

LOAD CASES - MECAMASTER

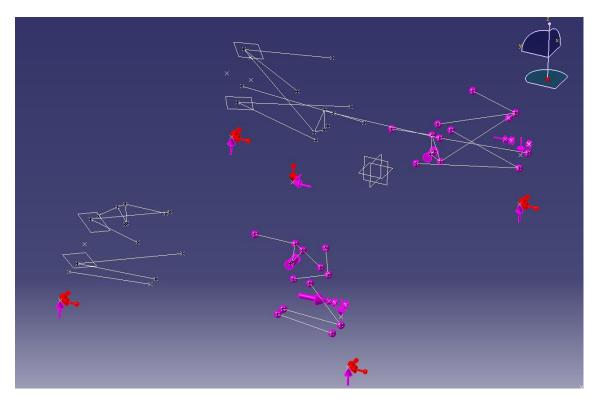


Figure 1: General view of MecaMaster model

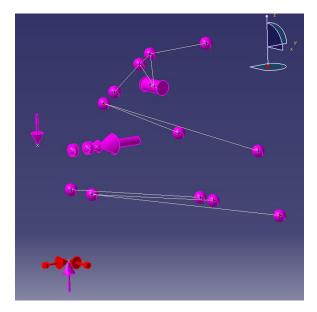


Figure 2: Rear right wheel detail



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Hypothesis

| LOAD CASE | HYPOTHESIS TO REMOVE THE HYPERSTATISM |
|----------------------------|---------------------------------------|
| Left Turn 2G | Longitudinal plan of symmetry |
| Right Turn 2G | Longitudinal plan of symmetry |
| Left Turn 1G + Braking 1G | Rear internal wheel > Fz=0N |
| Right Turn 1G + Braking 1G | Rear internal wheel > Fz=0N |
| Acceleration 0.77G | Lateral plan of symmetry |
| Braking 2G | Lateral plan of symmetry |
| Inverse Braking 0.5G | Lateral plan of symmetry |
| Bump 3G | Lateral plan of symmetry |

Examples of results

| Part | Acceleration 0.77g (N) | Braking 2g (N) | Left turn 1g + braking 1g (N) | Left turn 2g (N) | Reverse braking 0.5g (N) | Bump 3g (N) |
|----------------------------------|------------------------------|----------------------|----------------------------------|------------------------|--------------------------------|-------------------|
| Steering link | 12 | 73 | 411 | 860 | 26 | 50 |
| Toe link | 1286 | 30 | 520 | 1402 | 207 | 345 |
| Front pullrod | 1104 | 2723 | 2542 | 2730 | 1265 | 4669 |
| Rear pushrod | 1148 | 222 | 1020 | 1472 | 1056 | 2669 |
| Front lower A-Arm, front pivot | 53 | 5827 | 1973 | 2090 | 600 | 224 |
| Rear lower A-Arm, front pivot | 1534 | 1169 | 3928 | 3190 | 1623 | 475 |





