

Fun, Interesting Facts About
NASA

- NASA was founded on July 29, 1958.
- “NASA” stands for National Aeronautics and Space Administration.
- NASA’s Vehicle Assembly Building is so large, rain clouds have formed inside the building on humid days.
- NASA was sued by three men from Yemen for trespassing on Mars. They claimed that they had inherited the planet from their ancestors 3000 years ago.
- People can get paid around \$9,000 per month by NASA to lie in bed for every minute of the day for up to 70 days. These volunteers are monitored to perfect methods for astronauts while in space.
- NASA’s slogan is “To explore the Universe and search for life; to inspire the next generation of explorers, as only NASA can”.
- Voyager 1, launched in 1977, at a distance of 22.8 billion kilometers (14.2 billion miles), is the most distant manmade object from earth. After 40-plus years, it has five instruments supporting scientific investigation of interstellar space.

L&M AND L&M **WORD SEARCH**

Below is a list of words and terms related to space exploration and the NASA space program. See if you can find them all!



HINT: Words may be hidden in all directions ↑ ↓ → ← ↘

- | | | |
|-----------|----------------|---------------|
| APOLLO | INTERGALACTIC | ORBIT |
| ASTRONAUT | LAUNCH PAD | ROCKET |
| BLAST OFF | MOON LANDING | SKYLAB |
| COSMONAUT | NEIL ARMSTRONG | SPACE STATION |

L&M AND L&M **encores**

A BOSS[®] PROJECT!



L&M Outfits NASA Crawler Transporters

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Phone: 218-263-8993 • Toll Free U.S.A. & Canada: 1-800-346-3500 • Fax: 218-262-6606 • E-mail: cool@MESABI.com

MANUFACTURING FACILITIES:

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L&M Radiator, Inc. L&M Radiator, Inc.
Hibbing, Minnesota Yankton, South Dakota

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L&M Radiator Pty. Ltd.
East Victoria Park, W.A.

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YOU TYPICALLY DON'T ASSOCIATE MESABI® COOLING PRODUCTS WITH NASA—MINING AND OIL AND GAS ARE MORE IN OUR WHEELHOUSE—BUT WE FOUND OURSELVES INVOLVED IN A VERY FUN PROJECT AT NASA'S KENNEDY SPACE CENTER IN FLORIDA.

Back in the mid-60s, NASA worked with Marion Power Shovel – an old familiar mining name – to design and build huge crawler-transporters to carry rockets and spacecraft to the launch pad. We are familiar with Marion Shovels, and we are certainly familiar with cooling large mobile equipment!

The NASA crawlers were originally built in 1965 to move the Saturn V rocket from the Vehicle Assembly Building to the launch pad. These crawlers are designed to roll underneath a launch platform, pick it up and steadily carry it 3-4 miles to the launch pad. Because of the launch pad design, the crawler uses its hydraulic suspension to keep the platform level all the way to the top where it sets the platform in place so the vehicle can lift off safely. To put these NASA crawlers into perspective, each of them is the size of a baseball infield and are powered by locomotive and large electrical power generator engines.

Our L&M team met with NASA crawler engineers to figure out how to replace the radiators on the two gensets that provide AC power to the crawler, rocket and launch tower systems. The existing radiator on the seaward side of the crawler was very corroded with the fins disintegrating vs. the one on the inland side (the crawler runs only in one direction, making the seaward side more susceptible to saltwater contamination).

After much review, our team determined that L&M's BOSS® tubes would be a great fit for this project. We worked with NASA on their paint specifications (due to their coastal location), improved the cooling system expansion, deaeration and drawdown functions, and conducted a cooling performance test with NASA and Cummins.

The newly upgraded crawler (CT-2) has been strengthened to handle the Space Launch System, a rocket and launch tower that is heavier than the original Saturn V rockets the crawlers were designed for. The CT-2 is operating and has recently completed a crawler-way conditioning program with 25.5 million pounds onboard to verify the crawler-way is structurally sound.

For more information visit <https://www.nasa.gov/content/the-crawlers>.

Rowan Chisholm



Crawler-Transporter Facts

- Size: 131 feet long; 114 feet wide*
- Height: 20-26 feet with cylinders retracted or extended*
- Weight: 6.3 million pounds with a 2.2-million-pound chassis*
- Speed: 1 mph loaded; 2 mph unloaded*
- Loads: Space Shuttle 12.6 million lbs. Mobile Launch Platform 9.87 million lbs.*
- Capacity: Diesel Fuel Capacity - 5,000 gallons Fuel Consumption - 1 gallon per 32 feet*

Offshore Technology Conference
 Dates: August 16-19
 Booth #: 2801



MINExpo
 Dates: September 13-15
 Booth #: 7890

