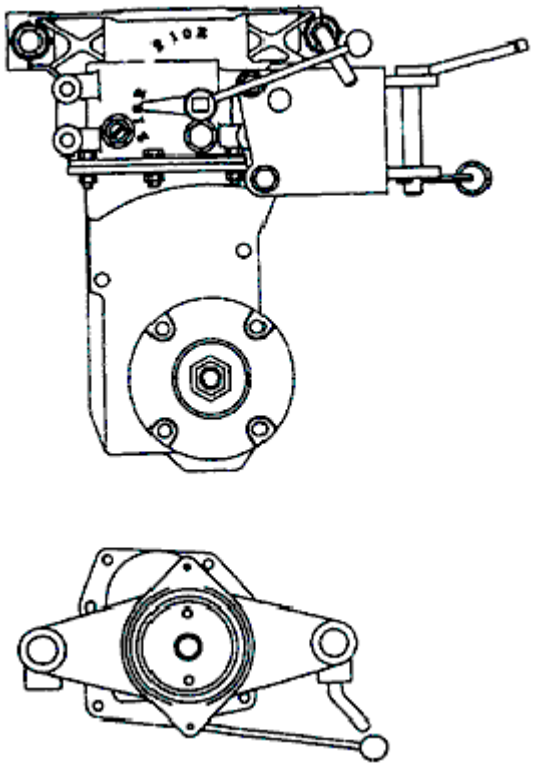
VARI®

GEARBOX T–20 A

MULTI-PURPOSE GEARBOX FOR SINGLE-AXLE TRACTOR AND ROTARY CULTIVATOR



Put down the following data concerning your machine. The data are needed for ordering spare parts.
It is advisable to make a copy of this page with all data on the machine purchase for the case of loss or theft of the original record.

Type	
Serial No.	
Date of delivery (sale)	
Supplier (Seller)	
Address	
Telephone/Fax	

Notes:

CONTENTS

Warranty for the gearbox is valid only with the use of driving units supplied by VARI, a.s.

Manufacturer reserves the right of technical modifications and product innovations differing from the text and illustrations presented in this manual without previous notification and with no exposure to any liabilities.

Publication No.: ML - 026 - 98

WARNING!

User **is obliged** to get acquainted with the Instructions for use and to follow all instructions for machine operation so that the user's and other persons' health and property do not suffer any harm. Safety instructions contained in this manual do not describe all situations or conditions possibly occurring in practical use.
Safety factors such as common sense, diligence and scrupulousness are not included; it is assumed, however, that all persons authorized for machine operation or maintenance do possess the intelligence.

Only persons at good mental and physical health can operate the machine.
For the professional use of the machine the machine owner is obliged to ensure a work safety training and provide instructions on machine control for operators and to keep records on these trainings and briefings.

Manufacturer bears no responsibility for damages resulting from unauthorized use, improper machine operation and damages resulting from any machine modifications not agreed with the manufacturer.
Should some instructions in the manual be unintelligible, you are encouraged to contact your seller or directly the manufacturer of the machine. Contact address and telephone/fax connections are to be found at the end of the manual.

Instructions for use supplied with the machine are an integral part of the machine. They have to be available at any time, placed at a well accessible place with no risk of their damage. In the case that the machine is sold to another person, the Instructions for use must be given to the new machine owner. If the above conditions are not met, the manufacturer bears no responsibility for incurred risks, accidents and injuries resulting from the machine operation.

To prevent injuries of yourself or other persons in the machine's vicinity, it is necessary to follow safety regulations marked in the manual with the following warning safety symbol:

	On seeing the symbol in the manual, read the attached instructions carefully!

I. INTRODUCTION.

Dear customer,
By purchasing this product you have become owner of one constituent from a wide range of machines and attachments made as a system of small farming and gardening technology by joint-stock company VARI LIBICE nad CIDLINOU and labelled

VARI®

The system is meant for gardeners, small growers and farmers on smaller plots.
Machines and implements made within the system can easily do all necessary work such as active and passive soil cultivation, pumping of fluids, cutting of stalky plants and grass, removal of snow, sweeping of dirt, and transport of all these materials on one-axle trailers.
You are encouraged to read the manual thoroughly. If you adhere to instructions presented herein, you will have our products performing a reliable work for you for years.

II. TECHNICAL DESCRIPTION.

USAGE: Complete gearbox Model T-20 A with accessories equipped with driving unit Model JM 4-003 V/T serves as a single-axle multi-purpose tractor suitable for transport, ploughing, active or passive soil cultivation. Semi-trailers ANV-350 U or ANV – 368 can be used to transport working implements, machines and loads up to 350 kg (incl. operator).
Accessories are to be attached into adjustment body NT-3 (coupled into trailer device BZN-004) which serves to set correct position of working implements for work or directly into the trailer device BZN-004.
Gearbox T-20 A has two gears forward and one reverse gear. Engine unit Model JM 4-003 V/T can be installed onto the gearbox by two methods. Thanks to this the gears can be perfectly used for all types of working with the gearbox. Gearbox T-20 A with pull-axle TN-03 or TN-06, axle hinge Z-1 and suspension device BZN-004 constitutes a single-axle tractor or a rotary cultivator for active soil cultivation after the towing axle has been replaced with cultivating mechanism AKY-357/8.
USE OF INDIVIDUAL ASSEMBLY GROUPS:
Gearbox Model T-20 A: is a primary group of the whole assembly. Individual working implements can be attached to the gearbox in the respective suspensions. Driving unit is to be mounted into flange in the upper part of the gear case and secured with quick-operating clips and crank on the gear case flange.
Towing axle Model TN-03,TN-06: is to be mounted onto gearbox PTO-shaft. This coupling gives rise to a single-axle tractor suited for all works described below. In connection with one-axle semi-trailers a set comes into existence, which is however

subject to conditions of traffic on public roads listed in Chapter IV. Towing axles differ only in the number of weights used on wheels (see Chapter VIII LIST OF COMPONENTS).

Hinge Z-1: this suspension is mounted on the gearbox and serves to couple semi-trailer, to connect weight carrier with two 5kg weights for set balancing at ploughing, and to connect share carrier with the blade when using rotary cultivators AKY-357 or AKY-358.

