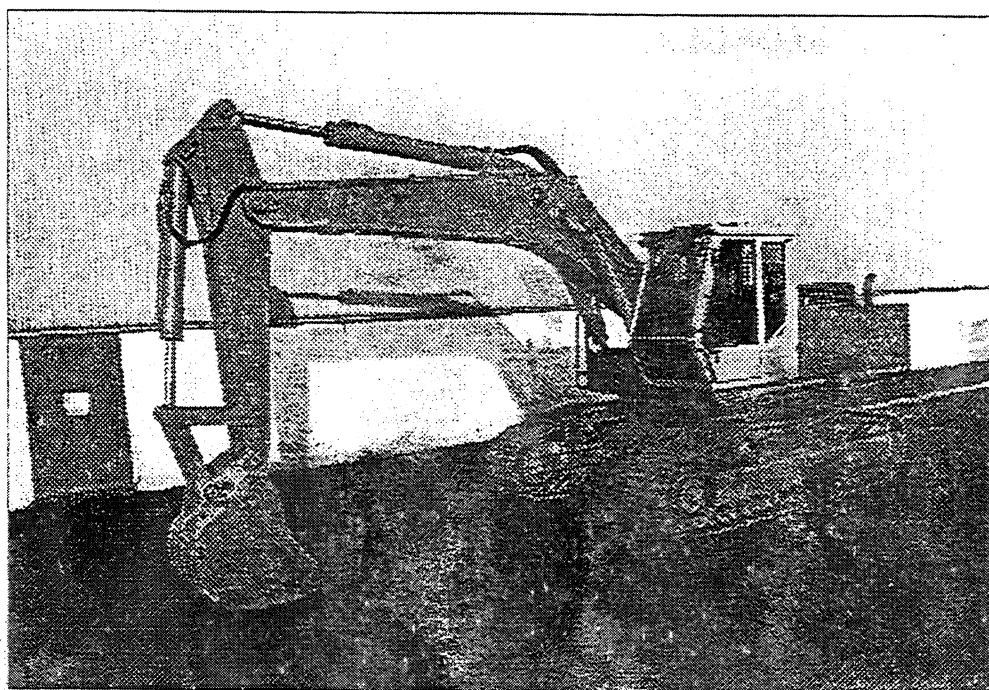




FX 300 LC

CRAWLER EXCAVATOR



SERVICING MANUAL

59825021

Reprinted

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30	OPERATION
40	UNDERCARRIAGE
50	TRANSMISSION
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FOREWORD

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- 12 TABLE OF SECTIONS AND UNITS
- 13 HOW TO USE THIS MANUAL

WARNING!**Study this handbook before starting the machine**

You must understand and follow the instructions in this handbook.

Abide by all relevant laws and regulations. If you are unsure about anything, ask your BENATI MACCHINE dealer or employer.

Do not guess, you or others could be killed or seriously injured.

IMPORTANT NOTE

All information included in this manual is to be considered valid at the time of printing.

Due to the fact that the Manufacturing Company constantly improves its product, certain information may not result up to date.

For any discrepancy, consult Sales and Service Department.

11 FOREWORD

This manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements.

Make sure you understand the contents of this manual and use it to full effect at every opportunity.

This manual mainly contains the necessary technical information for operations performed in a service workshop.

For ease of understanding, the manual is divided into sections for each main group of components; these sections are further divided into paragraphs.

Each paragraph contains the following information as applicable:

Description and Operation

This explains the structure and function of each component.

It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

Testing and Adjusting

This explains checks to be made before and after performing repairs, as well as adjustments to be made at completion of the checks and repairs. Troubleshooting information is also included if applicable.

