1
00:00:00,070 --> 00:00:00,690
[MUSIC]

2
00:00:00,690 --> 00:00:04,690
[V.O] WITH A HALF-CENTURY OF
SPACE FLIGHT EXPERIENCE ALREADY

3
00:00:04,690 --> 00:00:08,590
IN HAND, AMERICA'S SPACE
PROGRAM IS NOW PUSHING AHEAD

4
00:00:08,590 --> 00:00:13,760
ON PARALLEL PATHS-REVOLUTIONARY,
AND COMPLEMENTARY PATHS.

5
00:00:13,760 --> 00:00:17,380
ON ONE, NASA IS BUILDING
A SPACE LAUNCH SYSTEM

6
00:00:17,380 --> 00:00:21,240
AND ORION SPACECRAFT TO CARRY
ASTRONAUTS FARTHER FROM EARTH

7
00:00:21,240 --> 00:00:24,280
THAN WE'VE EVER GONE
BEFORE-TO AN ASTEROID,

8
00:00:24,280 --> 00:00:26,500
AND EVENTUALLY TO MARS.

9
00:00:26,500 --> 00:00:28,800
ON THE OTHER PATH,
NASA IS LEANING

10
00:00:28,800 --> 00:00:31,220
ON AMERICAN-BASED
PRIVATE COMPANIES

11
00:00:31,220 --> 00:00:33,870

TO HELP SUPPLY OUR
ORBITING LABORATORY,

12
00:00:33,870 --> 00:00:36,430
THE INTERNATIONAL SPACE STATION.

13
00:00:36,430 --> 00:00:39,250
AS THE SPACE SHUTTLE
ERA CAME TO A CLOSE,

14
00:00:39,250 --> 00:00:42,820
NASA KNEW IT NEEDED HELP TO
SUPPLY THE STATION WITH TONS

15
00:00:42,820 --> 00:00:46,180
OF CARGO EVERY YEAR, AND
LOOKED TO THE PRIVATE SECTOR.

16
00:00:46,780 --> 00:00:48,540
[Alan Lindenmoyer] How can we
partner with industry,

17
00:00:48,540 --> 00:00:52,800
how can NASA be a partner
with commercial industry,

18
00:00:52,800 --> 00:00:56,880
and take advantage of the
ingenuity and innovation

19
00:00:56,880 --> 00:00:59,330
that exists in American
industry as well

20
00:00:59,330 --> 00:01:01,650
as the entrepreneurial spirit,

21
00:01:01,650 --> 00:01:03,660
to develop these new
capabilities just

22
00:01:03,660 --> 00:01:06,460
like any new product can
be brought to market?

23
00:01:06,690 --> 00:01:10,420
[V.O.] THE ANSWER WAS THE COMMERCIAL
ORBITAL TRANSPORTATION SERVICES

24
00:01:10,420 --> 00:01:14,770
PROGRAM: RATHER THAN NASA
DECIDING ON A SPACECRAFT DESIGN

25
00:01:14,770 --> 00:01:18,170
DOWN TO THE NUTS AND BOLTS,
IT MADE SEED MONEY AVAILABLE

26
00:01:18,170 --> 00:01:21,780
TO PRIVATE INDUSTRY TO
DEVELOP THEIR OWN CARGO SHIPS

27
00:01:21,780 --> 00:01:24,080
THAT COULD CARRY SUPPLIES
TO THE SPACE STATION,

28
00:01:24,080 --> 00:01:26,250
WHERE HUMAN CREWS
HAVE BEEN WORKING

29
00:01:26,250 --> 00:01:27,900
FOR MORE THAN A DOZEN YEARS.

30
00:01:27,900 --> 00:01:33,480
CALIFORNIA-BASED SPACE-X WON
ITS COTS AGREEMENT IN 2006;

31
00:01:33,480 --> 00:01:37,420
ITS DRAGON SPACECRAFT
SUCCESSFULLY PERFORMED A TEST

32
00:01:37,420 --> 00:01:39,240
FLIGHT IN MAY 2012,

33
00:01:39,240 --> 00:01:43,090
AND COMPLETED ITS FIRST
FULLY-OPERATIONAL MISSION LATE

34
00:01:43,090 --> 00:01:44,240
IN THE YEAR.

