

$$\begin{array}{ccccc}
& & A & \xlongequal{\quad} & A \\
& & \downarrow \text{Cofib} & & \downarrow \text{TCofib} \\
V & \longrightarrow & G & \xrightarrow{\text{TFib}} & H \\
\parallel & & \downarrow & & \downarrow \\
V & \dashrightarrow & N & \dashrightarrow & S
\end{array}$$