

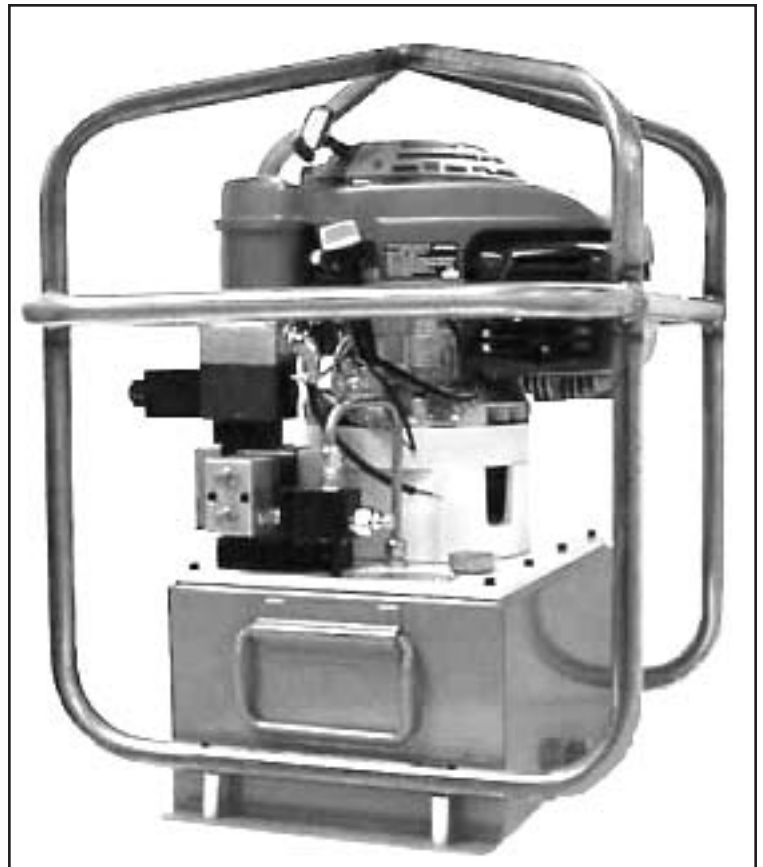
Alcoa
Fastening
Systems



INSTRUCTION MANUAL

913H

POWERIG®



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

Form HK 1002
04-01-2004



SAFETY

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

1. Safety Glossary



— Product complies with requirements set forth by the relevant European directives.



— Read manual prior to using equipment.



— Eye protection required while using this equipment.



— Hearing protection 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. Huck equipment must be maintained in a safe working condition at all times and inspected on a regular basis 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 and understand any Warning and Caution stickers/labels supplied with equipment before connecting equipment to any primary power supply. As applicable, each of the sections in this manual have specific safety and other information.
4. See MSDS Specifications before servicing the tool. MSDS Specifications are available from you Huck representative or on-line at www.huck.com. Click on Installation Systems Division.
5. When repairing or operating Huck installation equipment, always wear approved eye protection. Where applicable, refer to ANSI Z87.1 - 1989
6. Disconnect primary power source before doing maintenance on Huck equipment.
7. If any equipment shows signs of damage, wear, or leakage, do not connect it to the primary power supply.
8. Make sure proper power source is used at all times.
9. Never remove any safety guards or pintail deflector.
10. Never install a fastener in free air. Personal injury from fastener ejecting may occur.
11. When using an offset nose always clear spent pintail out of nose assembly before installing the next fastener.
12. If there is a pinch point between trigger and work piece use remote trigger. (Remote triggers are available for all tooling).
13. Do not abuse tool by dropping or using it as a hammer. Never use hydraulic or air lines as a handle. 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.
14. Never place hands between nose assembly and work piece.
15. Tools with ejector rods should never be cycled with out nose assembly installed.
16. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet of correct positioning.

CONTENTS

SAFETY	3
CONTENTS	4
DESCRIPTION	5
SPECIFICATIONS	5
PREPARATION FOR USE	6
OPERATING INSTRUCTIONS	7
MAINTENANCE	7 & 8
GOOD PRACTICES	7
FIRST TIME USE	7
REGULAR & OPERATION	7
PREVENTIVE MAINTENANCE	8
PRESSURE ADJUSTMENTS	8
TROUBLESHOOTING	9
DRAWINGS & PARTS LIST	
MAIN COMPONENTS (FIGURE 1)	10
ASSEMBLY DRAWING (FIGURE 2)	11
ASSEMBLY DRAWING (FIGURE 3)	12
PARTS LIST	13
DIRECTIONAL VALVE SERVICE KIT (FIGURE 4)	14
WIRING SCHEMATIC (FIGURE 5)	15
SECTION FOR SERVICE NOTES	16

DESCRIPTION

The Huck Model 913H POWERIG™ is a portable, gasoline powered hydraulic power source designed to operate all Huck Hydraulic Installation Equipment.

