

Kombi 3

User Manual



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KOMBI 3 OPERATION



PREPARING THE KOMBI 3 FOR USE

1. Carefully remove the Kombi 3 and accessories from packaging.
2. Position the Kombi near a 230/240 V ac power supply where the battery can be charged.
3. Charge the battery using the supplied charger.

CAUTION. Only use the supplied charger. Use of other equipment may cause fire or damage the battery.

4. Align the keyways on the plug and socket, push the charger plug into the socket and rotate the locking collar clockwise.



Fig 1 Charging socket position



Fig 2 Battery status indicator

5. When charging, the LED on the charger illuminates red. When the battery is fully charged, the LED illuminates green. To test the battery charge status, press the button on the battery monitor. All three green LEDs lit indicate that the battery is fully charged.

Filling the water tank

1. Remove the cap from the water tank at the rear of the machine.
2. Fill the water tank with clean water. Ensure no debris enters the tank.

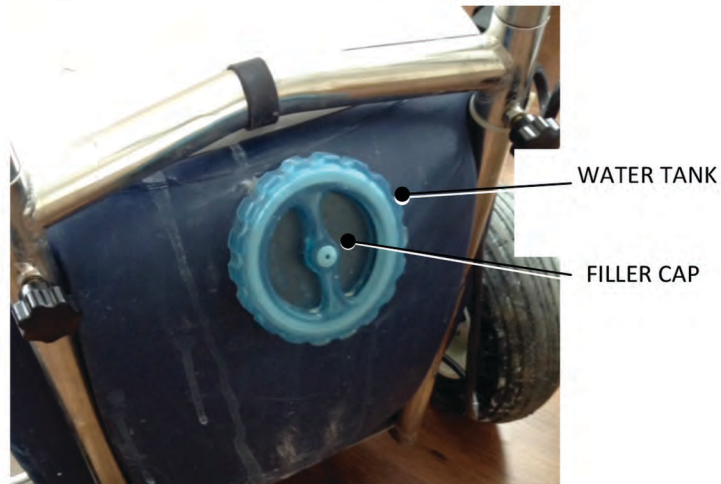


Fig 3 Water tank

PAINT

The Kombi 3 is only to be used with FLEET line marking paint. The paint tank is used as a reservoir for the line marking paint.

Using the paint tank

1. Ensure that the blue tip is installed in the nozzle assembly.
2. Ensure that the pipe on the filter assembly is inserted into the quick release connector in the bottom left hand side of the tank.
3. Fit the basket filter into the neck at the top of the paint tank.
4. Fill the paint tank with the selected FLEET line marking paint product and refit the lid.



Fig 4 Paint tank components

DEPLOYING THE LINE GUIDE AND NOZZLE ASSEMBLIES

The line guide and nozzle assembly can be fitted to the central post at the front of the Kombi or to either side of the front axle.

Front mounted Line guide and Nozzle assemblies

1. Fit the line guide and nozzle support assembly onto the tapered post at the front of the machine.
2. Hinge the nozzle post to the vertical position.
3. Ensure that the nozzle is centred between the line forming disks. Adjust if necessary by releasing the nozzle centring adjustment clamp and slide the nozzle support in or out so that the nozzle tip is exactly in line with the centre of the line forming disks. Tighten the clamp screw.

