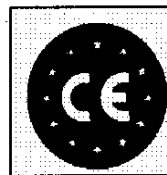


**FRONT LOADER
FOR
FARM TRACTORS**



**OPERATIONS
AND
MAINTENANCE MANUAL**

MODEL MP1 - MP2 - MP3 - MP3 S



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VALID FOR CHASSIS N°

- A -

COD. B/016 - 07/95

INTRODUCTION

This operations and maintenance manual has been written by the Company BONATTI SNC in conformity with the Machine Directive and relevant harmonized regulations.

- ❖ The front loader must be always accompanied by this manual that contains all required instructions to perform any digging work and to stop the unit after work.
- ❖ The operator must understand this manual before he performs any loading work.
- ❖ Unskilled operators may cause damages and injuries to the people.



CAUTION

- ❖ Any plate or sticker mentioned in this OPERATIONS MANUAL when illegible, has to be necessarily replaced by the user or by the owner of the machine. The new plates or stickers are available at the Company BONATTI.
- ❖ The manufacturer will not be responsible for any damage due to illegible plates or stickers.
- ❖ If a plate or a sticker is partially illegible or completely missing, the user must not use the machine until a new plate or sticker has been stuck.
- ❖ The punchings mentioned in this manual must not be damaged or made illegible.

SYMBOLS USED

In this manual three types of safety warnings are used to point out three levels of risk to which the Service personnel is exposed.

- ❖ Symbol of « **DANGER** »



DANGER

The symbol is used to put in evidence situations that are dangerous for the personnel and, therefore, to prevent serious accidents that, in some cases even death.

- ❖ Symbol of « **CAUTION** »



CAUTION

It is used to put in evidence situations are dangerous for the integrity and the efficiency of the machine and therefore, they concern also the safety of the people.

- ❖ Symbol of « **IMPORTANT** »

IMPORTANT

This symbol is used to direct your attention on important that the service personnel must know and keep in mind.

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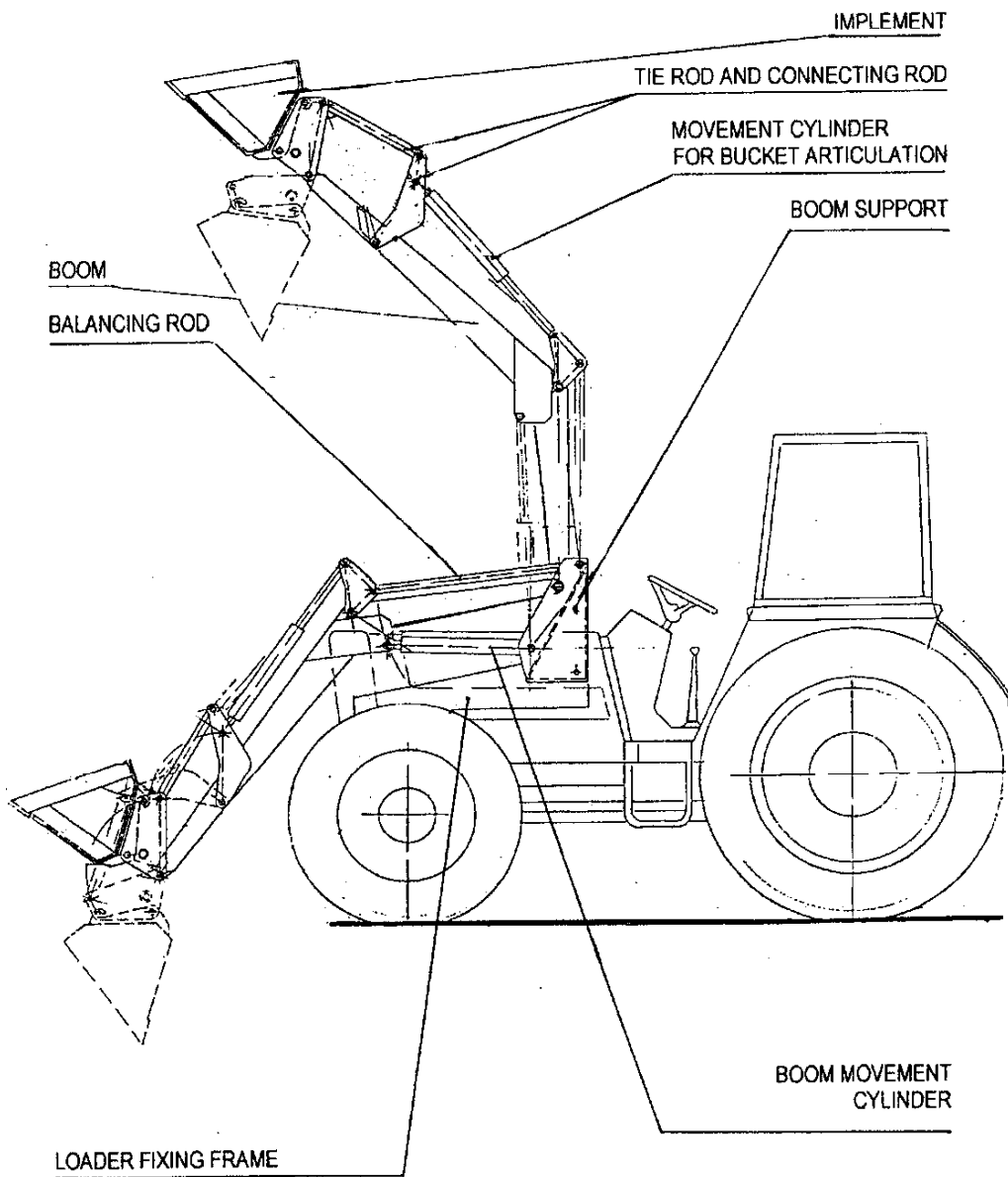
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GENERAL SAFETY RULES

