## CLAIMS

What is claimed is:

1. A hydraulic connection mechanism for use in a wellbore comprising:

an upper connection tool;

a lower connection tool configured to engage the upper connection tool and form a fluid communication pathway through the hydraulic connection mechanism; and

a debris barrier disposed in the fluid communication pathway, wherein the debris barrier comprises:

a body element; and

a spring element configured to maintain the body element in a closed position when the upper connection tool is disengaged from the lower connection tool.

2. The hydraulic connection mechanism of claim 1,

wherein the body element comprises a debris barrier body and a latch member disposed within a groove within the lower connection tool; and

wherein the spring element comprises a spring member comprising an extension of the debris barrier body that is configured to extend inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool.

3. The hydraulic connection mechanism of claim 2, wherein the extension is configured to engage the latch member in the closed position.

4. The hydraulic connection mechanism of any of claims 1 to 3,

wherein the lower connection tool further comprises a debris barrier body comprising a seat;

wherein the body element comprises an inner member disposed within a groove within the lower connection tool;

wherein a portion of the inner member extends inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool; and

wherein the spring element comprises a spring disposed within the lower connection tool that engages the inner member.

5. The hydraulic connection mechanism of claim 4, wherein the spring is configured to bias the inner member into contact with the seat in the closed position.

6. The hydraulic connection mechanism of any of claims 1 to 5,

wherein the body element comprises a segmented debris barrier body comprising a plurality of body segments and disposed within a groove within the lower connection tool;

wherein a portion of the segmented debris barrier body is configured to extend inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool; and

wherein the spring element comprises a spring element disposed within the lower connection tool that engages the segmented debris barrier body.

7. The hydraulic connection mechanism of claim 6, wherein the spring element is configured to bias the plurality of body segments into an end-to-end configuration around an inner surface of the lower connection tool in the closed position.

8. The hydraulic connection mechanism of any of claims 1 to 7,

wherein the body element comprises a poppet disposed within a flow passage within the lower connection tool; and

wherein the spring element comprises a spring that engages the poppet and biases the poppet inward.

9. The hydraulic connection mechanism of claim 8,

wherein a portion of the poppet extends inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool; and

wherein an inward edge of the flow passage forms a seat, and wherein the spring is configured to bias the poppet into contact with the seat in the closed position.

10. The hydraulic connection mechanism of claim 8,

wherein a portion of the poppet is flush or recessed with respect to an inner surface of the lower connection tool; and

wherein the poppet comprises an inner fluid valve.

11. The hydraulic connection mechanism of claim 10, wherein the inner fluid valve comprises an inner spring that engages an inner body and biases the inner body outwards towards an inner seat.

12. The hydraulic connection mechanism of claim 10 or 11, wherein the poppet and the inner fluid valve are configured to provide fluid communication through the debris barrier in response to a pressure differential in either direction across the debris barrier.

13. A method of servicing a wellbore comprising:

providing a hydraulic connection mechanism within a wellbore, wherein the hydraulic connection mechanism comprises:

an upper connection tool;

a lower connection tool engaging the upper connection tool, wherein a fluid communication pathway is formed through the hydraulic connection mechanism when the upper connection tool engages the lower connection tool; and

a debris barrier disposed in the fluid communication pathway;

disengaging the upper connection tool from the lower connection tool;

allowing the debris barrier to close off the fluid communication pathway;

re-engaging the upper connection tool with the lower connection tool; and

actuating the debris barrier to establish fluid communication through the fluid communication pathway.

14. The method of claim 13, wherein the debris barrier is disposed in the fluid communication pathway within the lower connection tool, and wherein the debris barrier is mechanically actuated by an engagement with the upper connection tool.

15. The method of claim 13, wherein the debris barrier is hydraulically actuated by a pressure differential across the debris barrier.

16. The method of any of claims 13 to 15, further comprising a plurality of fluid communication pathways formed by the engagement of the upper connection tool and the lower connection tool, wherein each debris barrier of a plurality of debris barriers is disposed in each of the plurality of fluid communication pathways, wherein each debris barrier is allowed to close off the corresponding fluid communication pathway; and wherein each debris barrier is actuated to establish fluid communication through the corresponding fluid communication pathway.

17. The method of any of claims 13 to 16, wherein providing the hydraulic connection mechanism within the wellbore comprises disposing the hydraulic connection mechanism within the wellbore with the upper connection tool engaged with the lower connection tool.

18. A method of actuating a debris barrier comprising:

providing a debris barrier disposed in a fluid communication pathway within a lower connection tool within a wellbore;

engaging an upper connection tool with the lower connection tool;

actuating the debris barrier to displace a portion of a fluid in the fluid communication pathway; and

establishing fluid communication between the upper connection tool and the lower connection tool through the fluid communication pathway comprising the debris barrier.

19. The method of claim 18, wherein the debris barrier is disposed in a groove within an inner surface of the lower connection tool.

20. The method of claim 18 or 19, wherein the debris barrier is disposed in a flow passage disposed within the lower connection tool.

