BOBTAIL® INSTALLATION TOOL MODELS:

BTT25-DT
BTT35-DT
BTT57-DT
BTT57R-DT
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### SAFETY INSTRUCTIONS

#### GLOSSARY OF TERMS AND SYMBOLS:

- **Product complies with requirements set forth by the relevant European directives.**
- **READ MANUAL** prior to using this equipment.
- **EYE PROTECTION IS REQUIRED** while using this equipment.
- **HEARING PROTECTION IS REQUIRED** while using this equipment.

#### WARNINGS: Must be understood to avoid severe personal injury.

#### CAUTIONS: show conditions that will damage equipment and or structure.

Notes: are reminders of required procedures. **Bold, Italic type and underlining:** emphasizes a specific instruction.

1. A half hour long hands-on training session with qualified personnel is recommended before using Huck equipment.
2. Huck equipment must be maintained in a safe working condition at all times. Tools and hoses should be inspected at the beginning of each shift/day for damage or wear. Any repair should be done by a qualified repairman trained on Huck procedures.
3. Repairman and Operator must read manual prior to using equipment. Warnings and Caution stickers/labels supplied with equipment must be understood before connecting equipment to any primary power supply. As applicable, each of the sections in this manual have specific safety and other information.
4. Read MSDS Specifications before servicing the tool. MSDS Specifications are available from the product manufacturer or your Huck representative.
5. When repairing or operating Huck installation equipment, always wear approved eye protection. Where applicable, refer to ANSI Z87.1 - 2003
6. Only genuine Huck parts shall be used for replacements or spares. Use of any other parts can result in tooling damage or personal injury.
7. If a part affixed with warning labels is replaced, or labels are missing or damaged, the end user is responsible for replacement. Refer to assembly drawing and parts list for replacement part number and proper placement.
8. Disconnect primary power source before performing maintenance on Huck equipment or changing Nose Assembly.
9. Tools and hoses should be inspected for leaks at the beginning of each shift/day. If any equipment shows signs of damage, wear, or leakage, do not connect it to the primary power supply.
10. Mounting hardware should be checked at the beginning of each shift/day.
11. Make sure proper power source is used at all times.
12. Release tool trigger if power supply is interrupted.
13. Tools are not to be used in an explosive environment unless specifically designed to do so.
14. Never remove any safety guards or pintail deflectors.
15. Where applicable, ensure deflector or pintail collector is installed and operating prior to use.
16. Never install a fastener in free air. Personal injury from fastener ejecting may occur.
17. Where applicable, always clear spent pintail out of nose assembly before installing the next fastener.
18. There is possibility of forcible ejection of pintails or spent mandrels from front of tool.
19. Check clearance between trigger and work piece to ensure there is no pinch point when tool is activated. Remote triggers are available for hydraulic tooling if pinch point is unavoidable.
20. Unsuitable postures may not allow counteracting of normal expected movement of tool.
21. Do not abuse tool by dropping or using it as a hammer. Never use hydraulic or air lines as a handle or to bend or pry the tool. Reasonable care of installation tools by operators is an important factor in maintaining tool efficiency, eliminating downtime, and in preventing an accident which may cause severe personal injury.
22. Never place hands between nose assembly and work piece. Keep hands clear from front of tool.
23. There is a risk of crushing if tool is cycled without Nose Assembly installed.
24. Tools with ejector rods should never be cycled with out nose assembly installed.
25. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet for correct positioning.
26. Tool is only to be used as stated in this manual. Any other use is prohibited.
27. There is a risk of whipping compressed air hose if tool is pneumatic or pneumatic.
28. Release the trigger in case of failure of air supply or hydraulic supply.
29. Use only fluids or lubricants recommended.
30. Disposal instruction: Disassemble and recycle steel, aluminum and plastic parts, and drain and dispose of hydraulic fluid in accordance with local lawful and safe practices.
31. If tool is fixed to a suspension device, ensure that the device is secure prior to operating the tool.
HUCK Model BTT##-DT is a Hydraulic Installation Tool that installs and removes BOBTAIL fasteners in limited clearance applications.

