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# SpaceX Removes Dragon Crew Arm to Boost Starship in Florida

## Description

Pad 40 has been the main launch site for the Falcon 9 rocket for most of its history, while Pad 39A has hosted crew launches and supported SpaceX's increasing launch schedule. However, it appears that the Falcon 9 launch frequency, which reached 165 missions last year, may be levelling off as the company shifts focus to its Starship rocket. SpaceX has been reducing the time needed to prepare Pad 40 for launches, now completing this process in less than 48 hours.

If necessary, SpaceX officials stated they could reinstall the crew arm for Dragon missions from Pad 39A.

Bill Gerstenmaier, SpaceX's vice president of build and flight reliability, highlighted another important reason for removing the crew arm at Pad 39A. The bearings connecting the arm to the launch pad's tower require repairs.

"To access those, the arm needs to be removed," Gerstenmaier explained. "Those bearings must be taken out and replaced. We will carry out this work at the Kennedy Space Center. Our goal is not to rush to reinstall the arm; if we get called for a mission, we have ample time to put it back up."

SpaceX continues to launch Falcon 9 and Falcon Heavy rockets from Pad 39A, despite nearby construction for Starship. Gerstenmaier noted that this does not hinder their launch capabilities. However, this might change as SpaceX begins testing Starships, which could lead to Pad 39A being closed to personnel.

Gerstenmaier confirmed the intent to replace the bearings and upgrade them before reinstalling the arm when it is needed for future missions.

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## Vocabulary List:

1. **Frequency** /'fri:kwən.si/ (noun): The rate at which something occurs over a particular period of time.
2. **Installed** /ɪn'stɔ:ld/ (verb): Set in position for use.
3. **Reinstall** /,ri:ɪn'stɔ:l/ (verb): To install something again.
4. **Maintenance** /'meɪn.tə.nəns/ (noun): The process of keeping something in good condition.
5. **Capabilities** /,keɪ.pə'bɪl.ɪ.tiz/ (noun): The power or ability to do something.
6. **Confirm** /kən'fɜ:rm/ (verb): To state or prove the truth of something.

## Comprehension Questions



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## Multiple Choice

1. What is the main launch site for the Falcon 9 rocket?
  - Option: Pad 40
  - Option: Pad 39A
  - Option: Kennedy Space Center
  - Option: Starship Launch Site
2. What is the reason cited for reducing the Falcon 9 launch frequency?
  - Option: Focus on Starship rocket
  - Option: Technical issues
  - Option: Lack of funding
  - Option: Regulatory constraints
3. Where do SpaceX officials plan to conduct repairs on the bearings connecting the crew arm to the launch pad's tower?
  - Option: Kennedy Space Center
  - Option: Pad 40
  - Option: Starship Launch Site
  - Option: International Space Station
4. What is Bill Gerstenmaier's role at SpaceX?
  - Option: Vice President of Build and Flight Reliability
  - Option: Lead Engineer
  - Option: Chief Financial Officer
  - Option: Head of Marketing
5. Which launch site is known to have hosted crew launches and supported SpaceX's increasing launch schedule?
  - Option: Pad 40
  - Option: Pad 39A
  - Option: Kennedy Space Center
  - Option: Starship Launch Site
6. What is SpaceX's goal regarding the reinstallation of the crew arm for future missions?
  - Option: Not to rush
  - Option: Complete within 24 hours
  - Option: Outsource the task



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Option: Implement automation

**True-False**

7. SpaceX officials mentioned that they could reinstall the crew arm for Dragon missions from Pad 40 if necessary.
8. Bearings connecting the crew arm to the launch pad's tower require repairs, according to Bill Gerstenmaier.
9. Falcon 9 and Falcon Heavy rockets are launched from Pad 39A.
10. Pad 39A may be closed to personnel as SpaceX begins testing Starships.
11. SpaceX's focus is mainly on Falcon 9 missions, rather than Starship rocket development.
12. The crew arm will be reinstalled without any upgrades before future missions.

**Gap-Fill**

13. SpaceX completed the process of preparing Pad 40 for launches in less than \_\_\_\_\_ hours.
14. Bill Gerstenmaier confirmed the intent to replace and upgrade the bearings before reinstalling the arm when it is needed for future missions to ensure reliability post \_\_\_\_\_.
15. Pad 39A has hosted crew launches and supported SpaceX's increasing launch schedule, while Pad 40 has been the main launch site for the \_\_\_\_\_ for most of its history.
16. The bearings connecting the arm to the launch pad's tower require repairs. To access those, the arm needs to be removed and the bearings must be taken out and \_\_\_\_\_.
17. SpaceX has been reducing the time needed to prepare Pad 40 for launches, now completing this process



in less than \_\_\_\_\_ hours.

