C-Dax
Agricultural Solutions

OWNER'S MANUAL

FOR THE

3m / 4m BOOMS

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SAFETY PRECAUTIONS

3M / 4M BOOMS

AN IMPORTANT MESSAGE FOR OWNERS & OPERATORS OF C-Dax ATTACHMENTS AND ACCESSORIES

Be warned of the dangers of loading your ATV or other vehicle in excess of its carrying capacity.
It is important to understand that any loads or attachments whether fastened to or placed on a vehicle or ATV will alter the stability or handling characteristics of that vehicle or ATV.
Spray tanks or other equipment must be filled only to a level where the gross weight is within the load limit of the ATV or other vehicle.

Safety is a primary concern in the design, manufacture, sale, and use of spray tanks and other equipment. As manufacturers of spray tanks and other equipment we want to confirm to you, our customers, our concern for safety. We take this opportunity to remind you about the simple, basic and common sense rules of safety when using spray tanks and other equipment. Failure to follow these rules can result in severe injury or death to operators and bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance and storage of this equipment be aware, concerned, prudent and properly trained in safety.

This also applies to equipment that is loaned or rented to someone who has not read the owner's manual and is not familiar with the operation of application equipment.

- NEVER EXCEED THE LOAD LIMIT CAPACITY OF THE ATV OR OTHER VEHICLE.
- PLEASE NOTE THAT FILLING THE SPRAY TANK OR OTHER EQUIPMENT COMPLETELY AND OR THE ATTACHMENT OF ADDITIONAL EQUIPMENT TO THE ATV MAY EXCEED THE ATV'S MAXIMUM LOAD CAPACITY AND IT IS NOT RECOMMENDED TO EXCEED MANUFACTURERS GUIDELINES
- CARGO SHOULD BE PROPERLY DISTRIBUTED AND SECURELY ATTACHED.
- REDUCE SPEED WHEN CARRYING CARGO OR PULLING A TRAILER OR TRAILED APPLICATION EQUIPMENT AND ALLOW GREATER DISTANCE FOR BRAKING.
- NEVER ALLOW ANYONE TO RIDE ON YOUR SPRAYER OR OTHER EQUIPMENT.
- ALWAYS FOLLOW THE INSTRUCTIONS IN THE OWNER'S VEHICLE MANUAL FOR CARRYING CARGO OR PULLING A TRAILER.
- PROPER MAINTENANCE IN LINE WITH MANUFACTURER'S RECOMMENDED MAINTENANCE PROCEDURES IS ESSENTIAL.
- BEFORE APPLYING CHEMICALS, READ THE LABEL OF THE CHEMICAL MANUFACTURER OR SUPPLIER FOR PERSONAL PROTECTIVE EQUIPMENT AND OPERATE AS RECOMMENDED.
- THE SAFETY OF ALL CHEMICALS USED IN AGRICULTURE IS UNDER THE JURISDICTION OF A GOVERNMENT AGENCY, IE N.Z. MINISTRY FOR THE ENVIRONMENT; USA ENVIRONMENTAL PROTECTION AGENCY. FURTHER LOCAL GOVERNMENT OR STATE LAWS MAY APPLY.

COVER:

Boom model shown; 3m Boom

SAFETY

Before attempting to install or operate the equipment, read and understand the manual thoroughly. Failure to comply with this instruction constitutes improper use and will invalidate the warranty.

Before using your pesticide, STOP, Read The Label

Mixing pesticides is a most dangerous time as it involves handling the concentrated material. For toxic compounds, use protective clothing such as overalls, hat, gloves, boots and respirator.

When using concentrated sprays, full protection is necessary.

When using diluted sprays, wear a hat, long-sleeved cotton overalls, and boots. If you use pesticides regularly it is a good idea to always wear a respirator to avoid cumulative effect.

Other protection may be required. Check the label. It may have specific directions for the particular chemical.

Protective clothing should be properly cared for. Rinse heavily contaminated clothes in the open before washing in the laundry.

Wash and dry protective clothing every day but keep them separate from other washing.

Respirators need special care. Clean your respirator after spraying. Use soapy water then rinse and allow drying completely before storing in a clean plastic bag. Replace canisters in respirator after eight hours use.

3m / 4m BOOMS

OWNERS MANUAL

(Pt.No 2400-5400 Issue 7, December 2016)

TABLE OF CONTENTS

INTRODUCTION

Congratulations on the purchase of your new C-Dax ATV spray boom.

DESCRIPTION

The C-Dax ATV Spray Booms are a high strength series of spray booms manufactured of non-corrosive materials designed for mounting on rear ATV carriers. All units come complete with mountings non-drip nozzle bodies, nozzle filters, and high quality spray tips.

