UTILIMASTER

DRIVING INTELLIGENT VEHICLE SOLUTIONS

Service Guide

Tools and Fasteners

Includes Tapes and Adhesives

Recommend Tools

WARNING: Always wear safety glasses and other proper protective equipment (gloves, steel-toed shoes, face shields, knee pads, hearing protection) as appropriate to the process.

Below are some tools that may also be required in addition to the more commonly used hand tools (drills, wrenches, etc.) to perform vehicle body repair.

NOTE: Although not required, the slightly larger #11 bit is recommended instead of the 3/16" bit, and the F-bit in place of the 1/4" bit, for more clearance when inserting the fasteners.

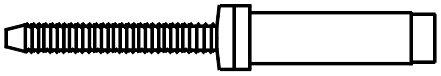
- Drill stop
- Torque wrenches (quality sets with in•lb, ft•lb, and/or [N•m] measurements)
- Hand punch or an air hammer with a punch attachment
- Die grinder with assortment of wheels
- DVOM (Digital Voltmeter)
- Terminal tool kit (Snap-On TT600 or equal)
- Methacrylate structural adhesive applicator (P/N 12606017)
- Window removal tools (See Glass Tools and Materials)
- Torx® bit set
- POP® riveter (Emhart® PRG 540 recommended as it does both POP® rivet and MONOBOLT® installation) or equal
- Monobolter (Emhart® PRG 540 with 1/4" nose assembly—this nose assembly consists of Jaws PRG 540-44, Jaw Pusher PRG 740-7A, and 1/4" Nose Tip BRN-811) Avdel® N-Series hydro-pneumatic riveter or equal
- Huck® riveter (Huck 2025 or 2025L with 1/4” nose assembly 99-3204 or 99-3204L)
- Saber saw
- Nutsert insert tool (Sioux Clinch Nut or Rivnut)

Fastener Replacement

BOM® Fastener

Removal

Use a die grinder to cut off the BOM fastener. Use a center punch to knock out the center pin. The remaining ring may need to be drilled out.



BOM fastener

Replacement

A BOM fastener should be replaced per original specifications. However, in some applications it may be able to be replaced with a Grade 8 bolt and a Grade 8 locknut of like diameter. If replacing with a nut and bolt, always remember to use flat washers against all aluminum surfaces.

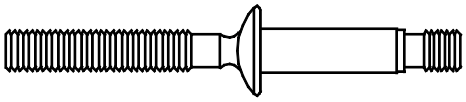
Blind Rivet

NOTE: Includes Monobolt®, Magna-Bulb®, Magna-loc®, Hemlock®,and POP® rivets.

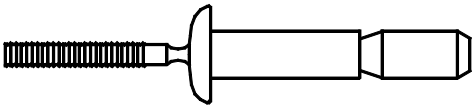
Removal

1. Use a center punch (or an air hammer with a punch attachment) to knock the stem out of the fastener.
2. Drill off the head of the blind rivet using a #11 (or 3/16" [5 mm]) or F (or 1/4" [6 mm]) drill bit (depending on blind rivet size). The back stem should fall off.

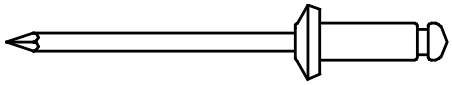
   NOTE: Be very careful not to enlarge the hole while drilling off the head. If the hole does become enlarged, you will need to put a larger fastener in its place.
3. Use a center punch to knock out the center pin.



Magna-Bulb



Magna-Loc



POP rivet

Replacement

NOTE: Different nose assemblies are used for different size fasteners. See chart.

Use a specified rivet gun to replace it.

Blind rivet	GUN NG2	GUN NG3	GUN NG4	NOSE EXTENSION	NOSE ASSEMBLY	NOSE TIP	JAWS	SPRING	LOCKING RING
Maxlok® 3/16		X	X	71230-20300	07610-02000	07610-02001	07610-02003	07610-02107	07610-02004
Monobolt® 3/16	X	X		71210-20300	71213-15000	71229-12044	07612-02002	07500-00418	07340-00327
Maxlok® 1/4			X	71230-20300	07610-02100	07610-02101	07610-02103	07610-02107	07610-02004
Monobolt® 1/4		X		71210-20300	71230-15800	71229-11846	07612-02002	07500-00418	07340-00327
Hemlock® 1/4			X	71210-20300	71230-15800	07612-02001	07612-02002	07500-00418	07340-00327

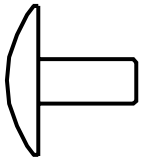
Buck Rivet (Solid Brazier-Head)

Removal

Use a #11 (3/16" or 5 mm) drill bit to drill off the head of the rivet, starting at the dimple located in the center. Continue to drill the rivet until the head pops off. Take a punch and knock out the stems. (See Illustration FR–15.)

NOTE: A center punch can be used on the rivet head in order to get a good start for the drill bit.

