OBS / CTF60S

OBS640H, OBS / CTF640S, OBS690S

60 LTR CAPACITY ON BOARD SPRAYERS

USER MANUAL

WM2-OBS60S

INDEX

SERIAL NO: ----------

Date of purchase: ----------

IMPORTANT INFORMATION: Fill in immediately. Use when ordering replacement spare parts or additional optional extras

1 INTRODUCTION

With the purchase of your **LOGIC OBS / CTF 60Ltr SPRAYER** you have made an excellent choice.

This machine should give first class service for a long time, if used correctly, and maintained as described in this manual.

LOGIC 60Ltr SPRAYERS have been designed as a 'one piece' unit to allow quick attachment and easy operation.

Fitted with a powerful 12 volt electric pump, a range of liquids with varying viscosity and specific gravity can be handled.

Height adjustment and offset position of the optional booms on 640S and 690S models can be easily altered, the break back feature on all booms being a great help in reducing damage.

The sprayer controls are located for easy operation and maintenance.

Lightweight materials have been used without sacrificing strength and performance, making it ideal for both professional and domestic users.

Electric motors used may vary, but all are accompanied by the makers usual warranty.

If, after reading this manual there are any queries, please get in touch, we will be pleased to help.

NORTH & EXPORT
LOGIC MANUFACTURING LTD
Foundry Industrial Estate
Bridge End, Hexham
Northumberland NE46 4JL
Tel: 01434 606661 Fax: 01434 608143
E-mail: sales@LogicToday.co.uk
www.LogicToday.co.uk

SOUTH
LOGIC MH LTD - New Whiteway Works,
Fossecross Industrial Estate
Chedworth. Cheltenham
Gloucestershire GL54 4NW
Tel: 01285 720930 Fax:01285 720840
E-mail: sales@LogicToday.co.uk
www.LogicToday.co.uk

2 SAFETY FIRST

Please read this manual carefully, adhere to all instructions paying particular attention to the safety information. For further information or clarification of any of the points made, please contact Logic Manufacturing Ltd.
The **OBS60Ltr Sprayer** can be mounted in the back of any suitable vehicle But is ideally suited to fitting on to the rear carrier of an ATV. The **CTF60Ltr Sprayer** is designed to be fitted to a Contact 2000 Weed wiper via a CTF907 mounting bracket. (for installation, see instructions supplied with CTF907 mounting bracket)

SAFE OPERATION

- Do not exceed the vehicles payload recommendations.
  The unladen weight and gross weight of your sprayer can be calculated from the following table.

⚠ **1 Litre of water weighs 1kg**
Be aware of loading limits when filling the sprayer and the restrictions that may exist for carrying platforms stipulated by the vehicle manufacturer.
Assess the difficulty of ground conditions to be sprayed e.g. Slopes or undulating terrain.
Restrict/reduce sprayer loadings to remain safe at all times and within vehicle limits.

Part	Description	Weight (kg)	Tick if applicable
OBS640H	60 Litre spot sprayer, 10m hose/ hand lance on wrap bracket	12	
OBS640S	60 Litre spot/ boom sprayer	10	
CTF640S	60 Litre sprayer for Contact 2000 weed wiper	10	
OBS690S	60 Litre spot / boom sprayer c/w control valve (9 Ltr/ min Pump)	11	
OBS601	Boom/ Hose reel bracket	1.5	
OBS113	10m hose and hand lance with wrap around bracket	2	
OBS114	15m hose and hand lance with wrap around bracket	3	
OBS112PH	15m hose reel and hand lance	6	
OBS116	Y piece	0.2	
OBS101	1.5m (3 nozzle) Boom c/w hedgerow nozzle	3.5	
OBS102	2.0m (4 nozzle) Boom c/w hedgerow nozzle	4	
OBS104	3.0m (6 nozzle) Boom c/w hedgerow nozzle	7	
OBS107	Single Broadcast nozzle up to 4.8m coverage	1	
	Total Unladen Weight		

⚠ If you are using the sprayer on uneven or hilly ground, we recommend reducing the amount of liquid in the tank by at least 25%. it is also recommended to reduce speed accordingly. Avoid crossing slopes at all times.

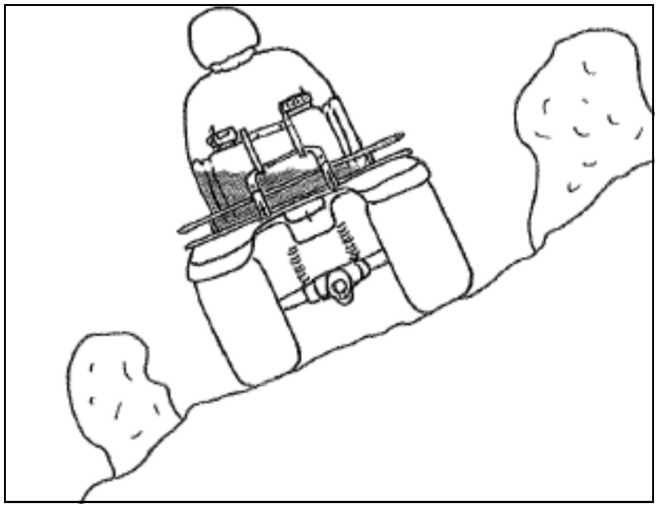
⚠ If the weather is or has been wet or poor the route to and from the area to be sprayed should be assessed again before travelling. Poor weather can affect the ground being travelled on and the handling of the vehicle, especially ATVs.
It is also recommended to reduce the amount of liquid (weight) in the tank by at least 25% in poor weather conditions

- The sprayer should never be driven at speed. A high payload weight can dramatically change the handling of the vehicle on and off road.

ROUTE PLANNING & ACCESS

- Plan the route to the area and the area to be sprayed well in advance of the spraying season. We recommend you identify hazards and obstacles including: gates, tracks, public road crossings, field crossings, hill descents/ascents, sharp corners, unsuitable ground, wet boggy areas, hidden obstacles (tree stumps, rocks etc). (for more info see HSE Ag info sheet 33 and AFAG701 sheet 39).
- It is the duty of the operator's employer, in conjunction with the operator, to identify and plan the route as part of the health and safety routine planning. A full risk assessment should be carried out. Logic Manufacturing Ltd accept no responsibility for poor route planning.
- When navigating slopes, never cross a slope but drive up (ascend) and drive down (descend) vertically. A track may need to be cut into the bank or slope if it is not possible to navigate the slope safely. When driving down (descending) always use low gear and delicate use of controls. Consult your vehicle manufacturer's manual for advice on towing loads up and down slopes forward speed of the vehicle MUST always be dictated by local ground conditions, which vary from season to season.

DO NOT



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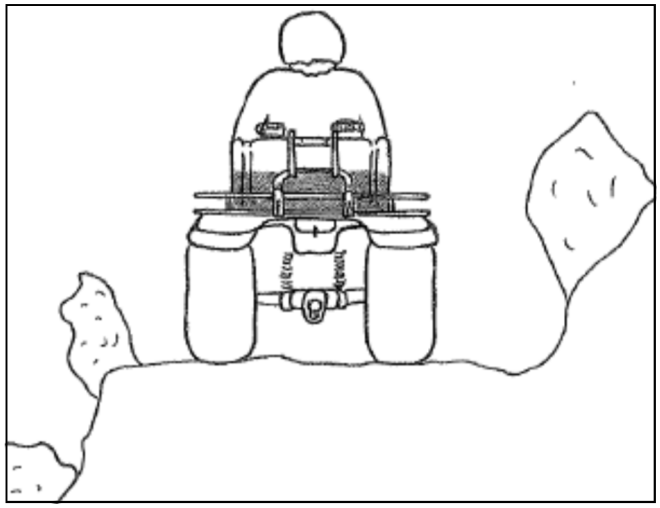


⚠ Surge may occur in the tank when crossing slopes or cornering. Forward speed should adjusted accordingly to ensure safety.

MAINTENANCE — A WELL MAINTAINED MACHINE IS A SAFER MACHINE

Note: Refer to ATV manual for specific maintenance advice. Below is a general guide only.

- Maintenance of the vehicle and sprayer should be part of the daily routine.
- The ATV should have its brakes, throttle and tyre pressures checked daily. Tyre pressures are low on an ATV so a 1psi difference can cause vehicle control problems.
- Check that the brakes give a safe straight stop and the throttle operates smoothly.
- Brakes can have a relatively short life in the environment the machine will be used, so frequent cleaning, regular adjustment and proper maintenance will be required.

TRAINING

- There is a legal requirement for employers to provide adequate training for all operators of ATV equipment and attachments. Contact your local HSE office for approved training courses such as LANTRA for ATVs. The same requirements apply to the self-employed.

⚠ Always wear relevant protective clothing when using chemicals.

Safe use of all-terrain vehicles (ATVs) in agriculture and forestry

HSE information sheet

Agriculture Information Sheet No 33 (Revision 1)

Introduction

This information sheet gives advice on the safe use of ATVs. It covers the two main types used in off-road working in agriculture, forestry and the land-based industries, namely:

- **Sit-astride ATVs**: Any motorised vehicle designed to travel on four low-pressure tyres on unpaved surfaces, with a seat designed to be straddled by the operator and with handlebars for steering control (see Figure 1). These vehicles are intended to be used by a single operator without a passenger. They may also be referred to as quad bikes.
- **Side-by-side ATVs**: Small utility vehicles in which the driver and passenger sit alongside each other in conventional (ie sit-in) seats (see Figure 2). Most side-by-side vehicles are capable of carrying two occupants in this way; however, some vehicles are equipped with a second row of seating (and can therefore carry four occupants), while others have bench-style seats allowing up to three people to be seated in a row. The majority of side-by-side vehicles have four wheels, although six-wheel and full and partially tracked versions are also available. There is usually a cargo bed behind the seating area. Side-by-side ATVs are sometimes referred to as utility vehicles (UTVs) or rough terrain utility vehicles (RTVs).

ATVs are usually fitted with a tow hitch and are capable of towing a load such as a trailer, a trailed appliance or other equipment.

Hazards

Both types of ATV are designed to cope with a wide variety of terrain types, including steep slopes, but if used outside their safe operating parameters they can very rapidly become unstable. The main causes of serious or fatal injury associated with ATVs are from:

- being thrown off during vehicle overturns or after loss of control;
- collisions with structures, trees, other vehicles etc;
- being trapped/asphyxiated under an overturned machine;
- pedestrians being struck or run over by ATVs.

Contributory factors/underlying causes of accidents and injury with ATVs can include:

- lack of formal operator training and/or experience;
- incorrect/lack of appropriate head protection;
- excessive speed;
- age of the operator;
- carrying a passenger on a sit-astride ATV;
- unbalanced loads or overloading;
- tipping on a bank, ditch, rut or bump;
- loss of control on a steep slope combined with other factors, eg ground or load conditions;
- towing excessive loads with unbraked equipment;
- poor maintenance, eg faulty brakes, incorrect tyre pressures etc.

Control measures for sit-astride ATVs

Training

It is a legal requirement for employers to provide adequate training for employees who use work equipment such as ATVs, and to make sure that only employees who have received appropriate training in their safe use, including the use of any towed equipment or attachments, are permitted to ride them. The same requirements apply to the self-employed.

You can get details of suitable training courses from franchised ATV dealers, manufacturers' websites, EASI (European ATV Safety Institute), the British Off Road Driving Association (BORDA) and through colleges and training providers.

When purchasing a new or used machine from a franchised dealer an industry-led scheme offers customers free training – see 'Useful contacts'.

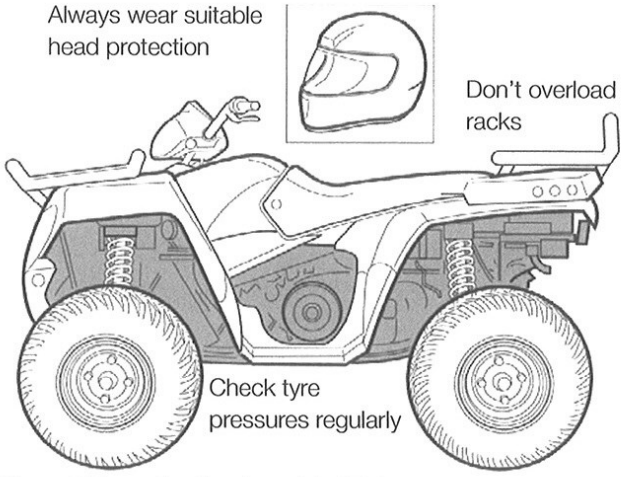


Figure 1 Example of a sit-astride ATV

Personal protective equipment – the importance of head protection

Sit-astride ATVs are not fitted with either a cab or roll bar, so your only protection is what you wear. Head protection is vital. Many ATV fatalities in the UK have been caused by head injuries. Helmets would certainly have prevented most of, if not all, these deaths. You should always wear a helmet when riding an ATV.

Helmet types suitable for ATV operations, depending on the circumstances, are motorcycle helmets, equestrian helmets, specialist ATV helmets, cycle helmets and mountaineering helmets. All helmets should be manufactured and tested in accordance with the current relevant EN/BS standard, have a chinstrap and be capable of being used with suitable eye protection. The type of helmet chosen should be based on an assessment of the circumstances in which the ATV will be used, eg the types of surface travelled over and anticipated speeds. The harder the surface and higher the speed the greater the degree of protection needed. NB: Forestry helmets and industrial hard hats are not acceptable for any ATV operations.

Wear clothing that is strong and covers your arms and legs. Gloves are useful for protection and handlebar muffs can help to keep hands warm in cold weather for good control of the ATV. Wear sturdy, ankle-covering footwear, eg boots or wellingtons that are strong, supportive and have good wet grip.

Protect your eyes from insects and branches with either a visor or goggles.

Passengers

The long seat on a conventional sit-astride ATV is to allow operators to shift their body weight backwards and forwards for different slope conditions, a technique known as 'active' riding. It is **not** for carrying passengers. Manufacturers often display a sign on machines prohibiting passengers and this message is also repeated in operator manuals.

Do not carry a passenger in a trailer behind an ATV as any movement can make the machine unstable, particularly with independent rear suspension and trailers with axles wider than the ATV.

Some machines have received European Community Whole Vehicle Type Approval, allowing them to be ridden on the public highway. Some of these machines are designed to carry passengers. Such machines may not be suitable for carrying a passenger when used in off-road situations, eg on sloping ground, as the operator may not be able to use active riding techniques to maintain machine stability. Such machines may not have a locking differential and may not provide an acceptable level of traction to ensure safety in certain off-road conditions.

Before using an ATV you should assess the suitability of the machine for the intended tasks and working environment.

Route planning and stability

Accidents can occur where ATVs are driven on new routes over steep ground for the first time, or are carrying or dragging destabilising loads. When travelling over rough terrain, get to know your own ground and stick to planned routes where possible. Walk new routes if necessary to check for hidden obstructions, hollows or other hazards. Allow for changes in ground conditions and for the destabilising effect of loads or attachments.

Safety checks and maintenance

Off-road use is especially harsh on equipment so it is essential to carry out safety checks and maintenance in accordance with the manufacturer's recommendations. In particular, pre-ride safety checks should always include:

- tyre pressures. These are low, eg typically around 2–7 psi, so even a 1 psi (0.07 kg/cm^2) difference in pressure can cause vehicle control problems. Use a gauge that is designed for measuring and displaying low pressures – usually supplied with the ATV;
- brakes and throttle. Check that the brakes give a safe straight stop and that the throttle operates smoothly in all steering positions. Brakes can have a relatively short life in farming or forestry environments and need frequent cleaning, regular adjustment and proper maintenance.

