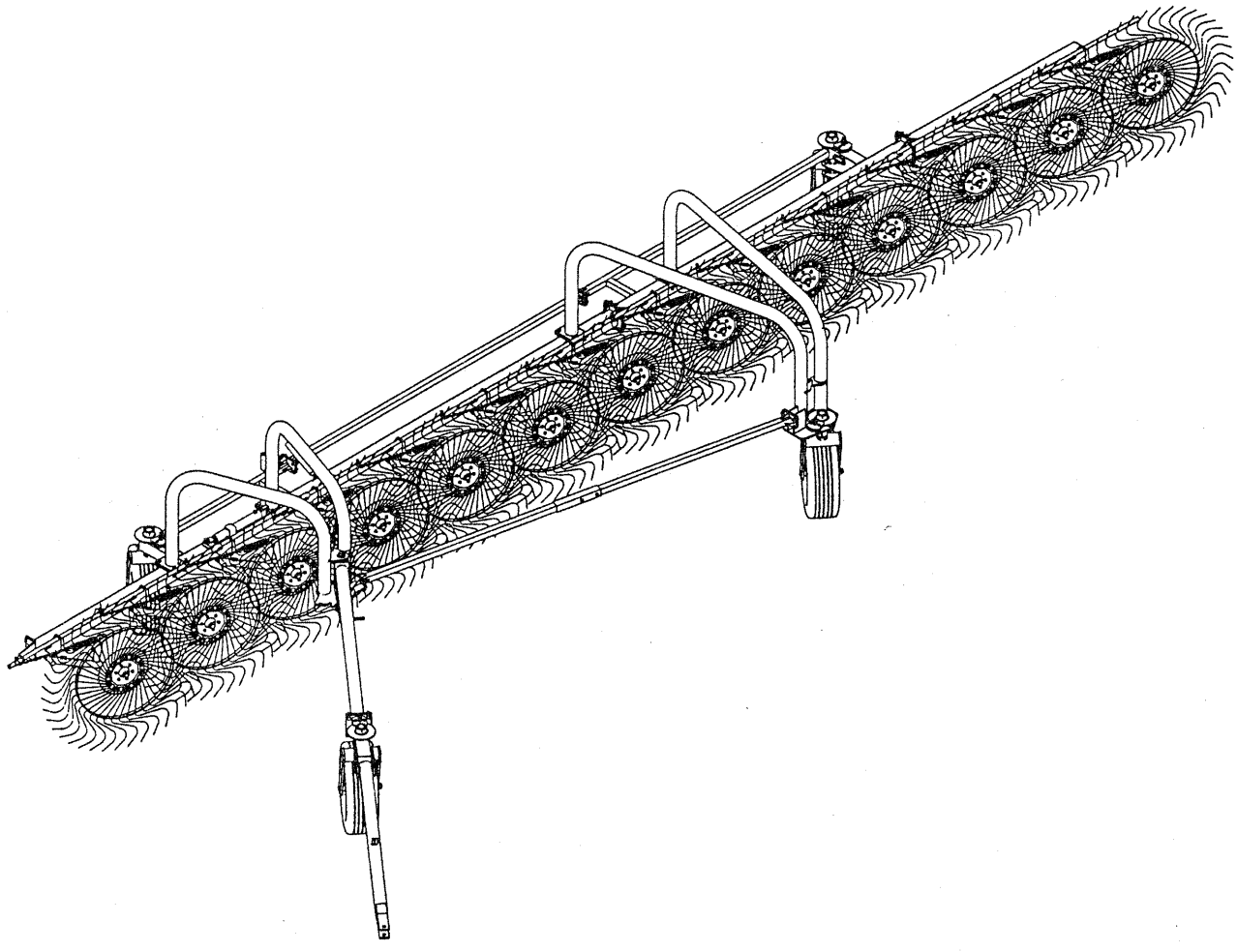
AGRICULTURAL MACHINERY

sitrex®

ASSEMBLING, USE AND MAINTENANCE SPARE PARTS LIST



HAY RAKE, PULL TYPE, COLUMBIA TR/11-13

PULL-TYPE RAKES: TR/11-13

INTRODUCTION

This manual includes full instructions for a correct use and maintenance of the machinery, and the recommended spare parts list.

In order to prevent any possible damage of the machine and/or the operator(s) you are kindly requested to go through this manual for a proper knowledge of the assembly of the implements, their use on the field, and their maintenance. If any doubt, please contact your local dealer or distributor.

Should the machine be resold, you are kindly requested to supply this manual along with the machine to the new purchaser.

WARRANTY

On delivery, check that the machine has not been damaged during transport and that all the attachments are present. Claims must be made in writing to the agent within 8 days of receipt.

The manufacturer warrants new machinery at the time of delivery to the original purchaser to be free from defects in material and workmanship if properly set up and operated in accordance with this Operator's Manual.

The manufacturer undertakes to repair or replace free of charge any detective part which should be returned by the purchaser (freight prepaid) and found to be detective by inspection authorized by the manufacturer during the warranty period.

This warranty will be valid for 12 (twelve) months from the delivery of goods to the original purchaser.

In case the customer is not in a position to return the defective part to the manufacturer, the manufacturer cannot be held responsible for any cost due for repair or replacement of any part of the machine, he will only supply the part(s) required for the repair and/or replacement.

The warranty is null and void when it is evident that the machine has been improperly used or repaired or however repaired without authorization.

The manufacturer undertakes no responsibility for any obligation or agreement reached by any employers, agents or dealers, which are not in compliance with the above warranty. The manufacturer cannot be held responsible for the consequent

damages. This warranty substitutes any other warranty, express or implied, and any other manufacturer's obligation.

CAUTION FOR USE

It could be dangerous for people who are not familiar with this type of machine to use the rake, particularly when kids are there during the assembly or operation on field. We therefore recommend the use of the rake only to those people who are very familiar with the machine and the safety precautions.

ASSEMBLY SOLUTIONS

TR/11 and TR/13 pull-type rakes consist of a main frame and frame extensions for rakes from 11 to 13 finger wheels.

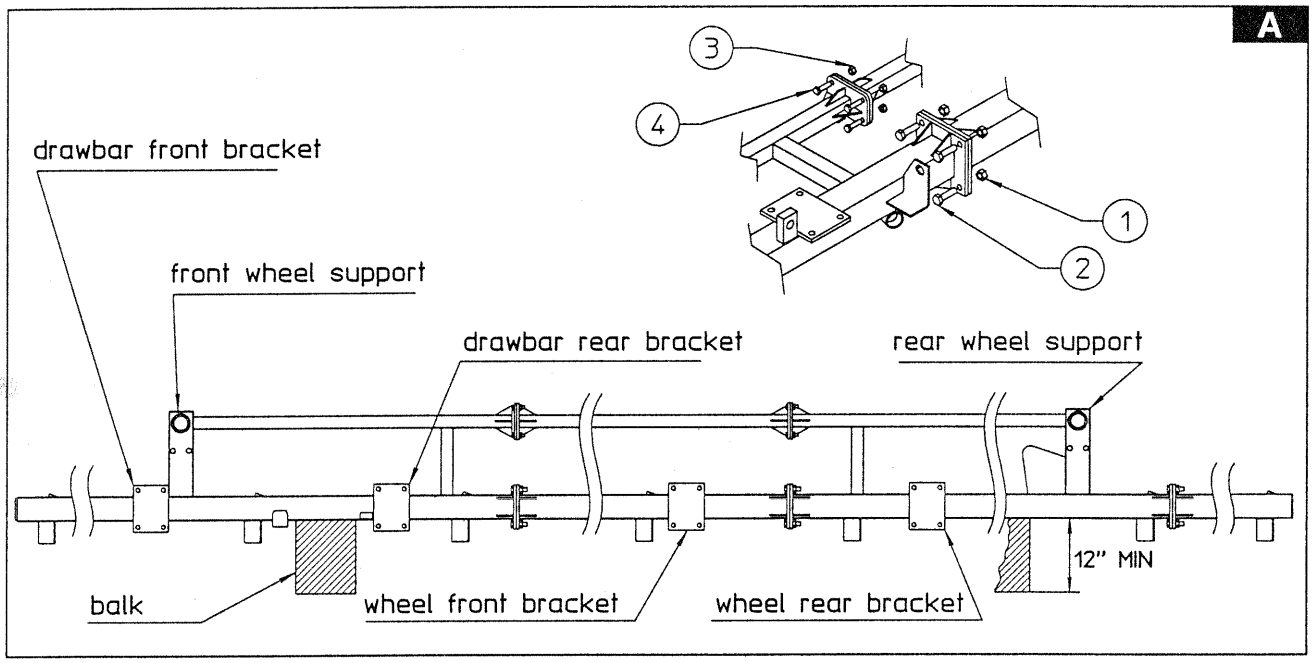
SPECIFICATIONS

MODELS	TR/11	TR/13
Weight	1150 kg / 2533 lbs	1250 kg /2753 lbs
Number of wheels	11	13
Number of tines on each wheel	40	40
Wheel diam.	1,4 m. / 55"	1,4 m. / 55"
Raking working width	6,5 m. / 21' 3"	7,5 m. / 24' 7"
Transport width	4,4 m. / 14' 5"	5.1 m. / 16' 8"
Working speed	22 kmh / 14 mph	22 kmh / 14 mph
HP required min	35 HP / 26 kW	35 HP / 26 kW

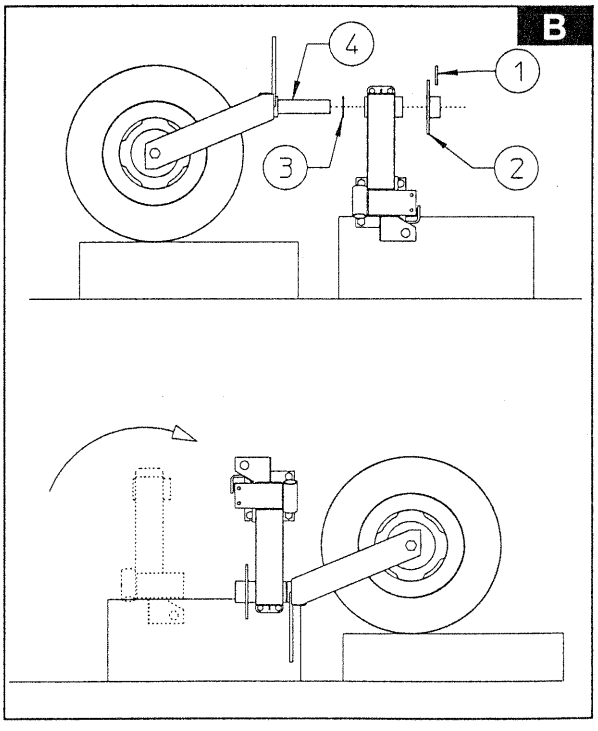
TR/11-13 RAKE ASSEMBLY INSTRUCTIONS

To save room in the container we supply the rakes partly knocked down. Please find below assembly instructions.

