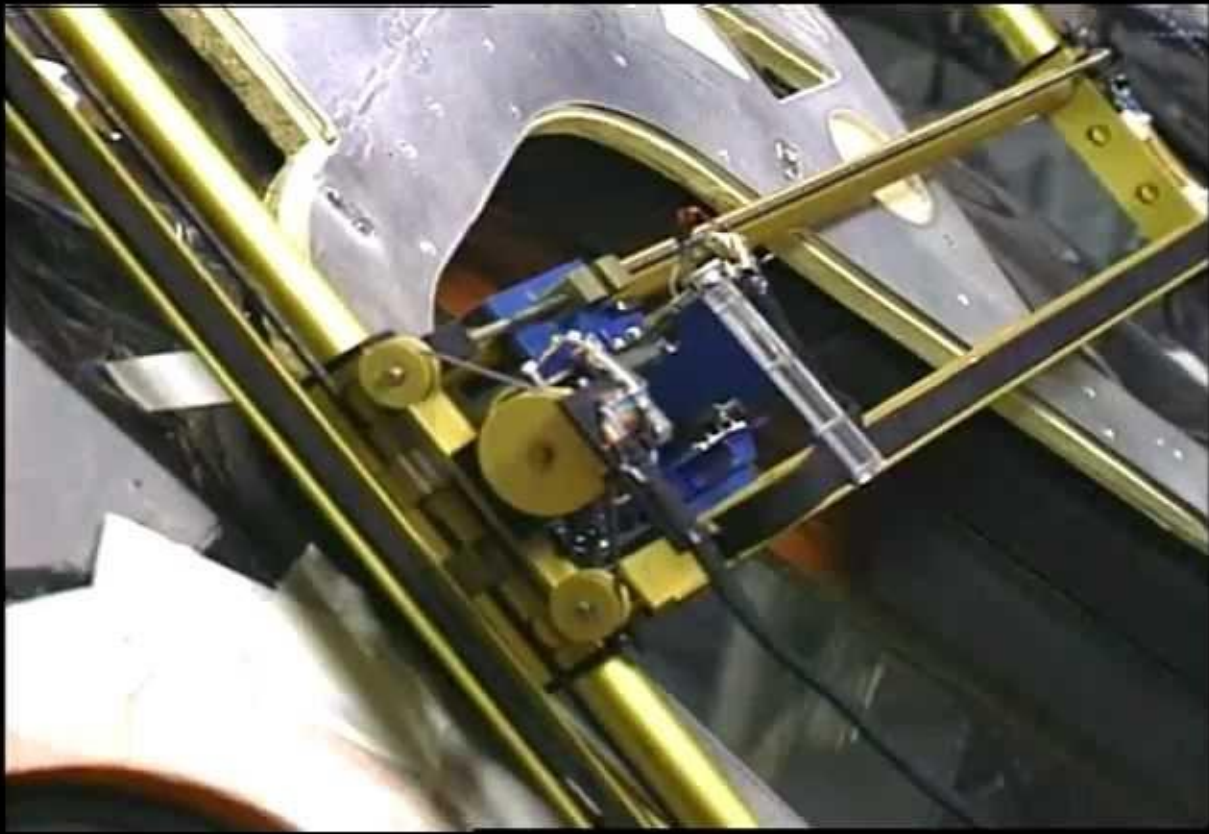

1
00:00:45,110 --> 00:00:43,750
how many missions can an orbiter window

2
00:00:47,190 --> 00:00:45,120
withstand

3
00:00:49,510 --> 00:00:47,200
that's a determination that must be made

4
00:00:51,110 --> 00:00:49,520
at the end of each flight

5
00:00:53,270 --> 00:00:51,120
in order to determine the flight

6
00:00:55,430 --> 00:00:53,280
worthiness of the six thermal orbiter

7
00:00:58,069 --> 00:00:55,440
windows each one must first be

8
00:01:00,229 --> 00:00:58,079
laboriously hand cleaned

9
00:01:04,630 --> 00:01:00,239
a haze makes on to the surfaces in the

10
00:01:08,630 --> 00:01:06,950
the cleaning process takes approximately

11
00:01:11,030 --> 00:01:08,640
a week of labor

12
00:01:15,990 --> 00:01:11,040
and only after the haze is removed can

13
00:01:21,109 --> 00:01:18,789

small scale debris impacts on orbit and

14
00:01:24,310 --> 00:01:21,119
booster separation exhaust result in

15
00:01:26,390 --> 00:01:24,320
damage to the windows

16
00:01:28,310 --> 00:01:26,400
a mylar is made for flight to flight

17
00:01:30,789 --> 00:01:28,320
comparisons

18
00:01:33,190 --> 00:01:30,799
the new defects are evaluated using an

19
00:01:35,270 --> 00:01:33,200
epoxy mold impression

20
00:01:37,510 --> 00:01:35,280
any crater depth exceeding six ten

21
00:01:38,830 --> 00:01:37,520
thousandths of an inch results in a

22
00:01:41,510 --> 00:01:38,840
window

23
00:01:43,590 --> 00:01:41,520
replacement a new inspection system has

24
00:01:46,870 --> 00:01:43,600
been developed by the inet special

25
00:01:49,270 --> 00:01:46,880
instrumentation laboratory at ksc

26
00:01:51,830 --> 00:01:49,280
a lightweight scanning frame automates

27
00:01:53,830 --> 00:01:51,840
the side light optical scattering method

28
00:01:56,310 --> 00:01:53,840
and shows defects in the presence of

29
00:02:01,429 --> 00:01:58,709
this automated optical technique can be

30
00:02:03,350 --> 00:02:01,439
performed prior to polishing the windows

31
00:02:07,109 --> 00:02:03,360
and it provides a permanent and accurate

32
00:02:12,309 --> 00:02:09,350
a computer image can be printed onto a

33
00:02:16,630 --> 00:02:12,319
mylar and archived in a database for

34
00:02:20,949 --> 00:02:18,470
the second phase of the automated

35
00:02:23,430 --> 00:02:20,959
inspection employs a high resolution

36
00:02:28,550 --> 00:02:23,440
camera system to determine a maximum

37
00:02:33,670 --> 00:02:31,190
by adapting technologies already in use

38
00:02:34,869 --> 00:02:33,680

in shuttle and payloads defect analysis

39
00:02:36,949 --> 00:02:34,879
at ksc