

### **Survey of the Point Machines of All Tram Lines in Japan**

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We surveyed the usage of point machines which are installed in all tram lines in Japan. We confirmed that 27% of the point machines were “active” point machines: electric point machines, hydro-electric point machines and a pneumatic point machine. Also, 18% of the active point machines were manufactured by foreign companies. Because those machines have advantages in space saving and systemization, they have been installed recently. We also confirmed problems of designing an active point machine for trams. One of the problems is the small market: only 121 active point machine units are installed in the tram lines. Thus a new point machine for the trams should be designed so as to be capable of the operation of non-tram railway’s turnouts. However, it concerns another problem which is miniaturization, because the stroke of the tongue rail affects the width of the point machine.