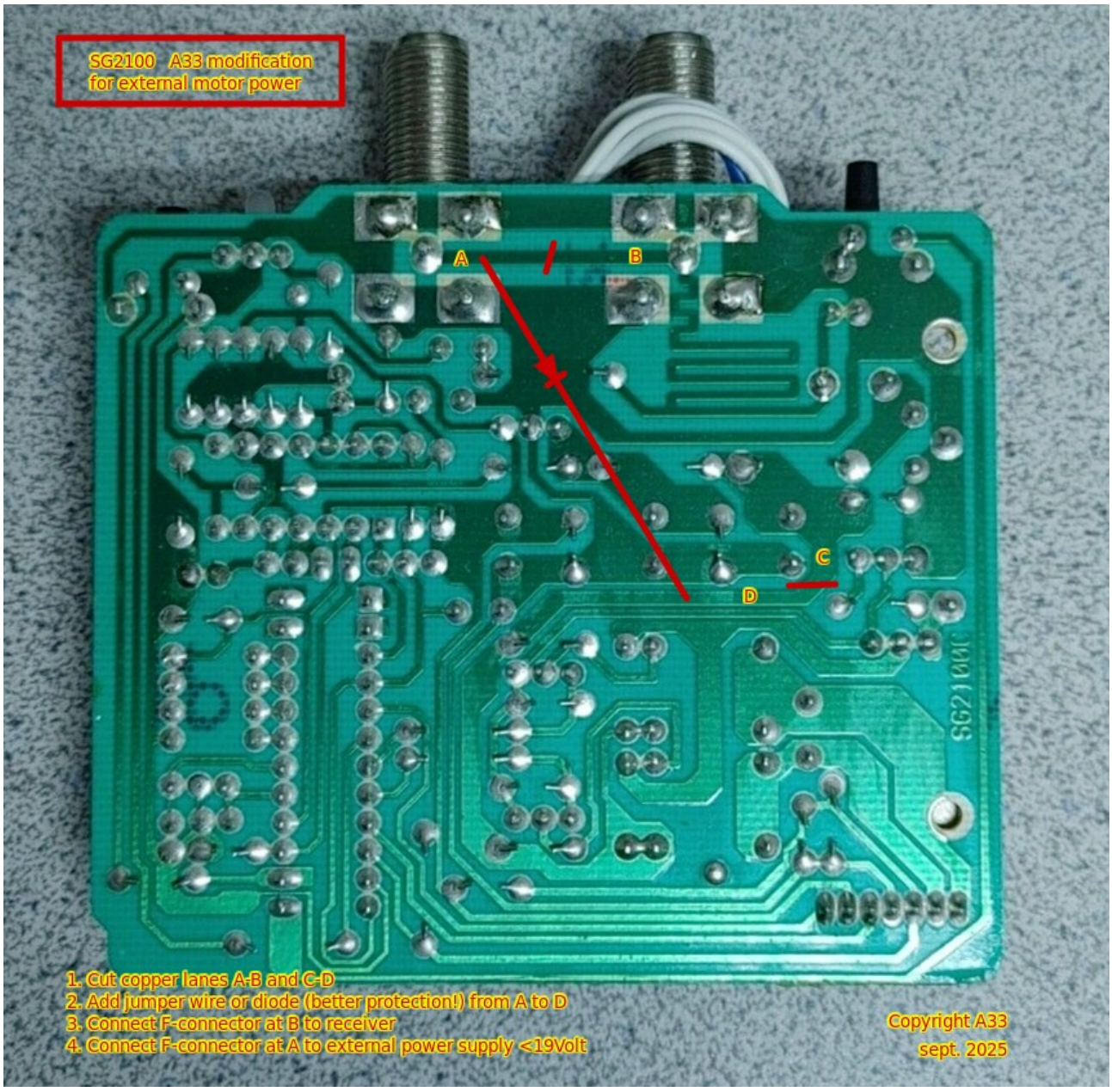
SG2100 modification for external motor power

by A33, sept 2025, version 1.0.

In this document I describe a modification, by which a SG2100 satellite dish motor can be used with an external power source (<19 Volt DC), instead of needing the power (motor current) from the receiver.
The modification consists of just two cuts in the copper lanes in the SG2100 circuit board, and the addition of an extra wire (jumper wire) or diode on the circuit board. This is shown and described in the picture below.
For the external power connection: positive = core of the F-connector, negative = Ground. Adding the diode (instead of just an extra wire) would prevent damage, if the power polarity was accidentally swapped.



