

Yamanashi Hitachi | Japan

### GENERAL DESCRIPTION

The new *FV30* model has been developed to add a robust flail machine to the BM307 series of Hitachi Demining. It is based on a 30-ton class hydraulic shovel dozer with the engine and hydraulic system of a 45-ton class machine. It is capable of bush cutting and mine clearance with 3 m wide drum.

A 2006 survivability test in Cambodia proved that the system can withstand an AV mine blast with only minor repair – and with an operator in the cabin using only ear protectors. The drum is mounted at the rear of the machine and makes final inspection by deminers or dogs easier by ploughing the ground processed by the flail. The 600 mm track shoe makes it reliable on muddy and sticky ground. It can also be used for agricultural work. The base machine is compact and easy to transport, minus the attachments.

One operator controls the machine from a cab protected by special bullet-proof glass (Rexguard) and high-tension steel plates. Critical parts – such as the hydraulic cylinder, fuel tank and hydraulic oil tank – are protected against mine blasts. Consumable parts, such as the hammer, chain and joints, are recyclable.



BM307 FV30 | Flail system

### CLEARANCE METHODOLOGY

The drum rotates up to 400 rpm powered by a hydraulic motor. With a working width of 3,000 mm, the 90 hammers can cut vegetation, fragment stones (maximum diameter 300 mm) and destroy AP mines to a depth of 300 mm. The FV30 has a level plate system and an angle sensor to keep constant excavation depth so that the operator can easily control the machine from the cab.

### MACHINES IN USE TO DATE

#### Rotary cutter

- > Two BM307s (version S16) in Cambodia since 2000.
- > One BM307 (v V20) in Afghanistan since June 2000 (with UNOCHA).
- > Two BM307s (v V20) in Nicaragua since September 2001.
- > One BM307 (v V27) in Vietnam since June 2003.
- > Eight BM307s (v SG16) in Cambodia since July 2003.

- > Fourteen BM307s (v SG16) in Cambodia since June 2005.
- > Two BM307s (v V33) in Angola since August 2007.
- > Two BM307s (one v V23 and one V35) in Afghanistan since September 2007.

#### **Flail hammer**

- > Two BM307s (v V33) in Angola since August 2007.
- > One BM307 (v V35) in Afghanistan since September 2007.

#### **ENGINE, FUEL AND OIL**

- > The BM307 is powered by a 235 kw Isuzu 6WG1 diesel engine.
- > Standard oil types are used for engine, gearbox and hydraulics.
- > Fuel consumption varies from 30 to 45 litres per hour.



BM307 FV30 | Ready for transport

#### **FACTORY SUPPORT**

- > Spare parts – including consumable parts such as cutter bits, bearings, seals, etc. – are included in the purchase package.
- > Availability of spares is good due to a worldwide servicing network.
- > One month training is conducted in the buyer's country and training for operators and maintenance staff is included in the purchase package.
- > Manuals are supplied in the language required by the purchaser and included in the purchasing package. A spare part catalogue is available.
- > Warranty period is one year or 1,000 hours, whichever comes first.

#### **MAINTENANCE SUPPORT**

Regular maintenance – daily, monthly and other periodic checks – is required as per the operating instructions. Daily servicing takes 30 minutes, monthly servicing takes one hour.

#### **TESTS AND EVALUATIONS**

No information provided.

#### **REPORTED LIMITATIONS AND STRENGTHS**

No information provided.

**DIMENSIONAL DATA**

1. Length without attachment	6,100 mm
2. Length total	10,880 mm
3. Width without attachment	2,750 mm
4. Width total	4,260 mm
5. Clearing   Working width	2,900 mm
6. Height   Overall	3,460 mm
7. Mass   Basic vehicle	23,200 kg
8. Mass   Detachable unit(s)	Flail hammer: 6,150 kg   Rake: 2,750 kg
9. Mass   Overall	32,500 kg

**OPERATIONAL DATA**

10. Wheels   Tracks (description)	Tracks   Grouser - shoe Std. 600 mm
11. Ground Bearing Pressure (kPa)	71 kPa
12. Hill climbing ability (in degrees)	35°
13. Number of Chains   Chisels   Tools	86
14. Beat pattern (hits per m <sup>2</sup> ) at different operating speeds	Not given
15. Length of Chains   Tools	860 mm
16. Diameter of drum	267 mm
17. Rotation Speed	400 rpm
18. Clearance   Working depth in varying terrain	250 mm
19. Working Speed (m <sup>2</sup> /h)	
> Light Soil   Medium Vegetation	1,000 m <sup>2</sup> /h
> Medium Soil   Medium Vegetation	700 m <sup>2</sup> /h
> Heavy Soil   Dense Vegetation	300 m <sup>2</sup> /h
20. Control of Clearance   Working depth	Level plate system
21. Additional attachable working tools	
22. Armour	Armoured cabin, protection cover on fuel tank, hydraulic tank, cylinders and hoses of front devices
23. Remote controlled	Option
> greatest distance	100 m
24. Transportation	
> short distances	By trailer or own trip for short distance
> long distances	
> sea transport	
> air transport	

## SYSTEM STATUS AND DEPLOYMENT

25. Machines in use	11
26. Other types	Not given
27. Location of use	Cambodia, Angola
28. Totally cleared so far (m <sup>2</sup> )	Not given

## ENGINE | FUEL | OIL

29. Engine	ISUZU 6WG1
30. Engine power at the flywheel	235 kw
31. Sufficient power supplied to working tool	Not given
32. Fuel capacity	650 l
33. Fuel consumption	30 - 45 l/h
34. Separate engine for working unit	No
35. Cooling system	Water cooled
36. Oil capacity (both engines)	55 l
37. Hydraulic oil capacity (both engines)	280 l

## COSTS

38. Cost of system	Not given
39. Other costs	
> training	—
> spare part set chains   belts	—
40. Availability for hire	Yes

## OTHER

41. Operator comfort	Suspension seat, radio, hot and cool box
42. Air conditioning	Full auto air conditioner