

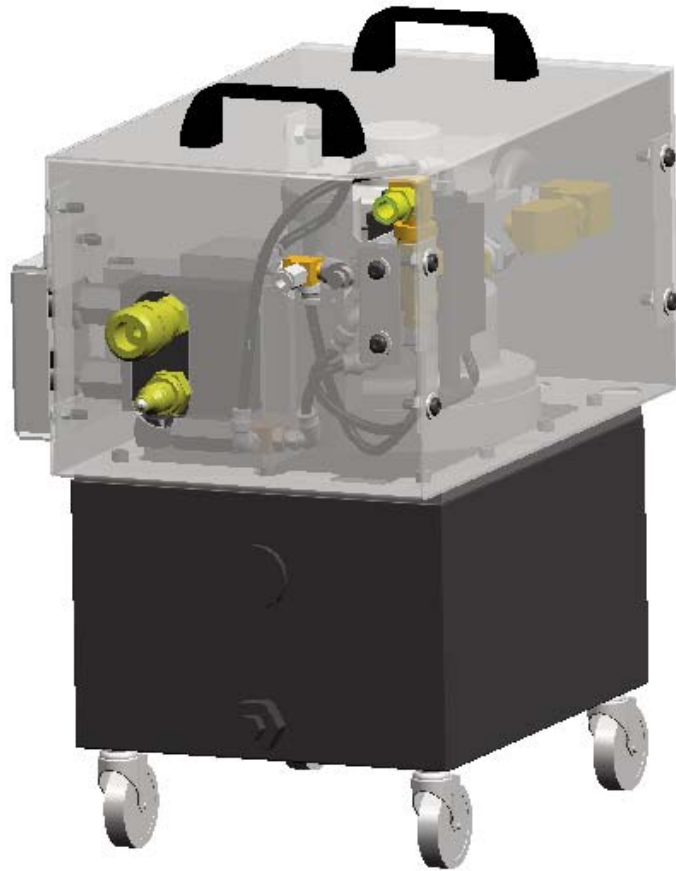
Alcoa
Fastening
Systems



INSTRUCTION MANUAL

MODEL 968

POWERIG[®] *HYDRAULIC UNIT*



Makers of Huck[®], Marson[®], Recoil[®]
Brand Fasteners, Tools & Accessories

12-05-2011
HK1126



EC Declaration of Conformity

Manufacturer:

Alcoa Fastening Systems, Industrial Products Group, 1 Corporate Drive, Kingston, NY, 12401, USA

Description of Machinery:

PA46 series (968) Powerig®

Relevant provisions complied with:

<u>EN, EN-ISO, ISO standards</u>	<u>Title</u>
Per the provisions of the Machinery Safety Directive	2006/42 EC
EN_ISO 12100-1	Basic concepts, general principles for design - Part 1
EN_ISO12100-2	Basic concepts, general principles for design - Part 2
EN 982	Safety requirements for fluid power systems & their components - Hydraulics
EN 983:1996	Safety requirements for fluid power systems & their components - Pneumatics
EN ISO 13849-1:2008	Safety-related parts of control systems - Part 1
EN ISO 13849-2:2008	Safety-related parts of control systems - Part 2
EN ISO 14121-1:2007	Risk assessment - Part 1

European Representative:

Rob Pattenden, Huck International, Ltd. Unit C Stafford Park 7, Telford Shropshire TF3 3BQ, England, United Kingdom

Authorized Signature/date:

I, the undersigned, hereby declare that the equipment specified above conforms to the above European Communities Directive(s) and Standard(s).

Signature: 
 Full Name: Larry M. Krieg
 Position: Engineering Manager
 Installation Systems Division
 Place: Kingston, New York, USA
 Date: November, 2011

Test data to support the above information is on file at Alcoa Fastening Systems, Industrial Products Group, Kingston Operations, Kingston, NY, USA.


