

R 181

Replacement of the CIN 81

Installation and maintenance

R181

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We wish to draw your attention to the contents of this maintenance manual.

By following certain important points during installation, use and servicing of your alternator, you can look forward to many years of trouble-free operation.

SAFETY MEASURES

Before using your machine for the first time, it is important to read the whole of this installation and maintenance manual.

All necessary operations and interventions on this machine must be performed by a qualified technician.

Our technical support service will be pleased to provide any additional information you may require.

The various operations described in this manual are accompanied by recommendations or symbols to alert the user to the potential risk of accidents. It is vital that you understand and take notice of the various warning symbols used.

WARNING

Warning symbol for an operation capable of damaging or destroying the machine or surrounding equipment.



Warning symbol for general danger to personnel.



Warning symbol for electrical danger to personnel.

Note: LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

The **R 181** is an AVR designed for ARES or ARCM type compound excitation alternators.

The **R 181** is a transistor-controlled AVR. The measured voltage is filtered and rectified. It is not affected by voltage variations caused by non-linear loads. It is totally sealed with an elastomer which protects it from environmental stresses.

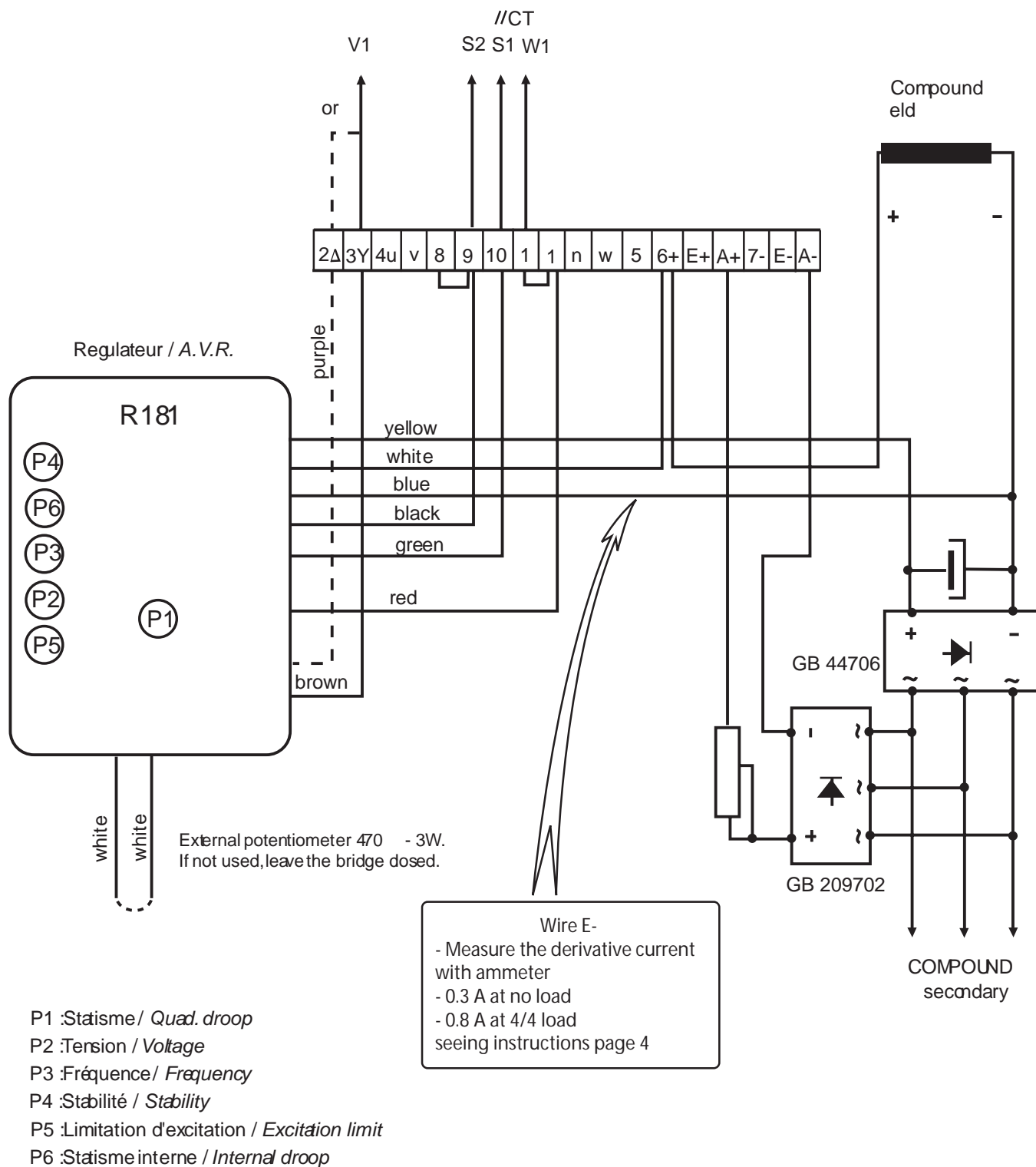
R 181 AVR function:

- AVR accuracy +/- 1%
- Underspeed protection
- LAM load shedding system
- Parallel operation between alternators by voltage quadrature droop
- External potentiometer connection wires, for voltage adjustment (470 ohms: voltage range +/- 5% - 3 W, or 1000 ohms: voltage range +/- 10% - 3 W)
- Wires for CT parallel operation output 1 A - 2.5 VA
- 220 V or 400 V power supply
- 5 VA voltage sensing isolated via transformer

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CONNECTION OF THE R181



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PROCEDURE for REPLACING CIN 81 on ARES alternators

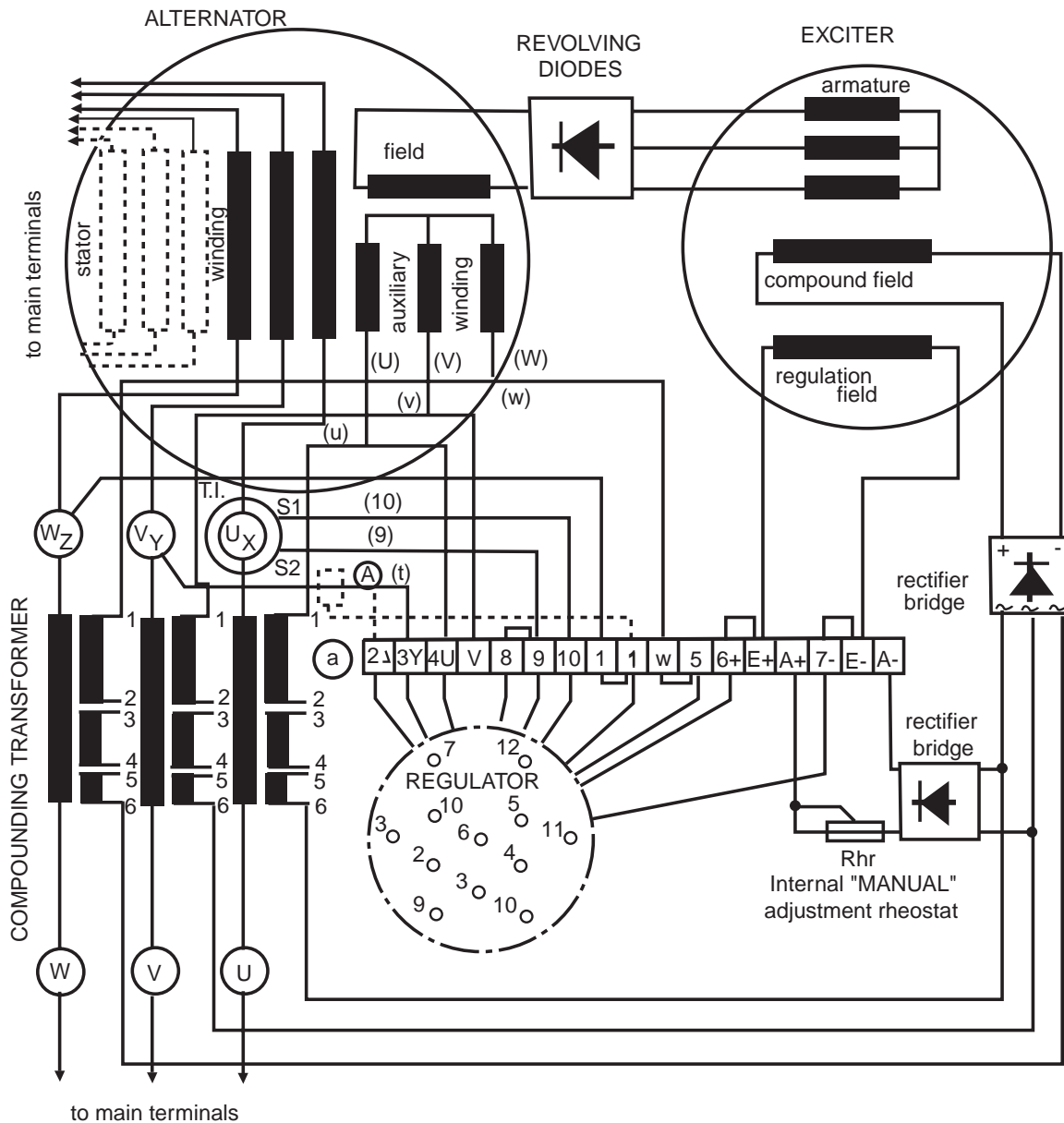
- 1 - Disconnect the wires from the CIN 81 from the connecting block.
- 2 - Remove the CIN 81 and its wired connector.
- 3 - Put the R 181 in position (same fastening).
Remove the bridge between 6+ and E+
- 4 - Disconnect the compound field + wire from the + terminal block on the rectifier bridge and connect it to the free 6+ terminal on the terminal block with the white wire from the R 181.
- 5 - Connect:
 - The blue wire to the - terminal on the rectifier bridge
 - The yellow wire to the + terminal on the rectifier bridge
 - The red wire to terminal 1 on the terminal block
 - The brown wire to terminal 3 Y on the terminal block
 - The purple wire to terminal 2 Δ on the terminal block
 - The black wire to terminal 9 on the terminal block
 - The green wire to terminal 10 on the terminal block

