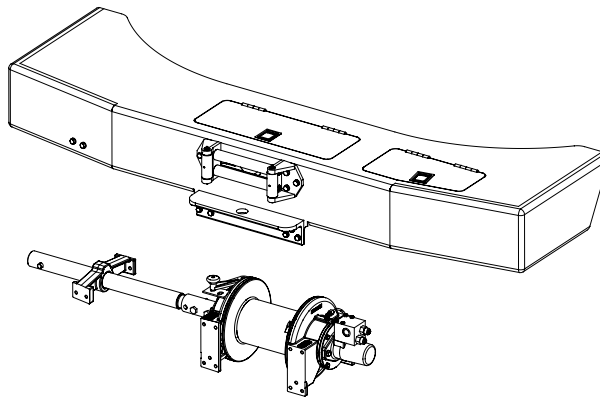


MOTOR EXCHANGE INSTRUCTIONS

PD18C Hydraulic Recovery Winch



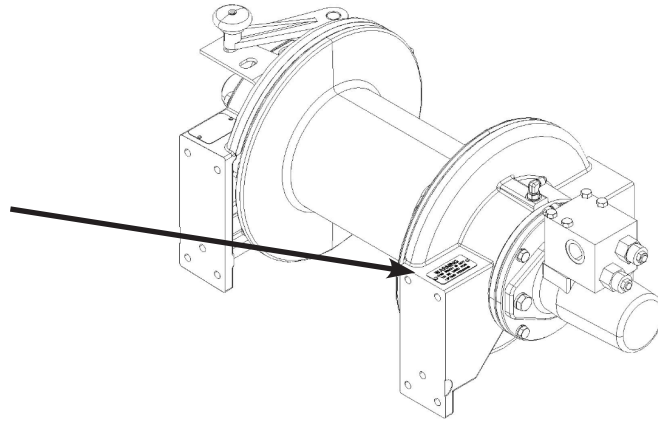
Visit our Web site at www.paccarwinch.com for the most comprehensive collection of winch, hoist, and drive information on the Internet. Most publications and specification sheets are available for downloading.

Refer to PD18C Service Manual, Publication LIT2220, for maintenance and service procedures.

FOREWORD

Some illustrations in this Service Bulletin may show details or attachments different from your winch. Some components have been removed for illustrative purposes.

Model numbers and serial numbers are located to the left-hand side of the hydraulic motor, stamped into the base. Always refer to the model number and serial number when requesting information or service parts.



Refer to the following PACCAR Winch publications for related information:

- LIT2220 – PD18C Hydraulic Recovery Winch Service Manual
- LIT2677 – Service Bulletin, Eaton LSHT Spool Motor Field Replacement Campaign

For inquiries, please contact BRADEN Service Department at 918-251-8511, Monday through Friday, 8:00 a.m. to 4:30 p.m. (CST).

⚠ WARNING ⚠

Failure to use the proper type and viscosity of planetary gear oil may contribute to intermittent brake-clutch slippage which could result in property damage, severe personal injury, or death. Some gear lubricants (such as API GL5 automotive gear lube) contain large amounts of extreme-pressure (EP) and anti-friction additives which may contribute to brake-clutch slippage and damage to brake friction discs or seals. Oil viscosity with regard to ambient temperature is also critical to reliable brake-clutch operation. Tests indicate that excessively heavy or thick gear oil may contribute to intermittent brake-clutch slippage. Make certain the gear oil viscosity used in your winch is correct for your prevailing ambient temperature.

EATON LSHT SPOOL MOTOR FIELD REPLACEMENT CAMPAIGN

Important note: Upon completion of repairs, e-mail or fax the Rework Certificate (included in this Service Bulletin) to: winch.service@paccar.com, fax: 1-918-259-1575. Fill out the Rework Certificate and include a copy of the form with the returned motor to receive proper warranty credit.

Eaton Hydraulic LLC has notified PACCAR Winch that certain motors that were supplied to us from 12/26/2015 through 3/30/2016 may have a manufacturing defect in the motor output shaft. Eaton has determined that these defects could result in the structural failure of the motor output shaft causing the motor to lose functional interaction of the output shaft. The incidents of defects are significantly low (0.029%), so to determine the necessity of replacement, please refer to Eaton's Field Product Summary below.

