



# SERVICE MANUAL

PRINT No. 9-93660

TX130-40 turbo

TX130-43 turbo

TX130-45 turbo

TX140-43 turbo

TX140-45 turbo

TX170-45 turbo

## COMPANY POLICY

Company policy, which is one of continuous improvement, reserves the right to make changes in design and specification, without notice and without obligation to modify units previously built.

All data given in this book is subject to production variations. Dimensions and weights are approximate only and the illustrations do not necessarily show machines in standard condition. For exact information about any particular machine please consult your dealer.

## PARTS AND ACCESSORIES

Genuine parts and accessories have been specifically designed for these machines.

We would like to point out that "non-genuine" parts and accessories have not been examined and released by Builder. The installation or use of such products could have negative effects upon the design characteristics of your machine, and thereby affect its safety. The Builder is not liable for any damage caused by the use of "non-genuine" parts and accessories.

## MODEL CODES

The complete range of telescopic handlers (Telehandler) described in this manual is identified in the text by reference to the maximum extension of the telescopic arm.

The vehicles listed below may not be available in all countries or markets, therefore for the latest information consult your authorised dealer.

Model	TX130-40	TX130-43	TX130-45	TX140-43	TX140-45	TX170-45
Stabilisers	no	small	large	small	large	large
Engine	88 kW (120 CV - 118 HP) Turbo Aftercooler					
Max. lifting height (m)	12.300	12.450	12.450	13.550	13.550	16.600
Max. capacity (kg) at 500 mm from fork stop	4000	4000	4000	4000	4000	4000
Capacity at max. height (kg)	2600	3600	4000	3000	3600	2500
Extension at max. height (m)	1.200	0.500	0.000	0.500	0.300	1.000
Max. longitudinal extension (m)	8.650			9.330		12.540
Capacity at max. extension (kg)	700	1700	1800	1400	1500	450
Weight (kg)	11050			11970		12340
Length (m)	5.850			6.070		6.135

# Service manual TX130-40 turbo/TX130-43 turbo/TX130-45 turbo TX140-43 turbo/TX140-45 turbo TX170-45 turbo TELESCOPIC HANDLERS

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## GENERAL LIST OF CONTENTS

### SECTION 00 - GENERAL

Description	Page
General instructions .....	1
Safety rules .....	3
Product identification .....	6
Environmental considerations .....	9
Maintenance techniques .....	10

### SECTION 10 - ENGINE

Description	Page
Coding of engines of origin .....	3
Main engine specifications .....	4
General engine specifications .....	5
Generalities .....	7
Description of engine main mechanical components .....	13
Lubrication .....	24
Cooling .....	29
Mechanical injection fuel system .....	31
Injection assembly .....	33
Removal of the engine transmission group from the vehicle .....	43
Engine overhaul on bench .....	46
Replacement of injectors .....	98
Valve clearance .....	100
Timing setting .....	101
Timing of injection pump .....	102
Electrical components .....	103
Troubleshooting .....	104
Tooling .....	108
Mounting plays .....	112

**SECTION 21 - POWERSHIFT GEARBOX**

<b>Description</b>	<b>Page</b>
Gearbox assembly .....	5
Idler gear case assembly .....	7
Gearbox operation .....	8
Transmission and Hydraulic oil circuit diagrams .....	15
Modulation valve operation .....	31
Torque converter and heat exchanger hydraulic oil circuit .....	34
Troubleshooting procedures .....	37
Pressure testing clutch and high pressure circuit .....	38
Pressure testing torque converter and cooler circuit .....	39
Check points .....	40
Assembly instructions .....	42
Overhaul .....	45
Special tools .....	104

**SECTION 25 - FRONT AXLE**

<b>Description</b>	<b>Page</b>
Specifications .....	1
Description .....	2
Operation .....	3
Troubleshooting .....	4
Wheel toe-in check .....	5
Component overhaul .....	5
Front axle removal procedure .....	6
Front axle overhaul .....	7
Axle drive pinion bearing adjustment .....	52
How to install and adjust the axle drive pinion .....	54
Front drive shaft .....	57

## SECTION 27 - REAR AXLE

Description	Page
Specifications .....	1
Description .....	2
Operation diagram .....	3
Component overhaul .....	5
Rear axle removal procedure .....	5
Overhaul .....	6
Special tools .....	7

## SECTION 33 - BRAKES

Description	Page
Power brakes .....	2
Parking brake .....	3
Brake disc adjustment .....	6
Troubleshooting .....	7
Brake disc replacement .....	8

