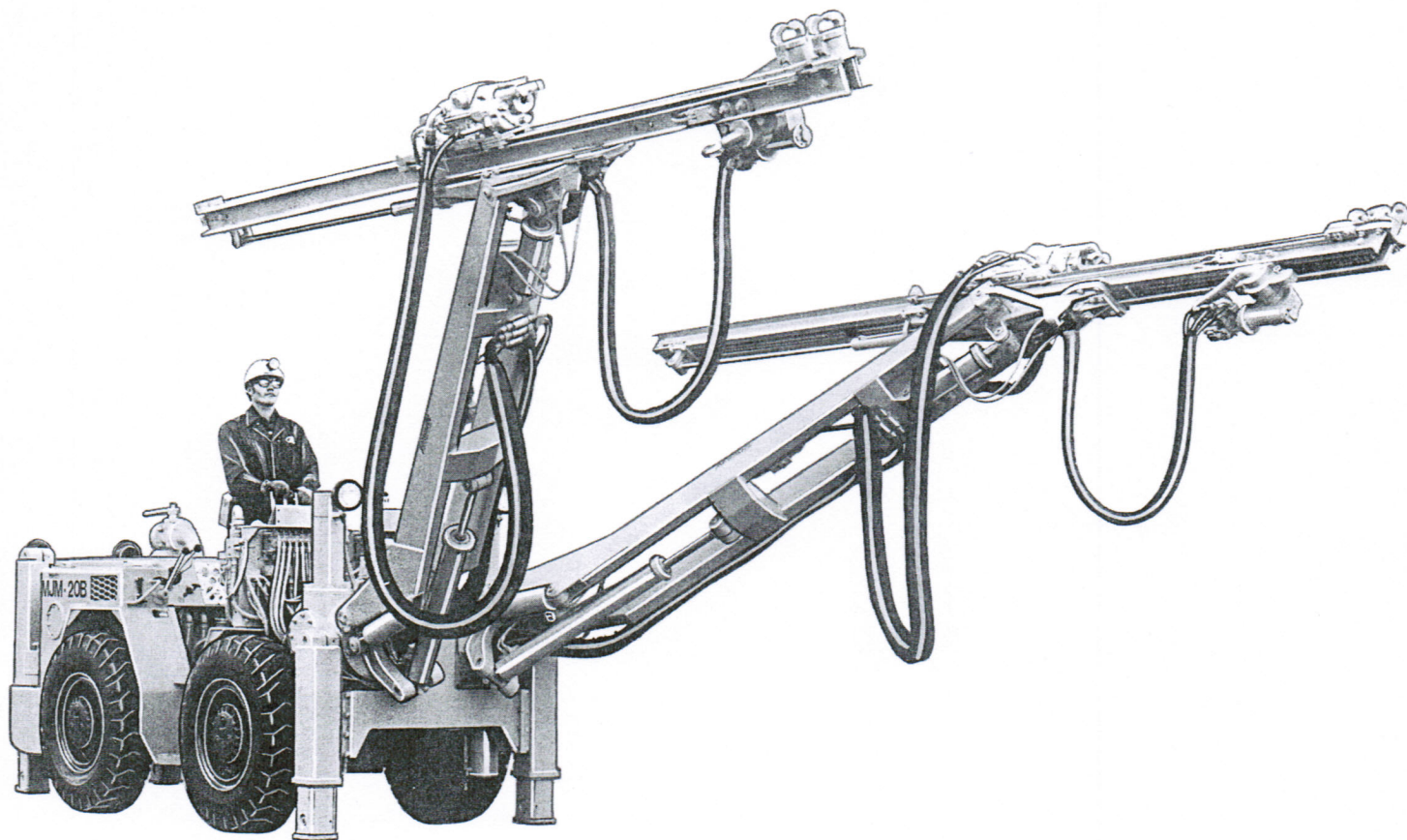


JARVIS CLARK MJM-20B . . .



A One Man High Speed Drilling Machine

The MJM-20B is a Jumbo for small and medium sized headings designed with one thought in mind — to allow one man to drill off a long, clean, deep breaking round in the shortest possible time, under a variety of operating conditions.

