

```

function Jmoins1=jacobienne_inverse(x,y,z,alpha,beta,gamma)
La=sym('La');
LA=sym('LA');
Lc=sym('Lc');
Ra=sym('Ra');
Rc=sym('Rc');
b=sym('b');
x=sym('x');
y=sym('y');
z=sym('z');
alpha=sym('alpha');
beta=sym('beta');
gamma=sym('gamma');
La=0.069;
LA=0.069;
Lc=0.33;
Ra=0.169;
Rc=0.08;
b=0.049;

% alpha=0;
% beta=0;
% gamma=0;

%Pour theta11
E11=(2*La*Ra - 2*La*z*sin(beta) - 2*La*Rc*cos(beta)*cos(gamma) - 2*La*b*cos(beta)*sin(gamma) - 2*La*x*cos(beta)*cos(gamma) + 2*La*y*cos(beta)*sin(gamma));
F11=(2*La*b*cos(gamma)*sin(alpha) - 2*La*Rc*sin(alpha)*sin(gamma) - 2*La*z*cos(alpha)*cos(beta) - 2*La*y*cos(gamma)*sin(alpha) - 2*La*x*sin(alpha)*sin(gamma) + 2*La*Rc*cos(alpha)*cos(gamma)*sin(beta) + 2*La*b*cos(alpha)*sin(beta)*sin(gamma) + 2*La*x*cos(alpha)*cos(gamma)*sin(beta) - 2*La*y*cos(alpha)*sin(beta)*sin(gamma));
G11=-Lc^2+2*Rc*x - 2*b*y + La^2 + Ra^2 + Rc^2 + 2*b^2 + x^2 + y^2 + z^2 - 2*Ra*z*sin(beta) - 2*b^2*cos(alpha)*cos(gamma) - 2*Ra*Rc*cos(beta)*cos(gamma) + 2*b^2*sin(alpha)*sin(beta)*sin(gamma) + 2*Rc*b*cos(alpha)*sin(gamma) - 2*Ra*b*cos(beta)*sin(gamma) - 2*Ra*x*cos(beta)*cos(gamma) + 2*b*y*cos(alpha)*cos(gamma) + 2*Ra*y*cos(beta)*sin(gamma) - 2*b*z*cos(beta)*sin(alpha) + 2*b*x*cos(alpha)*sin(gamma) + 2*Rc*b*cos(gamma)*sin(alpha)*sin(beta) + 2*b*x*cos(gamma)*sin(alpha)*sin(beta) - 2*b*y*sin(alpha)*sin(beta)*sin(gamma);

%Pour theta12
E12=(2*La*Ra - 2*La*z*sin(beta) - 2*La*Rc*cos(beta)*cos(gamma) + 2*La*b*cos(beta)*sin(gamma) - 2*La*x*cos(beta)*cos(gamma) + 2*La*y*cos(beta)*sin(gamma));
F12=(2*La*Rc*cos(alpha)*cos(gamma)*sin(beta) - 2*La*Rc*sin(alpha)*sin(gamma) - 2*La*z*cos(alpha)*cos(beta) - 2*La*y*cos(gamma)*sin(alpha) - 2*La*x*sin(alpha)*sin(gamma) - 2*La*b*cos(gamma)*sin(alpha) - 2*La*b*cos(alpha)*sin(beta)*sin(gamma) + 2*La*x*cos(alpha)*cos(gamma)*sin(beta) - 2*La*y*cos(alpha)*sin(beta)*sin(gamma));
G12=La^2-Lc^2 + 2*Rc*x + 2*b*y + Ra^2 + Rc^2 + 2*b^2 + x^2 + y^2 + z^2 - 2*Ra*z*sin(beta) - 2*b^2*cos(alpha)*cos(gamma) - 2*Ra*Rc*cos(beta)*cos(gamma) + 2*b^2*sin(alpha)*sin(beta)*sin(gamma) - 2*Rc*b*cos(alpha)*sin(gamma) + 2*Ra*b*cos(beta)*sin(gamma) - 2*Ra*x*cos(beta)*cos(gamma) - 2*b*y*cos(alpha)*cos(gamma) + 2*Ra*y*cos(beta)*sin(gamma) + 2*b*z*cos(beta)*sin(alpha) - 2*b*x*cos(alpha)*sin(gamma) - 2*Rc*b*cos(gamma)*sin(alpha)*sin(beta) - 2*b*x*cos(gamma)*sin(alpha)*sin(beta) + 2*b*y*sin(alpha)*sin(beta)*sin(gamma);

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%Pour theta21

