

CHAPTER 7

ARMORED BALLISTIC CLOSURES

7-1. BALLISTIC DOORS.

To maintain ballistic qualities and tightness of a structure, ballistic armored closures are made of the same material and the same thickness as the plating in which they are fitted. In plating 5/8-inch and thicker, door edges and the clear opening have matching 45-degree bevels to prevent closures from being driven through the openings under ballistic impact and to ensure that, when closed, closures will be near flush with the plating. See [figure 7-1](#).

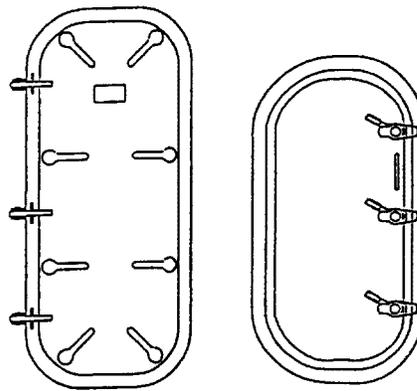


Figure 7-1. Armored Ballistic Closures, Individually Dogged

In plating 5/8-inch or thicker, ballistic closures have gaskets made of either two-line rubber (MIL-G-20078, Type "B") or two-line silicone rubber (FED-SPEC ZZ-R-765). The gaskets are fitted into an ordinary strength steel gasket strip welded to the closure plate. The gasket is secured to the strip with adhesive (Type MMM-A-A121) and 1/8-inch by 5/8-inch flat bar, and retained by flat headed machine screws spaced approximately 5 inches center-to-center. See [figure 7-2](#).

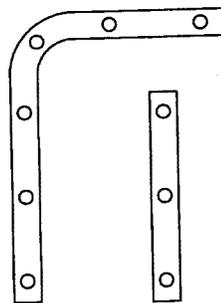


Figure 7-2. Gasket Retainer (Corner and Straight)

Ballistic closures located in plating less than 5/8-inch thick have gaskets (MIL-R-900) similar to those for nonballistic closures. Gasket material for closures installed in fueling areas must conform to MIL-R-15624, Class 3. See [figure 7-3](#).

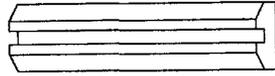


Figure 7-3. Gasket

Individually dogged closures in ballistic plating 5/8-inch or thicker have penetrating type dogs. Dogs and spindles are manufactured from either HY 80 steel bar (MIL-S-21952) or HTS 80 castings (MIL-S-23008). See [figure 7-4](#). Dogs in ballistic plating less than 5/8-inch thick are similar in design and materials to those used on standard structural nonballistic closures.

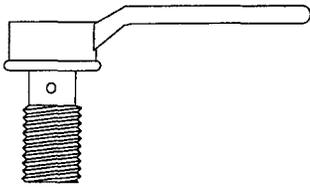
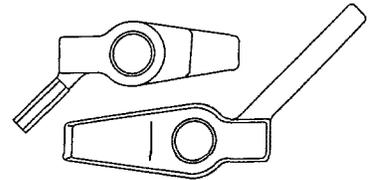
**STRAIGHT HANDLE DOG****DOG SETSCREW****CORNER DOGS**

Figure 7-4. Straight Handle Bushing, Dog Setscrew, and Corner Dogs

The outer end of dog spindles are either flush and slotted, or protruding and hexagonal. All ballistic closures have handles on both sides. Hinges for ballistic closures are located on the outer (exposed) side and are so designed that hinge pins (no. 2 type) will be in double shear. The weight of the closure is carried on the lower hinge. Closures weighing more than 1,000 pounds have three hinges. See [figure 7-5](#).

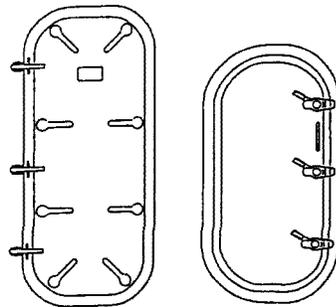


Figure 7-5. Armored Ballistic Closures, Tri-Hinged

7-2. REPLACEMENT PARTS FOR BALLISTIC CLOSURES.

Parts for ballistic armored watertight closures may appear similar, but will be found to vary from ship to ship (that is, different threads or overall measurements). Inquiries to commercial sources or planning yards should include as much information as possible to aid in locating proper replacement parts. The following data should be included:

- a. Ship's hull number.
- b. NAVSEA/BUSHIPS Drawing number.
- c. Sample or photograph of parts.
- d. Closure size (with the panel open, measure height and width between inner edge of frame).

- e. Quick-acting (gang-operated) or individually dogged.
- f. Number of dogs, location, and type (for example, side top corner, bottom corner, straight dog, or angle dog).
- g. Approximate thickness of the bulkhead.

7-2.1 QUICK-ACTING (GANG-OPERATED) BALLISTIC CLOSURES. Multidog mechanisms of quick-acting ballistic closures may be grouped with connecting rods and locknuts to a turnbuckle which provides a means for adjusting the dogs to the proper position. Right-hand and left-hand threads are machined at opposing ends of connecting rods. Likewise, stainless steel or brass turnbuckle fittings have threads machined to receive the right- and left-hand threaded portion of the connecting rods. The connecting rod locknuts are machined and internally right- and left-hand threaded. The connecting rod shoulder bolts are retained by hexagonal-shaped nuts drilled to receive retaining cotter pins. A connecting rod washer is installed on each connecting rod stud and connecting rod shoulder bolt. The length of connecting rods varies with closure size. See [figure 7-6](#) and [figure 7-7](#).

7-2.2 SPINDLES FOR BALLISTIC CLOSURES. The top and bottom dog assemblies on a quick-acting three-dog closure may use slot head spindles. The slot head provides a means of turning the spindle into the threaded door panel and additional support plate. The support plate is added to give additional thread strength to the door panel. On the same doors, the center dog may have a round head spindle or a slot head spindle. The round and slot head spindles for these closures have been modified to hex head spindles. See [figure 7-8](#).

7-2.3 DOG WEDGES. Quick-acting ballistic closures and individually dogged ballistic closures use 6-3/4-inch long aluminum bronze wedges. Shim stock is used between wedges and wedge mounting pads. Flat head brass machine screws are used to retain the wedges to mounting plates. Wedges are available in right-hand and left-hand styles. See [figure 7-9](#).

