

## **Revised: Loading and Firing – By Detail**

It is said that when you practice slowly, you learn quickly. The artillery drill By Detail is designed to teach the gun crew the specific loading and firing exercises step-by-step. In most artillery manuals, the By Detail drill is presented so the individual artillerist will know what to do for each of the By Detail instructions. This manual presents the By Detail drill so that the entire gun crew will know what to do for each of the By Detail instructions. This is simply a reordering of the drill information, but it presents it in a way that is easier to teach and easier to learn as a group.

The commands for By Detail are as follows:

**LOAD BY DETAIL – LOAD; Two, Three, Four; SPONGE, Two, Three, Four; RAM, Two, Three; READY; FIRE; SERVICE; Two, Three, Four; SPONGE, Two, Three; CEASE FIRE**

## **By Detail Artillery Drill (By Command)**

### **CANNONEERS, POST**

**Number 1** – stands square to the front, in line with the front part of the wheels, holding the sponge about the middle of the staff in his right hand, and trailing it at an angle of 45 degrees, sponge head up.

**Number 2** – stands square to the front, in line with the front part of the wheels, holding the worm about the middle of the staff in his left hand, and trailing it at an angle of 45 degrees, worm end up.

**Number 3** – stands in line with the knob of the cascable, covering Number 1, the priming wire and vent brush in his right hand, the thumb stall on the left thumb, the tube pouch fastened to the waist.

**Number 4** – stands in line with the knob of the cascable, covering Number 2.

**Gunner** – stands 10 yards behind the left wheel.

**Number 5** – stands five yards behind the left wheel with the powder pouch slung over the left shoulder and hanging on the right side.

**Number 6** – stands to the left of the limber, centred on the wheel.

**Number 7** – stands immediately behind the limber in the centre.

**Number 8** – stands with the gunner until placed by the gunner.

## **LOAD BY DETAIL**

**Number 1** – turns to the left to face the wheel and Number 2, and brings the sponge straight up with the right arm close to his side.

**Number 2** – faces to the right to face the wheel and Number 1, and brings the worm straight up with the left arm close to his side.

**Number 3** – turns to the left to face the vent.

## **LOAD**

**Number 3** – steps forward to the vent, holds the vent brush (or prick) between the index finger and the thumb of the right hand ensuring that no part of his body is in a straight line with the wheels, inserts and removes the vent brush (or prick) to ensure the vent is clear of debris, returns the vent brush or prick to the pouch, places the thumb stall over the vent with the left elbow extended as far to the left as possible and the fingers of the left hand on the left side of the tube pointing away from the vent (this allows the Gunner to sight the gun through Number 3's left arm), and shouts "CLEAR" to signal that the tube is ready for worming.

**Number 1** –side steps to his right to bring his body just in front of the wheel.

**Number 2** – side steps to his left to bring his body just in front of the wheel.

**Number 6 & 7** – opens the limber chest, removes the correct powder charge, gives it to Number 5, and closes the limber chest. Number 6 & 7 keep the limber chest closed and secure. (The real distinction of duties between Number 6 & 7 is in the Live Fire Drill.)

**Number 5** – moves back to the limber chest, retrieves a charge from Number 6, places it in his pouch, and moves to a position next to the Gunner.

## **Two**

**Number 1** – swings his left foot around the wheel, placing his left foot between the wheel and the tube, tilts the sponge to the left and grasps it with both hands, holding it at about a 45 degree angle, forming a cross with Number 2's worm across the front of the tube.

**Number 2** – swings his right foot around the wheel, placing his right foot between the wheel and the tube, tilts the worm to the right and grasps it with both hands, holding it at about a 45 degree angle, forming a cross with Number 1's sponge across the front of the tube.

## **Three**

**Number 1** –lowers the sponge into the sponge bucket below the tube, removes the sponge from the bucket, swings his left foot forward without moving the right foot and swings the sponge to the right, outside the wheels, spins the shaft with his left hand to remove the excess water, swings his left foot backwards, and brings the sponge horizontal with the piece, just outside and to the right of the muzzle.

