

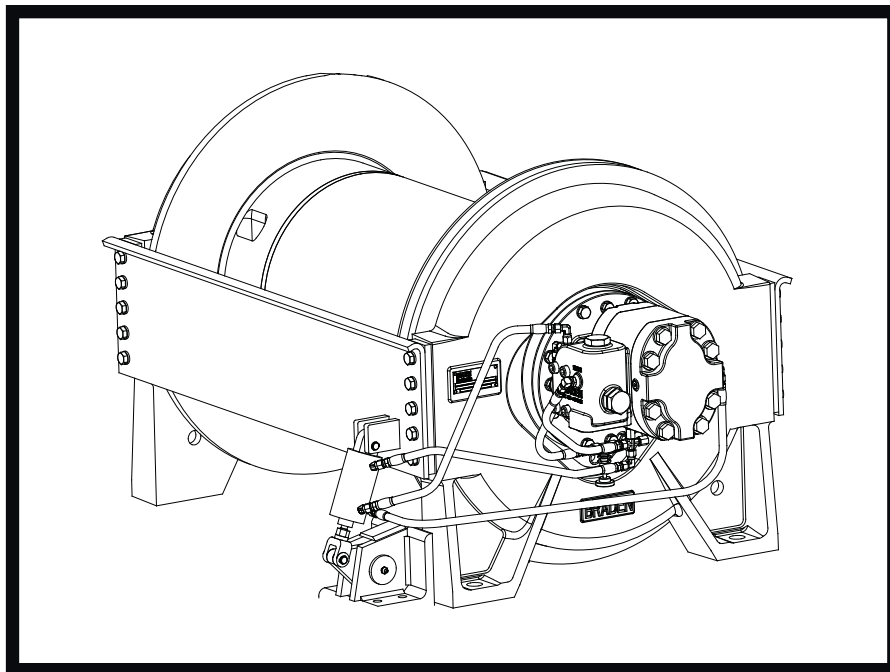
# BRADEN<sup>®</sup>

# CH280A

## HYDRAULIC WINCH

# MATERIAL LIST

Covers Units 06089, 06090, 06091, & 06109



Authorized Distributor:  
Pacific Marine & Industrial  
[www.pacificmarine.net](http://www.pacificmarine.net)  
[info@pacificmarine.net](mailto:info@pacificmarine.net)

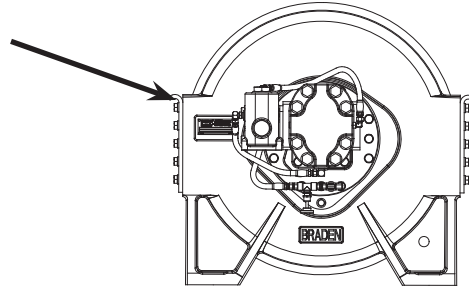
**PACCAR** WINCH DIVISION

P. O. BOX 547 BROKEN ARROW, OK U.S.A. 74013  
PHONE (918) 251-8511 FAX (918) 259-1575  
[www.paccarwinch.com](http://www.paccarwinch.com)

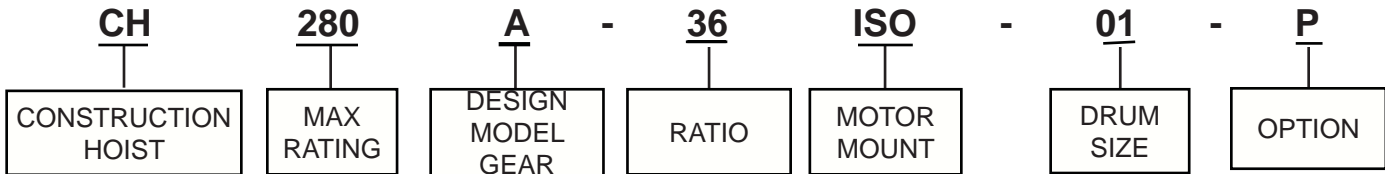


# FOR BEST RESULTS, USE ONLY GENUINE BRADEN REPLACEMENT PARTS

Serial Numbers and Model Numbers are located to the left hand side of the hydraulic motor, stamped into the base. Always refer to the Serial Number and Model Number when requesting information or service parts.



## EXPLANATION OF MODEL NUMBER

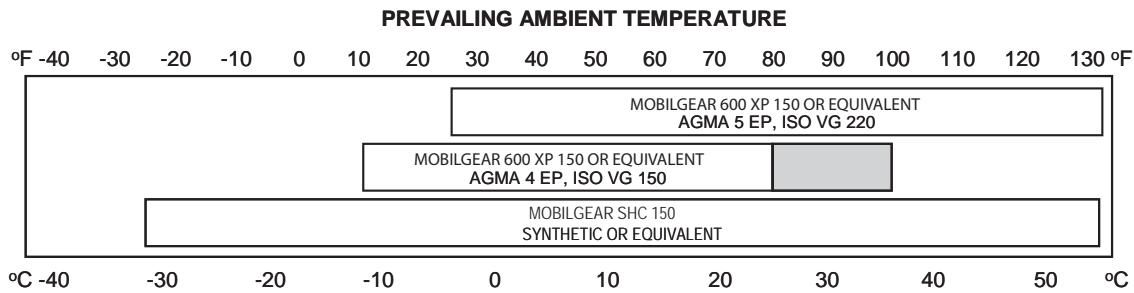


- CH DESIGNATES CONSTRUCTION HOIST
- 280 DESIGNATES 28,000 LB FIRST LAYER LINE PULL
- A DESIGNATES THE MODEL SERIES RELATING TO DESIGN CHANGES
- 36 DESIGNATES TOTAL GEAR REDUCTION (36:1; 50:1)
- ISO DESIGNATES MOTOR MOUNT
- 01 DESIGNATES THE DRUM OPTION
- P DESIGNATES RATCHET AND PAWL

