



Powering Business Worldwide

Aerospace Group
Conveyance Systems Division
Carter® Brand
Ground Fueling Equipment

SM64250

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Applicable additional manuals:

SM44315 Quick Disconnect
SM44646 Hose End Regulator
SM47013 Hose End Regulator
SM60129-1 Hose End Regulator
SM349MISC Misc Adapters
SM428MISC Misc Adapters
SM40679 60427 Type Quick Disconnect
SM64001 Swivel Quick Disconnect
SM61154 Dry Break Disconnect
SM64015 Ball Valve

Maintenance Manual

Pressure Fueling Nozzle

Model 64250

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Maintenance, Overhaul & Test Instructions Model 64250 Pressure Fueling Nozzle

1.0 INTRODUCTION

This manual furnishes detailed instructions covering the maintenance and overhaul of Eaton's Carter brand Model 64250, heavy duty pressure fueling nozzle and its various options.

For ordering information and the maintenance of options to the basic 64250 pressure fueling nozzle, refer to the TABLE OF OPTIONS AND

ORDERING INFORMATION found in section 3.0. This table will reference options available to build a nozzle to specific specifications, the part number and the service manual that should be used in the maintenance of each option.

2.0 EQUIPMENT DESCRIPTION

Model 64250, pressure fueling nozzle, is a 2-1/2" pressure fueling nozzle designed for heavier duty than the standard Model 64200 nozzle. The major differences between Model 64200 and Model 64250 lie in the aircraft connecting end of the nozzle and the addition of a spring loaded nose seal. The unit is designed to mate with adapters conforming to AS24484 (superseded MS24484) or equivalent.

All older accessories, except the bonding cable, option D, utilized on Models 64200, 64201, 61428, 61429, 64348 and 64349 will mate to the new nozzle.

NOTE:

The Model 64250 interlock system depends upon the three lugs on the adapter being within the industry standard wear limits. Wear limits are specified in SAE document ARP5298 – Adapter Wear Limits. A copy can be obtained from Eaton's Carter brand distributors or through Eaton directly.

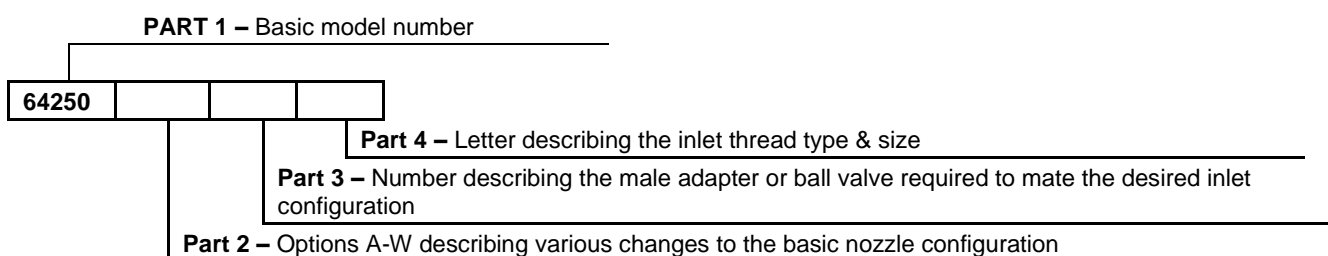
The basic nozzle would be procured under the part number 64250, which includes the dust cap. The exploded views in the figures at the end of the manual include the various options available.

3.0 TABLE OF OPTIONS AND ORDERING INFORMATION

The following table(s) should be used to determine options available when ordering a nozzle to meet end user requirements. Included in the table(s) are the service

manuals to be used in the maintenance, repair or replacement of parts designated by option letters to the basic 64250 nozzle.

The part number of a complete nozzle consists of four basic parts as illustrated below.



PART 2

Part 2 ordering options A-W describe variations to the basic nozzle configuration.

Option Letter	Description	Part Number	Service Manual
A	Adds 40-mesh Screen	44373-40	SM44315, SM61154 or SM64001
B	Adds 60-mesh Screen	44373-60	SM44315, SM61154 or SM64001
C	Adds 100-mesh Screen	44373-100	SM44315, SM61154 or SM64001
D	Adds Commercial style Bonding Cable	47235	SM64250
E	Adds Vacuum Breaker	41599	SM64250

Option Letter	Description	Part Number	Service Manual
F	Adds Hose End Regulator	44646-*, 47013-* or 40680-* (Note 1)	SM44646, SM47013 or SM60129-1
G	Replaces standard handles with long handles	47233-2	SM64250
H	Adds Drag Ring to option F (44646 only)	220870 (Note 2)	SM64250
J	Adds Flange Adapter to mate 60427 type accessories	44509	SM428MISC
K	Replaces standard on/off handle with longer one	47521	SM64250
L	Replaces standard handles with circular handle.	47488	SM64250
P	Adds Pressure Gauge with Protective Bracket	47416	SM64250
Q	Adds Fuel Sample QD	GTP-235-3/8	SM64250
R	Adds Nozzle Stowage Bracket	47232	SM64250
S	Adds 45° Nozzle Stowage Bracket	47401	SM64250
T	Adds male adapter to mate with Whittaker F582 QD	44694	SM428MISC
U	Changes Handles to Stirrup Handles	47234	SM64250
V	Replaces standard handles with one used by the UK RAF	47429	SM64250
W	Adds Military style Bonding Cable	47449	SM64250

- Notes:
- The option letter F shown is not complete and must include a 3, 4, or 5 to indicate the desired spring setting (3=35 psi, 4=45 psi or 5=55 psi) to achieve a complete option number. The type of hose end control valve used will depend upon whether a single or dual HECV, a dry break QD or ball valve is used.
 - Option H is used only with 44646 HECV.

PART 3

One of the numbers below must be included, as Part 3, as indicated above, to specify the type of inlet configuration desired. The nozzle may be ordered with the inlet terminating in an adapter half only if desired. In this case leave Part 4 blank. If a female half, quick disconnect, ball valve or dry break of some configuration is desired, Part 4 must be completed.

Option Letter	Description	Part Number	Service Manual
1	Adds HECV with flanged inlet to accept flanged accessories (See Note 1 below)	47013-*	SM47013
2	Adds HECV with inlet to accept swivel style accessories	44646-*	SM44646
3	Adds Ball Valve (See Note 2 below)	64015	SM64015
3D	Adds Ball Valve with Glass Inspection Cap	64015	SM64015
3E	Adds Ball Valve with Drag Ring	64015	SM64015
3J	Adds ball valve with separate Spanner wrench to operate unit and to remove strainer cap	64015	SM64015
3R	Adds Ball Valve with Defuel Key to change the ball valve to defuel position	64015	SM64015
4	Adds male adapter to mate thumb latch type QD	64001	SM64001
6	Adds male adapter to mate with standard bayonet type QD	44315	SM44315
7	Adds male adapter half to mate 61154 Dry Break	61154	SM61154
9	Adds male adapter half to mate with 60427 style QD	40679	SM40679

- Notes
- * Designates the dash number required to procure the correct HECV pressure setting, e.g. -35, -45 or -55 psi.
 - Option 3 D-J or R may be combined to get the desired end product.

