Mine the values...

JCI
small muck movers
THE LIMITATIONS OF IMITATIONS
Now others are offering "similar" units. Imitation is flattering, but we can see that they're making the same mistakes we made on our early models. Worse, they contribute nothing to the machine.

Why gamble on a copy when the original is available?—the ORIGINAL Diesel Powered 1/2-YARD LHD - The JCI Model 50M.

SPECIAL INTRODUCTORY OFFER!
FOR NEW first time users of the 50M we offer a reduced rental rate for the first 3 months, with 100 percent of the rental to apply against purchase. In Canada call Graham Clark 800-461-7330 and in the U.S.A. call Ron Vaananen 303-892-5800. We have machines new and used available immediately.

---

WPP
John Clark, Inc. 4955 Bannock St. Denver, CO 80216 USA

John Clark, Inc. 4955 Bannock St., Denver, CO 80216 U.S.A. Tel: (303) 892-5800 FAX: (303) 892-1408
John Clark, Inc. 67 Ferris Dr. Box 838, North Bay, Ont. P1B 8K1 Canada Tel: (705) 474-6170 FAX:(705) 474-6109

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The Original 1/2-Yard Diesel Powered LHD
Four years ago we built our first 50M. Since then, these machines have been used on a wide variety of applications, both by contractors and mining companies. The 50M has been modified and improved to the point we can say, "IT'S A GREAT LITTLE MACHINE", half the size of a 1 yard and four times as maneuverable.

The 50M is fitted with a Deutz model F2L-511W diesel engine rated 27hp and has a miserly ventilation requirement of 2500 cfm (71m³).
MECHANIZED MINING IN 1.2 METERS!

For the first time it is now possible to mine narrow vein deposits with mechanized mining using the 50M. At mines like Seabright Resources widths as narrow as 4 feet (1.2m) can now be mined economically. With the 50M, length of haul is not important and you can go upgrade, downgrade and twist around tight corners.

50M LHD will work in a heading 4' wide by 7' high.

Description of the 50M

Our 1/2 yard JCI Model 50M is the world's smallest 4 wheel drive diesel powered scoop. It is only 34 inches (864mm) wide, 12 feet (3.7m) long and weighs only 6000 lbs. (2721 Kg.). With its 27hp diesel engine it is much more flexible than the French made electric Micro Scoop. More important, the operator is seated sideways for efficient bi-directional operation.

JCI = Innovative Solutions To Mining/Tunnelling Problems!

SIZE COMPARISON 50M WITH 1 1/4 YD. LHD

The overall envelope of the 50M has been kept to an absolute minimum. Its width is 34 inches versus 54 inches on a 1 1/4 yard unit. Its length is exactly 12 feet long versus 17' 4". Ron Guill, the first user of the 50M states, "Its half the size but 4 times as maneuverable!" This is because of the operator's station, good visibility and excellent machine controls.

SAFE OPERATOR'S LOCATION

The operator is seated midship, directly across the machine with good visibility on both directions. Note the convenience of the hand controls.

ROLL CAGE GIVES ADDED PROTECTION

The JCI 3 post Roll Cage gives good protection and is easily removed for caging.

CHECK WITH SATISFIED USERS

Hecla Lucky Friday Mine
Small Mine Development
J.S. Redpath Limited
Aur Resources

Coxheath Gold Holdings
Canadian Mine Development
Tonto Mining Services
Seabright Resources
Not since the 1930's has North America experienced such a gold boom. The State of Nevada seems made of gold. From Nova Scotia, Quebec, Ontario — stretching across Canada to British Columbia — gold mining activity is heating up. The Northern Miner predicts that in Canada alone during 1987 and 1988 seventeen new gold producers will appear.

In the United States most of the new mines are open pit heap leaching operations; in Canada, almost all are underground.

Not many in Canada have proved to be a bonanza like Hemlo. Most are rather narrow veins — difficult to mine, low tonnage operations. On the other hand, many of these difficult mines produce high grade ore — an opportunity for those who know how to take advantage of disadvantages — and profit from others' experience.

