

MANUAL-E

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SAY IT AGAIN module AS 251 8-81 R

This unit is a 100% plug&play replacement for the A14 AS2518-81 say-it-again (SIA) module, used in the pinball games Centaur and Centaur 2. Please read the following instructions carefully:

A) Installation:

- 1) ***If you decided to order the kit version, start with appendix I.***
- 2) ***Please switch off your game. There is no warranty, if you replace the module during a switched on game***
- 3) ***Remove the original SIA unit including both holding devices. It is installed in the lower right side panel of the backbox.***
- 4) ***Remove the upper bar of the SIA unit and reattach it to the backbox.***
- 5) ***The new board is equipped with a mounting hole at the upper left corner. Plug a screw through that hole and install the unit on the bar in the backbox. Pay attention that the board does not affect to the backbox panel.***
- 6) ***Attach both connectors J1 to S1 and J2 to S2. They are keyed and you should plug them in without resistance.***
- 7) ***Check your work! Examine, that the jumper "FF" on the Squawk&Talk module is removed..***
- 8) ***You can switch on your game now. The module is ready for use.***

B) How to use the board:

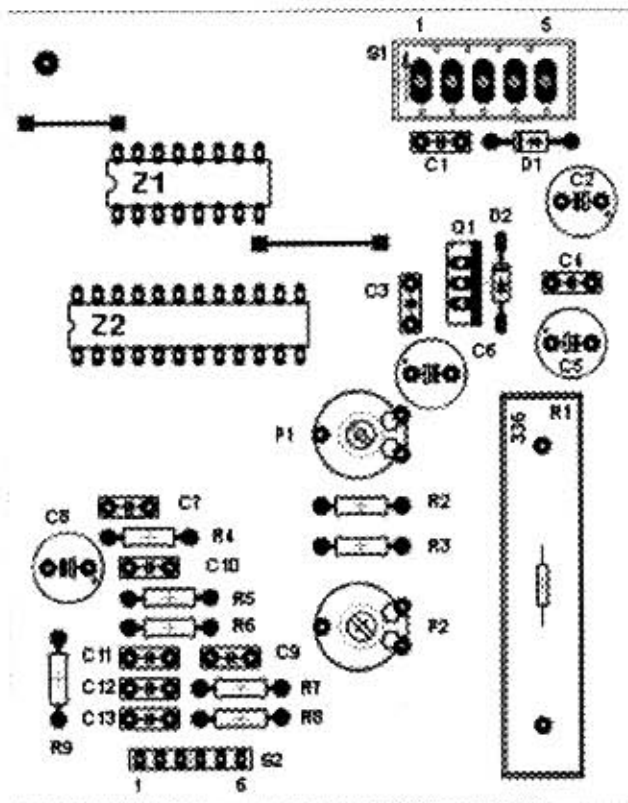
- 1) ***There are 2 potentiometers on the board, P1 and P2. Use P1 to change the delay and P2 to adjust the bias.***
- 2) ***See appendix I for a component list and component values***

APPENDIX I-E

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C) Soldering (KIT version):

- 1) **Parts to have on hand: Digital Multimeter and soldering tools. Do not solder without practise. We do not offer a warranty on KIT versions! When soldering, pay attention to anodes and cathodes of the electrolytic capacitors and all diodes. R1 should not be soldered directly on the circuit board. Leave some space between resistor and surface.**



Bestückungsliste:

Z1: MB81256-12 D-Ram

Z2: HT8955A Echo IC

Q1: MA7805 TO-220 voltage regulator

S1: Stecker 5fach Molex, 0,156"

S2: Stecker 6fach Molex 0,1"

P1, P2: potentiometer, 470K

D1: 1N4007 diode

D2: ZPD12 1,3W zener diode

R1: 2K2 5W

R2, R4, R5: 100K 1/4W

R3: 5K6 1/4W

R6: 22K 1/4W

R7: 120K 1/4W

R8: 10K 1/4W

R9: 560K 1/4W

C1, C3, C4, C9, C10, C12, C13: 100nF 100V

C2, C5: 100uF 63V

C6, C8: 100uF 16V

C7, C11: 1nF, 100V

- 2) **Before attaching S1 and S2, please remove pin 4 / S1 and pin 3 / S2 for key.**
- 3) **When soldering Q1, bend the middle leg of the 7805 to the junction of D2 next to C5.**
- 4) **Connect the ground trace of R6 with C11 on the solder side. These are both right soldering joints.**

APPENDIX II-E

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SAY IT AGAIN module AS 2518-81R

D) Installing a Say-It-Again Module AS 2518-81R in another Squawk&Talk pinball – for technicians only!

(Elektra, Eight Ball Deluxe, Fatboy, Fireball II, Flash Gordon, Medusa, PacMan, Spectrum, Embryo, Vector):

- 1) **Determine the revision of your Squawk&Talk Board (S&T). They can be found next to the module number AS 2518-61 on the lower left corner. If you have a B or C version, skip the following steps and start with #9).**
- 2) **Remove your S&T unit. Cut the trace to J2 pin 4 on the solder side (2x) and the traces to pin 5 and 6 on the component side.**
- 3) **Cut the trace between the junction of C25 /C34 and U18 (TDA2002). Do not cut between C25 and C34!**
- 4) **Solder a wire between C25/C34 and J2, pin 6.**
- 5) **Solder a wire between TDA2002 pin1 and J2, pin 4.**
- 6) **Solder a wire between J1 pin 14 und J2 pin 5.**
- 7) **Connect the cathode of CR10 to the junction of both potentiometers R69 and R70 again. Take care, that this jumper does not affect J2 pin 4, too. You have just cut this connection!**
- 8) **Only for Rev. A modules: Take a 4way Molex connector, 0,156" (M1), use pin1 as key and solder a 20cm connection to a 6way Molex connector, 0,1" (M2), use Pin 3 as key. Connect M1 pin 2 with M2 pin 2, M1 pin 3 with M2 pin 1 and M1 pin 4 with M2 pin 6**
- 9) **Only for Rev. B and C modules: Take a 3way Molex connector, 0,156" (M1) and solder a 20cm connection to a 6way Molex connector, 0,1" (M2), use Pin 3 as key. Connect M1 pin 1 with M2 pin 2, M1 pin 2 with M2 pin 1 and M1 pin 3 with M2 pin 6**
- 10) **Remove the power module AS 2518-54 from the cabinet. Solder a 2m red/black double wire on J4 pin 7 (black wire) and J3 pin 12 (red wire)**
- 11) **Take a 5way Molex connector 0,156" (M3) and use pin 4 as key. Connect the black wire you have already soldered on the power module to M3 pin 1 and the red wire to M3 pin 5.**
- 12) **Only for Rev. A modules: Plug M1 on the S&T unit J2 pin 3, 4, 5, 6.**
- 13) **Only for Rev. B und C modules: Plug M1 on the S&T unit J2 pin 7, 8, 9.**
- 14) **Mount the Say It Again module on the right side panel of the backbox. Use the upper left mounting hole, combined with a plastic spacer so that the board does not affect to the backbox.**
- 15) **Check, that you did not make a mistake with #10) and #11). Did you solder the black/red wire to the right Molex connector pins (J3-12/J4-7) on the power module? Did you exchange the wires soldered on M3? You have almost done it. Plug M2 on S2 / Say It Again module and M3 on S1 / Say It Again module.**
- 16) **Switch game on! See #B) for further instructions.**