FIATALLIS®

FX220LC

CRAWLER EXCAVATOR

OPERATION AND MAINTENANCE MANUAL

59822020
01/92
ISSUE 01

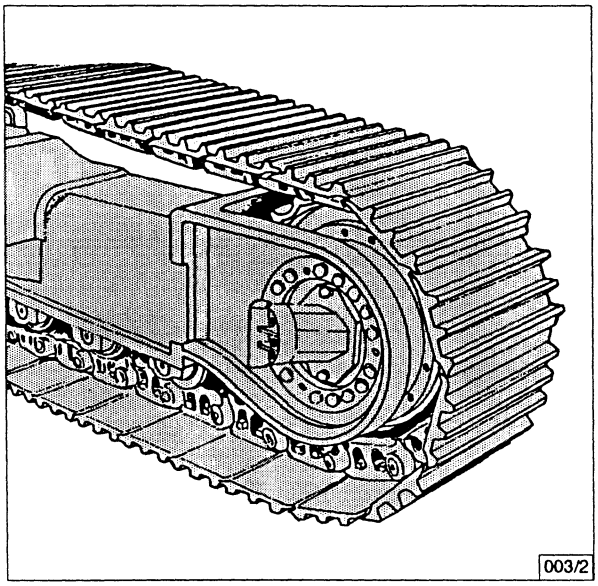

Fig. 4

2.03 DRIVE

Fully hydrostatic type - each track driven by an independent hydraulic motor through a three-stage planetary final drive.
Splash lubricated.
Oil/water tight floating ring seals.

Drawball pull
LCS and LC version ..... 18000 kg.
Maximum travel speed at rated diesel engine rpm (forward and reverse) .....3,00 km/h

Two oil bath disc brakes are applied on the input shafts of the final drives. They are spring-operated and released by the hydraulic disconnect control provided. When the machine stops, the brakes automatically come into action. The brakes are instantly released by pressing one of the two travel pedals. Two integrated brake valves prevent the travel motors from going out of control when machine is traveling down steps slopes, thus ensuring maximum safety.

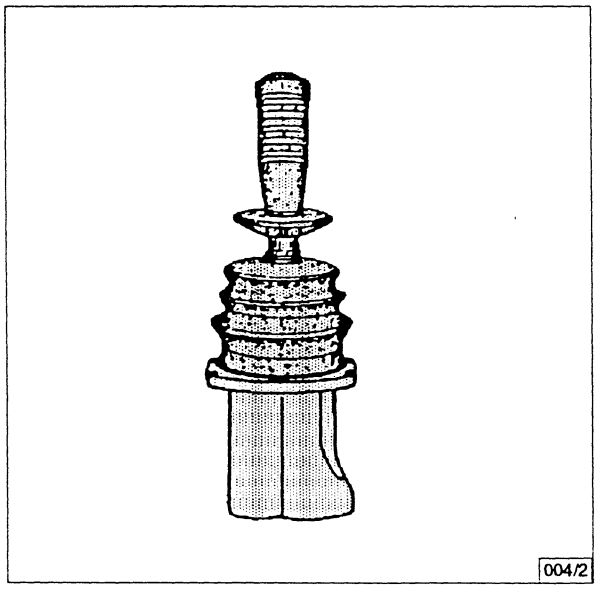

Fig. 5

2.04 CONTROLS

Fully power-assisted controls: two single-lever joystick controls govern the digging equipment and the swing mechanism. Two pivot pedals control forward and reverse travel and counter-rotation. Two levers attached to the pedals allow machine travel to be manually controlled.
Moving the control levers diagonally, the two functions can be performed simultaneously. A safety lever on the left-hand side of the panel neutralizes the whole control system.

ELBOW (B)

All lifting capacities are in metric tons, over ends and sides (360°). They do not exceed 75% of tipping load in compliance with DIN 15019.
When using a load hook on the stick-where bucket, bucket-cylinder and linkage must be removed 1,18 t -may be added to the loads in the CRANE-CAPACITY CHART.

- Mono-boom 5200 mm
- Dipperstick (**B**) 2450 mm
- Bucket 1,10 m^3

Height — Radius (m)

m	8,0	7,0	6,0	5,0	4,0	3,0
5,0		3,31	4,25*			
4,0		3,23	4,36			
3,0	2,98	3,11	4,14	5,68	7,29*	10,31*
2,0	2,29	2,97	3,91	5,28	7,50	
1,0	2,82	2,85	3,70	4,93	6,94	7,33*
0	2,77	2,75	3,54	4,70	6,62	8,75*
-1,0		2,69	3,44	4,57	6,50	10,69
-2,0		2,70	3,43	4,55	6,52	10,77*
-3,0			3,50	4,63	6,64	

* Hydraulic - system pressure is the limiting factor.