35
00:01:44,240 --> 00:01:48,180
SPACE-X FLIGHTS CONTINUE EACH
YEAR, TAKING TONS OF SUPPLIES

36
00:01:48,180 --> 00:01:51,390
AND SCIENCE UP TO THE STATION,
AND JUST AS IMPORTANTLY,

37
00:01:51,390 --> 00:01:55,670
RETURNING SCIENCE EXPERIMENTS
BACK TO EARTH FOR STUDY.

38
00:01:55,670 --> 00:01:59,330
NOW, VIRGINIA-BASED ORBITAL
SCIENCES CORPORATION,

39
00:01:59,330 --> 00:02:04,150
WHICH WON ITS COTS AGREEMENT IN
2008, IS ABOUT TO JOIN THE CLUB

40
00:02:04,150 --> 00:02:06,440
WITH ITS CYGNUS SPACECRAFT.

41
00:02:06,440 --> 00:02:10,220
AFTER ORBITAL PERFORMS A CYGNUS
TEST FLIGHT TO THE STATION,

42
00:02:10,220 --> 00:02:13,920
IT TOO WILL BEGIN FLYING

ROUTINE DELIVERY FLIGHTS

43
00:02:13,920 --> 00:02:15,270
TO THE ORBITING COMPLEX.

44
00:02:15,800 --> 00:02:17,600
[Frank Culbertson] That will be
the final milestone

45
00:02:17,600 --> 00:02:21,300
in what we call the commercial
orbital transportation system

46
00:02:21,300 --> 00:02:24,370
Space Act Agreement that
will allow us to transition

47
00:02:24,370 --> 00:02:27,540
from that phase of the
program into an actual contract

48
00:02:27,540 --> 00:02:30,440
with NASA to deliver
cargo over eight missions

49
00:02:30,440 --> 00:02:33,120
in about four years to the
International Space Station.

50
00:02:33,120 --> 00:02:37,040
[V.O.] CYGNUS RIDES TO
ORBIT ON THE ANTARES,

51
00:02:37,040 --> 00:02:39,400
A TWO-STAGE LAUNCH
VEHICLE DESIGNED

52
00:02:39,400 --> 00:02:43,150
TO PROVIDE RELIABLE ACCESS TO
LOW-EARTH ORBIT FOR PAYLOADS

53
00:02:43,150 --> 00:02:46,410
OF MORE THAN FIVE-THOUSAND
KILOGRAMS...ITS DESIGN

54
00:02:46,410 --> 00:02:49,860
INCORPORATES COMPONENTS FROM
LEADING GLOBAL SUPPLIERS,

55
00:02:49,860 --> 00:02:53,770
AND USES SUBSYSTEMS THAT ARE
ALREADY DEPLOYED SUCCESSFULLY

56
00:02:53,770 --> 00:02:57,170
ON ORBITAL'S OTHER ROCKETS,
THE PEGASUS, TAURUS,

57
00:02:57,170 --> 00:03:00,640
AND MINOTAUR LAUNCH VEHICLES
THAT HAVE BEEN FLYING FOR YEARS.

58
00:03:01,060 --> 00:03:05,130
[David Thompson] But Antares will serve
a much broader market than,

59
00:03:05,130 --> 00:03:09,120
than just the space
station logistics functions;

60
00:03:09,120 --> 00:03:13,280
it will also be used
by the civil

61
00:03:13,280 --> 00:03:16,580
and national security customers
in the governmental market

62
00:03:16,580 --> 00:03:20,150
as well as commercial
satellite operators.