Removal and Installation - Disassembly and Reassembly

This explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

12 TABLE OF SECTIONS AND UNITS**10****FOREWORD**

1. Introduction
2. Table of sections and units
3. How to use this manual

20**FEATURES**

1. Technical data
2. Weight list

30**OPERATION**

1. Safety rules
2. Precautions
3. Hoisting instructions
4. Standard torque specifications

40**UNDERCARRIAGE**

1. Description
2. Idler wheel assembly
3. Roller
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5. Drive wheel

50**TRANSMISSION**

1. Travel mechanism
2. Rotary joint
3. Travel reduction
4. Travel motor
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6. Swing reduction unit
7. Swing motor
8. Slewing ring

60**HYDRAULIC SYSTEM**

1. Description
2. Main pump
3. Filters
4. Swing valve
5. Directional controls valve
6. By - pass
7. Servo controls
8. Hydraulic cylinders
9. Flexible hoses and connection

70**ELECTRIC SYSTEM**

1. Electric system

80**ATTACHMENTS**

1. Working equipment
2. Hydraulic cylinder disassembly and equipment
3. Counterweight
4. Cab
5. Operator's compartment
6. Heater

90**ENGINE**

1. Engine assembly

0/0**OTHER**

- A.
- B.

13 HOW TO USE THIS MANUAL

This manual was written primarily for service centres and contains complete instructions on troubleshooting, removal and inspection of parts, repair or overhaul, and installation of the group included in the machine discussed in this manual.

The following instructions should be carefully read and observed by personnel who perform maintenance on the machine.

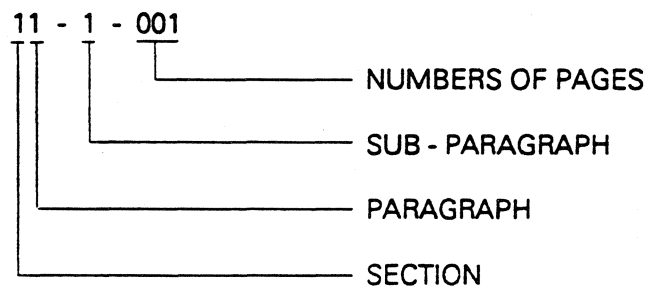
When replacing groups or component parts, always use original spare parts; this assures functional interchangeability and proper operation of the various parts.

Information regarding routine maintenance operations or maintenance covered by the Operation and Maintenance manual have been omitted; refer to the above-mentioned manual as necessary. The manual is divided as follows:

SECTIONS: are identified by the number of the relevant group (e.g., 10 FOREWORD).

PARAGRAPHS: are identified by the number of the relevant section followed by the paragraph number (e.g., 10 + 1 = 11 Introduction).

When paragraphs are very wide, further paragraphs are added to them (e.g., 11.1).



This numbering method allows identification of sections and paragraphs within the manual and facilitates location of references.

Unless otherwise specified, the group installation procedure is obtained by reversing the sequence of operations given for removal.

