SAFETY

This instruction manual must be read with particular attention to the following safety guidelines, 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

SECTION 1 - Safe Operation

WARNINGs and Caution
Features of Fasteners
Sequence of Operation

SECTION 2 - Assembly/Disassembly Reference Drawings

HS37 Reference Drawings
HS52 Reference Drawings

SECTION 3 - Disassembling Tool

Conical Spring; Actuator Rod Assembly; Drive Shaft;
Limit Switch; Drive Mounting Flange .................................................. 1
Air Motor Drive Assembly -- Front (shown) and Rear
(with trigger switch assembly -- not shown) ........................................ 4
Handle/cradle Assembly; Hose Guard Handle Assembly .................... 7
Intermediate Gear and Bearing Assembly;
Drive Mounting Flange ................................................................. 10
Internal Drive Gear and Bearing Assembly ....................................... 12
Cylinder Assembly ........................................................................... 13

SECTION 4 - Assembling Tool

Thimble Assembly, Securing Air Motor, Limit Switch

Cylinder Assembly ........................................................................... 15
Intermediate Drive Gear and Bearing Assembly Motor Boss;
Drive Mounting Flange ..................................................................... 23
Handle and Cylinder Assembly;
Handle/cradle and Cylinder Assembly ............................................. 29
Cylinder and Gear Housing/drive Mounting Flange Assembly ............ 31
Trigger Cord and Power Cord to Terminal Block;
Limit Switch Cover ........................................................................... 32
Front Air Motor Drive (rear drive with
trigger switch assembly -- not shown);
Air Lines ......................................................................................... 34
Actuator Disk and Rod Assembly ...................................................... 35
Actuator Rod Assembly; Conical Spring;
Drive Shaft ..................................................................................... 36
Limit Switch Operation and Adjustment ............................................. 37

SECTION 5 - Updates, Charts and Limited Warranties
SAFE OPERATION SECTION
FEATURES OF FASTENERS

HUCKSPIN fasteners combine features of HUCKBOLTS® and common bolts and nuts. Although HUCKSPIN fasteners resemble ordinary fasteners in appearance, they have unique design features that insure precise pin tension and unsurpassed vibration resistance - they have been designed to offer dependability with efficiency.

Some important differences between common bolts and nuts and HUCKSPIN fasteners are shown. Notice that the "locking grooves" of a HUCKSPIN pin act as bolt threads; also the HUCKSPIN collar has a "tab" instead of threads.

The collar tab follows the locking groove/threads as collar is threaded on at fit-up procedure - - collar is conveniently held in place.
HUCKSPIN pins and collars, when swaged into position, have much more surface contact than common bolts and nuts. Nose assembly swages the collar into pin locking threads and fills them completely. Additionally, the pressure of swaging puts a predetermined load on the sheets/pinhead producing consistent clamping characteristics. Grooves of the pins have an elliptical form compared to threads of common bolts with their angled bottoms. An elliptical form eliminates much of the stress concentration that is commonly found in angular threads -- metal fatigue is greatly decreased and fastener integrity is proportionately increased.
FASTENER INSTALLATION

The following series of figures is an illustrated installation sequence. The drawing numbers without the -S suffix reflect the typical full pressure fastening cycle; those with -S are the snub sequence which begins as full pressure fastening, but then, is transformed into the snubbing cycle due to an irregularity sensed by the controller. The lower pressure snubbing sequence is a safety feature when full pressure swaging would strip the fastener threads.

The snub cycle may also be programmed into the normal cycle to put a slight swage on the collar for fitting-up purposes. With optimum conditions, or with an irregularity corrected to give the proper thread engagement, the swage cycle is completed. The remaining illustrations are a straight-forward portrayal of the tool disengaging from the fastener after a full pressure swage.
OPERATOR POSITIONS HUCK-SPIN COLLAR ONTO MATING HUCK-SPIN PIN THREADS BY HAND.
HUCK-SPIN TOOL THIMBLE ENGAGED WITH PIN THREADS
IF NO FURTHER THREAD ENGAGEMENT AND LIMIT SWITCH #2 NOT MADE, THEN SNUB CYCLE STARTED.
(SNUB ONLY):

SNUBBED AT LOWER PRESSURE DUE TO MINIMAL THREAD ENGAGEMENT ON THIMBLE
(SNUB ONLY):

TOOLBACKS OFF AFTER SNUB. THIMBLE REMAINS PARTIALLY ENGAGED ON PIN.
(SNUB ONLY):

THIMBLE ENGAGES MORE PIN THREADS AND CLOSES LIMIT SWITCH #2.
ASSEMBLY NOW READY FOR FULL SWAGE CYCLE
AT FULL PRESSURE, TOOL CYCLE SWAGES COLLAR
SWAGED COLLAR IS EJECTED FROM ANVIL, AND THIMBLE IS UNSCREWED FROM PIN. THIS RESULTS IN ALL TOOL COMPONENTS RETURNING TO THEIR HOME POSITIONS
TOOL IS READY TO INSTALL NEXT HUCK-SPIN FASTENER
System Inspection
Operating efficiency of the tool is directly related to performance of the entire system including tool with nose assembly, hydraulic hoses, air hoses, switches and electrical cords, manifold, balancer, controller and POWERIG Hydraulic Unit. An effective preventive maintenance program includes scheduled inspections of the system to detect and correct minor troubles.

1. Inspect tool, nose assembly, manifold, balancer and controller for external damage.

2. Verify that hose fittings, couplings and electrical connections are secure.

3. Inspect hydraulic hoses for signs of damage or deterioration. Replace nicked, kinked or worn hoses as required.

4. Observe/monitor entire system during operation to detect abnormal heating, leaks or vibration.

POWERIG® Hydraulic Unit Maintenance
Maintenance and repair instructions are in applicable POWERIG Hydraulic Instruction Manual.