**Number 2** – moves his left foot forward, facing toward the right, places the worm next to the muzzle with his hands towards the ends of the staff, left hand on top and right hand on bottom, inserts the worm into the muzzle, drops the right hand behind the right thigh, bends to the right with left knee extended and right knee bent, forces the worm home with the left

hand, gives a minimum of two turns to the staff in the direction of the worm's gaining twist, draws out the worm, listening carefully to make sure that any debris is caught in the worm and is being extracted, grabs the staff near the worm on the bottom with the right hand, straightens up and brings the worm close to the body, shouts, "CLEAR" to signal that the tube is free from debris. Worming continues until the tube is free from debris. The worm is never inserted until Number 3 yells, "CLEAR."

#### **Four**

**Number 1** – turns to the left and faces the tube, inserts the sponge head into the muzzle immediately after Number 2 removes the worm and shouts "CLEAR," drops his left hand behind the left thigh, straightens his right leg while bending the left leg and leaning left toward the axle, and forces the sponge all the way down the tube.

**Number 2** – rests the worm head on the axle or the sponge/worm hook on the bottom of the carriage with the staff under the muzzle and away from Number 1 & 2, turns clockwise in the space between the wheel and the tube until facing the wheel with the back to the tube, both hands up at shoulder height to signal that he is ready to accept the powder charge from Number 5 keeping to the axle so that his body is behind the muzzle.

#### **SPONGE**

**Number 1** – looks at the vent to ensure it is closed, turns the sponge two turns to the left with both hands, turns the sponge two turns to the right with both hands, making sure that the sponge is all the way in. For best results the sponge should be pulled halfway out and rammed back in several times and turned left and right several times to ensure all embers are extinguished. If air is heard escaping from the vent, Number 1 yells, "STOP VENT." Sponging continues until there is no air escaping from the vent.

**Number 3** – adjusts the thumb stall (if "STOP VENT" is shouted) to maintain the air vacuum within the tube.

#### **Two**

**Number 1** – draws out the sponge, holding the top of the staff with the right hand, bends to the right by straightening the left leg and bending the right, grabs the bottom of the staff near the sponge head with his left hand, and places the sponge against the muzzle. There should be a ringing or thumping sound when removing the sponge is the vent is properly closed.

#### **Three**

**Number 1** – turns the sponge by throwing the sponge head up with the left hand, rotating the staff with the right hand so the right hand is on the bottom with the thumb facing away from the muzzle and catching the top of the staff with the left hand, placing the rammer to the bottom of the muzzle, and tapping the muzzle two times to signal the gunner that he is ready to ram the charge.

**Gunner** – inspects the powder charge in Number 5's pouch to ensure that it is a proper charge, and waves Number 5 forward to deliver the powder charge to Number 2.

**Number 5** – opens the pouch to presents the powder charge to the Gunner, moves forward to deliver the powder charge to Number 2 on the Gunners orders, opens and raises the pouch so Number 2 can retrieve the powder charge, and returns to the limber chest.

**Number 2** –reaches into the pouch carried by Number 5 and extracts the charge with the right hand, cups the charge with both hands close to the chest, turns counter-clockwise to face the tube, guides the charge along the bottom of the tube and carefully sets the charge just inside the muzzle, retrieves the worm in his left hand, steps outside the wheel, left foot going back first, swinging the right foot to the outside of the wheel, and left foot swinging back to return to POST position. The worm is placed on the left toe and the left arm is extended forward..

#### **Four**

**Number 1** – inserts the rammer head only into the muzzle as soon as Number 2 has inserted the charge. He releases his left hand from the staff and extends the left arm straight out, pointing toward the breech with palm down.

#### **RAM**

**Number 1** –rams the charge home with his right hand, thumb pointing away from the muzzle, by leaning to the left and almost throwing the rammer down the tube while dropping the right hand and getting as much of his upper body as possible between the axle and the end of the muzzle as a precaution against premature firing. The charge is seated by carefully taking the staff by the right hand, thumb pointed out, withdrawing it slightly, and ramming the charge firmly but lightly only once, dropping the right hand below the muzzle as soon as the rammer hits home.

#### **Two**

**Number 1** – jerks the rammer out with his right hand, thumb pointing away from the muzzle, allowing it to slide through the hand as far as the middle of the staff, grabs the staff with the left hand close to the rammer head, thumb pointing away from the muzzle, removes the rammer, stands straight with the rammer straight up, sponge head up, in the right hand with the right arm close to the body.