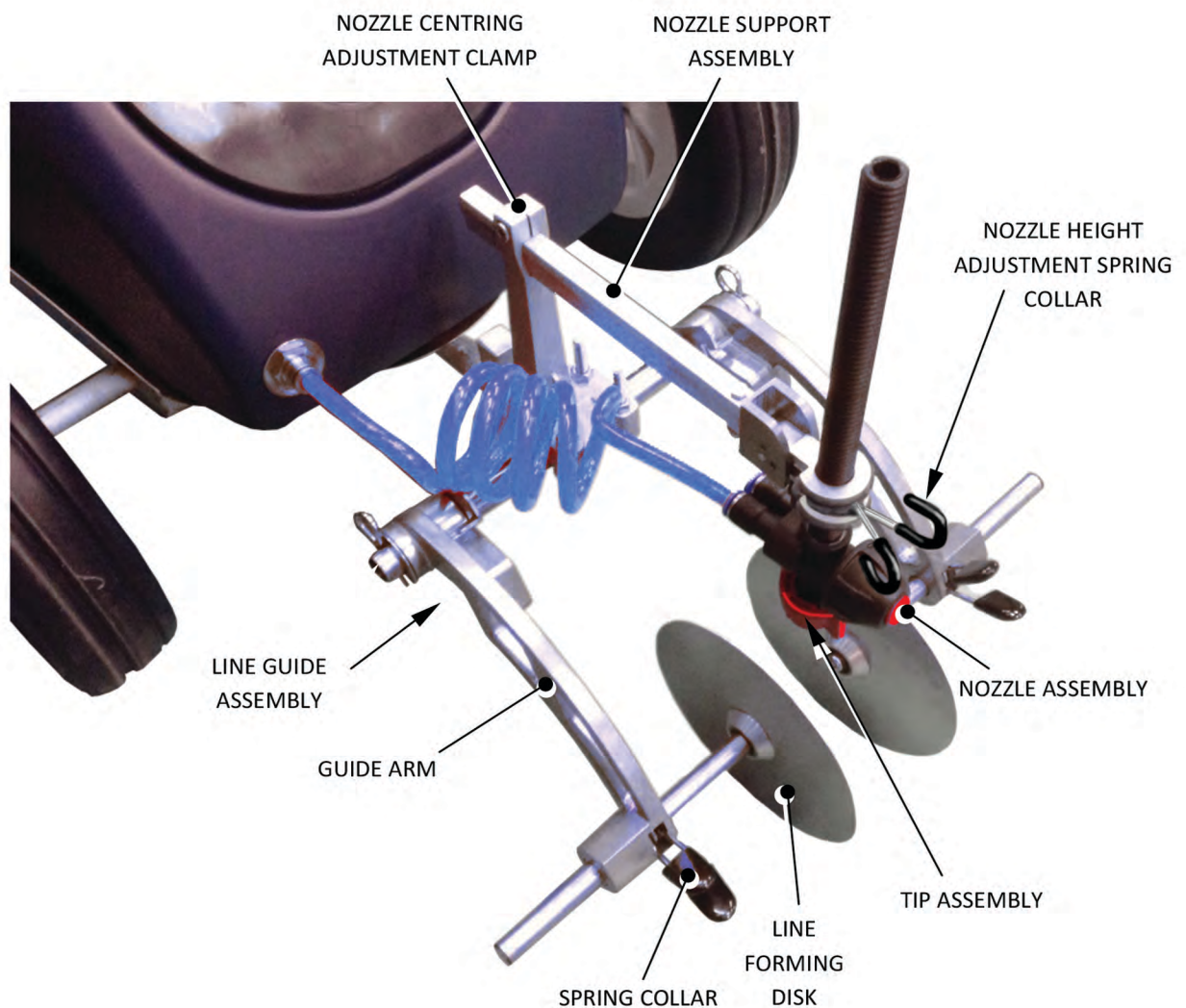


Fig 5 Line guide and nozzle assemblies mounted on the front of the Kombi

Axle mounted Line guide and Nozzle assemblies

1. Remove the R pin from the required side of the line guide assembly.
2. Fit the pivot tube of the line guide assembly over the axle and align the holes. Refit the R pin to secure the line guide assembly to the axle.
3. Hinge the nozzle post to the vertical position and ensure that the nozzle is centred between the line forming disks. Adjust if necessary.

Note: Further adjustment of the nozzle position can be achieved by slackening the four U bolts nuts that secure the nozzle support assembly onto the pivot shaft. Rotate the nozzle support as required and retighten the nuts.

