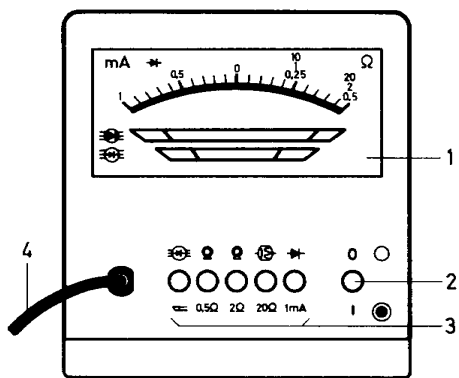
4. Prüfung



Die Prüfspitzen des Gerätes fest, aber nur kurzzeitig an die Meßpunkte anlegen.

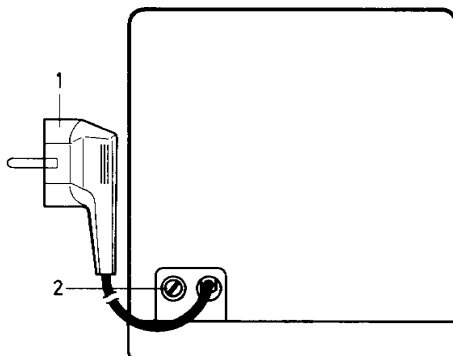
Bei der Prüfung von K1-Generatoren der Serie 0 120 400 6.. darauf achten, daß der herausgekippte Plusdiodenträger keine Verbindung zum Gehäuse bekommt.

1




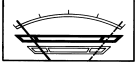


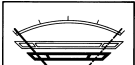
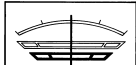
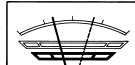
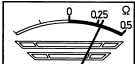

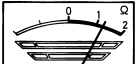
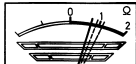
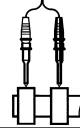
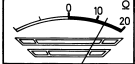

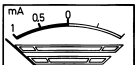
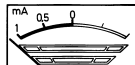

476 101 P K

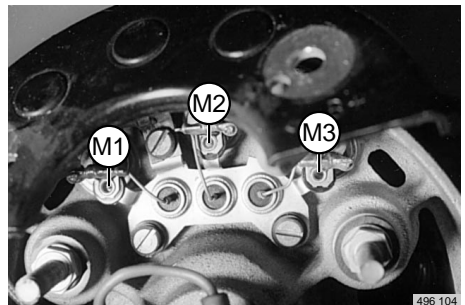
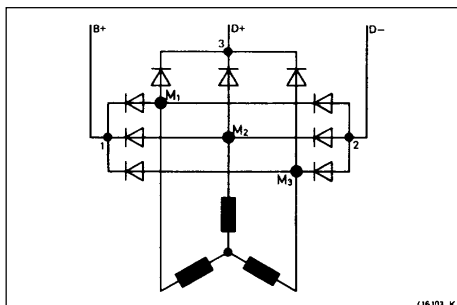
2



476 102 P K

4.1 Meßprogramm

			A	B	C
☉	Prüfung	Anschluß	gut	fehlerhaft (defekt)	
⊕	Leistungsdioden – eingebaut und angeschlossen –				
⊖	Minusdioden	D– – M1 D– – M2 D– – M3			
⊕	Erregerdioden – eingebaut und angeschlossen –	D+ – M1 D+ – M2 D+ – M3			
⊙	Widerstand der Ständerwicklung	M1 – M2 M2 – M3 M3 – M1			
0,5Ω					
2Ω					
⊙	Widerstand der Läuferwicklung				
20Ω					
➔	Einzeldioden Messung 1 : Durchlaßrichtung				
			1mA	Messung 2 : Sperrichtung	