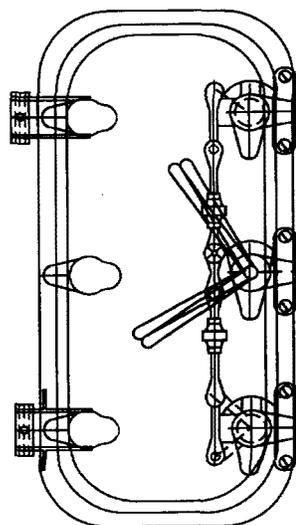


Figure 7-6. Quick-Acting (Gang Operated_ Ballistic Closure (Open and Closed Position)

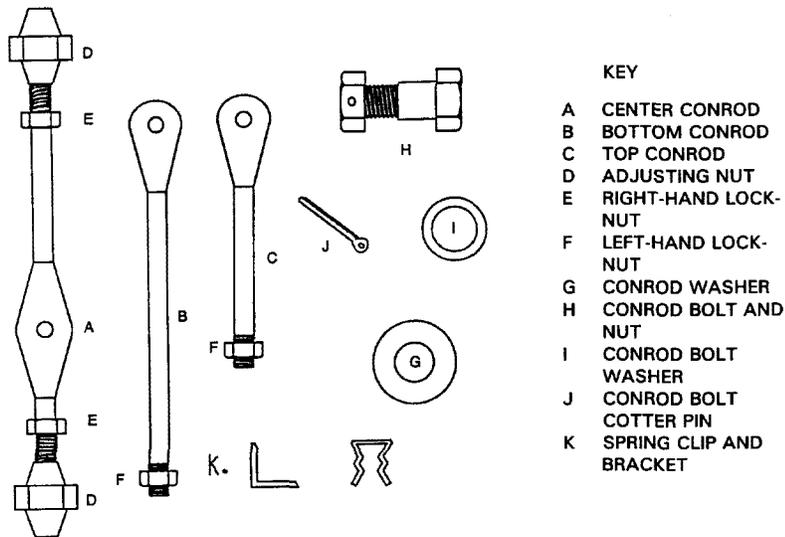


Figure 7-7. Linkage Assembly (Typical)

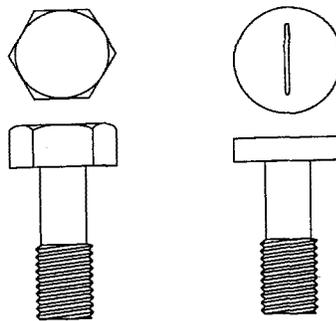


Figure 7-8. Spiders for Ballistic Closures

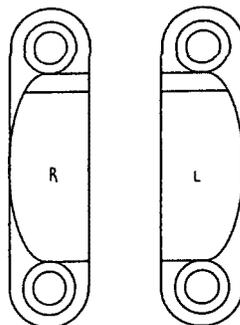


Figure 7-9. Dog Wedges (Right-Hand/Left-Hand)

7-2.4 DOGS FOR BALLISTIC CLOSURES. The top and bottom dogs on quick-acting three-dog ballistic closures may be supported by a slot head spindle in the closure panel. In this configuration, the dog assemblies are "bushed" to the spindle. The center dog is joined to the spindle by a buttress thread. The thread joint of the dog assemblies is locked with a 1/2-13NC CRES setscrew.

In a new assembly, the spindle bearing washer is mated to the spindle shaft. The spindle and bearing washer are inserted into the opening in the closure. Dogs are mated to the spindle shaft and properly adjusted for fit.

Once fitted, the mated buttress thread and dog joint is center punched and then drilled to a depth of 1 inch using a drill bit equivalent for a 1/2-13NC tap. Tap the hole using a starting taper, bottom 1/2-13NC tap. Insert the 1/2-13NC setscrew, and tighten until the setscrew face is flush with the spindle and dog face. This arrangement locks the assembly together. This procedure can be accomplished on and off the closure. All fit-ups are made at the closure. Center punching is made at the closure, and adjacent matchmarks are punched at a distance from the drill and tap punch mark for easy assembly later. See [figure 7-10](#).

