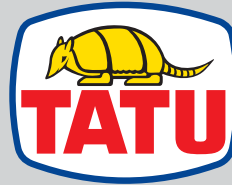
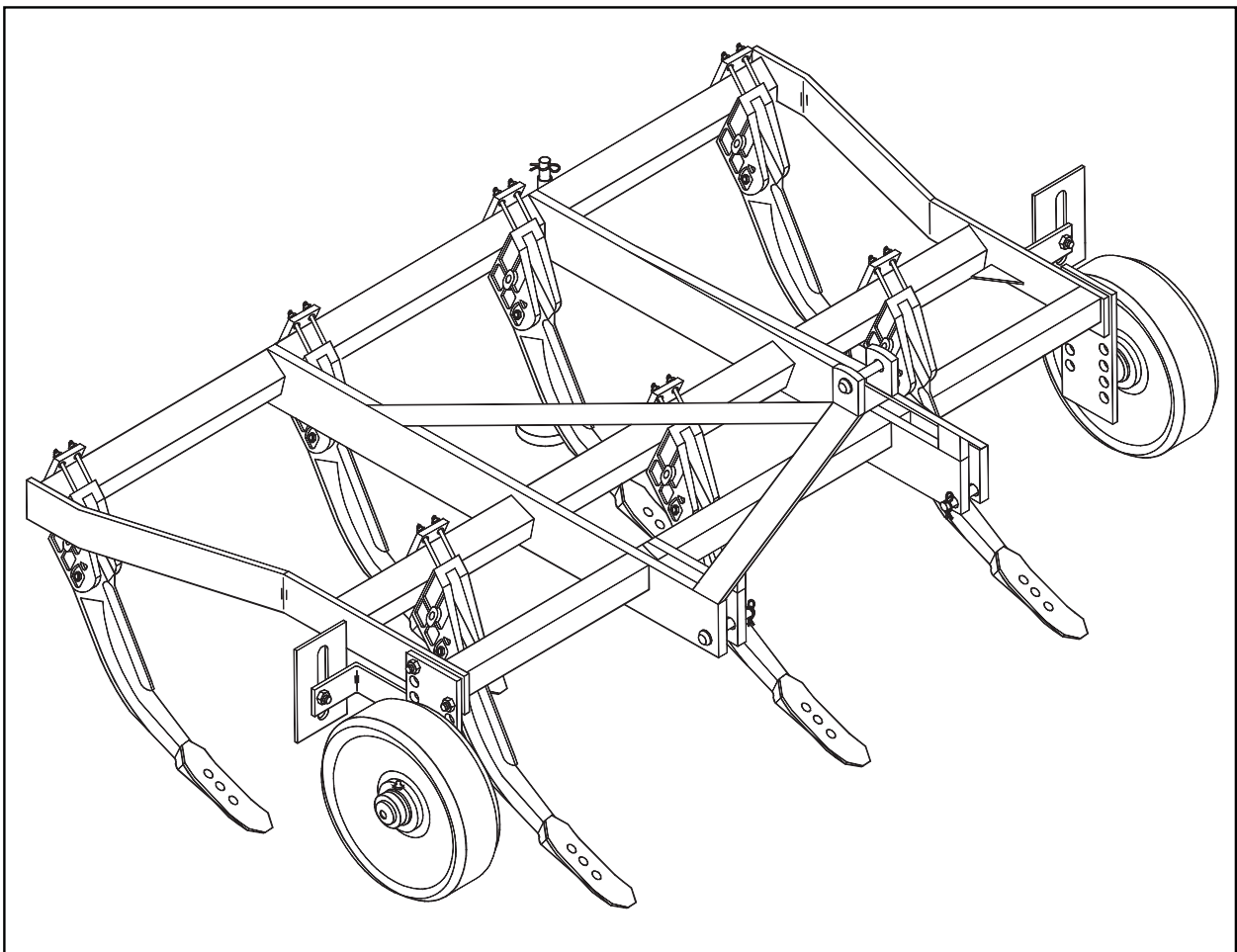


Planters
Implements
Disc Blades
Tillage
Tools



MARCHESAN

INSTRUCTIONS MANUAL



AST

INTRODUCTION

The model AST Mounted Subsoiler Plow, is especially designed to eliminate compacted layers of soil up to 45 cm of depth, or shallower, carrying out the scarification of the soil.

It is an equipment of fundamental use in the soil conservation, it avoids the erosion and maintains higher humidity levels, providing better growing of the plant root system, what in the drought periods takes advantage of the stored water and absorbs larger amount of nutrients.

Mounted to the tractor 3-point hitch and supplied with variable number of shanks. The reversible point allows to use both ends.

The performance and high productivity are due to the quality of raw material and the special techniques of manufacturing, that are common characteristics in the TATU products.

This Instructions Manual contains the necessary information for the best subsoiler performance. The Operator must read with attention the whole Manual before starting the operation and be aware of safety recommendations.

To obtain any information, or in the eventuality of technical problems, consult the dealer, as well as Marchesan's customer service, that will guarantee the subsoiler full operation.



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TO THE OWNER

Acquisition of any TATU product assures to the original purchaser the following rights:

- Warranty certificate.
 - Instructions manual.
 - Technical assistance by the dealer on the equipment delivery.
 - The owner has obligation to inspect the conditions of the product on delivery, as well as knowing the warranty terms.
 - Special attention should be given to **safety recommendations**, operation cares and maintenance of the product.
 - Be sure to read and understand the instructions for adjusting and operating the equipment as reported in this manual. Check each item referred to obtain efficient operation and maximum trouble free performance. Remember, an equipment which is properly lubricated and adjusted saves you time, labor and fuel.
- This manual should be directed to the operators and maintenance people.

- Important:** - **ONLY PERSON WHO OWN A FULL KNOWLEDGE OF THE TRACTOR AND IMPLEMENTS, MUST OPERATE THEM.**
- **MARCHESAN IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY ACCIDENT ON TRANSPORT, INCORRECT UTILIZATION OR NO ADEQUATE STORAGE.**
 - **AFTER THE OPERATING SEASON IS FINISHED, THOROUGHLY CLEAN YOUR IMPLEMENT AND INSPECT IT. PREVENTIVE MAINTENANCE PAYS DIVIDENDS.**
 - **YOUR DEALER HAS ORIGINAL EQUIPMENT PARTS WHICH ASSURE PROPER FIT AND BEST PERFORMANCE.**



General Information

- The right and left hand sides of the implement are determined by facing in the direction the implement will travel when moving forward..
- When ordering parts please be sure to furnish the quantity, part number and name of each part wanted. It is also important to give the Serial Number of the machine, which is placed on the chassis

MODELO		DATA	
SÉRIE/Nº		PESO	
MARCHESAN IMPLEMENTOS E MÁQUINAS AGRÍCOLAS "TATU" S/A AV. MARCHESAN, 1979 MATÃO - SP - BRASIL FONE: (16) 3382-8282 FAX: (16) 3382-3607 CNPJ: 52.311.289/0001-63 Inscr. Est. 441.000.151.114			
		Plantadeiras Implementos Discos Ferramentas Agricultas	 MARCHESAN

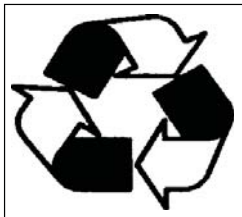
Note: THE WARRANTY SHALL NOT BE APPLIED TO ANY EQUIPMENT, OR ANY PART THEREOF, WHICH HAS BEEN ALTERED ELSEWHERE THAN AT THE PLACE OF MANUFACTURE, OR WHICH THE ORIGINAL PURCHASER THEREOF, AT RETAIL HAS USED OR ALLOWED TO BE USED PARTS, NOT MADE OR SUPPLIED BY MARCHESAN S/A.

TO THE OPERATOR



Dear User !
Respect the Ecology. Do not throw the trash away.
This gesture of goodwill helps to protect our Environment.

Be careful with the Environment.



Do not spill combustible oil, battery and filter residues in the soil. These trashes in contact with the soil reaches the sub layer which directly damage the Environment.

Look for information to delivery these contaminated elements for whom knows to recycle or re-use them.

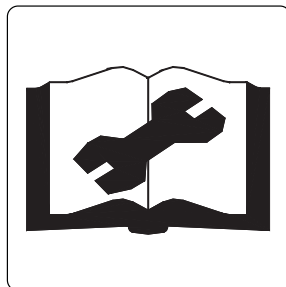
Safety Operation



- ONLY WITH A COMPLETE CO-OPERATION OF IMPLEMENT OPERATOR THE ACCIDENTS CAN BE PREVENTED.
- THIS SYMBOL IS A WARNING DEVICE WHICH SHOULD BE KEPT IN PLACE, CLEAN AND VISIBLE, WHEN TRANSPORTING THE IMPLEMENT DURING THE DAY OR NIGHT. USE ACCESSORY LIGHTS AND OTHER DEVICES IN ORDER TO GIVE ADEQUATE WARNING TO OPERATORS OF OTHER VEHICLES

The model AST Mounted Subsoiler Plow is easily operated, therefore some basic and indispensable cares are required on its handling.

