Laptop Computer Use in Police Vehicles

Police Vehicles
The main concern with the laptops in police vehicles is the need to twist in order to use them. Many times the users are required not only to twist but also to bend forward to reach the keys on the laptop. Left-handed mouse operators are forced to twist even more than right-handed users. Typically officers are required to twist about 45 degrees to use the laptops in the vehicles. Research has shown that the passive resistance increases progressively with twisting angle in the form of an exponential function. This means that in occupations where extreme twisting of the trunk is present, the passive resistance at the specific twisting angle can be largely reduced by even small reductions of the twisting angel.

Overall, the main goal when designing laptop stations in police vehicles is to reduce the amount of twisting and reaching the user will have to perform. Ideally you want the deviation from a normal sitting position to be as minimal as possible when using the computer. There is always more than one solution for most “ergonomic” problems. Below I have outlined three possible solutions.

Solution #1
Changing from a stationary mount to a swing arm would allow the laptop to be pulled closer to the user during use. This option also will help decrease the severity of the twist required to use the laptop. The concern with this option is the hazard it poses if the laptop is not pushed into a safe position after use. If a laptop is positioned in an airbag zone, it can cause the laptop to become a projectile in a car accident. A safe zone would have to be marked for the user to help ensure the laptop is positioned away from the airbags.

Solution #2
Another solution is to use a smaller, hand-held data entry device, or a PDA. The PDA has been successful in many different case studies and situations. From the trucking industry to sales representatives, more and more companies are switching to use of PDA’s and limiting laptop use. Using a PDA would eliminate the need to twist to see data on the screen and the screen could then be brought to the user. This would also be convenient in term of storage, the PDA can easily be brought inside at night or when the vehicle will not be used for a period of time.

Solution #3
Lastly there is the possibility of moving away from attached monitor and keyboard laptop and using a separated keyboard and monitor setup. This would allow the user to place the keyboard on their lap when entering data, thus eliminating the need to stay in a static twisted position when keying.

There are several companies that have setups such as that pictured to the right. The two distributors currently producing these laptops are Panasonic Computers and Data 911. Both have web-sites if you desire more information on these setups. (http://www.data911.com/ and http://www.panasonic.com/business/toughbook/laptop-computers.asp)