Suspension device BZN-004: consists of a suspension with weight carrier, weight of 33kg, weight carrier and two weights of 5kg. This suspension device serves to connect all VARI-System working implements. The weights are to load the machine in order to enhance pulling force on axle and to balance the machine at working with all adapters for passive soil cultivation.

III. TECHNICAL DATA

Gearbox Model T-20SA	**Unit**	**Value**
Number of gears	-	2 + 1R
Output shaft rotations Gear 1	s^{-1}	1.54
Output shaft rotations Gear 2	s^{-1}	2.37
Output shaft rotations Reverse	s^{-1}	0.63
(holds for engine rotations 4800 min^{-1})		
Wheel track	mm	480, 610
Tire size	inch	5.00“-12“
Tire pressure	kPa	120
Weight		
- gearbox	kg	18
- towing axle TN-03	kg	82
- towing axle TN-06	kg	58
- complete hinge Z-1	kg	2.5
- suspension device BZN-004	kg	55.7
Power supply	kW	3.5
Gearbox oil filling	litres	1.16
Gearbox oil grade	API	GL-4, GL-5
	SAE	90, 80 W-90

TECHNICAL DESCRIPTION OF THE GROUPS:

Gearbox Model T-20 A: Gearbox consists of two castings in which toothed wheels of gears are mounted. In the lower case of cast iron, there is worm shaft and worm wheel mounted on antifriction bearings. Hexagonals on worm wheel shaft ends serve to mount towing axle or rotary cultivators. The upper aluminium case into which the worm shaft is led out is the gearbox proper. This case contains a layshaft with the toothed gears of Gear 1 and 2, and a toothed gear sliding along the worm shaft. This gear is being displaced by means of the gearshift lever-controlled shift gate located on the left side of the gearbox. Arrestment of gears is ensured by a spring-mounted ball which falls into a recess in the shift gate. Teethed reverse gear is mounted on needle bearings on a fixed pivot. Clutch disk is mounted on the end of the layshift. In the upper part of case body, there is a flange into which the engine unit is mounted, which is to be secured on the case by two quick-operating clips; pivot on the console of handlebars is to be secured by tightening the crank. The gearbox is provided with oil drain and pour-in neck.

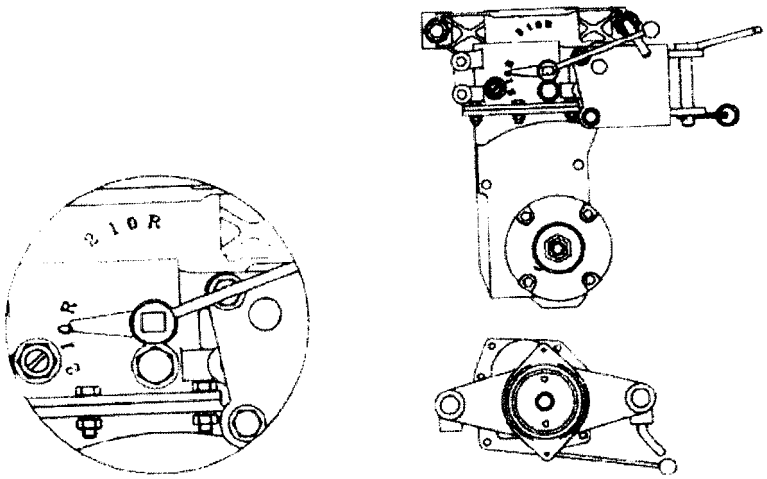
Towing axle Models TN-03,TN-06: Axle consists of two wheels with overrunning hub, spacers, axle pivots for both wheel track widths 480 a 610 mm, washer, locking nut and split pin. Wheel consists of a tire with air-tube 5.00"-12", mounted on a cast iron disk wheel freely placed on the hub. The hub has incisions on the front part, into which a finger falls which is spring-mounted in the disk wheel. The finger is compressed into engagement by a spring. A pull rod is hooked onto finger pin, which falls into slot in the disk wheel lug, determining the finger position. This design solution partly substitutes for the missing differential, providing at the same time for an easier machine maneouvrability. Finger positions are described in Chapter V. Wheel track can be altered by means of spacers which are to be mounted on the gearbox output shaft hexagonals. The axle is connected to the gearbox by means of axle journals, washer and lock nut which is to be secured with a split pin.

Hinge Model Z-1: is welded of two steel plates with lugs between them forming a fork for the semi-trailer shaft. Part of the hinge is also a pin with the safety split pin. The hinge is screwed onto the gearbox by two bolts with nuts and spring washers.

Suspension device Model BZN-004: consists of the suspension with weight carrier and the weight carrier. The suspension with the weight carrier is welded of two flat arms and fork to couple extension body. The open end of the carrier serves to slide in a 33 kg weight. The weight carrier consists of a steel rod onto which a tube is welded. The carrier is to be coupled into hinge Z-1 by means of a pin. The weights of 5 kg are to be secured on the rod by a tightening crank.

FIGURE 1
Gearbox Model T-20 A

Gear-shifting diagram



IV. SAFETY REGULATIONS.

⚠ This international warning symbol is for an important information concerning safety. On seeing the symbol, be aware of a possible injury to yourself or to other persons and carefully read the following instructions:

1. Machine operator must be over 18 years of age and holder of driving licence "A", "B", "T" or higher. He/she is obliged to get acquainted with these instructions for use and to have knowledge of general principles of work safety.

⚠ **2.** Don't start the engine if it is not connected to working implements. Don't remove the engine while in operation. Don't start the engine in enclosed spaces! After the engine having been switched off, the engine exhaust silencer remains hot – be careful when handling the engine. Make sure that there are no leakages or spills on engine parts when refuelling. Should they happen to occur, dry out the stained parts or wait until the petrol evaporates.

⚠ **3.** While working with all machines of the system, all other persons and animals have to be outside the machine's working space. The machine operator is allowed to continue working only after they have been shown out to a safe distance.

⚠ **4.** Removal of any protective equipment and machine casing is prohibited!