- Have always on mind that safety requires constant attention, observation and prudence during the operation, transport, maintenance and storage of the machine.



Read and understand information before realize adjustment and maintenance.

TO THE OPERATOR



Never use your hands to check for hydraulic leaks. Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing personal injury.



Never attempt to change the adjustments, clean or lubricate the implement when in movement.



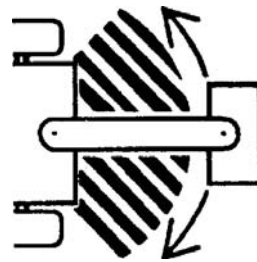
Be careful when moving around steep graders to avoid overturn.



Be careful with use of fertilizer or chemicals. These products in contact with skin could cause personal injury to the body.



Keep the entrances and places accessible to working, clean and free of the oil and grease to prevent accidents.



Never transport the implement on rough roads during the night. When operating avoid to make sharp turns that may cause tire to make contact with implement.



Never allow riders on the tractor or implement unless an additional seat is available.



Use extreme caution when circulating with the implement under electrical power lines, any contact could result in severe shock, injury or death.



In order to protect yourself always wear adequate clothes and shoes during the operations.

TO THE OPERATOR



- During work or transportation only the operator is allowed on the tractor.
- Do not allow children to play near the place you are operating the plow, as well as when transporting or storing.
- Get to know intimately the terrain before plowing begins. Stake out danger spots or obstacles.
- Utilize speeds compatible with the conditions of the terrain or roads passed through.
- Use equipments for your own protection.
- Wear adequate clothes and shoes. Avoid wearing clothes which are either too loose or firmly tied to the body and which might catch on movable parts of the equipments.
- Never operate the equipment without its **safety devices**.
- Be careful when effecting the coupling with the 3-point hitch.
- Before lifting or lowering the plow look out for people or animals nearby.
- Never try to change adjustments, clean or lubricate the plow in movement.
- Always turn off engine before leaving the operator seat.
- Attach the plow only to a tractor with required horsepower.
- Be careful with transport width when passing through narrow places.
- Whenever you disconnect the plow on the field or in the shed make sure the equipment is on level and firm ground and adequately supported.
- See general safety instructions on the countercover of this manual.

Transportation on Truck or Trailer



- Long distance transportation should be made on a truck, trailer etc. by observing the following safety instructions:
- Use appropriate ramps for loading or discharging the plow. Do not use slopes as makeshift ramps, as these may cause severe accidents.
 - If a hoist is employed the plow should be raised at the appropriate lifting points.
 - Use clock blocks and safety, chains, ropes, etc. to secure the plow during transportation.
 - Examine conditions of the cargo after having driven the first 8 to 10 km and thereafter check for slack cables/ropes at every 80 to 100 km. Check on the cargo at shorter intervals when travelling along rough roads.
 - Be always on the alert. Watch the height of your conveyance, particularly when passing under electrical power lines, viaducts, etc.
 - Keep abreast of current regulations regarding limits for height and width of cargo. If necessary use flags, lights and reflectors to alert other drivers.

TECHNICAL SPECIFICATIONS

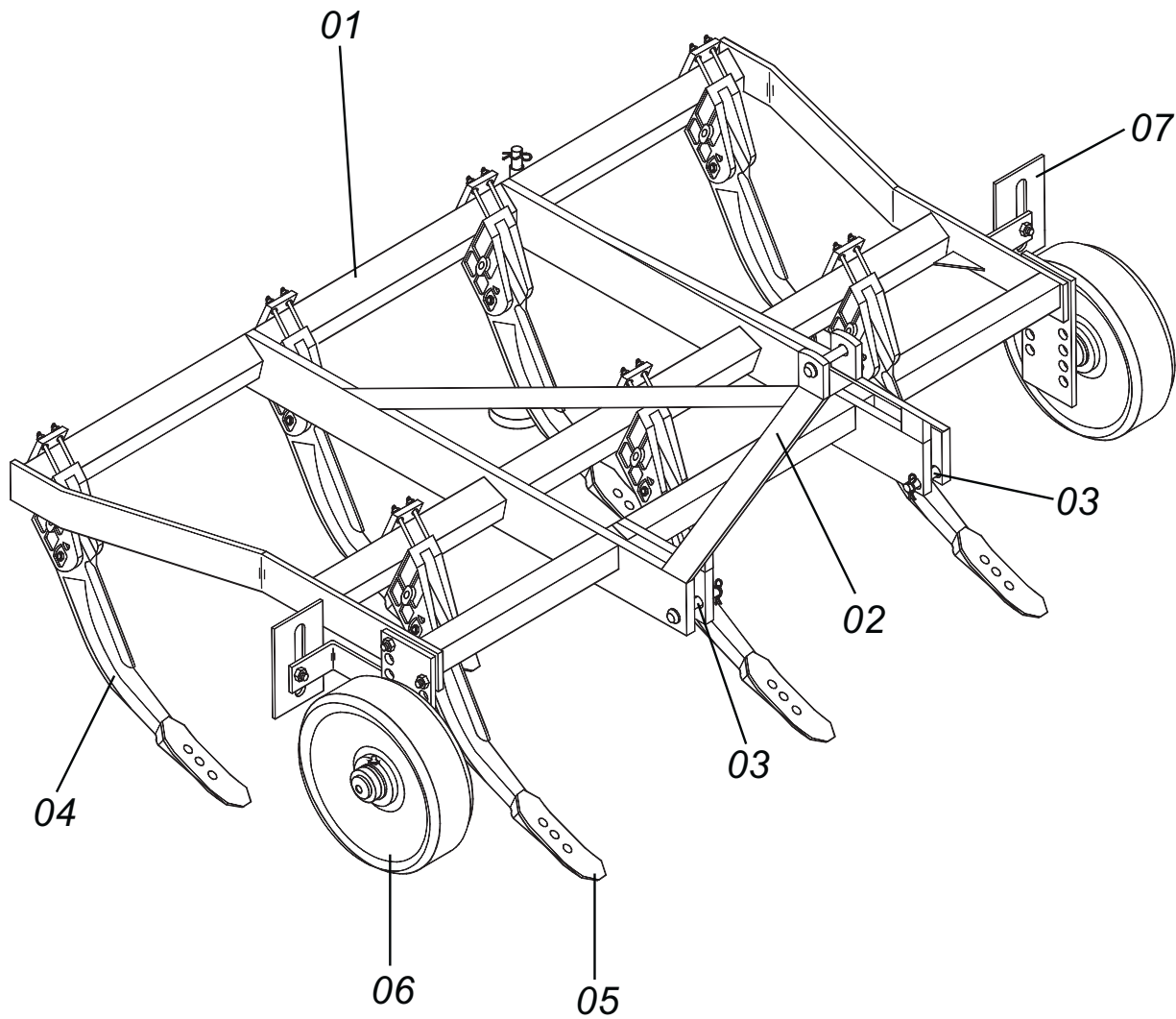
Technical Specifications

Model	Number of Shanks	Spacing (inches)	Working Width (inches)	Net Weight (lbs)	Tractor Engine HP required	
					Superficial	Deep
AST 3/3	03	13 1/2	27	645	40 - 45	55 - 65
AST 5/3	03	31	61 1/2	730	40 - 45	55 - 65
AST 5/5	05	15 1/2	61 1/2	860	55 - 60	70 - 80
AST 9/5	05	19 1/2	78 3/4	1040	55 - 60	70 - 80
AST 9/7	07	12 1/2	75 1/2	1170	70 - 80	90 - 105
AST 9/9	09	9 3/4	78 3/4	1390	90 - 105	115 - 130
AST 11/9	09	12 1/4	97 1/2	1560	90 - 105	115 - 130
AST 11/11	11	10 1/2	104	1610	110 - 120	140 - 150

COMPONENTS

AST - Mounted Subsoiler Plow

- 01 - Main Frame
- 02 - 3-Point Hitch
- 03 - Hitch Pins
- 04 - Shanks
- 05 - Subsoiler Point
- 06 - Depth Wheel
- 07 - Scraper