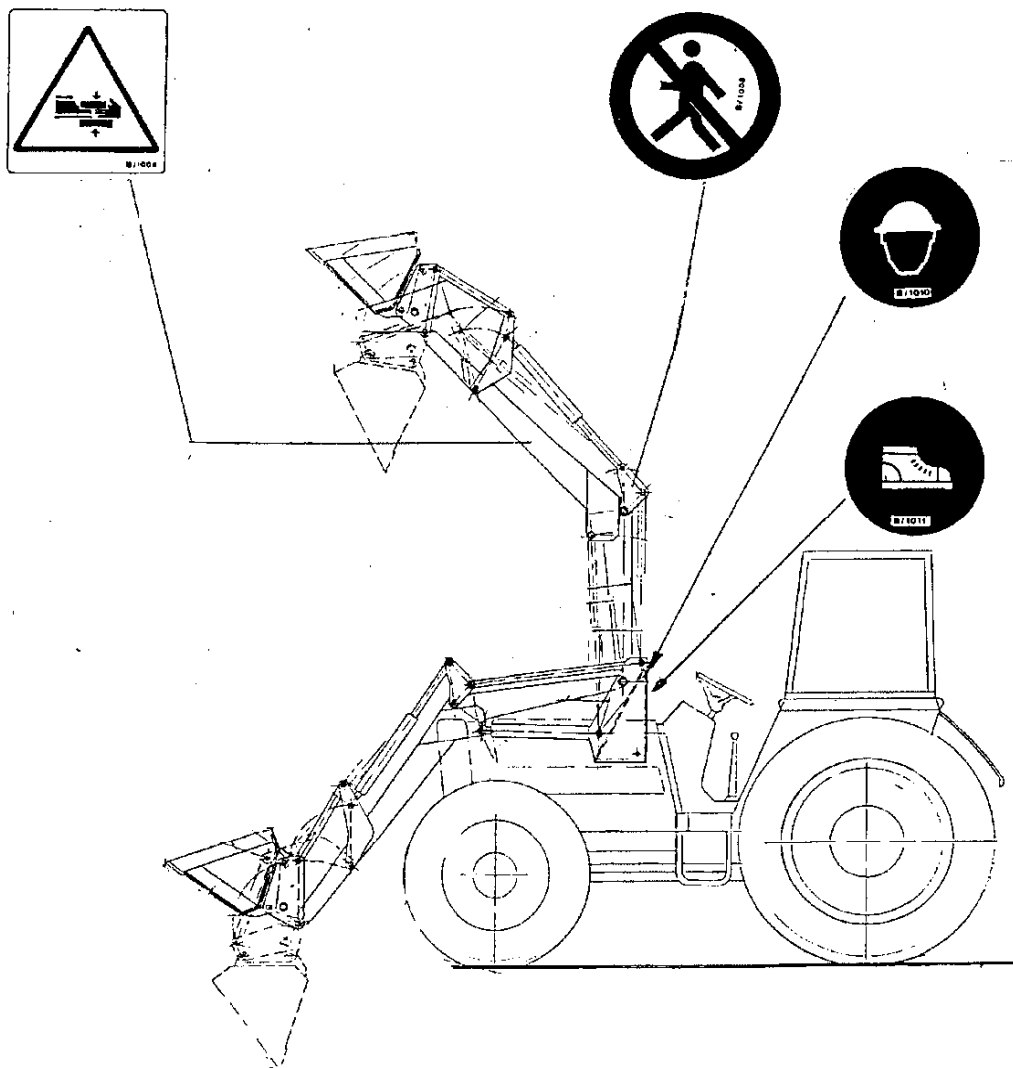
- ❖ **DO NOT CARRY PERSON ON THE TRACTORS**, except in case special devices are provided to avoid any fall.
- ❖ Locate and study the ways of escape on the tractors as an alternative to the usual ones.
- ❖ For personal safety, do not try to get on or off the tractor while moving.
- ❖ Make sure that any person walking around is outside of the tractor reach before to start or operate the equipment. Use warning horn. Follow the indications given by flags and signs.
- ❖ Operate the tractor at a slow speed, such as to ensure the maximum control in any case.
- ❖ On hilly grounds, on the slopes, near gorges or obstructed areas, as well as on iced and slippery grounds, proceed very slowly.
- ❖ Going in reverse, always look in the direction of the tractor. Pay attention to the people walking around : in case any person is in the working area **STOP THE TRACTOR**.
- ❖ Always keep a safety distance from other machines and obstacles, in such a way as to ensure the required visibility.
- ❖ Always try to get the best visibility on the whole surrounding working or operation area.
- ❖ Keep the window panes of the cab perfectly clean and in good condition.
- ❖ Pay attention to soft grounds, near newly built walls : the filling material and the weight of the tractor may cause the collapse of the wall.
- ❖ Do not operate a tractor provided with counterweights if the counterweights have been removed, unless they have been replaced with an equivalent load or weight.
- ❖ At the beginning and frequently during the work, always observe the instruments : should the brake gauge show a pressure lower than the minimum operating pressure, stop the tractor immediately.
- ❖ Do not use the end implement of the loader to lift or carry persons.
- ❖ Do not use the loader as a working platform or scaffold. Neither for other improper uses.
- ❖ Pay attention to people walking within the reach of the loader.
- ❖ Whenever possible, load the trucks from the driver's side.
- ❖ Always consider the working area, to locate any possible dangerous condition. Hereby some examples : slopes, projected areas, trees, demolished buildings, fire, gorges, hilly ground, trenches, crowds, crests, excavations, heavy traffic, crowded parking places and filling-stations, enclosed spaces. In these cases, proceed with caution.
- ❖ Possibly, avoid driving in transverse direction to the slopes. Proceed down from above and vice versa, should the tractor skid sideways, steer immediately by turning the front down.
- ❖ When working on slopes, there is no rule that can replace the experience and the common sense of the operator.
- ❖ Keep your head, body, limbs, hands and feet away from the loader boom and keep end implements in lifted position.
- ❖ Before to make any work on the loader (cleaning, repairs, servicing), or to park the machine, always take the start key away in order to prevent any accidental or unauthorized start.