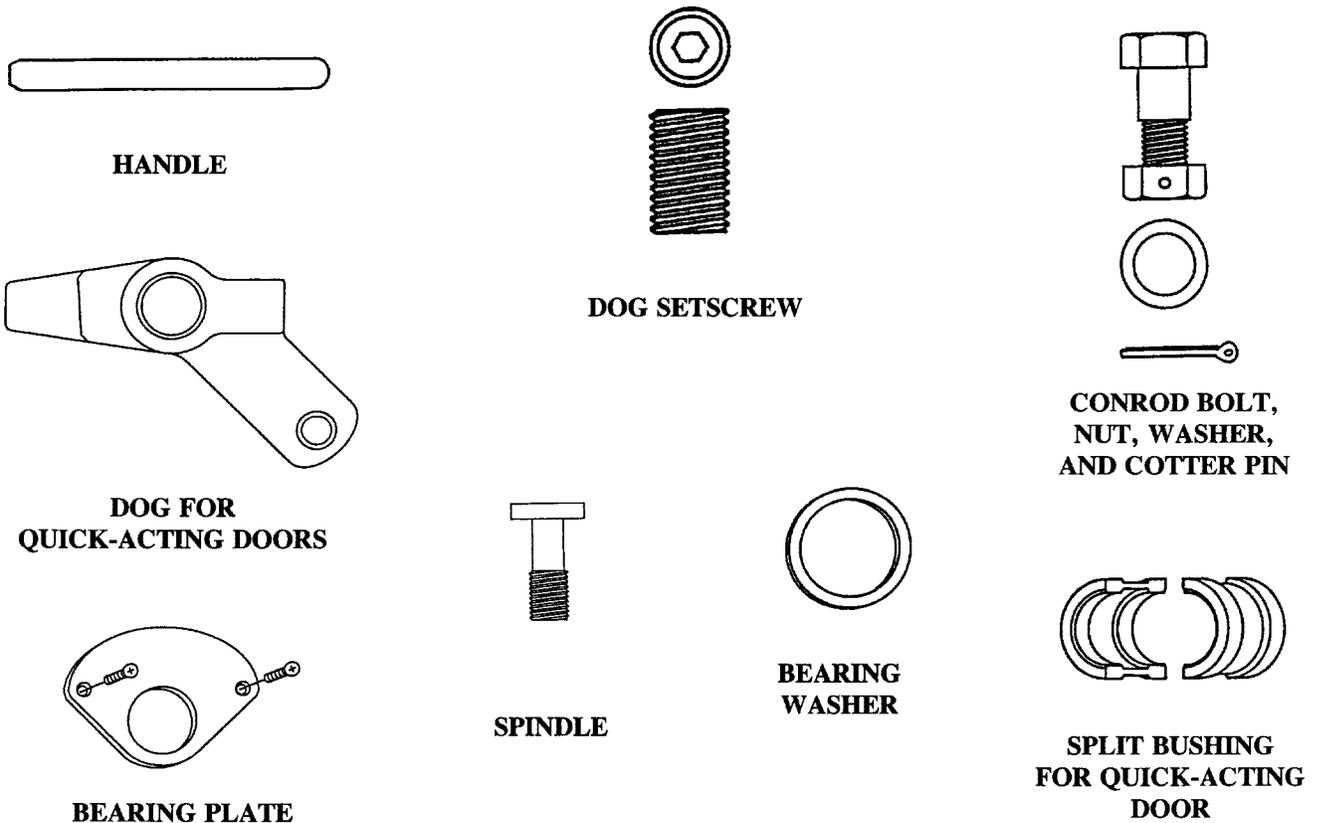


Figure 7-10. Quick-Acting (Gang Operated) Ballistic Closure Wear Parts

7-3. BALLISTIC HATCHES.

Flush ballistic hatches are of the same material and thickness as the deck in which they are installed. In the case of multiple course decks, hatches are constructed of the same material as the upper course and are the same thickness as the total deck thickness. Flush hatches in ballistic decks are usually dog type and spring balanced.

Hatches that are not spring balanced are operable from the upper side of the deck only. These hatches are opened and closed with hand-operated chain hoists, unless a power hoist is installed near the hatch for moving stores or other material through the hatchway. See [figure 7-11](#).

7-3.1 BALANCED BALLISTIC HATCHES. The edges of flush ballistic hatches and the deck plating in which they are installed have matching 45-degree bevels. The top of the hatch is fit practically flush with the top of the deck plating (or with the top of the landing strip, if installed). In order to allow for compression of the gasket, the clearance between the closed hatch cover and deck plating in way of the bevel is approximately 1/8 inch measured vertically. The hatch is not rabbeted or otherwise recessed to facilitate securing the gasket.

Springs and other parts for balanced hatches are designed so the hatch is as balanced as possible in all positions. The force of the spring is sufficient to allow one person to open or close the hatch easily from above or below.

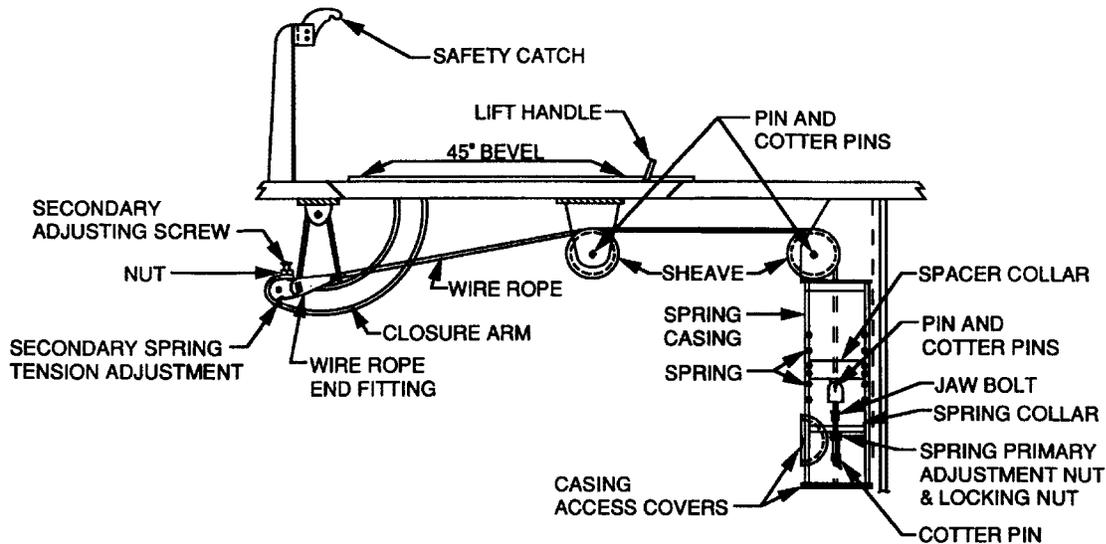


Figure 7-11. Typical Hatch

Hatches without lift handles are slightly overbalanced. These hatches should raise toward open slightly when undogged and require a moderate amount of downward pressure to dog down. Hatches with lift handles should be balanced to allow free fall slowly toward closed, but not slam. The hatch should slow and stop just before gasket and seating surface contact (2 to 6 inches). See [figure 7-11](#).

Ballistic hatch springs are the compression type (spring steel, Grade II, Type B, Material 7) and have three-quarters of a coil on each end squared and ground smooth. The springs, spring plate, filler plate, and jaw bolt assembly are fitted within a metal enclosure (spring casing) having a casing head assembly, end cover, and hand-hole cover. Ballistic hatch spring plates and spring filler plates are part of the spring assembly of most ballistic armor hatches which use two coil springs. Two springs are used instead of one to avoid buckling which is likely to occur during the compression of a single spring. The filler plate is located between the two coil springs to provide a smooth surface for the squared ends of the springs. The spring plate is located at the base of the spring assembly. This plate is secured in place on the threaded end of the jaw bolt by an adjusting nut, locknut, and cotter pin. The adjusting nut provides the primary means for bringing the hatch into balance, and the purpose of the locknut is to lock the adjusting nut in place. The cotter pin installed near the end of the threaded portion of the jaw bolt is to prevent inadvertent loss of the adjusting nut or locknut. Access to the primary adjustment nut, locknut, and cotter pin is made by removing the handhole cover and casing end cover which are affixed to the spring casing by 10-24NC x 1/4-inch long machine screws. See [figure 7-12](#).