4. Arrange the paint delivery tube away from the wheel.

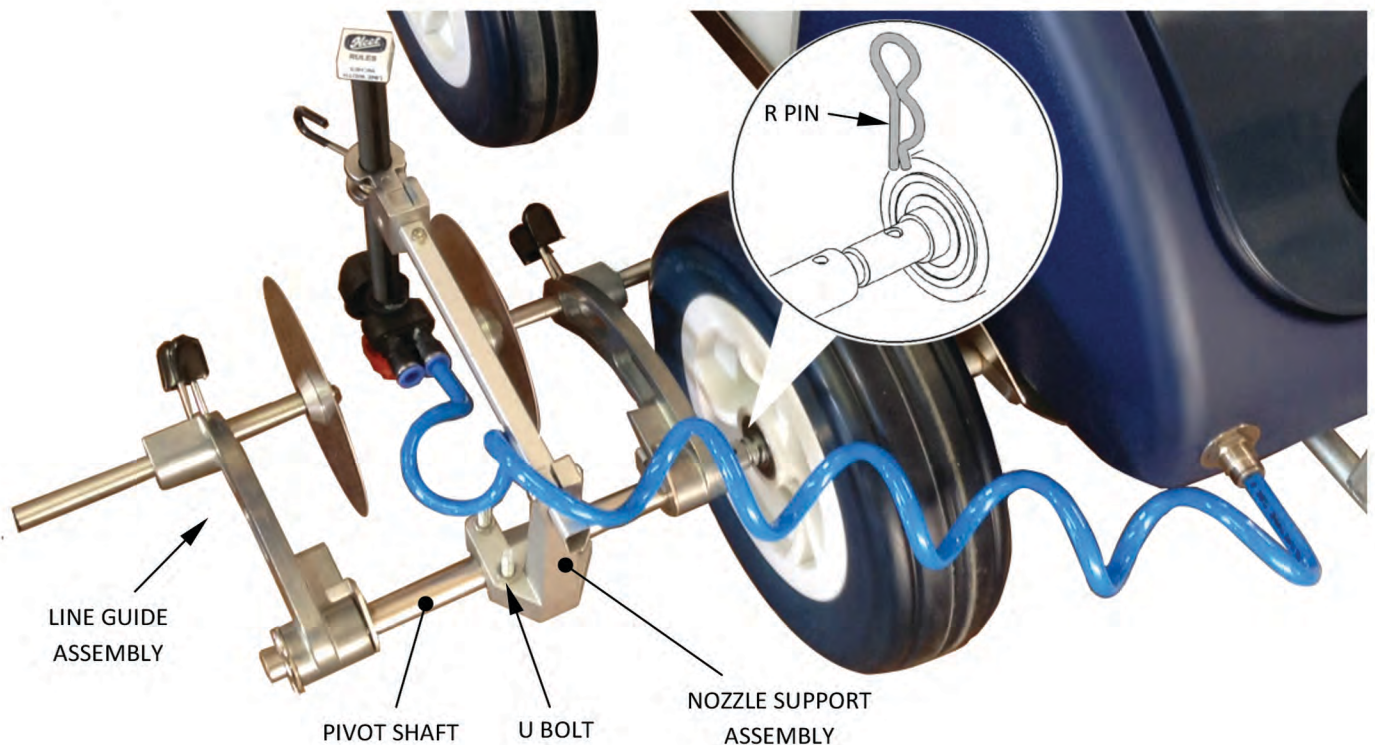


Fig 6 Line guide and nozzle assemblies mounted on the front axle

SETTING THE LINE WIDTH

The line width is determined by the width between the guide disks and the nozzle height. Both must be adjusted correctly to obtain a good line with the optimum paint usage. A ruler is located in the height adjusting post for measuring the line width and the nozzle height.

Setting the width between the line forming disks

1. With the line forming disks resting on the ground, compress the spring collars and slide the line forming disks in or out to achieve the desired line thickness.

IMPORTANT: Both the line forming disks must be adjusted so that the nozzle is central between them.

