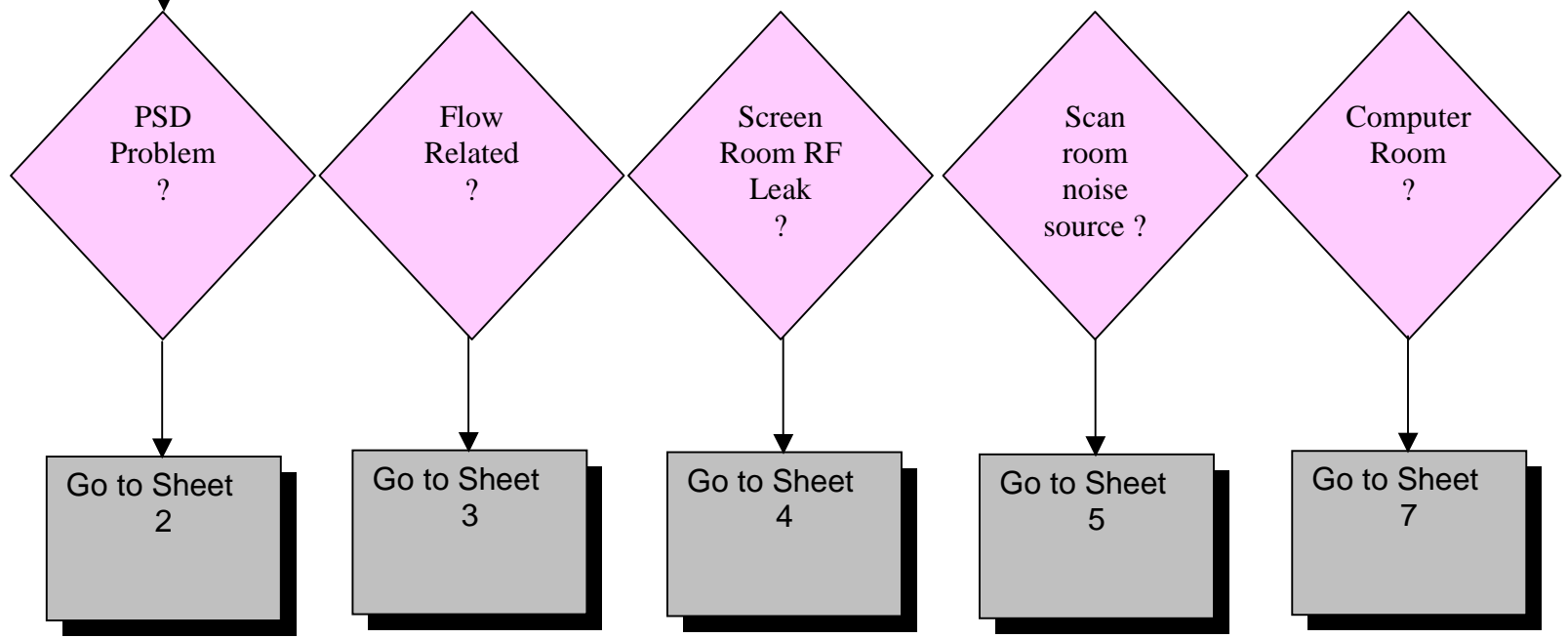


Zipper Troubleshooting

Zippers in Images or Coherent Noise is failing



NOTE
Items with shadows are linked to other areas in or out of the chart.