### TO ORDER PARTS -

- (1) List model and serial numbers of the winch.
- (2) Refer to exploded view and select the component(s) needed and note item number.
- (3) Find item number on material list, show part number, description and quantity required on your order.
- (4) Refer to Parts Price list and show price for each component or assembly.

### RECOMMENDED PLANETARY GEAR OIL



**i** NOTE: SHADED TEMPERATURE RANGE IN THE CHART ABOVE NOT RECOMMENDED FOR SEVERE APPLICATIONS SUCH AS: OFFSHORE CRANES, SUSTAINED FAST DUTY CYCLES OR FREQUENT LIFTING.

Planetary hoists are factory filled with Mobilgear 600 XP 150, or equivalent. Consult your oil supplier for other equivalent oils if required.

| Mobil                | Shell     | Chevron               | Texaco     |
|----------------------|-----------|-----------------------|------------|
| Mobilgear 600 XP 150 | Omala 150 | Gear Compounds EP 150 | Meropa 150 |
| Mobilgear 600 XP 220 | Omala 220 | Gear Compounds EP 220 | Meropa 220 |

Refer to Bulletin No. 503 Rev. 4 for additional gear oil information.



# MISCELLANEOUS PARTS GROUP

| ITEM NO. | DESCRIPTION                                      | PART NO. | QTY. |
|----------|--|----------|------|
| 1        | Capscrew   | 104323   | 8    |
| 2        | Lockwasher                                       | 11026    | 32   |
| 3        | Bearing Support                                  | 106597   | 1    |
| 4        | Sight Gauge                                      | 70193    | 1    |
| 5        | Relief Valve                                     | 18062    | 1    |
| 6        | Ring Gear  | 106641   | 1    |
| 7        | Seal   | 10427    | 1    |
| 8        | End Plate, Support                               | 106671   | 1    |
| 9        | Ball Bearing                                     | 24487    | 1    |
| 10       | Cable Drum Assembly - 01P Drum                   | 83539    | 1    |
|          | Cable Drum Assembly - 02 Drum                    | 83536    | 1    |
| 12       | Output Sun gear                                  | 106621   | 1    |
| 13       | Thrust Washer                                    | 104365   | 1    |
| 15       | Thrust Washer                                    | 106670   | 1    |
| 16       | Ball Bearing                                     | 106673   | 1    |
| 17       | O'Ring   | 103317   | 1    |
| 18       | Seal   | 70167    | 1    |
| 20       | V-Ring Seal                                      | 103393   | 2    |
| 22       | Primary Sun Gear - (160 mm Pilot)                | 107984   | 1    |
|          | Primary Sun Gear - (180 mm Pilot)                | 107987   | 1    |
| 23       | Drum Closure                                     | 106625   | 1    |
| 24       | End Plate, Motor                                 | 106642   | 1    |
| 25       | Capscrew (1/2 - 13 X 1 1/2 GD8 Z)                | 103314   | 24   |
| 26       | Lockwasher ( 5/8 Z Split) (160 mm Pilot)         | 102423   | 8    |
|          | Lockwasher (5/8 Hi Col) (180 mm Pilot)           | 102335   | 8    |
| 27       | Capscrew (5/8 - 18 X 4 1/2 GD8 Z) (160 mm Pilot) | 22512    | 8    |
|          | Capscrew (5/8 - 18 X 3 1/2 GD8 Z) (180 mm Pilot) | 107998   | 8    |
| 28       | Tie Plate - 02 Drum                              | 106911   | 1    |
|          | Tie Plate - 01P Drum                             | 106647   | 2    |
| 30       | Drive Screw                                      | 11842    | 4    |
| 31       | Plug, O'Ring Flush                               | 32411    | 1    |
| 32       | Nameplate  | 76381    | 1    |
| 33       | Cable Wedge                                      | 24494    | 1    |
| 34       | Plug   | 22450    | 1    |
| 35       | Closure  | 70686    | 1    |
| 100      | Overrunning Clutch Assy. See Pg. 6.              |          |      |
| 200      | Brake Cylinder Assy. See Pg. 7.                  |          |      |
| 300      | Primary Planet Carrier. See Pg. 8.               |          |      |
| 400      | Output Planet Carrier. See Pg. 9.                |          |      |
| 700      | Motor Group                                      |          |      |



