

```
%% Quarter Car Suspension Hinf control Ok
```

```
clear;  
close all;  
clc;
```

```
%% I- Quarter Car Suspension Model
```

```
% 1-
```

```
ms = 300;      % kg  
mus = 60;      % kg  
bs = 1000;     % N/m/s  
ks = 16000 ;   % N/m  
kt = 190000;  % N/m
```

```
A = [ 0 1 0 0; [-ks -bs ks bs]/ms; 0 0 0 1; [ks bs -ks-kt -bs]/mus];  
B= [0 0; 0 1e3/ms;0 0; [kt -1e3]/mus];  
C =[1 0 0 0;1 0 -1 0;[-ks -bs ks bs]/ms];  
D =[0 0;0 0;0 1e3/ms];
```

```
qcar=ss(A,B,C,D);
```

```
qcar.StateName = {'body_travel','body_vel','wheel_travels','wheel_vel'};  
qcar.InputName = {'r','fs'};  
qcar.OutputName = {'body_travel','suspension_travel','body_acceleration'};
```

```
% U1=r;  
% U2=fs;
```

```
% Y1=body_travel;  
% Y2=suspension_travel;  
% Y3=body_acceleration;
```

```
G11=qcar('body_travel','r');  
G21=qcar('suspension_travel','r');  
G31=qcar('body_acceleration','r');
```

```
G12=qcar('body_travel','fs');  
G22=qcar('suspension_travel','fs');  
G32=qcar('body_acceleration','fs');
```