

MSDII Testing – Compressed Air (CAIR) Capacity

Team: P15001: Active Ankle Foot Orthotic

Engineer: Noah Schadt –Mechanical Engineer

Related System: Supply Air, Actuate Muscle (ADA, ABBBBBA)

This test is designed to ensure that normal operation of the AFO for an extended period of time will meet the Engineering Requirements (ER) for untethered life.

Engineering Requirements:

ER6: Number of muscle flexes untethered (#flexes)

Ideal Value: 5000

Marginal Value: 3000

Testing Plan

This test should take no less than four and no more than eight hours.

1. The current paintball tank shall be refilled at performance paintball to full capacity
2. The tank shall be attached to an integrated prototype of the AFO and be worn in sync with a pedometer to record the number of steps taken (alternatively the micro-SD card data could be later retrieved if no pedometer is available)
3. The student user shall be cautious to take fewer steps than normal in order to ensure that the test lasts at least 4 hours (ideally these steps will be interspersed resembling the typical use we expect to see from a client)
4. Upon exhaustion, the number of steps and the time of use shall be recorded and any leaks should be identified and noted.
5. A report shall be written and the data processed according to the most accurate CAIR capacity model to determine if the prototype meets ER6 for untethered life.

Start Date: Week 4

End Date: Week 6

Location

Engineering Building /campus wide

Budget

Equipment	Price	Quantity
Air tank refill	\$9	1 fill
Pedometer (in-house)	n/a	1
Total:	\$9	