Figure 1 shows construction features of hydraulic unit and identifies main components.

Hydraulic pressure is developed by a two-stage, gear piston hydraulic pump driven by a Honda 5.5hp Engine. Pump output is directed to either PULL or RETURN pressure ports of the installation tool by a four-way directional valve. The Directional valve is controlled, with a trigger/switch, from the tool. This is a 12 - volt control system.

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.



WARNING: Return Pressure can be adjusted to 6000psi if required for use with HPT Tooling. DO NOT OPERATE OTHER HUCK TOOLS AT THIS RETURN PRESSURE. Severe personal injury and damage to the tool may result.

Hydraulic fluid is stored in a reservoir which serves as the base for the motor-pump, and directional valve. Hydraulic quick disconnect couplers are furnished for connecting hoses to the installation tool and POWERIG™ Hydraulic Unit.

This POWERIG™ Hydraulic Unit includes a roll cage for protection, as well as to facilitate moving the unit to various work stations. The unit weighs approximately 175 pounds (78.7 kg) when filled with hydraulic fluid.

SPECIFICATIONS

Width:	21 inches	547 mm
Length:	24 inches	629 mm
Height:	27 inches	699 mm
Weight (without Hydraulic fluid):	122 pounds	54.7 kg
Reservoir Capacity:	5 gallons	.02m3
Flow Rate:	0.6 gallons per minute	
Power Source:	Honda 5.5hp, 4 cycle, single cylinder air cooled gasoline engine - point condenser ignition with 3 amp charging coil.	
Output Pressure:	PULL	5800 psi (40000 kPa) Max 8400psi
	RETURN	2800 psi (19300 kPa)Max 6000 psi

PREPARATION FOR USE



For component identification refer to illustrations and parts list.

HYDRAULIC FLUID:

The recommended hydraulic fluid for use in all Huck Hydraulic and Pneudraulic Installation Equipment is an automatic transmission fluid meeting GENERAL MOTORS "DEXRON III® " Specifications as listed below or equivalent.

Characteristic:	Specification:
Gravity,API	31.4
Specific Gravity	0.869
Pour Point, F (C)	-45 (-42)
Flash Point,min F (C)	320 (160)
 Viscosity:	
cP at -40 F (-40 C)o	37,860
cP at -10 F (-23 C)o	2,560
cP at - 0 F (-18 C)o	1,600
SUS at 100 F	183
SUS at 210 F	50
cSt at 40 C	36.1
cSt at 100 C	6.9
Viscosity Index,	ASTM D-2270-159
 Color, ASTM	 Red
 Type	 DEXRON III®

Crankcase Oil (API classification MS) ----- Above 32°F - SAE 30
 Below 32°F - SAE 10W

Gasoline - Regular Grade **CAUTION: DO NOT MIX OIL WITH GASOLINE**

1. Fill engine crankcase with oil (see above). Fill reservoir with hydraulic fluid, and fill fuel tank with regular grade gasoline.
2. Carburetor is preset at factory. Do not adjust unless necessary. (See engine manual)
3. During break-in observe engine oil level, and change oil after two hours. Thereafter, depending on conditions, change oil every 8 to 25 hours.

OPERATING INSTRUCTIONS



WARNING -
Provide proper ventilation to avoid carbon monoxide poisoning.

1. Follow instructions on engine for starting and stopping.

CAUTION:

To prolong engine and pump life, never leave engine operating in RUN position when POWERIG® Unit is not being used to install fasteners. When engine operates for long periods without installing fastener, move throttle control to SLOW or IDLE position or shut unit off.

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.
2. Use clean funnel with filter.
3. Do not let hose fittings or couplings lie, or drag around, on dirty floor or ground.
4. Wipe off couplings before connecting them.
5. Periodically, drain and clean reservoir and fill with clean fluid.

FIRST TIME USE

1. Fill reservoir with hydraulic fluid, approximately 5 gallons (.02m³), until the fluid level is within one inch of the top of the reservoir
2. Attach PULL Pressure and RETURN pressure hoses to the hydraulic unit.
3. Check the PULL & RETURN pressure and adjust as necessary while engine is running. *See Pressures Adjustment Section.*
4. Attach installation tool to hoses. 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. Start motor so hydraulic pump is idling.
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. Check for leaks.
9. The unit and installation tool are now ready for attaching the applicable nose assembly and the installation of Huck fasteners.