#### **Three**

**Number 1** – steps outside the wheel, right foot going back first, swinging the left foot to the outside of the wheel, and right foot swinging back to return to POST position. The rammer is placed on the right toe and the right arm is extended forward.

**Number 3** – jumps back to the trail handspike inserted at the end of the carriage, grabs the handspike with both hands, moves the trail in the direction that the Gunner taps the handspike until the Gunner raises both hands to signal that the gun is in position, and then returns to POST position.

**Gunner** – moves behind Number 3 on the trail handspike to site the cannon, taps the handspike in the direction he wants Number 3 to move the carriage, raises both hands when the carriage is in the proper position, and returns to POST position.

## READY

**Number 3** – steps forward to the left, ensuring that no part of his body is in a straight line with the wheels, holds the vent prick between the index finger and the thumb of the right hand making sure that no part of his hand is directly above the vent prick or inside the vent prick ring, inserts and removes the vent prick to puncture the powder charge, returns the vent prick to the pouch, holds the lanyard for Number 4 against the left rear of the tube with his right hand open flat, palm down, until Number 4 has walked out the slack and signalled Number 3 to return to post position. If Number 3 cannot prick the powder charge due to its position within the tube, Number 1 may need to Reseat the Charge (carefully ram it home one more time). If Number 3 still cannot prick the powder charge, the charge must be treated as a misfire (see Misfire Drill section).

**Number 4** – inserts the lanyard hook into the ring of a primer, steps forward to the right, ensuring that no part of his body is in a straight line with the wheels, inserts the primer into the vent, moves to the rear and the left to remove the slack in the lanyard and to get clear of the wheels, holds the lanyard in his right hand, surveys the field of fire, waves off Number 3, raises his hand as a signal to the Gunner that the cannon is ready to fire when the field is clear, lowers his hand when the Gunner raises his hand, and continues to survey the field.

**Number 1** – swings right foot backwards, right knee bent and left knee straight, covers left ear with left hand, holds sponge extended in his right hand away from the muzzle with the rammer head resting on the left foot, and keeps eyes on the muzzle, to detect a possible misfire, and on the field of fire to ensure there is no one in the field of fire.

**Number 2** – swings left foot backwards, left knee bent and right knee straight, covers right ear with right hand, holds worm extended in his left hand away from the muzzle with the staff resting on the right foot, and keeps eyes on the muzzle, to detect a possible misfire, and on the field of fire to ensure there is no one in the field of fire.

**Gunner** – raises his hand after Number 4 raises his to signal that he has command of the piece and surveys the field of fire to ensure that no one is in the field of fire.

## FIRE

**Number 4** – pulls the lanyard firmly toward his body or behind his body. If the gun fired correctly, Number 4 returns to post position.

**Number 3** – if the gun fired correctly, Number 3 automatically turns to the left to face the vent.

**Number 1** – if the gun fired correctly, Number 1 automatically turns to the left to face the wheel and Number 2, and brings the sponge straight up with the right arm close to his side.

**Number 2** – if the gun fired correctly, Number 2 automatically faces to the right to face the wheel and Number 1, and brings the worm straight up with the left arm close to his side.

## **SERVICE**

**Number 3** – steps forward to the vent, holds the vent brush (or prick) between the index finger and the thumb of the right hand ensuring that no part of his body is in a straight line with the wheels, inserts and removes the vent brush (or prick) to ensure the vent is clear of debris, returns the vent brush or prick to the pouch, places the thumb stall over the vent with the left elbow extended as far to the left as possible and the fingers of the left hand on the left side of the tube pointing away from the vent (this allows the Gunner to sight the gun through Number 3's left arm), and shouts "CLEAR" to signal that the tube is ready for worming.

**Number 1** –side steps to his right to bring his body just in front of the wheel.

**Number 2** – side steps to his left to bring his body just in front of the wheel.

### **Two**

**Number 1** – swings his left foot around the wheel, placing his left foot between the wheel and the tube, tilts the sponge to the left and grasps it with both hands, holding it at about a 45 degree angle, forming a cross with Number 2's worm across the front of the tube.

**Number 2** – swings his right foot around the wheel, placing his right foot between the wheel and the tube, tilts the worm to the right and grasps it with both hands, holding it at about a 45 degree angle, forming a cross with Number 1's sponge across the front of the tube.