FEATURES

20

21 FEATURES

22 WEIGHT LIST

21 TECHNICAL DATA

BASIC MACHINE PARTS

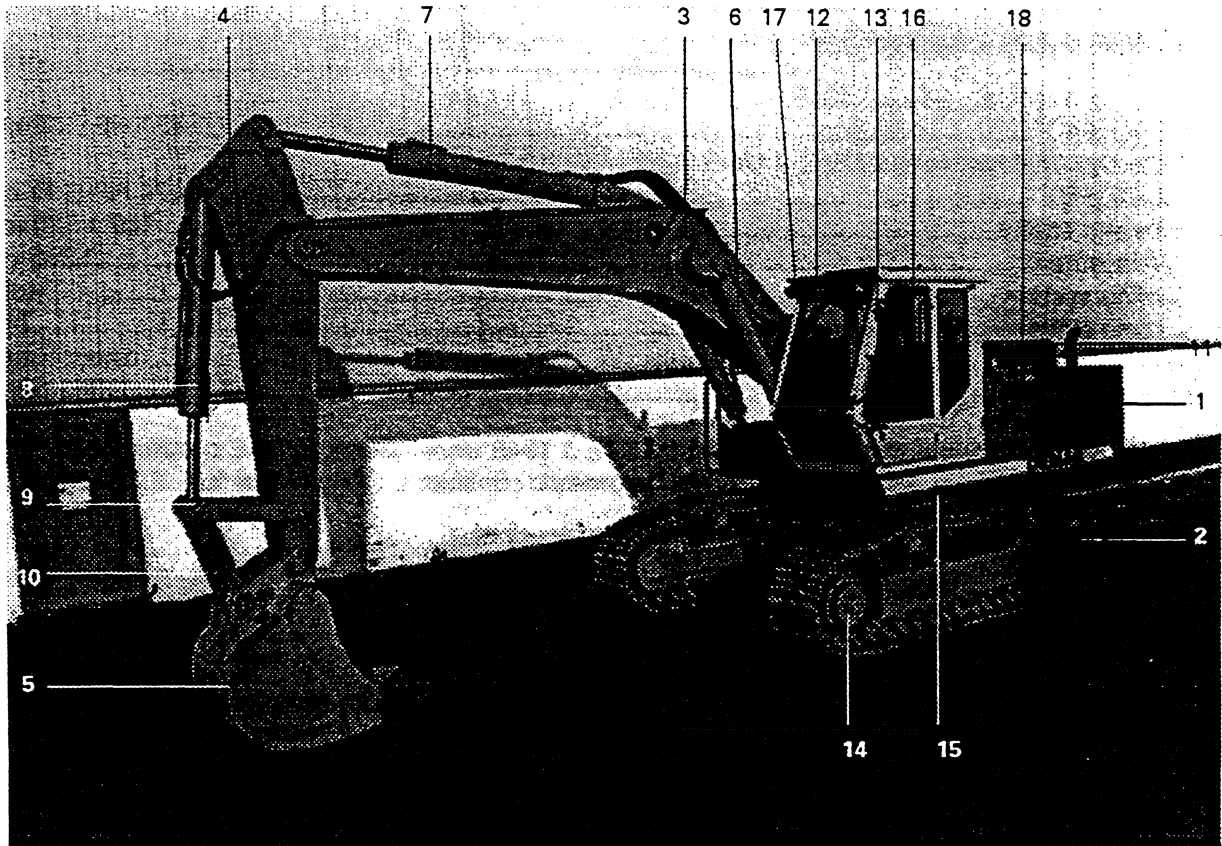
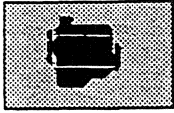


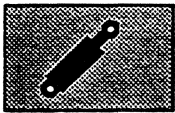
Fig. 1

- | | |
|------------------------------------|---|
| 1) Rotating upper structure | 10) Linkage tie rod |
| 2) Undercarriage | 11) Power plant (engine and hydraulic pump) |
| 3) One-piece boom | 12) Control valves |
| 4) Dipperstick | 13) Swing reduction gear and hydraulic motor |
| 5) Bucket | 14) Travel reduction gear and hydraulic motor |
| 6) Hydraulic cylinder, boom lift | 15) Slewing ring |
| 7) Hydraulic cylinder, dipperstick | 16) Cab and operator compartment |
| 8) Hydraulic cylinder, bucket | 17) Fuel tank |
| 9) Linkage | 18) Hydraulic oil reservoir |

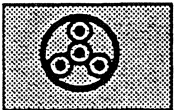
**ENGINE**

Make CUMMINS
 Model 6 BTA 5.9
 Cylindres, number 6
 Cycle 4
 Injection direct
 Gross horsepower SAE J 1349
 a 2500 giri/1' 177 HP (132 kW)
 * Net flywheel horsepower SAE J 1349
 a 2200 giri/1' 174 HP (130 kW)
 Bore and stroke 102 x 120 mm
 Displacement 5880 cm³
 Cooling system water
 Electric starter 24 V
 Aspiration turbocharged
 Fuel consumption (max. output) 152 g/HPH

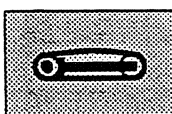
* Net flywheel horsepower as spscified by SAE J 1349 under standard SAE conditions 25°/77°F ambient temperature, 100 KP (29.61 in Hg) barometric conditions, using dlesel fuel 2 D (ASTM).