CONTENTS


SAFETY	4
PRINCIPLE OF OPERATION	5
DESCRIPTION	5
ADDITIONAL SAFETY PRECAUTIONS	6
OPERATING INSTRUCTIONS	6
OPTIONAL EQUIPMENT	7
SPECIFICATIONS	7
MAINTENANCE	8
TROUBLESHOOTING	9
TOOL TO POWERIG SETUP	10


SAFETY


This instruction manual must be read, with particular attention to the following safety guidelines, by any person servicing or operating this tool.


1. Glossary


 — 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.

2. A half hour long hands-on training session with qualified personnel is recommended before using Huck equipment.
3. 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.
4. Repairman and Operator must read manual prior to using equipment. Warning 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.
5. Read MSDS Specifications before servicing the tool. MSDS Specifications are available from the product manufacturer or your Huck representative.
6. When repairing or operating Huck installation equipment, always wear approved eye protection. Where applicable, refer to ANSI Z87.1 - 2003
7. Disconnect primary power source before performing maintenance on Huck equipment or changing Nose Assembly.
8. 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.
9. Mounting hardware should be checked at the beginning of each shift/day.
10. Make sure proper power source is used at all times.
11. Release tool trigger if power supply is interrupted.
12. Tools are not to be used in an explosive environment unless specifically designed to do so.
13. Never remove any safety guards or pintail deflectors.
14. Where applicable, ensure deflector or pintail collector is installed and operating prior to use.
15. Never install a fastener in free air. Personal injury from fastener ejecting may occur.
16. Where applicable, always clear spent pintail out of nose assembly before installing the next fastener.
17. There is possibility of forcible ejection of pintails or spent mandrels from front of tool.
18. If there is a pinch point between trigger and work piece, use remote trigger. (Remote triggers are available for all tooling).
19. Unsuitable postures may not allow counteracting of normal expected movement of tool.
20. 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.
21. Never place hands between nose assembly and work piece. Keep hands clear from front of tool.
22. There is a risk of crushing if tool is cycled without Nose Assembly installed.
23. Tools with ejector rods should never be cycled with out nose assembly installed.
24. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet of correct positioning.
25. Tool is only to be used as stated in this manual. Any other use is prohibited.
26. There is a risk of whipping compressed air hose if tool is pneudraulic or pneumatic.
27. Release the trigger in case of failure of air supply or hydraulic supply.
28. Use only fluids or lubricants recommended.
29. 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.
30. If tool is fixed to a suspension device, ensure that the device is secure prior to operating the tool.



PRINCIPLE OF OPERATION

When tool trigger is depressed, the directional valve changes positions so that high-pressure hydraulic fluid is directed out the PULL pressure port and hose to tool 1.

When the tool trigger is released, the valve spool returns to its original position, directing the hydraulic fluid out the RETURN pressure port and hose to the tool.

DESCRIPTION

The Huck Model 968 POWERIG® is a portable, air powered hydraulic power source designed to operate Huck Hydraulic Installation Equipment.

