





# TXE 353 & 606 OPERATOR MANUAL

**Incorporating the TXE and TXE Pro.** 

## **VITAX LTD**



Vitax Limited

Owen Street

Coalville

LE67 3DE

**ENGLAND** 

#### **UK & EC DECLARATION OF CONFORMITY**

Herewith we declare that the machinery described below is in accordance with the relevant health and safety requirements of "The Secretary of State" and "The EC Council Directives" concerned with the supply of machinery compatibility. No alterations are to be made to the machine without the prior consultation and approval of Vitax Limited otherwise this Declaration may become invalid. This equipment must be commissioned, used and maintained strictly in accordance with the operating and maintenance instructions issued with the machine. Operators must be trained in accordance with the recommendations given in the operating and maintenance instructions issued with the machine.

Description of machine: TXE 353/606 LINE MARKER

Machine Serial number: As per the build sheet (supplied)

Date of supply: As per invoice date

Relevant EC Council Directives: Machinery Directive 2006/42/EC and

Subsequent amendments.

Relevant Secretary of State act: The Supply of Machinery (Safety) Regulations 2008.

Issued on 7th May 2021 by A.GUYNEY on behalf of Vitax Ltd.

Signed - A. Gurney

Position of signatory: - Operations Director

### **INTRODUCTION**

#### IMPORTANT - PLEASE READ THIS MANUAL BEFORE USE

This is essential if you are to learn how to operate this equipment correctly. Failure to do so could result in personal injury or equipment damage.

This manual should be considered a permanent part of the equipment and should remain with the machinery if sold on.

#### INTENDED USE/DISCLAIMER

The TXE is designed for use as a line marker. The intended use is for line marking of sports fields or applying turf dyes using the spray boom accessory. Use in any other way is considered as contrary to the intended use. The manufacturer accepts no liability for damage or injury resulting from misuse and these risks must be borne solely by the user.

The TXE should only be operated, serviced and repaired by persons familiar with its characteristics and acquainted with the relevant safety features (accident prevention).

#### RECOMMENDED PRODUCT LIST FOR TXE LINE MARKERS

#### Marking Liquids:

Supa Stadia AF, Supa Stadia ECO, Supa Stadia, Stadia, Stadia Colours, Sport, Briteline Plus, Supaturf RTU and Greenit.

#### Cleaning Liquids:

SupaFLUSH and clean water.

Material Safety Data Sheets for all of the above products are available on request.

#### **SECTION 1 - INTRODUCING THE TXE LINE MARKERS**

Thank you for choosing the TXE battery operated spray line marking machine.

Your machine is the culmination of years of research and field trials. It provides a no compromise, build quality, combined with a rugged but simple design that ensures ease of maintenance and ultimate usability. All Supaturf machines are manufactured in England to a high, professional grade quality.

There are currently two models in the TXE range, both of which are available as either a Standard or Pro specification.

#### The TXE 353 & 606 Standard

With all the controls mounted on the handlebars these robust, lightweight machines are exceptionally easy to use and are capable of marking multiple pitches in one tank fill. The TXE machine is recognised as the industry standard, and is an ideal choice for venues with multiple playing surfaces. The TXE has many advantages:

- Exceptionally easy to use with all controls mounted on the handlebars.
- Has no engine noise or pollution.
- Able to mark line widths from  $\frac{1}{2}$  inch to 5 inches (1.5cm to 13cm).
- Has fold over handlebars for easy transportation and storage.
- Simple and straightforward to maintain.

#### The TXE 353 & 606 Pro

In addition to the Standard specification, the TXE Pro has a factory fitted 2.5 litre flush tank, for easy cleaning of the filter, pump, pipes and spray head for use between sites or jobs, and is operated using a simple 'on-off' tap situated under the main tank. The advantages of this are:

- No need to empty the tank between sites or jobs.
- No danger of cross contamination into clean water.
- Helps prevent the build-up of marking liquid residue.
- Prolongs the working life of the machine.

Along with the flush tank the TXE Pro comes with a return to tank system, enabling the pressure at the spray nozzle to be adjusted to suit the marking conditions or surfaces. This system also has the added benefit of agitating the liquid in the main tank.

