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00:00:01,090 --> 00:00:07,270
For more than 40 years, the twin crawler-transporters at NASA's Kennedy Space Center have slowly traveled t

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00:00:07,270 --> 00:00:15,510
gravel track between the massive Vehicle Assembly Building and the two launch pads at Launch Complex 39.

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00:00:15,510 --> 00:00:21,920
These mammoth beasts that first carried all the Apollo Saturn V rockets have since borne every

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00:00:21,920 --> 00:00:25,590
space shuttle on the last Earth-bound leg of their journeys to space.

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00:00:25,590 --> 00:00:32,060
The technology used to build these huge, reliable crawlers capable of such Herculean tasks was deeply

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00:00:32,060 --> 00:00:37,400
rooted in a region where giant machines excavated and extracted veins of coal.

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00:00:37,400 --> 00:00:44,940
Engineers with the Marion Power Shovel Company of Marion, Ohio, adapted the technology in the early 1960s

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00:00:44,940 --> 00:00:47,960
and their know-how has stood the test of time.

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00:00:47,960 --> 00:00:49,820
SOT: Ray Trapp, crawler manager:"One of the decisions that they had to make back

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00:00:49,820 --> 00:00:52,280
then for Apollo was how to get the vehicle out to the pad.

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00:00:52,280 --> 00:00:56,890
They looked at rail, and they looked at the barge, and both of those had issues,

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00:00:56,890 --> 00:00:59,310
and then they finally settled on the crawler.

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00:00:59,310 --> 00:01:02,750

And those guys who designed and built this thing really did a great job."

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00:01:02,750 --> 00:01:08,370
"It's a testament to the design and how they put it together that 50 years later this

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00:01:08,370 --> 00:01:11,850
thing is still hauling 12 million pounds around."

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00:01:11,850 --> 00:01:14,760
SOT: Bob Myers, crawler systems engineer: "When they built the crawler, they overbuilt it, and that's a great th

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00:01:14,760 --> 00:01:16,830
because it's able to last all these years."

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00:01:16,830 --> 00:01:22,100
"I think it's a great machine that could last another 50 years if it needed to."

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00:01:22,100 --> 00:01:27,270
"It's capable, of course, of moving a shuttle and all of its parts and the mobile launcher platform.

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00:01:27,270 --> 00:01:31,290
I mean, we're talking about 12 million pounds, the vehicle itself being 6 million.

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00:01:31,290 --> 00:01:34,780
You have about 18 million pounds rolling down the road."

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00:01:34,780 --> 00:01:41,960
And as might be imagined, it takes incredible power to move that mass.

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00:01:41,960 --> 00:01:51,100
SOT Trapp: "This is one of two 2,750 horse power, 16 cylinder Alco diesel engines.

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00:01:51,100 --> 00:01:56,380
On the other end of these are two 1,000 kilowatt DC generators.

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00:01:56,380 --> 00:02:00,970
So this engine and one just like it on the other end of the crawler is what makes us move."

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00:02:00,970 --> 00:02:05,970
"These engines have about 4,000 hours on them, or so. So for a 45-year old,

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00:02:05,970 --> 00:02:09,200
really a 50 year old engine, they're like brand new.

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00:02:09,200 --> 00:02:19,280
Of course, we've maintained these engines, over the years very well. So these engines will go for another 50 y

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00:02:19,280 --> 00:02:23,770
So with all that weight in motion, what's it like to drive a crawler?

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00:02:23,770 --> 00:02:30,240
SOT Myers: "The steering wheel's about the size of a go-cart racer. But it's all electronic, it's all fly-by-wire, so t

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00:02:30,240 --> 00:02:32,920
So, it?s kind of funny you go up there and that little steering wheel's there,

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00:02:32,920 --> 00:02:42,430
but that steering wheel turns some big cylinders, you know, moves some big trucks, so it is impressive."

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00:02:42,430 --> 00:02:47,730
SOT Trapp: "One of the things about driving the crawler is you have to plan ahead, because obviously it doesn

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00:02:47,730 --> 00:02:53,770
So you have to really be on your game and you have to be thinking ahead about where you want to be one,

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00:02:53,770 --> 00:02:56,720
two, three minutes ahead of time."

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00:02:56,720 --> 00:03:06,880
The critical nature of the long rollout to the launch pad is not lost on those who operate this huge piece of mach

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00:03:06,880 --> 00:03:14,100
SOT Trapp: "It's very important that all of our systems function properly and safely from the time we leave the s

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00:03:14,100 --> 00:03:21,400

Vehicle Assembly Building until we get out to the launch pad. During that six hours or so while we're out on the

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00:03:21,400 --> 00:03:29,870
it's pretty much just us, my team and the crawler getting the vehicle out to the pad, and it's a critical time."

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00:03:29,870 --> 00:03:36,100
With the end of the space shuttle program in sight, soon there will be no more shuttle stacks to ferry to the laun

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00:03:36,100 --> 00:03:44,260
But to those who work on them, the trusty crawlers seem fully capable of moving future launch vehicles if calle

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00:03:44,260 --> 00:03:49,610
SOT Myers: "Seeing the shuttle program come to an end really will be a sad day for us.

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00:03:49,610 --> 00:03:53,170
The crawler actually has gone through Apollo and Shuttle,

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00:03:53,170 --> 00:03:57,340
so it's been around for quite a long time, you know, 40 years.