Eaton's Field Product Summary states:

If an Affected Product ... is currently installed on a piece of equipment and the date code is within the Affected Date Code Range, follow the instructions below:

1. Review the application in which the motor is installed. If used in any application in which the Operational Impact could cause a safety concern, e.g., steering, braking, or elevating boom control, then the motor should be removed, replaced, and returned in accordance with instructions below. Please work with your warranty analyst to identify the application the motor is in if you are not sure.
2. For any application where the Operational Impact does not contribute to a safety concern, the approach should be fix-as-fail. This approach can be used for the Affected Product within the Affected Date Code Range ... Due to the minimal number of (expected) defects, failures are unlikely to occur in significant numbers.

Based on the above criteria, PACCAR Winch recommends that all motors in hoisting and recovery applications be replaced.

Affected Date Code Range: Affected Product date codes range from December 26, 2015 (26-Dec-15) through March 30, 2016 (30-Mar-16).

SERVICE BULLETIN

LIT2677
May 2016

How to Read the Eaton Product Date Code: Date codes are located on the Eaton name plate located on the motor housing. See Figure below.

Example of the Serial Number identification:
Build Date Code / Serial No. YYMMDDxxxxxxx

160404M0H0269
160404 – Year 16, Month 04, Day 04



Please refer to the Hoist or Winch service manual for motor replacement instructions.

PACCAR Winch will credit \$75 per hour for labor replacement not to exceed 2.5 hours per motor. The Replaced Motor must be returned accompanied by the Rework Certificate below in order to process your warranty credit.

For technical assistance, please contact:

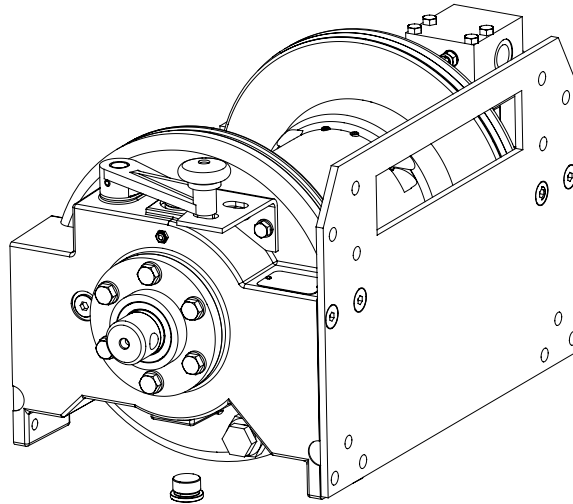
Bill Tibbett
PACCAR Winch Service Coordinator
e-mail: winch.service@paccar.com
Phone: 918-259-3215

MOTOR EXCHANGE INSTRUCTIONS

PD18C Hydraulic Recovery Winch

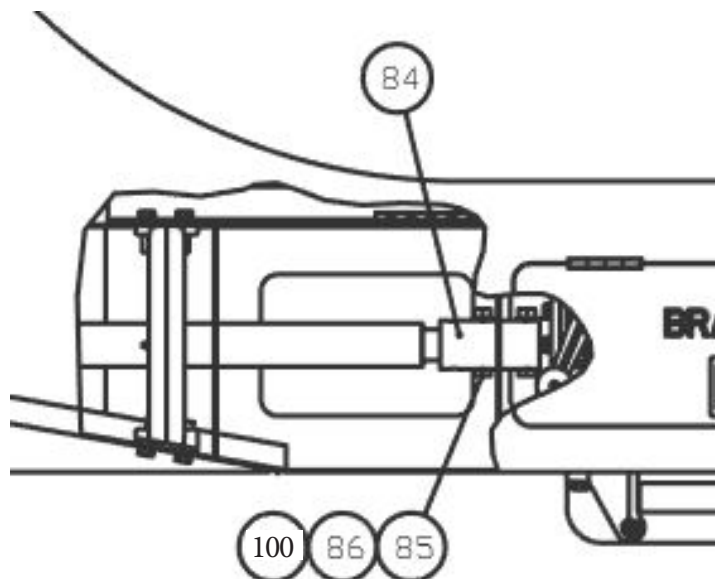
Refer to the PD18C drawings included in this set of instructions.

The drawing below shows winch removed from the bumper for illustrative purposes.