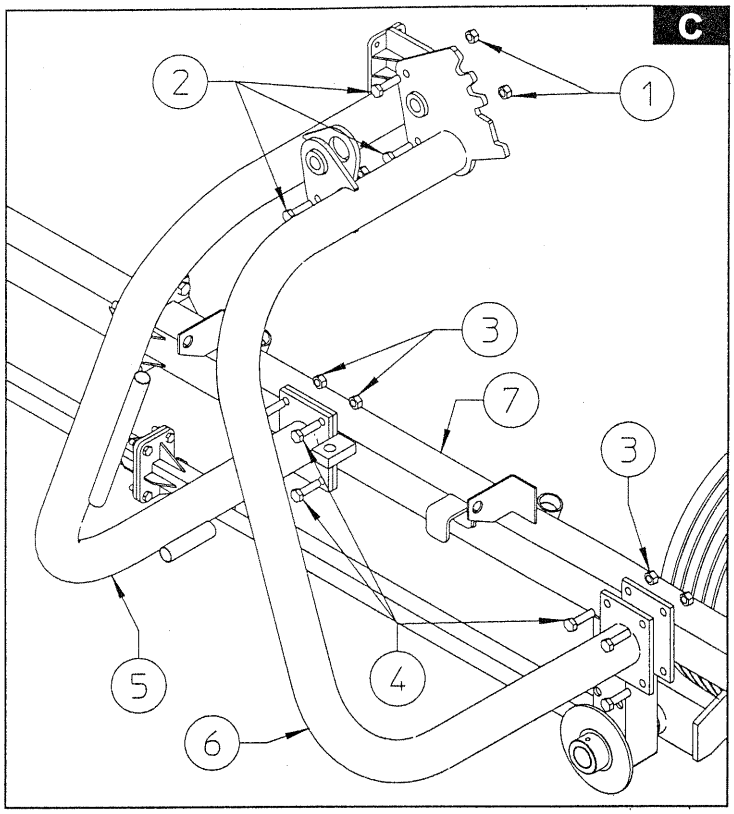
A) Build the frame as required and put the frame end on a balk (12 inches height min from ground) as shown in picture.



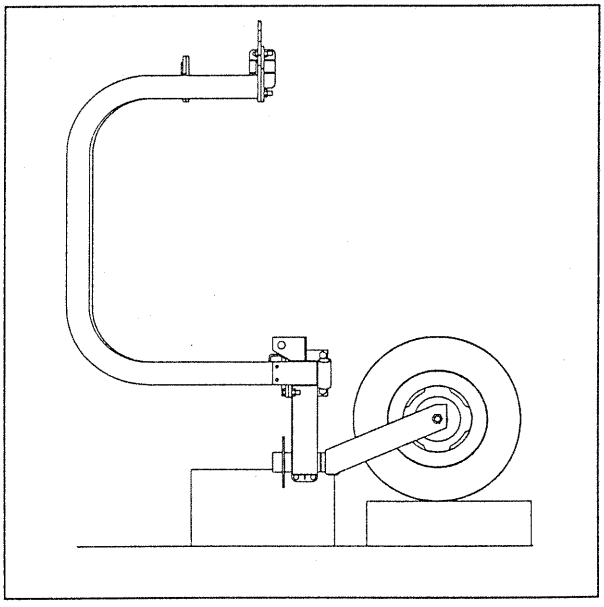
B) Fit the wheel supports (4) into their housings in the frame with shim (3). Lock supports (4) with bush (2) and pin (1).
Then turn the frame as in picture to attach the drawbar supports (see next picture).



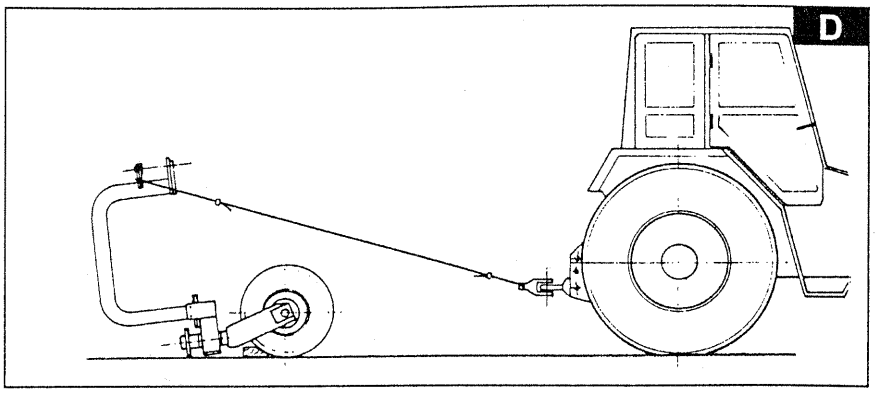
C) Attach the drawbar front bracket (6) to the front plate of the main frame and lock it with bolts (4-3). In the same manner lock the rear drawbar bracket (5) to the rear plate of the main frame (pict. A). Please note that after assembling, the scalloped side of support (6) should be on the plain side of support (5).
Join supports (5-6) with bolts (1-2).



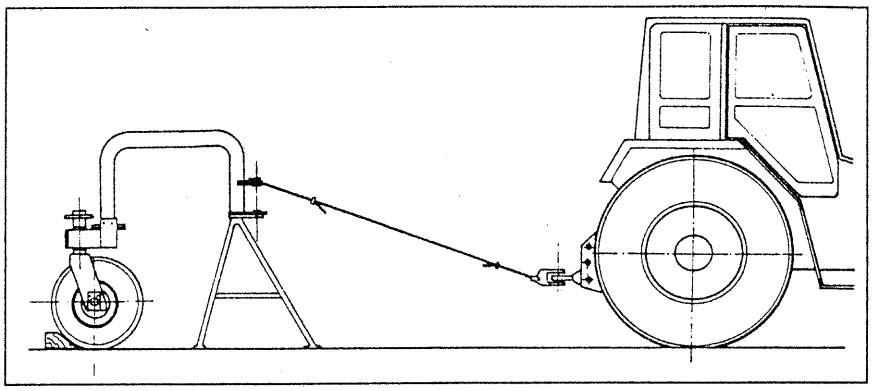
This picture shows the machine at this stage of assembly.



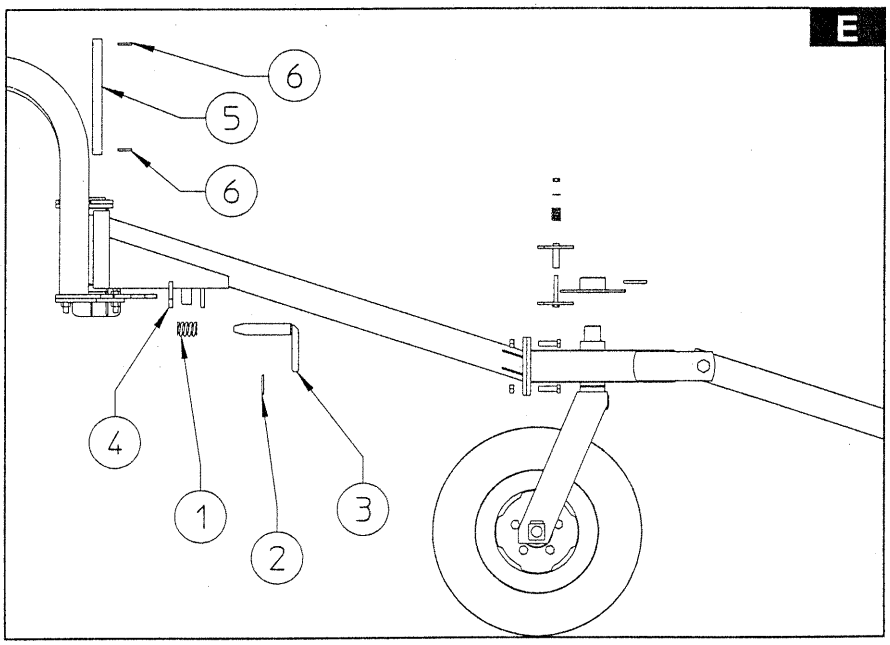
D) Wedge the wheels. Connect the scalloped side of drawbar's support (6) to the tractor.



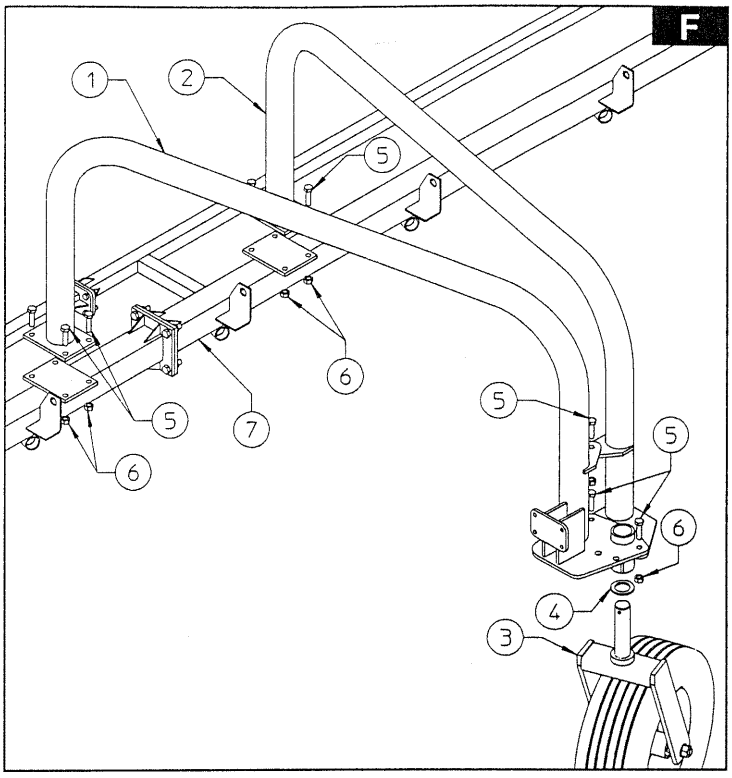
Pull the rake to the position shown. Use a stand to prevent the rake from falling to the ground.



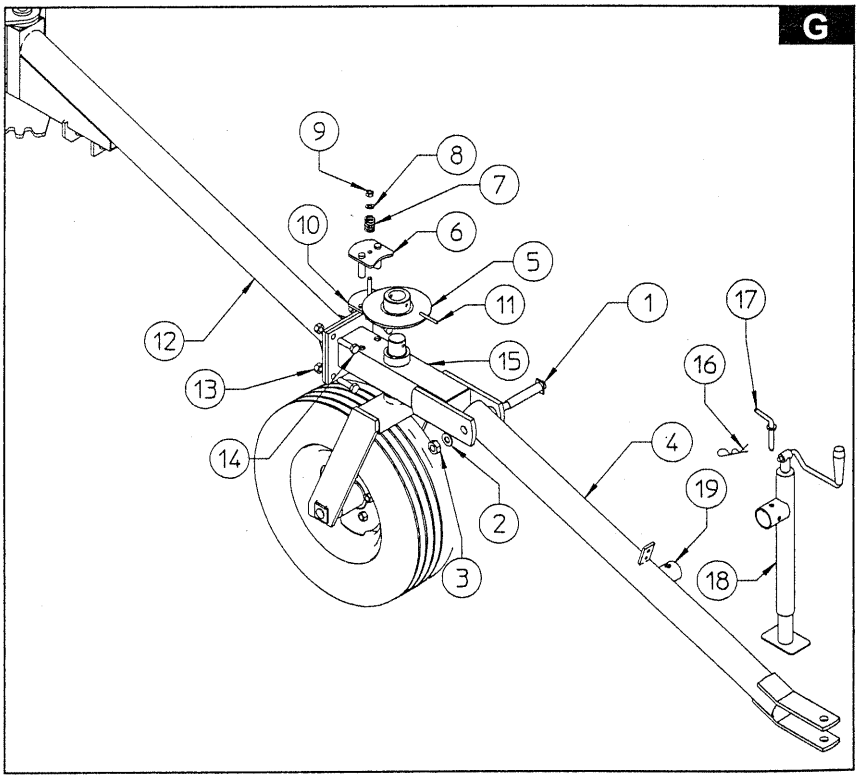
E) Attach the drawbar to supports with pin (5) and pins (6).
Fit pin (3) and spring (1), then lock with spring pin (2).