```
E21=(2*La*Ra + La*z*sin(beta) - (3*La*Rc*cos(alpha)*cos(gamma))/2 - (La*Rc*cos(beta)
*cos(gamma))/2 - (3*La*b*cos(alpha)*sin(gamma))/2 - (La*b*cos(beta)*sin(gamma))/2
La*x*cos(beta)*cos(gamma) - La*y*cos(beta)*sin(gamma) + 3^(1/2)*La*y*cos(alpha)*cos
(gamma) - 3^(1/2)*La*z*cos(beta)*sin(alpha) + 3^(1/2)*La*x*cos(alpha)*sin(gamma)
(3*La*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (3*La*Rc*sin(alpha)*sin(beta)*sin(gamma)
/2 + (3^(1/2)*La*b*cos(alpha)*cos(gamma))/2 - (3^(1/2)*La*Rc*cos(alpha)*sin(gamma))
- (3^(1/2)*La*b*cos(beta)*cos(gamma))/2 + (3^(1/2)*La*Rc*cos(beta)*sin(gamma))/2 - 3
(1/2)*La*y*sin(alpha)*sin(beta)*sin(gamma) - (3^(1/2)*La*Rc*cos(gamma)*sin(alpha)*sin
(beta))/2 - (3^(1/2)*La*b*sin(alpha)*sin(beta)*sin(gamma))/2 + 3^(1/2)*La*x*cos(gamma)
*sin(alpha)*sin(beta));
```

```
F21=(La*Rc*sin(alpha)*sin(gamma) - La*b*cos(gamma)*sin(alpha) - 2*La*z*cos(alpha)*cos
(beta) - 2*La*y*cos(gamma)*sin(alpha) - 2*La*x*sin(alpha)*sin(gamma) + 3^(1/2)
*La*b*sin(alpha)*sin(gamma) - La*Rc*cos(alpha)*cos(gamma)*sin(beta) - La*b*cos(alpha)
*sin(beta)*sin(gamma) + 2*La*x*cos(alpha)*cos(gamma)*sin(beta) - 2*La*y*cos(alpha)*sin
(beta)*sin(gamma) + 3^(1/2)*La*Rc*cos(gamma)*sin(alpha) - 3^(1/2)*La*b*cos(alpha)*cos
(gamma)*sin(beta) + 3^(1/2)*La*Rc*cos(alpha)*sin(beta)*sin(gamma));
```

