1
00:00:01,700 --> 00:00:02,580
9

2
00:00:02,580 --> 00:00:03,560
8

3
00:00:03,560 --> 00:00:04,380
7

4
00:00:04,380 --> 00:00:05,340
6

5
00:00:05,340 --> 00:00:06,340
5

6
00:00:06,460 --> 00:00:07,460
4

7
00:00:07,640 --> 00:00:08,640
3

8
00:00:08,680 --> 00:00:09,580
2

9
00:00:19,000 --> 00:00:10,580
1

10
00:00:19,010 --> 00:00:23,060
TDRS-M, securing space-to-ground communication
for NASA's low-Earth orbit

11
00:00:23,060 --> 00:00:29,880
operations, including the International Space
Station.

12
00:00:29,880 --> 00:00:35,100
The Atlas is (performing) its yaw maneuvers
in its planned path at an inclination of

13
00:00:35,200 --> 00:00:36,960
26.2 degrees.

14
00:00:43,740 --> 00:00:49,220
You're hearing the voice of Patrick Moore
providing launch vehicle ascent data.

15
00:00:49,223 --> 00:00:51,449
Patrick is the United Launch Alliance Denver
Network Operations Center

16
00:00:51,449 --> 00:00:52,949
Command Control Center.

17
00:00:52,949 --> 00:00:56,539
Speed and injector pressure all looking good.

18
00:01:00,649 --> 00:01:05,350
The Atlas rocket carrying TDRS-M reaches supersonic
speed at one minute, 20

19
00:01:05,350 --> 00:01:07,060
seconds into flight.

20
00:01:11,200 --> 00:01:14,320
Now passing one minute into flight.

21
00:01:14,320 --> 00:01:20,580
Vehicle is now three miles in altitude and
traveling at 1,100 miles per hour.

22
00:01:25,620 --> 00:01:30,040
Standing by for Max Q.

23
00:01:30,040 --> 00:01:31,550
Now passing one minute, 15 seconds into flight

24

00:01:31,550 --> 00:01:33,260
Mach 1.

25
00:01:33,260 --> 00:01:34,640
Atlas V is now supersonic.

26
00:01:40,840 --> 00:01:43,020
One minute, 30 seconds into flight.

27
00:01:43,020 --> 00:01:44,020
Now passing through Max Q.

28
00:01:44,020 --> 00:01:45,420
Maximum dynamic pressure.

29
00:01:47,240 --> 00:01:50,620
This is the point when mechanical stress on
the rocket reaches its peak because of the

30
00:01:50,620 --> 00:01:53,100
rocket's velocity and resistance created by
the Atlas.

31
00:01:53,100 --> 00:01:56,700
The RD-180 is throttled down to 95 percent
thrust as expected.

32
00:01:56,700 --> 00:01:57,980
Engine response looks good.

33
00:01:57,980 --> 00:02:01,700
This engine thrust profile will continue until
the vehicle reaches a programmed 5G

34
00:02:01,700 --> 00:02:03,160
acceleration limit.

35
00:02:08,760 --> 00:02:10,860
About two minutes into the flight of Atlas.

36
00:02:10,860 --> 00:02:11,920
Now passing two minutes into flight.

37
00:02:11,960 --> 00:02:13,720
Approximately two minutes remaining in the
first

38
00:02:13,730 --> 00:02:15,159
stage of flight.

39
00:02:15,159 --> 00:02:19,280
MECO trajectory traveling right down the middle
of the range track looking good.

40
00:02:19,280 --> 00:02:22,440
RD-180 engine operating parameters also looking
good.

41
00:02:25,820 --> 00:02:29,299
Booster engine cutoff slated for four minutes,
two seconds after launch.

42
00:02:29,299 --> 00:02:32,849
The Atlas V rocket now weoghs one-half of
what it did at launch, burning propellant

43
00:02:32,849 --> 00:02:33,849
at a

44
00:02:33,849 --> 00:02:35,360
rate of almost 2,600 pounds per second.