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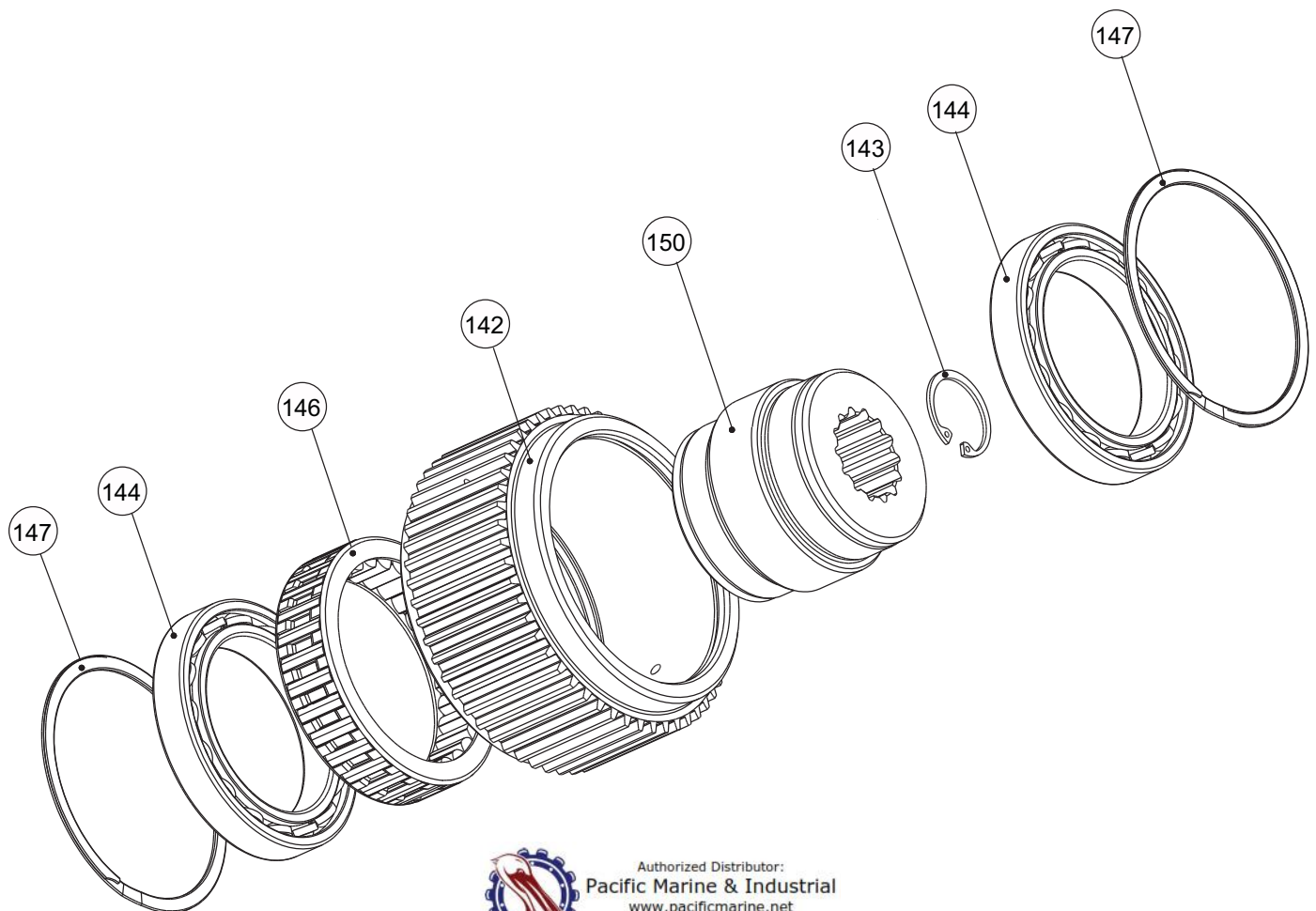


# OVERRUNNING CLUTCH ASSEMBLY

| ITEM NO. | DESCRIPTION                                   | PART NO. | QTY. |
|----------|---|----------|------|
| 142      | Outer Race                                    | NSS      | 1    |
| 143      | Retaining Ring (02 Drum) (160 mm Pilot)       | 102150   | 1    |
|          | Retaining Ring (01P & 02 Drum) (180 mm Pilot) | 29140    | 1    |
|          | Retaining Ring (01P Drum) (160 mm Pilot)      | 24506    | 1    |
| 144      | Ball Bearing                                  | 103104   | 2    |
| 146      | Overrunning Clutch                            | NSS      | 1    |
| 147      | Retaining Ring                                | 103110   | 2    |
| 150      | Inner Race                                    | NSS      | 1    |