⚠ **5.** All working implements must be transported on a semi-trailer. Conditions for sets in road traffic are as follows:

⚠ – driving these vehicles at impaired visibility is prohibited on all public communications;

– driving these vehicles at non-impaired visibility is prohibited on communications of Class I and II with an exception of their perpendicular crossing. Driving the vehicles on roads of Class III- field, forest and public roads, is allowed. According to stipulations of § 34, paragraph 3 of the Decree No. 99/89 Gaz. issued by the Federal Ministry of Interior, the operator is obliged to apply for a permission at the police traffic inspectorate which determines further conditions for the machine set operation on surface roads, specifying them on the rear page of Technical certificate enlosed to Instructions for use of the engine unit. Exemptions for these sets of machines are as follows:

– § 45, 48 semi-trailer is equipped neither with side-marker lights nor with direction indicator lights

– § 44 neither the driving unit nor the semi-trailer are equipped with headlights.

The machine sets are approved by the Czech Ministry of Transport under File No. 24 813/93-222.

⚠ **6.** When working with the cutting mechanisms, rakes and snow ploughs, do pay increased attention to safety. These machine sets are prohibited to take part in road traffic except for their perpendicular crossing.

7. Safe slope accessibility of all working machines is 7 degrees.

8. The machines must not be operated in recreational and health-care zones at night from 21.00 to 07.00 o'clock.

⚠ **9.** Prior to starting the operation of any working machine of the System, check the function of the safety engine switch by checking the switch installed on the left handrail of the engine unit. Function of the safety ignition switch is explained in the manual for operation of engine units.

⚠ **10.** Driving across easily combustible materials such as hay or straw should be prevented.

11. All kinds of machine repair, adjustment or lubrication should be made with the machine out of operation.

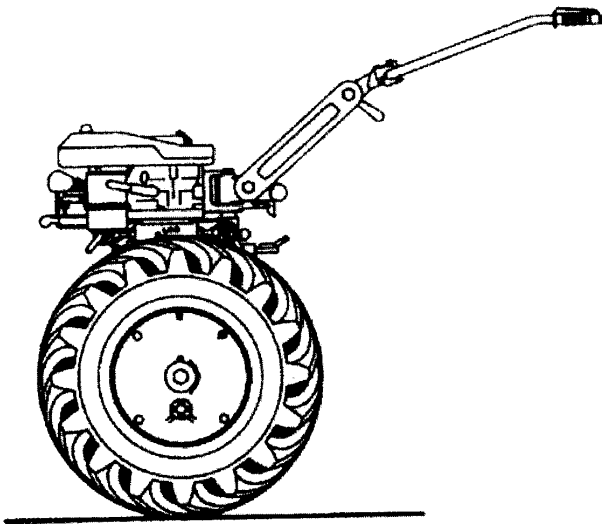
⚠ **12.** When using the gearbox for the rotary cultivator, it is necessary to mount the protective covers of the rotary cultivator mechanism (see instruction manual). Permitted exemption: the covers can be dismounted only when using a ridging blade in the share carrier and with the least rotary cultivator width at row ridging. If larger widths of rotary cultivator are to be used, the covers must be unconditionally re-mounted again.

⚠ **13.** Pay increased attention when replacing the towing axle with the cultivator and vice versa if the gearbox is warmed up since dust caps and guferos on the output shaft may shoot out after the axle shafts or knife rosebits have been dismounted.

V. INSTRUCTIONS FOR USE.

Gearbox Model T-20 A can be used as a primary group for one-axle tractor (Fig. 2) or rotary cultivator for active soil cultivation (Fig. 8).

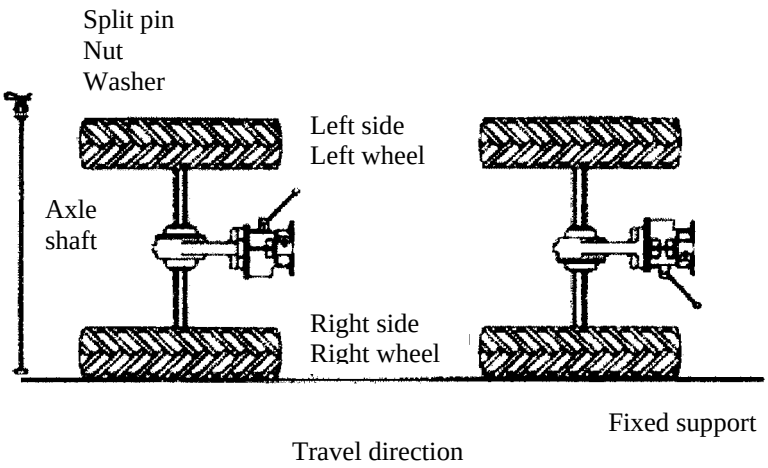
FIGURE 2
MULTI-PURPOSE ONE-AXLE TRACTOR
Gearbox T–20 A
Towing axle TN–03 or TN–06
Driving unit JM 4–003



Assembling the one-axle tractor: Axle shaft head must be at all times on the right side of the gearbox (viewed from driver's site). Herringbone pattern of the tire must be in the travel direction. Slide the axle shaft for respective axle track into the hole in the right wheel hub. Place the wheel on a clean and firm support with the axle shaft pointing upwards. Then mount a spacer for the desired track and mount the gearbox so that the gearshift lever is on the top. Mount the second spacer and turn the left wheel and the assembly so that the machine stands on wheels. Mount the washer with the hexagonal, screw on the lock nut and tighten the whole towing axle by tightening the axle shaft. The axle shaft must be properly tightened so that the pressing out of hexagonal surfaces on the output shaft and in the spacers cannot occur. The assembly procedure in putting together the one-axle tractor for working with implements, when reverse gear is used as gear forward, is similar an only variance being the fact that the gearbox is to be mounted onto the axle shaft so that the gearshift lever is down (Fig. 4).