This tool design consists of a cylinder housing with two chambers to accommodate two tandem pull pistons. This feature increases pull capacity while maintaining optimum centerline-to-edge clearance and lightweight.

The tool is intended for use with Huck standard industrial POWERIG® Hydraulic Units (models 913H, 918, 940, and 968) or equivalent - sold separately.

CAUTION: Huck recommends that only Huck POWERIG® Hydraulic Unit be used as the power source for Huck installation equipment. Hydraulic power units that deliver high pressure for both PULL and RETURN, and are not equipped with relief valves are specifically not recommended, and may be dangerous.

PRINCIPLE OF OPERATION

The operator pushes the Tool's Nose over the end of the fastener until the Tool's Puller bottoms on the fastener. When the trigger is pressed, the Piston moves back to start the swaging process.

After the fastener is fully swaged, the operator must release the trigger, at which point the Tool's Anvil is ejected off of the collar and the Tool is released from the fastener.
**SPECIFICATIONS**

**POWER SOURCE:**
Huck POWERIG Hydraulic Unit

**HOSE KITS:**
Use only genuine HUCK Hose Kits rated @ 10,000 psi working pressure.

**HYDRAULIC FLUID:**
ATF meeting DEXRON III, DEXRON IV, MERCON, Allison C-4 or equivalent specifications. Fire resistant hydraulic fluid may also be used, and is required to comply with OSHA regulation 1926.302 paragraph (d): "the fluid used in hydraulic power tools shall be fire resistant fluid approved under schedule 30 of the US Bureau of Mines, Department of Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed."

**MAX OPERATING TEMP:**
125°F (51.7°C)

**MAX FLOW RATE:**
2 gpm (7.5 l/m)

**STROKE:**
BTT25-DT = 1.63 inches (4.14 cm)
BTT35-DT = 1.63 inches (4.14 cm)
BTT57-DT = 2.2 inches (5.59 cm)
BTT57R-DT = 2.2 inches (5.59 cm)

**WEIGHT:**
BTT25-DT = 9 lbs (4.1 kg)
BTT35-DT = 11 lbs (5 kg)
BTT57-DT = 21 lbs (9.5 kg)
BTT57R-DT = 22 lbs (9.98 kg)

<table>
<thead>
<tr>
<th>Model</th>
<th>Ø A (inches)</th>
<th>Ø B (inches)</th>
<th>C (inches)</th>
<th>D (inches)</th>
<th>E (inches)</th>
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<tr>
<td>BTT25-DT</td>
<td>2.25 (5.71)</td>
<td>2.01 (5.10)</td>
<td>5.24 (13.31)</td>
<td>8.46 (21.49)</td>
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<tr>
<td>BTT35-DT</td>
<td>2.62 (6.65)</td>
<td>2.38 (6.04)</td>
<td>5.49 (13.94)</td>
<td>8.92 (22.65)</td>
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<tr>
<td>BTT57-DT</td>
<td>3.25 (8.25)</td>
<td>3.00 (7.62)</td>
<td>7.14 (18.13)</td>
<td>11.31 (28.73)</td>
<td>n/a</td>
</tr>
<tr>
<td>BTT57R-DT</td>
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<td>3.00 (7.62)</td>
<td>7.16 (18.19)</td>
<td>14.56 (36.98)</td>
<td>4.82 (12.24)</td>
</tr>
</tbody>
</table>

**Figure 2**

BTT25-DT
BTT35-DT
BTT57-DT

BTT57R-DT
**PREPARATION FOR USE**

**WARNINGS:**
- Read full manual before using tool.
- A half-hour training session with qualified personnel is recommended before using Huck equipment.
- When operating Huck installation equipment, always wear approved eye protection.
- Be sure there is adequate clearance for the operator’s hands before proceeding.

**CAUTION:** Do not let disconnected hoses and couplers contact a dirty floor. Keep harmful material out of hydraulic fluid. Dirt in hydraulic fluid causes valve failure in Tool and in POWERIG Hydraulic Unit.

**POWER SOURCE CONNECTIONS**
Coat hose fitting threads with a non-hardening Teflon™ thread compound such as Slic-tite™. (Slic-tite is available from Huck as P/N 503237.)