NSS - Not Serviced Separately

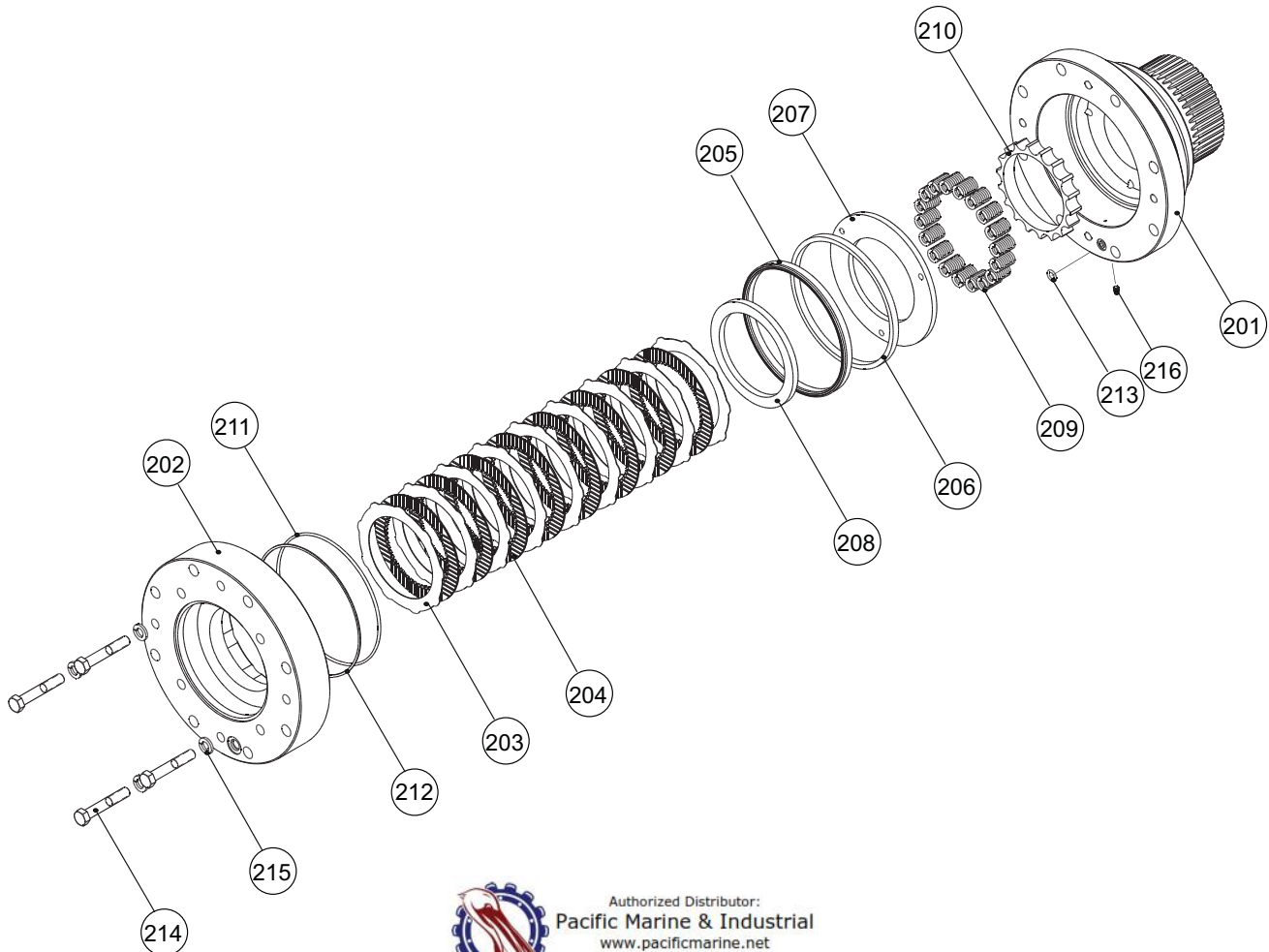
| ITEM NO. | DESCRIPTION           | PART NO. | QTY. |
|----------|-----------------------|----------|------|
| CH280A   | Sprag                 | 83754    | 1    |
|          | 160 mm Pilot, 02 Drum |          |      |
|          | Sprag                 | 82908    | 1    |
|          | 160 mm Pilot, 01P     |          |      |
|          | Sprag                 | 83759    | 1    |
|          | 180 mm Pilot          |          |      |