In earlier gold rushes, dynamite and wheelbarrows were high-tech. Later, small, narrow-vein orebodies were mined using "low-tech": rail-bound equipment like rockershovels, mine cars and slushers — slow, lacking in flexibility, low in productivity — and furthermore, requiring a great deal of hard physical labor from skilled, highly-paid operators.

Manufacturers of traditional mining machinery have been slow to react to the needs of small operations mining narrow high grade orebodies, gold or otherwise.

This lack of sensitivity has given us at John Clark Inc. a splendid opportunity and a considerable advantage. So since 1980 we have quietly been developing trackless machines for "small mining."

For the producer of underground small-tonnage, high value ores — whether gold or "otherwise" — JCI is building trackless Load Haul Dump machines, jumbos and trucks that fulfill his needs: flexibility, high productivity, dependability — and inexpensive maintenance.

World's smallest diesel LHD

Our ½-yard JCI Model 50M is the world's smallest 4-wheel drive diesel powered scoop. Its power and design make it a much more flexible machine than the French-made electric Microscoop. More important, the operator is seated sideways for efficient bi-directional operation. It was designed simply to be the most efficient, compact, highly maneuverable LHD available for work in tight quarters.

The overall envelope of the 50M has been kept to an absolute minimum. (See Figure 2). Its width is 32 inches and height over the operator's head 68 inches. The 50M is only 12 feet long, about 30% shorter than our 17½" 1-yard machine. Its clean burning Deutz engine requires only 2500 CFM of ventilation air.

Ron Guill, President of Small Mine Development — the first user of the 50M — says:

"We're pleased with the performance of the 50M and have purchased a second unit. It allows us to drive cross cuts only 4 ft. wide — which facilitates ground support.

Small, but no toy. 50M works its way into 4' wide heading at Apex mine. Note comfortable operator's position.

As a diesel powered machine, the 50M offers the flexibility most users want. The trailing cable of electric powered LHD's is a high maintenance item and also makes maneuvering difficult.

However, we recognize that in deep mines and areas difficult to ventilate, electric machines are needed. So the 50M is available with an AC electric motor and cable reel. The 50M is hydraulically driven, so the electric conversion is a simple matter of installing a suitably sized AC motor.

We are also investigating the practicality of a battery powered 50M to eliminate the necessity of a cable reel at all.

With its small dimensions and weight of only 6000 lbs. the 50M is easily transported to remote job sites, even by helicopter. The 50M can be taken down a shaft, up a raise, even through a manway without breakdown. Remember that the 50M will fit through the average bedroom doorway.

This versatility makes the 50M the ideal tool for exploration, rehab, development and "small mining" work.
50M LHD works in a heading 4' wide by 7' high

125M LHD works in a heading 7' wide by 7' high

504 End Dump Truck works in a heading 8' wide by 8' high

Size Comparison 50M & 125M
Back in 1979 we recognized the need for a dependable 1-yard class of LHD — a small, mechanically driven scoop easily maintained on the mine site.

Other manufacturers did offer hydrostatically driven 1-yard machines, but some mine operators have traditionally used mechanically driven equipment and found their maintenance personnel more familiar with their components.

Selecting mechanical components for the 100M and 125M was not an easy task. It had never been done before, and we had to pioneer.

We chose the Deutz F4L-912W engine — which was easy because it is so well accepted in the industry. This dependable 55HP diesel requires only 5500 CFM of ventilation air.

The choice of Clark for the torque converter and transmission was certainly wise. Conservatively rated — with long life and good parts availability — these components have stood the test of time and use.

The 100M and 125M both use a planetary drive axle with no-spin differentials front and rear.

And because small machines work in dirty, wet places — where maintenance is difficult — we wanted a wet disc brake. None were available. After several years of design and testing we succeeded in developing a totally enclosed liquid cooled brake which is now standard on all these small machines.