```
G21=-Lc^2+b*y - Rc*x + La^2 + Ra^2 + Rc^2 + 2*b^2 + x^2 + y^2 + z^2 + Ra*z*sin(beta)
3^(1/2)*Rc*y - 3^(1/2)*b*x - (b^2*cos(alpha)*cos(gamma))/2 - (3*b^2*cos(beta)*cos
(gamma))/2 + (3^(1/2)*b^2*cos(alpha)*sin(gamma))/2 - (3^(1/2)*b^2*cos(beta)*sin
(gamma))/2 + 3^(1/2)*b*z*sin(beta) - (3*Ra*Rc*cos(alpha)*cos(gamma))/2 - (Ra*Rc*cos
(beta)*cos(gamma))/2 + (b^2*sin(alpha)*sin(beta)*sin(gamma))/2 - (3*Ra*b*cos(alpha)
*sin(gamma))/2 + (Rc*b*cos(alpha)*sin(gamma))/2 - (Ra*b*cos(beta)*sin(gamma))/2
(3*Rc*b*cos(beta)*sin(gamma))/2 + Ra*x*cos(beta)*cos(gamma) - b*y*cos(alpha)*cos
(gamma) - Ra*y*cos(beta)*sin(gamma) + b*z*cos(beta)*sin(alpha) - b*x*cos(alpha)*sin
(gamma) + (3^(1/2)*Ra*b*cos(alpha)*cos(gamma))/2 + (3^(1/2)*Rc*b*cos(alpha)*cos
(gamma))/2 - (3^(1/2)*Ra*Rc*cos(alpha)*sin(gamma))/2 - (3^(1/2)*Ra*b*cos(beta)*cos
(gamma))/2 - (3^(1/2)*Rc*b*cos(beta)*cos(gamma))/2 + (3^(1/2)*Ra*Rc*cos(beta)*sin
(gamma))/2 + 3^(1/2)*Ra*y*cos(alpha)*cos(gamma) - 3^(1/2)*Ra*z*cos(beta)*sin(alpha)
3^(1/2)*Ra*x*cos(alpha)*sin(gamma) + 3^(1/2)*b*x*cos(beta)*cos(gamma) - 3^(1/2)
*b*y*cos(beta)*sin(gamma) - (3*Ra*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (Rc*b*cos
(gamma)*sin(alpha)*sin(beta))/2 + (3*Ra*Rc*sin(alpha)*sin(beta)*sin(gamma))/2
b*x*cos(gamma)*sin(alpha)*sin(beta) + b*y*sin(alpha)*sin(beta)*sin(gamma) + (3^(1/2)
*b^2*cos(gamma)*sin(alpha)*sin(beta))/2 - 3^(1/2)*Ra*y*sin(alpha)*sin(beta)*sin(gamma)
- (3^(1/2)*Ra*Rc*cos(gamma)*sin(alpha)*sin(beta))/2 - (3^(1/2)*Ra*b*sin(alpha)*sin
(beta)*sin(gamma))/2 - (3^(1/2)*Rc*b*sin(alpha)*sin(beta)*sin(gamma))/2 + 3^(1/2)
*Ra*x*cos(gamma)*sin(alpha)*sin(beta);
```

%Pour theta22

```
E22=(2*LA*Ra + LA*z*sin(beta) - (3*LA*Rc*cos(alpha)*cos(gamma))/2 - (LA*Rc*cos(beta)
*cos(gamma))/2 + (3*LA*b*cos(alpha)*sin(gamma))/2 + (LA*b*cos(beta)*sin(gamma))/2
LA*x*cos(beta)*cos(gamma) - LA*y*cos(beta)*sin(gamma) + 3^(1/2)*LA*y*cos(alpha)*cos
(gamma) - 3^(1/2)*LA*z*cos(beta)*sin(alpha) + 3^(1/2)*LA*x*cos(alpha)*sin(gamma)
(3*LA*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (3*LA*Rc*sin(alpha)*sin(beta)*sin(gamma)
/2 - (3^(1/2)*LA*b*cos(alpha)*cos(gamma))/2 - (3^(1/2)*LA*Rc*cos(alpha)*sin(gamma))
+ (3^(1/2)*LA*b*cos(beta)*cos(gamma))/2 + (3^(1/2)*LA*Rc*cos(beta)*sin(gamma))/2 - 3
(1/2)*LA*y*sin(alpha)*sin(beta)*sin(gamma) - (3^(1/2)*LA*Rc*cos(gamma)*sin(alpha)*sin
(beta))/2 + (3^(1/2)*LA*b*sin(alpha)*sin(beta)*sin(gamma))/2 + 3^(1/2)*LA*x*cos(gamma)
*sin(alpha)*sin(beta));
```