The secondary means of bringing the hatch into balance is with the secondary spring tension adjustment bolt located on the hinge arm. To decrease spring tension, loosen the adjustment bolt locknut and rotate the adjustment bolt clockwise until desired tension is achieved. Counterclockwise rotation of the adjustment bolt will increase spring tension. The adjustment bolt locknut prevents inadvertent movement of the adjustment bolt when locked in place. See [figure 7-11](#).

7-3.2 SHEAVES. Sheave assemblies are used to reduce wire rope friction to a minimum. Graphite bronze bushed sheaves with cold rolled steel pins, steel washers, and steel cotter pins are fitted to sheave brackets welded

to casing head plates and to chocks at other suitable locations along the wire rope path of travel. The number of sheave assemblies installed will depend on the overall length of the wire rope and/or the number of bends along the wire rope path of travel. See figure 7-12.

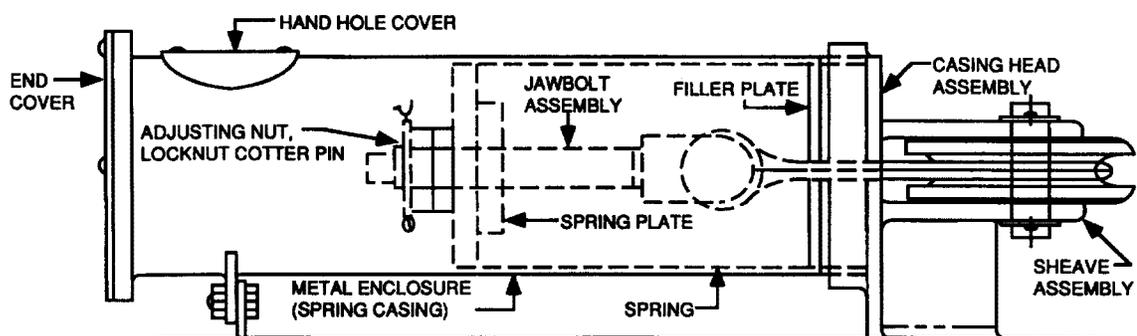


Figure 7-12. Spring Casing Assembly

7-3.3 WIRE ROPE ASSEMBLIES. Jaw bolt and clevis end wire rope socket electroline fiege fittings are used in wire rope assemblies on ballistic armor hatches. Navy drawings of wire rope assemblies show the fittings and are listed in the bill of material as "clevis end w.r. socket" and "stud end w.r. socket." The diameter of the fiege fittings depends on the hatch size and the cover thickness. The diameter and type of wire rope used in wire rope assemblies also depends on hatch size and the cover thickness. The material specifications are listed in the drawing bill of material for each type hatch and class ship. The 3/8-inch diameter wire rope (6 x 37) is preformed, fiber core, improved plow steel, galvanized, in accordance with material specification RR-W-410, Type 1, Class 3. The 1/2-inch diameter wire rope is the same type and specification. The 5/8-inch diameter wire rope (6 x 37) is preformed, internal wire rope core, extra improved plow steel, galvanized, in accordance with material specification RR-W-410, Type 1, Class 3. Complete wire rope assemblies (wire rope, jaw bolt, and clevis end wire rope socket) are to be tested in accordance with the current Naval Sea Systems Command Technical Manual (NSTM), Chapter 613, by a certified weight testing facility. A certificate must be issued, and an approved type test label must be attached to the wire rope at the location specified on the drawing. The entire wire rope must be lubricated with hatch in the open and closed positions to ensure all surfaces of the wire rope are properly lubricated as specified in current Planned Maintenance System Maintenance Requirement Card. See figure 7-12 and figure 7-13.

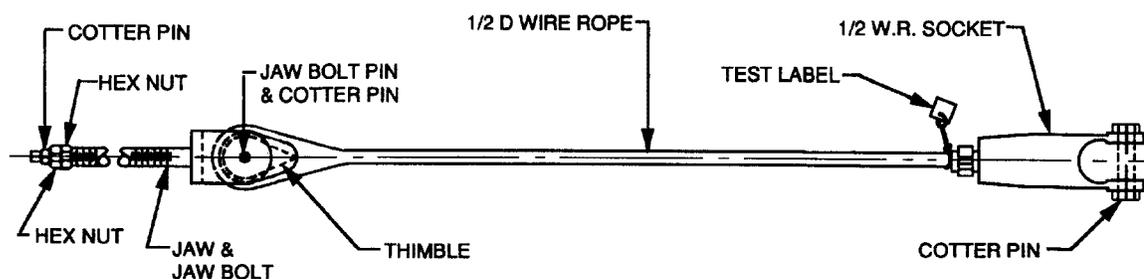


Figure 7-13. Cable Assembly Wire Rope

7-3.4 AUTOMATIC CATCH ASSEMBLY. The automatic catch assembly is a safety device installed on all ballistic hatches. Various materials are used in the manufacture of automatic catch assemblies dependant upon the location of installation and end use. Catch bodies, catch pins, and guide pins of automatic catch assemblies located in weather area (except the barricade webbing hatch on CVs/CVNs) trunks leading to shaft alleys or JP-5 pump rooms are made of CRES material (Class 316 COD.A) in accordance with military specification (MIL-SPEC) QQ-S-763. The catch pin and guide pin for closures used in nonsparking areas shall be made of brass in

accordance with MIL-SPEC QQ-B-637. The catch spring shall be made of phosphor bronze alloy 510, in accordance with MIL-SPEC QQ-W-321. Open ends of the coil spring are ground flush on both ends. See [figure 7-14](#).