## SECTION 35 - HYDRAULIC SYSTEM

Description	Page
Technical data .....	2
Description and operation .....	3
Steering system hydraulic circuit .....	3
Steering valve .....	4
Telescopic boom hydraulic circuit .....	6
Component operation .....	11
Hydraulic pump .....	11
Hydraulic scheme .....	11
Delivery side divider valve .....	11
Pressure reducing valve .....	13
Front loader controls .....	15
Power steering (OSPQ) .....	19
Telescopic boom distributor .....	21
Auxiliary controls distributor .....	24
Cylinders .....	25
Arms .....	35
Boom removal .....	35
Working platform .....	43
Procedure for the calibration of the personnel carrier platform electronic controller .....	47
Special tools .....	53

## SECTION 55 - ELECTRICAL SYSTEM

Description	Page
<b>Chapter 1 – Electrical system general</b>	
Electrical equipment specifications .....	1
Electrical system and fuse .....	2
Controls and instruments .....	6
Use of the tip-over prevention system .....	16
Bulb replacement .....	23
Protecting the electrical systems during charging or welding .....	26
Starting the machine using jump leads .....	27
Temporary wiring repair .....	28
Electrical system general fault finding .....	30
Working platform .....	31
Special tools .....	46
<b>Chapter 2 – Circuit diagrams</b>	
List of connectors .....	48
List of components .....	49
How to use the circuit diagrams .....	50
Diagram 1: Starting/Recharge/Warning lights/Indicator .....	51
Diagram 2: Transmission .....	55
Diagram 3: Wheel alignment/Hydraulic solenoids/Brake system .....	57
Diagram 4: Arm control .....	59
Diagram 5: Stabiliser .....	61
Diagram 6: Lights/Windscreen wiper .....	63
Diagram 7: Work lamps/Roof beacon light .....	65
Diagram 8: Tilting prevention system/Roof wiper .....	67
Diagram 9: Sound system heating/Electric socket/Roof lamp .....	69
Diagram 10: Air conditioner .....	71
<b>Chapter 3 – Wiring list</b>	
Instrument panel wiring .....	75
Cab wiring .....	81
Front wiring .....	82
Rear wiring .....	83
Engine wiring .....	85

## GENERAL INSTRUCTIONS

### IMPORTANT NOTICE

All maintenance and repair interventions listed in this Manual must be performed exclusively by the Service Network of the Manufacturer, complying strictly with the indications herein and using, when required, the prescribed special tools.

Whoever performs service operations described herein without complying strictly with the instructions becomes solely responsible for any consequential damage that could occur.

### ADJUSTING SHIMS

For each adjustment select the adjusting shims, measuring them one by one with a micrometer and adding together subsequently, the values measured. Do not rely on the measurement of the entire pack, that could be wrong, or the nominal value indicated on each ring.

### SEALS FOR ROTATING SHAFTS

For correct installation of the seals for rotating shafts, please comply with the following precautions:

- prior to installation, keep the seals soaking for at least half an hour in the same oil they are going to seal;
- clean thoroughly the shaft and make sure that its working face is undamaged;
- direct the sealing lip toward the fluid; in the event the lip is of the hydro dynamic type, the grooves must be directed so that, in relation to the rotating direction of the shaft, they tend to return the fluid toward the inside of the sealing device;
- smear the sealing lip with a film of lubricant (oil to be preferred to grease) and fill with grease the gap between sealing lip and dust lip in twin lip seals;
- insert the seal in its seat, pressing it with a punch with a flat face; never strike it with a hammer or mallet;
- when pressing in the seal, make sure that it is inserted perpendicularly in relation to the seat and, once in position, make sure that, when required, it contacts the shoulder;
- to prevent the sealing lip of the seal being damaged by the shaft, insert appropriate protection during the installation of the two parts.

### "O-RING" TOROIDAL SEALS

Lubricate O-rings before inserting them in the relevant seats to prevent them becoming twisted and rolled during installation, thus jeopardising their sealing capacity.

### SEALING COMPOUNDS

Mating surface marked X must be smeared with a sealing compound recommended by the Manufacturer or an adequate equivalent.

Prior to applying the compound, prepare the surfaces in the following manner:

- remove all possible scaling with a metal brush;
- degrease the surfaces thoroughly using the degreasing agent recommended by the Manufacturer or an adequate equivalent.

### BEARINGS

When installing bearings, it is recommended to:

- warm them up to 80° – 90 °C (176 – 194 °F) before installing them on the relevant shafts;
- cool them down before inserting them in the relevant seats with an outer fitting.

