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# PRESSURIZED ROVER PROCEDURES

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Relevant to: PR Teams

NASA SUITS  
2025-26 Challenge

# NASA SUITS EVA and Rover Procedures

Last Updated: 2/18/2026

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This document **may** be updated ahead of test week in May 2026.

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## Notes:

This document will likely undergo several more revisions as we do dry runs in preparation for test week. NASA SUITS aims to have each test session run for 45-minutes. This allows time on each end of the window to setup and to transition from group to group. Therefore, the PR and Spacesuit portions will each take about 25-minutes with a few cutoffs. The reasoning for the cutoffs is to prevent teams from getting stuck and allowing other functionalities to be showcased, i.e. “Something isn’t working, and we are behind, so in order to see your other functionalities, let’s move on.”

## Change Log:

1. Modify PR Team timeline to be more real-world accurate. Add verbal aspects to checklists for design evaluators to confirm procedures, add cover page. -RE
2. Separate PR and EV team procedures into separate documents. -RE

## General Test Timeline

Both the rover and EV teams will begin their procedures at the same time. The following procedures are done concurrently with EV team and their procedures but are **not** dependent on one another. Cutoff times are fluid for each station, but 50 min is hard stop.

PR	Ideal start time	Time to complete
Pre-Nav Checklist	0	3 min
Navigate to LTV last known location	3 min	3 min
Initial ping and calculate search area	8 min	2 min
Execute search procedure, find LTV	10 min	10 min
Showcase EVA monitoring functionality	17 min	3 min
Navigate back to home base	20 min	4 min
Arrive at home base	25 min	N/A

## Procedures

### CAPCOM:

- *START Rover Telemetry*
- *Announce scenario start, give go to begin*

### Pressurized Rover

1. Begin Pre-Navigation Checklist
2. Pilot verbally confirm battery level is > 95%
3. Pilot verbally confirm O2 levels are > 95%
4. Pilot verbally confirm O2 pressure is > 2900 psi
5. Pilot verbally confirm PR Cabin Pressure is > 3.95 psi
6. Pilot verify PR headlights are operational by manually switching lights to ON then to OFF, verbally confirm success
7. Pilot drop pin at current location, verbally confirm success
8. Drop pin at LTV last known location, verbally confirm success
9. Verbally announce completion of checklist

Navigate to LTV last known location (3 min)

1. Begin navigation to LTV last known location
  - a. *Demonstrate pathfinding and autonomous navigation capability*
2. Upon arrival, verify PR has come to a complete stop
3. Announce successful completion of stop
4. Check telemetry data and look for any off-nominal values

Initial ping and calculate search area (2 min)

1. Send first ping, analyze the incoming RSSI (signal strength)
2. Calculate a search area based on the previous speed and heading data
3. Set pin for next ping location and calculate safest path of navigation
4. Review consumables, calculate point of no return

Execute search procedure, find LTV (10 mins)

1. Begin navigation to next ping point
2. Upon arrival, verify PR has come to a complete stop
3. Send ping and wait for new RSSI value, verify new value update based on “Time Since Last Ping”
4. Calculate next ping location based on received LTV telemetry
5. Repeat steps 1-4 until successful acquisition of LTV
6. Set pin at exact location of LTV

Showcase EVA monitoring functionality (3 min)

1. Display EVA telemetry values and note any values not within range
2. Monitor EVA video feed (if applicable)

Navigate back to home base (4 min)

1. Set a pin at the starting point (home base)
2. Calculate the optimal path using the provided map of the DUST lunar environment
3. Navigate back to home base, showcase autonomous navigation if possible

*CAPCOM*

- *Stop Rover Telemetry*