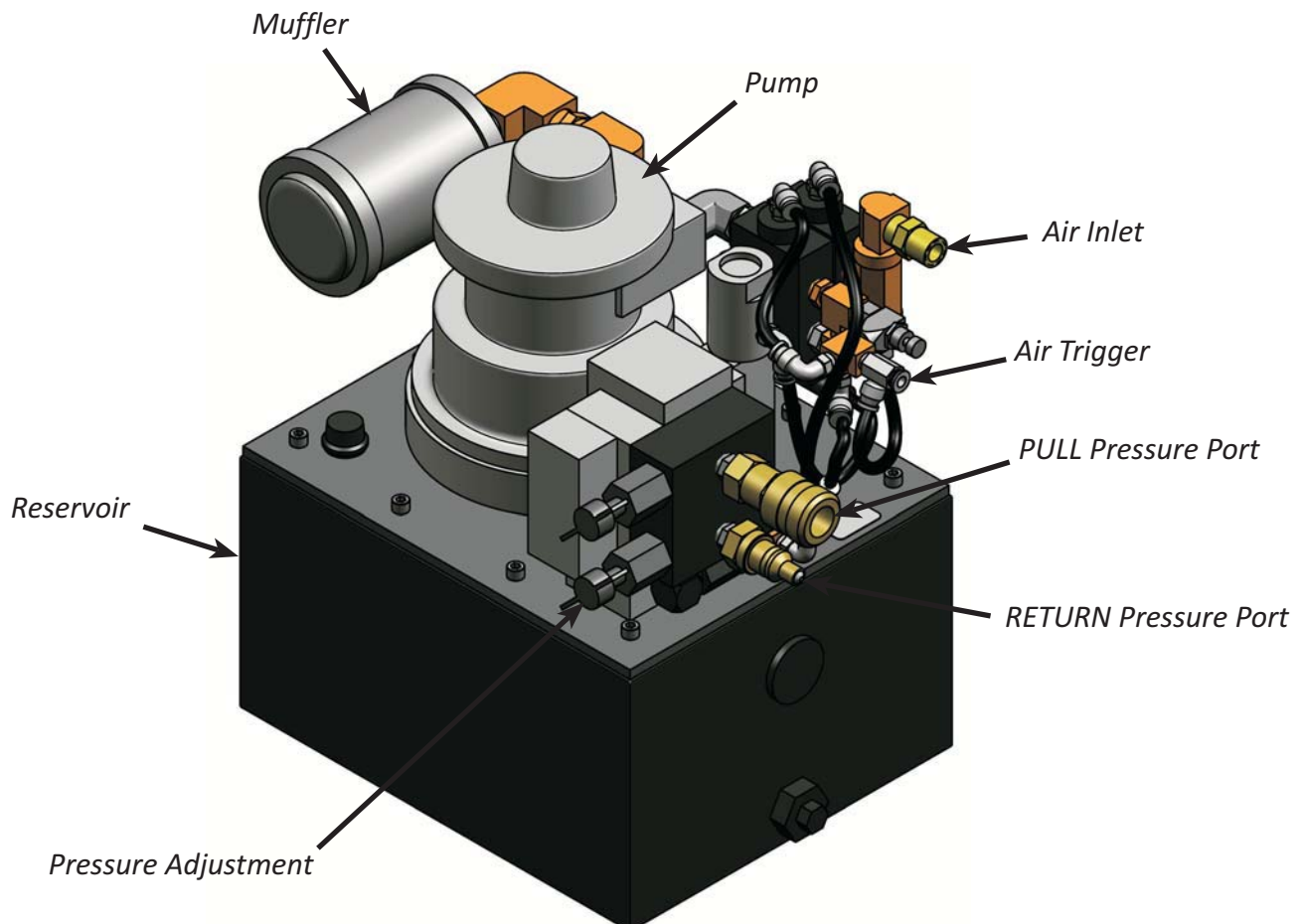
Hydraulic pressure is developed by two hydraulic piston pumps driven by air motors. Pump output is directed to either PULL or RETURN pressure ports of the installation tool by air operated directional valve. The hydraulic unit is controlled, with air trigger, from the tool.

Internal relief valves are pre-set at the factory for the protection of operator and equipment. External relief valves control PULL Pressure and RETURN Pressure. As shipped from the factory,

external relief valve is set at 5400-5700 psi (37200-39300 kPa) and return pressure valve is set at 2700-3300 psi (15200-16500 kPa). Pressures are adjustable to match Huck installation tool being used. See applicable installation tool manual.

Hydraulic fluid is stored in a reservoir. Hydraulic quick disconnect couplers are furnished for connecting installation tool.

The unit weighs approximately **75 pounds (34 kg)** without the optional dolly assembly, and when filled with hydraulic fluid.





ADDITIONAL SAFETY PRECAUTIONS

HYDRAULIC HOSES

1. Before operating the pump, all hose connections must be tightened using the proper tools. Do NOT overtighten. Connections need only be secure and leak-free. Overtightening may cause premature thread failure or may cause high pressure fittings to split at pressures lower than their rated capacities.
2. If a hydraulic hose ever ruptures, bursts, or needs to be disconnected, immediately shut off the pump. Never attempt to grasp a leaking hose under pressure with your hands. The force of escaping hydraulic fluid could cause serious injury.
3. Do not use the hose to move attached equipment. Stress may damage the hose and possibly cause personal injury.

