1
00:00:01,460 --> 00:00:05,080
NARRATOR: A space shuttle ready to launch has numerous connections to the launch pad

2
00:00:05,080 --> 00:00:08,770
that require careful attention to assure a safe liftoff.

3
00:00:08,770 --> 00:00:12,970
The ground umbilical carrier plate, called the GUCP, is one of those connections.

4
00:00:12,970 --> 00:00:18,090
The GUCP is at the end of the gaseous hydrogen vent arm on the fixed service structure.

5
00:00:18,090 --> 00:00:21,360
It attaches to the shuttle's orange external tank.

6
00:00:21,360 --> 00:00:28,750
The plate holds a large-diameter pipe that collects excess hydrogen gas from the tank as it's being filled with li

7
00:00:28,750 --> 00:00:33,330
The venting system funnels it to a larger pipe that takes it down the fixed service structure

8
00:00:33,330 --> 00:00:37,730
and out to a flare stack that burns the excess hydrogen off safely.

9
00:00:37,730 --> 00:00:42,510
At liftoff, the GUCP retracts away from the tank, cutting off the connection.

10
00:00:42,510 --> 00:00:48,090
The vent arm pulls back to the tower, safely away from the shuttle as it climbs straight up.

11
00:00:48,090 --> 00:00:54,760
Because the GUCP's connection to the tank is so important, it has sensors in place to watch for hydrogen leak

12
00:00:54,760 --> 00:01:02,070
Launch controllers track the readings from those sensors closely and when readings are outside the limits, the