



UNITED STATES DEPARTMENT OF DEFENSE

# HUMANITARIAN DEMINING R&D PROGRAM

**Mobile, armored system for clearing medium vegetation and sifting AP mines**

## Improved Backhoe

The Improved Backhoe (IBH) provides a mobile system that opens up areas for demining teams by clearing vegetation and sifting mine suspected soil. The IBH is a modified JCB 215s platform. It is armored and fitted with SETCO solid rubber tires to minimize flats caused by blast fragments and debris. A toolbox of attachments has been added to the system to increase functionality, such as a Rotar sifting bucket which is capable of digging and sifting loose soil for AP mines, and a medium-sized vegetation cutting attachment which attaches to



**IBH cutting vegetation with back boom**

### STATUS

The Improved Backhoe has been working with MAG in Sri Lanka since March 2011. IBH has cleared over 610,000 m<sup>2</sup> of vegetation and has assisted in removing over 11,745 AP mines and UXO.

The Improved Backhoe completed successful operational field evaluations in Korea in 2004, and Yemen in 2009 where it helped clear 5 minefields by sifting through deep sand dunes to uncover AP mines and small pieces of UXO.

the excavation arm. The vegetation cutter is capable of cutting most types of small to medium vegetation, including sapling trees. Two mechanical rakes were added to the back boom for clearance operations, and a grapple bucket to the front to remove timber and piled debris without picking up large amounts of soil to be investigated. The IBH can operate a variety of other commercial tools designed for loaders and backhoes.

Cutting-Edge Solutions  
**DEMINING TECH**  
**MINE CLEARANCE & AREA PREP**



## FEATURES

- Armored cab and solid rubber tires allow for safe reach-in vegetation clearance and AP mine removal
- Excellent maneuverability with 3 steering modes:
  - **Front Wheel Steer:** front wheels steer while rear wheels remain locked
  - **Combined Front & Rear Wheel Steer:** front and rear wheels turn in opposite directions for tight turning radius
  - **Crab Steer:** front and rear wheels turn in same direction turning the vehicle without changing its directional orientation



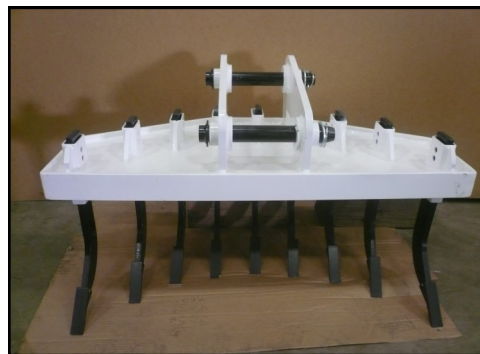
**VEGETATION CUTTER**



**ROTAR BUCKET**



**4-in-1 BUCKET**



**RAKE**

## APPLICATIONS

- Sifting for AP mines in loose or sandy soil, or in pre-excavated soil berms
- Vegetation removal using the reach-in excavator arm
- Additional backhoe applications such as excavating, earth-moving, etc. still retained

## SPECIFICATIONS

Operating Weight	8,530 kg (18,765 lb)
Transport length, width, height	24'2"x7'8"x11'3" (7.37x2.45x3.43 m)
Engine Type	JCB 444 4-cylinder, direct-injected diesel
Net Engine Power	97.6 hp
Torque, peak	307.6 ft-lb (417 Nm)
Combined Hydraulic Pump Output	39 gpm (148 lpm)
Hydraulic System Relief Pressure	3,300 psi (228 bar)
Max Travel Speed	25 mph (40 kpm)
Ground Clearance: mainframe, front axle	1'1", 1'6" (0.34 m, 0.45 m)
Loader Dump Height	8'10" (2.69 m)
Loader Lift Capacity, Full Height (std. bucket)	9,046 lb (4,104 kg)
Backhoe Dig Depth (Max)	14'7" (4.45 m)
Backhoe Max Reach (from swing pivot)	17'10" (5.44 m)
Backhoe Lift Capacity (ground level)	2,735 lb (1,241 kg)

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