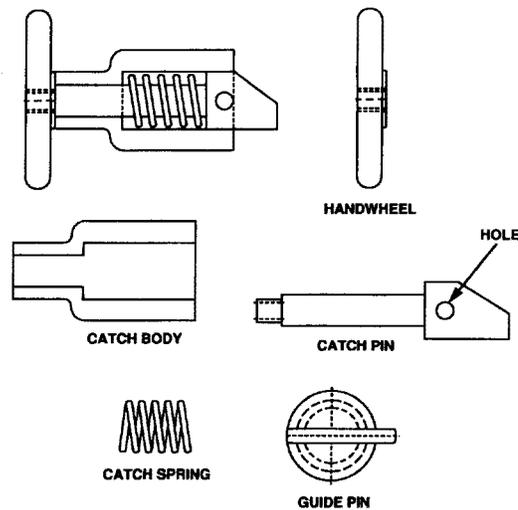


Figure 7-14. Automatic Catch Assembly

7-3.5 SPINDLES. Dogging devices for a ballistic hatch may have either a cone spindle or a straight spindle. Cone spindles are supported by a cone bushing and a split bushing. Spindles are manufactured of steel alloy in accordance with MIL-N-3182 and machine threaded to receive the internal threaded portion of the dog selected for the type and style hatch installed. Spindles are drilled and tapped during final assembly to receive a setscrew which retains the dog in proper position selected. The hexagon end of the straight spindle is drilled and tapped to receive a phosphor bronze packing plunger. Spindles for flush deck hatches are drilled and tapped at the threaded end to receive a phosphor bronze packing plunger and a 1/2-13NC dog retaining setscrew. See [figure 7-15](#).

- a. Requests for information on replacement of cone spindles should include the following:
 1. Width across the flats or parallel sides of hex head.
 2. Thickness of hex head.
 3. Spindle length (measured from under the hex head to the spindle).
 4. Outer diameter of the spindle bearing surface.
 5. Length of the spindle bearing surface.
 6. Whether the thread end of the spindle is drilled and tapped for a packing plunger.
- b. Requests for information on replacement of straight spindles should include the following:
 1. Width across the flats or parallel sides of hex head.
 2. If round headed, the outer diameter.
 3. Thickness of the head.
 4. Spindle length (measured from under the spindle head to the end of the spindle).
 5. Outer diameter of the spindle bearing surface.
 6. Whether the thread end of the spindle is drilled and tapped for a packing plunger.

7-3.6 BUSHINGS. Ballistic hatches may require the use of a cone shaped bushing insert. The cone bushing is used in connection with a split bushing. The dimensions of the split bushing vary with the design of the hatch. It may be necessary to remove a dogging device in order to properly measure and identify the part. Due to the distinct difference and application of cone bushings, specific installation instructions should be followed. Instructions not available should be requested.

Nimitz class carriers use solid bushings 2-1/32-inch inside diameter instead of a split bushing. The lengths of solid bushings vary from 2-11/16 inch to 4 inches. In all correspondence concerning this type bushing, specify length and inside diameter, and indicate tapered or flush ends. Bushings are made of bronze material in accordance with applicable list of material (MIL-B-16443). See [figure 7-15](#).

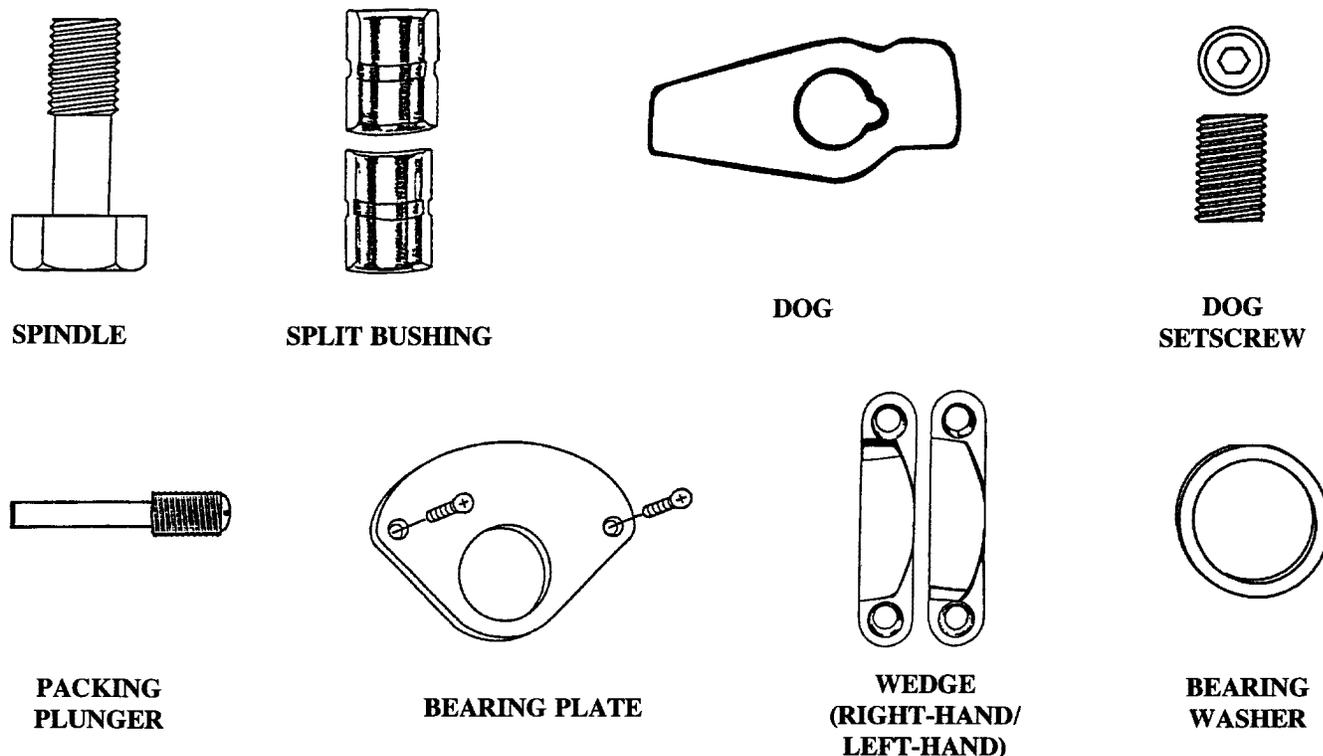


Figure 7-15. Spindle, Split Bushing, Dog and Dog Setscrew, Packing Plunger, Bearing Plate, Wedge (Right-Hand/Left-Hand), and Bearing Washer

7-3.7 HATCH BEARING PLATE. Hatch bearing plates and the associated bearing washers differ in dimensions due to the design and size of the hatch. The use of spacers under the bearing plate may be required on some older ships. Bearing washers and bearing plates are made of brass material in accordance with applicable list of material (MIL-N-994). Bearing plates are held in place by 1/4-inch x 5/8-20NC(A) flat head brass machine screws in accordance with applicable list of material (MIL-S-933).