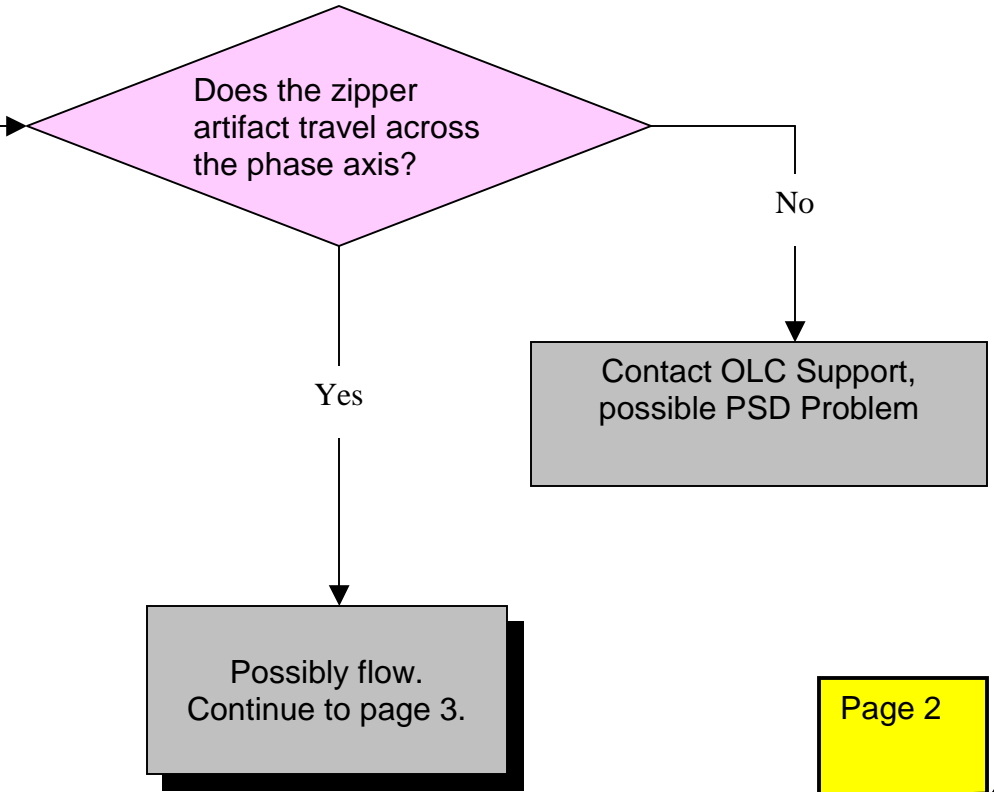


Zipper Troubleshooting

Since a zipper represents a single frequency, it will be parallel to the phase axis and therefore perpendicular to the frequency axis. If something appears as a zipper in the phase axis, it may indicate a PSD problem

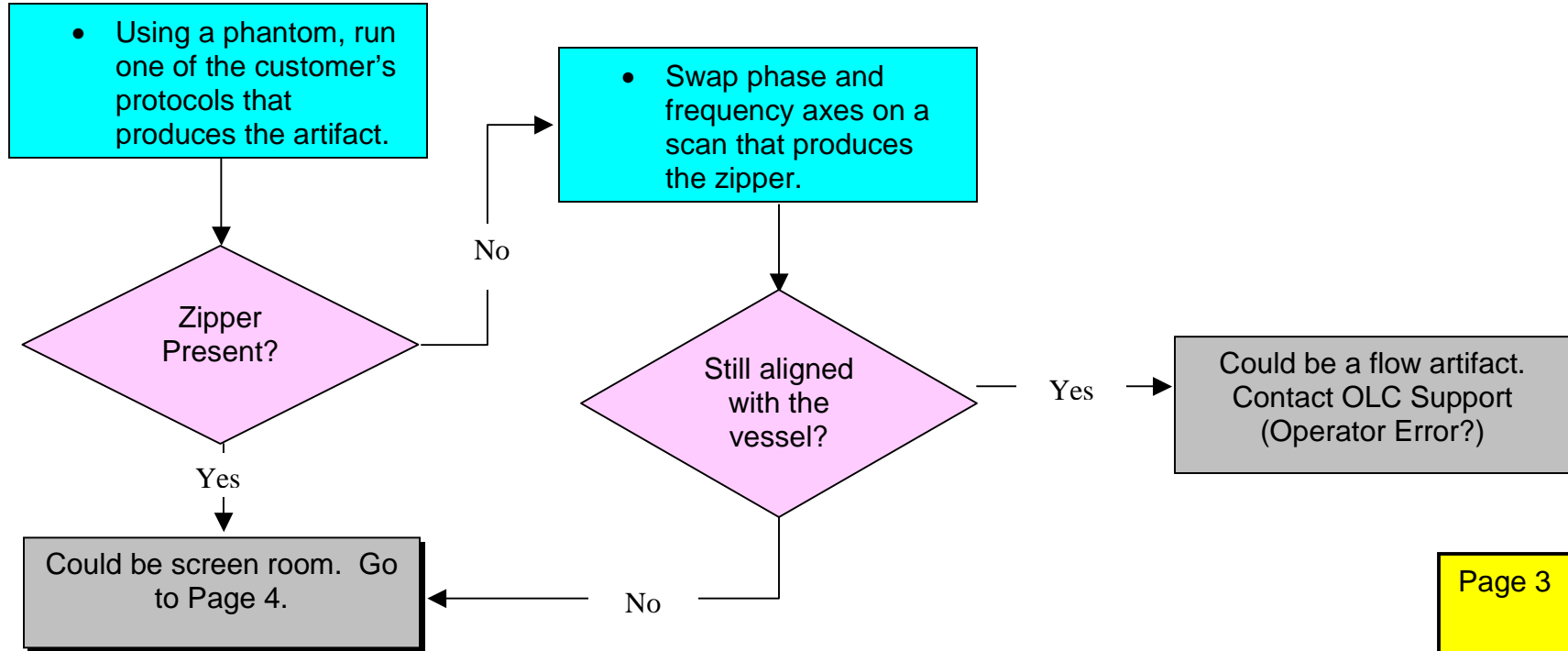
Using Head / Extremities Body / Surface
 Coils: (S=Slice, F=Frequency, P=Phase)
Axis S F P (zipper) S F P (zipper)
 Axial Z Y X (L-R) Z X Y (A-P)
 Sag X Z Y (A-P) X Z Y (A-P)
 Cor Y Z X (L-R) Y Z X (L-R)

