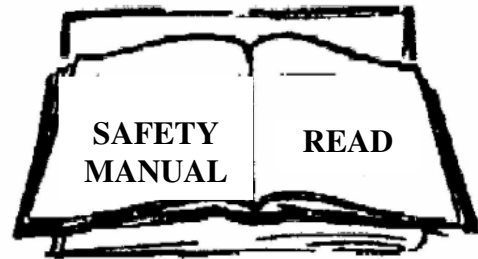
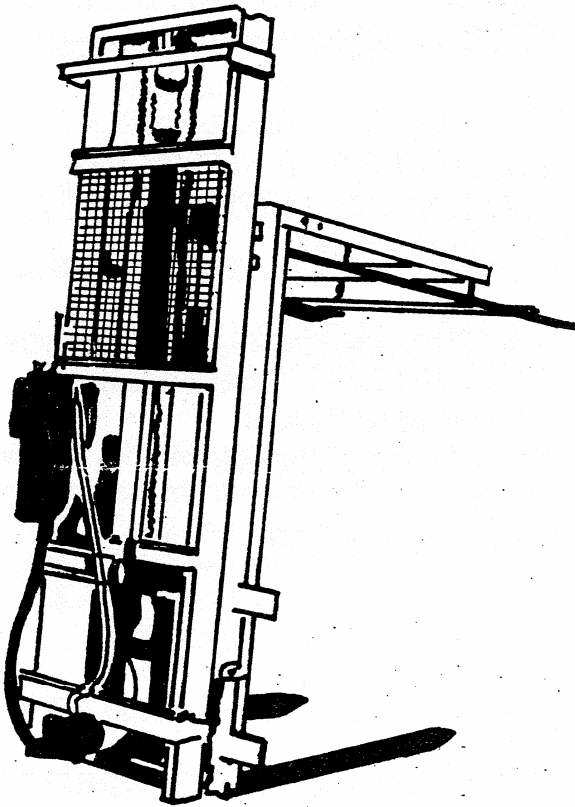


INSTALLATION, USE AND MAINTENANCE MANUAL

Cod. 08007/R12

OIL-PRESSURE FARM ELEVATORS



**BEFORE
PERFORMING
ANY KIND OF WORK,
WITH THE MACHINE
READ THIS
MANUAL**

TECNOAGRI

Via Marconi, 49 - 48017 CONSELICE (RA) ITALIE

Tél. +39 0545 85023 - Fax +39 0545 85123

Email-tecnoagri@tecnoagri.it

Internet-<http://www.tecnoagri.it>

®

TECNOAGRI

48017 CONSELICE (RA) • ITALY • Via Marconi, 49
Ph. +39 0545-85023 • Fax +39 0545-85123

***THE INFORMATION CONTAINED IN THIS MANUAL
CONCERNS YOUR SAFETY AND GIVES INSTRUCTIONS FOR
THE INSTALLATION AND CORRECT USE AND MAINTENANCE
OF THE MACHINE, HOW TO
MAKE THE BEST USE OF ITS POWER AND EFFICIENCY AND
MAINTAIN IT THROUGHOUT ITS LIFE***

THE MANUAL IS AN INTEGRAL PART OF THE MACHINE AND MUST
ACCOMPANY IT WHENEVER THE MACHINE CHANGES OWNERS

IT PROVIDES A GUIDE TO
UNDERSTANDING THE MACHINE AND ITS FUNCTIONS. IT ALSO
PROVIDES
INSTALLATION INSTRUCTIONS - FOR USE AND MAINTENANCE AND
ACCIDENT PREVENTION

ALL RESPONSIBILITY FOR DAMAGE CAUSED BY
NOT FOLLOWING THE ADVICE AND INSTRUCTIONS
CONTAINED IN THIS MANUAL
IS THE USER'S.

RETAILER OR SERVICE CENTRE (stamp)

© Copyright

TECNOAGRI

This manual is the property of **TECNOAGRI SRL** who reserves the right to modify it, at any time, without prior notice, for technical or commercial reasons.

The reproduction or making public of any part of this manual is prohibited under law without the written consent of **TECNOAGRI SRL** which holds all the material and intellectual rights to this publication.

INDEX

Part A - GENERAL

1. GENERAL INFORMATION ABOUT THE MANUAL

- 1.1 Structure, content and end users of the manual
- 1.2 Symbols : meaning and use
- 1.3 Manufacturer's guarantee and responsibility
- 1.4 Updating the manual and collaboration with the user
- 1.5 Figures and diagrams
- 1.6 Overview of the machine and main components terminology
- 1.7 Manufacturer

2. TRANSPORT AND INSTALLATION

- 2.1 Delivery, transport and packaging
- 2.2 Movement, lifting and unloading
 - 2.2.1 Lifting points and methods

3. ENVIRONMENTAL OPERATING CONDITIONS

- 3.1 Visibility
- 3.2 Ground
- 3.3 Noise
- 3.4 Disposal

Part B – SAFETY RULES AND ACCIDENT PREVENTION

4. GENERAL SAFETY RULES

- 4.1 Warning Signs

5. QUALIFICATIONS OF THE OPERATOR AND OPERATING RULES

- 5.1 Instructions for the buyer and the operator
- 5.2 What to do always !
- 5.3 What never to do !
- 5.4 Warning or danger plates represented by pictograms and applied to the machine.

Part C – STARTING

6. THE FUNCTIONS OF THE MACHINE

- 6.1 Intended use – Projected use – End use
- 6.2 Materials and products that are allowed to be handled.
- 6.3 Materials and products that are not allowed to be handled.
- 6.4 Approved accessories – Compatible interchangeable parts
- 6.5 Technical characteristics

7. CONDITIONS FOR USE

8. ATTACHMENT TO THE TRACTOR

- 8.1 Hydraulic connections between the ELEVATOR and the tractor

9. INSTRUCTIONS FOR USE

- 9.1 Operations with lever-controlled distributor
- 9.2 Functioning with single-lever device installed on the tractor distributor.
 - 9.2.a Funzionamento con comandi elettrici box joystick
- 9.3 Adjustment of the loading forks and fastener
 - 9.3.1 Loading forks
 - 9.3.2 Fastener
- 9.4 Working Stages

10. PRECAUTIONS

11. DRIVING ON PUBLIC ROADS

Part D – PUTTING OUT OF SERVICE

12. DISMANTLING THE TRACTOR

13. STORAGE OF PARTS

- 13.1 Storing and conservation
- 13.2 Assembly after storage

Part E – MAINTENANCE

14. INFORMATION

- 14.1 Warning instructions
- 14.2 Danger warnings

15. QUALIFICATION OF THE PERSONNEL IN CHARGE OF MAINTENANCE

- 15.1 General requirements of the personnel

16. RECOMMENDATIONS REGARDING MAINTENANCE

- 16.1 Routine maintenance
- 16.2 Periodic maintenance
- 16.3 Cleaning
- 16.4 Lubrication of the machine
- 16.5 Spare parts

17. MALFUNCTIONS AND SOLUTIONS

- 17.1 Failure of attempted repairs

18. DISMANTLING, DISPOSAL AND SCRAPPING

Part A - GENERAL

1. GENERAL INFORMATION ABOUT THE MANUAL

1.1 Structure, content and end users of the manual

- ❖ The original manual has been compiled in Italian. The copies in other languages are translations.
- ❖ The manual is made up of 57 pages numbered from 1 to 57:
 - the front cover is not included in the page numbering
- ❖ This publication is intended for the use of:
 - personnel responsible for putting the machine into use and starting it
 - the workers responsible for using the machine.
 - the operators in charge of the cleaning and maintenance of the machine.
- ❖ The manual must be kept in a suitable place, in the care of the person responsible for its use as specified, so that it is preserved in a good condition and can be consulted at any time.

CHECK THAT THE INTEGRITY OF THE MANUAL IS COMPLETE.

- ❖ In the event that there are faults with the printing or pages are missing or in case of loss or deterioration, a replacement must be requested from :

TECNOAGRI SRL

Via Marconi, 49 - 48017 CONSELICE (RA)
Tel. +39 0545-85023 - Fax +39 0545-85123
Email: tecnoagri@tecnoagri.it

The information and the figures given in the manual are valid at the time of printing. TECNOAGRI SRL reserves the right to change the characteristics or the design without prior warning and without assuming any responsibility.

TECNOAGRI



PRIOR TO STARTING ANY OPERATION, THE OPERATOR MUST CAREFULLY READ THIS INSTRUCTION MANUAL.






ALL THE RECOMMENDATIONS CONTAINED IN THE MANUAL MUST BE COORDINATED WITH THE USAGE AND MAINTENANCE MANUAL OF THE TRACTOR ON WHICH THE DEVICE WILL BE MOUNTED

1.2 Symbols: meaning and use

In the manual, various symbols are used to attract the reader's attention and underline some particularly important aspects of handling.

The following table shows the list and the meaning of the symbols used in the manual.

SYMBOL	MEANING	EXPLANATIONS, ADVICE, NOTES
	Danger	Indicates danger with risk of accident, possibly fatal, if the danger is not avoided. Ignoring the instructions associated with this symbol can endanger the safety of the operator and/or others.
	Attention	Indicates a warning of possible damage to the machine or to a personal object of the operator. Ignoring the instructions associated with this symbol can cause serious damage to the machine.
	Warning Note	Indicates a warning or a note regarding key functions or useful information. Pay close attention to sections of the text indicated by this symbol.

Dear Customer,

Thank you for showing confidence in us, we are certain that you have made a wise purchase. Our efforts are aimed at ensuring high quality and guaranteeing excellent reliability and safety in the equipment we manufacture. This allows us to export our products to many countries throughout the world.

We would like to remind you that the full efficiency of any machine and maintaining that efficiency throughout its life do not rely only on quality construction and avant-garde technical expertise, but also on proper use as well as efficient and constant maintenance.



GUARANTEEING THE PROPER FUNCTIONING AND FULL OPERATIONAL CAPABILITIES OF THE MACHINE, IN LINE WITH ITS INTENDED USE, IS STRICTLY DEPENDENT ON CORRECTLY FOLLOWING ALL THE INSTRUCTIONS WHICH ARE CONTAINED IN THIS MANUAL.