21. The method of any of claims 18 to 20, wherein the debris barrier forms a seal in the fluid communication pathway when the upper connection tool is disengaged from the lower connection tool.

CLAIMS

1. A hydraulic connection mechanism for use in a wellbore comprising: an upper connection tool comprising a first flow line; a lower connection tool comprising a second flow line and a circumferential groove, wherein the second flow line is in fluid communication with the circumferential groove, and wherein the lower connection tool is configured to releasably engage the upper connection tool and form a fluid communication pathway through the hydraulic connection mechanism between the first flow line and the second flow line through the circumferential groove; and a debris barrier disposed at least partially within the circumferential groove in the fluid communication pathway, wherein the debris barrier comprises: a body element; and a spring element configured to maintain the body element in a closed position when the upper connection tool is disengaged from the lower connection tool.

2. The hydraulic connection mechanism of claim 1, wherein the body element comprises a debris barrier body and a latch member disposed within a groove within the lower connection tool; and wherein the spring element comprises a spring member comprising an extension of the debris barrier body that is configured to extend inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool.

3. The hydraulic connection mechanism of claim 2, wherein the extension is configured to engage the latch member in the closed position.

4. The hydraulic connection mechanism of claim 1, wherein the lower connection tool further comprises a debris barrier body comprising a seat; wherein the body element comprises an inner member disposed within the circumferential groove within the lower connection tool; wherein a portion of the inner member extends inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool; and wherein the

spring element comprises a spring disposed within the lower connection tool that engages the inner member.

5. The hydraulic connection mechanism of claim 4, wherein the spring is configured to bias the inner member into contact with the seat in the closed position.

6. The hydraulic connection mechanism of claim 1, wherein the body element comprises a segmented debris barrier body comprising a plurality of body segments and disposed within a groove within the lower connection tool; wherein a portion of the segmented debris barrier body is configured to extend inward beyond an inner surface of the lower connection tool when the upper connection tool is disengaged from the lower connection tool; and wherein the spring element comprises a spring element disposed within the lower connection tool that engages the segmented debris barrier body.

7. The hydraulic connection mechanism of claim 6, wherein the spring element is configured to bias the plurality of body segments into an end-to-end configuration around an inner surface of the lower connection tool in the closed position.

8. The hydraulic connection mechanism of claim 1, wherein the upper connection tool is configured to be removed from the lower connection tool.

9. The hydraulic connection mechanism of claim 1, wherein the body element is configured to maintain fluid communication through the debris barrier in the closed position.

10. A method of servicing a wellbore comprising: providing a hydraulic connection mechanism within a wellbore, wherein the hydraulic connection mechanism comprises: an upper connection tool; a lower connection tool comprising a circumferential groove, wherein the lower connection

tool releasably engages the upper connection tool, wherein a fluid communication pathway is formed through the circumferential groove in the hydraulic connection mechanism when the upper connection tool engages the lower connection tool; and a debris barrier disposed at least partially within the circumferential groove in the fluid communication pathway; disengaging the upper connection tool from the lower connection tool; allowing the debris barrier to close off the fluid communication pathway; re-engaging the upper connection tool with the lower connection tool; and actuating the debris barrier to establish fluid communication through the fluid communication pathway.

11. The method of claim 10, wherein the debris barrier is mechanically actuated by an engagement with the upper connection tool.

12. The method of claim 10, further comprising a plurality of fluid communication pathways formed by the engagement of the upper connection tool and the lower connection tool, wherein each debris barrier of a plurality of debris barriers is disposed in each of the plurality of fluid communication pathways, wherein each debris barrier is allowed to close off the corresponding fluid communication pathway; and wherein each debris barrier is actuated to establish fluid communication through the corresponding fluid communication pathway.

13. The method of claim 10, further comprising providing a control signal from above the upper connection tool to a component below the lower connection tool through the fluid communication pathway comprising the debris barrier.

14. The method of claim 10, wherein disengaging the upper connection tool from the lower connection tool comprises removing the upper connection tool from the lower connection tool.

15. The method of claim 10, further comprising removing at least a portion of any debris on a

surface of the debris barrier in response to re-engaging the upper connection tool with the lower connection tool.

16. A method of actuating a debris barrier comprising: providing a debris barrier disposed in a fluid communication pathway within a lower connection tool within a wellbore, wherein the debris barrier is at least partially disposed within a circumferential groove in the lower connection tool; engaging an upper connection tool with the lower connection tool; actuating the debris barrier to displace a portion of a fluid in the fluid communication pathway; and establishing fluid communication between the upper connection tool and the lower connection tool through the circumferential groove in the fluid communication pathway comprising the debris barrier.

17. The method of claim 16, wherein the circumferential groove is disposed on an inner surface of the lower connection tool.

18. The method of claim 16, wherein the debris barrier forms a seal in the fluid communication pathway when the upper connection tool is disengaged from the lower connection tool.

19. The method of claim 16, further comprising removing at least a portion of any debris on a surface of the debris barrier in response to engaging the upper connection tool with the lower connection tool.