Most anomalies in the image show themselves in the phase axis. A zipper will travel across the phase axis, from one side to the other. (i.e. in a sagittal cervical spine where phase and frequency have not been swapped (default) the phase axis is Y. If a zipper is present it will travel from left to right across the image, anterior to posterior.



Zipper Troubleshooting

Phantoms do not always demonstrate artifacts as well as patients do, so zipper artifacts may not be visible on phantoms even if they are present on patients. This may be occurring since a patient can extend past the RF shield of the body coil and act as an antenna, pulling outside noise in.



Zipper Troubleshooting

If the signal gets stronger as approaching the magnet, the signal is probably riding in one of the cables. Correlated noise could also be coming in from the RF amp

Test for RF Leaks

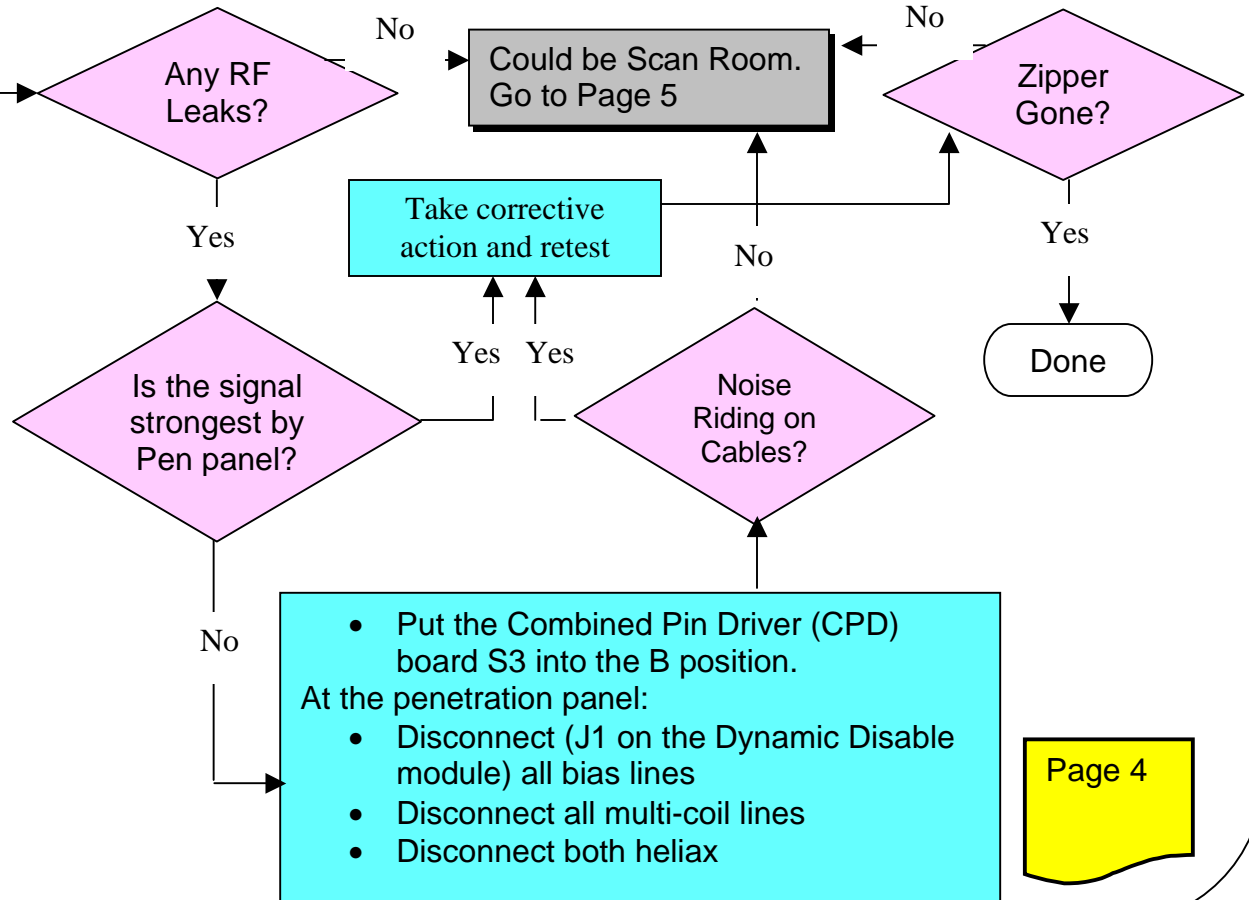
METHOD 1: (Radio)

