

**Carter® Ground Fueling**  
Underwing Refueling Nozzle

Model 64349



# Design Concepts

Eaton's Carter brand is the leading manufacturer of nozzles qualified in accordance with SAE AS5877 (MIL-N-5877). Model 64349H underwing refueling nozzle is listed as being qualified on the QPL. The specification defines four nozzles, D-1, D-1R, D-2 and D-2R. The D-1 and D-1R nozzles have an inlet body that includes a 45° elbow. The D-1R is a D-1 with the addition of a hose end regulator. The D-2 and D-2R (includes a regulator) have straight inlets. Both units have a military standard 6-bolt inlet flange in accordance with MS33786-40. In addition, Model 64349 can be purchased with various options to tailor a nozzle to fit the system requirements. These additional options, although widely utilized in the military, are not covered by any particular specification.

### New Inlet Option

Model 64349 nozzle is now available with a D-3 inlet coupling that can be changed from the D-1 to the D-2 configuration and vice versa. This can be done without tools simply by swiveling the inlet to the configuration (0-45° and all angles in between) desired.

The new D-3 variable inlet has been approved for use and is listed on the QPL. This option can be procured as option N to the basic nozzle and it would replace either option H or J.

### Features

- Easy swiveling under all conditions. Swivel independent of quick disconnect (QD) coupling
- Connects to 3-lug international standard aircraft adapter (MS24484 or MS29514)
- Lead-in ramps of stainless steel, not aluminum bronze, for longer life
- Self-adjusting pressure loaded nose seal. No mechanical adjustments or springs used. Leak free under extreme side loads, worn adapters and extreme temperatures
- Nose seal can be changed with minimal disassembly. Arctic nose seal available
- Positive mechanical interlock prevents fuel flow until nozzle is secured to aircraft adapter. Nozzle can not be disconnected from aircraft until closed
- Flow control handle fully protected from damage. Two styles available
- Flow control handles of high strength zinc-aluminum alloy
- Bicycle-type handles for ease of operation. Circular grip also available. Lightweight and rugged

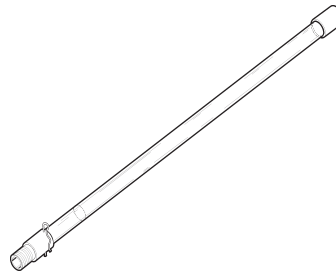
- Modular construction. Optional inlet configurations including dry break disconnect and strainer ball valve
- Hose end regulator and strainers optional
- Two bonding cables, vacuum breaker optional.
- Low pressure drop, under 12 psi (0.827 bar) at 600 gpm

### Special Tools

Specially designed tools are recommended for the maintenance of Model 64349 nozzles.

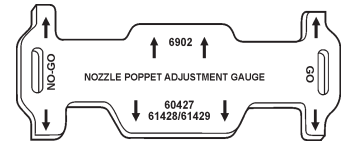
### 61607 Ball Tool

The ball removal & installation tool is utilized to collect and automatically count the balls used in the swivel joints of the nozzle. It is simple to use and assures that the proper installation is achieved. A minimum of two tools are required for the simplest of nozzle configurations (one for the collar swivel and one for the hose swivel). Three are required for a nozzle having a regulator or a ball valve.



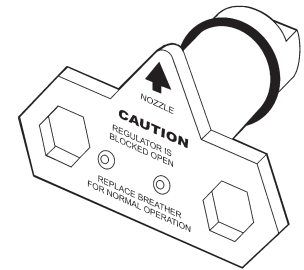
### 64000 Poppet Adjustment Gauge

This simple inexpensive gauge provides an accurate method of achieving the proper adjustment of the poppet of Model 64349 nozzle. The gauge can be used on all Carter brand underwing nozzles except Models 64200 and 64250. Use gauge 64250ST-1 for these later style nozzles.



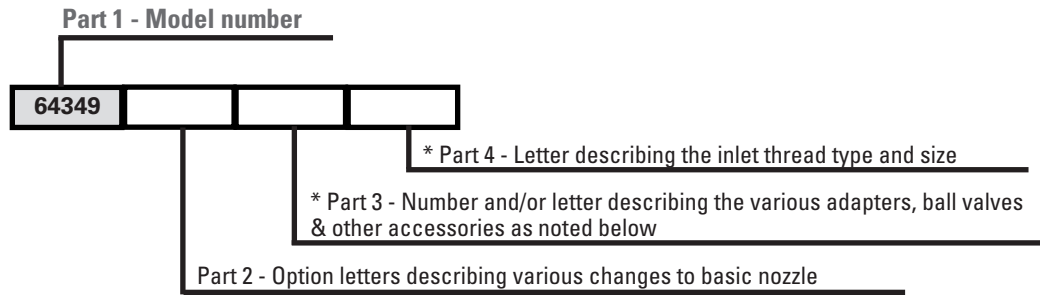
### 61656 Blockout Device

The blockout device is recommended for use when one defuels through a hose end regulator or it is necessary to check out the secondary pressure control device in a system. The blockout device does not introduce fuel into the ambient port of the regulator which can later become a dangerous spray during operation.



# Ordering Data

The part number for a complete nozzle consists of four parts as illustrated (right).



\* Parts 3 & 4 not applicable for D-1, D-2 or D-3 configurations

## Part 2

The following options may be added as part 2 of the part number as indicated above to order a unit to meet your requirements.

Option	Description	Option	Description
*A	Adds 40-mesh screen	J	Adds straight inlet (D-2 Style) (44326)
*B	Adds 60-mesh screen	K	Adds QD with 2 inch female camlock inlet (44325)
*C	Adds 100-mesh screen	L	Adds drag ring (220870) (only with option F)
D	Adds bonding cable (44311)	N	Adds D-3 inlet coupling (47566)
E	Adds vacuum breaker (41599)	Q	Adds Gammon sampling QD
F3	Adds 35 psi (2.413 bar) regulator (44646-35)	R	Adds circular handle grip (207816)
F4	Adds 45 psi (3.103 bar) regulator (44646-45)	V	Adds green unisex (non-valved) coupling in accordance with MIL-C-53071 to inlet flange (64319V90)
F5	Adds 55 psi (3.792 bar) regulator (44646-55)	W	Adds straight inlet in accordance with MIL-C-24356 (47063)
G	Changes operating handle (see illustration) (220561)	X	Adds tan unisex (non-valved) coupling in accordance with MIL-C-53071 to inlet flange
H	Adds 45° elbow — D-1 Style (44327)	Z	Changes to arctic nose seal

\* Options A, B, & C only available with options V or X or when a male half or a ball valve from part 3 is specified

## Part 3

The configuration of the outlet is defined by adding the appropriate number or number and option letter from the table (right) in conjunction with the appropriate option letter from part 4 below. The nozzle may terminate in an adapter half only, if desired. In this case leave part 4 blank. To obtain a female half QD or dry break, or to complete the specification of the ball valve outlet, part 4 must be completed.

Option	Description	Option	Description
2	Adds military male adapter half to mate with 6-bolt flange & 40679 type QD (43045-1)	M	Adds 3 inch unisex coupling, valved (64031H)
*3	Adds ball valve to inlet flange (64015U). Options D, E, J & R below maybe added with option 3 only	5	Adds 2 inch unisex coupling, valved (64320N)
**D	Adds glass inspection port to ball valve (47020-2)	6	Adds male adapter half to mate standard QD (44316)
**E	Adds drag ring to ball valve (220062)	**7	Adds male adapter half (44185) to mate dry break QD Model 61154 when a single regulator is used
**J	Adds spanner handle	**8	Adds male adapter half to mate Model 61154 dry break. Use only without option F (44701)
**R	Adds hex key	†9	Adds male adapter half to mate 60427 style QD (43046 with regulator, 44362 without regulator)

\* The inlet size and configuration option from part 4 must be included in the part number with option 3 to achieve a completed nozzle and ball valve

\*\* Options D, E, J and R applicable only with option 3

† Not used with options H, J or N from part 1

## Part 4

One of the following letters must be included as part 4 to specify the inlet thread size.

Option	Description	Option	Description
H	Inlet thread — 2-1/2 inch NPT	P	Inlet thread — 2 inch NPT
*L	Inlet thread — 3 inch NPT	S	2 inch camlock Inlet (available only with option 2 from part 3)

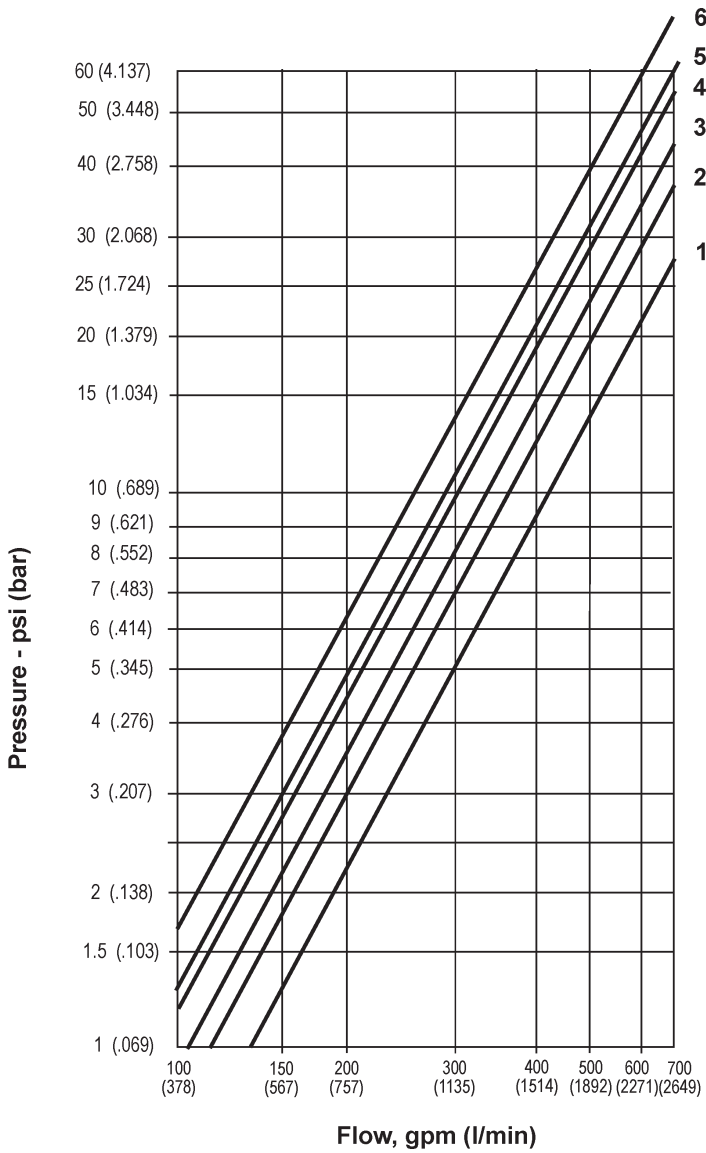
\* 3 inch inlet threads not available with option 3 ball valves

Some of the above option letters may be duplicates of those found in part 2. They must be accompanied by a number from part 3 to be effective

# Technical Data

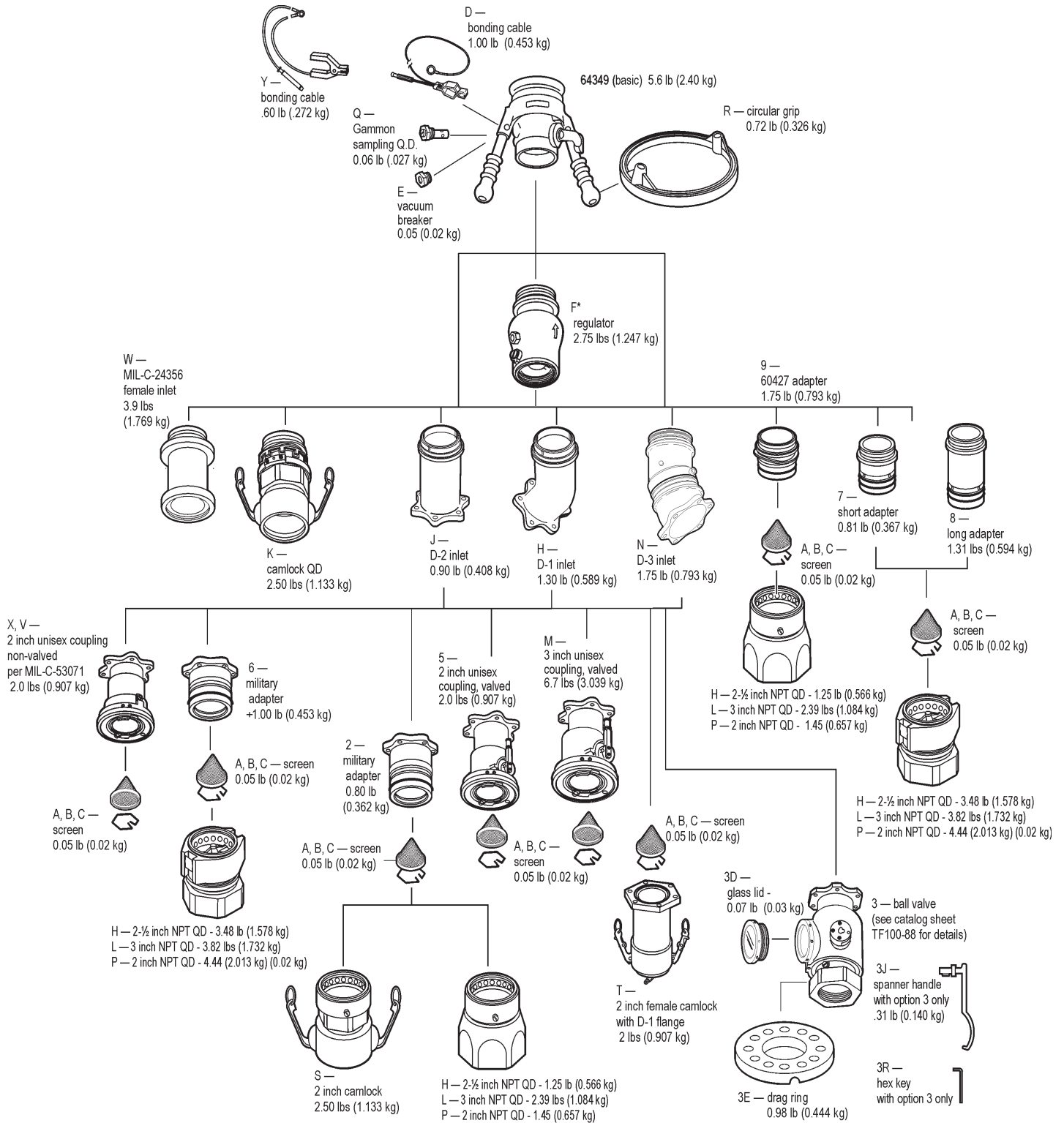
## Flow Characteristics

The graph below represents typical curves (when nozzle is attached to a standard aircraft adapter).



- Curve 1** 64349J D-2, 64349H D-1, 64349N D-3
- Curve 2** 64349H6H D-1 with 61154 dry break
- Curve 3** 643498H Basic nozzle with 61154 dry break
- Curve 4** 64349F5H6H D-1 with 55 psi (3.792 bar) regulator & 61154 dry break
- Curve 5** 64349CH6H D-1 with 100-mesh strainer & 61154 dry break, or —  
64349F57H D-1 with 55 psi (3.792 bar) regulator & 61154 dry break
- Curve 6** 64349CF5H6H D-1 with 100-mesh strainer, 55 psi (3.792 bar) regulator & 61154 dry break

# Illustrated Options



**Eaton**  
**Aerospace Group**  
**Conveyance Systems Division**  
**671 W. 17th Street**  
**Costa Mesa, California 92627**  
**Phone: (949) 764-2200**  
**Fax: (949) 631-2673**

Eaton Corporation  
Aerospace Group  
Conveyance Systems Division  
90 Clary Connector  
Eastanollee, Georgia 30538  
Phone: (706) 779-3351  
Fax: (706) 779-2638

Eaton Corporation  
Aerospace Group  
Conveyance Systems Division  
300 South East Avenue  
Jackson, Michigan 49203-1972  
Phone: (517) 787-8121  
Fax: (517) 787-5758

Eaton Corporation  
Aerospace Group  
Conveyance Systems Division  
11642 Old Baltimore Pike  
Beltsville, Maryland 20705  
Phone: (301) 937-4010

Eaton Corporation  
Aerospace Group  
Conveyance Systems Division  
15 Pioneer Ave.  
Warwick, Rhode Island 02888  
Phone: (401) 781-4700

Eaton S. A.  
Aerospace Group  
Conveyance Systems Division  
2 Rue Lavoisier BP 54 78310  
Coignieres, France  
Phone: (33) 1-30-69-3000

Eaton LTD  
Aerospace Group  
Conveyance Systems Division  
Broad Ground Road  
Lakeside  
Redditch  
Worcs B98 8YS  
England  
Phone: (44) 152-751-7555  
Fax: (44) 152-751-7556

Eaton LTD  
Aerospace Group  
Conveyance Systems Division  
Chemin De Pau  
64121 Serres-Castet  
France  
Phone: (33) 559-333-864  
Fax: (33) 559-333-865

Eaton LTD  
Aerospace Group  
Conveyance Systems Division  
Posttatch 1026  
Carl-Benz Strasse 9  
D-82205 Gilching  
Germany  
Phone: 49 (0) 8105-750  
Fax: 49 (0) 8105-7555

Vickers Systems Pte Ltd  
Aerospace Group  
Conveyance Systems Division  
Lot 512, Jalan Delima,  
Batamindo  
Industrial Park  
Batam 29433, Indonesia  
Phone: (62) 611823

Eaton LTD  
Aerospace Group  
Conveyance Systems Division  
Chemin De Pau  
64121 Serres-Castet  
France  
Phone: (33) 559-333-864  
Fax: (33) 559-333-865

Eaton Corporation  
Aerospace Group  
9650 Jeronimo Road  
Irvine, California 92618  
Phone: (949) 452-9500  
Fax: (949) 452-9555  
[www.eaton.com/aerospace](http://www.eaton.com/aerospace)

©2009 Eaton  
All Rights Reserved  
Printed In USA  
Form No. TF100-107  
February 2009