```
F22=(LA*b*cos(gamma)*sin(alpha) + LA*Rc*sin(alpha)*sin(gamma) - 2*LA*z*cos(alpha)*cos
(beta) - 2*LA*y*cos(gamma)*sin(alpha) - 2*LA*x*sin(alpha)*sin(gamma) - 3^(1/2)
*LA*b*sin(alpha)*sin(gamma) - LA*Rc*cos(alpha)*cos(gamma)*sin(beta) + LA*b*cos(alpha)
*sin(beta)*sin(gamma) + 2*LA*x*cos(alpha)*cos(gamma)*sin(beta) - 2*LA*y*cos(alpha)*sin
(beta)*sin(gamma) + 3^(1/2)*LA*Rc*cos(gamma)*sin(alpha) + 3^(1/2)*LA*b*cos(alpha)*cos
(gamma)*sin(beta) + 3^(1/2)*LA*Rc*cos(alpha)*sin(beta)*sin(gamma));
```

```
G22=LA^2-Lc^2 - b*y - Rc*x + Ra^2 + Rc^2 + 2*b^2 + x^2 + y^2 + z^2 + Ra*z*sin(beta)
3^(1/2)*Rc*y + 3^(1/2)*b*x - (b^2*cos(alpha)*cos(gamma))/2 - (3*b^2*cos(beta)*cos
(gamma))/2 + (3^(1/2)*b^2*cos(alpha)*sin(gamma))/2 - (3^(1/2)*b^2*cos(beta)*sin
(gamma))/2 - 3^(1/2)*b*z*sin(beta) - (3*Ra*Rc*cos(alpha)*cos(gamma))/2 - (Ra*Rc*cos
(beta)*cos(gamma))/2 + (b^2*sin(alpha)*sin(beta)*sin(gamma))/2 + (3*Ra*b*cos(alpha)
*sin(gamma))/2 - (Rc*b*cos(alpha)*sin(gamma))/2 + (Ra*b*cos(beta)*sin(gamma))/2
(3*Rc*b*cos(beta)*sin(gamma))/2 + Ra*x*cos(beta)*cos(gamma) + b*y*cos(alpha)*cos
(gamma) - Ra*y*cos(beta)*sin(gamma) - b*z*cos(beta)*sin(alpha) + b*x*cos(alpha)*sin
(gamma) - (3^(1/2)*Ra*b*cos(alpha)*cos(gamma))/2 - (3^(1/2)*Rc*b*cos(alpha)*cos
(gamma))/2 - (3^(1/2)*Ra*Rc*cos(alpha)*sin(gamma))/2 + (3^(1/2)*Ra*b*cos(beta)*cos
(gamma))/2 + (3^(1/2)*Rc*b*cos(beta)*cos(gamma))/2 + (3^(1/2)*Ra*Rc*cos(beta)*sin
(gamma))/2 + 3^(1/2)*Ra*y*cos(alpha)*cos(gamma) - 3^(1/2)*Ra*z*cos(beta)*sin(alpha)
3^(1/2)*Ra*x*cos(alpha)*sin(gamma) - 3^(1/2)*b*x*cos(beta)*cos(gamma) + 3^(1/2)
*b*y*cos(beta)*sin(gamma) + (3*Ra*b*cos(gamma)*sin(alpha)*sin(beta))/2 - (Rc*b*cos
(gamma)*sin(alpha)*sin(beta))/2 + (3*Ra*Rc*sin(alpha)*sin(beta)*sin(gamma))/2
b*x*cos(gamma)*sin(alpha)*sin(beta) - b*y*sin(alpha)*sin(beta)*sin(gamma) + (3^(1/2)
*b^2*cos(gamma)*sin(alpha)*sin(beta))/2 - 3^(1/2)*Ra*y*sin(alpha)*sin(beta)*sin(gamma)
- (3^(1/2)*Ra*Rc*cos(gamma)*sin(alpha)*sin(beta))/2 + (3^(1/2)*Ra*b*sin(alpha)*sin
(beta)*sin(gamma))/2 + (3^(1/2)*Rc*b*sin(alpha)*sin(beta)*sin(gamma))/2 + 3^(1/2)
*Ra*x*cos(gamma)*sin(alpha)*sin(beta);
```