**CAUTION:** Do not use TEFOLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Slic-Tite is available in stick form as Huck P/N 503237.)

2. Use only a HUCK Powerig that is recommended or equivalent that has been prepared for operation per applicable instruction manual. Check both PULL and RETURN pressures and adjust as necessary to match installation tool. Gage part number T-124833CE, for checking POWERIG pressures is available from Huck.

3. Turn POWERIG to “OFF” and couple tool hoses to POWERIG hoses.

**CAUTION:** Hose couplers must be completely screwed together to insure that ball checks in both nipple and body are completely open. Improperly assembled couplers will cause overheating and malfunctions in both tool and Powerig. Hand tighten couplers. Do NOT use a pipe wrench.

**WARNING:** Correct PULL and RETURN pressures are required for operator’s safety and for Installation Tool’s function. Gauge Set-Up T-124833CE, is available for checking pressures. See Tool SPECIFICATIONS and Gauge Instruction Manual. Failure to verify pressures may result in severe personal injury.

**WARNING:** Be sure to connect Tool’s hydraulic hoses to POWERIG Hydraulic Unit before connecting Tool’s switch control cord to unit. If not connected in this order, severe personal injury may occur.

4. Turn POWERIG to “ON” and depress and release trigger a few times to circulate hydraulic fluid. Observe action of tool. Check for fluid leaks.

5. Attach the proper Nose Assembly to the tool.

**OPERATING INSTRUCTIONS**

*For safe operation, Please read completely*

1. Push the tool’s nose over the end of the fastener until it bottoms out.
2. Press the trigger and hold until the collar is swaged and the tool’s Anvil is ejected off the collar and the tool is released from the fastener.

**WRENCHING-UP OF PIPE THREADS**

The following table pertains to 1/8, 1/4, and 3/8 NPTF joints in this product. All turn counts listed are beyond hand-tight. Teflon stick or equivalent (NOT tape) must be used without exception.

**Table 1 - Wrenching-up of Pipe Threads**

<table>
<thead>
<tr>
<th>Pipe Thread Size</th>
<th>Number of Turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8 NPTF</td>
<td>2 - 2 1/4</td>
</tr>
<tr>
<td>1/4 NPTF</td>
<td>1 1/2 - 1 3/4</td>
</tr>
<tr>
<td>3/8 NPTF</td>
<td>1 1/2 - 1 3/4</td>
</tr>
</tbody>
</table>
**Tool to Powerig Setup**

**WARNING:** To prevent tripping hazard, suspend tools and route hoses off of floors.

**WARNING:** Only use compatible equipment with this tool.

**NOTE:** To decrease Relief Valve pressure, turn the Relief Valve handle gradually counterclockwise; turn clockwise to increase pressure.

1. With the Nose Assembly in place on the Installation Tool, begin setup. First connect the Hydraulic Hoses to the Powerig.

2. Connect Relief Valve 128904 to the other end of the Powerig Hydraulic Hoses.

3. Connect 118309- Hose Assy to the Relief Valve (Tool Side).

4. Connect the other end of the 118309- Hose Assy to the installation tool.

5. Connect the Power Cord from the Tool to the 118309- Hose Assembly.

6. Connect the Power Cord from the Hose Assembly to the Powerig.

7. Set Pull and Return pressures on Powerig and Relief Valve using Huck Gage P/N: T-124833CE and Table 2.

8. Once the system is set up, install test fastener. Check to be sure that the fastener is installed correctly. This can be checked by inspecting the dimples on the collar flange. At least one dimple should be marked by the anvil.

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### Table 2 - Pressure Settings

<table>
<thead>
<tr>
<th>Fastener Size</th>
<th>Fastener Grade</th>
<th>Powerig Pull Pressure Setting, psi</th>
<th>Powerig Return Pressure Setting, psi</th>
<th>128904 Relief Valve Setting, psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>20mm</td>
<td>10.9</td>
<td>7500 min.</td>
<td>4500</td>
<td>4650</td>
</tr>
<tr>
<td>7/8 (-28)</td>
<td>5</td>
<td>7500</td>
<td>4500</td>
<td>4500</td>
</tr>
<tr>
<td>3/4”</td>
<td>5</td>
<td>7500</td>
<td>2800</td>
<td>3000</td>
</tr>
<tr>
<td>1”</td>
<td>5</td>
<td>7500</td>
<td>4500</td>
<td>5000</td>
</tr>
<tr>
<td>1”</td>
<td>8</td>
<td>7500</td>
<td>5500</td>
<td>6700</td>
</tr>
</tbody>
</table>

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*Two digit number after dash indicates hose length in feet. (Example: 118309-12 is 12 foot hose assembly.)

