

Case A Symmetrical Loading with 50% load on the Right and 50% Wedge

The car behaves in the same way on left and right hand turns.

Straight line braking and acceleration are achieved best due to equal wheel loads

The handling balance of the car will be influenced by the difference between Front and Rear Splits

In the symmetrical case the Front Split is 1097 N and the rear Split is 1307 N for both left and right hand turns. The difference between front and rear splits is 210 N in each case.

The overall grip of the car will be influenced by the magnitude of the difference between Left and Right splits. In this case the difference is **31.8 %** (34.1% and 65.9% in each direction of turn)

Case B Asymmetrical Static Loading Left to Right with 52.6% on the Right and 50% Static Wedge

The car behaves differently in left and right hand turns.

The initial loading is not symmetrical (due to an offset driving position for example) but the Wedge is still 50%. The handling balance will remain similar as the difference between front and rear splits is still 210.2 N in each direction of turn.

The overall grip of the car will be worse than the symmetrical static load case, however as on Left turns as the difference between the total Left Split and Right split is now greater at **37%** (with 31.5% for LF + RF and 68.5% RF + RR)

On Right turns, however, the overall grip should be better as the difference between the total Left Split and Right Split is less at **26.6%** (with 36.7% for RF + RR and 63.3 % for LF + RF)

Case C Asymmetrical Static Loading Left to Right with 52.6% on the Right and 48.7% Static Wedge

The car again behaves differently in left and right hand turns.

The initial loading is not symmetrical (due to an offset driving position longitudinally and laterally for example) but the Wedge is now 48.7% and so the handling balance will be different in each direction of turn.

In left turns the difference between Front and Rear splits is now 406.4 N – almost twice as much as with cases A and B. The difference in grip front to rear will be significantly greater than when this difference was just 210 N and so (if it is assumed that the original balance with a greater rear split was still understeer) less understeer would be expected . In right turns the opposite occurs with a difference of only 14N so the level of understeer I would be expected to be higher

The overall grip of the car in each direction of turn will be the same as in Case B as the total load difference is the same with 52.6% on the right for static load. On Left turns the difference between the Left Split and Right split is again **37%** (with 31.5% for LF + RF and 68.5% RF + RR) and on Right turns the difference between the total Left Split and Right Split is again **26.6%** (with 36.7% for RF + RR and 63.3 % for LF + RF) achieved by changing the static load distribution and also the weight transfer values