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| **Changes Made for PRET v3.0** | | |
| **Change ID** | **Type/Task** | **Description** |
| 3.1 | General Usability | Prompts to begin next mission phase restricted from appearing when a NC test is active or when transferring data at the ISRU site. |
| 3.2 | Driving routes no longer randomly generated. Instead, 30 routes were implemented with fixed start locations, extraction site locations, and ISRU site locations. Option was provided to select one of the 30 routes for training and/or mission scenarios. |
| 3.3 | NC test messages and mission information text now appears in yellow on a black background. |
| 3.4 | Instructions for rock extraction task changed to indicate that the Rover arm joint is to be activated by pressing the corresponding keyboard number, but that the key does not have to be held down. |
| 3.5 | Inconsequential scenario messages (e.g., “Nav Cam Photo Mosaic”) removed. |
| 3.6 | The “God Mode” camera toggle that was used in the original Race to Mars game was disabled. |
| 3.7 | The camera view shortcut keys were disabled during the rock extraction task and the data transfer task. |
| 3.8 | Code modified to allow the data transfer task to proceed whenever the angle error indicator at the ISRU site indicates “0” to account for rounding error. |
| 3.9 | The user can now press the “M” key to toggle between the small real-time map and the large global map. |
| 3.10 | An indication of the Rover’s lateral error alignment at the ISRU site now accompanies the longitudinal error indicator. |
| 3.11 | The “Wheels Stuck” message was increased in size and flashes. An option to disable the wheels stuck feature was added to the configuration file. |
| 3.12 | Power bonus message removed when user collects a power bonus. |
| 3.13 | The size of the multiple camera view windows was decreased by 10%. |
| 3.14 | The mouse cursor, which appeared as a large circle with semi-transparent red fill, was disabled. |
| 3.15 | The Rover’s top drive velocity was reduced. A speed reduction factor (e.g., 0.5 = 50% reduction) was added to the configuration file. |
| 3.16 | Mouse input disabled during training and mission scenarios. |
| 3.17 | Sleep duration ranges were modified to reflect correct usage of “>” and “<” signs. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.18 | All Tasks | The volume of the audio cue to alert the user to the beginning of all NC tasks was increased. |
| 3.19 | The text message indicating the beginning of all NC tasks now appears in yellow ink on a black background. |
| 3.20 | RT data now being logged at the highest level of precision that the system allows. Given that most responses are tied to keyboard inputs, this means that the measurement error on any RT response is approximately ± 30 ms. |
| 3.21 | Unless specifically made active, all keyboard keys and mouse buttons are locked while an NC task is being executed. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.22 | CIT | The to-be-classified messages now appear in yellow in a textbox with a black background instead of in white on the background scene. |
| 3.23 | The only active keys during this task are “W”, “E”, and “T” for Weather, Ergonomic, and Technical, respectively, the “M” key to toggle between maps, and the arrow keys to control the Rover. |
| 3.24 | Two existing messages were edited because their content was inaccurate. |
| 3.25 | New messages were added to equate the number of messages within each of the three categories (i.e., 10 messages in each category), for a total of 30 messages. |
| 3.26 | The to-be-classified messages are now pseudo-randomly selected without replacement so that no message appears more than once. |
| 3.27 | Fifteen messages are presented in the two CIT phases with the constraint that five Weather, five Ergonomic, and five Technical messages are presented in each phase. |
| 3.28 | Each of the 30 messages was assigned a unique identifier, which was logged in the data output file to indicate what message was displayed on each trial. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.29 | GDCCT | The instructions changed from, “Click the left mouse button if the symbol matches. Click the right mouse button if it doesn’t.” to “Press the “Y” key if the symbol matches or press the “N” key if it does not.” |
| 3.30 | The only active keys during this task are “Y” and “N” to indicate a match or a non-match, respectively. |
| 3.31 | The message “Time elapsed: Please respond more quickly on the next trial” appears in yellow on a black background if the participant takes too long to respond. |
| 3.32 | The number of trials in the *matching* phase of this task was increased from 70 to 80 to ensure that the ratio of match to non-match trials was 50:50. Each digit 0-9 was presented eight times (four matching and four non-matching). |
| 3.33 | The ratio of match to non-match trials in the *memory* phase of this task was set at 50:50, with each digit 0-9 appearing once as a match and once as a non-match. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.34 | LNSAT | A pop-up window now appears at the beginning of the LNSAT to indicate that the Rover driving task has been halted. |
