

# BITS 'N' PIECES

Jeremy Rowland talks to Julian Carder about a box of bits that he turned into a JCB Mk1 Major Loader



The JCB Mk 1 Major Loader as originally acquired before disassembly; the digger was in need of much TLC. (Photo courtesy of Julian Carder)

**H**ow many of us can remember as a child being given a jigsaw puzzle for a Christmas present? Perhaps you can recall that it was common to find many parts of the puzzle that did not fit exactly where you expected them to. Now consider what is often referred to as 'the basket case': this is a real mechanical jigsaw puzzle on a much grander scale!

The term is loosely used to describe a machine that has been taken apart by its former owner - in most cases with the good intention of rebuilding and restoring the machine to its former glory but, alas, the parts end up in several different boxes and when eventually it is sold, the buyer has the difficult task of finding out what fits where.

While you could expect to find old cars and motorcycles that are 'basket cases' you hardly expect to find a digger in such a condition, but this was the latest challenge posed to Julian Carder who has

become a classic plant restoration expert in his own right.

Julian was contacted by Andrew Macleod of ABM Plant Hire regarding the total rebuild and restoration of a JCB Mk1 Major Loader; the digger, having been previously stripped down and left in parts, provided the challenge of rebuilding a machine that was essentially a pile of bits.

The JCB Mk1 Major Loader was first built in 1952, being based on a Fordson tractor with a hydraulic backhoe and a 'Major Loader' front end; in real terms this machine was the 'cornerstone' in the foundation of the JCB backhoe loader as we know it today.

The JCB Mk1 Major Loader that required rebuilding was in a very poor state of repair, with missing parts and others that would present a real challenge to salvage; only one original drawing of the machine could be located in the archives at JCB, so the restoration would not be straightforward.

The fabrication work was the first issue to be tackled, with the old bosses being cut out of the loader arms and new ones being welded into place; unfortunately, half of the front end loader was beyond repair with a new section being fabricated. The backhoe was in a very poor condition: the teeth that are on the slew rack being badly worn, these were welded up then recut. The hydraulic spool valve block for the backhoe was seized up: this block is very heavy and required two men to lift it; it was stripped then sent away for repair. The repair to this spool block involved machining it out, then re-chroming it, then grinding it back to the original size; this valve block proved to be problematic and when it was fitted back on to the digger it did not work - the problem turned out to be an issue with the cross tubes being fitted incorrectly.

The boom was in a corroded condition but it was salvaged and new side cover plates were fabricated and fitted; the



▲ The 'A' frame for the mounting of the digger's backhoe; much work was completed to bring this back up to a high standard of repair.

(Photo courtesy of Julian Carder)

◀ The digger as received by Julian Carder; a 'basket case' in all senses of the term, a real challenge to any restorer!

(Photo courtesy of Julian Carder)



The rebuilt engine reveals the cause of seizure, which was water ingress; it is crucial to protect petrol and diesel engines' exhaust and intake systems from the ingress of water where they may be stored outside over a long period of time.

(Photo courtesy of Julian Carder)



The replacement engine fastened to the transmission; the bare essentials of the machine are starting to take shape.

(Photo courtesy of Julian Carder)



The rust and cobwebs tell their own story of decay in this photo of the digger's control console and fuse box.

(Photo courtesy of Julian Carder)



Work has commenced on the loader arms, which required much attention.

(Photo courtesy of Julian Carder)



◀ The new control spool valve that was made to replace the missing item; this valve control the raising and lowering of the Major Loader front shovel.

(Photo courtesy of Julian Carder)



Stripped for repair is the hydraulic spool valve for the backhoe; the valve was seized and required much work to restore it to work once more. (Photo courtesy of Julian Carder)

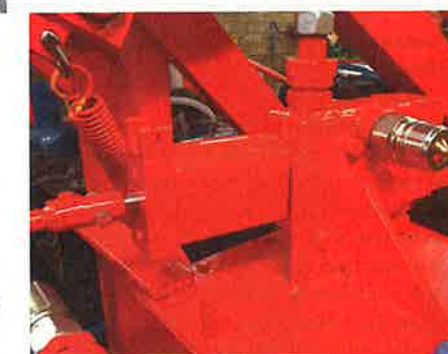


The digger's loader arms, boom and dipper arm were cleaned prior to restoration work commencing on them.

(Photo courtesy of Julian Carder)



Now the worn bosses and rotten parts have been replaced the painted loader arms look unrecognisable from their former state. (Photo courtesy of Julian Carder)



The new front loader spool block fitted to the machine; Julian was lucky in having access to a borrowed part that enabled him to have this valve made to that pattern.

(Photo courtesy of Julian Carder)



## JCB MK1 MAJOR LOADER



Looking like new once again the JCB Mk1 Major Loader looks fantastic on display at dealer TC Harrison's 85th celebration event

This rear view of the digger loader shows the early development of the backhoe; when in use the machine is stabilised by the 'A' frame which is hydraulically lowered to the floor. Also on display at the event was JC Balls' JCB Mk1 which can be seen in the background of this photograph



◀ This photo aptly displays the high level of the restoration with the new side plate on the left side of the boom, complete with the JCB emblem; to the bottom left of the photo you may be able to make out the repaired rack that slews the backhoe

► Note the flexible hydraulic hoses are secured by simple welded steel loops



hydraulic rams were rebuilt and new hydraulic hoses fitted.

Julian did have one big advantage with this mechanical jigsaw puzzle inasmuch as he had access to the restored machine that resides in the reception area at JCB headquarters in Uttoxeter and was able to use that machine for photos and reference; this all assisted in the rebuild of the machine on which he was working.

One item that should have required no attention was the tractor's engine which had already been rebuilt; however, it was totally seized and removal of the cylinder head revealed that ingress of water had caused considerable damage to the unit, making it an unviable prospect. Another

engine was located for the digger which was then married up to the transmission; another nose cone bonnet was acquired and fitted to the machine.

One problem that is usually associated with 'basket case' machines is that of missing parts. Whilst as a child one missing part would ruin your jigsaw puzzle, when restoring a machine you cannot have any missing parts!

Julian found that the hydraulic spool valve that controls the Major Loader arm had been lost: with little chance of locating a good second-hand one, the only option was to get a new one made; this was done using a borrowed one as a sample part.

The digger loader's brakes were repaired and new tyres fitted, as was a replica showpiece bucket. The paint job was complemented with the fitting of newly made JCB nameplates and identification plates.

The JCB Mk1 Major Loader was completed with new lights and replacement of the wiring loom.

I recently viewed the machine at the 85th establishment anniversary of dealers TC Harrison in Derby where the digger loader was on display; it was restored to the high standard that is associated with Julian Carder, who I would like to thank for his assistance with this article. ❖



The boom hoist ram can be seen here inside the main body of the boom: all of the hydraulic cylinders were rebuilt and new flexible hydraulic hoses were fitted throughout the machine



The 'jigsaw' is now complete! What a difference from a pile of old rusting parts; the completed digger is a real delight

◀ The JCB Mk1 Major Loader was Joseph Bamford's first real backhoe loader. The digger may look very simple, but it was the foundation of what has become a huge multi-national company and one whose digger loaders still lead the way