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# BRAKE CYLINDER ASSEMBLY

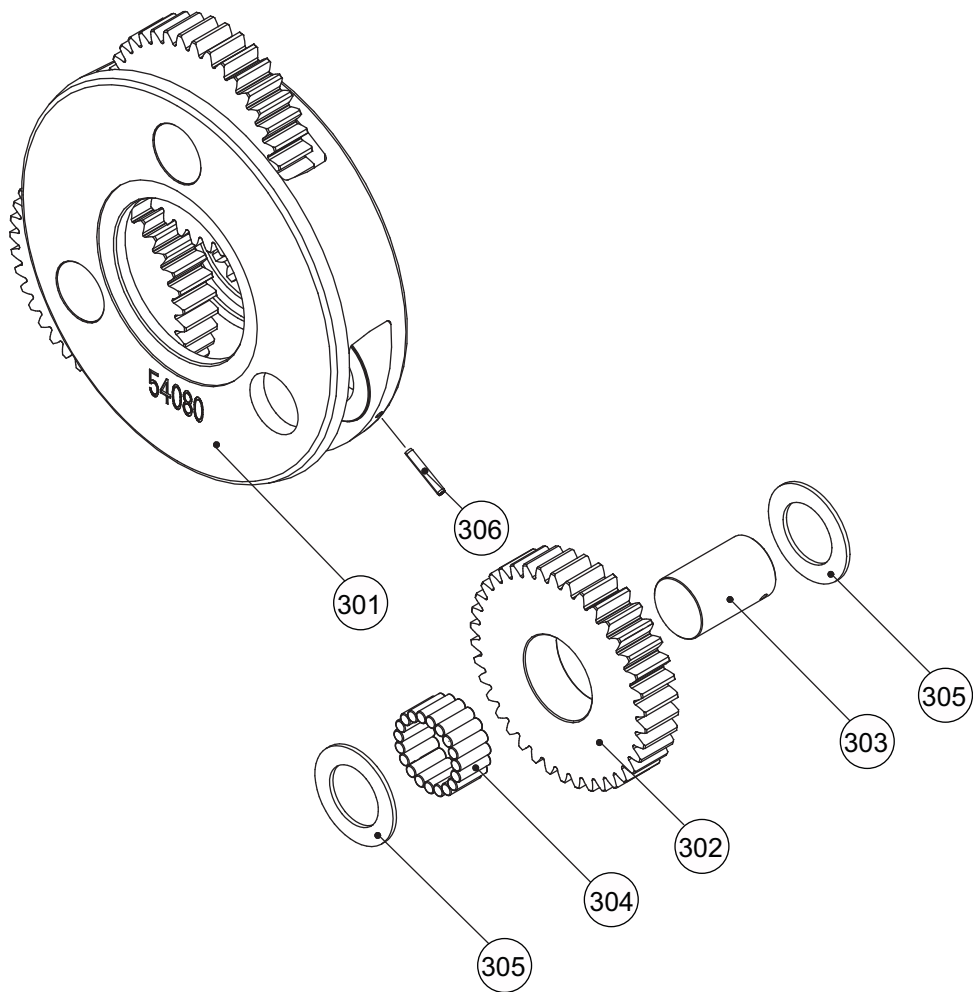
| ITEM NO. | DESCRIPTION                                      | PART NO. | QTY. |
|----------|--|----------|------|
| 201      | Brake Cylinder                                   | 106599   | 1    |
| 202      | Motor Adapter - 160 mm Pilot                     | 107988   | 1    |
|          | Motor Adapter - 180 mm Pilot                     | 107989   | 1    |
| 203      | Brake Disc                                       | 102954   | 9    |
| 204      | Friction Disc                                    | 103167   | 8    |
| 205      | Seal, U-Cup                                      | 103441   | 1    |
| 206      | Piston Back-Up Ring                              | 25746    | 1    |
| 207      | Pressure Plate                                   | 103168   | 1    |
| 208      | Brake Plate Spacer                               | 103169   | 1    |
| 209      | Brake Spring (54:1)                              | 24108    | 18   |
| 210      | Spring Spacer                                    | 103147   | 1    |
| 211      | O-Ring   | 22357    | 1    |
| 212      | Back-Up Washer                                   | 77278    | 1    |
| 213      | O-Ring   | 13017    | 1    |
| 214      | Capscrew (1/2 - 13 X 3.00 GD8 Z) (160 mm Pilot)  | 102347   | 4    |
|          | Capscrew (1/2 - 13 X 2 1/4 GD8 Z) (180 mm Pilot) | 27247    | 4    |
| 215      | Lockwasher, Hi Collar (1/2) (180 mm Pilot)       | 103254   | 4    |
|          | Lockwasher, Z Split (1/2) (160 mm Pilot)         | 11026    | 4    |
| 216      | Expansion Plug                                   | 103379   | 1    |



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# PRIMARY PLANET CARRIER

| ITEM NO. | DESCRIPTION            | PART NO. | QTY. |
|----------|------------------------|----------|------|
| 301      | Primary Planet Carrier | 106648   | 1    |
| 302      | Primary Planet Gear    | 104151   | 3    |
| 303      | Primary Planet Shaft   | 104355   | 3    |
| 304      | Rotor Roller           | 11104    | 57   |
| 305      | Thrust Washer          | 103681   | 6    |
| 306      | Spirol Pin             | 24582    | 3    |