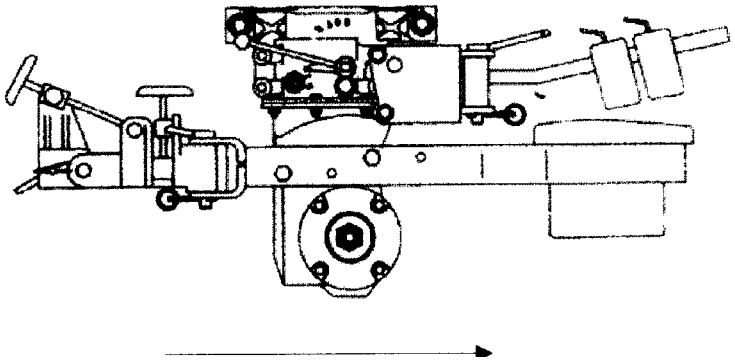
FIGURE 3
Gearbox assembly
for transport

FIGURE 4
Gearbox assembly
for working with implements



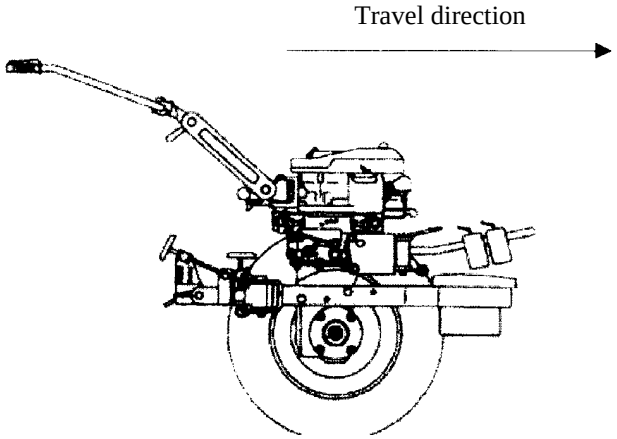
VARI-System attachments (except for semi-trailers and ploughing mechanisms for rotary cultivator) can be coupled only via suspension device BZN-004. It is to be attached to the gearbox by means of two bolts, nuts and spring-washers. The suspension device is mounted on the gearbox so that the suspension fork is on the front side of the gearbox in travel direction (see Fig. 5). There are several holes on side walls of the suspension device. This solution makes it possible to mount the suspension device onto the gearbox in two positions with the suspension device fork being at a greater or smaller distance from axle axis. For most of works it is advised that the suspension device is mounted onto the gearbox so that the fork of the suspension device is nearer to the axle axis, thus facilitating an easy manoeuvrability of the whole machine set.

FIGURE 5
Gearbox Model T-20 with suspension device BZN-004 and adjustment body NT-3



Connecting the driving unit: Driving unit Model JM 4-003 V/T is an energy source for driving the set.
It is connected onto the gear case by means of two quick-operating clamps and tightening crank which is to secure the pivot on the handlebar console. There is a cylindrical flange on the lower part of the driving unit, in which a centrifugal clutch is placed. The flange is to be slid into a flange with the clutch disk in the upper part of the gear case. The pivot on the handlebar console falls into the hole in the case. The shape of the upper part of the gear case makes it possible to mount the driving unit onto the case in two ways. The mode is then given by travel direction. Modes of mounting the driving unit are illustrated in Figs 6a and 6b.
For easier mounting of the driving unit onto the case, mildly move it to and fro until the flange on the engine sets onto the gearbox flange front. The driving unit is then to be secured by two quick-operating clamps which are suspended on the engine. Dogs of the quick-operating clamps are to be out into incisions in rivets on gearbox flange lugs and the clamps will switch on. A crank situated on the left side of the gearbox flange serves to tighten the pivot on the handlebar console. If the driving unit is mounted on the case in a reverse position, the crank must be screwed into a relevant hole. To remove the driving unit, use a reversed procedure.

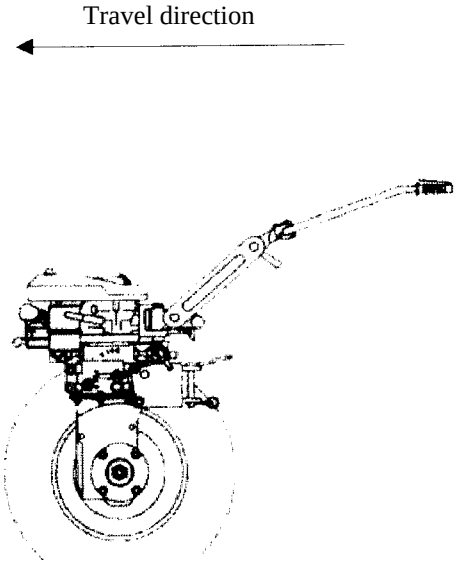
FIGURE 6a
Mounting the driving unit onto gearbox Model
T–20 S for work with implements



Gearbox Model T-20 SA in connection with one-axle semi-trailer ANV-350 U or ANV-368 forms a set for material transport and for transporation of all working attachments and machines of the VARI-System. In this case the driving unit is mounted onto the gearbox as illustrated in Fig. 6a. For work with implements (with an exception of rotary cultivator) the first gear ratio is of unsuitable value; this is why the driving unit is to be mounted on the gearbox as illustrated in Fig. 6b and reverse gear

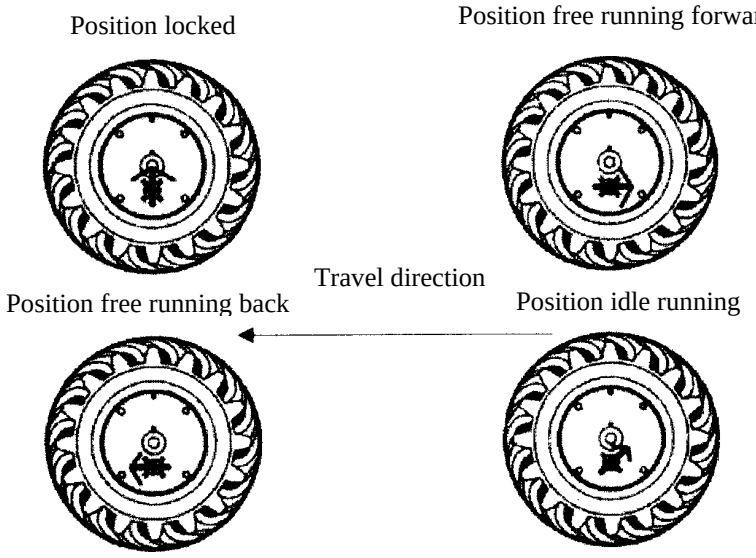
becomes Gear 1 with the gearshift lever being on the right side. It is necessary to turn the gearshift lever so that it points to the rear of the machine toward the operator. This can be done so that the safety split pin is taken out, the gearshift lever is pulled out from the square journal and re-installed onto the journal in the new position (pointing to the operator) and secured once again with the safety split pin.

