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1. Safety-Instructions:



- Don't continue using the product if fit is damaged.
- Keep electronic assemblies and components away from children!
- Products that carry electric voltages must be handled by taking care about the valid instructions and regulations.
- If the product must be repaired, only use original spare parts! Using different parts may cause property damage and personal injury! The repair has only to be done by an expert!
- Before applying main-voltage the product must be securely build into a housing to provide protection against accidental contact!
- The installation has to be done by a skilled expert.
- Cables that carry dangerous voltages (e.g. main-voltage) must be installed according to the valid instructions and regulations. The needed safety-distances have to be maintained.
- Connection-cables have to be chosen according to the needed diameter.
- Before working on the product all supply-voltages have to be securely cut of.
- The product is designed to work in clean and dry areas inside buildings.
- Prevent the product of humidity, water and heat.
- Don't use the product in areas where explosive gases, vapour or dust are or may occur.
- Don't let the product fall or apply mechanical stress as the product may be damaged.

Follow the instructions in this installation-guide carefully. Ing.-Büro Alba de Schmidt cannot be held liable for damage of other equipment (e.g. rotor-control-boxes) due to wrong connections or handling.

2. General information according the installation:

There are 2 ways of connecting a rotor-control-box to the ERC-M:

- the control-box has a remote-connector and can be connected directly to the D-SUB15 of the ERC-M without use of a Rotorcard.
- the control-box doesn't have a remote-connector and a rotor-card is needed

Therefore the installation-guide is divided into 2 parts: with or without use of Rotorcard(s).

3. Connect Control-boxes to Rotorcard(s)

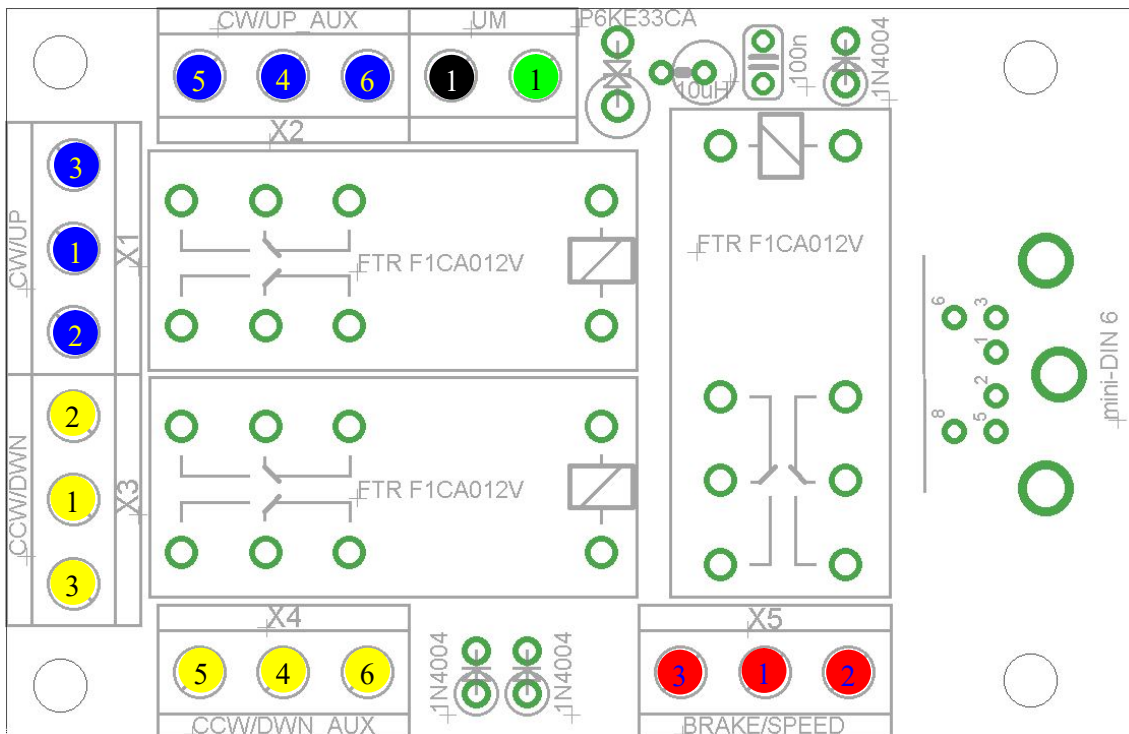
Depending on the type of rotator there are 6 to 10 connections to be made between the Rotorcard and the rotor-controller. All connections are available on the Rotor-Card with screw-terminals.

For some installations additional work has to be done inside the rotor-controller, like for example cutting or adding a wire. This will be explained in the individual installation-sheet of the rotor-controller. In the rotator-specific installation-sheets the connections to be made are shown with colour-coded and numbered dots.

The connections are:

- 1** Rotor-feedback-voltage (positive voltage between 0..15V)
- 1** Reference for the rotor-feedback-voltages
- 1 - 6** Relay-contacts for clockwise/upwards-movement (CW/UP)
 - 3 1 2 6 4 5
 - NC NO NC NO
- 1 - 6** Relay-contacts for counterclockwise/downwards-movement (CCW/DOWN)
 - 3 1 2 6 4 5
 - NC NO NC NO
- 1 - 3** Relay-contacts for a brake or speed-switch (if applicable with your rotator) (**AUX**)

Contacts 4,5 and 6 are not available in HEAVY-DUTY-Rotor-Card



Only tighten the screw-terminals lightly. If you tighten them too much, it may happen that the solder-pins share off!

Safety-Instructions for handling main-voltage :

The following rotators use main-voltage (230 VAC or 115 VAC) for their brake-circuits:

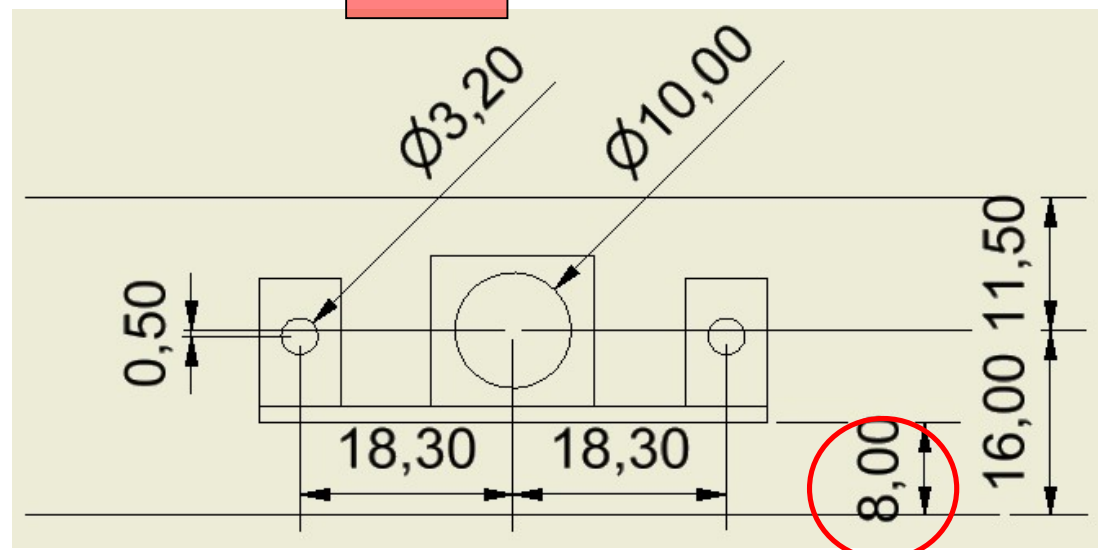
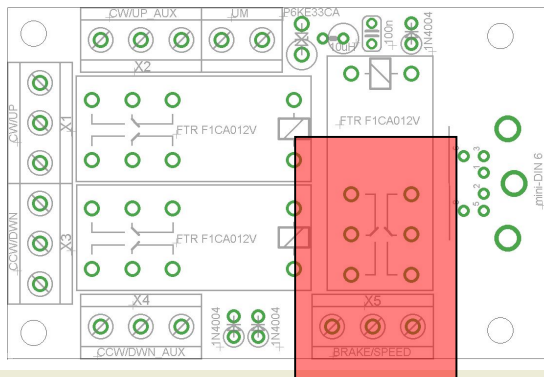
- CDE/Hygain : HAM M - HAM II – HAM III – HAM IV – CD44 – CD45 – T2X – TR44
- WALMAR : ML, MU-1, MU-3, MH



The design of the Rotor-Card is made to provide the needed safety-distances between the brake-circuit and the remaining part of the electronic circuit or the housing of the rotor-controller. These safety distances must be maintained also during installation of the Rotor-Card.

Take care about the following issues:

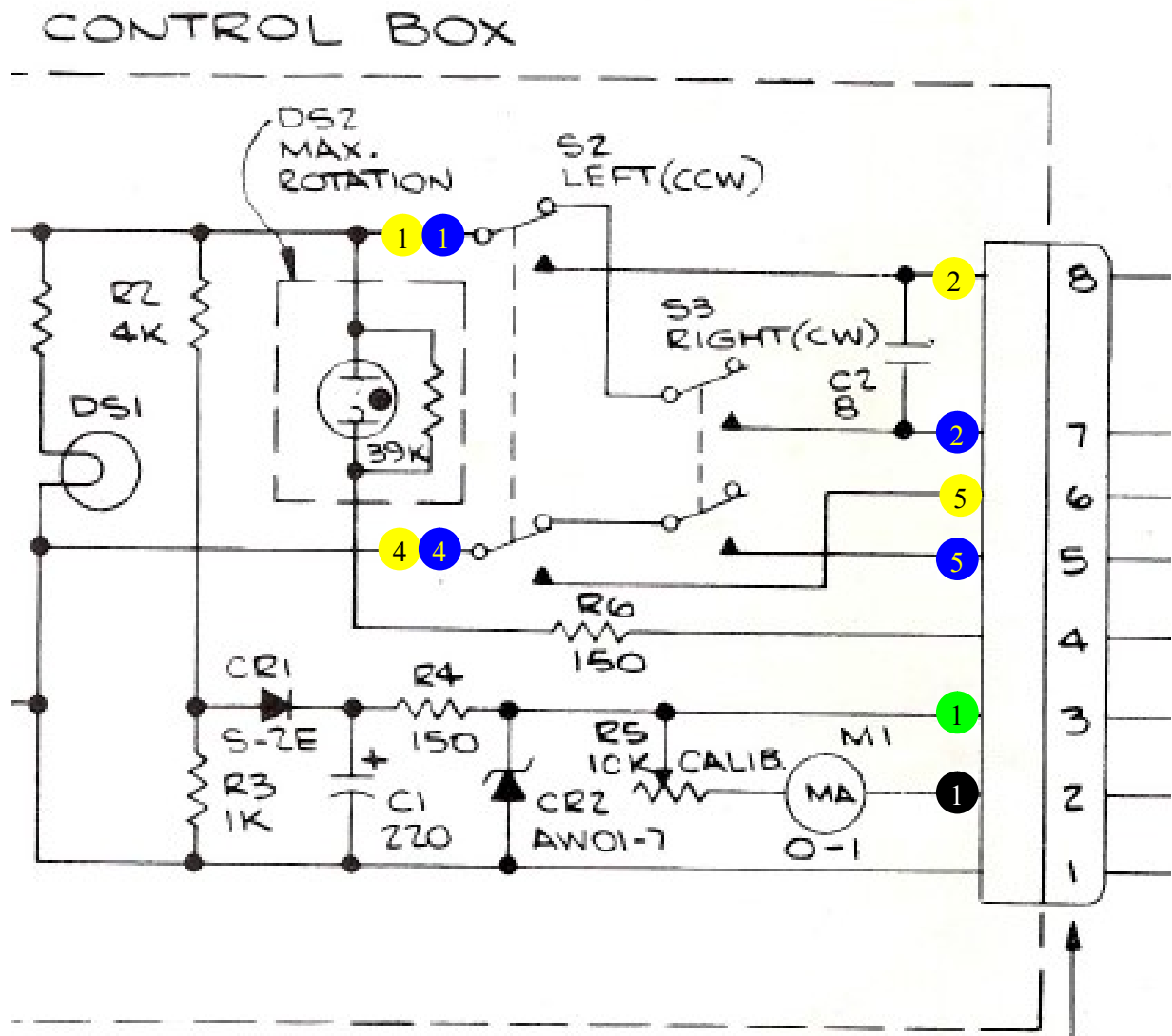
- Read carefully the safety-instructions in the document "Instructions".
- Only use the wires provided with your Rotor-Card.
- The distance between the bottom-side of the PCB and the housing must not be less than 8mm.
- The area between PCB and housing must be kept free, especially in the red marked area in the picture below.



AIGA: ART-3000C

Rotor-specific information:

- Settings of AUX-relay: None

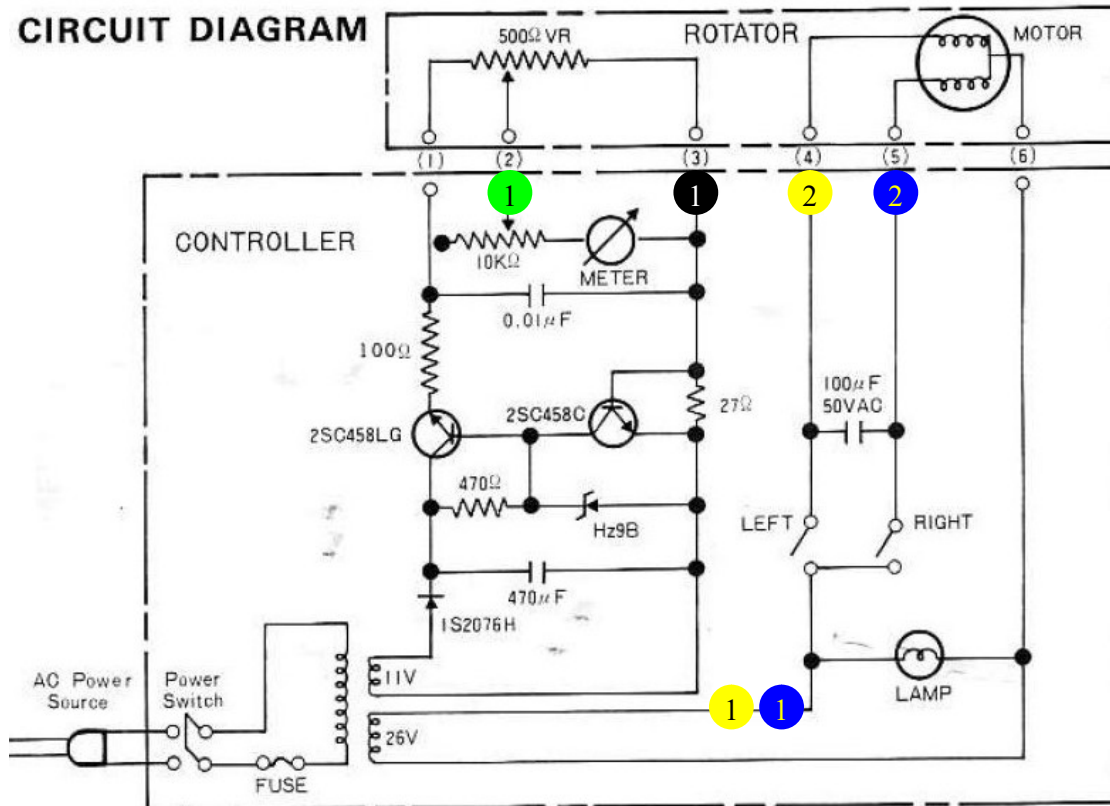


Alinco: EMR-400

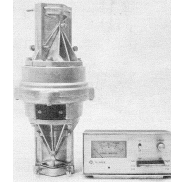


Rotor-specific information:

- Settings of AUX-relay: NONE

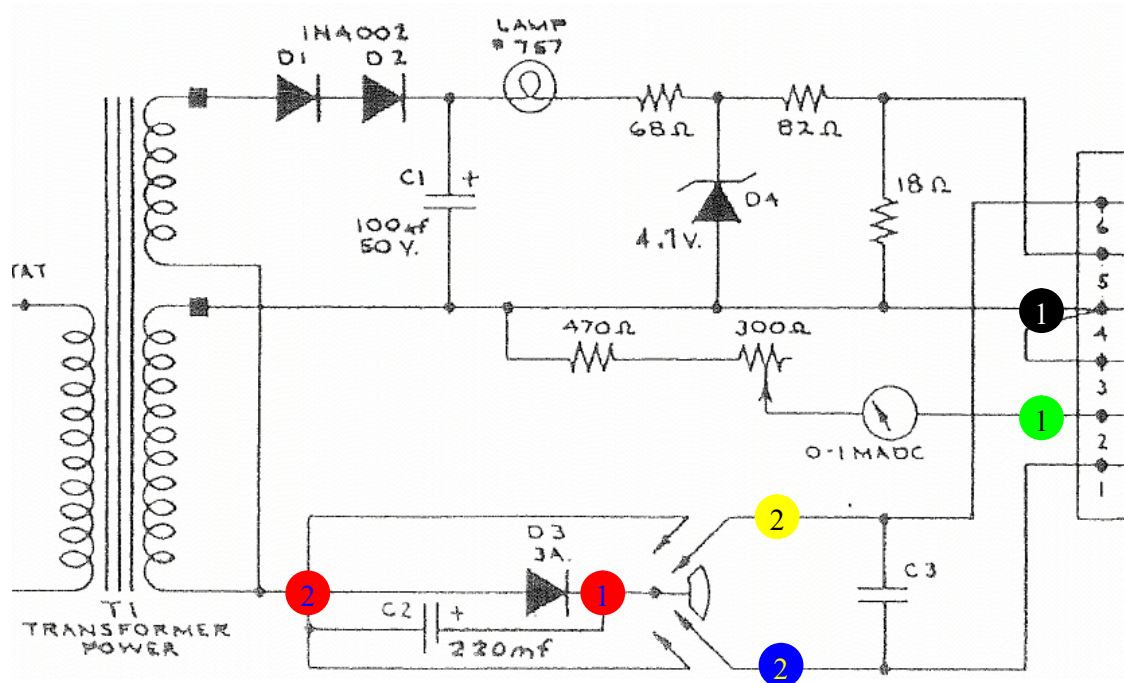


Alliance : HD73



Rotor-specific information:

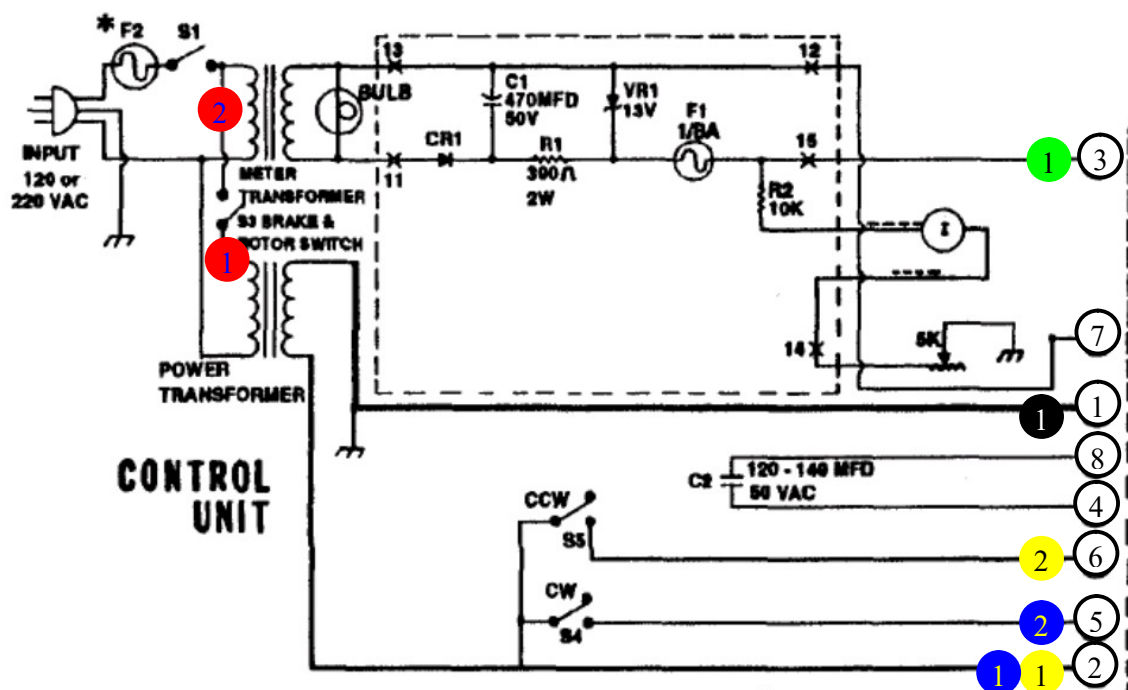
- Settings of AUX-relay: SPEED
- Make a bridge between 1 1 1 on the Rotor-Card



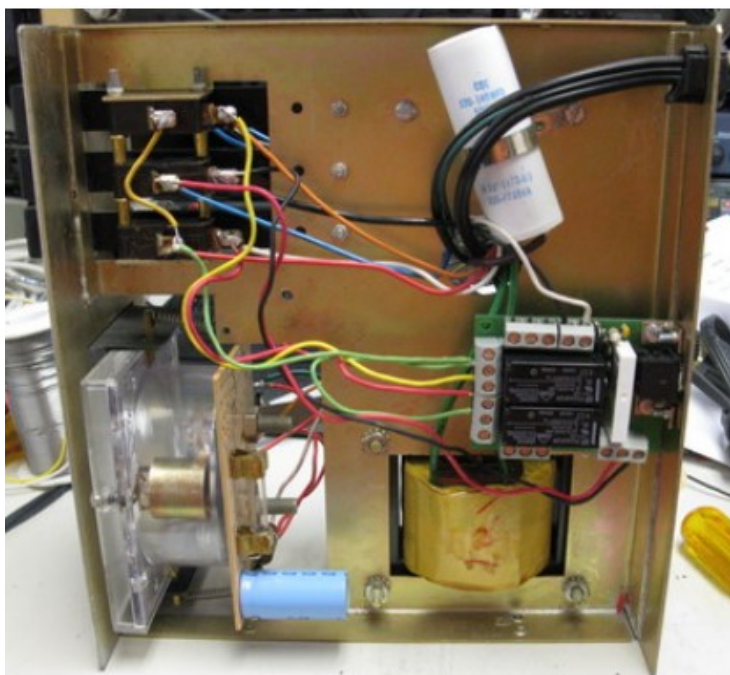
CDE/HyGain : HAM II – HAM III – HAM IV – CD44 – CD45 – T2X

Rotor-specific information:

- Settings of AUX-relay: BRAKE



1 **2** are in parallel to the BRAKE-paddle of the control-box and carry main-voltage.



CDE : HAM M – TR44 (series 2)



Rotor-specific information:

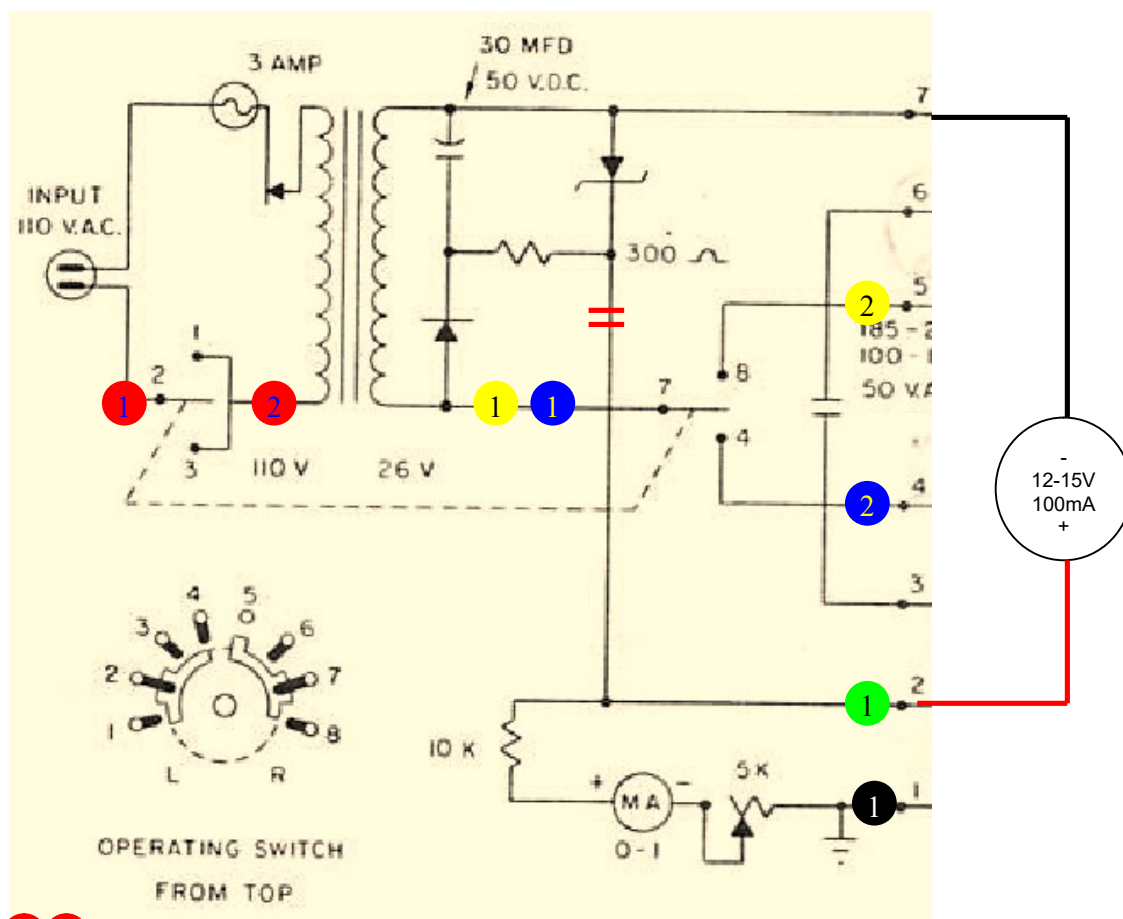
- Settings of AUX-relay: BRAKE

Additional work:

This control-box uses the same transformer for motor-current and for the instrumentation section.

We need to supply the instrumentation section permanently but cannot use the transformer of the control-box as this is going to be overheated when permanently supplied.

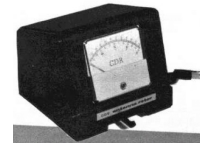
An external regulated DC-supply of 12-15V which is isolated from the ERCs supply (e.g. an extra wall-mount-supply) is to be added to the pins 2 (pos.) and 7 (neg.) of the control-box and the instrumentation section has to be isolated from the internal supply of the control box. Cut the connection where indicated with this symbol: **||**



1 2 carry main-voltage.



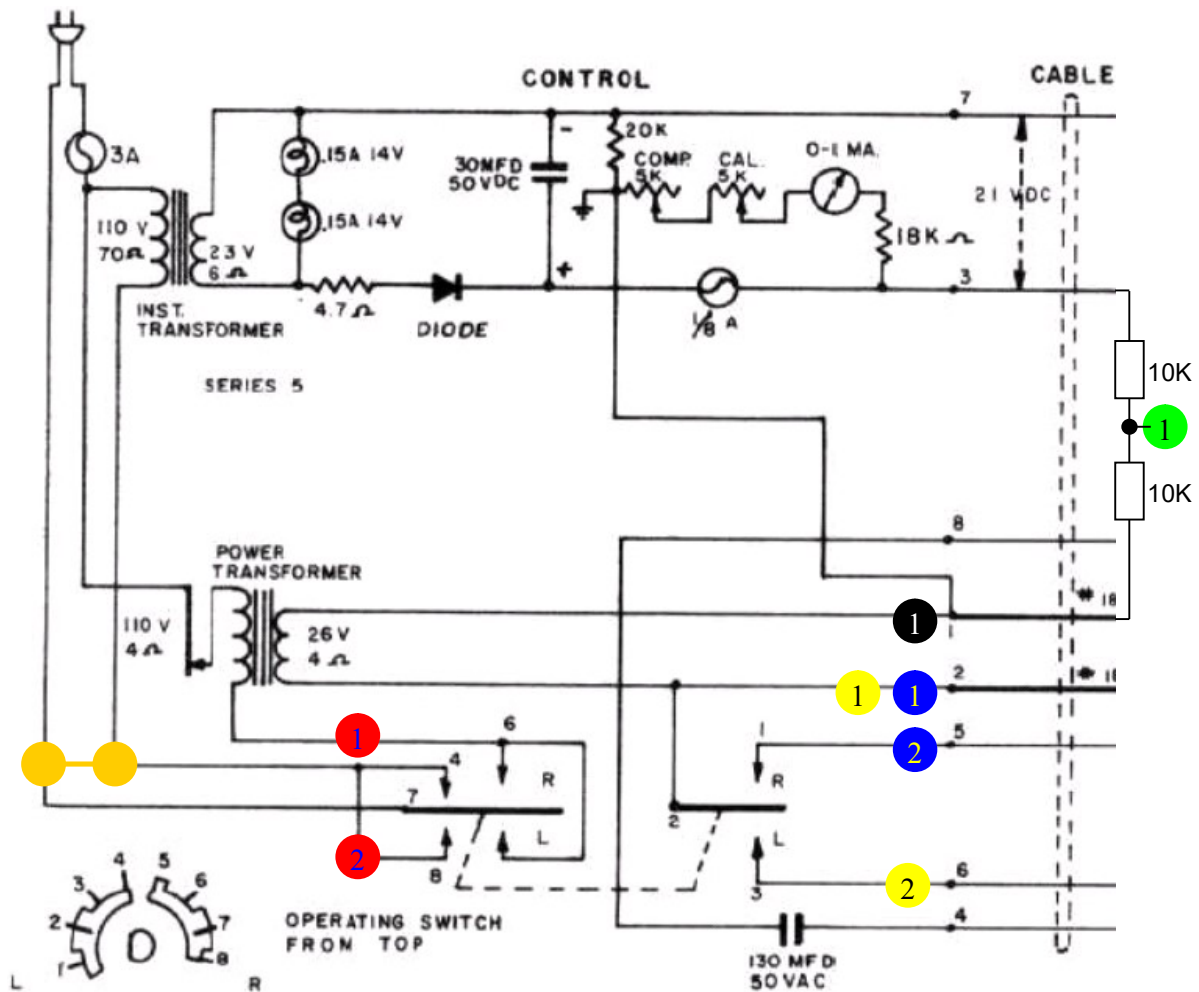
CDE : HAM M – TR44 (series 3)



Rotor-specific information:

- Settings of AUX-relay: BRAKE

Additional work: A connection has to be made (orange connection in the schematics) in order to supply the instruments-transformer permanently with main-voltage. **Attention:** this cable is carrying main-voltage. Take care about proper isolation and positioning of the cable!
As the feedback-voltage is around 21Volts, a voltage divider made of 2 resistors 10K needs to be added.



1 2 carry main-voltage.



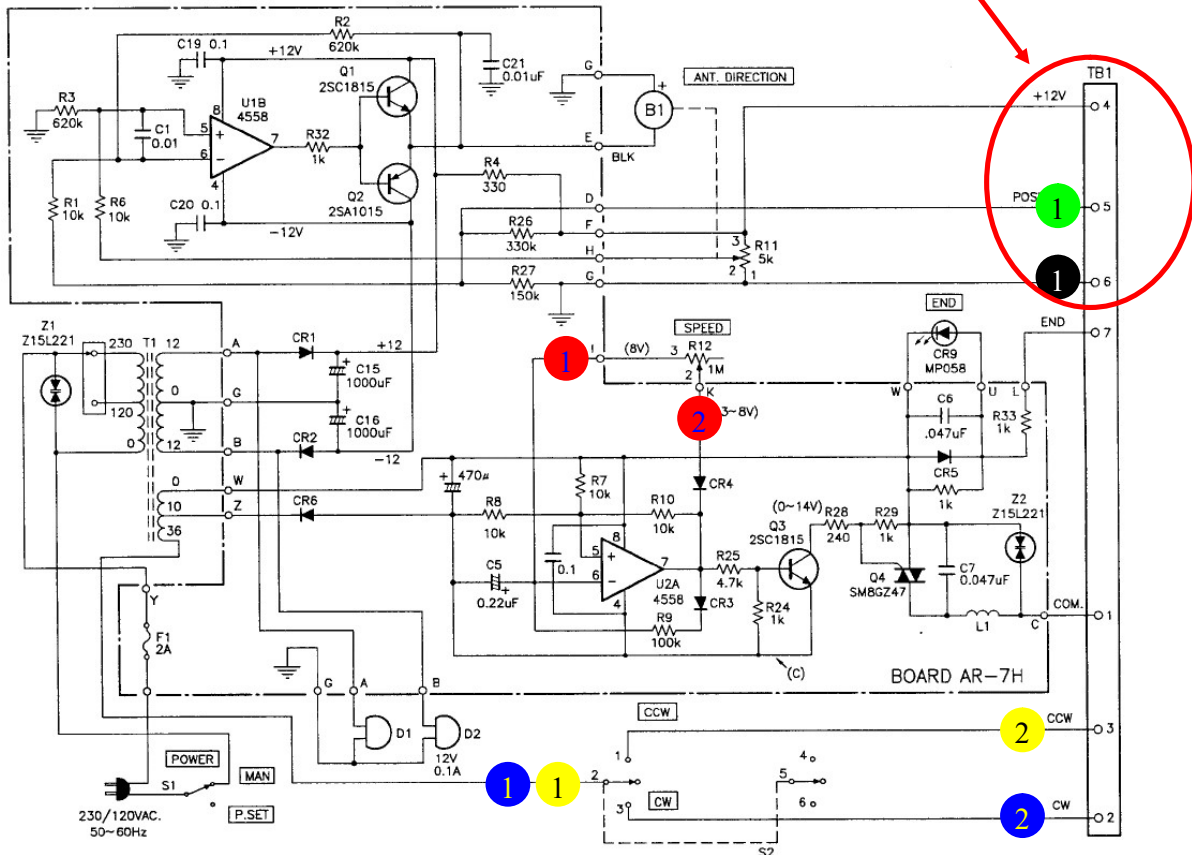
Create : RC5-1 (AR-7H)

Rotor-specific information:

- Settings of AUX-relay: SPEED



There are alternative schematic of the RC5-1 out there which can be identified when looking to the terminals 4 and 6. If terminal 4 is not connected to +12V and terminal 6 is not connected to GND, don't use this instructions, go to the next pages.



Create : RC5-1 (BR-5)

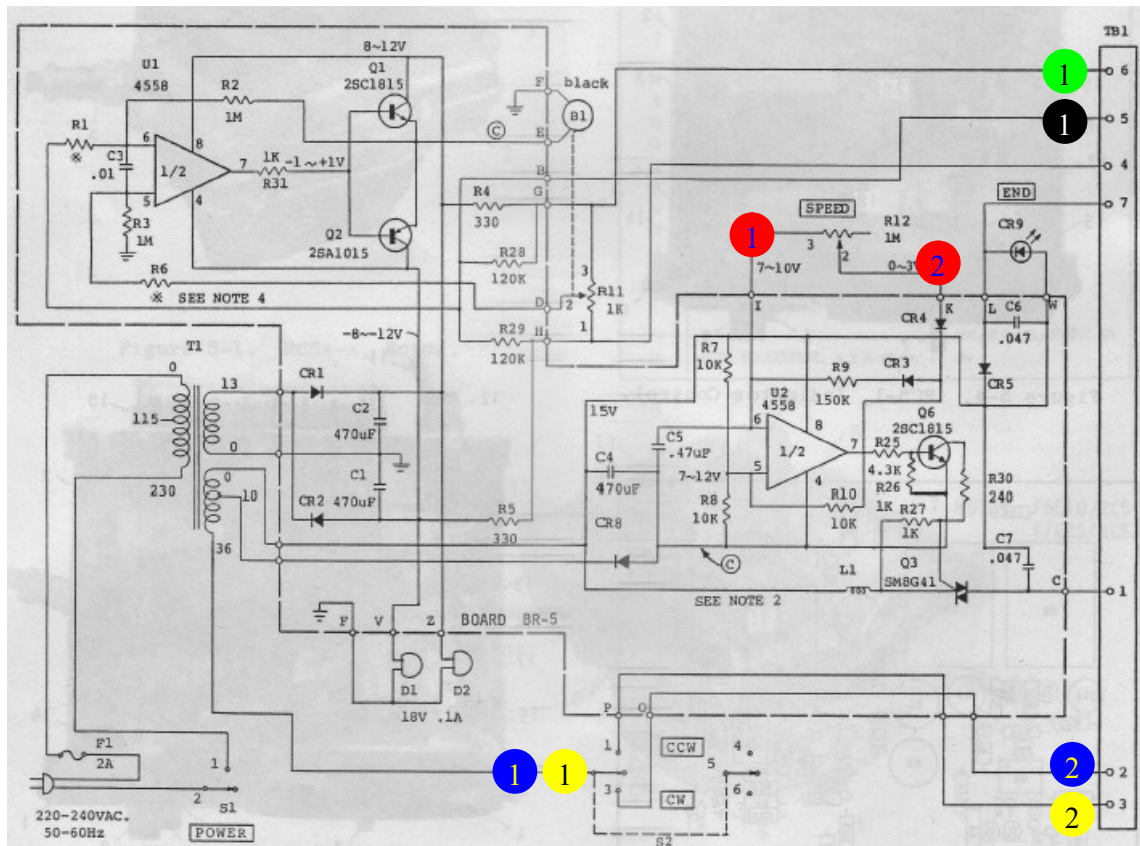
Rotor-specific information:

- Settings of AUX-relay: SPEED



As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, take care about the following issues:

- Use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



Create : RC5-1 (AR-4)