**HYDRAULIC SYSTEM**

Two axial piston variable flow, constant horsepower, pump with summated horsepower control.
 Maximum delivery 2 x 208 litres/min (2 x 55 gal/min)
 Relief valve settings
 Digging implement circuits 300 bar
 Travel system 300 bar
 Swing system 300 bar
 The pilot control circuit is fed by a gear pump with a preloaded accumulator for movements with engine off
 Operating pressure 30 bar
 Delivery 41 litres/min
 Hydraulic cylinders, bore and stroke
 Boom (2) 130 x 1100 mm.
 Dipperstick (1) 160 x 1380 mm.
 Bucket (1) 130 x 1100 mm.

**DRIVE**

Full hydrostatic type, each track driven by an independent hydraulic motor through planetary final drives, splash lubricated and oil/water tight floating ring seals.
 Standard and long undercarriage 23100 Kg.
 Maximum travel speed at rated engine rpm (forward and reverse) 2,80 Km/h
 Automatic oil bath multidisc brakes to enable the excavator to work on steep gradients up to max. gradeability; they are automatically applied and act also as parking brake.



UNDERCARRIAGE

Track-type tractor, industrial undercarriage. Box section type track frames. Lifetime lubricated rollers and idlers. Triple grouser industrial trackshoes.

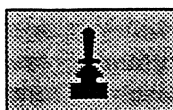
Track links Nr. each par.....48
Rollers - Nr. each part10+2

TRACKSHOE width mm

SPECIFIC GROUND PRESSURE N/cm²

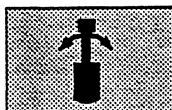
550
650
750
850
900

6,5
5,5
4,8
4,3
4,0



CONTROLS

Hydraulic power assisted: two joystick hand levers provide control to implement operations and upperstructure slewing. Two pedals control forward/reverse travel, steering and counterrotation of tracks.



SWING MECHANISM- 360°

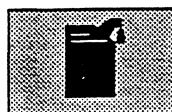
Swing system operates through a reduction transmission with hardened and carburized gears splash lubricated, powered by a self-braking hydraulic motor.

Swing bearing with case hardened internal gear, grease lubricated.

Swing speed9,5 r.p.m.

Swing torque7940 kgM

Oil bath multidisk brakes automatically apply when control lever is in neutral position.



SERVICE REFILL CAPACITIES

Fuel tank438 litres

Cooling system40 litres

Lubrication:

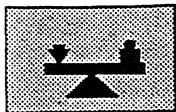
Engine oil16 litres

Final drives (each)3 litres

Swing drive5 litres

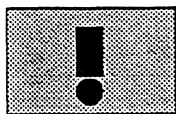
Hydraulic system320 litres

Hydraulic reservoir212 litres

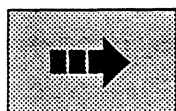
**OPERATION WEIGHT (APPROXIMATE)**

Includes trackshoes, full tank, operator, two piece boom 2,1 m dipperstick and 1200 mm bucket.