FIGURE 6b
Mounting the driving unit on gearbox Model
T–20 SA for transport and use with rotary cultivator



USING GEARBOX MODEL T-20 A: Gearbox T-20 A can be used for working with VARI-System implements. If there is a towing axle mounted on the gear case, the result is a single-axle tractor. Wheels have free wheel hubs with a spring-loaded free wheel finger to enable four free wheel positions. Finger positions are illustrated in Fig. 7.

FIGURE 7
Free wheel finger positions



POSITION LOCKED: at this position the wheel is firmly connected with the hub. Finger linkage tip points either into the wheel centre or from the wheel centre out. The position serves for straight travel forward or back. Turning the machine set at this position is however difficult.
POSITION FREE RUNNING FORWARD: at this position of the finger with the wheel turning forward the wheel is firmly connected with the hub. When the wheel turns back or in the situation when the wheel turns faster than the axle, angular plane on the finger will enable the finger to jump out from the incision in the hub, which is indicated by a clapping sound. Finger

linkage tip points in the direction of wheel rotation. The position is used at field works and at driving with one-axle semi-trailers.

POSITION FREE RUNNING BACK: at this position of the finger with the wheel turning back the wheel is firmly connected with the hub. When the wheel turns forward or in the situation when the wheel turns slower than the axle, angular plane on the finger will enable the finger to jump out from the incision in the hub. Finger linkage tip points in counterdirection of wheel rotation. The position is used at field works.

POSITION IDLE RUNNING: the finger is pulled out from engagement and the linkage is in the oblique slot on disk wheel lug. The wheel can freely turn. The position is used for manual transport of the machine.

A so called Adjustment body is used to couple working implements with the machine and to adjust their working position. djustment body Model NT-3 is to be connected into the fork of suspension device ZZ by pin and retaining split pin (see Fig. 5). Two bolts on the adjustment body lugs are to be set so that a gap of 1 – 2 mm will be between the bolt head and the fork. All working attachments are connected into the adjustment body NT-3 by means of a pin and retaining split pin. Adjustment body has an instruction manual of its own. At working with the attachments, it is desirable that the machine set is properly balanced. This is why additional weights are used. The large weight of 33 kg is to be slid into the open end of the suspension device BZN-004. This weight serves to load the towing axle and to increase adhesion of wheels, which is to improve force transmission from wheels onto the terrain. Two small weights of 5 kg each serve to balance the machine. They are to be mounted onto the weight carrier which is connected into the hinge Z-1 by means of a pin and retaining split pin.

Gearbox Model T-20 A can also be used as a main assembly group for rotary cultivator. Cultivating mechanisms AKY-357 or AKY-358 are to be mounted onto hexagonals on the output shaft instead of the towing axle. If the gearbox T-20 A was used in the connection with the towing axle as a multi-purpose one-axle tractor, the suspension device BZN-004 must be dismounted. Hinge Z-1 serves to connect the share carrier with the share by means of a pin and a retaining split pin. Assembly of cultivating mechanisms is described in the instruction manual for rotary cultivators Models AKY-357, AKY-358. Driving unit JM 4-003 V/T is to be mounted onto the gearbox T-20 A according to Fig. 6a. On heavier soils, it is recommended to cultivate at Gear 1, on lighter soils the cultivation can be made at Gear 2. Should the cultivator get “dug” too deep, shift on Reverse gear.

Be careful when driving at reverse speed; knives of the cultivating mechanism are sharp, danger of injury.

Dismounting the towing axle or cultivating mechanisms wait until the gearbox cools down otherwise the sealing ring could shoot out after disassembly of axle shafts.

Rotary cultivators with the use of gearbox T-20 A are illustrated in Fig. 8. When using cultivating mechanisms AKY-357, AKY-358, it is necessary for safety reasons to use protective covers which prevent cultivated soil from flying onto the operator. The covers are to be screwed on by means of bolts which are a part of the hinge Z-1.

The protective covers can be dismounted only when using ridging share Models AHR 360 or AHR 355 connected into the share carrier instead of the share and cultivating mechanism AKY-358 with a width of 25 cm (see Fig. 9).

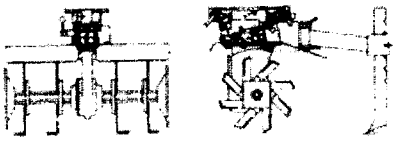
⚠ As soon as a larger width of the cultivating mechanism is to be used, the protective covers must be unconditionally mounted back again!

The assembly of one-axle tractor can also be added a raking share for raking snow or light loose materials, Adapter for the raking share is to be mounted on the gearbox T-20 A into the suspension device BZN-004 by means of two pins with retaining split pins. The driving unit is to be mounted onto the gearbox as illustrated in Fig. 6b and the reverse gear is used as a gear for travelling forward. The suspension device BZN-004 must be mounted so that the fork pin of the suspension is under the hinge Z-1.

Exemptions see Safety regulations.

FIGURE 8

Gearbox T–20 A with cultivating mechanism AKY–358



Gearbox T–20 A with cultivating mechanism AKY-357

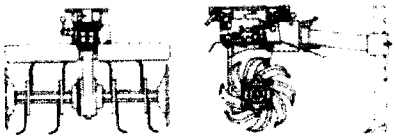
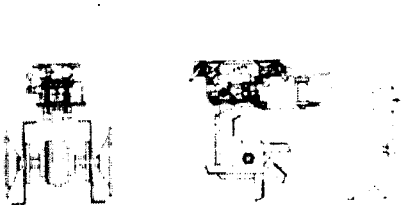


FIGURE 9

Permitted exemption



ATTACHMENTS FOR USE WITH THE GEARBOX T-20 A

– **connected into the suspension device BZN-004 and adjustment body NT-3:**
spiked harrows ABR-354, BH-138, BT-593
share cultivator AKY-356
multi-purpose weeder ELKRO P-992
two-sided plough APH-352
one-sided plough APJ-018
digger blade AVR 453
potato digger AVB 305

– **cnnected into the suspension device BZN-004:**
sowing machine Models SeXJ 7 and SeXJ 11
Two-row bulb planter
Potato planter
Carrier of ridging shares Model NM 1-001 with shares AHR 355 or AHR 360