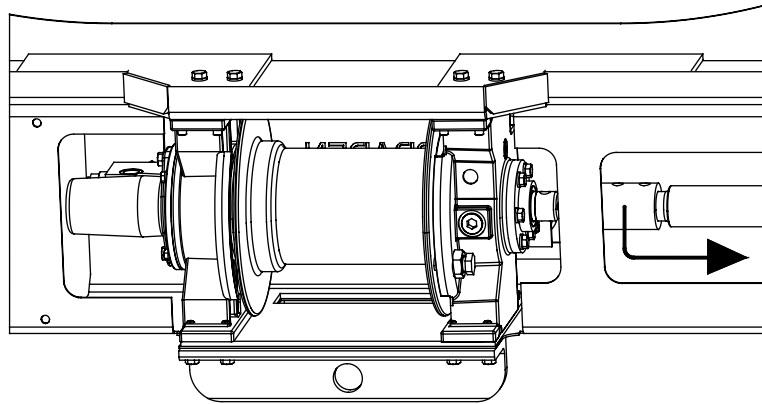


If hydraulic hoses have been connected to the motor valve block, place oil drip pans or absorbent pads under the winch before disconnecting the hoses to contain oil spill. The hoses should be plugged after removal.

1. Remove capscrews (100), lockwashers, and nuts which secure the capstan drive coupling to the output sun gear and capstan drive shaft shown in drawing below.



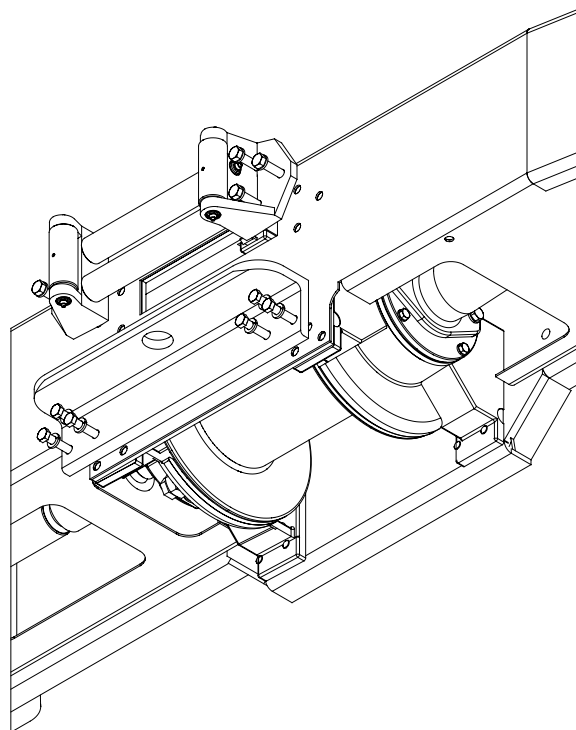
2. Slide the capstan drive coupling outboard to release the capstan drive from the winch.