1. DESCRIPTION OF THE MACHINE

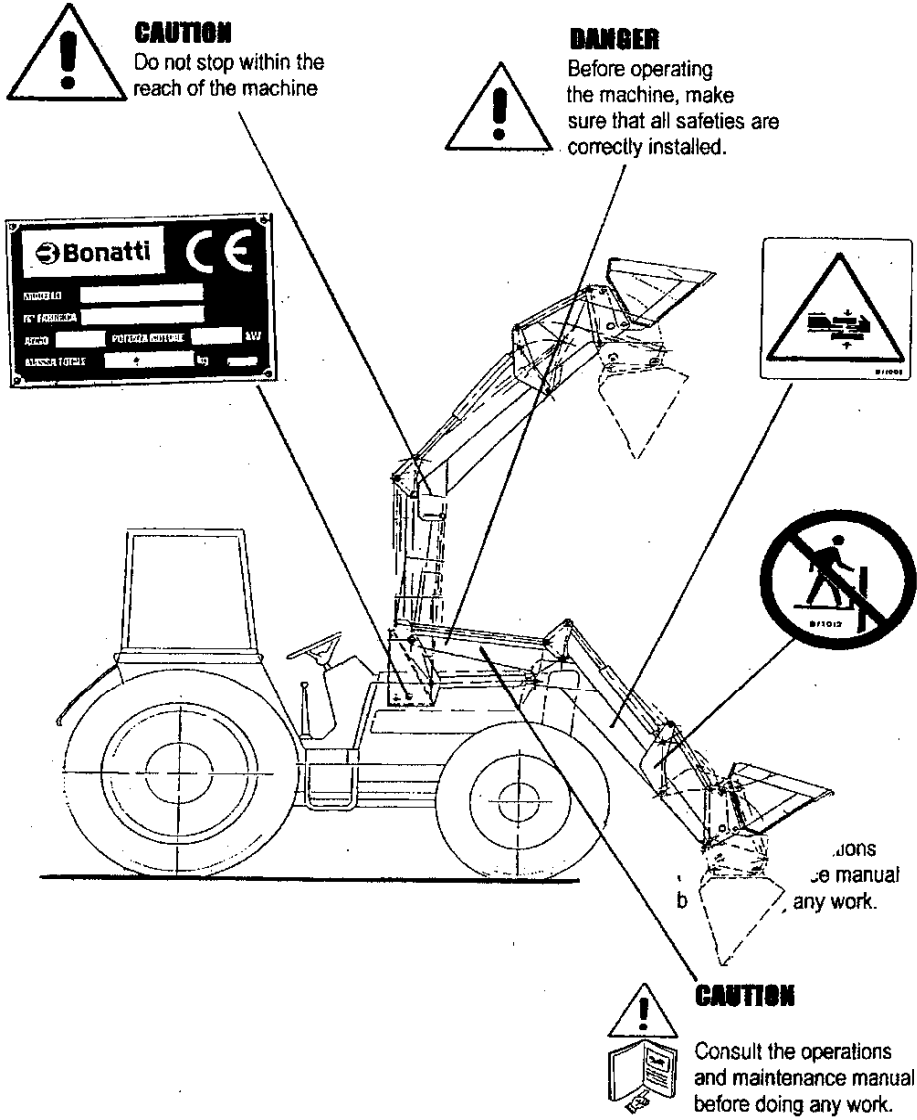
1.1 LIST OF COMPONENT



1.3 LOCATION OF THE SERIAL NUMBER AND SAFETY STICKERS



**LOCATION OF THE SERIAL NUMBER WARNINGS AND SAFETY STICKER
(continuation)**



2. GENERAL SAFETY REGULATIONS

2.1 SAFETY WARNINGS

The front loader is designed to be installed on farm tractors : before installation make sure that the farm tractor is suitable for this purpose : carefully read « **INSTALLATION INSTRUCTIONS** ».

DO NOT INSTALL UNSUITABLE MACHINES ON THE LOADER



CAUTION

SAFETY WARNING

A SAFE OPERATION REQUIRES A SKILLED OPERATOR.

A skilled operator should follow these instructions :

a) UNDERSTAND THE WRITTEN INSTRUCTIONS, LAWS AND REGULATIONS



- ❖ The instructions written by BONATTI include a delivery report, the operation manual and the warnings on the machine (transfer printings)
- ❖ Check local laws and regulations. The law may provide for special safety requirements for the employer.

b) TO BE INSTRUCTED IN THE DRIVE CONTROL



- ❖ The operator must be instructed by practical demonstrations and verbally. The operator can be instructed by BONATTI , or alternatively by the installer before the delivery of the front loader.
- ❖ The new operator should start working in a place with no people walking around and use all the controls until he can drive the loader by using all its functions and in conformity with the local requirements. Always wear safety garments : HELMET, GLOVES AND SAFETY SHOES.

c) KNOW THE OPERATING CONDITIONS



- ❖ For all types of material to be handled, the operator must know how to avoid surpassing the operation capacity of the loader. For example, while handling a certain loose material with a certain end implement, the operator must know for sure if he can fill completely or partially the implement.
- ❖ The operator must know which uses and which working areas are not allowed. For example, he must know the extreme gradient of the slopes and the position of underground pipes or electric lines.
- ❖ Do not wear low-necked clothing. Always wear protective glasses when servicing or repairing the loader. For some types of work protective glasses, guard or special protections are required. Please contact SAFETY EQUIPMENT RETAILERS.
- ❖ A skilled operator must not make use of drugs or alcoholic drinks that may modify his quickness and coordination during work.

An **operator** making use of prescribed drugs must show a doctor certificate attesting his ability to drive the machine with safety.

2.2 SAFETY DISTANCE FROM ELECTRIC LINES

Always keep a sufficient safety distance from electric lines within the reach of the loader and particularly from electric lines that have not been disconnected or whose state is unknown.

VOLTAGE	MINIMUM DISTANCE (m)
UP TO 1000 V	1
FROM 1 KV TO 110 KV	3
FROM 110 KV TO 220 KV	4
FROM 220 KV TO 380 KV	5

DANGER: Always keep a sufficient safety distance from electric lines. Follow specific local rules. If the rated voltage is unknown, always keep a minimum distance of 5 M.



2.3 SAFETY DISTANCE FROM SLOPES AND DITCHES

Keep the front loader at sufficient safety distance from slopes or ditches. In case of not propped up slopes or trenches, the distance depends also on the type of ground.

Empiric rule :

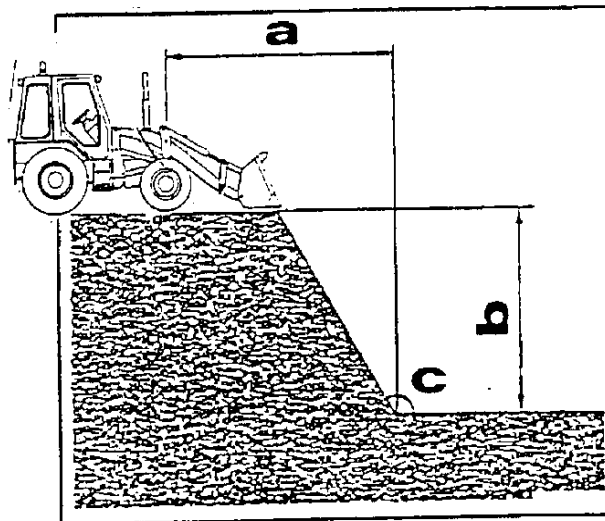
- ❖ In case of crumbling soil or embankments, the safety distance (a) must be twice as much as the depth of the trench (b).

$$a = 2 \times b$$

- ❖ In case of compact soil, the safety distance (a) must be equal to the depth of the trench (b).

$$a = 1 \times b$$

The safety distance is measured from the foot of the trench (c)



3. USE AND OPERATION

3.1 SETTING AT WORK

Before operating the loader, carefully read the Operations and Maintenance Manual.



WARNING. Before using the machine the operator must be instructed. Unskilled operators may cause injuries or death.

3.2 STOPPING THE FRONT LOADER AFTER WORK



WARNING. Before leaving his seat, the operator must lower the lifting booms and lay equipment flat on the ground.

Stop the tractor engine and engage the parking brake.

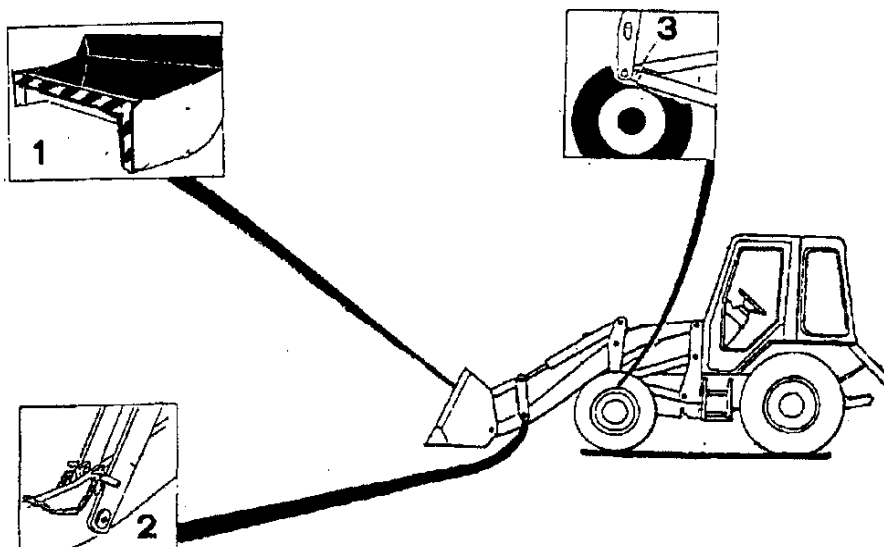
AT THE END OF THE WORK, before leaving the machine, make sure that the implement is Steadily lowered to the ground. Do not leave the starting key on the tractor.