– **connected into the adapter ASR-120 for raking share:**
raking share Model ASR 349 or ASR 339 (with the reduction member)

– **connected onto the output shaft of the gearbox:**
towing axle Models TN-03 or TN-06
Mechanisms of rotary cultivators AKY-357 or AKY-358

– **connected into the hinge Z-1:**
one-axle semi-trailer Models ANV 350 U or ANV 368
Share carrier with blade N-3
Weight carrier

VI. HANDLING AND MAINTENANCE.

To ensure a long-term satisfaction with our products, the machines and attachments should be given proper care in terms of their current maintenance and treatment.
It is therefore advisable to adhere to the following instructions:

⚠ **1.** Toothed sets of gears work in an oil bath. Oil replacement in a new machine is to be made after first 10 hours of operation and then after 100 hours or after the end of the season. This will ensure that the gears will not suffer excessive wear. Check the oil volume once a month. For perfect lubrication of the gearbox it is necessary to use an oil grade which complies with SAE 90 or better SAE 80W-90 specifications. Recommended Czech oils are gear oils MOGUL TRANS 90 H or MOGUL TRANS 80W-90H. With MOGUL TRANS 80W-90H the interval of oil replacement can be extended up to 130 hours of operation. Oil replacement should be made when the oil is warm and can be drained from the gearbox easily. The replacement is made so that the pour-in plug is screwed out (in the lower part of the gearbox), the gearbox is placed horizontally and oil is drained into a prepared vessel. New oil is filled into the gearbox by using a plug in the upper part of the gearbox beneath the gearshift lever. Fill the oil up to the lower edge of the plug (ca. 1.16 litre). Should the sealing under the plugs be damaged, replace them with new ones. When draining and filling the gearbox with oil, adhere to basic hygienic regulations and fundamental legislation on environment protection.

⚠ **2.** Check bolted connections for their tightness. Prior to each use of axles and cultivators, check axle stubs and bolts for their tightness.

3. Keep all contact and connecting surfaces clean. If the machine or working implements are to be put out of operation for a longer period of time, slightly grease the surfaces with conservation oil and protect them against weather impact. Free running hubs in towing axles should be greased once a month with plastic lubricant MOGUL A 00 by using a grease gun.

⚠ **4.** At the end of the season, remove all dirt. Free running wheel hubs of towing axles should be disassembled, washed out with petrol, assembled and greased with plastic lubricant MOGUL A 00 by using a forced-feed lubricator.

⚠ **5.** Cleaning and washing the machine with water, solvents and other chemicals, proceed to adhere to valid legislation on the protection of water courses and other water resources against their pollution and contamination with chemical substances.

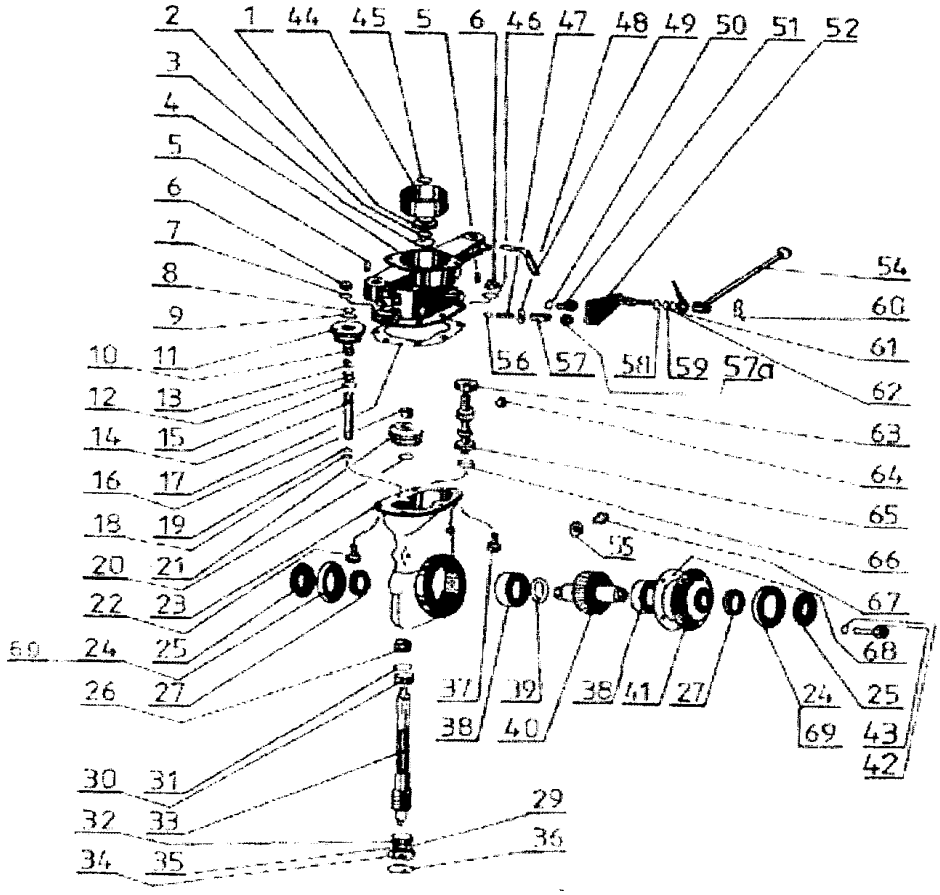
VII. STORAGE.

Machines and attachments should be kept on dry places. Access of unauthorized persons to the machines and implements should be prevented.
Prior to putting the machine out of operation for a longer period of time, drain petrol filling from the engine tank.