In all correspondence concerning hatch bearing plates, include as much of the following information as possible to assist in obtaining replacement parts:

- a. Size of the clear opening.
- b. Quick-acting or individually dogged.
- c. Hatch location (deck, frame number, and port or starboard).
- d. Thickness of spacers (if applicable).

7-3.8 PACKING PLUNGER. Some ballistic hatches use a distinctly different packing plunger which is located in the hatch cover adjacent to the hex head spindle. This style packing plunger is inserted at an angle to the spindle. The outer end of the packing plunger is round headed with a screwdriver slot, and the shaft portion is partially threaded to allow insertion into the drilled and tapped hole in the hatch cover.

If alemite zerk fittings are found installed in a hatch, the fittings are to be replaced with proper packing plungers if dog spindles penetrate through the hatch. A through spindle packed with general purpose grease will not maintain watertightness; therefore, alemite zerk fittings are permitted for use only in nonpenetrating dog spindles. Packing plungers are normally made of phosphor bronze in accordance with the applicable list of material (MIL-SPEC QQ-P-330-COMP.A). See [figure 7-15](#).

7-3.9 TURNBUCKLE ASSEMBLIES. Turnbuckle assemblies with connecting links are available for quick-acting ballistic armored hatches. The size of the hatch determines the length of the connecting rods and links. The installed turnbuckle assembly provides a means for adjusting the dogs to the proper positions. Right-hand and left-hand threads are machined at opposing ends of connecting rods. Likewise, turnbuckle fittings are machined to receive the right and left threaded portion of the connecting rod. Connecting rod locknuts are drilled and tapped with right-hand and left-hand threads. Connecting rod shoulder bolts are retained by hexagon shaped nuts drilled to receive retaining cotter pins. A connecting rod washer is installed on each connecting rod stud and shoulder bolt. See [figure 7-16](#) and [figure 7-17](#).

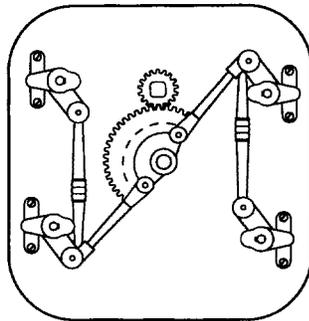


Figure 7-16. Turnbuckle Assembly

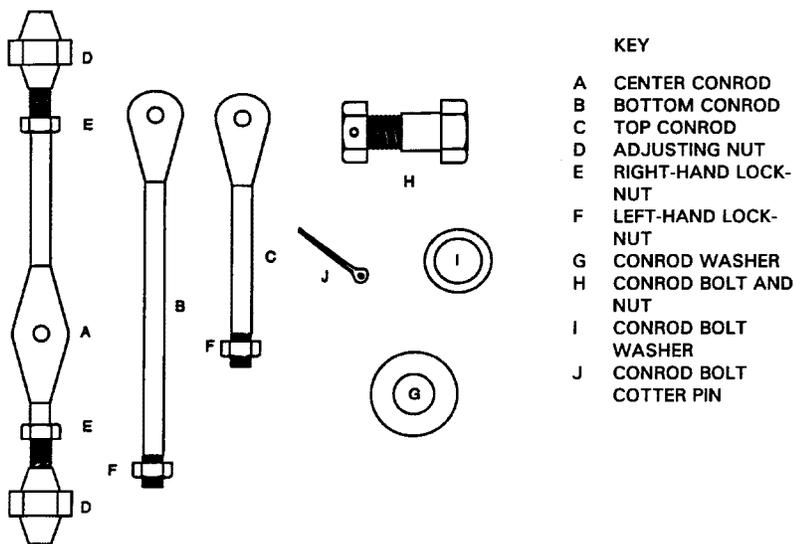


Figure 7-17. Turnbuckle Assembly Parts

7-3.10 BALLISTIC HATCH REPLACEMENT PARTS. The variation in arrangement and design of quick-acting hatches makes it essential to provide specific information when requesting information or when attempting to procure parts. The following information should be provided in any correspondence concerning quick-acting ballistic hatches:

- a. Ship's hull number.
- b. NAVSEA/BUSHIPS Drawing number.
- c. Sample or photograph of parts.
- d. Hatch size (with the hatch open, measure the length and width between the inner edges of the deck plate).
- e. Quick-acting or individually dogged.
- f. If quick-acting, method of operation.
- g. Power operated, spring balanced, counterweighted, or hydraulic.
- h. Number of straight dogs and angle dogs.
- i. Hinged on short or long side of hatch.
- j. Approximate thickness of the deck.

7-4. BALLISTIC SCUTTLES.

Quick-acting balanced armor scuttles are of the same thickness and material as the plating in which they are installed. The edges of the scuttle and the plating have matching 45-degree bevels.

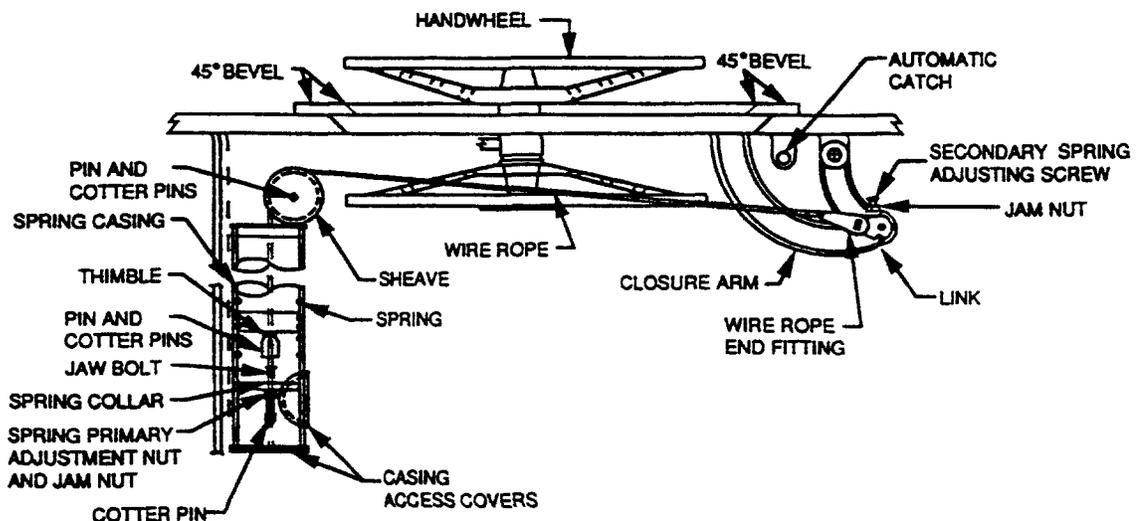


Figure 7-18. Typical Scuttle

In multiple course decks, the scuttles are of the same material as the upper course and in one thickness equal to the total thickness of the deck.