Adjustment of the R 181 on ARES alternators

- Attach a 1 A rating ammeter to the -E wire.
 - ≈ 0.3 A should be obtained at no load. If it is not, reduce or increase the air gap of the compound and adjust the output voltage via potentiometer P2 on the R 181.
 - On load, ≈ 0.8 A should be obtained at 4/4 load. If it is not, perform the following:
 - If less than 0.8A, reduce the % at the compound coils
 - If more than 0.8A, increase the % at the compound coils
 - Adjust the on-load voltage via P1.
- In both cases, the no-load air gap will have to be re-adjusted and the output voltage adjusted via P2 on the R 181.



CAUTION : In case of wrong compound adjustment, destruction risk of the automatic voltage regulator.



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PROCEDURE for REPLACING the CIN 81 on ARCM alternators

- 1 - Disconnect the wires from the CIN 81 from the connecting block.
- 2 - Remove the CIN 81 and its wired connector.
- 3 - Put the R 181 in position (same fastening).
- 4 - Remove the wire connecting terminal E+ on the terminal block to the + on the rectifier bridge.
- 5 - Connect:
 - The blue wire to terminal E- on the terminal block
 - The white wire to terminal E+ on the terminal block
 - The yellow wire to the + terminal on the rectifier bridge
 - The green wire to terminal 9 on the terminal block
 - The black wire to terminal 10 on the terminal block
 - The red wire to terminal 1 on the terminal block
 - The brown wire to terminal 3 Y on the terminal block
 - The purple wire to terminal 2 Δ on the terminal block