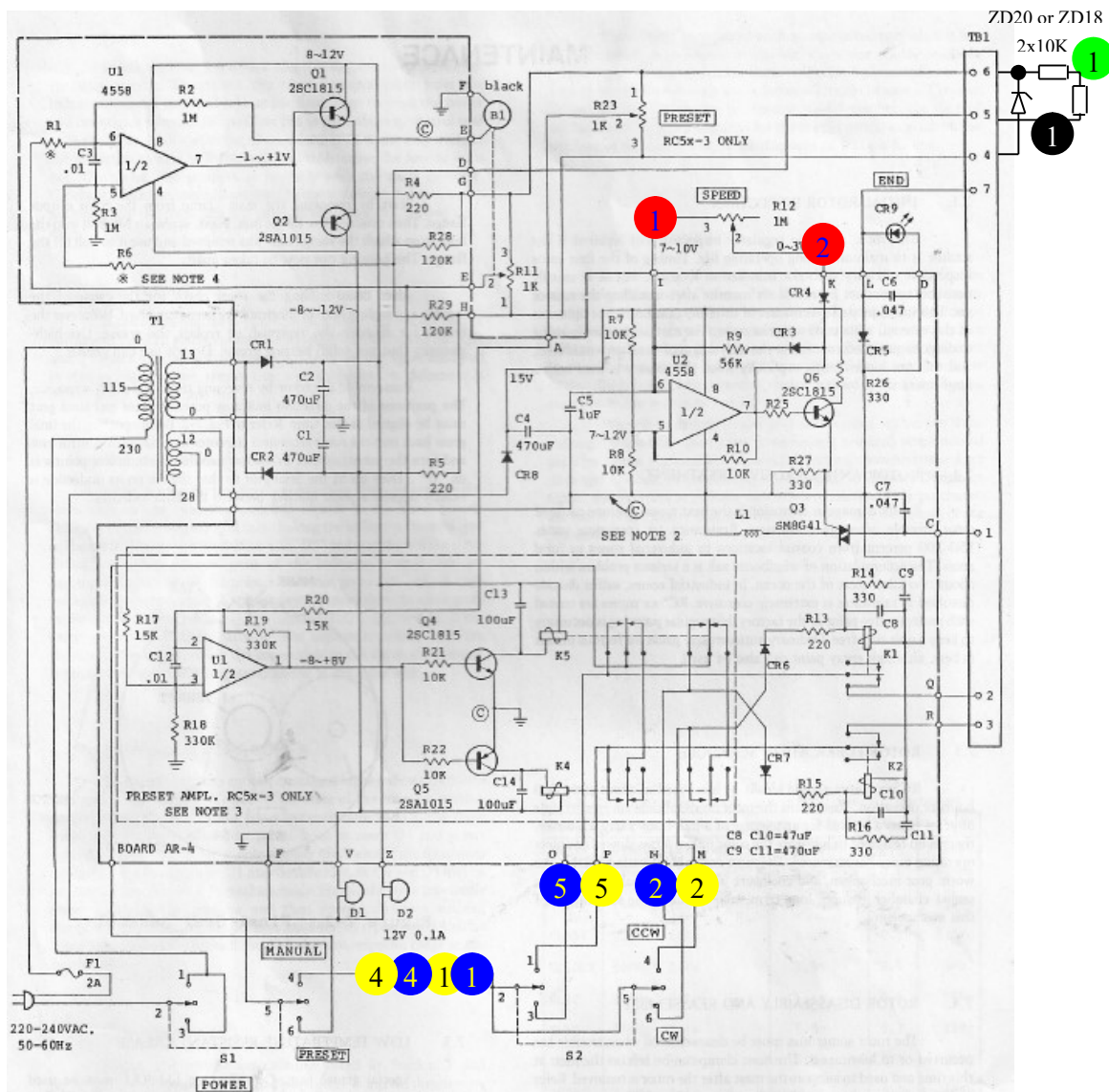
Rotor-specific information:

- Settings of AUX-relay: SPEED



As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, take care about the following issue:

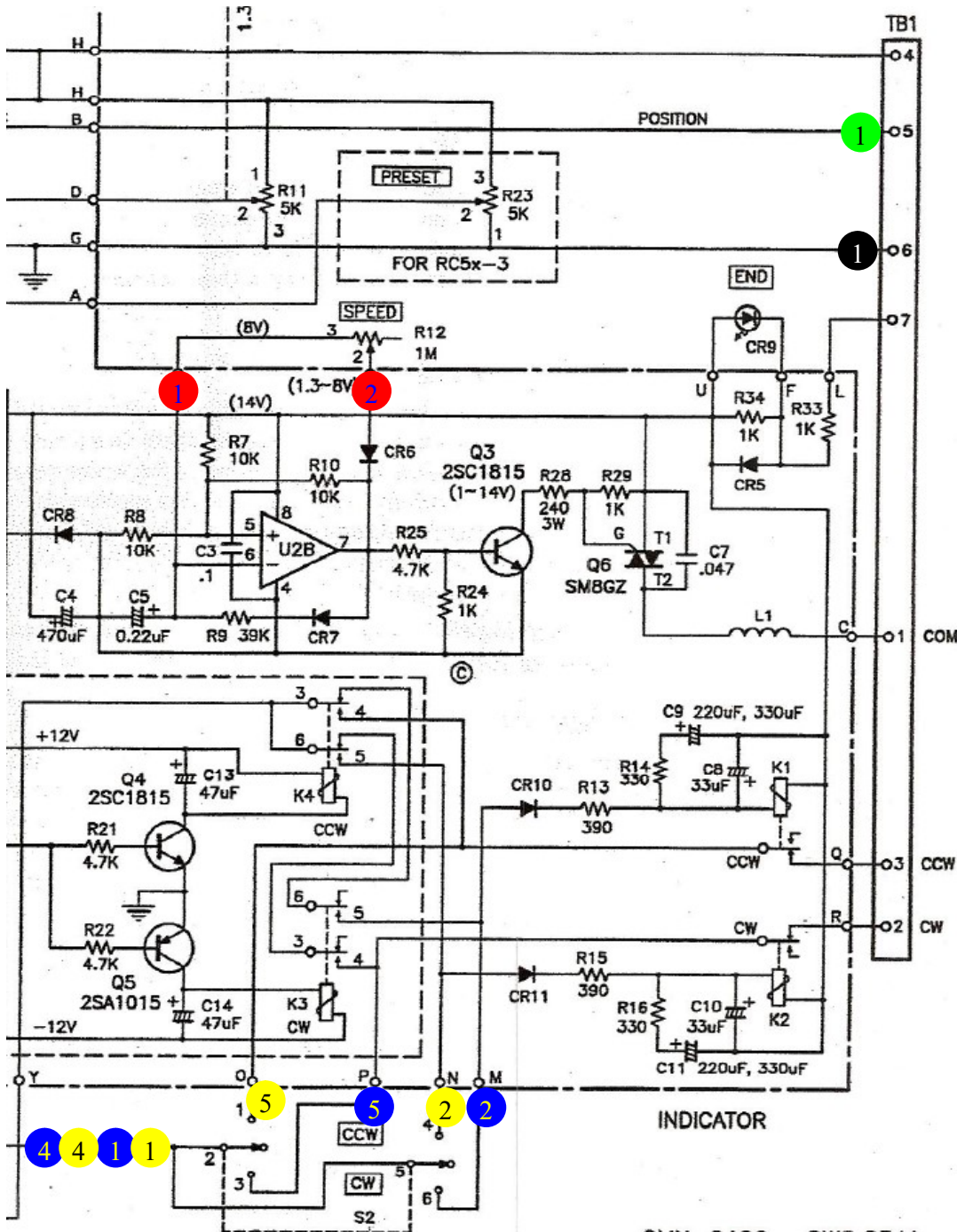
- Use a separate power-supply (e.g. wall-mount), that is not connected to stations ground.
- An additional Z-Diode and 2 resistors need to be added.



Create : RC5-3 – RC5A-3 – RC5B-3 (AR-8H)

Rotor-specific information:

- Settings of AUX-relay: SPEED

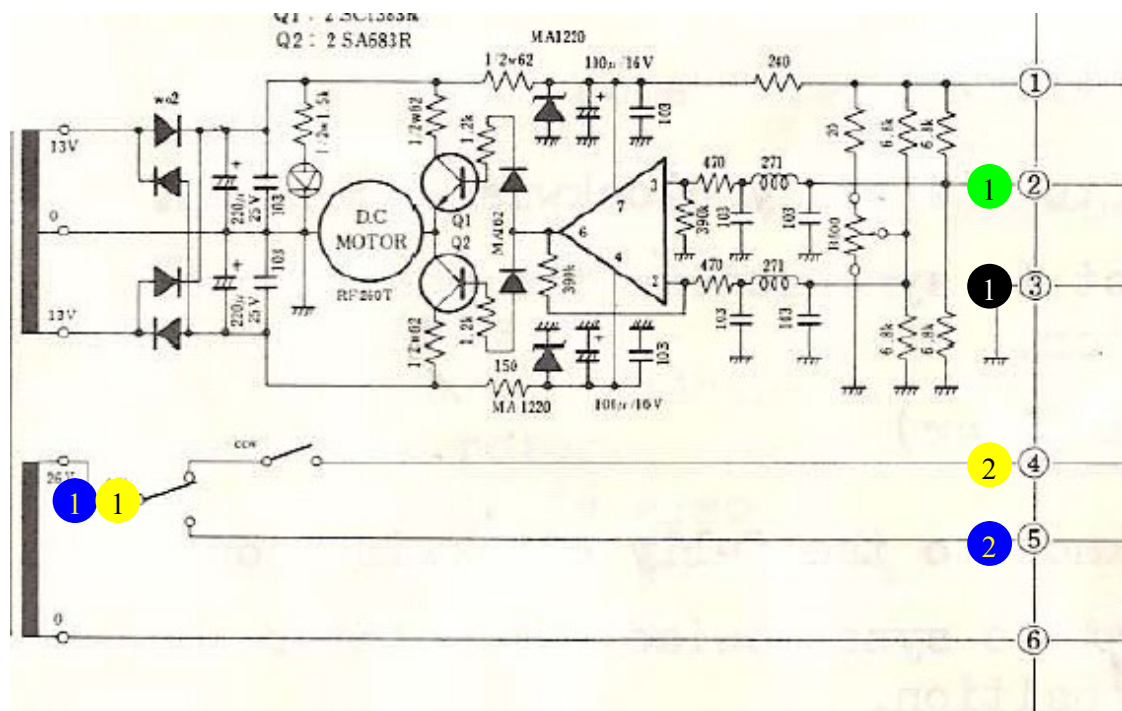


Daiwa : DC-7011 (DR7500R - DR7600R)



Rotor-specific information:

- Settings of AUX-relay: NONE

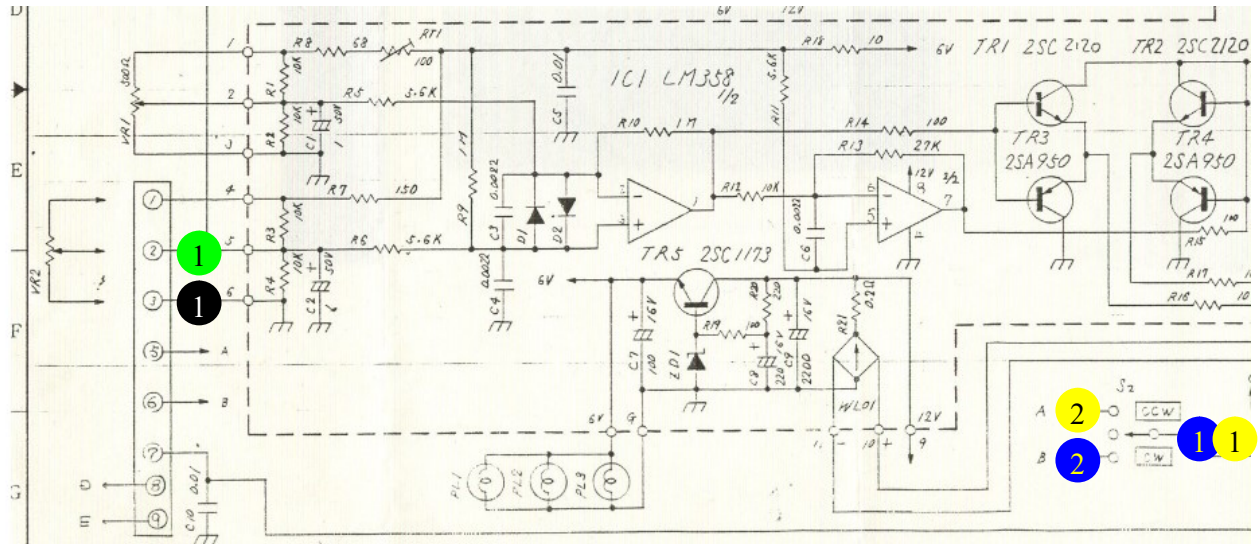


Daiwa : MR750

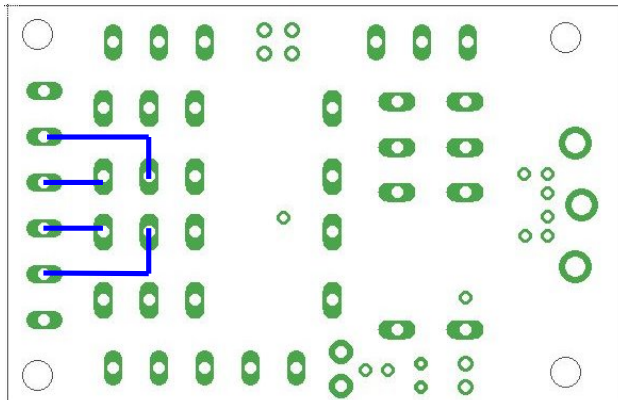


Rotor-specific information:

- Settings of AUX-relay: NONE
- In order to use the rotator with the ERC, the mode-switch of the controller has to be set to Manual, not Preset.



If you use your MR750 with **more than 2 motors**, you need the heavy-duty-version of the Rotor-Card and 4 additional wires with 0,75 sqmm have to be soldered to the bottom of the PCB.



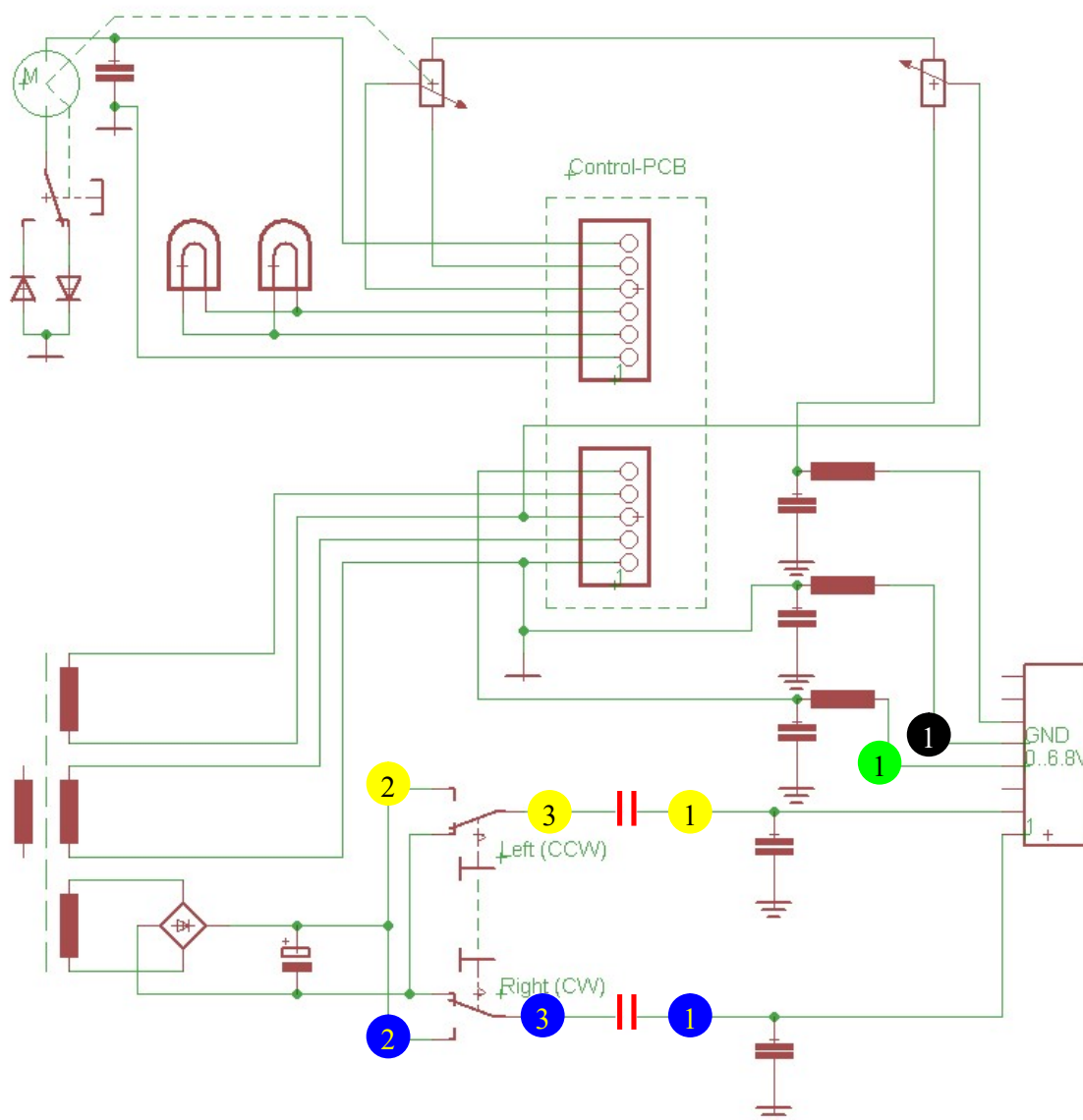
Emotator : 105 TSX



Rotor-specific information:

- Settings of AUX-relay: NONE

Additional work: The 2 connections to the center-points of the switches „Right“ and „Left“ have to be cut. Refer to the symbol  in the schematics.