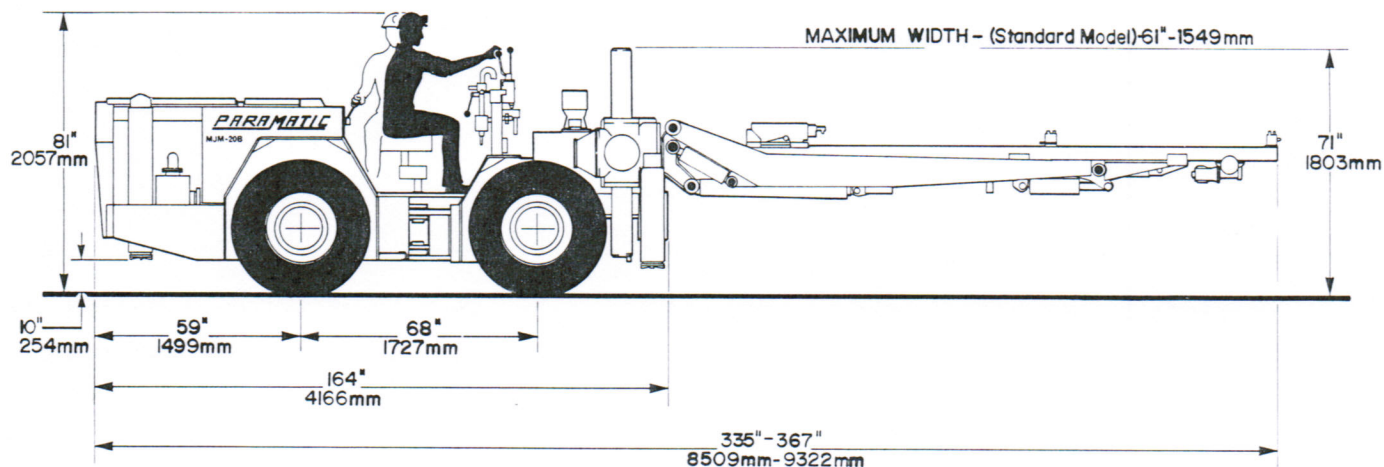
As standard equipment, the MJM-20B Jumbo is fitted with two MR500, full 360° RotaBooms with automatic parallelism. Once the Jumbo is lined up and each boom set, all holes remain parallel to the long axis of the boom. With automatic parallelism the operator can move from hole to hole without resetting, cuts can be accurately drilled and extra long rounds are assured with minimum bootleg. Couple this feature with feed automatics and our high speed series 125 drills that can drill holes as small as 1 3/8" (35 mm) and you have a highly efficient one man Jumbo.

The specially designed four wheel drive, center articulated carrier is built as compact as possible and is only 61" (1500 mm) wide and 71" (1804 mm) high and has a built in lubricator, air operated alternator, demister and all necessary auxiliary equipment. The Deutz powered diesel hydrostatic carrier is standard and air or electric power options are available.

The MJM-20B ParaMatic excels in tunnelling and ramp driving, can handle tight curves and, with special feeds, has roof bolting capabilities.