#### The TXE models

The TXE 353 is capable of operating for up to 2 hours (approx. 6 pitches) on a single overnight charge of its battery. The TXE 606 offers an enhanced specification and will operate for up to 5 hours (approx. 15 pitches) from a single charge of the battery. Please note that these timings have been measured under test conditions in our research and development facility using equipment operating at optimum performance. With proper maintenance and operation you can expect to achieve these results throughout the life of your battery.

#### **SECTION 2 - MACHINE SET UP**

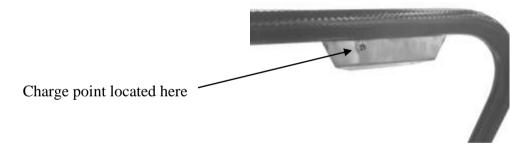
Please refer to the back of this manual to see the illustrations of the TXE, and consult this when reading this manual.

Your machine is supplied fully assembled and tested in its transit packaging. First it is advisable to check that you have everything you need to start spraying. You should have received:

- TXE machine (353 or 606 model)
- Battery charger unit
- Mixing bucket
- Mixing paddle
- 100ml bottle of SupaFLUSH cleaner (in the basket filter of the tank)
- Envelope containing this manual, and quality control check sheet

To remove the TXE from the box, two people are required to lift the machine from its packaging. All you need to do to start spraying is to unfold the handlebars and secure them at the height required. There are 3 fixing positions available. Select the required position and tighten the hand wheel fastener. There is a tank stop fitted to the handle bar that is secured with tape, the tape needs to be removed before operation.

There may well still be some charge in your battery, but it is advisable to charge the unit overnight before proceeding. To do this, firstly re-connect the battery terminal to the battery, and then connect the charger plug lead to the charging point at the back of the switch found on the machine handlebars.



Your machine may have been supplied with crocodile clips with the charging unit. If this is the case then the crocodile clips can be connected directly to the battery, taking care to connect the correct colour crocodile clip to the corresponding colour terminal on the battery.

Ensure the connection is secure and plug the charger into a convenient mains socket. Turn on the mains power and leave to charge, see the instructions supplied with the charger for further information on the use of the charger. When the unit is fully charged, disconnect the charge unit from both the mains and the handlebar plug. Activate the on/off switch located on the handlebar, and you should hear the pump working.

#### **WARNING:**

Always charge the battery in a well-ventilated area. Never charge the battery in a closed container (see battery care section on page 11 for further information).

#### **SECTION 3 - USING THE TXE**

**Note:** SECTION 9 gives training checklist for new operatives.

Once the machine has been set up as detailed in SECTION 2 you can mark out your pitch without delay. First you will need to choose which marking liquid you wish to use (see SECTION 6). Dilute the liquid to the desired concentration and thoroughly mix the marking liquid with the water using the bucket and mixing paddle provided. Dilution rates are recommended for each product - please stay within these guidelines.

#### **WARNING:**

To avoid splashing of line marking liquid into eyes, eye protection and gloves should be used whilst handling and pouring line marking materials. In the event of spillage, refer to the Material Safety Data Sheet for the line marking material being used.

#### Filling the Tank

Unscrew the tank cap; the pre-mixed marking liquid can then be poured into the tank to the desired level. It is important to always fill the tank through the basket filter found in the top of the tank to stop any large particles or foreign matter, such as grass from entering the spray system. The markings on the side of the tank are a useful guide to estimate how much liquid is contained within the tank. The maximum capacity of the tank is 25 litres.





As a guide, a typical football pitch with a 700 metre linear line would require approximately 7-8 litres of diluted liquid for a single pass, walking at an average speed of 2 mph.

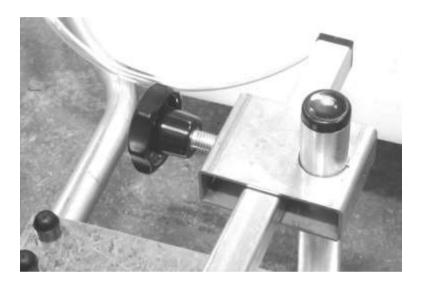
It may be necessary to purge any trapped air through the system. This can be done in the following way: Once the tank has been filled with the required amount of diluted marking liquid, switch the machine on for 10 to 20 seconds (ensuring a suitable container is available to capture the spray liquid if necessary). After this time the spray should become solid with no air in the system and the spray pattern should be steady with no 'fluttering' evident. If not then there is still air in the system that will need to be purged via the separation point on the 6mm tube, located near the spray arm. (see image on the right).