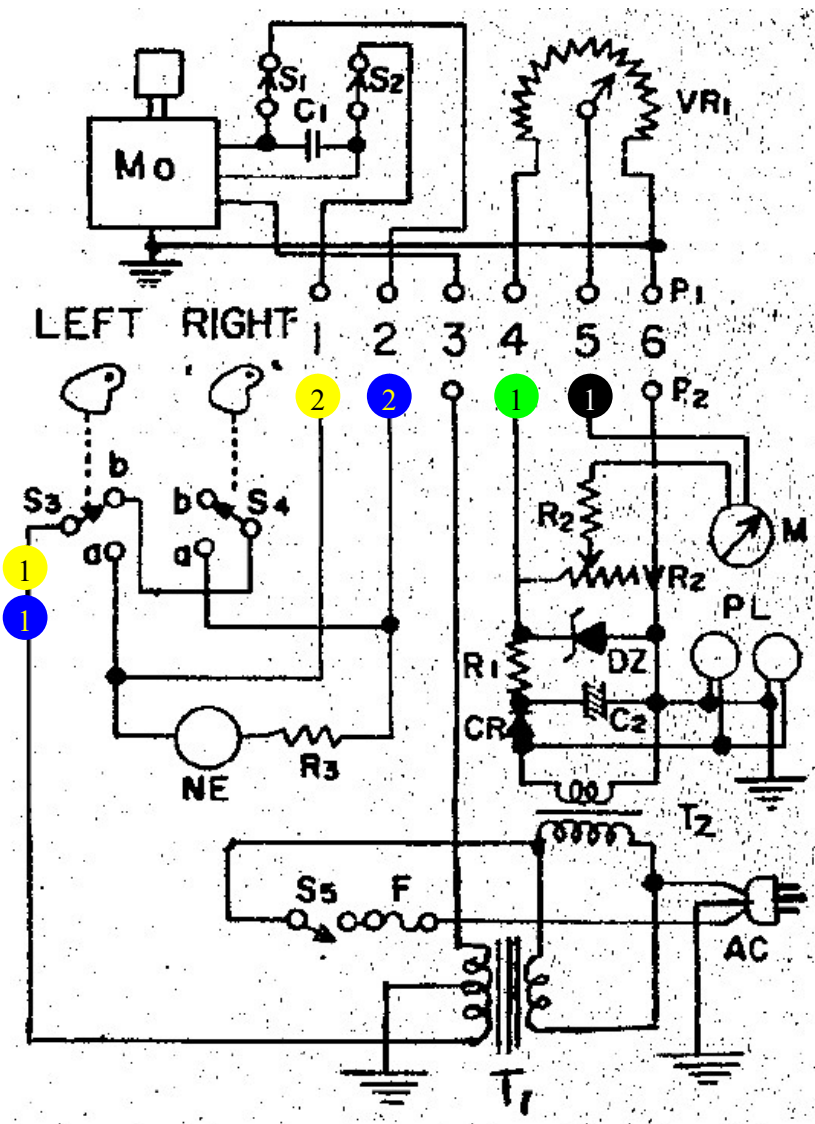
Emotator : 502 CXX

Rotor-specific information:

- Settings of AUX-relay: NONE



As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



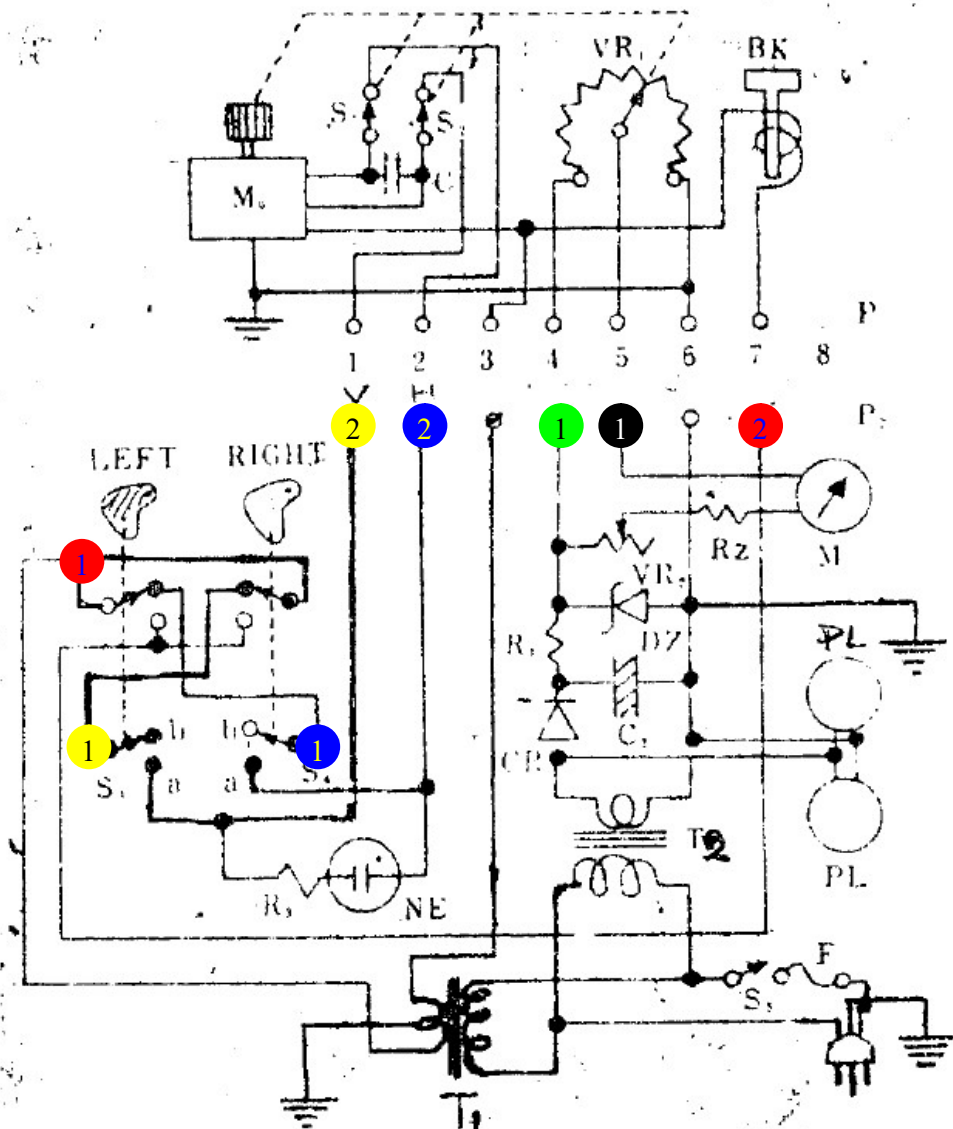
Emotator : 1102MXX – 1103MXX



Rotor-specific information:

- Settings of AUX-relay: BRAKE

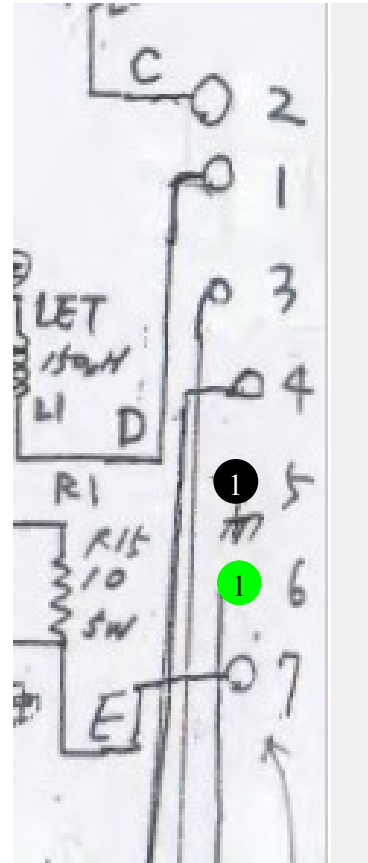
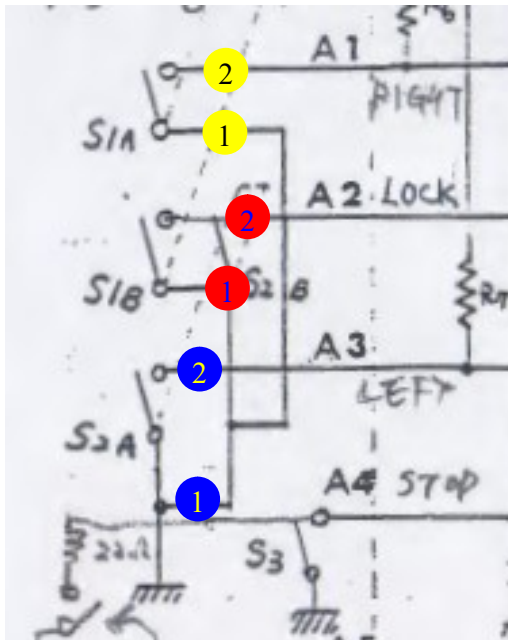
As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



Emotator : 1103MSAX

Rotor-specific information:

- Settings of AUX-relay: BRAKE

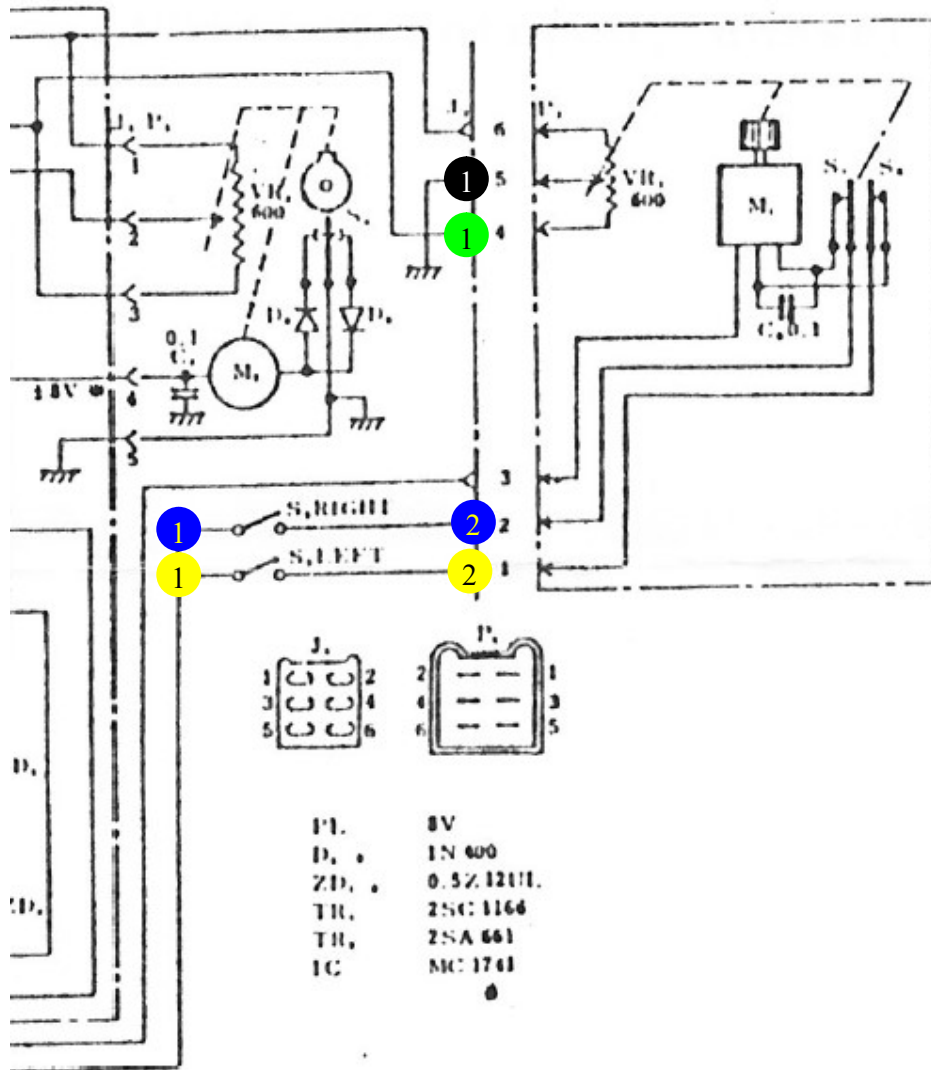




Emotator : EV-700 (Elevation)

Rotor-specific information:

- Settings of AUX-relay: NONE

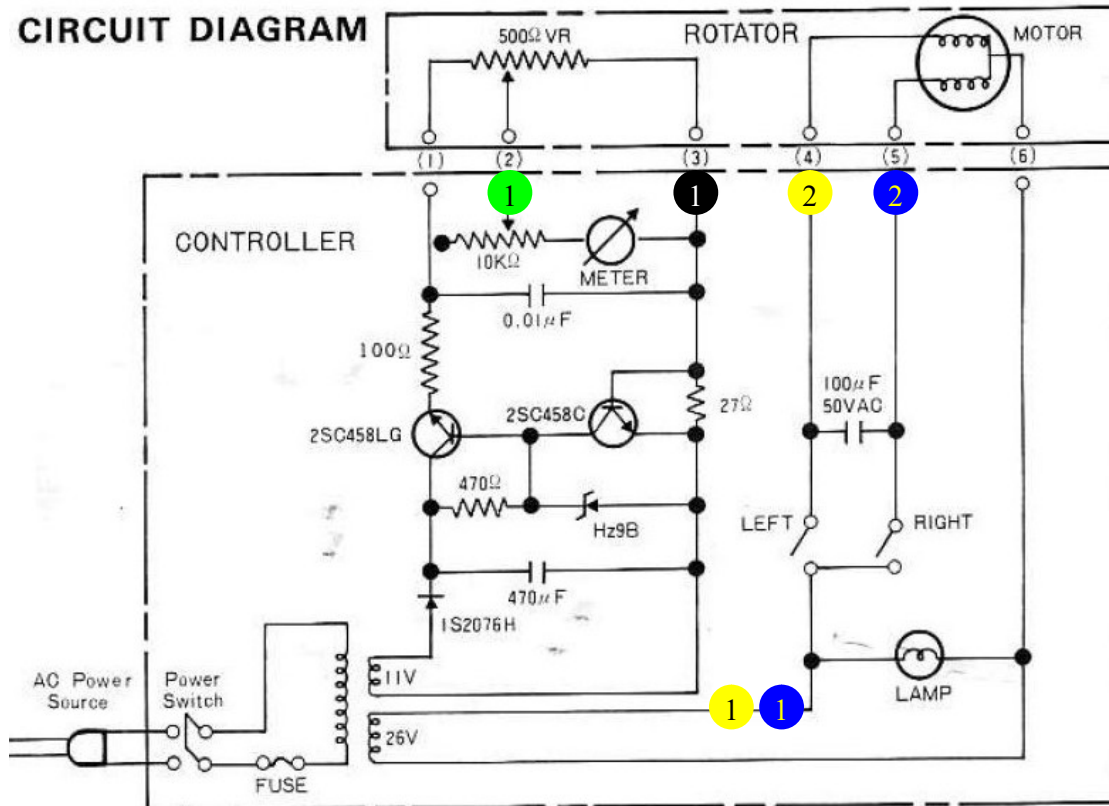


Fukner: Commander 400



Rotor-specific information:

- Settings of AUX-relay: NONE

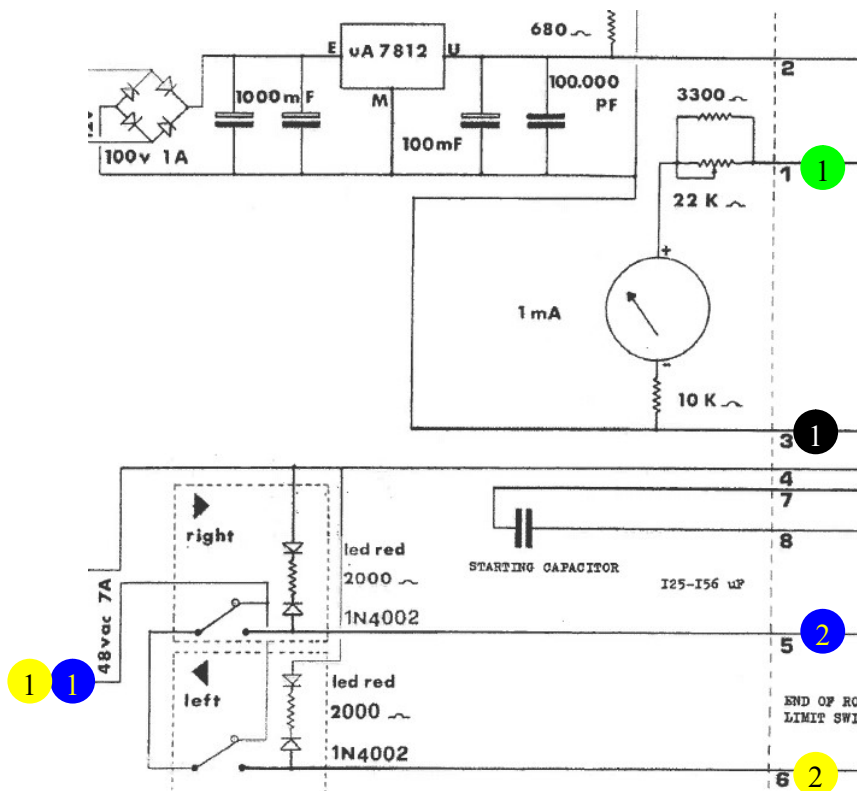




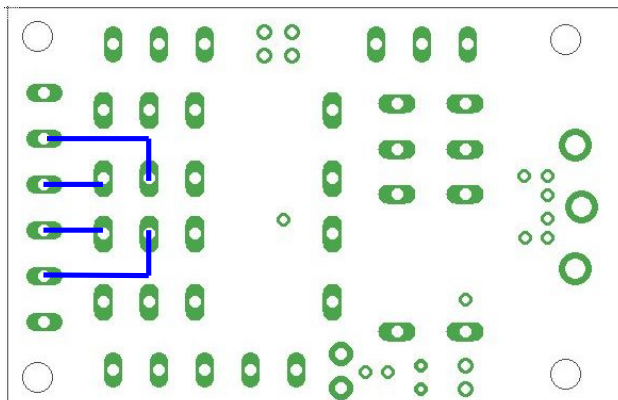
Giovannini : GE 1000/T – GE 1500/T

Rotor-specific information:

- Settings of AUX-relay: NONE



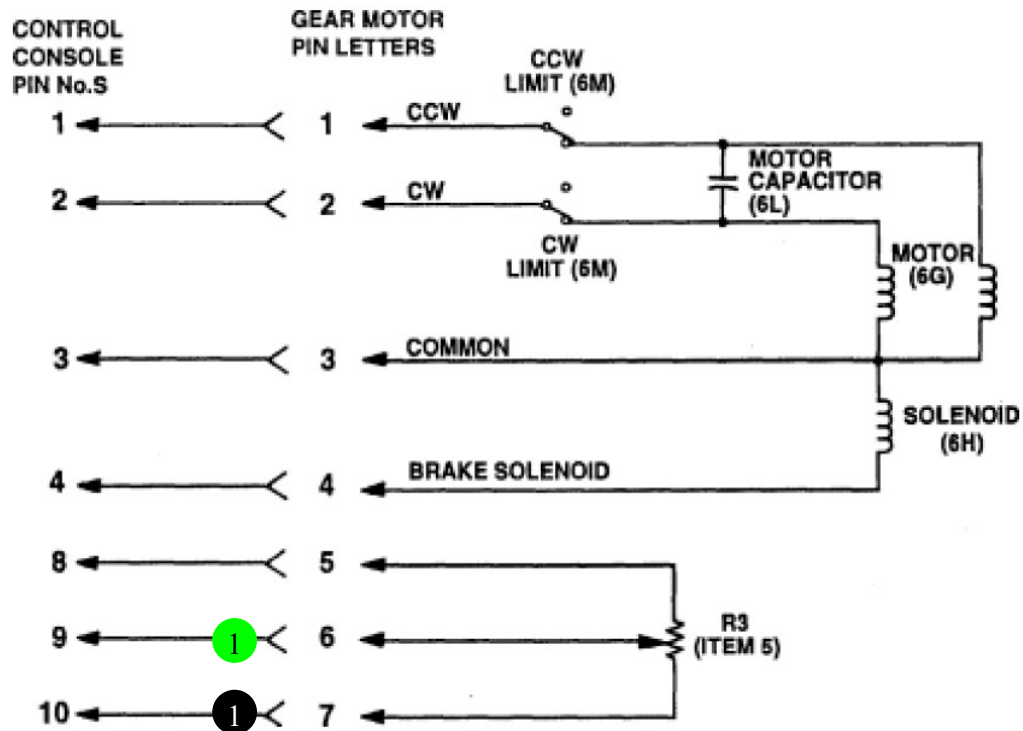
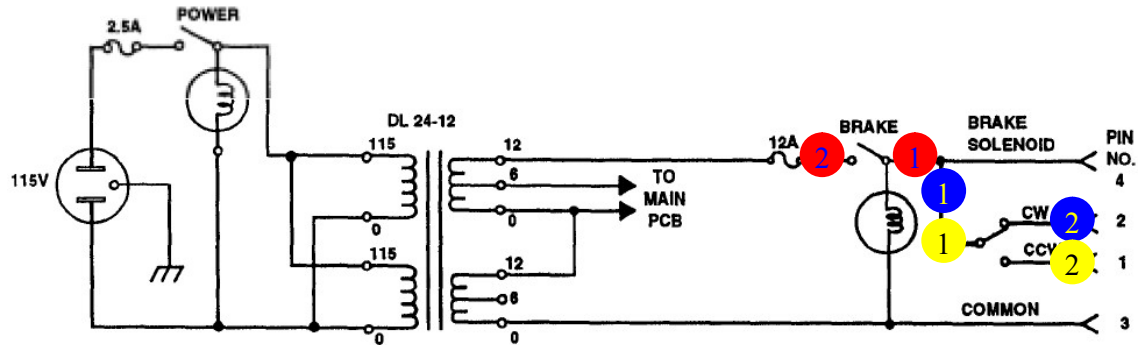
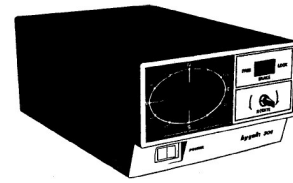
Additional Work: To carry the higher current, 4 additional wires with 0,75 sqmm have to be soldered to the bottom of the PCB.