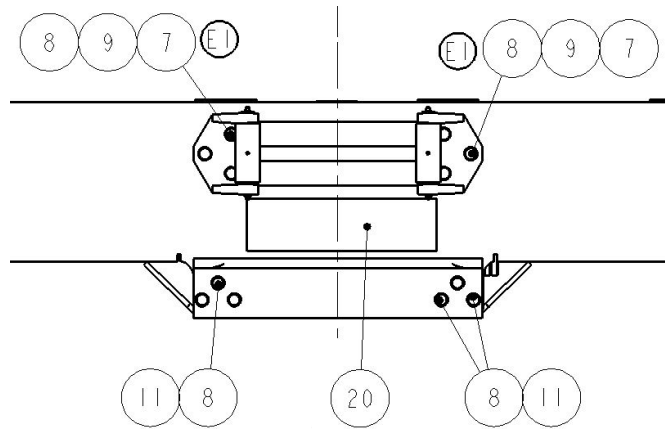


⚠ WARNING ⚠

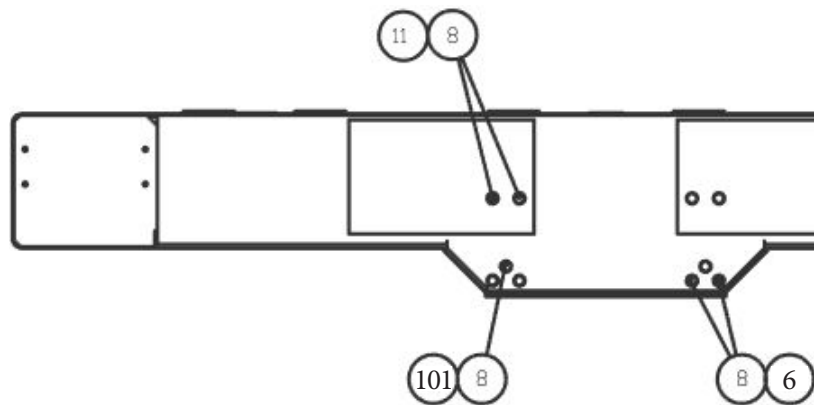
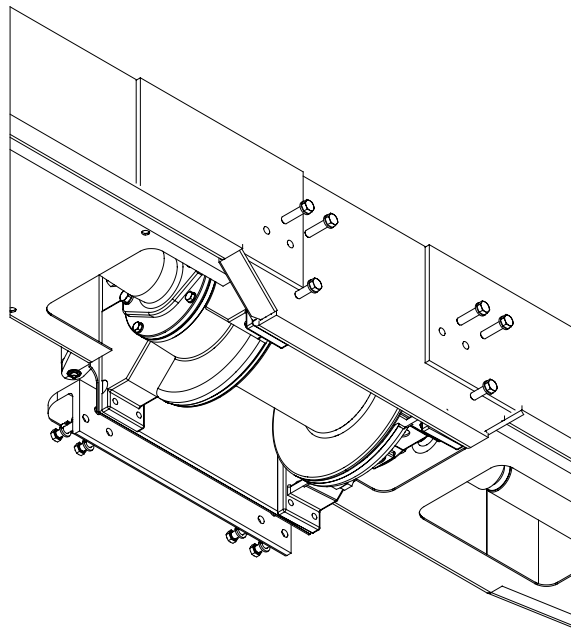
Support the winch from above with a hoist rated for at least 400 pounds before removing the bolts securing the tow bar, roller assembly, and bolts behind the bumper. These bolts secure the winch to the bumper.

3. Remove the six capscrews, lockwashers, and nuts (7, 8, 9) securing the roller assembly and the six capscrews and lockwashers (8, 11) securing the tow bar. These capscrews attach the tow bar and roller assembly to the winch while passing through the bumper assembly.





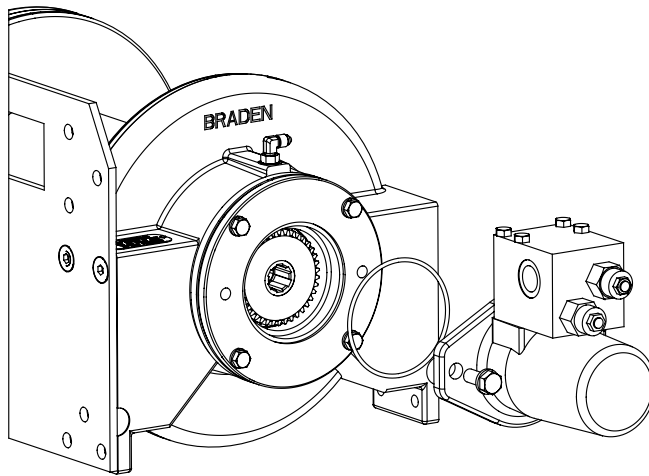
- Remove the 10 capscrews (8, 11, and 101) and lockwashers (8) from the backside of the bumper assembly in drawing below. The winch can now be lowered from the bumper.



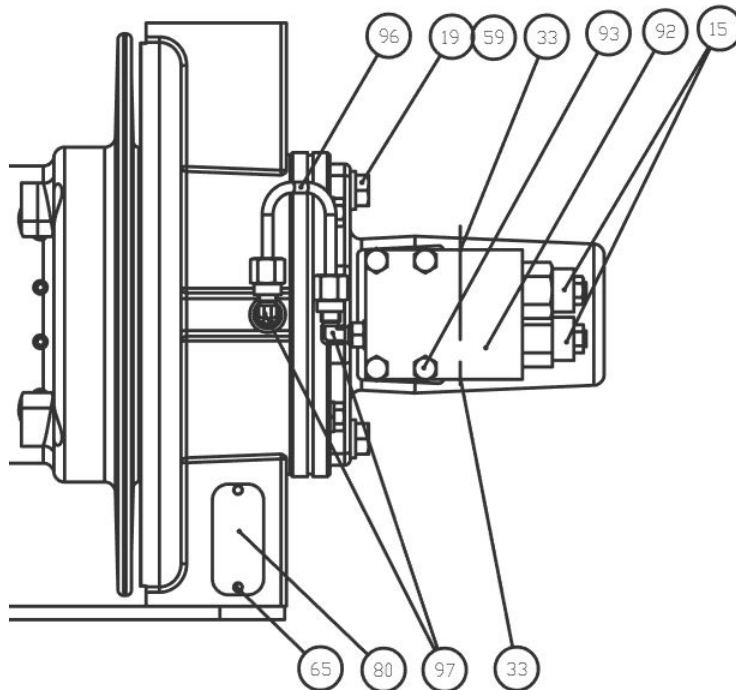
⚠ CAUTION ⚠

Set the winch in a work area and block the motor end upward at an approximate 15-degree angle. This will prevent oil from leaking out of the winch when the motor is removed. Drip pads or pans should be placed under the motor to catch residual oil when the motor is removed.