Hold the connector between your fingers with one hand and push the tube into the connector with the other, whilst holding the blue spring loaded plastic end back, pulling on the 6mm pipe at the same time. This will disconnect the pump outlet tube from the spray arm. Switch on the machine and allow the liquid to run out of the outlet tube. Again a suitable container should be used to catch the liquid. Once the air has been exhausted (allow 15 to 20 seconds to ensure that all air has been expelled) switch off the machine. Reconnect the pump outlet tube to the in-line 6mm connector. This is done by pushing the pipe back into the connector.

#### Line Width Adjustment

The width of the line is adjusted by raising or lowering the spray arm until the desired width is obtained. This is adjusted by unscrewing the hand wheel on the spray arm clamp and adjusting the height and spray nozzle position as required.



It is recommended that the optimum marking position of the spray head is exactly between the front wheels, and with the improved chassis arrangement on the TXE this is now achievable. It is also possible to mark between a set of marking discs, for a sharper, more professional finish.



#### Marking your First Lines

#### **IMPORTANT**

Before commencing marking always ensure the tank lock found on the handle (shown in the diagrams below) is in the lock position thus preventing accidental tipping of the tank. To familiarise yourself with the operation of the machine it is worthwhile to use a suitable area where the operation can be rehearsed.



Tank lock in open position



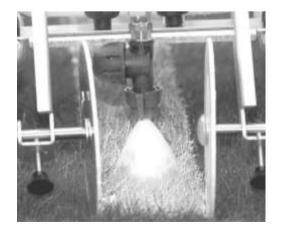
Tank lock in the closed position

#### **WARNING:**

If the tank lock is not used there is potential for the tank to tip whilst in use, causing possible harm to the user and the contamination of the ground.

The spray nozzle is connected to an instant shut-off valve, which is activated by the pressure generated as soon as the pump starts working. As soon as the switch is switched to the on position, a fan of liquid will come from the spray nozzle and as soon as the switch is switched to the off position the fan will stop instantly without drips.





The pitch to be lined out should be planned and possibly stringed out in advance and the TXE should be adjusted to your satisfaction prior to use. When spraying, you should walk at a consistent pace and ensure that you do not step on the line after it is sprayed, as this may result in a series of white footprints. This might require a bit of practice.

#### **Marking circles**

The wheels of the TXE are configured so the front wheels are inset by about a half wheel width compared to the back wheels, and with the simple addition of an in-line eyelet on the front wheel, marking centre circles has been made easier.





When spraying lines at 90 degrees to recently sprayed lines it is advisable to stop the machine when its wheels are just in front of the existing line and "walk" the wheels over the line to avoid the wheels becoming contaminated with marking liquid that hasn't dried. As a guide you could expect Supaturf line marking liquids to dry within 15 to 20 minutes in direct hot sunshine but this could take considerably longer subject to prevailing weather conditions. It is best to be cautious.

**Note:** When the machine is on site and not in use, do not leave the machine unattended. Ensure the machine is not left on a slope, as it is not fitted with a parking brake.

#### **WARNING:**

If the machine is going to be lifted onto a vehicle after line marking for use at another site, the tank should be emptied and the machine lifted by two people. To empty the tank, place the mixing bucket provided at the rear of the machine and remove the tank lid. Tip the tank over backward on its pivot point ensuring the marking liquid is emptied into the provided mixing bucket. The mixed marking liquid can then be stored and re-used. Alternatively loading ramps may be used to the ensure the operator's safety.

#### **SECTION 4 - MAINTAINING YOUR TXE**

It is vitally important that your TXE is thoroughly cleaned after every usage to ensure the long life of the spraying components of the machine. It is recommended that Supaflush be used to further aid the cleaning of the machine.

Always clean the TXE after use and follow these simple steps to ensure your machine is as clean as possible.

- 1. Empty leftover product out of the tank.
- 2. Add approximately 4 litres of clean water into the tank.
- 3. Agitate the water in the tank by moving the tank up and down on its pivot.
- 4. Empty out the waste water.
- 5. Repeat steps 2, 3 and 4 with a further 4 litres of clean water.
- 6. If using Supaflush Repeat step 2, this time using 2 litres of water and adding 50mls of Supaflush to the water. Turn on the machine. This allows the Supaflush cleaner to wash through the pump and spray nozzle assembly.

