

## LIGHTNING DAMAGE AT NORTH LIBERTY

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AFTER TWO YEARS OF DROUGHT CONDITIONS THE WEATHER PATTERNS IN IOWA DID A COMPLETE REVERSAL TO ONE OF OVERSATURATION AND NUMEROUS STORMS. AS A RESULT OF THESE STORMS THE LIGHTNING WAS HEAVY AND IT IS BELIEVED TO HAVE ENTERED THE NLVLBA SITE EITHER BY DIRECT HIT OR THRU THE POWER LINES.

## THE STATION WAS FOUND AS FOLLOWS:

**PEDESTAL ROOM:** BOTH MAIN BREAKERS ON THE CRITICAL AND NON-CRITICAL POWER PANELS WERE TRIPPED. THIS CAUSED THE CRYO SYSTEM TO FAIL AND HEAT UP. THE TIMERS AND THESE BREAKERS WERE THEN ADJUSTED FROM THE MINIMUM TO THE MAXIMUM SETTING OF 60 SECONDS TO ALLOW FOR POWER TO BE RESTORED EITHER FROM THE COMMERCIAL SOURCE OR FROM THE GENERATOR WHICH TAKES ABOUT 20 SECONDS TO COME ON LINE.

THE F/R SYSTEM LOST NUMEROUS IC'S IN THE S102 MODULE INCLUDING: D6,D11,B25,F20,F25,B27, AND A BAR GRAPH LED DRIVER 7406. AFTER LOCATING THESE DEFECTIVE PARTS AND REPLACING THEM IT WAS DISCOVERED THAT THE RESOLVER READBACK IC WAS ALSO BAD AND THE S102 MODULE HAD TO BE REPLACED.

THE WEST ROTATION SERVO AMP ALSO HAD TO BE REPLACED AND THE SIB IN THE F/R INTERFACE MODULE WAS CHANGED OUT WITH AN UNKNOWN PROBLEM.

TROUBLESHOOTING THE F/R SYSTEM WAS COMPLICATED BY PLUG IN MODULE CONNECTOR PINS PUSHING OUT OF THEIR CONNECTORS.

THE ACU/NFL RESET WIRING WAS BURNED AND SHORTED AND A TRANSORB IN THE PED ROOM INTERFACE J-BOX WAS SHORTED PULLING THE +5V DOWN IN THE F/R POWER SUPPLY.

SINCE THE ANTENNA DRIVE CABINET, ACU, AND NFL UNIT WERE NOT POWERED UP AT THE TIME IT ISN'T KNOWN IF THIS IS WHAT PROTECTED THEM FROM DAMAGE.

**VERTEX ROOM:** THE M/C BUS WOULDN'T COMMUNICATE WITH THE STATION COMPUTER AND IT WAS DISCOVERED THAT TWO SIB'S WERE "HOGGING THE BUS". AFTER LOCATING THESE CARDS AND REPLACING THEM IT WAS ALSO DISCOVERED THAT THE DATA PROTECTOR BLOCKS IN THE DISTRIBUTION BOX BEHIND THE COMPUTER WERE BAD AND WERE TEMPORARILY BYPASSED FOR TESTING.

THE TELEPHONE IN THE VERTEX DIDN'T WORK AT FIRST AND THEN SUDDENLY STARTED WORKING WITH NO EXPLANATION.

**WEATHER STATION:** THE ANALOG CARD WAS SENDING A 35MPH WARNING TO THE ACU AND TURNED OUT TO BE A DEFECTIVE 7406. THE RECEIVER CARD AND DISPLAY WERE ALSO DEFECTIVE AND GAVE BAD INFORMATION TO THE M/C BUS. THESE CARDS WERE REPLACED.