TRACKSHOE width mm (in)	WEIGHT t.
550	29,0
650	29,4
750	29,8
850	30,2
900	30,4

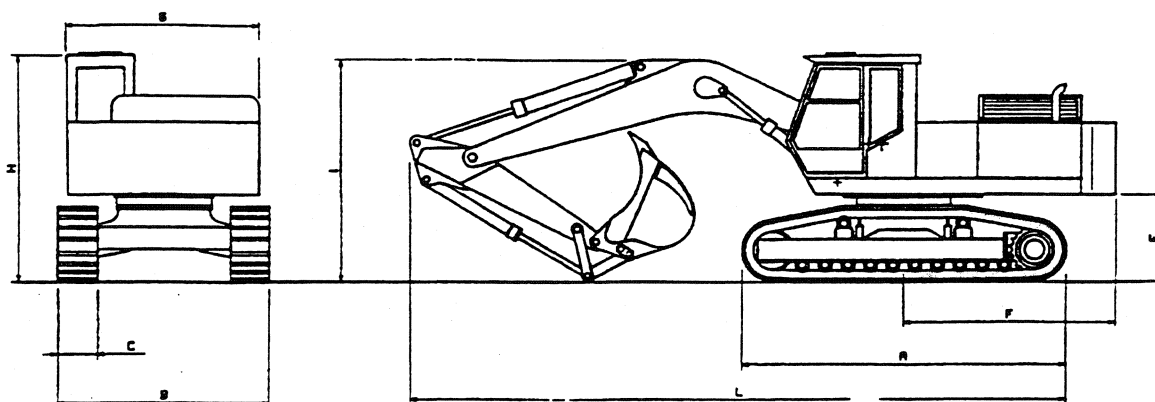
**STANDARD EQUIPMENT**

Alternator 38 A., exhaust muffler, standard counterweight, drytype air cleaner with cyclon pre-cleaner, electric horn, cab with adjustable seat, cab heating, diesel engine instruments, service warning lights, hourmeter, windshield wiper and safety glasses in all windows, work lights. Life-time lubricated rollers and idlers, hydraulic track adjusters, 550 mm triple-grouser track shoes, front track guiding guard, tow eye, thermostart unit, tool box, travel motors protection, automatic multidisc emergency brakes, oil bath lubricated. Top cab window, fan. Refuelling pump. Sound suppression kit.

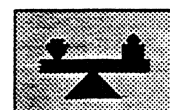
**OPTIONAL EQUIPMENT**

One and two-piece booms. Long and extra-long dipperstick. Backhoe buckets. Bucket teeth. Front loading stick. Front loading shovels and multipurpose. Track shoe options. Air conditioner. Pressurizer. Radio set. FOPS. Ditching boom. Clamshell attachment. Intermediate arm articulation. Hydraulic hammer.

TRANSPORT DIMENSIONS - MONOBLOC BOOM

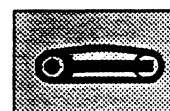


Stick	A	B	C	D	E	F	G	H	I	L
2,1	4605	3000-3350	550-900	500	1200	3010	2700	3150	3100	10210
2,6	4605	3000-3350	550-900	500	1200	3010	2700	3150	3250	10260
3,1	4605	3000-3350	550-900	500	1200	3010	2700	3150	3400	10310



Weights

Track Width	550 mm	650 mm	750 mm	850 mm	900 mm
Weight of Undercarriage ^{Superstr. Attachim. cpl}	29,0 t	29,4 t	29,8 t	30,2 t	30,4 t
Weight of 1 Crawler Assembli	1875 Kg	2075 Kg	2275 Kg	2475 Kg	2575 Kg