Tool and Nose Assembly Maintenance and Precautions
Whenever disassembled, and also at regular intervals, (depending on severity and length of use), replace all seals, wipers, O-rings and back-up rings. Spare parts should be kept on hand. Inspect cylinder bore, piston and rod, and unloading valve for scored surfaces, excessive wear or damage. Replace parts as necessary. Clean nose assembly often - - dip in mineral spirits, or similar solvent, to wash away metal chips and debris. Use a dull pointed "pick" to remove imbedded particles from pull grooves of thimble - - see appropriate NOSE ASSEMBLY DATA SHEET.
ASSEMBLY/ DISASSEMBLY
REFERENCE DRAWING
SECTION
RE-SIZE GLYD-RING (COMPRESS INTO GROOVE) USING P/N 123495 GLYD-RING COMPRESSOR.
<table>
<thead>
<tr>
<th>No.</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>PART No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>CYLINDER END CAP</td>
<td>121494</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>BACK-UP RING</td>
<td>501157</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>O’RING</td>
<td>504493</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>STEPSEAL</td>
<td>506190</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>WIPER</td>
<td>506001</td>
</tr>
<tr>
<td>PART NO</td>
<td>QTY</td>
<td>DESCRIPTION</td>
<td>ITEM</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
<td>------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>506650</td>
<td>1</td>
<td>SPRING, COMPRESS</td>
<td>7</td>
</tr>
<tr>
<td>502471</td>
<td>3</td>
<td>B.H.C.S. 8-32 X .25</td>
<td>6</td>
</tr>
<tr>
<td>124236</td>
<td>1</td>
<td>COVER</td>
<td>5</td>
</tr>
<tr>
<td>124235</td>
<td>3</td>
<td>SPACER</td>
<td>4</td>
</tr>
<tr>
<td>124234</td>
<td>3</td>
<td>STANDOFF</td>
<td>3</td>
</tr>
<tr>
<td>124233</td>
<td>1</td>
<td>SWITCH ACTUATOR SLIDE</td>
<td>2</td>
</tr>
<tr>
<td>124232</td>
<td>1</td>
<td>PRINTED CIRCUIT BOARD ASSY</td>
<td>1</td>
</tr>
</tbody>
</table>

By accepting this proprietary Huck drawing, recipient agrees not to reproduce or disclose any part thereof to any others without the written permission of Huck International, Inc.

REV | DESCRIPTION | DATE
--- | ----------- | ----
A   | RELEASED   | 7/8/94
B   | UPDATED COMPONENT PICTORIALS | 2/7/95

HUCK INTERNATIONAL, INC., I.S.D.
85 GRAND STREET, P.O BOX 2270
KINGSTON, NEW YORK 12401

HUCKSPIN SWITCH ASSEMBLY

DET: RDT CK: DATE: 7/8/94 SCALE: FULL
<table>
<thead>
<tr>
<th>MATERIAL:</th>
<th>SPEC:</th>
<th>TOLERANCES UNLESS OTHERWISE SPECIFIED</th>
<th>HUCK INTERNATIONAL, INC. I.E.D. 83 GRAND STREET, P.O. BOX 2210 KINGSTON NEW YORK 12401</th>
</tr>
</thead>
<tbody>
<tr>
<td>HARDNESS:</td>
<td>SPEC:</td>
<td>XX, XXX ±</td>
<td>HANDLE AND CRADLE ASSEMBLY</td>
</tr>
<tr>
<td>HEAT TREAT:</td>
<td>SPEC:</td>
<td>INT. COR RADI</td>
<td>DET: JCLCK</td>
</tr>
<tr>
<td>SURF. TREAT:</td>
<td>SPEC:</td>
<td>SURFACE FINISH NOT TO EXCEED</td>
<td>DET: 120003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SURFACES TO BE Q. // F. &amp; &lt; 0.0005 WITHIN T.I.R</td>
<td>FOC.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDENTIFICATION PER SPEC 42-311</td>
<td>FINAL ASSY: MS 37</td>
</tr>
</tbody>
</table>

**Diagram:**
- 506851 BUTTON HD. CAP SCREW (3)
- 121489 CRADLE
- 120361 SWITCH ASSY
- 121987 HANDLE
- 506358 STRAIN RELIEF
- 121456 CABLE
- 620068 CAP PLUG

**Drawing Notes:**
- REV A: RELEASE 2/12/93
- REV B: 120361 WAS 120361 10/5/94
- REV C: P/N 506851 WAS 500110 12/22/94
- REV D: 121987 WAS 120361 WAS 120361-1 9/28/95
- 506358 WAS 505346, ADDED 620068
NOTES:

⚠️ LEAVE ENOUGH WIRE INSIDE OF SWITCH HOLDER (124108) TO ALLOW REMOVAL OF TRIGGER ASSEMBLY (120361).
REF: HS52RM-0-1-0

HS52RM PART NO. DESIGNATION CHART

BASIC FAMILY OF HUCK-SPIN REAR MOTOR TOOLS RATED
AT 52,000 LBF PULL FORCE AT 8300 PSI RG PRESSURE

HS52RM-X-X-X

CUSTOM OPTIONS (e.g., SPECIAL HOSE LENGTH, ETC.) (*)
0,1,2,3: TRIGGER OPTION (**)  
0,1: AIR MOTOR TYPE (****)

(*) NOTE: -0 OPTION: NO CUSTOM OPTIONS  
-50 OPTION: 50 INCH HOSES

(**) NOTE: -0 OPTION: NO TRIGGER MOUNTED ON HOSE GUARD  
-1 OPTION: TRIGGER LOCATED ON FRONT SIDE OF HOSE GUARD  
-2 OPTION: TRIGGER LOCATED ON REAR SIDE OF HOSE GUARD  
-3 OPTION: TRIGGER LOCATED ON FRONT AND REAR SIDES OF HOSE GUARD

(****) NOTE: -0 OPTION: STANDARD AIR MOTOR USED  
-1 OPTION: OPTIONAL HIGH-TORQUE AIR MOTOR USED

CURRENT TOOLS
HS52RM-0-1-0 WAS HS52RM
HS52RM-0-1-50 WAS HS52RM-50
HS52 PART NO. DESIGNATION CHART

BASIC FAMILY OF HUCK-SPIN FRONT MOTOR TOOLS RATED AT 52,000 LBF PULL FORCE AT 8300 PSI RIG PRESSURE

HS52-XX-XX-XX

CUSTOM OPTIONS (e.g., SPECIAL HOSE LENGTH, ETC)
0.1.2.3: TRIGGER OPTION (*)
0.3.5.7: HANDLE LOCATION
0.1: AIR MOTOR TYPE (**)
2.4.5.6.8: AIR MOTOR LOCATION

(*) NOTE: -0 OPTION: NO TRIGGER MOUNTED ON HOSE GUARD.
-1 OPTION: TRIGGER LOCATED ON FRONT SIDE OF HOSE GUARD.
-2 OPTION: TRIGGER LOCATED ON REAR SIDE OF HOSE GUARD.
-3 OPTION: TRIGGER LOCATED ON FRONT AND REAR SIDES OF HOSE GUARD.

