CLAIMS

WHAT IS CLAIMED IS:

1. A cut-to-release packer comprising:

a bottom sub configured to be coupled with a completion device;

a wedge assembly having a downhole end portion coupled to the bottom sub;

wherein the wedge assembly further comprises a retainer coupled to an anchor sleeve and releasably coupled to a lower wedge;

a mandrel extending within the wedge assembly and being coupled to the bottom sub, the mandrel including a support portion with a first cross-sectional thickness and a cut zone portion with a second cross-sectional thickness less than the first cross-sectional thickness, wherein the cut zone portion is disposed between the bottom sub and the support portion; and

a load diverting snap ring engaged with the mandrel along the support portion, wherein the load diverting snap ring facilitates transfer of tensile load between the wedge assembly and the support portion of the mandrel.

2. The cut-to-release packer of Claim 1, wherein the wedge assembly comprises the lower wedge and the anchor sleeve coupled to the lower wedge.

3. The cut-to-release packer of Claim 2, wherein in a set position, the lower wedge is positioned longitudinally adjacent to the load diverting snap ring for contacting the load diverting snap ring to facilitate transfer the tensile load from the anchor sleeve to the support portion of the mandrel.

4. The cut-to-release packer of Claim 2, wherein an upper surface of the load diverting snap ring engages the lower wedge.

5. The cut-to-release packer of Claim 1, wherein the load diverting snap ring is disposed longitudinally within the retainer in a set position.

6. The cut-to-release packer of Claim 1, further comprising a shear device releasably coupling the retainer to the anchor sleeve.

7. The cut-to-release packer of Claim 1, further comprising a pick-up ring engaged with the mandrel along the support portion and adjacent to the cut zone portion, wherein the retainer engages the pick-up ring to limit an axial travel of the retainer in a released position.

8. The cut-to-release packer of Claim 1, further comprising a support groove formed in the support portion of the mandrel, wherein a lower surface of the load diverting snap ring engages against the support groove in a set position.

9. The cut-to-release packer of Claim 8, wherein the retainer engages against an outer surface of the load diverting snap ring to retain the load diverting snap ring within the support groove in the set position.

10. The cut-to-release packer of Claim 1, further comprising a barrel slip disposed around the wedge assembly, wherein the wedge assembly engages an inner surface of the barrel slip to radially expand the barrel slip in a set position.

11. The cut-to-release packer of Claim 10, wherein a ramp surface of the wedge assembly engages the inner surface of the barrel slip.

12. A method to release a packer, the method comprising:

distributing a total tensile load from a bottom sub between a mandrel and a wedge assembly, the mandrel and the wedge assembly both being coupled to the bottom sub, wherein the wedge assembly supports a portion of the total tensile load, wherein the wedge assembly comprises a retainer releasably coupling an anchor sleeve to a lower wedge;

cutting the mandrel at a cut zone portion of the mandrel; and

translating the wedge assembly downward relative to the mandrel to release a barrel slip disposed around the mandrel.

13. The method of Claim 12, wherein the mandrel extends within the wedge assembly.

14. The method of Claim 13, further comprising diverting the portion of the total tensile load from the wedge assembly to a support portion of the mandrel.

15. The method of Claim 12, further comprising engaging the barrel slip with the wedge assembly, wherein the wedge assembly engages an inner surface of the barrel slip to expand the barrel slip.

16. The method of Claim 12, further comprising releasing the anchor sleeve from the lower wedge based on the wedge assembly receiving the total tensile load.

17. The method of Claim 16, further comprising releasing the lower wedge from the barrel slip to release the packer.