5. Remove the brake-supply transfer tube from the brake valve and brake-cylinder assembly.



6. Remove the hydraulic motor capscrews and lockwashers (19 and 59) and remove the motor assembly from the motor-support housing.



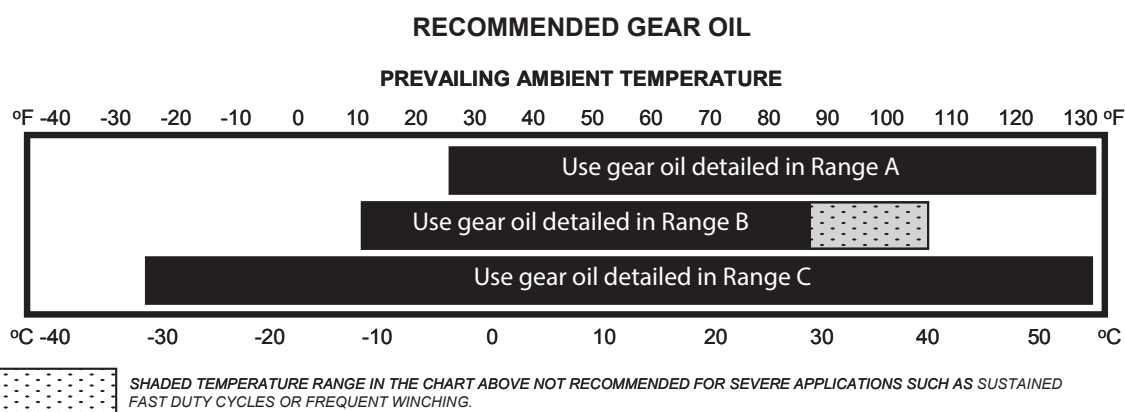
7. Remove the four capscrews (93) securing the brake valve to the motor, and set the brake valve and two O-rings in a clean area. Set aside the original motor for return.
8. Install supplied motor pilot O-ring onto new motor and lubricate lightly with hydraulic oil.
9. Install motor into motor support. Motor should be flush with brake support. If it is not, remove motor and ensure brake hub internal retaining ring is seated against the sun gear shaft.
10. Install motor capscrews and lockwashers (19 and 59), and torque the motor bolts to 75 foot-pounds.
11. Install brake-valve O-rings into valve block grooves (grease lightly to keep in place if needed). Install brake valve onto motor using four capscrews (93). Torque capscrews to 13 foot-pounds.
12. Install the brake-supply transfer tube to the brake valve and brake cylinder assembly.

The winch is ready to be reinstalled in the bumper.

13. Position the winch under the bumper and strap so it can be lifted into position.
14. Lift winch into bumper and insert backside capscrews and lockwashers hand-tight.
15. Insert front-side capscrews and lockwashers through the tow bar and install capscrews, lockwashers, and nuts for roller assembly.
16. Slide the capstan coupling over the output sun gear shaft and capstan drive shaft. Insert the capscrews, lockwashers, and nuts through the capstan coupling and shaft. Torque the bolts to 150 foot-pounds.
17. Torque bolts which secure winch to bumper to 75 foot-pounds. These are tow bar, roller assembly, and bolts on back of the bumper.
18. Connect hydraulic hoses to the valve block if they were installed.
19. If winch is connected to the truck hydraulics, operate the winch in reel-out and reel-in modes, checking for abnormal noises and oil leaks.
20. Put original motor in replacement-motor packaging for return.
21. Complete the Rework Certificate included in two Service Bulletins:
 - LIT2677 Eaton LSHT Spool Motor Field Replacement Campaign
 - LIT2687 Motor Exchange Instructions PD18C
22. Send Rework Certificate to PACCAR Winch as specified. PACCAR Winch will issue a Return Material Authorization for the original motor. Credit will be issued after the motor is received.