1.3 Manufacturer's guarantee and responsibility

❖ **TECNOAGRI SRL** declines all responsibility in case of:

- use of the machine in a manner contrary to national laws on safety and accident prevention
- incorrect preparation for the installation and of the premises on which the machine will operate
- failure to observe or incorrect following of the instructions contained in this manual
- unauthorised modifications to the machine
- use of spare parts other than those approved by the manufacturer
- machine usage by non-qualified personnel

❖ To secure the rights provided by the guarantee, the purchaser must scrupulously observe the warnings and instructions indicated and in particular:

- operate the machine within its intended limits
- always carry out constant maintenance
- allow the machine to be used only by operators of proven ability and attitudes, who have been properly instructed in the operation of the machine
- always use only original spare parts as recommended by the manufacturer



- **Do not attempt to use the machine in any way not in accordance with the recommendations of the instructions.**
- **The instructions contained in this manual do not replace but are in addition to the requirements of existing safety and accident prevention laws.**

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

1.4 Updating the manual and collaboration with the user

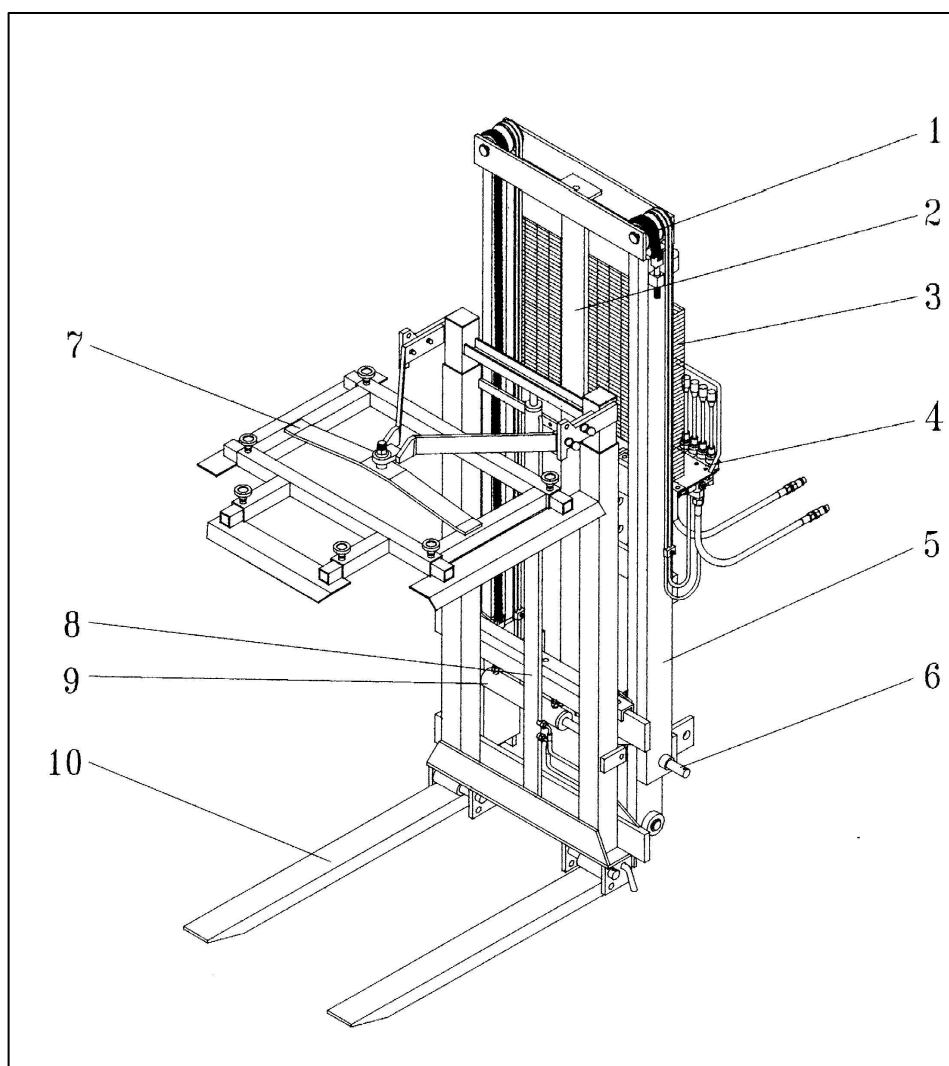
- ❖ The machines are subject to constant updating to increase efficiency and reliability. The manual reflects the prevailing state of technology at the time the machine was put on the market and is an integral part of it. The manufacturer is at the disposal of his customers to provide them with additional information and consider any suggestions for improvement in order to make this manual as helpful as possible with regards to the uses for which it was prepared.
- ❖ Eventual modifications, adjustments, etc. to machines produced after the model to which this manual relates do not place the manufacturer under any obligation with regard to machines supplied prior to this, nor does it render such machines and their manuals lacking or inadequate.

1.5 Illustrations - Diagrams

The diagrams and illustrations of mechanical parts shown in the manual are sometimes simplified.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

1.6 Overview of the machine and Terminology of main components (Fig.1)



1 CHAINS

2 ELEVATION HYDRAULIC CYLINDER

3 OPERATOR SCREEN GRID

4 STANDARD LEVER DISTRIBUTOR

5 MASTS

6 LIFT COUPLING PINS

7 FASTENER(on request)

8 FASTENER DEVICE HYDRAULIC CYLINDER (on request)

9 TRANSFER HYDRAULIC CYLINDER

10 RECLINING LOADING FORKS

TECNOAGRI

1.7 Manufacturer

MANUFACTURER

TECNOAGRI srl

Via Marconi 49
48017 Conselice (RA) ITALY
Ph. +39 0545 85023
Fax +39 0545 85123
Email: tecnoagri@tecnoagri.it



Indicate the type of machine and registration number every time you ask for assistance or technical help.

TECNOAGRI

2. TRANSPORT AND INSTALLATION

2.1 Delivery, transport and packaging

- ❖ Transport of the machines and their parts must be carried out with care and are the responsibility of the purchaser. It must be carried out by qualified movers who can guarantee the proper handling of the material being moved. **TECNOAGRI SRL** assumes no responsibility in the case of transportation being carried out by the purchaser or by movers chosen by him.
- ❖ Check the machine visually before moving it in order to be able to ascertain its condition should breakage or damage occur during transit.
- ❖ The machine and its accessories, properly kept, can be stored for a period of approximately 2 years in a covered environment in which the temperature is between -15°C and + 60°C with a humidity level not higher than 80%. For different environmental conditions, appropriate packaging will be required.

2.2 Movement, lifting and unloading

- ❖ Personnel who undertake the transport of the machine must be capable of carrying out such tasks and of avoiding incorrect operations which could result in damage to the machine during the subsequent transportation.
- ❖ Verify on the packing list, or the delivery note of supplied documentation (including the installation, use and maintenance manual).

2.2.1 Lifting points and methods



Before undertaking the movement of the machine and accessories, ensure that the instructions for use being followed correspond to the machine intended to be used.

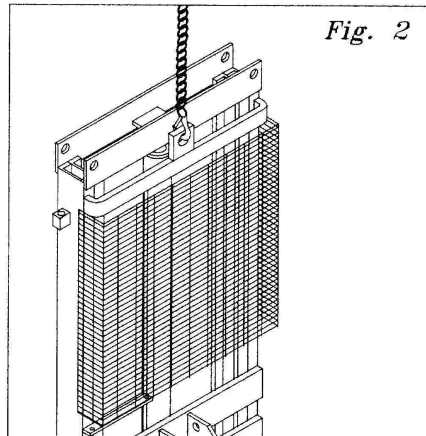
- ❖ Identify the lifting points of each item, as indicated by the following symbol:



- ❖ Prepare a properly defined flat paved area on which to unload the machine.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

- ❖ Have ready the necessary equipment for the unloading and movement of the machine and/or its parts, bearing in mind the requirements of each part or component (weight, dimension, lifting point).
- ❖ Lifting should be carried out taking into consideration the dimensions and the weight.
- ❖ The weight is indicated on the “CE” label
- ❖ Lifting by slings may be done with chains, bands or ropes, all of which must be suited to



the load being moved.

Fig. 2 Gripping and lifting mode

To lift the machine, proceed in the following manner:

- Lift the machine with slings of a suitable length, applied to the lifting points indicated.
- Using appropriate equipment, lift the load.
- Carry out the first lifting movement very slowly to ensure the load is properly balanced.
- Move the load to the area set aside to receive it, taking care to not allow swinging during the unloading.
- Gently lower the load at the place in which it is to be installed.



- **The security margins currently in force under law must be taken into consideration.**
- **Never use lifting equipment which does not comply with security standards.**



TECNOAGRI is not responsible for eventual harm or damage to people or goods brought about as a result of incorrect moving of the loads carried out by incompetent personnel and/or with inappropriate lifting equipment.

3 ENVIRONMENTAL OPERATING CONDITIONS

3.1 Visibility

The machine should be used in the daytime in conditions of good visibility and light. In particular the operator's working position must ensure good visibility in relation to the use the machine is intended for.

3.2 Ground

It is essential that the work surface is appropriate in particular as regards the nature of the ground which must not be too rough (holes, depressions, etc.).

❖ Never work on slopes or embankments as this will jeopardise the stability of the machine.

3.3 Noise

Not having a motor, the only noise of the elevator is the flow of oil and the mechanical movements of the equipment while operating.

THE ACOUSTIC PRESSURE LEVEL IS BELOW 70 Db(A)

3.4 Disposal

The disposal of metals, plastic and rubber materials and of old hydraulic oil must be done by authorised companies, in accordance with current regulations in force.

Part B – SAFETY RULES AND ACCIDENT PREVENTION

4. GENERAL SAFETY RULES

- ❖ The machine has been designed and built in line with the latest technology and may be used with every confidence as to its safety.
- ❖ The instructions in this manual are those deemed necessary by **TECNOAGRI** company. That does not exclude the possibility that there may be more convenient and equally safe ways to start, use, maintain and repair the equipment, having regard to the means available to the purchaser.
- ❖ Danger to those in charge of operating the equipment can only be eliminated if the machine is put into operation and used correctly according to the instructions contained in this technical manual. Such instructions are to be observed and carried out only by authorised people who have been properly trained and have sufficient technical knowledge.
- ❖ If the procedures for working safely and avoiding damage to the machine have not been properly understood or if there are any doubts about them, contact **TECNOAGRI** or your local dealer.

Personnel in charge of machine operations are responsible for the following operations:




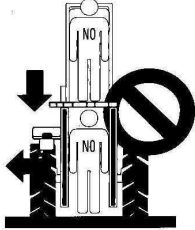
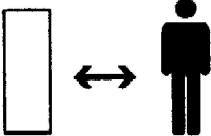
- ❖ Putting the machine into use or, however, its operation;
- ❖ Effecting various types of work on the equipment in such a way as the maintenance, control and repair of any of its parts require before starting work, during operation and also when work undertaken has come to a stop.
- ❖ Personnel must above all be aware of both the potential dangers involved in his work and also of the functions and proper use of the safety systems the machine is provided with.

Clothing and personal protection







- ❖ Do not wear bulky or loose-fitting clothing, watches or rings. Do not approach moving parts with loose long hair which could become entangled in moving parts and cause serious harm.
- ❖ Do not wear clothing stained with oil or petrol as they are inflammable
- ❖ Always wear personal protective items such as overalls, gloves, safety shoes, hard hat, and, during maintenance work, safety goggles.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

4.1 Warning Signs

SIGN	MEANING
<p>GENERAL DANGER</p> 	<p>Warning of general danger (followed by an indication of the type of danger)</p>
<p>DANGER OF HAND OR FOOT CRUSHING</p> 	<p>Warning of danger to hands or feet by crushing caused by moving surfaces or mechanical parts</p>
<p>DO NOT REMOVE PROTECTION</p> 	<p>Safety devices must not be removed while the machine is in operation.</p>
<p>DO NOT GET ON THE FORKS NOR STAND UNDER THE FORKS</p> 	<p>It is absolutely forbidden to get on the forks and/or being lifted or carried by the HOIST. It is absolutely forbidden to stand under the hoisted forks of the lift truck</p>
<p>DO NOT WALK NEAR OR STAND CLOSE TO THE BACKHOE WHILST IN USE</p> 	<p>It is absolutely forbidden to walk near or stand close to the elevator</p>


OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual


CONSULT THE MANUAL 	Whenever this warning sign appears either before or included in any directions (instructions, fine tuning, maintenance, etc.), consult the SAFETY MANUAL .
GLOVES MUST BE WORN 	Protective gloves must be worn.
GOGGLES MUST BE WORN 	Face protection must be worn (either goggles or mask).
HARD HAT MUST BE WORN 	A hard hat is obligatory
PROTECTIVE SHOES MUST BE WORN 	Protective, anti-slip footwear must be worn.
WORK CLOTHES MUST BE WORN 	Work overalls must be worn when carrying out maintenance operations

5. QUALIFICATIONS OF THE OPERATOR AND OPERATING RULES


5.1 Instructions for the Buyer and the Operator


- ❖ Before starting any operations using the machine, carry out the following operations:
 - check the condition of the machine visually
 - carry out all preliminary checks as described in paragraph 5.2 “WHAT TO DO ALWAYS”
 - Carefully read and comply with what is written in paragraph 5.3 “WHAT NEVER TO DO”

	<ul style="list-style-type: none">• The machine must be operated by qualified personnel who have read and understood the instructions given in the manual.• In the event of serious or unrecognisable irregularities, stop the machine and await the assistance of qualified personnel.• Ask for help from the Technical Service Centre
---	--

