

Warrior Tactical Robot Operator and Maintainer Job Tasks



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SET UP WARRIOR

Set up Robot and OCU

- Unpack from factory shipping container.
- Charge robot battery pack.
- Charge Operational Control Unit (OCU) batteries.
- Install robot battery pack.
- Install OCU battery.
- Connect OCU hand controller.
- Install OCU antenna.
- Power on OCU.
- Power on robot.
- Log in to OCU.

Configure Communications

- Configure radio communications.
 - Install radio communications module.
 - Install radio mode PCMCIA card.
- Configure fiber optic communications.
 - Install fiber optic spooler.
 - Install fiber optic module.

Install Payloads

- Install manipulator payload.
 - Inspect manipulator payload.
 - Set manipulator arm preset pose.
- Install fiber optic spooler.
 - Install fiber optic spooler in robot.
 - Install fiber optic module in OCU.
 - Tether fiber optic cable from robot to OCU.

DRIVE WARRIOR

Perform Basic Driving Maneuvers

- Prepare to drive.
 - Position cameras for viewing surroundings of remote robot.
 - Initiate real-time video footage to guide robot movement.
 - Operate robot lights (infrared illuminator during low- to no-light conditions).
 - Operate audio.
 - Set operational mode (Drive mode).
 - Set speed.
 - Disengage brake.
- Perform basic driving maneuvers.
 - Maneuver Warrior forward.
 - Maneuver Warrior in reverse.
 - Perform turns left and right.
 - Rotate Warrior left and right.
- Operate software to control robot remotely.
 - Navigate OCU menu.
 - Operate hand controller.
 - Interpret system feedback to guide Warrior movement.
 - Interpret real-time video footage.
 - Interpret onscreen 3D model of robot orientation.
 - Interpret system indicators.
 - Interpret system status indicators (robot ID, cameras, lights, audio, GPS).
 - Interpret system warning messages (battery levels).

Perform Advanced Driving Maneuvers

Negotiate Terrain

- Traverse sand.
- Traverse mud.
- Traverse water.

Surmount Obstacles

- Cross ditches.
- Traverse horizontal gaps.
- Cross through doorways.
- Negotiate curbs, logs, and rocks.
- Traverse slopes.
- Ascend and descend stairs.

Recover Robot from Rollover

- Operate manipulator.
- Operate flippers.

OPERATE PAYLOADS

Operate Manipulator Payload

Set Operational Mode

- Operate arm in Drive mode.
- Operate arm in Search mode.
- Operate arm in Joint mode.
- Operate arm in Gripper mode.
- Operate arm in Target mode.
- Operate arm in Manipulate mode.

Approach Object

- Drive robot to object to be manipulated.
- Approach object with manipulator arm.
 - Set operational mode (Manipulate mode).
 - Set manipulator arm preset pose.

Inspect Object

- Position gripper.
- Set operational mode (Gripper mode).
- Zoom in on object.
 - Adjust gripper camera settings.

Remove Object

- Guide payload movement.
 - Interpret real-time video footage.
 - Interpret 3D model of robot orientation and payload configuration.
 - Operate hand controller.
- Grasp object.
- Operate arm in Gripper mode.
- Operate hand controller to adjust position of gripper fingers.
- Lift object.
 - Operate arm in Manipulate mode.
 - Adjust manipulator elbow and wrist positions.
- Carry object.
 - Operate arm in Manipulate mode.
- Release object.
 - Operate arm in Gripper mode.
 - Operate hand controller to adjust position of gripper fingers.

Operate Fiber Optic Spooler Payload

- Interpret fiber optic system indicators (status bar, warning messages).

RECOVER, TRANSPORT, AND STORE

Recover Robot from Remote Location

- Maneuver robot back to transport vehicle.
- Place Warrior in storage pose.
- Shut down robot.
- Shut down OCU.
- Stow robot in transport vehicle.

Transport Warrior

- Place Warrior in storage pose.
- Shut down robot.
- Shut down OCU.
- Pack Warrior for transport.
- Load Warrior onto transport vehicle.
 - Secure Warrior for transportation.
 - Secure Warrior for land transport.
 - Secure Warrior for palletized air transport.
 - Secure Warrior for sling load transport.
 - Secure Warrior for air drop transport.
- Unload Warrior from transport vehicle.
- Transfer robot from transport vehicle.

Store Warrior

- Shut down Warrior system.
 - Shut down robot.
 - Shut down OCU.
- Uninstall payloads.
 - Uninstall manipulator payload.
 - Uninstall fiber optic spooler payload.
- Uninstall robot and OCU components.
 - Remove robot battery pack.
 - Remove OCU battery.
 - Remove communications module from OCU.
 - Remove hand controller from OCU.
 - Remove OCU antennas and cables.
- Place robot in Stow pose.
- Pack Warrior robotic system.
 - Pack robot in factory shipping container.
 - Pack payloads in factory shipping container.
 - Pack OCU in factory shipping container.
- Store Warrior system.
- Follow system storage guidelines.

PERFORM FIELD MAINTENANCE

Perform System Assessment

- Perform Warrior and OCU assessment.
 - Inspect robot and OCU for damage.
- Perform functional assessment of Warrior system.
 - Perform functional assessment of robot.
 - Perform functional assessment of OCU.

Charge Batteries

- Charge robot and OCU batteries.
- Check battery level in robot battery pack.
- Check battery level in OCU.

Replace Basic Components

- Replace batteries in robot battery pack.
- Replace OCU batteries.
- Replace chassis tracks.
- Replace flipper tracks.
- Replace payload bay connector cover.
- Replace GPS antenna.

Perform Preventive Maintenance

- Perform preventive maintenance checks and services (PMCS).
 - Perform PMCS on robot.
 - Perform PMCS on OCU.

Clean Warrior

- Clean robot chassis.
- Clean hand controller.
- Clean Warrior accessories.