HyGain : HDR-300A

Rotor-specific information:

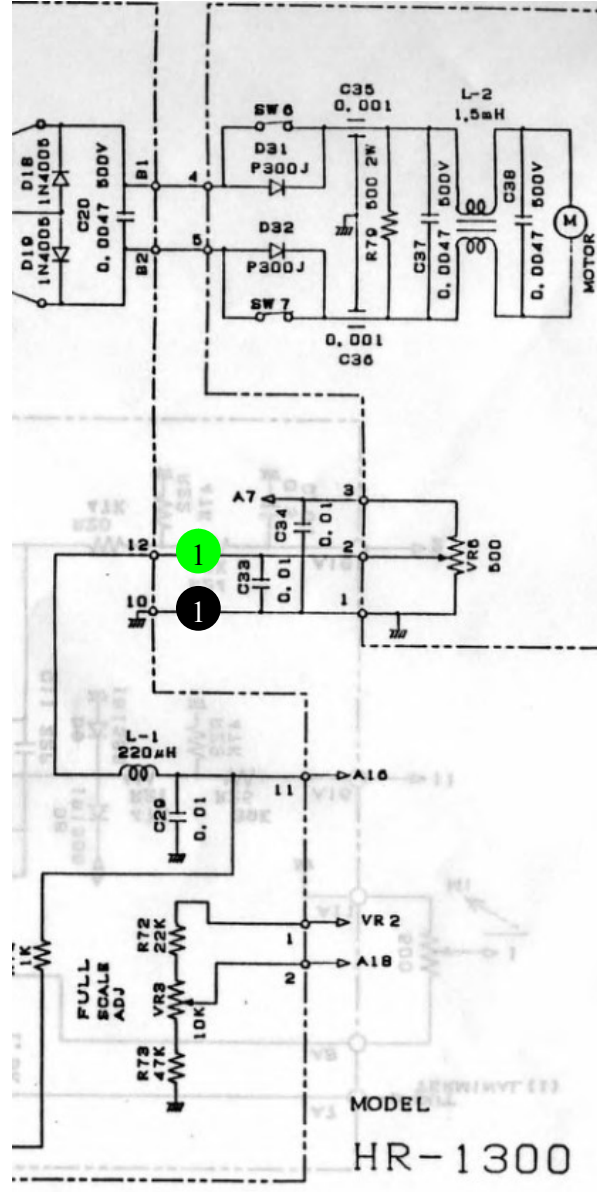
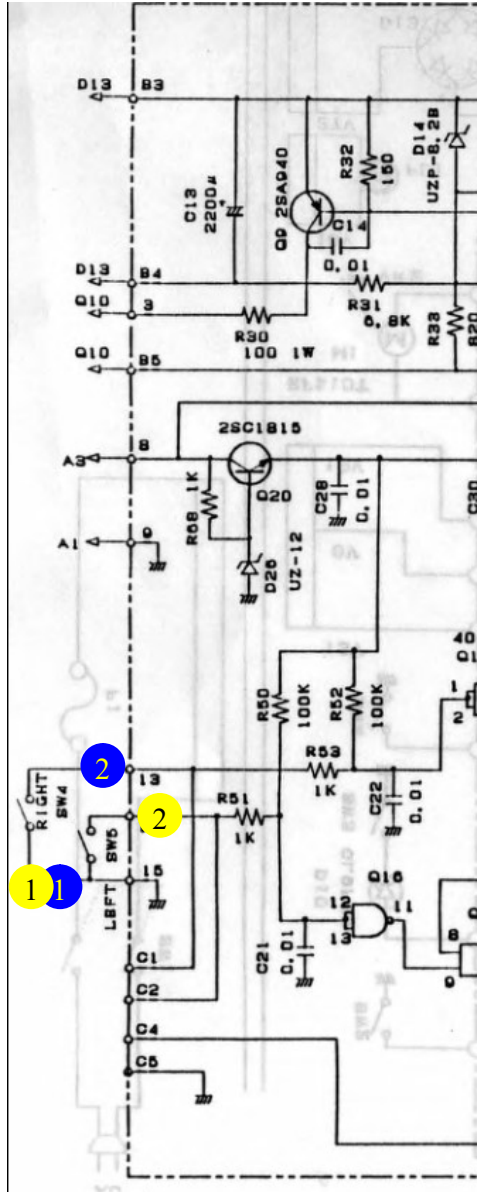
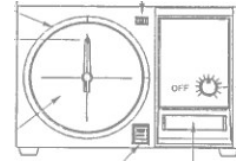
- Settings of AUX-relay: BRAKE



Kenpro : HR-1300

Rotor-specific information:

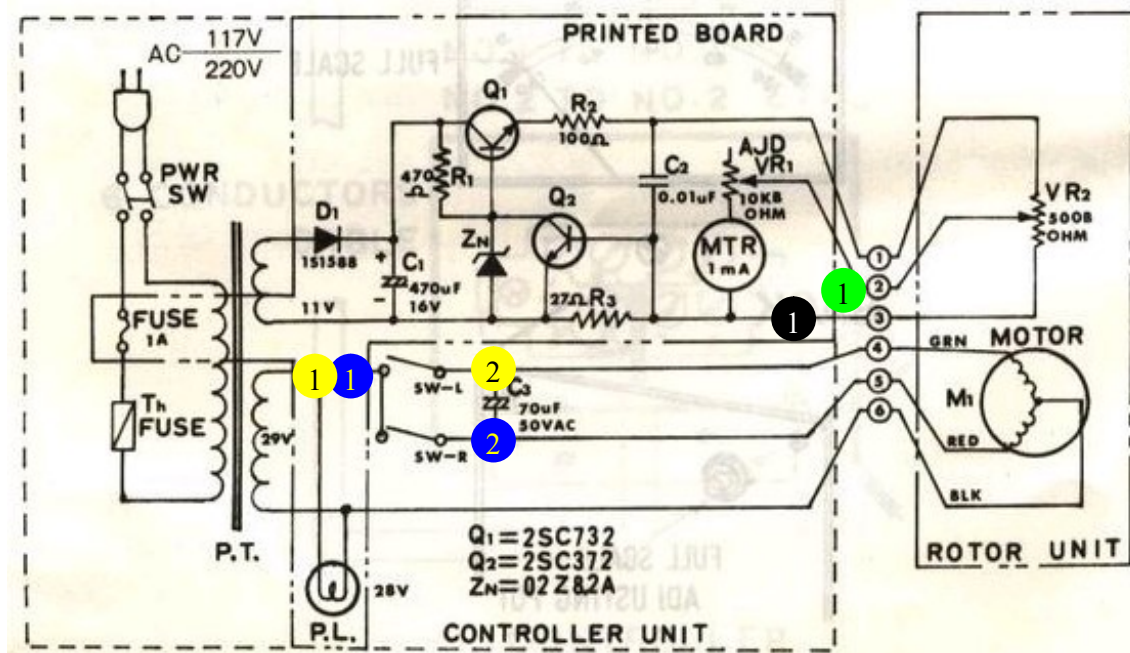
- Settings of AUX-relay: NONE



Kenpro : KR-400

Rotor-specific information:

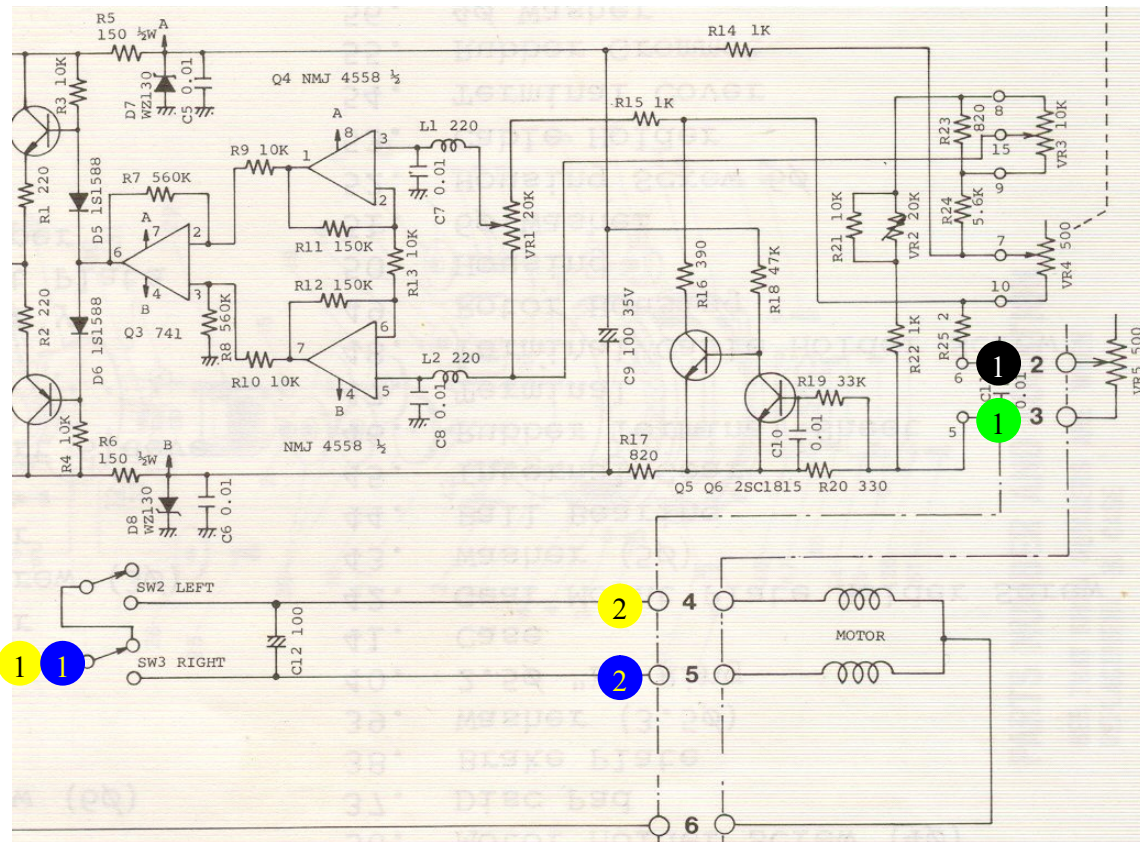
- Settings of AUX-relay: NONE



**Kenpro : KR-400RC****Rotor-specific information:**

- Settings of AUX-relay: NONE
- Extended Calibration needed

As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



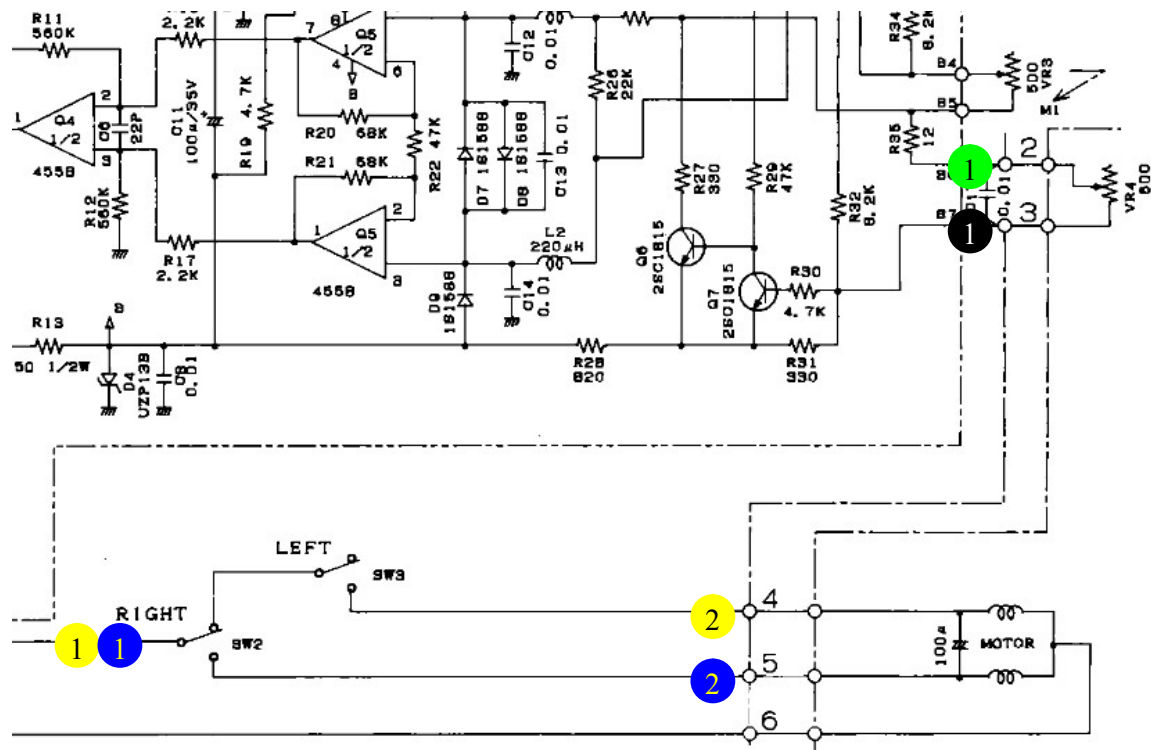
Kenpro : KR-450XL – KR-650XL



Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed

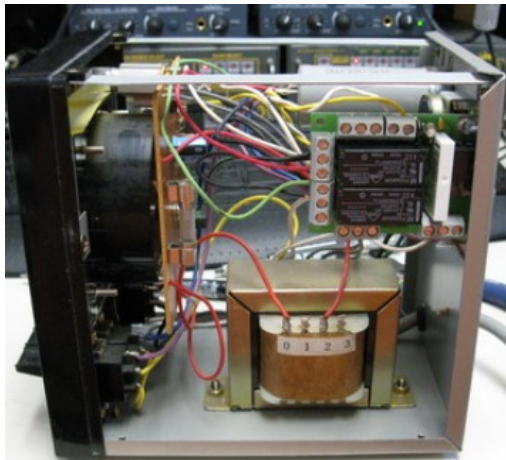
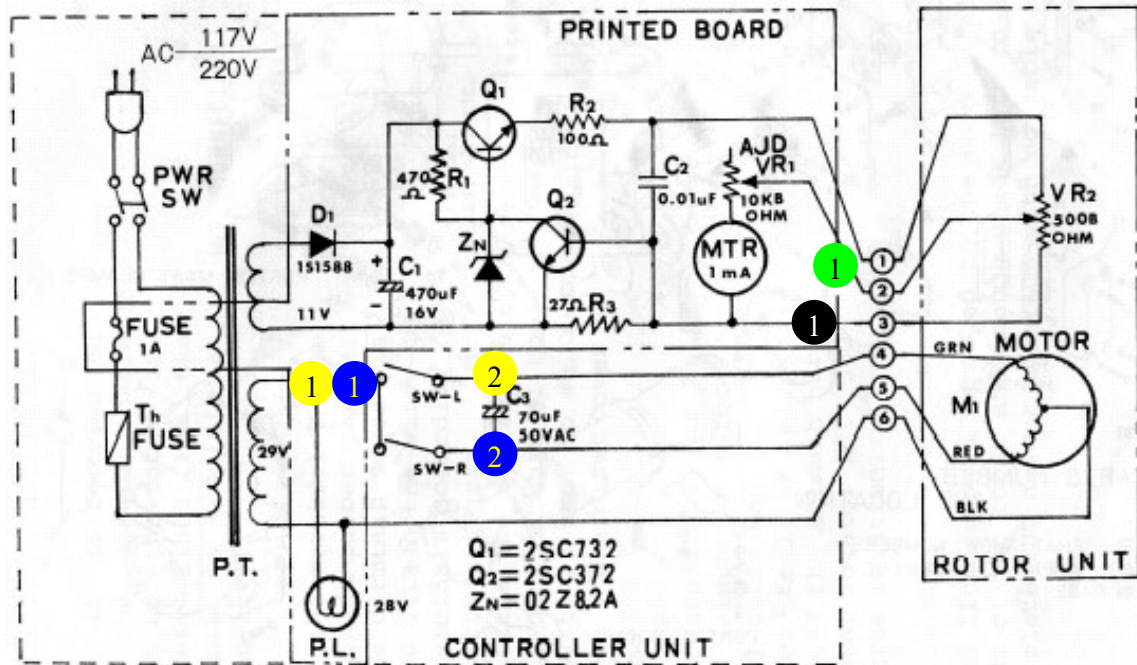
As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



Kenpro : KR-500 (Elevation)

Rotor-specific information:

- Settings of AUX-relay: NONE





ERC-M with Rotorcard(s)

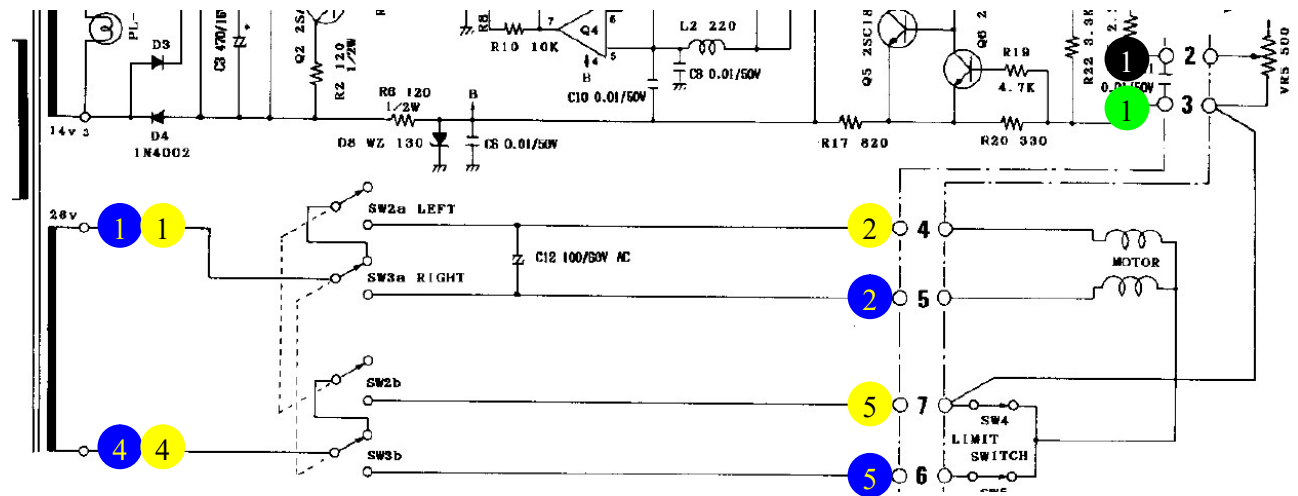
Kenpro : KR-600RC



Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed

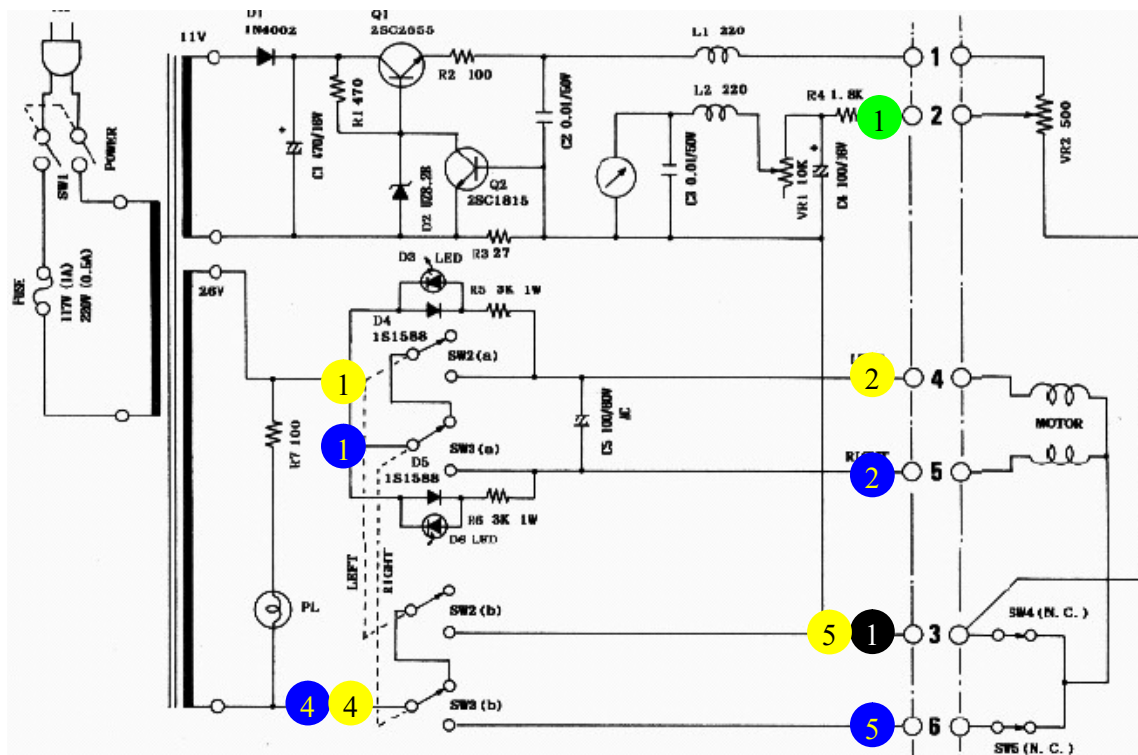
As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