	<p>THE OPERATOR WHO USES THE EQUIPMENT MUST BE COMPETENT AND FAMILIAR WITH THE USE OF AGRICULTURAL MACHINES, MUST HAVE STUDIED THE MANUAL, THE GRAPHICS, THE INSTRUCTIONS AND THE WARNING LABELS BEFORE UNDERTAKING ANY KIND OF OPERATION. ADDITIONALLY, HE MUST BE A RESPONSIBLE PERSON WITH A GOOD SAFETY SENSE - BOTH REGARDING HIMSELF AND OTHERS.</p>
--	---

	<p>VERIFY AT LEAST ONCE A DAY THAT THE OPERATOR IS FOLLOWING ALL THE SAFETY AND ACCIDENT PREVENTION RULES AS LAID OUT IN THIS MANUAL AND THE SAFETY WARNING SIGNS ON THE MACHINE</p>
---	---

	<p>DO NOT ALLOW THE MACHINE TO BE USED BY CHILDREN OR BY PEOPLE WHO ARE NOT FAMILIAR WITH IT OR THE HARM AND DANGERS IT CAN CAUSE</p>
---	--

	<p>IF IN THE COURSE OF MANOEUVRES USE IS MADE OF SIGNALLING BY ANOTHER PERSON, MAKE SURE YOU HAVE REACHED AN UNDERSTANDING REGARDING THE SIGNALS TO BE USED. DO NOT ALLOW SIGNALLING TO BE GIVEN BY MORE THAN ONE PERSON: SUCH ACTION COULD CAUSE CONFUSION AND PANIC TO THE OPERATOR.</p>
---	---

	<p>DO NOT ALLOW ANYTHING TO BE THROWN AT THE OPERATOR</p>
---	--



It is obligatory for the purchaser to provide adequate signalling and warning systems, or if necessary, isolation of the danger zones to forbid, or limit access to them by non-qualified people or strangers and/or all people not working in areas where the machine is in use, as stated by current regulations.

❖ Operator

- An operator is defined as a person who, when required, performs any of the following:
 - transport and movement of the machine parts
 - starting and usage
 - cleaning, maintenance and repairs
 - disassembly, dismantling, scrapping

- The operator must be suitable for the job and physically and mentally able to handle the requirements demanded by the machine in its intended use
- The operator in charge of the machine must not allow anyone near it whilst in operation and must prevent its use by strangers, especially minors.
- While manoeuvring the operator must pay careful attention to his position, trying to foresee and prevent any possible fall or dangerous movement of the load and of the gripping parts.
- Neither before nor during work may the operator consume alcohol, or take any medication or other substances which could affect his mental or physical capabilities.
- He must ensure that the vehicle on which the equipment is mounted never runs out of fuel whilst in operation to make sure that it does not stop suddenly during a critical manoeuvre.
- He must follow the instructions given to obtain the best results, the least fuel consumption and the highest levels of safety possible both for himself and for others in using the machine. In particular, he must scrupulously observe the warnings given in this manual during all stage of work.



OBSERVE THE TRAFFIC LAWS. MAKE SURE YOU COMPLY WITH THE REGULATIONS FOR TRAVELLING ON PUBLIC ROADS IN FORCE IN THE COUNTRY WHERE THE MACHINE IS BEING USED.

5.2 What to do always !

- ❖ **ALWAYS** follow the advice and instructions given in the manuals for installation and use and ensure that the components and parts of the machine are intact
- ❖ **ALWAYS** observe the instructions and warnings given and the signs on the machine and in the operating areas.
- ❖ **ALWAYS** verify the capabilities of the machine in relation to the task it is going to perform (duration of the job)
- ❖ **ALWAYS** check the structural soundness of the machine and its component parts.
- ❖ **ALWAYS** make sure that working areas are free of obstacles and people before undertaking any manoeuvre.
- ❖ **ALWAYS** check the adequacy of the condition of the machine (cleanliness, lubrication) and of its maintenance and that of its main components (hydraulic tubes, chains, wheels, pulleys, limit switch, levers, guide rollers, etc.)
- ❖ **ALWAYS** verify that all movements both of the machine itself and also of its main components are synchronous.
- ❖ **ALWAYS** make sure that the sliding trucks and moveable parts are not damaged and that all of the mechanisms are in perfect order.
- ❖ **ALWAYS** before starting operations, give acoustic and visual signals to personnel working in the area that operations are about to begin.
- ❖ **ALWAYS** work under the best lighting conditions in the area and within the working range of the machine.
- ❖ **ALWAYS**, in carrying out the various movements avoid as much as possible control pulses in rapid sequence.
- ❖ **ALWAYS**, when work is over, take the machine and moveable components to its designated parking, taking care to position it in such a manner as not to cause an accident
- ❖ **ALWAYS**, before leaving the manoeuvring area, make sure the breaks are applied and remove the ignition key from the dashboard of the machine on which the equipment is attached.
- ❖ **ALWAYS**, for all operations use proper working clothes and/or suitable safety apparel (shoes, gloves, etc.), in accordance with the safety standards in force in the working area.
- ❖ **ALWAYS** report any eventual operational irregularities (faulty performance, suspected breakage, incorrect movements or unusual noises) to those in charge and put the machine out of service.
- ❖ **ALWAYS** make sure the tractor is designed to have equipment mounted onto it or it is permitted by consulting the tractor's operation manual or by asking its manufacturer.

5.3 What never to do !

❖ Use of the machine for unauthorised operations, its improper use and lack of maintenance **can constitute serious hazards for personal safety** and cause damage to the working area as well as compromising the inherent safety of the machine. The actions described below, which obviously cannot cover the entire range of potentially incorrect use of the machine, embrace nonetheless those reasonably deemed most foreseeable, and are **to be considered absolutely forbidden**:

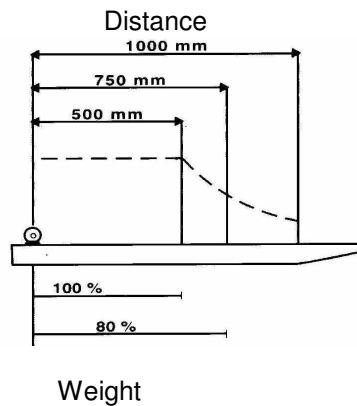
- ❖ **NEVER** use the machine for transporting people.
- ❖ **NEVER** operate while there are people exposed within the danger area of the machine.
- ❖ **NEVER** allow the machine to be used by non-qualified personnel nor by minors.
- ❖ **NEVER** use the machine if you are not physically or mentally fit.
- ❖ **NEVER** work unless you are adequately and suitably dressed in protective clothing.
- ❖ **NEVER** work without paying careful attention to manoeuvres.
- ❖ **NEVER** exceed the intended capabilities of the machine.
- ❖ **NEVER** handle any unbalanced material or whose stability has not been previously checked.
- ❖ **NEVER** use the machine or its accessories for haulage or dragging.
- ❖ **NEVER** run into load-bearing structures, other machines or installations.
- ❖ **NEVER** operate with two movements at the same time.
- ❖ **NEVER** use the machine or carry out a maintenance operation on it in conditions of insufficient illumination and/or bad visibility.
- ❖ **NEVER**, during operations, make abrupt inversions.
- ❖ **NEVER** modify the functional characteristics of the machine and/or its components.
- ❖ **NEVER** modify or adjust the settings of the security devices and/or allow the machine to be tampered with.
- ❖ **NEVER** carry out temporary repairs or restoration works which do not conform to the instructions.
- ❖ **NEVER** use other than original spare parts or parts which have not been recommended by the manufacturer.
- ❖ **NEVER** entrust repair and maintenance work to personnel who are not qualified or trained.
- ❖ **NEVER** abandon the machine without first implementing the safety procedures.
- ❖ **NEVER** operate the tractor lift to increase the elevation height.
- ❖ **NEVER** apply the elevator to tractors of an insufficient weight.
- ❖ **NEVER** handle any material in the event the suitable trailing tools are not available.
- ❖ **NEVER** hang swaying loads on the forks nor on the interchangeable trailing tools.
- ❖ **NEVER** carry out routine maintenance work, inspections or repairs without having put the machine out of service and started the procedures required.
- ❖ **NEVER** use the machine if not in complete compliance with all its operational functions.
- ❖ **NEVER**, during maintenance:
 - use inappropriate devices
 - lean ladders to the moveable elements, handling components, loads.
 - take action prior to removing the load

5.4 Warning or danger plates represented by pictograms and applied to the machine

Carefully FOLLOW the instructions.

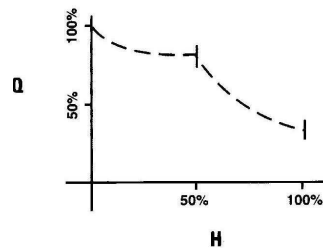
For further information on their meanings, see paragraph 4.1 “Signs” on pages 14 and 15

FORKS LOAD CURVE



CAPACITY LOAD DIAGRAM – ELEVATION HEIGHT

Capacity load

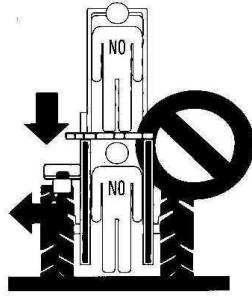


Lifting height

THE CAPACITY LOAD MUST BE REDUCED DEPENDING ON THE LIFTING HEIGHT

THE MAXIMUM CAPACITY LOAD IS ALWAYS TO BE INTENDED AT ONE METER HIGH ON THE GROUND AND THE WEIGHT EVENLY DISTRIBUTED ALONG THE WHOLE LENGTH OF THE TWO FORKS;

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual



**DO NOT LIFT OR CARRY PEOPLE ON THE FORKS.
DO NOT WALK OR STAND UNDER THE ELEVATOR FORKS**

Part C – STARTING

6. THE FUNCTIONS OF THE MACHINE

6.1 Intended use - Projected use - End use

Tecnoagri farm elevators are specially designed for tractors with three-point linkage, they are devised for handling loads, that is lifting, lowering and carrying palletised loads. It is possible to handle different loads by installing the accessories and pieces of equipment listed below and by following the instructions contained in the relevant operating manuals.

6.2 Materials and products that are allowed to be handled.

All of the materials and products must have shapes and dimensions which are suitable to the characteristics of the place where loads are to be handled as well as to the performance of the machine employed.

The materials and products must not change their shapes nor their conditions while being handled.

6.3 Materials and products that are not allowed to be handled.

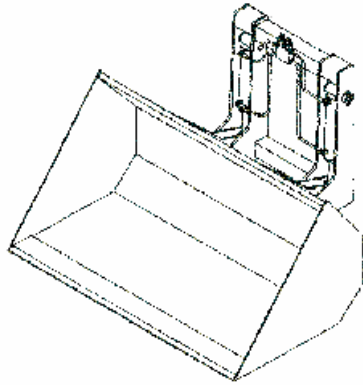
It is strictly forbidden to handle materials and products that are classified as dangerous because of their chemical and physical characteristics (for example, inflammable materials, explosives, etc.).

6.4 Approved accessories - Compatible interchangeable parts

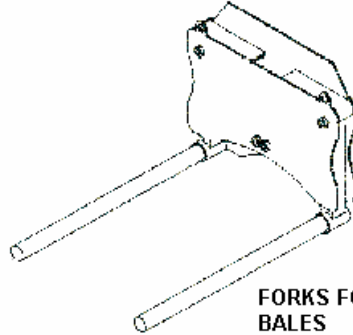
All checking operations and adjusting of the equipment, and the mounting and dismantling of the interchangeable accessories allowed **MUST BE CARRIED OUT BY THE OPERATOR HIMSELF**. To carry out these operations, he must leave his command post after having taken all the necessary precautions for the prevention of accidents, and after making sure that the machine cannot be moved during his absence from the control post.