Safe riding methods

On sit-astride ATVs rider positioning is vital to operate them correctly. The position of the rider on the machine needs to be changed depending on the terrain and motion. Riders must have the ability to move and balance the momentum of the ATV with their own body weight. Plan routes (and review the plan if a route is used regularly) to assess risks.

The following advice is no substitute for formal training.

- Most ATVs have no differential and so do not handle in the same way as other machines. This means that when you turn, the ATV tries to keep going in a straight line.
- When cornering on an ATV with no differential, or with the differential lock engaged, where your body weight needs to be positioned depends on how sharp the corner is and on how fast you are going. Correct body position allows you to transfer weight to the outside of the turn through the footrests while maintaining balance with the torso. This lets the inside wheels skid slightly allowing the ATV to make the turn properly.
- You must understand how the transmission system of your machine will affect engine braking for both riding on slopes and recovery of stalled ATVs.
- When riding across a slope, keep your weight on the uphill side of the ATV.
- When going downhill, slide your weight backwards, select a low gear and use engine braking, reducing the need to use the brakes.
- When going uphill, it is important to review the route before starting the climb. Move your weight forwards and maintain a steady speed. It is important to shift your body weight forwards as much as possible. If necessary, stand up and lean forward, keeping both feet on the footrests at all times and always maintain momentum.
- Avoid sudden increases in speed. This is a common cause of rearward overturning accidents, even from a standing start on flat ground where there is good grip.
- Never put your foot onto the ground to stabilise an ATV when riding, but shift your weight across the ATV away from the imbalance.
- Always read the owner's manual.

Trailed equipment and loads

Ensure all riders know the manufacturer's recommended towing capacity and drawbar loading limit. Always operate within these requirements. Remember that your ability to control the ATV by your body movements will be considerably reduced when carrying a load or towing a trailer.

- When selecting trailed equipment look for:
  - over-run brakes;
  - a swivel hitch drawbar;
  - bead lock rims on wheels;
  - a low centre of gravity and a wide wheel track;
  - a long drawbar;
  - attachment points for securing a load.
- Check the weight ratio between your ATV and its trailed load. This needs to be assessed for each operation. As a general guide, on level ground braked trailed equipment can be a maximum of four times the unladen weight of the ATV. For unbraked trailed equipment the maximum should be twice the unladen weight. These loads should be reduced when working on slopes, uneven ground or poor surface conditions. Follow the manufacturer's advice for your particular machine.
- Weight transfer is also important. Stability and resistance to jackknifing is improved if some load is transferred onto the ATV's drawbar. Approximately 10% of the gross weight of the loaded trailer is recommended, but this should not exceed the manufacturer's drawbar loading limit. Remember that weight transfer can change dramatically when you start going up or down hill.
- When selecting mounted equipment, make sure it is within the manufacturer's approved weight limit, with a low centre of gravity and controls which are easy to operate but do not create a hazard. Where equipment is added to one end of the machine, add ballast at the other end to maintain stability.
- Loads carried on racks must be well secured, eg with ratchet straps, and be evenly balanced between the front and rear, except where they are deliberately altered to aid stability when going up or down a slope. Maximum weights that can be carried should be specified in the operator's manual and may be marked on the machine. These should not be exceeded.
- Only tow a load from the hitch point. Loads towed from other points, such as the rear rack, have caused sudden rear overturning even on slight slopes or with slight acceleration. Do not use ropes or chains to drag a load; they can become caught on a wheel. This may lead to entanglement with the brake cable, causing unexpected braking.

Using sprayers

- Sprayers should be fitted with an induction hopper unless the filling point is less than 1.5 m from the ground and within 0.3 m from the edge of the sprayer. A separate clean water tank for washing must be provided containing at least 15 litres of clean water and a tap that allows the water to run without being continuously pressed.
- When buying a sprayer look for a low centre of gravity and internal baffles to reduce liquid surge and improve stability when turning on slopes.

- ATVs should only be used with rear-mounted spray booms or other equipment that reduces the risk of pesticide exposure to the operator.

- Do not hold a spraying lance while riding your ATV as you need two hands for safe control.

Accessories

Beware of the potential dangers of accessories which are not approved by manufacturers, eg home-made gun racks and boxes. Either use accessories supplied/approved by manufacturers or seek their advice as to the suitability of those sourced elsewhere.

Any weight added above the centre of gravity will decrease the ATV's stability, eg feed hoppers/dispensers fixed above the rear rack.

Children

- Never carry a child as a passenger. It is illegal and will reduce your ability to control the ATV.
- Children under 13 years old are prohibited from using an ATV for work. Over-13s should only ride ATVs of an appropriate size and power after formal training on a low-power ATV.
- Children under 16 years old are prohibited from using most adult-sized machines. Check and adhere to the manufacturer's minimum age recommendations for your ATV; this information may be displayed on the machine and in operator manuals. Similar restrictions apply to side-by-side machines.
- The ratio of a child's weight to that of the ATV is significant, as weight transfer is the key to safe handling.
- In the event of an overturn, a child may be crushed by the weight of an adult-sized ATV. They may be unable to lift it off unaided.

Roll-over protective structures (ROPS)

- HSE's current advice is that roll-over protective structures (ROPS or crush protection devices) are not recommended for sit-astride ATVs. Research has shown that they may lead to an increased risk of injury in the event of an overturn by either preventing the operator from separating from the machine or striking the operator as the machine overturns.
- Lap straps/seat restraints should not be fitted. They prevent active riding and would be potentially lethal without a full cab or roll cage.
- Weather cabs on sit-astride ATVs restrict a rider's ability to jump clear in an overturn. The rider is likely to be crushed within the cab unless it is strong enough to withstand the forces involved. Carefully assess the risks for your particular conditions of use before fitting any such structure and consult the manufacturer for information.

Side-by-side ATVs

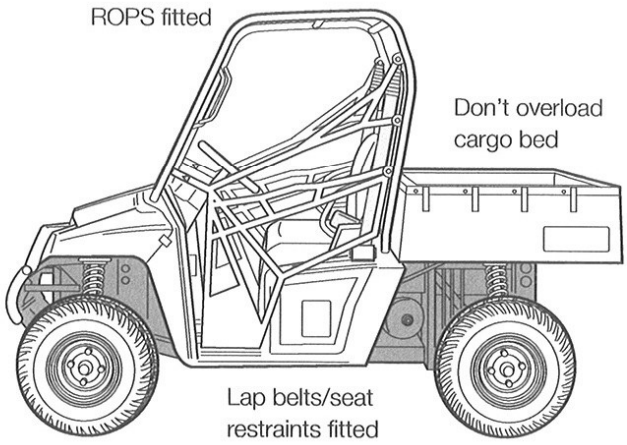


Figure 2 Example of a side-by-side ATV

Utility side-by-side ATVs are used for many of the same purposes as tractors and designed for similar work activities, ie off-road use on difficult terrain. They have conventional sit-in seats, and the main controls comprise a steering wheel and pedals. The driver does not need to use weight transfer to steer or to control stability. Nevertheless, the correct distribution of weight on-board the vehicle is important, particularly when carrying a load or on uneven surfaces. Loads carried on the cargo bed should not exceed the recommended weight and should be secured against movement.

Training

The legal requirements for training are the same as for the sit-astride ATVs.

ROPS and seat belts

The requirements for these machines are quite different to those of sit-astride ATVs:

- To reduce the risk of injury in the event of a roll-over or other incident, side-by-side vehicles require lap belts/seat restraints as well as ROPS that essentially form a protective structure around the seating area. The compartment is usually open, although some vehicles are fitted with a windscreen and/or side doors. The driver and all passengers should be protected by ROPS and wear lap belts.
- Where a machine is amphibious and used on deep water as opposed to marshland, then the seat restraints (and possibly ROPS) could increase the

overall risk rather than reduce it. In this case, do not use seat restraints while on the water. Assess the risk from the roll frame according to its design and the likelihood of trapping the occupants if the machine should sink.

Parking

If you have to park on a slope, always park across it unless it is too steep. Accidents have occurred when machines have run down slopes because of poor brake maintenance or application, particularly while they are being loaded and movement or the increase in weight has set the machine in motion.

Useful contacts

EASI®, the European All-Terrain Vehicle Safety Institute, is a not-for-profit organisation which provides safety training courses for ATV riders.

EASI's UK operation is sponsored by a number of ATV manufacturers and delivers a programme of specialist ATV training courses which are designed to improve rider skills, safety levels and awareness of the capabilities of ATV machines.

Buyers who purchase a new or used ATV from one of these manufacturers via an authorised UK dealer are eligible for **free** or highly subsidised training, subject to qualifying terms, conditions and availability. See www.quadsafety.org/ for details.

Training is also available from other organisations, such as the British Off Road Driving Association (BORDA). See www.borda.org.uk for details.

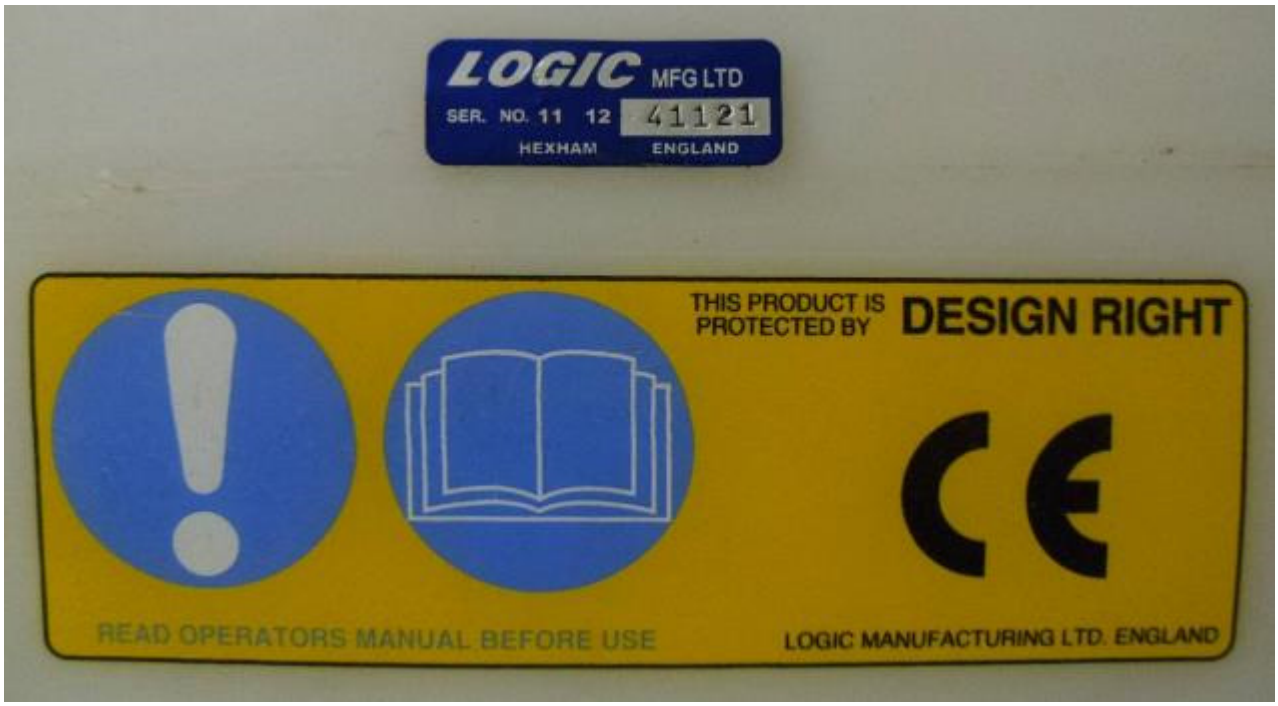
Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This leaflet is available at: www.hse.gov.uk/pubns/ais33.htm.

3 INSTRUCTIONS / WARNING DECALS



The above decals should be located on your sprayer. Adhere to all instruction and warnings.

4 OPERATING PRINCIPLES

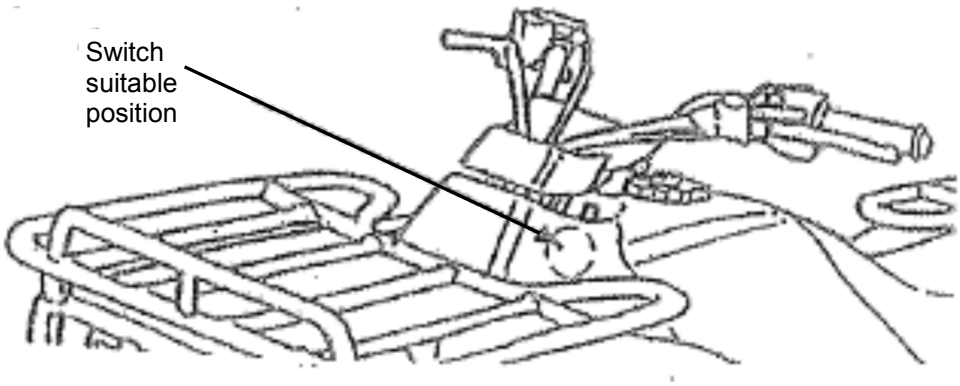
4.1 AUXILIARY ELECTRICAL SOCKET AE500 FITTING INSTRUCTIONS

1. Open the contents of the fitting kit and inspect the components to assess the principles of the wiring harness, comprising:-

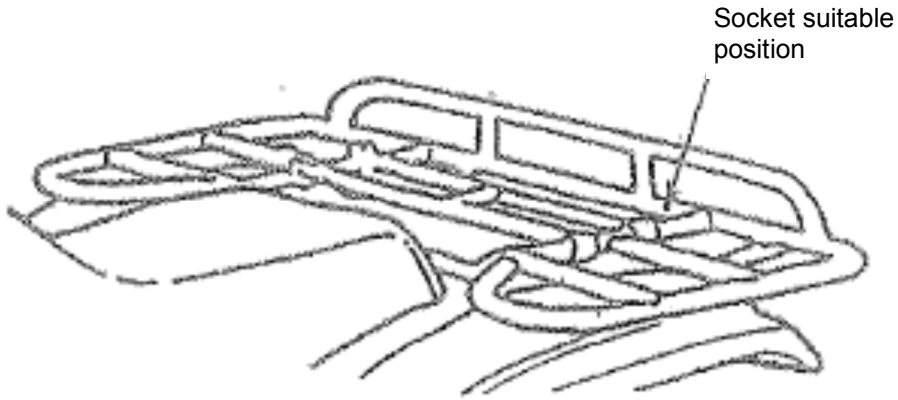
   Battery connections, on/off switch and auxiliary socket
   Spare fittings are included if the battery lead needs to be shortened.

2. Locate and remove the cover from the ATV battery.

3. Decide the best location for the on/off switch. This should be on the left hand side of the ATV, preferably in front of the operator on the side of the bodywork surrounding the steering column.



4. Decide the best location for the socket, bearing in mind the position of the electrical supply wire on the sprayer.
   The socket is supplied with bracket and jubilee clip to allow fitting on one of the tubular bars of the ATV rear carrier **OR** alternatively the socket could be fitted direct into a suitable surface of the ATV bodywork. Bolts, washers and lock nuts are supplied to secure the socket for each method of installation.



5. Once the locations of both switch and socket have been decided. Fit the switch to the ATV bodywork.

6. Mark the hole positions of the switch and drill through the ATV plastic moulding using a 6mm bit **NOTE** make sure there are no wiring or other vulnerable fixings behind the drilling points.