(**) NOTE: -0 OPTION: STANDARD AIR MOTOR USED
-1 OPTION: OPTIONAL HIGH-TORQUE AIR MOTOR USED

REF: HS52-21-3-0 SHOWN
NOTES

1 ASSEMBLE AND TEST PER HUCK SPEC 42-097-1

△ REFER TO ABOVE SPEC FOR ALL APPLICABLE ASSEMBLY TOOLING REQUIRED.

3

<table>
<thead>
<tr>
<th>No.</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>PISTON &amp; SEAL ASSY</td>
<td>121452</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>CYLINDER END CAP</td>
<td>121400</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>CYLINDER</td>
<td>121402</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>JUMP VALVE</td>
<td>127427</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>WRENCHING RING</td>
<td>12176</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>WIPER</td>
<td>506968</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>STEPSEAL</td>
<td>506992</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>BACK-UP RING</td>
<td>501163</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>O'RING</td>
<td>503559</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>GLIDE RING SEAL</td>
<td>506993</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>STEPSEAL</td>
<td>506994</td>
</tr>
</tbody>
</table>

TOLERANCES UNLESS OTHERWISE SPECIFIED

MAXX INTERNATIONAL INC.
42-097-1

HYDRAULIC ASSEMBLY - H552

DATE: 0000/00/00

121453
123865 PISTON

506093 GYLH-RING SEAL

A

RE-SIZE GYLH-RING (COMPRESS INTO GROOVE)
USING P/N 123496 GYLH-RING COMPRESSOR
NOTES

1. BEARINGS TO BE PRESSED IN PLACE
2. LOCATE EXISTING SCREW ON AIR MOTOR (1/2" NPT) TO BE IN THE 1 O'CLOCK POSITION (SEE PICTORIAL)
3. ASSEMBLY CAN BE CONVERTED TO A 1/2" AIR MOTOR STYLE
   BY THE FOLLOWING METHOD (SEE PICTORIAL 1)
   A) REMOVE THE (8) 10-32 X 1/2" S.H.S. SCREW
      AND REPLACE THE AIR MOTOR SUBASSEMBLY
   B) TURN THE AIR MOTOR SUBASSEMBLY 90 DEGREES AND
      REPLACE SCREWS

PICTORIAL - C

SCALE 1:2

FRONT MOTOR DRIVE ASSEMBLY

REAR MOTOR DRIVE ASSEMBLY

NOTE ASSEMBLY MAY BE ORDERED AS PIN 121442

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>PART NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>MUFFLER 1/4 NPT</td>
<td>506476</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>AIR MOTOR MODIFIED</td>
<td>121440</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>MOTOR MOUNT</td>
<td>121440</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>SCREW M10-32 X 1/2&quot;</td>
<td>500105</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>SPACER</td>
<td>121429-2</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>EXTERNAL DRIVE GEAR</td>
<td>123741</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>GEAR SHFT KEY 1/8 X 5/8&quot;</td>
<td>500067</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>SCREW M6-32 X 1/4&quot;</td>
<td>121440</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>DRIVE GEAR BUSHING</td>
<td>121440</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>SPACER</td>
<td>121429-1</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>SHAFT</td>
<td>123733</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>GEAR COVER</td>
<td>121527</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>RETAINING RING</td>
<td>500095</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>ACTUATOR DISK KEY</td>
<td>121433</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>SCREW M6-32 X 5/16&quot;</td>
<td>506058</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>CENTRAL HOUSING</td>
<td>123631</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>SSER SDC M10-32 X 1/4&quot;</td>
<td>500503</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1</td>
<td>INTERMEDIATE GEAR</td>
<td>121440</td>
</tr>
<tr>
<td>21</td>
<td>2</td>
<td>BALL BEARING</td>
<td>506058</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>INTERNAL DRIVE GEAR</td>
<td>121443</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>BALL BEARING</td>
<td>506057</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>RETAINING RING</td>
<td>506055</td>
</tr>
</tbody>
</table>

TOLERANCES UNLESS OTHERWISE SPECIFIED
PICTORIAL - C

NOTES:

1. BEARINGS TO BE PRESSES IN PLACE.

2. LOCATION EXISTING SCREW ON AIR MOTOR 071474-11 TO BE IN THE 12 O'CLOCK POSITION (SEE PICTORIAL).

3. ASSEMBLY CAN BE CONVERTED TO A REAR MOTOR STYLE BY THE FOLLOWING METHOD (SEE PICTORIAL - C):
   a) REMOVE THE 6-32 X 1/2 SHCS (G00201) AND REMOVE THE AIR MOTOR SUBASSEMBLY.
   b) TURN THE AIR MOTOR SUBASSEMBLY 180 DEGREES AND REPLACE SCREWS.

DETAIL A

NOTE: ASSEMBLY MAY BE ORDERED AS PIN 071442.

DETAIL B

NOTE: ASSEMBLY MAY BE ORDERED AS PIN 071442.

ITEM | QTY | DESCRIPTION | PART No.
--- | --- | --- | ---
3 | 1 | MERRILLER 1/4 NPT | 508476
2 | 1 | AIR MOTOR MODIFIED | 121474-1
1 | 1 | PORT MOUNT | 121405
10 | 1 | SCREW 6-32 X 1/2" | 500101
1 | 1 | SPACER | 121429-2
1 | 1 | EXTERNAL DRIVE GEAR | 123741
1 | 1 | REAR SHAFT KEY, 1/8 X 3/8" | 500047
1 | 1 | DRIVE GEAR BUSHING | 121414
2 | 1 | SPACER | 121429-1
1 | 1 | SHAFT | 123742
1 | 1 | GEAR COVER | 121527
1 | 1 | RETAINING RING | 500953
1 | 1 | ACTUATOR DISK KEY | 121417
1 | 1 | SCREW 6-32 X 1/4" | 508058
1 | 1 | CENTRAL HOUSING | 123635
1 | 1 | SHCS 1/4" | 505053
1 | 1 | INTERMEDIATE GEAR | 121440
1 | 1 | BALL BEARING | 508059
1 | 1 | INTERMEDIATE DRIVE GEAR | 121441
1 | 1 | BALL BEARING | 508057
1 | 1 | RETAINING RING | 508056
NOTES:

⚠️ APPLY TWO DROPS OF LOCTITE P/N 505802 TO STUDS THREADS BEFORE ASSEMBLY

THIS PART IS SIMILAR TO 121490

HUCK INTERNATIONAL, INC., I.E.D.
85 GRAND STREET, P.O. BOX 2270
KINGSTON, NEW YORK 12401

ACTUATOR DISK & ROD ASSEMBLY
HS-52

DET. RDT CK: DATE: 12/3/93 SCALE: 1/1
FOC FAC. A 121441
NOTES

⚠️ THIS SET SCREW IS INCLUDED WITH P/N 121987 HANDLE

⚠️ THESE SCREWS TO BE SUPPLIED BAGGED AND TAPE TO ASSEMBLY
120361-1 TRIGGER ASSEMBLY

506630 1/4-20 x 150 B.H.C.S.

124109 SWITCH HOLDER - CLAMP SIDE

124108 SWITCH HOLDER - SWITCH SIDE

501731 #6-32 x .125 SET SCREW

(337) 505792 2-CONDUCTOR WIRE

Notes:

⚠ LEAVE ENOUGH WIRE INSIDE OF SWITCH HOLDER (121408) TO ALLOW REMOVAL OF TRIGGER ASSEMBLY (120361).
TOOL DISASSEMBLY SECTION
HUCK-SPIN® DISASSEMBLY

Refer to appropriate illustrations and GENERAL MAINTENANCE. The following procedure is for complete disassembly - - disassemble only sub-assemblies necessary to check and replace worn and damaged components. Always replace seals, wipers, O-rings and back-up rings of disassembled sub-assemblies. Carefully read all precautions in SAFE OPERATION section. This includes how to safely disconnect tool from power source before starting any maintenance.

Conical Spring; Actuator Rod Assembly; Drive Shaft; Limit Switch; Drive Mounting Flange

WARNING

Point housing in a safe direction and, while firmly pushing against end cap and conical spring, remove retaining ring. Unless end cap is held in firmly, severe personal injury may occur when spring ejects forcibly from housing.

Remove retaining ring, end cap and spring from central gear housing - - see WARNING above. Use TRUARC pliers for retaining ring.

Remove actuator shaft assembly from tool.
Pull drive shaft from front of tool.

Unscrew three screws to remove cover. Hold cover down so spring won't be lost.

Carefully lift cover just enough to hold switch actuator slide and spring from ejecting suddenly.
Disconnect wires - use screwdriver.

Unscrew three standoffs. Remove circuit board and spacers.

With hex key, remove both cap screws holding drive mounting flange to cylinder. Separate two main sub-assemblies.
Air Motor Drive Assembly - - Front (shown) and Rear (with trigger switch assembly - not shown)

Press on fitting with thumb, as shown, and pull tubing out.

Remove five screws - - three gear cover screws and two motor mount screws. Remove cover and bushing assembly.

Push bushing out of gear cover.
Unscrew four remaining motor mount screws. Lift motor and mount away from motor boss.

With a large screwdriver, carefully pry drive gear off of motor shaft.

Remove white washer. Unscrew four screws holding motor to motor mount.
See drawing 124110. On rear air motors, remove trigger switch assembly from motor -- use hex key. Loosen set screw with hex key and remove trigger switch from switch holder. Remove wires from switch -- use screwdriver.
Handle/Cradle Assembly; Hose Guard Handle Assembly

Remove cradle assembly from cylinder - - use hex key to remove four screws.

Remove handle from cradle - - use hex key to remove two screws.

Loosen cord grip of strain relief base - - use wrench.
Loosen switch retaining set screw in handle with hex key.

Pull switch out and detach wires from switch.

Loosen screws holding trigger switch assembly to air motor. Remove retaining screw holding switch in switch holder - pull switch out and detach wires.
Remove two screws holding handle/hose guard to cylinder and two screws holding both halves together.

Remove cable suspension assembly from handle. If optional secondary trigger is installed, it can be removed - remove wiring. Separate handle halves.

Unscrew couplers from hoses - drain fluid.
Unscrew hoses from cylinder - drain cylinder.
Intermediate Gear and Bearing Assembly; Drive Mounting Flange

With hex key, unscrew four screws holding drive mounting flange onto central housing.

With hex key, remove four screws holding motor boss onto central housing.

Lift motor boss off. With hex key, remove shaft locking screw.
Lift out intermediate gear and spacers while pulling shaft out of motor boss.

Remove both bearing assemblies from intermediate gear.
Internal Drive Gear and Bearing Assembly

With hex key, remove two screws holding actuator disc key within central housing.

With TRUARC pliers, remove retaining ring holding drive gear assembly in housing. With soft dowel, tap/push internal drive gear out rear of housing.

Remove retaining ring and bearing from drive gear.
Cylinder Assembly

Screw piston assembly tool onto end of piston.

Unscrew cylinder end cap with pin spanner wrench. Drain fluid.

Remove end cap from piston. Remove piston assembly tool. Pull piston out of cylinder.
Slide dump valve from piston. Remove all seals.
TOOL ASSEMBLY SECTION
HUCK-SPIN ASSEMBLY

Refer to appropriate illustrations and GENERAL MAINTENANCE. The following procedure is for complete assembly. Always replace seals, wipers, O-rings and back-up rings of disassembled sub-assemblies. Carefully read all precautions in SAFE OPERATION section. This includes how to safely connect tool to power source.

Cylinder Assembly

Inspect and clean out seal grooves at base of cylinder. Liberally apply lubricant to O-rings and install an O-ring in both grooves of cylinder base. Liberally apply lubricant to stepseal and fold as shown to install.

Before installing stepseal, be sure that notch of seal is toward inside of cylinder as shown in this illustration and applicable drawing.
Inspect and clean out piston seal groove. Liberally apply lubricant to O-ring and install in groove of piston. Slightly stretch GLYD RING seal — **CAUTION: Seal should not be stretched more than needed for installation.** Liberally apply lubricant to seal. Install GLYD RING over O-ring in piston groove.

Slide resizing tool over GLYD RING seal to compress the seal into piston groove.
Slide dump valve through piston flange.