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Figure 3
The efficiency and life of your tool depends on proper maintenance. Please read this section completely before proceeding with maintenance and repair. Use proper hand tools in a clean and well-lighted area. Only standard hand tools are required in most cases. Where a special tool is required, the description and part number are given.

While clamping tool or parts in a vise, and when parts require force, use suitable soft materials to cushion impact. For example, using a half-inch brass drift, wood block and vise with soft jaws greatly reduces possibility of damaging tool. Remove components in a straight line without bending, cocking or undue force. Reassemble tool with the same care.

Sealants, Lubricants, Service Kits
- See Specifications for fluid type. Dispose of fluid in accordance with local environmental regulations. Recycle steel, aluminum, and plastic parts in accordance with local lawful and safe practices.
- Rub Slic-Tite® with PTFE thread compound, or equivalent, on pipe plug threads and quick connect fitting.
- Smear LUBRIPLATE® 13OAA*, or equivalent lubricant, on O-Rings and mating surfaces to aid assembly and to prevent damage to O-Rings. (LUBRIPLATE 13O-AA is available in a tube as Huck P/N 503237.)
- Each Service Kit contains perishable parts for your specific tool. As foreseeable use may indicate, keep extra kits (O-rings, Back-up Rings, other standard items) and tool parts in stock. When stock is depleted, you can get kit items from any regular retailer of these items. See kit parts list for: O-ring size (AS568- number); material; durometer.

Preventive Maintenance
System Inspection
Operating efficiency of the tool is directly related to the performance of the complete system, including the tool with nose assembly, hydraulic hoses, trigger and control cord, and POWERIG. Therefore, an effective preventive maintenance program includes scheduled inspections of the system to detect and correct minor troubles. At the beginning of each shift/day:
- Inspect tool and nose assembly for external damage.
- Verify that hydraulic hose fittings, couplings, and electrical connections are secure.
- Inspect hydraulic hoses for damage and deterioration. Do not use hoses to carry tool. Replace hoses if damaged.
- Observe tool, hoses, and hydraulic unit during operation to detect abnormal heating, leaks, or vibration.
- Max hydraulic fluid contamination level: NAS 1638 class 9, or ISO CODE 18/15, or SAE level 6.

POWERIG Maintenance
Maintenance instructions and repair procedures are in the appropriate POWERIG Instruction Manual.

Tool Maintenance
Whenever disassembled and also at regular intervals (depending on severity and length of use), replace all seals, wipers, and back-up rings in tool. Service Kits, hoses, and extra parts should be kept in stock. Inspect cylinder bore, pistons, and piston rods for scored surfaces and excessive wear or damage. Replace as necessary.

Nose Assembly Maintenance
Clean nose assembly often. Dip in mineral spirits or similar solvent to clean puller and wash away metal chips and debris. At regular intervals, as experience shows, disassemble nose and use a sharp "pick" to remove imbedded particles from grooves of puller.

CAUTION: Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Slic-Tite® is available in stick form as Huck P/N 503237.)

CAUTION: Always replace seals, wipers, and back-up rings when tool is disassembled for any reason.

CAUTION: Consult MSDS before servicing tool.
CAUTION: Keep dirt and other material out of hydraulic system.
CAUTION: Separated parts must be kept away from dirty work surfaces.
CAUTION: Dirt/debris in hydraulic fluid causes failure in POWERIG® Hydraulic Unit’s valves.

CAUTIONS:
- Consult MSDS before servicing tool.
- Keep dirt and other material out of hydraulic system.
- Separated parts must be kept away from dirty work surfaces.
- Dirt/debris in hydraulic fluid causes failure in POWERIG® Hydraulic Unit's valves.