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.

OPERATION

The operation of the Model 913H Hydraulic Unit is controlled by the switch in the installation tool or by an auxiliary switch.

MAINTENANCE (CONT.)



PREVENTIVE MAINTENANCE

An effective preventive maintenance program includes scheduled inspections to detect and correct minor troubles.

1. Verify that hydraulic hose fittings and electrical connections are secure.
2. Inspect hoses for signs of damage.
REPLACE HOSES IF DAMAGE IS DETECTED. Use of a defective hose may result in Severe personal injury and damage to the tool .
3. Inspect components during operation to detect any abnormal heating, leakage, vibration, or wear.
4. Inspect oil filter periodically. If necessary, clean according to instruction tag.
5. Inspect hydraulic fluid periodically. Replace if any evidence of impurities is detected.
6. Keep all exterior surfaces clean.

Perform the following maintenance on the engine:

1. Check oil every five operating hours, and each time before using Hydraulic Unit.
2. Change crankcase oil after first two hours of operation. Thereafter, change crankcase oil every 25 hours of operation. If power source is operated in extremely dusty or dirty environment, change oil every eight hours of operation.



WARNING : Before changing oil, DISCONNECT WIRE FROM SPARK PLUG. Failure to do so may result in severe personal injury and damage to the tool.

Unscrew oil drain plug (Figure 3 - Item 18), tip engine toward oil drain hole and drain completely. Replace oil drain plug and refill.

3. The air-cooled engine operates most efficiently when cooling fins are kept clean.

Remove all dust and dirt from cylinder fins and underside of housing, as required.

4. A dirty or clogged air cleaner results in noticeable loss of engine power. Clean the reusable-type air cleaner each 10 operating hours, or more frequently if unit is operating in dusty or dirty environment. To clean, remove air cleaner (Figure 3 - Item 19) and dip in gasoline.
5. Remove and inspect spark plug (Figure 2 - Item 16) at each oil change. Keep electrodes clean and free of carbon. Adjust electrode gap to .030 inch. If electrodes are pitted or burned or ceramic insulator is cracked, replace spark plug. Before installing a spark plug, coat threads lightly with graphite grease.

PRESSURE ADJUSTMENTS

NOTE: Do not adjust PULL or RETURN pressure unless a T-10280 (earlier model) or T-124833 Pressure Gauge is on hand. Follow instructions supplied with pressure gauge for proper pressure checking and adjusting.

PULL pressure adjustment:

Refer to Figure 1.

1. Loosen jam nut on relief valve
2. Turn adjustment clockwise to increase PULL pressure -- counter-clockwise decreases pressure.
3. Tighten jam nut.

RETURN pressure adjustment:

Refer to Figure 3.

Same procedure as PULL adjustment.