AIR MOTOR

1. Disconnect the air supply when the pump is not in use or when breaking any connection in the hydraulic system.
2. It is recommended that a shut-off valve or quick disconnect be installed in the air line to the pump unit. Close the shut-off valve before connecting the air line to the pump.



OPERATING INSTRUCTIONS

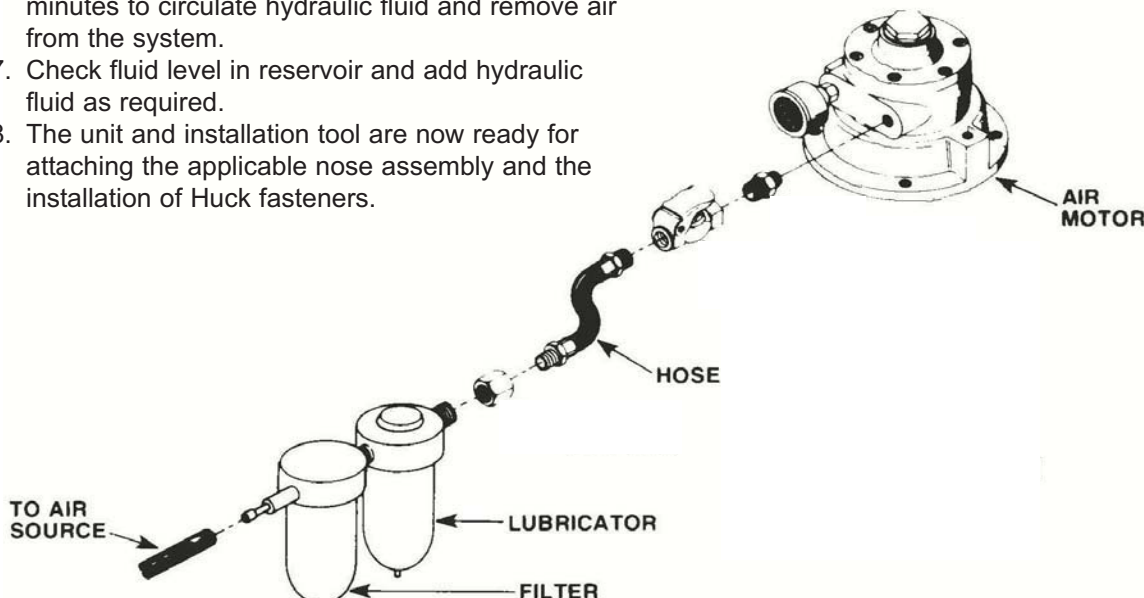
FIRST TIME USE

1. Remove shipping plug from top of Reservoir and replace with Filler Breather Cap. (Fig. 1) Be sure O-ring is in place on Filler Breather Cap before installing.
2. Fill reservoir with hydraulic fluid, approximately 2 quarts (1.9 liters), until the fluid level is within one inch of the top of the reservoir.
3. Use a T-gauge, Huck part no. T-124833CE, to set Pull and Return pressures to the appropriate values for the installation tool.
4. Attach installation tool to Powerig. Be sure that hose from PULL PRESSURE on the unit runs to port "P" of the tool and hose from RETURN PRESSURE on the unit runs to port "R" of the tool.
5. Connect air supply.
6. Depress tool switch and let unit operate for a few minutes to circulate hydraulic fluid and remove air from the system.
7. Check fluid level in reservoir and add hydraulic fluid as required.
8. The unit and installation tool are now ready for attaching the applicable nose assembly and the installation of Huck fasteners.