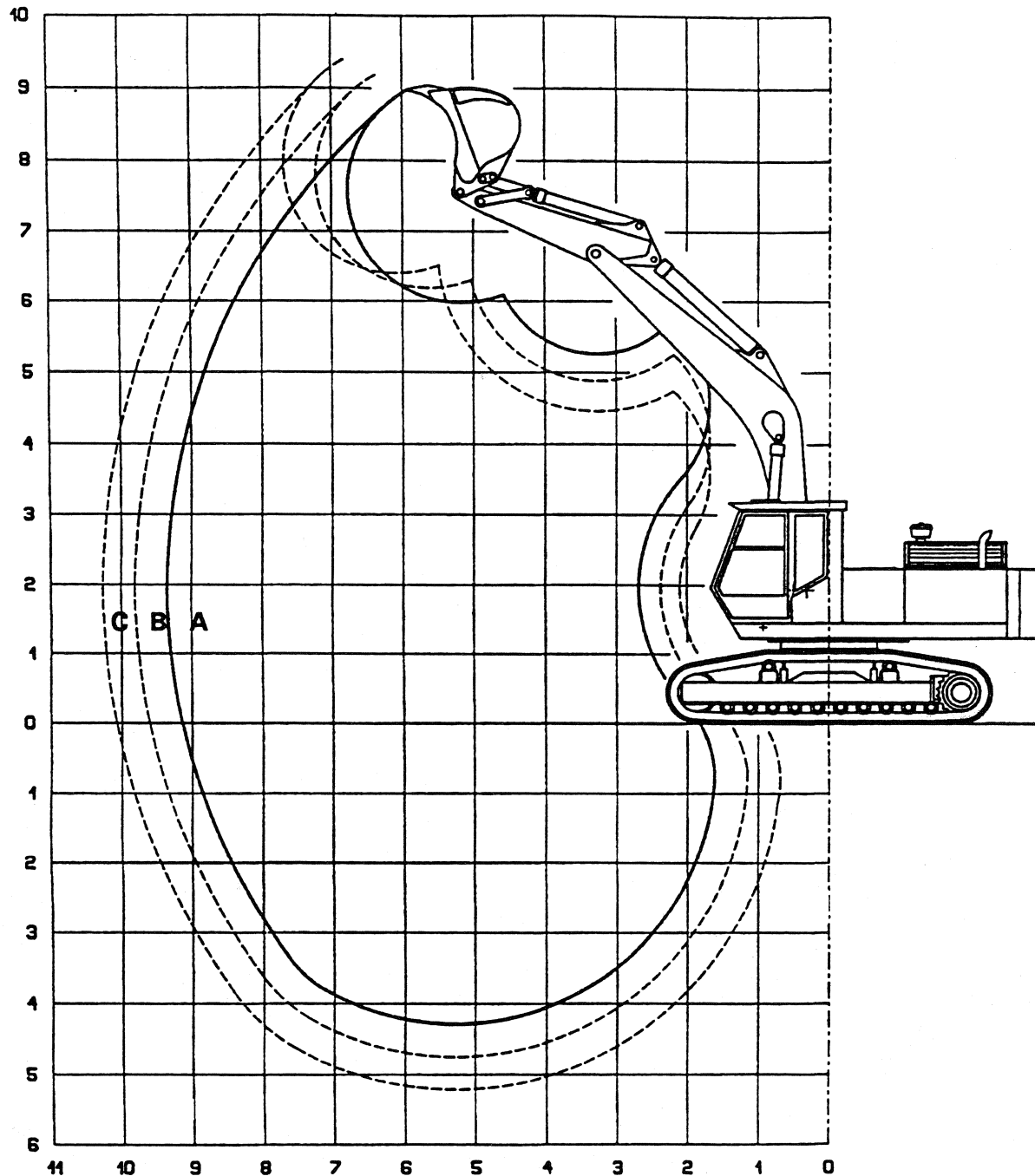


Ground Pressure

Track Width	550 mm	650 mm	750 mm	850 mm	900 mm
Undercarriage ^{Superstr. Attachim. cpl}	6,5 N/cm ²	5,5 N/cm ²	4,8 N/cm ²	4,3 N/cm ²	4,0 N/cm ²

WORKING RANGES - MONOBLOC BOOM

Position 1



The boom-foot brackets offer two mounting positions for the boom. Position 2 adds up to 25% to the force of the boom-elevation cylinders. This position is recommended for jobs where the maximum digging depth is not required, but high lifting capacities.

**Forces pos. 1**

Stick	2,1 m (A)	2,6 m (B)	3,1 m (C)
Max. Radius (m.)	9,1	9,5	10
Max. Depth (m.)	4,27	4,77	5,27
Dumping Height (m.)	6,0	6,05	6,1
Break-Out Force (kN)	145,2	126,5	112,2
Tear- Out Force (kN)	159,6	159,6	159,6

