MOOG

Joint Light Tactical Vehicle

Power and Signal Transfer, Body to Turret

Modern military turrets, whether manned or unmanned, require power and signals from the main body of the vehicle. Moog is in the business of designing and manufacturing devices that efficiently move power (electrical, pneumatic) and signals (analog and digital) from platforms that are stationary to ones that may rotate. Moog proposes to apply electrical contacts that will meet the power and signal transfer requirements between the turret and the body of the vehicle.

The JLTV turrets pose several design challenges that must be met in order for the power and signal transfer to be flawless with respect to turret rotation:

- A large clear bore is required for a person
- The apparatus must withstand military environments
  1. Shock
  2. Vibration
  3. Wide Temperature Range
  4. Water
  5. Dust
  6. NBC agent removal
- There will be extended periods when the turrets are not rotated

Two major product lines at Moog will be combined to meet the JLTV challenges. The slip rings used for CT scanners are typically between 25 inches and 50 inches in diameter. CT design methods will be used to obtain the large diameter bore. Moog is currently producing slip ring capsules for the following military programs;

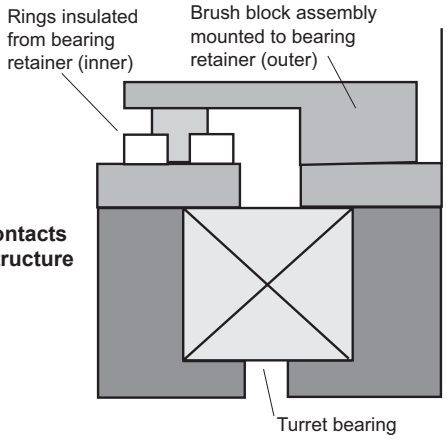
1. Bradley, all models
2. M1 Main Battle Tank
3. CITV
4. ASV
5. Stryker

All of these programs meet the military environmental requirements that are listed above.

Slip rings and brushes are the most efficient way to transfer power and signals across large diameter devices. Three slip ring / brush options are available for meeting the JLTV requirements.

1. Sealed slip ring capsule that includes brush contacts, ring contacts, sealing structures and an internal bearing
2. Separate slip ring and brush contacts that are mounted to the JLTV structure and are protected by shields and seals, which are also mounted to the structures of the JLTV
3. Ring and brush contacts mounted to existing JLTV structures; for example, the turret bearing retainers. This approach takes advantage of the environmental protection that is already built into the turret mechanism

Design Method			
Design Considerations	Slip Ring Capsule	Separate Slip Ring and Brush Block assemblies with protective housing	Separate
Contact Alignment	Performed at time the capsule is manufactured	Perform at turret assembly	Perform at turret assembly
Remove and Replace	Easy	Moderate	May require turret disassembly
Cost	$$$	$$	$
Space (volume) demand	Hi	Medium	Low
Number of Components	Highest	Medium	Least



Ring and brush contacts internal to turret structure

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