A	B	C
<p>Zeiger bei allen 3 Messungen im grünen Bereich: Dioden in Ordnung.</p>	<p>Kein Ausschlag: Diode defekt (Kurzschluß)</p>	<p>Zeiger im roten Bereich: Diode hat Unterbrechung. (Nach Auslöten als Einzeldiode nochmals prüfen.)</p>
<p>Widerstandswerte bei allen 3 Messungen gleich: Ständerwicklung in Ordnung</p>	<p>Widerstandswerte ungleich: Ständerwicklung hat Windungsschluß (evtl. Ausführungen ablöten und mit Meßbrücke prüfen).</p>	
<p>Ist kein Schleifring-Anschluß möglich, kann Anschluß an DF und Masse erfolgen. Messung ergibt jedoch durch Übergangswiderstände höhere Werte, die beim Drehen des Läufers schwanken.</p>		<p>Bemerkung: Sollwerte sind beim Kfz-Hersteller zu erfragen.</p>
<p>Diode ist in Ordnung, wenn bei Messung 1 = Vollauschlag bei Messung 2 = max. 0,8 mA angezeigt wird</p>	<p>Kein Ausschlag: Diode defekt (Unterbrechung)</p>	<p>Diode ist defekt, wenn bei Messung 1 und bei Messung 2 Vollauschlag angezeigt wird (Kurzschluß).</p>

1. General

This tester can be used for testing the following components on alternators of sizes G, K, N, T and U:

- Rectifier
 - Power diodes
 - Exciter diodes
- Stator winding
- Rotor winding
- Individual diodes

2. Construction

2.1 Front panel (Fig. 1)

1. Indicator
2. Mains switch (main power on-off)
3. Program buttons for
 - testing of power and exciter diodes (fitted and connected)
 - testing of stator winding resistance
 - testing of rotor winding resistance
 - testing of individual diodes
4. Connecting cable

2.2 Back (Fig. 2)

1. Power cord
2. Fuse 0.315 A (semi-delayed-action)

3. Power supply

The tester operates on mains voltage 200 V/ 50 Hz and is switched on and off using the mains switch (Item 2 in Fig. 1).

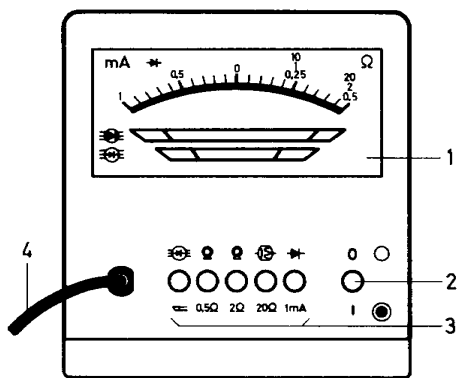
4. Testing



Apply the test prods of the tester firmly, but only briefly to the test points.

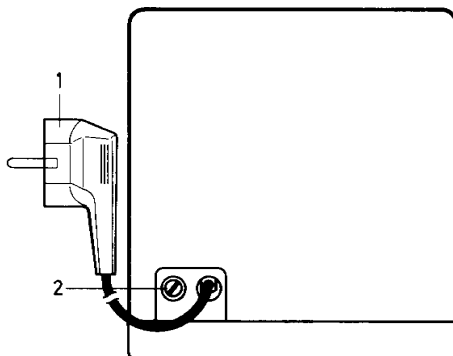
When testing K1 alternators of series 0 120 400 6.. make sure that the positive-diode plate does not come into contact with the housing.

1




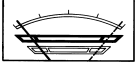


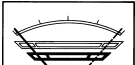
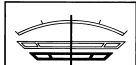
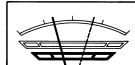
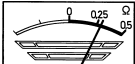

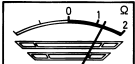
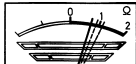
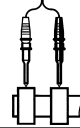
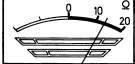


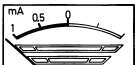
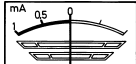
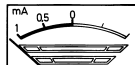
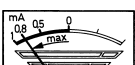

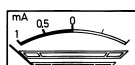
476 101 P K

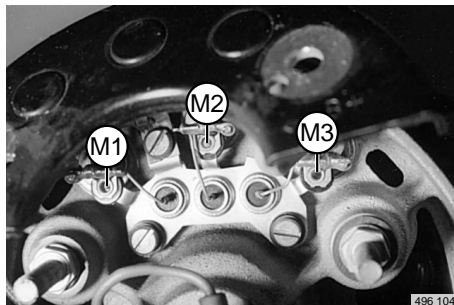
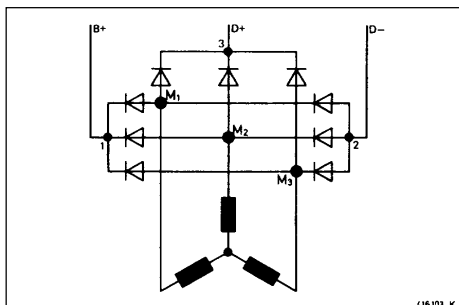
2



