

Hydrant Pit Valves and Couplers

The purpose of issuing this bulletin is to advise Hydrant Operators and Into-plane Services of the status of implementation of API/IP 1584 Third Edition and to confirm the need for some modifications to existing Carter Pit Valves.

Introduction

API Specification 1584 "Four Inch Hydrant System Components and Arrangements Third Edition January 2001" 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, without damaging the ability of the pit valve poppet to close and prevent a large fuel spill.

This requirement is intended to avoid a geyser of Jet Fuel being released from the pit valve in the case of a hydrant coupler knock off caused, for example, by a service vehicle colliding with the pressurised pit valve and coupler arrangement during aircraft fuelling. If the coupler breaks away cleanly, the pit valve poppet will close rapidly thus minimising any pressurised fuel release. There will still be some spillage from the hydrant servicer 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.

Modifications to Carter Hydrant Pit Valves

In order to meet this new requirement, Carter Ground Fueling Division conducted destructive testing of pressurised pit valve and coupler arrangements. During these tests, it was discovered that the aluminium poppet in their 60554 and 61654 pit valves could be damaged by the surge pressure generated with the rapid closure. Some older pit valve housings could also be damaged by these high pressures.

All new Carter Ground Fueling Division 60554 pit valves produced from 2002 with a serial number greater than 12207 and all 61654 pit valves produced from 2002 with a serial number greater than 1289 meet the requirements of API/IP Specification 1584 Third Edition. Almost all Carter pit valves manufactured before these will require modification to meet the new requirements. In many cases the modification simply consists of changing the aluminium poppet for a stronger plated steel one. For some valves a more significant investment is required. Details of the modification kits are included in the Carter Ground Fueling Division Product News dated September 25 2002.

The API/IP 1584 Third Edition requirements are not retroactive. However, the JIG Member Companies believe that this important safety modification should be carried out on all affected Carter Pit Valves and strongly recommend that this be implemented as soon as possible.

Required Action by Hydrant Operators

Identify any Carter pit valves that require modification, purchase the modification kits from Carter Ground Fueling Division and install them as soon as possible and within 12 months of the date of this Bulletin.

Hydrant Couplers meeting API/IP 1584 Third Edition

Currently none of the approved manufacturers are marketing hydrant couplers that meet the breakaway requirements of the Third Edition. However, some testing has been done and it is expected that Carter couplers meeting the 4000 to 5000 pounds breakaway strength will be available early in 2005. JIG Member companies will install some of these for a 12 month trial period at selected locations. The companies propose to add the new coupler model to their lists of permitted equipment but only following successful trials.

Couplers meeting the breakaway requirements of the Third Edition of API/IP 1584 need to be sufficiently robust over a period of time and not liable to premature failure due to wear in service. Maintenance requirements will also need to be clarified by the manufacturers.

Required Action by Into-plane Services

Until successful trials over a 12 month period have been completed, no new hydrant couplers claiming to meet Third Edition requirements should be purchased. In the interim, for any new purchases of couplers, consideration should be given to the ease of conversion to Third Edition compliance by contacting the manufacturers.

Maintenance of Hydrant Pit Valves and Couplers

During the initial trials performed by Carter Ground Fueling it was found at one location that the tops of some hydrant pit valves had been machined by the Hydrant Operator. This is not acceptable practice. Worn parts should be replaced.

Pit valves and hydrant couplers should be maintained in accordance with manufacturers' requirements. Only manufacturer-approved spare parts may be used. No unapproved modifications to couplers or pit valves are allowed. The machining of worn parts is unacceptable.

Dual Air/Lanyard Operated Pilot Valves

Air-operated pilot valves have some advantages over those that are manually operated. These include the closure of the pit valve in response to the release of the deadman or air line rupture which may be caused by impact from a vehicle on the hydrant coupler assembly.

JIG Guidelines (Section 3.5.1) states that all new hydrant systems should be equipped with air operated and lanyard operated dual pilot pit valves. It is also recommended that existing 4" lanyard operated pit valves be fitted with dual pilot valves.

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