### **Three**

**Number 1** –lowers the sponge into the sponge bucket below the tube, removes the sponge from the bucket, swings his left foot forward without moving the right foot and swings the sponge to the right, outside the wheels, spins the shaft with his left hand to remove the excess water, swings his left foot backwards, and brings the sponge horizontal with the piece, just outside and to the right of the muzzle.

**Number 2** – moves his left foot forward, facing toward the right, places the worm next to the muzzle with his hands towards the ends of the staff, left hand on top and right hand on bottom, inserts the worm into the muzzle, drops the right hand behind the right thigh, bends to the right with left knee extended and right knee bent, forces the worm home with the left hand, gives a minimum of two turns to the staff in the direction of the worm's gaining twist, draws out the worm, listening carefully to make sure that any debris is caught in the worm and is being extracted, grabs the staff near the worm on the bottom with the right hand, straightens up and brings the worm close to the body, shouts, "CLEAR" to signal that the tube is free from debris. Worming continues until the tube is free from debris. The worm is never inserted until Number 3 yells, "CLEAR."

### **Four**

**Number 1** – turns to the left and faces the tube, inserts the sponge head into the muzzle immediately after Number 2 removes the worm and shouts "CLEAR," drops his left hand behind the left thigh, straightens his right leg while bending the left leg and leaning left toward the axle, and forces the sponge all the way down the tube.

**Number 2** – rests the worm head on the axle or the sponge/worm hook on the bottom of the carriage with the staff under the muzzle and away from Number 1 & 2, turns clockwise in the space between the wheel and the tube until facing the wheel with the back to the tube, both

hands up at shoulder height to signal that he is ready to accept the powder charge from Number 5 keeping to the axle so that his body is behind the muzzle.

## **SPONGE**

**Number 1** – looks at the vent to ensure it is closed, turns the sponge two turns to the left with both hands, turns the sponge two turns to the right with both hands, making sure that the sponge is all the way in. For best results the sponge should be pulled halfway out and rammed back in several times and turned left and right several times to ensure all embers are extinguished. If air is heard escaping from the vent, Number 1 yells, “STOP VENT.” Sponging continues until there is no air escaping from the vent.

**Number 3** – adjusts the thumb stall (if “STOP VENT” is shouted) to maintain the air vacuum within the tube.

### **Two**

**Number 1** – draws out the sponge, holding the top of the staff with the right hand, bends to the right by straightening the left leg and bending the right, grabs the bottom of the staff near the sponge head with his left hand, and places the sponge against the muzzle. There should be a ringing or thumping sound when removing the sponge is the vent is properly closed.

### **Three**

**Number 1** – steps outside the wheel at the same time as Number 2, right foot going back first, swinging the left foot to the outside of the wheel, and right foot swinging back to return to POST position. The rammer is placed on the right toe and the right arm is extended forward.

**Number 2** – steps outside the wheel at the same time as Number 1, left foot going back first, swinging the right foot to the outside of the wheel, and left foot swinging back to return to POST position. The worm is placed on the left toe and the left arm is extended forward.

**Number 3** – returns to POST position.

## **CEASE FIRE**

When this command is issued by the Gunner or other commanding officer, the cannon crew returns to post positions and awaits further orders. If the cannon has just been fired, the cannon is serviced first. If the cannon is loaded, but not yet fired, Number 1 places the rammer on the right wheel to signal that the cannon is loaded.

Any member of the gun crew is not only allowed, but is required to shout “CEASE FIRE!” if the field of fire is not clear or if there is another potential safety problem. It is the responsibility of each member of the gun crew to act as a Safety Officer.

If the CEASE FIRE command is not given, the gun crew repeats the LOAD; Two, Three, Four; SPONGE, Two, Three, Four; READY; FIRE; SERVICE, Two, Three, Four; SPONGE, Two, Three until the CEASE FIRE command is given.

Once the gun crew understands and can demonstrate the By Detail drill proficiently, the gun crew should practice the drill without detail.

The commands without Detail are as follows:

**LOAD; READY; FIRE; SERVICE; CEASE FIRE**

For the purposes of drilling, the Instructor typically takes the role of the Gunner and issues all commands. When drilling gunners, the Instructor takes the role of Chief of the Section or another commanding officer.