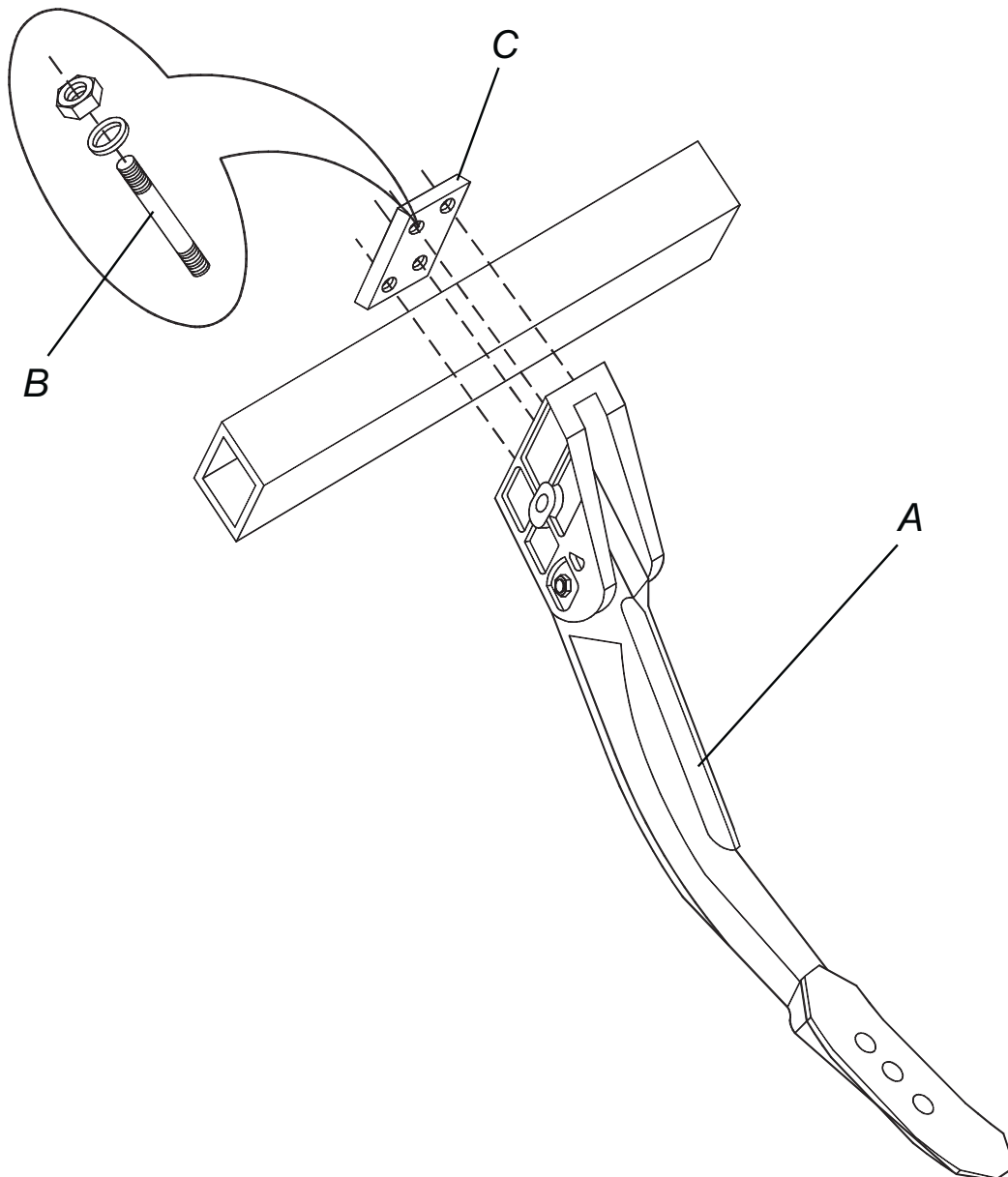
ASSEMBLY

General Assembly

For placement of the shanks, observe the positioning of the same ones first according to schemes of the following pages:

Assembly of the Shanks

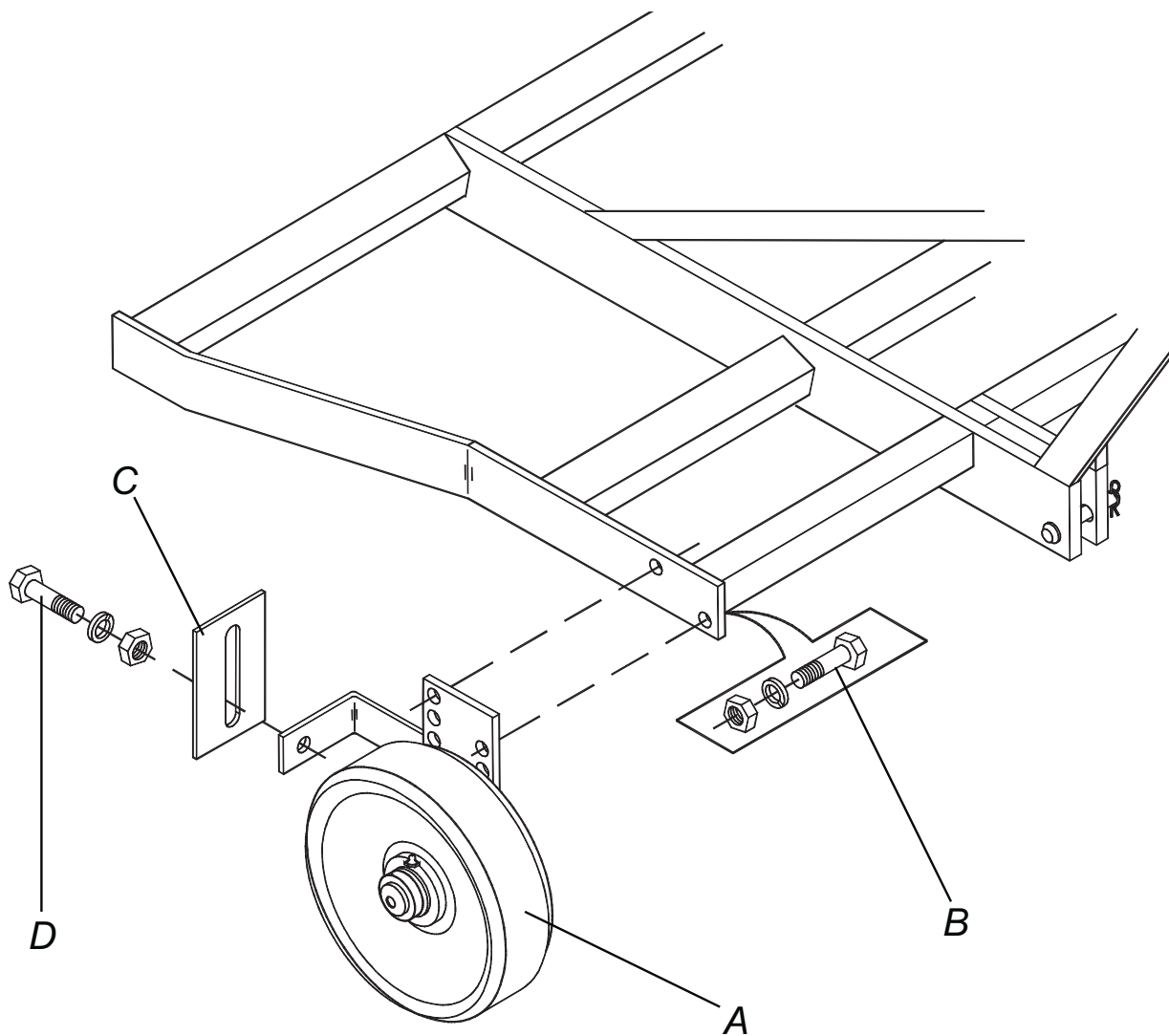
- Install the shanks (A) in the chassis, through the bolts (B), mounting plates (C), lock washers and nuts.



ASSEMBLY

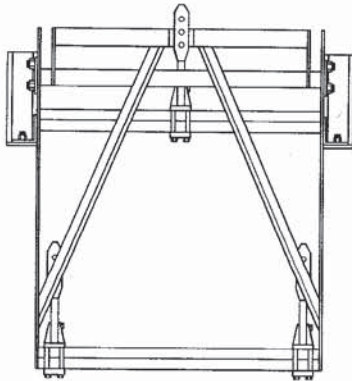
Mounting Depth Wheels

- Install the depth wheels (A) in the chassis, using bolts (B), lock washers and nuts. (See depth control adjustment by mounting holes in page 16).
- In the sequence, also fasten the scrapers (C), using bolts (D), lock washers and nuts.

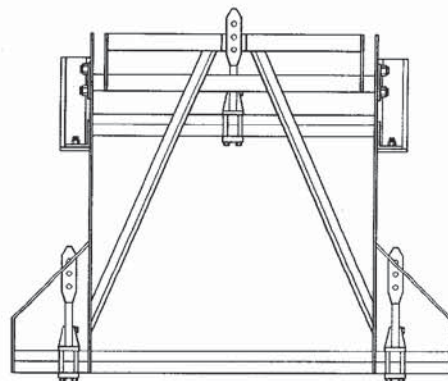


ASSEMBLY

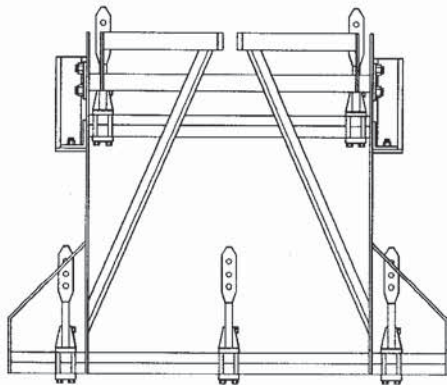
Models and Shank Positioning



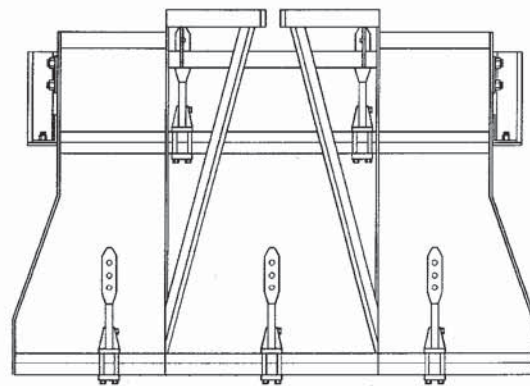
AST 3/3
13 1/2"



