```
{{x1 → x1prime, y1 → y1prime, x2 → x2prime, y2 → y2prime, omega1 → omega1prime, omega2 → omega2prime, impulse → 0},
 {x1 → (-inertia x1prime Cos[phi + theta10]² + 2 inertia x2prime Cos[phi + theta10] Cos[phi + theta20] + inertia x1prime Cos[phi + theta20]² +
      2 inertia omega1prime w Cos[phi + theta10] Sin[theta10] + m w² x1prime Sin[theta10]² - 2 inertia y1prime Cos[phi + theta10] Sin[phi + theta10] +
      inertia x1prime Sin[phi + theta10]² - 2 inertia omega2prime w Cos[phi + theta10] Sin[theta20] + m w² x1prime Sin[theta20]² +
      2 inertia y2prime Cos[phi + theta10] Sin[phi + theta20] + inertia x1prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
  y1 → (inertia y1prime Cos[phi + theta10]² + inertia y1prime Cos[phi + theta20]² + m w² y1prime Sin[theta10]² - 2 inertia x1prime Cos[phi + theta10]
       Sin[phi + theta10] + 2 inertia x2prime Cos[phi + theta20] Sin[phi + theta10] + 2 inertia omega1prime w Sin[theta10] Sin[phi + theta10] -
      inertia y1prime Sin[phi + theta10]² - 2 inertia omega2prime w Sin[phi + theta10] Sin[theta20] + m w² y1prime Sin[theta20]² +
      2 inertia y2prime Sin[phi + theta10] Sin[phi + theta20] + inertia y1prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
  x2 → (inertia x2prime Cos[phi + theta10]² + 2 inertia x1prime Cos[phi + theta10] Cos[phi + theta20] - inertia x2prime Cos[phi + theta20]² -
      2 inertia omega1prime w Cos[phi + theta20] Sin[theta10] + m w² x2prime Sin[theta10]² + 2 inertia y1prime Cos[phi + theta20] Sin[phi + theta10] +
      inertia x2prime Sin[phi + theta10]² + 2 inertia omega2prime w Cos[phi + theta20] Sin[theta20] + m w² x2prime Sin[theta20]² -
      2 inertia y2prime Cos[phi + theta20] Sin[phi + theta20] + inertia x2prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
  y2 → (inertia y2prime Cos[phi + theta10]² + inertia y2prime Cos[phi + theta20]² + m w² y2prime Sin[theta10]² + inertia y2prime Sin[phi + theta10]² +
      m w² y2prime Sin[theta20]² + 2 inertia x1prime Cos[phi + theta10] Sin[phi + theta20] - 2 inertia x2prime Cos[phi + theta20] Sin[phi + theta20] -
      2 inertia omega1prime w Sin[theta10] Sin[phi + theta20] + 2 inertia y1prime Sin[phi + theta10] Sin[phi + theta20] +
      2 inertia omega2prime w Sin[theta20] Sin[phi + theta20] - inertia y2prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
  omega1 → (inertia omega1prime Cos[phi + theta10]² + inertia omega1prime Cos[phi + theta20]² + 2 m w x1prime Cos[phi + theta10] Sin[theta10] -
      2 m w x2prime Cos[phi + theta20] Sin[theta10] - m omega1prime w² Sin[theta10]² + 2 m w y1prime Sin[theta10] Sin[phi + theta10] +
      inertia omega1prime Sin[phi + theta10]² + 2 m omega2prime w² Sin[theta10] Sin[theta20] + m omega1prime w² Sin[theta20]² -
      2 m w y2prime Sin[theta10] Sin[phi + theta20] + inertia omega1prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
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x2 → (inertia x2prime Cos[phi + theta10]² + 2 inertia x1prime Cos[phi + theta10] Cos[phi + theta20] - inertia x2prime Cos[phi + theta20]² -
      2 inertia omega1prime w Cos[phi + theta20] Sin[theta10] + m w² x2prime Sin[theta10]² + 2 inertia y1prime Cos[phi + theta20] Sin[phi + theta10] +
      inertia x2prime Sin[phi + theta10]² + 2 inertia omega2prime w Cos[phi + theta20] Sin[theta20] + m w² x2prime Sin[theta20]² -
      2 inertia y2prime Cos[phi + theta20] Sin[phi + theta20] + inertia x2prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
y2 → (inertia y2prime Cos[phi + theta10]² + inertia y2prime Cos[phi + theta20]² + m w² y2prime Sin[theta10]² + inertia y2prime Sin[phi + theta10]² +
      m w² y2prime Sin[theta20]² + 2 inertia x1prime Cos[phi + theta10] Sin[phi + theta20] - 2 inertia x2prime Cos[phi + theta20] Sin[phi + theta20] -
      2 inertia omega1prime w Sin[theta10] Sin[phi + theta20] + 2 inertia y1prime Sin[phi + theta10] Sin[phi + theta20] +
      2 inertia omega2prime w Sin[theta20] Sin[phi + theta20] - inertia y2prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
omega1 → (inertia omega1prime Cos[phi + theta10]² + inertia omega1prime Cos[phi + theta20]² + 2 m w x1prime Cos[phi + theta10] Sin[theta10] -
      2 m w x2prime Cos[phi + theta20] Sin[theta10] - m omega1prime w² Sin[theta10]² + 2 m w y1prime Sin[theta10] Sin[phi + theta10] +
      inertia omega1prime Sin[phi + theta10]² + 2 m omega2prime w² Sin[theta10] Sin[theta20] + m omega1prime w² Sin[theta20]² -
      2 m w y2prime Sin[theta10] Sin[phi + theta20] + inertia omega1prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
omega2 → (inertia omega2prime Cos[phi + theta10]² + inertia omega2prime Cos[phi + theta20]² + m omega2prime w² Sin[theta10]² +
      inertia omega2prime Sin[phi + theta10]² - 2 m w x1prime Cos[phi + theta10] Sin[theta20] + 2 m w x2prime Cos[phi + theta20] Sin[theta20] +
      2 m omega1prime w² Sin[theta10] Sin[theta20] - 2 m w y1prime Sin[phi + theta10] Sin[theta20] - m omega2prime w² Sin[theta20]² +
      2 m w y2prime Sin[theta20] Sin[phi + theta20] + inertia omega2prime Sin[phi + theta20]²) / (inertia Cos[phi + theta10]² +
      inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²),
impulse → - (2 inertia m (x1prime Cos[phi + theta10] - x2prime Cos[phi + theta20] - omega1prime w Sin[theta10] +
          y1prime Sin[phi + theta10] + omega2prime w Sin[theta20] - y2prime Sin[phi + theta20])) / (inertia Cos[phi + theta10]² +
        inertia Cos[phi + theta20]² + m w² Sin[theta10]² + inertia Sin[phi + theta10]² + m w² Sin[theta20]² + inertia Sin[phi + theta20]²)}}
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