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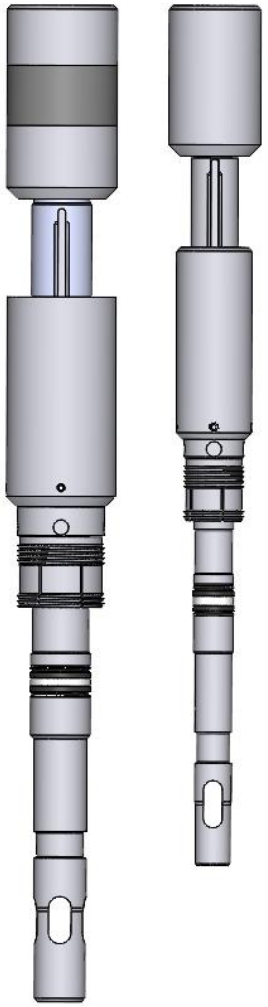
3.593-5.687 MODEL “B” SNAP LATCH SEAL NIPPLE

Alpha Model “B” Snap Latch Seal Nipple is used in cementing operations and is designed to provide precise positioning into Alpha Model “B” Cement Retainers. The Snap Latch Seal Nipple features a polished bore profile that allows a stinger equipped with a seal element to accurately locate the sliding valve within the Cement Retainer and establish a pressure-tight seal. Alpha Model “B” Snap Latch Seal Nipple is designed to provide positive mechanical engagement and reliable sealing when stinging into a cement retainer for remedial cementing operations. Unlike a standard seal locator nipple, this design incorporates a threaded latch mechanism that contracts during run-in and expands to engage and thread into the mating profile of the cement retainer mandrel, ensuring secure anchoring and precise positioning.



3593-5687 Model “B” Snap Latch Seal Nipple illustration

Additionally, the snap latch locator seal nipple is designed with 2 inches of axial travel, enabling controlled movement of the stinger to mechanically actuate the internal sliding valve of the cement retainer. This travel allows the operator to open and close the valve as required during cementing operations, providing flexibility for circulation, placement, and shut-off. The tool is intended for applications requiring repeatable latch-in capability, threaded engagement, and the ability to cycle the retainer valve while maintaining hydraulic isolation. It is engineered to withstand differential pressures and mechanical loads associated with tubing-conveyed cementing operations.

The snap latch locator seal nipple is designed for reliable retrieval following operations, offering two release methods depending on well conditions and operational preference. The tool can be disengaged by applying right-hand rotation to unthread and release the latch from the cement retainer mandrel, allowing the assembly to be pulled free. Alternatively, the latch mechanism can be contracted by applying an upward pulling force, enabling the latch to collapse and disengage from the mandrel profile for retrieval. This dual-release capability provides operational flexibility and ensures the tool can be recovered efficiently even in challenging downhole conditions.

This component is engineered to withstand the differential pressures typically encountered during cementing operations and is compatible with all Alpha Model “B” Cement Retainers **See table on page 4 for Alpha Model B Cement Retainer Compatibility.**

Redress requirement.
The molded seal must remain in tolerance and *not* be cut or worn after trips. Disassembly is not required between runs on the same location, but is recommended upon returning to the shop and for redressing and installing a new molded seal. Compatibility is available from 4-1/2 to 20” casing size Cement Retainers. Each time the SLSN is snapped out of the retainer, the snap-in and snap-out values will decrease slightly until they reach approximately 2500 (snap-in) and 5000 - 6000 lbs. (snap-out). where they level out. This pattern will occur with each retainer run. Molded Seal can be upgraded to withstand temperature of 400 °F.

Part Number “SNAP LATCH SEAL NIPPLE”	Pressure Rating	Flow Area	Top Connection
017-3593-080	5,000 ***psi***	.608 in^2	2-3/8” EUE BOX
017-5687-080	5,000 ***psi***	1.230 in^2	2-7/8” EUE BOX

GENERAL INFORMATION

1. Pre-Run Inspection
    - Verify the internal bore and seal area are clean, free of debris, scale, or mechanical damage.
    - Inspect the polished sealing surface for scratches, corrosion, or galling that could compromise seal integrity.
    - Verify the latch mechanism is clean, free-moving, and undamaged.
    - Inspect latch threads for wear, galling, or deformation.
2. Function Test (Surface)
    - Confirm the 2-inch travel of the stinger function operates freely and without restriction.
3. Connection Make-Up
    - Apply appropriate thread compound to all threaded connections.
    - Torque connections according to API tubing recommended values.
4. Running in Hole
    - Run the assembly slowly through restrictions and casing collars to prevent damage to the external sealing surface.
    - Avoid excessive impact loads while running in hole.
    - Maintain proper centralization, to reduce wear on the stinger.
5. Stinging and Latching into the Cement Retainer
    - Lower the tubing string slowly when approaching the expected landing depth.
    - Apply slight set-down weight (2,500 *lbs.*) to allow the latch to engage and thread into the mandrel.
    - Avoid excessive set-down force that could damage the sliding valve inside the Retainer.
6. Pressure Testing
    - Once the stinger is landed, before opening sliding valve, conduct pressure test to verify hydraulic isolation before pumping cement.
    - Monitor pressure response to confirm sealing integrity.
7. Seal Engagement and Travel
    - Utilize the designed 2-inch travel to open and close the retainer valve as required.
8. Cementing Operation
    - Ensure differential pressure ratings for both the Cement Retainer and Snap Latch Seal Nipple are not exceeded.
    - Once cementing begins, monitor tubing weight and pressure to prevent inadvertently closing the sliding valve prematurely.
9. Pulling Out of Hole
    - Release by either:
        - Applying right-hand rotation to unthread the latch, or
        - Pulling to contract and disengage the latch
    - Slowly pull the stinger out of the nipple to avoid tearing or rolling the molded seal.
    - Circulate clean fluid if necessary to remove cement residue before retrieving the stinger.