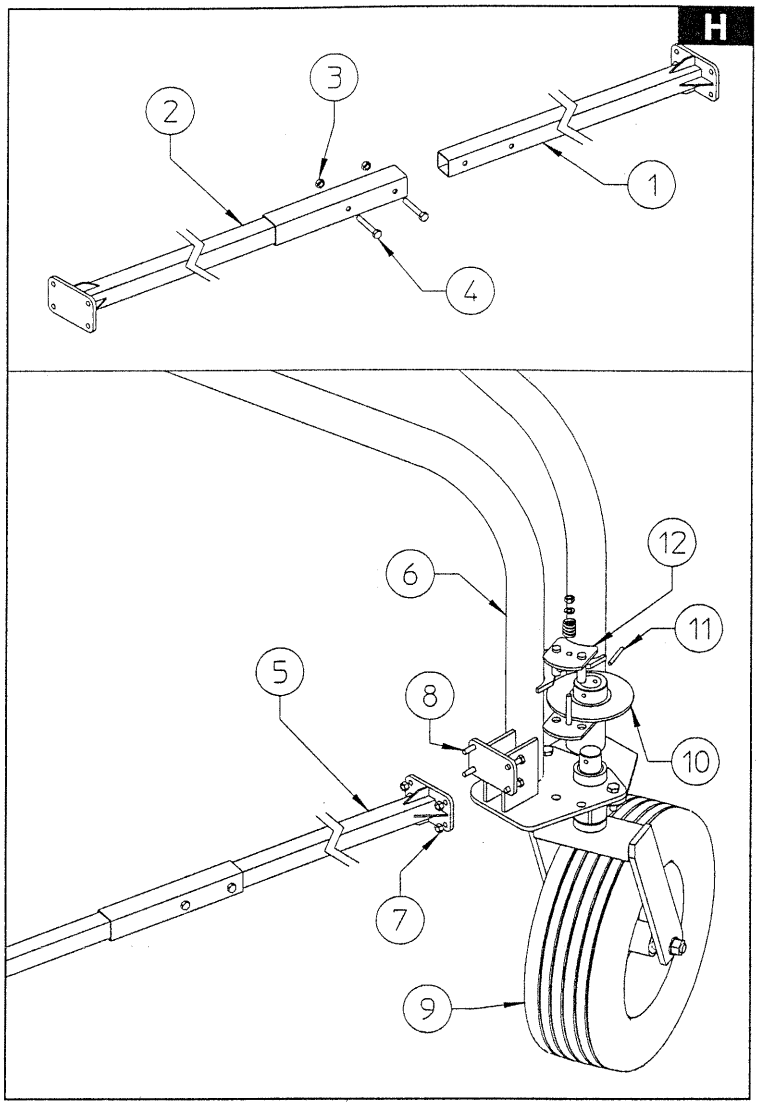
G) Attach the wheel front bracket (1) to the front plate of the main frame central part (7) and insert wheel bracket (3) with shim (4) . Lock it with bolts (5-6). In the same manner lock the rear wheel bracket (2) to the rear plate of the main frame (7). Please note that after assembling, the plate with welded bush of support (6) should be on the plain side of support (2).
Join supports (1-2) with bolts (5-6).



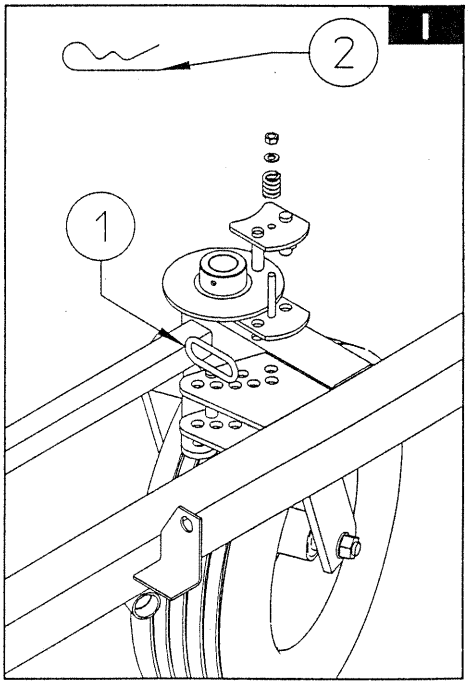
F) Attach the wheel support (15), with wheel already inserted and locked with bush (5) and spring pin (11), to drawbar (12) with bolts (13-14). Mount the brake assy (6-10) with spring (7), washer (8) and nut (8).
Attach tractor hitch drawbar (4) to wheel support (15) with pin (1) and lock it with washer (2) and nut (3).
Attach the parking stand (18) to bush (19) and lock with pin (17) and split pin (16).



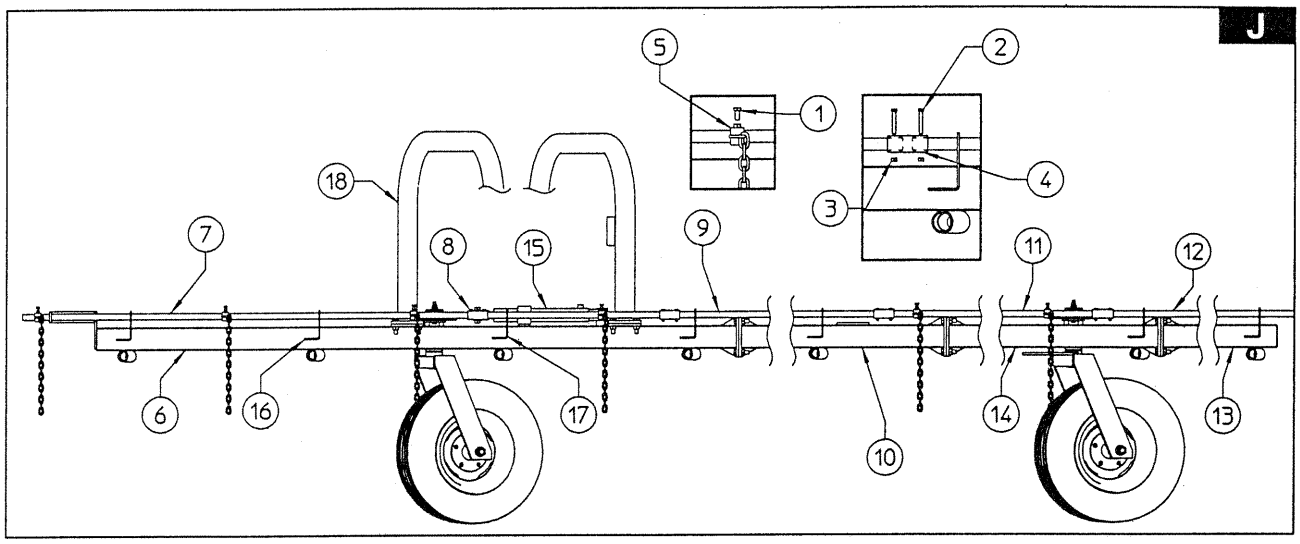
H) Assembly the two half tie rods (1 and 2) with bolts (3-4). Then link the complete tie rod (5) to wheel support (6) with bolts (7-8) on a side and to drawbar bracket on the other side in the same manner.
Lock wheel (9) with bush (10) and spring pin (11). Then mount brake (12) as done before.



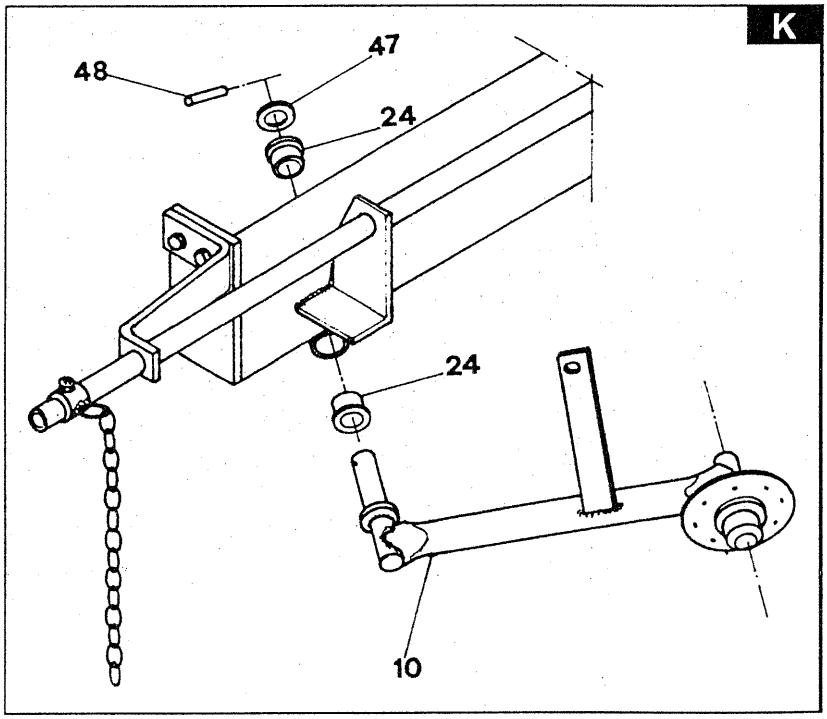
I) Fix the directional rear wheel with pin (1) and split pin (2). About which hole to keep see below in this manual.