WARNING: Inspect tool for damage or wear before each use. Do not operate if damaged or worn, as severe personal injury may occur.

CAUTION: Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Slic-Tite® is available in stick form as Huck P/N 503237.)

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CAUTION: Dirt/debris in hydraulic fluid causes failure in POWERIG® Hydraulic Unit’s valves.
## Tool Assembly Parts Lists (Figures 5-7)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>BTT25-DT (Figure 5)</th>
<th>BTT35-DT (Figure 5)</th>
<th>BTT57-DT (Figure 6)</th>
<th>BTT57R-DT (Figure 7)</th>
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<tr>
<td>1</td>
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<td>Piston Rod</td>
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*These parts are also included in the tool Service Kit.
*When replacing these parts, the assembly must be ordered. One or more individual sub-components are not sold separately.
Figure 7
**TROUBLESHOOTING**

Always check the simplest possible cause of a malfunction first. For example, a loose or disconnected trigger line. Then proceed logically and eliminate each possible cause until the defect is found. Where possible, substitute known good parts for suspected defective parts. Use chart as an aid in troubleshooting.

1. Tool fails to operate when trigger is pressed.
   a. Inoperative POWERIG® Hydraulic Unit. See applicable instruction manual.
   b. Loose electrical connections.
   c. Damaged trigger assembly.
   d. Loose or faulty hose coupling.

2. Tool operates in reverse.
   a. Reversed hose connections between hydraulic unit and tool.

3. Tool leaks hydraulic fluid.
   a. Defective tool o-rings or loose connections at tool.

4. Hydraulic couplers leak fluid.
   a. Damaged or worn O-rings in coupler body coupler P/N 110440.

5. Hydraulic fluid overheats.
   a. Unit not operating properly. See units manual.
   b. Unit running in reverse (918; 918-5 only). See unit’s manual.

6. Tool operates erratically and fails to install fastener properly.
   a. Low or erratic hydraulic pressure: Air in system.
   b. Damaged or worn piston o-ring in tool.
   c. Excessive wear on sliding surfaces of tool parts.

7. Pull grooves on fastener pintail stripped during PULL stroke.
   a. Operator not sliding anvil completely onto fastener pintail.
   b. Incorrect fastener grip.
   c. Worn or damaged jaw segments.
   d. Metal particles in jaw grooves.
   e. Excessive sheet gap.

8. Collar of fastener not completely swaged.
   a. Improper tool operation. See No. 6.
   b. Scored anvil.

9. Tool “hangs up” on swaged collar of fastener.
   a. Improper tool operation. See No. 6.
   b. RETURN pressure too low.
   c. Not enough collar lubricant.
   d. Nose assembly not installed correctly.

10. Pintail of fastener fails to break.
    a. Improper tool operation. See No. 6.
    b. Pull grooves on fastener stripped. See No. 7.
    c. PULL pressure too low.

11. Nose will not release broken pintail.
    a. Nose assembly not installed correctly.

**OPTIONAL EQUIPMENT**

**Service Kits** *(contain O-Rings, back-up Rings, Wiper, POLYSEAL, and various size HEX keys for tool service)*
- BTT25KIT
- BTT35KIT
- BTT57KIT *(used for both BTT57-DT and BTT57R-DT)*

**Teflon Stick** - 503237

**Loctite® 242** - 505016
*Loctite is a trademark of Henkel Corporation, U.S.A.

**Anti-seize Lubricant** - 508183

**High Pressure Right Angle Connector Kit** - 122002

**Control Cord Kit (Joy Connectors)** - 121248
**Limited Warranties**

**Tooling Warranty:**
Huck warrants that tooling and other items (excluding fasteners, and hereinafter referred as "other items") manufactured by Huck shall be free from defects in workmanship and materials for a period of ninety (90) days from the date of original purchase.

**Warranty on "Non Standard or Custom Manufactured Products":**
With regard to non-standard products or custom manufactured products to customer's specifications, Huck warrants for a period of ninety (90) days from the date of purchase that such products shall meet Buyer’s specifications, be free of defects in workmanship and materials. Such warranty shall not be effective with respect to non-standard or custom products manufactured using buyer-supplied molds, material, tooling and fixtures that are not in good condition or repair and suitable for their intended purpose.