WARRANTY

1 WARRANTY AND LIABILITY

Use of the equipment

1.1 You must satisfy yourself as to the suitability of the equipment for your intended use(s) of the equipment.

Your relationship with the retailer

1.2 Where you consider you have a warranty claim (or any other claim) in relation to the equipment, you must contact the retailer who sold you the equipment, not C-Dax directly. The retailer is responsible for liaising with C-Dax in respect of your claim.

Warranty

1.3 C-Dax warrants to the original purchaser that the equipment is sold free from defects in materials and workmanship for a period of 12 months from date of first retail sale (6 months from date of first retail sale if the equipment is sold in the U.K.) subject to the terms set out below.

1.4 C-Dax will at its option repair or replace the defective equipment (or part of the equipment) or notify the retailer of the equipment to refund the purchase price for such defective equipment to you in the event of a breach of this warranty, subject to the terms set out below.

Liability

1.5 Except for the warranty set out in clause 1.2 above, all warranties and representations (including those expressed or implied by law) in respect of the equipment or advice relating to the equipment provided to you by C-Dax are excluded to the extent permitted by law.

1.6 Notwithstanding anything else in this manual, C-Dax's maximum liability to you (in the event that such liability exists) in respect of any breach of warranty, any matter set out in this manual, or for defective equipment or advice relating to the equipment provided is limited at C-Dax's option to:

(a) repairing or replacing the equipment (or part of the equipment); or

(b) notifying the retailer of the equipment to refund the price for the equipment paid by you.

1.7 Notwithstanding anything else in this manual, in no event will C-Dax be liable, whether in contract, tort (including negligence) or otherwise:

(a) where you have altered or modified the equipment, misused or misapplied the equipment, or the equipment has been subjected to any unusual, excessive or non-recommended use, service or handling (including as set out in this manual);

(b) where the equipment is not transported, stored, handled or used in accordance with any directions given by C-Dax (or the retailer) to you (including as set out in this manual);

(c) where the equipment:

(i) has been subject to neglect, accident or hireage, or the damage arises from fair wear and tear, battery damage or chemical attack;

(ii) has been built to a customer's specifications; or

(iii) has been dismantled, repaired or serviced other than by an authorised service agent of C-Dax;

(d) for loss or damage caused by any factors beyond C-Dax's control; or

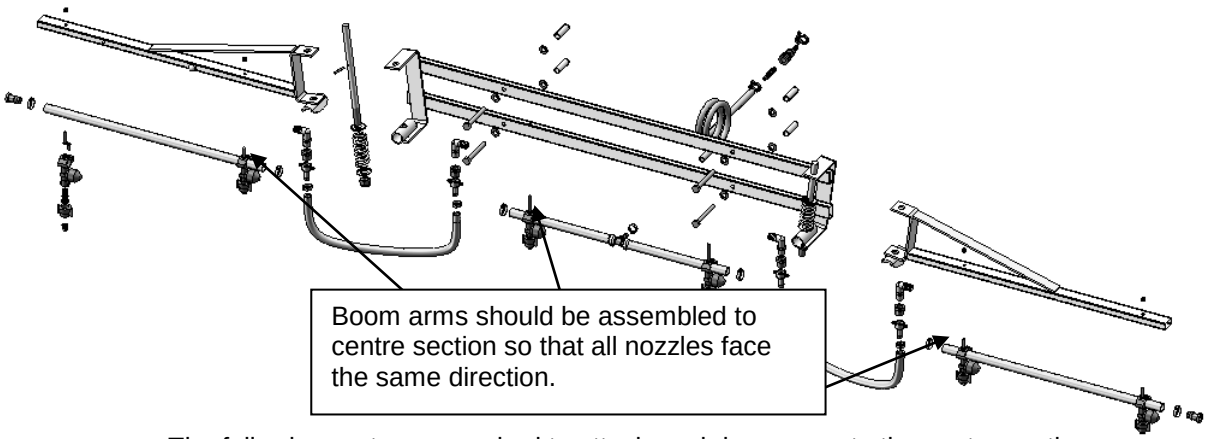
(e) for any loss of profit or revenue, or for any special, indirect, incidental or consequential damage, loss or injury of any kind suffered by you.

1.8 Where C-Dax elects to repair or replace the equipment it will use reasonable endeavours to do so as soon as practicable but will not be liable for any delay in doing so.

