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Aerospace Group  
Conveyance Systems Division  
Carter® Brand Ground Fueling Equipment

**SM61429AGJ**

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Applicable addition manuals:

SM429MISC

**Maintenance Manual**

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**Pressure Fueling Nozzle** TYPE D-2 (NSN 4930-01-318-1479)

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**Model 61429AGJ**

**TABLE OF CONTENTS**

	<u>PAGE</u>
1.0 INTRODUCTION .....	3
2.0 EQUIPMENT DESCRIPTION/OPERATION .....	3
3.0 DISASSEMBLY.....	6
4.0 INSPECTION .....	8
5.0 SPECIAL TOOLS.....	8
6.0 REASSEMBLY.....	8
7.0 TEST.....	10
8.0 ILLUSTRATED PARTS CATALOG.....	11
FIGURE 1 .....	13
FIGURE 2 .....	14

## MAINTENANCE, OPERATION, OVERHAUL & TEST INSTRUCTIONS CARTER GROUND FUELING PART NUMBER 61429AGJ

### 1.0 INTRODUCTION

This manual furnishes detailed instructions covering the operation, maintenance and overhaul of Carter

Ground Fueling Co. Part Number 61429AGJ Pressure Fueling Nozzle.

### 2.0 EQUIPMENT DESCRIPTION AND OPERATION

#### 2.1 DESCRIPTION

The Carter Ground Fueling Part Number 61429AGJ, Pressure Fueling Nozzle, is a 2 1/2 inch Pressure Fueling Nozzle that has been qualified to MIL-N-5877, Rev D and listed on that QPL. The exploded view includes options A, G and J. The unit is designed to mate with adapters conforming to MS24484 or equivalent. The 61429AGJ supersedes the previously qualified 61429AJL. The only difference between the nozzles is basically the type and shape of the handle grips. The current nozzle utilizes a longer grip than the older model. The older version can accommodate the longer grip as noted herein.

Collar (8A) is positioned over a flat on the Lever (14) in a manner that prevents opening the Poppet (15 or 15A).

The three Index Pins (21) mate with three slots in a serviceable MS24484 Adapter Flange to index the nozzle to the flange so the Collar (8A) mates with the flange lugs during engagement and prevents disengagement of the Collar (8A) from the flange without releasing the three spring loaded Collar Lock Pins (19) to the collar lock positions.

#### 2.2 EQUIPMENT OPERATION

##### 2.2.1 SAFETY INTERLOCKS

It is vital that each nozzle operator understand that there are several safety interlock features designed into the 61429AGJ Nozzle that must be functioning to prevent an accident that would result in spill of flammable liquids with the consequential risk of fire, personal injury or death, and property damage. Refer to Table 1.0 and Figures 1 and 2 to identify individual parts during the following discussion.

##### 2.2.1.2 LEVER/COLLAR INTERLOCK AND OVER CENTER LINKAGE

Examination of the center portion of the Lever (14) on a disengaged nozzle discloses the fact that a portion of the edge of the Lever (14) is beneath the flat portion of a ramp that is integral to the Collar (8A). With the Collar (8A) locked by the Collar Lock Pins (19), the Collar (8A) ramp prevents rotation of the Lever (14) to the poppet open position. The physical shape of the interlock area of the Lever (14) may vary. On newer nozzles, a ramped "bump" will be apparent. This was added to improve the interlock characteristics of the nozzle. Also on some nozzles a separate wear Plate (8B) made of stainless steel has been added to the Collar (8A) where the Lever (14) tends to interfere. This wear Plate (8B) is attached by two screws. The wear Plate (8B) was added to improve the tolerance condition between the Collar (8A) and the Lever (14) and to eliminate the potential for galling of aluminum to aluminum. Later versions will not utilize the wear Plate (8B) because the Collar (8A) will be machined to better control tolerances and the Lever (14) will be made of a different alloy, ZA-12, that will not gall on aluminum.

##### 2.2.1.1 COLLAR LOCK AND INDEX PINS

Examination of the connection end of a disengaged nozzle (nozzle not connected to an adapter) discloses the three Collar Lock Pins (19) and three Index Pins (21) installed between the Collar (8A) and the Nozzle Seal (41).

The three spring loaded Collar Lock Pins (19) engage three cutouts (arched shaped windows) in the flange of the Collar (8A) when the Collar (8A) is in the full disengaged position and these Collar Lock Pins (19) prevent accidental rotation of the Collar (8A) of the disengaged nozzle. One of the three cutouts in Collar (8A) is normally elongated more than the other two.

When the Collar (8A) is fully engaged to a serviceable MS24484 Adapter the Collar (8A) ramp clears the Lever (14) and permits Lever (14) rotation to the open position.

With the Collar (8A) locked in the disengaged position, the flat portion of a ramp integral to the

With the Lever (14) full open, the round portion of the Lever (14) prevents rotation of the Collar (8A) in

the disengage direction until the Lever (14) has been fully closed.

These interlocks are designed to prevent accidental opening of the poppet of a disengaged nozzle or accidentally disengaging a nozzle with the poppet open.

The poppet operating internal linkage design is such that the linkage is over center at each extreme of travel (lever full open against internal mechanical stop or full closed against internal mechanical stop).

