CLAIMS

1. A spacecraft servicing system, comprising:

a host spacecraft carrying spacecraft servicing devices; and

at least some of the spacecraft servicing devices carried by the host spacecraft each comprising:

a body, the host spacecraft to transport the spacecraft servicing devices and individually deploy the body of each spacecraft servicing device of the at least some of the spacecraft servicing devices at a location adjacent a respective target spacecraft, wherein the spacecraft servicing device lacks any propulsion device for independently moving the spacecraft servicing device;

a propellant tank coupled to the body, the propellant tank configured to store at least one propellant and to be in fluid communication with a portion of a propulsion device of the target spacecraft;

a coupling mechanism for coupling to a portion of the target spacecraft, the coupling mechanism configured to couple and secure the spacecraft servicing device to the target spacecraft after being deployed by the host spacecraft in orbit, the host spacecraft configured to decouple the spacecraft servicing device from the host spacecraft while the spacecraft servicing device remains coupled to the target spacecraft with the coupling mechanism, the host spacecraft to continue deploying other devices of the spacecraft servicing devices carried by the host spacecraft after deploying the spacecraft servicing device, wherein, after being deployed by the host spacecraft, the spacecraft servicing device is configured to place the at least one propellant in the propellant tank in fluid communication with a portion of a fuel system of the spacecraft and the propulsion device and out of fluid communication with any fuel storage of the target spacecraft such that, during at least one servicing operation and while being coupled to the target spacecraft with the coupling mechanism, at least a portion of the at least one propellant from the propellant tank is supplied to the propulsion device of the target spacecraft while bypassing any fuel storage of the target spacecraft; and

wherein one or more of the host spacecraft or the spacecraft servicing device is configured to modify the portion of the fuel system of the target spacecraft to place the at least one propellant in the propellant tank in fluid communication with the portion of the fuel system of the spacecraft and the propulsion device and out of fluid

communication with any fuel storage of the target spacecraft.

2. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured to supply the at least one propellant from the propellant tank to the propulsion device of the target spacecraft while not refueling the target spacecraft.

3. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured, when coupled to the target spacecraft, to supply the at least one propellant to the target spacecraft to alter the at least one of an orbit or a velocity of the target spacecraft without refueling the target spacecraft.

4. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured to be positioned at a location adjacent the target spacecraft using only mechanisms of the host spacecraft.

5. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured, when coupled to the target spacecraft, to replace an existing propellant tank of the target spacecraft.

6. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured to supply the at least one propellant from the propellant tank to at least one thruster of the propulsion device of the target spacecraft.

7. A spacecraft servicing system, comprising:

a host spacecraft carrying spacecraft servicing devices; and

a spacecraft servicing device of the spacecraft servicing devices carried by the host spacecraft comprising:

a body configured to be deployed and uncoupled from a host spacecraft at a location adjacent a target spacecraft while the host spacecraft retains the remaining spacecraft servicing devices;

a coupling mechanism for coupling to the target spacecraft after being deployed by the host spacecraft such that the body remains with and secured to the target spacecraft after being deployed by the host spacecraft, the host spacecraft to

continue deploying at least some of the remaining spacecraft servicing devices after deploying the body;

a propellant tank coupled to the body, the propellant tank configured to store at least one propellant and to be placed into fluid communication with a portion of the target spacecraft, the propellant tank configured to supply at least a portion of the at least one propellant to the target spacecraft during at least one servicing operation on the target spacecraft while being coupled to the target spacecraft,

wherein the spacecraft servicing device lacks any propulsion for independently moving the spacecraft servicing device; and wherein one or more of the host spacecraft or the spacecraft servicing device is configured to install at least a portion of a connection to a fuel system of the target spacecraft to place the at least one propellant in the propellant tank in fluid communication with the portion of the fuel system of the spacecraft and the propulsion device and out of fluid communication with any fuel storage of the target spacecraft.

8. The spacecraft servicing system of claim 7, wherein the spacecraft servicing device is configured to supply the at least one propellant from the propellant tank to at least one thruster of a propulsion device of the target spacecraft.

9. The spacecraft servicing system of claim 7, wherein the spacecraft servicing device is configured to fluidly couple the propellant tank to a propellant supply feature of a propulsion device.

10. The spacecraft servicing system of claim 9, wherein the spacecraft servicing device is configured to fluidly couple the propellant tank to the propellant supply feature of the propulsion device while bypassing a propellant storage feature of the target spacecraft.

11. The spacecraft servicing system of claim 9, wherein the spacecraft servicing system comprises the target spacecraft, the target spacecraft configured to receive the at least one propellant from the spacecraft servicing device while bypassing a propellant storage feature of the target spacecraft throughout an entire duration of the body being coupled to the target spacecraft.

12. The spacecraft servicing system of claim 7, wherein the spacecraft servicing device is configured, when coupled to the target spacecraft, to supply the at least one propellant from the propellant tank to the propulsion device of the target spacecraft through fuel flow channels of the target spacecraft while bypassing any fuel storage volumes of the target spacecraft connected to the fuel flow channels.

13. A method of supplying a propellant to a target spacecraft with a spacecraft servicing device, the method comprising:

deploying a host spacecraft carrying a plurality of spacecraft servicing devices;

transporting the plurality of spacecraft servicing devices to the target spacecraft with the host spacecraft; transferring a spacecraft servicing device of the plurality of spacecraft servicing devices to the target spacecraft with the host spacecraft while maintaining a remainder of the plurality of spacecraft servicing devices on the host spacecraft;

initially directing at least a portion of a propellant from a propellant tank of a spacecraft servicing device to a propulsion system of the target spacecraft via fluid channels of the propulsion system;

supplying the at least a portion of the propellant from the propellant tank of Hall the spacecraft servicing device to the propulsion system of the target spacecraft via the fluid channels of the propulsion system; and

during an entirety of the initially directing and supplying the propellant from the propellant tank to the propulsion system of the target spacecraft, bypassing any fuel storage volumes of the propulsion system in fluid communication with the fluid channels of the propulsion system.

14. The method of claim 13, further comprising providing the propellant from the propellant tank to the propulsion system of the target spacecraft while not refueling the target spacecraft.

15. The method of claim 13, further comprising, while the spacecraft servicing device is coupled to the target spacecraft, supplying the propellant to the target spacecraft to alter the at least one of an orbit or a velocity of the target spacecraft without refueling the target spacecraft.

16. The method of claim 13, further comprising positioning the spacecraft servicing device at a location adjacent the target spacecraft using only mechanisms of the host spacecraft.

17. The method of claim 16, further comprising only using the propellant with the propulsion system of the target spacecraft where the spacecraft servicing device lacks a propulsion system for independently moving the spacecraft servicing device.

18. The method of claim 13, further comprising replacing an existing propellant tank of the target spacecraft with the propellant tank of the spacecraft servicing device.