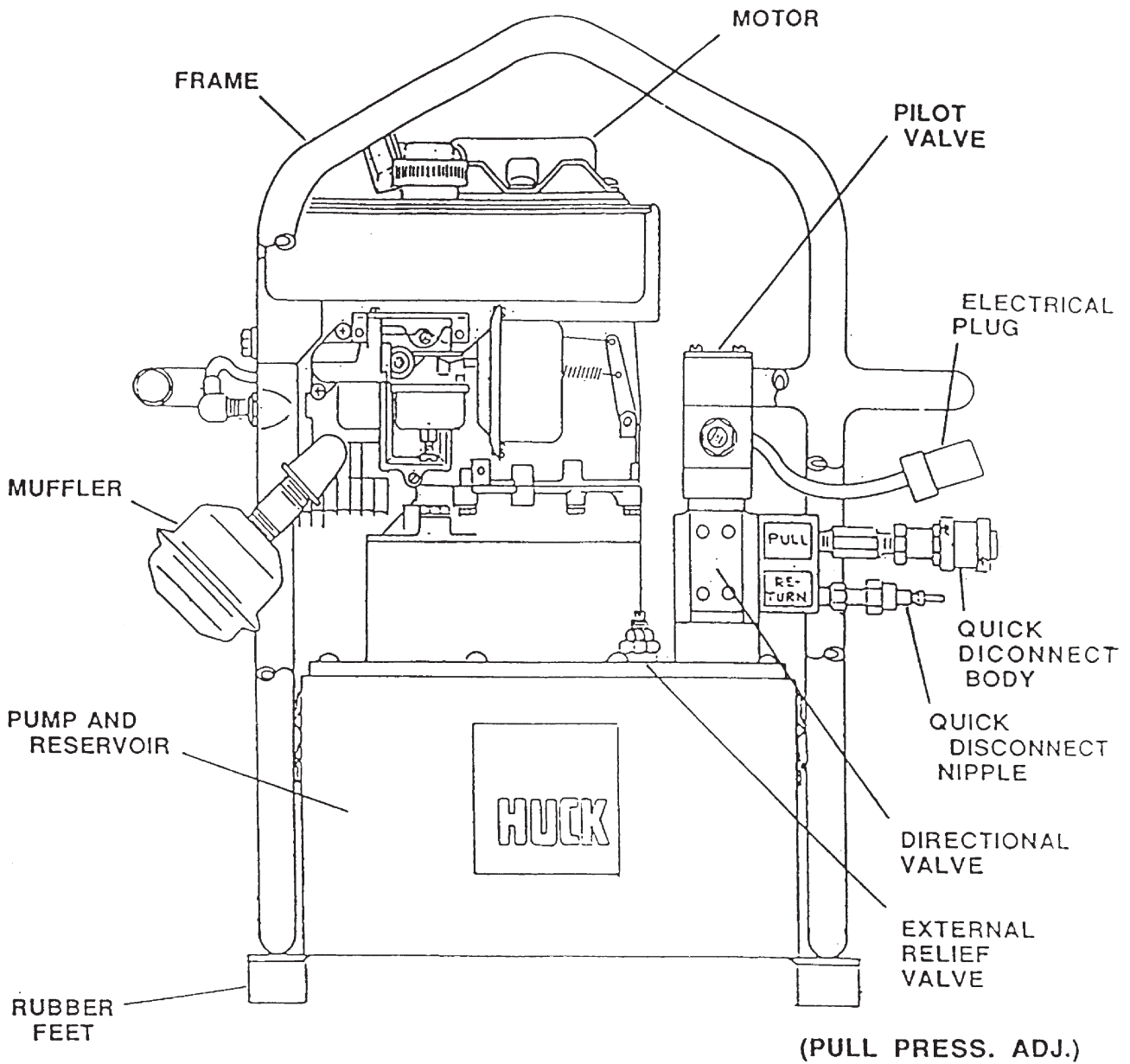
NOTE: Relief valve jam nut must always be tightened all the way clockwise once pressure is set. Tightening will assure settings won't "drift" while the hydraulic unit is operating.