PART 4

One of the following letters must be included as Part 4 as indicated above to specify the inlet thread and size:

Option Letter	Description	Option Letter	Description
H	Inlet thread – 2-½" NPT	N	Inlet thread – 2" BSPP
K	Inlet thread – 2-½" BSPP	P	Inlet thread – 2" NPT
L	Inlet thread – 3" NPT	Z	Inlet thread – 3" JIS used only with options 6 & 9.
M	Inlet thread – 3" BSPP		
Examples:	64250C6H – Nozzle with 100-mesh strainer, male adapter to mate with standard bayonet type QD and 2-½" NPT inlet.		
	64250CF43DEH – Nozzle with 100-mesh strainer, 45 psi regulator, 64015 ball valve with glass inspection port, drag ring and 2½" NPT inlet.		

4.0 SAFETY INFORMATION

Model 64250 nozzle was designed to improve the life of the unit over previous Carter brand nozzles. Like Model 64200, it has an improved interlocking system that does not depend on pins like older Carter brand and Whittaker nozzles. It will extend the life of the aircraft adapter as well.

Safety is still a major concern when handling the nozzle. Certain areas of the nozzle should be inspected periodically to assure that the unit is safe to use.

4.1 OPERATING ARM STOPS

The operating Arm (on-off control) (25 or 26) opening and closing is controlled by mechanical stops built into the Body (6A) of the unit. The Knob (29) is a sacrificial part that is also used for major part wear prevention.

Prior to each fueling of an aircraft it is recommended that the operator check the operating arm to be sure it is functioning correctly, by "stopping", as described above. If the stop portion of the body is worn down to where the operating arm screws are being worn, then the nozzle should be replaced.

If the knob is worn badly such that the screws are in danger of being worn then the knob should be replaced prior to the next refueling.

4.2 LEAKAGE DURING REFUELING

Any leakage from the nozzle or the mating joint with the aircraft should be cause for stopping the operation and the nozzle should be repaired or replaced. The following paragraphs describe the possible leakage paths with the 64250.

4.2.1 NOSE SEAL LEAKAGE

During the refueling operation the operator should note any leakage from any portion of the nozzle. Interlock Ring (22A) leakage will be apparent if there is fuel dripping or otherwise present at the connection between the nozzle and the aircraft adapter. If any leakage is

present during refueling, the operation should be stopped and the nozzle repaired or replaced. There are three possible leak paths, the O-ring (23) on the Interlock Ring (22A), the O-ring (9B) around the nose seal, and the Nose Seal (9A). The nozzle should be overhauled to prevent future leakage.

NOSE SEAL REPLACEMENT

The nose seal and its attendant O-ring can be replaced without a major overhaul of the nozzle.

Using a S204451 or a standard 3-lug adapter with the lugs removed, rotate the adapter in a manner similar to connecting it to an aircraft. Then remove the tool and open the nozzle. Remove the Cotter Pin (12) that secures the Poppet Assembly (13). Unscrew the poppet assembly. With the poppet out of the way one can then remove the Nose Seal (9A) and O-ring (9B). The Wave Spring (8A) may also fall out. Replace the O-ring and nose seal with new ones.

Reinsert the Wave Spring (8A) and after lubricating the O-ring (9B) on the Nose Seal (9A) push it into place. Then reinstall the poppet assembly. Adjust the Poppet using 64250ST1 (Rev B) Poppet Adjustment Gauge to assure that it is properly installed. If the gauge is not available adjust the poppet assembly such that it is installed 0.075±.010 (1.91±.25 mm) below the surface of the surrounding Locking Lug Retainer (10). Start by bottoming out the poppet and then backing it off about 1.75 turns. Insert but do not bend over the cotter pin. Close the nozzle and measure the location as noted above. If it is within the dimension reopen the nozzle and bend the cotter pin ends properly. Reference Figure 5. Using a S204451 or a standard 3-lug adapter with the lugs removed, rotate the adapter in a manner similar to disconnecting it from an aircraft. Then remove the tool and attempt to open the nozzle. It should not open.

4.2.2 OPERATING ARM LEAKAGE

If leakage is present from the area of the operating Crank Arm Assy (25 or 26) then the O-ring (35) will have to be replaced. Refueling should not continue if such leakage is present.

4.2.3 SWIVEL JOINT LEAKAGE

There are two possible leak paths from the swivel joint of the nozzle, from the O-ring (43) in the mating part or from the Gasket (2). The latter is highly unlikely. If leakage is present, stop refueling and repair or replace the nozzle.

4.2.4 NOZZLE BODY PLUGS/ ACCESSORIES

The 64250 has two accessory ports in the side of the body. The nozzle is shipped from the factory with pipe Plugs (5) installed in the accessory ports. Other accessories are available either from Eaton or other manufacturers that can be installed in one or both ports. Tightening the plugs or the accessory can normally stop leakage from either of these ports. Do not refuel with leakage from these devices.

NOTE:

Before installing another manufacturer's accessory in either port be sure that the item when installed does not interfere with the working mechanism inside the nozzle.

4.2.5 INTERFACE LEAKAGE DRAINS

The original Model 64250 did not incorporate drain holes external to the nose seal to provide drainage for the interface leakage common during disconnection. The original design study showed that there was more than sufficient volume in the locking lug retainer assembly to contain this small amount of fluid and it was deemed better to contain it than to have it run down the outside of the nozzle. However, there has been at least one reported case in which an individual removed the nozzle quickly and tipped it back towards himself, spilling the fluid on himself. This situation has been remedied by adding two (2) 1/8 inch diameter drain holes on all nozzles manufactured after 07/14/09. Eaton does not recommend that you drill the two 1/8 inch drain holes; however, several of Eaton's Carter brand equipment authorized distributors have this capability. Alternatively, the housing (housing only) can be returned to the manufacturer (using our RGA process) and we will complete the process at the factory.

5.0 SPECIAL TOOLS

The following special tools are recommended for proper repair and or overhaul of the nozzle:

- S204451 - Standard three lug bayonet adapter flange or equivalent. (This item should have a handle of a sort mounted to two of the mounting holes to assist in turning it onto the nozzle).
- 6958CG or 6958CH Adapter or equivalent.
- 61607 Ball Assembly Tool

- WL4680 Torque Wrench or Standard torque wrench is required for some disassembly and re-assembly. WL4680 includes several sockets for special usage on Carter brand products.
- 64250ST1 (Rev B) Poppet Adjustment Gauge.

The above items are available from your Eaton Carter brand distributor.

6.0 DISASSEMBLY

6.1 Remove nozzle from end of hose at quick disconnect. Refer to appropriate service manual depending upon type of swivel disconnect utilized.

<u>Service Manual</u>	<u>Description</u>
SM40679	60427 type QD
SM44315	Standard QD
SM61154	Dry Break QD
SM64001	Thumb Latch type QD
SM64015	Ball Valve
SM349MISC	Misc. adapters
SM428MISC	Misc. adapters

6.2 Screw (1) is a self-locking type screw that utilizes a nylon insert in the threads to affect the resistance required to provide the locking. They are designed to be reused a number of times before losing their locking capability. Using a torque wrench, remove Screw (1) and Gasket (2) from lower half of Body (6A), measuring the torque during removal. If the torque is less than 9.5 in lbs. (0.11-m kg) discard the screw and replace it with a new one during reassembly. Remove Balls (3), 39 each, from unit by use of the Ball Tool or by hand. On newer nozzles the Ball Tool can be used. If Ball Assy Tool 61607 is available, screw it into the boss from which Screw (1)