All of the accessories allowed along with all of the suitable interchangeable pieces of equipment are shown on the next page. To learn more or to request the suitable interchangeable pieces of equipment, contact your local retailer or TECNOAGRI

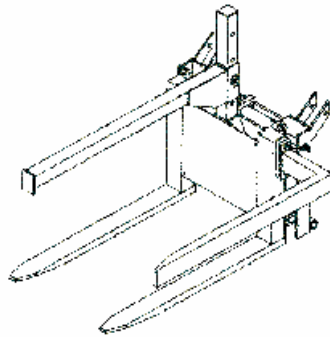
OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual



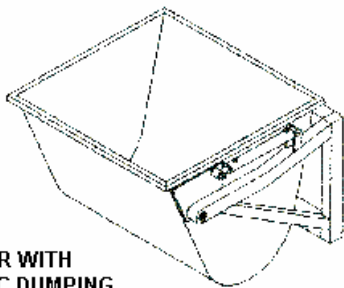
BUCKET



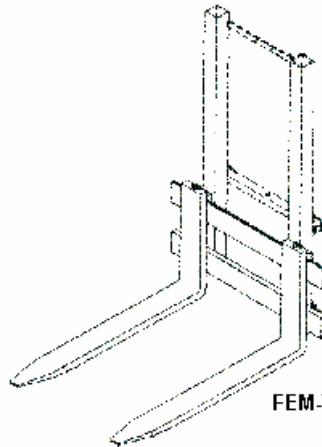
**FORKS FOR
BALES**



DUMPER FOR BINS



**CONTAINER WITH
HYDRAULIC DUMPING
SYSTEM**



FEM-TYPE FORKS

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

6.5 Technical characteristics

STANDARD MODELS	Capacity load Max. Kg.	Max. Elevation	Mast Width	Side Width	Traverse	Coupling Height from the ground E mm.	Gripper Min. H. Max. H.		Overall dimensions of the mast installed on the tractor G mm.
		A mm.	B mm.	C mm.	D mm.		F Mm.		
ECO 1515	1500	1500	450	840	100+100	450	1100	2000	1530
ECO 1815	1500	1800	450	840	100+100	450	1100	2000	1630
ECO 2515	1500	2500	700	840	100+100	500	1400	2600	2060
ECO 3215	1500	3200	700	840	100+100	500	1400	2600	2410
ECO 3815	1500	3800	700	840	100+100	500	1400	2600	2710
SUPER 2515	1500	2500	730	840	100+100	400	1400	2600	2010
SUPER 3215	1500	3200	730	840	100+100	400	1400	2600	2360
SUPER 3220	2000	3200	730	840	100+100	400	1400	2600	2360
SUPER 3620 VT	2000	3600	710	840	100+100	500	1400	2600	2830
SUPER 4020 VT	2000	4000	710	840	100+100	500	1400	2600	3030
TRIPLEX 2510	1000	2500	540	840	100+100	350	1100	2000	1510
TRIPLEX 2516	1600	2500	790	840	100+100	350	1100	2000	1510
TRIPLEX 2516 VT	1600	2500	780	840	100+100	350	1000	1900	1530
TRIPLEX 3016	1600	3000	790	840	100+100	350	1100	2000	1740
TRIPLEX 3316	1600	3300	790	840	100+100	350	1400	2600	1840
TRIPLEX 3616	1600	3600	790	840	100+100	350	1400	2600	1940

7. CONDITIONS FOR USE

The ELEVATOR is designed to be attached to the link of the tractor by three point linkage.

IMPORTANT



- MAKE SURE THE TRACTOR IS DESIGNED TO HAVE EQUIPMENT ATTACHED TO IT AND THAT SUCH ATTACHMENTS ARE PERMITTED, BY CONSULTING THE TRACTOR'S OPERATING MANUAL OR BY ASKING ITS MANUFACTURER.
- THE ATTACHMENT AND USE OF THE ELEVATOR ONTO THE TRACTOR MEAN A VARIATION OF THE WEIGHT ON ITS AXLES AND THEREFORE A CHANGE IN BALANCE AND A DISPLACEMENT OF THE TRACTOR'S CENTRE OF GRAVITY.
- TO MAINTAIN THE TRACTOR'S STABILITY, APPLY ADDITIONAL COUNTER-WEIGHTS TO COUNTER BALANCE.



THE ELEVATOR MUST BE INSTALLED ON A TRACTOR EQUIPPED WITH SUITABLE PROTECTIVE ROOF OR CABIN APPROVED IN COMPLIANCE WITH THE LAW IN FORCE.



THE TASK OF PREPARING THE MACHINE FOR USE IS A DELICATE AND IMPORTANT ONE. IF CARRIED OUT BADLY, THE RISK OF ACCIDENTS FOR THE PERSONNEL INVOLVED INCREASES AND SAFETY IS COMPROMISED BOTH DURING THE STARTING STAGE AND ALSO DURING SUBSEQUENT USE.

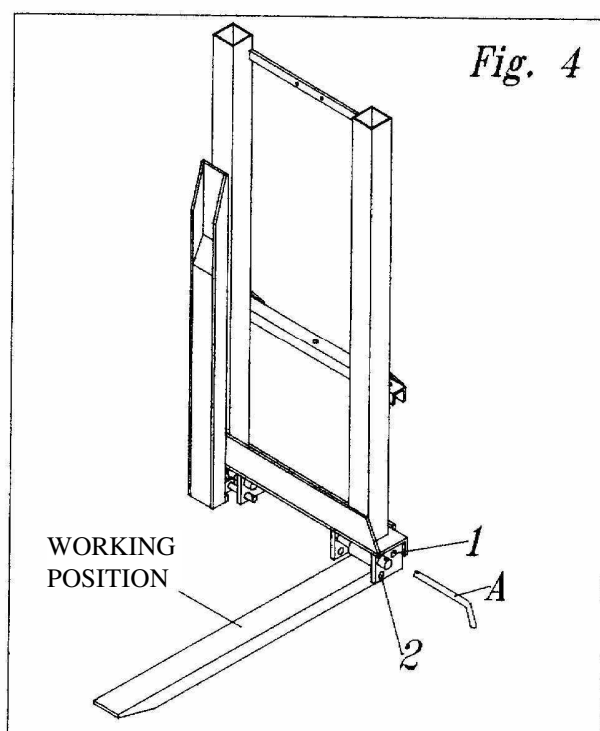
THEREFORE BOTH TASKS MUST BE CARRIED OUT BY WORKERS WHO ARE PROFESSIONALLY QUALIFIED, WHO ARE COMPETENT AND HAVE AN UNDERSTANDING OF MECHANICAL MATTERS. THEIR TOOLS AND PERSONAL SAFETY EQUIPMENT MUST CONFORM TO THE LEGISLATIVE RULES IN FORCE REGARDING WORK SAFETY AND ACCIDENT PREVENTION, AND THEY MUST HAVE READ CAREFULLY THIS MANUAL.

8. ATTACHMENT TO THE TRACTOR

1) Stand the elevator upright on a level surface in the event it is delivered otherwise for packaging reasons or transport special needs.

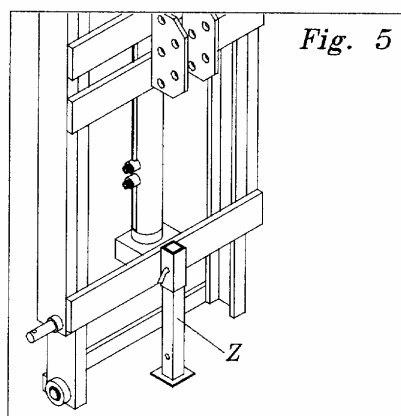
2) In order to stand the elevator upright you must:

- To begin with, note the instructions on Page. 10 in paragraph 2.2. "MOVEMENT, LIFTING AND UNLOADING" and following pages.
- Unlock the loading forks by extracting the pin A from the hole 1 (Fig. 4) and let them slide forward parallel to the ground (working position). Lock them in this position by inserting the pin A into the hole 2 (Fig. 4); fix the pin with a safety split pin.




OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

- Adjust the foot Z (Fig. 5) and lock it by means of a pin and safety split pin.

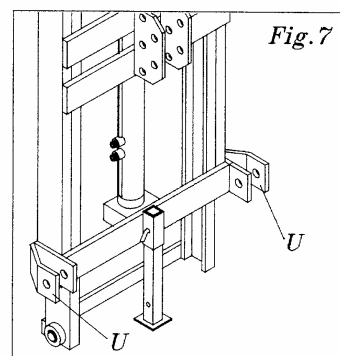
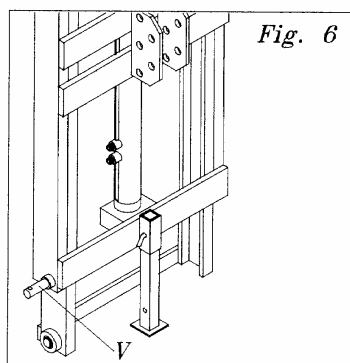


- 3) Slowly bring the tractor towards the elevator.


	NEVER STAND BETWEEN THE TRACTOR AND THE ELEVATOR EVEN WHEN THEY ARE BEING COUPLED
---	--

- 4) Lower the lift arms in order to allow the lift ball joints to be inserted into the pins V (Fig. 6) that can be found sideways in the lower part of the elevator, then fix them with a safety split pin.

For some models it will be possible to connect the lift by introducing the arms ball joints into the lugs U (Fig. 7) on the elevator and then fixing them with the pin provided and a safety split pin.



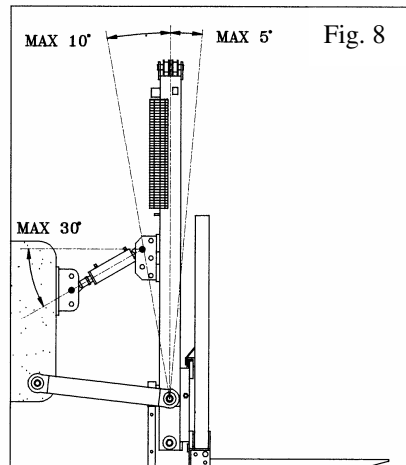
To prevent the elevator from swaying sideways

	THE ARMS OF THE LIFTING GEAR MUST BE LOCKED IN PLACE: use the equipment (braces and chains) made for this purpose
---	--


OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

5) The swing cylinder must be fixed to the upper third point of the tractor by means of a suitable safety pin, which normally comes with the tractor. Adjust the swing cylinder into the holes in the elevator and on the upper third point of the tractor until you get the elevator MAXIMUM inclination towards the operator to be 10° as well as a MAXIMUM inclination towards the opposite side to be 5° (Fig. 8).

	THE SWING CYLINDER CASTER ANGLE MUST NOT EXCEED 30°
---	--



Fix the elevator to the tractor through the safety cord or chain provided by fixing it to the upper third point of the tractor with a safety pin (Fig. 9) in order to prevent the elevator from falling off in the event that the swing cylinder accidentally breaks.

	WHEN THE SWING CYLINDER IS COMPLETELY OPEN THE SAFETY CORD OR CHAIN MUST NOT BE STRETCHED; A FURTHER 2-3 CM MAXIMUM INCLINATION MUST BE ALLOWED.
---	---

6) By means of the tractor elevator lift the elevator by a few centimetres and place the foot at the maximum height possible.

7) Adjust the arms of the tractor elevator until the elevator reaches the correct height from the ground as shown in Table E on page 24.

8)

IMPORTANT

	LOCK THE STARTING LEVER OF THE ELEVATOR TO AVOID ACCIDENTAL STARTING.
---	--

YOU MUST STRICTLY FOLLOW THIS RULE IN ORDER TO PREVENT THE ELEVATOR OVERTURNING ONTO THE TRACTOR PROTECTIVE ROOF OR CABIN.