TROUBLESHOOTING



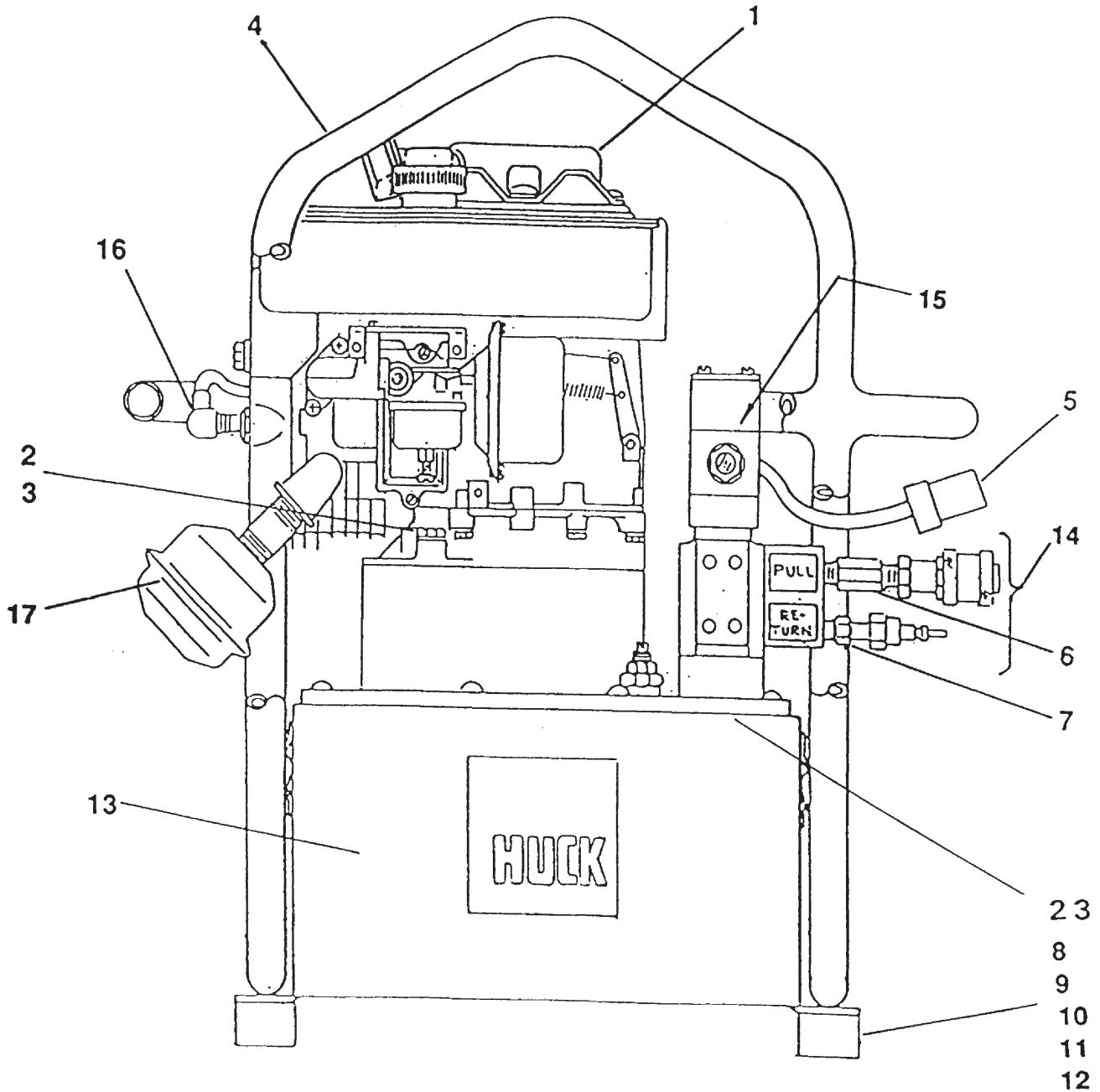
1. With POWERIG® Hydraulic Unit engine running. Tool fails to operate when trigger is depressed.
 - a. Loose or faulty connectors in control cord.
 - b. Loose or faulty hydraulic hose couplings.
 - c. Defective tool trigger assembly.
 - d. Blown fuse in rectifier circuit of electrical control system.
 - e. Low hydraulic fluid level in reservoir.
 - f. Hydraulic fluid viscosity too heavy to pick up prime.
 - g. Clogged suction strainer.
 - h. Improperly driven hydraulic pump, or defective hydraulic pump.
 - i. Defective directional valve assembly. Filter clogged.
 - j. Installation Tool not operating.
 - k. Ball off seat in pilot section of combination valve.
2. Tool does not return on release of trigger.
 - a. Defective pilot valve.
 - b. Installation tool not operating properly.
 - c. Solenoid damaged.
 - d. Hoses not coupled properly.
3. Pump cavitating (noisy throughout entire installation cycle).
 - a. Low hydraulic fluid level in reservoir.
 - b. Clogged suction strainer.
 - c. Hydraulic fluid viscosity too heavy to pick up prime.
4. Tool operation slow but entire cycle does occur.
 - a. Pump cavitating.
 - b. Hydraulic fluid viscosity too thin.
 - c. Defective directional valve assembly.
 - d. Defective hydraulic pump.
 - e. Internal and external relief valve not operating properly.
 - f. Low engine shaft speed.