Adjustment

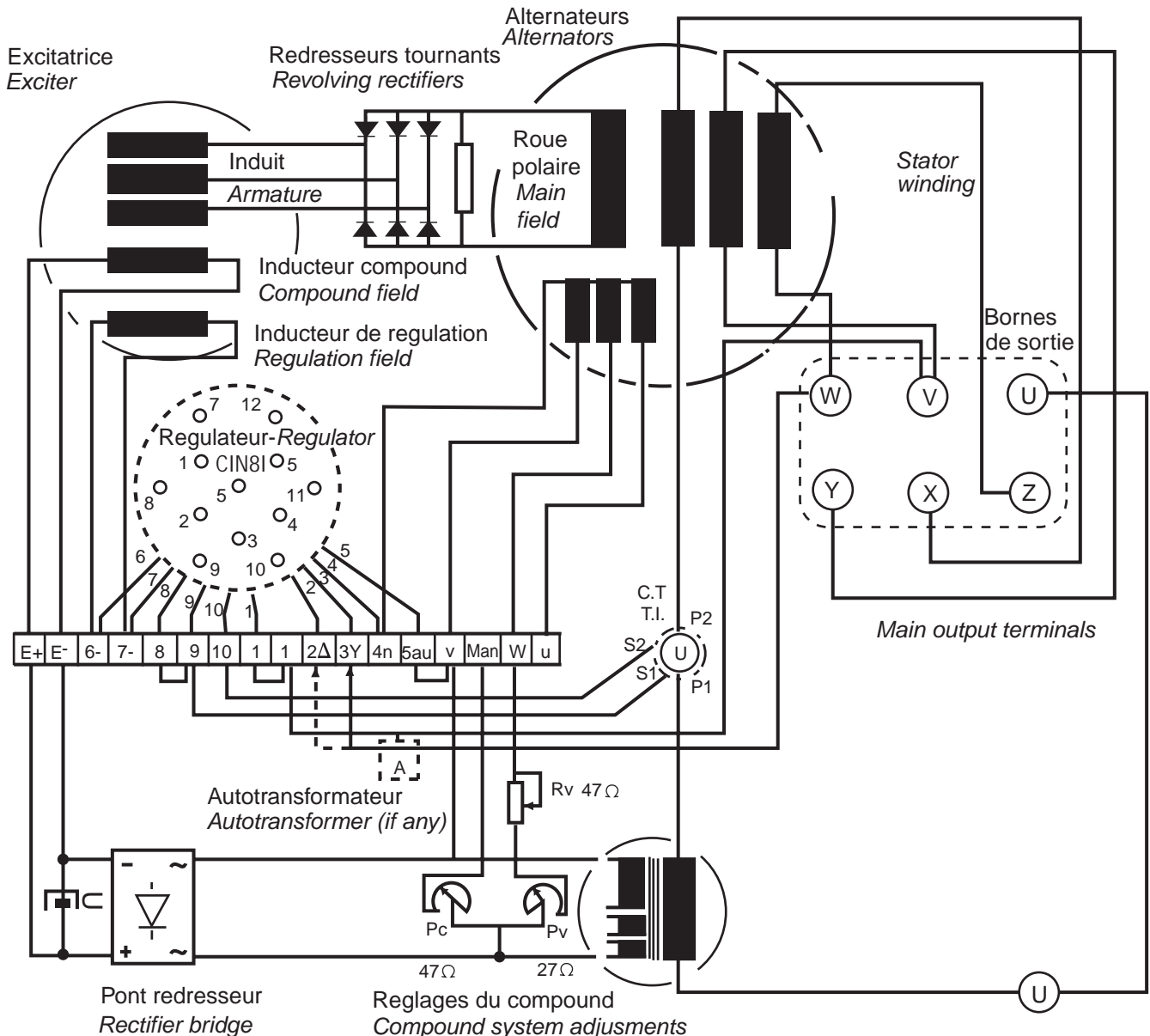
- Attach a 1 A rating ammeter to the E- wire. ≈ 0.3 A at no load and ≈ 0.8 A on-load (4/4) should be obtained.

At no load:

- Adjust the output voltage using potentiometer P2 on the R181.
- Adjust using the "PV" or "RV" potentiometers to obtain 0.3 A.