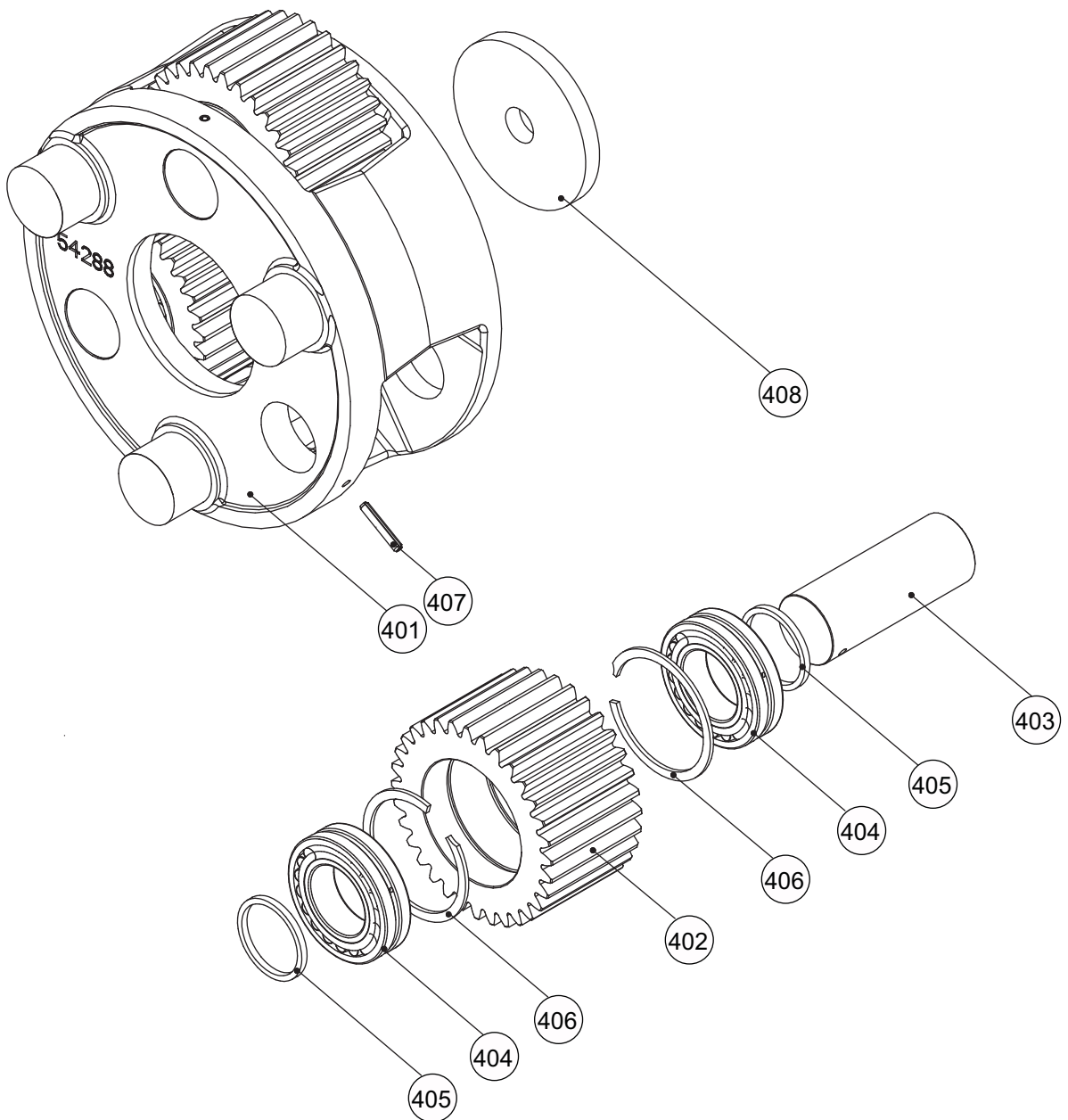


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# OUTPUT PLANET CARRIER

| ITEM NO. | DESCRIPTION           | PART NO. | QTY. |
|----------|-----------------------|----------|------|
| 401      | Output Planet Carrier | 106634   | 1    |
| 402      | Ouput Planet Gear     | 106620   | 3    |
| 403      | Ouput Planet Shaft    | 106643   | 3    |
