1	→ VehSpd
1	→ HwTq
1	→ WhlImbRejctnAmp

AssiHiFrqCmd → Scope

AssiHiFrq

File Dependencies:

Model_Config v1.2.0
Nexteer_Utilities v4.3.1
Data_Management v2.14.0

Requirements Baseline: NA

Change Log:
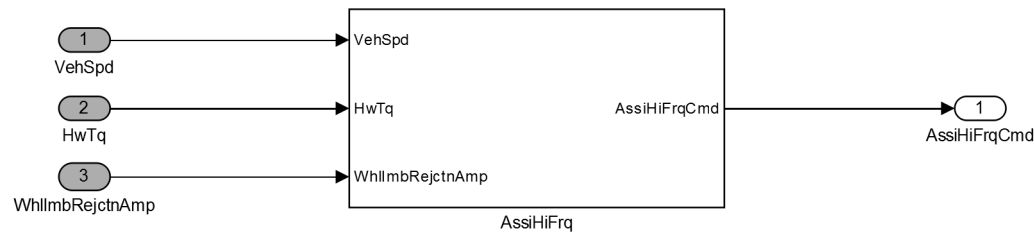v1.0.0
Date: 25-Jun-2015
Change Control #: EA4#889
DRW: Shrenik Shah
Description:
- Initial Release, this model is not based on the latest 2015 standards.
  This is a modified 2012 model compatible with 2015 Data Dictionary
  Coder can use his/her discretion

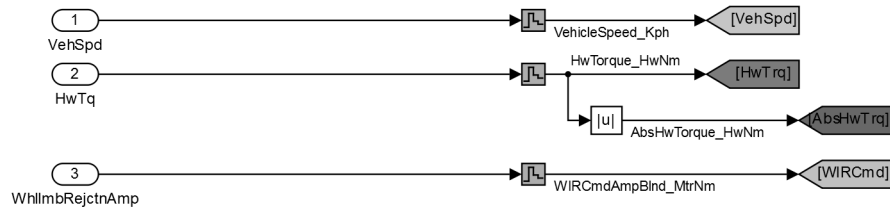SF028A : AssiHiFrq : High Frequency Assist
v1.0.0
Date: 25-Jun-2015

This function provides a means of compensating for system inertia and
road feedback. It is tunable over both vehicle speed and handwheel torque
to obtain the desired level of disturbance rejection under various operating
conditions. It passes handwheel torque through a high-pass filter and multiplies
the resulting signal by a tunable gain factor. The output is known as high-frequency
assist and is simply added to the usual assist calculated elsewhere.

| 1 | VehSpd |
VehSpd

| 2 | HwTq |
HwTq

AssiHiFrqCmd

| 3 | WhlImbRejctnAmp |
WhlImbRejctnAmp

AssiHiFrq

| 1 |
AssiHiFrqCmd

dAssiHiFrqGainBlnd

dAssiHiFrqGain

dAssiHiFrqGainWhlImbRejtcnZero

1
VehSpd

2
HwTq

3
WhlImbRejctnAmp

VehicleSpeed_Kph   [VehSpd]

HwTorque_HwNm   [HwTrq]

|u| AbsHwTorque_HwNm   [AbsHwTrq]

WIRCmdAmpBlnd_MtrNm   [WIRCmd]

High Pass filter cutoff frequency is not tune on the fly
so the frequency table can be converted from Hz to approiate units
during initilisation of the function

[VehSpd]   HPFFreq_Hz
freq lookup
SysGlbPrmVehSpdBilnrSeln
AssiHiFrqHpFilFrqY

[HwTrq]   y   HPF
Hz
HP-CF Filter

HighFrequencyTorque_HwNm

Structure name for the High pass filter is
HwTqHpFil

[AbsHwTrq]   AbsHwTq
[VehSpd]   VehSpd   AssiHiFrqGain
[WIRCmd]   WhlImbRejctnAmp
Determine Gain

<GainVal_MtrNmpHwNm>

×   HighFreqAssist_MtrNm   Saturation

1
AssiHiFrqCmd

1
AbsHwTrq

[AbsHwTrq]

2
VehSpd

[VehSpd]

WIR Command = ZERO

[AbsHwTrq]   → X_in
AssiHiFrqTqX   → 2-D Xtbl
AssiHiFrqGainY   → 2-D Ytbl   Out
[VehSpd]   → VehSpeed
SysGlbPrmVehSpdBilnrSeln → SpdTbl

GainWIRZero_MtrNmpHwNm

dAssiHiFrqGainWhlImbRejtcnZero

3
WhlImbRejtcnAmp

X_in
AssiHiFrqWhlImbRejtcnBIndX → 2-D Xtbl
AssiHiFrqWhlImbRejtcnBIndY → 2-D Ytbl   Out
[VehSpd]   → VehSpeed
SysGlbPrmVehSpdBilnrSeln   → SpdTbl

GainBlend_Uls

dAssiHiFrqGainBInd

1 +
   −

×

×

+
+

GainVal_MtrNmpHwNm

AssiHiFrqGain

dAssiHiFrqGain

WIR Command = MAXIMUM

[AbsHwTrq]   → X_in
AssiHiFrqTqWhlImbRejctnTqX   → 2-D Xtbl
AssiHiFrqWhlImbRejtcnGainY   → 2-D Ytbl   Out
[VehSpd]   → VehSpeed
SysGlbPrmVehSpdBilnrSeln   → SpdTbl

GainWIRMax_MtrNmpHwNm

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