Thus, internal pressure against a closed poppet, when the linkage is against the closed mechanical stop, provides a force only in the closed direction.

In a similar manner, with the lever in the full open/mechanical stop position, the 50 lb. force applied by the MS24484 Adapter Poppet Spring provides a force only in the open direction.

## **2.2.2 OPERATION INSTRUCTIONS**

### **2.2.2.1 SAFETY INSPECTIONS**

Note: The frequencies recommended for the following inspections are our recommendations based on nozzles that have been in daily service for at least a year. The frequency that is required will depend upon the degree of maintenance extended to the equipment and to the age of the equipment. It is not possible for Carter to recommend other than the safest possible frequencies.

#### **2.2.2.1.1 NOZZLE INSPECTIONS - AT EACH REFUELING OPERATION**

The following inspections of the Nozzle are recommended at each refueling operation:

- A. Inspect the connection end and verify that the Index Pins (21) are intact, in place, and not excessively worn or damaged. Verify that all three Collar Lock Pins (19) are intact, undamaged and **are extended and engage all three cutouts in the Collar (8A) and physically prevent Collar (8A) rotation.**

This inspection can be accomplished without interruption of the normal operating procedure and without adding appreciably to the operation time by training the operator to automatically observe the connection end of the nozzle upon disconnection from the aircraft. If the Collar Lock Pins (19) are not extended and engaged in all three cutouts in the Collar (8A), the operator should squeeze the Lever (14) and Handle Grip (4) together while observing the connecting end of the nozzle. This should cause the Collar Lock Pins (19) to "spring" into the cutouts in the

Collar (8A). If not, then the nozzle should be taken out of service. Since the Collar Lock Pins (19) did not spring into their correct position, it could mean that the aircraft adapter (or storage adapter if used) is defective and should be inspected (see paragraph 2.2.2.1.3) and reported as possibly being defective.

- B. Upon engagement to an aircraft and opening the nozzle, but before operating the deadman control, it is recommended that the operator attempt to remove the nozzle from the aircraft. This should not be possible. If it can be removed, either the nozzle was never fully engaged onto the aircraft or needs repair, or the aircraft adapter is in need of repair.

#### **2.2.2.1.2 NOZZLES INSPECTIONS - MONTHLY BASIS**

The following inspections of the Nozzle are recommended to be conducted on a monthly basis as a minimum:

- A. Inspect the connection end and verify that the three Index Pins (21) are intact and in place. Verify that the three Collar Lock Pins (19) are intact and in place and extended and engaging all three cutouts in the Collar (8A) and physically preventing Collar (8A) rotation. Check the Bearing Plate (42) containing the pins for possible cracks.
- B. Hold the nozzle with the outlet or connecting end facing such that it can be observed. Apply pressure on the Collar (8A) in the direction to connect the nozzle aircraft, counterclockwise, to take up the slack and inspect the relative location of the three Index Pins (19) with respect to the cutouts in the Collar (8A). The two Index Pins (19) that are engaged in the normally narrower cutouts should be resting against the edge of their respective cutouts. If there is a space between the third Index Pin (19) and the edge of the normally larger cutout the collar is still in functional condition. If all three Index Pins (19) are resting against the edge of their respective cutouts (there is no space), the Collar (8A) may no longer be in a functional condition and should be replaced if it fails the next step.
- C. With the nozzle being held in the position described above, attempt to open the nozzle with the Lever (14). The nozzle should be prevented from opening by the interference between the Collar (8A) and the Lever (14). If

the nozzle is openable it should be removed from service and repaired.

- D. Inspect the Lever (14) and the adjacent ramp surface of the Collar (8A) and verify that neither part is damaged or has missing pieces that permit the Lever (14) to be rotated to the open position with the nozzle disengaged, or that will allow the Collar (8A) to rotate to the disengaged position when the Lever (14) is open. Some nozzles have a stainless steel wear Plate (8B) affixed by two Screws (8C) as a part of the Collar (8A) at the point of contact with the Lever (14). Ascertain that it is not missing or loose. If there are no threaded holes for the Plate (8B) then it is not required. Broken or missing parts can result in dangerous fuel spills while refueling aircraft.
- E. Verify that the Lever (14) is in the fully closed (against internal mechanical stop) position. (This is necessary to assure that the linkage is over center so internal pressure can not force the poppet open during the Collar (8A) engagement).

### **2.2.2.1.3 AIRCRAFT ADAPTER INSPECTIONS**

The following inspections of the aircraft adapter are recommended to be carried out at each refueling operation to assure that one is connecting to a safe adapter:

- A. Visually check for bent, broken, missing or excessively worn lugs or slots. Worn slots are easily detected. A normal slot will have a slight machine broken edge (chamfer of .030 inch (0.762 mm)). If the edge is worn such that the corner is badly distorted and enlarged it should be inspected more closely and accurately. Carter Adapter Wear Gauge, 61657-2, should be utilized to check the width and thickness of the lugs if they appear to be worn. Wear of the thickness dimension of the lug will promote premature nose seal leakage. Wear of the width of the lug combines with slot wear in defeating the nozzle interlock.
- B. Visually check the three slots for excessive wear. Excessive wear can permit disengagement of a nozzle without release of the three Collar Lock Pins (19) and may permit accidental poppet opening on the

#### **CAUTION**

Lever rotation to an intermediate position is unsafe and can result in a flowing disconnect and dangerous fuel spill.

disconnected nozzle. The use of Carter Gauge 61657-2 will provide a "no-go" check for the slots.

