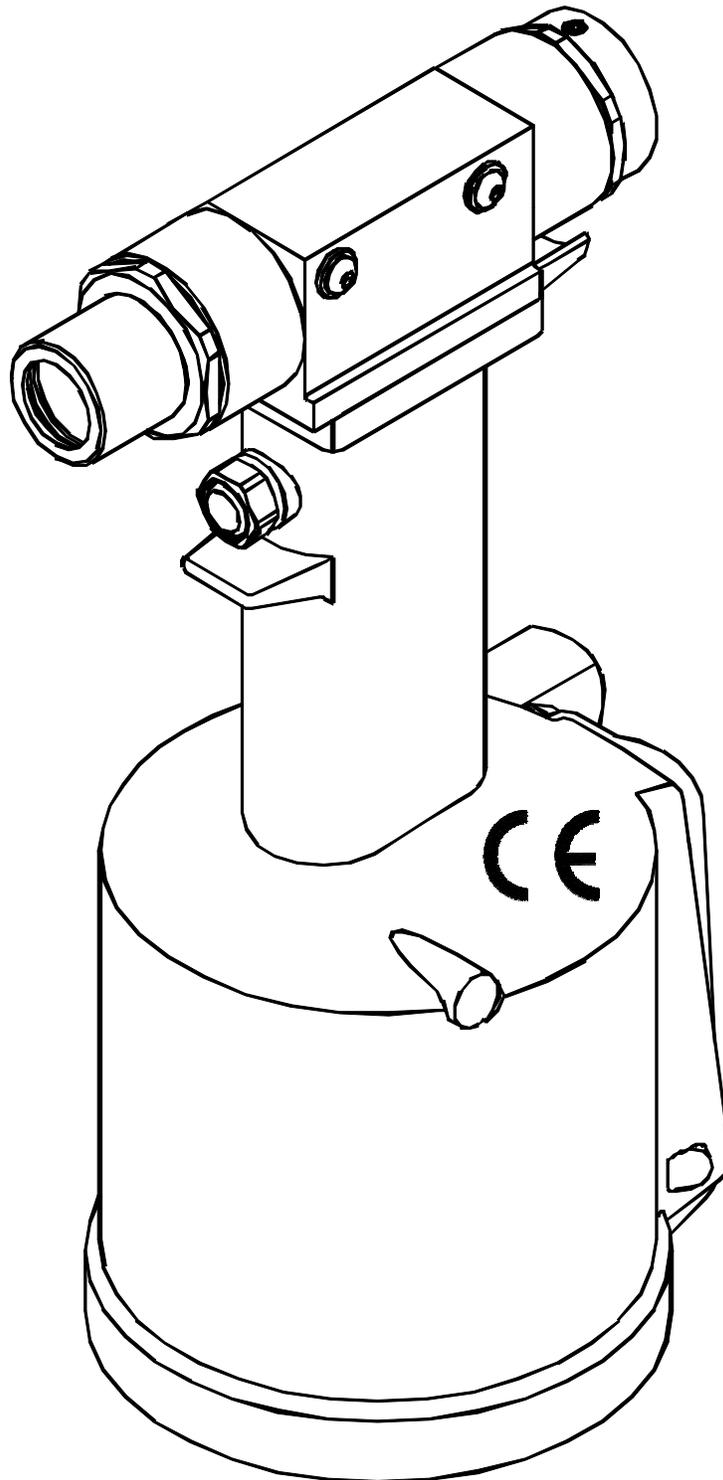


GB784

INSTALLATION TOOL



GAGE BILT TOOLS ARE AVAILABLE WORLDWIDE
E-MAIL US FOR A DISTRIBUTOR NEAR YOU.

GAGE BILT

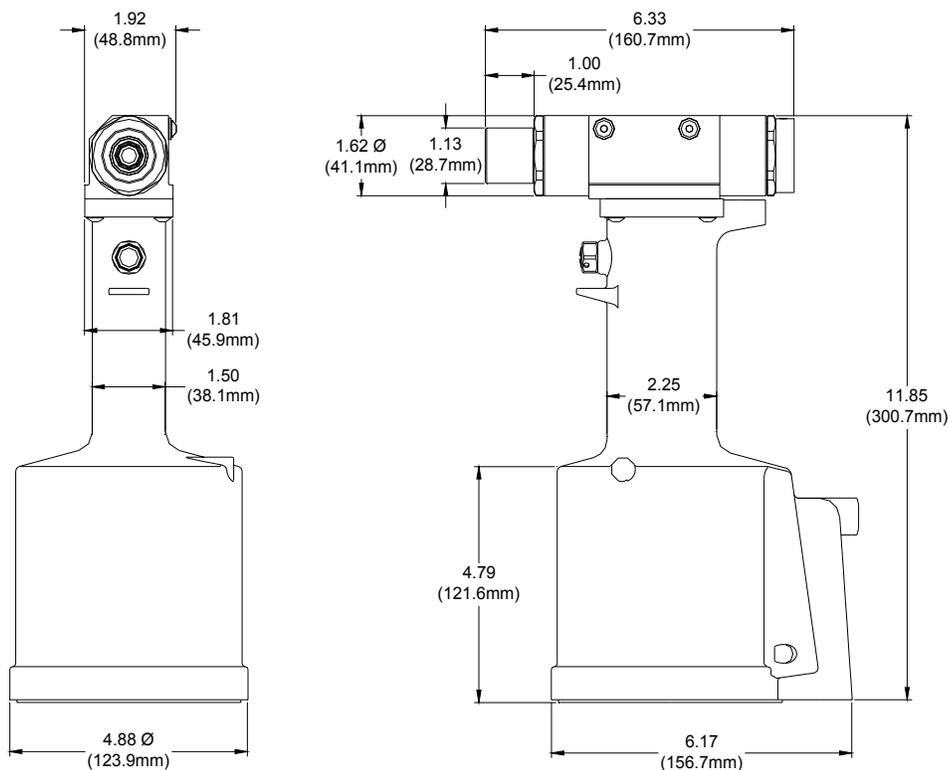
MADE IN U.S.A.