AIR SUPPLY HOOK-UP

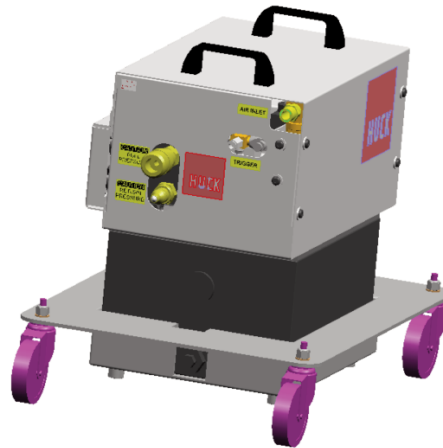
Minimum air supply must be 50 CFM (.57 M³/min.) and 80 PSI (6-7 BAR), with 100 PSI (XX BAR) being the maximum.

1. Secure pump fitting to the air supply.
2. Assemble the hoses. Clean the areas around the oil ports of the valve and hydraulic cylinders, and remove the plastic thread protectors. Clean all hose ends, couplers, or union ends. Inspect all threads and fittings for signs of wear or damage and replace as needed.
3. FILL the RESERVOIR: Remove the filler cap and insert a clean funnel. Fill the reservoir with hydraulic oil to top of sight glass. Replace the filler cap with the breather hole open.



OPTIONAL EQUIPMENT

*Shown here is the 968D.
This is the 968 Powerig with the
optional Dolly Assembly, Huck Part
number 129703 for convenient
portability.*



SPECIFICATIONS

<u>Width</u>	16.33 (41.5 cm)
<u>Length</u>	10.45 (26.5 cm)
<u>Height</u>	15.68 (39.83 cm)
<u>Weight</u>	75 lbs. (34 kg)
<u>Operational Weight</u>	93 lbs. (42 kg)
<u>Power Source</u>	Air supply must be minimum 50 CFM (.024 m ³ /s)
<u>Hose Kits</u>	Use only genuine HUCK Hose Kits rated @ 10,000 psi working pressure.
<u>Reservoir Capacity</u>	2.5 gallons (9.5 liters)
<u>Output Pressure</u>	
PULL (max):	8800 psi (606 bar)
RETURN (max):	3500 psi (241 bar)
<u>Max Operating Temp</u>	125 ° F (51.7 ° C)
<u>Max Flow Rate</u>	1.95 gpm per circuit (7.37 l/m)

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."

Declared dual number noise emission values in accordance with ISO 4871:

A weighted sound power level, LWA: 107 dB (reference 1 pW) Uncertainty, KWA: 3 dB
A weighted emission sound pressure level at the work station, LpA: 96 dB (reference 20 µPa) Uncertainty, KpA: 3 dB
C-weighted peak emission sound pressure level, LpC: 108 dB (reference 20 µPa) Uncertainty, KpC: 3 dB
Values determined according to noise test code ISO 15744, using as basic standards ISO 3744 and ISO 11203.



MAINTENANCE

GOOD PRACTICES

The introduction of foreign material into the hydraulic system will result in poor performance and repair downtime. To avoid this, observe the following good practices:

1. When filling reservoir with hydraulic fluid, clean area around filler cap before removing. Always filter hydraulic fluid using a 10-15 micron filter before adding to powerig.
2. Use clean funnel with filter.
3. Do not let hose fittings or couplings lie, or drag on floor.
4. Wipe off couplings before connecting them.
5. Periodically, drain and clean reservoir and fill with clean fluid.

REGULAR USE

Before using Hydraulic Unit:

1. Check hydraulic fluid level in reservoir and add fluid as required.
2. Inspect hoses for damage and replace as required.
3. Check entire system for leaks and repair as needed



PREVENTIVE MAINTENANCE

LUBRICATION OF THE AIR-DRIVEN MOTOR

If the pump is operated on a continuous duty cycle or at maximum speed for an extended period, an automatic air line oiler is recommended. Install the oiler in the air inlet line as close to the pumping unit as possible. Adjust the oiler to feed 1-3 drops of SAE #10 oil per minute (one drop for every 50-75 CFM of air) into the system.

HYDRAULIC FLUID LEVEL

Check the oil level in the reservoir after each 10 hours of use. Proper oil level is to top of sight glass.