- was removed. Hold the nozzle such that the Tool is below the nozzle and rotate the accessory attached to the nozzle until all Balls (3) have been captured in the Tool. The correct amount of Balls (3) will be captured when the level of Balls (3) reaches the line scribed on the tube of the Tool. If the balls are to be removed by hand (without the tool) hold the bolt hole vertical (pointed down) and allow all ball bearings to fall through the bolt hole. Catch all 39 Balls (3) in a container. Some rotation between the Body (6A) and the attached accessory may be required to allow the Balls (3) to fall out of hole. Remove accessory (refer to appropriate Service Manual). If Clip (4) is to be replaced, use a pair of needle nose pliers to grasp the existing part and pull it from the hole in the Body (6A). See Figure 4. Clear the hole of any debris.
- Remove Gasket (2) from Screw (1) and discard gasket.
- Remove O-ring (43) from internal groove in the inlet of the Body (6A) and discard.
- Inspect the Ball Race Ring (6B); for wear or damage, remove if necessary. If not worn, then reuse.
- 6.3 To remove the Cover (44) or Bonding Cable (78 or 99) it is necessary to remove the appropriate Grip (46A or 46B) or Handle Assembly (49), or (94). If the Cover (44) and the Cable (78 or 99) are in good condition it is not necessary to remove either at this time. Leave them attached to the Body (6A). If they are to be removed, the Screw (47) or (52) should be removed with a torque wrench and the removal torque measured. This screw is a self-locking type and is designed to be reused several times before losing its locking capability. If the torque is less than 6.5 in-lbs. (0.078-m kg) discard it and replace it during reassembly.
- 6.4 If worn to where the Bumper (7) no longer protects the Body (6A) it should be removed, discarded and replaced. Remove the Bumper (7) by prying up the thinner end with a wide bladed screwdriver and peeling it off the Body (6A).
- 6.5 If interlock stowage Bracket (54), (79) or (88) is present, inspect to determine if it needs replacing. To replace remove Screws (56), (81) or (91) and Locking Washers (57), (82) or (92). Discard Bracket (55), (80) or (93).
- 6.6 Using an S204451 Adapter or any other standard 3-lug bayonet adapter with the three lugs removed, connect the nozzle and rotate clockwise to the open position. Remove nozzle from the 3-lug adapter.
- 6.7 Rotate Crank Arm Assembly (25 or 26) to open nozzle Poppet (19). Check to see that the poppet will swivel freely on Insert (17). If it swivels freely, further disassembly is not required; proceed to 6.8. If not, then further disassembly of the Poppet Assembly (13) is needed; proceed to 6.7.1.
- 6.7.1 Prior to disassembly of the Poppet Assembly (13) bend the ends of Cotter Pin (12) to allow it to be withdrawn. Remove the Poppet Assembly (13) from the shaft. Remove Nose Seal (9A), and Wave Spring (8B). Remove and discard O-ring (9B).
- 6.7.2 Remove Retaining Ring (14) using a small bladed screwdriver to capture the end of the ring and peel it out of the Poppet (19).
- 6.7.3 Remove one Thrust Washer (15), 22 Balls (16), then second Thrust Washer (15). Remove Poppet Insert (17), then Thrust Washer (18). Discard Thrust Washers (15) and (18). Place balls in a container for cleaning and reinsertion.
- Remove Screws (11) and Washers (11A) and then Retainer Assembly (10). Remove Locking Plate (21), Wave Spring (8B) and Interlock Ring (22A).
- 6.8 Though not necessary for overhaul, removal of the Plug(s) (5) or any accessory from Port A (Figure 1) may provide easier access (depending upon the tools you have available) for later disassembly and reassembly of the internal shaft components.
- 6.9 Remove and discard Cotter Pin (41). Rotate Link (37) to gain access to Pin (36). With an Allen wrench, hold Pin (36) in place and unscrew Nut (40). Remove Pin (36).
- 6.10 With operating handle in fully closed position, the Shaft (32), Washer (38), Pin (33) and Link (37) can now be removed from the Body (6A).
- 6.11 Pull Interlock Ring (22A) from the body. Remove and discard both Thrust Washers (22B). Remove and discard O-ring (23), then remove Backup Ring (24).
- Remove Screws (27) and Arm (25A or 26A) with parts holding Knob (29) in place. Put aside for later disassembly Washers (34), O-ring (35) and the Bearing (42B) can now be removed from the outside of the Body (6A). The Bearing (42A) is flanged and will need to be removed from inside the Body (6A) in conjunction with removal of the Shaft Assembly Crank (39). The Bearings (42A & 42B) may be difficult to unseat for removal. Care should be taken to not damage the bore of the Body (6A) especially if a sharp tool is used to dislodge. Discard all of the parts removed from the shaft bore. Remove Screw (28), Nut (31) and Clamp (30) to replace Knob (29).
- On option E - remove the Vacuum Breaker (20) only if replacement is required. The Vacuum Breaker (20) is not economical to

repair and should be replaced, if needed, as a complete assembly. **Attempts to repair this unit may result in fuel spills.**

If Option P, Pressure Gauge & Bracket Assembly (88), is present then inspect to

determine if it needs replacing. Replace only if there is a leak from the pipe thread where installed, or if the gauge is broken. If the Bracket (93) is worn, remove and discard. To remove Bracket (93) remove Screws (91) and Washers (92).

7.0 INSPECTION

It is recommended that all O-rings (9B), (23), (35) & (43), Gasket (2), Backup Ring (24), Thrust Washers (22B) & (34), Cotter Pins (12) & (41), Knob (29) and Bearings (42A) & (42B) be replaced upon every overhaul. If Poppet Assembly (13) has been disassembled then Thrust Washers (15) and (18) should also be discarded if disassembled. Inspect all metal parts for dings, gouges, abrasions, etc. Replace any part with damage exceeding the wear limits below:

- Both holes in Link (37) - .196 inch (4.98 mm) diameter max. & .318 inch (8.08 mm) diameter max.
- Hole in Shaft (32) – .198 inch (5.03 mm) diameter max.
- Bearing diameter of Pin (33) - .186 inch (4.70 mm) diameter min.
- Shaft (32) – No part shall be less than .621 inch (15.77 mm).
- Locking Plate (21) – Visually check for wear on the corners of the tabs protruding

from the outer diameter. If the corners are rounded off, replace this part.

- Ball Race Ring (6B) – If the diameter of the wire is less than 0.075 inches (1.905 mm) at any place around the major diameter or there are obvious worn or flat spots, replace it.
- Retainer (10) – Carefully inspect for any cracks. Replace as needed.
- If present inspect Bracket (55), (80) or (93) for wear that will cause the item to be non-functional.
- If present inspect Drag Ring (77) and the adjacent HECV. If the ring is worn to a point where the HECV body is being dragged, replace the ring.
- If present inspect Gauge (89) for damage and replace if needed.
- The nose seal should be carefully inspected for cuts or wear. It may be reused if it is in good condition. Replace if unsure.
- Inspect Interlock Ring (22A) for wear on the “tang” that provides the interlock. If excess wear is evident then replace.

8.0 REASSEMBLY

- 8.1 Make certain all components are clean and free from oil, grease, or any other corrosion resistant compound on all interior or exterior surfaces. Wash all parts with cleaning solvent, and dry thoroughly with a clean, lint-free cloth, or compressed air.

WARNING:

Use cleaning solvent in a well-ventilated area. Avoid breathing of fumes and excessive contact of solvent with skin. Keep away from open flame.

DO NOT use any form of grease on Balls (3) and be certain to install proper number of balls in each hole of Body (6A) and collar assembly. Count the number of Balls (3) to be sure that a total of 39 are to be replaced. Also make sure that Clip (4) is installed properly to maintain continuity through the unit. Refer to Figure 4 for installation information.