Scuttles 18 inches in diameter have three dogs. Scuttles 25 inches in diameter have four dogs. The 18-inch balanced armor scuttle is used for normal quick access or egress through a closed (dogged position) balanced armor hatch, or for emergency use in a deck. The 25-inch balanced armor scuttle is used for an emergency access or egress from designated areas such as machinery spaces or rooms. In escape trunks passing through more than one deck, escape scuttles are usually stacked.

Scuttles installed in hatches are designed to withstand the same design pressure as the hatch in which they are installed. Some scuttles may have insert plates which are reinforced by brackets or headers to maintain structural continuity with the deck and to minimize stress concentrations.

Flush deck exterior scuttles have interior hinges, troughs, and 2-inch trough drains. Some ballistic scuttle designs use an individual dog mechanism with straight or angle dogs. This design is found on the flight deck scuttles of aircraft carriers. See [figure 7-19](#).

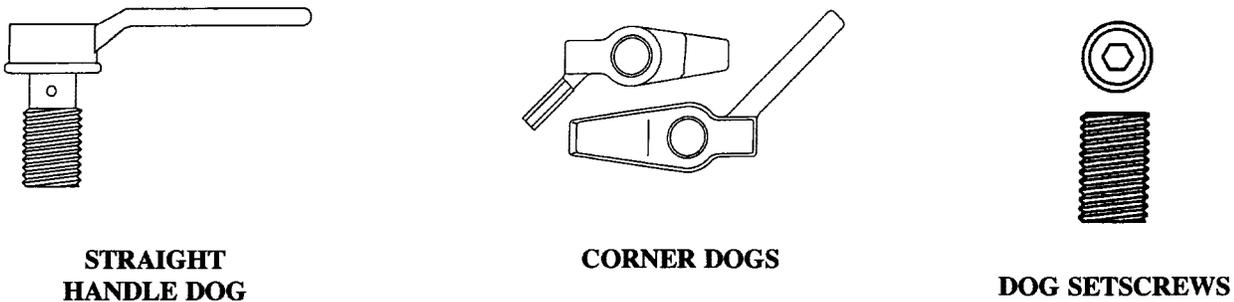


Figure 7-19. Straight Handle Dog, Corner Dogs, and Dog Setscrew

Other ballistic armor scuttles are balanced quick-acting. This type scuttle has either an 18-inch or 25-inch diameter clear opening and is operated by a quadrant gear dogging device. The 18-inch ballistic armor scuttle has a manganese bronze pinion gear that mates with three quadrant gears/dogs. See [figure 7-20](#).

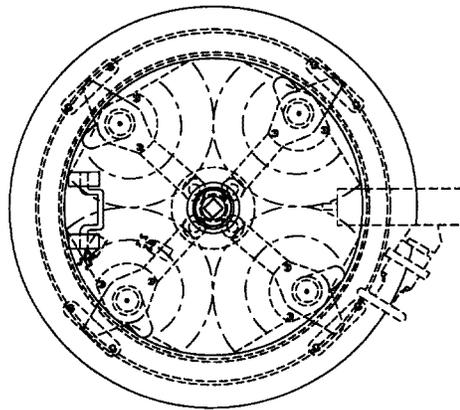


Figure 7-20. Ballistic Scuttle

The 25-inch ballistic armor scuttle is designed with a manganese bronze pinion gear which mates with four manganese bronze idler gears that in turn mate with four quadrant gears/dogs. See [figure 7-21](#). The idler gear used on 25-inch ballistic armor scuttles is designed to mesh with the pinion gear. The pinion gear is designed to mesh with either the idler gear or with the quadrant gears/dogs, depending on the scuttle design.

The pinion gear attached to the spindle shaft is actuated from above by use of T-slot wrench or a handwheel wrench. These special wrenches are normally stowed in brackets located near the closure. The closure is operated from below by a handwheel attached to the spindle shaft.

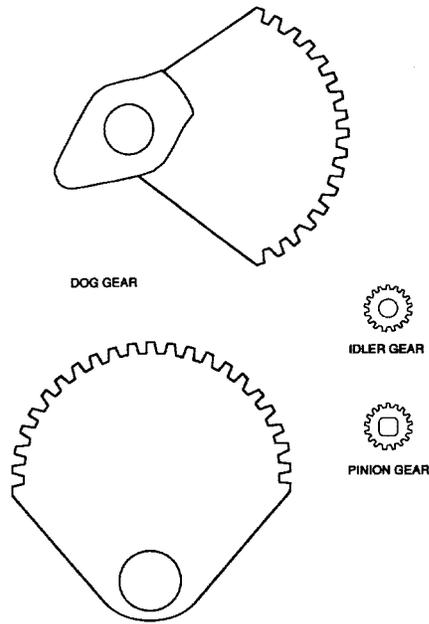


Figure 7-21. Scuttle Gears

Handwheel and handwheel wrenches are available in mild steel, cast steel, and bronze. Bronze handwheels are designated as nonsparking. This type handwheel is used in weapons areas, in pump room accesses, or in any location where a potentially explosive atmosphere exists. See [figure 7-22](#).

