



APFB | Air Portable Ferry Bridge



The World Leader in  
Tactical Military Bridges

# APFB

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The Air Portable Ferry Bridge (APFB) is an evolution of WFEL's classic, battle proven Medium Girder Bridge (MGB) system with a range of applications for military and disaster and emergency relief operations.

First deployed in 2006 by the British Army, the APFB was designed to meet the needs of their light forces in roles that increasingly demanded mobility and flexibility.

Despite its lightweight and portable nature the APFB has a military load classification (MLC) of 35 for carrying tracked or wheeled vehicles.

**Above:** Pictured here in the ferry role at MLC 35; **Below:** Used in an emergency relief operation.



# New benchmark in lightweight versatility

In simple terms the APFB is a 'golf bag' of equipment from which parts are selected for the role required, whether bridging wet or dry gaps or use as a ferry.

The APFB is a modular system that can be easily transported by land, sea or air using its own fold-away trailers, pallets or ISO containers.

APFBs can be carried by C130 aircraft, under-slung as helicopter loads or dropped by air on Medium Stress Platforms (MSPs). They can also be transported by standard light vehicles, trucks and SUVs in both military and civilian applications.

The APFB can be assembled easily by troops or trained civilians making it ideally suited for use in expeditionary, emergency and disaster relief operations conducted by fly forward forces.



“The ferry bridge has an impressive new capability and I was certainly pleased to have had the chance to be one of the first people to get their hands on one.”

Lance Corporal Gort, 59 Indep Cdo Sqn, reporting for *The Sapper Magazine* (UK).

**Top:** Purpose built fold up trailers to carry APFB bridging sections; **Bottom:** Four wheel drive vehicle pulling one of the six trailers required for the APFB Fly Forward; **Left:** Transported by land, sea or air; **Far Left:** Being air dropped.



## APFB Ferry

In this role the APFB is a free ranging roll on/roll off ferry with a MLC rating of 35.

It consists of a modular bridge, with hinged landing bays at each end, mounted across six pontoons.

The bridge structure is secured on the pontoons by pier saddles. Two of the pontoons are fitted with diesel powered propulsion units making the ferry highly manoeuvrable.

### Features

- Each pontoon includes a self-bailing system that allows any water inside to drain away automatically.
- The hydraulics used to raise and lower the landing bays are powered by the diesel engines.
- A pontoon walkway allows the crew to move freely when the ferry is carrying large loads.
- The ferry can operate in 0.8 metres of water.
- It can be constructed with a maximum water speed of 2.5 metres per second.
- The ferry has an operating speed of 3.5 metres per second unloaded and 2.5 metres per second when loaded.

### Deployment and recovery

The APFB Ferry's six pontoons are stackable (nested) and are carried on two dedicated DROPS flatracks with one powered and two standard pontoons per vehicle.

A built-in release system launches the pontoons sequentially into the water. An integrated winch system within each DROPS flatrack recovers each pontoon after use.



Top: A ferry carrying a Warrior APC  
Above: Pontoon recovery. Far left:  
An APFB Ferry.



## APFB Fly Forward

The APFB Fly Forward spans gaps up to 14.5 metres at MLC 35 and is ideally suited to light, fly forward and expeditionary forces.

In the Fly Forward role the bridge sections and launching equipment are transported on no more than six trailers, each towable by standard light vehicles.

Four of the specially designed trailers, when folded, can be carried on a single DROPS Flatrack.

All APFB Fly Forward components have been designed to be lightweight and fit into the available trailer space including a newly designed three-piece bankseat beam, two-piece roller beam and the approach ramps.

The APFB Fly Forward consists of two girders made up of top panels pinned end-to-end which are spaced and supported at each end of the bridge by bankseat beams. Approach ramps are fitted at each end followed by transverse deck units that fill the gap between the girders and, with kerbs added, a roadway of four metres is created.

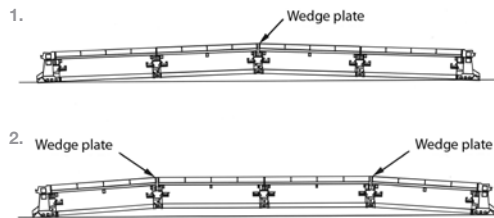
**Clockwise from top:** Warrior crossing an APFB Fly Forward Bridge; DROPS vehicle crossing an Overbridge; lightweight approach ramp unit; one of six trailers required for the 14.5m APFB Fly Forward.

### The APFB Overbridge

When traditional bridging infrastructure has been damaged or is no longer capable of carrying heavy traffic an Overbridge can be deployed allowing both civilian and military traffic to cross.

The inclusion of wedges in key sections of the bridge ensures that the Overbridge is raised sufficiently so as not to damage the existing bridge structure.