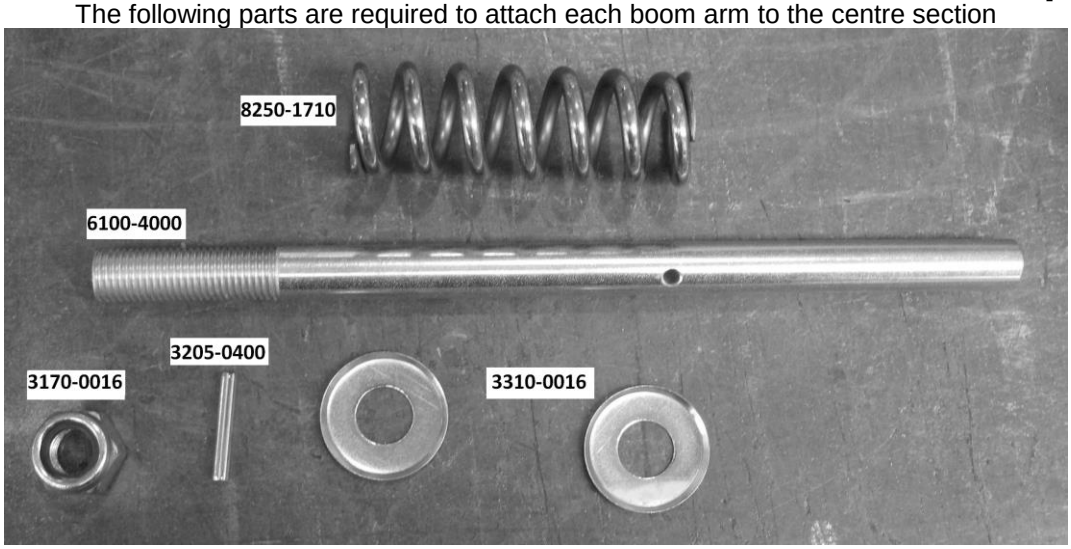
1.9 You agree that the transactions entered into between you and the retailer (and C-Dax) are for the purposes of trade and that, having regard to all relevant circumstances of the transactions, it is fair and reasonable that the provisions of the Consumer Guarantees Act 1993 (NZ) do not apply to those transactions to the fullest extent permitted by law.

BOOM ASSEMBLY

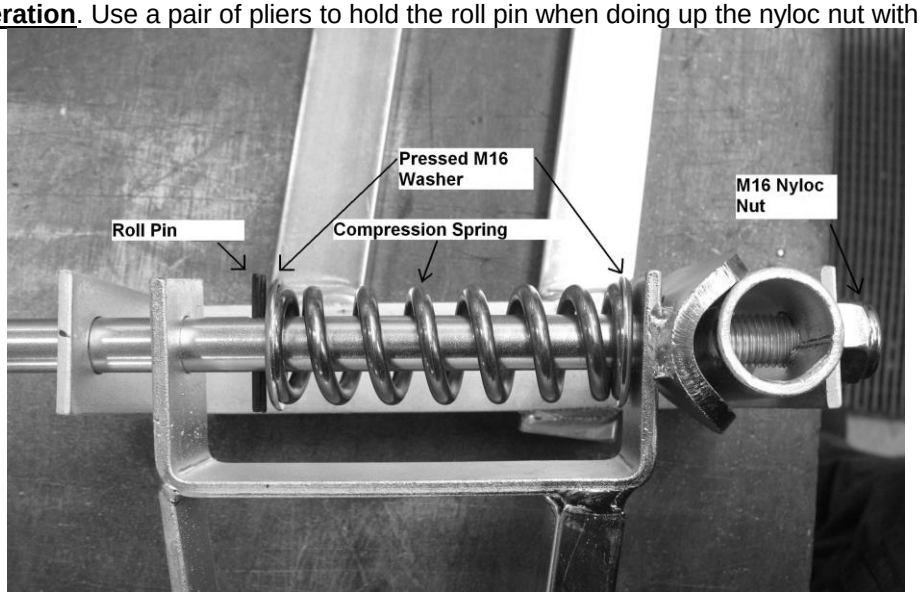
Your ATV Boom is freighted in packed down form and therefore requires some assembly. The boom arms are attached to the centre section with a threaded pin. Although the steelwork of the frame has no left and right configuration, the unit will be plumbed at the factory with the nozzles all orientated in the same direction, it is desirable that you assemble the boom arms with the nozzles in the same orientation as shown.



The following parts are required to attach each boom arm to the centre section



Assemble the pivot as shown below. **Apply grease between the cup and round tube to ensure smooth operation**. Use a pair of pliers to hold the roll pin when doing up the nyloc nut with a spanner.