Kenpro : KR-600S

Rotor-specific information:

- Settings of AUX-relay: NONE



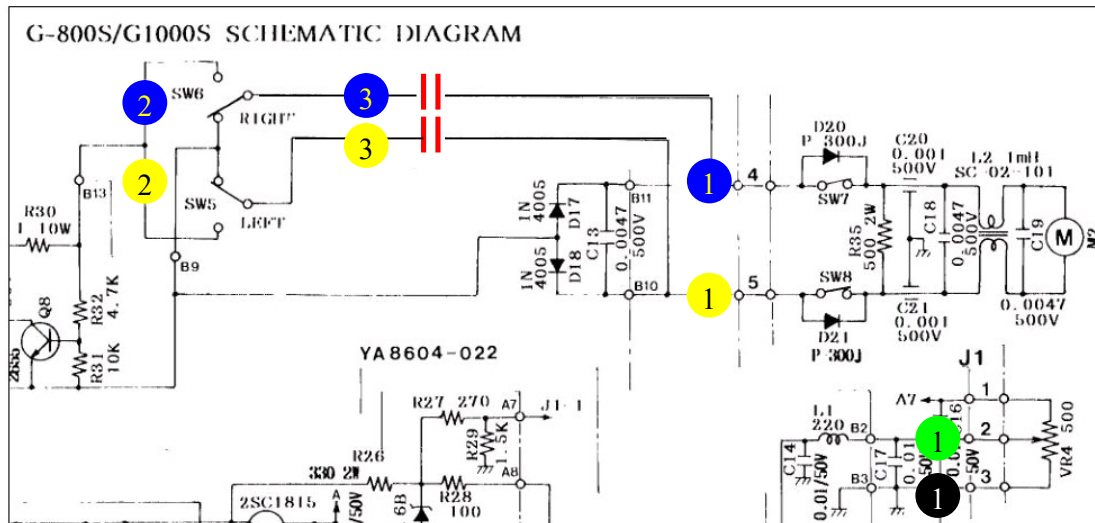
Kenpro : KR-800 – KR-800S – KR-1000



Rotor-specific information:

- Settings of AUX-relay: NONE

Additional work: The 2 connections to the center-points of the switches „Right“ and „Left“ have to be cut. Refer to the symbol in the schematics.

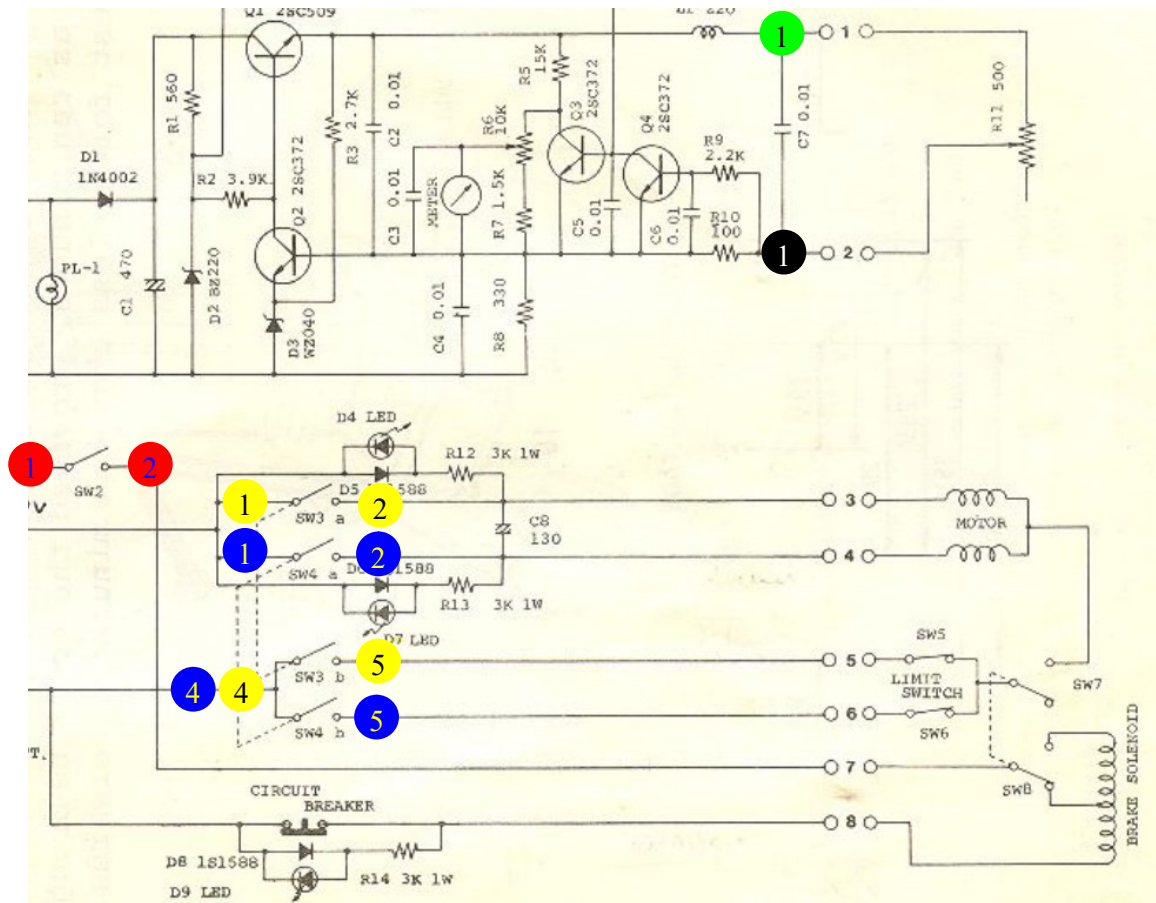


Kenpro : KR-2000

Rotor-specific information:

- Settings of AUX-relay: BRAKE
- Extended Calibration needed

As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC, that is not connected to stations ground.



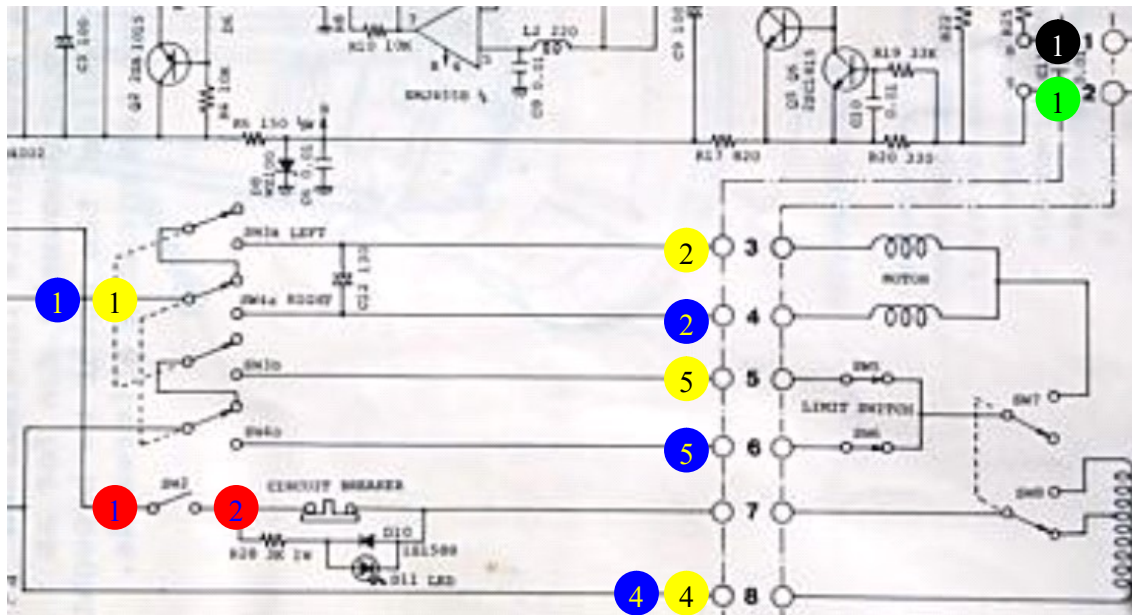
Kenpro : KR-2000RC



Rotor-specific information:

- Settings of AUX-relay: BRAKE
- Extended Calibration needed

As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.

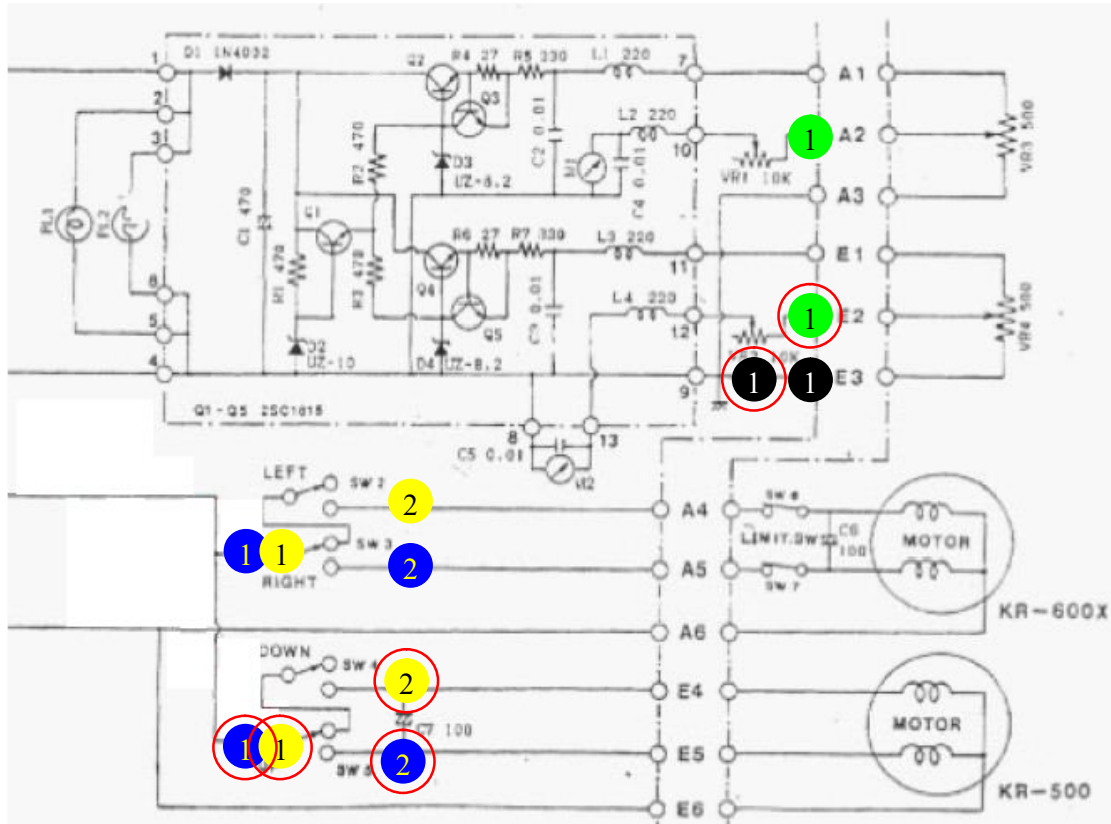


Kenpro : KR-5400/5500/5600 without DIN-Connector (Azimuth&Elevation)



Rotor-specific information:

- Settings of AUX-relay: NONE
- This is a 2-axis-controller (azimuth and elevation). Please take note:
 - o 2 rotor-cards are needed
 - o the elevation-part has to be connected to axis 2
 - o the contacts of the rotor-card for axis 2 have a red circle

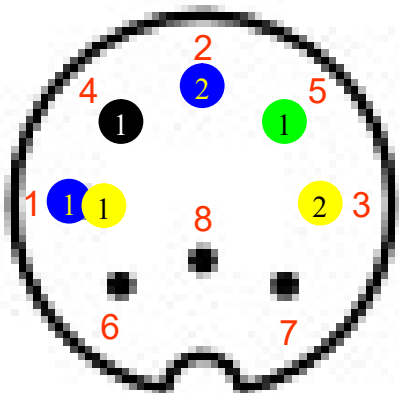


Orion : OR-2300



Rotor-specific information:

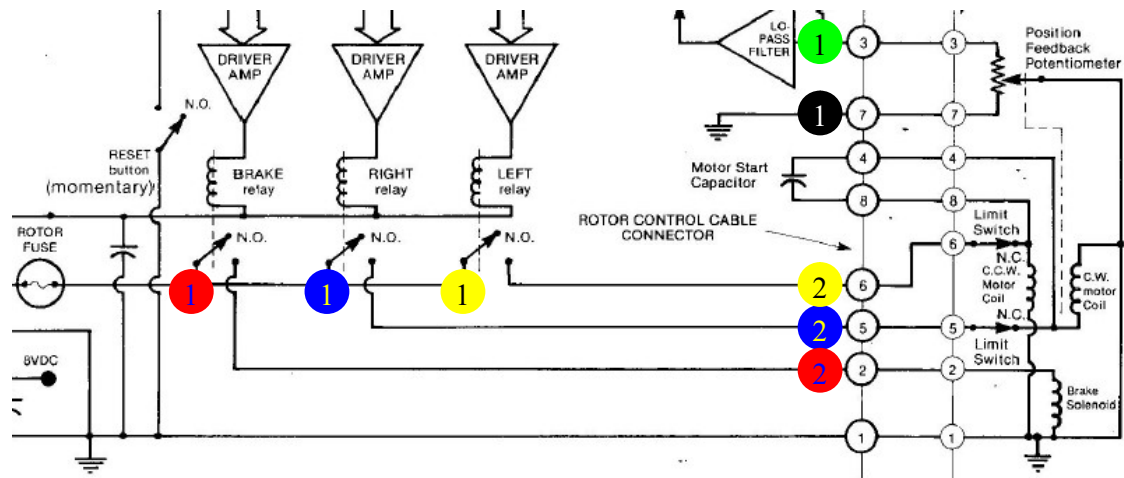
- Settings of AUX-relay: NONE
- In order to use the rotator via the remote-connector, the mode-switch of the controller has to be set to Preset, not Manual.



PROSEARCH PSE-x

Rotor-specific information:

- Settings of AUX-relay: BRAKE



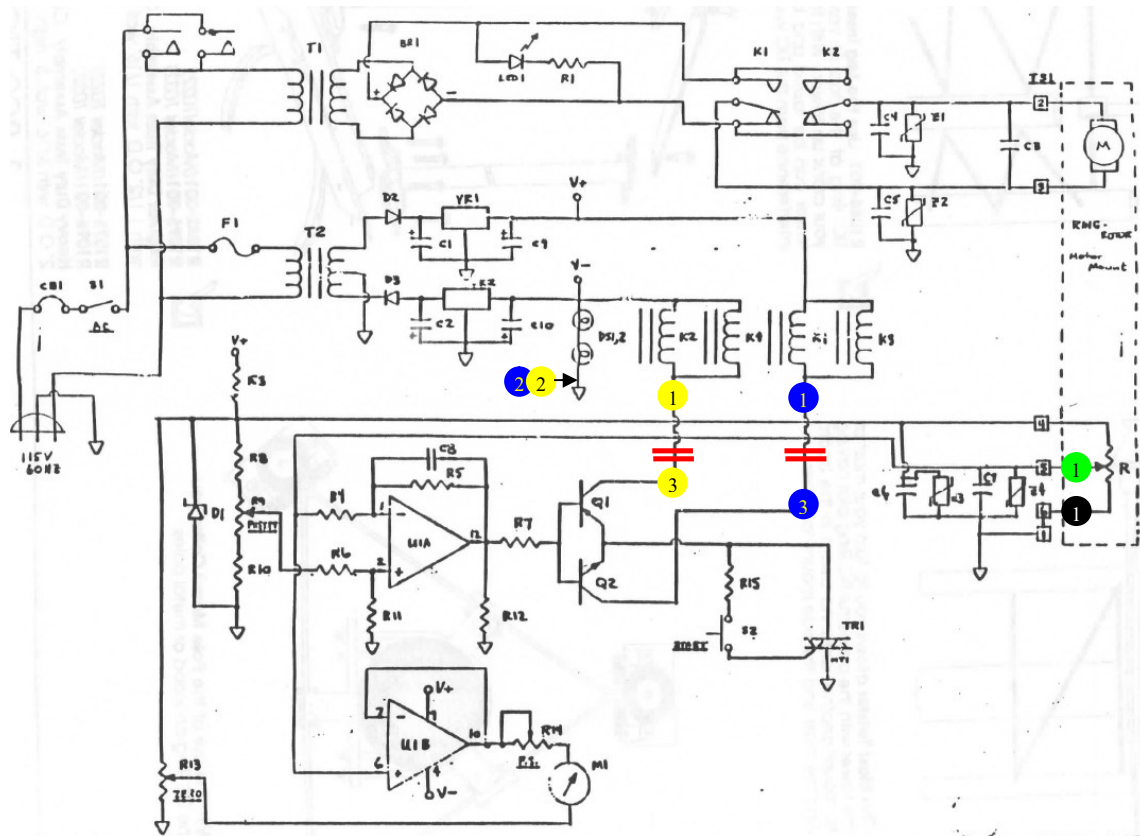
RED1, BLUE1, YELLOW1 has the same connection and can be bridged at the ERC terminal clamps.

