Throughout the past week, we have decided to purchase the FlexiForce® A201 – 100 force sensitive resistors (FSR’s) from Tekscan which we think will be the ideal choice because they are more accurate than the Interlink FSR’s and also because they can measure up to 1000 lbs by decreasing the input voltage and lowering the resistance of the feedback resistor, as shown in Figure 1 below. We are going to design the following circuit so that the maximum force measured will be 300 lbs.

![FlexiForce® recommended drive circuit](image)

**Figure 1: FlexiForce® recommended drive circuit**

On Friday, September 22, 2006 we determined that the frequency we will be using for the telemetry device between the footswitches and the computer will be 418 MHz. The following are the models we are using for the transmitter, receiver, and antenna for the telemetry system.

**Transmitter with integrated encoder – LINX TXE-418-KH**
Receiver with integrated decoder – LINX RXD-418-KH

Antenna – LINX ANT-418-SP

Last Friday we also ordered two samples from www.rubbercal.com so we can determine what material we want to use to construct the insoles for the FSR footswitches we are going to design.
We ordered samples of hard neoprene and neoprene rubber so we can see which material has more ideal properties for this design project.

**Hard Neoprene**

**Specifications**

**June 2005**

**Description:**

Hard Neoprene sheet is a black colored rubber which is used where moderate oil, petroleum, ozone and weathering-resistance is needed. It is very popular due to the broad range of applications in which it may be used.

**Compound:**

Blend of SBR (Styrene Butadiene Rubber), CR (Neoprene) and NBR (Nitrile) rubbers.

**Color:**

Black

**Weight:**

Approximate weight per square foot: 1/8" weighs 1-1/4 lb.

**Diameter:**

63-75

**Temperature Range:**

-20 F to 170 F

**Minimum Tensile:**

1,000 PSI

**Finish:**

Smooth

**Minimum Elongation:**

350%

**Gages:**


**PSA:**

CCT TT-1574 series pressure sensitive adhesive

**Roll Length:**

17" to 75" (depending on thickness)

**Chemical Resistance:**

Excellent resistance to Hydrogen Gas, Natural Gas, Salt/Sea Water, Butanol (primary), Acetic Acids (up to 20%), Ammonium Salts, Mineral Oils, Silicone Oils and Greases, and many more. Moderate oil, petroleum-based solvents and ozone resistance. For Neoprene's compatibility with your specific medium please consult a Rubber-Cal representative.

**Applications:**

Sound Studios, Construction Sites, Industrial Gasketing, Underlayment, Chemical Resistant Applications, Laboratory Equipment Protection, Marine, Pet Care Flooring.

**Flexibility:**

This hard durometer (65-75) sheet rubber offers limited pliability, but low elasticity.

**Custom Cuts:**

In addition to land fabrication, this product can be fabricated using laser, die, and water-jet cut. Please submit your drawings for a price quote.

**Availability:**

Always in stock

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**Neoprene**

**Specifications**

**June 2005**

**Description:**

Neoprene sheet is a black colored rubber which is used where moderate oil, petroleum, ozone and weathering-resistance is needed. It is very popular due to the broad range of applications in which it may be used.

**Compound:**

Blend of SBR (Styrene Butadiene Rubber), CR (Neoprene) and NBR (Nitrile) rubbers.

**Color:**

Black

**Weight:**

Approximate weight per square foot: 1/8" weighs 1-1/4 lb.

**Diameter:**

65-75

**Temperature Range:**

-20 F to 212 F

**Minimum Tensile:**

1,000 PSI

**Finish:**

Smooth

**Minimum Elongation:**

350%

**Gages:**


**PSA:**

CCT TT-1574 series pressure sensitive adhesive

**Roll Length:**

17" to 50" (depending on thickness)

**Chemical Resistance:**

Excellent resistance to Hydrogen Gas, Natural Gas, Salt/Sea Water, Butanol (primary), Acetic Acids (up to 20%), Ammonium Salts, Mineral Oils, Silicone Oils and Greases, and many more. Moderate oil, petroleum-based solvents and ozone resistance. For Neoprene's compatibility with your specific medium please consult a Rubber-Cal representative.

**Applications:**

Sound Studios, Construction Sites, Industrial Gasketing, Underlayment, Chemical Resistant Applications, Laboratory Equipment Protection, Marine, Pet Care Flooring.

**Flexibility:**

This medium durometer (55-65) sheet rubber offers moderate pliability and elasticity.

**Custom Cuts:**

In addition to land fabrication, this product can be fabricated using laser, die, and water-jet cut. Please submit your drawings for a price quote.

**Availability:**

Always in stock

This week we also tested the footswitches to make sure they were functioning and to determine the LEMO pin output structure of the female connector (Figure 2).

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**Figure 2:** Female LEMO pin connector diagram
**Future Work**

On Friday, September 29, 2006 we are going to need to purchase the two 4” FSR’s and two 6” FSR’s from Tekscan so that we can start testing them and building the drive circuit for them.

We also need to test our telemetry system using the LINX test equipment in the senior design lab as well as on a protoboard.

**Project Review**

Currently, I think we are headed it the right direction with our project and that if we are able to design our telemetry circuit and purchase the FSR’s we will be on schedule.

**Hours Worked**

12 hours