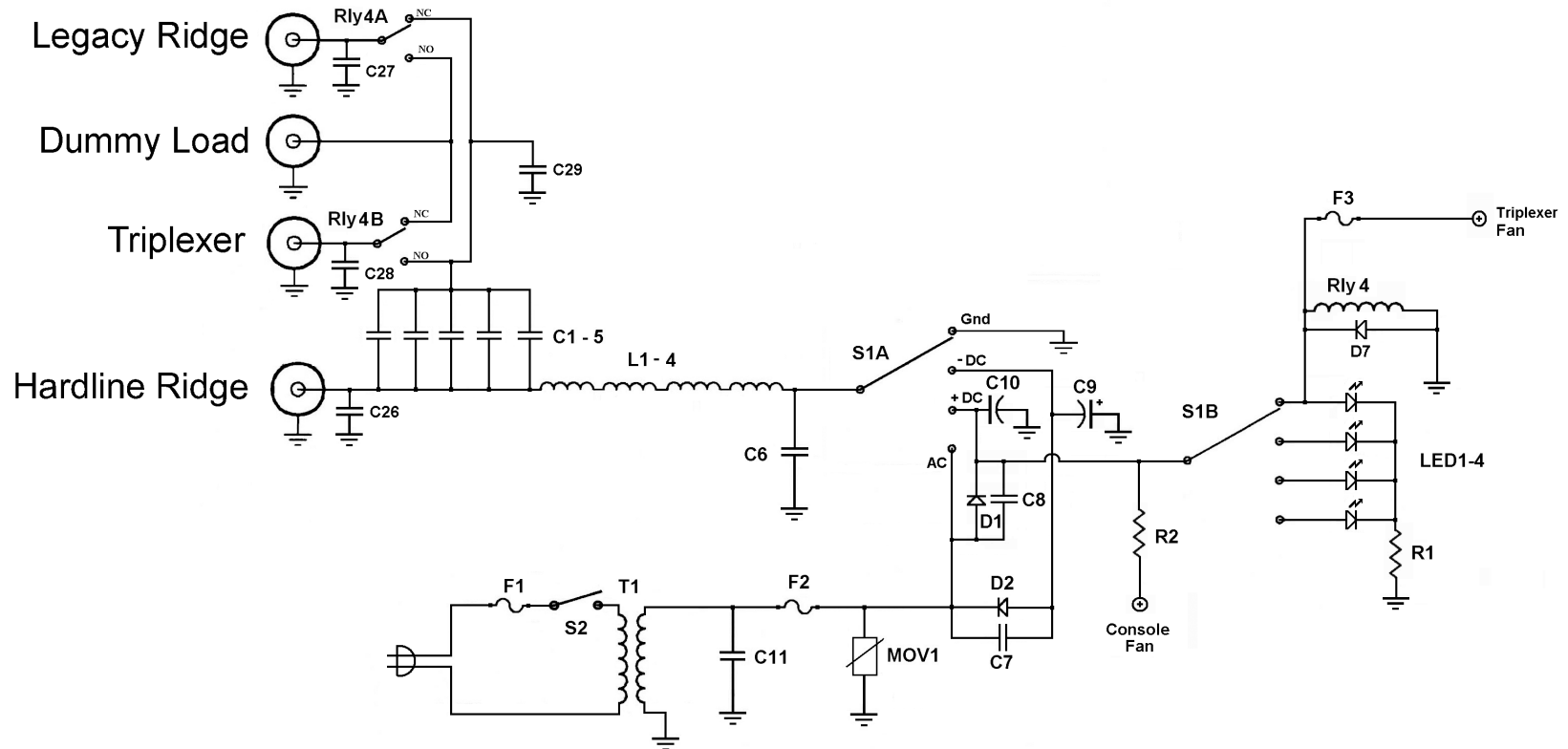


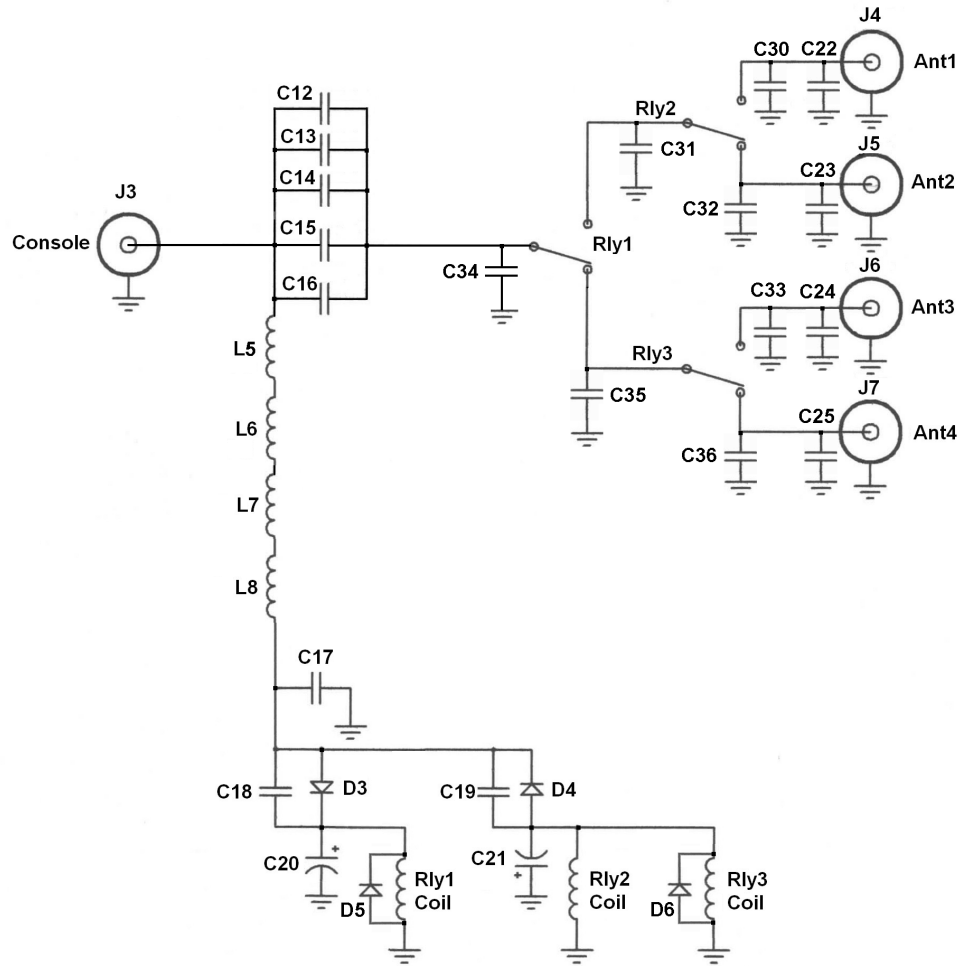
Remote Antenna Switch

N0YY/W9NJY (1 July, 2013)



Station Console

Remote Antenna Switch



Remote Relay Box

N0YY/W9NJY Remote Antenna Switch

Parts List

August 21,2013

Designator	Description	Vendor	Vendor part
C1,2,3,4,5,12,13,14,15,16	0.01 uF 6 KV cap	Mouser	75-564R60GAS10
C6,7,8,11,17,18,19	0.01 uF 1KV disc	Mouser	DEBF33A103ZA2B
C22-26	22 pF 6 KV disc	Mouser	
C9,10,20,21	220 uF 50V	Mouser	80-ESE228M050AN2AA
C22-36	10 pF 6 KV	Mouser	140-602S9-100K-RC
D1-7	1N4007	Mouser	512-1N4007
F1,2,3	1A 250V 3AG	W9NJY	
Fuse holder	Enclosure mt 3AG	Mouser	576-03420014H
J1-7	Chassis SO-239	Mouser	523-83-798
LED1-4	Red panel LED	Radio S	
L1-8	40 uH 3A Choke	Mouser	542-5240-RC
Misc Hardware	AC cord,screws,LEDmts,etc.		W9NJY
MOV1	17V AC MOV	Mouser	V27ZA05P
R1	470 ohm 1/4 watt	W9NJY	
R2	220 ohm 1 watt	W9NJY	
S1	3P4Trotaryswitch	Mouser	A30415RNZQ
RLY1-4	10 KW RF Relay	Array Sol	RF-10 DPDT
S2	SPST toggle sw	W9NJY	
T1	12V 3A xfmr	Radio S	273-1511
Standoff	0.625" 6-32 SS	Mouser	534-1813
ENC1	Contoller enclosure	Mouser	BUD HC-14100
ENC2	Switch enclosure	Mouser	Hammond R100-242-000
Fan	AcoustiFan for the console		Amazon.com

W9NJY Remote Antenna Switch

Notes

30 August 2013

Desired features:

- Four remote antenna ports at the end one feedline.
- Control switching voltages to be transmitted on the same conductors as the RF feedline
- 4,500 watt RF handling capability.
- Built-in protection for the triplexer feeding the switch with the combined power of three 1.5 KW stations. Improperly selected antennas will not connect to the triplexer.

Design considerations:

- Conservative construction practice will maintain a constant near-50-ohm impedance throughout the switching system.