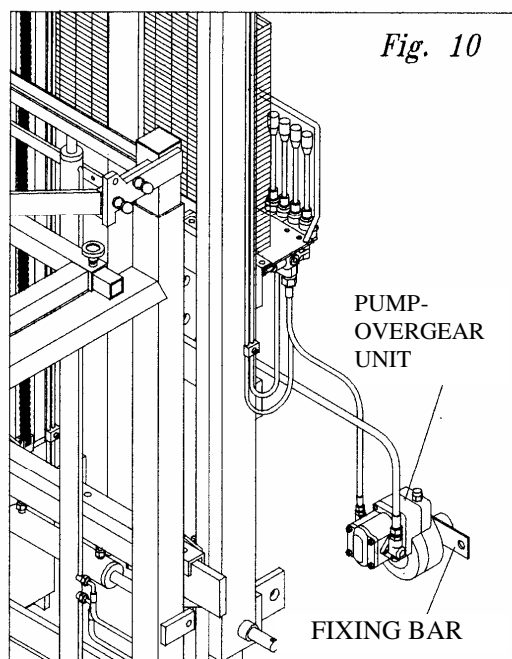
TECNOGRRI

8.1 Hydraulic connections between the ELEVATOR and the tractor

The elevator can function by means of two systems of hydraulic connection to the tractor.

- a) Individual functioning by means of a pump – overgear unit complete with oil tank specially provided by Tecnoagri (Fig. 10)
- b) Operation by means of the hydraulic system of the tractor

A) Independent operation by means of a pump assembly and multiplier and oil tank



INSTALLATION

- 1- Fill the tank with hydraulic oil ISO 68 or check the oil level if the tank has already been filled.
- 2- Attach the pump assembly and multiplier to the tractor's power take-off



FASTEN THE PUMP ASSEMBLY AND MULTIPLIER TO A FIRM MOUNTING POINT BY MEANS OF THE BRACKET TO PREVENT IT ROTATING AND COMING OUT OF THE POWER TAKE-OFF DURING OPERATION

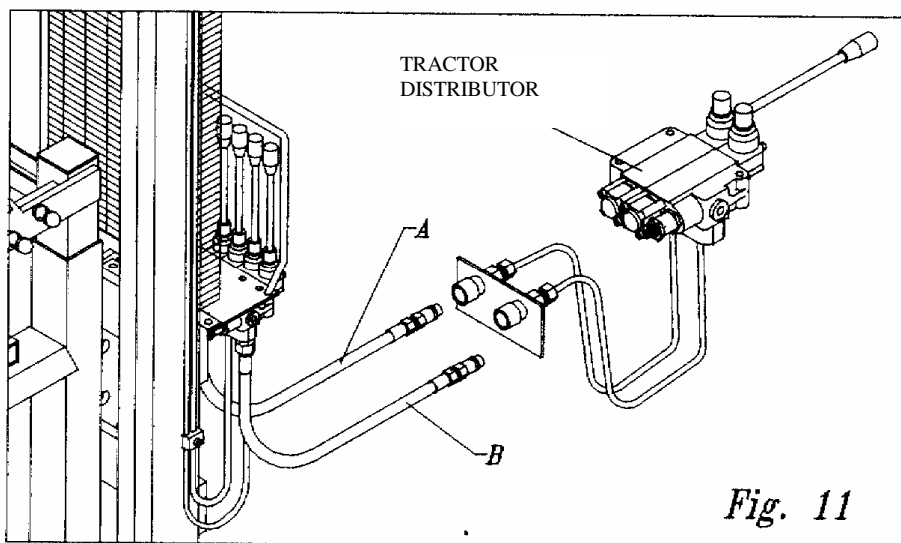


MAKE SURE THAT THE TRACTOR'S POWER TAKE-OFF IS SET TO A MAXIMUM SPEED OF 540 rpm



DO NOT START THE TRACTOR MOTOR IF THE TANK OF THE HYDRAULIC SYSTEM IS EMPTY. SERIOUS DAMAGE COULD RESULT TO THE PUMP, OR THE ENTIRE SYSTEM.

B) Operation by means of the tractor's hydraulic system



Before making hydraulic connections, the following checks must be carried out

- Make sure that the tractor has a distributor with the ability to lock the lever.
- Make sure that the rapid cut-off couplings are clean.

After having carried out the above-mentioned checks, proceed as follows:

1) Locate the feed pipe next to the distributor's maximum pressure valve (on some distributors the direction of the oil flow is indicated by an arrow) and connect it to the tractor's fast delivery attachment.

2) Locate the discharge tube and connect it to the return-flow rapid coupling .

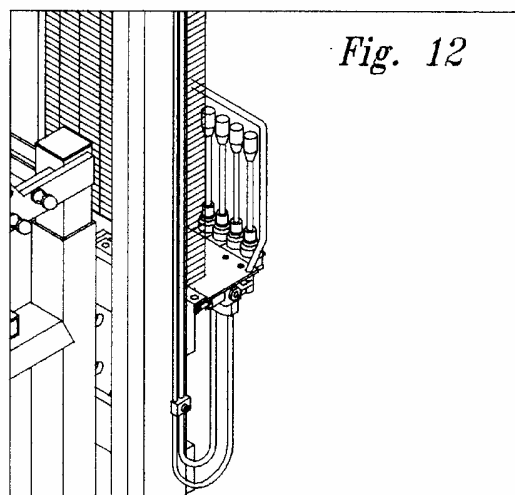
Make sure that the distributor lever is in the required position, ensuring that the direction of the flow of the oil agrees with the delivery and return selected when the tubes of the rapid coupling were connected.



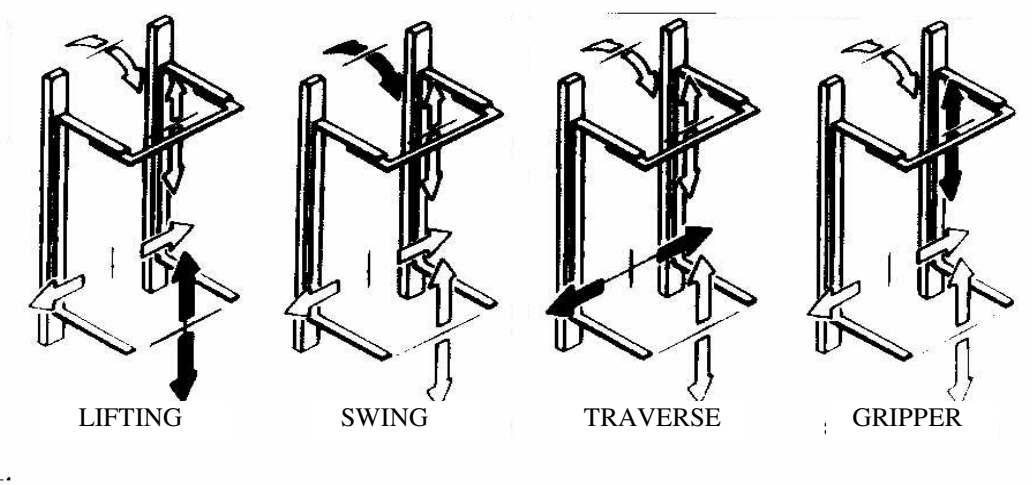
DO NOT EVER REVERSE THE FEED AND RETURN-FLOW PIPE DURING THE LINKAGE TO THE TRACTOR: THERE IS THE RISK THAT THE MACHINE DISTRIBUTOR WILL BURST.

9. INSTRUCTIONS FOR USE:

9.1 Operations with lever-controlled distributor



The distributor controlling the movements of the ELEVATOR operates as shown in the following diagram:



LIFTING

Keeps under control the forks lifting and lowering.

INCLINATION OR SWING

Keeps under control the ELEVATOR sliding backwards and forwards.

TRAVERSE

Keeps under control the fork-holder moveable frame traverse.

FASTENER OR GRIPPER

Keeps under control the load locking device lifting and lowering.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

The order in which the coupling controls function depends on the correct positioning of the hydraulic tubes.

For direct attachment (without pump-assembly multipliers) to JOHN DEERE and CASE INTERNATIONAL tractors, the distributor must have a closed circuit.



If this is not specified at the time of ordering the elevator, ask for a distributor modification kit together with relevant mounting instructions from TECNOAGRI.

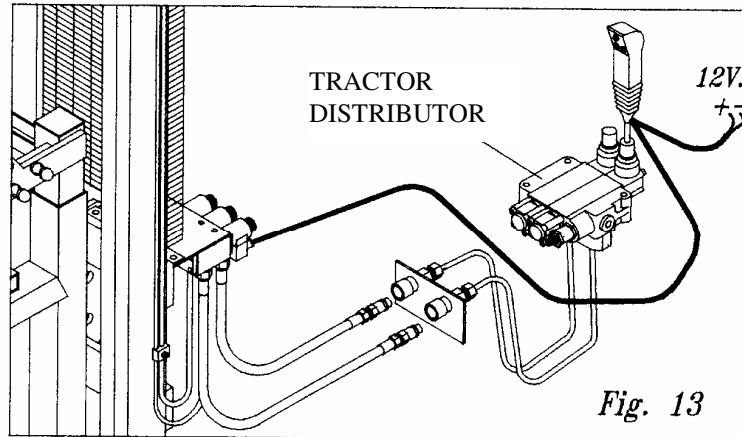


THE HYDRAULIC SYSTEM MAXIMUM PRESSURE VALVE IS CALIBRATED DURING THE TESTS AND TRIALS CARRIED OUT AT OUR WORKSHOPS: THE ADJUSTING SCREW MUST NOT BE TAMPERED WITH.

- We suggest carrying out one movement at a time since this way any manoeuvre can be started, stopped as well as constantly followed by the operator who shall also take care not to continuously carry out repeated insertions and disinsertions even in the event of short travels.
- It is not true, in fact, that manoeuvres which are activated with “slight jerks” are always helpful. Only by exactly defining the manoeuvre starting and ending times is one able to spare time as well as reducing energy consumption.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

9.2 Functioning with single-lever device installed on the tractor distributor.



As an alternative to the standard lever distributor one can make the TECNOAGRI farm elevators function by using an electric single-lever device to be installed on the double-acting distributor lever of the tractor one wants to use to make the elevator work.

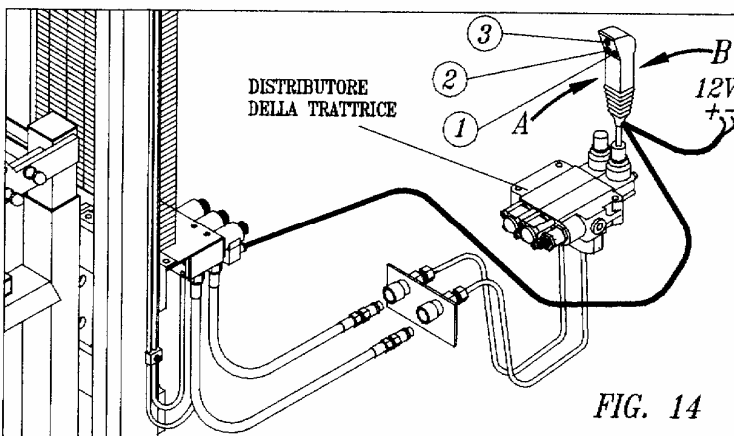
In order to do that make sure

- 1) - that the tractor is equipped with a double-acting distributor;
- 2) - that the hydraulic connection is by means of the tractor hydraulic system and not through an individual working system complete with pump-overgear unit;
- 3) - that the elevator is equipped with a special solenoid valve distributor in place of a standard lever distributor.
- 4) In order to feed the device just connect it as shown in Fig. 13.

A single-lever control makes all of the elevator movements possible by means of a single lever by selecting the very movements with a button except for the elevation function which is enabled by acting on the single lever without pressing any button.

The **ELEVATION** function, which keeps under control the forks lifting and lowering, is enabled by acting on the single lever in the A-B direction as shown in Fig. 14 without pressing any button.

In order to carry out the operations listed below one must press the button according to the following chart and act on the single lever at the same time.