GAGE BILT Inc.

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Clinton Twp. MI 48038 (586) 226-1505 Fax
e-mail: solutions@gagebilt.com / www.gagebilt.com

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SPECIFICATIONS

- Hand Held Weight** - 6.25 lbs.
- Air pressure req'd** - 90-100 p.s.i.
- Air consumption** - 3 c.f.m., based on 20 cycles/min.
- Hydraulic fluid** - Automatic Transmission Fluid, Dexron III, or equivalent.
- Setting stroke** - .940"
- Rated pull load** - 2,650 lbs.
- Noise level** - 81.5 dB (A)
- Vibration** - Tested– No hazards found.

SAFETY WARNINGS



NOTE:

PLEASE READ THIS MANUAL BEFORE SERVICING OR USING THIS TOOL.
REVIEW ALL WARNINGS AND CAUTIONS TO PREVENT SEVERE
PERSONAL INJURY OR DAMAGE THE TOOL.



WARNING

Do not pull fastener unless it is placed in an assembly, pin will eject forcibly when pintail breaks off. Severe personal injury may result.

WARNING

Do not operate without Stat-O-Seal (S572) and cap screw (402482). Pressurized hydraulic fluid may cause severe personal injury.

WARNING

When operating, repairing or overhauling tool, wear approved eye protection. Do not look in front of nose assembly or rear of tool when installing fastener.

WARNING

Always disconnect tool from power before performing any maintenance to any tool or nose assembly. Ensure that all connections are proper and there are no visible leaks from tool or hoses before connecting to power.

WARNING

Do not operate if deflector, bottle, catcher bag or vacuum tube is removed or damaged, broken pintails may eject forcibly from rear of tool. Severe personal injury may result.

CAUTION

Ensure that nose assembly and tip are properly matched for the fastener being installed.

CAUTION

Keep Nose Assemblies clean and free of chips and debris.

WARNING

Be sure there is adequate clearance for tool and operator's hands before proceeding. Keep fingers clear of any moving parts. Keep fingers clear from fasteners and installed materials. Severe personal injury may result.

CAUTION

Do not use beyond the design intent.

WARNING

Tool must be maintained in a safe working condition at all times and examined on a regular daily basis for damage or wear. Any repair should be done by qualified personnel trained on Gage Bilt procedures.

WARNING

It is required to use hearing protection. A test was carried out in a simulated work environment where the background level was 73.2 DBA. In this condition the max level was 81.5 DBA. Therefore, it is required where prolonged use, hearing protection be used.

WARNING

Where prolonged use is foreseen, it is recommended a tool balancer be used. Check suspension device to ensure that it is secure.

WARNING

Risk of crushing exists if nose assembly is not attached.

WARNING

Do no use tool in explosive atmosphere.

WARNING

It is recommended tool be operated 50 out of every 60 minutes, where prolonged use is expected.

WARNING

Shock:

It is recommended operator wear a suitable glove during operation where prolonged use is expected.

CAUTION

Tool is not to be used as a hammer.

WARNING

Air pressure not to exceed 100 psi., except where noted.

PRINCIPLE OF OPERATION

When the trigger is depressed, the pressurized air inside of the tool is released allowing spring pressure to move the valve spool causing the air to be redirected. The air is directed to the top of the air piston, moving it in a downward direction. The air below the air piston is then directed through the valve sleeve and exhausted out of the bottom of the tool. Simultaneously, the piston rod connected to the air piston is also moving down, forcing hydraulic oil up and into the front side of the cylinder head, causing the piston to move to the rear of the cylinder head. The internal components of the attached nose assembly are also moving with the piston to start the fastener installation. When the fastener installation is completed, the trigger is released. Air pressure is then built up inside of the handle causing the valve spool to return to its original position and reversing the sequence directing air pressure to the rear of the cylinder head, causing the piston to move to the forward position.