3.3 POSITIONING OF THE MECHANIC LOCKS



WARNING. For your best safety follow the instructions. Instructions to connect and disconnect mechanic locks:

1. Implement teeth protection with withe and red stripes for dimensions signaling ;
2. Bucket movement safety bracket with lock split pins ;
3. Boom movement safety bracket with lock split pins.



3.4 CIRCULATION ON ROAD



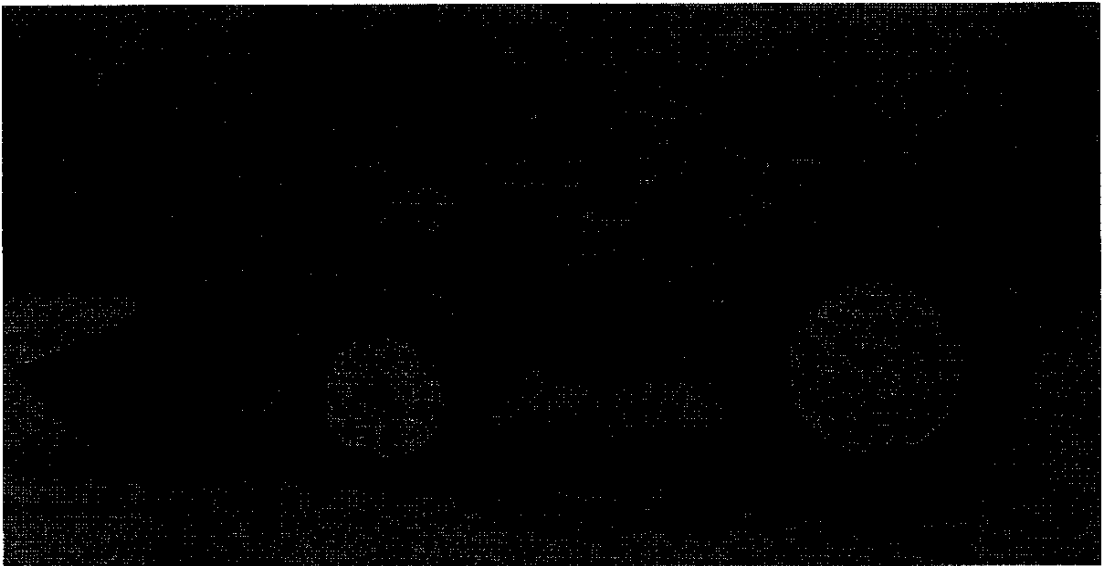
IMPORTANT. Circulation on road is subject to the laws and regulations in force.
Do not run on all road if the equipment has not been properly tested and recorded into the registration book of the tractor.

The manufacturer of the implement is not responsible for damages arising from the non observance of the road traffic act.

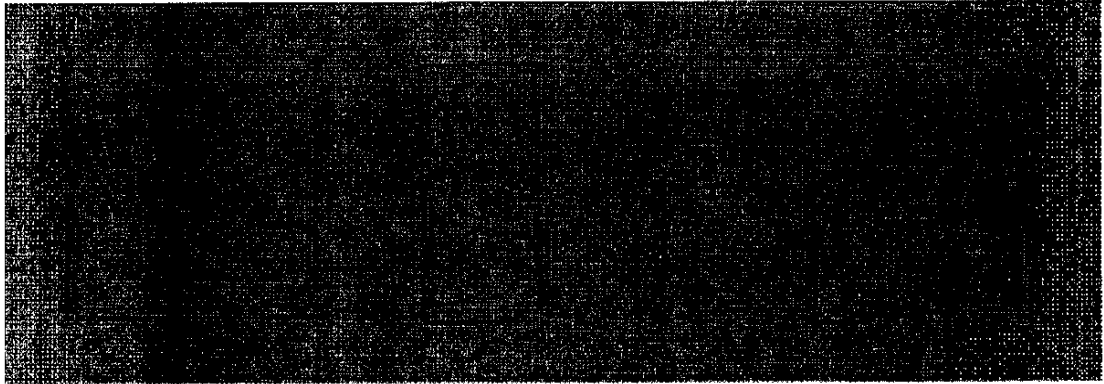
PRESCRIPTION FOR THE CIRCULATION ON ROAD :

- ❖ Yellow pivotable headlight ON ;
- ❖ Boom lifted from the ground with safety bracket connected with the cylinder ;
- ❖ Implement locked with safety bracket ;
- ❖ Protection of the sharp front part of the implement with red and white stripes for dimension signaling.

CAUTION. The non-use of the stop devices may cause serious damages to things and people.



3.5 CONTROLS



Before to start working: make sure to have a full range of visibility on the operation area. During night work be sure to have enough lighting.

CAUTION

3.6 USE OF THE FRONT LOADER



Before work : signal the working area with special signs. During work : keep working area always under control and prevent people from approaching.

DO NOT LOAD MATERIALS NEAR UNDERGROUND ELETRIC LINES



- a) Do not use bucket, forks or other implements that are not approved by **Bonatti**.*
- b) Reliable buckets and implement of specific density are approved for each loader model.*
- c) Any equipment not approved by the manufacturer may cause mortal injuries.*

THE MANUFACTURER IS NOT RESPONSIBLE FOR DAMAGES ARISING FROM THE NON OBSERVANCE OF POINTS a) b) c).

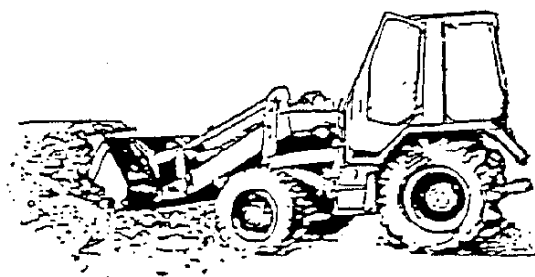


- ❖ Load, unload and turn on flat ground.*
- ❖ Do not exceed the operating capacity.*
- ❖ The non-observance of the warnings may cause the overturning and upsetting of the machine and consequently injuries or death.*
- ❖ Do not unload on an obstacle that may get into the operator cab.*
- ❖ The machine may move forward and cause injuries or death.*

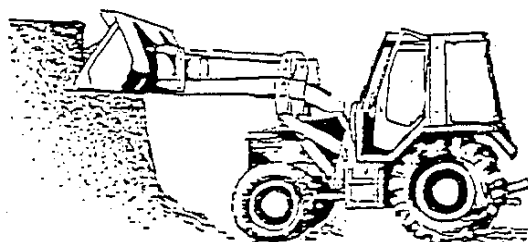
An operator that operates the front loader for the first time must become familiar with the use of the bucket. Therefore he has to gain a preliminary experience and follow all the operations that the implements may do in order to develop a « good sensitivity » to the controls and the reactions he can obtain with the controls. Remember that when the levers are in the neutral positions, the implement becomes integral with the machine : it means that it will follow any movement o the machine.

