The brakes system is critical in the safety of the vehicle. If not designed correctly, the use of the vehicle could end in disaster. The brakes team had three requirements they needed to meet:

• Design a braking system that is capable of locking all four tires traveling 30mph
• Design a system to distribute braking force between rear and front
• Design and manufacture mounts to attach brake system to vehicle

(a) Master Cylinder – Pedal presses pistons in creating pressure in hydraulic lines
(b) Front Calipers – Hydraulic pressure pushes pistons to squeeze against rotor attached to front hubs. Front hubs allow rotor to transmit braking force to wheels.
(c) Rear Caliper – Hydraulic pressure pushes pistons to squeeze against rotor attached to output shaft.

After testing, the calipers and rotors chosen were found to produce the necessary braking force and interfaces safely with the vehicle. The biggest lesson learned was in how to mount the system to the vehicle. With it being a critical component, the mounting needed to securely fit to eliminate risk of failure. The front and rear caliper system size were reduced compared to last year’s design. If the same could be done for the master cylinder, this would be of benefit to the baja by reducing weight and creating more space for the driver.

Specs:
• Braking Force Front – 1604 N
• Braking Force Rear – 838 N
• Front to Back Braking Ratio – 65:35
• Line Pressure – 1600 psi
• Locks all tires on hard packed dirt
• Caliper – SRAM Code
• Rotor – Shimano 180mm Ice Tech