Note: In the event of a frost, do not leave water/marking fluid in the tank and pump. Always use eye protection and gloves when using Supaflush cleaner. In the event of spillage, refer to the Supaflush Material Safety Data Sheet. Dispose of waste water through the appropriate channels.

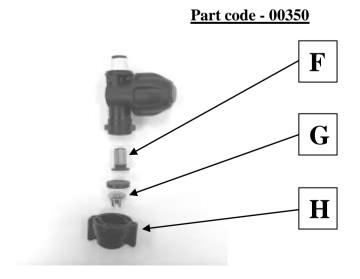
#### **WARNING:**

Solvent based material should never be used to wash the machine or tank, as this has the potential to create an explosive environment.

#### Replacement of spray nozzle and/or filter

Spray nozzles and filters are consumable items and need to be cleaned or replaced on a regular basis. The timing of this depends upon the amount of usage, but as a general guide, we would expect the average user to clean the filter every month, or as necessary, and replace it every 3-6 months. Replace the spray nozzle when the spray pattern is damaged. Spray nozzles should be replaced at least once every 3-6 months.

Replacement is a simple process. Look at the exploded picture below. The filter is the item marked **F** and the spray nozzle is the item marked **G**. To access the nozzle, turn the nozzle cap (**H** in the inset picture) one half turn anti-clockwise. The filter, sealing washer and nozzle can now be removed and replaced if required. Re-assembly is a simple reversal of this process.



#### Replacement of the in-line blade fuse

If, for whatever reason the pump draws too much power, the in-line fuse will blow at 5 amps to protect the wiring loom. The fuse is located in the wiring loom, attached to the plastic shroud. Open the fuse cover and pull out the fuse. Replace if necessary.



#### **WARNING:**

Always replace the fuse with the same rated 5-amp blade fuse ( part code -00251 ). Check wiring loom for signs of wiring insulation damage.

#### **Battery Care**

#### GENERAL BATTERY SAFETY MEASURES

Always charge the battery in a well-ventilated area. Never charge the battery in a closed container. Do not attempt to open the battery casing. In the unlikely event of the battery leaking and sulphuric acid electrolyte coming into contact with skin or clothing, wash off immediately with water. Should the electrode come into contact with skin or clothing, wash off immediately with copious amounts of water and consult a doctor. The battery should be regularly checked for cracks/damage to the casing and if any damage is found, always replace the battery. Always dispose of used batteries through appropriate collection or recycling channels.

The batteries on both the 353 and 606 are 12 volt batteries with the 606 machine using an 18 amp/hour battery and the 353 using a 7.2 amp/hour battery ( see pg 20 for part codes ). This notation relates to the amount of power the battery can store on a single charge, and the longer the battery will last when in use.

These batteries are kept at peak condition if they are recharged before they are fully discharged. It is not a problem if fully discharged occasionally, but it should not be the norm if you want to gain the longest life possible from the battery.

**Note:** Charge the battery at least every 3 months, even when not in use.

The TXE 353 and 606 battery units have an operational life of approximately 200 to 500 charge cycles. Depending on your rate of usage, you will be able to approximate the life of your battery. Always put your battery on charge until the charge complete light has lit on the charger unit, regardless of the level of charge required.

#### Pump Care

The pump unit used on the TXE is exclusive to Supaturf machines and has been specifically designed for this application. They will not require any internal maintenance as long as the machine is properly cleaned after every use. The pumps are self-priming and will not be damaged by short periods of dry running.

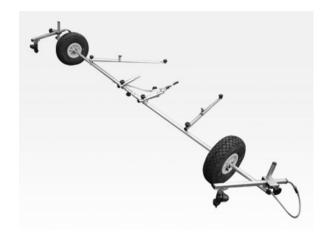
If you experience any problems with the pump, it is recommended that you return the unit to the factory for inspection.

#### **SECTION 5 - ACCESSORIES**

The TXE has a range of accessories which include:

• The Athletics marker Part code - 02018

This attachment allows three lines to be marked in one pass, making athletics tracks a lot quicker and easier to mark out.



 The Spray Boom Part code - 02017

A 3-nozzle spray boom attachment for spraying turf dyes, or line marking paint.