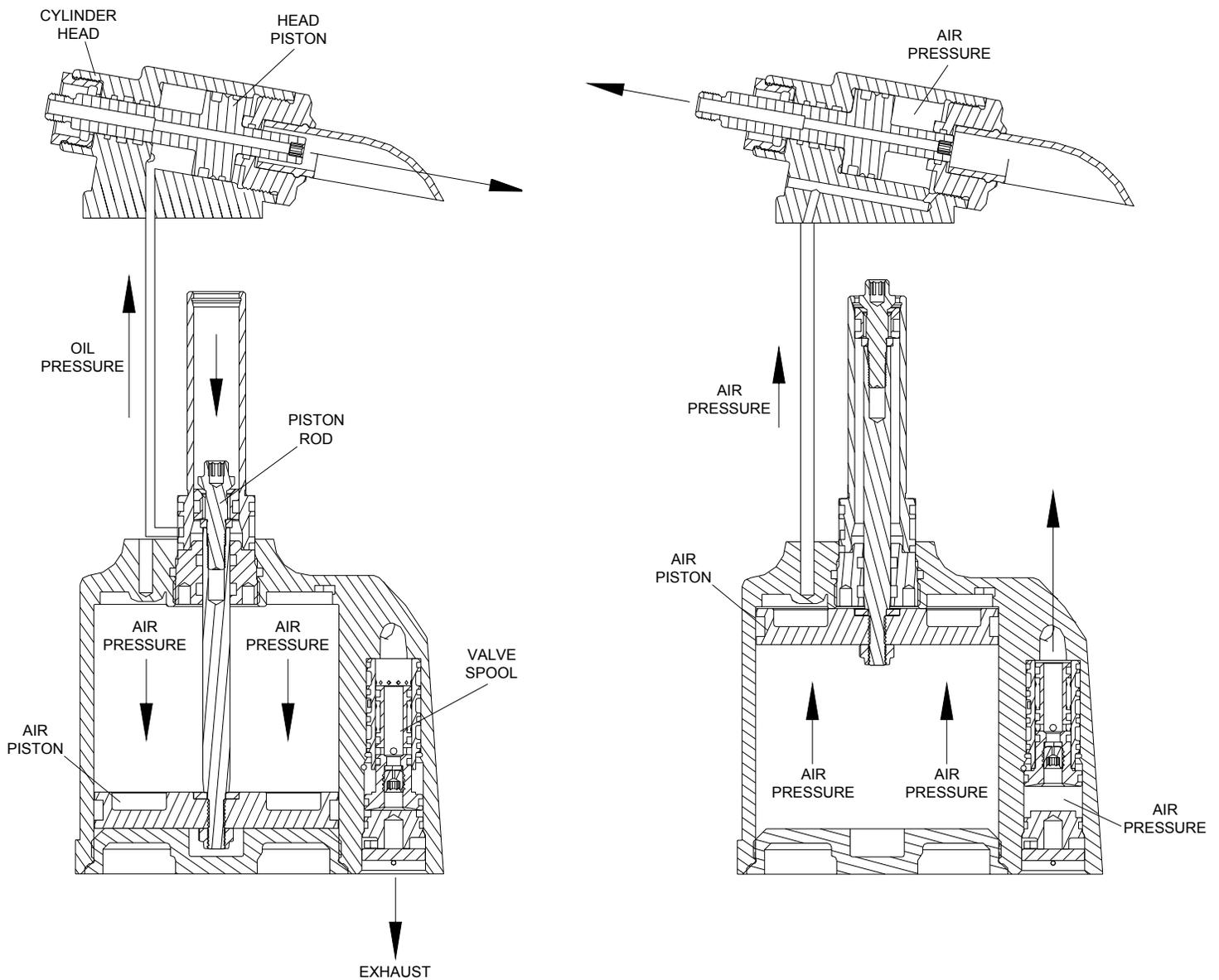


Image may not reflect actual tool

HOW TO USE THE GB784

WARNING: OPERATOR **MUST** READ AND UNDERSTAND ALL WARNINGS AND CAUTIONS.

WARNING: IT IS REQUIRED THAT EYE PROTECTION AND HEARING PROTECTION BE WORN DURING OPERATION.

WARNING: DO NOT PULL RIVET IN THE AIR. PERSONAL INJURY FROM FASTENER EJECTING MAY OCCUR.

WARNING: AIR IS EXHAUSTED FROM THE BOTTOM OF THE TOOL. DIRECT BOTTOM OF THE TOOL (EXHAUSTED AIR) AWAY FROM OPERATOR, OTHER PERSONS WORKING IN THE VICINITY, FOREIGN MATTER AND LIQUID.

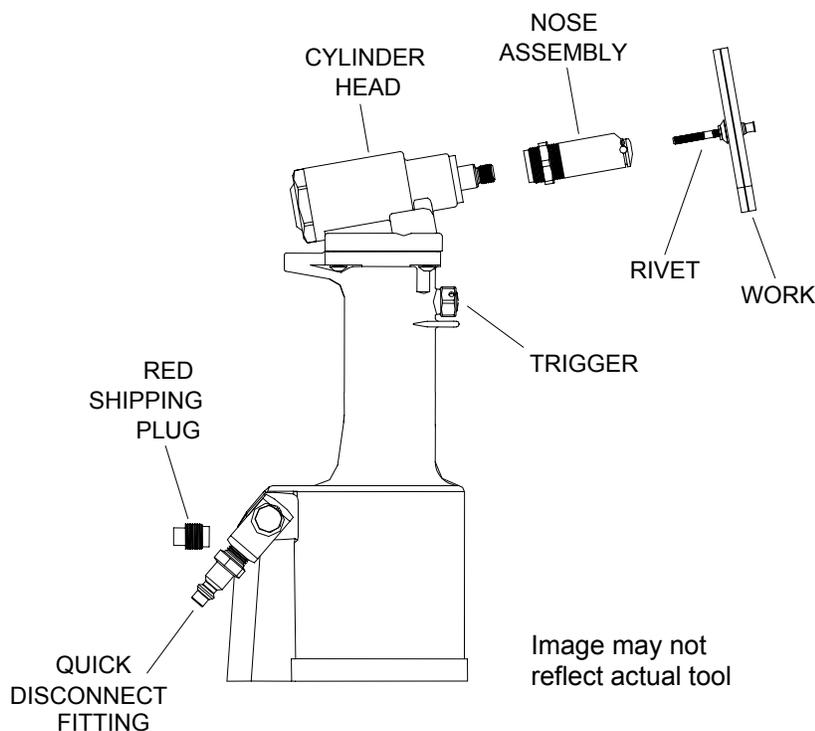
CAUTION: DO NOT USE BEYOND THE DESIGN INTENT.

The tool is shipped with a plastic plug in the air inlet connector. The connector has a 1/4-18 female pipe thread to accept end-user air hose fitting. The tool comes with oil and is ready to use.

1. Remove plastic shipping plug from Swivel (A-249) and screw in your air fitting.
2. Connect air hose to tool (3/8 minimum diameter air line is mandatory, 90 p.s.i is recommended) and cycle tool a few times by depressing and releasing trigger. (Clean dry air is mandatory).

WARNING: ENSURE AIR HOSE IS SECURELY CONNECTED TO AVOID POSSIBLE HOSE WHIPPING.

3. Disconnect air hose from tool.
4. Select proper Nose Assembly, screw collet and anvil onto the tool and attach securely. (see proper data sheet for further instructions)
5. Connect air supply.
6. Insert rivet into Nose Assembly and the application then depress trigger. Upon releasing the trigger the stem will eject to the rear of the tool.



DESCRIPTION

WARNING: The balance of this tool is designed for horizontal use and is not ergonomically best suited for all applications. Gage Bilt will be pleased to advise for your specific application.

The GB784 is a pneumatic-hydraulic hydro-shift tool designed specifically for the efficient installation of the 2000 series CHERRYLOCK®, NAS1398, NAS1399, NAS1738 and NAS1739 double action blind rivets. The GB784 weighs only 8 lbs. and can be operated in any position with one hand. It has a .940" rivet setting stroke and a rated pull load of 2,650 pounds with 90 psi air pressure at the air inlet.