**CAUTION:** Flats of valve must be positioned as shown (toward unthreaded end of piston).

Place piston end plug (insertion tool) on end of piston. Install GLYD ring insertion tool in cylinder. Push piston into cylinder. End plug must protrude from cylinder base.

Remove piston end plug and GLYD ring insertion tool.
Inspect and clean out cylinder end cap wiper and seal grooves. Liberally apply lubricant to wiper. Be sure notch of wiper is positioned as shown in drawing - - fold, as shown, and install in groove of ID of cap.

Liberally apply lubricant to O-rings and install in each of remaining grooves of cylinder end cap.

Be sure notch of stepseal is positioned as shown in drawing. Liberally apply lubricant and fold stepseal, as shown, to install.
Install stepseals in both remaining grooves of ID of cylinder end cap as shown. Be sure notch of seal is positioned as shown in assembly drawing. Both grooves should each contain an O-ring and a stepseal.

Inspect and clean out groove on OD of cylinder end cap. Liberally apply lubricant to back-up ring and install in groove. Liberally apply lubricant to O-ring and install in groove - - back-up ring is closest to front, or anvil, as shown in assembly drawing.

Screw piston assembly tool onto piston.
Slide cylinder end cap over piston/assembly tool.

Using spanner wrench, screw end cap into cylinder. Tighten until cap bottoms on cylinder. Remove piston assembly tool.

Hoses may be installed on cylinder at this time. **CAUTION: Do not use Teflon tape on pipe threads** - shredded tape causes tool malfunction. Use SliCtite solid sealant. Screw hose with male nipple into port "P" of cylinder (toward front or anvil end of cylinder). Screw in other hose with female coupler.
Internal Drive Gear and Bearing Assembly

Pack bearing with bearing grease. Press bearing onto shoulder of internal drive gear. Install retaining ring.

Press assembled gear and bearing into central gear housing.

Using TRUARC pliers, install retaining ring that holds gear and bearing assembly in place.
Install actuator disk key in housing - - apply LOCTITE to both screws and tighten to specification.
Intermediate Drive Gear and Bearing Assembly
Motor Boss; Drive Mounting Flange

Pack bearings with bearing grease. Press bearings flush into intermediate gear.

While pushing shaft through motor boss, install intermediate gear and spacers.

In motor boss, with hex key, tighten shaft locking screw against shaft.
Position motor boss against intermediate gear housing.

With four screws, fasten boss to housing - - use hex key.

Attach drive mounting flange to central housing with four screws. Apply blue LOCTITE to threads and tighten to specification with hex key.
Apply SLICHTITE to male threads of air motor elbows and muffler - screw components into air motor and tighten.

**NOTE:** Flat on base of motor must be positioned for intermediate gear clearance - flat is parallel with base of motor mount and shows in mount. Place motor mount over drive end of motor. Apply LOCTITE to four retaining screws and tighten to specification.

Apply LOCTITE to four air motor retaining screws and tighten to specification. Slide white spacer over air motor shaft.
Apply bearing grease to teeth of external drive gear. Lubricate shoulder and bore of gear.

Align key with keyway and press drive gear onto air motor shaft.

Push shoulder of drive gear bushing into gear cover until it snaps into place.
Slide assembled bushing and cover over drive gear shoulder. Align gear cover mounting holes with motor mount holes. Apply LOCTITE to cover retaining screws and tighten to specification.

Place assembled air motor and mount on motor boss. Apply LOCTITE to retaining screws and tighten to specification.
Handle and Cylinder Assembly
Handle/cradle and Cylinder Assembly

*NOTE:*
If your tool's air motor is attached to tool in the front position, please attach handle before attaching air motor/drive mounting flange sub-assembly - - this allows access to handle retaining screws.

Attach one handle half to cylinder. Where used, position optional secondary switch and wiring in handle.

Attach other handle half to cylinder - - install remaining handle screws. Attach cable suspension assembly to handle.
Install handle and cradle assembly.
Cylinder and Gear Housing/Drive Mounting
Flange Assembly

Carefully slide electrical cord through appropriate slot of drive mounting flange.

CAUTION: Be careful not to pinch electrical cord.
When sure that cord is routed properly, engage pilot bore of flange. Align bolt holes of cylinder and flange in required orientation.

Apply one drop of removable LOCTITE to both retaining screws - tighten to specification.
Place spacers and circuit board in position. Attach three standoffs.

Connect wires of trigger cord and wires of power cord to appropriate terminals of terminal block.

Place switch actuator slide and spring in position -- hold in place while attaching cover.
Attach limit switch cover with three screws -- hold cover down to prevent loss of spring.
Front Air Motor Drive (rear drive with trigger switch assembly not shown); Air Lines

Press on fitting with thumb as shown. Push tubing in and release thumb pressure.
Apply two drops of LOCTITE to threads of actuator rod.

Screw actuator disk onto actuator rod until rod shoulder seats tightly against disk face. Follow directions on bottle and allow LOCTITE to "set" for best results.
Actuator Rod Assembly; Conical Spring; Drive Shaft

From rear, slide actuator rod through internal drive gear. **NOTE:** "Keyway" of actuator disk must be aligned with actuator disk key.

Slide conical spring into central gear housing against actuator disk. Place end cap against spring and push into counter-bore of housing -- use TRUARC pliers and install retaining.

**CAUTION:**
*Be sure grease is in counter-bored area of piston.*
Apply grease to both ends of drive shaft. Slide drive shaft through bore of piston and engage shaft drive with internal drive gear.
HUCK-SPIN INSTALLATION TOOLS

LIMIT SWITCH OPERATION & ADJUSTMENT

INTRODUCTION:

All current variants of HS37 and HS52 HUCK-SPIN Installation Tools are fitted with a new type of Limit Switch Assembly (See 8-124240), which includes an electrical Printed Circuit Board, (PCB).
With this type of Assembly, both Limit Switch 1 and 2 are permanently attached to the PCB at a fixed distance apart.

OPERATION:

The fitting of the Limit Switch Assembly onto the Tool is shown on the attached Tool Assembly Drawing (See 8-HS52). When a HUCK-SPIN Bolt enters the rotating Nose Assembly Thimble, the end of the Bolt comes into contact with the Actuator Rod and Disc Assembly that is pushed toward the rear of the Tool. As the Disc moves, it allows the Compression Spring in the Limit Switch Assembly to move the Limit Switch Lever toward the rear of the Tool. Lever movement causes Limit Switch 1 to open (normally closed). Continued movement of the Lever causes Limit Switch 2 to close (normally open).
The Lever has a Slot that is located over the rear Standoff and is held in place by the Cover. Clearance between the Cover and the shoulder of the rear Standoff allows a sliding movement of the Lever to take place.