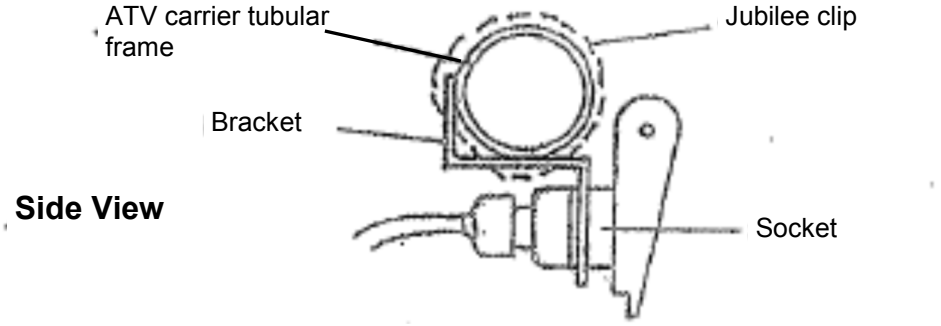
7. Before securing the switch to the bodywork it may be necessary to route the battery and socket wires from the switch through the ATV framework to conceal and protect the wires.
   It will be easier to achieve this if the wires are unplugged from the socket.
   NOTE when replacing the wires into the socket **BLUE CONNECTS TO THE EARTH STRAP TERMINAL**

8. Secure the switch in position using the 2 x M6 x 40 set studs, washers and lock nuts supplied.

9. Secure any wiring concealed behind the ATV bodywork onto the main framework using cable ties, taking care to avoid any areas close to the exhaust pipe or any sharp edges that may wear the wiring.

10. Route the socket wire from the switch to the desired location for the socket.

11. If the socket is to be secured to the ATV rear carrier framework, use the bracket and jubilee clip supplied.



Side View

12. If the socket is fitted into the ATV bodywork, drill a 25mm hole **NOTE** Ensure there are no vulnerable fixings behind this position.
    Place the socket in position and mark the hole positions for the securing bolts.
    Drill those using a 5mm bit taking care not to damage any other fixings.

13. When refitting the socket wire to the socket body **ENSURE THE BLUE WIRE CONNECTS TO THE EARTH STRAP TERMINAL.**

14. Secure the socket in position using the 2 x M5 x 16 set studs, washer and lock nuts provided.

15. Secure any loose socket wire in a tidy loop on the ATV framework with the cable ties supplied.

16. Route the battery lead from the switch to the battery terminals.
    If an excess length of wiring needs to be removed, there are spare connectors in the kit for this purpose.

17. Connect the fused **ORANGE WIRE DIRECTLY TO THE POSITIVE TERMINAL AND BLUE WIRE TO THE NEGATIVE TERMINAL OF THE ATV BATTERY.**

18. Re-position the battery cover and ensure all wiring is secured.

The **LOGIC OBS 60Ltr SPRAYER** ranges have been designed to give safe and dependable service if operated according to instructions, and intended use.

Read and understand this manual before operating the sprayer, failure to do so could result in personal injury or equipment damage.

INITIAL CHECK

Make sure that all nuts, bolts and fixings are securely fixed and that all packaging materials e.g. wire bands, tape, etc, have been removed, especially from the inside of the tank.

4.2 ATTACHMENT TO THE ATV

The **LOGIC OBS 60Ltr SPRAYERS** have been specifically deigned for ATV rear carrier frames (front optional). The unit can also be used on a variety of other transporters, in which case, contact your Logic dealer for specific instructions.

ATTACHMENT TO THE ATV (For rear carriers only)

a. Check that the boom section and boom attaching leg are removed from the tank unit, if fitted.

b. Remove the tank fixing clamps and 'T' bolts from the tank unit.

c. Carefully lift the tank unit onto the rear carrier frame.

d. Manoeuvre the unit to the rear bar on the carrier frame, position the tank fixing clamps, insert and tighten the 'T' bolts on each side. **NOTE** Hand tight should be sufficient.
The clamps may not fit all ATV carriers so the tank has been moulded with a strap recess on each end to allow it to be secured safely with ratchet straps. (Part No. ATV110 are available separately).

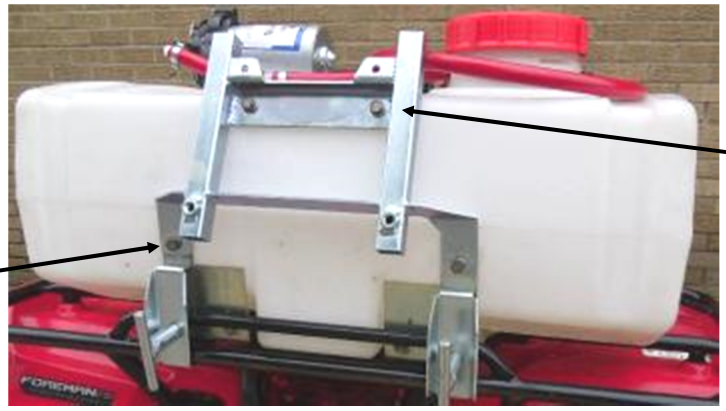
4.3 ATTACHMENT TO CTF907 (Mounting bracket for weed wiper use)

The **LOGIC CTF 60Ltr SPRAYERS** have been specifically deigned for use with the CTF907 mounting bracket on the Contact 2000 weed wiper. Please see instructions for fitting in the CTF907 assembly.

ATTACHING THE BOOM BRACKET (OBS601)

a. Remove the M8 x 10mm bolts from the tank brackets above the ‘T’ bolt clamps.

b. Align the boom bracket with the holes and secure with the M8 x 10mm bolts at the top from step a. and the M8 x 16mm bolts and washers provided at the bottom



ATTACHMENT OF 3 OR 4 NOZZLE BOOM TO THE TANK

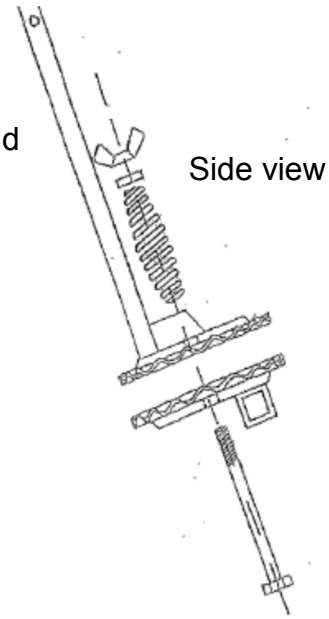
a. Slide the boom attaching leg up through the mounting bracket on the tank. Locate the ‘R’ clip in the hole of the boom attaching leg suited to the required operating height.

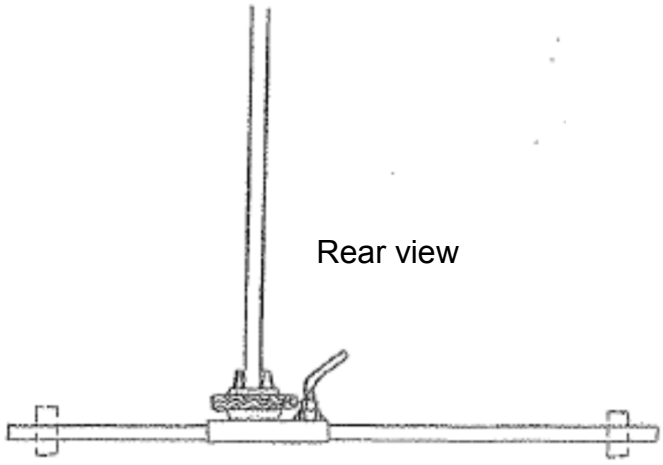
b. Raise the boom attaching leg to the higher transport position and secure with the hand wheel and M10 plain nut provided.

c. Position the boom on the break back clutch, tighten the adjustment spring to allow boom break back when light pressure is applied. (See diagram below)

d. Connect the coupling on the boom hose to the main supply hose.

Break back clutch and boom assembly





BOOM/HANDLANCE CHECK (first time only)

a. Fill the tank with a small quantity of water.

b. Spray out without any nozzles fitted to the hand lance or boom (this will flush out any particles associated with manufacture).

⚠ When fitting a logic front tank assembly the ’T’ bolt clamps should be used if possible. If not then the ATV110 ratchet straps should be used. Please ensure the supply hose to the rear is routed away from the operator to ensure a contamination free work zone.

ATTACHMENT OF 6 NOZZLE BOOM TO THE TANK

a. Slide the boom attaching legs 1, 2 on to the ends of the boom centre section 4. slide the legs up through the mounting bracket on the tank. Locate the 'R' clip in the hole of the boom attaching leg suited to the required operating height. (See diagram below)

b. Secure the boom centre section with the bolts and plain nuts 13, 14.

c. Raise the boom attaching leg to the higher transport position and secure with the hand wheel and M10 plain nut provided.

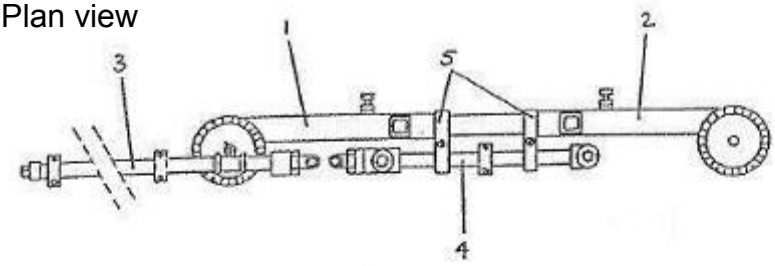
c. Secure the outer boom sections onto the break back clutch with the 'U' bolts 10. Position and fix to the clutch plates on the boom attaching legs with the bolts, springs and wing nuts 11, 12.

d. Connect the supply hoses to the outer boom sections 6. Connect the coupling on the boom hose to the main supply hose from the tank.

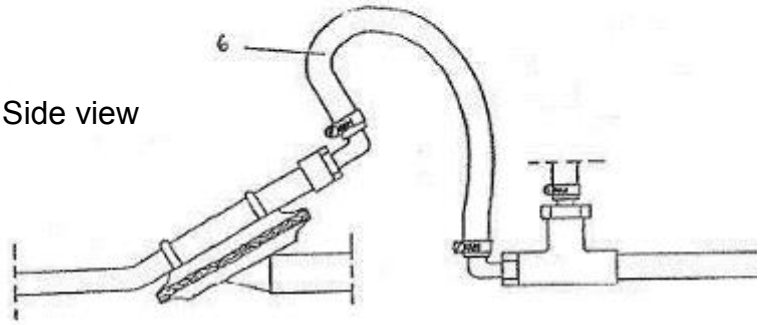
All Logic booms are supplied as standard with 1 set of blue 110º flat fan 0.98 to 1.38 L/min nozzles and 1 set of red 110º flat fan 1.3 to 1.84 L/min nozzles.

View of boom fitted to tank bracket

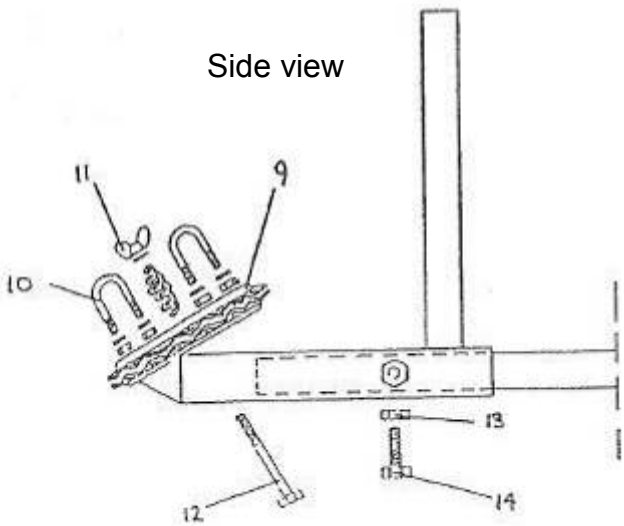
Plan view



Side view



Side view



BOOM/HANDLANCE CHECK (first time only)

a. Fill the tank with a small quantity of water.

b. Spray out without any nozzles fitted to the hand lance or boom (this will flush out any particles associated with manufacture).

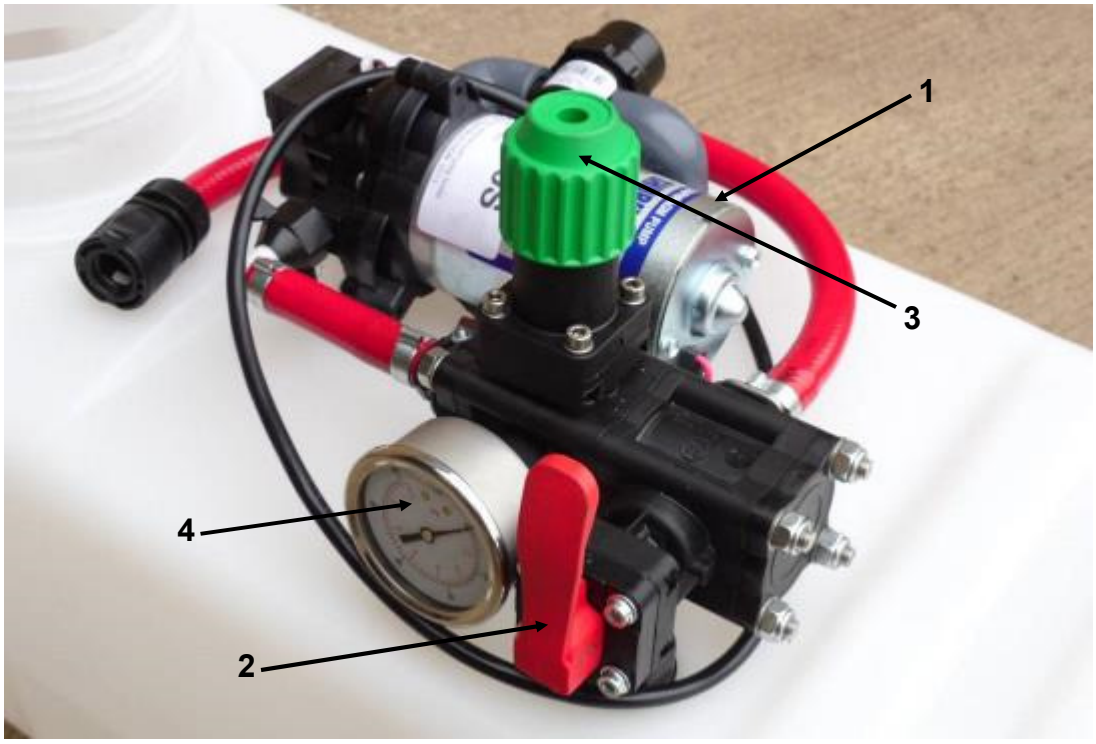
⚠ When fitting a logic front tank assembly the 'T' bolt clamps should be used if possible. If not then the ATV110 ratchet straps should be used. Please ensure the supply hose to the rear is routed away from the operator to ensure a contamination free work zone.

4.4 OBS640H AND OBS/CTF640S OPERATING INSTRUCTIONS

On these models the pump is controlled from an ON/OFF switch (AE500).
The pump has no pressure regulation valve and has a constant output suitable for supplying a range of spray nozzles.
The maximum pressure possible is 3.5 bar (50psi) with one or two nozzles being used. We recommend not using spray booms with more than 6 nozzles, which could cause the pressure to drop below 2 bar (30psi) which will cause a poor spray pattern from each nozzle jet.

4.5 OBS690S PRESSURE CONTROL OPERATING INSTRUCTIONS

The OBS690S Sprayer is fitted with a pressure control unit as shown below.



SPRAYER PARTS

1. Electric pump
2. Spray/ Agitate on/off valve
3. Pressure regulating valve
4. Pressure gauge

FIRST TIME ONLY

Fill the tank with a small quantity of water, spray out, without nozzles in position. This will flush out any particles associated with manufacture.