The GB784 riveter operates on a wide range of air pressure, with 90 to 100 psi providing the maximum efficiency. At 90 psi air pressure, the GB784 does not exceed 81.5 db (A) and consumes 3 cfm at 20 cycles a minute.

The air inlet is provided with 1/4-18 female pipe threads to accept the users air hose fitting.

TOOL CAPACITY CHART: The numbers shown in the rivet columns below are the maximum grip length that can be installed with this tool. Dashes indicate those rivets sizes which cannot be installed in any grip length.

Gage Bilt certifies the GB784 will install the fasteners listed below

GAGE BILT TOOL	STANDARD CHERRYLOCK (NAS1398 & NAS1399)							
	NOSE ASSEMBLY	RIVET DIAMETER	ALUMINUM		MONEL		STAINLESS	
			2163	2162	2563	2562	2643	2642
			2263	2262			2653	2652
		UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD	
GB784	XX-681-25	-4	ALL	ALL	ALL	ALL	ALL	ALL
		-5	8	8	8	9	8	9
		-6	8	8	8	9	8	9
		-8	8	8	8	9	-	-

GAGE BILT TOOL	BULBED CHERRYLOCK (NAS1738 & NAS1739)					
	NOSE ASSEMBLY	RIVET DIAMETER	ALUMINUM		MONEL	
			2239	2238	2539	2538
			2249	2248		
		UNIV. HEAD	CTSK. HEAD	UNIV. HEAD	CTSK. HEAD	
GB784	XX-681-25	-4	ALL	ALL	ALL	ALL
		-5	ALL	ALL	ALL	ALL
		-6	ALL	ALL	ALL*	ALL*

MAINTENANCE

*May require 95 PSI at tool.

WARNING: Excessive contact with hydraulic fluid and lubricants should be avoided.

WARNING: Maintenance personnel **MUST** read and understand all warnings and cautions.

The performance of any tool depends upon good maintenance practices. Following these minimal requirements for service and care will extend the life of your tool.

*Only use an air supply set at 90-100 psi. equipped with a filter-regulator to prevent wear.

*The tool will eventually lose some hydraulic oil. Keep the hydraulic system full (only use Dexron III, or equivalent) and free of air by using the air bleeders (704153) on a regular basis.

*Proper care by operator is necessary in maintaining full productivity and reducing downtime. Read all applicable tool manuals and nose assembly data sheets prior to operating tools.

*Keep nose assemblies, especially jaws, clean and free of chips and debris. Lube jaws and collet surfaces that jaws ride on with light machine oil.

*All Screwed End Caps, Base Covers, Air Fittings, Triggers, Screws and Nose Assemblies are to be examined at the end of each working shift to check that they are secure.

*Check daily all Hoses, Couplings, and Tools for damage or air/hydraulic leaks. Tighten or replace (if necessary).

*For a complete overhaul, tool kit GBP704ATK is recommended.

CLEANING AND LUBRICATING PROCEDURE

Daily cleaning and lubrication of nose assembly will greatly reduce downtime and increase life of components. Using sewing machine oil, or an equivalent cleaner/lubricant, follow instructions below.

1. Disconnect tool vacuum line (if equipped).
2. Point nose assembly into oil as shown (Fig. A).
3. Cycle tool 8-10 times and wipe dry.

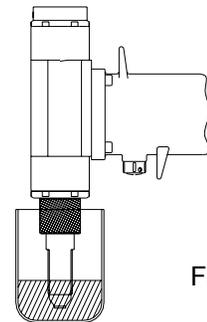


Fig A.

TORQUE SPECIFICATIONS

Socket Head Cap Screws (400061) = 40 inch lbs.

Button Head Cap Screws (A-928) = 40 inch lbs.

Packing Plug (744118) = 45 foot lbs.

Flexlock Nut (400559) = 40 inch lbs.

Rear Cap (784132) = 140 foot lbs.

Front Cap (784103) = 140 foot lbs.

Button Head Cap Screws (402482) = 35-40 inch lbs. (Do NOT over-tighten)

FILLING AND BLEEDING TOOL

WARNING

DO NOT CYCLE TOOL WITHOUT AIR BLEEDER, OR THE SCREW AND STAT-O-SEAL, INSTALLED IN TOOL HEAD. SEVERE PERSONAL INJURY MAY RESULT.

CAUTION

BEFORE FILLING HANDLE, AIR PISTON SHOULD BE ALL THE WAY DOWN.

CAUTION WHEN FORCING PISTON ROD ASSEMBLY DOWNWARD WITH HEAD CYLINDER ASSEMBLY REMOVED, HYDRAULIC FLUID WILL EJECT FORCIBLY FROM HANDLE.

To replace a small amount of oil in the tool, remove rear button-head cap screw (402482) and stat-o-seal (S572) attach the air bleeder (704153) and connect tool to air line. Cycle tool 10 times. Disconnect air, remove the air bleeder, and reinstall the rear cap screw and stat-o-seal. This will ensure the removal of any air from the hydraulic system and its replacement with fluid.

Should it become necessary to completely refill the tool (such as would be required after tool has been dismantled and reassembled), take the following steps after depressing trigger **AND DISCONNECTING THE AIR SUPPLY**:

1. Remove head assembly from handle assembly. Slowly push piston completely forward. Remove adjuster ring (784138). Turn adjuster knob assembly (784139) completely in clockwise, then back out two turns counterclockwise. This will set gage point #1 very close. It will need to be readjusted slightly after bleeding is complete using setting gage (784159).
2. Fill handle and the oil passage on top of handle with automatic transmission fluid, Dexron III or equivalent. When looking at the top of the handle, the oil passage is the hole that is counterbored for S832 o'ring.
3. Replace head assembly with care, ensuring gasket (704129) and o'ring (S832) are properly installed. Tighten cap screws (402479) uniformly to prevent leakage around gasket 40 inch lbs.
4. Remove button-head cap screw (402482) and stat-o-seal (572) from the front and rear hole. Using a pressure oil can (745163) filled with automatic transmission fluid, Dexron III or equivalent, force the fluid into the front hole until it flows freely from the rear hole until the air bubbles stop appearing at rear hole.