NOTE: A light coat of petroleum jelly can be applied to all O-rings, springs, and non-locking screws for ease of installation.

- 8.1.1 If Crank Arm Assy (25 or 26) was disassembled to replace Knob (29), refer to Figure 1 for assembly. Insert Screw (28) through hole in Crank Arm (25A or 26A), place Knob (29) onto Screw (28), install Clamp (30) then Nut (31), tighten assembly and set aside. If the three screws (27) that connect the Crank Arm to the Crank (39) are loose or need to be replaced, add Locktite (27A) and torque these screws to between 29 and 31 inch lbs.
- 8.1.2 Prepare shaft linkage for insertion into Body (6A). Hold Link (37) between thumb and forefinger of one hand and attach Shaft (32) to link using Pin (33) using other hand. With hose disconnect end of nozzle facing up, insert assembled shaft linkage into center of nozzle body. Insert long side of Link (37) into inner groove of Nozzle Body (6A).
- 8.1.3 Lay Nozzle Body (6A) on its side, and insert Bearing (42B) into shaft bore. Place flanged Bearing (42A) over Shaft Assy Crank (39) then from inside the Nozzle Body (6A) insert Shaft Assy Crank and Bearing (39 & 42A) through shaft bore and Bearing (42B).

- 8.1.4 Connect shaft linkage, refer to Figure 1. Place Washer (38) between Link (37) and Shaft Assy Crank (39). A light coating of petroleum jelly, on one side of Washer (38) will help hold it in place over crank pin hole in either Link (37), or Shaft Assy Crank (39).
- 8.1.5 Thoroughly thread Crank Pin (36) through Link (37), Washer (38) and into Shaft Assy Crank (39). **NOTE:** If using a standard T handle hex key to thread Crank Pin (36), it may be easiest to reach the head of the Pin (36) from outside the body through one of the accessory ports.
- 8.1.6 Secure linkage using Nut (40). Torque Nut (40) from 80-125 in-lbs, (9-14.1 N-m), as required to align slots in Nut (40) with hole in Pin (36).
- 8.1.7 Insert Cotter Pin (41) into hole in Pin (36). Ends of Cotter Pin (41) should be bent with one end wrapped around the bottom, flat point of Pin (36). The other end is bent downward (180 ° opposite) toward the Crank (39).
- 8.1.8 With the Crank (39) firmly seated in shaft bore install one Thrust Washer (34), O-ring (35), then second Thrust Washer (34).
- 8.1.9 To ensure proper actuation of internal linkage assembly with Crank Arm Assy (25 or 26), position both to "closed" for connecting. The Pin (36) will be approximately aligned with the continuity clip when in the closed position. Then with arm positioned to closed, align holes in Crank Arm (25A or 26A) with holes in Shaft Assy Crank (39). Using Loctite (27A), tighten and torque Screws (27) at 29 to 30 in-lbs, (3.3-3.4 N-m).
- 8.1.10 Reinstall the Plug(s) (5). **NOTE:** The Plug (5) has a sealant already in place and can be reused several times. If Teflon tape is used on reinstallation, do not utilize more than 1 1/2 wraps of tape. Excessive use of tape could lead to the cracking of the Body (6A).
- 8.1.11 Insert Backup Ring (24) into groove (outlet end) of Body (6A). Backup Ring should be seated in lowest part of groove nearest the inlet.
- 8.1.12 Insert O-ring (23) into same groove as the Backup Ring (24). **NOTE:** O-ring should be seated on top of Backup Ring.
- 8.1.13 If desired, apply a very light coating of petroleum jelly to both Thrust Washers (22B) and center both over the opening in the outlet side of Body (6A).
- 8.1.14 Insert the Interlock Ring (22A) into top of opening, outlet end of Body (6A). The "tang" should align slightly to the right of the interior groove in which the Link (37) slides up and down.
- 8.1.15 Place Wave Spring (8B) over Interlock Ring (22A). Then install Locking Plate (21) over both. **NOTE:** Ensure the 3 tabs on the Interlock Plate (21) are resting in the 3 deepest tab slots on the surface of the Interlock Ring (22A). The square pins on the Interlock Plate (21) must face away from the Interlock Ring (22A).
- 8.1.16 Install Locking Lug Retainer Assy (10) on outlet end of Body (6A) and secure in place using the 12 Screws (11) and 12 Washers (11A). After inserting Locking Lug Retainer Assy (10) on top of nozzle, align screw holes and place the outlet end of nozzle on your work surface. Place one Washer (11A) over one Screw (11) and thread through hole in flanged top of Body (6A). Gradually tighten screws in an alternating pattern, from opposite sides, until all are secure. Final torque on all 12 screws is at 50 in-lbs, (5.6 N-m).
- 8.1.17 If Bumper (7) was removed from unit for wear, replace with a new one. It may be helpful to soak Bumper (7) in boiling water for 5 to 7 minutes to make it more pliable.
- 8.1.18 Insert Wave Spring (8A) into the cavity in Interlock Ring (22A).
- 8.1.19 Place O-ring (9B) into groove on bottom of Nose Seal (9A) and insert into outlet end of Nozzle Body (6A).
- 8.1.20 If the Poppet Assembly (13) was disassembled, the use of tweezers will aid reinstallation of the 22 Balls (16). Place the Poppet (19) on a level work surface with opening facing up. Install the white Thrust Washer (18) into the Poppet (19), followed by the Poppet Insert (17). Slip one black Thrust Washer (15) over Poppet Insert (17). **NOTE:** The Thrust Washers (15) are beveled. Flat edge of Thrust Washers should face "away" from the Balls (16), with beveled or rounded edge facing "toward" the balls. Next, place the 22 Balls (16) between Poppet Insert (17) and Poppet (19). Install second black Thrust Washer (15) over Poppet Insert (17). Carefully wind Retaining Ring (14) into groove in Poppet (19). Be sure the Retaining Ring (14) is seated completely in the groove when finished.
- 8.1.21 With nozzle in the open position, install, then adjust Poppet Assy (13). The standard poppet adjustment tool used on previous Carter brand nozzles will not work on the 64250. The adjustment gauge for this nozzle is part number 64250ST1. If the gauge is not available, a good starting point in adjusting the poppet is to bottom the poppet onto the Shaft (32), then back it out approximately 1.75 turns. Once the adjustment is made, rotate the Poppet toward the tightening direction until the next slot in the Poppet (19) is in line with the hole in the Shaft (32). Insert the Cotter Pin (12) but do not bend the ends at this time. Close the nozzle and measure the distance from the top face of the poppet to the top face of the Locking Lug Retainer Assy (10). It should be 0.075±.010 (1.91±.25 mm). If not within this range remove the cotter pin and readjust until

- the correct dimension is achieved. Then bend over the ends of the Cotter Pin (12) to retain in place in accordance with Figure 5. **NOTE:** It is important that the correct length of Cotter Pin (12) is utilized for the assembly.
- 8.1.22 With hose end of nozzle facing up, look into the nozzle body. There are two concentric grooves at the inlet end. The first groove, nearest inlet is the O-ring groove and the larger inner groove the ball race. Install Ball Race Ring (6B) into the ball race. Ball Race Ring (6B) should be positioned flush against the outer edge of ball race, nearest the nozzle inlet.
 - 8.1.23 Install O-ring (43) in the outer most groove of the nozzle inlet.
 - 8.1.24 If the any of the grips or handles requires replacing due to wear or the replacement of the Cover (44), the new grips or handles shall be reinstalled using the appropriate screws and washers.
 - 8.1.25 Before connecting nozzle to an HECV or inlet adapter, ensure Continuity Clip (4) is properly installed. Refer to Figure 4 for installation information.
 - 8.1.26 Insert HECV or inlet adapter to Nozzle Body (6A). Refer to appropriate QD service manual if necessary.
 - 8.1.27 Either by hand, or by using the Ball Assy Tool 61607 screwed into the swivel boss, on lower half of Body (6A), insert all 39 Balls (3) into hole. Some rotation of the Body (6A) on the QD will be necessary to allow Balls (3) to enter through the boss.