| 3.35 | The instructions now indicate that the participant should use the “Enter” key to submit a response instead of using the mouse to click the “OK” button. |
| 3.36 | The “OK” button was removed from the response window. |
| 3.37 | The only active keys during this task are all letter/number keys, the enter/return key, and the backspace key. |
| 3.38 | The message, “The last trial was missed (timeout). The next one is coming up.” was replaced with, “Time elapsed: Please respond more quickly on the next trial.” This message appears in yellow on a black background if the participant takes too long to respond. |
| 3.39 | Added ability to specify the beginning difficulty level (i.e., number of letter-digit pairs) to the configuration file. |
| 3.40 | Added ability to specify how many attempts are allowed at a given level before proceeding to the next level to the configuration file. |
| 3.41 | The RT clock now starts after the last item in the letter-digit sequence was presented instead of starting at the first item in the letter-digit sequence. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.42 | RCT | The menu indicating the Rover’s arm positions on the right side of the screen only appears after the text message indicating the beginning of the task has been displayed. |
| 3.43 | The only active keys during this task are the spacebar, the “M” key, the directional arrows, and number keys 1, 2, 3, and 4. |
| 3.44 | The RCT messages now appear as yellow text on a black background. |
| 3.45 | Participant inputs now remain active during rock extraction task animation. |
| 3.46 | Rock extraction animation no longer occludes the RCT messages. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.47 | PMRCT | The text message indicating the beginning of the acknowledgement sub-task (i.e., “Incoming Communication About To Begin”) now appears in yellow ink on a black background. |
| 3.48 | An audio file now indicates that the participant is to, “Acknowledge the message by pressing the spacebar after the tone.” |
| 3.49 | A tone is now presented immediately following the to-be-acknowledged message, with the RT clock starting at the same time as the tone. |
| 3.50 | The participant is now given feedback if they respond prior to the end of the to-be-acknowledged message. |
| 3.51 | The only active keys for the message acknowledgement sub-task are the spacebar (only active following the tone), the “M” key, and the directional arrows. |
| 3.52 | The text message indicating the beginning of the calculation sub-task (i.e., “How many seconds will it take for the storm to reach the Rover?”) now appears in yellow ink on a black background. |
| 3.53 | The information related to the mental calculation sub-task now appears as yellow text on a black background. |
| 3.54 | The only active keys for the mental calculation sub-task are the enter/return key, all number keys, the “M” key, and the directional arrows |
| 3.55 | The instructions to, “Enter the response above and press OK (using the mouse)” were replaced with, “Enter the response above and press Return.” |
| 3.56 | The text message indicating the beginning of the decision sub-task (i.e., “Do you wish to stop the Rover?”) now appears in yellow ink on a black background. |
| 3.57 | The only active keys for the decision sub-task are the “Y” and “N” keys, the “M” key, and the directional arrows. |
| 3.58 | The instructions to use the mouse to click on the “Yes” or “No” buttons were replaced with instructions indicating that the participant should press the “Y” or “N” key. |
| 3.59 | Restricted the modality of the storm speed announcement to auditory and the storm distance announcement to visual. |
| 3.60 | Removed the secondary goal of collecting a special power bonus while the dust storm approached (if the user decided not to power down the Rover). |

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| **Change ID** | **Type/Task** | **Description** |
| 3.61 | SCT | The only active key is the spacebar. |
| 3.62 | The instructions now indicate that the participant is to “Press the spacebar as quickly as possible when the green indicator appears in the wheel status panel.” |
| 3.63 | If a participant responds prior to a green indicator appearing, the instructions now read, “Press the spacebar AFTER a green indicator appears in the wheel status panel.” |
| 3.64 | Response times are now displayed to the nearest 1/1000th of a second. |
| 3.65 | The “Suspension Check in Progress” message that appeared before each trial was removed. |
| 3.66 | The number of trials per session was fixed at 20. |
| 3.67 | The inter-stimulus interval range was increased to between 500 and 2500 ms. |

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| **Change ID** | **Type/Task** | **Description** |
| 3.68 | PT | Only the letter keys, the enter/return key, and the backspace key are active. |
| 3.69 | The instructions now read, “Enter your solution into the field above ensuring that it begins with the letter A and ends with the letter S. Press Return when done.” |
| 3.70 | The font size of the point marker letters was increased. |
| 3.71 | The distance bar was labeled. |
| 3.72 | The “OK” button was removed from the response window. |
| 3.73 | The first letter of the path (always “A”) is provided in the entry field. |