Mars Space Construction, LLC

Launch Details -

The following launch schedule allows for initial landing of two Starships. One Starship will remain on Mars with crew and one will return to Earth after refueling. The Starship that stays on Mars will remains as an emergency vehicle and will be available to return to Earth if an emergency arises.

Launch schedule is based on propellant generation and obtaining operational condition of Star Port. A staggered approach to Mars would be needed once Star Port is operational based on number of landing time. This can be accomplished by slowing arrival times of multiple Starships.

Launch One (Sept 2022) (Picture 1, 1st launch to Mars) trip with 2 Starships (automated, no crew) landing on Mars. The following are required steps for refueling.

1. One Starship Crew landing requires refueling for return to Earth.
2. One Starship Cargo would stay on Mars to unload equipment packages.
    a. Propellant Processing Equipment - Ore mining processing (Ice) CO2 Collection, propellant processing & Storage
    b. Power Generation equipment for solar array collection & distribution system
    c. Water Processing Equipment with storage & distribution system
    d. Oxygen Generation Equipment with storage & distribution system
    e. Gardening Module – start food generation as soon as possible
    f. Habitat Module - size to be determined on size of crew to be left behind, life support, food, communications, other systems, inflatable backup with life support package
3. Equipment to generate fuel is unloaded to the Martian surface from cargo module.
4. The equipment packages are unloaded and assembled.
5. CO2 processing equipment package separates oxygen from carbon dioxide for use with propellant package.
6. Mining equipment for processing ore with ice is lowered to Martian surface.
7. Martin ice and carbon dioxide are combined to generate propellant and sent to storage units located on Martin surface near Starships.
8. Propellant storage tanks are connected to Starships for pumping propellant into Starships.
9. Starships disconnect from propellant storage tanks.
10. Starships take off back to Earth.
11. Crew of 3-5 colonists remaining will focus on habitat development, propellant generation, and space sciences.
12. Geological survey required for location of Star Port with landing of multiple Starships with alternating timeframe.

Launch Two (Jan 2024) (picture of 5 Starships landing on Mars, picture of 1 Starship remaining) with 5 Starships landing on Mars. The following are required steps for refueling.

1. One Starship Crew landing requires refueling for return to Earth.
2. Four Starship Cargo would stay on Mars to unload equipment packages.
    a. Propellant Module
    b. Water Processing Module
    c. Oxygen Module
    d. Equipment Storage Module
    e. Habitat Module
3. Equipment to generate fuel is automatically unloaded to the Martian surface from cargo module.
4. Somehow the equipment packages are assembled.
5. CO2 is extracted from atmosphere.
6. Mining by ore/ice equipment lowered to Martian surface.
7. Martin ice is relocated to propellant generating equipment located on Martin surface near Starships.

8. Propellant generating equipment is connected to Starships for pumping fuel into ships.
9. Starships disconnect from propellant generating equipment.
10. Starships take off back to Earth.
11. Crew of 3-5 (each Starship) colonist remaining will focus on habitat development, propellant generation, and space sciences.
12. Location of Star Port with landing for 5 Starships to be operational next arrival.
13. Location and assembly of equipment packages for a large-scale propellant plant including piping.
14. Location of manifold system for utilities for Mars Base and Star Port. Star Port should be a minimum safety distance from habitat area for safety and minimizing of utility piping.

Launch Three (Jan 2027) (pic3) with 8 Starships landing on Mars. The following are required steps for refueling.

1. Four Starship Crew landing requires refueling for return to Earth.
2. Four Starship Cargo would stay on Mars to unload equipment packages.
3. 8 Starships require landing at Star Port on Mars require refueling for return to Earth.
4. Star Port is operational and can handle 5 Starships at a time.
5. Staggered landing at Star Port is required. This can be accomplished by slowing arrival times of multiple Starships. This will accommodate unloading of cargo and refueling of propellant, oxygen, and cargo
6. Starships unload cargo and refuel for trip back to Earth.

Launch Four (Jan 2027) (pic3) with 18 Starships landing on Mars. The following are required steps for refueling.

1. Nine Starship Crew landing requires refueling for return to Earth.
2. Nine Starship Cargo would stay on Mars to unload equipment packages.
3. 18 Starships require landing at Star Port on Mars require refueling for return to Earth.
4. Star Port is operational and can handle 5 Starships at a time.
5. Staggered landing at Star Port is required. This can be accomplished by slowing arrival times of multiple Starships. This will accommodate unloading of cargo and refueling of propellant, oxygen, and cargo.
6. Starships unload cargo and refuel for trip back to Earth.

Launch Five (April 2031) (pic3) with 18 Starships landing on Mars. The following are required steps for refueling.

1. Nine Starship Crew landing requires refueling for return to Earth.
2. Nine Starship Cargo would stay on Mars to unload equipment packages.
3. 18 Starships require landing at Star Port on Mars require refueling for return to Earth.
4. Star Port is operational and can handle 5 Starships at a time.
5. Staggered landing at Star Port is required. This can be accomplished by slowing arrival times of multiple Starships. This will accommodate unloading of cargo and refueling of propellant, oxygen, and cargo.
6. Starships unload cargo and refuel for trip back to Earth.

(link to Propellant Module supports Launch Details)