## **NOTE**

WHEN PURCHASING EITHER OF THE ABOVE ITEMS A TXE 353/606 ATTACHMENT KIT IS NEEDED FOR FITTING TO THE LINE MARKING MACHINE.

• The TXE 353/606 attachment kit Part code - 14500

This attachment kit is needed for fitting either the spray boom or athletics marker to a TXE 353 or 606.



• Marking Disc attachment Part code - 02066

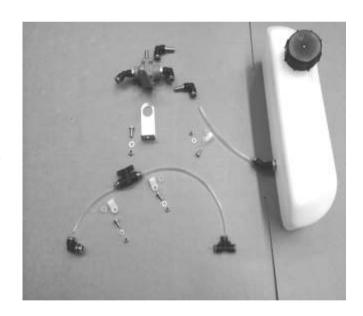
> This attachment can be adjusted for width of line and creates extra sharp edges to the applied line, a must when trying to achieve the highest quality line.



• The TXE Pro kit Part code - 14600

The TXE Pro kit is a 2.5 litre flush tank, for easy cleaning of the filter, pump, pipes and spray head for use between sites or jobs, and is operated using a simple 'on-off' tap that is sited under the main tank.

Also contains a return to tank system, enabling the pressure at the spray nozzle to be adjusted to suit the marking conditions or surfaces. This system also has the added benefit of agitating the liquid in the main tank.



#### Spare Parts

A full range of spares are available for the TXE. These are listed on page 20 and 21. When ordering, please use the order code stated in the table. These order codes are illustrated on the pictures at the back of this manual.

#### **SECTION 6 – LINE MARKING LIQUIDS**

Supaturf line marking liquids have been specially formulated to be applied through spray markers, helping the end user to produce the longest lasting sports line there is to date.

The particle size of the suspended solids within marking liquids is critical to the effective running of the pump and spray parts on TXE machines. For this reason it is recommended that only Supaturf line marking liquids are used as they have been specially formulated to provide optimum performance. Supaturf white spray marking liquids come in 7 grades:

- Supastadia AF
- Supastadia ECO
- Supastadia
- Stadia
- Sport
- Briteline Plus
- Supaturf RTU

All liquids can be diluted to achieve the desired quality of line and for example, the Supastadia can be diluted up to 8:1 with water, although a 4:1 rate is more typically used, whilst our super concentrated Supastadia ECO can be diluted up to 20:1 for over marking.

Note: For best results when mixing, always add the line marking liquid to water.



#### **SECTION 7 - TXE STORAGE**

Before long-term storage of a TXE, the machine should be thoroughly cleaned both internally and externally (for cleaning see SECTION 4, page 10 - Maintaining your TXE). After cleaning, the machine should be checked for any frame damage or rusting. Any damaged part/s should be replaced. When your TXE is not being used and is in storage over winter or summer, the battery must be fully charged before storage. After every period of 3 months in storage, the battery should be fully charged again. This will ensure maximum battery life.

Note: Always store your TXE in a dry damp-free environment.

#### **SECTION 8 - TXE SPECIFICATIONS**

#### Weights and dimensions

	<u>TXE 353</u>	<u>TXE 606</u>
Standard Specification	26 kg	28 kg
Pro Specification	33 kg	35 kg

Box dimensions 100cm x 60cm x 58cm.

#### **Statistics**

Tank capacity	25 litres
Pump specification	Shurflo SUK 0105
Electrical system	12 volt
TXE 606 battery	12 volt 18 amp hour cyclic use battery
TXE 353 battery	12 volt 7.2 amp hour cyclic use battery
Charger rated at	1.5 amp output
Chassis - tubing	Reinforced, triple galvanised (flo-coat)
	tube
Machine length	80cm
Machine width	59cm
Machine height (handlebar upright)	104cm
Fuse rating	5 amp blade fuse

### SECTION 9 – OPERATOR'S TRAINING CHECK LIST

Before using a TXE machine, refer to the section below to ensure the machine performance is optimised and to check the user is competent with the machine.