NOTE: Brazier-head 3/16" [5 mm] buck rivets of varying lengths are used on most locations on the body.



Buck Rivet

Installation

Use an air hammer with a buck-riveter attachment and bucking bar to replace the rivet. In most applications a MONOBOLT can also be used to replace a buck rivet. Do NOT replace buck rivets with POP rivets.

Buck Rivets Lengths and Metric Equivalents

NOTE: This vehicle was designed using English (S.A.E.) measurements. ***Utilimaster provides metric conversion equivalents as a courtesy if metric tools must be used, but Utilimaster does not warrant metric values given in this manual.***

Rivet Diameter 3/16" [4.76 mm], Hole Diameter .191" [4.85 mm], Drill Bit No. #11

Rivet Length	Metal Rivet Grips	Metal Thickness
7/16" [11.1 mm]	.244" [6.2 mm]	3/16" to 15/64" [4.8 to 6.0 mm]
1/2" [12.7 mm]	.305" [7.7 mm]	1/4" to 19/64" [6.4 to 7.5 mm]
9/16" [14.3 mm]	.364" [9.2 mm]	5/16" to 23/64" [7.9 to 9.1 mm]
5/8" [15.9 mm]	.424" [10.8 mm]	3/8" to 27.64" [9.5 to 10.7 mm]
3/4" [19.1 mm]	.545" [13.8 mm]	7/16" to 17/32" [11.1 to 13.5 mm]
7/8" [22.2 mm]	.665" [16.9 mm]	35/64" to 21/32" [13.9 to 16.7 mm]

Nut, Locknut

CAUTION: Utilimaster uses center-lock-type locknuts, which distort the threads of the nut and bolt. This type should NOT be reused after disassembly. Discard ALL used fasteners and replace with new.

CAUTION: Using a power tool to spin the fastener quickly may lower the effectiveness of the seal.

Removal

Remove with an appropriate open-end, box-end wrench or socket and ratchet.

Replacement

Nylon insert nuts and KEPS® nuts are reusable. If locknuts are not available, use lock washers and a thread adhesive like Loctite®. Flange head nuts and bolts can be used in place of flat washers. Always use flat washers against aluminum surfaces.

Slowly torque the new bolt to the appropriate value. (Using a power tool to spin the fastener quickly may lower its effectiveness.)

Nut, Nutsert

CAUTION: Do NOT use Loctite® thread locker on the threads of a nutsert.

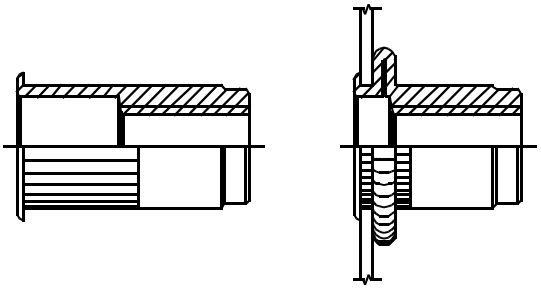
NOTE: A nutsert is a threaded insert that is crimped into place. A nutsert needs only to be removed if it is damaged and cannot be rethreaded with a tap.

Removal

Remove the nutsert either with a die grinder, or by holding the backside with pliers and drill out using a 25/64" drill bit.

Installation

Using a nutsert insert tool, replace nutsert with one meeting original specifications. If a nutsert of original specifications or the installation tool is not available, it may be replaced with a nut, bolt, and flat washers. The replacement fasteners should be approved by Utilimaster Customer Service. If replacing with a nut and bolt, it is important to use flat washers on both sides of the material.



Nutsert

Nut, Torque Seal

The torque seal appears as a small painted line across a bolt thread and nut or across a bolt and washer seam. If the seal line is broken (out of alignment),
the fastener has loosened.

NOTE: Torque seal indicates a fastener has loosened but does not prevent it.

Removal

After bolt is removed, scrap off any seal residue remaining on a reusable surface.

Installation

When the fastener installation is complete, apply a small bead of torque seal or paint stick across the new bolt threads, nut, head, and/or washer.

Pine-Tree Fastener

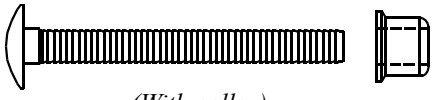
Removal

1. Use a center punch (or an air hammer with a punch attachment) to place a hole in the center of the head of the fastener.
2. Drill out the head of the fastener using an F-drill bit.
3. Use a center punch to knock out the center pin.

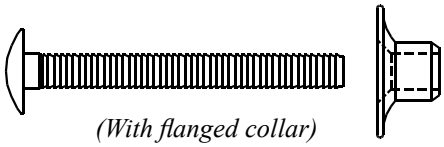
Installation

Use a rubber mallet to install the pine-tree fastener.

Pin-and-Collar Fastener



(With collar)



(With flanged collar)

Magna-Grip®

Removal

NOTE: Use low-RPM drill speed to avoid overheating the pin.