- C. **If any of the above conditions are observed, and or the gauge proves the adapter to be defective, the refueling operation should be continued only with extreme caution. The nozzle, upon disconnection, should be checked in accordance with paragraph 2.2.2.1.1.A. The suspected defective adapter should also be reported to the appropriate personnel.**

### **2.2.2.2 NOZZLE CONNECTION**

After completion of the Safety Inspections of 2.2.2.1, connect the nozzle as follows:

- A. With the Cover (1) removed, grasp the nozzle by the Collar (8A) handle grips and align the connection end with the aircraft adapter.
- B. Press the nozzle against the adapter while slightly rotating the nozzle (if necessary) to align the Nozzle Index Pins (21) with the adapter slots.
- C. With the nozzle aligned, press the nozzle against the adapter flange until the Collar Lock Pins (19) are depressed sufficiently to permit rotation of the Collar (8A) in the clockwise direction until the Collar (8A) is fully engaged against a mechanical stop (approximately 30-35 degrees of collar rotation).
- D. With the Collar (8A) fully engaged and stopped, rotate the Lever (14) in the open direction to the full open linkage over center position against the internal mechanical stop (approximately 200 degrees) of the Lever (14) rotation.

Note: If the Lever (14) is not rotated against the full open stop, the 50 pound adapter poppet spring force may move the nozzle poppet to a partially closed position which will unnecessarily increase the time required to refuel the aircraft and cause unnecessary wear of both the nozzle and the aircraft adapter. (If Lever (14) movement is observed during fuel flow, the Lever (14) was not in the full open over center position).

- E. Prior to commencing fuel flow, verify that the round portion of the Lever (14) prevents rotation of the Collar (8A) to the disengaged position.

### **2.2.2.3 NOZZLE DISCONNECTION**

Upon completion of refueling operations, disconnect the nozzle as follows:

A. Rotate the Lever (14) in the closed direction until it is against the internal mechanical stop (approximately 200-210 degrees).

**CAUTION:**

If the Lever (14) is not against the internal closed stop, the linkage is not over center and internal pressure will force the poppet in the open direction.

B. With the Lever (14) full closed, grasp the Collar (8A) handles and rotate the Collar (8A) counter-clockwise until the nozzle is released from the adapter (approximately 30-35 degrees).

C. Examine the connection end of the nozzle and verify that all three Collar Lock Pins (19) have been released into the cutouts in the Collar (8A) flange to securely lock the Collar (8A).

**CAUTION**

If a worn adapter has allowed disen-gagement of the nozzle without release of all three Pins (19), rotate the collar in the disengage direction until all pins are released to lock the collar. (This condition caused by a damaged adapter on one aircraft resulted in a dangerous fuel spill during attempted refuel of a second aircraft). Reinspect the adapter of the serviced aircraft and replace if worn.

D. Replace the Cover (1) and return the nozzle to the normal storage location.

### 3.0 **DISASSEMBLY**

3.1 Remove nozzle from end of hose and quick disconnect.

NOTE: To assist in disassembly, the flange from an MS24484 adapter or Carter part number S204451, is required. Do not engage adapter in nozzle collar until ball bearing removal of paragraph 3.4 has been completed.

3.2 If Cover (1) or Grip (4) replacement is required, remove Cover (1) from nozzle by removing the appropriate Screw (2) and Washer (3). If the older, short grips are on the unit, it is recommended that the new longer grip be used for ease of operation. The grip may be attached by use of an adhesive. First try removing the Grip (4) by inserting it in a vise and applying a rotational force to break loose the glue used to install it. If this is not possible or the Grip (4) is in such condition that it needs replacing it should be removed by cutting it off of the metal handle. **See Caution below.** It is attached with a super glue. If the Screw (2) is used it 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 up to 15 times before losing its locking capability. If the torque is less than 6.5 lbs discard it and replace it during reassembly.

**CAUTION**

Exert care in use of cutting tools to prevent personal injury.

3.3 Remove Collar Bumper (5) by cutting through the bumper only if required to replace.

3.4 Screw (7) is a self-locking type screw that utilizes a nylon insert in the threads to affect the resistance required to provide the locking. It is designed to be reused a minimum of 15 times before losing its locking effectivity. Using a torque wrench, remove Screw (7), 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. Hold bolt hole vertical (pointed down) and allow all Ball (10) to be removed through the bolt hole. Catch all balls in a container. Some rotation between collar (8A) and body (9) may be required to allow 49 ball bearings (10) to fall out of hole. The use of Ball Removal and Installation Tool, 61607 will facilitate this operation.