18. Bill Gerstenmaier is the vice president of build and flight \_\_\_\_\_ at SpaceX.

## Answer

**Multiple Choice:** 1. Pad 40 2. Focus on Starship rocket 3. Kennedy Space Center 4. Vice President of Build and Flight Reliability 5. Pad 39A 6. Not to rush

**True-False:** 7. False 8. True 9. True 10. True 11. False 12. False

**Gap-Fill:** 13. 48 14. repairs 15. Falcon 9 rocket 16. replaced 18. reliability

## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. What is a fossil?

Option: A preserved remains of ancient organisms

Option: A type of rock formation

Option: A meteorological phenomenon

Option: An extinct species

2. Which of the following best describes an ecosystem?

Option: A community of living organisms and their environment

Option: A group of identical species

Option: A geographical area without life

Option: A collection of fossils

3. What is the role of a predator in an ecosystem?

Option: To create food

Option: To control the population of prey species

Option: To decompose organic matter

Option: To provide shelter

4. Biodiversity refers to what?

Option: The variety of life in the world

Option: The number of species in one ecosystem

Option: The extinction of species

Option: The climate diversity



5. What is a key element of scientific progress?

- Option: Discovery
- Option: Repetition
- Option: Confirmation
- Option: Following traditions

6. Palaeontology is the study of what?

- Option: Ancient life through fossils
- Option: Astrological phenomena
- Option: Current ecosystems
- Option: Living species

7. What is a specimen in a scientific context?

- Option: A single example of a species
- Option: A type of fossil
- Option: An observational result
- Option: A theoretical concept

8. What does celestial relate to?

- Option: Heavenly bodies like stars and planets
- Option: Earthly creatures
- Option: Biological studies
- Option: Oceanic depths

9. In astronomy what does syzygy refer to?

- Option: The alignment of celestial bodies
- Option: A type of star
- Option: The study of galaxies
- Option: The calculation of light years

10. What is the primary purpose of an observatory?

- Option: To observe celestial phenomena
- Option: To house fossils
- Option: To maintain biodiversity
- Option: To conduct ecological surveys

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. A \_\_\_\_\_ is formed when organic material is preserved over millions of years.

12. An \_\_\_\_\_ consists of living organisms interacting with their environment.



13. Certain species can \_\_\_\_\_ in extreme conditions.
14. In the food chain a \_\_\_\_\_ hunts and eats other animals.
15. High \_\_\_\_\_ is essential for a healthy environment.
16. The exciting \_\_\_\_\_ of a new species can change our understanding of biology.
17. \_\_\_\_\_ helps us understand the history of life on Earth through fossils.
18. A well-preserved \_\_\_\_\_ can provide valuable information about past climates.
19. Astronomers study various \_\_\_\_\_ phenomena including stars and planets.
20. An \_\_\_\_\_ event occurs when one celestial body moves into the shadow of another.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

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| 21. A fossil is an ancient remnant of a living organism that has been preserved over time.                           |
| 22. An ecosystem includes all the living organisms in a particular area and their interactions with the environment. |
| 23. Plant species often thrive in conditions that are ideal for their growth.  |
| 24. A predator is an animal that hunts and eats other animals for survival.  |
| 25. Biodiversity is crucial for maintaining ecological balance in the environment.                                   |
| 26. The discovery of a new species can provide insights into evolutionary history.                                   |
| 27. Palaeontology is the scientific study of the history of life on Earth through fossils.                           |
| 28. A specimen in research refers to an individual organism or a sample used for study.                              |
| 29. Celestial bodies include all natural objects in space such as stars planets and moons.                           |
| 30. Eclipsing is a phenomenon that occurs when one object moves into the shadow of another in space.                 |



## Answer

**Multiple Choice:** 1. A preserved remains of ancient organisms 2. A community of living organisms and their environment 3. To control the population of prey species 4. The variety of life in the world 5. Discovery 6. Ancient life through fossils 7. A single example of a species 8. Heavenly bodies like stars and planets 9. The alignment of celestial bodies 10. To observe celestial phenomena

**Gap-Fill:** 11. fossil 12. ecosystem 13. thrive 14. predator 15. biodiversity 16. discovery 17. Palaeontology 18. specimen 19. celestial 20. eclipsing

**Matching sentence:** 1. fossil 2. ecosystem 3. thrive 4. predator 5. biodiversity 6. discovery 7. palaeontology 8. specimen 9. celestial 10. eclipsing

## CATEGORY

1. Sci/Tech - LEVEL4

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## Date Created

2026/02/12

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