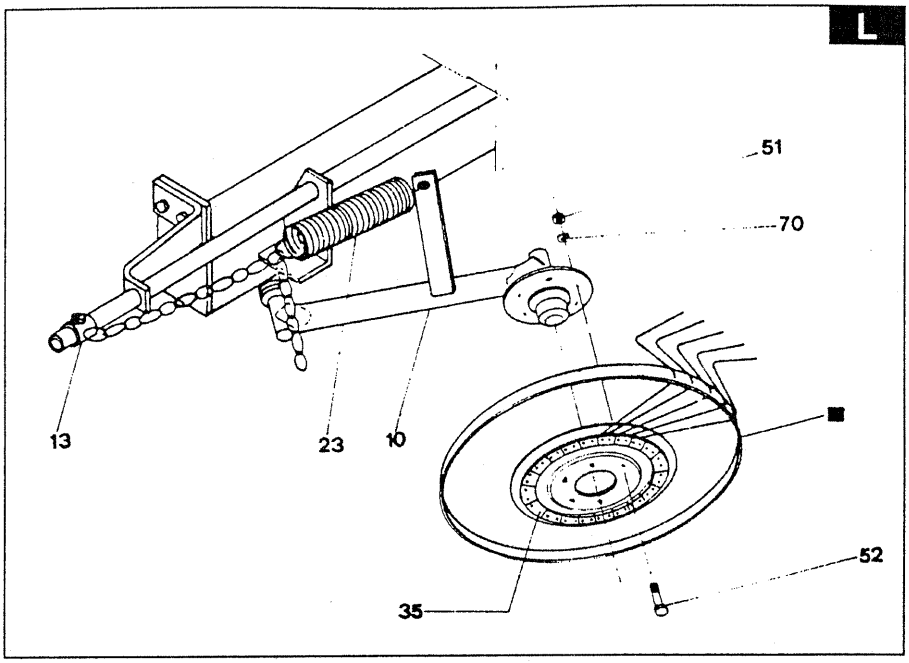
J) Attach the lifting pipes of the wheel arms (7-9-11 on TR/11, 7-9-11-12 on TR/13) and fit the chain bushes (5) on them between all pipe supports (shown in picture as 16 and 17).
On pipe (7) also fit the cylinder bush (8) after the 3rd chain bush
Lock chain bushes (5) and cylinder bush (8) with screws (1). Join all pipes using bush (4) and bolts (2-3).



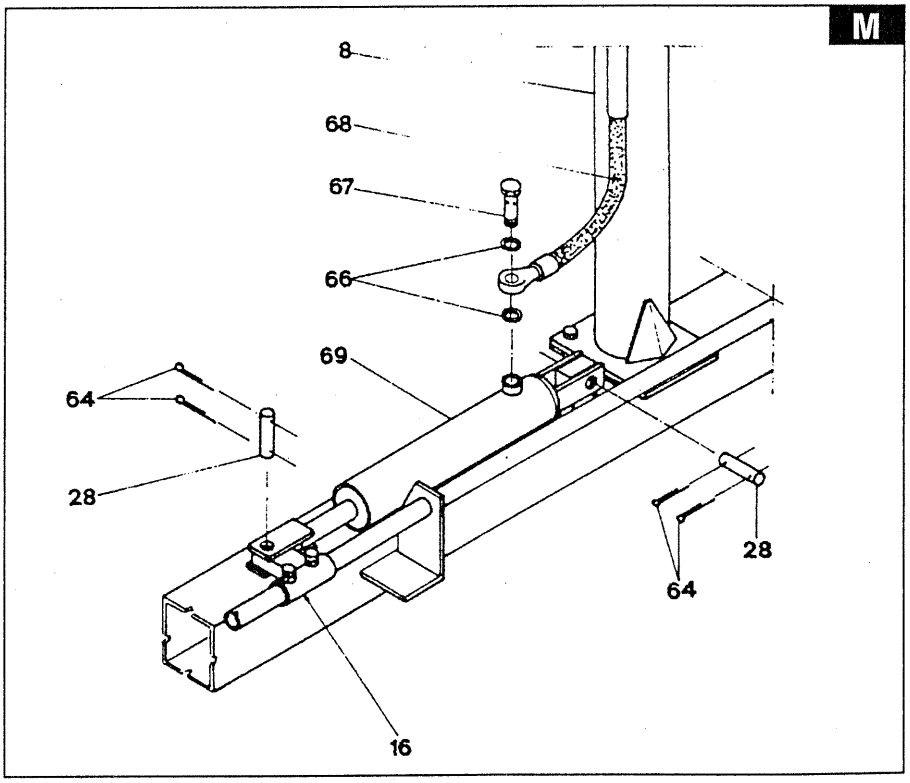
K) Fit bushes (24). Attach wheel arms (10) and lock them first with washer (47) and then with pin (48).



L) Connect one end of spring (23) with the chain of bush (13) and the other end with the lever welded on arm (10). Next, attach the finger wheel assy and lock it to the arm hub flange with screws (52-70-51). The finger wheel should be attached with the tine clamps (35) turned to the apposite side of the hub flange.

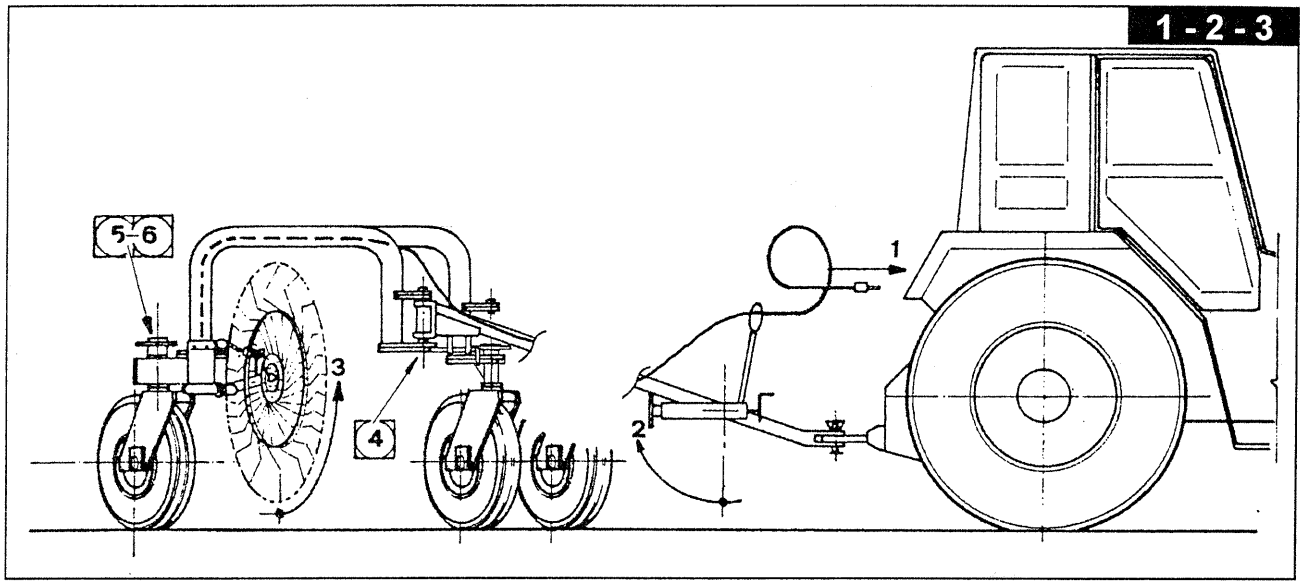


M) Attach cylinder (69) to the hitch welded on the main frame (1) and on the mobile hitch (16) with pins (28) and the split pins (64). Slide hose (68) into two pipes welded on support (8) and connect it with cylinder (69) by fittings (66-67). Also insert hose (68) into the eyelet of support (22) connected with drawbar (9) by screws (51-52).
Now the machine is fully assembed.



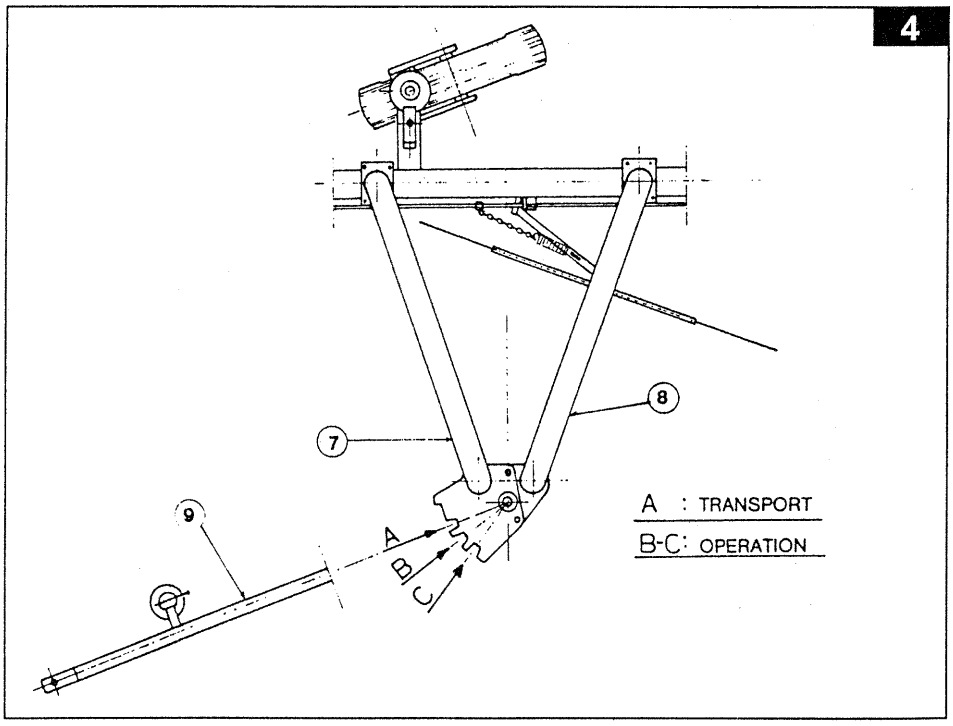
TR/11-13 TRANSPORT

For transport follow the instruction below:

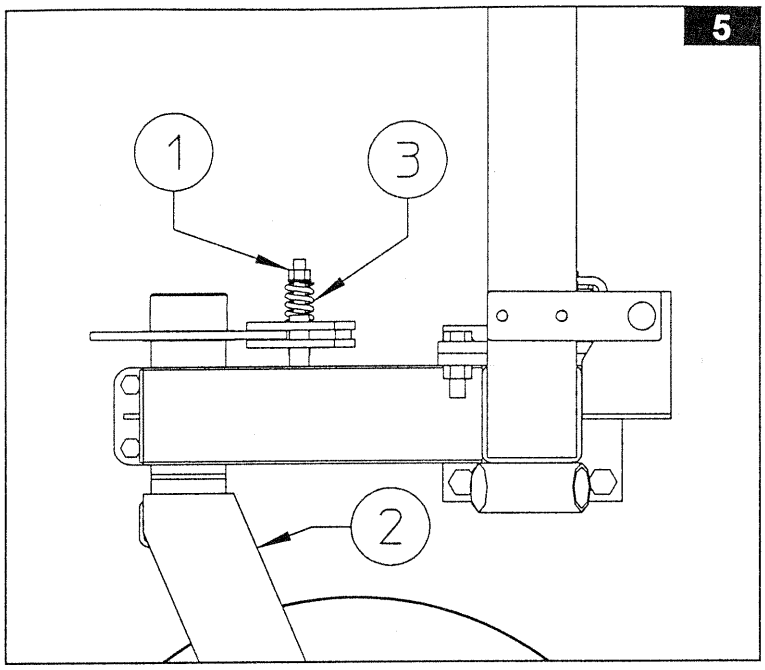


1) Connect hose with tractor distributor.
2) Fold up the parking stand.
3) Lift the wheels by operating the tractor distributor.