- 8.1.28 Place Gasket (2) over Screw (1) and thread into boss on lower half of Body (6A) to secure swivel Balls (3). This screw is a self-locking type screw and is designed to be used a number of times. To test nylon locking element; measure running torque required to turn screw after initial break-away torque has been applied, or before screw has bottomed out. If torque required to turn Screw (1) is less than 9.5 in-lbs. (1.1 N-m), discard and replace screw with a new one.
- 8.2 **CRITICAL ASSEMBLY NOTE:** Where applicable, on assembly of a flanged accessory to this nozzle, the following torque sequence and values for the mating to the nozzle should be used:
 - 8.2.1 The six screws accompanying the accessory should be torqued to 75-79 in-lbs. (8.5-9 N-m). Tighten all screws to bottom the heads against the flange without over tightening.
 - 8.2.2 Then start with one screw, mentally numbered "1" working in a clock-wise pattern, tightening approximately to half of the end torque values above. Skip across to screw "4" followed by "6", "2", "5" and finally "3".
 - 8.2.3 Repeat the tightening at the final torque value above in the same pattern.
 - 8.2.4 If Gauge (89) is to be replaced use a maximum of 1 ½ wraps of Teflon tape on the Bushing (90) when installing into Body (6A) to prevent cracking the boss wall. The Gauge (89) can be installed in either port.

9.0 TEST

9.1 The following test procedures need to be accomplished after an overhaul:

9.2 Test conditions

Testing fluid shall be JP-4, Jet A (or an odorless kerosene), or commercial solvent 140.

9.3 Functional Test

9.3.1 The nozzle shall be inserted and locked into a test adapter, Carter brand 6958CG or CH or equivalent and the nozzle valve actuated by use of the Crank Arm Assy (25) or (26) from the fully closed to fully open position a

minimum of five times. There shall be no evidence of binding or excessive force required for valve actuation.

9.4 Leakage Test

9.4.1 With the nozzle outlet in the normal open position and the test adapter outlet closed, pressurize the inlet to five psi and hold for one-minute minimum. There shall be no evidence of external leakage from the nozzle.

9.4.2 Repeat the leakage test at 60 psi and 120 psi.

9.4.3 Close and disengage the nozzle and repeat 9.4.1 and 9.4.2.

10.0 ILLUSTRATED PARTS CATALOG

Table 1.0 tabulates the parts and sub-assemblies comprising the 64250 Pressure Fueling Nozzle. The item numbers of the table

are keyed to the exploded views of the nozzle diagrammed in Figures 1 through 5.

TABLE 1.0

The following table presents all items used in the basic 64250 Nozzle and its possible options. The column headed by "Spares/10 Units/Yr." represents our best estimate as to the spare parts needed to support 10

basic nozzles (and some of its options) for a one-year period. All items that show a need for 10 or more items are provided in the appropriate overhaul kit.

Item No.	Part Number	Description	Qty/ Assy	Used on Option	Spares/10 Units/Yr.
1	220484	Screw	1	All	-
2	MS29512-03	Gasket	1	All	10
3	221075	Ball	39	All	-
4	209853	Clip, continuity	1	All	-
5	210388	Plug	2	All use 2 except E & P	-
-	47519	Body Assembly	1	All	-
6A	221654	Body	1	All	-
6B	220893	Ring, Ball Race	1	All	-
7	221656	Bumper	1	All	5
8A	305-07	Wave Spring	1	All	-
8B	305-08	Wave Spring	1	All	-
9A	221632	Nose Seal	1	All	10
9B	201201-145	O-ring	1	All	10
10	47518	Locking Lug Retainer Assembly	1	All	-
11	1112MTH6D188	Bolt, Hex Hd	12	All	-
11A	NAS620C10L	Washer	12	All	-
12	GF24665-368	Cotter Pin	1	All	10
13	No part number	Poppet Assembly	1	All	-
14	RRN-100S	Ring, Retaining	1	All	-
15	91124A111	Washer, Thrust	2	All	10
16	GF19060-508	Ball	22	All	-
17	221008	Insert, Poppet	1	All	-
18	95606A260	Washer, Thrust	1	All	10
19	221010	Poppet	1	All	-
20	41599	Vacuum Breaker	-	E	-
21	221657	Locking Plate,	1	All	-
22A	221658	Interlock ring	1	All	-
22B	221011	Washer, Thrust	2	All	20
23	201201-148	O-ring	1	All	10
24	221617	Backup ring	1	All	10
25	47486-1	Crank Arm Assembly	1	All but K	2
25A	221017	Crank Arm, Std.	1	All but K	-
26	47486-2	Crank Arm Assembly, Extended	1	K	2
26A	221317	Crank Arm	1	K	-
27	221012	Screw	3	All	-
27A	#242	Loctite	A/R	All	A/R
28	GF24693C296	Screw	1	All	-
29	221019	Knob	1	All	10
30	221015	Clamp	1	All	-
31	90044A029	Nut	1	All	2
32	221005	Shaft	1	All	-
33	D9-437	Pin	1	All	-
34	95606A210	Washer, Thrust	2	All	20
35	MS29513-208	O-ring	1	All	10
36	221014	Pin, Crank	1	All	-
37	220994	Link	1	All	-
38	5702-240-30Z2	Washer	1	All	-
39	47209	Shaft Assembly, Crank	1	All	-