```
%Pour theta31
```

```
E31=(2*La*Ra + La*z*sin(beta) - (3*La*Rc*cos(alpha)*cos(gamma))/2 - (La*Rc*cos(beta)
*cos(gamma))/2 - (3*La*b*cos(alpha)*sin(gamma))/2 - (La*b*cos(beta)*sin(gamma))/2
La*x*cos(beta)*cos(gamma) - La*y*cos(beta)*sin(gamma) - 3^(1/2)*La*y*cos(alpha)*cos
(gamma) + 3^(1/2)*La*z*cos(beta)*sin(alpha) - 3^(1/2)*La*x*cos(alpha)*sin(gamma)
(3*La*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (3*La*Rc*sin(alpha)*sin(beta)*sin(gamma)
/2 - (3^(1/2)*La*b*cos(alpha)*cos(gamma))/2 + (3^(1/2)*La*Rc*cos(alpha)*sin(gamma))
+ (3^(1/2)*La*b*cos(beta)*cos(gamma))/2 - (3^(1/2)*La*Rc*cos(beta)*sin(gamma))/2 + 3
(1/2)*La*y*sin(alpha)*sin(beta)*sin(gamma) + (3^(1/2)*La*Rc*cos(gamma)*sin(alpha)*sin
(beta))/2 + (3^(1/2)*La*b*sin(alpha)*sin(beta)*sin(gamma))/2 - 3^(1/2)*La*x*cos(gamma)
*sin(alpha)*sin(beta));
F31=(La*Rc*sin(alpha)*sin(gamma) - La*b*cos(gamma)*sin(alpha) - 2*La*z*cos(alpha)*cos
(beta) - 2*La*y*cos(gamma)*sin(alpha) - 2*La*x*sin(alpha)*sin(gamma) - 3^(1/2)
*La*b*sin(alpha)*sin(gamma) - La*Rc*cos(alpha)*cos(gamma)*sin(beta) - La*b*cos(alpha)
*sin(beta)*sin(gamma) + 2*La*x*cos(alpha)*cos(gamma)*sin(beta) - 2*La*y*cos(alpha)*sin
(beta)*sin(gamma) - 3^(1/2)*La*Rc*cos(gamma)*sin(alpha) + 3^(1/2)*La*b*cos(alpha)*cos
(gamma)*sin(beta) - 3^(1/2)*La*Rc*cos(alpha)*sin(beta)*sin(gamma));
G31=-Lc^2 + b*y - Rc*x + La^2 + Ra^2 + Rc^2 + 2*b^2 + x^2 + y^2 + z^2 + Ra*z*sin(beta)
+ 3^(1/2)*Rc*y + 3^(1/2)*b*x - (b^2*cos(alpha)*cos(gamma))/2 - (3*b^2*cos(beta)*cos
(gamma))/2 - (3^(1/2)*b^2*cos(alpha)*sin(gamma))/2 + (3^(1/2)*b^2*cos(beta)*sin
(gamma))/2 - 3^(1/2)*b*z*sin(beta) - (3*Ra*Rc*cos(alpha)*cos(gamma))/2 - (Ra*Rc*cos
(beta)*cos(gamma))/2 + (b^2*sin(alpha)*sin(beta)*sin(gamma))/2 - (3*Ra*b*cos(alpha)
*sin(gamma))/2 + (Rc*b*cos(alpha)*sin(gamma))/2 - (Ra*b*cos(beta)*sin(gamma))/2
(3*Rc*b*cos(beta)*sin(gamma))/2 + Ra*x*cos(beta)*cos(gamma) - b*y*cos(alpha)*cos
(gamma) - Ra*y*cos(beta)*sin(gamma) + b*z*cos(beta)*sin(alpha) - b*x*cos(alpha)*sin
(gamma) - (3^(1/2)*Ra*b*cos(alpha)*cos(gamma))/2 - (3^(1/2)*Rc*b*cos(alpha)*cos
(gamma))/2 + (3^(1/2)*Ra*Rc*cos(alpha)*sin(gamma))/2 + (3^(1/2)*Ra*b*cos(beta)*cos
(gamma))/2 + (3^(1/2)*Rc*b*cos(beta)*cos(gamma))/2 - (3^(1/2)*Ra*Rc*cos(beta)*sin
(gamma))/2 - 3^(1/2)*Ra*y*cos(alpha)*cos(gamma) + 3^(1/2)*Ra*z*cos(beta)*sin(alpha)
3^(1/2)*Ra*x*cos(alpha)*sin(gamma) - 3^(1/2)*b*x*cos(beta)*cos(gamma) + 3^(1/2)
*b*y*cos(beta)*sin(gamma) - (3*Ra*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (Rc*b*cos
(gamma)*sin(alpha)*sin(beta))/2 + (3*Ra*Rc*sin(alpha)*sin(beta)*sin(gamma))/2
b*x*cos(gamma)*sin(alpha)*sin(beta) + b*y*sin(alpha)*sin(beta)*sin(gamma) - (3^(1/2)
*b^2*cos(gamma)*sin(alpha)*sin(beta))/2 + 3^(1/2)*Ra*y*sin(alpha)*sin(beta)*sin(gamma)
```