- 1) **SWING**
Backwards and forwards movements of the elevator
- 2) **TRAVERSE**
Sideways movement
- 3) **GRIPPER**
Keeps under control the gripper lifting and lowering

TECNOAGRI

9.2.a Functioning with electro-hydraulic distributor with control box

FIG. 14-1

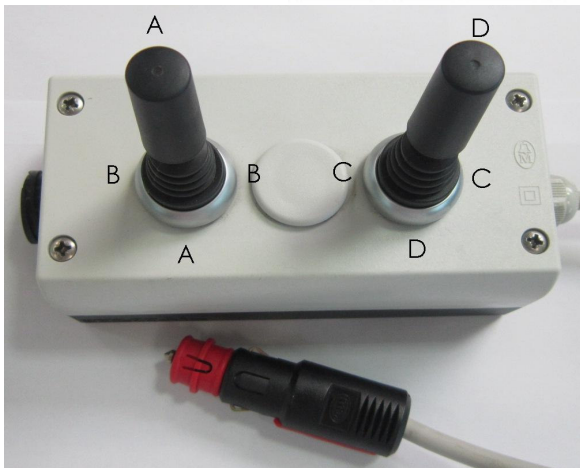
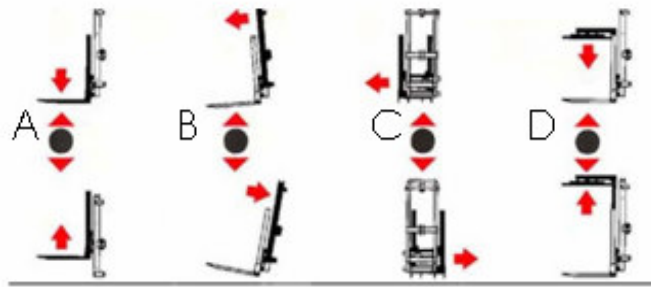


FIG. 14-2

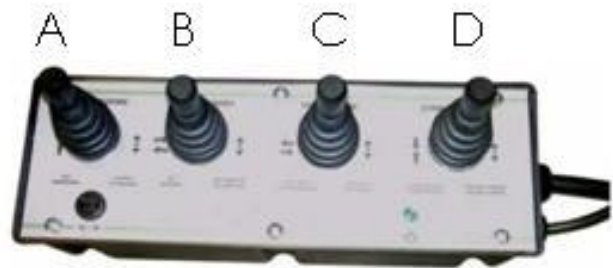


FIG. 14-3

(Fig. 14-2 / 14-3)

Leva A Descent or lift of the forks

Leva B Backward and forward tilt of the forklift

Leva C Side shift on the left or on the right (or at disposal for other uses).

Leva D Opening or closing of the load holder (or at disposal for other uses).

For direct attachment (without pump-assembly multipliers) to JOHN DEERE and CASE INTERNATIONAL tractors, the distributor must have a closed circuit.



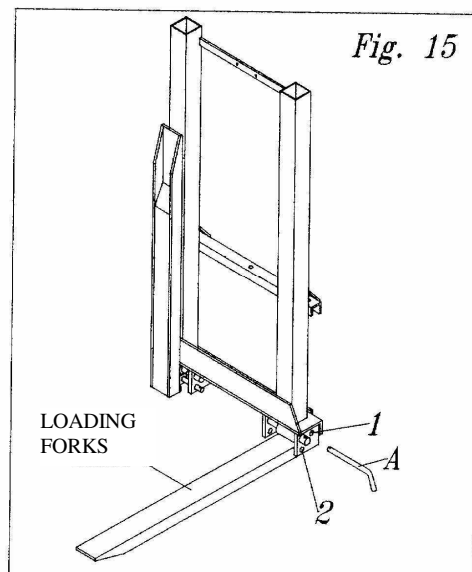
If this is not specified at the time of ordering the elevator, ask for a distributor modification kit together with relevant mounting instructions from TECNOAGRI.

9.3 Adjustment of the loading forks and fastener



All of the inspection and setting-up operations concerning the devices, width adjustment and loading forks closing, adjustment of the gripper fins or the gripper closing **MUST BE CARRIED OUT BY THE OPERATOR HIMSELF (TRACTOR DRIVER)** who shall get off the control seat in order to carry out them. He shall take the necessary precautions in order to prevent accidents, he shall also take care that no action is possible while he is away from the control seat.

9.3.1 Loading forks



It is possible to adjust the forks width so that they can adjust themselves to the load to be handled thus making the very handling operations safer.

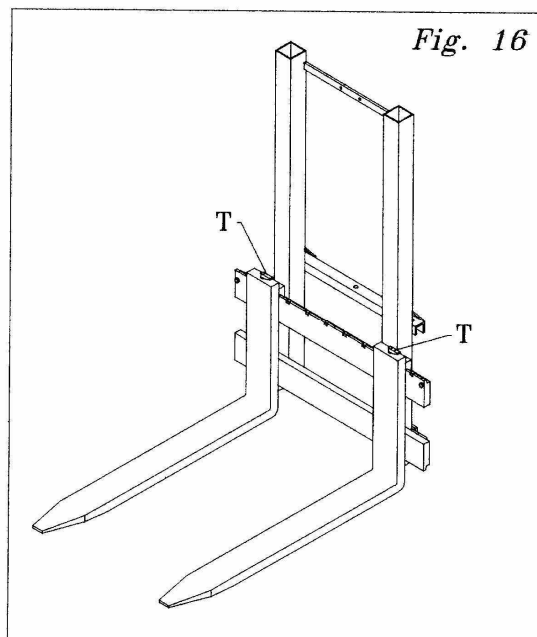
In order to adjust the forks width act as follows:

- 1) Place the loading forks at 20-25 cm from the ground
- 2) Extract the pin A from hole 1 (Fig. 15)
- 3) Tilt the fork upwards until you reach the position required, then lower it again to the working position.
- 4) Insert the pin A into hole 1 (Fig. 15) and fix it with a safety split pin.



THE LOAD CENTRE OF GRAVITY MUST BE IN A CENTRAL POSITION BETWEEN THE TWO FORKS

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual



If the ELEVATOR is equipped with FEM-type FORKS (Fig. 16) in place of reclining loading forks, act as follows in order to adjust them:

- 1) Place the FEM-type FORKS at 4-5 cm from the ground;
- 2) Unlock the backstop T;
- 3) Move the forks to the position required;
- 4) Act on the backstop T until you reach the locking position.



THE LOAD CENTRE OF GRAVITY MUST BE IN A CENTRAL POSITION BETWEEN THE TWO FORKS SO WHILE ADJUSTING MAKE SURE THAT BOTH FORKS ARE EVENLY WIDENED OR TIGHTENED IN ORDER TO MEET THE RULE DESCRIBED ABOVE.

TECNOGRRI

9.3.2 Fastener

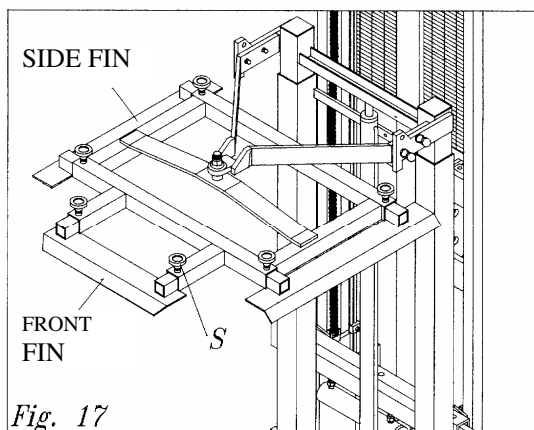


Fig. 17

On request the ELEVATOR may come with a fastener (Fig. 17)

The position of the fins as shown in Fig. 17 can be adjusted depending on the dimensions of the load to be locked.

In order to carry out the fins adjustment act as follows:

- 1) Unloose the knobs S;
Once you have unloosed them, the fins will be unlocked and free to be moved until they reach the position required.

The fins can slide backwards and forwards by simply pulling or pushing them. Check that they are placed parallel to the load edge.

- 2) Tighten the knobs S.

9.4 Working Stages







While working, which mainly consists in handling loads, the operator must take special care and strictly follow the instructions contained in this manual.

Particularly:



BEFORE CLIMBING ON BOARD THE MACHINE, WALK AROUND AND INSPECT IT. DO NOT START THE MOTOR IF THERE ARE LABELS INDICATING MALFUNCTIONS OR DANGER ATTACHED TO THE CONTROL LEVERS OR IN THE DRIVER'S CABIN

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

	WHEN TURNING THE MOTOR ON, GIVE A SHORT ACOUSTIC SIGNAL
	MAKE SURE THAT THERE IS NOBODY WITHIN THE WORKING RANGE OF THE ELEVATOR OR IN THE LINE OF MARCH OF THE TRACTOR
	NEVER EXCEED THE MAXIMUM CAPACITY LOAD SHOWN ON THE ELEVATOR PLATES AND/OR ON THE TRAILING TOOLS PLATES
	TAKE INTO ACCOUNT THE RATIO BETWEEN CAPACITY LOAD AND ELEVATION HEIGHT AS SHOWN ON PAGE 20 OF THIS MANUAL AS WELL AS ON THE PICTOGRAM APPLIED ON THE ELEVATOR MAST
	NEVER GET ON THE ELEVATOR FORKS, NEVER STAND NOR WALK UNDER THEM OR WITHIN THE WORKING RANGE OF THE HOIST
	DO NOT OPERATE CLOSE TO POWER SUPPLY LINES AND OBSERVE MINIMUM DISTANCES FROM THE OVERHEAD CONDUITS AS PRESCRIBED BY THE REGULATING AUTHORITIES AND/OR BY THE ACCIDENT PREVENTION LAWS IN FORCE. ASCERTAIN FROM THE AUTHORITIES CONCERNED THE MINIMUM SAFETY DISTANCE FROM POWER LINES; THIS CAN VARY ACCORDING TO THE VOLTAGE FROM COUNTRY TO COUNTRY AND IN RELATION TO THE CLIMATE AND HUMIDITY PRESENT IN THE AIR.

During loading and unloading operations the operator must well keep in mind the following:

- Fork the load by fully insert the forks.
- In the event the elevator is equipped with a fastener because the loads to handle are unsteady on the forks, operate fastener until it leans on the load and locks it.
- Lift the loading forks by a few centimetres and if required operate the traverse device (translator) in order to centre the load with respect to the elevator.

In the event the elevator is not equipped with a translator the load must be centred while forking it by testing the load balance.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

The operator must keep manoeuvring with the tractor until the load is balanced and centred with respect to the elevator.





- Move the tractor backwards or forwards very slowly depending on the fact that loading or unloading operations are being carried out. Take care that the elevator is tilted towards the tractor.
- While travelling operate at a very low speed. Do not start or brake all of a sudden. Drive carefully when the ground surface is uneven so that the vehicle is always under control, thus preventing sudden oscillations that might cause the load to fall off.



WHILE TRAVELLING KEEP THE LOAD 20-30 CM HIGH FROM THE GROUND AND TILT THE ELEVATOR TOWARDS THE TRACTOR SO AS TO MAKE TRANSPORT OPERATIONS SAFER.