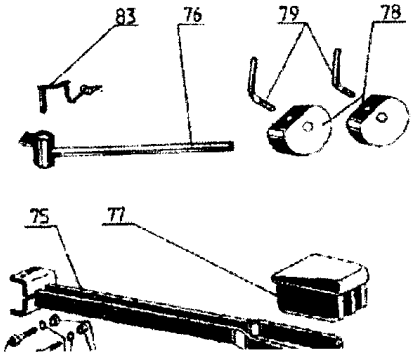
VIII. LIST OF COMPONENTS

Position	Part No.	Ordering No.	Name	Pcs
	22 9 3282 006 A		**GEARBOX Model T-20 A**	
1		106 513	Gufero 30x40x7 ČSN 029401.0	1
2	32 0 9220 028	110 504	Sealing ring 1x30	1
3		110 516	Ret. ring 40 ČSN 022931	1
4	22 9 3253 001	110 001	Upper case	1
5	32 0 9321 009	106 048	Rivet	2
6		180 0185	Nut M8 ČSN 021401.25	7
7		110 538	Washer 8.4 ČSN 021745.05	2
8		110 512	Retaining ring 13 ČSN 022930	1
9	32 0 9220 022	110 017	Tapered washer	1
10		110 526	Needle cage K 13x17x10 "Dürkopp"	1
11	32 0 3024 012	110 002	Reverse gear wheel	1
12		110 526	Needle cage K 13x17x10 "Dürkopp"	1
13	32 0 9520 002	110 015	Spacer bushing	1
14	32 0 3810 002	10 014	Reverse operation shaft	1
15	32 0 9220 022	110 017	Tapered washer	1
16		110 507	Needle bearing INA HK 1210	1
17	32 0 9632 001	106 514	Sealing	1
18		110 512	Retaining ring 13 ČSN 022930	1
19		110 512	Retaining ring 13 ČSN 022930	1
20		110 515	Retaining ring 20 ČSN 022930	1
21	32 0 3024 012	110 024	Gearshift wheel	1
22	32 0 9016 011	110 008	Bolt	2
23	32 0 3251 012	110 025	Case	1
24	32 0 9520 005	110502	Ring	2
25	32 0 9620 005	110 007	Dust cap	2
26		110 508	Needle bearing INA HK 2020	1
27		129 544	Gufero 35x47x7 ČSN 029401.0	2
29	32 0 9220 157	124 001	Shim block	2
30		110 524	Bearing 51104 ČSN 024730	1
31	32 0 9225 003	110 020	Shim block	1
32		110 527	Bearing 30203 ČSN 024720	1
33	32 0 3214 002	110 002	Worm shaft	1
34		913 0150	"O"ring 42x2 ČSN 029281.2	1
35	32 0 9220 158	168 020	Shim block	2
36	32 0 3221 010	121 509	Cap	1
37		110 525	Bolt M8x25 ČSN 021103.15	5
38		110 519	Bearing 6007 ČSN 024633	2
39	32 0 9220 024	110 012	Shim block	10
40	22 9 3226 001	110 004	Worm wheel complete	1
41	32 0 3832 009	110 005	Case cap	1
42		104 574	Washer 8 ČSN 021740.05	4
43		122 500	Bolt M8x16ČSN 021143.50	4
44	32 0 3621 002	110 003	Clutch disk	1
45		110 514	Retaining ring 17 ČSN 022930	1
46		110 538	Washer 8.4 ČSN 021745.05	5
47	32 0 9746 003	110 505	Spring	1
48		106 539	Ring 14x18 ČSN 029310.3	1
49	32 0 9043 002	106 023	Holding screw	1
50		106 539	Ring 14x18 ČSN 029310.3	1
51	32 0 9016 036	110 506	Plug	1
52	22 9 3832 001	110 027	Gearshift shaft	1
54	22 9 8059 002	106 001	Gearshift lever	1
55		106 539	Ring 14x18 ČSN 029310.3	1
56		110 517	Ball ∅7,938 ČSN 023680	1
57	32 0 9020 002	110 021	Holding screw	1
57 a		106 525	Nut M 14x1.5 ČSN 021401.25	1
58	32 0 9220 023	110 013	Tapered washer	6
59		110 522	Ring 10x2 ČSN 029281.2	1
60	32 0 9245 001	106 524	Split pin	1
61	32 0 3941 001	110 019	Arrow	1
62		110 513	Retaining ring 14 ČSN 022930	1
63		106 507	Bearing 6203 ČSN 024636	1
64		110 523	Feather 5x6.5 ČSN 301385.11	1

65	32 0 3014 005	110 023	Layshaft	1
66		110 518	Bearing 6201 ČSN 024636	1
67	32 0 9016 036	110 506	Plug	1
68	32 0 9620 009	106 505	Sealing	1
69	32 0 9220 026	110 501	Ring	2
69a		106 543	Bolt M6x12 ČSN 011143.50	4

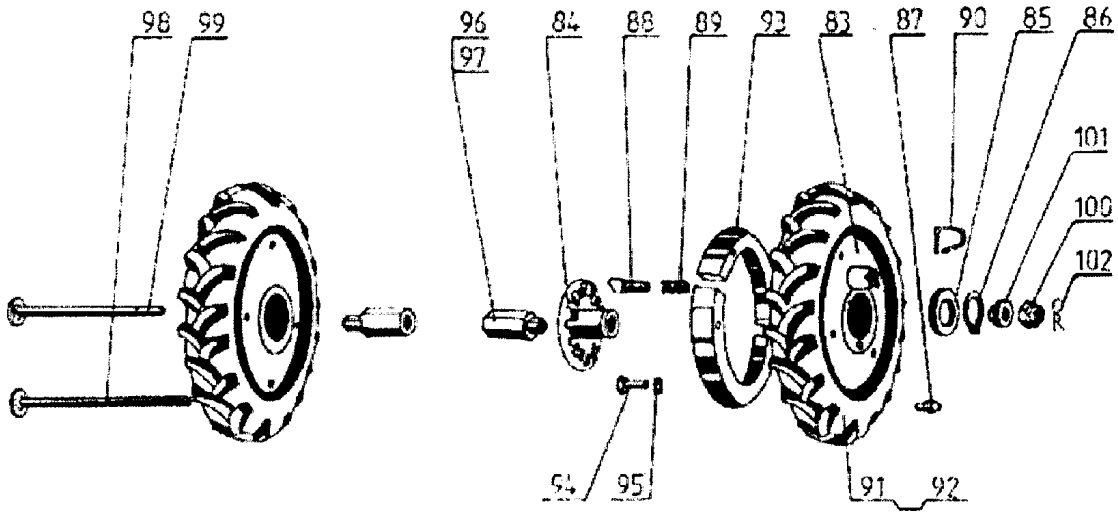


	22 9 1972 003		**SUSPENSION DEVICE BZN-004**	1
75	22 9 1846 004	107 002	Suspension with weight carrier	1
76	32 0 1956 002	107 004	Carrier weldment	1
77	32 0 1964 001	107 503	Weight 33 kg	1
78	32 0 1932 003	107 001	Weight 5 kg	2
79	32 0 9043 002	106 023	Screw	2
80		107 502	Bolt M12x70 ČSN 021101.15	2
81		106 531	Nut M12 ČSN 021401.15	2
82		106 532	Washer 12 ČSN 021740.05	2