| | For Rockers | | | | Lett Irun | Left Trun 1G + Brake 1G | | | | | |
|-------|-------------------------------|------------------------------|----------|----------------|----------------|-------------------------|-----------|-----------|------|-------|--------|
| | For Frame | | | | | | | | | | N/mm |
| | For Uprights | | | | | z | z | z | N/mm | N/mm | |
| | | | | | | | | | | | |
| | Nom Meca Master | Nom | Type | | ▼ Part 2 ▼ | ž | ₹ Ky | ▼ RZ | NX | | Mz |
| | BJ_Rear UF | Upper A-arm Front Ball Joint | <u>B</u> | rear uf a-arm | frame | 1415.798 | 671.234 | -338.721 | 000. | 000. | .000 |
| | BJ_Rear UR | Upper A-arm Rear Ball Joint | B | rear ur a-arm | frame | -632.017 | -1684.728 | 850.155 | .000 | .000 | .000 |
| | BJ_Rear LR | Lower A-arm Rear Ball Joint | BJ | rear Ir a-arm | frame | 1088.766 | 3131.810 | -461.009 | 000. | 000. | 000. |
| | BJ_Rear LF | Lower A-arm Front Ball Joint | BJ | rear If a-arm | frame | -3022.503 | -2482.270 | 365.395 | .000 | 000. | 000: |
| | BJ_Rear UF Outboard | N/A | BJ | rr upright | rear uf a-arm | 1415.798 | 671.234 | -338.721 | 000. | 000. | 000: |
| | BJ_Rear UR Outboard | N/A | BJ | rr upright | rear ur a-arm | -632.017 | -1684.728 | 850.155 | 000. | 000. | 000: |
| | BJ_Rear LR Outboard | N/A | BJ | rr upright | rear Ir a-arm | 1088.766 | 3131.810 | -461.009 | 000. | 000. | 000: |
| | BJ Rear LF Outboard Spherical | N/A | BJ | rr upright | rear If a-arm | -3022.503 | -2482.270 | 365.395 | 000. | 000. | 000: |
| | BJ RR Tie-rod | Inboard Tie-rod Ball Joint | BJ | rr tie-rod | frame | 212.456 | 469.988 | -69.183 | .000 | .000 | 000: |
| | BJ_RR Outboard Tie-rod | Outboard Tie-rod Ball Joint | <u>8</u> | rr upright | rr tie-rod | 212.456 | 469.988 | -69.183 | 000. | .000 | 000: |
| OISI | BJ_Lower Push-rod | Lower Push-Rod Ball joint | BJ | rr upright | rr push-rod | 000. | 831.467 | 590.863 | 000. | 000. | 000: |
| z | BJ_Upper Push-rod | Upper Push-Rod Ball Joint | B | rr push-rod | rr rocker | 000. | 831.467 | 590.863 | 000. | 000. | 000. |
| | BJ_Outboard Shock Spherical | Outboard Shock Ball Joint | BJ | rr rocker | rr ohlins | 000. | 936.362 | 2.753 | 000. | 000. | 000: |
| | BJ_Inboard Shock | Inboard Shock Ball Joint | BJ | rr ohlins | frame | 000: | 936.362 | 2.753 | 000. | 000. | 000: |
| | PI_RR Rocker Pivot | Rocker Pivot | Ы | rr rocker | frame | 000. | -104.895 | 588.110 | 000. | 000. | 000: |
| | PO-Z_Fz - RR | Normal Force on tire | ЬО | los | rr wheel | 000: | 000. | 937.500 | .000 | 000. | 000: |
| | PO-Z_RR Brake Force | Brake Force | PO | rr wheel | rr upright | 000. | 000. | 2424.580 | .000 | 000. | 000. |
| | SS-XZ_RR Outter Bearing | Radial Force Outer Bearing | SS | rr wheel | rr upright | -1395.926 | -204.399 | -7848.875 | 000. | 000. | 000: |
| | SS-XZ_RR Inner Bearing | Radial Force Inner Bearing | SS | rr wheel | rr upright | 458.426 | 168.836 | 6387.515 | 000. | 000. | 000: |
| | PO-Y_RR Inner Bearing | Axial Force Bearing | PO | rr wheel | rr upright | 000. | 973.063 | -25.720 | 000. | 000. | 000. |
| | BJ_Front UF | Upper A-arm Front Ball Joint | BJ | front uf a-arm | frame | 917.449 | 1168.068 | -280.336 | 000. | 000. | 000: |
| | BJ_Front UR | Upper A-arm Rear Ball Joint | BJ | front ur a-arm | frame | -61.169 | 158.579 | -38.059 | 000. | 000. | 000: |
| | BJ_Front LR | Lower A-arm Rear Ball Joint | BJ | front Ir a-arm | frame | -1185.421 | 3993.073 | -218.092 | 000. | 000. | 000: |
| | BJ_Front LF | Lower A-arm Front Ball Joint | BJ | front If a-arm | frame | -953.093 | -1725.216 | 94.227 | .000 | 000. | 000 |
| | BJ_Front LF Outboard | N/A | BJ | fr upright | front If a-arm | -953.093 | -1725.216 | 94.227 | .000 | 000. | 000: |
| | BJ_Front LR Outboard | N/A | BJ | fr upright | front Ir a-arm | -1185.421 | 3993.073 | -218.092 | 000. | 000. | 000. |
| | BJ_Front UR Outboard | N/A | BJ | fr upright | front ur a-arm | -61.169 | 158.579 | -38.059 | 000. | 000. | 000: |
| | BJ_Front UF Outboard | N/A | BJ | fr upright | front uf a-arm | 917.449 | 1168.068 | -280.336 | 000. | 000. | 000: |
| | BJ_FR Pull-Rod | Outboard Pull-Rod Ball Joint | BJ | fr upright | fr pull-rod | 229 | -1884.333 | 1706.873 | 000. | 000. | 000: |
| FRONT | BJ_FR Inboard Pull Rod | Inboard Pull-Rod Ball Joint | BJ | fr pull-rod | fr rocker | 229 | -1884.333 | 1706.873 | 000. | 000. | 000. |
| C | BJ_Outboard FR Ohlins | Outboard Shock Ball Joint | BJ | frrocker | fr ohlins | 000. | 1349.509 | -103.563 | 000. | 000. | 000: |
| | BJ_Inboard FR Ohlins | Inboard Shock Ball Joint | B | fr ohlins | frame | .000 | 1349.509 | -103.563 | 000. | 000. | 000. |
| | BJ_Outboard FR Tie-rod | Outboard Tie-rod Ball Joint | BJ | fr upright | fr tie-rod | -17.742 | -409.966 | 35.592 | 000. | 000. | 000: |
| | BJ_Inboard FR Tie-rod | Inboard Tie-Rod Ball Joint | BJ | fr tie-rod | frame | -17.742 | -409.966 | 35.592 | .000 | 000. | 000: |
| | PO-Z_Fz - RL | Normal Force on RL Tire | PO | los | frame | 000. | 000. | 000. | 000. | 000. | 000. |
| | PO-Z_Fz-FR | Normal Force on FR Tire | ЬО | los | fr wheel | .000 | 000. | 1300.205 | 000. | 000. | 000. |
| | PO-Z_Fz - FL | Normal Force on FL Tire | ЬО | los | frame | 000: | 000. | 762.295 | .000 | 000. | 000: |
| | SS-XZ_FR Inner bearing | Radial Force Inner Bearing | SS | fr wheel | fr upright | -512.956 | 203.041 | 5700.735 | .000 | 000. | 000: |
| | SS-XZ_FR Outer bearing | Radial Force Outer Bearing | SS | fr wheel | fr upright | -787.249 | -274.209 | -7698.911 | .000 | 000. | 000: |
| | PO-Y_FR Wheel Axial Force | Axial Force bearing | PO | fr wheel | fr upright | 000. | 1371.373 | -48.844 | 000. | 000. | 000: |
| | PO-Z_1 | Brake Force | PO | fr wheel | fr upright | 000. | 000. | 3347.224 | 000. | 000. | 000: |
| | PI_FR Rocker Pivot | Rocker Pivot | Ы | fr rocker | frame | 229 | -3233.842 | 1810.436 | 000. | 4.834 | -9.686 |
| | PO-Y_Force Lat | Force Long. | PO | frame | sol | 000. | 3000.000 | 000. | 000. | 000. | 000: |
| | POX_Force Long | Force Lat. | ЬО | frame | sol | -3000.000 | 000. | 000. | .000 | 000. | 000. |