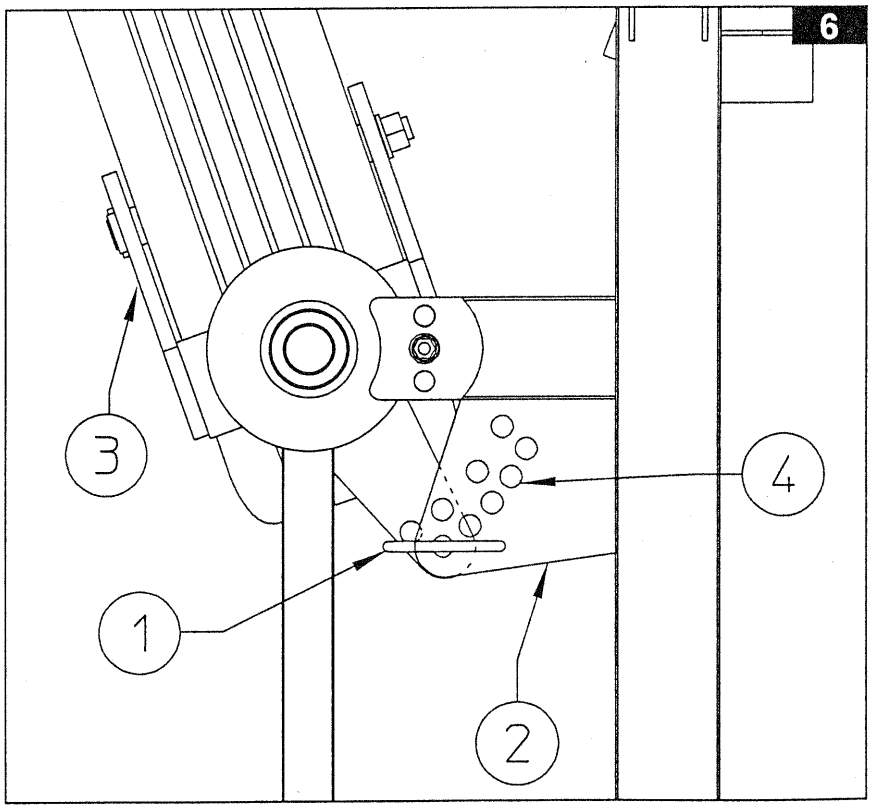
4) Fit the drawbar (9), with the supplied pin, into slot A (for transport).



5) With nut (1) reduce rotation of support (2) around its axis, in order to prevent a zig-zag motion, which is typical of the machines with pivoting wheels

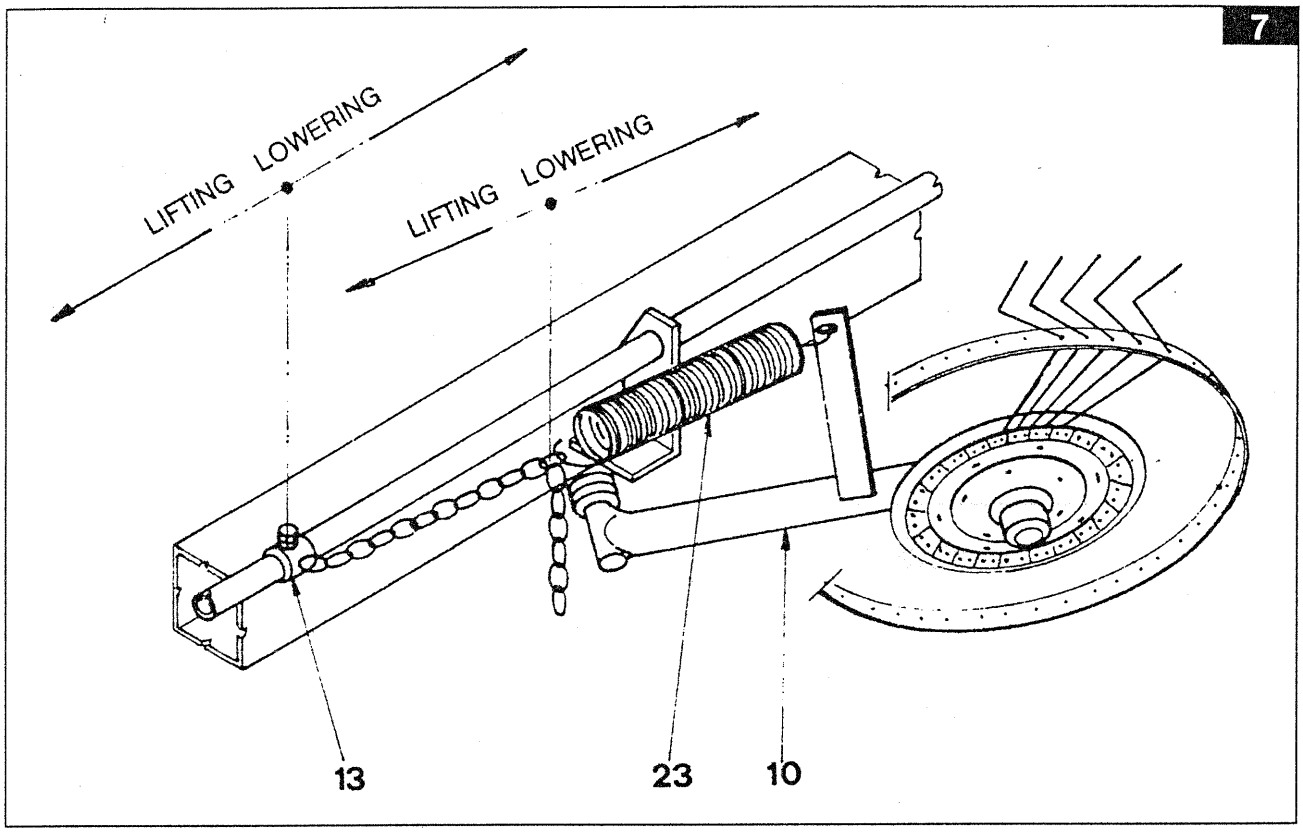


6) Lock wheel support (3) into hole as in picture using pin (1) for transport position.
The other holes (4) of drawbar plate (2) allows different working position



FINGER WHEEL BALANCE AND HEIGHT SETTING

To balance all finger wheels evenly and for height setting slide bush (13) as shown in picture 7, and if necessary adjust the chain links of the chain welded on bush (13) by connecting them with the spring (pict. 7).

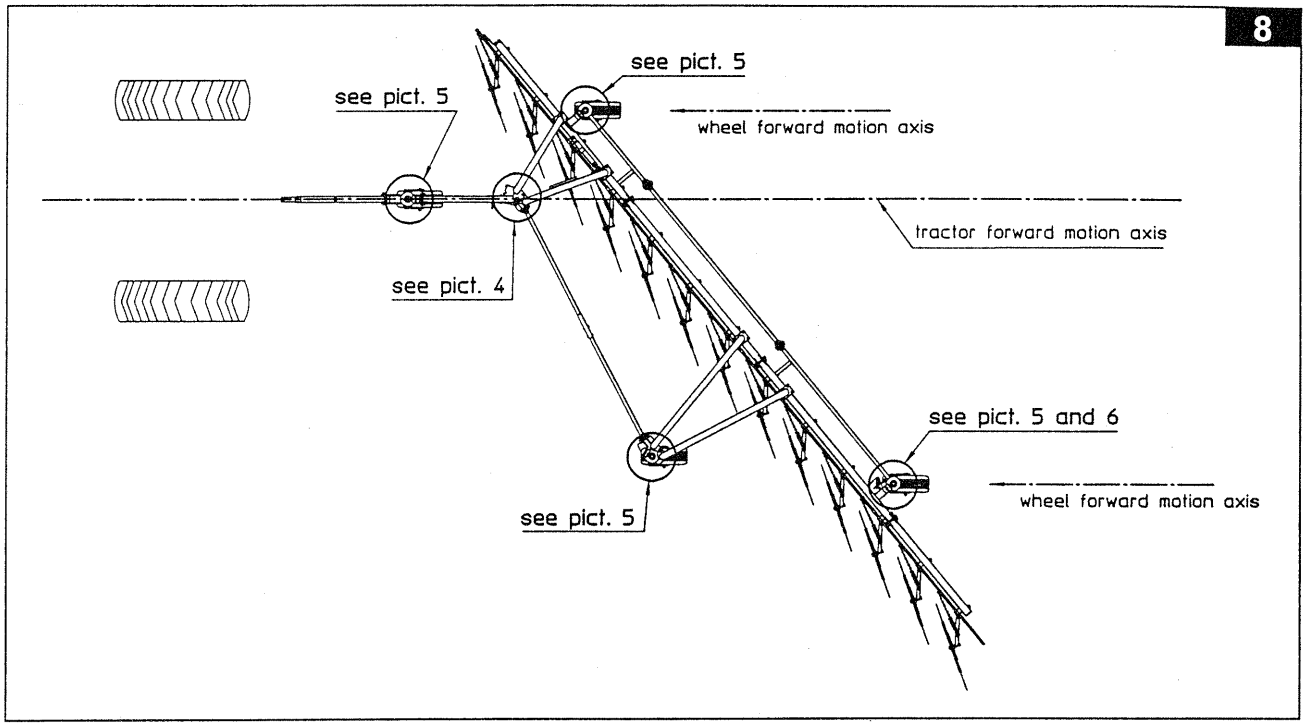


ON THE FIELD

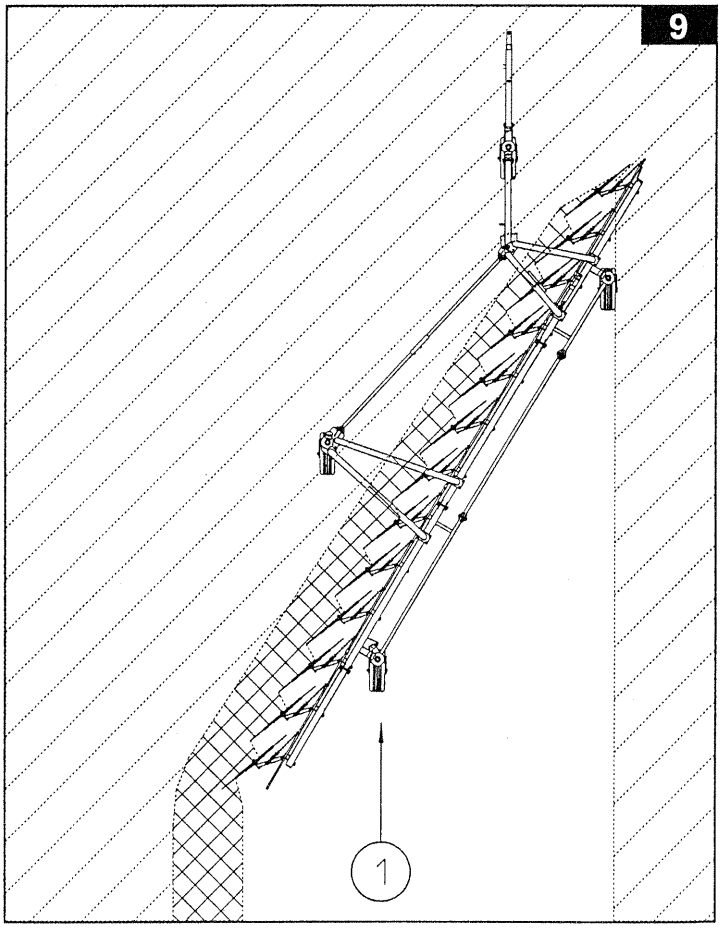
To optimise the performance of the machine you should set it as follows, but only when tractor, soil and hay are in the best conditions.