NORMAL OPERATING INSTRUCTIONS

Fill the tank with approximately half the expected volume of clean water. Spray out a small quantity of water to check the boom nozzles are not blocked or that the hand lance is working correctly.

A. Switch the pump on using the control switch.
B. Turn the spray/ agitate valve (2) from agitation to spray.
C. Check the spraying pressure on the gauge (4) and alter according to spraying requirements using the regulating valve (3) (refer to the spraying chart in this manual for recommended pressure)

Once the operator is familiar with the controls and is satisfied with the workings of the sprayer, turn off the spray/ agitate valve (2) which increases the agitation in the tank contents.

d. Carefully add the chemicals to the tank.

NOTE The instructions on the chemical pack must be followed carefully.

e. Top up with clean water to the required volume of spray mixture.

NOTE Stir the chemical/water mixture well, in the tank, with a suitable clean stirrer, before setting off to the spraying site.

NOTE Keep the pump switched on and the spray/ agitate valve in the agitate position during filling and travelling to the spraying site to allow maximum agitation.

f. Adjust boom height to suit the target area approx. 500mm (20”) above the target plants.

g. Adjust offset position of boom to suit the spraying conditions.

h. Select the appropriate forward speed (see spray chart)

i. Open the spray/ agitate valve (2) to the spray position whilst travelling forward.

j. Check the operating pressure on the gauge (4) and adjust with the regulating valve (3) if necessary.

k. During spraying, use the spray/ agitate valve (2) to stop and start the spraying procedure.

l. Switch off the pump when the tank is empty.

HANDLANCE USE

Always reduce the pressure below 3.1 bar when using a hand lance. Failure to do so could cause the pump to pulsate repeatedly causing damage to the pressure switch by burning out the contacts.

5 CALIBRATION

The calibration guide below is based on using an OBS640S

Example only: Brand x chemical to kill Thistles & Nettles		
	ACTION	**RESULT EXAMPLE ONLY**
1.	Read the chemical instructions to find the application rate and volume of mixture per hectare.	**Recommended chemical rate of use = 3 L/Ha Recommended volume of water = 200 L/Ha**
2.	Fill the sprayer with a quantity of water. Switch on the pump and measure the quantity of liquid spraying from each nozzle for 1 minute — measure the amount from each nozzle then average the results to get litres per minute per nozzle. (Use a measuring jug)	**Nozzle flow rate = 1.6 L/min**
3.	Use the **Nozzle spray chart** to find the appropriate forward speed to apply the correct volume of liquid. Check the correct jet size column e.g. RED (04-F10) @ 1.6L/min = 200L/Ha at 10Kph approx. If you have no speedometer use the following table as a guide.	**Forward speed = 10Kph**

SPEED KPH	**6**	**8**	**10**	**12**
SECONDS TO TRAVEL 60 METERS	**36**	**27**	**22**	**18**

⚠ It is not recommended to spray at speeds in excess of 12Kph.

4.	To calculate the quantity of chemical required for one tank full follow the example: At 10Kph the application rate is 200L/Ha approx (taken from the nozzle spray chart) which matches the chemical suppliers application guidelines.	**60 L tank capacity 200 L/Ha = 0.3 HA covered. Chemical = 3 L/Ha = 3 x 0.3 = 0.9 L of chemical per tank.**

5.	Keep a record of the settings you have worked out, this will save a lot of time in the years ahead. Occasionally check the output per nozzle to see if the pump is operating correctly. If large variations are found, pump maintenance could be necessary. (e.g. change the check valve)	

CALIBRATION RECORD

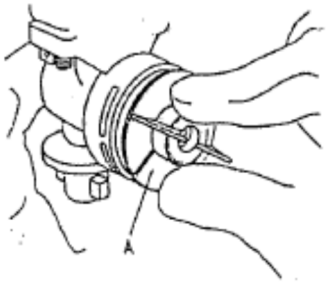
Chemical Mixture	No of Nozzles	Jet Size	Jug Test L/Min	Speed Kph	App Rate L/Ha	Area per Tank full Ha	Chemical L/Ha	Chemical L/ Tank
Example Brand x	3	04	1.6	10	200	0.3	3	0.9

⚠ OBS690S only. Keep the pump switched on and the spray agitate valve in the agitate position during filling and travelling to the spray site to allow maximum agitation.

SPRAY BOOM EASY FIT EEZIFIT NOZZLE HOLDERS

A feature of these nozzle holders is that individual nozzles can be turned ‘on’ or ‘off’ by turning the valve **(A) shown below**. Hold the Nozzle holder with one hand and carefully
Turn the valve to **ON** or **OFF** through 2/3 of the valves movement, full turn
Anti-clockwise will allow removal of the valve for cleaning.

This feature allows easy spray pattern/width change for different conditions, and safe cleaning of jets when calibrating the sprayer.



Easy fit nozzles also feature an anti drip facility (DCV). This stops the nozzle from dripping as soon as the flow is switched off.

RUNNING THE PUMP DRY

One of the benefits of using the pump type of the sprayer is that the pump CANNOT be damaged by running it dry, if left on, will eventually run down the battery.

The BCPC nozzle coding system is an International Standard (ISO) which gives additional information on fan nozzles regarding the pattern produced by the nozzle, the spray angle and the nozzle output at 3.0 bar pressure:

Nozzle Size	ISO Colour	BCPC Nozzle Code	
01	ORANGE	F110 / 0.4 / 3*	
015	RACING GREEN	F110 / 0.6 / 3	
02	YELLOW	F110 / 0.8 / 3	
025	LILAC	F110 / 1.0 / 3	
03	BLUE	F110 / 1.2 / 3	Supplied
04	RED	F110 / 1.6 / 3	Supplied
05	BROWN	F110 / 2.0 / 3	
06	GREY	F110 / 2.4 / 3	
08	WHITE	F110 / 3.2 / 3	
10	LIGHT BLUE	F110 / 4.0 / 3	
15	LIGHT GREEN	F110 / 6.0 / 3	
20	BLACK	F110 / 8.0 / 3	

*Where F = flat fan, 110° is the spray angle, 0.4 L/min is the flow rate at 3 bar and 3 is the pressure in bar.

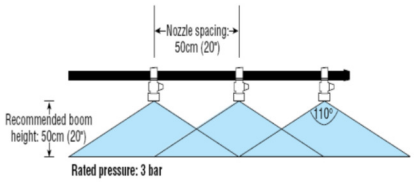
Wind Speed

Always evaluate wind speed and direction using a wind metre – the chart below provides guidance on whether or not to spray.

Approximate air speed at boom height	Beaufort scale (at height of 10m)	Description	Visible signs	Spraying
Less than 2 km/h (less than 1.2 mph)	Force 0	Calm	 Smoke rises vertically	Use only medium or coarse spray quality
2-3.2 km/h (1.2-2 mph)	Force 1	Light air	 Direction shown by smoke drift	Acceptable spraying conditions
3.2-6.5 km/h (2-4 mph)	Force 2	Light breeze	 Leaves rustle, wind felt on face	Ideal spraying conditions
6.5-9.6 km/h (4-6 mph)	Force 3	Gentle breeze	 Leaves and twigs in constant motion	Increased risk of spray drift. Take special care
9.6-14.5km/h (6-9 mph)	Force 4	Moderate	 Small branches move, raises dust or loose paper	Spraying inadvisable

NOZZLE SPRAY CHART

Application rates shown on this chart are based upon tests at 3 bar and upon 50cm nozzle spacing.



FLAT FAN TIP STANDARD 110° NOZZLES

A VERSATILE NOZZLE FOR THE OVERALL SPRAY APPLICATION OF HERBICIDES,FUNGICIDES,INSECTICIDES AND GROWTH REGULATORS

	HYPRO TIP REF. AND COLOUR	PRESS. BAR	FLOW L/MIN	LITRES/HECTARE AT KM/H 8KPH	10KPH	12KPH	16KPH	18KPH	BCPC NOZZLE CODE
Orange	01F1100R	2.0	0.327	49	39	33	24	22	F110/0.40/3
	60 L/ha	3.0	0.400	60	48	40	30	27	
	(100#)	4.0	0.462	69	55	46	35	31	
Green	015F110RG	2.0	0.490	73	59	49	37	33	F110/0.60/3
	90 L/ha	3.0	0.600	90	72	60	45	40	
	(100#)	4.0	0.693	104	83	69	52	46	
Yellow	02F110YE	2.0	0.653	98	78	65	49	44	F110/0.80/3
	120 L/ha	3.0	0.800	120	96	80	60	53	
	(100#)	4.0	0.924	139	111	92	69	62	
Lilac	025F110V1	2.0	0.816	122	98	82	61	54	F110/1.00/3
	150 L/ha	3.0	1.000	150	120	100	75	67	
	(100#)	4.0	1.155	173	139	115	87	77	
	03F110UB	2.0	0.980	147	118	98	73	65	F110/1.20/3
Blue	180 L/ha	3.0	1.200	180	144	120	90	80	
	(100#)	4.0	1.386	208	166	139	104	92	
Red	04F110RE	2.0	1.306	196	157	131	98	87	F110/1.60/3
	240 L/ha	3.0	1.600	240	192	160	120	107	
	(50#)	4.0	1.848	277	222	185	139	123	
Brown	05F110LB	2.0	1.633	245	196	163	122	109	F110/2.00/3
	300 L/Ha	3.0	2.000	300	240	200	150	133	
	(50#)	4.0	2.309	346	277	231	173	154	
Grey	06F110GY	2.0	1.960	294	235	196	147	131	F110/2.40/3
	360 L/ha	3.0	2.400	360	288	240	180	160	
	(50#)	4.0	2.771	416	333	277	208	185	
	08F110WH	2.0	2.613	392	314	261	196	174	F110/3.20/3
White	480 L/ha	3.0	3.200	480	384	320	240	213	
	(50#)	4.0	3.695	554	443	370	277	246	
Light	10F110CB	2.0	3.266	490	392	327	245	218	F110/4.00/3
	600 L/ha	3.0	4.000	600	480	400	300	267	
Blue	(30#)	4.0	4.619	693	554	462	346	308	
Light	15F110LG	2.0	4.899	735	588	490	367	327	F110/6.00/3
	900 L/ha	3.0	6.000	900	720	600	450	400	
Green	(30#)	4.0	6.928	1039	831	693	520	462	
Black	20F110BL	2.0	6.532	980	784	653	490	435	F110/8.00/3
	1200 L/ha	3.0	8.000	1200	960	800	600	533	
	(30#)	4.0	9.238	1386	1109	924	693	616	

BCPC CODING	FINE	MEDIUM	COARSE

6 PRACTICAL SPRAYING GUILDLINES

The unladen weight of your sprayer should be worked out from the table shown on page 4. You will need this weight to calculate the total gross weight of your sprayer.

1 litre of water weighs 1kg
Be aware of loading limits when filling the sprayer and the restrictions that may exist for carrying platforms stipulated by the vehicle manufacturer.
Assess the difficulty of ground conditions to be sprayed e.g. slopes or undulating terrain.
Restrict/reduce sprayer loadings to remain safe at all times and within vehicle limits.

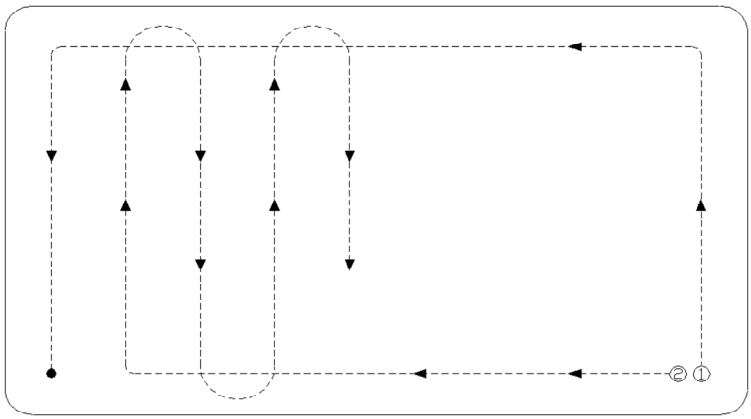
IMPORTANT RULES WHEN SPRAYING

1. Completely understand the workings of the sprayer
2. Understand the requirements of the task
3. Have the correct training to use the sprayer/chemicals (PA1 & PA2 certificates)
4. Wear the correct protective clothing
5. Take extreme care when filling the sprayer with chemical
6. Operate the booms at the correct target height
7. Apply chemicals in a responsible manner to avoid 'spray drift' and water course contamination (See wind speed chart further on page 21 of this manual)
8. Always spray at 90 degrees to the wind direction and turn in to the wind wherever necessary.

FIELD EXAMPLE:

WIND DIRECTION

Stage 1: headland
Stage 2: Complete headland and spray across wind direction



9. Take care when cleaning the out the sprayer not to contaminate yourself or the environment
10. Take extra care when using pesticides
11. Seek training if you are unsure about any of the guidelines discussed.

Do not disregard the manufacturer's spraying guidelines for application rates etc.
Do not spray in the same direction as the wind.
Do not hold a hand lance while driving the ATV.

7 CLEANING THE SPRAYER

It is very important to observe a strict cleaning and maintenance routine when finishing spraying at the end of the day or at the end of the season, also when changing from one chemical to another.

TO CLEAN THE SPRAYER AFTER USE

⚠ Sprayer washings can be a danger to humans and all types of animals.

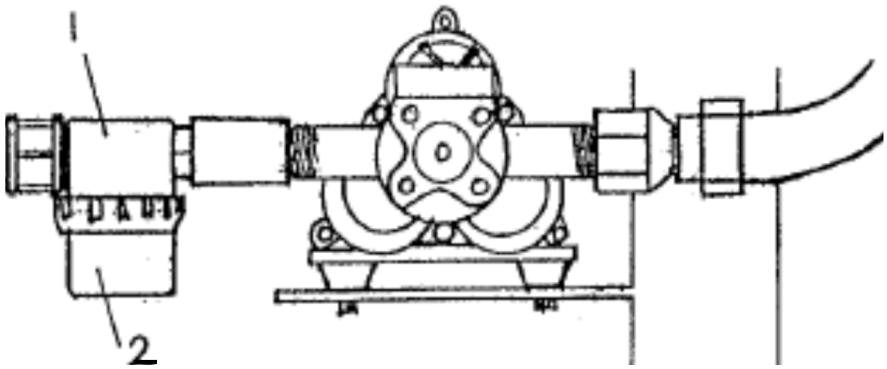
1. Make sure all chemical has been used or drained from the tank.
2. Fill half full with clean water.
3. Add a measured quantity of proprietary chemical cleaner to the tank.
4. Using the correct gauntlet type protective gloves, and suitable nylon brush, scrub the upper and inside surfaces of the tank. A sprayer safety kit (ATV130) is available from Logic. (See page 34)
5. Switch on the pump to spray out through the boom or handlance.
6. Fill the tank with a small quantity of clean water and spray out, to flush the system.

⚠ Make sure washings from the sprayer do not contaminate waterways etc. Consult the chemical container for correct disposal method.

FILTER

There is only one inline filter on the OBS / CTF 60Ltr Sprayer range. (See diagram below) The filter should be cleaned on a regular basis.