2. Use the ruler to adjust the line forming disks to the desired line width.

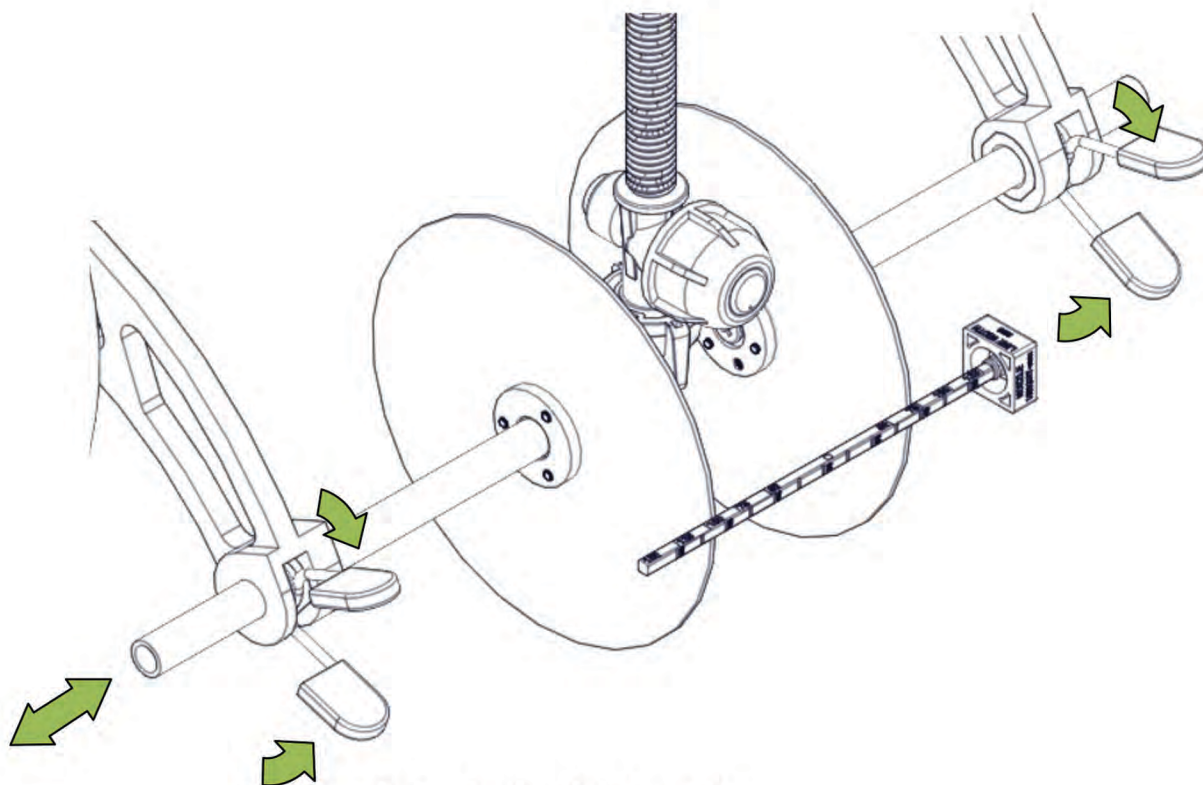


Fig 7 Setting the line width

Setting the nozzle height

1. Hinge the nozzle post to the vertical position. With reference to the table under the below, adjust the nozzle height by the squeezing the spring collar and sliding the nozzle post up or down for the desired line width. A ruler is provided in the adjusting post.
2. The table below gives approximate nozzle height for a range of line widths. This is only intended as a guide. The operator must observe the spray pattern and adjust the nozzle height to form a good line for the local conditions e.g. length of grass.

Line width		Nozzle height above top of grass/ surface to be marked	
		Initial marking (42 psi)	Over-marking (30 psi)
50 mm	2 inches	20 mm	25 mm
75 mm	3 inches	30 mm	37 mm
100 mm	4 inches	40 mm	50 mm
125 mm	5 inches	50 mm	62 mm
150 mm	6 inches	60 mm	75 mm

Table 1 Nozzle height for Line width

LINE MARKING WITH KOMBI 3

WARNING - HIGH PRESSURE

THE KOMBI HAS A WORKING PRESSURE OF UP TO 60 psi. DO NOT OPEN ANY PIPE JOINTS WHILE THE PUMP IS OPERATING.

Setting the pressure

1. The pressure of the spray can be adjusted for different applications. The two common settings are as follows:
 - 30 psi for over marking previously marked pitches
 - 42 psi for new marking