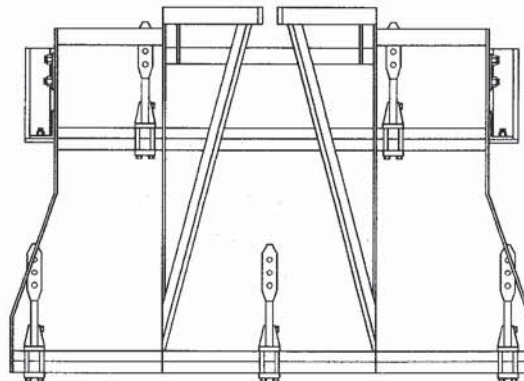
AST 5/3
30 3/4"



AST 5/5
15 1/4"



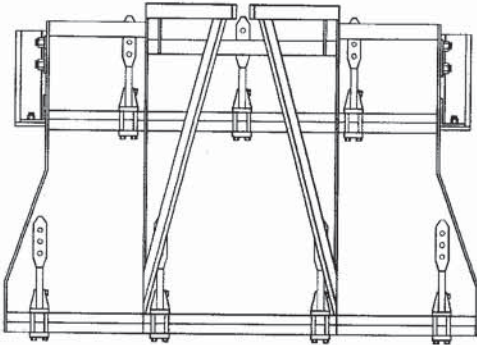
AST 9/5
12 1/2"



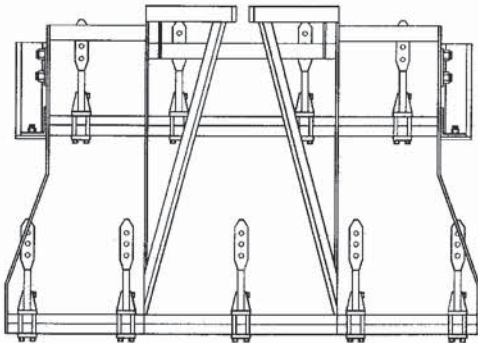
AST 9/5
19 1/2"

ASSEMBLY

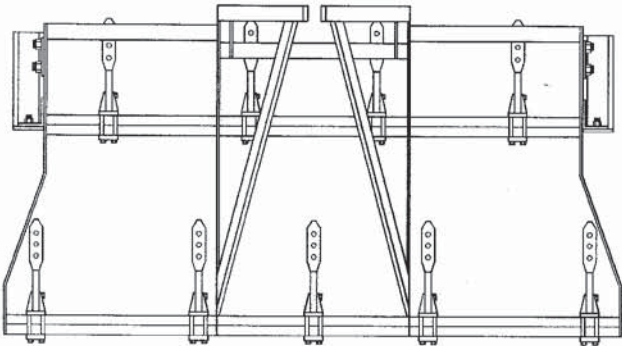
Models and Shank Positioning



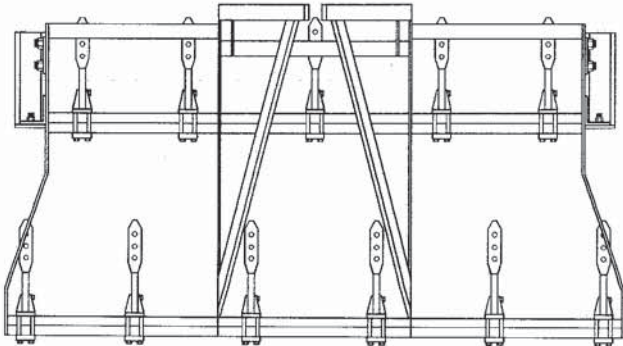
AST 9/7
12 1/2"



AST 9/9
9 3/4"



AST 11/9
12 1/4"



AST 11/11
10 1/2"

SET-UP INSTRUCTIONS

Hitching to the Tractor

Choose a flat and firm area.

Drive the tractor at slow reverse speed in direction to the implement . When matching the implement use the lever to control the hydraulic position , allowing the left lower arm be leveled with the hitch pin.

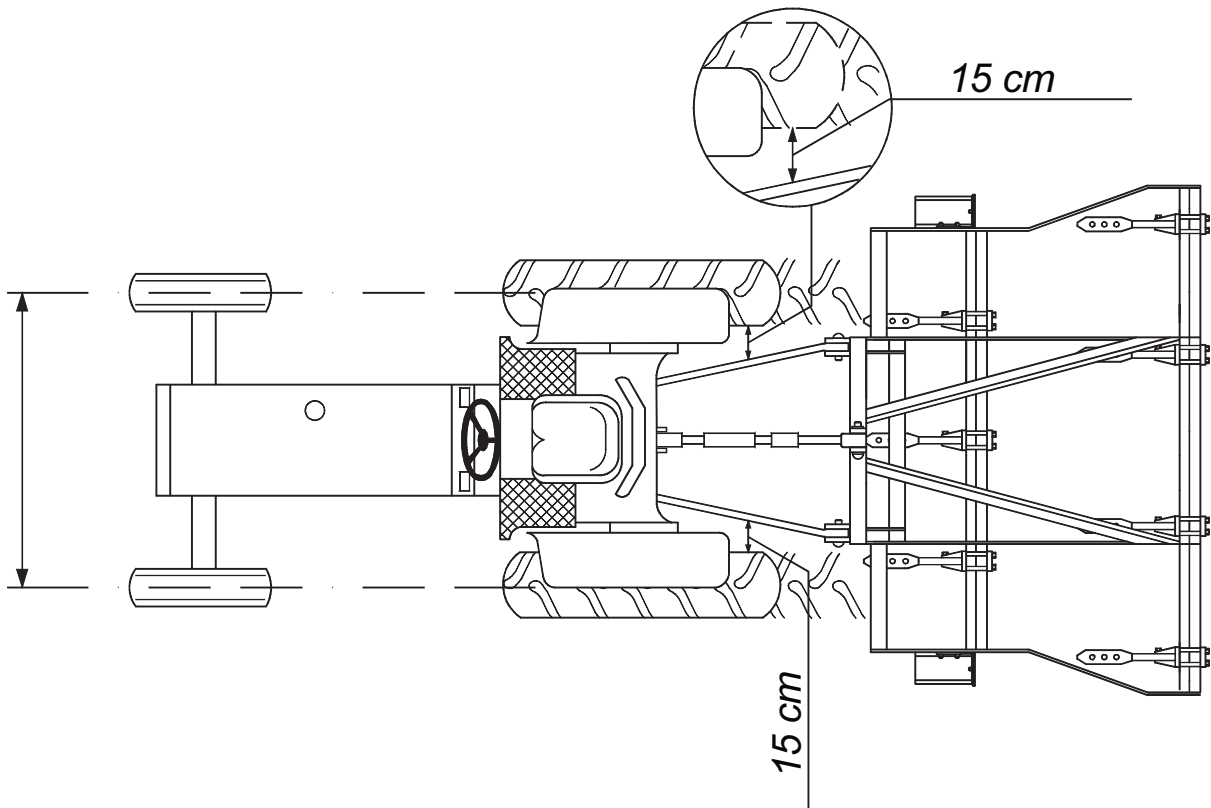
1°) Fit the lower left arm and insert the lock pin.

2°) Fit the tractor three point arm on the plow tower and insert the clips.

3°) Fit the lower right arm, which bears upwards and downwards movement through the leveling crank. At this point the srew thread of three point of the tractor can be used to approach or fasten the plow to facilitate the hitch.

For a perfect hitching the tractor must be centralized in relation to the tractor longitudinal axis, in the following way:

- Align the plow tower with the tractor three point and inspect if the distances between the hydraulic lower arms are equals in relation to the correspondent tyres (as shown on Picture = 15 cm) and arms should be leveled between themselves.



SET-UP INSTRUCTIONS

The next orientations should be well observed in order to reach the best performance.