| 404      | Bearing               | 107715   | 6    |
| 405      | Spacer                | 107713   | 6    |
| 406      | Retaining Ring        | 107716   | 3    |
| 407      | Rollpin               | 18055    | 3    |
| 408      | Output Thrust Plate   | 106649   | 1    |



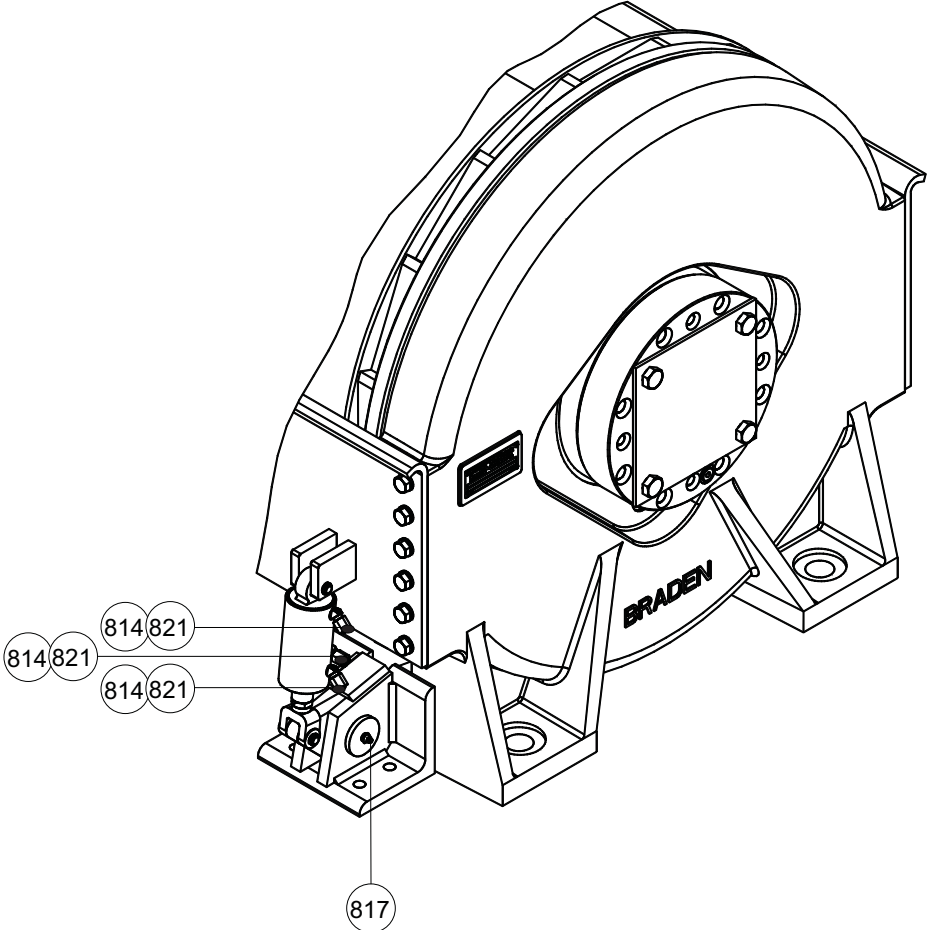
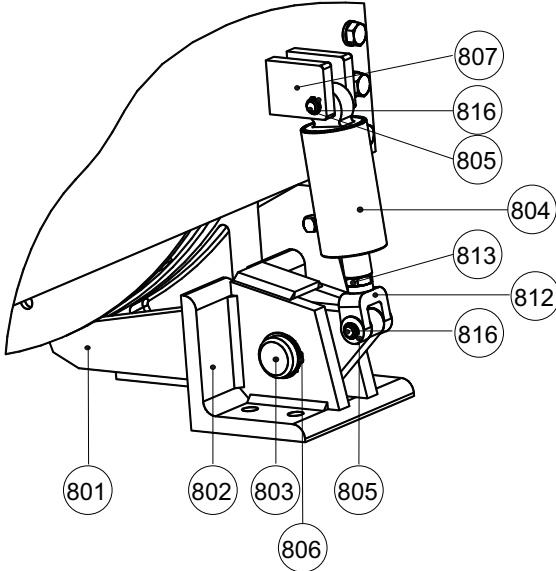
# RATCHET & PAWL GROUP