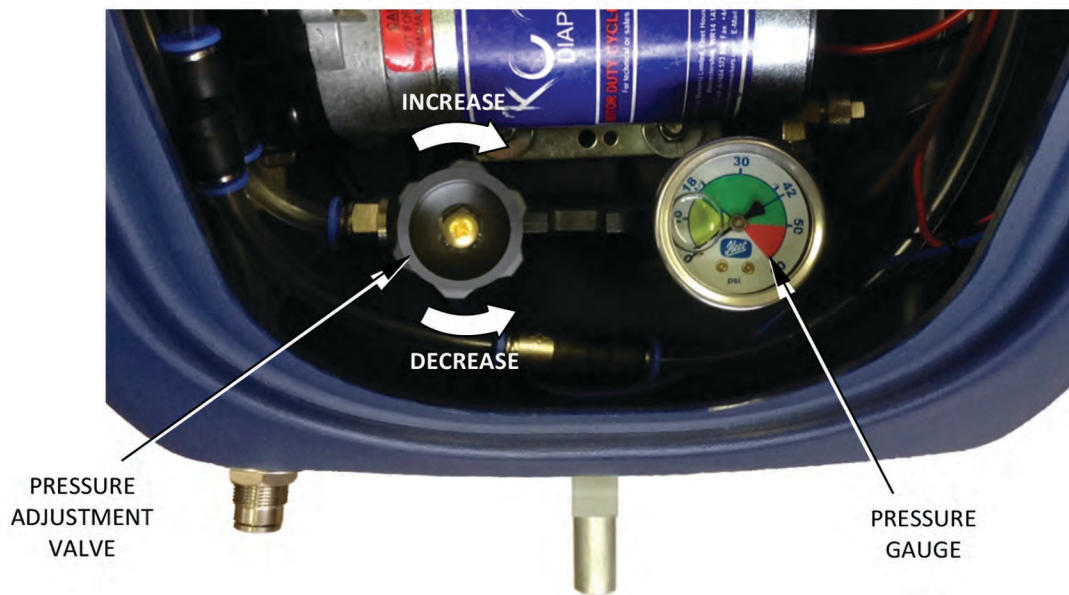


Fig 8 Adjusting the spray pressure

Notes:

The lower the pressure, the greater the paint economy. Both 30 and 42 psi are marked on the pressure gauge.

Pressure set below 18 psi will not overcome the DCV (drip control valve) and therefore will not spray.

2. On an area of ground away from the pitch area, briefly switch on the pump. Observe the pressure gauge. Adjust the pressure with use of the valve. Observe the spray pattern. Check that the spray fan just reaches the line forming disks at the top of the grass height. For hard surfaces the spray fan should just reach the line forming disk at the ground surface. If necessary adjust the nozzle height. Turn off the pump.

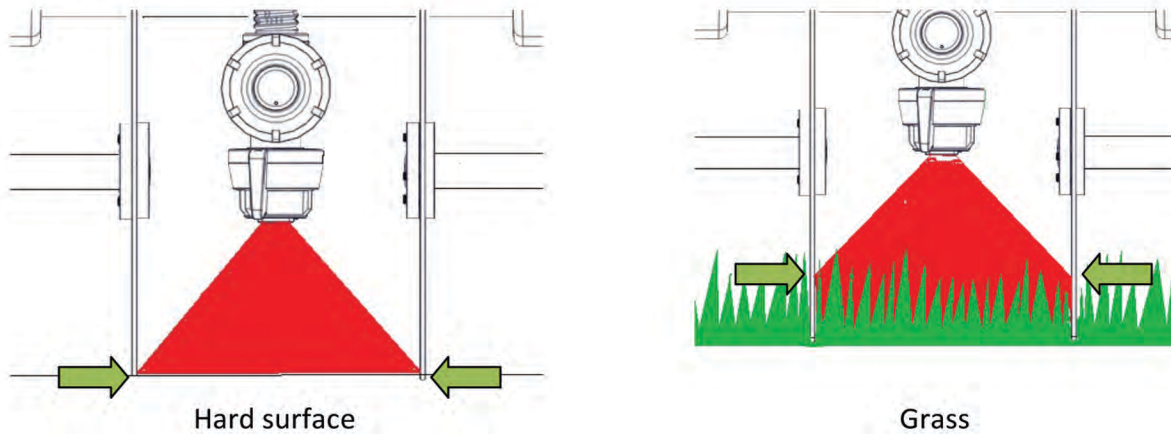


Fig 9 Illustration showing fan patterns

3. Close the bonnet. Ensure the paint delivery pipe is arranged with no kinks and is not fouling on the guide disks. The KOMBI 3 is now ready for line marking.

MARKING A LINE WITH KOMBI 3

To mark a line with Kombi 3, proceed as follows:

1. Ensure that there is sufficient correctly mixed paint is in the paint tank.
2. Ensure the battery is fully charged.
3. Ensure the Paint/Water changeover valve is in the 'Paint' position (lever pointing forward)
4. Ensure the flow return tap is in the OFF position (tap lever at 90° to the hose)
5. Switch the pump ON and immediately start walking at a steady and constant speed along the guide line. The guide line could be a previously marked line, string or chalk line.
6. At the end of the line switch the pump OFF and stop walking.
7. Lift the line forming disks from the surface and position the machine at the start of the next line.
8. If there is to be a break in marking always flush the nozzle with water using the Paint/Water change over tap. Briefly flush the nozzle into a container or on waste ground away from the pitch area.