3.7 FILLING THE BUCKET

To fill the bucket from a loose heap of soil, arrange the bucket so that the cutting edge is parallel to the ground. Let the bucket return before time in order to avoid any waste of power due to the sliding of the only back part of the bucket (landside), with non penetration or scarce penetration of the bucket in the soil to be collected.



The intake of the material from a slope must be done in layers. To get the best efficiency from the machine the layers must not be too thick.



3.8 REMOVING THE CRUST

It is a good rule to dedicate some minutes to observing and considering the work to be done. If the superficial layer is deep, it will be a good thing to dig a little at time. The depth of each pass will be determined by the type of ground.

Start digging by turning the bucket (without teeth) downwards with a sufficient angle to ensure the penetration of the sharp edge ; this angle may vary according to the kind and hardness of the ground to be digged.

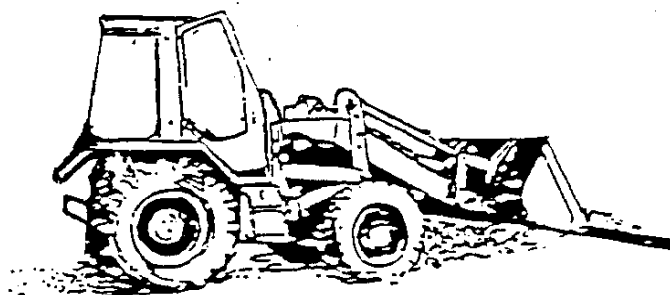
Proceed with the machine after having placed the control lever in neutral position. If the penetration is difficult, reduce the penetration angle.

The digging depth must be such as to allow the machine to work smoothly.

In any case try to keep the machine on level or downhill, so that the weight of the machine will be added to the bucket thrust.

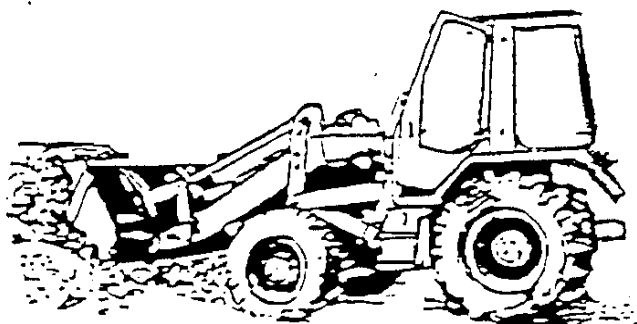
When the bucket is filled up, get it completely back while it is still moving forward.

During transfer to the unloading area, the bucket must be kept at about half a meter from the ground.



3.9 DIGGING WORK

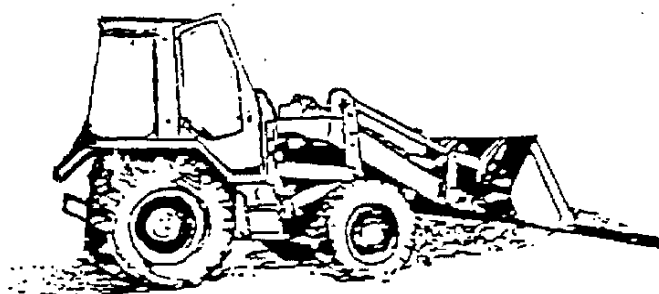
When digging in very hard and tough grounds, the bucket must be provided with teeth.



To fill the bucket, let it return completely back in order to get the best stability.

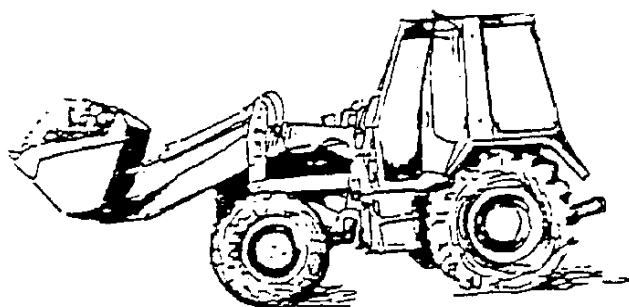
3.10 LEVELLING

Turn the bucket lightly forward by setting the sharp edge at a small penetration angle. Before levelling, fill the ground sinkings.



3.11 FRONT LOADER OPERATING WITH FULL BUCKET

To move the material from the loading area to the unloading area, the bucket must be kept in low position (40-50 cm. From the ground) ; in this way any excessive lost of material is avoided, you will get a good range of visibility and, above all, the machine will get a good stability also sloping grounds.

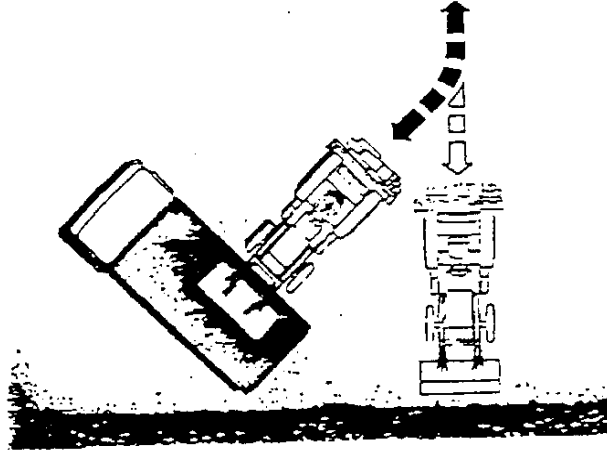


3.12 CHARGING THE MATERIAL ON TRUCK

While loading the material on trucks, it is a good rule that loader runs as less as possible.

The figure here below shows a possible arrangement of the machine.

In any case, it depends on the operator to decide, according to his experience which arrangement and which working system will be the best for the particular work to be done.



4. DAILY OPERATIONS


Before start working :

- ❖ Check the integrity of the hydraulic pipes ;
- ❖ Check if there are hydraulic leaks ; general inspection of the structure state to check any rust or breaking ;
- ❖ Check the integrity of the instruction labels ;
- ❖ Check the integrity of the control indications ;
- ❖ Check the correct return to neutral positions of the control levers ;
- ❖ Check the presence of the lock split pins on the implement ;
- ❖ Check hydraulic oil level of the tractor.

