1
00:00:00,860 --> 00:00:04,640
[Music]

2
00:00:06,080 --> 00:00:12,660
good vehicle

3
00:00:12,660 --> 00:00:20,170
good spark light showing green so Masten
has been a part of the flight

4
00:00:20,170 --> 00:00:23,260
Opportunities program since its
inception we were one of its first

5
00:00:23,260 --> 00:00:29,080
customers there's a lot of benefits one
we get to fly a rocket we're always

6
00:00:29,080 --> 00:00:34,150
testing our own hardware two we get to
interface with like-minded individuals

7
00:00:34,150 --> 00:00:38,830
who have at the end of the day the same
goals which is to go to the moon go to

8
00:00:38,830 --> 00:00:42,100
Mars go to these other bodies and so we
get to interact with them we get to

9
00:00:42,100 --> 00:00:47,019
understand how they do things those are
transfer of knowledge both ways and we

10
00:00:47,019 --> 00:00:51,430
build these strategic partnerships that
are only going to facilitate these

11
00:00:51,430 --> 00:01:02,460

broader and deeper areas of exploration
that we ultimately want to do

12
00:01:02,890 --> 00:01:07,610
confirming that test light-up vehicle
payload are good and we're ready to

13
00:01:07,610 --> 00:01:12,380
start the checklist so Masten is the
flight provider of these flights without

14
00:01:12,380 --> 00:01:17,170
directive another quick check we fly the
vehicle through a trajectory that mimics

15
00:01:17,170 --> 00:01:22,310
that target destination whether it's the
Moon or Mars and gives them the fidelity

16
00:01:22,310 --> 00:01:26,300
of data that again they're not going to
get with conventional means whether it's

17
00:01:26,300 --> 00:01:28,900
a balloon a helicopter or an aeroplane

18
00:01:29,140 --> 00:01:32,180
Masten Ops to all 6 seconds to engine start...

19
00:01:32,340 --> 00:01:37,960
so the Safe Precise Landing Integrated
Capabilities Evolution project or SPLICE

20
00:01:37,970 --> 00:01:43,160
is developing a family of sensors that
are required to land safely and

21
00:01:43,220 --> 00:01:47,940
precisely on the moon Mars and any other
destination

22
00:01:48,580 --> 00:01:56,180
[Music & Rocket sound]

23
00:02:07,680 --> 00:02:13,450
the testing on Rockets gets us even
closer to that lunar landing like test

24
00:02:13,450 --> 00:02:18,010
where we can get as close as we can to
the actual lunar landing here on earth

25
00:02:18,010 --> 00:02:21,250
allowing us to have additional
confidence that our systems are going to

26
00:02:21,250 --> 00:02:24,510
work when we actually go to the moon

27
00:02:30,750 --> 00:02:36,159
Terrain Relative Navigation is a form of
navigation in which you are able to

28
00:02:36,159 --> 00:02:42,430
determine your state of the vehicle
relative to the terrain itself so we're

29
00:02:42,430 --> 00:02:49,150
able to identify features prelaunch
based upon satellite maps lay them onto

30
00:02:49,150 --> 00:02:54,579
the vehicle and then apply a camera on
board which fits images we compare those

31
00:02:54,579 --> 00:02:58,870
images to those and the maps pre-loaded
it with their key identify features and

32

00:02:58,870 --> 00:03:04,510
from that we we identify the features in
the the images captured map them to the

33
00:03:04,510 --> 00:03:09,609
satellite maps and then from that we can
tell relative where we are to the

34
00:03:09,609 --> 00:03:13,569
terrain so we can get altitude and
whatnot relative to the terrain that

35
00:03:13,569 --> 00:03:17,980
we're seeing so I think it's going to be
critical for future flights on most of

36
00:03:17,980 --> 00:03:20,439
the future missions that we're looking
at are going to be pretty much

37
00:03:20,439 --> 00:03:25,239
autonomous try to keep as much human
interaction to its minimum so in order

38
00:03:25,239 --> 00:03:30,250
to be able to navigate at the moon where
we don't have GPS and ever very accurate

39
00:03:30,250 --> 00:03:34,629
state information Terrain Relative
Navigation is kind of your next

40
00:03:34,629 --> 00:03:37,569
best navigation and
it is kind of the next best thing that

41
00:03:37,569 --> 00:03:40,510
we can we can go with so I think it's
going to serve a critical part and

42

00:03:40,510 --> 00:03:48,699
upcoming returning to the moon also as
we move towards a sustained presence on

43
00:03:48,699 --> 00:03:52,419
other bodies like the moon will need
these precision landing capabilities in