USE EXTRA CAUTION WHEN USING BRINGING A RADIO (WHICH HAS FERROUS MATERIALS INSIDE) IN A 3T SCAN ROOM!!!

- Bring a small transistor radio with external telescoping antenna in the scan room. Make sure all possible entry ways into room are sealed (door and penetration panel).
- Set radio to max volume. Try to locate where you can get the best reception

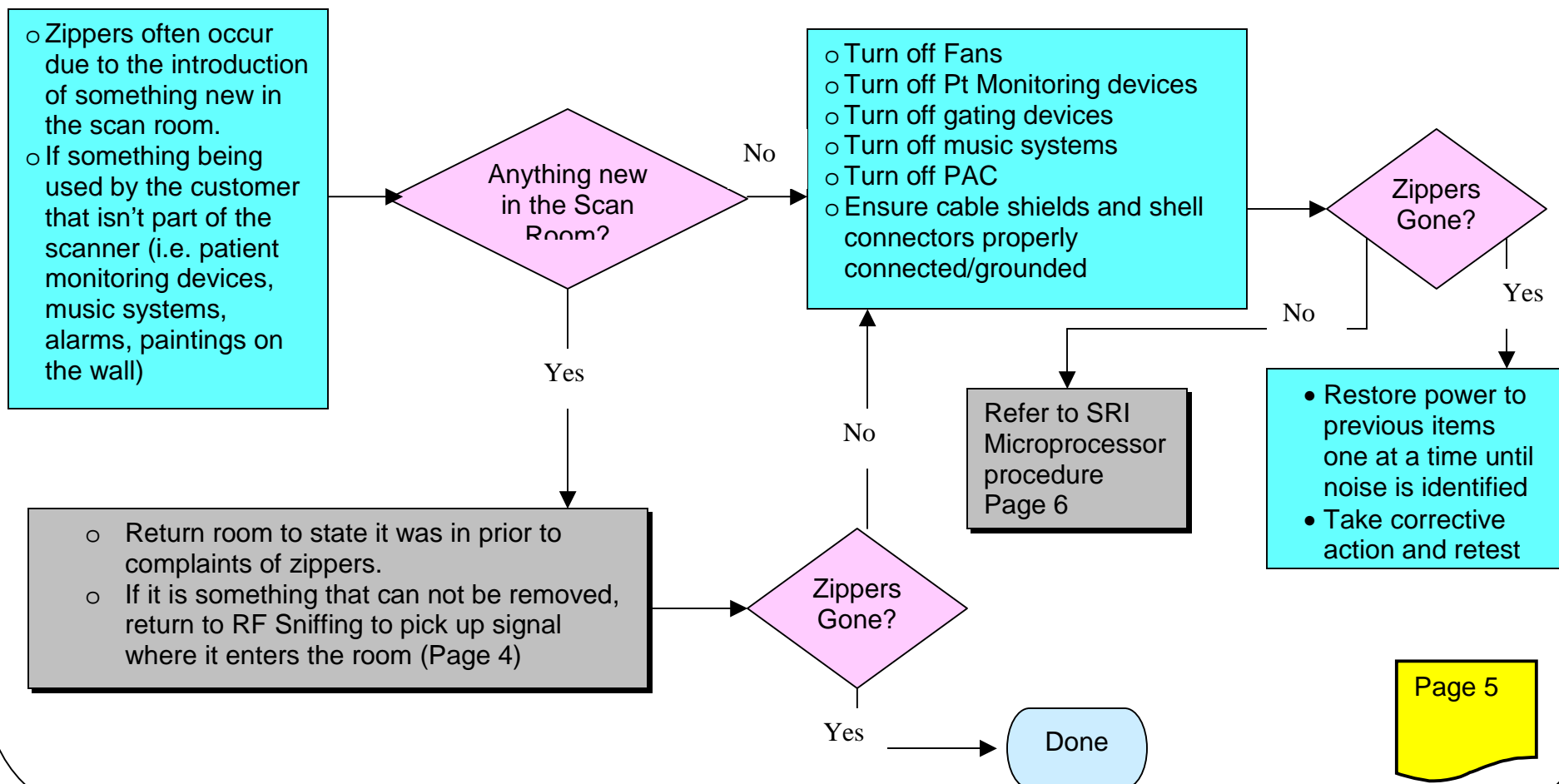
METHOD 2: (RF Sniffer)

