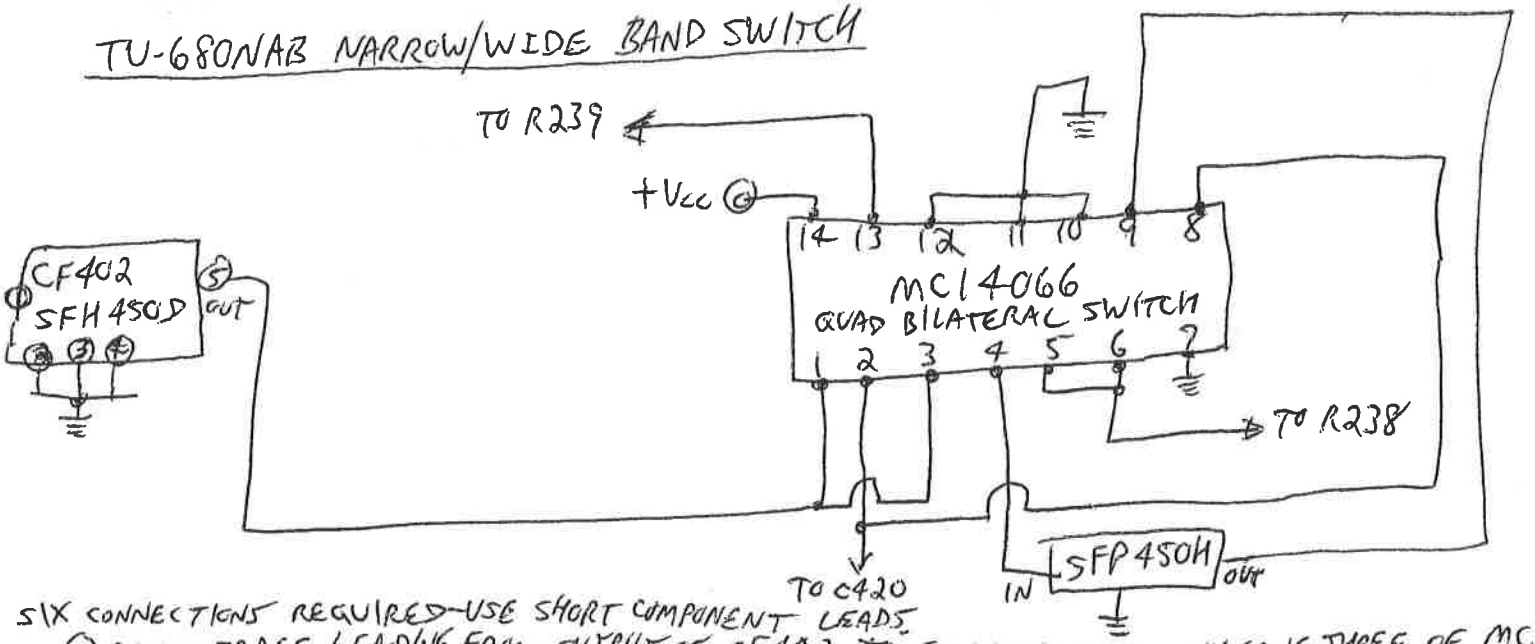
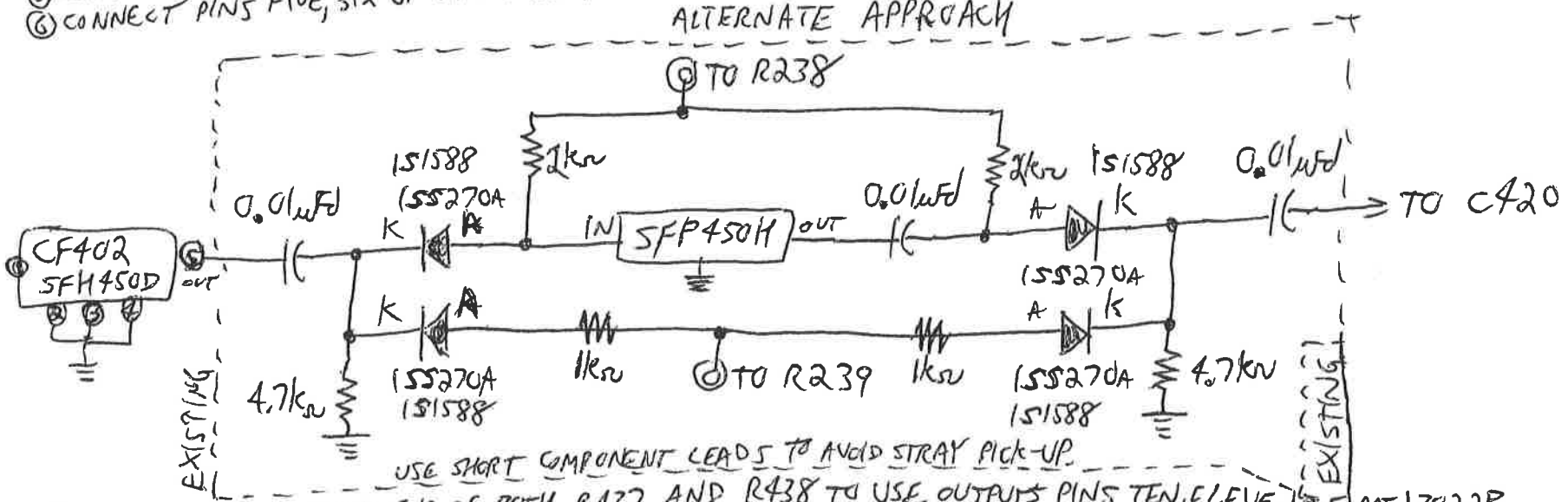
TU-680NAB NARROW/WIDE BAND SWITCH