MAINTENANCE AND REDRESSING

1. Post-Job Cleaning
    - Thoroughly clean the stinger assembly with fresh water or an appropriate solvent to remove cement, scale, or debris. Apply Clean Oil on all surfaces after cleaning.
    - Ensure all sealing surfaces and grooves are free from hardened cement.
2. Latch Inspection
    - Inspect latch threads for:
        - Galling or rounding
        - Cracks or deformation
        - Excessive wear
    - Check that the latch mechanism:
        - Expands and contracts smoothly
        - Is free of sticking or binding
    - Replace any damaged or questionable latch components.
3. Seal Inspection
    - Inspect molded seal for:
        - Cuts or tears
        - Extrusion damage
        - Permanent deformation or flattening
        - Chemical degradation or swelling
4. Seal Replacement
    - Replace Molded Seal showing any sign of damage or excessive wear.
    - Only install Molded Seal provided by **Alpha Oil Tools.**
5. Stinger Inspection
    - Inspect the stinger for burrs, corrosion, or sharp edges that could damage or compromise the pressure test during sting in operation.
6. Lubrication
    - Apply compatible seal lubricant or assembly grease prior to installing new molded seals.
    - Anti-galling compound should be used on all threads. Downhole grease should be used on all O-rings. To avoid damage to parts, use a soft jaw vise and strap wrenches when tightening connections. Wrench on knurled areas or utilize spanner holes. File away wrench marks.
    - Ensure lubricant is compatible with the elastomer material and anticipated well fluids.
7. Dimensional Verification
    - Verify the stinger OD and seal stack dimensions remain within design tolerances to ensure proper sealing engagement with the Cement Retainer.
8. Storage
    - Store redressed stingers in a clean, dry environment.
    - Protect seals from direct sunlight, ozone exposure, and extreme temperatures.
9. Documentation
    - Record the number of runs, seal replacements, and inspection findings as part of maintenance tracking.

CEMENT RETAINERS COMPATIBILITY

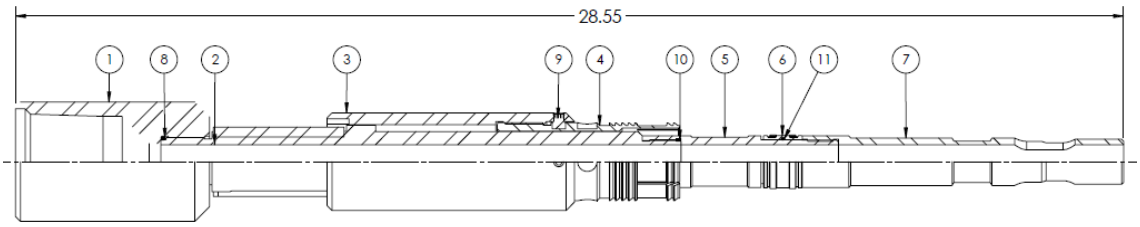
017-3593-080 SNAP LATCH SEAL NIPPLE	3593 “B” CEMENT RETAINER 3937 “B” CEMENT RETAINER 4312 “B” CEMENT RETAINER
017-5687-080 SNAP LATCH SEAL NIPPLE	5375 “B” CEMENT RETAINER 5687 “B” CEMENT RETAINER 6312 “B” CEMENT RETAINER 7125 “B” CEMENT RETAINER 8125 “B” CEMENT RETAINER 8690 “B” CEMENT RETAINER 9000 “B” CEMENT RETAINER 9437 “B” CEMENT RETAINER 9500 “B” CEMENT RETAINER 9937 “B” CEMENT RETAINER 1200 “B” CEMENT RETAINER 1425 “B” CEMENT RETAINER 1725 “B” CEMENT RETAINER

ASSEMBLY INSTRUCTIONS FOR SNAP LATCH SEAL NIPPLE

Anti-galling compound should be used on all threads. Downhole grease should be used on all O-rings. To avoid damage to parts, use a soft jaw vise and strap wrenches when tightening connections. Wrench on knurled areas or utilize spanner holes. File away wrench marks.