Since the original design, technological improvements have improved the performance of our 1-yard class machines. The engine — originally rated at 52HP — is now 55HP. More important — ventilation requirements have been reduced from 6000CFM to 5500CFM.

The power shift transmission is now available with modulation. This important improvement reduces impact on the drivelines and axles when shifting.

### TABLE #1

<table>
<thead>
<tr>
<th>MODEL</th>
<th>50M</th>
<th>100M</th>
<th>125M</th>
<th>405</th>
<th>125H</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>LHD</td>
<td>LHD</td>
<td>LHD</td>
<td>TRUCK</td>
<td>JUMBO</td>
</tr>
<tr>
<td>ENGINE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make</td>
<td>DEUTZ</td>
<td>DEUTZ</td>
<td>DEUTZ</td>
<td>DEUTZ</td>
<td>DEUTZ</td>
</tr>
<tr>
<td>Model</td>
<td>F2L-511W</td>
<td>F4L-912W</td>
<td>F4L-912W</td>
<td>F6L-912W</td>
<td>F4L-912W</td>
</tr>
<tr>
<td>HP</td>
<td>27hp</td>
<td>55hp</td>
<td>55hp</td>
<td>82hp</td>
<td>55hp</td>
</tr>
<tr>
<td>MSHA Vent</td>
<td>2500cfm</td>
<td>5500cfm</td>
<td>5500cfm</td>
<td>7500cfm</td>
<td>5500cfm</td>
</tr>
<tr>
<td>CAPACITY</td>
<td>0.5cu yds</td>
<td>1.0cu yds</td>
<td>1.25cu yds</td>
<td>4cu yds</td>
<td>*156 sq.ft.</td>
</tr>
<tr>
<td></td>
<td>1500 lbs</td>
<td>3750 lbs</td>
<td>3750 lbs</td>
<td>10,000 lbs</td>
<td>N/A</td>
</tr>
<tr>
<td>ELECTRIC POWER OPTION</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>32 in</td>
<td>48 in</td>
<td>54 in</td>
<td>60 in</td>
<td>48 in</td>
</tr>
<tr>
<td>Height</td>
<td>48 in</td>
<td>54 in</td>
<td>54 in</td>
<td>61 in</td>
<td>60 in</td>
</tr>
<tr>
<td>Length</td>
<td>12 ft</td>
<td>17 ft 4 in</td>
<td>17 ft 4 in</td>
<td>18 ft</td>
<td>22 ft</td>
</tr>
<tr>
<td>WEIGHT LBS.</td>
<td>6000 lbs</td>
<td>13,000 lbs</td>
<td>13,600 lbs</td>
<td>14,000 lbs</td>
<td>14,000 lbs</td>
</tr>
<tr>
<td>SMALLEST HEADING SIZE</td>
<td>4' x 7'</td>
<td>6' x 7'</td>
<td>7' x 7'</td>
<td>7' x 8'</td>
<td>7' x 7'</td>
</tr>
</tbody>
</table>
The thing that separates our small LHD’s from their competitors is summed up in one word: RELIABILITY. They use well known and standard components (Deutz, Clark) and have proved their reliability over a long time. Spare parts are readily available and cheap.

As Peter Joyce, Mechanical Superintendent at American Mine Services, puts it:

“We have used the 125M on many jobs over the past seven years. It’s a good machine — mechanically reliable — and has a good resale value.”

With development of the “Modulated” transmission, electric LHD’s are now inexpensive and reliable. “Modulation” — or “inching” in the transmission — makes possible the use of a standard, low cost AC motor.

Both the 100M and the 125M are available with electric power options and cable reels. Whether using diesel or electric power, all other mechanical components are the same for both machines.

Electric or diesel options are both practical today, simply a matter of the customer’s choice.