63
00:03:20,720 --> 00:03:23,560
[V.O] THE CYGNUS ADVANCED
MANEUVERING SPACECRAFT,

64
00:03:23,560 --> 00:03:27,600
CONSISTING OF A SERVICE MODULE
AND A PRESSURIZED CARGO MODULE,

65
00:03:27,600 --> 00:03:31,090
ALSO INCORPORATES ELEMENTS FROM
FLIGHT-PROVEN SYSTEMS FLOWN

66
00:03:31,090 --> 00:03:33,320
BY ORBITAL AND ITS PARTNERS.

67
00:03:33,320 --> 00:03:35,920
THE SERVICE MODULE
AVIONICS SYSTEMS ARE

68
00:03:35,920 --> 00:03:39,780
FROM ORBITAL'S LEO-STAR AND
GEO-STAR SATELLITE LINES;

69
00:03:39,780 --> 00:03:42,280
THE PROPULSION AND
SOLAR POWER SYSTEMS,

70
00:03:42,280 --> 00:03:44,780
FROM THE GEO-STAR
COMMUNICATIONS SATELLITES.

71
00:03:44,780 --> 00:03:47,660
THE PRESSURIZED CARGO
MODULE IS BASED

72
00:03:47,660 --> 00:03:51,880
ON THE MULTIPURPOSE LOGISTICS
MODULE BY THALES ALENIA SPACE,

73
00:03:51,880 --> 00:03:54,630
WHICH BUILT THE CARGO
MODULES THAT CARRIED SUPPLIES

74
00:03:54,630 --> 00:03:58,140
TO THE STATION 11 TIMES
RIDING IN THE PAYLOAD BAY

75
00:03:58,140 --> 00:03:59,080
OF THE SPACE SHUTTLES.

76
00:03:59,080 --> 00:04:03,490
WITH A PRESSURIZED VOLUME
OF NEARLY 19 CUBIC METERS,

77
00:04:03,490 --> 00:04:08,270
CYGNUS CAN DELIVER A TOTAL CARGO
MASS OF TWO-THOUSAND KILOGRAMS.

78
00:04:08,750 --> 00:04:11,760
[Culbertson] Without the ability to
take cargo you won't be able

79
00:04:11,760 --> 00:04:15,470
to keep the station operating
as a viable research platform,

80
00:04:15,470 --> 00:04:18,830
or even keep a crew there,
keep them feed and clothed

81
00:04:18,830 --> 00:04:21,860
and all the things that anybody
on an outpost would need,

82
00:04:21,860 --> 00:04:24,290
and that's really where
they are, on an outpost,

83

00:04:24,290 --> 00:04:28,280
so having that lifeline to
Earth is very, very important...

84
00:04:28,780 --> 00:04:31,240
[V.O.] ORBITAL WILL LAUNCH
THE ANTARES ROCKET

85
00:04:31,240 --> 00:04:35,240
AND CYGNUS CARGO CRAFT FROM
NASA'S WALLOPS FLIGHT FACILITY

86
00:04:35,240 --> 00:04:39,180
IN VIRGINIA, THUS OPENING
A NEW COMMERCIAL SPACEPORT

87
00:04:39,180 --> 00:04:42,290
AND STRENGTHENING THE AMERICAN
COMMERCIAL LAUNCH INDUSTRY'S

88
00:04:42,290 --> 00:04:45,220
ROLE IN THE NEW FUTURE
OF SPACE FLIGHT.

89
00:04:45,220 --> 00:04:48,680
AS SPACE-X AND ORBITAL RAMP
UP THEIR SUPPLY FLIGHTS,

90
00:04:48,680 --> 00:04:51,340
THE INTERNATIONAL SPACE
STATION WILL CONTINUE TO SERVE

91
00:04:51,340 --> 00:04:53,810
AS OUR HOME IN SPACE
AND THE SITE

92
00:04:53,810 --> 00:04:57,350
OF THE SCIENTIFIC DISCOVERIES
THAT WILL ALLOW HUMANKIND

93

00:04:57,350 --> 00:05:01,530
TO VENTURE BEYOND LOW-EARTH
ORBIT...TO EXPLORE FARTHER