476 102 P K

4.1 Test program

			A	B	C
⦿	Test	Connection	OK	Defective	
⊕ ⚡	Power diodes – Fitted and connected – Positive diodes Negative diodes	 B+ – M1 B+ – M2 B+ – M3 D– – M1 D– – M2 D– – M3			
⊕ ⚡	Exciter diodes – Fitted and connected –	D+ – M1 D+ – M2 D+ – M3			
⊖ 0,5Ω	Resistance of stator winding	M1 – M2 M2 – M3 M3 – M1			
⊖ 2Ω					
⊖ 20Ω	Resistance of rotor winding				
➔ 1mA	Individual diodes Test 1 : Forward direction Test 2 : Reverse direction	 			
					



A	B	C
<p>Pointer in green area for all 3 measurements: Diodes OK.</p>	<p>No deflection: Diode defective (short circuit)</p>	<p>Pointer in red area: Diode has open circuit. (Test again as individual diode after unsoldering.)</p>
<p>Resistance values equal for all 3 measurements: Stator winding OK.</p>	<p>Resistance values not equal: Stator winding has interturn short circuit (unsolder leads and test with measuring bridge).</p>	
<p>If connection to the collector rings is impossible, connect to DF and ground. However, due to contact resistances measurement produces higher values which fluctuate as the rotor turns.</p>		<p>Note: Ask vehicle manufacturer for rated values.</p>
<p>Diode Ok if measurement 1 = full deflection measurement 2 = max. 0.8 mA</p>	<p>No deflection: Diode defective (open circuit)</p>	<p>Diode defective if measurement 1 and measurement 2 show full deflection (short circuit).</p>

1. Généralités

A l'aide de cet appareil de contrôle, on peut contrôler les composants suivants sur les alternateurs à courant triphasé des tailles G, K, N, T et U:

- l'ensemble redresseur
 - les diodes de puissance
 - les diodes d'excitation
- l'enroulement statorique
- l'enroulement rotorique
- les diodes prises séparément

2. Construction

2.1 Devant de l'appareil (fig. 1)

1. Instrument d'affichage
2. Interrupteur réseau (marche/arrêt)
3. Touches de sélection de programmes pour
 - le contrôle des diodes de puissance et des diodes d'excitation (montées et connectées)
 - le contrôle de la résistance de l'enroulement statorique
 - le contrôle de la résistance de l'enroulement rotorique
 - le contrôle des diodes
4. Câbles de raccordement

2.2 Dos de l'appareil (fig. 2)

1. Câble de raccordement au réseau
2. Fusible secteur 0,315 A à réaction normale

3. Alimentation en courant électrique

L'appareil de contrôle est alimenté par le courant lumière à une tension de 220 V 50 Hz. L'appareil est mis en circuit par l'intermédiaire de l'interrupteur réseau (marche/arrêt), fig.1, rep.2.

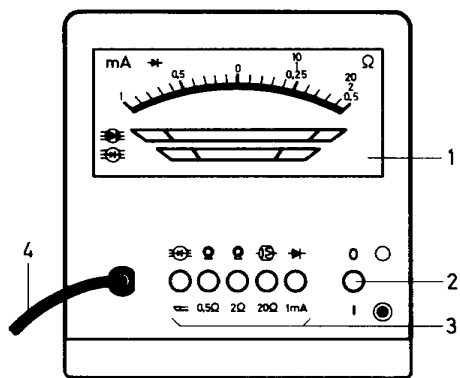
4. Contrôle



Appliquer fermement les pointes d'essai, mais seulement un court instant sur les points de mesure.