4.06 SEAT ADJUSTMENT (14, fig. 18)

A correct adjustment of operator's seat will assure the best comfort during working hours.
Sit on the seat and control the indicator position (3, fig. 23).
In case the seat is in the right position, the key indicator should be in Pos. a.
If it is shown in Pos. b, press the adjustment lever (1) marked with +.
Put your left thumb on key indicator and as soon as you have the Pos. a you will have the right position.
If as shown in Pos. c control the adjustment lever (1) marked with - and move to the right position.
(The right position shall be obtained only if the operator is well-sitted).

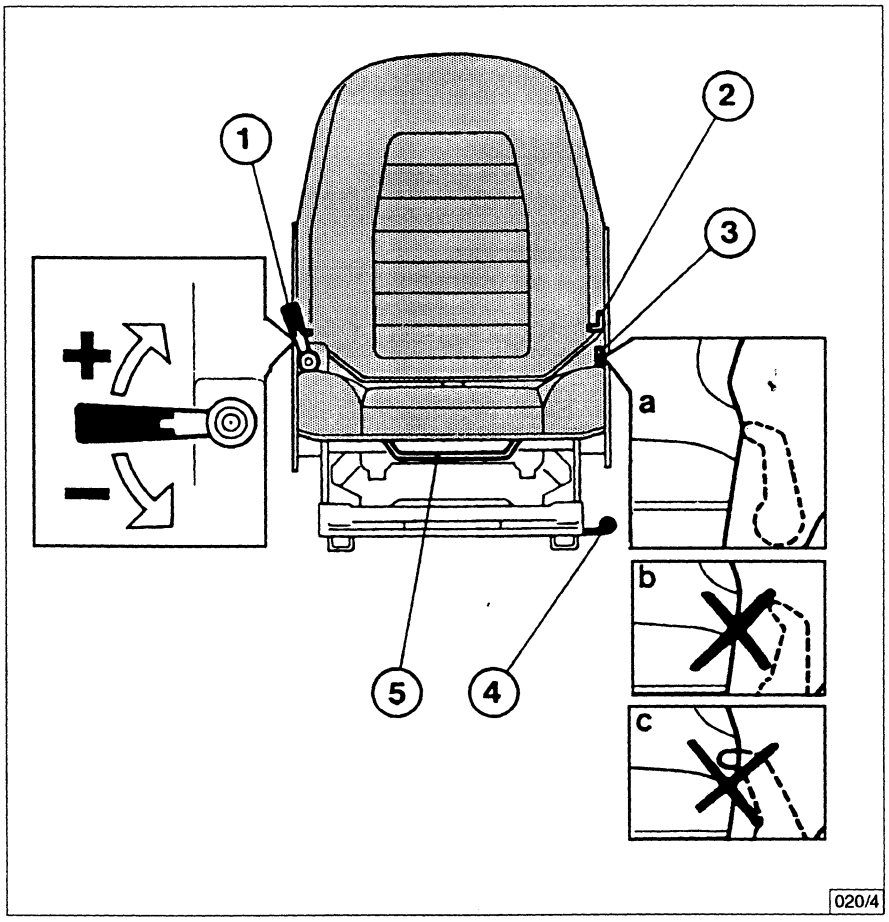

Fig. 23

SEAT SQUAB ADJUSTMENT

Be correctly sitted. Press one of two levers (2) and adjust your squab in one of the three positions, finally release the catch.

FORE AND AFT ADJUSTMENT

Move the lever until desired inclination is reached, then release the locking lever to previous position.

SEAT CUSHION ADJUSTMENT

Front and rear sides shall be regulated separately.
Raise catch and adjust the seat cushion to the desired position.
Move the lever to the previous locking position.
Four positions are available.
This operation will allow different positions and inclinations.

- Appoint a person for signallings. This person shall be responsable to observe in a clearer way than the operator, any approach of the machine or part of it to the electrical cable. He shall be in direct contact with the operator, who has to pay particular attention to signallings.

Working in wells or in proximity of these, in trenches or other similar ones, always be sure the walls have been propped as to avoid the landslip.

During digging phase it does exist landslide or cave-in peril. Inspect the terrain conditions or material to be removed.

Prop wherever can be necessary so as to avoid landslides or cave-in, including:
- In proximity of previous diggings, fill by means of back-filling.
- In case terrains conditions are not good.
- When diggings can be subject to vibrations caused by railways, raod traffic or excavator machines.