On-load (4/4):

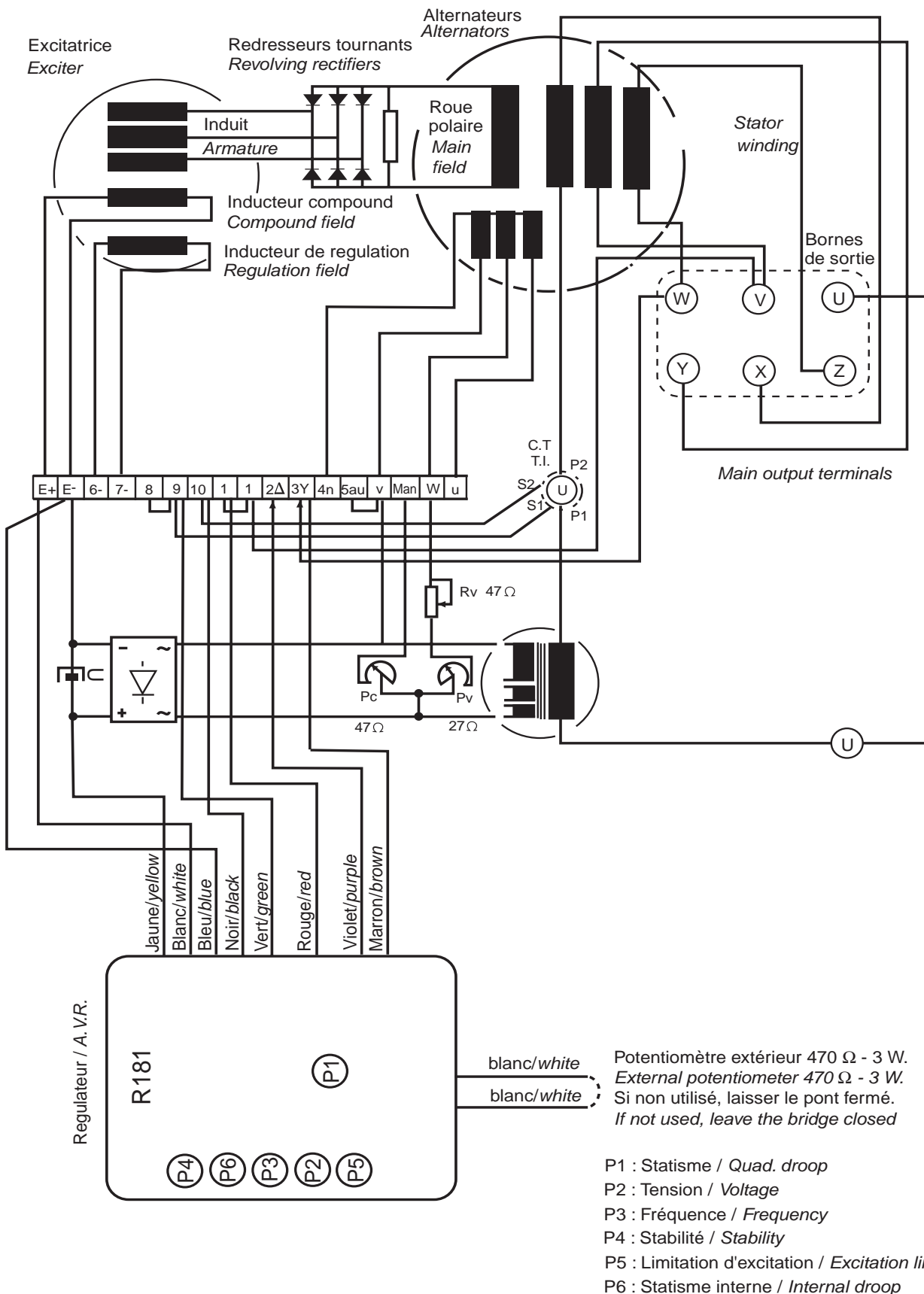
- Adjust the output voltage via potentiometer P1 on the R181. ≈ 0.8 A should be obtained. If it is not, the % of the compound must be modified.
 - To increase the current, reduce the %.
 - To reduce the current, increase the %.
- After modifying the on-load percentage, a further no-load test must be performed.



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CONNECTION OF ARCM to R181



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S.A. au capital de 62 779 000 ₣

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