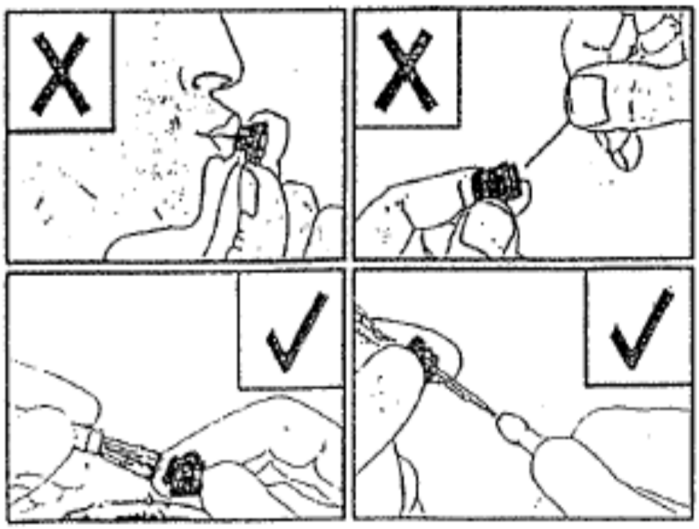
1. Take hold of the filter unit (1) with one hand and carefully unscrew the sediment bowl (2) with your other hand.
2. Remove the cylindrical mesh from the upper housing and carefully clean using clean water or cleaning agent.
3. Clean out the sediment bowl with clean water and a cloth.
4. Re-assemble the mesh and sediment bowl onto the filter unit. Ensure that the 'O' ring on the sediment bowl housing is not lost or damaged.



NOZZLES

Nozzles should be regularly cleaned in water and detergent, use a fine brush or air jet if particles become lodged in the aperture.

If nozzles become slightly worn or damaged, replace immediately to avoid inaccurate spraying patterns.



OUT OF SEASON OR WINTER STORAGE

When the spraying season is finished special care should be taken before the sprayer is put away.

1. Clean the sprayer thoroughly as described in "cleaning the sprayer".
2. Spray out as normal. Run the system dry and drain the tank sump using the bung.
3. Check that none of the hoses are stored with sharp bends or nipped at any point. (Replace any hoses that are showing signs of wear, it will save valuable time during the spraying season).
4. OBS690S only. Back off the pressure-regulating valve (This relieves the springs inside, ensuring a longer life).
   NOTE the knob has a limit stop and should not be unscrewed and forced off.

FROST PRECAUTIONS In climates where freezing is possible precautions should be taken to protect the pipe work and fittings. Mix about 10 litres of anti-freeze mixture (approx strength 33%) pour into the tank and spray out as normal. Run the system dry and drain the tank sump using the bung.

8 TROUBLESHOOTING SPRAYER ISSUES

The following checks should be made if the sprayer is not working or performing as expected. Use the points and test examples as a guide to identifying and resolving any issues. The diagrams and tables on the following pages show the pump assemblies, part numbers and descriptions for ease of replacement ordering. For pump models please see page 29. For disassembly instruction please see pages 30 to 34.

There are only a few basic reasons why a sprayer pump will not work, follow these instructions to help you identify what is wrong.

The pump is made up of two parts joined together – the electric motor that drives the pump and the pump head itself (which pumps the liquid). These two parts are bolted together, but separated internally by the watertight diaphragm/ drive assembly. This stops liquid getting into the motor.

The first diagnosis is to work out which part isn't working and then follow the following trouble shooting guide.

Before starting any sprayer maintenance, switch off power to the pump. Release pressure on outlet side, if possible, remove all chemical mix, wash out thoroughly and use clean water when carrying out any maintenance. Always use gloves and protective clothing when handling parts contaminated with chemical

PUMP WILL NOT START

Simple checks by operator
Check fuse
Check for correct voltage 12v (±10%) Use a multimeter to check continuity through all connections from the battery to the motor to ensure power is getting through.

Checks by qualified dealer/fitter
Check outlet pressure is not at 3.1 bar or above — outlet hose may be kinked/blocked or all boom jets may be switched off (pump with pressure switch fitted)
Check motor for open or grounded circuit
Check for jammed pump.
If no solution can be found and rectified, fitment of a new pump may be required.

PUMP MOTOR IS WORKING BUT IS NOT PUMPING LIQUID, SO IT WILL NOT PRIME

Simple checks by operator

There are two common problem areas split into the following -

1. There is a suction leak - so the pump is sucking air rather than liquid

Check for frost damage during the winter which has cracked a pipe fitting or hose.
Check all fitting connections and filter to ensure they are all air tight.
Check for physical damage which may have broken or cracked any fittings.

Simple check
The easiest way to check for a suction leak is to half fill the tank with clean water. Disconnect the boom or hand lance hose and hold the hose in a bucket of water under the water level with a finger over the end to create a little back pressure. This will ensure there is no air sucked in by the recirculating jet* in the tank. Switch the pump on and look to see if there are any air bubbles coming out the hose in to the bucket. If yes there is a suction leak in the system and this will need to be found and repaired, otherwise the pump will always suck air rather than liquid.

*Recirculating jet is fitted to OBS640S and CTF640S sprayer.

2. The valves on the viton valve plate assembly are dirty or damaged.
To remove the valve plate assembly follow the disassembly instructions on pages 30 to 34.
Check the valves for debris/ grit and clean with water as required.
Check for chemical wear and distortion of the valves due to chemical being left in the pump. (Pump not washed out after previous use)
Check that the check valve is not ruptured or pinched. (Shown in point 5.on page 32 and 34).
Simple check
Lay the valve plate on a flat surface and fill the 3 valves with clean water, if any water seeps through this will confirm a problem, clean out and try again until no water seeps through.

If all of the above points have been checked and are ok but the pump is still not performing as it should the viton valve plate assembly should be replaced. The valves may have chemical wear or be distorted; this may not be visible to the naked eye.

If neither of above 2 sort the problem out Logic recommend the sprayer is checked out by a **qualified dealer/fitter**

PUMP WILL NOT STOP (Pump with pressure switch fitted) OBS135-07A pump

Check the pressure switch for failure. Failure is normally caused by the switch cycling repeatedly and the contacts burning as a result. This can happen for example when using a hand lance with the pressure set above 3.1bar. Always reduce the pressure below 3.1 bar to avoid this when using a hand lance.

Other possible problems

NOISY/ ROUGH OPERATION

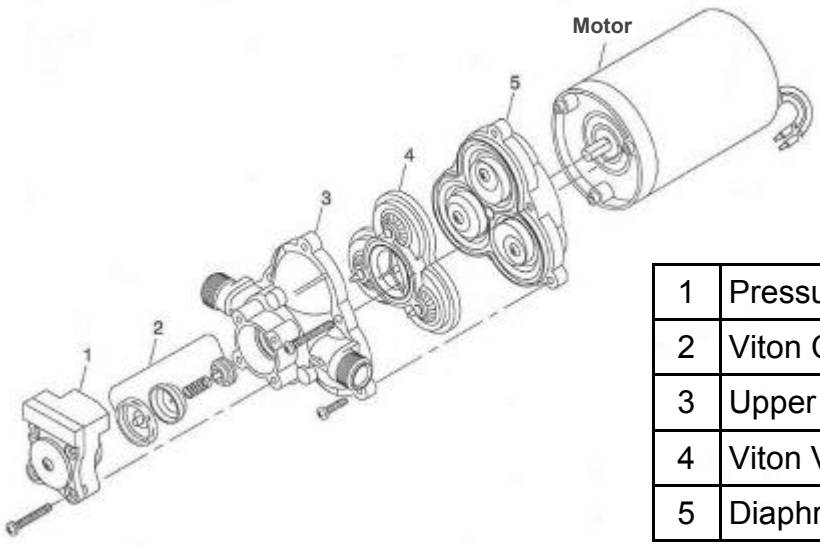
Check mounting feet are not compressed too tight
Check for loose pump head or drive screws.
Check bearing in the diaphragm/ drive assembly

PRESSURE LEAKS FROM PUMP HEAD OR SWITCH OR ANYWHERE ON PRESSURE SIDE OF PUMP.
Pressured water coming out will identify any pressure leak, look to seal as required.

2088 SERIES SHURFLO PUMP

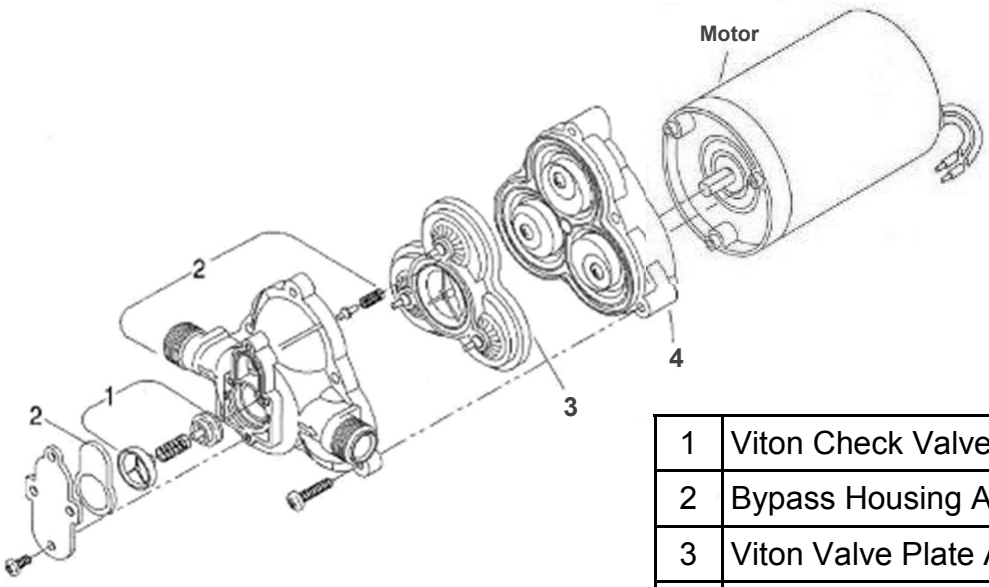
The two models of this series pump are used on the sprayers covered in this manual.

PUMP USED ON OBS690S, Assembly OBS135S-07A



1	Pressure Switch Assembly	OBS135S-1010
2	Viton Check Valve Assembly	OBS134-1011
3	Upper Housing Assembly	OBS135S-1008
4	Viton Valve Plate Assembly	OBS134S-1009
5	Diaphragm/ Drive Assembly	OBS135S-1006

PUMP USED ON OBS640H, OBS640S AND CTF640S, Assembly OBS134S-40A or CTF640S-



1	Viton Check Valve Assembly	OBS134-1011
2	Bypass Housing Assembly	OBS134S-1010
3	Viton Valve Plate Assembly	OBS134S-1009
4	Diaphragm/ Drive Assembly	OBS135S-1006

SERVICE KITS

Kits are readily available to repair standard 2088 series pump. Repair kits include simple illustrated instructions allowing easy installation.
To ensure that the correct kit is received the model number and all name plate data must be included with the order. Contact a Logic dealer to order the necessary replacement parts.

9 SPRAYER MAINTANENCE

9.1 CHECK VALVE INSPECTION AND REPLACEMENT

Before starting any work on the pump assembly it is important to identify which model of pump the sprayer is fitted with. The two different pump assemblies are shown below.

PUMP USED ON OBS640H, OBS640S AND CTF640S

Pump assembly OBS134S-40A or CTF640S-40A. Follow instructions 9.2 on page 31 If you are still unsure as to which sprayer you have use the parts diagrams on page 37 and 41 to compare or contact your Logic dealer.

PUMP USED ON OBS690S (easily identified by the fitted pressure control assembly)

Pump assembly OBS135-07A. Follow instructions 9.3 on page 33. If you are still unsure as to which sprayer you have use the parts diagrams on page 37 and 41 to compare or contact your Logic dealer.

9.2 OBS134S-40A / CTF640S-40A PUMPS

The pumps are used on the OBS640H, OBS640S and CTF640S. If you are unsure as to which sprayer you have use the parts diagrams on page 36 and 40 to compare or contact your Logic dealer.

1. Unscrew and remove the plastic wing nut outlet hose tail from the pump.

2. Slacken off the 4 nuts on the pump mounting studs, using an 8mm socket or spanner. Do not remove the nuts, this is only to gain access to the lower screw on the end cap assembly.

3. Remove the 6 end cap screws and the pump head.
Note - Take note of the self tapping screws only in the outer mounting holes. Machine screws are only in the motor body mounting holes. Do not remove the metal plate on the end of the cap at this stage.

4. Carefully remove the small spring. Check the small white plastic piston has free movement.

5. Check the check valve diaphragm is free to move in and out.
Note - If the diaphragm is rigid, remove the metal end capping plate and clean all the components.

6. Carefully remove the valve cover.
Note - It may have a suction retention, take extra care.

7. Check the condition of the 3 rubber check valves, see page 27 for simple check. Replace the unit if the valves are showing signs of wear or have curled up edges.

8. Reassemble the pump unit in reverse order and remount to the tank. Note - Do not over tighten the nuts on the 4 pump mounting studs, leave 3 threads showing only.

⚠ Test the pump is working correctly with clean water only before adding any chemical.

9.3 OBS135S-07A PUMP

This pump is used on the OBS690S. If you are unsure as to which sprayer you have use the parts diagrams on page 37 and 41 to compare or contact your Logic dealer.

1. Unscrew and remove the plastic wing nut outlet hose tail from the pump.

2. Remove off the 4 nuts on the pump mounting studs.

3. Ease up the pump from the studs with a rocking motion, carefully remove from the studs. Carefully twist the motor to the side.

4. Remove the 6 end cap screws and the pump head.
Note - Take note of the self tapping screws only in the outer mounting holes. Machine screws are only in the motor body mounting holes. Do not remove the metal plate on the end of the cap at this stage.

5. Check the check valve diaphragm is free to move in and out.
Note - If the diaphragm is rigid, remove the metal end capping plate and clean all the components.

6. Carefully remove the valve cover.
Note - It may have a suction retention, take extra care.

7. Check the condition of the 3 rubber check valves, see page 27 for simple check. Replace the unit if the valves are showing signs of wear or have curled up edges.

8. Fit the plastic circular support if not already fitted. See valve replacement instructions. This is an upgrade that may not be fitted if your pump is very old.

9. Reassemble the pump unit in reverse order and remount to the tank. Note - Do not over tighten the nuts on the 4 pump mounting studs, leave 3 threads showing only.

⚠ Test the pump is working correctly with clean water only before adding any chemical.

10 OPTIONAL EXTRAS

OBS640H (See options 11 & 12)
OBS640S (See options 1-6 and 9, 11, 12)
OBS690S (See options 1-12)

NOTE: - ALL 60Lt SPRAYERS REQUIRE AE500 WIRING HARNESS.
TO FIT ANY BOOM OR HOSE REEL OPTION ON THE OBS60 RANGE YOU WILL REQUIRE OPTION 9 HOSE REEL/BOOM BRACKET.