```
+ (3^(1/2)*Ra*Rc*cos(gamma)*sin(alpha)*sin(beta))/2 + (3^(1/2)*Ra*b*sin(alpha)*sin(beta)*sin(gamma))/2 + (3^(1/2)*Rc*b*sin(alpha)*sin(beta)*sin(gamma))/2 - 3^(1/2)*Ra*x*cos(gamma)*sin(alpha)*sin(beta);
```

```
%Pour theta32
```

```
E32=(2*LA*Ra + LA*z*sin(beta) - (3*LA*Rc*cos(alpha)*cos(gamma))/2 - (LA*Rc*cos(beta)*cos(gamma))/2 + (3*LA*b*cos(alpha)*sin(gamma))/2 + (LA*b*cos(beta)*sin(gamma))/2 - LA*x*cos(beta)*cos(gamma) - LA*y*cos(beta)*sin(gamma) - 3^(1/2)*LA*y*cos(alpha)*cos(gamma) + 3^(1/2)*LA*z*cos(beta)*sin(alpha) - 3^(1/2)*LA*x*cos(alpha)*sin(gamma) - (3*LA*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (3*LA*Rc*sin(alpha)*sin(beta)*sin(gamma))/2 + (3^(1/2)*LA*b*cos(alpha)*cos(gamma))/2 + (3^(1/2)*LA*Rc*cos(alpha)*sin(gamma))/2 - (3^(1/2)*LA*b*cos(beta)*cos(gamma))/2 - (3^(1/2)*LA*Rc*cos(beta)*sin(gamma))/2 + 3^(1/2)*LA*y*sin(alpha)*sin(beta)*sin(gamma) + (3^(1/2)*LA*Rc*cos(gamma)*sin(alpha)*sin(beta))/2 - (3^(1/2)*LA*b*sin(alpha)*sin(beta)*sin(gamma))/2 - 3^(1/2)*LA*x*cos(gamma)*sin(alpha)*sin(beta));
F32=(LA*b*cos(gamma)*sin(alpha) + LA*Rc*sin(alpha)*sin(gamma) - 2*LA*z*cos(alpha)*cos(beta) - 2*LA*y*cos(gamma)*sin(alpha) - 2*LA*x*sin(alpha)*sin(gamma) + 3^(1/2)*LA*b*sin(alpha)*sin(gamma) - LA*Rc*cos(alpha)*cos(gamma)*sin(beta) + LA*b*cos(alpha)*sin(beta)*sin(gamma) + 2*LA*x*cos(alpha)*cos(gamma)*sin(beta) - 2*LA*y*cos(alpha)*sin(beta)*sin(gamma) - 3^(1/2)*LA*Rc*cos(gamma)*sin(alpha) - 3^(1/2)*LA*b*cos(alpha)*cos(gamma)*sin(beta) - 3^(1/2)*LA*Rc*cos(alpha)*sin(beta)*sin(gamma));