1) Fit drawbar (9) into slot B (for operation) (pict. 4)

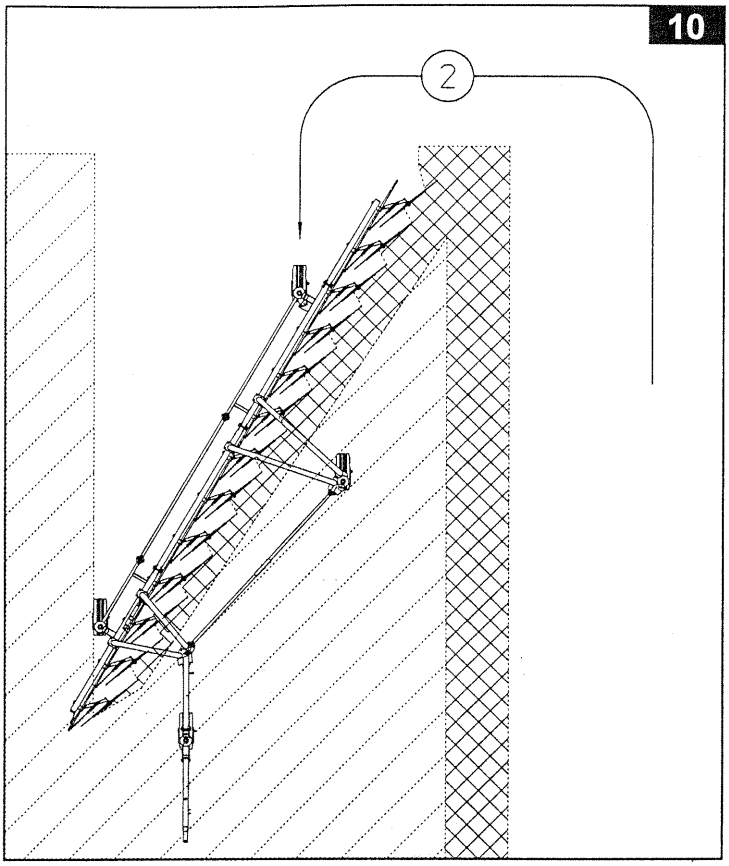
2) Lock rear wheel support (3) into one of holes (4) using the supplied pin (pict. 6). Select the hole which allows to position the wheel forward motion axis parallel to the tractor forward motion axis (pict. 8). The front wheel will automatically position because pivoting.

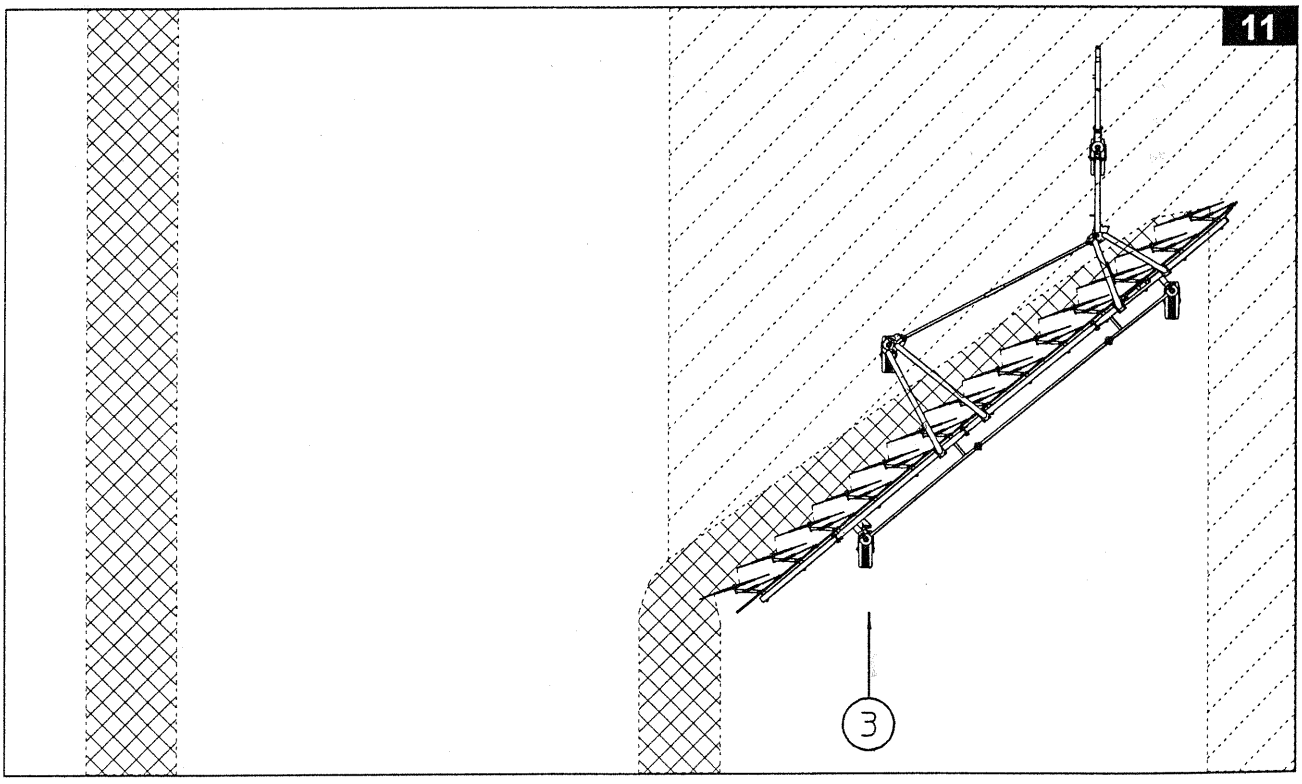


3) Start working from point 1 (see pict. 9 and 12).
4) Turn at the end of the field and join the two swaths (point 2 pict. 10 and 12).

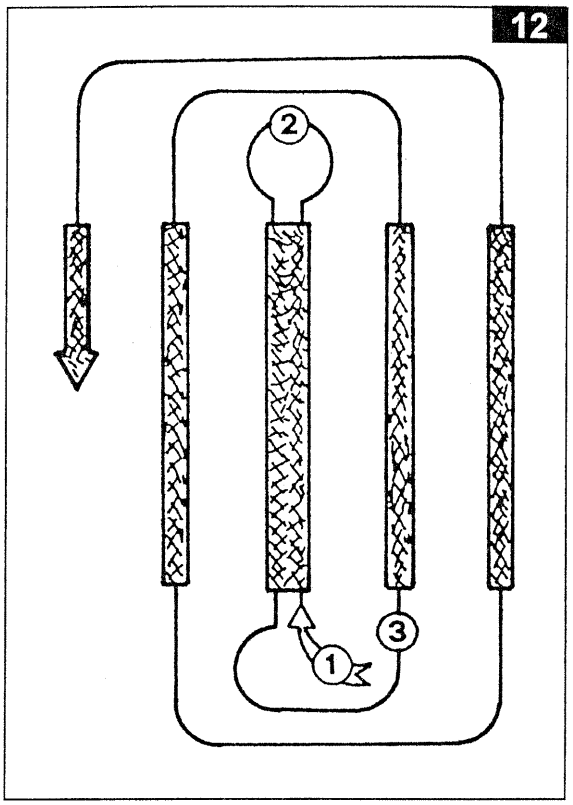


5) Fit the drawbar (9) into operation slot C (pict. 4)
6) Lock rear wheel support (3) using the supplied pin (pict. 6). Select the hole which allows to position the wheel forward motion axis parallel to the tractor forward motion axis (pict. 8). The others wheels will automatically position because pivoting.
7) Start again as shown at point 3 picture 11.





Picture 12 shows operations as per items 1-2-3 (pict. 9-10-11) and following.



IMPORTANT:

Set the finger wheels as described under "Finger Wheels Balance And Height Setting" if necessary

FEATURES

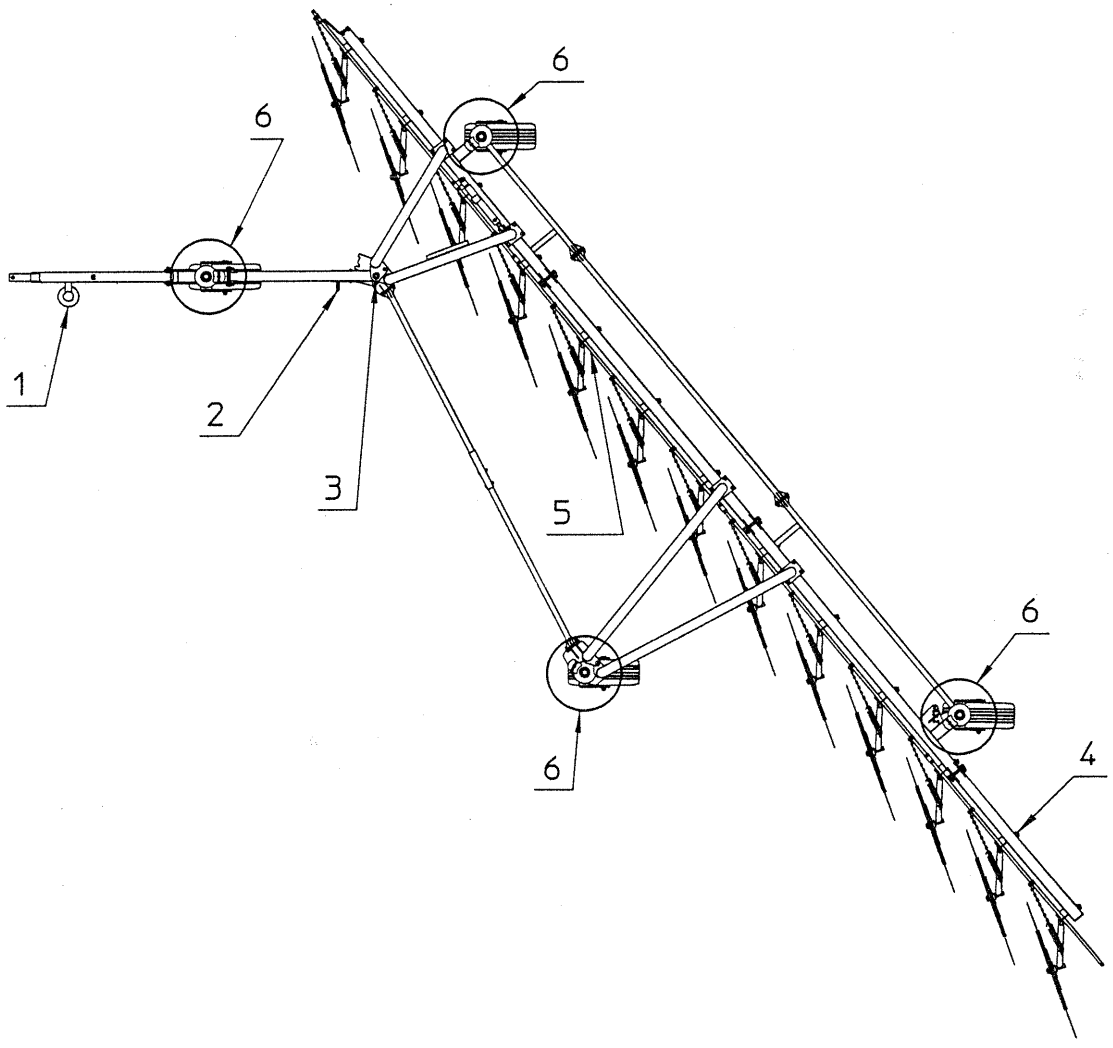
TR hay rakes are basically made of a primary structure of tubular steel, which makes the implement particularly sturdy add flexible. Tines are also very flexible and many are the possible adjustments of the rake. For all this the implement can work fast and successfully even on slopes, on stony and rough soils. The finger wheel hubs are made of pressed steel and are equipped with 1st quality taper roller bearings, pre-lubricated, and protected with a dust cover, so that the wheels can properly turn.