- 2 people required, one in sealed room, one watching power spectrum display
- Attach the oscilloscope to a BNC cable, and attach BNC cable to the penetration panel outside of the sealed room
- On the inside of the sealed room, attach another BNC cable to the feedthrough end of where you just connected. Attach BNC to sniffer coil inside the room.
- Begin manual pre-scan with a TG of ~50.
- Move sniffer coil to primary suspect leak areas
- Watch for signal on oscilloscope. Area that the sniffer is in when a signal appears will indicate where there is an RF leak.



Zipper Troubleshooting

Scan Room: The zipper is aligned with the frequency axis but is not flow related.



Zipper Troubleshooting

Scan Room (Cont'd) the SRI's microprocessor can cause zippers at all field strengths

From Sheet 5, ruled out any new items in the scan room and most electrical sources.

- Zippers caused by the SRI2 are highly unlikely. Continue as below:
- Power off system
- Remove all cables to SRI from system. Leave cables hooked to enclosure display.
- E-stop must be jumpered out at the SRI2. Cable J1, pins 1 & 2.
- If noise is from SRI, try sealing it with copper tape (46-258218p4 3, 46-258218p5 2, 46-248218p61)
- Change directory to /w/config and gedit mgd_stage. Add a capitol X behind the last letter of the top line then download the TPS. For more information on this procedure see Stage and Custom Configurations
- Meters (Lhe, O2)
- Emergency Rundown Unit (MAKE SURE TO DISCONNECT THE CABLE FROM THE MAGNET BEFORE WORKING ON THE ERU OR YOU COULD QUENCH THE MAGNET)

Zipper
Gone?

Yes

- Restore power to previous items one at a time until noise is identified
- Take corrective action