Familian	risation
□ V	Working of the machine controls (section 3)
□ U	Understanding of the Material Safety Data Sheets for recommended products used with the TXE.
	Operator's safety and caution information contained in this manual is understood.
	Operational features (section 3).
□ H	How to switch the machine on and off.
□ H	How to raise and lower the spray nozzle assembly for desired line width.
□ H	How to safely mix line marking liquids (section 3).
□ H	How to mark your first lines.
□ H	How to fill and empty the tank - including lifting on and off a transport vehicle.
	Cleaning procedures after use (section 4).
□ R	Recommended PPE that should be worn when cleaning a machine after use (section 4).
□ H	How to clean nozzles and filters after use.
□ R	Routine maintenance.
□ B	Battery condition check (see battery care section and safety instructions for battery handling).
□ F	Frame condition check.
For	use with TXE Pro specification only
_ U	Understanding the use and operation of the flush tank.

☐ Understanding the use and operation of the return to tank.

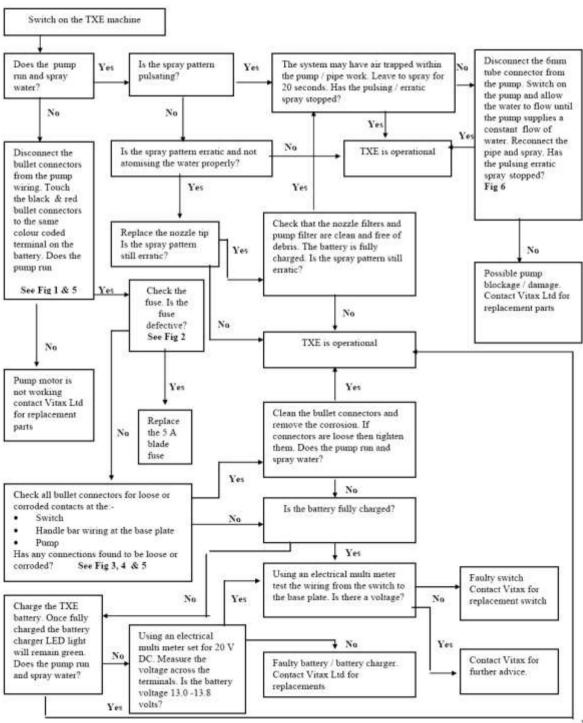
#### TXE Trouble Shooting Guide:

This easy to use trouble shooting guide is designed to assist you should your TXE machine not work properly.

Experience shows that many problems can be resolved with a little knowledge without the need to return the machine for repair or servicing. Part of this trouble shooting guide refers to the use of an electrical multi meter. If an electrical multi meter is not available for use then contact Vitax Ltd directly for further advice.

**Note:** Blocked spray nozzles are regarded as a maintenance issue and not a machine fault. Before following the trouble-shooting guide make sure that the TXE 25 litre tank is clean and has at least 5 litres of clean water in it. The machine's battery should be fully charged and all electrical and flow connections have been visually checked to ensure that nothing is loose. To check that the battery is fully charged put the TXE on charge as described in section 2 of this manual.

#### Trouble Shooting Guide:



Document Ref. OM1012

Figure 1



Figure 1 shows how to determine if the Shurflo pump motor is operational. Disconnect the bullet connectors from the positive (red) terminal and the black wire to the negative (black) terminal as per figure 1.

Figure 2



Figure 2 shows the location of the 5-amp blade fuse with the fuse cover on. The 5-amp blade fuse is translucent and can be easily checked to confirm whether the fuse has been damaged.

Figure 3

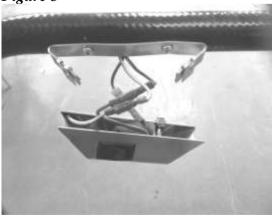


Figure 3 shows the TXE switch bracket removed and exposed bullet connectors.

Figure 4



Figure 4 shows the location of the bullet connectors leading from the handlebar to the wiring loom. The bullet connectors have been sealed with heat shrink to prevent damage and corrosion from moisture.

Figure 5



Figure 5 shows the bullet connectors leading to the pump. These may be tucked under the pump. The black wire goes to the blue wire on the loom, and the red wire goes to the green/yellow wire on the loom.