NOTE

If fluid does not flow freely, remove base cover and push air piston up about 1". This will open oil valve on piston rod assembly. Replace base cover. Repeat step #4.

5. Remove bottle from front hole and place bottle at rear hole and reverse step #4.
6. Install front screw (402482) and stat-o-seal (S572).
7. Remove rear screw (402482) and stat-o-seal (S572), install bleeder bottle (704153) and connect tool to air line. Cycle ten to twenty times to fully circulate fluid through hydraulic system.
8. **DISCONNECT AIR FROM TOOL.** Remove bleeder bottle (704153), install screw (402482) and stat-o-seal (S572). Reconnect air and cycle tool 10 more times. Check tool stroke, if stroke doesn't check .900" min., repeat steps 7 & 8.

CAUTION: Use CAUTION when removing screws and 4oz bottle assy. hydraulic fluid may be under pressure.

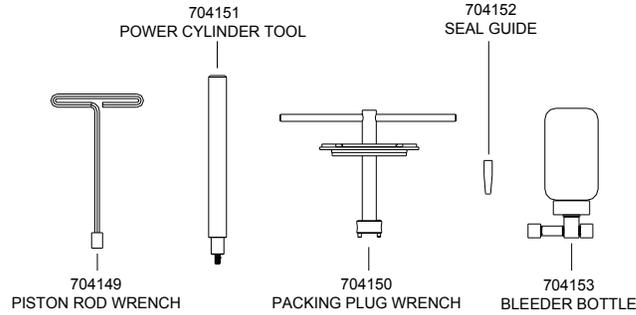
TROUBLESHOOTING

Providing all maintenance conditions have been met, follow this systematic approach to diagnosis.

1. **MORE THAN ONE PULL IS REQUIRED TO BREAK RIVET.**
 - a) Tool needs to be bled. (See filling and bleeding instructions.)
 - b) Spring has fatigued, replace.
 - c) Jaws are stripped or packed with chips. Clean or replace.
 - d) Incorrect nose tip.
2. **SLOW OR PARTIAL OPERATION WHEN THE TRIGGER IS DEPRESSED**
 - a) Head Piston Rings (400845) and back-up ring (S657) could be worn or damaged. Replace.
 - b) Piston Rod Rings (S908) and (A-201) could be worn or damaged. Replace.
 - c) Muffler (744143) or filter inside valve spool assembly (743142) may be plugged. Clean thoroughly and back-blow with compressed air.
 - d) Hole in metering screw in valve spool assembly (743142) may be blocked or damaged. Hole diameter should be .028". Clear and size or replace.
3. **NO OPERATION WHEN TRIGGER IS DEPRESSED**
 - a) Tool seized due to mechanical failure or damaged parts.
4. **OIL LEAKAGE**
 - a) **DO NOT** OPERATE WITH OIL LEAKING FROM TOOL. HIGH PRESSURE OIL MAY CAUSE SEVERE PERSONAL INJURY.
 - b) Any oil leaking externally should be traced to its source. An o'ring or seal that leaks should be replaced.
5. **AIR BYPASS FROM VALVE HOUSING**
 - a) If the spring (744144) breaks or dislodges, air will flow freely through the muffler (744143). Replace or reset. Valve spring installation tool (744151) is recommended.
 - b) Check o'rings on valve sleeve (743144), valve spool (743142), and valve plug (744142). If worn or damaged, replace. Valve sleeve removal tool (744152) is recommended.
6. **FASTENER STEM JAMMED IN NOSE ASSEMBLY**
 - a) Nose assembly components require service. **DISCONNECT AIR FROM TOOL**, remove the nose from the tool and disassemble. Replace worn or broken parts. Clean the surface the jaws ride on.
 - b) Stems lodged side by side in the follower. Disassemble, remove stems, and reassemble.
 - c) Incorrect follower.