Preparing the Tractor

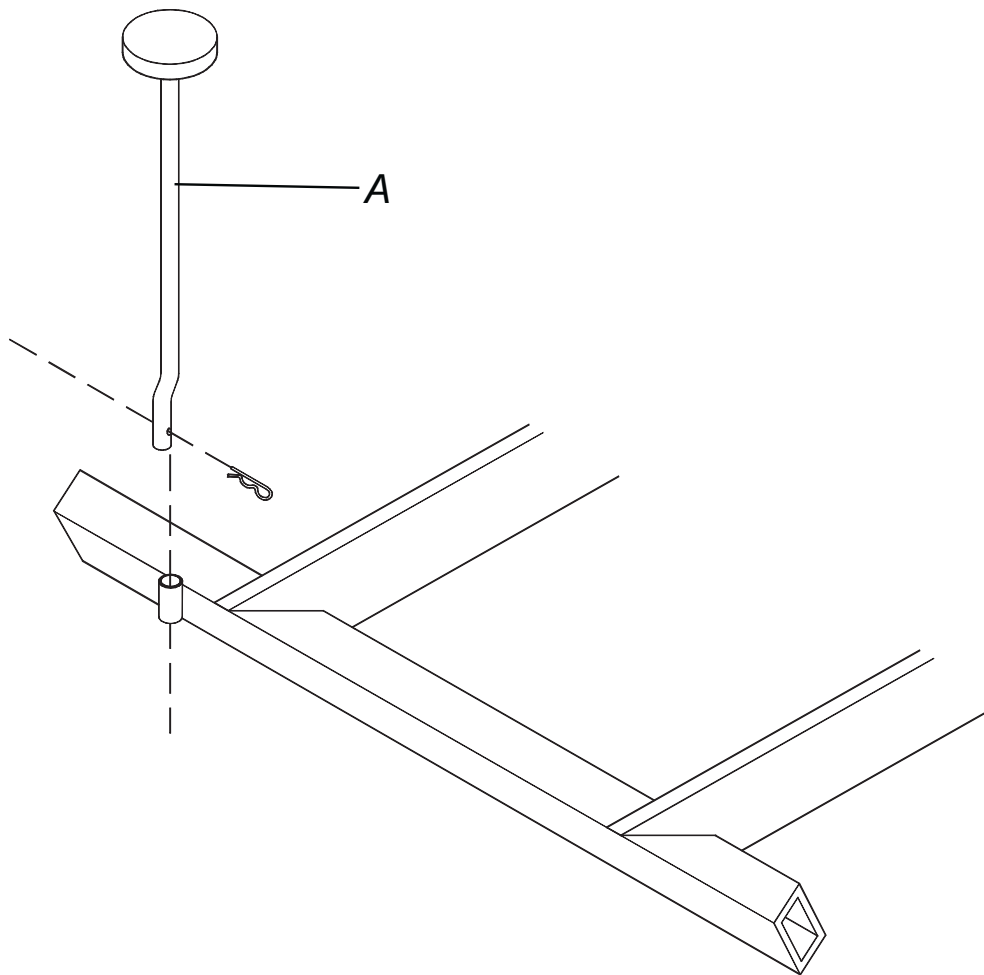
Before starting the operations it is necessary to set-up adequately the tractor and the equipment.

- Initially verify the general conditions of the tractor, mostly with regard to the good operation of the 3-point lift system.

- Apply the necessary water ballast on tires, add weights on front and rear of tractor, in order to increase the traction on the soil and give more stability to the tractor.

- After coupling to the tractor, place the support (A) in transport/working position.

- Verify the conditions of all parts, tightening the bolts and nuts.



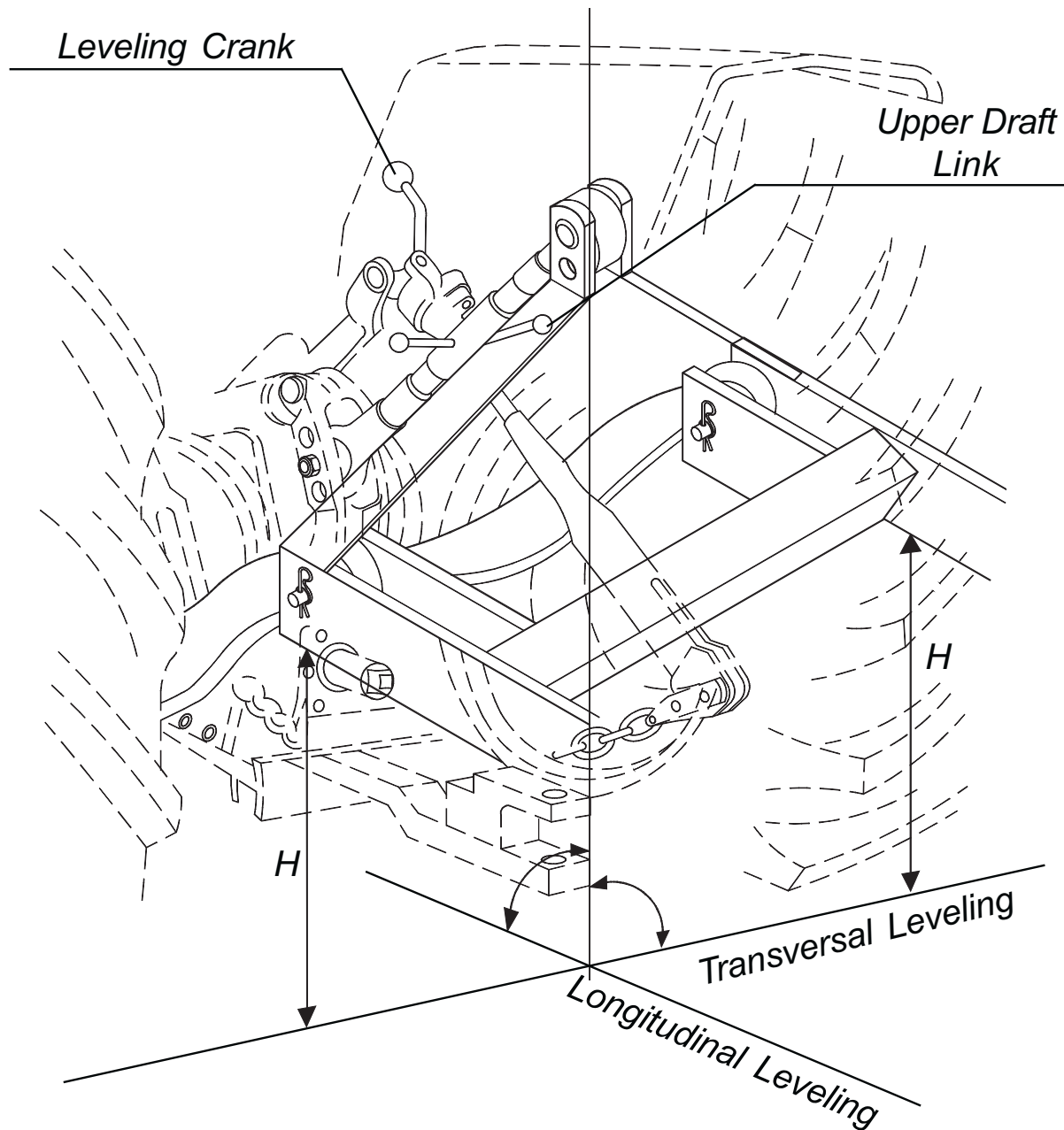
ADJUSTMENTS AND OPERATIONS

Plow Leveling

Place the plow in a flat surface and make the leveling in the width extent (Transversal) and in the length extent (Longitudinal).

In relation to the width, the leveling is made by the leveling crank of the hydraulic lower link, being necessary to place the plow mast in a vertical position or same "H" measures.

The leveling in the length extent is made through the hydraulic upper draft link and is necessary to set the shanks parallel to the ground.