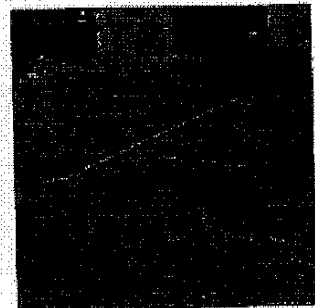
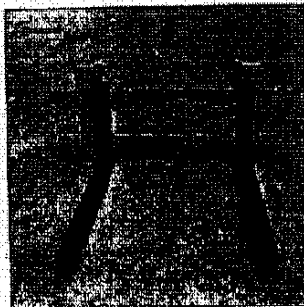
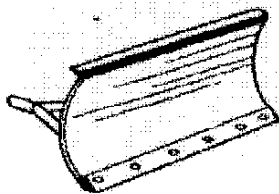
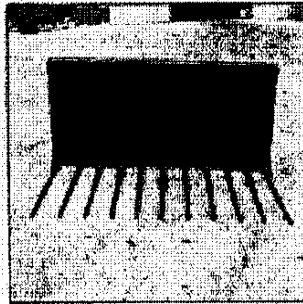
4. END FITTINGS (OF THE LOADER)

In place of the bucket following fittings can be installed

- ❖ Adjustable width bucket
- ❖ Adjustable width cereals bucket
- ❖ Fork for rotobales
- ❖ Fork for pallets
- ❖ Adjustable width manure fork
- ❖ Adjustable width manure fork with screwed bits
- ❖ Mechanic tree boom
- ❖ Hydraulic tree boom
- ❖ Fork for logs
- ❖ Fork for logs with hydraulic retainer
- ❖ Adjustable width snowplow
- ❖ Adjustable width quick-release

If not delivered by the Company **Bonatti**, all attachments must be suitable for the dimension of the machine and provided with mark .

In case of doubt get in touch with the manufacturer.



5.1 ASSEMBLING AND DISASSEMBLING INSTRUCTIONS OF END IMPLEMENTS

- ❖ Lay the implement flat to the ground so that it does not upset once the pins have been removed ;
- ❖ Extract the safety pins ;
- ❖ Extract the two side pins of the implement or, in case the machine is provided with quick-release, operate the lever.



Use plastic hammers in order to prevent dangerous splinters.

Wear safety spectacles, helmet and gloves.

Do not stop within the reach of the implement : **SQUASHING DANGER**

6. SPECIAL USE CONDITIONS

CAUTION

Do not operate the machine in :



- ❖ Areas with risk of fire ;
- ❖ Corrosive atmosphere ;
- ❖ Atmosphere with dusts dangerous for the operator health ;
- ❖ Closed places.

7. INSTRUCTIONS FOR STORAGE

In case of long standstill of the machine :



- ❖ Wash the implement thoroughly ;
- ❖ Lubricate all unpainted parts ;
- ❖ Lubricate all the greasers ;
- ❖ Store in a dry place.

8. LUBRICATION MANUAL

8.1 INDEPENDENT HYDRAULIC PLANT

PART	HOURS	HOURS
Greaser	10	

Replacement :

Suction oil filter		500
Exhaust oil filter		500
Hydraulic oil		500

OIL TANK CAPACITY : 20L.

HYDRAULIC OIL TYPE : VALVOLINE HYDRAULIC HLP 46

8.2 HYDRAULIC PLANT COMBINED WITH THE TRACTOR

Replacement :

Suction oil filter :

see maintenance manual of the tractor

Exhaust oil filter :

see maintenance manual of the tractor

Hydraulic oil :

see maintenance manual of the tractor

TRACTOR OIL TANK CAPACITY :

see maintenance manual of the tractor

HYDRAULIC OIL TYPE :

see maintenance manual of the tractor



- ❖ *Do not disperse oil in the environment.*
- ❖ *Before changing oil, get all required equipment (minimum capacity of the oil collecting pan : 50 L)*
- ❖ *Wear all safety elements.*
- ❖ *Put the machine on a flat and firm ground.*
- ❖ *Engage the parking brake.*
- ❖ *Stop the engine.*
- ❖ *Take the key away.*
- ❖ *Put the oil collecting pan under the plug located left at bottom of the tank.*
- ❖ *Unscrew the plug with key.*
- ❖ *Make sure the oil is completely drained.*
- ❖ *Replace the plug gasket with a new one.*
- ❖ *Retighten the plug.*
- ❖ *Fill the tank to max. level.*

9. MAIN TROUBLES

MAIN TROUBLES	CAUSE	CURE
Controls do not react.	Power take-off disconnected. Hydraulic pump damaged. Oil lack.	Replace pump. Connect power take-off. Add oil.
Boom and/or implement move without operating the controls.	Cylinder gasket worn.	Replace gasket.
Overheating.	Filter is dirty. Pipes are squashed.	Replace filter. Check and replace pipes.
Lost of union.	Union is loose.	Tighten the union.

10. INSTALLATION MANUAL

10.1 LIMITS

- ❖ The front loader can be installed on standard tractors having following features

MODEL	MINIMUM REQUIRED POWER KW/HP (minimum)
MP1	13/18
MP2	18/25
MP3	22/30
MP3/S	26/35

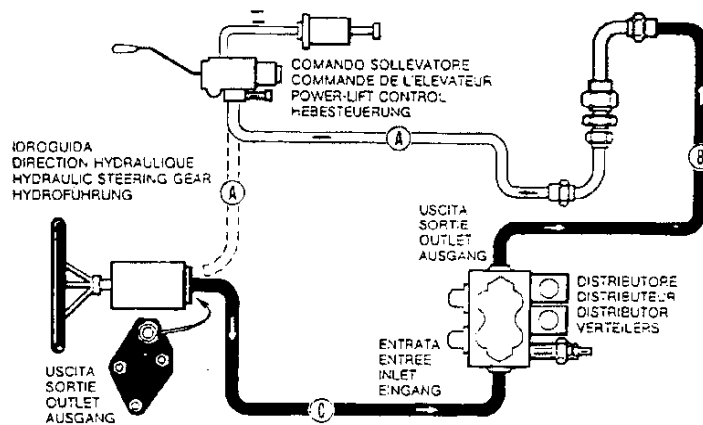
Before using the machine, always check its stability to turnover.

10.2 INSTALLATION ON TRACTOR CHASSIS



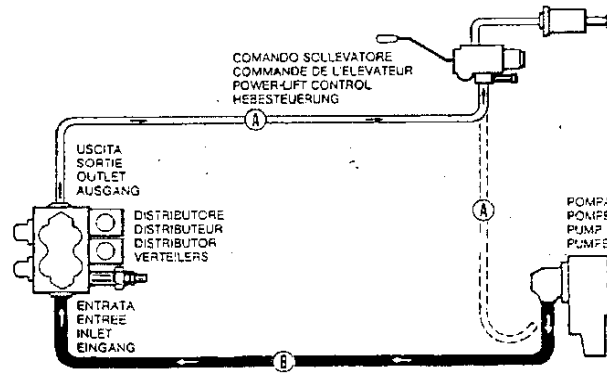
- ❖ Ask the manufacturer for the appropriate directions regarding each single installation.

10.3 CONNECTION OF THE FRONT LOADER HYDRAULIC CONTROLS WITH TRACTOR HAVING HYDROSTATIC DRIVE



- ❖ On the outlet connection of the hydraulic steering gear, detach pipe **A** to the power-lift control and connect it with pipe **B** supplied by us, from the distributor outlet. Connect pipe **C** supplied by us, from the distributor inlet (inlet is near the pressure control valve) at the outle of the hydraulic steering gear.

10.4 CONNECTION OF THE FRONT LOADER CONTROLS WITH TRACTOR HAVING MECHANIC DRIVE.



- ❖ Detach pipe A from the oil pump, going to the power-lift control, and connect it with the distributor outlet. Connect pipe B, supplied by us, from the distributor inlet (inlet is near the pressure control valve), with the pump connection, that has been cleared before.