ParaMatic — A SYSTEM OF DRILLING PARALLEL HOLES

COMPACT PARALLEL DRILLING JUMBO

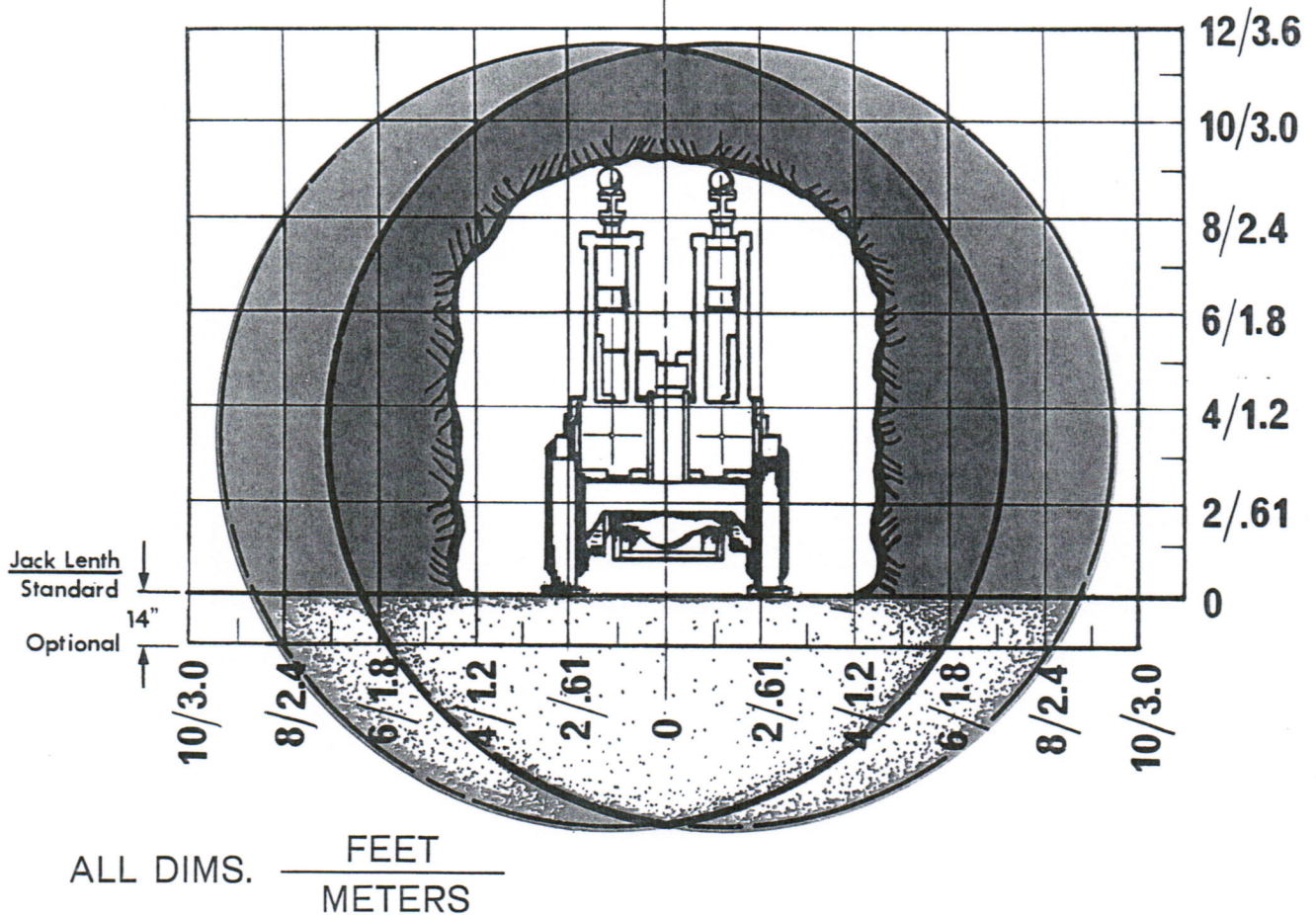


Brief Specifications

BOOMS	2-MR500, 360° RotaBooms with automatic parallelism
FEEDS	2-KS50A chain feeds either 13' 4" (4048 mm) or 15' 0" (4825 mm) long
ROCK DRILLS	2 Jarvis Clark series 125 independent rotation, model C30 or C40
HYDRAULIC UNIT	1 model HV-6 air operated pump with 10 U.S. gallon tank
POWER	Standard Deutz F4L-912W — mine service rating 52 HP @ 2300 RPM OPTIONAL Air — CAP 31 HP, 800 RPM @ 90 psi, radial piston type OPTIONAL Electric — 40 HP, 550 volts 3 phase AC motor
TRANSMISSION	Sundstrand fully hydrostatic
AXLES (FRONT & REAR)	Spiral bevel differential with planetary wheel end drive
BRAKES	Hydrostatic dynamic braking with auxiliary disc emergency brake
STEERING	Center articulated power steering with single lever control

*These specifications are intended only as a brief outline. Dimensions are for the diesel power option.
Detailed specification sheets are available in a separate publication.*

MJM-20B BOOM COVERAGE



Illustrated is the coverage area of the standard MJM-20B ParaMatic Jumbo. Anything within this area can be drilled effectively.