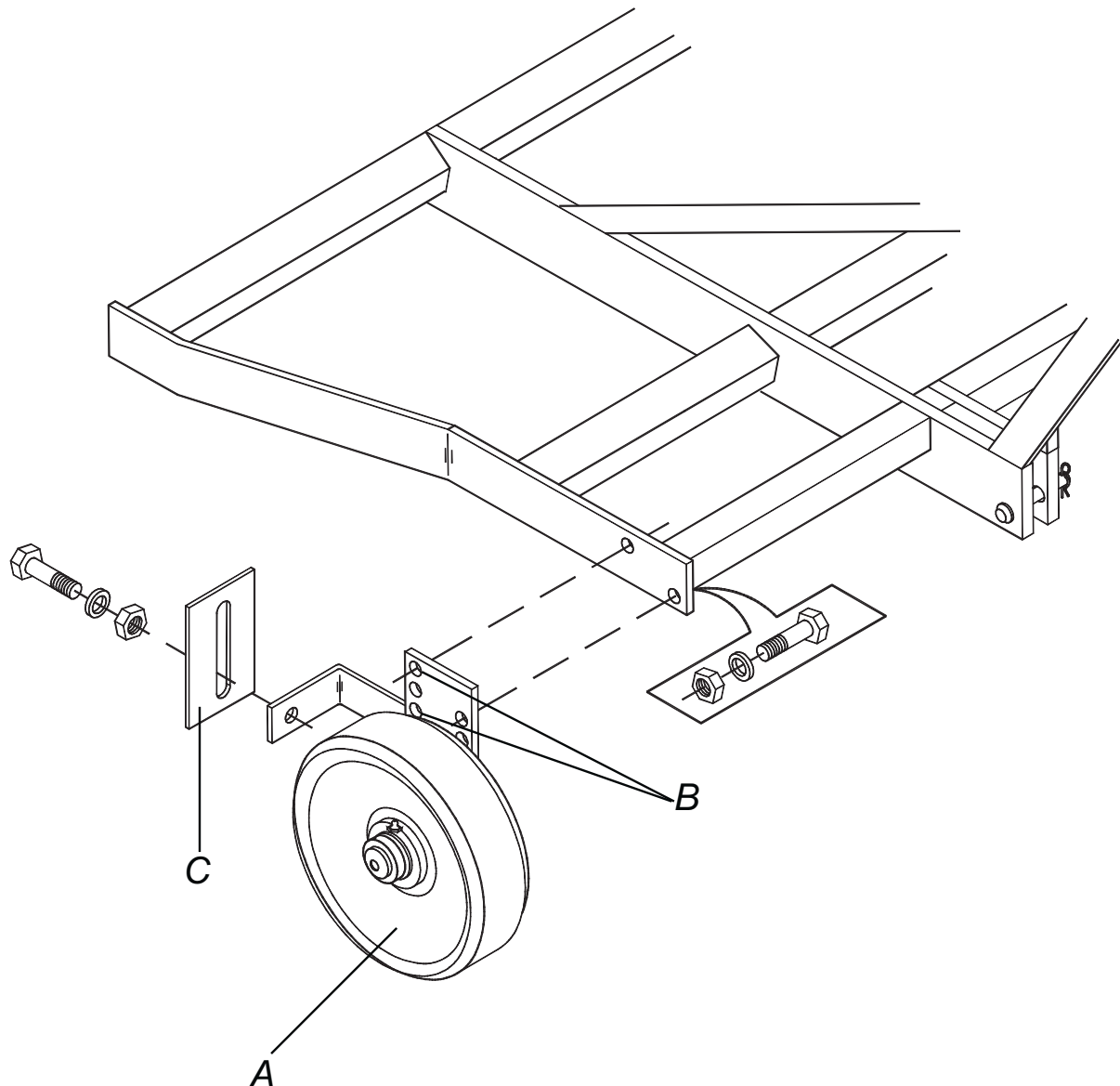
ADJUSTMENTS AND OPERATIONS

Adjusting Depth of Cut

The shattering depth is adjusted by the lateral wheels (A), that possess holes (B) in the respective support plates.

The use of these wheels limit the penetration of all shanks in an uniform way and helps to alleviate the tractor 3-point lift system.

The scrapers (C) also possess adjustment, their edges should keep 01 or 02 cm apart from the wheels.



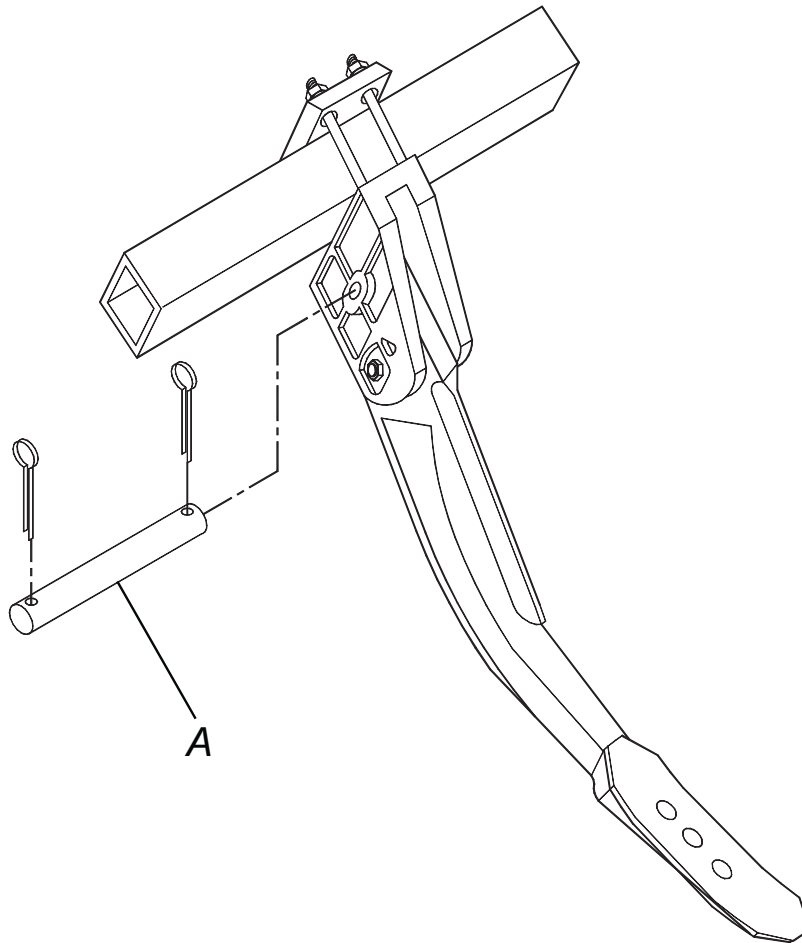
Adjusting the Spacing Between Shanks

The TATU subsoiler plow also possess adjustment of the spacing between shanks, since they slide on the chassis. This adjustment will be defined according to the type of soil being prepared.

ADJUSTMENTS AND OPERATIONS

Shear Pins

The shanks are protected per shear pins (A), for safety of the plow operation and protection of the tractor 3-point lift system. However, in case of replacement, use originals shear pins.



Points of the Shanks

The subsoiler points must be replaced when noticing excessive wear, for not harming the shattering action of the compacted layer.

The points can be reversed for use of both ends.

ADJUSTMENTS AND OPERATIONS

OPERATIONS - Important Points

The subsoiling operation should be done with dry land condition, after plowing or deep harrowing operation, allowing to shatter hardpan, or plow sole as well known, that is found at 35-cm depth approximately underground.

The working depth of the shanks is adjusted according to the location of the compacted layer. Do not make subsoiling operation at unnecessary depth.

- Only person who own a full knowledge of the tractor and plow, must operate them.

- For hitching to the tractor, drive slowly in an open area and be prepared to apply the brakes.

- Retighten nuts and bolts and check pins and cotter pins after the first day of operation, thereafter retightening at every 24 hours of service.

- Comply strictly with the lubrication intervals.

- Keep the tractor lower arms links properly adjusted.

- At operation keep the plow centralized to the tractor and leveled in relation to the soil surface.

- Before making any inspection on the plow, always lower it to the ground, shut the engine off, lock the tractor's parking stand brake and remove the ignition key.

- During work or transportation only the operator is allowed on the tractor.

- Do the subsoiling operation following the soil contour lines.

- Select a gear which allows the tractor a certain power reserve, guarding against unforeseen efforts.

- The tractor speed is a consequence of the gear selected and is determined by local conditions. To maintain working efficiency and prevent possible damages to the plow we recommend an average speed of 4.0 to 4.5 km/h which should not be exceeded to maintain the job efficiency and avoiding possible damages to the plow.

- Whenever you disconnect the plow on the field or in the shed make sure the equipment is on level and firm ground and adequately supported.

MAINTENANCE

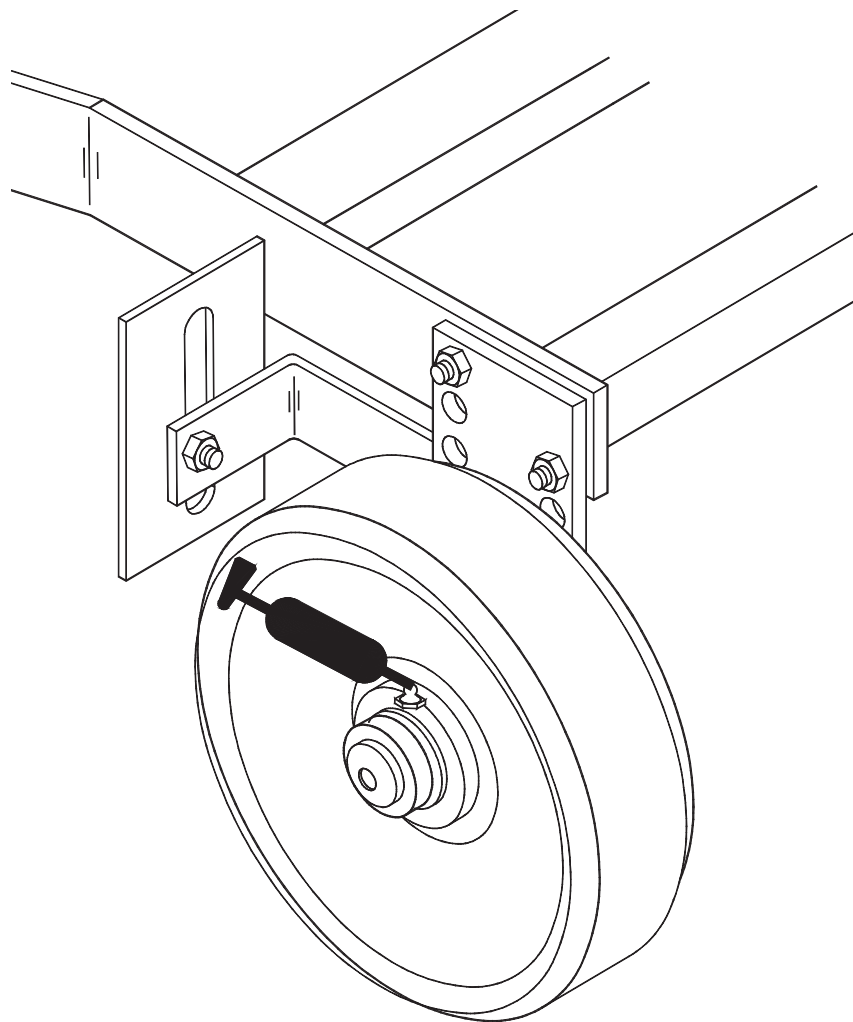
Lubrication

We recommend to lubricate the depth wheel every 100 hours of service, in the following way:

- Be certified of the lubricant quality, with relation to its efficiency and purity, avoiding the use of products contaminated by water, dirt, etc...
- Remove the crown of old grease around the articulations.
- Clean up the grease fittings with a cloth before introducing the lubricant and replace the defective.
- With a pressure lubrication gun apply a sufficient amount of medium consistency grease or equivalent to flush out the old grease and dirt.