Item No.	Part Number	Description	Qty/ Assy	Used on Option	Spares/10 Units/Yr.
40	GF320C4	Nut	1	All	-
41	GF24665-1013	Cotter Pin	1	All	10
42A	10L14-F	Bearing, Flanged	1	All	10
42B	10L12-D	Bearing	1	All	10
43	M25988/1-235	O-ring	1	All	10
44	221026	Cover, Dust	1	All	5
45A	47233-1	Handle Assy, Std	2	Std	
46A	221020-1	Grip, Std	2	Std	
47	GF16997-97L	Screw	2	Std	
48	GF960C616	Washer	2	Std	
49	47429	Handle Assy, UK Style	2	V	
50	221566	Extension	2	V	
51	207808	Grip	2	V	
52	221691	Screw	2	V	
53	GF960C616	Washer	2	V	
54	47232	Holder Bracket Assembly	1	R	-
55	221071	Bracket	1	R	-
56	GF16997-60L	Screw	2	R	-
57	98437A112	Washer, Locking	2	R	-
58	47234	Stirrup Handle Assembly	1	U	-
59	221001	Handle	1	U	4
60	221003	Support	4	U	-
61	GF16997-103	Screw	2	U	-
62	5851-17	Washer	2	U	-
63A	44646-*	Regulator (Note 1)	-	F3, F4, F5	-
63B	47013-*	Regulator (Note 1)	-	F3, F4, F5	-
63C	60129-1*	Regulator (Note 1)	-	F3, F4, F5	-
64	44316	Adapter - (Note 2)	-	6	-
65	44373-**	Screen Assy - (Note 2)	-	A, B, C	-
66	44317-*	Female QD - (Note 2)	-	6	-
67	44694	Adapter – mates Whittaker QD (Note 3)	-	T	-
68	44185	Short Male Adapter – for use with option F only (Note 4)	-	4, 7	-
69	44697	Male Adapter – for use w/o option F only (Note 4)	-	4,7	-
70A	64001*	Female QD (Note 7)	-	4	-
70B	61154*	Female Dry Break QD (Note 7)	-	7	-
71	210641	Clip, Safety – used with options 4 or 7 only.	-	4, 7	-
72A	43046	Male Adapter Assy – for use with option F (Note 5)	-	F9	-
72B	44362	Male Adapter Assy – for use w/o option F (Note 5)	-	9	-
73	41767-*	Screen Assy for use with option 9. (Note 5)	-	9	-
74	43108-*	Female QD (Note 5)	-	9	-
75	64015*	Ball Valve (Note 6)	-	3H, 3L, 3P	-
76	44509	Male Adapter – 60427 Flange	-	J	-
77	220870	Drag Ring (for use with option F only)	-	H	10
78	47235	Cable, Bonding	-	D	-
79	47401	45° Nozzle Stowage Bracket Assy.	1	S	-
80	221534	Bracket	1	S	-
81	GF16997-60L	Screw	2	S	-
82	98437A112	Washer, Locking	2	S	-
88	47416	Pressure Gauge/Protective Bracket Assy	1	P	-
89	80673	Gauge	1	P	2

Item No.	Part Number	Description	Qty/ Assy	Used on Option	Spares/10 Units/Yr.
90	5406-06-02	Reducer Bushing	1	P	-
91	GF16997-60L	Screw	2	P	-
92	98437A112	Washer, Locking	2	P	-
93	47415	Bracket	1	P	-
94	47488	Circular Handle Assembly	1	L	-
95	207816	Circular Grip	1	L	5
96	221687	Handle	2	L	-
97	GF960616	Washer	2	L	-
98	GF16997-97L	Screw	2	L	-
99	47449	Military Style Bonding Cable Assy	1	W	-
100	GFP-235-3/8	Fuel Sample QD	1	Q	-