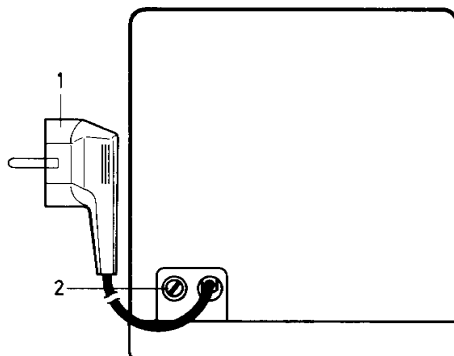
Quand vous contrôlez les alternateurs K 1 de la série 0 120 400 6.., il faut bien faire attention à ce que le porte-diodes positives, en position renversée, ne touche pas le ceps de l'alternateur

1









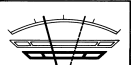
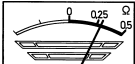

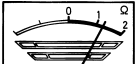

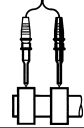
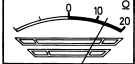


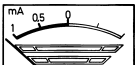

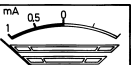
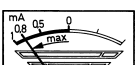

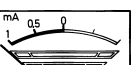
476 101 P K

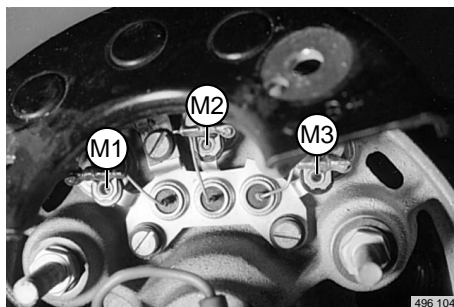
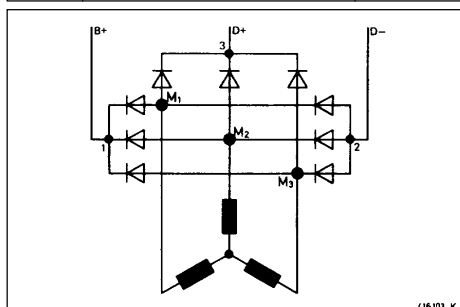
2



476 102 P K

4.1 Programme de mesure

			A	B	C
⦿	Contrôle	Connexion	bon	défectueux	
⚡	Diodes de puissance – montées et connectées – diodes positives diodes négatives	 B+ – M1 B+ – M2 B+ – M3 D– – M1 D– – M2 D– – M3			
⚡	Diodes d'excitation – montées et connectées –	D+ – M1 D+ – M2 D+ – M3			
⦿	Résistance de l'enroulement statorique	M1 – M2 M2 – M3 M3 – M1			
					
⦿	Résistance de l'enroulement rotorique				
⚡	Diodes prises séparément Mesure 1 : Sens direct Mesure 2 : Sens inverse	 			
					



A	B	C
<p>Lors des 3 mesures, l'aiguille est dans la zone verte: les diodes sont en bon état.</p>	<p>L'aiguille ne dévie pas: La diode est défectueuse (court-circuit)</p>	<p>L'aiguille est dans la zone rouge: La diode a une coupure (après l'avoir dessoudée, la contrôler encore une fois en tant que diode individuelle).</p>
<p>Les valeurs de résistance sont identiques lors des 3 mesures: l'enroulement statorique est en bon état</p>	<p>Les valeurs des résistances mesurées diffèrent: l'enroulement statorique a un court-circuit dans les spires (le cas échéant, dessouder les sorties d'enroulement et les contrôler à l'aide d'un ohmmètre à pont).</p>	
<p>Si la connexion sur une bague collectrice n'est pas possible, on peut effectuer la connexion à DF et à la masse. Cependant, les mesures donnent des résistances de passage assez élevées qui varient en faisant tourner le rotor.</p>		<p>Observation: Pour avoir les valeurs prescrites, consulter le constructeur du véhicule.</p>
<p>La diode est en bon état si, lors de la mesure 1, l'aiguille dévie complètement et si, lors de la mesure 2, l'aiguille indique une valeur maximale de 0,8 mA.</p>	<p>Si l'aiguille ne dévie pas, c'est que la diode est défectueuse (court-circuit).</p>	<p>La diode est défectueuse, si, lors de la mesure 1 et lors de la mesure 2, l'aiguille dévie complètement (court-circuit).</p>