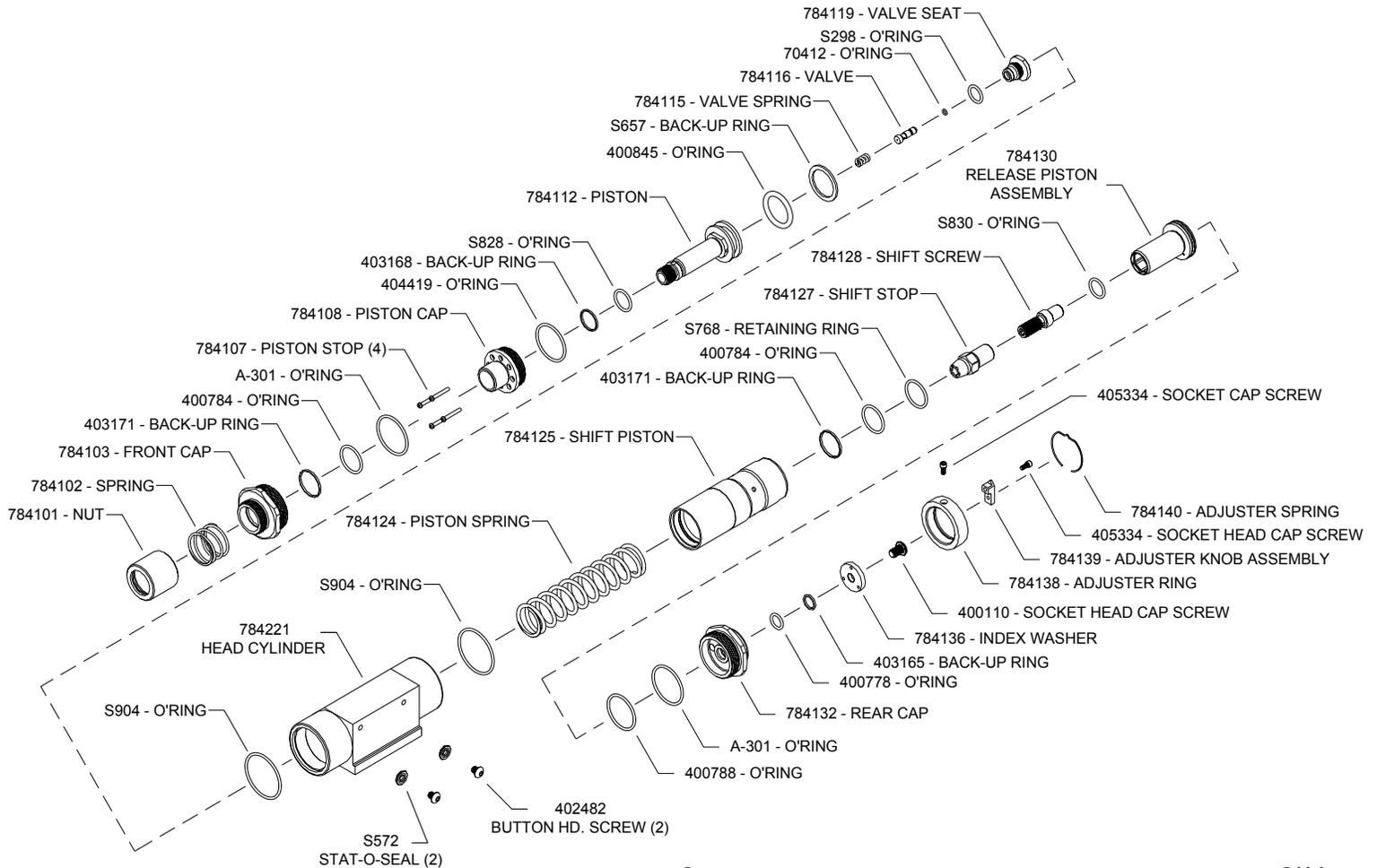
OVERHAUL

The disassembly and re-assembly procedure can be accomplished by utilizing the following instructions and drawings. Use extreme care during disassembly and re-assembly not to mar or nick any smooth surface that comes in contact with seals. Before installing seals, always apply a good lubricant, such as Lubriplate®, to the surfaces. It is recommended that tool kit (GB743TK) be used to facilitate overhaul. A complete overhaul can be achieved by the use of Service Kit 784004 which contains a complete set of o-rings, back-up rings, screws, washers and gasket.



GB743TK Service Tool Kit

Part No.	Description
704149	Piston Rod Wrench
704150	Packing Plug Wrench
704151	Power Cylinder Tool
704152	Seal Guide
S1178	Valve Extractor (Not Shown)
744151	Valve Spring Installation Tool (Not Shown)
744152	Valve Sleeve Removal Tool (Not Shown)



HANDLE

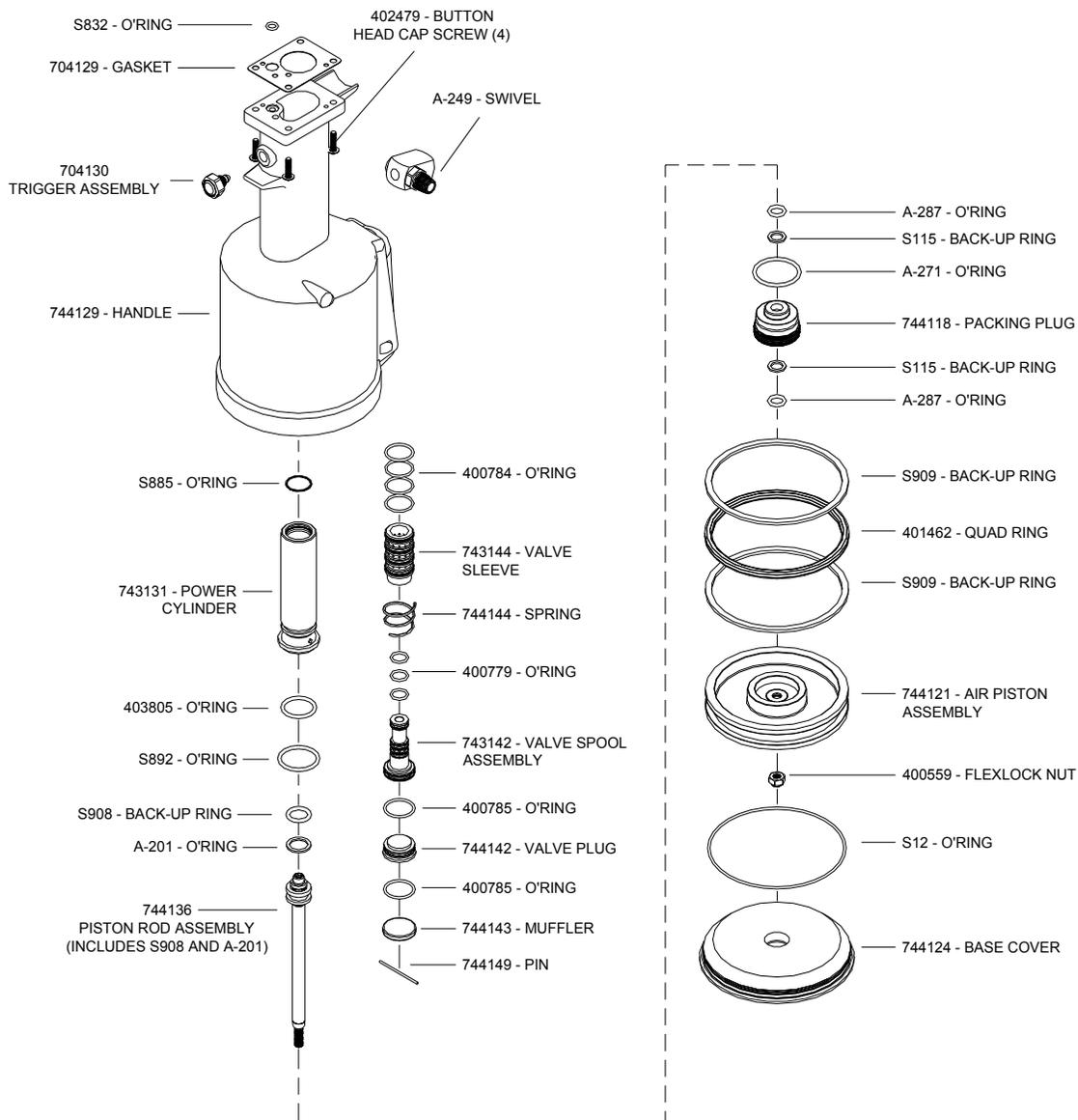
To inspect air cylinder bore, remove base cover (744124). Any further disassembly will require removal of the head cylinder (784221) first. For complete disassembly, start by removing base cover (744124). Next, holding tool upright, remove four button-head cap screws (402479). Lift head cylinder (784221) from handle (744129) and set aside o-ring (S832) and gasket (704129). Empty all hydraulic fluid into a container. Place piston rod wrench (704149) down into top of power cylinder (743131), into slot of piston rod assy. (744136). While holding this wrench, remove flexlock nut (400559) using a 7/16" socket wrench. Still holding piston rod wrench, remove air piston (744121) using packing plug wrench (704150), by turning counterclockwise. When air piston is completely free from piston rod, tap or push on the piston rod wrench to eject air piston from bottom of handle. After removal of air piston, slide piston rod (744136) back up to the end of its travel. Using packing plug wrench (704150) remove packing plug (744118). With packing plug removed, power cylinder (743131) can be removed by pushing on power cylinder tool (704151) when inserted into top of power cylinder.