6.08 STOP

Any time you stop working, inspect for any reason, all controls are in neutral position and safety lever in shutdown position so as to guarantee the next starting with no risk.

Never leave the excavator if moving. Before leaving the driving seat and after controlling there are no persons near the excavator, move the implements to ground in safety position. Move possible additional implements to safety positions and verify all controls are in neutral position. Move the drive controls to stop position. Disconnect the starting commutator. Refer to the Operation and Maintenance Manual.

Park the excavator in a safety area and choose a level surface. On the contrary, place the machine in a perpendicular position to the slope and be sure there is no landslide risk.

In caseyou have to park your excavator in traffic lanes, it shall be advisable to adopt the following signals of dangers: flags, barriers, flashlights and other signals of danger. In addition, provide for additional danger signallings on traffic lanes so as to signal in advance the danger to coming vehicles.

Always disconnect the starting commutator, before cleaning, repairing or parking the excavator to avoid accidental and unauthorized startings.
Never lower the implement or additional attachments from any position except for the operator's compartment. Make use of warning horn.

6.09 MACHINE REMAINS INOPERATIVE FOR LONG PERIODE

In the excavator is not used for long periods, follow the directions below:
- Park in the machine in a sheltered and attended area.
- Perform a general cleaning and lubricate all the parts fitted with grease fittings.
- Position the boom so that the cylinder rods are fully retracded.
- Lubricate the cylinder rods by using a suitable lubricant.
- Completely fill the tank in order to order to prevent rust from forming.
- Lubricate the gaskets on the outside of the machine body, in order to prevent them from deteriorating.
- Disconnect the battery terminals by using the device provided. Remove it, if necessary.
- Perform all that is required to store the machine in the best possible way.

The complete hydraulic fluid renewal shall be made every 2000 working hours.
Warm up hydraulic fluid to approx. 60°; drive the excavator on a level surface, fully retract the cylinder rod inside the cylinders; then stop the diesel engine.
Loosen drain plug (4, fig. 38) and drain oil in a bowl.
Remove the tank cover loosening the retaining screws; clean the inner tank and dry it before refilling.
Refit the cover and drain plug; make the new filling through the pipe union placed on filters (2, fig. 38).
Start engine and move a few times all the hydraulic cylinders, then check the level as detailed in previous paragraph.
Any time the oil is changed also a new filter element shall be fitted.

8.14 CHECKING, CLEANING AND CHANGING FILTER CARTRIDGES IN THE RESERVOIR

The filter cartridges must be replaced in any case after first 100 operating hours (running-in), thereafter should be renewed every 500 working hours.
Remove the reservoir cover (1, fig. 39) unscrewing the fastening screws (2, fig. 39).
Unloose the screws (3, fig. 39) which hold by means of the clamps the bracket, then rotate the clamps to release the filter.
Lift the filter element assembly yet leaving the diffuser (7, fig.39) into the reservoir.
Remove the filter element by unscrewing the locating nut (8, fig. 39) to release the spring cup (9, fig. 39) and the spring (10, fig. 39); then withdraw the filter cartridge (11, fig.39).
Clean the magnetic dipstick (12, fig. 39) with the aid of a brush and air blows.
The cartridges cannot be cleaned. Where the cartridges are found to be over contamined, change them at once.