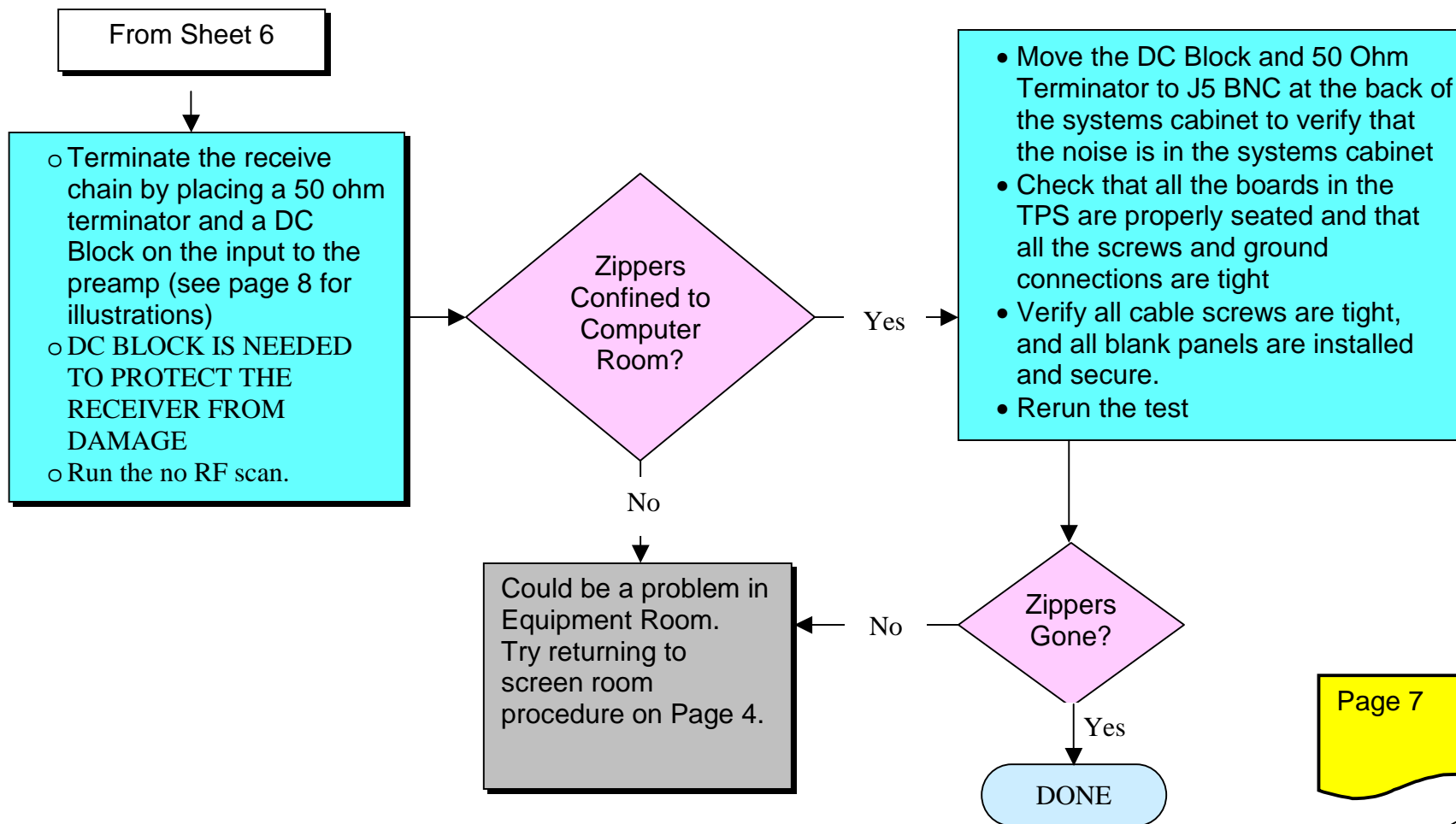
Done

No

Could be a problem in
Computer Room. See
Page 7 for procedure.

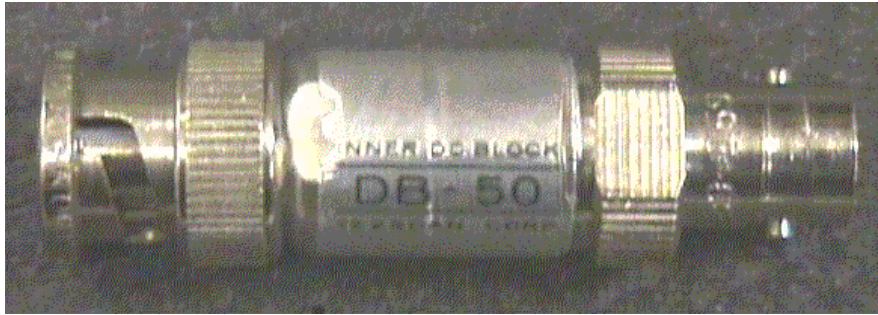
Zipper Troubleshooting

Computer Room: Isolate the computer room and do a TPS Check

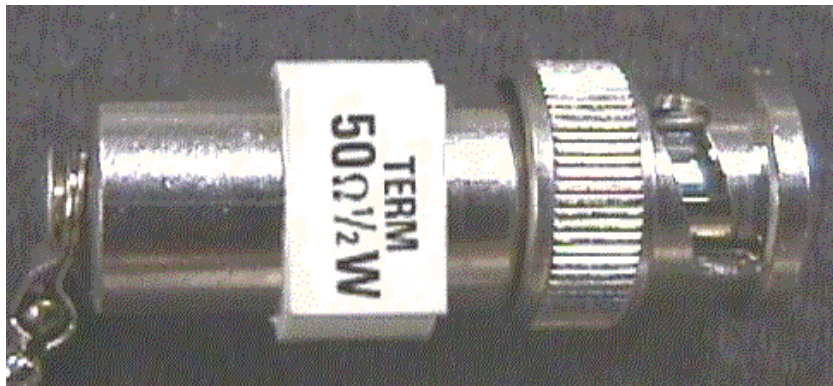


Zipper Troubleshooting

From Page 7 – Equipment needed for isolating the computer room



DC Block
46-301549P15



50-Ohm Terminator
46-296817P1