10. PRECAUTIONS

IMPORTANT

	<p>UNDER NO CIRCUMSTANCES OPERATE THE TRACTOR'S HYDRAULIC ELEVATOR WHEN THE ELEVATOR IS ATTACHED TO THE TRACTOR.</p> <p>TAKE ADEQUATE SAFETY MEASURES (locking, bracing, etc...) SO AS TO PREVENT ACCIDENTAL ACTIVATION OF THE HYDRAULIC HOIST.</p> <p>FAILURE TO COMPLY WITH THIS INSTRUCTION CAN CAUSE DANGEROUS ACCIDENTS</p>
	<p>NEVER EXCEED THE MAXIMUM CAPACITY LOAD SHOWN ON THE ELEVATOR PLATES AND/OR ON THE TRAILING TOOLS PLATES</p>
	<p>NEVER GET ON THE ELEVATOR FORKS, NEVER STAND NOR WALK UNDER THEM OR WITHIN THE WORKING RANGE OF THE HOIST</p>
	<p>WHILE TRAVELLING KEEP THE LOAD 20-30 CM HIGH. FROM THE GROUND AND TILT THE ELEVATOR TOWARDS THE TRACTOR SO AS TO MAKE TRANSPORT OPERATIONS SAFER</p>
	<p>WHEN PARKING THE TRACTOR LEAN THE ELEVATOR FORKS ON THE GROUND, TURN OFF ENGINE AND TAKE IGNITION LOCK KEY WITH YOU, INSERT FIRST GEAR AND EMERGENCY BRAKE</p>
	<p>WHEN READY TO BEGIN MAKE SURE THE EQUIPMENT IS NOT LEFT UNATTENDED</p>
	<p>IN CASE OF BREAKAGE OR DAMAGE TO THE EQUIPMENT, MAKE ABSOLUTELY SURE THAT IT IS TAKEN OUT OF SERVICE UNTIL IT HAS BEEN COMPLETELY RESTORED TO ITS PROPER WORKING ORDER</p>
	<p>DO NOT UNDERTAKE WORK ON AND/OR MAKE CHANGES TO THE EQUIPMENT WHICH INVOLVE CHANGES TO THE MACHINE ITSELF.</p>
	<p>DO NOT REMOVE THE SAFETY SIGNS FROM THE EQUIPMENT AND MAKE SURE THEY ARE ALWAYS CLEARLY VISIBLE AND LEGIBLE. SHOULD THEY BE DAMAGED, ASK TECNOAGRI SRL OR YOUR DISTRIBUTOR FOR REPLACEMENTS.</p>

TECNOAGRI

OIL-PRESSURE FARM ELEVATORS

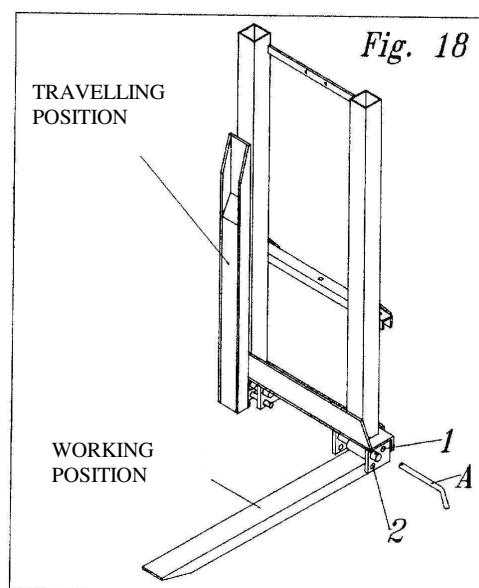
11. DRIVING ON PUBLIC ROADS



OBSERVE THE TRAFFIC LAWS. MAKE SURE YOU COMPLY WITH THE REGULATIONS FOR TRAVELLING ON PUBLIC ROADS IN FORCE IN THE COUNTRY WHERE THE MACHINE IS BEING USED.

In order to reduce the elevator overall dimensions while travelling and also to make travelling operations safer, carefully follow the instructions below:

A) If the elevator has got reclining loading forks, act as follows:

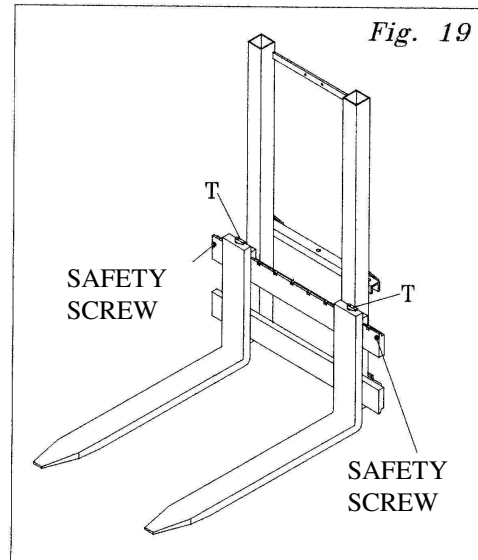


1/A Close both forks until you reach the travelling position (Fig. 18) and lock them by inserting the pin A into hole 2.

TECNOGRU

OIL-PRESSURE FARM ELEVATORS

B If the elevator has got FEM-type forks, act as follows:



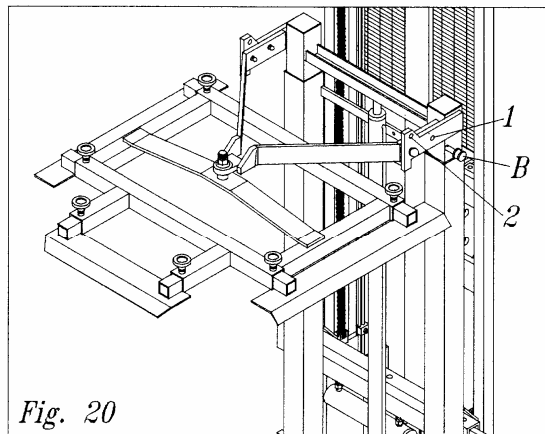
1/B Remove the forks by letting them slide sideways once you have extracted the safety screw placed in the fork-holder plate (Fig. 19).



ONCE YOU HAVE REINSTALLED THE FEM-TYPE FORKS DO NOT FORGET TO REINSERT SAFETY SCREW BY SCREWING IT TIGHT INTO THE HOLE WHERE IT WAS PRIOR TO THE FORKS REMOVING

2/AB If the elevator has got a fastener, remove the pin B from hole 1 (Fig. 20) on both sides of the fastener.

3/AB Close the fastener and lock it by inserting the pin B into hole 2 (Fig. 20) on both sides of the fastener.



TECNOAGRI
OIL-PRESSURE FARM ELEVATORS

Part D – Putting Out of Service

12. DISMANTLING FROM THE TRACTOR

Should it be required to detach the elevator from the tractor, proceed as follows:

1. Place the elevator in a vertical position with loading forks parallel to the ground.
2. Lower the forks until they reach the ground.
3. Turn off the engine, take ignition lock key with you, insert first gear and emergency brake, then get off the tractor.
4. Make sure that the pin A (Fig. 18) is inserted in hole 1.
5. Remove the pin that locks the foot (Fig. 5) and let the foot slide until it reaches the ground or the shortest distance possible from the ground. Lock the foot by inserting the pin and safety split pin.
6. Remove quick couplings or the pump – overgear unit depending on the type of functioning, that is through the tractor hydraulic system or individual unit respectively.
7. Fully lower the elevator arms and loosen the locking devices (chains and/or tie rods) to let the joints out from the pins or from the elevator lugs.
8. Remove the pins that lock the cord or safety chain as well as the tilting cylinder from the tractor upper third point in order to fully remove the elevator from the tractor.



PUT THE ELEVATOR IN A SAFE AREA WHERE IT WILL NOT FALL OR TILT OVER.



WHEN NOT IN USE PROTECT THE MACHINE FROM BAD WEATHER

13. STORAGE OF PARTS

13.1 Storing and conservation

In the event of the machine and/or its component parts being put in storage and kept for any length of time, before putting it to use, and in order to avoid damage or deterioration, proceed as follows :

- Before storing, protect the structural parts and the working surfaces with an antioxidant product.
- The equipment may be stored in locations having the following characteristics:
 - dry, covered places or at least, protected from atmospheric conditions and from corrosive agents (acid vapours, salt-laden fog, etc.).
- For storage periods longer than two years, ask the manufacturer for proper storage instructions.

13.2 Assembly after storage

Before putting machines and component parts back into service after having been stored for long periods of time, the following operations must be carried out :

❖ For the structural parts

- remove all traces of lubricants and anti-rust protection;
- clean the mating surfaces of all joints.
- repair structural damage (distorted corners, scratched surfaces, chipped paint, etc.).

❖ For the working mechanisms

- check for loss of lubricants and replace any defective washers;
- top up the oil levels;
- check that all components are bolted tightly to the main structure;
- remove all traces of lubricants and anti-rust protection;
- remove all traces of rust from sliding surfaces and from controls
- remove any water found lying in hollow parts or in working mechanisms;
- lightly grease sliding parts.

TECNOGRRI

OIL-PRESSURE FARM ELEVATORS

Part E - MAINTENANCE

14. INFORMATION

- ❖ Before mounting the machine, carry out the following operations:
 - Carefully read the technical documents;
 - Familiarise yourself with the machine's functioning;
 - Learn what protection and safety measures are available on the machine, their location and their working.

- ❖ Undertaking maintenance work may expose the workman to serious risks. Therefore the following instructions must be scrupulously followed:
 - The person who is to carry out the above mentioned operations must be authorised to do so and must have been taught how to do it, especially with regard to the operational procedures to be followed, dangerous situations which could arise, and the correct way to avoid them. People carrying out such work must, without fail, exercise extreme caution and prudence at all times.
 - If, in exceptional cases and in order to carry out specialized technical maintenance, inspection or repair work, the personnel in charge finds it necessary to completely deactivate or partially remove protective covers, it is his strict obligation that on completing of the job, **the covers be immediately replaced**. When carrying out overhauls the personnel in charge must make sure that on completion of the work, all the normal safety precautions are back in force. Upon completion of the task, the personnel in charge must also ensure that no foreign objects have been left inside the machine such as mechanical parts, tools, or equipment used in carrying out the job which could cause damage or malfunctions.
 - Before starting work, personnel in charge of maintenance, inspection and repair work must disconnect the power supply of the machine and take all the required safety measures.
 - Before starting work, the personnel in charge must first check the following:
 - The machine must be on a flat and solid surface with any attached equipment resting on the ground
 - The tractor's ignition keys must have been removed, the hand brake must have been applied and all necessary preventive measures must have been put into effect (warning signs, immobilising devices, etc.) in order to avoid the accidental starting of the machine or its parts during the operation.
 - Mechanical systems or assemblies powered by their own self-contained sources of energy, be in a non-working mode or turned off.
 - To safeguard their own safety, personnel in charge of maintenance, inspection and repair work must follow the warnings displayed on the signs.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

❖ Personnel required to drive the machine or who are in charge of maintenance must be well trained and have a sound knowledge of accident prevention regulations. Unauthorised personnel must not enter the area whilst work is in progress.

❖ The accident prevention precautions laid out in this paragraph must always be strictly observed when the equipment is in use or undergoing maintenance in order to prevent harm to the workers or damage to the machine.


❖ Such precautions are highlighted and treated in detail in the Manual, which should be consulted every time a procedure which could incur risk of damage or accidents is called for, under the headings **WARNING** and **DANGER** :

- **WARNING** instructions precede an operation which, if not properly executed, may cause damage to equipment.
- **DANGER** instructions precede an operation which, if not properly executed, may cause an accident.

14.1 Warning instructions

	During maintenance work pay attention to the following warnings !
---	--

- Before using the machine after a breakdown or malfunction, it must be carefully inspected and checked for possible damage.
- Never interfere with the adjustments and positioning of the safety devices, unless expressly required to do so to repair damages.
Tampering with them can cause serious harm to both people and the machine.

	Should maintenance work have to be carried out in poorly lit areas, install additional lighting to ensure safe working conditions as required by the current legislative rules in force.
---	---

14.2 Danger warnings

	During maintenance work pay attention to the following dangers !
---	---

- Disconnect all the machine's power supplies – both main and auxiliary – before undertaking any maintenance work. Display warning signs **MACHINE UNDER MAINTENANCE – DO NOT START**.
- Never remove the safety and protective devices which are installed on the machine. Should it be necessary to do so, however, display warning signs and proceed with the greatest care.