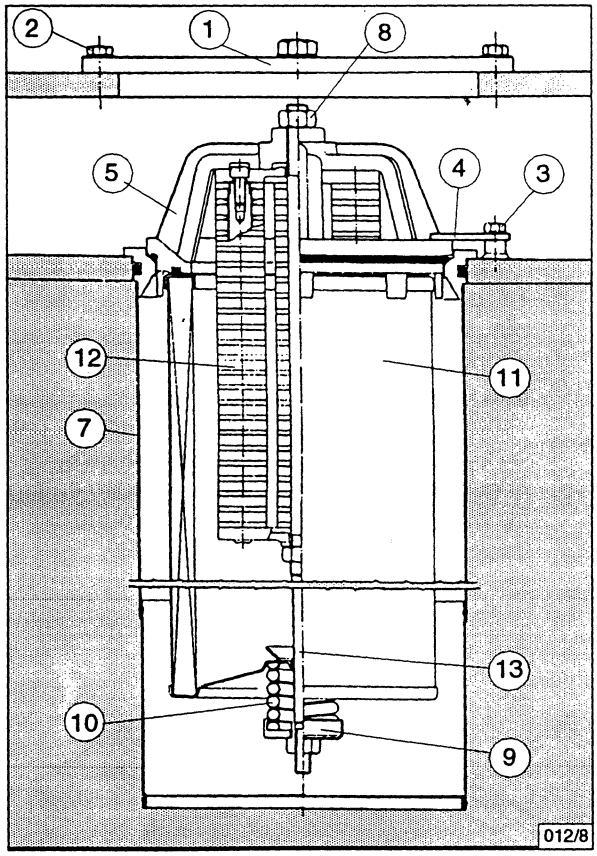

Fig.39

8.16 GREASING

Greasing of all pivot-points of the excavator shall be carried out daily (10 working hours). Items to be greased are the following: mono-boom pivot-point, rocker-arm pivot-point, bucket pivot point, levers pivot point , tie rod pivot point, all hydraulic cylinder piston rod eyes. Do not forget to grease, every 125 working hours, all excavator hinges and articulations of operator seat.
Greasing of slewing ring race shall be made daily (10 working hours).
Greasing of race shall be made by means of proper grease nipples located on outer race of slewing race.
Greasing of slewing ring toothing shall be made by means of the grease contained in the proper tank that guarantees protection to slewing ring toothing and travel pinion.
Clean all greasing nipples, before greasing the excavator.

PRELOADS *P* AND TIGHTENING TORQUES *M* FOR ISO METRIC THREAD BOLTS

$$M = \frac{k \times d \times P}{1000} \qquad P = 0{,}7 \times R_s \times S_r$$

k has been obtained assuming that the friction factor between sliding surfaces is equal to 0,14.

d x p	s_r	k	0,7 R_s = 224		0,7 R_s = 280		0,7 R_s = 448		0,7 R_s = 630		0,7 R_s = 756	
			P	M	P	M	P	M	P	M	P	M
mm	mm^2		N	mN	N	mN	N	mN	N	mN	N	mN
3 x 0,5	5,3	0,198	1130	0,67	1400	0,84	2550	1,5	3170	1,9	3800	2,3
4 x 0,7	8,78	0,195	1970	1,5	2500	1,9	3930	3,1	5530	4,3	6640	5,2
5 x 0,8	14,2	0,189	3180	3	4000	3,8	6360	6	8950	8,5	10700	10,1
6 x 1	20,1	0,192	4500	5,2	5600	6,5	9000	10,4	12700	14,6	15200	17,5
8 x 1,25	36,6	0,188	8200	12,3	10250	15,4	16400	24,6	23100	34,7	27700	41,6
8 x 1	39,2	0,185	8780	13	11000	16,3	17600	26	24700	36,6	29600	43,9
10 x 1,5	58	0,193	13000	25,1	16200	31,3	26000	50,1	36500	70,5	43900	84,6
10 x 1,25	61,2	0,191	13700	26,2	17100	32,7	27400	52,4	38500	73,6	46300	88,4
12 x 1,75	84,3	0,187	18900	42,4	23600	53	37800	84,8	53000	119	63700	143
12 x 1,25	92,1	0,183	20600	45,3	25800	56,6	41300	90,6	58000	127	69600	153
14 x 2	115	0,187	25800	67,4	32200	84,3	51500	135	72500	190	86900	228
14 x 1,5	125	0,183	28000	71,7	35000	89,6	56000	143	78800	202	94500	242
16 x 2	157	0,182	35200	102	44000	128	70300	205	98900	288	119000	346
16 x 1,5	167	0,179	37400	107	46800	134	74800	214	105000	302	126000	362
18 x 2,5	192	0,183	43000	142	53800	177	86000	283	121000	398	145000	478
18 x 1,5	216	0,177	48400	154	60500	193	96800	308	136000	434	163000	520
20 x 2.5	245	0,182	54900	200	68600	250	110000	400	154000	562	185000	674
20 x 1.5	272	0,177	60900	216	76200	270	122000	431	171000	607	206000	728
22 x 2,5	303	0,178	67900	266	84800	332	136000	532	191000	748	229000	897
22 x 1,5	333	0,174	74600	286	93200	357	149000	571	210000	803	252000	964
24 x 3	353	0,182	79100	245	98800	432	158000	691	222000	971	267000	1170
24 x 2	384	0,177	86000	265	108000	457	172000	731	242000	1030	290000	1230
27 x 3	459	0,182	103000	505	129000	631	206000	1010	289000	1420	347000	1700
27 x 2	496	0,178	111000	534	139000	667	222000	1070	212000	1500	375000	1800
30 x 3,5	561	0,182	126000	686	157000	857	251000	1370	353000	1930	424000	2310
30 x 2	621	0,177	139000	738	174000	923	2278000	1480	391000	2080	479000	2490