To reassemble the handle, reverse the above procedure, being certain that all o-rings are properly lubricated before installation. Torque packing plug (744118) to 45 foot lbs. Attach the seal guide (704152) to the piston rod assembly (744136) and tap the piston rod through the packing plug (744118). Attach air piston (744121) and flexlock nut (400559) torque flexlock nut to 40 inch lbs. Attach air piston (744121) to piston rod assembly (744136). With the piston rod in the down position, fill oil passage on top of handle with automatic transmission fluid, Dexron III or equivalent, when looking at top of handle the oil passage is the hole that has a counterbore for o-ring (S832). Replace gasket (704129) and o-ring (S832), just prior to replacing head cylinder (784221). (See Filling & Bleeding instructions.)

AIR VALVE

WARNING: DISCONNECT TOOL FROM ITS AIR SOURCE BEFORE DISASSEMBLY.

To disassemble, first disconnect tool from its air source. Remove pin (744149) and muffler (744143). Insert valve extractor (S1178) into end of valve plug (744142) and pull it out. Using the same procedure, pull out spool (743142). NOTE: It should never be necessary to remove valve sleeve (743144) unless the ports in the sleeve are plugged from contaminated air. If ports are plugged, use needle nose pliers to grasp end of spring (744144), turning clockwise and pulling to dislodge from groove in valve chamber. NOTE: Valve spring installation tool (744151) will facilitate the proper installation of the spring (744144), valve sleeve (743144) can be pulled out using valve sleeve removal tool 744152.



DEXRON® III OIL SAFETY DATA

FIRST AID

Skin: Wash thoroughly with soap and water as soon as possible. Casual contact requires no immediate attention. If irritation develops, consult a physician.

Ingestion: Seek medical attention immediately. DO NOT INDUCE VOMITING.

Eyes: Flush with copious amounts of water. If irritation develops, consult a physician.

Inhalation: No significant adverse health effects are expected to occur on short term exposure. Remove from contaminated area. Apply artificial respiration if needed. If unconscious, consult a physician.

FIRE

Suitable extinguishing media: CO₂ dry powder, foam or water fog. DO NOT use water jets.

ENVIRONMENT

Waste disposal: In accordance with all environmental laws and regulations applicable to your area.

Spillage: Prevent entry into drains, sewers and water course. Soak up with diatomaceous earth or other inert material. Store in appropriate container for disposal.

HANDLING

Eye protection required. Protective gloves recommended. Chemically resistant boots and apron recommended. Use in well ventilated area.

COMBUSTIBILITY

Slightly combustible when heated above flash point. Will release flammable vapor which can burn in open or be explosive in confined spaces if exposed to source of ignition.

PROPERTIES

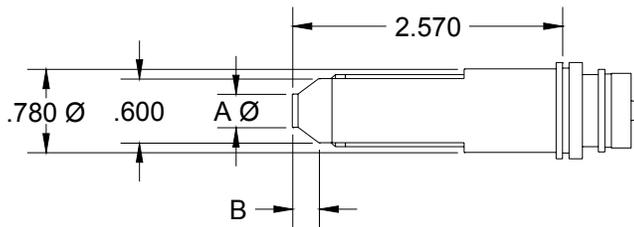
Specific Gravity	0.863
Weight per gallon	7.18
Open flash point	>200°C (392°F)

NOSE ASSEMBLIES:

Nose assemblies are not furnished with the tool and must be purchased separately. In ordering heads be sure to specify the shank diameter and head style (universal or countersunk) of the rivets to be installed.

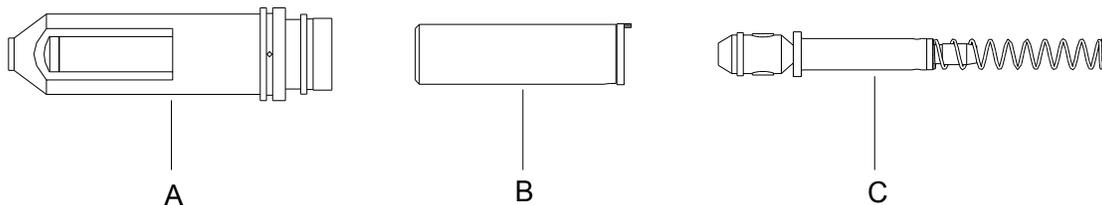
The following pulling heads will fit directly on the GB784 Riveter. (NOTE: Cherry® 681 series pulling heads fit directly on the GB784).