Fig. 1



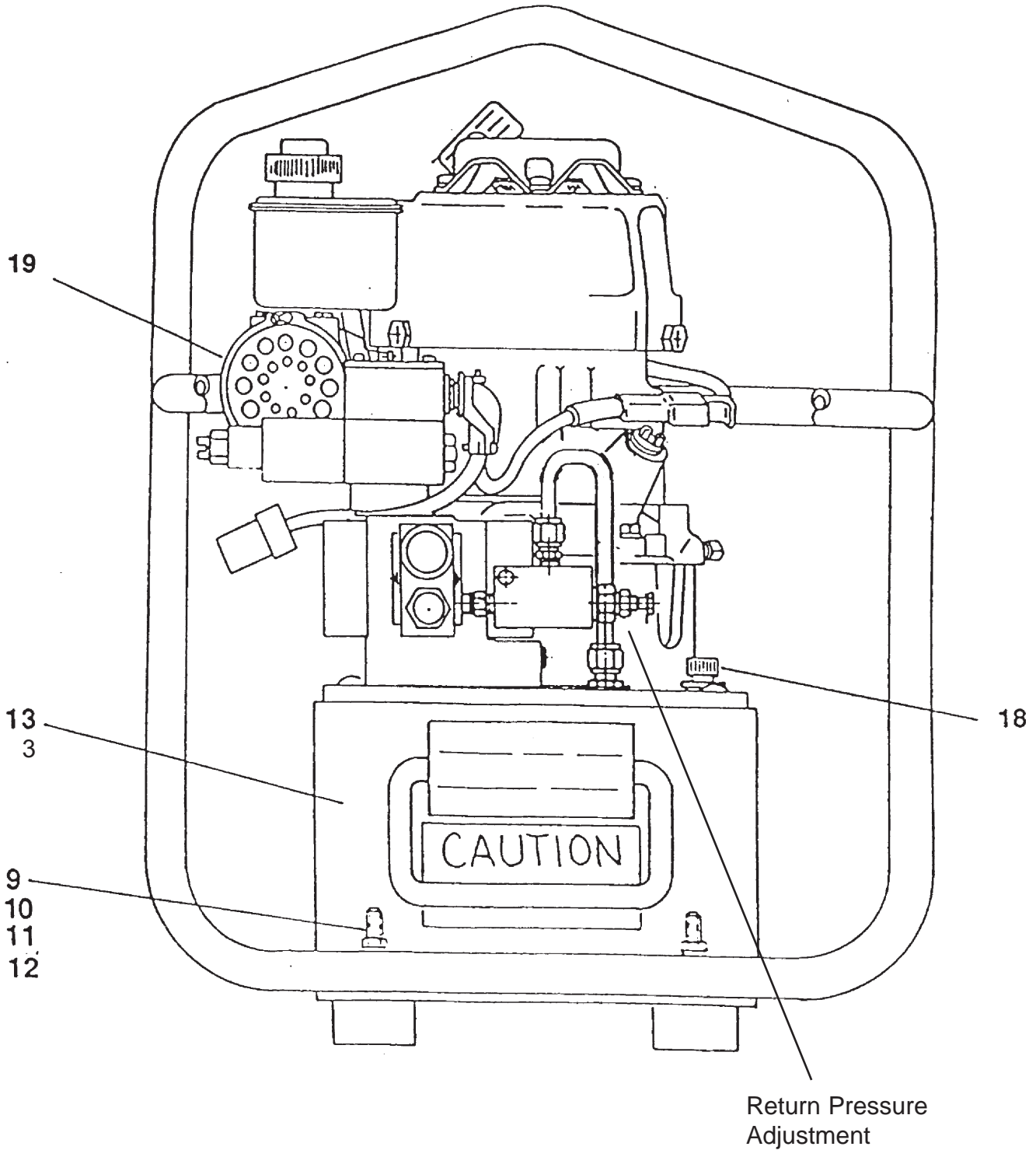
Main Components

Fig. 2



Assembly Drawing

Fig. 3



Assembly Drawing

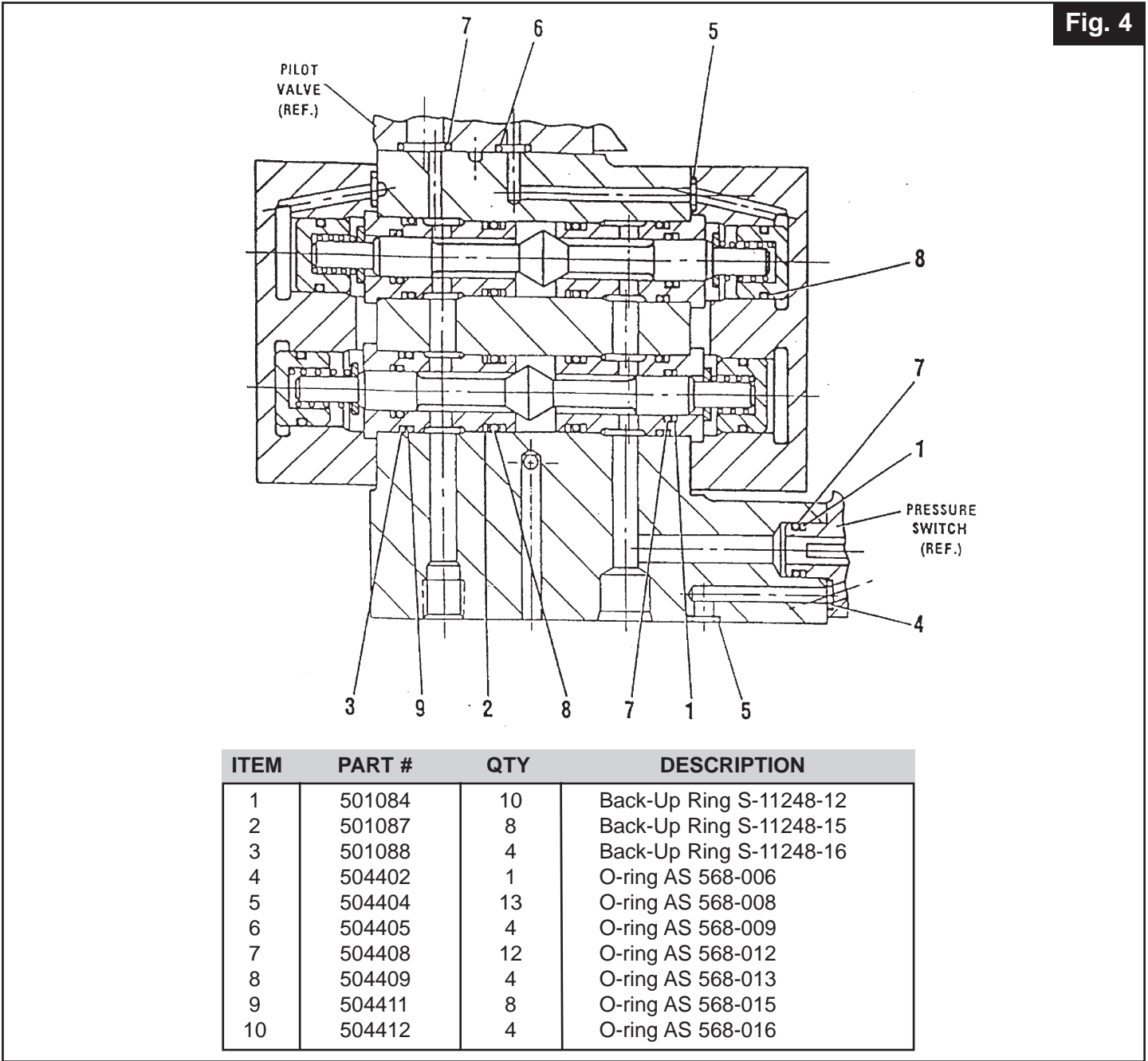
PARTS LIST

ITEM	PART #	QTY	DESCRIPTION
1	125804	1	Motor-- 5.5 Horse Power (Honda Engine)
2	-----	-----	-----
3	507544	1	Intake Screen (not shown)
4	116602	1	Frame
5	110687	1	Connector - Female
6	504057	1	Nipple
7	502729	1	Nipple
8	116603	4	Foot Rubber
9	502370	4	Bolt - Hex Head
10	500195	4	Washer - Lock
11	500217	4	Nut
12	116604	4	Spacer
13	-----	1	Reservoir
14	110440	1	Hyd Coupling Assembly
15	120332	1	Pilot Valve & Solenoid (See Notes)
16	See Notes	1	Spark Plug
17	See Notes	1	Muffler
18	See Notes	1	Oil Filler
19	See Notes	1	Air Cleaner
20	121610	1	Fuse Holder (See Figure 6)
21	121611	1	Fuse (See Figure 6)
22	121612	1	Diode
23	123014	1	Gasket Set

- NOTES:**
- Ref. No. 15 - OTC # 17890-6---Coil not available separately due to use of various Pilot Valves on this unit by OTC.
 - Ref. No. 16, 17, 18 & 19 - For these parts please reference the Honda engine manual for model GXV160K1
 - Spacer 505968 may be required to attach the cage to the rig. Please contact your Huck representative for more information.