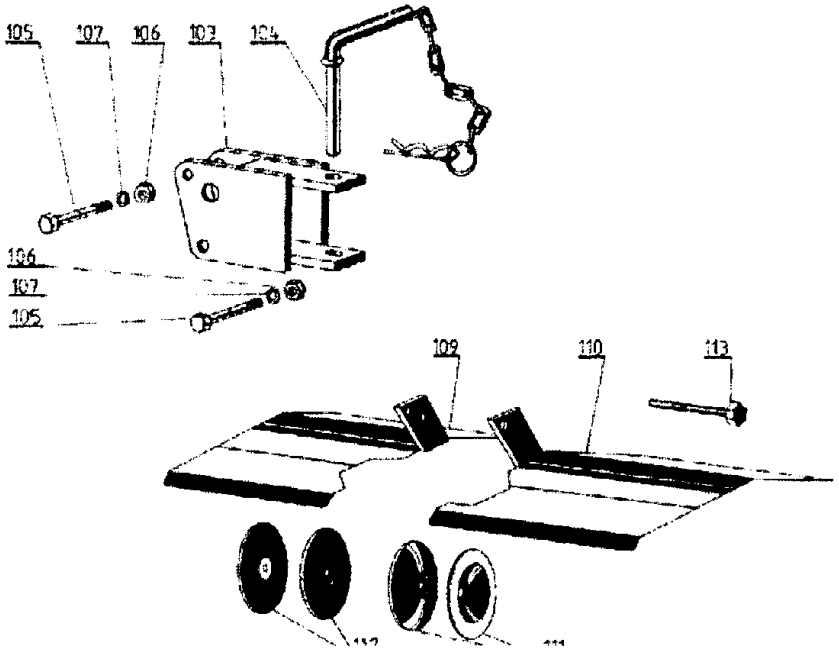
	22 9 1796 020		**TOWING AXLE TN-03**	1
	22 9 1796021A		**Left wheel**	1
	22 9 1796022A		**Right wheel**	1
	22 9 1796 024		Axle MINI 610/480	1
83	22 9 1724 007	106 515	Rim wheel	2
84	22 9 1724 008	106 516	Wheel hub	2
85	32 0 9520 006	106 042	Ring	2
86		110 532	Retaining ring 60 ČSN 022930	2
87		106 547	Head KM 8x1 ČSN 027421.3	2
88	32 0 1721 001	106 517	Finger	2
89	32 0 9746 007	106 518	Spring	2
90	32 0 9244 001	106 047	Dog	2
91		106 521	Tire 5.00"-12"	2
92		106 520	Air tube 5.00"-12"	2
93	22 9 1725 008	106 523	Internal weight	2
94		106 536	Bolt M10x50 ČSN 021101.15	8
95		106 530	Washer 10 ČSN 021740.05	8
96	22 9 9535 014	110 034	Axle shaft 480 mm	2
97	22 9 9535 015	110 035	Axle shaft 610 mm	2

98	22 9 9316 032	106 024	Bolt for 610 mm	1
99	22 9 9316 033	106 027	Bolt for 480 mm	1
100		110 531	Nut M16x1.5 ČSN 021411.25	1
101	32 0 9226 001	106 029	Washer	1
102	32 0 9245 001	106 524	Split pin	1



22 9 1796 027	**TOWING AXLE TN-06**	1
22 9 1796021B	**Left wheel**	1
22 9 1796022B	**Right wheel**	1
22 9 1796 024	Axle MINI 610/480 Note: positions identical with TN-03, in axle TN-06 position 93- is not mounted. Internal weights, 94 and 95.	

	22 9 1972004A		**HINGE Z-1**	1
103	22 9 1937 001	106 002	Hinge weldment	1
104	22 9 9316 038	106 003	Pin complete	1
105		106 544	Bolt M10x75 ČSN 021101.25	1
106		106 529	Nut M10 ČSN 021401.25	2
107		106 530	Washer 10 ČSN 021740.05	2
			CASING T-20	1
109	22 9 1846 015	110 037	Left casing	1
110	22 9 1846 014	110 036	Right casing	1
113		110 539	Bolt M10x90 ČSN 021101.25	1



IX. WARRANTY TERMS.

1. Manufacturer answers for product's design, function, quality and completeness of the machine and implements only on the condition that the machine is handled according to the instructions presented in the manual which is an integral part of the delivery of all machines and implements.
2. Warranty does not apply to safety devices against machine overloading, to defects from natural wear of the machine or implement, improper storage or unskilled operation and/or to damages caused by the customer or by a third person.
3. Warranty extincts by a breakdown of the machine or working implement, which did not result from a defect incurred at the manufacturer's or from any intervention into construction of the machine or implement not agreed by the manufacturer.
4. Detailed description of warranty terms is to be found in the Letter of quarantee which is attached to the machine or implement and which is given to the customer at purchase.

X. INSTRUCTIONS FOR ORDERING SPARE PARTS:

The following data are to be used for easier identification when ordering the spare parts:

- Machine type, engine type, machine serial number and year of manufacture;
- Ordering number given by manufacturer and its name in the component list;
- Number of ordered pieces separately for each item;
- Precise address, telephone number, fax number or e-mail address;
- If you are not certain about the correct identification of the component, send the damaged component either to the nearest service shop or to the manufacturer;
- All components should be ordered in the nearest service shop or at your dealer's.

In the case of any confusions concerning the spare parts or technical issues, the VARI a.s. commercial, customer-service or technical departments are prepared to answer all your inquiries.

Contact to manufacturer:

VARI,a.s.
Opolanská 350
Libice nad Cidlinou
CZECH REPUBLIC
289 07

Telephone: (+420) 325 607 111
Fax: (+420) 325 607 264
(+420) 325 637 550
E-mail: vari@vari.cz
internet: http://www.vari.cz/