EACH OF THE TWO MR500 ROTABOOMS COVERS A DIAMETER OF 197 INCHES (5000 mm) AND HAS A BLIND SPOT OF ONLY 16 INCHES (400 mm). FOR ALL PRACTICAL PURPOSES THE ENTIRE FACE IS COVERED.

The MJM-20B can handle efficiently headings as small as 9 feet x 9 feet (2.7 m x 2.7 m) and, with the standard stabilizing jacks, as large as 125 square feet (11.5 square meters). Where higher headings are desired, optional high lift jacks can be supplied and the coverage area increased to 150 square feet (14 square meters).

For larger headings and when width permits, a wide track version of the MJM-20B can be provided. It is 67 inches (1702 mm) wide and fitted with MR600 booms for additional coverage. With standard jacks, coverage is 200 square feet (18.6 square meters) and with high lift jacks, 230 square feet (21.4 square meters). A separate coverage chart for the wide track model is available.

Chain Feeds

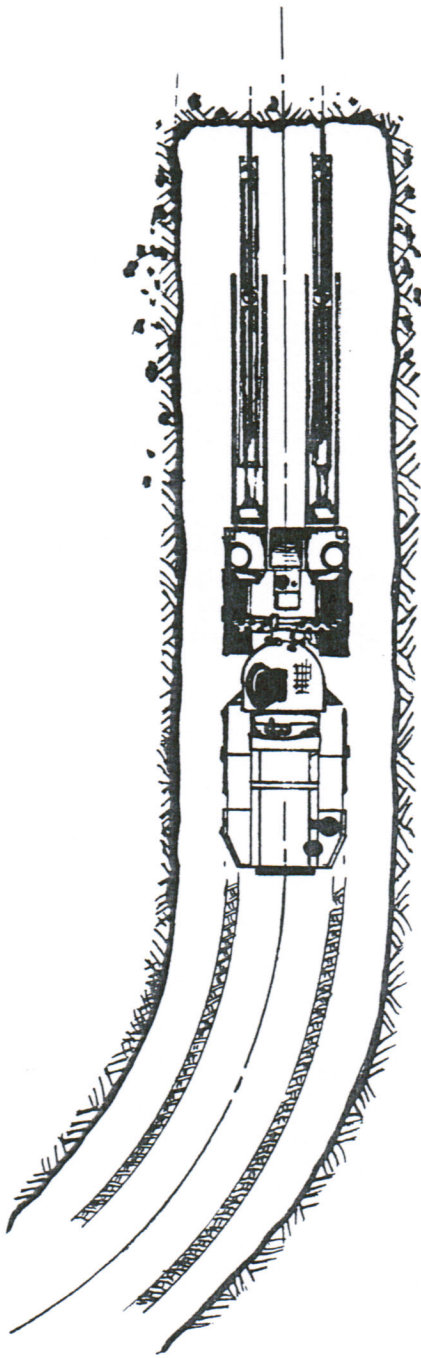
Low maintenance, dependable chain feeds are standard equipment on the MJM-20B. Two models are available:—

KS50A x 2950 — 13' 4" (4048 mm) to drill 10' 6" (3200 mm) holes

KS50A x 3750 — 15' 10" (4825 mm) to drill 13' 2" (4000 mm) holes

Where roof bolting capabilities are desired, the booms can be modified to tilt 90° and a special short feed of only 10 feet (3048 mm) in length supplied. This allows 6 foot (152 mm) roof bolt holes and 8 foot (203 mm) horizontal holes to be drilled.

Standard feed automatics stop the rock drill on the completion of the hole, shut off the flushing water and return the rock drill to the starting position.



Straight Ahead Drilling Procedure

The operator moves the MJM-20B ParaMatic Jumbo up to the face, lines up the center articulated carrier with the center line of the drift, levels it with the four stabilizing jacks for proper grade and then starts drilling. By orienting the carrier and booms properly for line and grade it is not necessary for the operator to check each hole for proper attitude. Once drilling has started with the ParaMatic patented parallel drilling system and our standard automated feeds, the overall cycle is the shortest possible. Time moving from hole to hole is minimal since boom movements are smooth and accurate and no time is lost in lining up.

