

**Ashdown Mag 300 Head    sn/ 10260804    ACD041 board**

Unit was purchased, not working... lights up, meter works, preamp out OK, but, no output to speaker.

Disassemble... has only 1 of 2 internal 5A fuses installed, and that one is badly blown.  
Everything else seems to be connected and in order.  
Ground traces at the mini connector going to the front board are burnt and one trace is open.

Replace 2 x 5A fuses and repair burnt traces.  
Test all semiconductors in-circuit... all test OK.  
Power up slowly with Variac with no load attached.  
Variac bulb lights and shows much current draw...

Go back and retest all semiconductors... OK.  
Check all power supply components... seem OK.  
Check main B+ filter caps... look OK on analog meter... but... not on digital meter.  
One main B+ filter settles at 1.3 meg resistance after kick off.  
Pull filters and test... same... one partially shorted after kick off.  
Replace both C12 and C16 and reassemble.  
Bring up again with variac with no load attached... OK... no current draw.  
Apply signal, no load, and scope test... looks good... symmetrical wave, good output.

Shut down, and attach 8ohm load and start to slowly bring up with variac.  
Now... variac bulb begins lighting again and there is a hum thru speaker... ??  
Positive B+ supply starts rapidly dropping as variac is turned up with load attached.  
Go back and retest, and retest, and retest all components in-circuit... look OK.  
Check turn-on relay... looks OK, off contacts = 0 ohms, coil 3k8 ohms... etc...

Finally... check internet for postings on problem...  
Find two sites... MEF Forum "zanzoon" and SSG Forum.  
A half dozen people with the same problem and no one has a fix.  
Zanzoon has a work-around, but, not a real fix.

Go back and pull every single semiconductor from main board and test out-of-circuit.  
All test OK?... test every single cap and resistor on the board... all OK ? ...  
Retest relay and circuits... OK ?? ....

Go back and re-read forums... SSG forum talks about "amp tilting".  
This seems to be what is happening with the load attached.  
As if, the relay is not completely Off at start up, or, turning On too soon, and the output Tilts.

Bring up datasheet for relay.  
**Shows Precaution Paragraph...** with relay Constant On... possible instability.  
Maybe, the contacts are not making good connection in the Off position, causing Tilt.

Order new relay and replace.

Replace new C7 10uf cap for good measure.

Replace C5 & C8 (10uf) with 22uf as per Zanzoon, to try to slow relay operation.

And, remove flimsy mini board connectors and hard-wire to PCB's.

Attach 8 ohm load, and start to bring up again with variac.

Same... starts to draw heavy current as you bring up the line voltage...??

Now... really confused... go back and re-read datasheet.

Shows "Pick-up Voltage" of 80%.

Maybe... when bringing the unit up slowly with the variac...

The relay is turning On at 80% or sooner, before the 4700uf B+ caps have fully charged and allowing the output to Tilt... and, begin dumping the positive supply.

What's to lose? Attach 8 ohm load...

Hook up the amp thru 100w bulb to variac Off set at 115 vac, with amp switch in On position.

Then, power up with the mains switch on the variac.

Bulb flashed for a brief moment, and then stabilized.

Cool..... it works... no hum... no heavy current draw... no power supply drop...

Then, signal trace while still on variac checking output and symmetry... OK...

Then, plug into 120ac outlet and test... no hum, no smoke, no lightning from the skies...ha-ha-

Finally... OK... It Works !!

Scope & test... 306 rms @ 4 ohms ... test all functions... all OK.

I do not know if replacing the relay and caps "finally repaired" the unit. ?

Or maybe, just replacing the bad B+ filters and traces had already fixed it. ?

And, by slowly bringing it up on the variac, it might have allowed the relay to switch On before the 4700uf caps were fully charged, and then the output began tilting and the supply began dropping...

Leading me to assume that there was still a problem, when there was not.

This amp had been here 6-8 weeks and was on & off my bench "countless hours".

Maybe, this information will help...

Jerry AC 8-2013

Side Note:

If attempting Zanzoon work around... do not suggest using the same G5V-1 Relay as the Mag 300.

It also, would be Constantly On... and the relay contacts are only rated at 1A.

See... the Ashdown model "abm500" which uses a G2R model speaker relay.

Those are rated 8A - 16A contacts and can be ordered 24 volt coil, with no On Precautions.

<http://www.ssguitar.com/index.php?topic=2500.0>

<http://music-electronics-forum.com/t28046/>