When the HUCK-SPIN System is being used to install Fasteners, signals from the Limit Switches are used by the Controller to control the function of the Tool. The signal from Limit Switch 2 is used by the Controller to make the Tool go into a full Collar Swage Cycle.

Correct adjustment of Limit Switch 2 is essential for proper tool function. Incorrect adjustment will result in malfunction and may cause insufficient Collar Swage or failure to release the Tool from the Bolt at the completion of the Installation Cycle.
Adjustment of the Limit Switches is affected by changing the angle of the Switch Arms on the Limit Switch Lever (See 8-124233).

WARNING

DURING CHECKING AND ADJUSTMENT OF LIMIT SWITCHES, IT WILL BE NECESSARY TO INSERT THE GAUGE INTO THE NOSE ASSEMBLY THIMBLE BY HAND. THEREFORE, THE AIR SUPPLY AT THE MANIFOLD AND THE ELECTRICAL POWERIG CORD AT THE POWER RIG SHOULD BE DISCONNECTED TO PREVENT POSSIBLE PERSONAL INJURY.
CHECKING PROCEDURE:

1) Check that the Tool Piston is in the full forward position. It will normally be in this position unless there is an Hydraulic System problem or the Powerig has been switched off during a Fastener Installation Cycle. When the piston is in the full forward position, the front of the Nose Assembly Thimble will be approx. 0.20-inch (5mm) inside of the Swaging Anvil.

2) Ensure that the Air Supply is disconnected at the Manifold and the Electrical Powerig Cord is disconnected at the Powerig. Use suitable warning flags to inform other people not to reconnect those items.

3) For HUCK-SPIN systems that do not have switch indicator lights built into the manifold, plug the Limit Switch Light Box into the electrical Socket on the side of the Manifold Cover, (Note: Not required if Manifold is equipped with integral Indicator Lights.)

4) Using the appropriate 123940-(xx) Gauge, insert the "TOUCH-OFF" side of the gauge into the Thimble until it bottoms. In this position only the Blue LS-1 lamp should be on, indicating that Limit Switch 1 is open. (Note: The "xx" in 123940-(xx) indicates fastener size; for 1/2", xx = -16; for 20mm, xx = -M20, etc.)

5) Insert the opposite, "TOUCH-ON" end of the 123940-(xx) Gauge into the thimble until it bottoms. In this position both the blue LS-1 lamp and the yellow LS-2 lamp should be on, indicating that Limit Switch 1 is open and Limit Switch 2 is closed.

ADJUSTMENT: (Refer to attached Drawing 8-124233)

Normally it is only necessary to adjust the setting of Limit Switch 2. However, when adjustment is complete, always check Limit Switch 1 again and adjust that Switch if necessary.

TO ADJUST LIMIT SWITCH 2: (Refer to attached Drawings 8-124240 & 8-124233)

1) Remove ONLY the TWO Retaining Screws (Part Number 502471) nearest the FRONT of the Tool from the Limit Switch Cover (Part Number 124236).

CAUTION

THE LIMIT SWITCH COVER RETAINS THE LIMIT SWITCH LEVER IN PLACE AGAINST THE COMPRESSION OF A SMALL SPRING. TAKE CARE WHEN REMOVING THE COVER TO AVOID FORCIBLE EJECTION OF THE LEVER AND SPRING FROM THEIR NORMAL WORKING POSITIONS.
2) Hold the Cover in position while removing the third Retaining Screw.

3) Slowly lift and slide the Cover toward the rear of the Tool until the Lever is exposed. Holding the Lever in place, continue to slide the Cover toward the rear of the Tool and then upwards to remove it completely.

4) Carefully ease the Lever upwards from the Switch Assembly making sure that the Spring (Part Number 506650) is restrained.

5) Make the necessary adjustment to the Limit Switch Lever Arms, (See 8-124233). Hold the top section of the Lever in a vice or Wide Nose Grips/Pliers to ensure that only the Limit Switch Arms bend as shown on the Drawing. **MAKE ONLY SMALL ADJUSTMENTS AT A TIME**

**RE-ASSEMBLY:**

6) Insert either end of the Limit Switch Setting Gauge, P/N 123940-(xx) into the front of the Nose Assembly to push the Actuator Rod rearward. Hold the Spring in place on its locator tab at the end of the PCB. Place the Lever's locating tab into the opposite end of the Spring. Push the Lever forward and downward, compressing the Spring, until it locates onto the rear Standoff (Part Number 124234). Make sure that the long Lever 2 Arm is located **IN FRONT** of the Actuator Disk, (See 8-HS52). Remove the Gauge from the Nose Assembly, releasing the Actuator Rod. The Lever should be pushed forward against Limit Switch 1 by the small Spring.

7) Holding the Lever in place, slide the Cover over the PCB from the rear of the Tool towards the front of the Tool. When the Cover is correctly located on the three Standoffs, it will hold the Lever in the correct position.

8) Replace the three Screws that hold the Cover in Place.

9) Re-check the Limit Switch operation as before.

**NOTES:**

Some Switch Covers, P/N 124236 may have a small hole that exposes the Lever (Switch Actuator Slide) P/N 124233. This hole can ease installation of the Cover by placing a small screwdriver or hex key through the hole in the Cover and bearing it against the Lever while sliding the Cover into position.
NOTES:
1. THIS GAUGE FOR 5/8" AND 16mm HUCK-SPIN TOOL SET-UP.
2. OTHER SIZE GAUGES SIMILAR.

'TOUCH-ON'* END,
LIMIT SWITCH 2 LIGHT ILLUMINATES
WHEN THIS END BOTTOMS AGAINST
FRONT OF THIMBLE

'TOUCH-OFF'* END,
LIMIT SWITCH 2 LIGHT DOES NOT
ILLUMINATE WHEN THIS END BOTTOMS
AGAINST FRONT OF THIMBLE
**LIMIT SWITCH 2 ARM ADJUSTMENT:**

1) TO **DECREASE** PIN THREAD ENGAGEMENT; BEND LIMIT SWITCH 1 ARM AWAY FROM ACTUATOR DISK ARM (SEE FIG. 1)

2) TO **INCREASE** PIN THREAD ENGAGEMENT; BEND LIMIT SWITCH 2 ARM TOWARDS ACTUATOR DISK ARM (SEE FIG. 2)
UPDATES, CHARTS AND LIMITED WARRANTIES SECTION
NOTES:

⚠️ THESE TOOLS MUST BE USED TO PROPERLY INSTALL STEPSEALS AND GLYD-RING SEAL. THEY ARE AVAILABLE AS PART OF HS37 TOOLKIT.