SIX CONNECTIONS REQUIRED—USE SHORT COMPONENT LEADS.

1. BREAK TRACE LEADING FROM OUTPUT OF CF402 TO C420, CONNECT PINS ONE, THREE OF MC14066 TO CF402 OUTPUT.
2. CONNECT PINS TWO, EIGHT OF MC14066 TO C420.
3. CONNECT PIN FOURTEEN OF MC14066 TO PIN EIGHTEEN OF IC403.
4. CONNECT PINS SEVEN, TEN, ELEVEN, TWELVE OF MC14066 TO ANY CONVENIENT GROUND TRACE.
5. CONNECT PIN THIRTEEN OF MC14066 TO R239.
6. CONNECT PINS FIVE, SIX OF MC14066 TO R238.

ALTERNATE APPROACH



① MAY NEED TO CUT ONE END OF BOTH R437 AND R438 TO USE OUTPUTS PINS TEN, ELEVEN OF MC13022P.

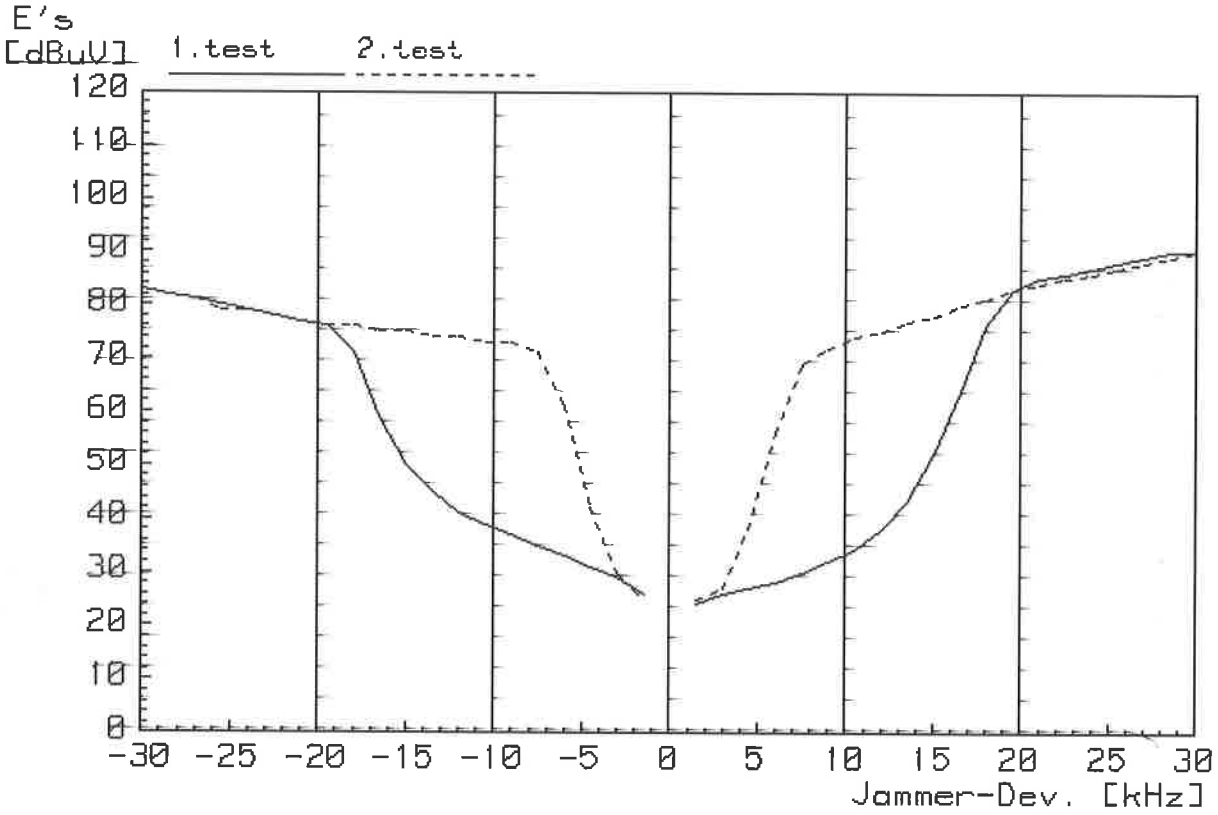
TO-MIKE STOSICH PAGE ONE OF ONE

BLAUPUNKT-BROADVIEW BOSCH GRUPPE

tested model: Denon TU680NAB

tested by : UA/CES /MST 12. 9.00 10:29

TWO SIGNALS SELECTION



1. test :wide

RF:1MHz, AF:1kHz/30%, E':60dBuV, Refrc:.208V, a:-26dB, Mes.time:QUICK

2. test :narrow

RF:1MHz, AF:1kHz/30%, E':60dBuV, Refrc:.198V, a:-26dB, Mes.time:QUICK

Subj: **Re: Denon TU-680**
ıte: 8/25/00 12:12:37 AM Pacific Standard Time
ɔm: Jeffdeck
To: EsotericTT

Mike,
Thank you very much in advance for copy of the entire Denon schematic diagram. My address is: Jeff Deck, [redacted]

I have vested interest to improve the bandwidth control feature, as well. With the schematic, I will arrive at a timely solution for us. Thanks!
73, Jeff

In a message dated 8/24/2000 9:36:55 PM Eastern Daylight Time, Mike writes:
>Jeff,
>
>I do have the schematic. I can copy it for you. I can tell you this.