10.5 INSTRUCTIONS FOR ASSEMBLING AND DISASSEMBLING THE LOADER FROM THE TRACTOR (SEE PAG.1)



WARNING. It is very important to follow the undermentioned instructions in order to avoid serious damages to thing and/or people, injiures and/or death of the operator.

- ❖ Lay the loader on a flat and solid ground.
- ❖ Stop the engine of the tractor.
- ❖ For the relief of the hydraulic control lever in the four positions repeatedly.
- ❖ Remove the two connectiong pins of boom support.
- ❖ Release the hydraulic pipes from the quick-release joints placed on the connexion box.
- ❖ Fit the special feeth and lift the loader from the tractor lightly by means of the two crancks.
- ❖ Get into reverse gear for moving the away.

FOR THE ASSEMBLY, PROCEED IN REVERSE ORDER.

11. LIST SPARE GROUPS

When ordering spare parts, always refer to model and serial number of your front loader that are printed on the name plate placed on the support (detailed tables of the above mentioned groups are available at the Tecnical Department of the Company BONATTI snc).

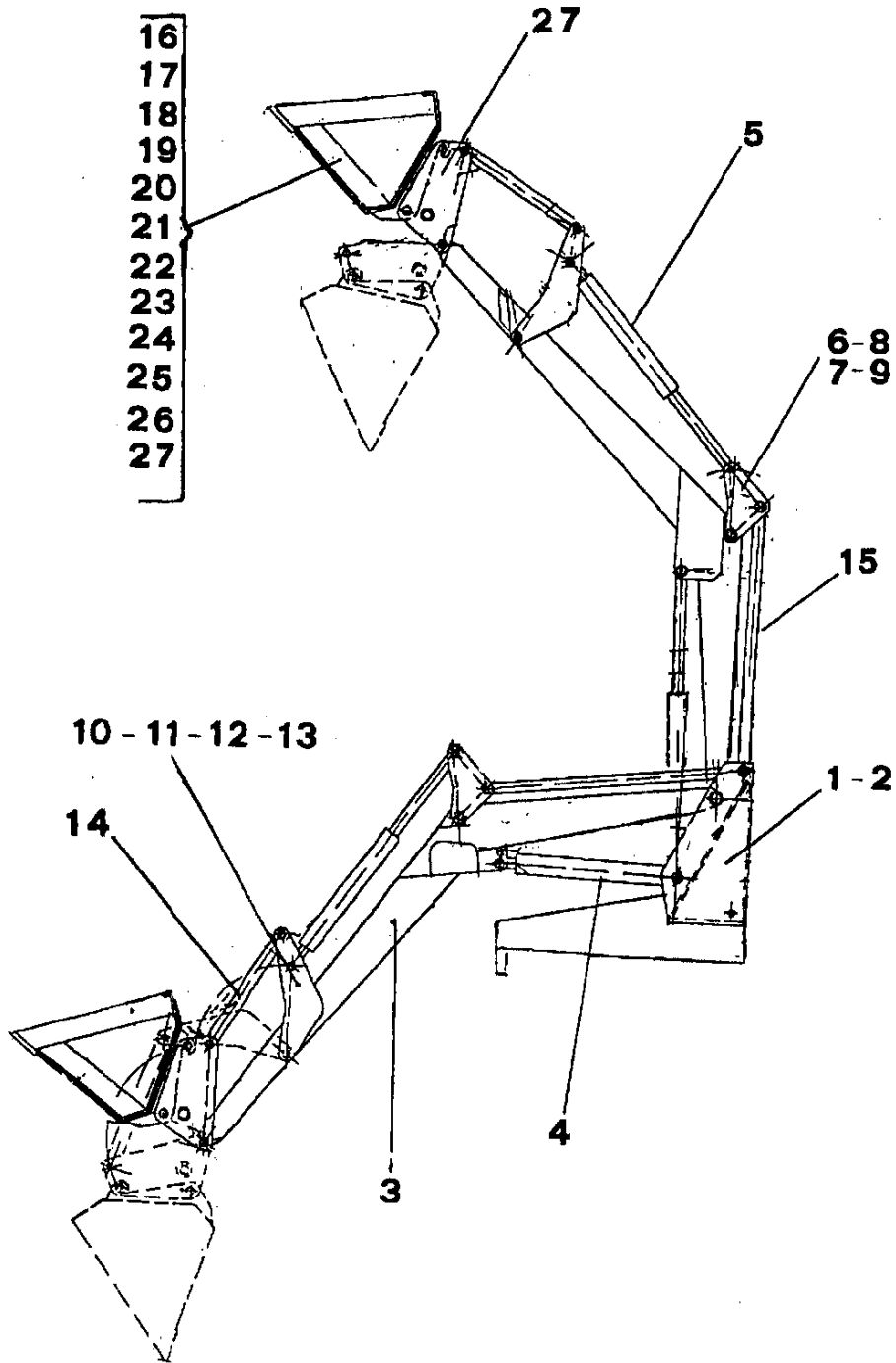
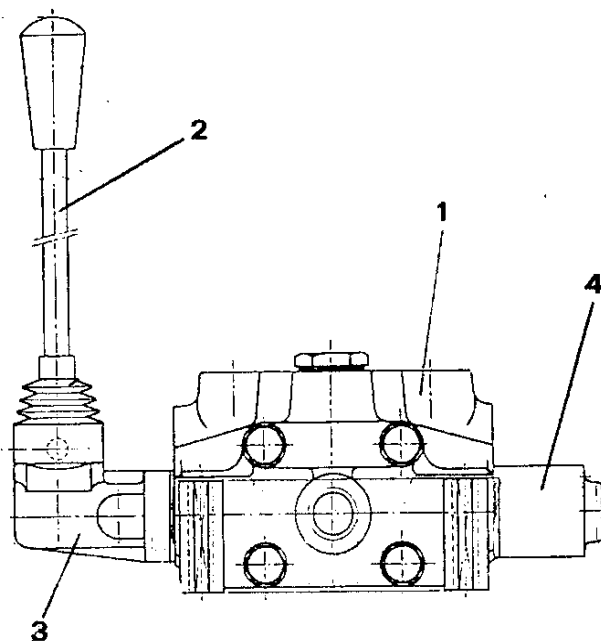


TABLE OF SPARE GROUPS (continuation)