3.5 Engage nozzle to the flange of an MS24484 adapter or Carter S204451.

3.6 Remove Nozzle Collar (8A) from Body Assembly (9) by aligning the groove in the Collar (8A) with detent on Body (9) and pull body from collar. Note that on some older nozzles a continuity Pin (13) and Spring (12) may be presently trapped between the Body (9) and Collar (8A). They are no longer required and should be discarded. Also, many nozzles may have a wear Plate (8B) screwed to the Collar (8A) with two small screws in the area where the Lever (14) strikes the Collar (8A). If the Plate (8B) is present, do not remove it. If the Plate (8B) is not present and there are no screw holes, it is not required. If there is no Plate (8B) and there is a cut out to hold the Plate (8B) and two screws, then the Collar (8A) should be

replaced or the factory contacted for replacement part information.

- 3.7** Remove MS24484 Adapter or S204451 Flange.
- 3.8** Turn Lever (14) to open Poppet (15).
- 3.9** Earlier nozzles (prior to serial number 16,000) utilized a "disc-lock" (Washer (16)) and jam Nut (39) to hold the Poppet (15) and locked to the Shaft (32). The Poppet (15) was a green color due to Teflon coating. For instructions on this type of assembly proceed to paragraph 3.9.1.
- Nozzles with serial numbers greater than 15,999 utilize a cotter Pin (44) to lock the Poppet Assy (15A) onto the Shaft (32A). The Poppet Assy (15A) is an anodized aluminum alloy color and is not Teflon coated. For instructions on this type of assembly skip to paragraph 3.9.2.
- 3.9.1** Nozzles with Poppet (15) and Shaft (32) assembled and locked in place with Nut (39) and Washers (Disc-Lock type) (16) - **Before proceeding further read the Caution below.** Loosen Nut (39) until the ramps (see Figure 2) of the two Washers (16) begin to ride up each other, then gently turn the Nut (39) back until the ramps have nested again without torquing the nut. Now, using a wrench on the Nut (39) and a hand on the Poppet (15), rotate the Nut (39), Washers (16), Poppet (15), and Shroud (17) off the Shaft (32) as an assembly.

**CAUTION:**

Because of the anti-vibration design of the Washers (16), do not attempt to completely back off the Nut (39) or remove the Poppet (15) by themselves. This would require excessive torque which can result in damage to the shaft and linkage assembly internally within the nozzle.

- 3.9.2** Remove Cotter (44) and unscrew the Poppet Assy (15A) from the Shaft (32A).
- 3.10** The Nozzle Seal Assembly (40) may be removed by lifting off Body (9). The Plate (42) may be removed from the Seal (41) by spreading the ends of the Retaining Ring (43), removing it from the groove in the Seal (41) and then sliding the Plate (42) off the Seal (41).

ment is necessary.

- 3.11** The three Lock Pins (19), three Lock Pin Springs (20), three Index Pins (21) and O-Ring (18) may now be removed.

- 3.12** Remove Plugs (22).

**NOTE:** Use new Teflon tape 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 (9).

- 3.13** Remove screw (23), using a torque wrench as noted in paragraph 3.4 and discard O-ring (24). Remove the 39 balls (11) in the same manner as described in paragraph 3.4. The use of Ball Removal and Installation Tool, 61607 will facilitate this operation.

**NOTE:** Before removing Elbow (25) from Body Assembly (9), ensure that the Spring (12) and Pin (13) trapped between the end of the elbow and the body (see Figure 2) does not fly out when the elbow is removed from the body.

- 3.14** Remove Elbow (25) and Seal (28). **Seals (26) and (27) should not be removed unless replacement is needed.** Do Not Lose Spring (12) and Pin (13); place both parts in a container for safe keeping. On later models, these two parts have been replaced with a single Clip (12A) which will not fall out of the hole in the Body (9). It is recommended that the two parts, if present, be replaced with the newer Clip (12A) when available as part of the Maintenance Kit. If Clip (12A) is to be replaced, used a pair of needle nose pliers to grasp the existing part and pull it from the hole in the Body (9). Clear the hole of any debris..
- 3.15** Remove Screws (35) through plug opening (22). Observe the orientation of the Plate (36) with respect to the Lever (14) such that it can be duplicated during reassembly. Mis-orientation will result in not being able to close the nozzle properly.
- 3.16** Remove Lever (14) from body (9). Remove Seal (37) and Backup Ring (38) from Lever (14).
- 3.17** Remove assembled Shaft (32 or 32A), Pin (33), Link (34) and Plate (36) from Body (9).
- 3.18** Remove Cotter Pin (29), Nut (30) and Crank Pin (31) only if replace

**4.0 INSPECTION**

Replace the following items with new parts from kit 2KD61429 during maintenance.

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>NAME</u>	<u>QUANTITY</u>
7	209827	Screw	2
12A	209853	Clip, continuity	1
18	M25988/1-145	O-Ring	1
24	MS29513-013	O-Ring	1
26	207807	Seal	1
27	M25988/1-040	O-Ring	1
28	M25988/1-235	O-Ring	1
29	GF24665-1013	Cotter Pin	1
37	207792	O-Ring, Teflon Coated	1
38	MS28774-017	Backup Ring	1
40	44574	Seal Assy	1

Note: Older kits may include obsolete items Pin (13) and Spring 12 . These are useable, however, the newer Clip (12A) is more effective and less likely to be lost.

Inspect all metal parts for dings, gouges, abrasions, etc. Use 320 grit paper to smooth and remove sharp edges. Replace any part with damage exceeding 15% of local wall thickness. Use alodine 1200 to touch up bared aluminum.