G32=La^2-Lc^2- b*y - Rc*x + Ra^2 + Rc^2 + 2*b^2 + x^2 + y^2 + z^2 + Ra*z*sin(beta) - 3^(1/2)*Rc*y - 3^(1/2)*b*x - (b^2*cos(alpha)*cos(gamma))/2 - (3*b^2*cos(beta)*cos(gamma))/2 - (3^(1/2)*b^2*cos(alpha)*sin(gamma))/2 + (3^(1/2)*b^2*cos(beta)*sin(gamma))/2 + 3^(1/2)*b*z*sin(beta) - (3*Ra*Rc*cos(alpha)*cos(gamma))/2 - (Ra*Rc*cos(beta)*cos(gamma))/2 + (b^2*sin(alpha)*sin(beta)*sin(gamma))/2 + (3*Ra*b*cos(alpha)*sin(gamma))/2 - (Rc*b*cos(alpha)*sin(gamma))/2 + (Ra*b*cos(beta)*sin(gamma))/2 - (3*Rc*b*cos(beta)*sin(gamma))/2 + Ra*x*cos(beta)*cos(gamma) + b*y*cos(alpha)*cos(gamma) - Ra*y*cos(beta)*sin(gamma) - b*z*cos(beta)*sin(alpha) + b*x*cos(alpha)*sin(gamma) + (3^(1/2)*Ra*b*cos(alpha)*cos(gamma))/2 + (3^(1/2)*Rc*b*cos(alpha)*cos(gamma))/2 + (3^(1/2)*Ra*Rc*cos(alpha)*sin(gamma))/2 - (3^(1/2)*Ra*b*cos(beta)*cos(gamma))/2 - (3^(1/2)*Rc*b*cos(beta)*cos(gamma))/2 - (3^(1/2)*Ra*Rc*cos(beta)*sin(gamma))/2 - 3^(1/2)*Ra*y*cos(alpha)*cos(gamma) + 3^(1/2)*Ra*z*cos(beta)*sin(alpha) - 3^(1/2)*Ra*x*cos(alpha)*sin(gamma) + 3^(1/2)*b*x*cos(beta)*cos(gamma) - 3^(1/2)*b*y*cos(beta)*sin(gamma) + (3*Ra*b*cos(gamma)*sin(alpha)*sin(beta))/2 - (Rc*b*cos(gamma)*sin(alpha)*sin(beta))/2 + (3*Ra*Rc*sin(alpha)*sin(beta)*sin(gamma))/2 - b*x*cos(gamma)*sin(alpha)*sin(beta) - b*y*sin(alpha)*sin(beta)*sin(gamma) - (3^(1/2)*b^2*cos(gamma)*sin(alpha)*sin(beta))/2 + 3^(1/2)*Ra*y*sin(alpha)*sin(beta)*sin(gamma) + (3^(1/2)*Ra*Rc*cos(gamma)*sin(alpha)*sin(beta))/2 - (3^(1/2)*Ra*b*sin(alpha)*sin(beta)*sin(gamma))/2 - (3^(1/2)*Rc*b*sin(alpha)*sin(beta)*sin(gamma))/2 - 3^(1/2)*Ra*x*cos(gamma)*sin(alpha)*sin(beta);
```