Whether the machine is 100M or 125M, electric or diesel, the operator’s station is exactly the same. The operator is side-seated, with good visibility in either direction, and convenient controls.
Combinations

Greater production at minimal cost — efficiency — often results from a combination of machines. For instance:
Mine a vein as narrow as four feet with the 50M. Use the 125M for cross cuts and main haulage where widths up to 7' x 7' are sensible, where higher tonnages and increased productivity justify a larger machine.
Let several 50M’s feed into a collection area where more stable ground permits larger equipment to be used. Since the 125M has 2½ times the capacity of the 50M, its efficiency obviously should be used where space requirements allow.

Wet disc brakes are standard. Gauges, instruments, hydraulic pumps and cylinders are either interchangeable or at least of the same manufacturer.
Users of JCI scoops or trucks are assured of quality, reliable products with maximum parts interchangeability.

Trucks for the long haul

For hauls of 300 feet or more a truck is the most economical vehicle. The Model 504 truck will carry three times more than a 125M LHD and operate for a lower cost. For the truck the cost per ton will be about 25% that of a scoop.
For modest tonnage requirements, practical truck haulage distance is unlimited. We know of one application where a 5-ton truck has a one-way haul of more than 2500 feet.

Ramps with 125M & 504

Ramps as small as eight feet high by 11 feet wide can be driven efficiently with our 1-yard scoop and 5-ton truck. For the first 250/300 feet, use the scoop alone. Then introduce the truck. It can be loaded — over the side, using an ejector bucket — in eight feet of height. By articulating the truck and loading over the side, truck loading can be accomplished in no more than 12 feet of width.
Alternatively, a short cross cut about 20 feet long might be driven every 500 feet to facilitate loading.

Jumbos for small headings

Clearly, the fundamental need for a jumbo in small headings is that the boom should be light and have small physical dimensions with no sacrifice of productivity.
To meet these requirements, JCI offers the Atlas Copco BUT-6 boom mounted on the 50M or 100M chassis. This combination will work efficiently in headings from 7’ x 7’ to 9’ x 10’ in size.

Mini Jumbo

The Atlas Copco BUT-6 boom is light with a telescopic extension to increase its coverage, yet can retract to reduce its dimensions for traming. It has 360 degree base rotation with a circular coverage of 12 feet.
The BUT-6 has automatic parallelism, and JCI has BUT-6 booms in stock.

Componentry similar to 125M

The Model 504 truck uses the Deutz F6L-912W diesel engine which is rated at 82 HP and has an MSHA ventilation requirement of 7500CFM.
The truck’s transmission is identical to that used on the 125M.

125M fitted with ROPS, fire suppression system and ejector bucket. (Photo courtesy Union Carbide, Grand Junction).

Note good visibility for

The 504 will carry three full buckets from the 125M, and travel upgrade at a good swift pace.

John Clark Inc. • 4955 Bannock St. • Denver, CO 80216 • 303-892-5800 • Telex: 45-4557 • FAX: 303-892-1408
John Clark Inc. • 1060 Lorne Street South • Sudbury, Ont., P3C 4R9 • 705-675-7253 • Telex: 067-7126 • FAX: 705-675-1511
# JCI Model 50M

## Principal Features and Benefit Summary

### Performance and Productivity

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500 lb. rated capacity</td>
<td>0.5 yds. per trip</td>
</tr>
<tr>
<td>6,000 lb. breakout force</td>
<td>Fuller bucket in one pass</td>
</tr>
<tr>
<td>Dual speed range</td>
<td>Better muckpile penetration</td>
</tr>
<tr>
<td>Hydrostatic drive</td>
<td>Faster cycle times</td>
</tr>
<tr>
<td>34” width</td>
<td>Better maneuverability</td>
</tr>
<tr>
<td>Solid plate boom</td>
<td>Improved visibility</td>
</tr>
</tbody>
</table>

### Maintenance and Serviceability

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamworthy 1200/1750 axles</td>
<td>Improved life</td>
</tr>
<tr>
<td>Linde hydrostatic drive</td>
<td>Longer life and a proven reliability</td>
</tr>
<tr>
<td>Tapered and sealed pins</td>
<td>Easier removal and service</td>
</tr>
<tr>
<td>Custom hydraulic manifolds</td>
<td>Reduced hosing, easier servicing</td>
</tr>
<tr>
<td>ITT pin connectors</td>
<td>Easier servicing, better reliability</td>
</tr>
<tr>
<td>Solid plate boom</td>
<td>Lighter, stronger</td>
</tr>
</tbody>
</table>