FLOW RETURN SYSTEM

The kombi 3 is fitted with a paint flow return system which is used to keep the paint agitated and prevent paint settlement. If the paint tank of the Kombi 3 is filled with paint and has been left standing, it is advisable to operate the flow return system. The flow return system can also be used to bleed air from the paint delivery hose. To operate the flow return system, proceed as follows:

1. Ensure the Paint/Water changeover valve is in the 'Paint' position (lever pointing forward)
2. Turn the pressure adjustment valve fully clockwise (maximum pressure)
3. Turn the flow return tap through 90° (In line with the hose. See Fig 10)
4. Switch the pump ON. Paint will now circulate from the paint tank around the paint delivery hoses/pump and back into the paint tank.



Fig 10 Flow return tap

Note: The flow return system cannot be used when using the paint bag system.

FLUSHING AND CLEANING

IMPORTANT: When cleaning/flushing the Kombi, ensure that water courses are not contaminated with paint. If in doubt, check with the local authority.

1. Position the KOMBI where the contents of the pipework can be flushed and cleaned.
2. With a suitable container below the paint tank drain outlet, remove the cap and recover any unused paint. If the recovered paint is to be used later, ensure the container can be sealed.
3. Position the nozzle assembly over a drain or suitable container.
4. Ensure that the water tank has sufficient water for the cleaning operation.
5. Remove the bayonet cap complete with the nozzle tip and filter. If necessary, carefully brush any paint deposits from the filter mesh.
6. With the paint/water change over tap in the 'water' position, turn on the pump. Allow the water to flow through the system.
7. With water in the system, fully open the pressure relief valve. Briefly rotate the change over valve through 180 degrees to allow water to flow around the bypass circuit. Repeat this a few times.
8. Rotate the change over valve back to the water position and continue flushing.
9. When satisfied that the water leaving the nozzle is as clear from paint as possible, turn off the pump.
10. Refit the bayonet cap complete with the nozzle tip and filter. Turn the pump on to flush the nozzle assembly.
11. Position the paint tank drain outlet over a drain or suitable container.
12. Rinse the inside of the paint tank with clean water using nozzle. Ensure that no deposits of paint remain in the tank. Pay special attention to corners and pipe fittings.
13. Rinse paint from the inside of the paint tank drain cap.
14. Remove the filter hose assembly from the quick release connector inside the paint tank and rinse clean.
15. Using a damp cloth, wipe any paint overspray from the following:
 - a. Line forming disks and guide shafts. Build up of paint on the guide shafts will make line width adjustment more difficult.
 - b. Threaded nozzle adjustment post.
16. Generally clean and remove paint overspray or spills from the KOMBI 3.



Fig 11 Paint/Water change over valve (shown in WATER position)

Ultra sonic cleaning

The Fleet Ultra Sonic Bath, available as an addition to the Kombi system, is used for thoroughly cleaning small parts which cannot be cleaned effectively using normal methods. The sonic bath is primarily used for the nozzle tip. It is important that the nozzle tip is kept scrupulously clean to provide a well defined line. Other small parts can also be cleaned in the sonic bath such as, nozzle filter and nozzle washer.



Fig 12 Sonic bath

STOWING THE KOMBI 3

When the KOMBI 3 has been flushed and cleaned, prepare the KOMBI 3 for transport or storage as follows:

1. Squeeze nozzle height adjustment spring collar and slide the nozzle post down to the minimum height.
2. Using the spring collars, slide the line guide disks in, so that they support the nozzle assembly centrally.
3. Lift the line guide assembly and nozzle support from the tapered post.
4. Park the line guide assembly and nozzle support on the tapered projection on the bonnet.
5. The KOMBI 3 is now ready for transportation and/or storage.



Fig 13 Kombi 3 Ready for transport

TROUBLE SHOOTING

If the Kombi 3 is not producing the perfect line, the table below is to help diagnose and remedy simple issues. The main cause for failure is inadequate cleaning/flushing. It is imperative to keep the paint system free from dried paint particles.

Note: These procedures presume that there is sufficient Fleet paint in the paint tank or bag.