Figure 6



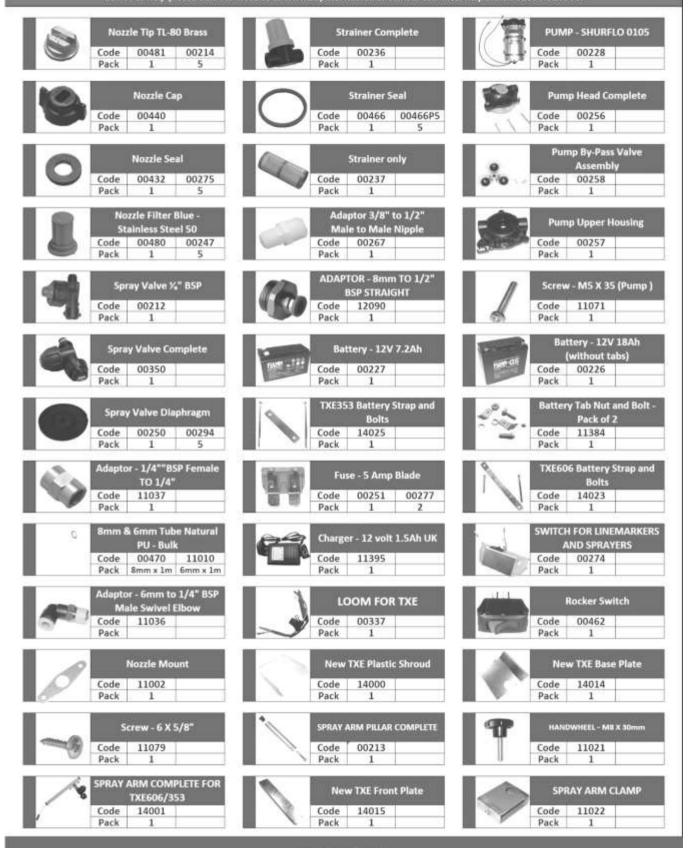
Figure 6 shows the in-line 6mm tube connector used to disconnect the pump outlet pipe from the spray arm assembly,



# **Machine Spares**

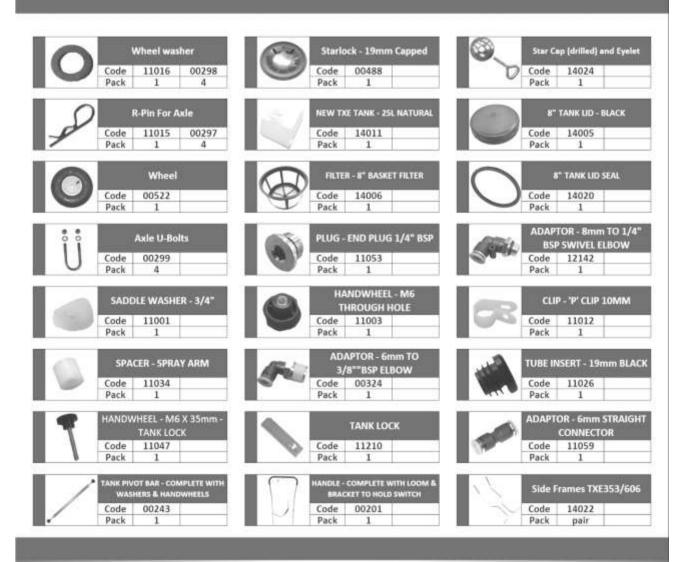
# TXE606/353 Machine Parts

Shown here are the spare parts for the Supaturf TXE606 and TXE323. You can order all these parts from your normal machinery supplier. If you need advice or help please visit our website at www.supaturf.co.uk or call our technical helpline on 01530 510060.