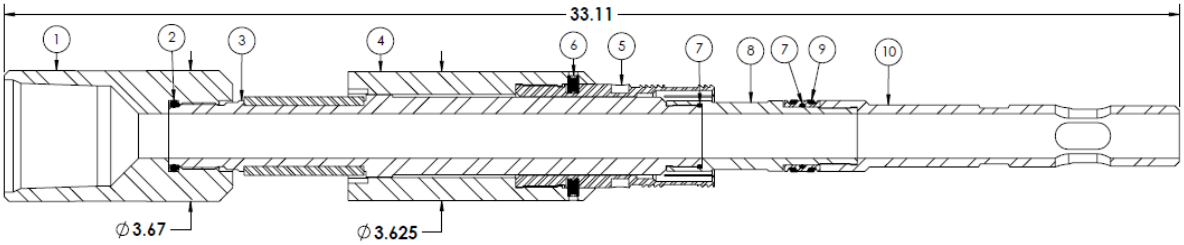
NOTE: Wrench tight means using no larger than 24" pipe wrench without cheater or extension handle. Screwdriver tight means hand tight with a medium blade 6" long screwdriver.

3.593 MODEL "B" SNAP LATCH SEAL NIPPLE ILLUSTRATION



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	016-3500-082	TOP COUPLING	1
2	017-3593-083	LOWER MANDREL	1
3	017-3593-084	ADAPTER SUB	1
4	017-3593-031	LATCH	1
5	017-3593-032	SEAL SUB	1
6	016-3500-033	MOLDED SEAL	1
7	017-3593-034	SHIFTER SUB	1
8	000-122N-090	122 O-RING	1
9	FAS-313S18X375	5/16-18 X .375 SET SCREW	4
10	000-023N-090	023 O-RING	1
11	000-024N-090	024 O-RING	1

5.687 MODEL "B" SNAP LATCH SEAL NIPPLE ILLUSTRATION



ITEM NO.	PART NUMBER	PART NAME	QTY.
1	017-5687-082	TOP COUPLING	1
2	000-326-N090	326 O-RING	1
3	017-5687-083	LOWER MANDREL	1
4	017-5687-084	ADAPTER SUB	1
5	017-5687-031	LATCH	1
6	313S18X500	5/16-18 X .500 SET SCREW	4
7	000-130N-090	130 O-RING	2
8	017-5687-032	SEAL SUB	1
9	016-5610-033	MOLDED SEAL	1
10	017-5687-034	SHIFTER SUB	1

ASSEMBLY STEPS

1. Grease all threads and O-ring surfaces.
2. Place and secure Top Coupling on Vise and grip it by the knurled area.
3. Screw Latch into Adapter Sub and install Set Screws.
4. Slide Lower Mandrel into Adapter Sub making sure the keys on the mandrel go thru the slots on the Adapter Sub.
5. Install O-ring on the Lower Mandrel.
6. Screw in the Lower Mandrel into Top Coupling. (Wrench tight)
7. Install O-ring into Seal Sub.
8. Screw Seal Sub on Lower Mandrel. (Wrench tight)
9. Place O-ring inside the molded seal.
10. Slide on the molded seal with the O-ring onto the Seal Sub.
11. Screw on the Shifter Sub onto the Seal Sub. (Wrench tight)

DISASSEMBLY STEPS

1. Follow the assembly steps in reverse order.

REDRESSING STEPS

1. After disassembly, replace the three (3) O-rings, replace Molded Seal and replace Latch.
2. Inspect all parts following the recommendations on page 3.
3. Follow assembly steps.

3.593-5.687 SNAP LATCH SEAL NIPPLE DIMENSIONAL DATA

Part Number "SNAP LATCH SEAL NIPPLE"	LENGTH (*in*)	TOP COUPLING DIAMETER (*in*)
017-3593-080	28.55	3.060
017-5687-080	33.11	3.670

Molded Seal/O-ring Compatibility Guideline Table:

Elastomer Type	Nitrile (NBR)	Hydrogenated Nitrile (HNBR / HSN)	Viton / Fluoroelastomer (FKM)	Aflas (TFE/P)
Low Temp Resistance, °F	-4	-4	5	100
Maximum Heat Resistance, °F	250	300	350	400
H_2S	Very Poor (<0.5%)	Poor (<1%)	Fair (<2%)	Very Good (<20%)
CO_2	Poor (<1%)	Fair (<2%)	Very Good (Unrestricted)	Very Good (Unrestricted)
Amine Inhibitors	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Very Good (Unrestricted)
Zn & Ca Bromides	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Very Good (Unrestricted)	Good
Xylene	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Fair	Very Poor (Not Recommended)
HCl & HF Acid	Very Poor (Not Recommended)	Very Poor (Not Recommended)	Fair	Good
Toluene	Very Poor (Not Recommended)	Poor	Fair	Very Poor (Not Recommended)
Sulfuric Acid	Very Poor (Not Recommended)	Poor	Good	Good
Steam	Very Poor (Not Recommended)	Poor	Poor	Poor
Crude Oil	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)
Methane	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)
KCl & Salt Water	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)	Very Good (Unrestricted)