

More on JP-8 Fuel & Basecamp Equipment [8 msgs]

From: campbell@ufomind.com (Glenn Campbell, Las Vegas)
Date: Tue, 20 May 1997 09:24:18 -0800
Subject: More on JP-8 Fuel & Basecamp Equipment [8 msgs]

[Responding to previous messages about the "JP-8" fuel truck seen at Basecamp.]

From: The Lurker
Subject: Re: AREA 51: "JP-8" Fuel at Basecamp?
Date: Sun, 11 May 1997 13:24:32 -0500

Just thought I'd drop a few notes on ya, to add to the Basecamp info.

[See http://www.ufomind.com/area51/org/basecamp/pix/fuel_truck.jpg]

In the closeup picture of the fuel truck, the item at the very right hand side of the photo is a "Lite-all". These units are found on every military flight line. They have a generator inside to power the large lights on top (which can be extended on scissor jacks to provide lighting on top of most aircraft). They are also used to provide 60 Hz power to commercial test equipment when used on the flight line. The item to the left of the lite-all is possibly a DASH-60 aircraft power cart, although it is a little smaller than I remember. The DASH-60 power cart generates 28VDC or 400 HZ power as needed for aircraft. Since both of these items are OD green, they are likely standard AGE gear, found at any airbase where aircraft are housed or maintained. The two items between the truck and the DASH-60, being painted white, are a little less common. The right most white item is possibly a fuel tank, but more likely a LOX tank. LOX would be present for life support systems aboard high flying aircraft, not necessarily as a fuel. The left most item reminds me of a large commercial power generator cart, in the 50-100 KW range.

Concerning the picture of the "small radar/optical dome" (<http://www.ufomind.com/area51/org/basecamp/pix/dome.jpg>), this device is most likely a tracking camera/telescope, probably manufactured by Contraves (a large european consortium). These items litter the test range landscape around this area (Eglin) and in the Cape Canaveral area as well. The Contraves Surveillance camera web page can be found at: <http://www.pagecreations.com/contraves/contraves.html>

Finally, the picture of the "globe-like device" (<http://www.ufomind.com/area51/org/basecamp/pix/globe.jpg>) is probably a tracker mount. These devices are used to track aircraft in flight and direct the Contraves cameras to record air-drops of munitions or test flights. The trackers can utilize several methods to track an aircraft, such as passive, as in the "TV-tracker", or active, as in radar or IR lasers. This particular model appears to be manufactured by Vitro Services, a division of Tracor Flight Services, located in Fort Walton Beach, Florida (near Eglin AFB). Here is the web page for Vitro Services: <http://www.vitrosvs.com/>, or try: <http://ae.vitro.com:8000/>, for the parent company.

Thank for the excellent web site and for the outstanding mailing list!
It never fails to cheer me up!

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From: Dave Bethke <bethland@ix.netcom.com>
Subject: JP-8 revisited
Date: Tue, 20 May 1997 10:57:21 -0400 (EDT)

In a post from rec.aviation.misc --

> > JP-5 is also the Army standard fuel
> > Mark

> I think you mean JP8. It is used by all the services as a standard
> fuel. I've flown into 11 different Air Force/Army/Navy/Marine bases in
> the last month, and every one of them had trucks with JP-8 stamped on

> the side.
> Matt

Also, at <http://www.swri.org/3pubs/ttoday/summr96/tecfiles.htm>, a promotional page for a contractor, it states "There were also occasions when the military had no convenient means of converting more widely available commercial Jet-A fuels to the military jet fuel, JP-8, the single fuel on the battlefield."

I had thought that if JP-8 were used exclusively by on branch of the service we might have a clue as to who runs Basecamp and, maybe, Area 51. But alas, the clue meter is reading zero.

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From: "m.d. best" <hondo@zoomnet.net>
To: "campbell@ufomind.com u(" <campbell@ufomind.com>
Subject: ""JP-8""
Date: Fri, 09 May 1997 23:26:26 -0400

Regarding the jet fuel postings. I was stationed in Okinawa(Kadena) in 1976-77 as a Crash Rescue Firefighter. I worked around the infamous "Habu" or SR-71. If memory serves, it was fueled with JP-8. I spent the last decade on Kwajalein in the same field. During that time DoD transitioned to JP-5 which is the same as Jet A-1. I was told that JP-4 is no longer used. Feel free to post this with my name.

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From: IDMA@aol.com
Subject: Re: AREA 51: "JP-8" Fuel at Basecamp?
Date: Fri, 9 May 1997 13:07:39 -0400 (EDT)

While I was in the Air Force I was stationed at Kadena Air Base in Okinawa. We had the Habu (SR-71) there and as I was in Supply some of my friends were in POL (Petroleum, Oils, and Lubricants). They did the fuel loading on all aircraft. At that time (1976) the SR-71 took JP-6 fuel. The F-4 and such took regular JP-4.

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From: [withheld by request]
Subject: "JP-8" Fuel at Basecamp (May 8)
Date: Fri, 09 May 1997 09:40:22 -0500

JP-8 is the common fuel used in military aircraft today. It somewhat replaces the JP-4 and JP-5 stuff that was used for years. The thinking was to get a common fuel for aircraft and surface equipment (that burn diesel fuel). Most turbine engines can have their fuel controls adjusted to burn it (such as in your reports of helicopters around Area 51). Many of us who are/were in the maintenance test pilot business prefer the commercial JET-B for helicopters because it is closer to the JP-4 the engines were designed for. The commercial JET-A is similar to the JP-5 stuff And yes, it (JET-A/JP-5) does have a lower flashpoint. JET-B/JP-4 has a higher flashpoint because it is a lot closer to being gasoline than it is to being kerosine. The bottom line is that there is nothing unusual about JP-8 unless you consider that Basecamp being "up to date" with the present technology as unusual!

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From: Dan Zinngrabe <quellish@macconnect.com>
Subject: Re: AREA 51: "JP-8" Fuel at Basecamp?
Date: Fri, 9 May 1997 11:45:58 -0700

JP-8, is, actually, pretty common. Basically it's the same thing as JP-4, though formulated for more modern engines- like those super-duper detergent gasolines you see on TV that don't actually do much. JP-8 is being slowly phased in as the main fuel for AF jets, in place of JP-4. JP-7 is the fuel for the SR-71, and it is actually not any more corrosive than JP-4- it's really the chemical needed to start the SR-71's engines, triethylborane, that is extremely corrosive. Very few things difference a KC-135A from a KC-135Q 9the Q is the version used to support the SR-71)- the only major differences are slightly different fuel pumps and a different set of nav avionics for meeting up with the SR.

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[From an unknown website, via M.D.]

Jet fuels in the U.S. have evolved as follows:

JP-1 was the first jet fuel specified in the US (1944). It was a kerosene with a freeze point of -77 oF and a [flash point temperature](#) of 109 oF minimum. However, its availability was limited to only about 3% of the average crude oil.

JP-2 (1945) was an experimental fuel that was found to have unsuitable viscosity and flammability characteristics.

JP-3 (1947 to 1951) was the second operational fuel. It had a high vapor pressure similar to aviation gasoline. Due to its high vapor pressure and the fact jet aircraft tended to fly at higher altitudes than reciprocating engine-powered aircraft, fuel boil-off losses and vapor lock were problems at high altitudes.

JP-4 (1951 to 1995) fuel, also designated as NATO F-40 and Jet B, is a blend of gasoline and kerosene, it has a reid vapor pressure restriction of 2 to 3 psi to reduce boil-off and vapor lock problems. Its freeze point is -77 oF and has a flash point temperature around zero oF (not a specification requirement). JP-4 was the US Air Force's primary jet fuel from 1951 to 1995. In the mid 1980's an anti-static additive was added to JP-4 for fire safety reasons.

JP-5 (1952 to the present) fuel, also called NATO F-44, is used by the Navy. It has a 140 oF (Min.) flash point temperature. This kerosene fuel is currently the US Navy's primary fuel and was developed mainly due to fire safety concerns on naval ships. This fuel has a freeze point temperature of -51 oF. JP-5 does not have the anti-static additive.

Jet A and Jet A-1 (1950's -present) are the two fuels used by the commercial airlines and both fuels have a 100 oF (Min.) flash point temperature for safety reasons. Jet A has a freeze point of -40 oF whereas Jet A-1 has a freeze point of -53 oF. For this reason Jet A being more available and therefore more widely used. The commercial fuels in the US are not required to have the anti-static additive and generally do not have the additive.

JP-8 was first introduced at NATO bases in 1978, also called NATO F-34, and is currently the US Air Force's primary fuel. JP-8 is very similar to Jet A-1. JP-8, however, contains an icing inhibitor, corrosion/lubricity enhancer and anti-static additive. See Figure 3. Conversion to JP-8 was virtually complete in 1995 and was accomplished for fire safety and combat survivability reasons.

JP-6 (1956) was developed for the XB-70, is similar to JP-5 but with a lower freeze point (-66 oF) and has improved thermal stability. Its flash point temperature is not a specification requirement.

JP-7 (1960's) was developed for the SR-71, has a low vapor pressure and excellent thermal stability for high altitude and Mach 3+ operations. Its freeze point is -47 oF and has a flash point temperature of 140 oF (Min.).

JPTS (1956) was developed for the U-2 and is a highly refined kerosene with a low freeze point of -64 oF and a thermal stability additive package (CJFA-5). Its flash point temperature is 109 oF (Min.).

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From: [withheld by request]
Subject: JP-8 at Basecamp - More
Date: Sat, 10 May 1997 22:34:32 -0700

The JP-8 Basecamp information also caught my eye (like Rich McIntosh in his 30 April message) for the same reasons. I knew that JP-7 was very unique to the Blackbird series of airframes and so thought that JP-8 might be at least a bit telling. After a short Alta Vista search for JP-8, I found a piece from the F-15 folks at Langley AFB advertising their recent transition to JP-8 (much like the 9 May message describing a similar transition at Cannon AFB). Alas, it appears that the Basecamp fuel truck is unfortunately no smoking gun.

However, I also found an interesting defense technology plan that describes the ability of JP-8 to be heated to higher temperatures, thus less fuel is needed for cooling purposes at very high speed flight. This is consistent with the new F-22 (and any similar generation aircraft) and its ability to cruise at Mach while not even being in afterburner. I have included some snipped pieces from the plan (URL at the top), feel free to slice it off if too large. It is probably just a coincidence, but it's interesting that the JP-8 discussion is surrounded by research into Mach 8 and Mach 12+ flight.....hmmm.

So it would seem that one should expect no less than JP-8 on the side of a fuel truck at Basecamp. But it could refuel anything from a 1970s vintage fighter (Red Flag) to the latest dreams being test flown at Area 51, any of which might make an emergency landing there.

DEFENSE TECHNOLOGY PLAN

September 1994

Department of Defense Director, Defense Research and Engineering...

<http://www.acq.osd.mil/ddre/docs/Techplan.txt>

Size 461K - 21 Dec 94

-----snip-----

3. High Speed Propulsion and Fuels

a. Goals and Timeframes. The major goals for high speed propulsion are:

1996

+100% effective impulse for air/air missiles via a variable-flow ducted rocket (VFDR)

1998

Flight demonstration of hydrogen-fueled scramjet to Mach>12

1999

Mach 0-6 operation of combined cycle engine with hydrocarbon fuels

2005

Flight demonstration of Mach 8 hydrocarbon-fueled scramjet;

The major goals for fuels are:

1998

+50% fuel cooling capacity with JP-8+100

2005

5X increase in fuel cooling capacity with JP-900

2005

5-10X increase in fuel cooling capacity with endothermic fuels

-----snip-----

b. Potential Payoffs and Transition Opportunities. In high-speed propulsion, the VFDR will double the no-escape zone in air/air combat, and is initially targeted for AMRAAM P3I; the demonstration of a scramjet to M>12 may lay the foundation for single-stage-to-orbit space launch; and the demonstration of combined cycle and scramjet propulsion systems will enable defense against time urgent targets at long ranges, as in air defense and boost-phase intercept of ballistic missiles. In the fuels area, JP-8+100 will eliminate the need to carry excess fuel for heat-sink purposes on some aircraft, and is immediately transitionable when demonstrated; higher heat capacity fuels enable high-speed vehicle operation. The hydrogen-fueled scramjet is also directly applicable to civil space launch-approximately 50 percent of the planned FY 1995 funding in this sub-area is devoted to technology with significant dual-use potential.

-----snip-----

- Fuels

+100% effective impulse for air/air missiles

Flight demo of hydrogen fueled scramjet to M>12

Mach 0-6 operation of combined cycle engine with hydrocarbon fuels

+50% fuel cooling capacity with JP-8+100

Flight demonstration of Mach-8 hydro-carbon fueled scramjet

5X increase in fuel cooling capacity with JP-900

5-10X increase in fuel cooling capacity with endothermic fuels

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