**There are no warranties which extend beyond the description on the face hereof. Huck makes no other warranties and expressly disclaims any other warranties, including implied warranties as to merchantability or as to the fitness of the tooling, other items, nonstandard or custom manufactured products for any particular purpose and Huck shall not be liable for any loss or damage, directly or indirectly, arising from the use of such tooling, other items, nonstandard or custom manufactured products or breach of warranty or for any claim for incidental or consequential damages.**

Huck's sole liability and Buyer's exclusive remedy for any breach of warranty shall be limited, at Huck's option, to replacement or repair, at FOB Huck's plant, of Huck manufactured tooling, other items, nonstandard or custom products found to be defective in specifications, workmanship and materials not otherwise the direct or indirect cause of Buyer supplied molds, material, tooling or fixtures. Buyer shall give Huck written notice of claims for defects within the ninety (90) day warranty period for tooling, other items, nonstandard or custom products described above and Huck shall inspect products for which such claim is made.

**Tooling, Part(s) and Other Items not Manufactured by Huck:**
Huck makes no warranty with respect to the tooling, part(s) or other items manufactured by third parties. Huck expressly disclaims any warranty expressed or implied, as to the condition, design, operation, merchantability or fitness for use of any tool, part(s), or other items thereof not manufactured by Huck. Huck shall not be liable for any loss or damage, directly or indirectly, arising from the use of such tooling, part(s) or other items or breach of warranty or for any claim for incidental or consequential damages.

The only warranties made with respect to such tool, part(s) or other items thereof are those made by the manufacturer thereof and Huck agrees to cooperate with Buyer in enforcing such warranties when such action is necessary.

Huck shall not be liable for any loss or damage resulting from delays or nonfulfillment of orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of the Huck or its suppliers.

**Huck Installation Equipment:**
Huck International, Inc. reserves the right to make changes in specifications and design and to discontinue models without notice.

Huck Installation Equipment should be serviced by trained service technicians only.

Always give the Serial Number of the equipment when corresponding or ordering service parts.

Complete repair facilities are maintained by Huck International, Inc. Please contact one of the offices listed below.

**Eastern**
One Corporate Drive Kingston, New York 12401-0250
Telephone (845) 331-7300 FAX (845) 334-7333

**Outside USA and Canada**
Contact your nearest Huck International Office, see back cover.

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC's) located throughout the United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tools Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck office listed on the back cover for the ATSC in your area.
A Global Organization

Alcoa Fastening Systems (AFS) maintains company offices throughout the United States and Canada, with subsidiary offices in many other countries. Authorized AFS distributors are also located in many of the world's Industrial and Aerospace centers, where they provide a ready source of AFS fasteners, installation tools, tool parts, and application assistance.

Alcoa Fastening Systems world-wide locations:

**Americas**

Alcoa Fastening Systems
Aerospace Products
Tucson Operations
3724 East Columbia
Tucson, AZ 85714
800-234-4825
520-747-9898
FAX: 520-748-2142

Alcoa Fastening Systems
Industrial Products
Kingston Operations
1 Corporate Drive
Kingston, NY 12401
800-278-4825
845-331-7300
FAX: 845-334-7333

Alcoa Fastening Systems
Industrial Products
Waco Operations
PO Box 8117
8001 Imperial Drive
Waco, TX 76714-8117
800-388-4825
254-776-2000
FAX: 254-751-5259

**Far East**

Alcoa Fastening Systems
Industrial Products
Australia Operations
14 Viewtech Place
Rowville, Victoria
Australia 3178
03-764-5500
Toll Free: 008-335-030
FAX: 03-764-5510

Alcoa Fastening Systems
Aerospace Products
France Operations
Clos D’Asseville
BP4
95450 Us Par Vigny
France
33-1-30-27-9500
FAX: 33-1-34-66-0600

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Telford, Shropshire
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01952-290011
FAX: 0952-290459

Alcoa Fastening Systems
Aerospace Products
London Operations
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London, England
England
01992-762500
FAX: 0952-290459


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