⚠️ GLYD-RING SEAL IS INCLUDED WITH P/N 121500 PISTON & BUSHING ASSEMBLY.
NOTES:

⚠️ THESE TOOLS MUST BE USED TO PROPERLY INSTALL STEPSEALS AND GLYD-RING SEAL. THEY ARE AVAILABLE AS PART OF HS52 TOOLKIT.

⚠️ GLYD-RING SEAL IS INCLUDED WITH P/N 121452 PISTON & BUSHING ASSEMBLY.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>500047</td>
<td>SOC.CAP #06-32 X .25</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>500054</td>
<td>SOC.CAP #08-32 X .38</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>500056</td>
<td>SOC.CAP #08-32 X .62</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>500059</td>
<td>SOC.CAP #08-32 X 1.00</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>500100</td>
<td>SOC.CAP #10-32 X .38</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>500101</td>
<td>SOC.CAP #10-32 X .50</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>500104</td>
<td>SOC.CAP #10-32 X .88</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>500111</td>
<td>SOC.CAP .25-28 X .50</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>501612</td>
<td>SCR.SOC.CUP #08-32 X .12</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>502469</td>
<td>SCR.BUT #06-32 X .50</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>502489</td>
<td>SCR.BUT .25-20 X 38</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>503079</td>
<td>SCR.SOC.FLT .38-24 X .38LW</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>505322</td>
<td>SOC.CAP #02-56 X 38</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>506037</td>
<td>SOC.CAP #02-56 X .25</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>506058</td>
<td>SOC.CAP #06-32 X .31</td>
</tr>
<tr>
<td>ITEM</td>
<td>QTY</td>
<td>PART NO.</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
<td>-------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>500047</td>
<td>SOC. CAP #06-32 X .25</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>500054</td>
<td>SOC. CAP #08-32 X .38</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>500056</td>
<td>SOC. CAP #08-32 X .62</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>500059</td>
<td>SOC. CAP #08-32 X 1.00</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>500100</td>
<td>SOC. CAP #10-32 X .38</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>500101</td>
<td>SOC. CAP #10-32 X .50</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>500103</td>
<td>SOC. CAP #10-32 X .75</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>500106</td>
<td>SOC. CAP #10-32 X 1.25</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>500111</td>
<td>SOC. CAP .25-28 X .50</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>501612</td>
<td>SSCR SOC. CUP #08-32 X .12</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>502469</td>
<td>SCR. BUT #06-32 X .50</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>502496</td>
<td>SCR. BUT 5/16-18 X .50</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>503079</td>
<td>SSCR SOC. FLT .38-24 X .38 LW</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>504281</td>
<td>SCR. FLT #10-32 X .38 LW</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>505322</td>
<td>SOC. CAP #02-56 X .38</td>
</tr>
<tr>
<td>17</td>
<td>8</td>
<td>506037</td>
<td>SOC. CAP #02-56 X .25</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>506058</td>
<td>SOC. CAP #06-32 X .31</td>
</tr>
</tbody>
</table>

**REV** | **DESCRIPTION** | **DATE**
------- | --------------- | -------
A       | RELEASE         | 8/24/93  
B       | REMOVED ITEM 1 (123646) | 1/25/95  

HUCK INTERNATIONAL, INC., I.S.D.
85 GRAND STREET, P.O. BOX 2270
KINGSTON, NEW YORK 12401

SCREW KIT - HS52

DET: KSJ  CHK:  DATE: 8.12.93  SCALE: NONE
FOC.  FAC.  A  HS52SCREWKIT
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>124247</td>
<td>REAR END PLATE GASKET</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>124248</td>
<td>VANE PACKET (5 VANES)</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>124249</td>
<td>FRONT END PLATE SEAL</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>124250</td>
<td>FLANGE KEY</td>
</tr>
<tr>
<td>ITEM</td>
<td>QTY</td>
<td>PART NO.</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
<td>----------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>502444</td>
<td>HEX. KEY 5/64</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>502293</td>
<td>HEX. KEY 3/32</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>502653</td>
<td>HEX. KEY 7/64</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>502655</td>
<td>HEX. KEY 9/64</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>502295</td>
<td>HEX. KEY 5/32</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>502296</td>
<td>HEX. KEY 3/16</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>502297</td>
<td>HEX. KEY 7/32</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>506468</td>
<td>HEX. KEY .050</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>502858</td>
<td>ASSEMBLY PLIERS RET. RING</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>502867</td>
<td>ASSEMBLY PLIERS RET. RING</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>123609</td>
<td>PIN SPANNER ASSEMBLY HS37</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>124179 (B)</td>
<td>PISTON ASSEMBLY TOOL HS37</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>123493</td>
<td>PISTON END PLUG HS37</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>123495</td>
<td>GLYD-RING COMPRESSOR HS37</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>121694-HS37</td>
<td>GLYD-RING INSERTION TOOL HS37</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>123610</td>
<td>BREAKER BAR</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>123611</td>
<td>HEX. HEAD DRIVER</td>
</tr>
</tbody>
</table>

Huck International, Inc., I.S.D.  
65 Grand Street, P.O. Box 2270  
Kingston, New York 12401  

HS37 TOOLKIT  

DET: KSJ  CK:  DATE: 8/9/93  SCALE: NONE  
FOC:  FAC:  A  HS37 TOOLKIT
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>502444</td>
<td>HEX. KEY 5/64</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>502293</td>
<td>HEX. KEY 3/32</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>502653</td>
<td>HEX. KEY 7/64</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>502655</td>
<td>HEX. KEY 9/64</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>502295</td>
<td>HEX. KEY 5/32</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>502297</td>
<td>HEX. KEY 3/16</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>502297</td>
<td>HEX. KEY 7/32</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>506468</td>
<td>HEX. KEY 050</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>502858</td>
<td>ASSEMBLY PLIERS RET. RING</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>502867</td>
<td>ASSEMBLY PLIERS RET. RING</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>123607</td>
<td>PIN SPANNER ASSEMBLY HS52</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>124178 (B)</td>
<td>PISTON ASSEMBLY TOOL HS52</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>123494</td>
<td>PISTON END PLUG HS52</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>123496</td>
<td>GLYD-RING COMPRESSOR HS52</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>121694-HS52</td>
<td>GLYD-RING INSERTION TOOL HS52</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>123610</td>
<td>BREAKER BAR</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>123611</td>
<td>HEX. HEAD DRIVER</td>
</tr>
</tbody>
</table>
HOW TO USE