### Safety and Ergonomics

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three post operator cage</td>
<td>Improved operator safety</td>
</tr>
<tr>
<td>Pilot operated controls</td>
<td>Ergonomic placement</td>
</tr>
<tr>
<td>Good visibility</td>
<td>Safe loading and tramming</td>
</tr>
</tbody>
</table>
50M LOAD HAUL DUMP

The Model 50M is only 34 inches wide and is the original diesel powered, four wheel drive center articulated LHD unit of this size. The maneuverability of its narrow width in combination with the 42 degree center articulated steering make it ideally suited for operation in narrow confined spaces. The mobility and traction of the rubber tired four wheel drive unit provides flexibility for applications on level trams or inclines up to plus 20%.

The 50M design incorporates a number of operating and design features that are described below:

POWERTRAIN

The Deutz model F2L-511W 27HP engine which requires only 2500 cfm of ventilation air is standard equipment. This is an MSHA fully certified engine.

A generously sized hydrostatic transmission system provides power to the planetary drive axles. The system consists of a variable displacement pump and fixed displacement motor.

Planetary drive "Bolt In" axles with no-spin differentials are used front and rear. The rear axle is trunnion mounted and provides 10 degrees of oscillation with 7:50 x 15 tires.

BOOM BUCKET AND FRAME

The frame has been contoured to improve maneuverability and minimize damage from rib contact when operating in confined areas.

A double arm solid plate boom design is utilized. This arrangement minimizes eccentric boom and bucket loading to eliminate fatigue failure.

The bucket construction utilizes abrasive resistant materials in critical areas. Optionally an ejector bucket is offered to facilitate truck or rail car loading.

Tapered pins with sealed bearings are standard an all pivot points. This arrangement improves overall bearing life and assists in changeout of components. The tapered pins are easily removed thereby minimizing downtime to change cylinders, buckets, etc. The sealing of the bearing improves overall life of both pins and bushings. There are 12 pins on the 50M and they are all identical which facilitates spare parts stocking, as well as maintenance.
Axles

Front and rear - Hamworthy model 1200/1750, with spiral bevel differential equipped with no-spin, wheel end planetary reduction hubs, and full floating axles. Rear axle assembly includes integral input drop box with flange mount for drive motor, and hub for driveline power transfer to front axle.

Overall Reduction Ratio 38.38 : 1

Wheels and Tires

Demountable rims, tube type, nylon, hard rock, extra deep tread, with underground mine service compound. (L5, D2 Specifications)

Tire Size 7.50 X 15

Brakes

Service - Dynamic braking is achieved via the pump displacement control function of the hydrostatic drive system.

Park/Emergency - Spring applied, hydraulically released dry disc brake, with rotor driven by the front axle input pinion shaft.

Steering

Hydraulic power steering via joystick pilot control valve. Machine is center articulated with 2 hardened steel center pins and self aligning ball bushings.

Oscillation

Rear axle oscillation - 5° up or down (total 10°) - axle is mounted on cradle assembly, with cradle shaft on heavy duty bronze bushings, and bronze thrust washers.