Issued April 2014

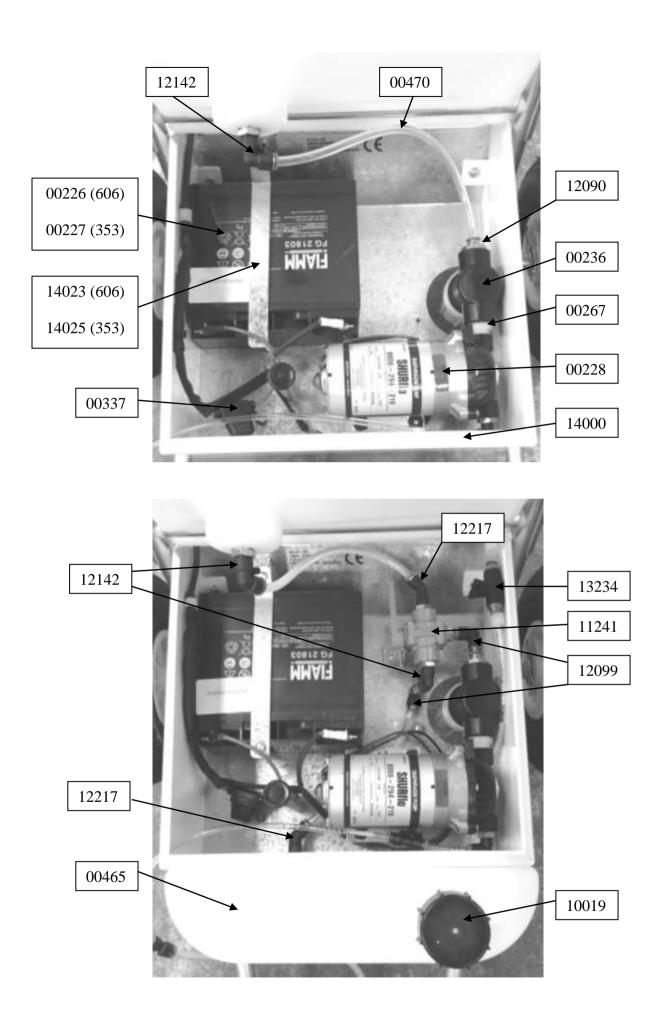
# TXE606/353 Machine Parts Cont;-

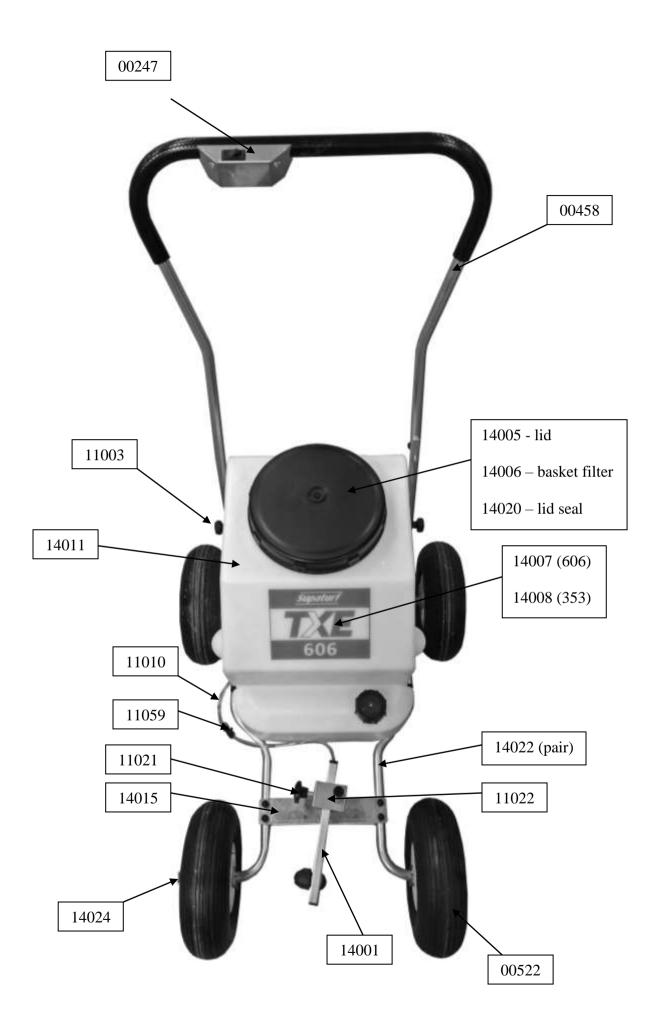


## TXE606/353 Pro (additional parts)



Issued March 2014







# WWW.SUPATURF.CO.UK

Visit our website for more information on our range of line marking machines and line marking liquids. Also available are informational videos offering demonstrations of Supaturf line marking machines and some trouble shooting guides.

### **ONLINE SPARE PARTS SERVICE**

Comprehensive ranges of spare parts for all Supaturf line marking machines are available. If you require spare parts for your machine, visit the website where you will find a complete listing for each machine.

Vitax Ltd Owen Street Coalville Leicestershire LE67 3DE

Tel: 01530 510060 Fax: 01530 510299

Email: sales@vitax.co.uk
Web: www.vitax.co.uk