HUCK-SPIN® Pin Protrusion Gages
HOW TO USE:

HG-PP-HS(*) SERIES
HUCK-SPIN® PIN PROTRUSION GAGES

PURPOSE:

1: TO AID IN PROPER PIN GRIP LENGTH SELECTION BEFORE THE SWAGE CYCLE TO REDUCE INSTALLATION TIME.

2: TO AID INSPECTION AFTER INSTALLATION TO ASSURE THAT THE FASTENED JOINT HAS FASTENERS INSTALLED IN PROPER GRIP.

PROCEDURE:

1: PLACE EITHER END OF SYMMETRICAL PIN PROTRUSION GAGE ON TOP OF COLLAR BEFORE OR AFTER INSTALLATION.

2: OBSERVE LOCATION OF TOP OF PIN IN RELATION TO GAGE COLOR BANDS.

3: INSPECTION ACCEPTANCE:

   a) IF PIN IS IN THE LOWER RED 'NO-GO' ZONE. THE TOOL WILL ATTEMPT A SNUB CYCLE, SLOWING INSTALLATION TIME (FIG.1).

   b) IF PIN IS IN GREEN 'GO' ZONE, A NORMAL SINGLE-CYCLE INSTALLATION WILL OCCUR (FIG.2).

   c) IF PIN IS IN THE UPPER RED 'NO-GO' ZONE. THE TOOL WILL INSTALL THE COLLAR, BUT INSTALLED FASTENER VALUES MAY BE COMPROMISED IF THE COLLAR IS SWAGED OVER THE PIN'S SMOOTH SHANK PORTION (FIG.3).

![Diagram of gage ends and gage width relative to fastener size]

![Diagram of before and after swage scenarios with top of pin ends in various zones]

*FASTENER SIZE DASH NUMBER IN 1/32-INCH INCREMENTS
1. HUCK–SPIN Fastener Installation:
   a) Ensure that correct rig and controller pressure settings are used for size of fastener being used.
   b) Ensure that proper type and size of nose assembly is being used.
   c) Swage HUCK–SPIN fastener in the conventional manner:

2. Place proper size HG–S–HS(*) (Imperial) or HG–S–MHS(**) (Metric) gage over installed collar:
   a) Slip gage over the swaged collar and push gage towards workpiece until it stops.
   b) Observe position of top of gage with respect to the top of the swaged collar.

3. “PASS” Condition (Ref, FIGURE 1, pg 2):
   a) When gage surface is BELOW the top of the collar, then the installation IS acceptable.
   b) All fastener mechanical values WILL be satisfied.
   c) No further inspection is required.

4. “FAIL” Condition (Ref, FIGURE 2, pg 2):
   a) When gage surface is ABOVE the top of the collar, the installation IS NOT acceptable and a system diagnostics check MUST be performed.
   b) All fastener mechanical values WILL NOT be guaranteed.
   c) CHECK 1) SWAGE ANVIL for wear, 2) POWERIG pressure output, 3) Controller PRESSURE setting, 4) Proper collar LUBRICATION, and 5) system ERROR MESSAGE FILE (e.g., Trigger released too soon, etc.).
   d) Perform a clamp force test using the same lot of fasteners in a SKIDMORE–WILHELM tester, or equivalent.
   e) Once system is corrected and performance verified, re-swage any rejected fastener(s).
   f) Inspect reswaged collar(s) with gage per 2a–b) above.

5. “CHECK” Condition (Ref, FIGURE 3, pg 2):
   a) When gage surface is FLUSH with the top of the collar, the installation MAY be acceptable, but a system diagnostics check SHOULD be performed.
   b) All mechanical values should be satisfied, but a system element may be indicating signs of deterioration.
   c) Perform a clamp force test per guidelines in 4d) above.
   d) If measured clamp value is ABOVE minimum value, only monitor further installations with gage to assure a “FAIL” condition does not occur.
   e) If measured clamp value is BELOW minimum value, then CHECK all SYSTEM elements as listed in 4c) above and re-swage previously installed collar(s).
   f) Inspect any re-swaged collar(s) with gage per 2a–b) above.
   g) If system or procedure is adjusted, CHECK several fastener installations with gage to assure “PASS” results are routinely obtained after one swage tool cycle.

(*) fastener size in 1/32” increments
(**) fastener size in 1–mm increments
HUCK-SPIN SWAGE GAGE HG-S-HS(*) AND HG-S-MHS(*)
INSPECTION PROCEDURE

Swaged Collar protrudes ABOVE Gage:
(Acceptable Installation)
No further inspection required

FIGURE 1: "PASS"

Gage protrudes ABOVE Swaged Collar:
(Improper Installation)
Check and correct faulty SYSTEM component(s) and/or setting(s);
Re-Swage collar using HUCK-SPIN tooling

FIGURE 2: "FAIL"

Gage FLUSH with top of Swaged Collar:
(Suspect Installation)
Verify clamp value in Skidmore-Wilhelm Tester;
Re-Swage collar using HUCK-SPIN tooling, if required

FIGURE 3: "CHECK"

10-20-95

(pg 2) 389
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.

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.
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
310-830-6200
FAX: 310-830-1436

Alcoa Fastening Systems
Commercial 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
Commercial 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
Commercial Products
Canada Operations
6150 Kennedy Road, Unit 10
Mississauga, Ontario L5T2J4
Canada
905-564-4825
FAX: 905-564-1963

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

**Europe**
Alcoa Fastening Systems
Commercial 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


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.

© 2003 Alcoa Fastening Systems
1 Corporate Drive, Kingston, NY 12401 • Tel: 800-431-3091 • Fax: 845-334-7333 • E-mail: hkitoolinfo@alcoa.com • www.alcoafasteningsystems.com