```
theta11=2*atan((-F11-sqrt(E11^2+F11^2-G11^2))/(G11-E11));
theta12=2*atan((-F12-sqrt(E12^2+F12^2-G12^2))/(G12-E12));
theta21=2*atan((-F21-sqrt(E21^2+F21^2-G21^2))/(G21-E21));
theta22=2*atan((-F22-sqrt(E22^2+F22^2-G22^2))/(G22-E22));
theta31=2*atan((-F31-sqrt(E31^2+F31^2-G31^2))/(G31-E31));
theta32=2*atan((-F32-sqrt(E32^2+F32^2-G32^2))/(G32-E32));
```

```
theta1=(theta11+theta12)/2;
theta2=(theta21+theta22)/2;
theta3=(theta31+theta32)/2;
dtheta1=(theta11-theta12)/2;
dtheta2=(theta21-theta22)/2;
```

```
dtheta3=(theta31-theta32)/2;
```

```
Jmoins1=jacobian([theta1,theta2,theta3,dtheta1,dtheta2,dtheta3]);
```

```
save 'Jacobienneinverse.txt'
```

```
fid = fopen('Jacobiennefonctioninverse_V3.txt', 'w');
```

```
fprintf(fid, '%s ', Jmoins1(1,1));
```

```
fprintf(fid, '%s ', Jmoins1(1,2));
```

```
fprintf(fid, '%s ', Jmoins1(1,3));
```

```
fprintf(fid, '%s ', Jmoins1(1,4));
```

```
fprintf(fid, '%s ', Jmoins1(1,5));
```

```
fprintf(fid, '%s', Jmoins1(1,6));
```

```
fprintf(fid, ';');
```

```
fprintf(fid, '%s ', Jmoins1(2,1));
```

```
fprintf(fid, '%s ', Jmoins1(2,2));
```

```
fprintf(fid, '%s ', Jmoins1(2,3));
```

```
fprintf(fid, '%s ', Jmoins1(2,4));
```

```
fprintf(fid, '%s ', Jmoins1(2,5));
```

```
fprintf(fid, '%s', Jmoins1(2,6));
```

```
fprintf(fid, ';');
```

```
fprintf(fid, '%s ', Jmoins1(3,1));
```

```
fprintf(fid, '%s ', Jmoins1(3,2));
```

```
fprintf(fid, '%s ', Jmoins1(3,3));
```

```
fprintf(fid, '%s ', Jmoins1(3,4));
```

```
fprintf(fid, '%s ', Jmoins1(3,5));
```

```
fprintf(fid, '%s', Jmoins1(3,6));
```

```
fprintf(fid, ';');
```

```
fprintf(fid, '%s ', Jmoins1(4,1));
```

```
fprintf(fid, '%s ', Jmoins1(4,2));
```

```
fprintf(fid, '%s ', Jmoins1(4,3));
```

```
fprintf(fid, '%s ', Jmoins1(4,4));
```

```
fprintf(fid, '%s ', Jmoins1(4,5));
```

```
fprintf(fid, '%s', Jmoins1(4,6));
```

```
fprintf(fid, ';');
```

```
fprintf(fid, '%s ', Jmoins1(5,1));
```

```
fprintf(fid, '%s ', Jmoins1(5,2));
```

```
fprintf(fid, '%s ', Jmoins1(5,3));
```

```
fprintf(fid, '%s ', Jmoins1(5,4));
```

```
fprintf(fid, '%s ', Jmoins1(5,5));
```

```
fprintf(fid, '%s', Jmoins1(5,6));
```

```
fprintf(fid, ';');
```

```
fprintf(fid, '%s ', Jmoins1(6,1));
```

```
fprintf(fid, '%s ', Jmoins1(6,2));
```

```
fprintf(fid, '%s ', Jmoins1(6,3));
```

```
fprintf(fid, '%s ', Jmoins1(6,4));
```

```
fprintf(fid, '%s ', Jmoins1(6,5));  
fprintf(fid, '%s', Jmoins1(6,6));  
  
fprintf(fid, ';');  
  
fclose(fid);  
  
end
```