



1
00:00:39,170 --> 00:00:36,950
whether it's a full-scale mock-up of the

2
00:00:41,840 --> 00:00:39,180
shuttle used by astronauts for training

3
00:00:44,779 --> 00:00:41,850
or display model of a futuristic lunar

4
00:00:46,849 --> 00:00:44,789
transportation system a small group of

5
00:00:49,009 --> 00:00:46,859
craftsmen at NASA's Johnson Space Center

6
00:00:52,400 --> 00:00:49,019
has probably had a hand in their

7
00:00:54,349 --> 00:00:52,410
construction for 30 years mottling has

8
00:00:56,810 --> 00:00:54,359
been an integral part of engineering

9
00:00:59,329 --> 00:00:56,820
support for the space program each

10
00:01:01,520 --> 00:00:59,339
project whether large a small has its

11
00:01:05,180 --> 00:01:01,530
own set of challenges according to

12
00:01:07,700 --> 00:01:05,190
veteran model builder Mike McGuire it's

13
00:01:09,680 --> 00:01:07,710

just skills acquired over a period of

14

00:01:11,540 --> 00:01:09,690

time I don't believe there's a school

15

00:01:14,120 --> 00:01:11,550

that you can actually go to and learn

16

00:01:17,000 --> 00:01:14,130

everything that that's done out here in

17

00:01:21,380 --> 00:01:17,010

the model shop it's it's a pretty unique

18

00:01:23,510 --> 00:01:21,390

position the shop typically has a number

19

00:01:26,330 --> 00:01:23,520

of projects going on at the same time

20

00:01:28,430 --> 00:01:26,340

here Tom Luse more forms a part for a

21

00:01:32,170 --> 00:01:28,440

space station vacuum cleaner that Roger

22

00:01:34,970 --> 00:01:32,180

Magus inand Jack anthem Aten assembled

23

00:01:37,040 --> 00:01:34,980

larger projects like this model of a

24

00:01:39,020 --> 00:01:37,050

heat shield for space payloads go

25

00:01:42,050 --> 00:01:39,030

through a series of trial stages before

26

00:01:44,480 --> 00:01:42,060

the final component is built a low-cost

27

00:01:45,950 --> 00:01:44,490

wood and fiberglass mock-up helps

28

00:01:49,280 --> 00:01:45,960

engineers decide where to place

29

00:01:51,590 --> 00:01:49,290

instruments and wiring a foam core model

30

00:01:56,000 --> 00:01:51,600

assures that the heat shields tiles will

31

00:01:58,310 --> 00:01:56,010

fit properly these are all necessary

32

00:02:01,220 --> 00:01:58,320

steps taken before the final prototype

33

00:02:04,040 --> 00:02:01,230

is built you're not going to go out and

34

00:02:07,880 --> 00:02:04,050

buy a twenty-five-thousand-dollar chunk

35

00:02:10,009 --> 00:02:07,890

of aluminum and mill that mill that all

36

00:02:12,680 --> 00:02:10,019

the way down and suddenly you discovered

37

00:02:14,690 --> 00:02:12,690

that's not what I wanted it all so it's

38

00:02:17,509 --> 00:02:14,700

a lot easier to do it out of out of a

39

00:02:19,790 --> 00:02:17,519

cheap material most model building is

40

00:02:22,220 --> 00:02:19,800

still done by hand but recently

41

00:02:23,930 --> 00:02:22,230

labor-saving computer-driven machinery

42

00:02:26,540 --> 00:02:23,940

has taken over some of the tab

43

00:02:29,300 --> 00:02:26,550

the model shops latest high-tech

44

00:02:31,670 --> 00:02:29,310

apparatus literally grows parts out of

45

00:02:34,850 --> 00:02:31,680

plastic with the aid of lasers and

46

00:02:37,610 --> 00:02:34,860

computers JSC has one of only a few

47

00:02:40,490 --> 00:02:37,620

laser stereo lithography machines in the

48

00:02:42,800 --> 00:02:40,500

country Engineers can come into the shop

49

00:02:44,990 --> 00:02:42,810

with apart they've designed and the

50

00:02:47,360 --> 00:02:45,000

machine will build it by scanning laser

51
00:02:50,480 --> 00:02:47,370
beams into a vat of light-sensitive

52
00:02:53,180 --> 00:02:50,490
plastic minute by minute the laser

53
00:02:55,400 --> 00:02:53,190
builds up layers of hardened resin a

54
00:02:59,380 --> 00:02:55,410
part that might have taken a week to

55
00:03:02,240 --> 00:02:59,390
machine can be completed overnight

56
00:03:05,270 --> 00:03:02,250
although labor-saving devices play a

57
00:03:07,940 --> 00:03:05,280
vital role in modeling it is the skill

58
00:03:11,350 --> 00:03:07,950
and artistic ability of the people that

59
00:03:14,870 --> 00:03:11,360
bring ideas to life the model builders