681 PULLING HEADS FOR 2000 SERIES CHERRYLOCK RIVETS CONFORMING TO NAS 1400 & NAS 1740



RIVET DIAMETER	NOSE ASSEMBLY	DIMENSION	
		A	B
3/32"	3U-681-25	.188	.348
3/32"	3C-681-25	.163	.332
1/8"	4U-681-25	.250	.341
1/8"	4C-681-25	.208	.377
5/32"	5U-681-25	.313	.377
5/32"	5C-681-25	.269	.352
3/16"	6U-681-25	.375	.418
3/16"	6C-681-25	.335	.386
1/4"	8U-681-25	.500	.452
1/4"	8C-681-25	.458	.398

INSTALLING 681 PULLING HEAD ON RIVETER



1. Remove knurled cap from front of riveter head.
2. Place jaw assembly (C) inside collet (B).
3. Insert spring end of jaw assembly into hole of head piston. Apply enough pressure to engage collet threads. Turn until collet bottoms on shoulder of piston and collet lock snaps into slot in piston. Hand tight is sufficient.

NOTE: To remove collet, push collet lock back into collet (using a blunt pointed tool) turning the collet clockwise.

4. Place sleeve assembly (A) over collet and head piston. Slip knurled cap over the sleeve assembly and hand tighten onto end of riveter head.

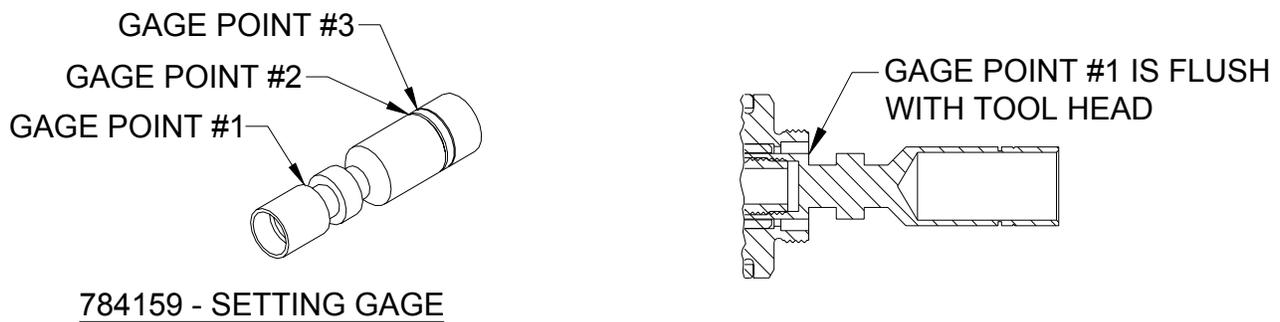
SETTING THE SHIFT POINT:

The shift point must be adjusted to ensure the flushness of the rivet stem after installation. To Adjust:

1. Connect the tool to a clean dry air source of 90 psi to 100 psi. Remove nut.
2. Hand tighten small end of 784159 gage onto piston.
3. Depress trigger and hold. Gage point #1 should line up with face of front cap as shown. Release trigger.
4. To increase gage protrusion turn adjuster knob clockwise or counter-clockwise to decrease gage protrusion. Tool must be rechecked after making adjustments.

NOTE: Adjustment can only be made by one-half turn in either direction.

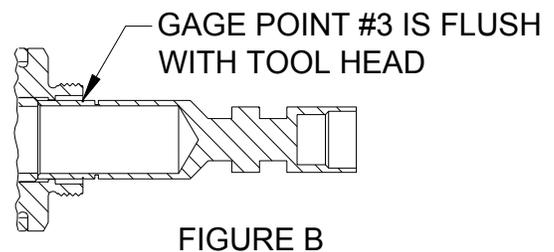
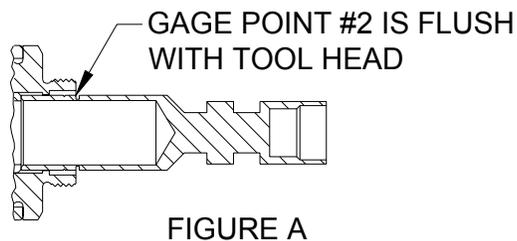
CAUTION: Trigger must be released before turning adjuster knob.



SHIFT PISTON CHECK:

The shift piston should be checked to ensure that the shift stroke is complete.

1. Connect the tool to a clean dry air source of 90 psi to 100 psi. Remove nut.
2. Install large unthreaded end of 784159 gage over threads on piston until it seats on pistons shoulder, gage point #2 must line up with front of tool as shown in figure A.
3. Depress and hold trigger. The piston should shift gage in forward position exposing gage point #3 in front of tool head as shown in figure B.
4. If tool fails to meet the above check, it should be overhauled.



GAGE BILT



DECLARATION OF CONFORMITY

WE DECLARE THAT THE EQUIPMENT SPECIFIED HEREIN
CONFORMS TO THE FOLLOWING STANDARDS AND DIRECTIVES.

EN12100-1 & EN12100-2
EN13849
EN792-1:2000+A1

COUNCIL DIRECTIVE: MACHINE DIRECTIVE 2006/42/EC

EQUIPMENT DESCRIPTION:
GB784 FASTENER INSTALLATION TOOL

MANUFACTURER:
GAGE BILT Inc.

SIGNATURE:

NAME: BRIAN LEIGH
PRODUCT MANAGER
CLINTON TWP., MI U.S.A.
MAY 2010
(586) 226-1500

WARRANTY

Seller warrants that all goods covered by this catalog will conform to applicable specifications and will replace or repair, F.O.B. our plant, any goods providing defective from faulty workmanship, or material, for 90 days from date of shipment.

Said warranty to remain in effect if, and only if, such goods are used in accordance with all instructions as to maintenance, operation and use, set forth in manuals and instruction sheets furnished by seller.

Sellers obligation under this warranty shall be limited to the repair or rework of the goods supplied or replacement thereof, at Seller's option, and in no case is to exceed the invoice value of said goods. Under no circumstances will the seller be liable for incidental or consequential damages or for damages incurred by the buyer or subsequent user in repairing or replacing defective goods or if the goods covered by this warranty are reworked or subjected to any type of additional processing.

This warranty is void if Seller is not notified in writing of any rejections or defects within 90 days after the receipt of the material by the customer.

THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY.