Hydrant Dispenser ZS-01 (Chassis : DAIMLER-BENZ, Type L 407 D)

Hydrant Dispenser ZS-01 (Chassis : DAIMLER-BENZ, Type L 407 D) in 1986

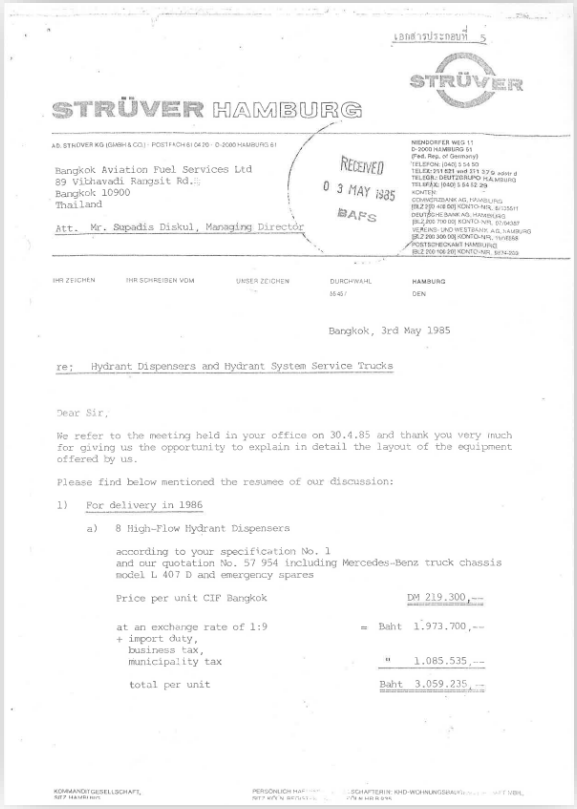
Hydrant Dispenser ZS-01 (Chassis : DAIMLER-BENZ, Type L 407 D) in 2021

Hydrant Dispenser ZS-01, the introduction of BAFS of operating business with sustainability guidelines

Hydrant Dispenser ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) in 1986

BAFS was used Aircraft Hydrant Dispenser ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) for refueling service at Don Mueang Airport on October 1, 1986, and is considered the first BAFS's chapter on sustainable business practices to deliver value to all stakeholders covers the economic, social and environment. Besides, BAFS provides enclosed jet fuel services from fuel storage and refueling services at aircraft wingtips (economic dimension) without causing evaporation of oil that is harmful to employees, surrounding communities (society dimension) and does not cause environmental pollution from business operations (Environmental dimension). BAFS's Hydrant Automation System service technology was regarded as the most advanced system in Southeast Asia. The ZS-01 was stationed at Don Mueang Airport to service airlines and tourists traveling from around the world with international standard safety for almost 18 years (1986 – 2004) before the DAIMLER-BENZ chassis, the Type L 407 D of the ZS-01 was replaced byType Atego 712 Euro 2,3. Additionally, the Hydrant Dispenser system was developed from the old car to install it on a new car (Thus, the car code ZS-01 is still in use until now but changed car parts by time).

The History of ZS-01 (Chassis : DAIMLER-BENZ, Type L 407 D)



STRÜVER HAMBURG

Bangkok Aviation Fuel Services Ltd
89 Vibhavadi Rangsit Rd.,
Bangkok 10900
Thailand

Att. Mr. Sapadis Diskul, Managing Director

RECEIVED
0 3 MAY 1985
BAFS

Bangkok, 3rd May 1985

re; Hydrant Dispensers and Hydrant System Service Trucks

Dear Sir,

We refer to the meeting held in your office on 30.4.85 and thank you very much for giving us the opportunity to explain in detail the layout of the equipment offered by us.

Please find below mentioned the resumee of our discussion:

1) For delivery in 1986

a) 8 High-Flow Hydrant Dispensers

according to your specification No. 1
and our quotation No. 57 954 including Mercedes-Benz truck chassis
model L 407 D and emergency spares

Price per unit CIF Bangkok DM 219.300,--

at an exchange rate of 1:9 = Baht 1.973.700,--
+ import duty,
business tax,
municipality tax " 1.085.535,--

total per unit Baht 3.059.235,--

The document of purchasing a Hydrant Dispenser car in 1959

The first group of Aircraft Hydrant Dispensers by BAFS to be stationed for aircraft refuel service consisted of 8 vehicles, starting from ZS-01 until ZS-08. The Aircraft Hydrant Dispensers is designed especially for the Hydrant Automation System, which consists of oil quality control equipment and adequate fuel pressure controlling before refueling to the aircraft. Notably, the system is safe with aviation regulations and international standards. The system was produced by "STRUVER" HAMBURG GERMANY in 1985. The price was 3,059,235 THB per unit

Technical Specification **L407D**

Plated G.V.W. 3500 kg./4680 kg.
(3.44 tons/4.6 tons)

Engine: L407D—OM 616 4 cylinder diesel
Bore 91 mm. (3.58 in.)
Stroke 92.4 mm. (3.64 in.)
Capacity 2404 cm.³ (147 in.³)
Nett b.h.p. 48 kW. (65 b.h.p.) @ 4200/min
Torque 137 Nm. (100 lb. ft.) @ 2400/min

Gearbox: M.B. 4 speed synchromesh
Ratios 1st 5.455
2nd 2.707
3rd 1.543
4th 1.000
Reverse 4.464

Clutch: Single dry plate 228 mm. (9 in.) dia.

Front Axle: Rigid stub axle

Rear Axle: M.B. hypoid
Ratio 5.857:1 (std)

Steering: M.B. recirculating ball

Frame: Ladder type steel channel

Suspension:
Front Leaf springs with shock absorbers
Rear Two stage leaf springs with shock absorbers

Braking System:
Service Hydraulic with vacuum booster
Secondary/Parking Mechanical pistol grip

Friction Area:
Front 665 cm.² (103 in.²)
Rear 665 cm.² (103 in.²)
Total 1330 cm.² (206 in.²)

Wheels: Disc type 4.5E-16

Tyres: 6.50 × 16 – 10 ply*

Electrical System: 12V starting and lighting

Capacities:
Fuel 60 litres (13.2 galls)
Oil 5 litres (1.1 galls)
Water 11 litres (2.4 galls)

Kerb Weights: (kg.)*

Chassis Cabs:		
Wheelbase	2.95 m.	3.50 m.
	1720	1790
Vans:		
Wheelbase	2.95 m.	3.50 m.
1600 mm. roof	2265	—
1750 mm. roof	2295	2475

Plated Weights: (kg.)

Front	1600	1600
Rear	2240	3360
G.V.W.	3500	4680

The above kerb weights are approximate only for vehicles in standard specification.

*A special version of the L407D van is available at 3500 kg. g.v.w. comprising the 3.5 metre wheelbase, 1750 mm. roof. The specification is as stated above except 6.00 × 16 – 10 ply tyres are fitted. Kerb weight is 2400 kg. Please refer to your local Dealer for further information.

Technical document

Aircraft Hydrant Dispenser CODE ZS-01

* CHASSIS : DAIMLER BENZ, Type L 407 D
* CHASSIS No. : WDB 309 100 20 730369
* YEAR BUILT : 1986
* ENGINE : OM 616 910 00 054252 Diesel 4 Cylinder
* CAPACITY : 2.4 l / 2399 cc / 72 HP.
* GEAR BOX : MB 4 Speed manual transmission
* ELECTRICAL SYSTEM : 12 V.
* WEIGHTS : 5200 KG

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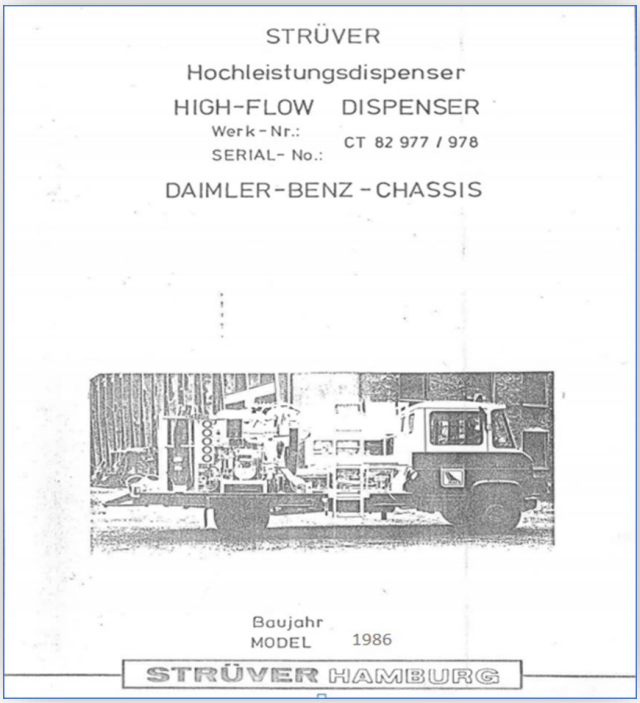
* WEIGHTS : 5200 KG
* TYRES : 7.00 – 16

Aircraft Hydrant Dispenser Manual


STRÜVER

Hochleistungsdispenser

HIGH-FLOW DISPENSER

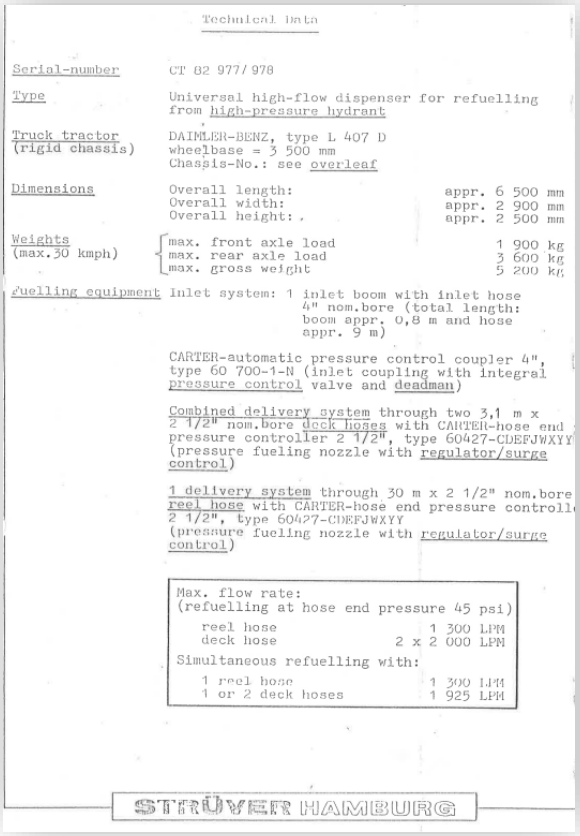
Werk-Nr.:
SERIAL-No.: CT 82 977 / 978

DAIMLER-BENZ-CHASSIS

Baujahr
MODEL 1986

STRÜVER HAMBURG

The details of Aircraft Hydrant Dispenser


Technical Data

Serial-number	CT 82 977/ 978
Type	Universal high-flow dispenser for refuelling from high-pressure hydrant
Truck tractor (rigid chassis)	DAIMLER-BENZ, type L 407 D wheelbase = 3 500 mm Chassis-No.: see overleaf
Dimensions	Overall length: appr. 6 500 mm Overall width: appr. 2 900 mm Overall height: appr. 2 500 mm
Weights (max.30 kmph)	max. front axle load 1 900 kg max. rear axle load 3 600 kg max. gross weight 5 200 kg
Fuelling equipment	Inlet system: 1 inlet boom with inlet hose 4" nom.bore (total length: boom appr. 0,8 m and hose appr. 9 m) CARTER-automatic pressure control coupler 4", type 60 700-1-N (inlet coupling with integral pressure control valve and deadman) Combined delivery system through two 3,1 m x 2 1/2" nom.bore deck hoses with CARTER-hose end pressure controller 2 1/2", type 60427-CDEFJWXYY (pressure fueling nozzle with regulator/surge control) 1 delivery system through 30 m x 2 1/2" nom.bore reel hose with CARTER-hose end pressure controll 2 1/2", type 60427-CDEFJWXYY (pressure fueling nozzle with regulator/surge control)

Max. flow rate:
(refuelling at hose end pressure 45 psi)

reel hose	1 300 LPM
deck hose	2 x 2 000 LPM

Simultaneous refuelling with:

1 reel hose	1 300 LPM
1 or 2 deck hoses	1 925 LPM

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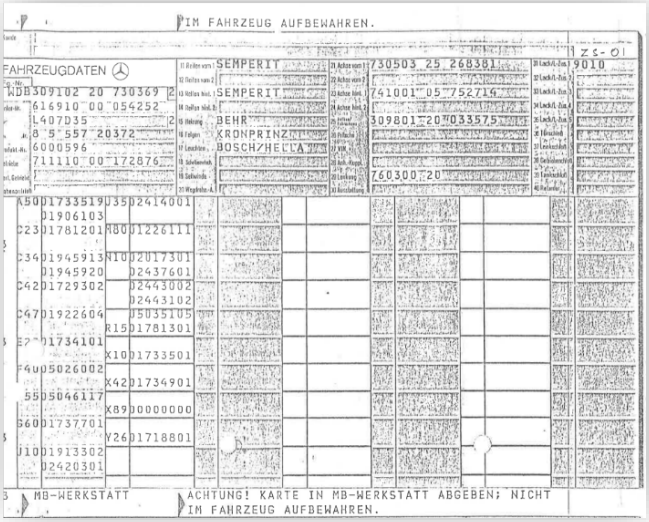
CHASSIS DAIMLER BENZ, Type L 407


IM FAHRZEUG AUFBEWAHREN.

FAHRZEUGDATEN

WDB309102 20 730369	SEMPERIT	730503 25 268381	ZS-01		
616910 00 054252	SEMPERIT	741001 05 752714	9010		
L407D35	BEHR	309801 20 033575			
8 5 557 20372	KRONPRINZ				
6000596	BOSCH/HELLA				
711110 00 172876		760300 20			

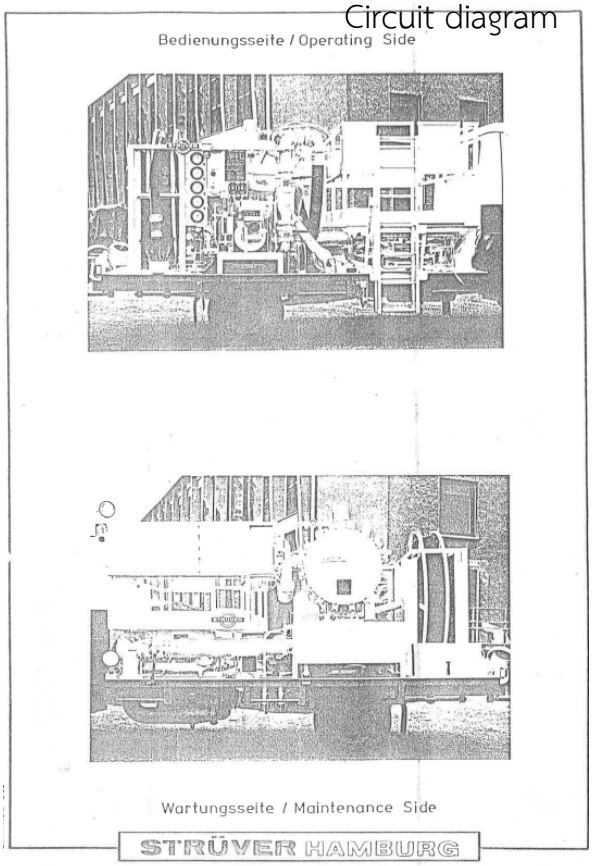
A50 01733519	J35 02414001				
	01906103				
C23 01781201	R80 01226111				
C34 01945913	N10 02017301				
	01945920	02437601			
C42 01729302		02443002			
		02443102			
C47 01922604		J5035105			
E7 01734101		R15 01781301			
		X10 01733501			
F40 05026002					
		X42 01734901			
55 05046117					
		X89 00000000			
G60 01737701					
		Y26 01718801			
J10 01913302					
	02420301				

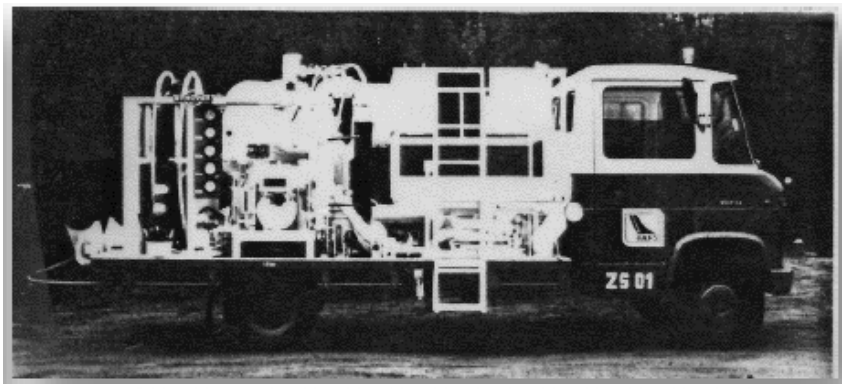
MB-WERKSTATT

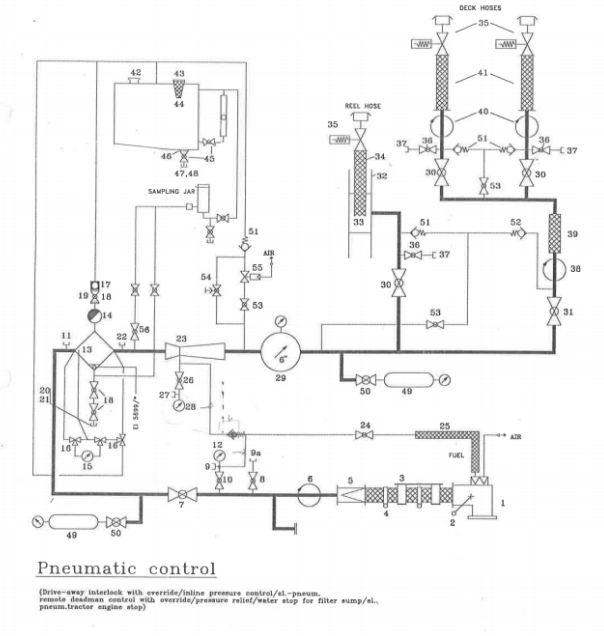
ACHTUNG! KARTE IN MB-WERKSTATT ABGEBEN; NICHT IM FAHRZEUG AUFBEWAHREN.

The information of Aircraft Hydrant Dispenser Kit

Circuit diagram







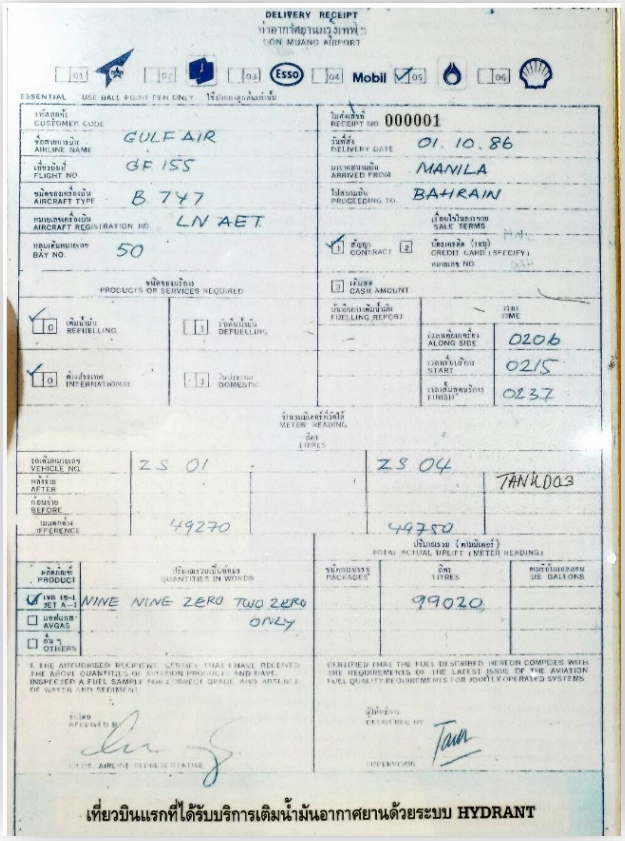
1. DELIVERY HOSES
   - 1.1 Inlet hose : 4” x 9 m
   - 1.2 Transfer hose : 4” x 3 m
   - 1.3 Deck hose : 2 ½ x 3.1 m (Max. flow 2 x 2000 lpm)
   - 1.4 Reel hose : 2 ½ x 30 m (Max .flow 1 x 1300 lpm)
2. PIPE WORK : AL. Alloy
3. FILTRATION : Vessel Warner Lewis / Velcon HV-2845 B
   Max flow 1030 USGPM
   1st stage Coalescers I – 64487 TB * 7
   2nd stage Separator SO – 640 V * 2
4. FLOW METER : 6” Avery Hardol l- bulk meter,
   Max. flow rate 3860 lpm
5. PRESSURE CONTROL : Primary Control, Carter SM 60427 with SM 60129 / 45 psi
   : Secondary Control, Cater Automatic PCV SM 60700-1-N
6. DEADMAN : Pneumatic Deadman Control PCV with Alfon Harr Electrical

Deadman switch

7. PLATFORM : Scissor Lift with Hydraulic Drives

Aircraft Hydrant Dispenser CODE ZS-01 is recorded in the history of BAFS and Thailand as the first vehicle that uses Hydrant Automation System technology in the aviation fuel service business. The ZS-01 was in service with GULF AIR aircraft BOEING 747 Flight GF 155 at 02.06 on October 1, 1986, the inaugural flight at Don Mueang Airport.

The document of refueling the first flight with Hydrant system on the first flight



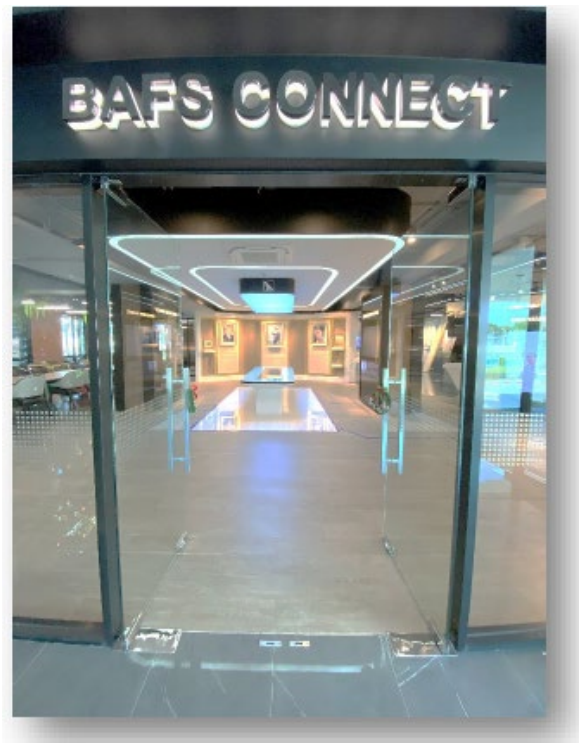
M.R. Supadis Diskul (5th from left) and the BAFS management team with ZS-01 (Behind) and inaugural flight

M.R. Supadis Diskul

Chairman of the Executive Committee of BAFS

M.R. Supadis Diskul, CEO of BAFS, has created BAFS Connect as a venue to showcase historical stories from past to present that are worth recording as part of BAFS GROUP's history and this Hydrant Dispenser ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D). He also entrusted TARCO, BAFS INTECH company, and related parties to improve Hydrant Dispenser ZS-01 as the first day of service. Besides, showcased the collaboration with the Refueller ZS-50 (R-05) as company's first hydrant dispenser and refueling vehicle. This could reflect the ideology of doing business following sustainability guidelines, creating energy security, and promoting growth in the aviation industry of Thailand.

BAFS CONNECT at Tower 9



Refueller ZS-50 (R-05)

Maintenance of ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) as the first day of duty.

Prepare ZS-01 (Chassis : DAIMLER-BENZ, Type L 407 D) to getting on the slide for system improvement and repair.

ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) has been decommissioned since 2004 with a very good conditions.

Steel car structure, strong and durable, as a word... "legend"

When slide car takes ZS-01(Chassis: DAIMLER-BENZ, Type L 407 D) to BAFS INTECH factory.

Mr. Boonrawd Ladlod, Technical Consultant of BAFS INTECH (Former BAFS Maintenance Manager) Checking car's condition

Skilled technician team was started dissecting the ZS-01 for the paint process and engine system maintenance.

Painting and streaming for large cars in BAFS INTECH factory

Chassis modeling, started to see previous ZS-01's structure.

Parts of Hydrant Dispenser and Engine system

Assemble of Hydrant Dispenser system that uses oil pressure pumped from the oil storage tank through the underground Hydrant tube. Then, split to the aircraft stand, the Hydrant Dispenser vehicle will provide refueling service at the stand.

The installation of Hydrant Dispenser on ZS-01 (Chassis : DAIMLER-BENZ, Type L 407 D)

ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) as the legend of Hydrant Dispenser from BAFS

ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) and the technician team with extensive experience in aviation fuel service vehicles.

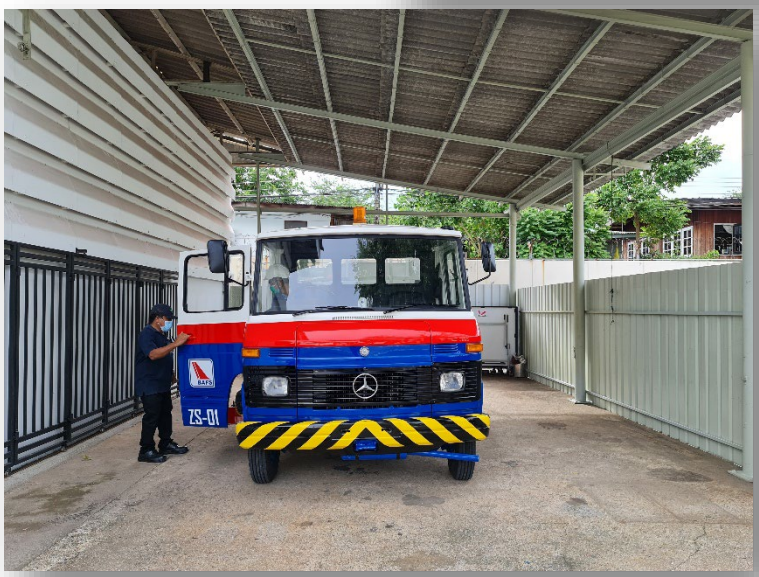
(Hydrant Dispenser and Refueller) of BAFS INTECH

...The Legend: Coming Home...

The first Hydrant Dispenser of ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D)

that was provided services to airlines and tourist from all over the world at Don Mueang Airport 18 years ago

(between 1986-2004) before being discharged and returned to BAFS on 3 August 2021



My experience with Hydrant Dispenser ZS-01

When I was working at BAFS (Don Mueang) in 1987 as a Temporary Operations Officer (Temporary), during that time, all operating personnel had to be affiliated with IPS Company (first generation). The IPS will be consolidated into BAFS later.

I had the opportunity to work in various departments of OJT (On the Job Training), starting from receiving oil from the tanker trucks (Bridging) of the IPD Department (Current DZ Department) (at that time, there was not any FPT's oil pipeline system). Later, I crossed over to the newly built Into-Plane Substation by training refueling at the IPI Department (current AZ Division) and refueling the domestic airline. The plane will park at the apron opposite the domestic terminal (currently Pier 6 area). The refueling truck that serves domestic airlines will be a 12,000-liter Refueller, popularly known as PTT because it is a car with PTT company logo. It was my first experience with refueling an airplane. Then, I was promoted to responsible for refueling services for international airlines. (International), which has 2 types of refueling vehicles in use, including:

- Refueller cars with a capacity of fuel tanks from 30,000 liters to 60,000 liters, both single-stage tractors (Semi-Trailer). The trailer-type Refueller cars of that era have a complex system, difficult to drive, and need to wait for air pump to fill in the air tank, then release the brake system. and Interlock systems. Thus, we can drive the car out of service. Driving under the aircraft's wing requires extreme caution. Must be accurate in estimating the parking distance to match the position of the fuel line connection. There are many models, brands, and systems of Refueller cars, resulting in difficulty for users.

- 8 Hydrant Dispenser car (ZS-01 to ZS-08) are aircraft refueling vehicles with modern technology and equipment. In addition, 8 Hydrant Dispenser car can control oil quality and fuel pressure before supplying to aircraft effectively. The Hydrant Dispenser car was started to be used with the Hydrant System, where the oil pipeline was laid from the Don Mueang Aviation Fuel Storage Station to the under the parking lot of Don Mueang Airport in 1986

Both the BAFS Hydrant Dispenser and Hydrant System were the most advanced in Southeast Asia. It is great pride that BAFS has owned the Hydrant Dispenser, also show off to passengers from all over the world. Personally, I was excited and have the ambition to drive a Hydrant Dispenser, refueling aircraft in my honor. Until I had the opportunity to drive the ZS-01 to provide refueling services for international airlines and a sense of touch, the first step was to get into the driver's seat and start the engine from the parking lot to the pit service. The driving process is easy and flexible in service under the wing, including a modern high-precision control system. The service is faster than the refueler when it comes to refueling the plane coupled with the Hydrant System. It is a vehicle that all staff members love and are proud of every time they serve with this Hydrant Dispenser. I still remember that day. As if it was just a short time ago, the ZS-01 marks the beginning of one point of pride in our history, BAFS GROUP.

M.R. Suphadis Diskul, Executive Chairman of BAFS, recognizes the importance of recording the Hydrant Dispenser in the history of the BAFS GROUP. TARCO, BAFS INTECH, TZ-BAFS, and related parties are encouraged to work together to improve and reawaken the spirit of ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) to commemorate the exhibition along with the history of the company's operations. Also, let the next generation of BAFS GROUP employees be proud of where it started through the stories until growing up to the present. Moreover, continue to grow and branch to create new pages of history for the BAFS GROUP in the future.

Anirut Bunyatiranana
Managing Director
BAFS Intech Company Limited (BI)

My impressive experience with Hydrant Dispenser ZS-01

I joined BAFS in 1986 as an air service operator under IPS (which later cooperated with BAFS). I was responsible for refuel the plane at Don Mueang Airport with a refueling truck Refueller that has a capacity of 30,000 liters to 60,000 liters. Oil companies such as Shell, Esso, Caltex, and PTT deliver jet refueling schedules to the Aviation Service Department. with details of airlines' flight schedules. The amount of oil to be serviced Air service personnel then drive the Refueller to provide refueling services according to the plan given, with Refueller cars of many brands, sizes, and systems. Importantly, aeronautics must use caution in the process by driving and calculating the parking distance to match the position of the refueling line under the plane's wing. In addition, the Refueller car must load the fuel into the tank first and then run to fill the aircraft along with the pit stop, which wastes much time.

In September 1986, BAFS brought the first Hydrant dispenser, No. ZS-01 to ZS-08 into service with various airlines at Don Mueang Airport. That was the first time I saw it, and I was excited about the Hydrant Dispenser with excellent design. It is much smaller and more maneuverable than a Refueller. Since the Hydrant dispenser does not need to carry a fuel tank thus, it is highly safe. There is no limit on the amount of fuel for refueling because the Hydrant System uses the oil pressure pumped from the oil storage tank through the underground Hydrant pipe. Then, split to the landing hole of the aircraft. These are the features of the "Hydrant Dispenser."

I am very proud to be the first employee to bring a Hydrant Dispenser to service with various airlines, especially this ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) through stories of BAFS and today when the ZS-01 was refurbished and put back on display. I am so glad that my friend has returned to BAFS once again.