From **either side**, use a die grinder to cut off the rivet. Or from the **head side**, use the appropriate-size drill bit (3/16" [5 mm], 1/4" [6 mm], or 3/8" [10 mm]), to **drill off the head** of the pin. Punch out the center of the remaining pin.

Installation

Use a Huck® rivet gun to replace it.

If a Huck rivet gun is not available, replace the fastener with a Grade 8 bolt and locknut of like diameter. For additional locking capacity, use Loctite thread locker.

NOTE: Flat washers are required against aluminum surfaces.

Scrivet



Scrivet

Removal

Use a Phillips head screw driver to remove. If necessary use a flat blade screwdriver to lift out scrivet.

Installation

Gently push in to install.

Tape, Double-Faced Adhesive

Removal

Use a razor knife to cut along the length of the tape while pulling apart the joined flat surfaces. Scrape off remnants as much as possible. Clean with a solvent.

Installation

Apply to one surface from a fresh roll. Do **NOT** remove the tape paper until the other surface is properly positioned. Once the tape sticks to a surface, you will **not** be able to reposition it without starting over.

Tape, Vinyl Barrier

White vinyl tape is used wherever steel and aluminum surfaces adjoin in order to prevent corrosion.

Removal

Peel or scrape off.

Installation

Use a fresh roll to adjoining surfaces.

NOTE: Vinyl tape rolls can be ordered with the following part numbers:

***1"** [25.4 mm] wide roll.....P/N 12303707*
***2"** [50.8 mm] wide roll.....P/N 12303706*
***3"** [76.2 mm] wide roll.....P/N 12303705*
***4"** [101.6 mm] wide roll.....P/N 12605947*

Thread Lock



CAUTION: Do NOT use Loctite® thread locker on the threads of a nutsert.

Thread lock (threadlock or threadlocker) is a liquid sealant designed for the adhering and sealing of threaded fasteners. It prevents fasteners becoming loose from shock and vibration and reduces corrosion. Whenever thread lock is recommended, ALWAYS use the medium grade thread lock, commonly called "blue," that allows disassembly with standard hand tools.

Removal

Bolts with thread adhesive cannot be reused. After bolt is removed, scrape off any seal residue remaining on a reusable surface.

Installation

Slowly torque the new bolt to the appropriate value.

Refer to Loctite® Thread locker Blue 242® or equal product.

Torque Seal

The torque seal appears as a small painted line across a bolt thread and nut or across a bolt and washer seam. If the seal line is broken (out of alignment), the fastener has loosened.

Removal

After the bolt is removed, if any residue from the seal is present on a reusable surface, scrape off the residue.

Replacement

When the fastener installation is complete, apply a small bead of torque seal or paint stick across the new bolt threads, nut, head, and/or washer.

Sealant

WARNING: Always wear proper protective equipment when appropriate for the process.

WARNING: Safety and application instructions provided with sealants, adhesives, and other products should always supersede information provided by Utilimaster.

Overview

The one-compound polyurethane sealants Utilimaster uses remain permanently elastic (less cracking due to shrinkage), can be painted, and require no mixing. They bond as well as seal, thus reducing the number of mechanical fasteners needed and reduce noise and corrosion.

Removing Parts With Adhesive or Sealant

After removing the relevant fasteners, use a razor knife to cut the sealant. If necessary, continue cutting while gently prying apart the sections. Clean the reusable surfaces with isopropyl alcohol before applying new sealant.

Applying Sealant

The following statements provide an overview of using polyurethane sealants:

- Manufacturer's Recommendations: Always follow manufacturer's cautions and recommendations for protective equipment, application, and cleanup.
- Conditions: Recommended application temperatures are 40º [5º C] to 100º F [37º C]. For cold-weather applications, store sealants at approximately 70º F [21º C] and remove them just prior to using. Make sure joint is frost free.
- Surface: Clean the surface with a strong jet of compressed air, sandblast, or solvent. Remove all loose particles and old sealant. The surface must be clean, dry, free of grease or rust, and of sound quality.
- Priming: Usually no priming is required. Since substrate type and uniformity can vary, a pretest is recommended. Sealant manufacturers have primers when substrates require them. Since compatibility among manufacturers is in question, do not mix and match different manufacturers' primers and sealants.
- Application: Cut the tip of the plastic nozzle to joint size. Puncture the airtight seal. Install with a hand- or power-operated caulking gun. For best performance, sealant should be gunned in the joint where the joint slot is at the midpoint of its designed expansion and contraction. Dip a Polystick in a soapy solution to ease spreading the adhesive to seal any gaps.

- Limitations:
  - For curing, permit sufficient exposure to air.
  - Do NOT apply over silicones or in the presence of curing silicones.
  - During cure, avoid contact with alcohol and alcohol-containing solvents.
  - For best results, use open cartridges up the same day.

Utilimaster Customer Service

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