REF.	DESCRIPTION	CODE				QTY
		MP1	MP2	MP3	MP3/S	
1	Right boom support	B/1179	B/1180	B/1181	B/1182	1
2	Left boom support	B/1183	B/1184	B/1185	B/1186	1
3	Boom	B/1187	B/1188	B/1189	B/1190	1
4	Lifting cylinder	B/1191	B/1192	B/1193	B/1194	2
5	Turnover cylinder	B/1195	B/1196	B/1197	B/1198	2
6	Right outside rod	B/1199	B/1199	B/1199	B/1199	1
7	Right inside rod	B/1200	B/1200	B/1200	B/1200	1
8	Left inside rod	B/1201	B/1201	B/1201	B/1201	1
9	Right outside rod	B/1202	B/1202	B/1202	B/1202	1
10	Right lower outside rod	B/1203	B/1203	B/1203	B/1203	1
11	Right lower inside rod	B/1204	B/1204	B/1204	B/1024	1
12	Left lower inside rod	B/1205	B/1205	B/1205	B/1205	1
13	Right lower out rod	B/1206	B/1206	B/1206	B/1206	1
14	Implement tension rod	B/1207	B/1207	B/1207	B/1207	1
15	Balancing bar	B/1208	B/1209	B/1210	B/1211	2
16	Adj. width bucket	B/1212	B/1212	B/1212	B/1212	1
17	Adj. width cereals bucket	B/1213	B/1213	B/1213	B/1213	1
18	Fork for rotobales	B/1214	B/1214	B/1214	B/1214	1
19	Fork for pallets	B/1215	B/1215	B/1215	B/1215	1
20	Adj. width manure for	B/1216	B/1216	B/1216	B/1216	1
21	Adj. width manure fork width / adj. h. bits	B/1217	B/1217	B/1217	B/1217	1
22	Mechanic tree boom	B/1218	B/1218	B/1218	B/1218	1
23	Hydraulic tree boom	B/1219	B/1219	B/1219	B/1219	1
24	Fork for logs	B/1220	B/1220	B/1220	B/1220	1
25	Fork for logs with	B/1221	B/1221	B/1221	B/1221	1
26	Adj. width snowplow	B/1222	B/1222	B/1222	B/1222	1
27	Adj. width quick release	B/1223	B/1223	B/1223	B/1223	1
28						
29						
30						
31						
32						
33						

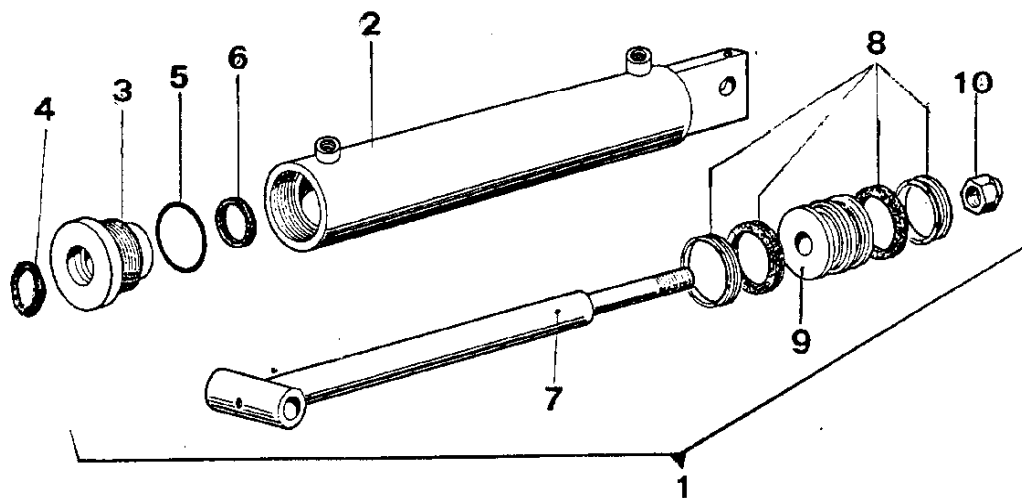


**11.1 SPARE PARTS
HYDRAULIC DISTRIBUTOR**



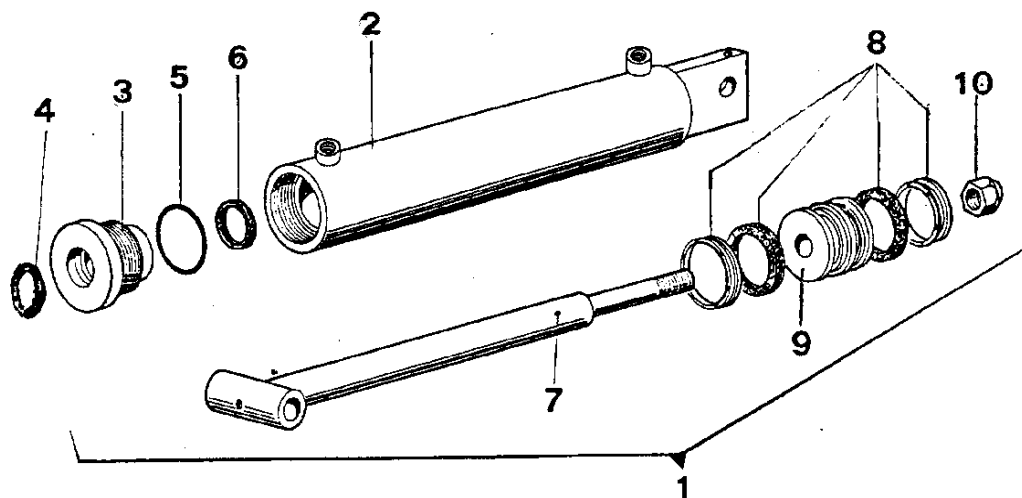
REF.	DESCRIPTION	CODE				QTY
		MP1	MP2	MP3	MP3/S	
1	Hydraulic distributor control	B/1224	B/1225	B/1226	B/1227	1
2	Lever	B/1228	B/1229	B/1230	B/1231	1
3	Lever support	B/1232	B/1233	B/1234	B/1235	1
4	Slider cap	B/1236	B/1237	B/1238	B/1239	1

11.2 HYDRAULIC CYLINDER FOR LIFTING BOOM



REF.	DESCRIPTION	CODE				Q.TE
		MP1	MP2	MP3	MP3/S	
1	Complete hydraulic cylinder	B/1191	B/1192	B/1193	B/1194	1
2	Liner	B/1240	B/1241	B/1242	B/1243	1
3	Head	B/1244	B/1245	B/1246	B/1247	1
4	Scraper	B/1248	B/1249	B/1250	B/1251	1
5	O-ring	B/1252	B/1253	B/1254	B/1255	1
6	Seal	B/1256	B/1257	B/1258	B/1259	1
7	Stem	B/1260	B/1261	B/1262	B/1263	1
8	Piston gasket set	B/1264	B/1265	B/1266	B/1267	1
9	Piston	B/1268	B/1269	B/1270	B/1271	1
10	Nut	B/1272	B/1273	B/1274	B/1275	1

11.3 HYDRAULIC CYLINDER FOR IMPLEMENT TURNOVER



REF.	DESCRIPTION	CODE				Q.TE
		MP1	MP2	MP3	MP3/S	
1	Complete hydraulic cylinder	B/1195	B/1196	B/1197	B/1198	1
2	Liner	B/1276	B/1277	B/1278	B/1279	1
3	Head	B/1280	B/1281	B/1282	B/1283	1
4	Scraper	B/1284	B/1285	B/1286	B/1287	1
5	O-ring	B/1288	B/1289	B/1290	B/1291	1
6	Seal	B/1292	B/1293	B/1294	B/1295	1
7	Stem	B/1296	B/1297	B/1298	B/1299	1
8	Piston gasket set	B/1300	B/1301	B/1302	B/1303	1
9	Piston	B/1304	B/1305	B/1306	B/1307	1
10	Nut	B/1308	B/1309	B/1310	B/1311	1