1. **OBS113** Hand lance c/w 10m hose and wrap around bracket
2. **OBS114** Hand lance c/w 15m hose and wrap around bracket
3. **OBS112PH** Hose reel c/w 15m hose and hand lance
4. **OBS116** Y Piece – to give 2 x outlets for boom/lance operation
5. **OBS101** 1.5m (3 nozzle) boom c/w hedgerow nozzle
6. **OBS102** 2.0m (4 nozzle) boom c/w hedgerow nozzle
7. **OBS104** 3.0m (6 nozzle) boom c/w hedgerow nozzle
8. **OBS107** Single broadcast nozzle (XT020) to give up to 4.8m coverage on one side Ideal for spraying bank sides, between trees, paddocks etc. (Requires 9 Lt/min pump)
9. **OBS601** Boom/Hose reel bracket (suitable for OBS60 series)
10. **OBS118** Hose reel bracket to allow fitting of hose reel with twin legged boom
11. **AE500** ATV Wiring Harness c/w on/off switch (UTV version c/w longer wires AE500L)
12. **ATV110** Ratchet straps to attach tank (if required) (pair)

FRONT TANK
OBS610 60 Litre front tank (for use with OBS60 Sprayers)
OBS612 Fitting Kit OBS 610 to 60 Ltr Sprayer

SPRAYLINE REPAIR KIT
ATV112 Spray line repair kit c/w selection of fittings & adhesive to repair PVC spray line

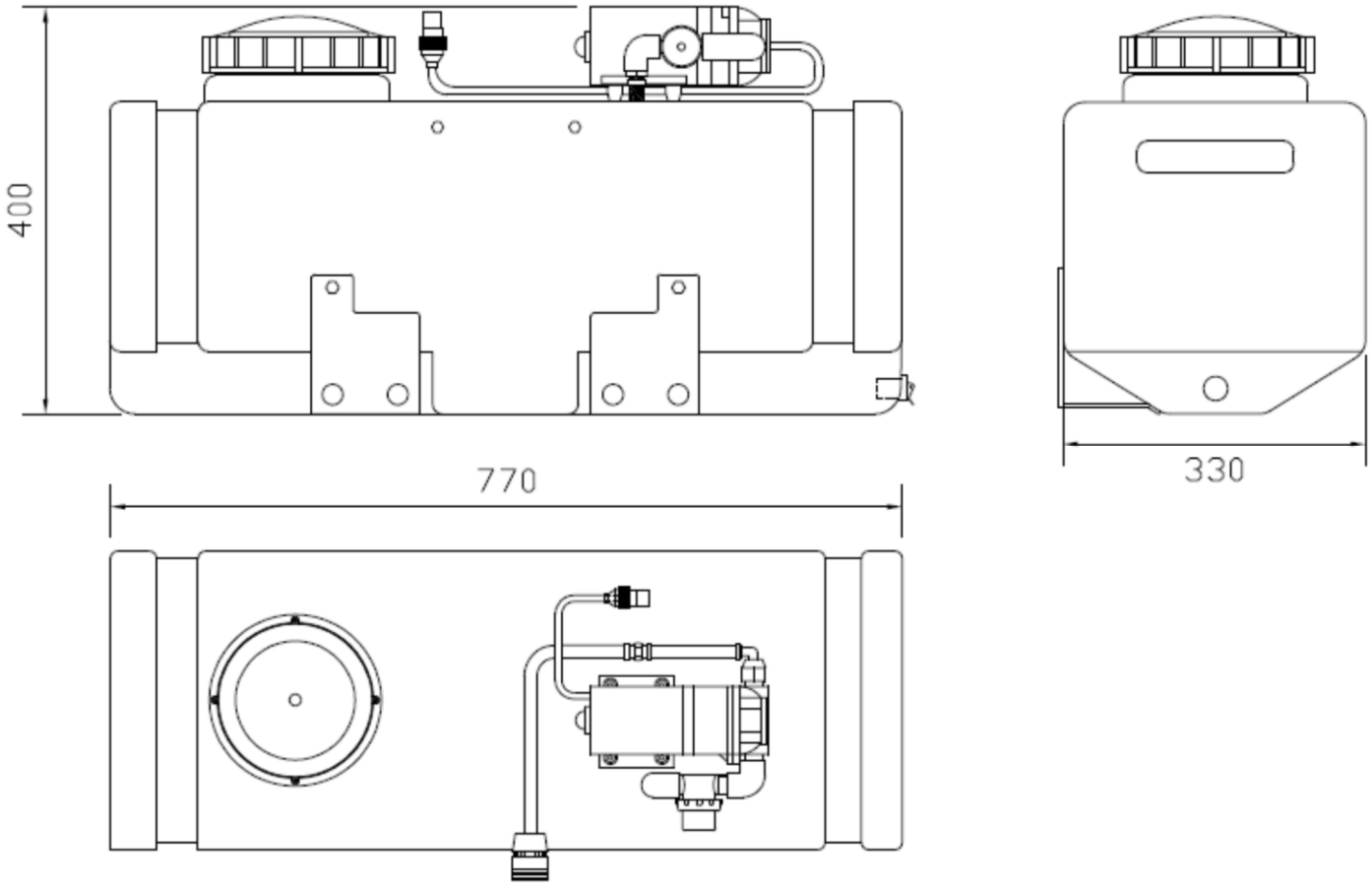
CLEAN WATER TANK
OBSXXX Hand wash tank

SAFETY KIT
ATV130 SPRAYING SAFETY KIT Includes: Face shield with visor, Goggles, Apron,
Nitrile gloves, Nitrile gauntlets, Respirator and Eye irrigation fluid (500ml bottle).
Also required, Coverall with hood, please order separately from below size options.
Coverall with hood, chemical resistant, for use with above safety kit.
PLEASE SELECT YOUR SIZE: ATV130M or **ATV130L** or **ATV130XL** or **ATV130XXL**

11 SPECIFICATION

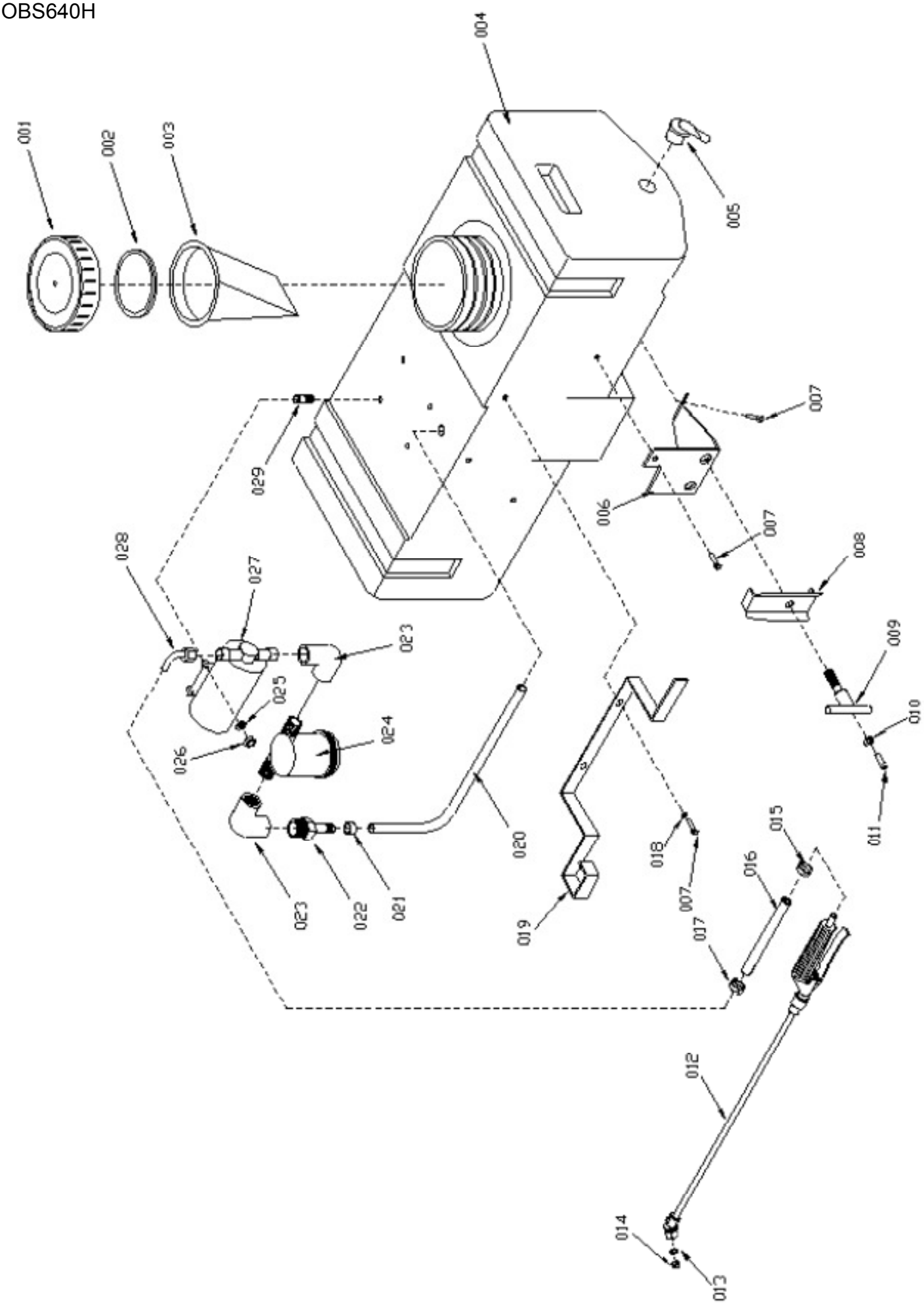
	OBS640H/OBS-CTF640S/OBS690S
Max machine length	770mm
Max machine width	480mm / 330mm / 330mm
Max machine height	400mm / 400mm / 480mm
Tank capacity	60 litres
Pump	12V diaphragm pump
Unladen weight	See Table page 4
Laden weight	See page 4