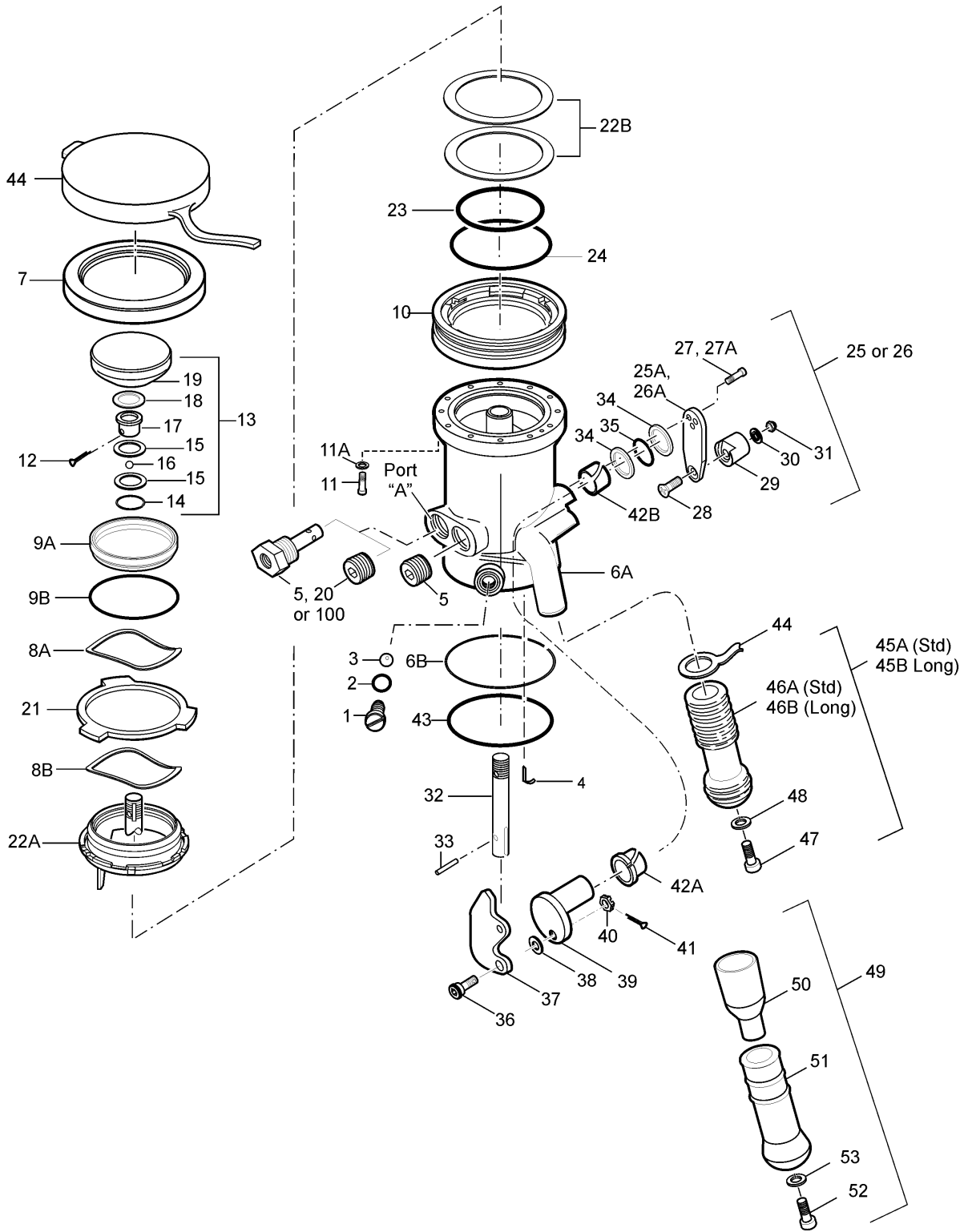


FIGURE 1

64250 PARTS BREAKDOWN

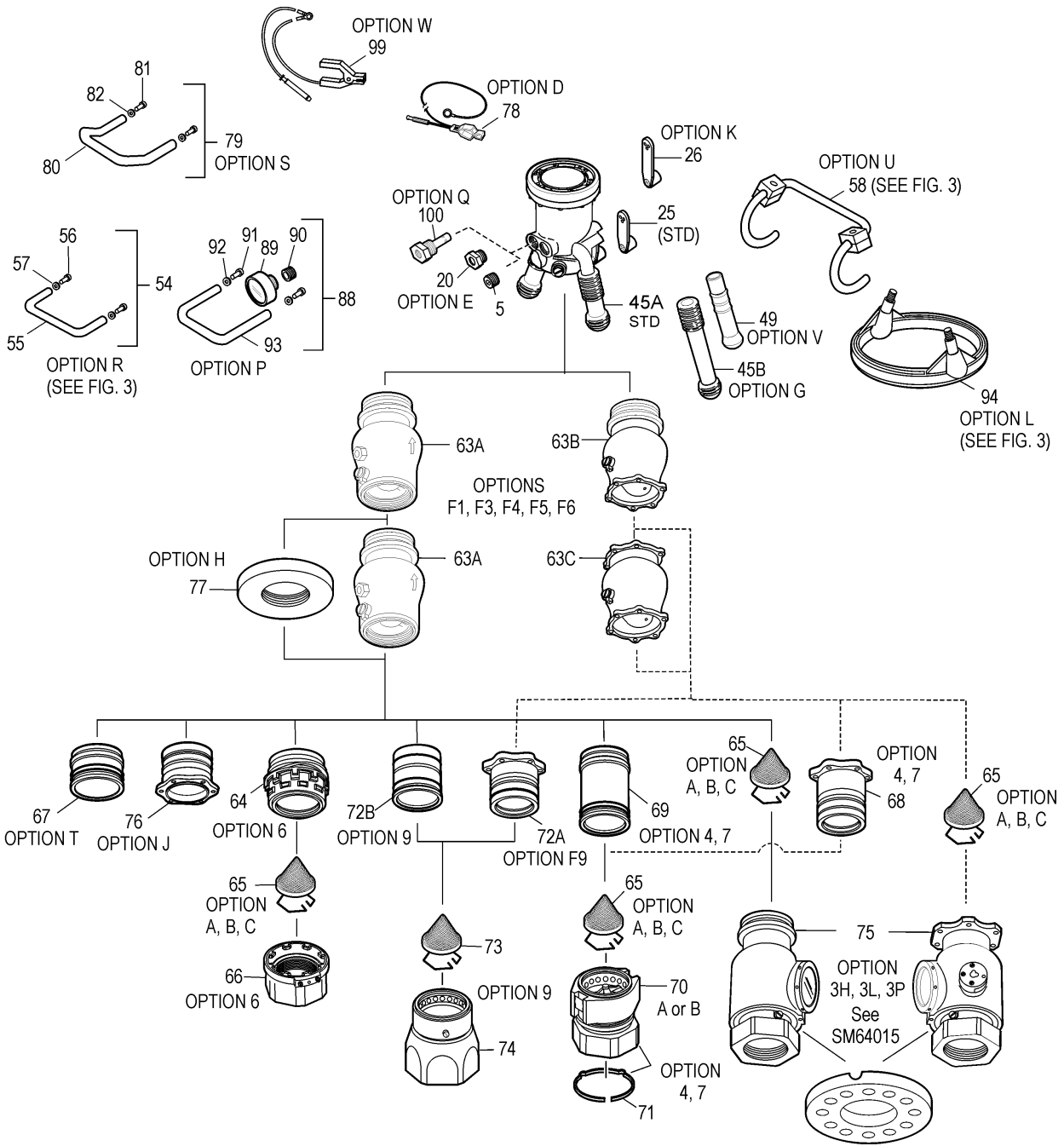


FIGURE 2 - 64250 OPTIONS

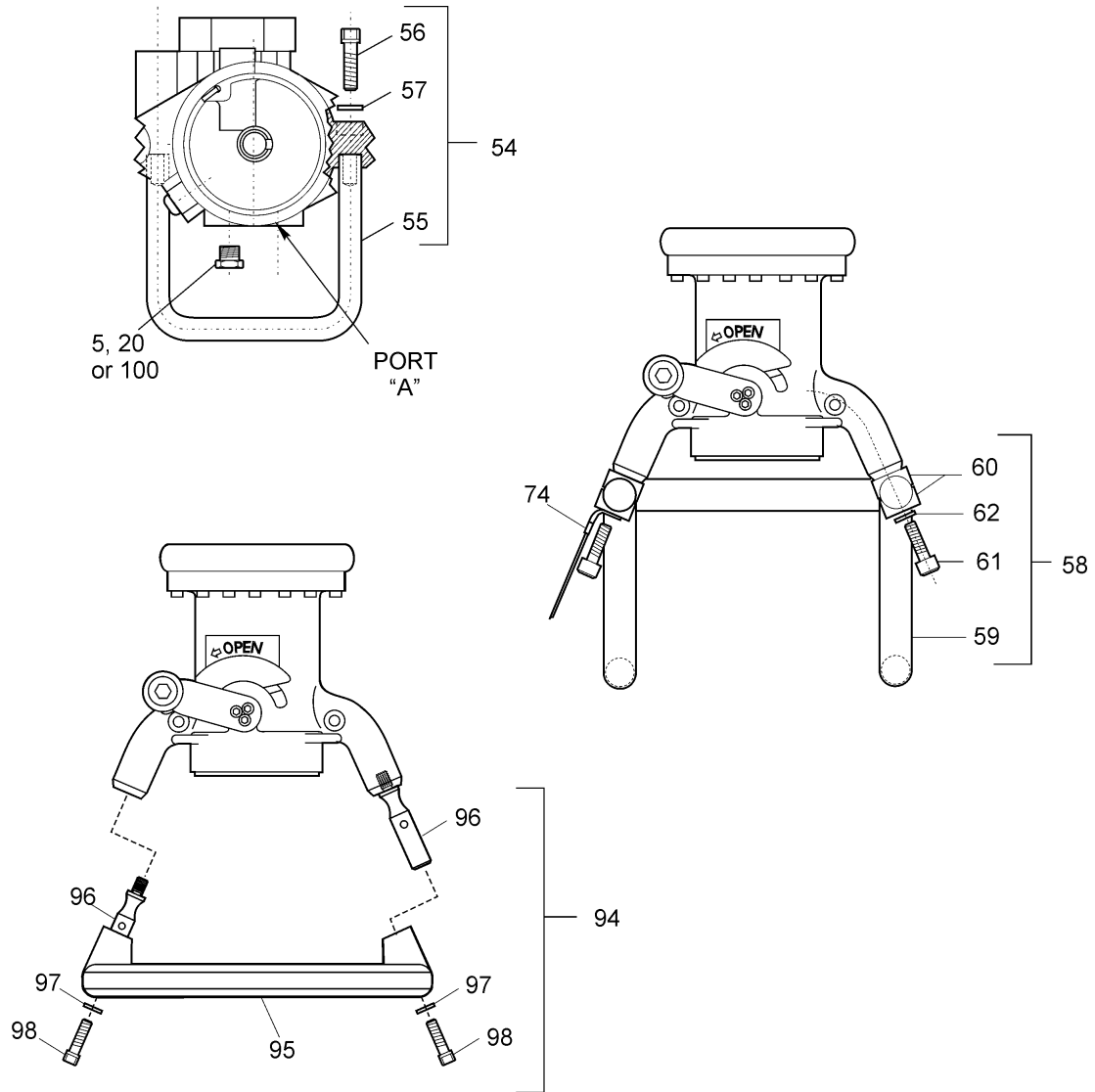


FIGURE 3

Holder Bracket, Circular and Stirrup Handle Installations

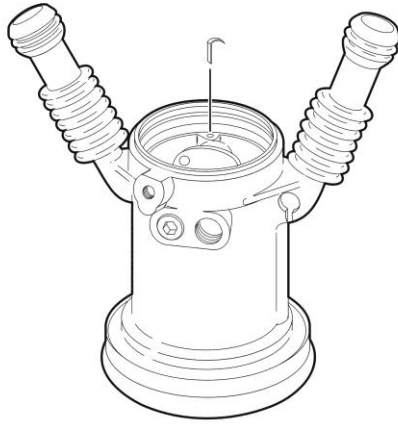


FIG. 4A
CONTINUITY CLIP INSTALLATION (4)

