

```

M_s = 2.45;
M_us = 1.00;
K_s = 900;
K_us = 1250;
B_s = 7.5;
B_us = 5;
A_m = [0 1 0 -1; -(K_s)/(M_s) -(B_s)/(M_s) 0 (B_s)/(M_s); 0 0 0 1; (K_s)/(M_us) (B_s)/(M_us) -(K_us)/(M_us) -(B_s+B_us)/(M_us)];
C_m = [1 0 0 0; -(K_s)/(M_s) -(B_s)/(M_s) 0 (B_s)/(M_s)];
obmat=obsv(A_m,C_m);
obrank=rank(obmat);
A_m
C_m
obmat
obrank

```

A_m =

```

1.0e+03 *
      0      0.0010      0     -0.0010
    -0.3673    -0.0031      0      0.0031
      0      0      0      0.0010
    0.9000      0.0075    -1.2500    -0.0125

```

C_m =

```

      1.0000      0      0      0
    -367.3469    -3.0612      0      3.0612

```

obmat =

```

1.0e+07 *
      0.0000      0      0      0
    -0.0000    -0.0000      0      0.0000
      0      0.0000      0     -0.0000
      0.0004    -0.0000    -0.0004      0.0000
    -0.0001    -0.0000      0.0001      0.0000
      0.0411      0.0007    -0.0400    -0.0013
      0.0018    -0.0001    -0.0019      0.0002
    -1.4138      0.0293      1.5910    -0.0629

```

obrank =

4