- Failure to ground the equipment properly can cause serious harm to people. Always ensure that earthing connections are in place and that they comply with the regulations.
- Avoid the use of flammable or toxic solvents such as petrol, benzene, ether and alcohol. Avoid prolonged exposure to solvents and the inhalation of their fumes. Avoid using them near open flames or heat sources; ensure proper ventilation.
- Before starting the machine, always ensure that maintenance personnel are at a safe distance and that no equipment or materials have been left on the machine or close to it.
- Equipment installation must always be carried out in compliance with accident prevention regulations.
- Always ensure that all protective devices are in place and properly closed before starting the machine.
- Always ensure that the tools to be used are in good condition. Never use equipment which is worn out or damaged, or which is of poor quality or improvised.
- Never use fingers to check the alignment of holes.
- Never perform manually tasks which require the use of tools.
- Equipment to be mounted on to the machine or which has been detached from it must be placed in a safe area and in such a way as to ensure that they cannot fall or be overturned.
- Ensure that cables or chains and lifting hooks to be used in the setting up or dismantling of the main equipment are in good condition and strong enough to carry the weight which is to be lifted.
- Wear personal protection:



15. QUALIFICATION OF THE PERSONNEL IN CHARGE OF MAINTENANCE


15.1 General requirements of the personnel


In order to resolve problems regarding the maintenance of the machine, personnel responsible for maintenance must:


- know the regulations regarding accident prevention during the course of machine operations which are in force and be able to apply them;
- have read and understood the chapter "Safety and Accident prevention";
- know how to consult and use the manual;
- be interested in the machine's functioning;
- be able to recognise a malfunction if it occurs and, if the situation requires, apply the necessary measures.

16. RECOMMENDATIONS REGARDING MAINTENANCE

- ❖ Remember that well-executed maintenance work will greatly reduce the time a machine is out of service following a breakdown.
- ❖ Repair work carried out without delay when needed will eliminate further problems. Use original spare parts and undertake repairs to damaged components with care. Such repairs should be done on the owner's premises or send the machine to the manufacturer.
- ❖ To prepare the machine for maintenance work, the following instructions must be followed:
 - Those who are to undertake both routine and special maintenance must have carefully read and understood all the instructions contained in this chapter and in Part B of the manual.
- ❖ Both routine and special maintenance work must only be performed by qualified and authorised personnel.
- ❖ Ensure that the machine undergoing repairs is clearly and visibly indicated for the benefit of others so as to prevent its use by others.

	<ul style="list-style-type: none">• All repair work must be carried out while the machine is at a standstill or when arm-ended attachments resting safely on the ground, using the appropriate equipment and personal safety equipment in accord with the laws in force.• Before undertaking any repair work, always ensure that the pressure systems have been de-pressurised, and affix a sign with the warning: "machine under repair".
--	---

	<p>As certain operations related to control, maintenance, repair and replacement are carried out at a dangerous height above ground level, the personnel in charge must have available suitable equipment (elevating platform, ladders etc.) which will allow the work to be carried out safely, in compliance with the safety laws in force. Workers must also be in possession of all devices required for personal protection as required by the regulations.</p>
---	---

	<p>During maintenance or adjustments of the equipment or any of its parts, it is forbidden to undertake work manually for which special tools are required.</p>
---	--

- ❖ During all maintenance work, attention must be paid to the signs which could indicate a forthcoming breakdown. In particular:
 - the presence of traces of corrosion;
 - signs of wear.
- ❖ For any problems arising or when ordering spare parts refer to **TECNOAGRI's** Technical Assistance Service.

16.1 Routine maintenance

Includes maintenance operations which can be carried out directly by the operator or by qualified maintenance personnel in accordance with the instructions given in this documentation and which do not require the use of special tools or equipment. Such operations fall into the following category:

❖ **daily checks by the operator :**

- general visual checking;
- functional checks (lever, movements, etc.);
- checking of the condition of rubber and metal tubing;

❖ **weekly checks by qualified maintenance workers :**

- visual check of all mechanisms and checking for oil loss;
- movement check and if necessary, greasing of the sliding surfaces of the moving parts and joints, to ensure their proper working and to minimise wear;
- checking rubber and metal tubing and pivots ;

❖ **monthly checks by qualified maintenance personnel :**

- check the proper functioning and possible wear of pivots and sockets;
- checking of the condition of rubber and metal tubing;
- check functioning of the moveable parts sliding
- check wheels and guide rollers wear-out.
- check moveable parts greasing.
- lifting chains

16.2 Periodic maintenance

Includes the maintenance work, carried out by qualified maintenance workers who have been trained as such by means of this manual and relates to checks and eventual replacements as outlined in the timetable of the maintenance schedule.

The parts of the machine which must be checked and when necessary replaced are:

❖ **Lifting chains -**


Chains are materials subject to wear-out, a regular lubrication extends life expectancy of the equipment.

Check the component appearance to assess possible wear-out. It is often possible to get a better performance by spotting the possible causes of wear-out. You can do that by examining the worn-out components. During inspection all of the parts that are wound on pinions and pulleys as well as those close to the fixing points at the ends must be carefully examined.

OIL-PRESSURE FARM ELEVATORS
Installation, Use and Maintenance Manual

• **Chains:**

The handling tool consists of a roller chain or 'fleyer' chain. The chain must be cleaned carefully prior to each inspection and the links must be examined one by one, taking care to notice the following: possible wear-out, folds, deformations, slits, section reductions, stretchings.

	Replace the chains when: <ul style="list-style-type: none">• measuring 30 steps (distance from pin to pin), with the chain under stress, the measure is equal or greater than 486 mm.
---	---

• **Rubber tubes :**


Before starting, check periodically - weekly or monthly - the condition of the hydraulic tubes to ensure that they are not in a state of deterioration.


Always take the necessary action, whether by repairing or replacing, every tube which is loose or which shows signs of abrasion, tear, defective mounting, or oil loss even from the connections.


Check the connections and ensure that they have been properly joined in relation to each other before pressurising the hydraulic circuits.


• **Treatment of hydraulic tubing:**

- Avoid bending, or scratching tubes of the hydraulic system with sharp or abrasive objects.
- Replace tubes which show any signs of damage caused by crushing, cracking, use, or with defective connections and avoid using them again. They could explode during use.

 The hydraulic circuits are under pressure and therefore, before adding or removing hydraulic oil, inspect the circuit, place the equipment on the ground and completely discharge the remaining pressure in the system, operating the control lever several times, having first switched off the tractor motor.

	THE JET OF OIL WHICH SMALL LOSSES FROM THE TUBES UNDER PRESSURE CAN GENERATE IS DANGEROUS: IT CAN PIERCE THE SKIN OR DAMAGE THE EYES. ALWAYS WEAR THICK GLOVES AND SAFETY GOGGLES.
---	---

	THE HYDRAULIC OIL IN THE SYSTEM IS HOT, EVEN WHEN USE IS NO LONGER BEING MADE OF THE MACHINE. WAIT FOR THE OIL TO COOL DOWN BEFORE CARRYING OUT ANY WORK ON HYDRAULIC LINES.
---	--

	CAREFULLY AND IMMEDIATELY, CLEAN UP ANY OIL SPLASHES AS THEY CAN CAUSE SLIPS.
---	---

16.3 Cleaning



Cleaning operations must be carried out whilst the machine is switched off, after having removed the ignition keys and applied the hand brake of the machine on which the backhoe is mounted.



Those who are to perform the cleaning must wear the right working overalls as well as being in possession of suitable personal safety equipment enabling them to work in conditions of safety and in accordance with the rules and legislation currently in force.

❖ To undertake the cleaning you need to:

- Remove any foreign objects and dirty substances using suction devices, cloths, etc.
- Wipe off excess grease/oil on parts.
- Wash with hot water jets or steam and detergent liquids such as are readily available on the market.



For cleaning: do not use diesel oil or petrol as they form an oily layer to which dust can easily adhere. Do not use solvents as they damage the rubber parts and paint.

TECNOGGRI

OIL-PRESSURE FARM ELEVATORS

16.4 Lubrication of the machine

❖ Lubricating the moving parts is necessary to avoid direct contact of the rolling load-bearing surfaces and plain bearings.

IT PREVENTS WEAR OF THESE PARTS AND HELPS MAKE THE OPERATIONS CARRIED OUT BY THE MACHINE SMOOTHER

❖ The careful lubrication of the machine and its parts is necessary to ensure the efficient performance of the use to which it is to be put, as well as prolonging its life-span.

❖ In time the lubricating power of the lubricant diminishes as a result of what it is required to do, therefore replenish or change the lubricant as needed.

❖ It is advisable to use only the amount of lubricant needed to lubricate the parts involved. Bear in mind that the minimum quantity of lubricant needed also depends on auxiliary functions which it must perform, for example the dispersal of heat.

To lubricate the parts use recommended lubricants only or lubricants with similar characteristics as well as of renowned and proved quality.

❖ An excess of lubricant can be as detrimental to the proper functioning of the machine as a lack of it.

❖ Lubricating the machine is very simple and can be carried out by personnel who are not highly specialised. They must however scrupulously follow the instructions contained in this manual and observe the following:

- Carefully clean the grease nipples before injecting grease to prevent the introduction of foreign matter such as dust and mud which, contaminating the grease, would diminish its lubricating ability.
- After lubrication, remove all excess grease.



- **Lubricants, solvents and detergents are toxic and harmful to health:**
 - If they come into direct contact with skin, they can cause irritations
 - if inhaled they can provoke serious intoxication
 - if swallowed they can lead to death
- Handle them with care and use sufficient personal protection as laid down in the rules currently in force.
- Do not litter the environment. Ensure they are disposed of in accordance with the current legislative rules waste disposal.

TECNOGGRI

OIL-PRESSURE FARM ELEVATORS

16.5 Spare parts

❖ Damaged and/or worn out parts in need of replacement must **ONLY BE REPLACED WITH ORIGINAL SPARE PARTS** made by **TECNOAGRI** they being the only party able to provide a guarantee of quality and inter-changeability. They can be ordered directly from:

TECNOAGRI SRL

Via Marconi, 49 – 48017 CONSELICE (RA)
Tel. +39 0545 / 85023 - Fax. +39 0545 / 85123
Email: tecnoagri@tecnoagri.it



The use of non-original spare parts, in addition to rendering the guarantee null and void, can also compromise the proper functioning of the machine.

TECNOAGRI

OIL-PRESSURE FARM ELEVATORS

17. MALFUNCTIONS AND SOLUTIONS

- The main causes of malfunctions related to the various operational functions of the machine – such as can be reasonably foreseen - are here listed. The table below shows the nature of problems, possible causes, and suggests solutions for restoring the machine to its operational state.

TROUBLE	CAUSE	SOLUTION
The cylinders are slow in their movements, with oil loss and a drop in pressure of the system.	Gasket wear and tear/ distributor leaks/ broken or cut pipes/ lack of oil in the hydraulic circuit/ insufficient supply of oil from the pump	Replace the gaskets/ replace the distributor/ replace the pipes/ add oil/ change the pump
The elevation cylinder stops while lowering	The controlled lowering valve is broken or clogged.	Replace valve
The elevator does not lift expected weight	The feeding pump does not reach the pressure required	Check or replace pump

TECNOGRRI

OIL-PRESSURE FARM ELEVATORS

17.1 Failure of attempted repairs

In the event of an unsuccessful attempt at reparation, follow the procedures required for putting the machine out of service, indicate the machine is out of use by means of clear signs and submit a request for servicing.

18. DISMANTLING, DISPOSAL AND SCRAPPING

If the machine is to be scrapped, the disposal of its parts must be carried out differentiating between the various compositions of its parts (i.e. metals, oils and lubricants, plastic and rubber, etc.) by entrusting the task to companies specialised and qualified in the field, and in any event, the task must be performed in compliance with regional laws regarding the disposal of industrial waste.

Before undertaking dismantling or scrapping work, prepare a suitably sized area around the machine in which authorised personnel may safely work.

To dismantle and then demolish the machine you must:

- Dismantle the components separating them according to their material and type.
- Pre-arrange for the recycling of the materials and components which allow it.
- Send the materials and components which cannot be recycled to the authorised disposal areas.



- **The eventual demolition of the machine at the end of its life-cycle must be entrusted to specialised and authorised personnel in compliance with the current rules in force.**
- **Do not disperse polluting substances into the environment**