

Hydrant Pit Valves and Couplers

This bulletin is issued as an update to Bulletin 3 of February 2005 and is intended to provide guidance to Hydrant Operators and Into-plane Services regarding the implementation of API/EI 1584 Third Edition requirements first issued in 2001 and reaffirmed in 2007.

Deadlines for API/EI 1584 Third Edition Compliance at JIG JV Locations

All Hydrant Pit Valves should meet API/EI 1584 Third Edition requirements before December 31, 2008. Where existing pit valves cannot be confirmed as being third edition compliant an implementation plan to achieve compliance before December 31, 2009 shall be developed.

All Hydrant Servicers shall be fitted with couplers meeting API/EI 1584 Third Edition requirements before December 31, 2010. However, where third edition pit valve compliance has been confirmed, third edition couplers shall be introduced without delay.

Third edition couplers shall not be used at an airport location until all operational hydrant valves have been confirmed by the hydrant operator as being third edition compliant.

Required Action for JIG JV Hydrant Operators

JV Managers should ensure compliance by December 31, 2008. Where existing pit valves cannot be confirmed as being third edition compliant an implementation plan to achieve compliance before December 31, 2009 shall be developed for approval by the JV Management and a Variance Approval Certificate submitted for international participant approval.

At locations where some of the hydrant pit valves are not currently third edition compliant the hydrant operator shall notify the into-plane fuelling groups of this fact and confirm that third edition breakaway couplers shall not be used. Before December 31, 2008 the hydrant operator shall also discuss the implementation plan with the into-plane fuelling groups including the expected timing for full pit valve compliance.

At locations where all operational hydrant pit valves are third edition compliant the hydrant operator shall notify the into-plane fuelling groups of this fact and recommend that third edition breakaway couplers be fitted to hydrant servicers without delay.

Required Action for JIG JV Into-plane Operations with Hydrant Servicers

Before December 31, 2008 Into-plane JV Managers shall confirm with the Hydrant Operating organisation the status of third edition pit valve compliance and shall ensure that no hydrant servicers with third edition couplers are used until notified that the entire hydrant system is fitted with third edition compliant pit valves.

Following discussion of the Hydrant Operator's implementation plan for third edition pit valve compliance, the into-plane fuelling groups shall develop their implementation plans for timely procurement and introduction of third edition couplers.

In any event, full implementation of third edition couplers shall be achieved by December 31, 2010 but, where possible, earlier compliance is strongly recommended.

Currently Compliant Third Edition Hydrant Valves and Couplers

The following hydrant pit valves have been successfully tested to confirm compliance with API/EI 1584 Third Edition:

Carter - models 60554 and 61654 (pre-2002 valves modified as per Carter Product News of September 25 2002)

Cla-Val - model 352 GF

Zenith - model LO2K100-XXX

The following couplers have been successfully tested and in-service trials over a 12 month period have been completed:

Carter - model 64800

Carter - model 64900

Carter - model 60700 (no longer supplied) upgraded using Carter upgrade kit KD61525-3 or KD61525-4 as applicable.

Testing of additional pit valve and coupler models will be undertaken during 2008 and it is expected that further information about compliant valves and couplers will be available in the near future.

Carter 64800 and 64900 Couplers

Carters now supply only third edition couplers. For these to be used at locations with second edition pit valves, the couplers need to be converted to second edition by fitting second edition lugs. Carter have authorised their distributor Warner Lewis, to

carry out the conversion of new third edition couplers to second edition prior to shipment. However, second edition needs to be specified in any orders for new equipment unless the fuelling equipment is to be used at an airport with 100% third edition compliant pit valves. Conversion to second edition may also be done on site by ordering a set of second edition lugs from Carter or their authorised distributor. The third edition lugs shall be replaced when the pit valves are 100% third edition compliant.

The Carter third edition lug has a groove machined into it and can be readily identified as shown below:



Old Second edition style lugs

New Third edition style lugs with machined breakaway groove

The permitted combinations of pit valves and couplers are shown in the following table

	Pit Valves		
	1584 Edition	2 nd	3 rd
Pit Couplers	2 nd	OK, but pit valves should be updated as quickly as possible and no later than end 2009; never use third edition couplers	OK – couplers should be upgraded to or replaced by third edition without delay with completion before end 2010
	3 rd	Not allowed in any circumstances	The optimum arrangement

Non-JIG Hydrants and Into-plane Services

Where a hydrant system is owned/operated by a non-JIG organisation, the JIG into-plane participants at the airport shall ensure that the hydrant operator is aware of the content of this bulletin.

Where non-JIG into-plane organisations are operating at airports where there is also a JIG-managed hydrant or into-plane operator, it is advisable to make them aware of the content of this bulletin.

Precautions for operation of hydrant pit valve/coupler breakaway systems

Rigid pipework coupling systems on inlet couplers and pit protection devices (igloos) may interfere with the intended clean breakaway feature. Into-plane JV Operators should check with their original equipment manufacturer for recommended practice.

It is a requirement of API/EI 1584 third edition that manufacturers shall provide a suitable wear gauge for their pit valves and couplers. Users should contact manufacturers requesting details of recommended gauges and prescribed maintenance intervals.

Background Information

The development of a safer breakaway hydrant coupler system was one of the initiatives taken in response to two major coupler/pit valve separation incidents that resulted in large volume releases of pressurised jet fuel. Although improved pit identification and protection measures have been recommended by JIG in previous bulletins, similar incidents and near-misses continue to occur.

API/EI 1584 "Four Inch Hydrant System Components and Arrangements Third Edition" includes a requirement for a clean breakaway of the coupler from the pit valve adaptor when subjected to a sideways impact or load. The specification includes test procedures to ensure that in service the coupler will separate from the pit valve, when a force in the range of 4000 to 5000 pounds is applied (forces above this limit have been demonstrated to result in an increased risk of damage to the underground hydrant line). When the coupler breaks away cleanly, the pit valve poppet will close rapidly thus minimising any jet fuel release. There will still be some spillage from the hydrant service hose and pipe work via the damaged coupler but this is considered significantly less hazardous than a pressurised geyser of jet fuel from a damaged pit valve.

In order to withstand the design forces for the coupler, hydrant pit valves are also required by the Third Edition to be tested to ensure that they will not be damaged by sideways impact forces and pressure surges resulting from rapid closure. To meet this requirement some Carter Hydrant Pit Valves required modification as outlined in the February 2005 Bulletin.

The requirement for third edition couplers to breakaway at a defined knock-off force represents a change in design. Some couplers that have not been designed to meet the third edition breakaway requirements may not break away cleanly from the pit valve. The result of a sideways impact on such couplers can be interference with the pit valve operation (preventing valve closure) or damage to the pit valve or hydrant pipe riser.

The new standard is intended to lead to a clean breakaway with reduced risk of a significant spill and damage to the underground hydrant line if both hydrant pit valves and pit couplers are third edition compliant.

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