| ITEM NO. | DESCRIPTION              | PART NO. | QTY. |
|----------|--------------------------|----------|------|
| 801      | Pawl Assembly            | 40155    | 1    |
| 802      | Pivot Base               | 24871    | 1    |
| 803      | Pin                      | 24876    | 1    |
| 804      | Cylinder Assembly        | 81663    | 1    |
| 805      | Pivot Pin                | 104153   | 2    |
| 806      | Snap Ring                | 12035    | 1    |
| 807      | Mounting Plate           | 52495    | 2    |
| 808      | Elbow Tbg Ftg            | 21163    | 1    |
| 812      | Clevis                   | 24882    | 1    |
| 813      | Nut-Jam                  | 18004    | 1    |
| 814      | Elbow Tbg Ftg            | 21165    | 2    |
| 816      | Ring, External Retaining | 101082   | 4    |
| 817      | Grease Fitting           | 18047    | 1    |
| 821      | Cap Nut                  | 70182    | 3    |



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# RATCHET & PAWL GROUP



# METRIC CONVERSION TABLE

| English to Metric              |           |   | Metric to English                           |            |                                  |
|--------------------------------|-----------|---|---|------------|----------------------------------|
| <b>LINEAR</b>                  |           |   |   |            |                                  |
| inches (in.)                   | X 25.4    | = millimeters (mm)                            | millimeters (mm)                            | X 0.3937   | = inches (in.)                   |
| feet (ft.)                     | X 0.3048  | = meters (m)                                  | meters (m)                                  | X 3.281    | = feet (ft.)                     |
| miles (mi.)                    | X 1.6093  | = kilometers (km)                             | kilometers (km)                             | X 0.6214   | = miles (mi.)                    |
| <b>AREA</b>                    |           |   |   |            |                                  |
| inches <sup>2</sup> (sq.in.)   | X 645.15  | = millimeters <sup>2</sup> (mm <sup>2</sup> ) | millimeters <sup>2</sup> (mm <sup>2</sup> ) | X 0.000155 | = inches <sup>2</sup> (sq.in.)   |
| feet <sup>2</sup> (sq.ft.)     | X 0.0929  | = meters <sup>2</sup> (m <sup>2</sup> )       | meters <sup>2</sup> (m <sup>2</sup> )       | X 10.764   | = feet <sup>2</sup> (sq.ft.)     |
| <b>VOLUME</b>                  |           |   |   |            |                                  |
| inches <sup>3</sup> (cu.in.)   | X 0.01639 | = liters (l)                                  | liters (l)                                  | X 61.024   | = inches <sup>3</sup> (cu.in.)   |
| quarts (qts.)                  | X 0.94635 | = liters (l)                                  | liters (l)                                  | X 1.0567   | = quarts (qts.)                  |
| gallons (gal.)                 | X 3.7854  | = liters (l)                                  | liters (l)                                  | X 0.2642   | = gallon (gal.)                  |
| inches <sup>3</sup> (cu.in.)   | X 16.39   | = centimeters <sup>3</sup> (cc)               | centimeters <sup>3</sup> (cc)               | X 0.06102  | = inches <sup>3</sup> (cu.in.)   |
| feet <sup>3</sup> (cu.ft.)     | X 28.317  | = liters (l)                                  | liters (l)                                  | X 0.03531  | = feet <sup>3</sup> (cu.ft.)     |
| feet <sup>3</sup> (cu.ft.)     | X 0.02832 | = meters <sup>3</sup> (m <sup>3</sup> )       | meters <sup>3</sup> (m <sup>3</sup> )       | X 35.315   | = feet <sup>3</sup> (cu.ft.)     |
| fluid ounce (fl.oz.)           | X 29.57   | = milliliters (ml)                            | milliliters (ml)                            | X 0.03381  | = fluid ounce (fl.oz.)           |
| <b>MASS</b>                    |           |   |   |            |                                  |
| ounces (oz.)                   | X 28.35   | = grams (g)                                   | grams (g)                                   | X 0.03527  | = ounces (oz.)                   |
| pounds (lbs.)                  | X 0.4536  | = kilograms (kg)                              | kilograms (kg)                              | X 2.2046   | = pounds (lbs.)                  |
| tons (2000 lbs.)               | X 907.18  | = kilograms (kg)                              | kilograms (kg)                              | X 0.001102 | = tons (2000 lbs.)               |
| tons (2000 lbs.)               | X 0.90718 | = metric tons (t)                             | metric tons (t)                             | X 1.1023   | = tons (2000 lbs.)               |
| tons (long) (2240 lbs.)        | X 1013.05 | = kilograms (kg)                              | kilograms (kg)                              | X 0.000984 | = tons (long) (2240 lbs.)        |
| <b>PRESSURE</b>                |           |   |   |            |                                  |
| inches Hg (60°F)               | X 3600    | = kilopascals (kPa)                           | kilopascals (kPa)                           | X 0.2961   | = inches Hg (60°F)               |
| pounds/sq.in. (PSI)            | X 6.895   | = kilopascals (kPa)                           | kilopascals (kPa)                           | X 0.145    | = pounds/sq.in. (PSI)            |
| pounds/sq.in. (PSI)            | X 0.0703  | = kilograms/sq.cm. (kg/cm <sup>2</sup> )      | kilograms/sq.cm. (kg/cm <sup>2</sup> )      | X 14.22    | = pounds/sq.in. (PSI)            |
| pounds/sq.in. (PSI)            | X 0.069   | = bars  | bars  | X 14.5     | = pounds/sq.in. (PSI)            |
| inches H <sub>2</sub> O (60°F) | X 0.2488  | = kilopascals (kPa)                           | kilopascals (kPa)                           | X 4.0193   | = inches H <sub>2</sub> O (60°F) |
| bars                           | X 100     | = kilopascals (kPa)                           | kilopascals (kPa)                           | X 0.01     | = bars                           |
| <b>POWER</b>                   |           |   |   |            |                                  |
| horsepower (hp)                | X 0.746   | = kilowatts (kW)                              | kilowatts (kW)                              | X 1.34     | = horsepower (hp)                |
| ft.-lbs./min.                  | X 0.0226  | = watts (W)                                   | watts (W)                                   | X 44.25    | = ft.-lbs./min.                  |
| <b>TORQUE</b>                  |           |   |   |            |                                  |
| pound-inches (in.-lbs.)        | X 0.11298 | = newton-meters (N-m)                         | newton-meters (N-m)                         | X 8.851    | = pound-inches (in.-lbs.)        |
| pound-feet (ft.-lbs.)          | X 1.3558  | = newton-meters (N-m)                         | newton-meters (N-m)                         | X 0.7376   | = pound-feet (ft.-lbs.)          |
| pound-feet (ft.-lbs.)          | X .1383   | = kilograms/meter (kg-m)                      | kilogram/meter (kg-m)                       | X 7.233    | = pound-feet (ft.-lbs.)          |
| <b>VELOCITY</b>                |           |   |   |            |                                  |
| miles/hour (m/h)               | X 0.11298 | = kilometers/hour (km/hr)                     | kilometers/hour (km/hr)                     | X 0.6214   | = miles/hour (m/h)               |
| feet/second (ft./sec.)         | X 0.3048  | = meter/second (m/s)                          | meters/second (m/s)                         | X 3.281    | = feet/second (ft./sec.)         |
| feet/minute (ft./min.)         | X 0.3048  | = meter/minute (m/min)                        | meters/minute (m/min)                       | X 3.281    | = feet/minute (ft./min.)         |
| <b>TEMPERATURE</b>             |           |   |   |            |                                  |
| °Celsius = 0.556 (°F - 32)     |           |   | °Fahrenheit = (1.8°C) + 32                  |            |                                  |
| <b>COMMON METRIC PREFIXES</b>  |           |   |   |            |                                  |
| mega                           | (M)       | = 1,000,000 or 10 <sup>6</sup>                | deci  | (d)        | = 0.1 or 10 <sup>-1</sup>        |
| kilo                           | (k)       | = 1,000 or 10 <sup>3</sup>                    | centi                                       | (c)        | = 0.01 or 10 <sup>-2</sup>       |
| hecto                          | (h)       | = 100 or 10 <sup>2</sup>                      | milli                                       | (m)        | = 0.001 or 10 <sup>-3</sup>      |
| deka                           | (da)      | = 10 or 10 <sup>1</sup>                       | micro                                       | (µ)        | = 0.000.001 or 10 <sup>-6</sup>  |