Drawing based on OBS640S

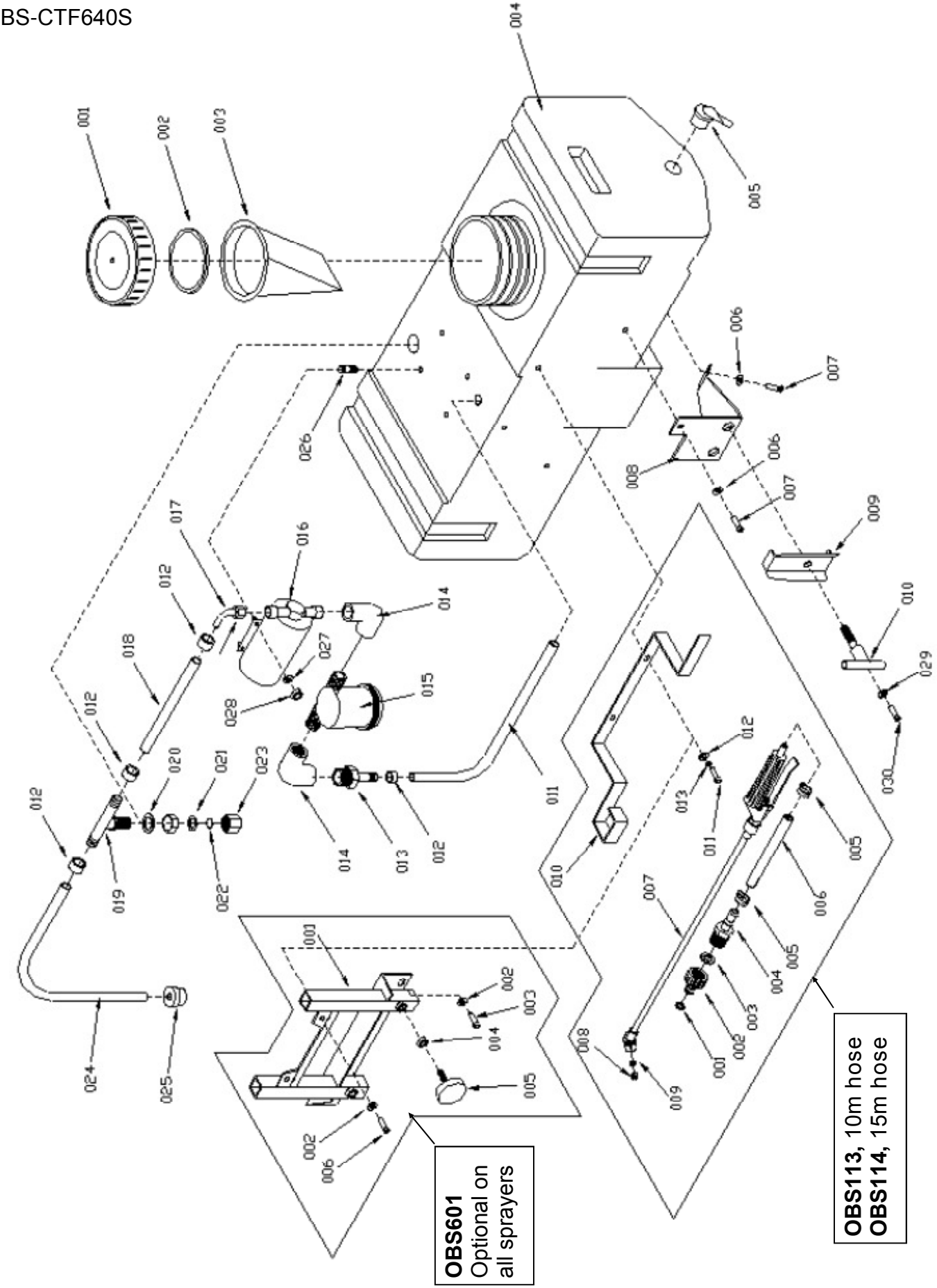


12 PARTS DIAGRAM AND PARTS LIST

OBS640H

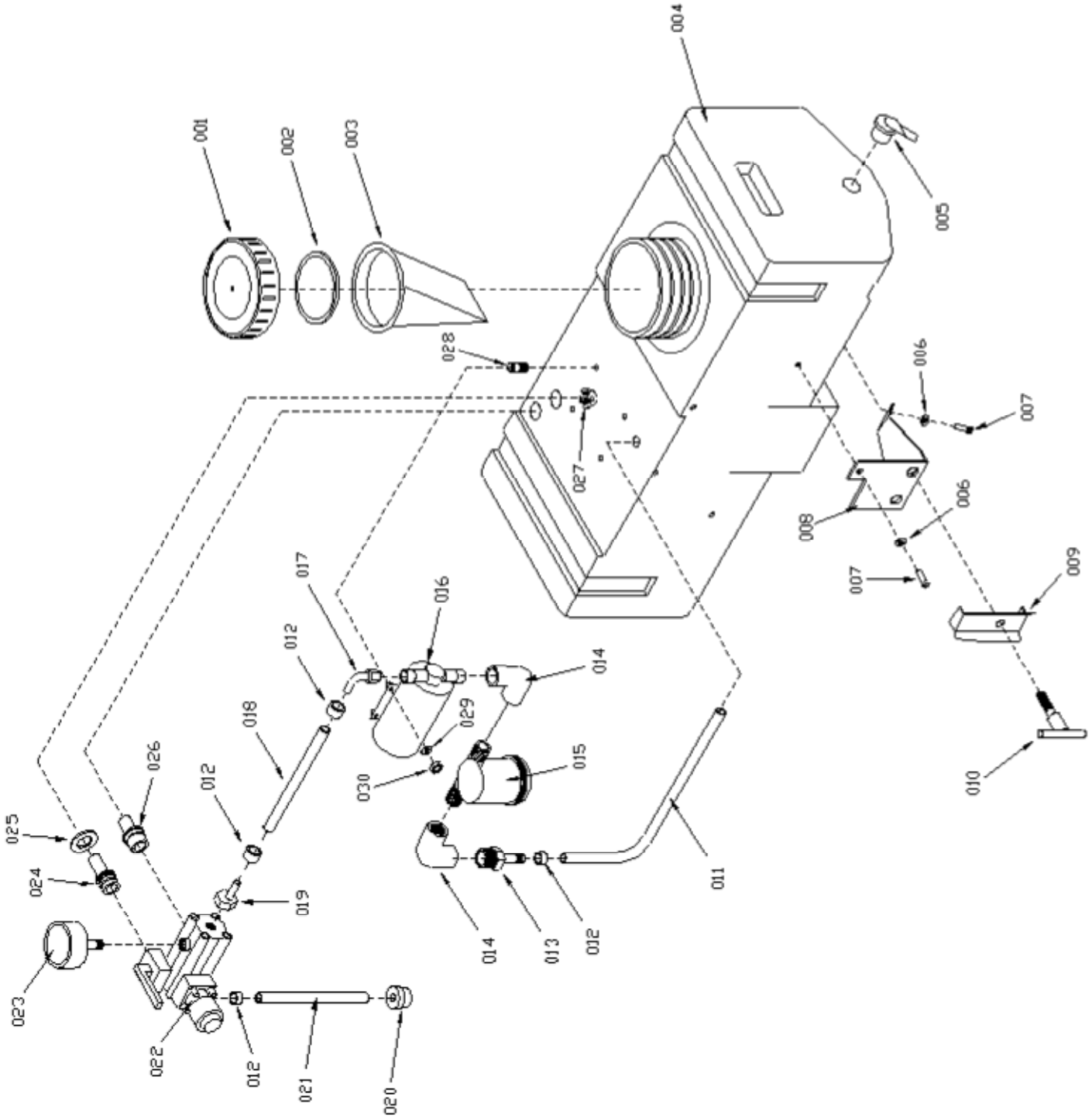


Item	Part Number	Description
001	OBS620-04	Tank Lid Red
002	OBS620-1001	O Ring For Tank Lid Red
003	OBS620-09A	OBS Sprayer Filter Basket
004	OBS59	60lt Sprayer Plastic Tank
005	WW300-1021	Filler Plug
006	OBS620-11R	Tank Fixing Bracket R/H
007	FSH08016	S/Screw Hex Head M8 X 16
008	OBS620-12A	OBS620 Tank Fix Clamp (12 MM)
009	OBS620-02	T Bolt 12 MM
010	FWS12	Washer Spring M12
011	FSH12030	S/Screw Hex Head M12 X 30
012	OBS620S-50	Hand Lance Complete
013	OBS124-09	Backing Washer
014	OBS124-11	Even Spray Nozzle ISO Red
015	FCH1117	Clip Hose Jub 11 – 17 mm
016	OBS124-12	Hand Lance Hose 10 MT
	OBS114-01	Hand Lance Hose 15 MT
017	FHC1518	Hose Clamp (Crimp) 15 – 18 mm
018	FWS08	Washer Spring M8
019	OBS124-14A	OBS Hose Coil Bracket
020	OBS620-07	Pump Suction Hose
021	FHC1720	Hose Clamp (Crimp) 17-20 MM
022	OBS125-41	Hose Tail ½”
023	OBS125-31	Threaded Elbow ½” F X ½” F
024	OBS640S-01	Filter ½” M Thread X ½” M
025	FWF05	Washer Flat M5
026	FNN05	Nut Nyloc M5
027	OBS134S-40A	OBS Pump 4.5LT C/W AE500 Plug
028	MTF-062	Elbow ½” NPT Female X 3/8” Barb
029	FES05030	Engineers Stud M5 X 30



Item	Part Number	Description
001	OBS620-04	Tank Lid Red
002	OBS620-1001	O Ring For Tank Lid Red
003	OBS620-09A	OBS Sprayer Filter Basket

Item	Part Number	Description
004	OBS59	60lt Sprayer Plastic Tank
005	WW300-1021	Filler Plug
006	FWF08	Washer Flat M8
007	FSH08010	S/Screw Hex Head M8 X 10
008	OBS620-11R	Tank Fixing Bracket R/H
009	OBS620-12A	OBS620 Tank Fix Clamp (12 MM)
010	OBS620-02	T Bolt 12 MM
011	OBS620-07	Pump Suction Hose
012	FHC1720	Hose Clamp (Crimp) 17-20 MM
013	OBS125-41	Hose Tail ½"
014	OBS125-31	Threaded Elbow ½" F X ½" F
015	OBS640S-01	Filter ½" M Thread X ½" M
016	OBS134S-40A	OBS Pump 4.5LT C/W AE500 Plug
017	MTF-063	Elbow ½" NPT Female X ½" Barb
018	OBS640S-02	'T' Piece Supply Hose
019	MTF-215	Nozzle Thread/Tee 11/16 X ½"
020	MTF-203	Flat Sealing Washer 3/8"
021	OBS124-09	Backing Washer
022	MTF-250	Orifice Plate 1 mm
023	MTF-230	Nozzle Cap Nut 11/16"
024	OBS640-01	Coupling Supply Hose
025	OBS125-49	Hose Conn Q/R.5 Female Grip On
026	FES05030	Engineers Stud M5 X 30
027	FWF05	Washer Flat M5
028	FNN05	Nut Nyloc M5
029	FSH12030	S/Screw Hex Head M12 X 30
030	FWS12	Washer Spring M12
	OBS113	**Hand Lance C/W 10MT Hose and Wrap Around Bracket**
001	OBS101-1007	Quick Rel: Coupling 'O' Ring
002	OBS101-12	Hose Conn Q/R.5 Male Threaded
003	OBS101-1001	Lurmark Spray Jet Seal
004	OBS111-08	Hose Tail
005	FCH1117	Clip Hose Jub 11-17 MM
006	OBS124-12	Hand Lance Hose 10 MT
	OBS114-01	Hand Lance Hose 15 MT
007	OBS620S-50	Hand Lance Complete
008	OBS124-11	Even Spray Nozzle ISO Red
009	OBS124-09	Backing Washer
010	OBS124-14A	OBS Hose Coil Bracket
011	FSH08010	S/Screw Hex Head M8 X 10
012	FWF08	Washer Flat M8
013	FWS08	Washer Spring M8
	OBS601	**Boom Bracket OBS60**
001	OBS601	Boom Bracket OBS60 (Not suitable for OBS620)
002	FWF08	Washer Flat M8
003	FSH08020	S/Screw Hex Head M8 X 20
004	FNP10	Nut Plain M10
005	OBS135-17	Hand Wheel
006	FSH08010	S/Screw Hex Head M8 X 10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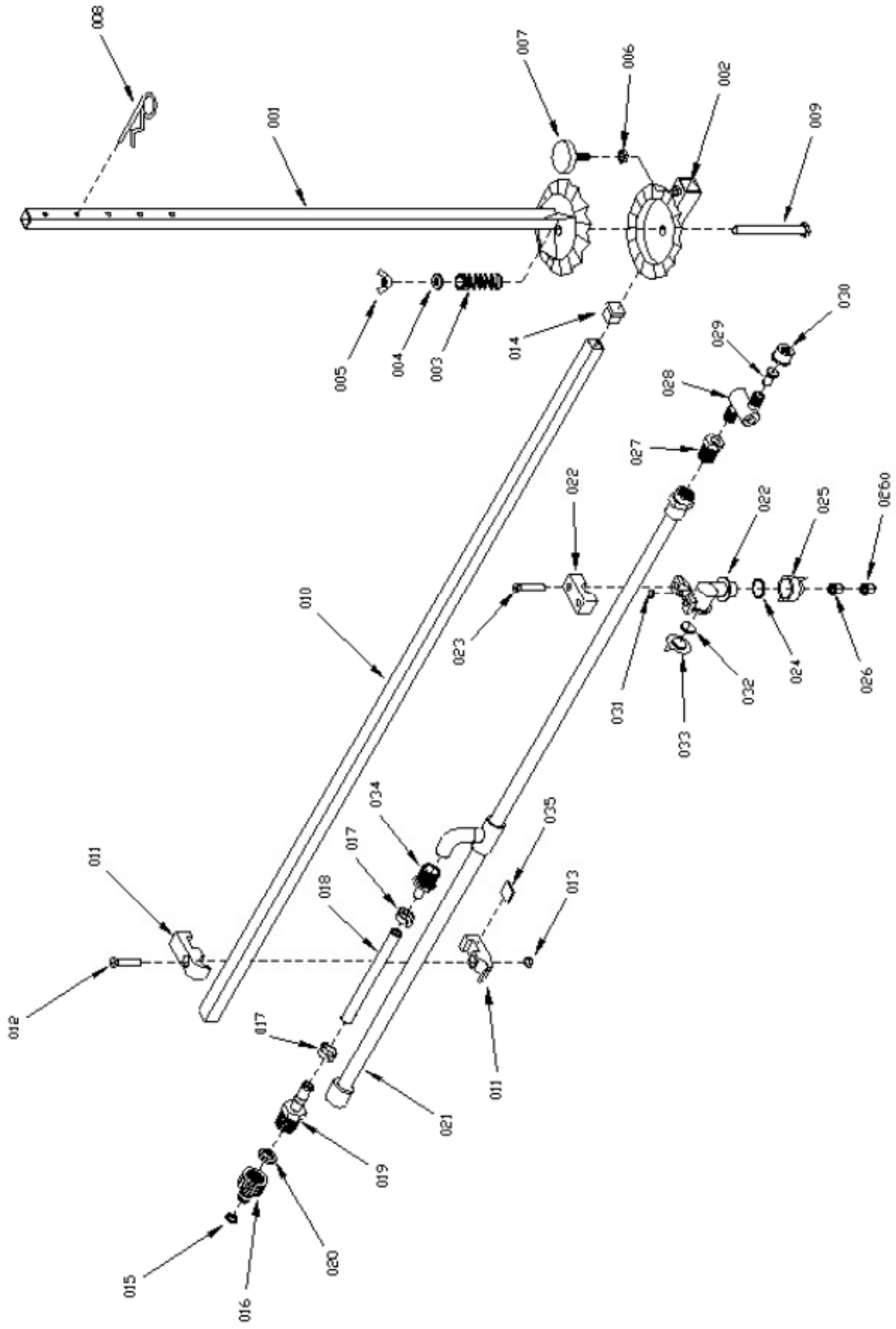
Item	Part Number	Description
001	OBS620-04	Tank Lid Red
002	OBS620-1001	O Ring For Tank Lid Red
003	OBS620-09A	OBS Sprayer Filter Basket
004	OBS59	60lt Sprayer Plastic Tank
005	WW300-1021	Filler Plug
006	FWF08	Washer Flat M8
007	FSH08010	S/Screw Hex Head M8 X 10
008	OBS620-11R	Tank Fixing Bracket R/H
009	OBS620-12A	OBS620 Tank Fix Clamp (12 MM)
010	OBS620-02	T Bolt 12 MM
011	OBS620-07	Pump Suction Hose
012	FHC1720	Hose Clamp (Crimp) 17-20 MM
013	OBS125-41	Hose Tail ½"
014	OBS125-31	Threaded Elbow ½" F X ½" F
015	OBS640S-01	Filter ½" M Thread X ½" M
016	OBS135S-07A	OBS Pump 9.0LT C/W AE500 Plug
017	MTF-063	Elbow ½" NPT Female X ½" Barb
018	OBS690-01	Pump/Control Hose
019	MTF-226	Hose Tail ½" MBSP X ½" Barb
020	OBS125-49	Hose Conn Q/R.5 Female Grip On
021	OBS690-02	Pump Outlet Hose
022	OBS135-04	Control Valve
023	OBS135-1025	Pressure Gauge
024	OBS135-03	Male Control Mounting
025	OBS135-11	Flat Sealing Washer ½"
026	OBS135-02	Female Control Mounting
027	OBS125-1025	Backnut ½" ARAG
028	FES05030	Engineers Stud M5 X 30
029	FWF05	Washer Flat M5
030	FNN05	Nut Nyloc M5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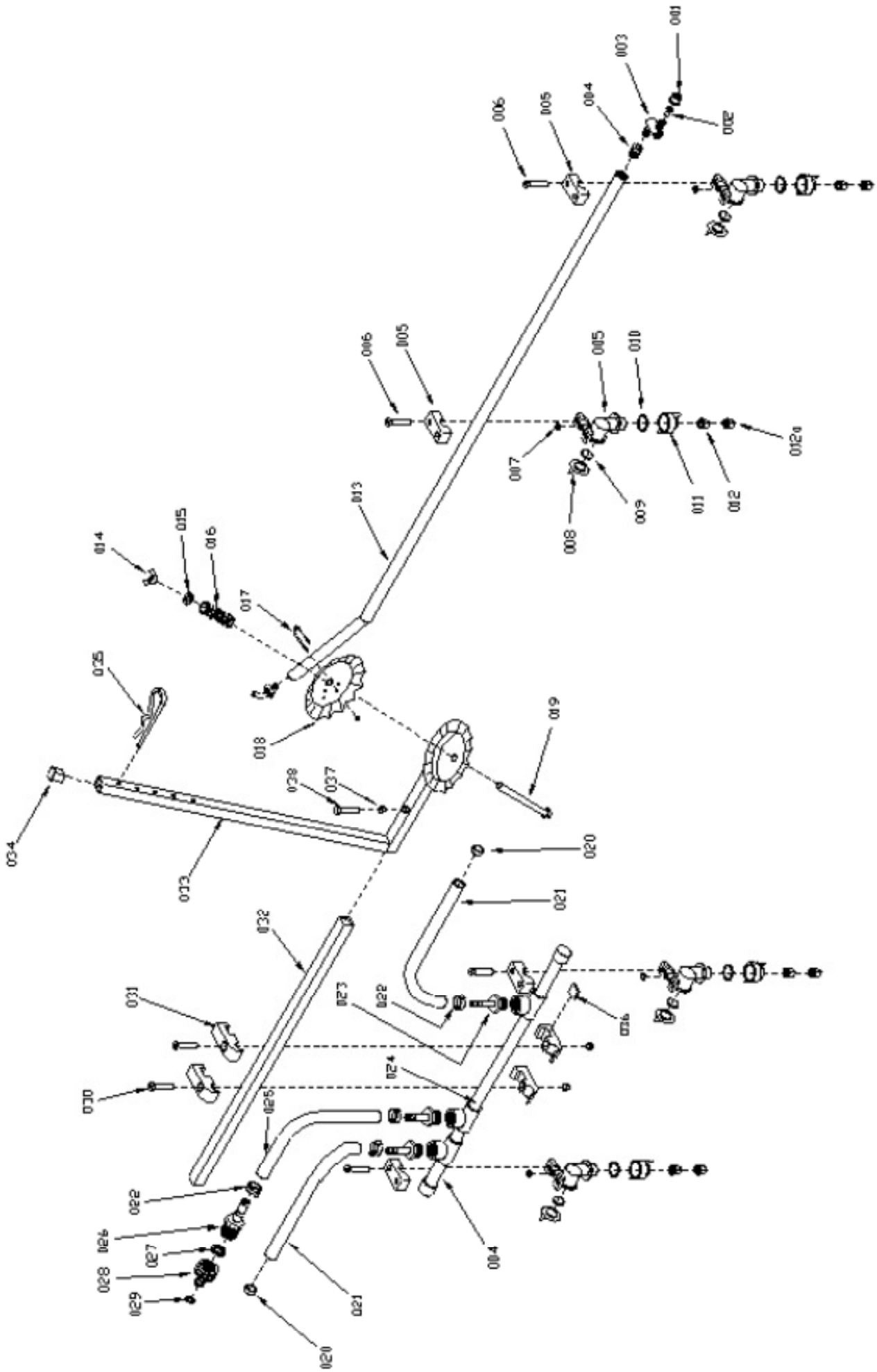
Item	Part Number	Description
001	OBS101-01A	OBS101 Boom Attaching Leg
002	OBS101-06A	Boom Fixing Clamp Assembly
003	OBS101-02	Clutch Spring
004	FWF10	Washer Flat M10
005	FNW10	Nut Wing M10
006	FNP10	Nut Plain M10
007	OBS135-17	Hand Wheel
008	FCG05100	Clip R5 X 100 MM
009	FBH10090	Bolt Hex Head M10 X 90
010	OBS101-07A	Spray Line Support Bar
010a	OBS102-01	Spray Line Support Bar
011	OBS101-08	Spray Line Clamp No Bolt No Foam Pads
012	FSD06025	Set Screw M6 X 25
013	FNP06	Nut Plain M6
014	FIP019019	Insert Plastic ¾" X ¾" X 15 MM
015	OBS101-1007	Quick Rel: Coupling 'O' Ring
016	OBS101-12	Hose Conn Q/R.5 Male Threaded
017	FHC1720	Hose Clamp (Crimp) 17-20 MM
018	OBS101-11	Supply Hose
019	OBS101-13	Hose Tail ½ " Barb X ¾" BSP
020	OBS101-1001	Lurmark Spray Jet Seal
021	OBS101-1031	Spray Line Only (OBS101)
021	OBS102-1001	Spray Line Only (OBS102)
022	OBS101-1013	Lurmark Eezifit 3 Jet Body
023	FSH06030	S/Screw Hex Head M6 X 30
024	OBS101-1011	Lurmark Eezifit 3 Cap Seal
025	OBS101-1012	Lurmark Bayonet Cap (Green)
026	OBS101-1015	Lurmark 15 Gallon Jet ISO
026a	OBS101-1020	Lurmark 20 Gallon Jet ISO
027	OBS101-17	½" X ¼" M/F Reducer
028	OBS101-14	On/Off Hedgerow Jet
029	OBS101-16	Ball Check Filter
030	OBS101-15	Hedgerow Jet Nut
031	OBS101-1009	Eezifit Jet Body 'O' Ring
032	OBS101-1014	Diaphragm For Eezifit 3 Body
033	OBS101-1033	Pressure Disc Assembly For Eezifit 3
034	OBS125-41	Hose Tail ½
035	MSU-F003	Foam Pad Double Sided 20 X 20 mm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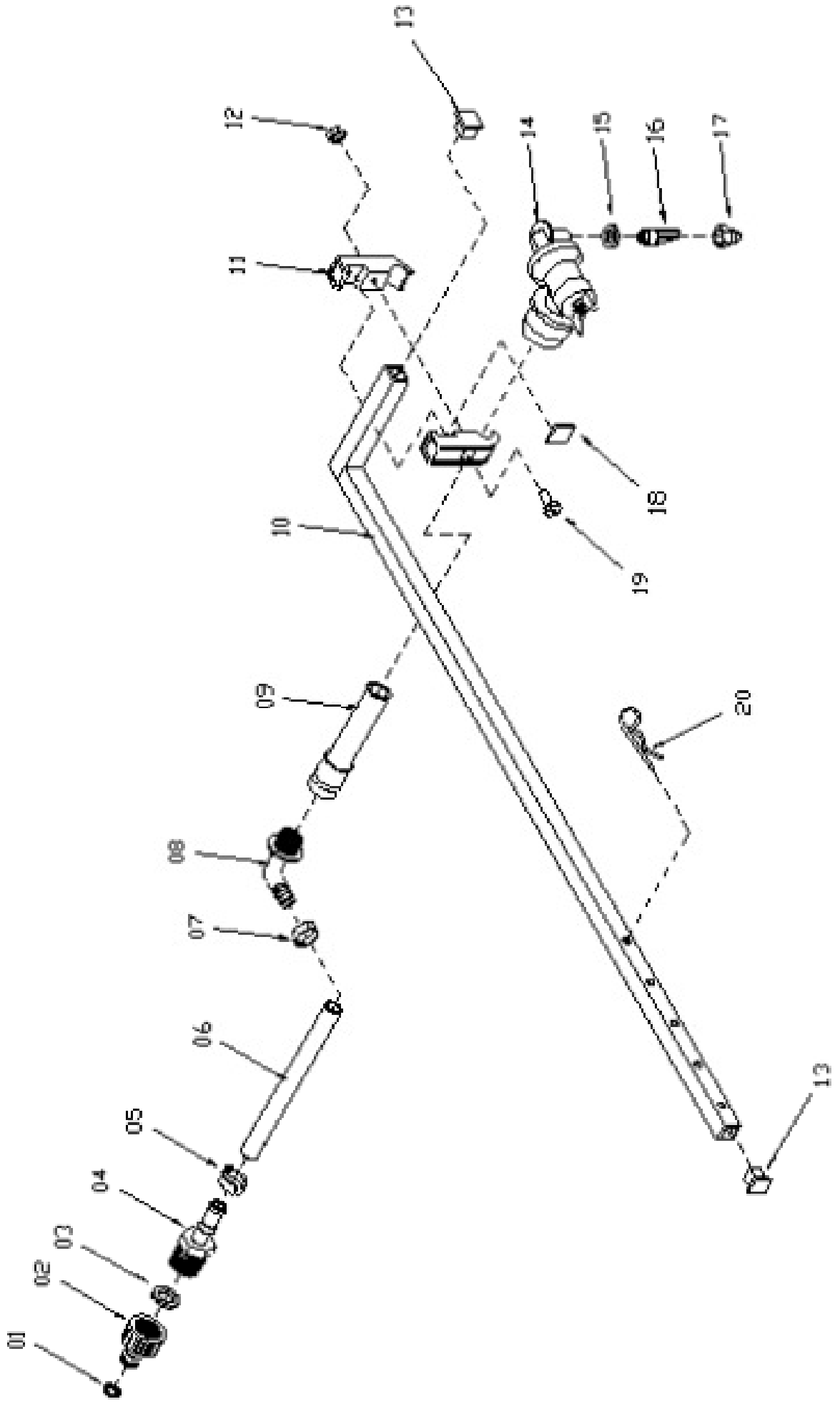
Item	Part Number	Description
001	OBS101-15	Hedgerow Jet Nut
002	OBS101-16	Ball Check Filter
003	OBS101-14	On/Off Hedgerow Jet
004	OBS101-17	½" X ¼" M/F Reducer
005	OBS101-1013	Lurmark Eezifit 3 Jet Body
006	FSH06030	S/Screw Hex Head M6 X 30
007	OBS101-1009	Eezifit Jet Body 'O' Ring
008	OBS101-1033	Pressure Disc Assembly For Eezifit 3
009	OBS101-1014	Diaphragm For Eezifit 3 Body
010	OBS101-1011	Lurmark Eezifit 3 Cap Seal
011	OBS101-1012	Lurmark Bayonet Cap (Green)
012	OBS101-1015	Lurmark 15 Gallon Jet ISO
012a	OBS101-1020	Lurmark 20 Gallon Jet ISO
013	OBS104-01A	Outer Sprayline
014	FNW10	Nut Wing M10
015	FWF10	Washer Flat M10
016	OBS101-02	Clutch Spring
017	OBS103-02	Clutch U Bolts and Nuts
018	OBS101-01	Break Back Clutch
019	FBH10090	Bolt Hex Head M10 X 90
020	FCH1220	Clip Hose Jub 12 – 20 mm
021	OBS103-24	Outer Boom Supply Hose
022	FHC1720	Hose Clamp (Crimp) 17 – 20 mm
023	OBS125-41	Hose Tail ½
024	OBS104-1001	Spray Line Only Centre
025	OBS103-23	Supply Hose
026	OBS101-13	Hose Tail ½ " Barb X ¾" BSP
027	OBS101-1001	Lurmark Spray Jet Seal
028	OBS101-12	Hose Conn Q/R.5 Male Threaded
029	OBS101-1007	Quick Rel: Coupling 'O' Ring
030	FSD06025	Set Screw M6 X 25
031	OBS101-08	Spray Line Clamp No Bolt No Foam Pads
032	OBS103-07	Boom Support Inner
033	OBS103-01A	Folding Boom Centre Section
034	FIP019019	Insert Plastic ¾" X ¾" X 15 MM
035	FCG05100	Clip R 5 x 100 mm
036	MSU-F003	Foam Pad Double Sided 20 X 20 mm
037	FNP10	Plain nut M10
038	FSH10025	S/Screw Hex Head M10 X 25 mm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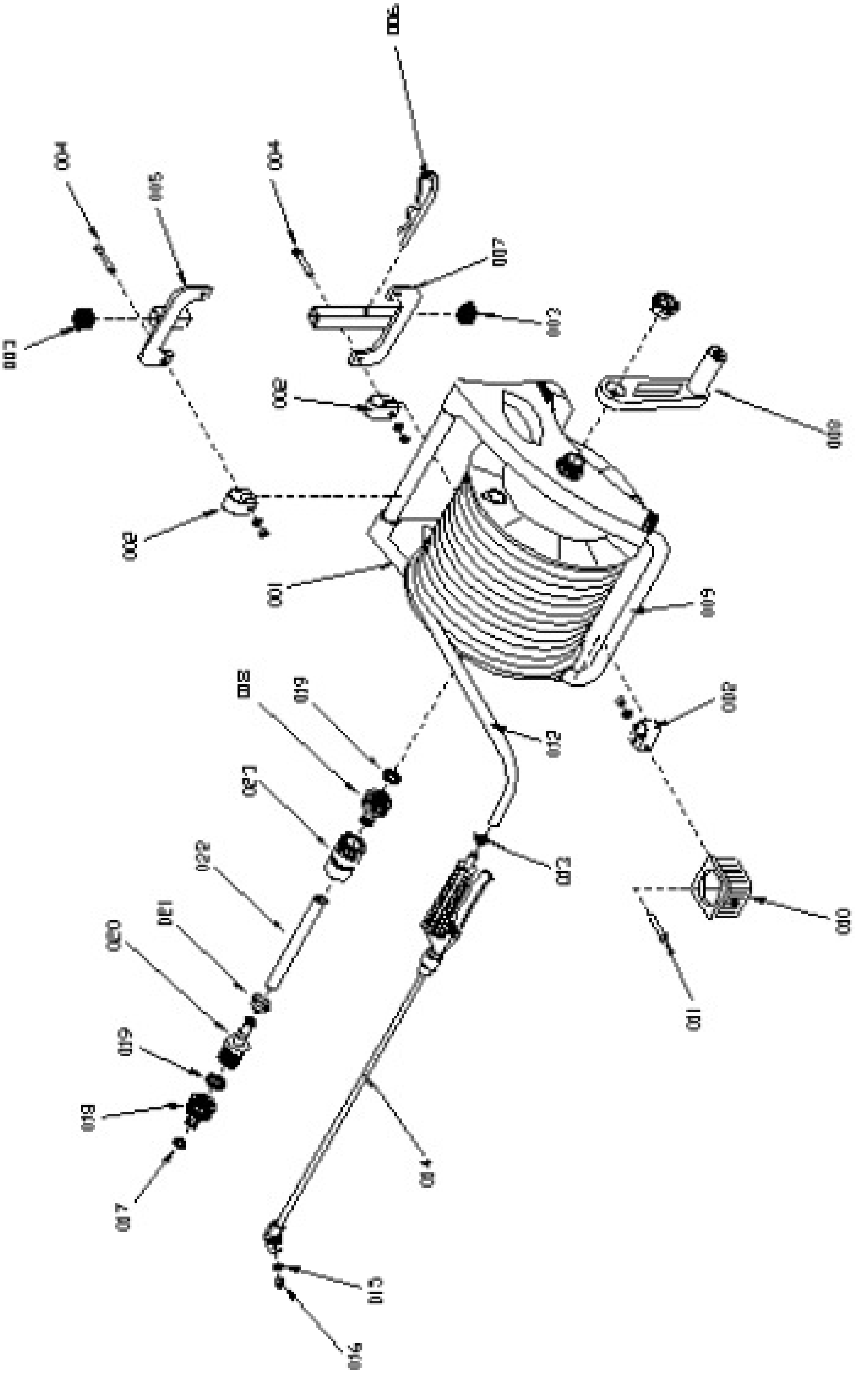
Item	*Part Number*	*Description*
001	OBS101-1007	'O' Ring
002	OBS101-12	Hose Conn Q/R.5 Male Threaded
003	OBS101-1001	Lurmark Spray Jet Seal
004	OBS101-13	Hose tail ½" Barb X ¾" BSP
005	FCH1220	Clip Hose Jub 12-20 MM
006	OBS101-11	Supply Hose
007	FHC1720	Hose Clamp (Crimp) 17 – 20 MM
008	OBS125-34	Hose tail Elbow ½" Male X ½"
009	OBS107-03A	Spray Line Assembly
010	OBS107-01A	Boom Leg
011	OBS101-08	Sp/Line Clamp No Bolt No Foam Pads
012	FNP06	Nut Plain M6
013	FIP019019	Insert Plastic ¾" X ¾" X 15 MM
014	OBS107-04	Nozzle Holder XT Fastcap ½" Durapipe
015	OBS101-1011	Lurmark Eezifit 3 Cap Seal
016	OBS107-1005	Nozzle Blue XT020FC
017	OBS107-1002	Nozzle Cap
018	MSU-F003	Foam Pad Double Sided 20 X 20 MM
019	FSD06025	S/Screw CHE HD Slot M6 X 25 ZP
020	FCG05100	Clip R 5 X 100 MM