As with the Fly Forward, the Overbridge spans gaps of up to 14.5 metres at MLC 35 and is particularly suited to deployment by light and fly forward units.



1. Overbridge with two wedge plate construction and arrows showing the location of the wedge plate at either side of the roadway.
2. Overbridge with four wedge plate construction, with two at either side of the roadway.

## APFB Reinforced

Introducing a Link Reinforcement Set to the APFB Fly Forward design allows its load capacity of MLC 35 to be maintained over gaps of up to 29.2 metres.

The Link Reinforcement Set consists of an adjustable kingpost with both anchor and tension links, which are used in addition to the standard reinforcement links, pins and tensioning assemblies taken from the world renowned Medium Girder Bridge (MGB).

The APFB Reinforced can be built while the reinforcement set is in contact with flowing water. By introducing bridge launch and recovery ramps and rollers deployment is also faster than traditional building methods.

### Safety features

APFB Reinforced also features a new modular fall arrest system that eliminates the risk of crew falling during construction. Operators wear safety harnesses attached by retractable lanyards to two lines suspended from each girder.

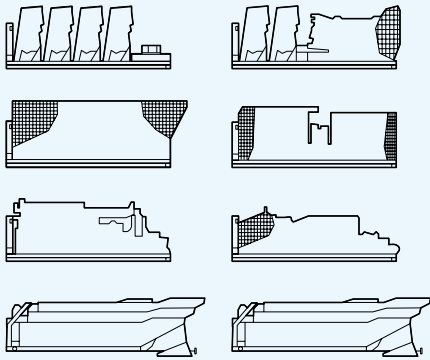


**Top:** An APFB Reinforced can span gaps of almost 30 metres. **Middle:** A DROPS Vehicle crosses an APFB Reinforced. **Above:** Tensioning the Reinforcement kit prior to crossing.

# Transportation

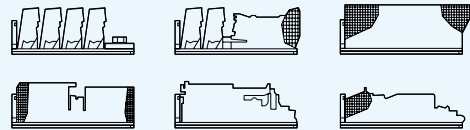
**Set A: The complete APFB system**

Deployment roles: Ferry, Fly Forward, Overbridge, Reinforced



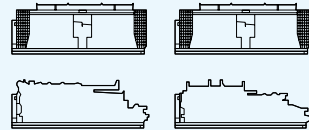
**Set B**

Deployment roles: Fly Forward, Overbridge, Reinforced



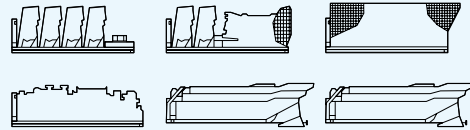
**Set C**

Deployment role: Reinforced



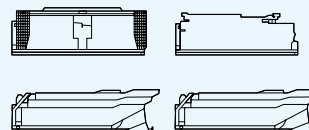
**Set D**

Deployment roles: Ferry, Fly Forward, Overbridge



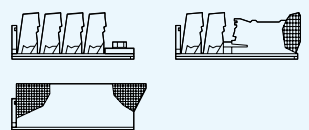
**Set E**

Deployment role: Ferry



**Set F**

Deployment roles: Fly Forward, Overbridge



The APFB's modular nature allows it to be configured in a variety of different sets to suit a wide range of military or disaster and emergency requirements.

The complete APFB system (Set A) is designed for storage and transportation using six standard and two dedicated pontoon DROPS flatracks. Each flatrack can be transported by MMLC and IMMLC vehicles, under-slung from helicopters, in C130 Hercules aircraft or reconfigured for shipping in ISO containers.

While Set A contains all of the necessary equipment to fulfil the complete range of deployment options, eight DROPS flatracks are required to move it. Should only certain deployment roles be required, the DROPS loads can be reconfigured to reduce the necessary logistics.

Five other configurations, as shown in the diagrams, are possible, and can reduce the number of vehicle loads required to as few as three.



Above: pontoons immediately prior to launching.

# Specification

	APFB Fly Forward	APFB Overbridge	APFB Reinforced	APFB Ferry Includes 6 pontoons of which 2 are powered
Maximum Gap	14.5m	14.5m length	29.2m	Free ranging
Width	4m	4m	4m	4m
Military Load Classification	35	35	35	35
Build Crew	1 NCO + 12	1 NCO + 12	1 NCO + 24	2 NCO + 14



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## About WFEL

WFEL has supplied equipment and support to 39 armed forces across the world for over four decades. Our expertise – built on nearly a century of engineering excellence and innovation – ranges from concept design to full scale production of rapidly deployable, modern bridging systems for use in military and disaster relief and emergency scenarios. We also provide a full package of value-added support services including training, inspection, maintenance, repairs and spares, both in the field and at our UK based engineering site in Heaton Chapel, Stockport.