1. Generalidades

Mediante este comprobador pueden comprobarse en los alternadores de los tamaños G, K, N, T y U los siguientes componentes:

- Rectificadores
 - Diodos de potencia
 - Diodos de excitación
- Devanado estático
- Devanado rotórico
- Diodos individuales

2. Estructura

2.1 Placa frontal (fig. 1)

1. Aparato indicador
2. Pulsador de red (con./descon. tensión de red)
3. Selectores de programa para Verificación e los diodos de potencia y de excitación (montados y conectados)
 - Prueba de resistencia el devanado estático
 - Prueba de resistencia del devanado rotórico
 - Verificación de los diodos individuales
4. Cable de conexión

2.2 Lado posterior (fig. 2)

1. Cable de alimentación
2. Fusible de red 0,315 AM, semiinerte

3. Alimentación de tensión

El comprobador es alimentado de la red con una tensión de 220 V/ 50 Hz y es conectado por el interruptor de red, fig. 1, pos. 2 › Ein/Aus ‹ (conect./desconect.).

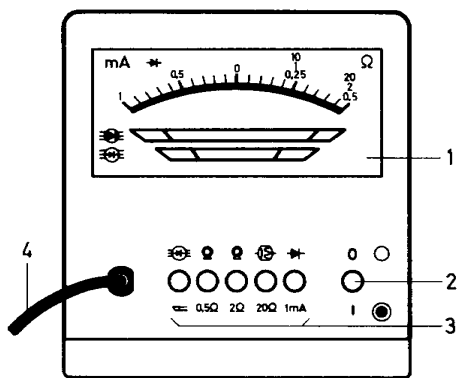
4. Ensayo



Apoyar las puntas de comprobación del aparato firmemente pero sólo por breve tiempo en los puntos de medición.

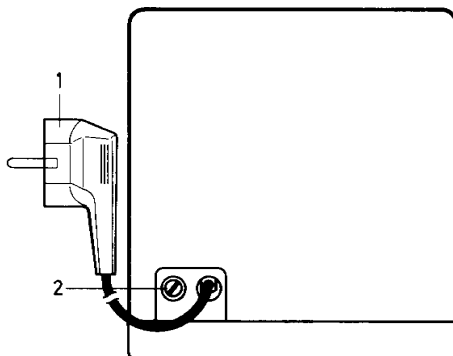
Al comprobar alternadores K1 de la serie 0 120 400 6.. prestar atención a que el portadiodos positivo, sacado del interior del alternador, no entre en contacto con el cuerpo del mismo.

1







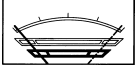
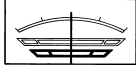
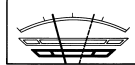
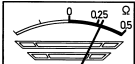

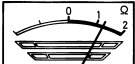
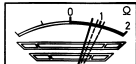
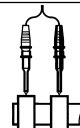
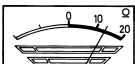

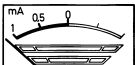
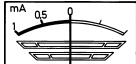
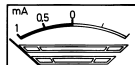
476 101 P K

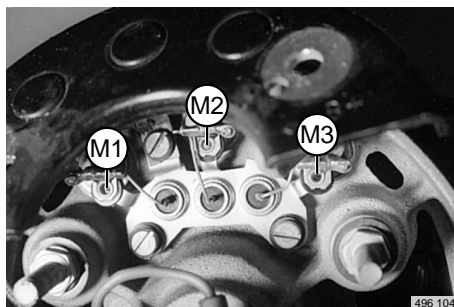
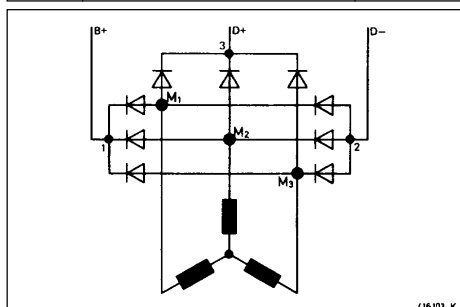
2