Done this way, the cable to the LNB cannot be connected to the motor anymore, so the LNB path must be "split off" from the receiver cable (using a splitter with **power-pass both ports, both directions**).
As an alternative, you can leave the A-B connection intact for the receiver and LNB connections, and solder the external power connections directly to the circuit board: positive to D (optional with an extra diode, for protection), negative to Ground. So in that case the modification consists of just one cut (C-D), and soldering on two wires (D and Ground). You would then have to find/make a hole in the motor housing for the wires.

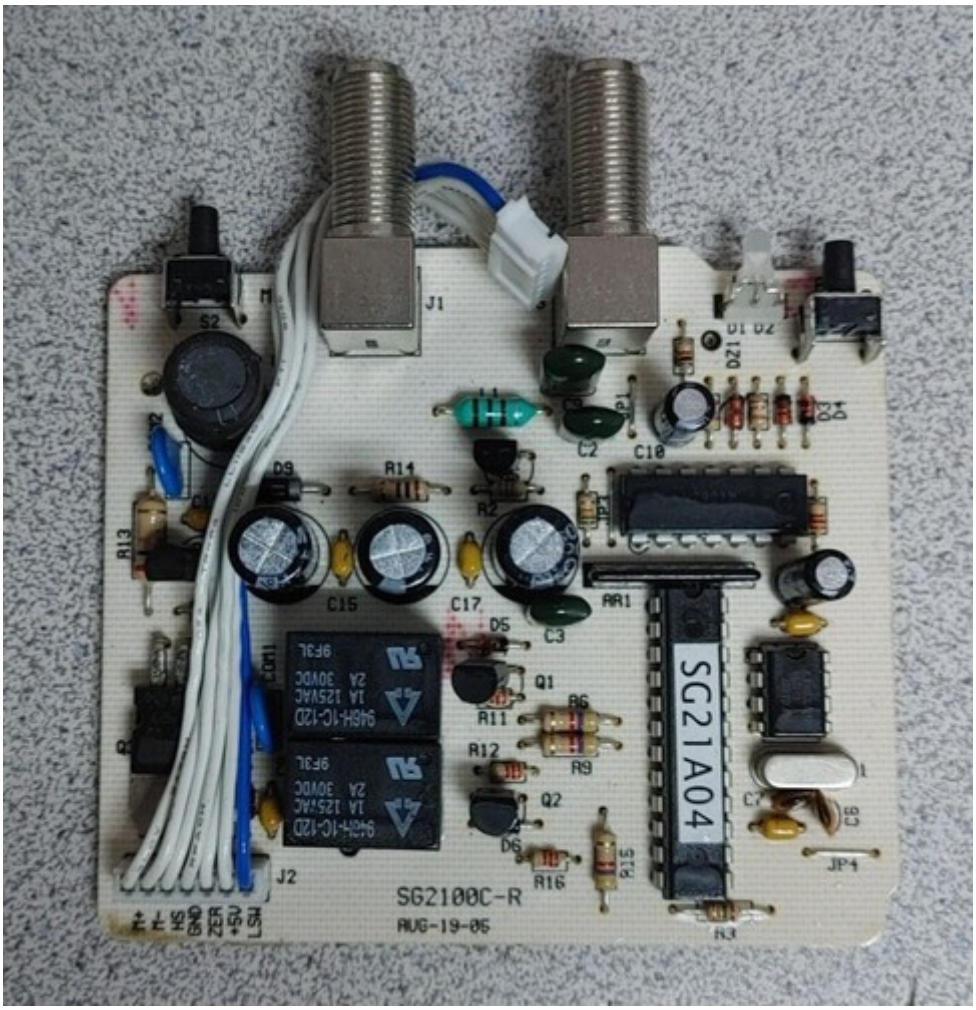
With this modification the external power goes to the relay contacts, the relay coils (including extinction diodes), and the two transistors feeding the relay coils (see the schematics, later on). As this circuit is designed for normal receiver voltages, I suggest to use an external voltage of not higher than 19 Volt.
N.B. The receiver cable still must carry the 13/18V power, for feeding the rest of the electronics of the motor.

[In another SG2100 modification procedure that can be found on the internet for this circuit board ("positioner heart surgery"), only the relay contacts are connected to the external power. This has the advantage of allowing to use higher voltages for the motor, when needed, but the modification is definitely more extensive than the modification proposed in this document.]