ADDING OIL TO THE RESERVOIR

Use only recommended hydraulic fluid. Disconnect power supply when adding oil to the reservoir. Clean the entire area around the filler plug before removing the filler plug. Use a clean funnel with filter when adding oil.

MAINTENANCE CLEANING

Keep the outer surface of the pump, all hose connections and any equipment hooked up to the pump as free of dirt and oil as possible. The breather hole in the filler cap must be kept clean and unobstructed at all times. All unused couplers are to be sealed with thread protectors. Change oil as recommended.



TROUBLESHOOTING

NOTE: Use the proper gauges and equipment when troubleshooting. Depending on the pump version, it is often best to check for leaks by using a hand pump and applying pressure to the suspect area without the motor running. Watch for leaking oil and follow it back to its source. Plug the outlet ports of the pump when checking for leakage to determine if the leakage is in the pump or if it is in the cylinder or tool.

- 1. Tool fails to operate when trigger is depressed.**
 - a. Loose or faulty air connectors on control hose.
 - b. Loose or faulty hydraulic hose couplings.
 - c. Defective tool air trigger assembly.
 - d. Air trigger sensitivity needs adjusting.
 - e. Low hydraulic fluid level in reservoir.
 - f. Hydraulic fluid viscosity too heavy to pick up prime.
 - g. Clogged suction screen.
 - h. Defective hydraulic pump.
 - i. Defective spool valve assembly.
 - j. Installation tool defective

- 2. Tool does not return on release of trigger.**
 - a. Defective spool valve.
 - b. Installation tool not operating properly.
 - c. Air trigger sensitivity needs adjusting.
 - d. Hoses not coupled properly.
 - e. Return pressure set to low.

- 3. Pump runs but will not build pressure.**
 - a. Low hydraulic fluid level in reservoir.
 - b. Clogged suction screen.
 - c. Hydraulic fluid viscosity too heavy to pick up prime.
 - d. Pump check valve is leaking.
 - e. Defective air motor.
 - f. Pull pressure set too low

- 4. Tool operation slow but entire cycle does occur.**
 - a. Pump check valve is leaking.
 - b. Hydraulic fluid viscosity too thin.
 - c. Defective spool valve assembly.
 - d. Clogged suction screen.
 - e. Defective air motor.
 - f. Internal or external relief valve not operating properly.



TOOL TO POWERIG SETUP

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.

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

WARNING: Correct PULL and RETURN pressures are required for operator's safety and for Installation Tool's function. Gage part number 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.

WARNING: Only use compatible equipment with this Powerig.

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. Set Pull and Return pressures on Powerig and Relief Valve using Huck Gage P/N: T-124833CE and **Table 1**.
3. 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.

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.



For the Long Haul™

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
Aerospace Products
Carson Operations
PO Box 5268
900 Watson Center Rd.
Carson, CA 90749
800-421-1459
310-830-8200
FAX: 310-830-1436

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

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
Latin America Operations
Avenida Parque Lira. 79-402
Tacubaya Mexico, D.F.
C.P. 11850
FAX: 525-515-1776
TELEX: 1173530 LUKSME

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

Europe

Alcoa Fastening Systems
Industrial Products
United Kingdom Operations
Unit C, Stafford Park 7
Telford, Shropshire
England TF3 3BQ
01952-290011
FAX: 0952-290459

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



For The Long Haul, The Future of Fastening Technology, The Future of Assembly Technology, The Future of Tooling Technology, and Tools of Productivity are service marks of Huck International. Huck provides technical assistance regarding the use and application of Huck fasteners and tooling.

NOTICE: The information contained in this publication is only for general guidance with regard to properties of the products shown and/or the

means for selecting such products, and is not intended to create any warranty, express, implied, or statutory; all warranties are contained only in Huck's written quotations, acknowledgements, and/or purchase orders. It is recommended that the user secure specific, up-to-date data and information regarding each application and/or use of such products.

HWB898 1003-5M

Alcoa Fastening Systems



One Great ConnectionSM