MAINTENANCE

For this type of machine the maintenance has been reduced to a minimum and no special tools are therefore required.
Picture 13 shows the points requiring maintenance. For maintenance please follow instructions below:

1) Grease the parking stand every 20 hours.
2) With a spatula grease the pin, the springs and the slots of the drawbar's rotating device, every 20 hours.
3) Lubricate the drawbar's pivot pin every 20 hours.
4) Lubricate the wheel arm's pivot points every 20 hours.
5) Lubricate the lifting pipes near the brackets every 20 hours.
6) Grease the pivot point of front wheel's support every 20 hours. 7) Grease the pivot point of rear wheel's support every 20 hours.

13



IMPORTANT:

Every rake is provided with identification label, as in picture on the left.
We recommend the use of original spare parts only, to get your implement working well for a long time. By ordering spare parts please always refer to the parts breakdown provided with this manual.

TROUBLES	CAUSES	REMEDIES
1) Wheel does not unload hay.	1) New tine, too much paint on it.	1) Have the wheels be turning on gravely soil until the tine is clean again.
	2) Mud on tine point due to moist soil.	2) The wheels are too close to the ground.
2) Tine failure.	1) Going backwards with wheels not lifted.	1) Lift the wheels before going backwards.
	2) Too much pressure on the wheels.	2) Lightly lift the rake. wheels.
	3) Tine rusted.	3) Protect it by oiling.
3) The rake does not collect the hay.	1) Tine worn out.	1) We recommend replacing all the tines for a uniform height.
4) Too much floating of wheels.	1) Wheels too far from ground.	1) Lightly lower the rake.
5) Bent tine.	1) Going backwards with the wheels not lifted.	1) Lift the wheels when going backwards.
	2) Too much speed on rough.	2) Reduce speed.
	3) Going across deep and narrow ditches or prominences.	3) Reduce speed.
	4) Too much weight on the wheels.	4) Lightly lift the rake.

TABLE NO. 920.105

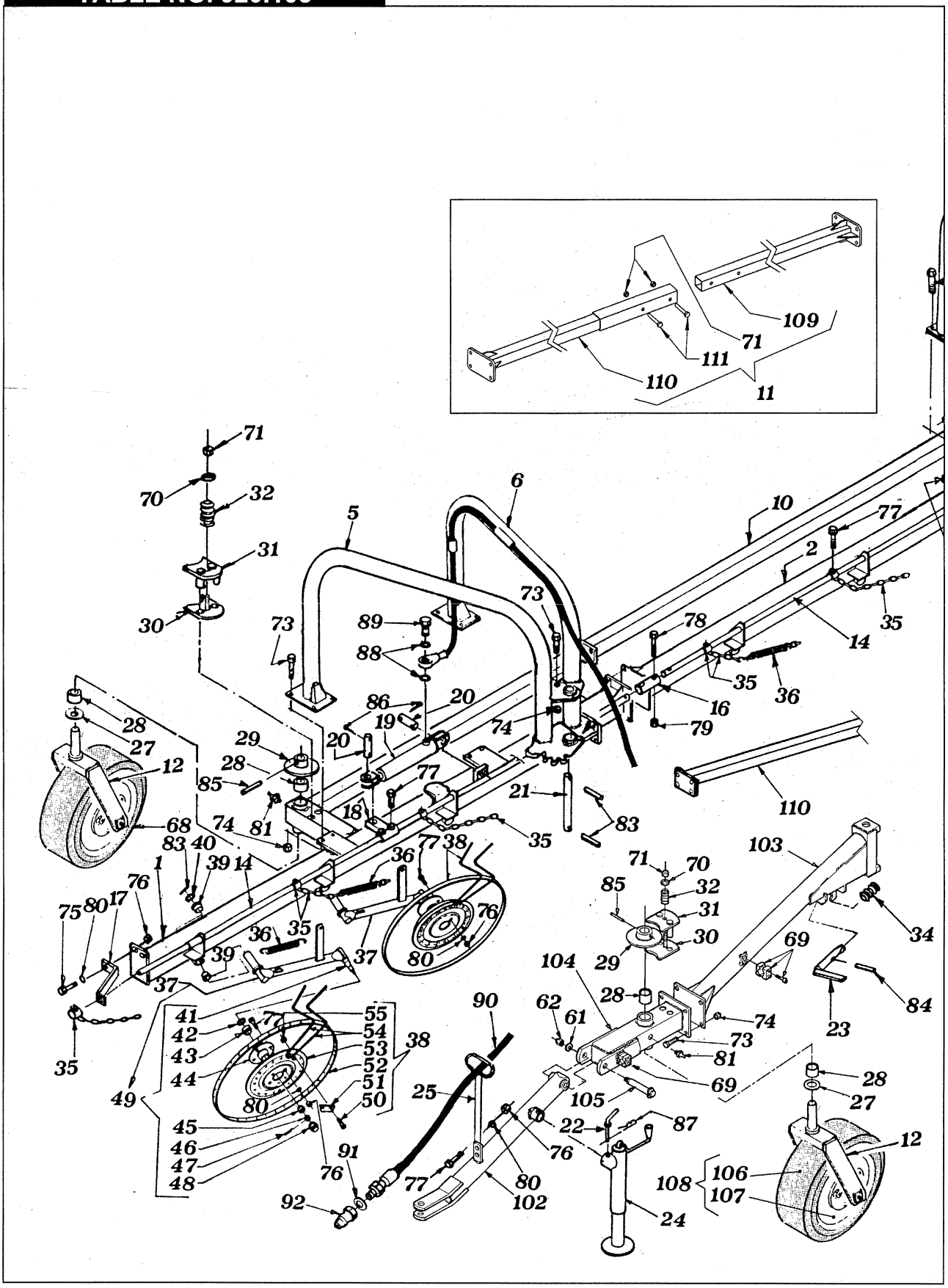


TABLE NO. 920.105

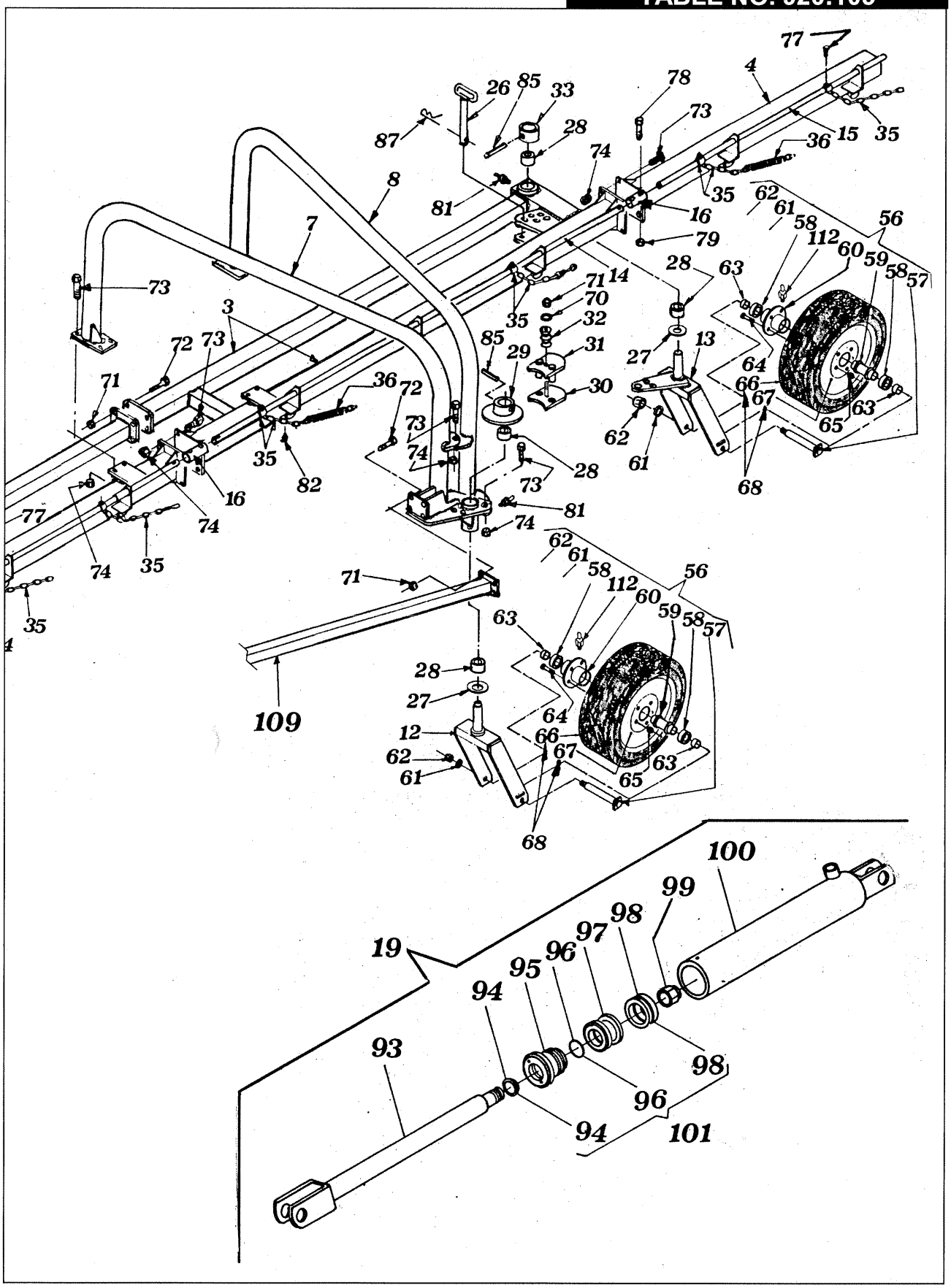
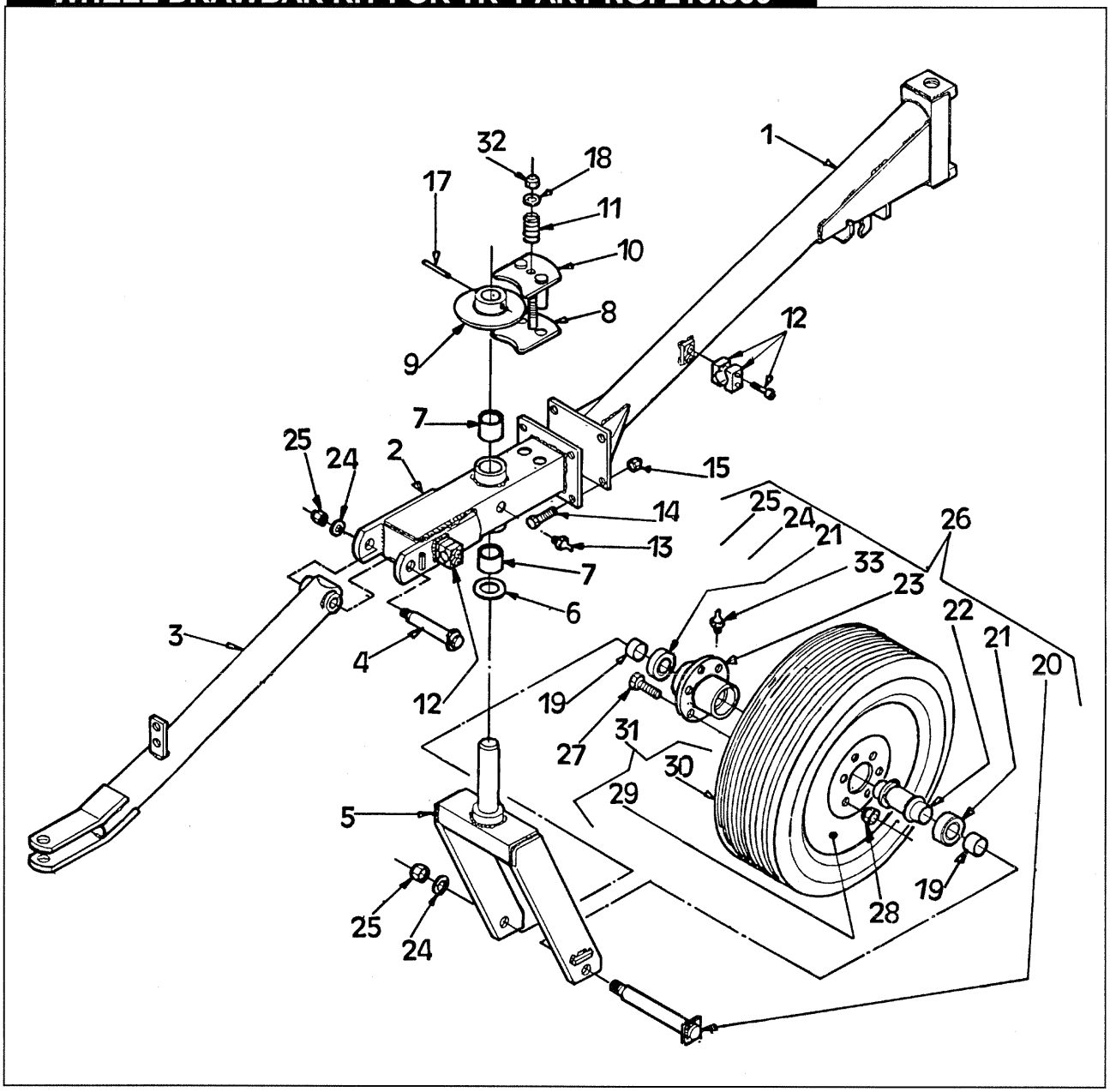