Hydraulic System

Cylinders double acting with chrome plated piston rods.
Bore diameter/Rod diameter

(1) Steering 3" /1.5" (76mm/38mm)
(1) Hoist 3.5"/1.5" (89mm/38mm)
(1) Dump 4" / 2" (102mm/51mm)

Hydraulic Pumps
   Dual Gear Type, through drive
   Flow Rates (rated @ 2800 Engine RPM)
   Boom Hoist, Dump Section 10.8 GPM @ 2000 PSIG
                                (40.9 LPM @ 137.9 BAR)
   Steering Section 0.7 GPM @ 2000 PSIG
                     (2.7 LPM @ 137.9 BAR)
   Hydrostatic Drive Pump, Full Displacement 23.9 GPM @ 5000 PSIG
                                (90.5 LPM @ 344.8 BAR)
   Pilot Control Section
      (Hydrostatic Drive Pump) 4.9 GPM @ 350 PSIG
                                (18.5 LPM @ 24.1 BAR)
   Reservoir Capacity 12 U.S. Gallons (45.5 L)

Fluid Capacities
   Fuel Tank 12.5 U.S. Gallons (47.4 L)
   Engine Crank Case, Less Filter 3.7 U.S. Quarts (3.5 L)
   Pump Drive Gear Box 2.0 U.S. Quarts (1.9 L)
   Front Axle Differential 2.5 U.S. Quarts (2.4 L)
   Rear Axle Differential 3.3 U.S. Quarts (3.1 L)
   Axle Planetaries, Ea. 1.2 U.S. Pints (0.6 L)

Operator Arrangement

Side seating for maximum visibility and bi-directional operation.

Component Breakdown
   Bucket 36" X 40" (914mm X 1016mm)
   Boom 18" X 24" (457mm X 610mm)
   Front Frame (w/fenders) 36" X 40" (914mm X 1016mm)
   Rear Frame (w/fenders) 36" X 48" (914mm X 1220mm)
   Axles (2) 20" X 34" (508mm X 864mm)
   Wheels and Tires 10" X 34" (254mm X 864mm)
This machine is designed to breakdown to go through a 3' X 4' (.91M X 1.2M) opening without cutting or welding required.

**Standard Equipment**

Donaldson dry type air cleaner
12VDC Electrical start and run systems
12VDC work lights, 1 front and 1 rear
Heavy duty alternator
Catalytic exhaust conditioner
Spring applied, hydraulically released driveline
disc park brake
Hydrostatic drive and service braking system
Tapered pins and sealed RBC bushings
Bearing mounted center pin type steering
Rear axle oscillation
Heavy duty 1/2 cubic yard bucket
7.50 X 15 L-5 extra deep tread tires
Joystick pilot operated steering and tram control
Joystick pilot operated bucket and boom control
3 Post roll cage
Seatbelt with dual shoulder safety harness
125 DBA horn
Center articulation lock pin
**Standard Gauges and Instrumentation as follows:**
- Master power switch
- Starter push button
- Glowplug preheat push button
- Alarm system override push button
- Glowplug indicator
- Horn push button
- Front and rear work light switch
- Emergency/Park brake indicator light
- Emergency/Park brake control knob
- Brake accumulator pressure gauge
- Engine oil pressure gauge
- Engine temperature gauge
- Hourmeter
- Voltmeter
OPERATORS STATION AND CONTROLS

The side seated operators compartment provides full protection within the confines of the machine. The side seated station is ideally suited for safe, efficient bi-directional travel. A three post operators roll cage with shoulder harness and seat belt are standard equipment. Two types of operator seat belts are available. A heavy duty lap type provides good protection; however, the dual shoulder harness with lap belt provides maximum operator support.

All operator functions of travel, steer, boom and bucket are actuated by two monostick pilot operated controls. The left hand control is for steer, travel direction and speed while the right hand control is for boom and bucket movements. Optimum engine rpm is set by each operator through a cable throttle located at the dash panel.

Dynamic braking is through the hydrostatic system. Park and emergency braking is achieved through a driveline disc brake located on the front axle differential input shaft.
Optional Equipment

Fire extinguisher - 5 LB. mounted
Fire Suppression system
Operator compartment protection
Ejector bucket
Optional sizes/type tires
Spare tire and Wheel
Centralized lubrication
Audio/visual back up alarms
Radio remote control
Additional work light(s)
Emergency electric powered steering system
Fire Retardant fluid compatible system
Bumpers and rub rails

The manufacturer reserves the right to change specifications and/or design of this machine at any time without notice.