**Digging tools Monobloc Boom pos.1**

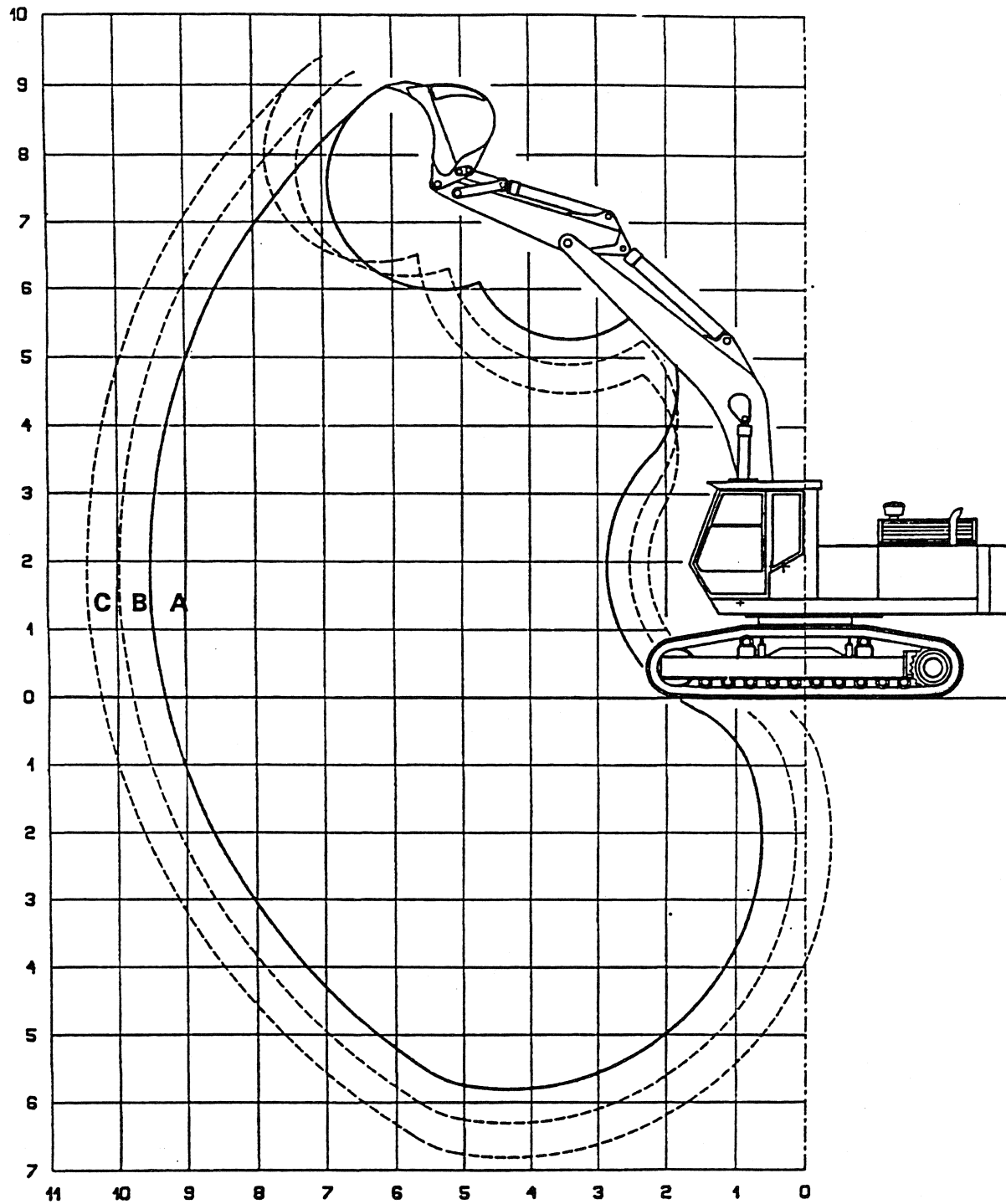
Capacity	0,5	0,8	1,26	1,39	1,65	1,95
Stick m 2,1 (A)	0	0	0	0	0 ¹⁾	0 ²⁾
Stick m 2,6 (B)	0	0	0	0 ¹⁾	0 ²⁾	0 ²⁾
Stick m 3,1 (C)	0	0	0 ¹⁾	0 ²⁾	0 ³⁾	-
Bulk Material Weights	¹⁾ 1,8 t/m ³		²⁾ 1,5 t/m ³		¹⁾ 1,3 t/m ³	*SAE

BAKET**Bucket width Capacity Weight with teeth Number of teeth**

700	0,50	760	3	3743848	3744001
1000	0,80	950	4	3743835	3744010
1200	1,26	1130	4	3743795	3744027
1350	1,39	1275	4	3743781	3744030
1500	1,65	1335	5	3743875	3744033
1600	1,95	1520	5	3743801	3744049

WORKING RANGES - MONOBLOC BOOM

Position 2



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