TIC GEN Modell 2100B/C

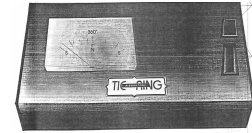


Rotor-specific information:

- Settings of AUX-relay: none
- Don't press the start-button of the preset-function when the rotor is controlled by the ERC
- Cut the connection where indicated with this symbol: 

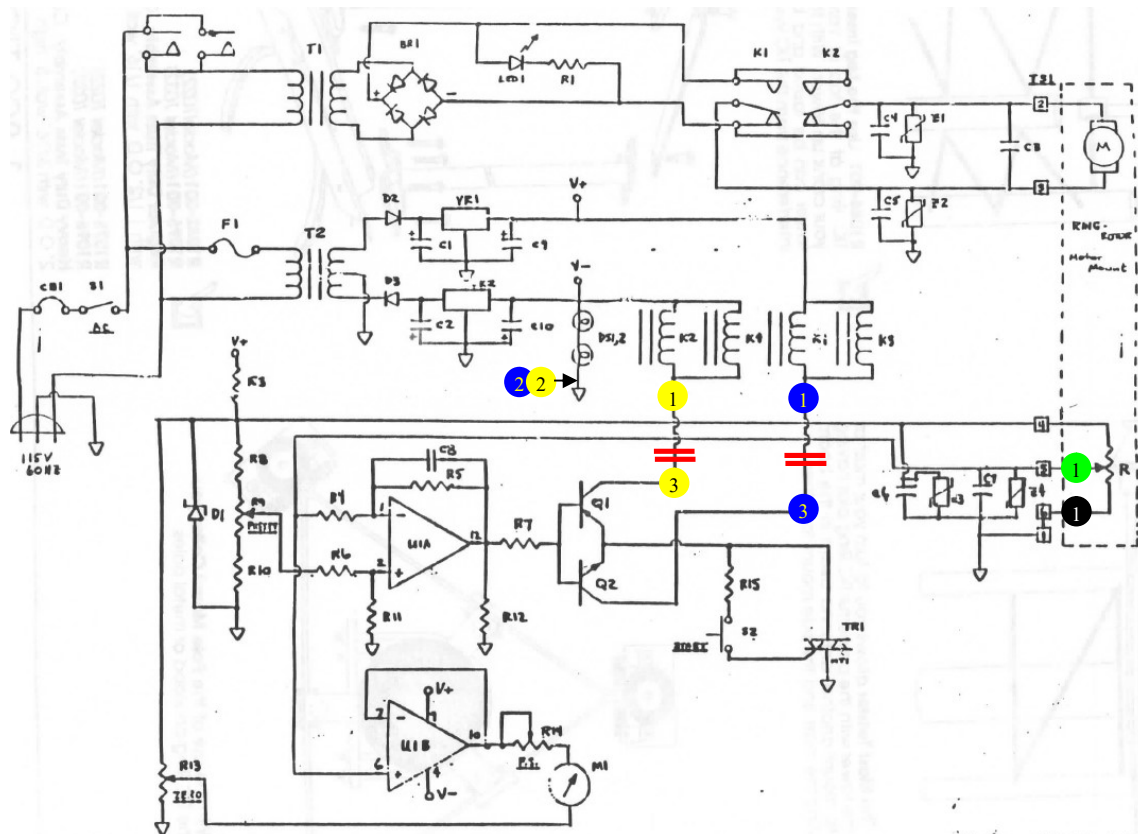


TIC RING Modell 2020



Rotor-specific information:

- Settings of AUX-relay: none
- Don't press the start-button of the preset-function when the rotor is controlled by the ERC
- Cut the connection where indicated with this symbol: 



Walmar : ML, MU-1, MU-3, MH



Rotor-specific information:

- Settings of AUX-relay: BRAKE

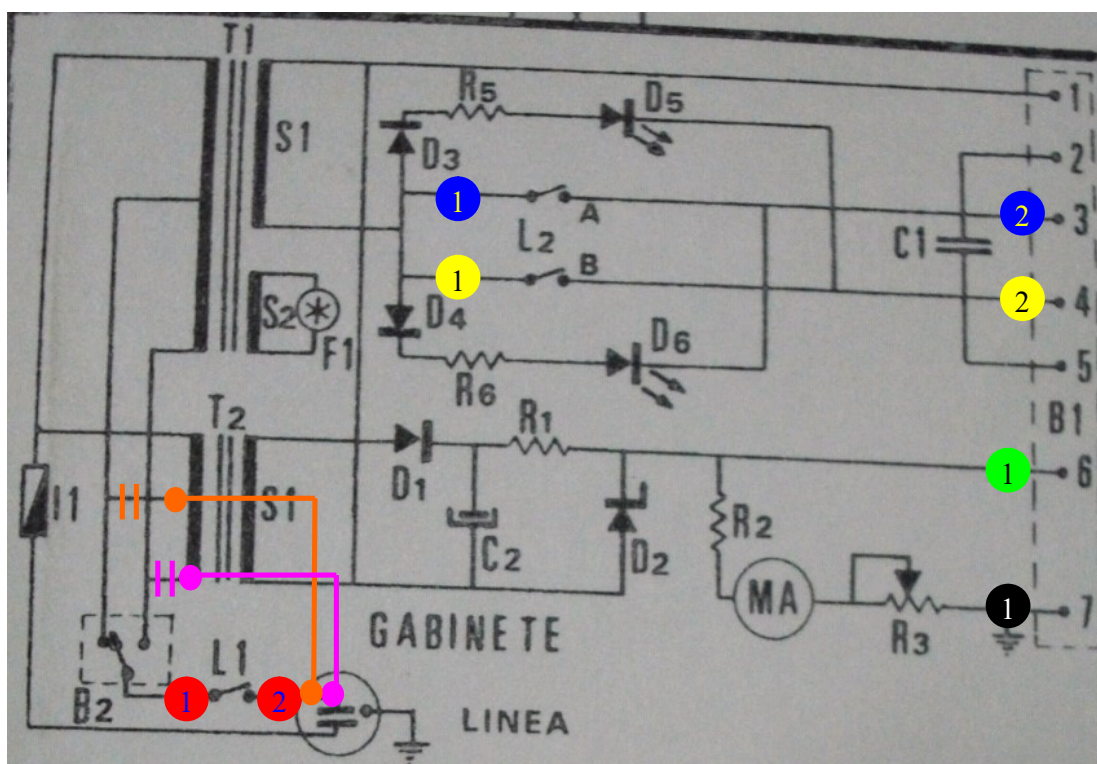
Additional work: The connection to the instrumentation-transformer has to be made permanent.

If your main-voltage is 230V:

- cut the wire to the instrumentation-transformer (Refer to the pink symbol  in the schematics)
- add a new wire (pink)

If your main-voltage is 115V:

- cut the wire to the instrumentation-transformer (Refer to the orange symbol  in the schematics)
- add a new wire (orange)



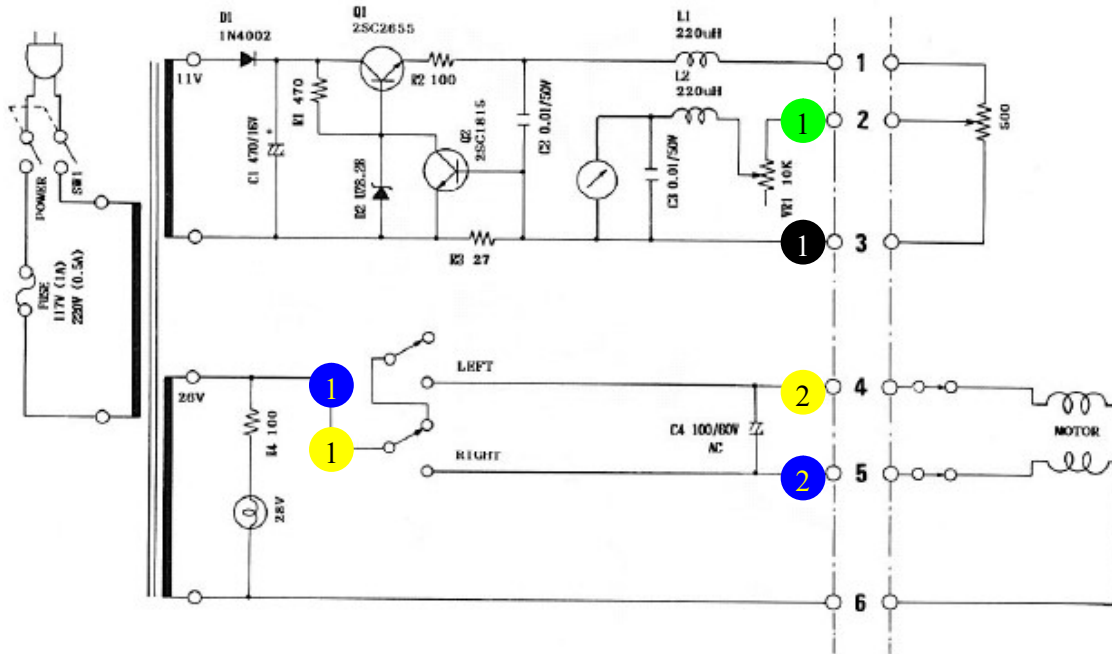
  carry main-voltage.



Yaesu: G-400

Rotor-specific information:

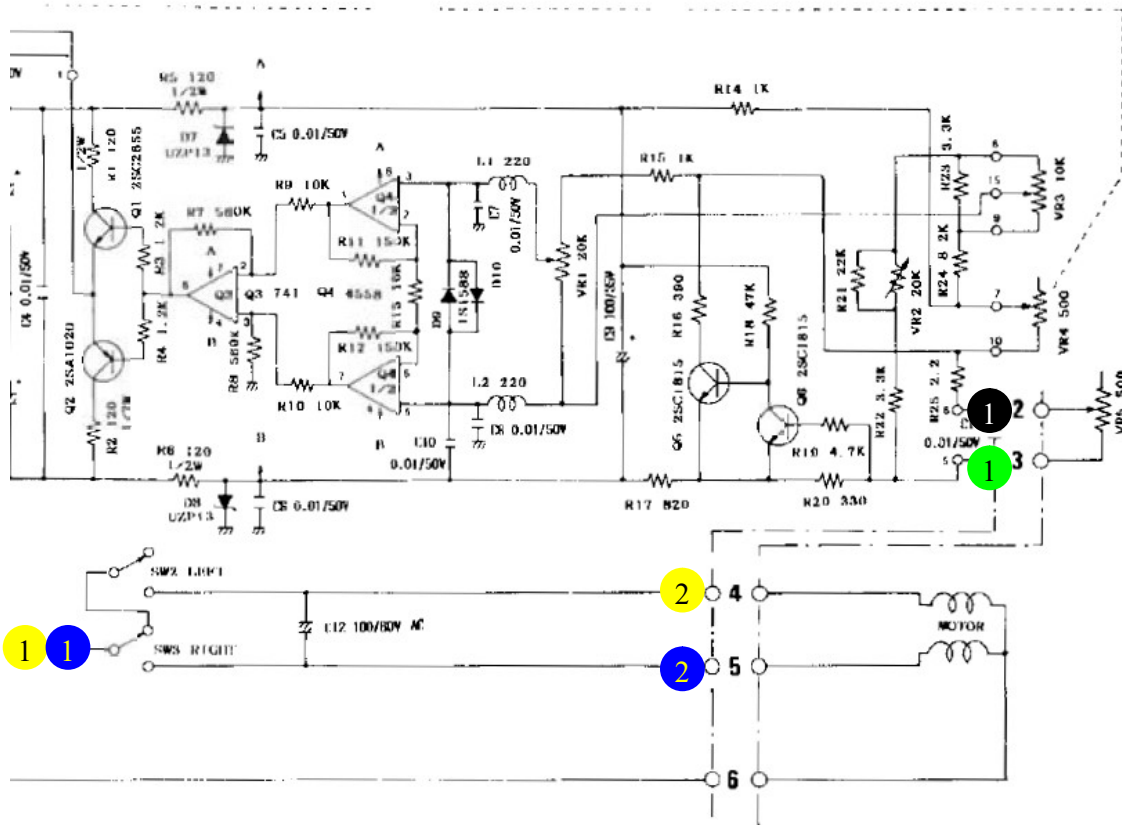
- Settings of AUX-relay: NONE



**Yesu : G-400RC****Rotor-specific information:**

- Settings of AUX-relay: NONE
- Extended Calibration needed

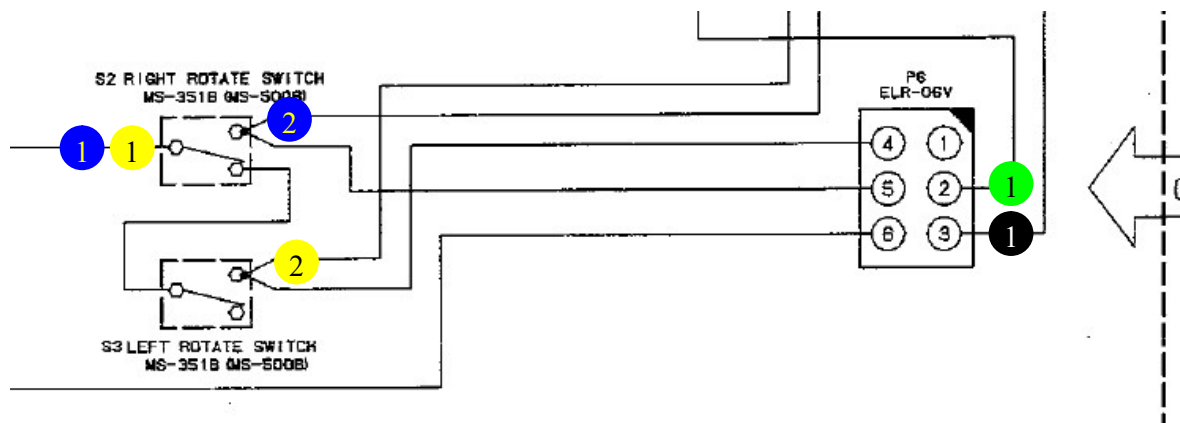
As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



Yaesu : G-450A/C – G-650A/C – G-1000C

Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed

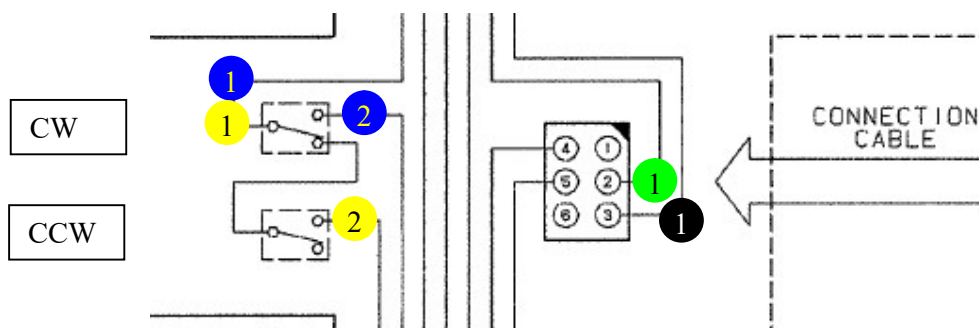


Yaesu : G-450ADC/CDC



Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed



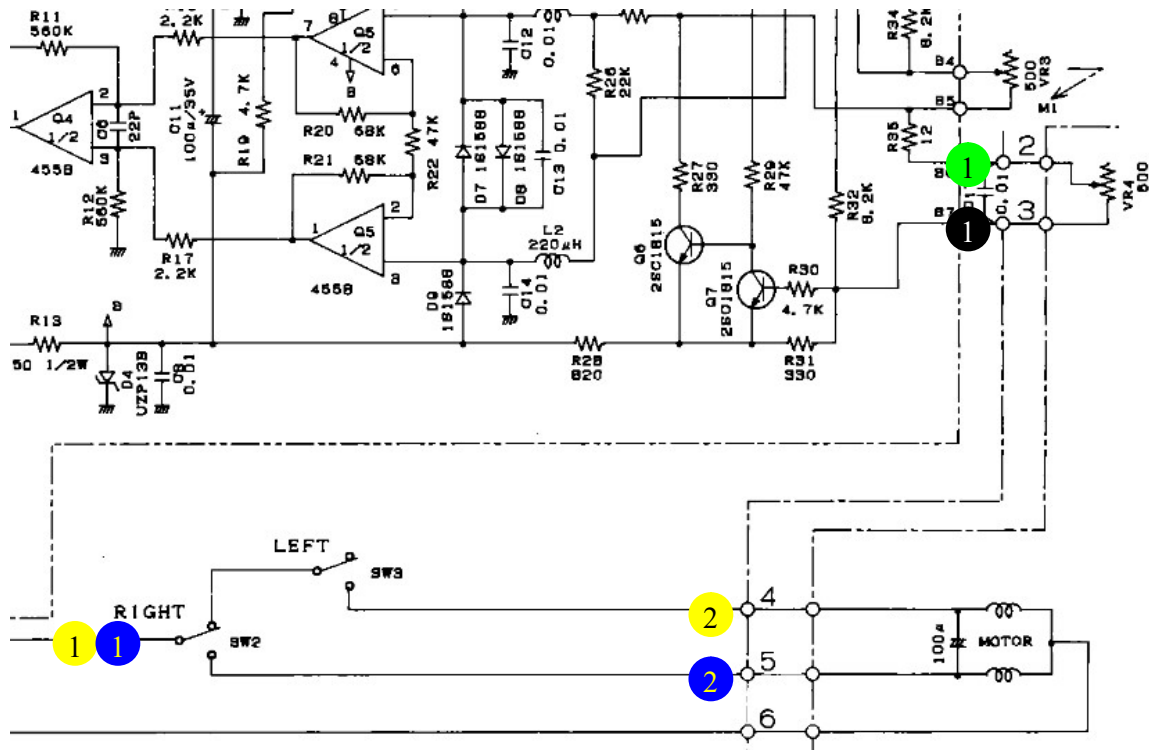
Yaesu : G-450XL – G-650XL



Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed

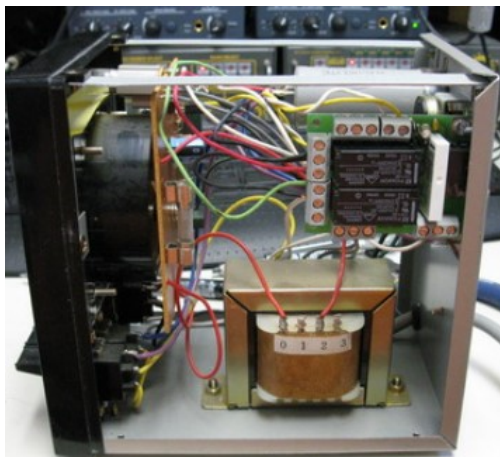
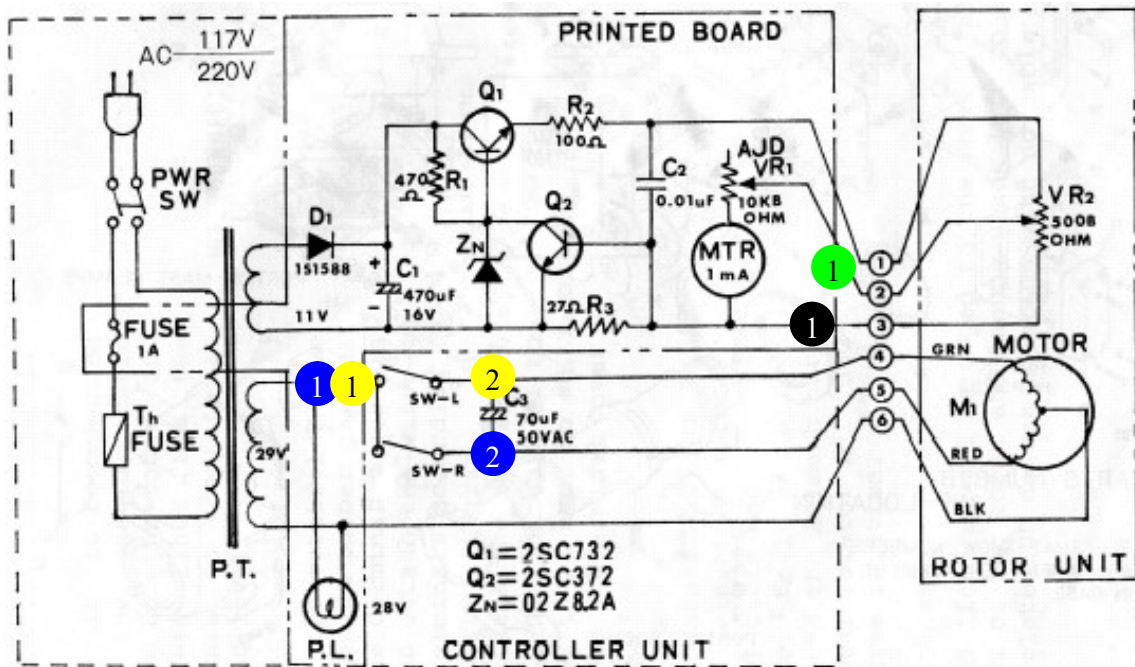
As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