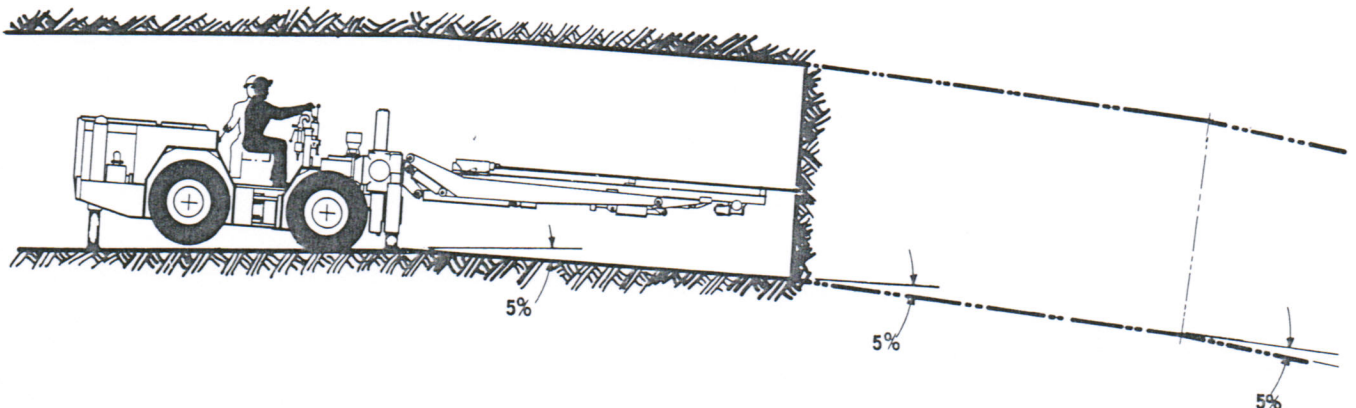
The MJM-20B also gives a smooth wall contour. Once the angle of the perimeter holes is set on each boom it is accurately maintained, reducing overbreak and permitting long rounds.

Ramp Driving Procedure

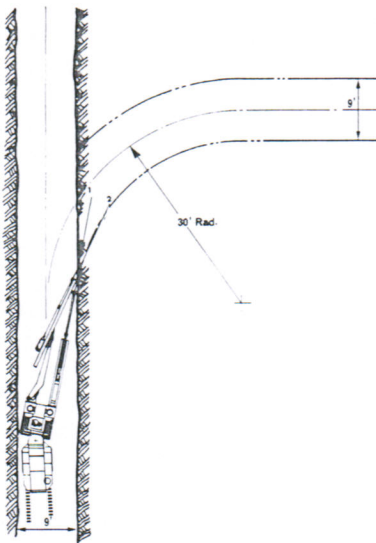
In order to achieve the full efficiency of any jumbo it is necessary to orient it properly for line and grade. For starting ramps the MJM-20B is equipped with long stroke jacks which allow the operator to tilt the entire machine to the gradient desired. By doing this even when starting a steep ramp, the same procedure is used as drilling straight ahead. Illustrated is starting a typical 20% ramp where each round is taken at a 5% gradient to allow for a smooth transition from the level to the ramp.

The MJM-20B Jumbo has a four wheel hydrostatic drive and can negotiate any grades normally used in underground mining or tunnelling. Effective hydrostatic dynamic braking provides normal service braking and a disc brake provides emergency and service brakes.