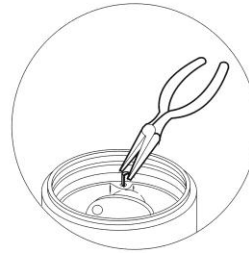
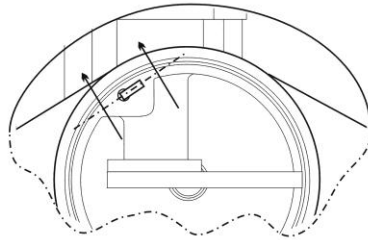


FIG. 4B
REMOVING CLIP (4)



OVERHEAD VIEW



FIG. 4C
CORRECT CLIP INSTALLATION (4)

FIGURE 4
CONTINUITY CLIP INSTALLATION

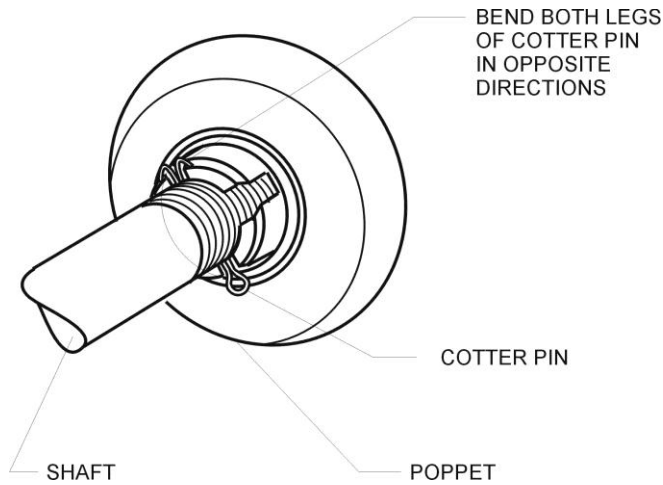


FIGURE 5
POPPET/COTTER PIN INSTALLATION

TABLE 2 – KITS

KITS – Kits provided by Eaton are a more economical way to obtain recommended parts to overhaul or repair a unit. They also insure that genuine Eaton parts are used in such repairs. The following kits are recommended for the various options noted and their content is based on experience. If any customer desires a special kit simply ask for it with the part numbers desired in the kit and the quantity and it will be made available. The kit contents shown in this document may not necessarily be the latest. Service manuals are changed on an irregular basis and may not be as up to date as kit drawings used to produce them. If a kit ordered is different than that shown in this document the content shipped will be in accordance with the latest production drawings.

Kit Part Number	Description	Kit Contents – Items from Table 1
KD64250-1	To maintain the basic nozzle only	Items 2, 4, 7, 9A, 9B, 12, 15, 18, 22B, 23, 29, 34, 35, 41, 42A, 42B, 43, & 46A. (Note some parts may not be needed on every overhaul. See Note 9.)
KD64250-2	To maintain option 6 QD only (44315-*)	207807 Seal, 210174-337 Quad-Ring, & M25988/1-040 O-ring. See Note 9.
KD64250-3	To maintain option 7 dry-break QD only (61154*)	201201-233 O-ring, 207807 Seal, 209976-1 Wear ring, 209976-2 Wear ring, 221266 O-ring & M25988/1-040 O-ring. See Note 9.
KD64250-4	To maintain option 9 QD only (40679)	201201-231 O-ring, 207807 Seal, & M25988/1-040 O-ring. See Note 9.
KD64250-5	To maintain option F with 44646 HECV. This kit is identical to KD44646-1 and if ordered separately replace with kd44646-1.	Items 2, 4 & 207807 Seal, 220724-007 Quad-ring, 23893 Seal, 24059 Spacer, 24085 Seal, 600-001-10 Seal, LP515-8R7 Screw, LP526C1024R8 Screw, M25988/1-040 O-ring, M25988/1-235 O-ring, MS29512-03 Gasket, MS29513-126 O-ring, MS29513-147 O-ring & MS29513-229 O-ring. See Note 10.
KD64250-6	To maintain option F with 47013 HECV. This kit is identical to KD47013-1 and if ordered separately replace with KD47013-1.	207807 Seal, 220724-007 Quad-ring, 23893 Seal, 24059 Spacer, 24085 Seal, 600-001-10 Seal, LP515-8R7 Screw, LP526C1024R8 Screw, M25988/1-040 O-ring, MS29512-03 Gasket, MS29513-126 O-ring, MS29513-147 O-ring & MS29513-229 O-ring. See Note 10.
KD64250-7	To maintain option F with 60129-1 HECV. This kit is identical to KD60129-1 and if ordered separately replace with kd60129-1.	201201-151 O-ring, 220724-007 Quad-ring, 23893 Seal, 24059 Spacer, 24085 Seal, 600-001-10 Seal, LP515-8R7 Screw, LP526C1024R8 Screw, MS29513-126 O-ring, MS29513-147 O-ring & MS29513-229 O-ring. See Note 10.
KD64250-8	To maintain option 3 ball valve (64015*)	209853 Clip, 207807 Seal, M25998/1-040, 201201-151, MS29513-038, MS29513-111, MS29513-149 & MS29513-155 O-rings, 220068 Seal & MS29512-03 Gasket.
KD64250-9	To maintain basic nozzle excluding handle grips.	Items 2, 4, 7, 9A, 9B, 12, 15, 18, 22B, 23, 29, 34, 35, 41, 42A, 42B, & 43
KD64250-10	To replace the interlock ring, nose seal and everything outlined in the -11 & -12 Kits described below. (See PN25011152010 for additional information)	Part numbers 221656 (Item 7), 221632 (Item 9A), 201201-145 (Item 9B), 47518 (Item 10), 1112MHT188 (Item 11), NAS620C10L (Item 11A), GFF24665-368 (Item 12), 221658 (Item 22A), 221011 (Item 22B), 22201201-148 (Item 23) & 221617 (Item 24) ,
KD64250-11	To replace the interlock ring, thrust washers, a cotter pin, and soft goods necessary to complete the upgrade per PN25011152010	Part numbers 201201-145 (Item 9B), GFT24665-368 (Item 12), 221658 (Item 22A), 221011 (Item 22B), 201201-148 (Item 23) & 221617 (Item 24)
KD64250-12	To replace the locking lug retainer assembly and bumper necessary to complete the upgrade per PN25011152010	Part numbers 221656 (Item 7), 47518 (Item 10), 1112MHT188 (Item 11), NAS620C10L (Item 11A), & 221617 (Item 24)

Notes:

1. Refer to SM44646, SM60129-1 or SM47013, as appropriate, for detail information. * Add pressure rating to part number to complete it. The type of regulator used depends upon the rest of the options ordered.
2. Refer to SM44315 for detail information. On screen add mesh size 40, 60 or 100 in lieu of "" to complete part number. On 44317-* add correct dash number (1-6) to complete part number.
3. Refer to SM349MISC for detail information.
4. Refer to SM64001 or SM61154 for detail information.

5. Refer to SM40679 for detail information.
6. Refer to SM64015 for detail information.
7. Refer to SM64001 or SM61154 for detail information.
8. All part numbers beginning with "GF" are interchangeable with those beginning with either "AN" or "MS". If three numbers follow the "GF" it is interchangeable with an "AN" part; otherwise it is interchangeable with an "MS" part of the same number.
9. Kits so noted can be combined, e.g. 64250-1-2 to obtain complete kit to fit the particular nozzle in use. However – 2 through –4 are exclusive and only one can be used in any one-part number.
10. These kits are designed to allow one to order a combination kit as noted in note 9 above only. If either the KD64250-5, -6 or –7 Kits are to be ordered use KD44646-1, KD47013-1 or KD60129-1 respectively.

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