DIRECTIONAL VALVE SERVICE KIT

PARTS LIST - Service Kit 111416

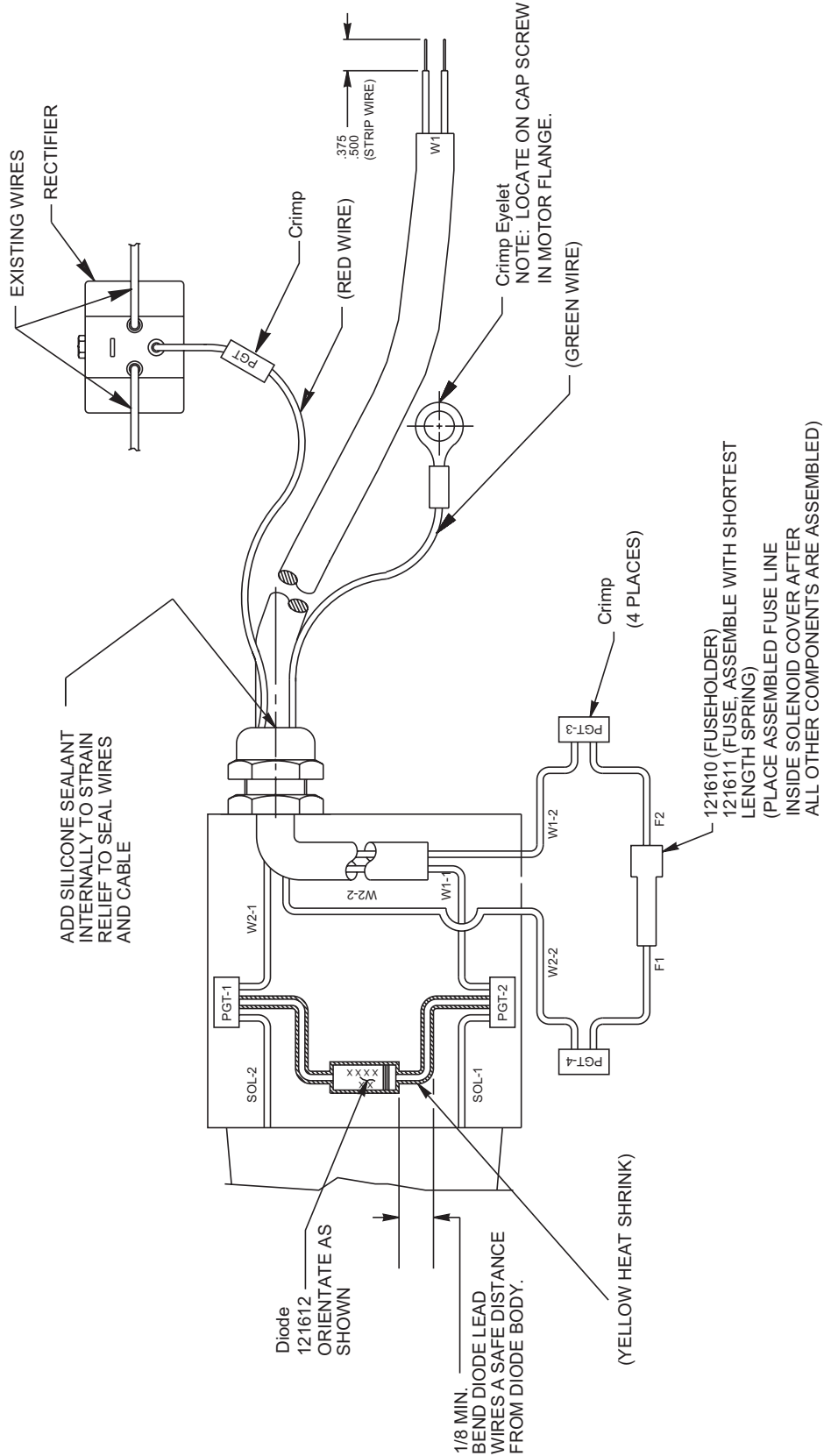


- (1) Back-up rings are W.S. Shamban Series S-11248 (MS-28774 TEFLON) or equivalent. Back-up dash numbers correspond to O-ring dash numbers.
- (2) O-ring sizes are specified as AS 568 dash numbers. (AS 568 is an AEROSPACE SIZE STANDARD FOR O-RINGS.)
- (3) Material for O-rings is VITON 75 Durometer or equivalent.

NOTE: All O-rings provided are not used in this valve. Refer to Figure 4 for locations, quantities and part numbers.

Fig. 5

WIRE NO.	DESCRIPTION	COLOR	LENGTH	LOC. FROM	STRIP JACKET	TERMINAL	LOC. TO	STRIP JACKET
W1	18 / 2 SJO MEDIUM DUTY CORD	WHITE	10.50	SOL-1	2.50	PGT-2	---	1.00
		BLACK	11.50	F2		PGT-3		
W2	WIRE, 14 AWG	GREEN	16.00	SOL-2	3.00	PGT-1	---	1.12
	WIRE, 18 AWG	RED	16.50	F1		PGT-4		



WIRING SCHEMATIC

SERVICE NOTES:

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

Canada

6150 Kennedy Road Unit 10, Mississauga, Ontario, L5T2J4, Canada.

Telephone (905) 564-4825 FAX (905) 564-1963

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

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Tucson, AZ 85714
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520-747-9898
FAX: 520-748-2142

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Carson Operations

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900 Watson Center Rd.
Carson, CA 90749
800-421-1459
310-830-8200
FAX: 310-830-1436

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8001 Imperial Drive
Waco, TX 76714-8117
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254-776-2000
FAX: 254-751-5259

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Canada Operations

6150 Kennedy Road, Unit 10
Mississauga, Ontario L5T2J4
Canada
905-564-4825
FAX: 905-564-1963

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Commercial 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

Commercial Products

Australia Operations

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Rowville, Victoria
Australia 3178
03-764-5500
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Alcoa Fastening Systems

Commercial Products

United Kingdom Operations

Unit C, Stafford Park 7
Telford, Shropshire
England TF3 3BQ
01952-290011
FAX: 0952-290459

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FAX: 33-1-34-66-0600



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