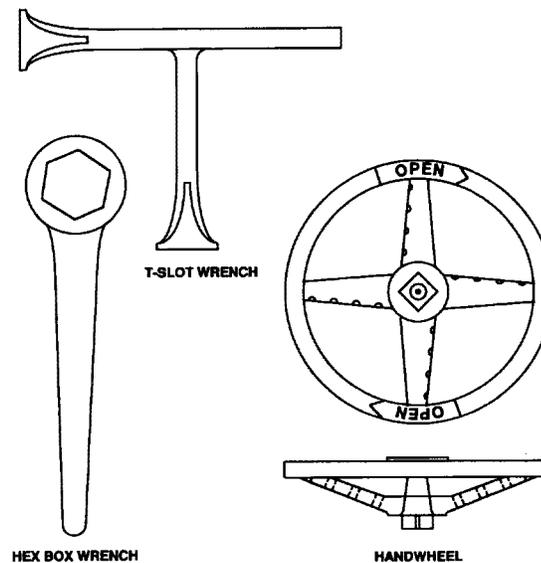


Figure 7-22. Handwheels and Wrenches

Ballistic armor balanced scuttle balancing assemblies use basically the same components as ballistic armor balanced hatches (for example, spring assemblies, spring casing and components, sheave assemblies, jaw bolt assemblies, secondary adjustment components, automatic catch assemblies, wire rope and associated parts). In any correspondence concerning ballistic armor scuttles, the following information should be provided. See [figure 7-18](#).

- a. Ship's hull number.
- b. NAVSEA/BUSHIPS Drawing number.
- c. Sample or photograph of parts.
- d. Location of the scuttle (deck, frame number, and port or starboard).
- e. Scuttle size (with the scuttle open, measure the diameter from the inner edge of the hatch cover deck plate).
- f. Number of dogs.
- g. Approximate thickness of hatch cover deck plate.
- h. Type of dog (quadrant or individual).
- i. Rating (psi) of the hatch cover or deck, if available.
- j. Length of spindle (measure from under the spindle head to the end of the spindle).
- k. Length of the bearing surface.
- l. Outer diameter of bearing surface.
- m. Bushing length.
- n. Thickness of scuttle cover.
- o. Rating (psi) of scuttle, if available.
- p. Outer diameter of the scuttle.

7-4.1 SAFETY CATCH, CATCH BRACKETS, AND CATCH PINS. Safety catch assemblies are vitally important for the safe operation of ballistic closures. The safety catch provides a secondary means of holding the closure in the open position.

Catch assemblies are available in galvanized steel and brass. Brass catch assemblies are intended for use in locations such as weapons area, pump rooms, or any potentially explosive atmosphere. The associated catch rods are available in galvanized steel (Grade M, MIL-S-20166). See [figure 7-23](#).

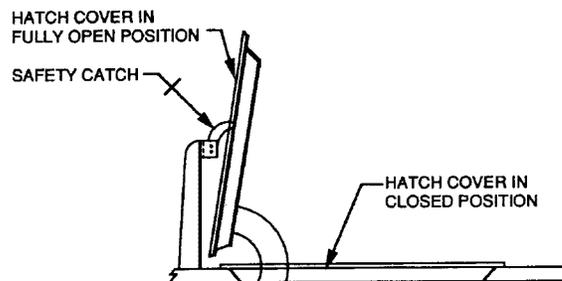


Figure 7-23. Safety Catch

7-4.2 TOOLS. Due to the importance of special tools, relevant information is also included in this paragraph as follows:

- a. Hex box wrenches are available in mild steel and bronze. Bronze wrenches are designated as nonsparking and are manufactured in accordance with MIL-B-16443. These wrenches are used in weapons areas, pump room accesses, or any potentially explosive atmosphere. Mild steel galvanized wrenches are made in accordance with MIL-S-16974, Grade 1023-W.

- b. Handwheel wrenches are available in galvanized mild steel (MIL-SPEC ASTI-A-53 GR.B MIL-S-20166); bronze, Class "B" (MIL-B-16443); and cast steel (MIL-S-21066). The T-slot wrench (MIL-S-21066) is galvanized.

7-5. BALLISTIC (ARMOR) CLOSURE REPLACEMENT PARTS.

Various vendors can quote the prices and availability of complete quick-acting 3-dog and individually dogged 8-dog ballistic doors, individually dogged ballistic hatches (with or without scuttle), and ballistic scuttles, as well as all associated parts. Inquiries and/or requests for quotes should be accompanied by NAVSEA or BUSHIPS drawing number(s), the ship's hull number, or a sample of the component or part, if possible, to assist in identification.

7-5.1 BALLISTIC (ARMOR) DOOR.

- a. Door size (measured as height x width between inner edges of the frame with panel open).
- b. Quick-acting or individually dogged.
- c. Number of dogs, location, and type of dog (for example, side top corner, bottom corner, straight, or angle dog).
- d. Right-hand or left-hand door (determined by hinge location side).
- e. Approximate thickness of bulkhead.

7-5.2 BALLISTIC (ARMOR) HATCH.

- a. Hatch size (measured as length x width between inner edges of deck plate with hatch open).
- b. Quick-acting or individually dogged (if not quick-acting), method of operation, power operated, spring balanced, counterweighted, or hydraulic.
- c. Number of dogs, and number of straight or angle dogs.
- d. Short or long sided hinged, approximate thickness of deck.

7-5.3 BALLISTIC (ARMOR) SCUTTLE.

- a. Scuttle size (measured as diameter between inner edge of deck plate or hatch cover with scuttle open).
- b. Number of dogs.
- c. Approximate thickness of deck plate or hatch cover.
- d. Type of dog quadrant gear or individual dog.
- e. Measurement of the scuttle spindle socket (normally 7/8-inch square) should be furnished. (Refer to [paragraph 7-4.2.](#))
- f. Measurement of the hex head (across the flats) of the spindle should be furnished. (Refer to [paragraph 7-4.2.](#))

7-5.4 AUTOMATIC CATCH ASSEMBLY. The automatic catch assembly is a safety device installed on all ballistic hatches and scuttles. Complete assemblies include the catch body, plunger, spring, and handwheel. Plungers are available in mild steel, corrosion resistant steel, or bronze. Corrosion resistant steel is to be used in

weather deck, flight deck areas, or saltwater environments. Bronze plungers are designated nonsparking and are used in locations such as weapons areas, pump room accesses, or a normally potential explosive atmosphere.

Handwheels shall be drilled and tapped for an Allen head setscrew to be used as a wheel-to-shaft locking device. This feature is designed to prevent the inadvertent rotation of the handwheel. Left-hand rotation of the handwheel will cause the loss of proper spring tension and the eventual failure of the catch assembly guide pin.

NOTE

When requesting automatic catch assemblies, the location of the guide pin (left- or right-handed) must be specified, unless the installing activity intends to complete the assembly by properly installing the guide pin as required.