Lubrication Points

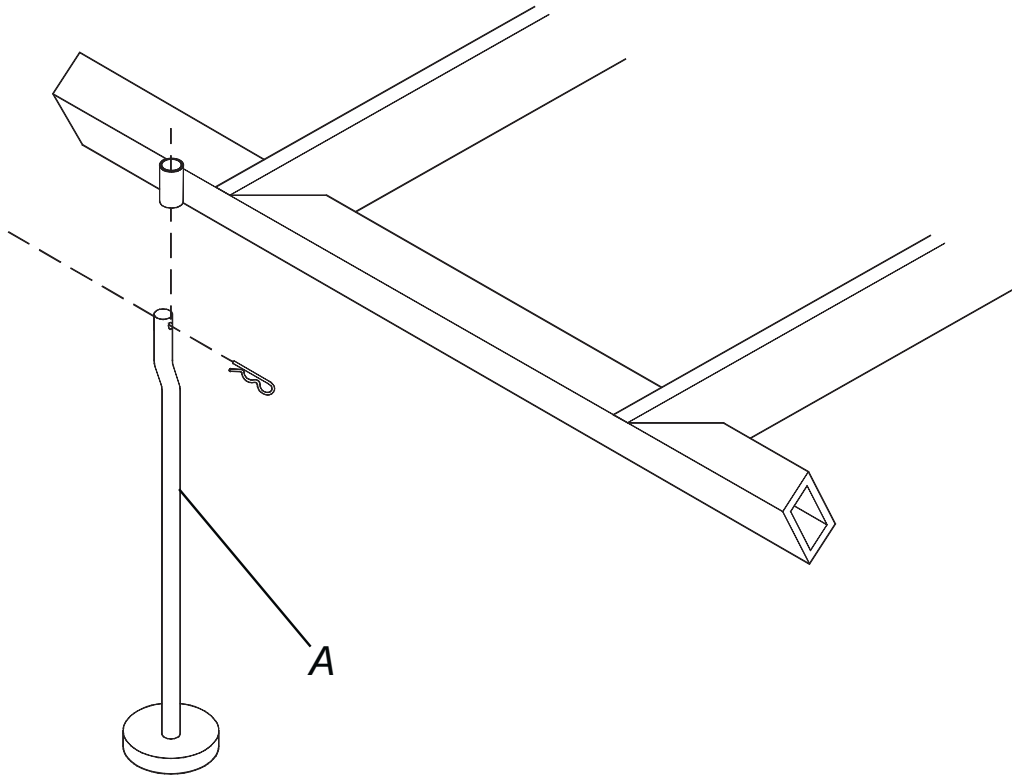
Lubricate every 100 hours of service.



MAINTENANCE

Maintenance of the Plow

- In disuse period washes the plow, retouch the painting that fault, lubricate the grease fittings, protect the plow with oil and store it in covered and dry place.
- Place the stand (A) and support the plow properly, avoiding accidents.
- The subsoiler points must be replaced when noticing excessive wear.
- Inspect all the movable parts and if any is spoiled, replace it with new parts.



Note: USE ONLY ORIGINAL TATU PARTS.

IMPORTANT

ATTENTION

MARCHESAN S/A RESERVES THE RIGHT AT ANY TIME TO MAKE IMPROVEMENTS IN THE DESIGN, MATERIAL OR SPECIFICATIONS OF MACHINERY, EQUIPMENT OR PARTS WITHOUT THEREBY BECOMING LIABLE TO MAKE SIMILAR CHANGES IN MACHINERY, EQUIPMENT OR PARTS PREVIOUSLY SOLD.



TECHNICAL PUBLICATION DIVISION

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e-mail: tatu@marchesan.com.br

<http://www.marchesan.com.br>

ATENÇÃO

- RECOMENDAÇÕES GERAIS DE SEGURANÇA -

- 1 - Apenas pessoas que possuem o completo conhecimento do trator e dos implementos devem conduzi-los.
- 2 - Para engatar os implementos faça as manobras em marcha lenta, em local espaçoso e esteja preparado para aplicar os freios.
- 3 - Para acoplamento na tomada de força desligue o motor do trator.
- 4 - O motor não deve funcionar em locais sem o ideal arejamento, devido a toxicidade dos gases expelidos.
- 5 - Faça todos os lastreamentos necessários para tracionar equipamentos que os exigem, assim as operações tornam-se mais seguras.
- 6 - Em operações com o trator estacionado trave os freios e calce as rodas.
- 7 - Todas as peças móveis como correias, polias, engrenagens, etc. merecem cuidados especiais.
- 8 - Vista roupas e calçados adequados para operação das máquinas e implementos agrícolas.
- 9 - Não permita que demais pessoas acompanhem o operador no trator ou no implemento.
- 10 - O uso das roçadeiras exige cuidados especiais. Não permita a aproximação de pessoas ou animais durante o serviço.
- 11 - Não efetue regulagens com o implemento em funcionamento.
- 12 - Não permita que crianças brinquem sobre ou próximo o implemento estando o mesmo em operação, transporte ou armazenado.
- 13 - A velocidade de operação deve ser cuidadosamente controlada.
- 14 - Em terreno inclinado mantenha a estabilidade ideal. Em início de desequilíbrio abaixe a aceleração e não levante o implemento.
- 15 - Os implementos de controle hidráulico devem ser abaixados até o solo e aliviados da pressão antes de desconectar qualquer tubulação.
- 16 - Não verifique vazamentos nos circuitos hidráulicos com as mãos, a alta pressão pode provocar lesões corporais; use papelão.
- 17 - No término do trabalho os implementos deverão ser desengatados e devidamente apoiados no solo ou sobre cavaletes, não podendo ficar suspensos pelo hidráulico do trator.
- 18 - Não transite em rodovias ou estradas pavimentadas.
- 19 - Os implementos agrícolas tais como grades, arados e outros, possuem normalmente órgãos ativos afiados, com bordas cortantes que oferecem riscos de acidentes mesmo quando não estão operando. Portanto estes devem ser mantidos em local apropriado, devidamente apoiados no solo; e impedindo-se o acesso de crianças e pessoas alheias ao manuseio dos mesmos.
- 20 - Para estacionar o trator, desligue o motor, neutralize a ação dos comandos e aplique os freios.

ATENCIÓN

- RECOMENDACIONES GENERALES DE SEGURIDAD -

- 1 - Solamente personas con el completo conocimiento del tractor y de los implementos deben conducirlos.
- 2 - Para enganchar los implementos, proceda con maniobras en marcha lenta, en local con espacio y esté preparado para aplicar los frenos.
- 3 - Para acoplar en la toma de potencia apague el motor del tractor.
- 4 - El motor no debe funcionar en locales sin ventilación suficiente debido a la toxicidad de los gases expelidos.
- 5 - Proceda con los lastres necesarios para traccionar equipos que así exigir de esta manera, las operaciones se tornan mas seguras.
- 6 - En operaciones con el tractor estacionado (parqueado) trabar los frenos y las ruedas.
- 7 - Todas las piezas móviles como: bandas, poleas, engranajes, etc... necesitan cuidados especiales.
- 8 - Vestir ropas y calzados adecuados para operación de las máquinas e implementos agrícolas.
- 9 - No permita que otras personas acompañen al operador en el tractor o en el implemento; salvo si posee asiento adecuado.
- 10 - El uso de las rotativas (cortamaíces) exige cuidados especiales. No permita la aproximación de personas o animales durante el trabajo.
- 11 - No efectuar regulajes con el equipo en funcionamiento.
- 12 - No permitir que niños jueguen sobre o próximo de los equipos, en operación, durante el transporte o almacenado.
- 13 - La velocidad de operación debe ser cuidadosamente controlada.
- 14 - En terreno inclinado mantenga la estabilidad ideal. En inicio de desequilibrio baje la aceleración y no levante el implemento.
- 15 - Los implementos de control hidráulico deben ser rebajados hasta el suelo y aliviar la presión antes de desconectar cualquier tubería.
- 16 - No verificar filtraciones en los circuitos hidráulicos con las manos, la alta presión puede provocar lesiones corporales, use cartón u otro objeto adecuado.
- 17 - Después del término del trabajo, los equipos deberán ser desenganchados y debidamente apoyados en el suelo o sobre caballetes, evitando el hidráulico del tractor.
- 18 - No transitar en carreteras o caminos pavimentados.
- 19 - Los implementos agrícolas, como: rastras, arados y otros, tienen normalmente órganos activos afilados, con bordes cortantes que ofrecen riesgos de accidentes, aún cuando detenidos, por lo tanto, estos deben ser mantenidos en local apropiado, debidamente apoyados en el suelo e impidiendo el acceso de niños y personas ajenas al uso de los mismos.
- 20 - Para estacionar (parquear) el tractor, apague el motor, neutralice la acción de los comandos y aplique los frenos.