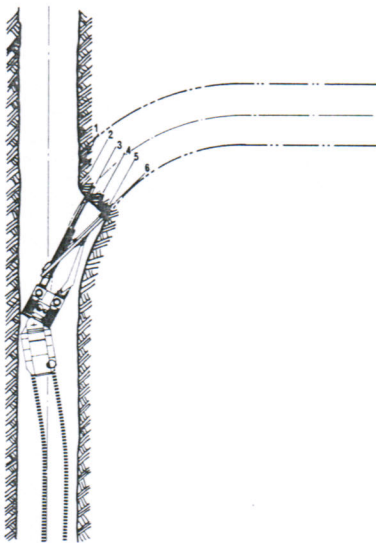
Ramp Driving Procedure



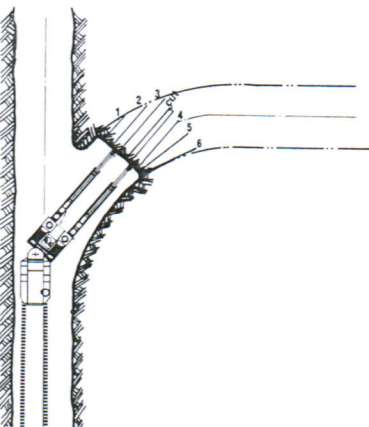
DRILLING ON CURVES



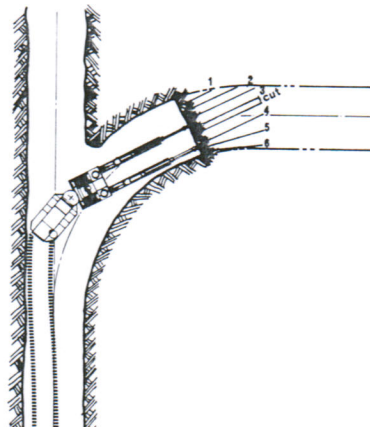
First Slash



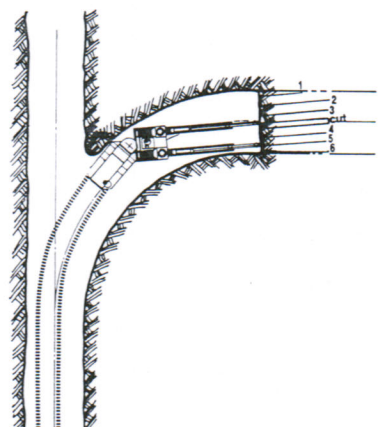
Second Slash



First Round



Second Round



Third Round

Curves are considered to be the most difficult task for any jumbo to perform. By using the MJM-20B center articulated carrier and the full flexibility of the MR500 RotaBooms, tight curves can be drilled effectively without overbreak. Illustrated is the procedure we recommend when turning a 30 foot (9 meter) curve on a 9 ft. x 9 ft. (2.7 meter x 2.7 meter) heading which is usually the minimum when using mobile equipment. Larger headings with curves of wider radius are easier to handle.

FIRST SLASH

Orient the MJM-20B carrier as illustrated — close to the one wall and level with the four stabilizing jacks. Two rows, each consisting of four holes, are required and both MR500 booms are used.

The first row of holes is drilled with the right hand MR500 and they are all parallel. Row two is drilled with the left hand MR500 and the top and bottom holes are started about one foot below and above the desired end elevation of the hole. Fanning on row 2 can be minimized by raising and lowering the carrier with its levelling jacks.

SECOND SLASH

Six rows of holes, each consisting of four holes, are required and both MR500 booms are used full time.

The carrier is oriented as shown and stabilized with its jacks to give the desired grade. Rows one to five are all drilled parallel. Row six is drilled in exactly the same manner as row two in the first slash.

FIRST ROUND

Orientation of the carrier is most important. Note how the cut is drilled diagonally across the face. Rows one to four and the cut are all parallel. Rows five and six are fanned slightly as shown. In this case it is probably more convenient for the operator to swing the left hand MR500 over top the right hand MR500 for the top two holes on rows five and six and then below for the bottom two holes.

SECOND ROUND

Carrier is oriented as shown, with partial articulation. Both MR500 booms are used full time.

This round is essentially the same as the first round and the same procedure is used to drill rows five and six. i.e. the left hand MR500 is swung over and under the right hand MR500.

The cut is now drilled just slightly off centre.

No attempt has been made to lay out the pattern, since this will vary from mine to mine.

THIRD ROUND

In this case the carrier is fully articulated and all holes are parallel except row six, which is just slightly fanned.

The cut is drilled almost on the centreline.

Hereafter all drilling is exactly the same as on the straight ahead drilling procedure.

At times it may be necessary to drive headings essentially at right angles to one another. For this purpose the MJM-20B can be equipped with special short feeds only 10 feet (3048 mm) in length that can drill 8 foot (2440 mm) long holes.