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BULLETIN
BUL-052

Shepherd P4S4 Ops Aid

Inspections and Preparations

Basic Vehicle Checks

1. Maintenance current and documented
2. No operational discrepancies, to include fluid leaks, damage, service needs or maintenance needs
3. Steering ring securely connected to vehicle steering wheel
4. Fuel sufficient for day's missions

Initial System Set-up and Connections Checks

1. Electrical power disconnected from P4S4
2. Transmission cable NOT connected
3. All other cables connected
4. P4S4 secured in bracket
5. Vehicle transmission in Park (or Neutral)
6. Parking brake engaged

Manual Operations Checks

1. Manually start vehicle engine
2. Vehicle steering wheel has smooth, full range of motion

P4S4 Start-Up

1. VIM
    a. E-Stop NOT activated
    b. Off
    c. Man
    d. Run
2. Power-up system
    a. Electrical power supplied
    b. Hood secured
    c. Safety operator in position with seat belt secured
    d. Engine started
    e. VIM 'On'
    f. NO VIM LEDs illuminated

g. P4S4 LEDs illuminated:
   - Batt OK
   - 6vdc OK
   - 12vdc OK
   - UPS OK
   - PWR switch

OCU Start-Up

1. Tele-Op controller connected
2. OCU E-Stop connected
3. OCU:
   - E-Stop NOT activated
   - ON
   - RUN
4. OCU computer power on
5. djBasis application starts
6. djBasis activates:
   - djBasis.exe
   - djSharedLinkF.exe
   - djEtherMap.exe
   - djShepard.exe
7. OCU E-Stop
   - Green LED blinking
   - Red LED NOT illuminated
8. Shepherd application visible

Basic Robotic Control

1. Vehicle wheels straight and steering wheel centered
2. Camera/s clean
3. Robot logged in to Shepherd
   a. Robot selected in Shepherd's Asset tab
   b. Login
   c. Appears at top of P4S4 tab
4. Steering Calibrated
   a. Drive straight forward 5'-10'
   b. VIM to 'Auto'
   c. Brake fully engaged
   d. VIM 'Enable' & 'Ready' LEDs illuminated
   e. In Teleop/Remote tab, Calibrate Steering

5. Views set as desired
6. VIM 'Pause'
7. Transmission cable connected
8. VIM ‘Run’

Robotic Operations

1. All personnel current on safety documentation and procedures.

Tele-Operation

1. Safety operator in driver's seat, seat belt secured, operator clear of all controls, & in position to activate all controls
2. Parking brake released
3. VIM to 'Auto'
4. In Shepherd's Teleop/Remote tab, Teleop On
5. Engine running; transmission in Park (or Neutral)
6. Teleop controller verification of:

Teleop Control	Teleop/Remote Tab	P4S4 Tab	Vehicle
Deadman applied		Brake gauge @ 0 & percentage @ 0	Brake released
Throttle	Joystick/Gamepad input	Gauge & percentage	Throttle
Brake	Joystick/Gamepad input	Gauge & percentage	Brake
Steering	Joystick/Gamepad input	Gauge & Degrees	Steering
Engine Stop	Enabled indicator Off	RPM @ 0	Engine off
Engine Start	Enabled indicator On Teleop On indicator On	RPM > 100	Engine started
Gear Up - 1st		Rev	Reverse
Gear Up - 2nd		Neu	Neutral
Gear Up - 3rd		Drv	Drive
Gear Down - 1st		Neu	Neutral
Gear Down - 2nd		Rev	Reverse
Gear Down - 3rd		Park	Park (Neutral)

Gear Up – 3x		Drv	Drive
Deadman released		Brake gauge @ 100 & percentage @ 100	Brake fully applied & Park or Neutral (if applicable)

7. Optional, according to mission parameters, Safety Operator safely exits:
    a. Engine Stopped
    b. Safety Operator exits vehicle
    c. Engine Started
8. Drive as desired
9. End with a slow, controlled stop
10. Secure vehicle from OCU
    a. Gear Down on controller
    b. Transmission in Park (or Neutral)
    c. On controller, release Brake
    d. Engine Off or Off on controller
    e. Release Deadman on controller
    f. Teleop Off

Path Recording

1. VIM to ‘Man’ & Transmission Cable disconnected
2. Vehicle positioned behind start and properly oriented
3. Robot logged in to Shepherd
    a. Selected in Asset tab
    b. Login
    c. Appears at top of P4S4 tab
4. Record button
5. Shift to Drive
6. Play button
7. Drive Path
8. Stop button

Path Playback

1. Safety operator in driver's seat, seat belt secured, operator clear of all controls, & in position to activate all controls
2. Vehicle positioned behind start and properly oriented

3. Parking brake released
4. VIM to 'Auto'
5. Engine running; transmission in Park (or Neutral)
6. Optional, according to mission parameters, Safety Operator safely exits:
    a. Engine Stopped
    b. Safety Operator exits vehicle
    c. Engine Started
7. Open path button
8. Select path file
9. Set path options (speed type, mph, & starting position)
10. Play button
11. Vehicle completes path
12. Secure vehicle from OCU
    a. Transmission in Park (or Neutral)
    b. Engine Off

Operation Termination

1. Secure vehicle from OCU
    a. Verify 'Park' gear
    b. Engine Off
    c. Tele-op Off
2. Secure vehicle
    a. Safety operator in driver's seat, seat belt secured, operator clear of all controls, & in position to activate all controls
    b. VIM held to 'MAN' until brake fully released
    c. VIM 'OFF'
    d. Transmission Cable disconnected
    e. Vehicle manually moved to stow location
    f. Vehicle transmission in Park (or Neutral)
    g. Vehicle parking brake engaged
    h. Vehicle engine off
3. Electrical power removed from P4S4