No.	Issue	Cause	Remedy
1	Intermittent line/Pressure gauge flickering	Airlock in paint system	<p>Bleed paint system as follows:-</p> <p>Paint tank system</p> <p>With the pump running; open the flow return tap to allow paint to freely circulate around the system. When all traces of air have been expelled from the system, turn off the pump and close the flow return tap.</p> <p>Paint bag system</p> <p>Away from the pitch area or have a small container ready to catch paint.</p> <p>Disconnect the paint tube from the back of the nozzle assembly (paint tube on the right hand side when looking on the front of the machine). To release quick connections refer to the section below.</p> <p>Switch the pump ON and allow paint to flow from the tube for 5-10 seconds. Operate the valve on the manifold to purge the bypass system.</p> <p>Turn the pump off.</p> <p>Replace the tube into the nozzle connector.</p>
2	Line striping	<p>1. Nozzle tip contaminated</p> <p>2. Insufficient pressure</p>	<p>a. Remove nozzle and clean in Sonic bath.</p> <p>b. Replace with new nozzle.</p> <p>Increase pressure using bypass valve on manifold.</p>
3	Low pump pressure	Low battery charge	<p>Use battery monitor to check battery status.</p> <p>Recharge battery.</p>

MAINTENANCE ACCESSORIES

These accessories are available from the Fleet Line Markers online store. Visit <http://www.flmuk.com/store/category/general>

Fleet wipes - A tub of beaded hand/machine wipes which help keep your machine free of paint and grime and to keep the Kombi 3 operating smoothly.

Fleet Ultrasonic cleaner - For thorough cleaning of nozzles and couplings.

Paint bag collar – Allows the Kombi 3 to use the paint bag system. The paint bag system is the convenient way of buying paint. Pre-mixed paint with no mess or waste and the paint tank doesn't require washing out. The kit comes with all the necessary pipe work/connector for the conversion.

Quick connectors

Removal

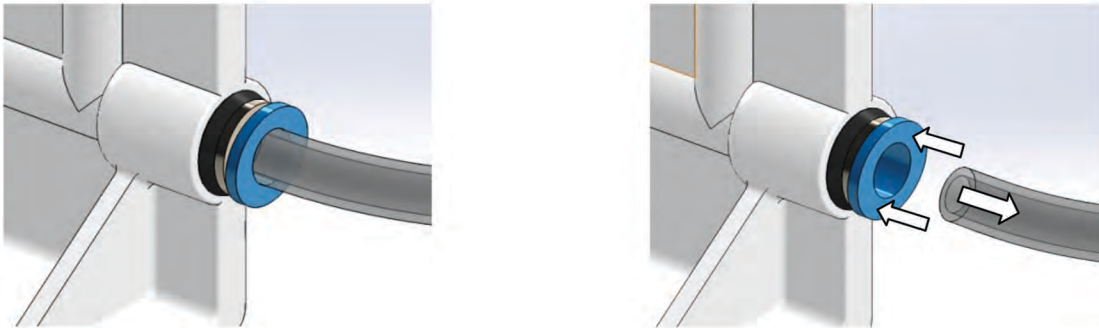


Fig 14 Quick connector

1. To release a pipe from a quick connector, push on both sides of the blue collar.
2. With the collar pushed in, pull the pipe from the connector.

Replacement

1. To replace a pipe into a quick connector, simply push in the pipe. The pipe should be inserted 15 mm to ensure a good connection.

Note: The quick connectors in the manifold and the nozzle are adhered in place and cannot be removed. In the event a quick connector failing in either of these parts, the whole assembly has to be replaced.

Note: Avoid sharp bends close to a quick connector

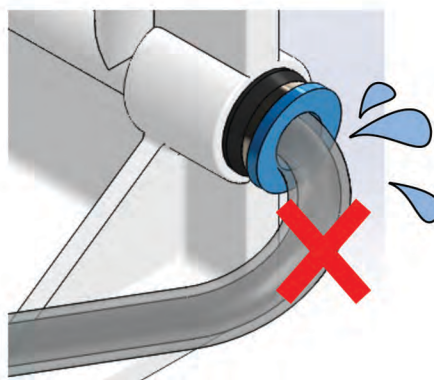


Fig 15 Avoid sharp bends



Fleet recommends the following products to keep
your Kombi looking like new.

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