TABLE NO.920.105 TR/11-13					
ITEM	TR/11 Q.ty	TR/13 Q.ty	PART NO	DESCRIPTION	NOTE
1	1	1	200.127	MAIN FRAME	
2	1	1	200.128	FRAME EXTENSION	
3	1	1	200.129	FRAME EXTENSION	
4	-	1	200.130	FRAME EXTENSION	
5	1	1	210.594	SUPPORT	
6	1	1	200.133	SUPPORT	
7	1	1	200.119	SUPPORT	
8	1	1	200.120	SUPPORT	
9	1	1	200.005	DRAWBAR	Validity:until sept.98
9	1	1	210.668	DRAWBAR	Validity:starting from oct.98
10	1	1	200.134	TIE-ROD	
11	1	1	200.135	TIE-ROD	
12	3	3	210.168	WHEEL SUPPORT	
13	1	1	200.131	REAR WHEEL SUPPORT	
14	3	3	200.039	PIPE	
15	....	1	200.040	PIPE	
16	2	3	200.022	BUSH	
17	1	1	200.013	BRACKET	
18	1	1	200.036	BRACKET	
19	1	1	200.037	CYLINDER	
20	2	2	200.032	PIN	
21	1	1	200.031	PIN	
22	1	1	200.035	PIN	Validity:until sept.98
22	1	1	200.222	PIN	Validity:starting from oct.98
23	1	1	200.033	PIN	
24	1	1	200.043	PARKING STAND	Validity:until sept.98
24	1	1	220.197	PARKING STAND	Validity:starting from oct.98
25	1	1	200.016	HOSE SUPPORT	
26	1	1	200.034	PIN	
27	4	4	210.179	WASHER	
28	8	8	200.027	BUSH	
29	3	3	200.025	BUSH	
30	3	3	210.931	COUNTER PLATE	
31	3	3	200.810	BRAKE	
32	3	3	200.044	SPRING	
33	1	1	200.024	BUSH	
34	1	1	200.045	SPRING	
35	11	13	200.023	CHAIN BUSH	
36	11	13	200.046	SPRING	
37	11	13	200.008	WHEEL ARM	
38	11	13	210.180	FINGER WHEEL ASSY	
39	22	26	200.029	BUSH	
40	11	13	200.028	WASHER	
41	11	13	205.277	PIN	
42	11	13	600.011	DUST COVER	
43	11	13	600.012	BEARING 30205	
44	11	13	600.013	HUB	
45	11	13	600.014	BEARING 30204	
46	11	13	600.015	NUT M18X1,5 - 6	
47	11	13	600.301	SPLIT PIN D 3 X 30 DIN 94 3.6	
48	11	13	600.016	CAP	
49	11	13	205.041	HUB ASSY	
50	220	260	600.005	SCREW M10 X 25 DIN 603 6.8	
51	110	130	200.012	TINE CLAMP	
52	11	13	200.009	RIM	
53	11	13	200.010	FLANGE	
54	440	520	210.621	TINE	

TABLE NO. 920.105 TR/11-13					
ITEM	TR/11 Q.ty	TR/13 Q.ty	PART NO	DESCRIPTION	NOTE
55	220	260	600.050	NUT M10 DIN 934 - 8	
56	4	4	210.169	HUB ASSY	
57	4	4	210.184	PIN	
58	8	8	600.609	BEARING 6206 2RS	
59	4	4	200.140	SPACER	
60	4	4	200.139	HUB	
61	4	4	200.165	WASHER	
62	4	4	600.079	NUT M22 DIN 980	
63	8	8	210.170	SPACER	
64	20	20	600.144	SCREW M16X1,5 X 40 DIN 961 8.8	
65	20	20	600.289	NUT M16 X1,5	
66	3	3	600.303	TIRE	
67	3	3	600.304	RIM	
68	3	3	600.281	WHEEL ASSY	
69	2	2	600.152	HOSE COLLAR ASSY	
70	3	3	600.092	WASHER D12 X36	
71	21	21	600.077	NUT M12 DIN 980	
72	16	16	600.616	SCREW M12 X 35 DIN 933 8.8	
73	34	38	610.167	SCREW M16 X 45 DIN 933 8.8	
74	34	38	600.080	NUT M16 DIN 980	
75	2	2	600.028	SREW M10 X 40 DIN 931 8.8	
76	70	82	600.010	NUT M10 DIN 934 - 8	
77	81	95	600.006	SCREW M10 X 25 DIN 933 8.8	
78	4	6	600.036	SCREW M 8 X 50 DIN 931 8.8	
79	4	6	600.076	NUT M 8 DIN 980	
80	70	82	600.024	WASHER D 10.5 DIN 127B	
81	4	4	600.034	GREASE NIPPLE M8	
82	11	13	600.968	GREASE NIPPLE M 6 - 45°	
83	13	15	600.027	SPRING PIN D 8 X 50 DIN 1481	
84	1	1	600.487	SPRING PIN D 8 X 60 DIN 1481	
85	4	4	600.033	SPRING PIN D 10 X 80 DIN 1481	
86	4	4	600.038	SPLIT PIN D 6 X 35 DIN 94 3.6	
87	2	2	600.019	PIN	
88*	2	2	600.039	COPPER WASHER 3/8"	
89*	1	1	600.040	FITTING D 3/8"	
90*	1	1	600.041	HOSE SAE100 R1AT 3/8 O 3/8 - M 1/2	
91*	1	1	600.269	COPPER WASHER 1/2"	
92*	1	1	600.273	RAPID COUPLING 1/2"	
93	1	1	200.307	ROD	
94	1	1	600.645	GASKET WRM 118149 (D.30)	
95	1	1	200.301	CYLINDER HEAD	
96	1	1	600.646	GASKET OR 117 (D.20.29 X 2.62)	
97	1	1	200.303	PISTON	
98	1	1	600.647	GASKET DBM 236173 BORE 60	
99	1	1	600.642	NUT M18 X1.5 DIN 982 - 8	
100	1	1	200.305	CYLINDER BARREL	
101	1	1	600.643	SET OF GASKET	
102	1	1	210.261	FRONT DRAWBAR	
103	1	1	210.259	DRAWBAR	
104	1	1	210.260	WHEEL SUPPORT	
105	1	1	210.262	PIN	
106	1	1	610.116	TIRE	
107	1	1	610.117	RIM	
108	1	1	610.115	WHEEL ASSY	
109	1	1	210.777	MALE HALF TIE ROD	
110	1	1	210.778	FEMALE HALF TIE ROD	
111	2	2	600.826	SCREW M12 X 75 DIN 933 8.8	
112	3	3	610.203	GREASENIPPLE M8X45°	
*	1	1	200.193	HYDRAULIC KIT	

WHEEL DRAWBAR KIT FOR TR PART NO. 210.366



WHEEL DRAWBAR KIT FOR TR PART NO. 210.366				
ITEM	Q.ty	PART NO	DESCRIPTION	NOTE
1	1	210.259	DRAWBAR	
2	1	210.260	SUPPORT	
3	1	210.261	FRONT DRAWBAR	
4	1	210.262	PIN	
5	1	210.168	WHEEL SUPPORT	
6	1	210.179	WASHER	
7	2	200.199	BUSH	
8	1	210.931	BRAKE COUNTER PLATE	
9	1	200.025	BUSH	
10	1	200.810	BRAKE	
11	1	200.044	SPRING	
12	2	600.822	HOSE COLLAR	
13	1	600.034	GREASE NIPPLE M8	
14	4	600.035	SCREW M16 X 40 DIN 933 8.8	
15	4	600.080	NUT M16 DIN 980	
16	1	610.203	GREASE NIPPLE M8X45°	
17	1	600.033	PIN D 10 X 80 DIN 1481	
18	1	600.092	WASHER D12 X36	
19	2	210.170	SPACER	
20	1	210.184	PIN	
21	2	600.609	BEARING 6206 2RS	
22	1	200.140	SPACER	
23	1	200.139	HUB	
24	2	200.165	WASHER	
25	2	600.079	NUT M22 DIN 980	
26	1	210.169	HUB ASSY	
27	5	600.144	SCREW M16X1,5 X 40 DIN 961 8.8	
28	5	600.289	NUT M16 X1,5	
29	1	610.117	RIM	
30	1	610.116	TIRE	
31	1	610.115	WHEEL ASSY	
32	1	600.077	SCREW M12 DIN 980	

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