Phachara Oranwat
Director of Business Development and Marketing
Fuel Pipeline Transportation Limited (FPT)

The experience of Hydrant Dispenser ZS-01 in Maintenance Department

I started working at BAFS on August 1, 1986, as a maintenance technician. In the first working period, I was an intern in the maintenance of refueling vehicles of Shell, Esso, and Caltex, which are oil companies. The 3 companies were located next to each other as an oil depot at the Don Mueang Airport Terminal, an No. 2 Entrance-Exit of airport nowadays.

Maintenance team, 1986

Ms. Boonrod Ladlod, (BAFS) Ms. Suksawad Teewawet, (Caltex) Ms. Prakol Chamornkul, (Esso) Ms. Kitirat Chirarak, (Shell) Ms. Thiwa Maktheeranuwat (Esso)

In September 1986, the first batch of 8 Hydrant Dispenser (Chassis: DAIMLER-BENZ, Type L 407 D) cars, namely ZS-01 to ZS-08, were brought to the BAFS Substation Maintenance Department. After that, 3 technicians (Khun Udom Wisutthiwongrat and Khun Chuap Pakachai) gradually installed various equipment such as filters, pipes, hoses, and related components, with Khun Buri Wanchid as supervisor. The Hydrant Dispenser ZS-01 was tested for pressure control and other related systems. At that time, the maintenance department had no prior experience in handling hydrant dispensers (we were familiar with the repair of refueling machines, there are many models, brands, systems. Hydrant Dispenser ZS-01 is the latest BAFS refueling vehicle with modern technology to provide refueling service in parallel with the Hydrant System at Don Mueang Airport. An aviation refueling system is fast, modern, and has visual efficiency and safety that meets international standards by using the pressure of oil pumped from a storage tank through an underground hydrant pipe and separated into an aircraft landing hole. Hydrant Dispenser ZS-01 can run to the refueling service at the standpoint, unlike the Refueller, which has to load the fuel into the tank first and then drive it to the refueling service at the stop takes much time. (In those days, about 14 refueling pits could be used with dispensers only in front of the CARGO Don Muang building, while all other pit stops had to use a Refueller.)

BAFS designated GULF AIR BOEING Flight 747 on October 1, 1986, as the inaugural flight of the Hydrant dispenser. This first flight required 2 vehicles, ZS-01 and ZS-04. When the airline was prompted to start refueling, the technician found that the ZS-01 refueling system was usually working while the ZS-04 system could not fill the oil. The inspection found no air pressure to the Pressure Control Valve to open the oil pressure control system. Due to being unfamiliar with the first use, when there was a problem, it made all of us, even the manager, help guide the problem until the car was back to regular operation as usual. On the same day, employees from existing refueling companies such as Shell, Esso, Caltex, and PTT have joined the same team as BAFS as the only refueling service provider at Don Mueang Airport. Events happened on October 1, 1986. It was impressive to see all employees from different companies when teaming up at BAFS (IPS). When encountering problems, they use the abilities they experience together to solve problem as they have worked for a long time.

The inaugural flight of GULF AIR BOEING 747 (October 1, 1986)

Ms. Suthat Jitsunthorn, Ms. Suksawat Teewawet, Ms. Udom Wisutthiwongrat, Khun Boonrod Ladlod, Khun Buri Wanchid

(Esso) (Caltex) (BAFS) (BAFS) (BAFS)

Later, in 2004, the chassis (Chassis) ZS-01 that has been in use for 18 years was retired and changed the car body from the original DAIMLER-BENZ, Type L 407 D is DAIMLER-BENZ, Type Atego 712 Euro2,3 by lifting the Hydrant Dispenser system from the old car to install on the new one to use refuel service at Suvarnabhumi Airport on 29 September 2006

When the ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) would be brought back to be renovated and repaired for display, I was incredulously excited and delighted as I had a chance to see my old friend. The first time seeing, I couldn't help but go in and caress me to reminisce. It is like the first impression of working together with the maintenance team to fix problems on the inaugural flight reverted to what happened yesterday. Although more than 30 years have passed, the car's condition still has a modern outline. It's no different from the Hydrant Dispenser that BAFS uses today. I promised myself that it would be refurbished and restored to the same condition as when the first Hydrant Dispenser was brought to the BAFS Substation Maintenance in September 1986.

Hydrant Dispenser ZS-01 in 2921 when started the maintenance

Hydrant Dispenser ZS-01 (Chassis: DAIMLER-BENZ, Type L 407 D) is not just an aircraft refueling vehicle that has been restored to like-new condition. It's also like history coming to life to tell the story of BAFS when the first Hydrant Dispenser was used and employees from different companies came to unite. This is the belief Teamwork culture of BAFS people, which has evolved from yesterday to the current BAFS GROUP.

Boonrawd Ladlod
Technical Advisor
BAFS Intech Company Limited (BI)
(Former BAFS Maintenance Manager
Employee ID 110044)