ATTENTION

- GENERAL RECOMMENDATION ABOUT SAFETY -

- 1 - Only person who owns a full knowledge of tractor and implements, must operate them.
- 2 - Take care to prevent injury to the hands or fingers when hitching the implement to the tractor.
- 3 - Always shut the tractor off before connecting the power take off.
- 4 - Never turn on the tractor engine within not aired places, due to toxic gases expelled.
- 5 - Before start the season it is necessary to prepare adequately the tractor and the implement to become the operations safer.
- 6 - Lock the tractors parking brake and block the wheels, before dismounting the tractor for service or to make adjustments.
- 7 - Never allow riders to accompany the operator on tractor or implement, except if there is an adequate seat.
- 8 - Be sure that everyone is standing clear before operating the agricultural implement or machinery.
- 9 - Use extreme caution and wear gloves when handling the disc blades or gang assemblies.
- 10 - Wear adequate clothes and shoes to operate agricultural implements and machinery.
- 11 - Do not attempt to make adjustments when the unit is running.
- 12 - Disconnect the hydraulic hoses from breakaway couplers after bleeding off the system.
- 13 - Always block-up raised equipment when servicing. Never rely on the hydraulic system.
- 14 - The speed must be controlled when transporting the implement on rough roads, bridges, steep grades or any other adverse conditions.
- 15 - Lower the implement or machinery completely to the ground before unhitching from the tractor.
- 16 - Before make any inspection on hydraulic hoses for leaks, cycle the hydraulic cylinders several times to purge entrapped air from the system.
- 17 - When the tractor is equipped with swinging drawbar, lock the drawbar in the fixed position.
- 18 - Agricultural implements such as: Disc Harrows, Disc Ploughs and others have disc blades that is sharp and could cut hands, feet, etc... even when they are not in operation. In order to avoid serious accidents, use chock blocks to prevent the gang assembly from rolling surfaces before assembly to the frame. Wear gloves when handling the blades or gang assemblies.
- 19 - On transport of the harrow always install transport lock devices.
- 20 - When parking the tractor, turn the engine off, lock the tractors parking brake and remove the key.



MARCHESAN IMPLEMENTOS E MÁQUINAS AGRÍCOLAS "TATU" S.A.

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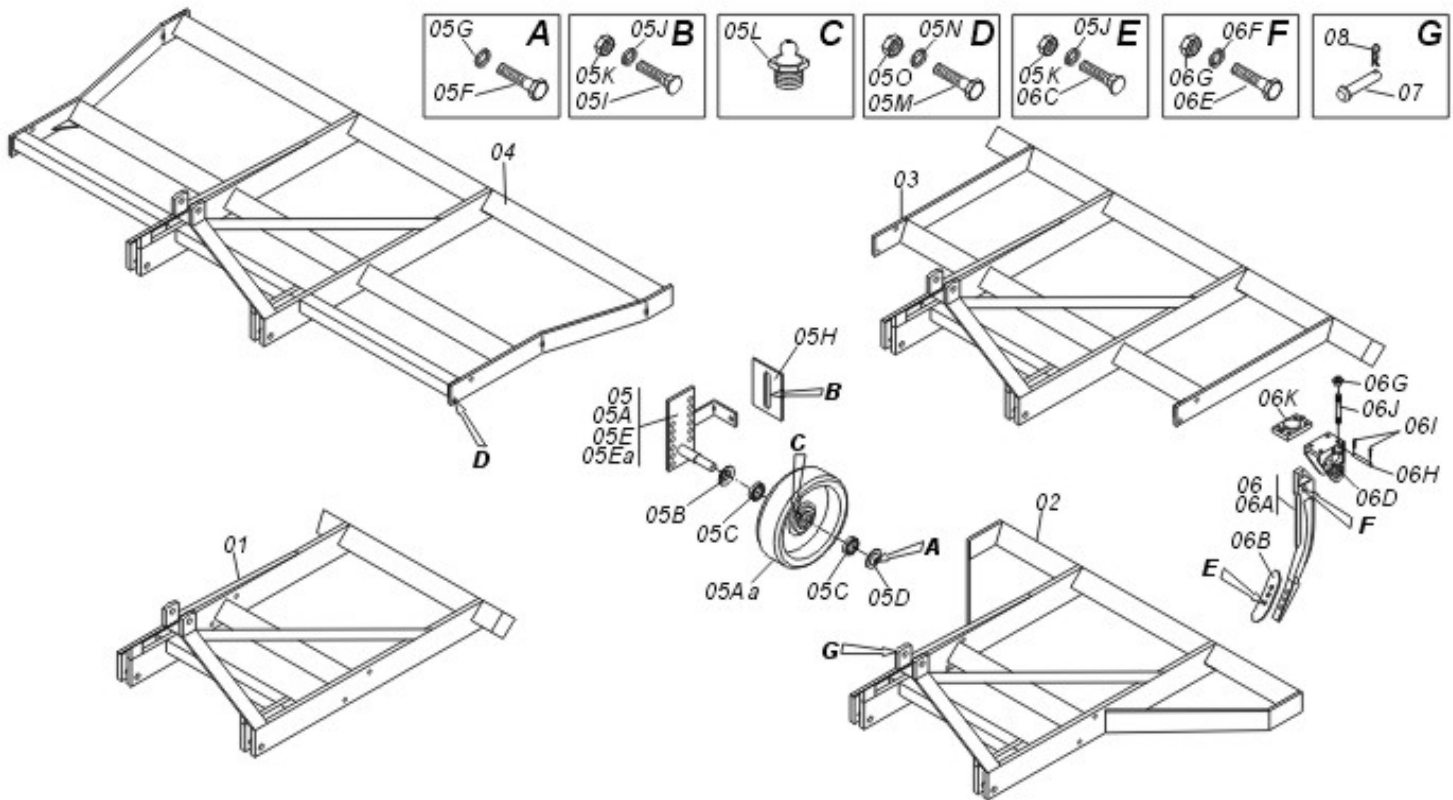
e.mail: tatu@marchesan.com.br

<http://www.marchesan.com.br>

AST - Mounted Subsoiler Plow



MARCHESAN



ITEM	CODE	DESCRIPTION	03	05	09	11
00		MOUNTED TYPE SUBSOILER PLOW				
01	0501062566	FRAME AST 3/3	01	00	00	00
02	0501062427	FRAME AST 5/3 - 5/5	00	01	00	00
03	0501062564	FRAME AST 9/5 - 9/7 - 9/9	00	00	01	00
04	0501062934	FRAME AST 11/9 - 11/11	00	00	00	01
05	0501047840	RIGTH DEPTH CONTROL ASSY	01	01	01	01
05A	0501047841	LEFT DEPTH CONTROL ASSY	01	01	01	01
05Aa	0501063799	WHEEL	02	02	02	02
05B	0501017454	2.8" X 1.4" X 0.75" DUST CLOAK	02	02	02	02
05C	0503010816	6207 RS ROLLER BEARING	04	04	04	04
05D	0501017455	2.8" X 0.4" X 0.75" DUST CLOAK	02	02	02	02
05E	0501063800	RIGHT WHEEL SUPPORT	01	01	01	01
05Ea	0501063801	LEFT WHEEL SUPPORT	01	01	01	01
05F	0503010237	3/8" X 1" HEX BOLT G5	02	02	02	02
05G	0503010025	3/8" SPRING WHASHER	02	02	02	02
05H	0501013138	SCRAPER	02	02	02	02
05I	0501010243	1/2" X 1-1/2" BOLT	02	02	02	02
05J	0503010019	1/2" SPRING WASHER	11	17	29	35
05K	0503010020	1/2" NUT	11	17	29	35
05L	0503010002	GREASE FITTING	02	02	02	02
05M	0501010125	3/4" X 2-1/2" BOLT	04	04	04	04
05N	0503010023	3/4" SPRING WASHER	04	04	04	04

05O	0503010014	3/4" NUT	04	04	04	04
06	0501051550	ARM ASSY	03	05	09	11
06A	0502040714		03	05	09	11
06B	0624010005	POINT SUBSOILER	03	05	09	11
06C	0503012956	1/2" X 1-1/2" BOLT	09	15	27	33
06D	0502010388	SUPPORT FIXER SHANKS	03	05	09	11
06E	0501013713	7/8" X 3-1/2" BOLT	03	05	09	11
06F	0503010408	7/8" SPRING WASHER	15	25	40	55
06G	0503010558	7/8" NUT	15	25	40	55
06H	0521010554	0.5" X 4.1" COUPLING SHAFT	06	10	18	22
06I	0503010577	3/16" X 1-1/4" COTTERPIN	12	20	36	44
06J	0521010088	R7/8" X R7/8"X 7.67" STUD	12	20	36	44
06K	0502010387	FIXER SHANKS PLATE	03	05	09	11
07	0521010578	0.9" X 4.3" COUPLING SHAFT	03	03	03	03
08	0503031035	HAIR PIN	03	03	03	03