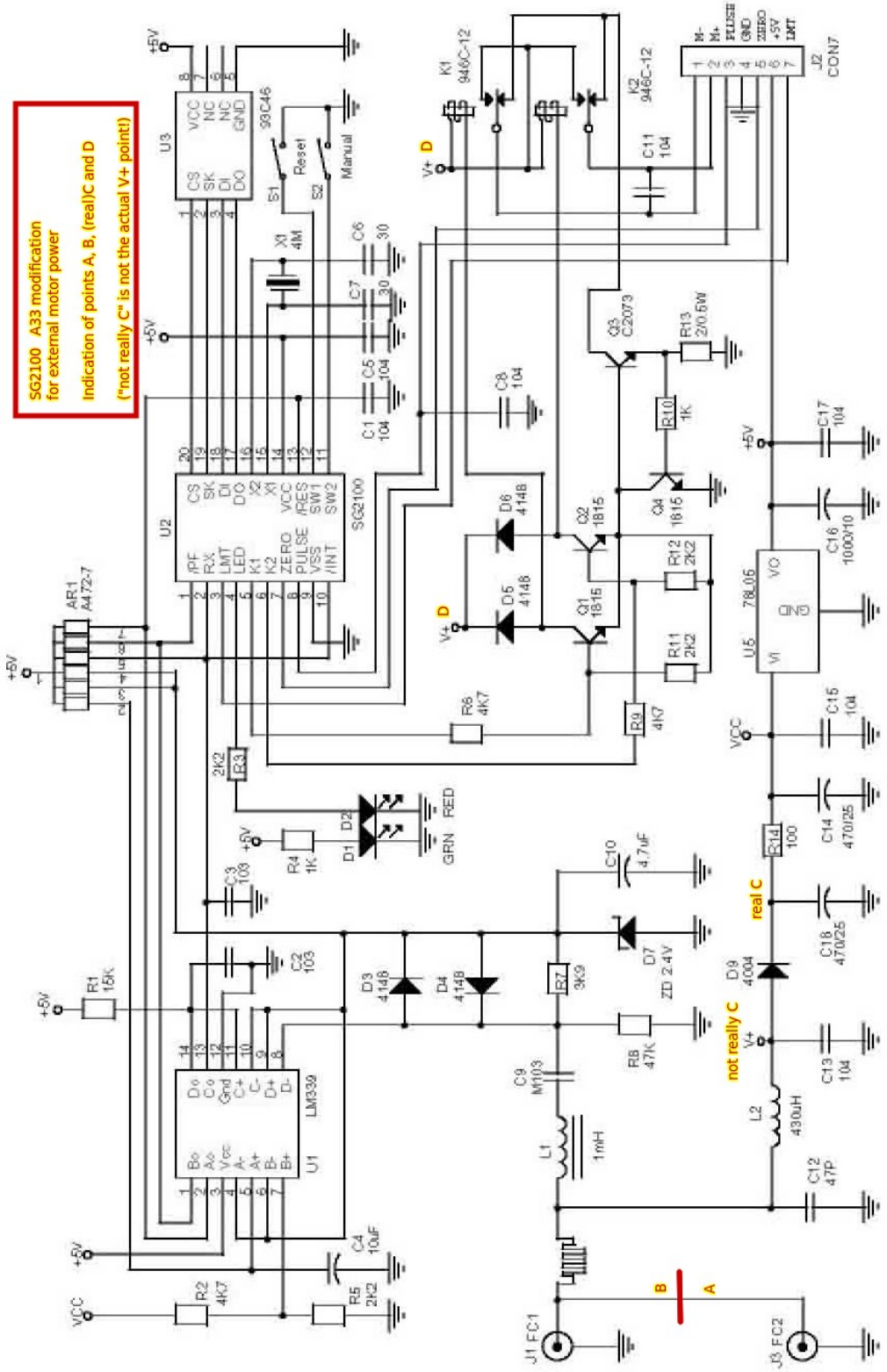
For the optional protective diode, I would take a 1 Amp one. So for instance a 1N4001.

When you accidentally swap the receiver F-connector cable and the external power F-connector cable at the motor, no harm would be done. But the motor would not function.

To be clear, this modification is only for the SG2100 circuit board as in the picture above. The other (component) side of the circuit board looks like this (I took the pictures in this document from the internet, not meaning to violate any copyrights):



On the next page are the schematics of the SG2100 motor, with an indication of the points A, B, C and D of this document, so that you can see the way the modification is done.
Notice that point C in the schematics is located at a slightly different point, than actually on the circuit board.



To conclude: I did not implement the modification of this document myself. However, I have not much doubt that it would function properly, as the modification is pretty straightforward.

Good luck!