RECOMMENDED PLANETARY GEAR OIL

BRADEN planetary winches are factory-filled with Texaco Meropa 150 gear oil or equivalent industrial-grade gear lubricant that meets AGMA 4EP with ISO viscosity grade 150.



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

| | Mobil | Shell | Chevron | Texaco |
|---------|----------------------|-----------------|-----------------------|------------|
| Range A | Mobilgear 600 XP 220 | Omala S2 G 220 | Gear Compounds EP 220 | Meropa 220 |
| Range B | Mobilgear 600 XP 150 | Omala S2 G 150 | Gear Compounds EP 150 | Meropa 150 |
| Range C | Mobilgear SHC 150 | Omala S4 GX 150 | | |

REWORK CERTIFICATE

EATON LSHT SPOOL MOTOR FIELD REPLACEMENT CAMPAIGN

(Please type or print)

Winch Model: _____ Winch Serial No.: _____

Date Repaired: _____ Original Motor Serial No.: _____

Chassis Serial No.: _____ Repl. Motor Serial No.: _____

Status of Winch at time of Replacement:

- Placed into service In Inventory (not previously placed into service)

Rework Completed By:

Name: _____ Title: _____

Signature: _____ Date: _____

Company Name: _____

Address: _____

Contact: _____ Phone: _____

E-mail: _____

This certificate provides verification that the original motor has been removed from the above-listed winch and replaced with the motor serial number as shown above.

Upon completion of repairs, e-mail or fax this Rework Certificate to:

winch.service@paccar.com

Fax: 1-918-259-1575

INCLUDE A COPY OF THIS REWORK CERTIFICATE
WITH THE RETURNED MOTOR
TO RECEIVE PROPER WARRANTY CREDIT

METRIC CONVERSION TABLE

English to Metric

Metric to English

| English to Metric | | | Metric to English | | |
|--------------------------------|-----------|-----------------------------------------------|---------------------------------------------|------------|----------------------------------|
| LINEAR | | | | | |
| inches (in.) | X 25.4 | = millimeters (mm) | millimeters (mm) | X 0.03937 | = 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.) |
| AREA | | | | | |
| inches ² (sq.in.) | X 645.15 | = millimeters ² (mm ²) | millimeters ² (mm ²) | X 0.000155 | = inches ² (sq.in.) |
| feet ² (sq.ft.) | X 0.0929 | = meters ² (m ²) | meters ² (m ²) | X 10.764 | = feet ² (sq.ft.) |
| VOLUME | | | | | |
| inches ³ (cu.in.) | X 0.01639 | = liters (l) | liters (l) | X 61.024 | = inches ³ (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 ³ (cu.in.) | X 16.39 | = centimeters ³ (cc) | centimeters ³ (cc) | X 0.06102 | = inches ³ (cu.in.) |
| feet ³ (cu.ft.) | X 28.317 | = liters (l) | liters (l) | X 0.03531 | = feet ³ (cu.ft.) |
| feet ³ (cu.ft.) | X 0.02832 | = meters ³ (m ³) | meters ³ (m ³) | X 35.315 | = feet ³ (cu.ft.) |
| fluid ounce (fl.oz.) | X 29.57 | = milliliters (ml) | milliliters (ml) | X 0.03381 | = fluid ounce (fl.oz.) |
| MASS | | | | | |
| 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.) |
| PRESSURE | | | | | |
| 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 ²) | kilograms/sq.cm. (kg/cm ²) | 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 ₂ O (60°F) | X 0.2488 | = kilopascals (kPa) | kilopascals (kPa) | X 4.0193 | = inches H ₂ O (60°F) |
| bars | X 100 | = kilopascals (kPa) | kilopascals (kPa) | X 0.01 | = bars |
| POWER | | | | | |
| 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. |
| TORQUE | | | | | |
| 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.) |
| VELOCITY | | | | | |
| 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.) |
| TEMPERATURE | | | | | |
| °Celsius = 0.556 (°F - 32) | | | °Fahrenheit = (1.8°C) + 32 | | |
| COMMON METRIC PREFIXES | | | | | |
| mega | (M) | = 1,000,000 or 10 ⁶ | deci | (d) | = 0.1 or 10 ⁻¹ |
| kilo | (k) | = 1,000 or 10 ³ | centi | (c) | = 0.01 or 10 ⁻² |
| hecto | (h) | = 100 or 10 ² | milli | (m) | = 0.001 or 10 ⁻³ |
| deka | (da) | = 10 or 10 ¹ | micro | (µ) | = 0.000.001 or 10 ⁻⁶ |