>Their bandwidth control for AM is just hi-cut. When you look at the PCB, you
>see foil traces where a filter goes. The TOKO catalogue shows exactly what
>would fit there. At that location there is also a line from the BANDWIDTH
>switch and foil traces for a three lead device (transistor?). It appears
>that they would somehow switch in an extra filter in series. However it
>still doesn't look right. I just don't get what they were trying to do. It
>does not compare to their FM switching.
>
>Send me you address and I'll mail my info. Yes, no time, no time.
>
ʃike

Subj: **Re: Denon TU-680**
te: 09/05/2000 1:50:33 PM Pacific Daylight Time
rom: Jeffdeck
To: EsotericTT

Mike,

As promised, the narrow band ceramic filter circuit was designed for use in your Denon TU-680NAB tuner. This circuit is composed of one Murata I.F. SFP450H filter, four small signal diodes, a few resistors and ceramic disk capacitors. You should see similarity to Denon's FM narrow/wide design at the I.F. level in the TU-680NAB tuner.

A separate circuit, using one Murata SFP450H I.F. filter, and one MC14066 quad bilateral switch IC chip eliminates the diodes, resistors and capacitors.

Either circuit will suffice.

You will probably need to build either on a separate small printed circuit board, and piggy back on the main tuner board. Space is insufficient on the main board for all of the new components.

You will take AF output from pins ten and eleven of MC13022P chip.

If I can have your address again, I will send my designs to you.