- Parts selection and utilization will allow the high power handling without concern for relay arcing or bias-T overload.
- Power supply values will provide positive relay action with no drop out.

Operational considerations:

- A high power dummy load will be connected to the so-named SO239 on the control head at all times. This is not just a “test” feature.
- The Ridge 80-meter inverted vee will be connected to the ANT1 output on the remote relay box.
- The Ridge triband beam will be connected to the ANT4 output.
- Attaching the triplexer to the so-named input on the control head and the legacy manual antenna switch output to the so-named input result in the triplexer seeing the dummy load whenever the triband antenna is not selected.
- The zero control power state of the control head results in the legacy input being connected to the output feeding the hardline going to the remote relay box on the Ridge.
- The zero control power state of the remote relay box results in the hardline being connected to the ANT4 output jack (triband beam).
- The zero control power state of the integrated switch causes the legacy input to be connected to the Ridge triband antenna.
- In the event of a power supply failure in the control head, the triplexer output can be connected to the legacy input for access to the tribander, or the Ridge hardline can be directly connected to the triplexer output.
- All the fuses in the control head are fast-blow 1A AGC. In an emergency, 2 amp fuses of the same style may be used, but not higher values.
- In the event that repair is needed, disassemble boards from the standoffs by removing the hardware from the top of the boards. The hardware coming through the enclosures to the standoffs is secured with Loctite thread locker.