Precisely measure the following items. Replace any part that exceeds the identified maximum or minimum wear limits:

- \* Both holes in item 34 Link (.196 inch (4.98 mm) diameter max & .320 inch (8.13 mm) diameter max)
- \* Bearing diameter of item 31 Pin (.300 inch (7.62 mm) diameter min)
- \* Tapered bearing diameter of item 14 Lever (.697 inch (17.7 mm) diameter min on large end & .635 inch (16.1 mm) diameter min on small end).

**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.

- \* 6958CG or 6958CH Adapter or equivalent.
- \* 61657-2 Adapter Wear Gauge
- \* 64000 Poppet Adjustment Gauge
- \* 61607 Ball Removal and Installation Tool

**6.0 REASSEMBLY**

**6.1** Reassemble in reverse order of disassembly (Refer to Figure 1), observing the following:

**6.1.1** 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, Federal Specification P-D-680, and dry thoroughly with a clean, lint-free cloth or compressed air.

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

**DO NOT** use any form of grease on Balls (10) or (11) and be certain to install proper number of balls in each hole of body and collar assembly. The use of Ball Removal and Installation Tool, 61607 will facilitate this operation. Also make certain Spring (12) and Pin (13) or Clip (12A) is installed properly to maintain continuity through unit. See Figure 2.

**WARNING**

NOTE: A light coat of petrolatum, Federal Specification VV-P-236, can be applied to all gaskets, springs, and screws for ease of installation.

- 6.1.2** If Cotter (29) and Nut (30) were removed during disassembly, torque Nut (30) to 80 - 125 in lbs to align slots in nut with hole in Crank Pin (31). When reinserting the sub-assembled parts noted in Para. 3.17 of the disassembly procedure, through the inlet end of the Body (9) ensure that the Shaft (32) is inserted into the Body's (9) axial guide bore far enough that the bore contains the Dowel Pin (33). **Assure that the orientation of the Plate (36) to the Lever (14) is as observed prior to disassembly.** Use the 9/64 inch Allen wrench through the Body's (9) pipe thread port to secure the Plate (36) to the end of the Lever (14) shaft with the four socket head Screws (35). Torque each of the Screws (35) to 16 to 18 inch pounds above the torque required to rotate the screws in the thread locking inserts installed in the Lever (14) end.
- 6.1.3** Install the Inlet (25) at the end of the assembly procedure. Use care in installing inlet (25) so seal (28) is not cut. Be sure to install Clip (12A) (or Spring (12) and Pin (13)) first.

**Maintenance Tip:**

Should it be desired to be able to change the nose seal of the nozzle without a major disassembly of the unit it is possible to do by eliminating Snap Ring (43). One word of caution should this be done. If the nozzle is opened with a tool that does not have the characteristic lugs of an adapter, the nose seal may follow the poppet open and be difficult to reinstall without disassembly. The Snap Ring (43) will continue to be installed by the factory. When the nose seal is to be replaced, please refer to the Caution Note in paragraph 3.9.1 before proceeding.

- 6.1.4** Earlier nozzles (prior to serial number 16,000) utilized a "disc-lock" (Washer (16)) and jam Nut (39) to hold the Poppet (15) and locked to the Shaft (32). For instructions on this type of assembly proceed to paragraph 6.1.4.1.
- Nozzles with serial numbers greater than 15,999 utilize a cotter Pin (44) to lock the Poppet Assy (15A) onto the Shaft (32A). For instructions on this type of assembly skip to paragraph 6.1.4.6.
- 6.1.4.1** Connect Nozzle to S204451 flange when installing the poppet (15) using the following

steps: Use the Lever (14) to operate the Shaft (32) to the full retracted position. Then install the Nut (39) to the Shaft (32) with the Nut's (39) flat face out. Run the Nut (39) down the retracted Shaft (32) with the fingers until stopped by the base of the Body (9) bore. Then loosen the Nut (39) one quarter (1/4) turn. Then use the Lever (14) to fully extend the Shaft (32) without disturbing the Nut (39).

- 6.1.4.2.** Install the two Disc Lock Washers (16) on top of the Nut (39) so that the ribs will contact the Nut (39) and the Poppet (15) and Shroud (17). The ramps on the two Washers (16) should be engaged (See Figure 2).
- 6.1.4.3.** Place Shroud (17) on Shaft (32) with the flared end facing out. Screw the Poppet (15) to the Shaft (32) approximately 4 to 4 1/2 complete revolutions. Be sure that the Shroud (17) is nested in the counterbore on the Poppet (15) before the Poppet (15) contacts the Disc-Lock Washers (16). Use the Lever (14) to fully close the Poppet (15). If excessive resistance prevents closing the Poppet (15), progressively attempt closing the Poppet (15) after unscrewing the Poppet (15) in one quarter (1/4) turn increments). If this doesn't prevent the excessive resistance to closing check to be sure that the Nut (39) is not interfering with the center shaft support of the Body (9).
- 6.1.4.4.** With the Poppet (15) closed disengage the Collar (8A) from the MS24484 adapter Flange (S204451) and set the nozzle on its inlet end. Use Poppet Adjustment Gauge, 64000, to facilitate the adjustment of the Poppet (15) onto the Shaft (32). If the gauge is not used, place a straight edge across the center of the elastomer lip of the Seal (41). Use feeler gages to measure the average dimension between the bottom of the straight edge and the Poppet (15) face. This dimension should be .070 to .110 inch (1.8 to 2.8 mm). If it is not, calculate the required poppet dimension as follows: (one quarter (1/4) turn of the Poppet (15) axially displaces the Poppet (15) face about .020 inch (0.51 mm).
- A) If the feeler gage measurement is too long, prepare to unscrew (loosen) the Poppet (15) one quarter (1/4) turn for each .020 (0.51 mm) inch of required adjustment.
- B) If the measurement is too short, prepare to tighten the Poppet (15) one quarter (1/4) turn for each .020 (0.51 mm) inch of required adjustment.

- 6.1.4.5.** Re-engage the MS24484 Adapter Flange (S204451) to the Collar (8A) and reopen the Poppet (15). Make any Poppet (15) adjustments determined to be necessary. Tighten the Nut (39) by hand against the Disc Lock Washers (16) and the Poppet (15). Check to see that the Shroud (17) is installed properly and not cocked to one side. While holding the Poppet (15) clamped in a wooden vice taking care not damage poppet sealing surface, torque the Nut (39) to  $200 \pm 10$  lb. inch. Operate the Poppet (15) full open to full closed to full open several times. Then close the Poppet (15) and disengage the MS24484 Adapter Flange.
- 6.1.4.6** Use the Lever (14) and move the Shaft (32A) to its fully extended (open) position to install the Poppet Assy (15A).
- Before inserting the Pin (44), adjust the Poppet Assy (15A) to approximately .020 to .040 inch (.508 to 1.016 mm) above the top of the face of the Collar (8A). Use Poppet Adjustment Gauge 64000 to facilitate the adjustment. If the gauge is not available, utilize a straight edge and a feeler gauge as described in paragraph 6.1.4.4 above.
- 6.1.4.7** Once the proper Poppet Assy (15A) adjustment is made, rotate the Poppet toward the tightening direction until the next slot in the Poppet Assy (15A) is in line with the hole in the Shaft (32A). Insert the Pin (44) and bend over the ends to retain in place.
- 6.1.5** If there are no provisions for using Screw (2) and Washer (3) to attach the Grip, use steel wool or other abrasive to thoroughly clean the aluminum handle onto which the Grip (4) fits. All traces of the old Grip (4) must be removed and the handle should be shiny.
- 6.1.5.1** Apply a band of Adhesive in accordance with Mil-A-46050 (M46050-B-3-01) to the inside diameter of the new Grip (4) and to the end and to the top one inch of the aluminum handle, slide the Grip (4) onto the aluminum handle until it is seated in its fully on position. Note that the Grip (4) does not slide to its full length onto the metal handle. A length of the Grip (4) is purposely left unsupported by the metal handle to help absorb handling shocks. A light tapping of the Grip (4) with a rubber mallet may be necessary to seat it. **DO NOT** handle for at least ten minutes to allow initial setup curing. The adhesive will be fully cured within 24 hours.
- 6.1.5.2** If the end of the handles are threaded install the Grip (4) using Screw (2) and Washer (3). If one desires to rework a handle that does not have the threaded holes, have each handle drilled and tapped, on center, by tap drilling 1.00 inches deep and tapping .3125-18 UNC-2B by .75 inches deep.
- 6.1.5.3** If Bumper (5) is to be replaced onto Collar (8A) warm Bumper (5) in water at 160-180° F to soften before pressing onto Collar (8A).
- 6.1.5.4** If Clip (12A) is to be installed, refer to Figures 2A and 2C for correct installation. The straight leg of the part is to be pressed into the hole in the Body (9) using a pair of needle nose pliers as shown in Figure 2B. It is important that the Clip (12A) be fully installed into the hole such that it lies as shown in Figure 2C.

## 7.0 TEST

- 7.1** The following test procedures will be accomplished after overhaul:
- 7.2 Test conditions**
- 7.2.1** Test media shall be Stoddard Solvent (Federal Specification P-D-680), JP-4 per MIL-J-5624D at  $75^\circ \pm 15^\circ$  F, Jet A or equivalent.
- 7.3 Functional Test**
- 7.3.1** The nozzle shall be inserted and locked into a test adapter (MS24484 or equivalent) which is mounted in a sealed housing and the nozzle valve actuated by use of the crank lever 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.
- 7.4 Leakage Test**
- 7.4.1** With the nozzle outlet in the normal open position, pressurize the inlet to five PSIG and hold for one minute minimum. There shall be no evidence of external leakage from the nozzle.
- 7.4.2** Repeat the leakage test at 60 PSIG and 120 PSIG.
- 7.4.3** Close and disengage the nozzle and repeat 7.4.1 and 7.4.2.

**7.5 Continuity Test**

7.5.1 With the nozzle still in the functional test set-up (7.3.1) measure the resistance (OHMS)

between the adapter mounting flange and the inlet flange of the nozzle. The resistance from the nozzle inlet flange to the adapter mounting flange shall be less than 10 OHMS.

**8.0 ILLUSTRATED PARTS CATALOG**

Table 1.0 tabulates the parts and sub-assemblies comprising the 61429AGJ Pressure Fueling Nozzle. The item numbers of the table

are keyed to the exploded view of the nozzle diagramed in Figure 1 and 2.

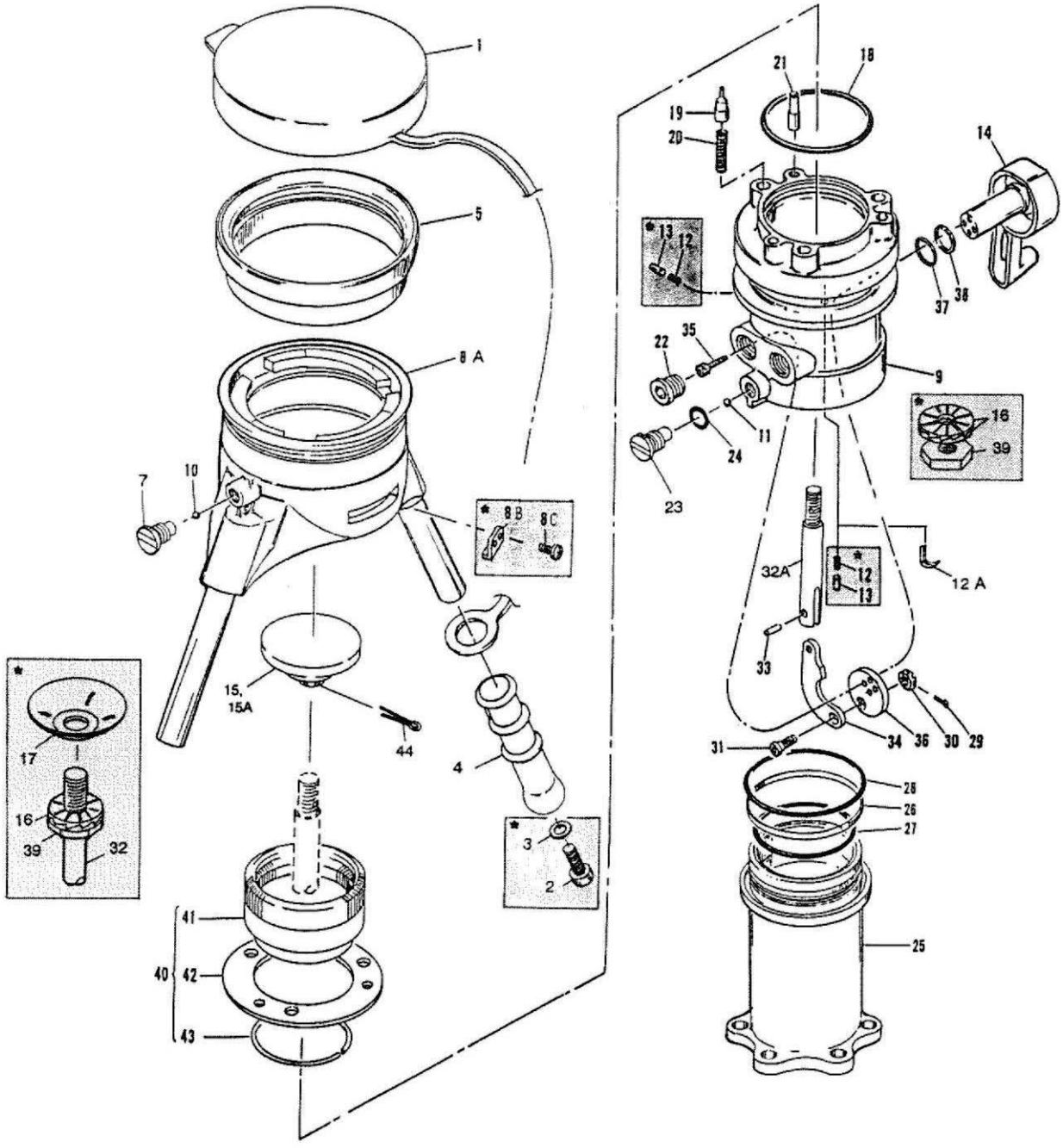
**TABLE 1.0**

<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Units Per Assembly</u>
1	207799	Cover.....	1
2	GF16997-78L	Cap Screw.....	2
3	GF960-516	Washer.....	2
4	207808	Grip.....	2
5	23622	Bumper.....	1
6	Left intentionally blank		
7	209827	Screw, Pan Head .....	1
8A	44309	Collar .....	1
8B	209403	Plate .....	1
8C	LP51957-26	Screw .....	2
9	207784	Body .....	1
10	82123	Bearing, Ball.....	49
11	82123	Bearing, Ball.....	39
12	82153	Spring.....	1
12A	209853	Clip .....	1
13	D5-187	Pin .....	1
14	207785	On/Off Act. Lever .....	1
15	209097	Poppet (Use only with 16, 17, 32 & 39) .....	1
15A	210593	Poppet Assy (Use only with 32A & 44) .....	1
16	106-20	Washers(Use only with 15, 17, 32 & 39) .....	2
17	209190	Shroud (Use only with 15, 16, 32 & 39) .....	1
18	M25988/1-145	O-Ring.....	1
19	207789	Pin, Collar Lock.....	3
20	20909	Spring, Collar Lock Pin (Note 1) .....	3
21	24780	Pin, Indexing .....	3
22	GF27769D4	Plug .....	2
23	209827	Screw, Pan Head .....	1
24	MS29513-013	O-Ring.....	1
25	207874	Inlet Elbow.....	1
26	207807	Seal .....	1
27	M25988/1-040	O-Ring.....	1
28	M25988/1-235	O-Ring.....	1
29	GF24665-1013	Pin, Cotter .....	1
30	GF320C4	Nut Castellated.....	1
31	207788	Pin, Crank .....	1
32	208829	Shaft (Use only with 15, 16, 17 & 39) .....	1
32A	210368	Shaft (Use only with 15A & 44).....	1
33	D9-437	Dowel Pin .....	1
34	207795	Link.....	1
35	GF16995-28	Screw .....	4

<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Units Per Assembly</u>
36	207783	Plate .....	1
37	207792	O-Ring TFE Coated .....	1
38	MS28774-017	Back-Up .....	1
39	209109	Nut, Jam .....	1
40	44574	Nose, Seal Assy.....	1
41	209029	Seal, Nozzle .....	1
42	24779	Plate, Bearing.....	1
43	24636	Ring, Snap.....	1
44	GF381-3-10	Pin, Cotter (Use only with 15A & 32A).....	1
	KD61429AHL (Note 2)	Kit, Overhaul (consists of the following items: 1,4,5,10,11,14-16, 17,19,20,21,22,30,31,32,33,34,35 & 39 from above.)	
	KD61429 (Note 2)	Kit, Overhaul (consists of the following items: 1,4,5,10,11,14, 15A,19,20,21,22,29,30,31,32A,33,34 & 35 from above.)	
	2KD61429AHL (Note 2)	Kit, Maintenance (consists of the following items: 7, 12A (or 12, & 13), 18, 23, 24, 26, 27, 28, 29, 37, 38, & 40 from above.	
	2KD61429 (Note 2)	Kit, Maintenance (consists of the following items: 7, 12A ,18, 23, 24, 26, 27, 28, 37, 38, 40 & 44 from above.	

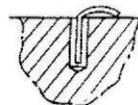
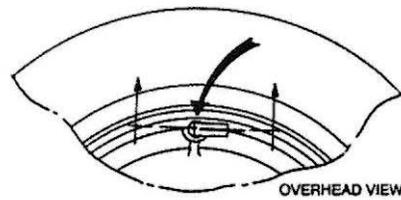
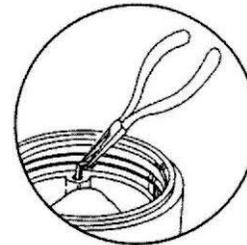
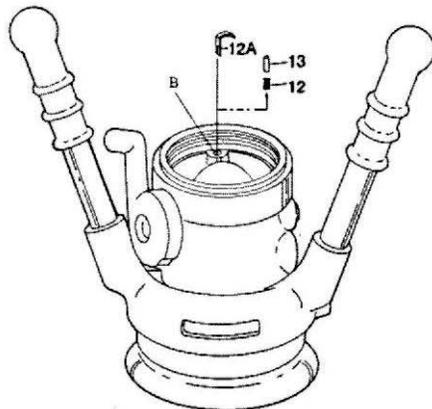
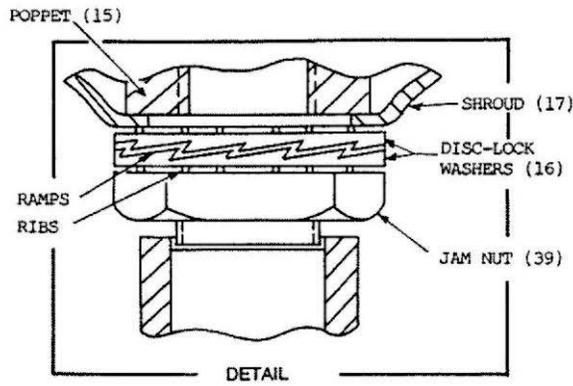
## Notes:

1. 20909 interchangeable with previous part number 207790.
2. KD61429AHL and 2KD61429AHL are obsolete for future procurement. They have been replaced by the KD61429 and 2KD61429 respectively. (2KD61429AHL and 2KD61429 are identical except for the addition of the newly required Pin (44), only the part number has been changed because the kit can be used on either the D-1 (61429AGH) or D-2 (61429AGJ)). The KD61429 includes the updated Poppet (15A), Shaft (32A) and attaching hardware. If the KD61429AHL is received from the supply system, all parts furnished must be utilized in the repair or overhaul of the nozzle. (This will revert the nozzle back to the older Poppet (15) and Shaft (32) design). It can not be guaranteed that the DLA system is providing a first in first out inventory rotation system.
3. All part numbers beginning with "GF" are interchangeable with those beginning with either "AN" or "MS". If the "GF" is followed by three numbers it is interchangeable with and "AN" part, otherwise it is interchangeable with an "MS" part of the same number.



\*REFER TO PARAGRAPH 2.2.1.2, 3.2, 3.6 OR 3.14. THESE PARTS MAY NOT BE PRESENT.

FIGURE 1



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FIGURE 2