I also studied Denon's proposed narrow band I.F. circuit that never made production run. Essentially another transistor is powered in the narrow band mode, coupled to one Murata SFZ450 ceramic filter. This narrow band final emitter output is in parallel with the wideband output. I see one flaw with this approach; initial narrow band is coupled from the collector of transistor Q403 where the wideband output is taken from the emitter of Q403. Both signals are out of phase with each er, and both signals are eventually coupled back in parallel. Wide band signal is never disabled.

73, Jeff

Subj: **Re: Denon TU-680**
Date: 9/6/00 9:09:35 AM Pacific Standard Time
From: Jeffdeck
To: EsotericTT

Mike,
I raided the SFP450H ceramic filter from a car radio, as I had this filter readily available for use. Strong local stations still bleed on either side of the carrier, so the modification will not split 10kHz separated stations on either side of strong stations. Atleast I do not hear WHO-AM two spots on the dial anymore. I can listen to WBZ. Your mileage may vary.
I did not understand Denon's post-detection AF narrow band filter design, as they placed the wideband and narrowband AF in parallel. So I removed the redundant output. Details will be enclosed with the schematic diagram.
Denon's narrowband SFZ I.F. filter input was gathered from the wideband I.F. filter output, however the narrowband I.F. filter output was summed with the wideband output, out-of-phase; wideband I.F. signal is never disabled.
73, Jeff

In a message dated 9/6/2000 10:56:24 AM Eastern Daylight Time, Mike writes:
>Jeff,
>
>On more question. You say take the AF from pins 10 and 11 of MC13022P. I'm
>a little confused. Why change the AF output? Are we not dealing with the IF
>only?
>
>Mike

In a message dated 9/6/2000 10:54:05 AM Eastern Daylight Time, Mike writes:
>Jeff,
>
>I read you mail a little too quickly. It was my impression that you were
>going to design the circuit using the shaper tuning filter. That's why I
>asked which version you tried. I am still curious to find out the
>performance you got. Actually, when I build it, I can run the selectivity
>curves here at my Blaupunkt computer. We're set up to do that fairly easily.
>
>While many of our radios do have the SPF450H, I guest I could try to ge
>samples of sharper filters from suppliers. I might be lucky. Actually I
>think I have an old radio whose filter was changed to a sharper version of
>the SPF450H (don't remember its number), and it was great on DXing. I'll
>built your circuit first with the SPF450H and if that works out OK, I'll dig
>up the sharper one.
>
>So you looked at their circuit and figured it out. I kept thinking that I
>was wrong because I kept coming up with an answer like you. Is it possible
>that we missed something. It was my impression that they were connecting the
>filters in series. Howver, I could not figure out how they broke in series.
>I thought that they must have had some trace somewhere that I could not see.
>You, on the other hand, say that they actually use the circuit somewhat as I
>see it, which would give ???? performance.
>
>I look forward to playing with this one.

>Mike

Subj: **Denon TU-680NAB**
Date: 09/09/2000 3:32:21 PM Pacific Daylight Time
From: Jeffdeck
To: EsotericTT

Mike,
If you examine the pin-outs for this 4066 chip, it should be very obvious how to wire the circuit. Connect input of SFP450H7 to pin four of 4066 chip. Connect output of SFP450H7 to pin nine of 4066 chip.
Six connections are required (use short component leads to prevent stray pick-up) to the main printed circuit board:
Break trace leading from output of CF402 to C420. Connect pin one, three of 4066 to CF402 output.
Connect pins two, eight of 4066 to C420.
Connect pin fourteen of 4066 to pin eighteen of IC403.
Connect pins seven, ten, eleven, twelve of 4066 to any chassis ground trace.
Connect pin thirteen of 4066 to R239.
Connect pins five, six of 4066 to R238.
My next project is to replace CF202 and CF203 in my Denon TU-680NAB tuner with 110kHz FM ceramic filters.
73, Jeff

In a message dated 9/9/2000 5:23:26 PM Eastern Daylight Time, Mike writes:
>Jeff,
>
"m not sure about the part number, but I have used that radio in my hifi yteme with a 12 volt wall wart for 3 - 4 years. It sucks in everything.
>
>I'm frustrated with Murata. I can't find old part numbers. They're on line
>you know.
>
>By the way, did you end up using the switch IC or the descrete version.
>Any preferences?
>
>Mike
>