476 102 P K

4.1 Programa de medición

			A	B	C
⦿	Ensayo	Conexión	bueno	defectuoso	
⚡	Diodos de potencia – montados y conectados –				
	Diodos negativos	D– – M1 D– – M2 D– – M3			
⚡	Diodos de excitación – montados y conectados –	D+ – M1 D+ – M2 D+ – M3			
⦿ 0,5Ω	Resistencia del devanado estático	M1 – M2			
		M2 – M3			
⦿ 2Ω		M3 – M1			
⚡ 20Ω	Resistencia del devanado rotórico				
⚡ 1mA	Diodos individuales Medición 1 : Sentido de paso				



A	B	C
<p>La aguja permanece durante las 3 mediciones en la zona verde: Los diodos están en orden.</p>	<p>Ninguna desviación de la aguja: El diodo está defectuoso (cortocircuito)</p>	<p>Aguja en la zona roja: El diodo tiene interrupción. (Desoldar y verificar individualmente)</p>
<p>Los valores de resistencia obtenidos en las 3 mediciones son iguales: El devanado estático está en orden.</p>	<p>Los valores de resistencia son diferentes: El devanado estático tiene cortocircuito entre espiras (desoldar eventualmente las salidas de fase y comprobar con un puente de medición).</p>	
<p>Si no puede efectuarse la conexión al anillo rozante, ésta puede efectuarse al borne DF y a masa. No obstante, debido a resistencias de paso, la medición da por resultado valores más elevados que varían al girar el rotor.</p>		<p>Observación: Para saber los valores consignados, consultar al fabricante de automóviles.</p>
<p>El diodo está en orden si el aparato indica durante la medición 1 = desviación total y durante la medición 2 = 0,8 mA como máx.</p>	<p>Ninguna desviación: El diodo está defectuoso (interrupción)</p>	<p>El diodo está defectuoso si el aparato indica durante la medición 1 y durante la medición 2 la desviación total de la aguja (cortocircuito).</p>

1. Generalità

Con l'apparecchio di prova possono essere controllati sugli alternatori delle grandezze G, K, N, T e U i seguenti componenti:

- Set raddrizzatori
 - Diodi di potenza
 - Diodi di eccitazione
- Avvolgimento statore
- Avvolgimento rotore
- Diodi singoli

2. Struttura

2.1 Piastra frontale (figura 1)

1. Strumento indicatore
2. Tasto di rete (tensione di rete inserita-disinserita)
3. Tasti di programma per controllo diodi di potenza e di eccitazione (montati e collegati)
 - controllo resistenza avvolgimento statore
 - controllo resistenza avvolgimento rotore
 - controllo diodi singoli
4. Cavo di collegamento

2.2 Lato posteriore (figura 2)

1. Cavo di rete
2. Fusibile rete 0,315 AM

3. Alimentazione della tensione

L'apparecchio di prova viene alimentato dalla rete della luce con una tensione di 220 V/50 Hz e viene "inserito o disinserito" con l'interruttore di rete, figura 1, pos. 2.

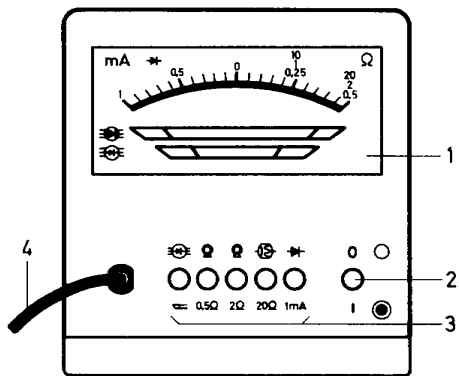
4. Controllo



Applicare le punte di prova all'apparecchio fissandole, ma solo brevemente, nei punti di misurazione.

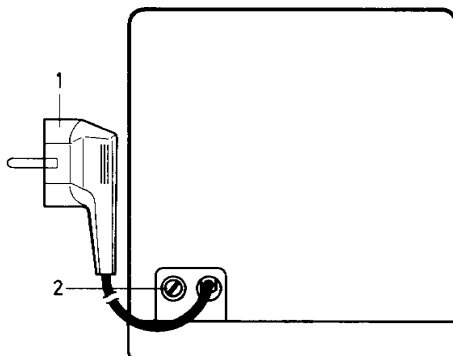
Durante il controllo degli alternatori K1 la serie 0 120 400 6.. fare attenzione che il portadiodi del positivo fuoriuscito non riceva nessun collegamento con la scatola.