Item	Part Number	Description
001	OBS112-71	Hose Reel (CLABER)
002	MSU-C015	Cleat Poly Size 8-20 MM Max
003	FIP019019	Insert Plastic ¾" X ¾" X 15 MM
004	FBH06040,FWF06,FNN06	Bolt M6 X 40,X2 Flat Washers, Nyloc Nut
005	OBS112-73A	Top Mounting Plate
006	FCG05100	Clip R 5 X 100 MM
007	OBS112-72A	Bottom Mounting Bracket
008	OBS112P-1001	Hose Reel Handle
009	WS03	Sticker: Logic – 80 X 25 MM
010	OBS111-10A	Lance Holder
011	FBR06035	Bolt/Nut Roofing M6 X 35
012	OBS112-53	Hose Reel Hose
013	FCH1220	Clip Hose Jubilee 12-20 MM
014	OBS620S-50	Hand lance Complete
015	OBS124-09	Backing Washer
016	OBS124-11	Even Spray Nozzle ISO Red
017	OBS101-1007	Quick Rel: Coupling 'O' Ring
018	OBS101-12	Hose Conn Q/R .5 Male Threaded
019	OBS101-1001	Lurmark Spray Jet Seal
020	OBS101-13	Hose tail ½" BARB X ¾" BSP
021	FHC1720	Hose Clamp (CRIMP) 17 – 20 MM
022	OBS112-54	Supply Hose
023	OBS125-49	Hose Conn Q/R .5 Female Grip On

13 LOGIC MANUFACTURING PRODUCTS OWNER GUARANTEE

This Logic Manufacturing product is guaranteed against faulty workmanship and materials for a period of 12 months from the date of purchase.

On Engine-Powered equipment and products where major components are used, the engine/ component manufacture's guarantee will apply, any claims being subject to their terms and conditions.

All claims must be made in writing within 28 days of the alleged failure.

All claims must be made through the dealer who originally supplied the machine.

Any defective parts must be kept for inspection and if requested, sent to the factory or dealer.

The customer must bring equipment for repair to the dealer.

This guarantee becomes void if unauthorised modifications have been made, or if parts not manufactured, supplied or approved by Logic Manufacturing Ltd have been fitted to the machine.

We accept no liability for normal wear and tear, misuse or abuse, or where recommended maintenance has not been carried out.

All guarantee work must be authorised by Logic Manufacturing Ltd prior to any work being done. Work carried out without our consent may not be reimbursed.

DECLARATION OF CONFORMITY
93 / 44 EEC

LOGIC MANUFACTURING LTD
Foundry Industrial Estate
Bridge End
HEXHAM
Northumberland

Product Type: **OBS640H, OBS / CTF640S, OBS690S**

Covered By Technical File Number: **CE – OBS600**

Serial Number:

Standards and Regulations Used:

The Supply of Machinery (Safety) Regulations 1992
HSE Guide Lines on ATV Equipment (Agric Sheet No. 33)

Place of Issue: **United Kingdom**

Name of Authorised Representative: **S A WEIR**

Position of Authorised Representative: **PRODUCT DEVELOPMENT MANAGER**

Declaration,

I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of 93/68EEC directives

Signature of Authorised Representative 

Date: **06/03/2013**