### SPLIT PINS

When installing split pins, make sure that the cut is pointing in the direction of the load on the pin. On the other hand, spiral elastic pins do not require any installation orientation.

### NOTES ON SPARE PARTS

Use genuine **spare parts guaranteed by the Manufacturer** only.

Genuine spare parts are the only ones ensuring the same quality, the same life and the same safety as the originally mounted parts, since they are the same as the ones installed in production.

Only genuine parts from the manufacturer ensure this guarantee.

Orders for spare parts must include the following indications:

- model of the vehicle (commercial designation) and serial number;
- type and number of the engine;
- part number for the item ordered, as provided by the "Microfiches" or the "Spare Part Catalogue", on which the order is based.

### NOTES ON TOOLING

The tooling that the Manufacturer recommends and illustrates in this Manual is:

- studied and designed specifically for servicing vehicles of this range;
- required to ensure a reliable repair;
- accurately developed and inspected to provide effective and long lasting working.

You are also reminded that correct tooling allows you to:

- to operate under optimised technical conditions;
- to achieve the best results;
- to save time and effort;
- to work in safer conditions.

### WARNING

The wear limits provided for some items must be considered as recommended values, but not absolutely binding. The indications "front", "rear", "right", "left" refer to different parts as seen seating from in the operator's seat oriented in the normal travel direction of the vehicle.

### HOW TO MOVE A VEHICLE WITHOUT BATTERIES

The cables of the external power supply must be connected exclusively to the respective terminals of the positive and negative cables of the vehicle, using efficient clamps providing adequate and safe contact. In the event it is necessary to check the operation of the electrical system of the vehicle, do it exclusively with the power supply connected. At the end of the inspection, disconnect all actuators and deactivate the power supply before disconnecting the cables.



## SAFETY RULES

### PAY ATTENTION TO THIS SYMBOL



*This alert symbol announces important messages involving your safety. Read carefully the safety instructions listed and follow the precautions recommended to avoid potential risks and to safeguard your health and your safety.*

*You will find this symbol in the text of this Manual with the following key words:*

**WARNING** - Cautions intended to avoid improper repair interventions involving potential consequences for the safety of the personnel performing the repairs.

**DANGER** - These warnings qualify specifically potential dangers for the safety of the operator or other persons directly or indirectly involved.



## AVOID ACCIDENTS

Most accidents, whether they occur in workshop, on the farm, at home or on the road, are caused by the failure of some individuals to follow simple and fundamental safety rules and precautions. For this reason **MOST ACCIDENTS CAN BE PREVENTED** by recognising the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without hindering reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule would prevent many serious accidents.

**DANGER.** Never attempt to clean, lubricate or maintain a machine while it is in motion.

## SAFETY RULES

### SAFETY RULES

- ◇ Read and heed all safety rules before any intervention.
- ◇ Do not wear rings, wristwatches, jewellery, and loose or hanging apparels, such as ties, torn clothing, scarves, unbuttoned or unzipped jackets that can catch on moving parts. Wear proper safety equipment as recommended for the job. Examples: hard hat, heavy gloves, ear protection, safety glasses or goggles, reflector vests, respirator. Consult your employer for specific safety equipment requirements.
- ◇ Do not perform any service operation on the machine with a person seated in the operator's compartment, unless he is an authorised oper-

ator co-operating in the operation to be performed.

- ◇ Never attempt to operate the machine or its tools from any position other than seated in the operator's seat.
- ◇ Never perform any intervention on the machine with engine running unless this is prescribed.
- ◇ Cut-off the engine and make sure that all pressures in the hydraulic systems are released before removing caps, covers, valves etc.
- ◇ All service interventions must be performed with the utmost care and attention.
- ◇ Shop and/or field service platforms or ladders must be constructed and maintained in accordance with local and national regulations.
- ◇ Disconnect the batteries and tag all controls to signal that an intervention is in progress. Block the machine and all equipment that must be lifted.
- ◇ Do not check nor refill fuel tanks, as well as batteries, nor use starting fluid while smoking or near open flames since these fluids are flammable.
- ◇ Brakes are inactive when manually released for service interventions. Under such circumstances it is necessary to maintain the control of the machine using appropriate blocks or similar devices.
- ◇ The fuel-filling nozzle must be kept constantly inside the filling neck. Keep this contact from the beginning to the end of the fuelling operation to avoid the possibility that sparks due to static electricity are generated.
- ◇ Use only designated towing or attaching points. Use care in making attachments. Make sure pins and/or locks are secure before pulling. Stay clear of drawbars, cables or chains under load.
- ◇ To move a disabled machine, use a trailer or a low-boy, if available.

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