Yaesu : G-500/500A (Elevation)

Rotor-specific information:

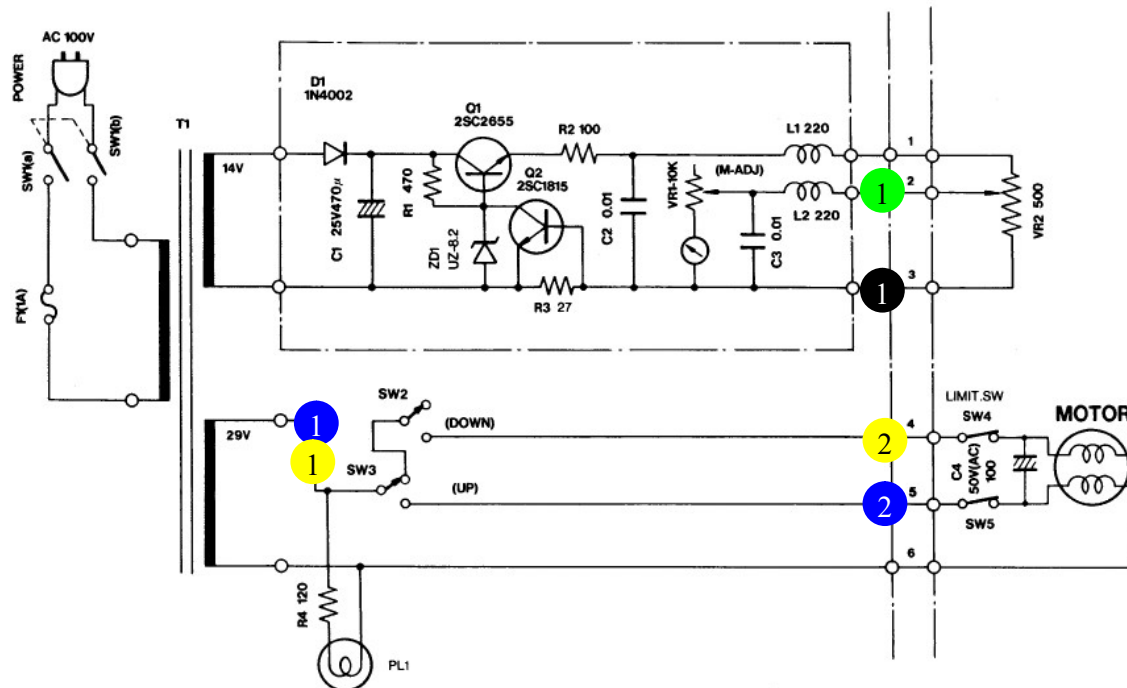
- Settings of AUX-relay: NONE



Yaesu : G-550 (Elevation)

Rotor-specific information:

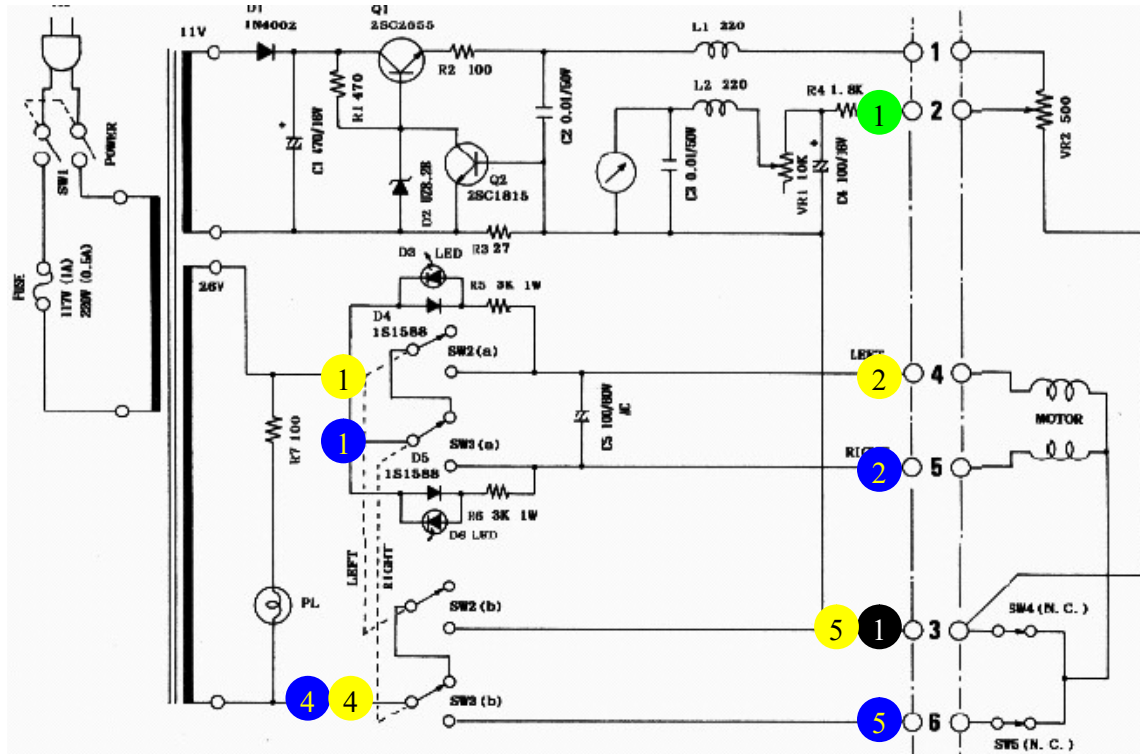
- Settings of AUX-relay: NONE



Yeadu : G-600

Rotor-specific information:

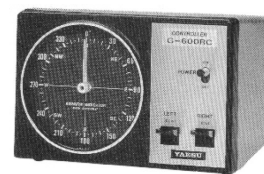
- Settings of AUX-relay: NONE



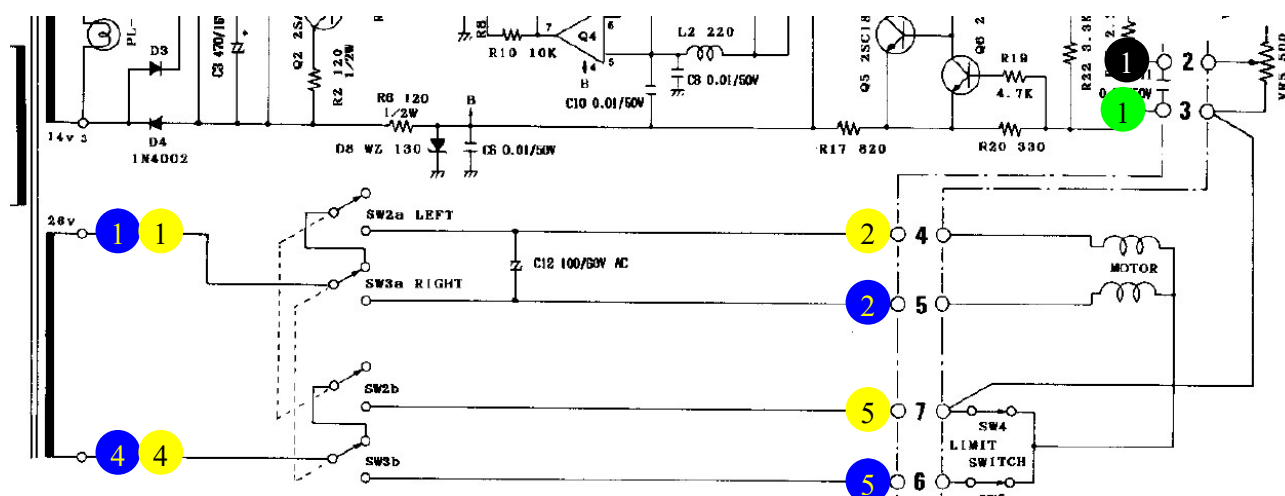
Yaesu : G-600RC

Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed



As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount) for the ERC-M, that is not connected to stations ground.



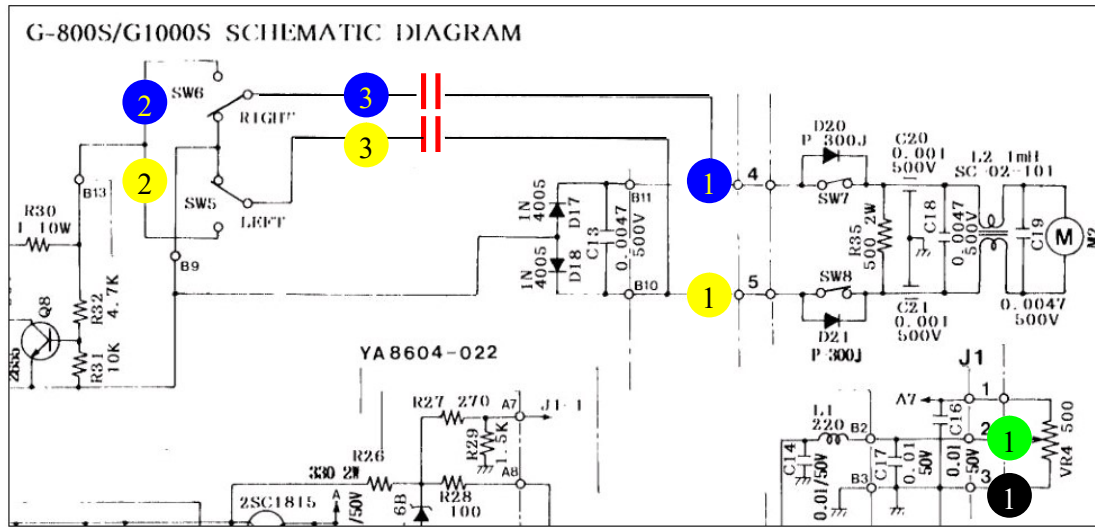
Yesu : G-800S – G-1000S



Rotor-specific information:

- Settings of AUX-relay: NONE

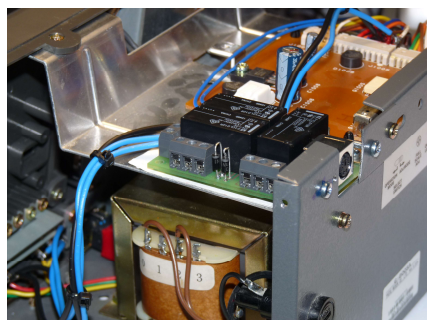
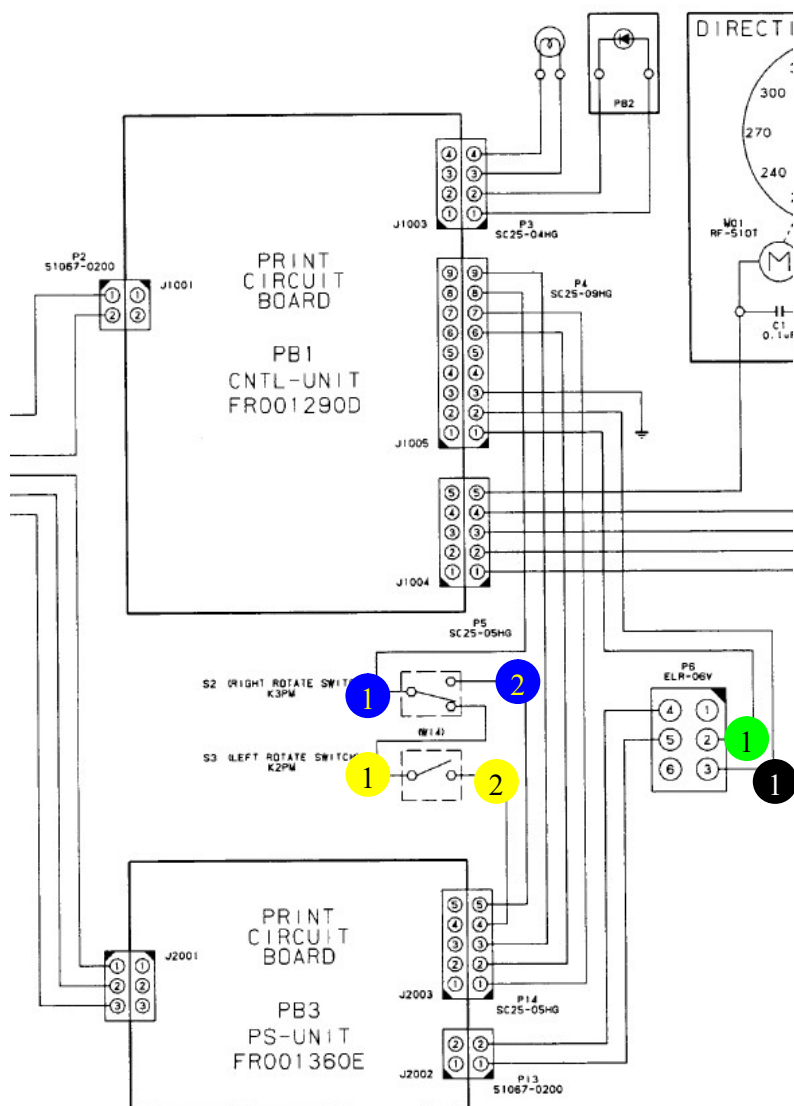
Additional work: The 2 connections to the center-points of the switches „Right“ and „Left“ have to be cut. Refer to the symbol  in the schematics.



Yaesu : G-800SA – G-1000SA

Rotor-specific information:

- Settings of AUX-relay: NONE
- Extended Calibration needed

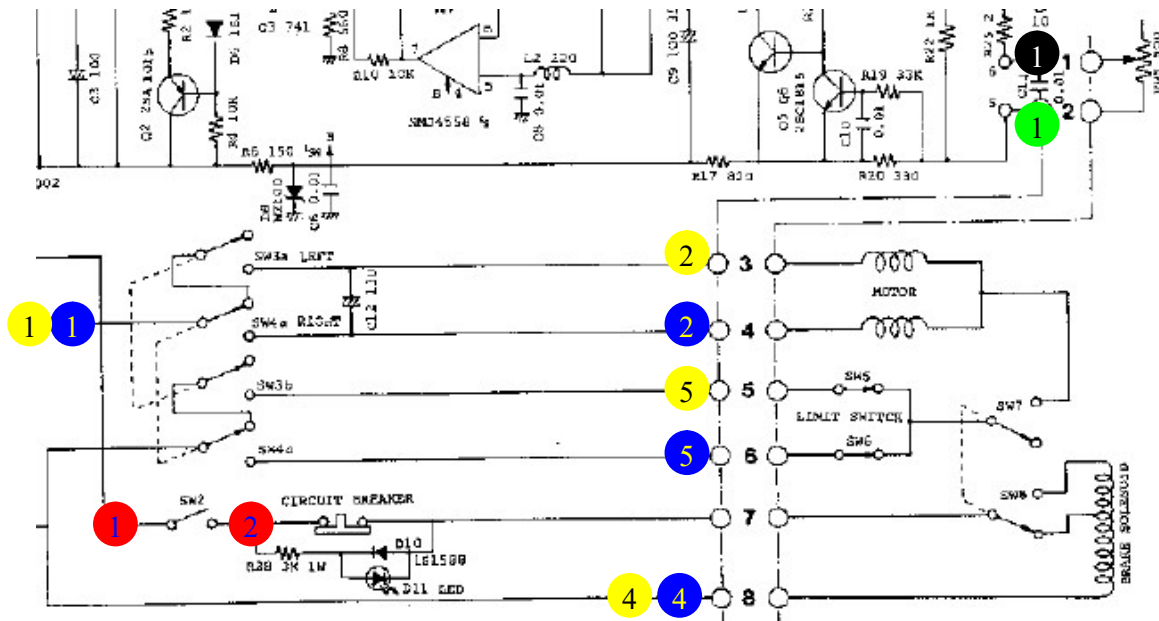


Yaesu : G-2000RC

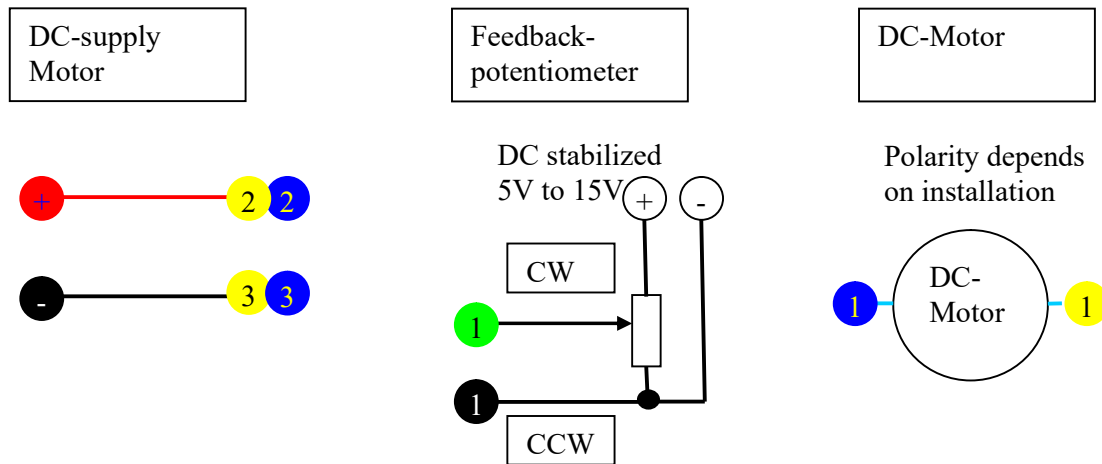
Rotor-specific information:

- Settings of AUX-relay: BRAKE
- Extended Calibration needed

As none of the terminals of the rotator-feedback-potentiometer is tightened to the ground of the rotor-controller, use a separate power-supply (e.g. wall-mount), that is not connected to stations ground.



HOMEBREW : DC-Rotator



HOMEBREW : AC-Rotator