1







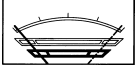
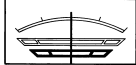
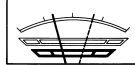
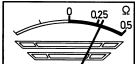

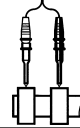
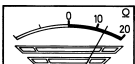

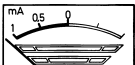
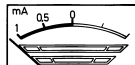

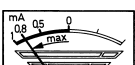
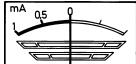
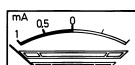
476 101 P K

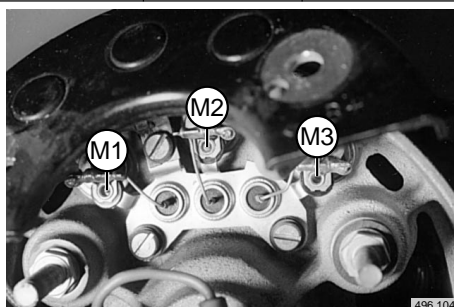
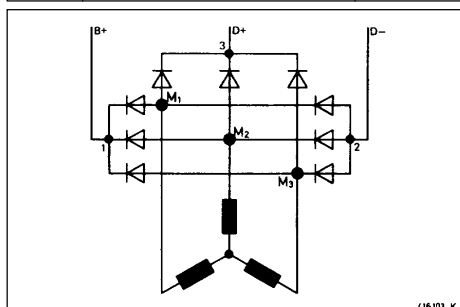
2



476 102 P K

4.1 Programma di misurazione

			A	B	C						
⦿	Controllo	Collegam.	Corretto	Errato (difettoso)							
⊕	Diodi di potenza – montati e collegati –										
						Diodi positivo B+ – M1 B+ – M2 B+ – M3					
⊖	Diodi negativo D– – M1 D– – M2 D– – M3										
⊕	Diodi di eccitazione – montati e collegati –	D+ – M1 D+ – M2 D+ – M3									
						⊗	Resistenza dell'avvolgimento statore	M1 – M2 M2 – M3 M3 – M1			
						⊙					
⊙	2Ω										
⊗	Resistenza dell'avvolgimento rotore										
➔	Diodi singoli Misurazione 1 : Senso di conduzione										
1mA	Misurazione 2 : Senso di interdizione										



A	B	C
<p>Indice nel settore verde di tutte e 3 le misurazioni: Diodi in ordine</p>	<p>Nessuna escursione: Diodo difettoso (cortocircuito)</p>	<p>Indice nel settore rosso: Il diodo ha interruzione. (Dopo aver dissaldato controllare di nuovo come diodo singolo).</p>
<p>Valori della resistenza uguali in tutte e 3 le misurazioni: Avvolgimento statore in ordine</p>	<p>Valori disuguali della resistenza: l'avvolgimento dello statore ha cortocircuito tra le spire (se necessario, dissaldare le esecuzioni e controllare con un ponte di misura).</p>	
<p>Se non è possibile un collegamento dell'anello collettore, il collegamento può essere eseguito al sensore e alla massa. La misurazione fornisce tuttavia valori maggiori dovuti a resistenze di contatto, che oscillano durante la rotazione del rotore.</p>		<p>Osservazione: I valori nominali vanno richiesti al costruttore del veicolo</p>
<p>Il diodo è in ordine se nella misurazione 1 viene indicato il fondo scala e nella misurazione 2 = max. 0,8 mA.</p>	<p>Nessuna escursione: Diodo difettoso (interruzione)</p>	<p>Il diodo è difettoso se nella misurazione 1 e nella misurazione 2 viene indicato il fondo scala (cortocircuito).</p>

0 684 201 200



BOSCH

Robert Bosch GmbH
Geschäftsbereich KH
Prüftechnik
Postfach 1129
D 73201 Plochingen

1 689 979 179 KH-PR UBF 615/1 DeEnFrSplt (10.02.00) Printed in Germany - Imprimé en Allemagne