BOOM INSTALLATION

Quick Smart Mounted Booms Only

For booms without Quicksmart™, bolt the boom to an appropriate surface using the boom mounting holes and round spacer tubes.

With QSA Frame;
Fit QS upright bars to centre frame of sprayer using M10x30 bolts and nuts supplied. Fit with mounting lugs facing inwards.
Fit sprayer to Quicksmart™ frame and unfold arms.

With QS Frame;
Install the Quicksmart™ frame as detailed in the mounting instructions.
Fit sprayer to Quicksmart™ frame and unfold arms.
Set boom to required spraying height by fitting the QS mount bars on the high or low position, and/or adjusting the position of the mount bars on the centre frame of the sprayer.

NOTE
The QS upright bars can be adjusted in 50mm increments on the sprayer centre frame.

Boom Height

Minimum recommended boom height above the **target** is 50cm for 110^0 nozzles (standard) and 60cm for 80^0 nozzles (optional).
Test the evenness of distribution by spraying an area of dry concrete with clean water. The surface must dry evenly. If the target is above ground level, raise the boom height accordingly.

Plumbing (12V Pump)

Cut the sprayer output line from the pump in an easily accessible position, and install the quick release valve with the 8.5mm hose shank.
Connect the delivery hose to the boom, cut the hose to a length so that it can be connected to the quick release valve using the 10mm male hose shank connector.
Connect the remainder of the sprayer output line to the spray gun, to the remaining 8.5mm male hose shank connector.

THEORY OF OPERATION

Spray fluid is placed in the tank where it is drawn through a suction filter and pumped to a control valve. The excess flow from the valve is returned to the tank via the bypass hose. Fluid at a nominal pressure of 1-4 bar (nominally) is pumped to the spray tips via nozzle tip strainers.
At the spray tip, fluid is atomized at the spraying pressure and the fluid is propelled toward the target at the tip angle (80° or 110° nominally).
Droplet size is controlled by the spraying pressure.

OPERATION

With water in the spray tank;
Fold the boom out.
Turn on the pump,
Ensure hoses and lines are free of kinks and blockages.
Allow time for the air to be expelled from the hoses and lines.
Water should flow evenly out of the spray tips.
Droplets will be formed by the nozzles, thus creating the spray.
Drive forward at the required operating speed across target area.

CALIBRATING YOUR ATV SPRAY BOOM

Metric Version (litres, metres, kph)
(*Standard nozzle spacing 0.5 metres)

You will need to calibrate your sprayer to ensure the accurate application of chemical or liquid fertilizer. If too much chemical or liquid fertilizer is applied you will be wasting money! If too little is applied you may need to repeat the spraying, which will be wasting your money and time!

Chemicals are expensive. Repeat calibration frequently during the seasons to avoid disappointment.

To calibrate your sprayer you will need:

a) nozzle calibrator or an accurate measuring flask
b) watch or clock with seconds, or a stopwatch
c) tape-measure
d) calculator

NOTE: "Chemical " also refers to liquid fertilizers.

1. Measure time taken to travel 100m at the speed used for spraying

NOTE: Maximum Recommended Spraying Speed is 12 Kph.

2. Run Sprayer and record output from each nozzle (in mls) for the same time it took to travel 100m.

   Calculate average flow per nozzle.
   Ie. Add individual nozzle output and divide by number of nozzles.

NOTE: Check any nozzle tip that is out by ± 5% Discard any nozzle tip that is out by ± 10%

3. Litres/ha = $\frac{\text{Average Nozzle output (ml/nozzle)}}{500} \times 100$

4. Chemical to add to tank

$$\text{Litres of Chemical} = \frac{\text{Water in Tank (L)} \times \text{Label chemical rate/ha}}{\text{L/ha (application Rate)}}$$

HINT: If you want to spray one hectare, but a tank load covers two, then simply put in half the amount of chemical and water in the tank. Similarly if you want to spray half a hectare and a tank load covers two, then quarter the amount of chemical and water in the tank, and so on.

For future reference either your sprayer details in the following calibration table.

Selecting Tip Size

Choice of Tips

There are several size tips available depending on the type of spray pattern required and the amount of spray fluid required to be applied. C-Dax Ltd endeavours to match the boom output flow to the 12V pump size so there is no need to change the tip size.
All spray tips supplied by C-Dax Ltd conform to an international standard for tip size and colour coding.
Use the spray tip chart below to select the required application for your boom;

Spray Tip Selection Table

Tip Ref Code	Pressure Bar	Flow 1it/min	Litres/Hectare at 6km/h	8km/h	10km/h	12km/h	14km/h
110-WR-01 Orange	1.0	0.23	46	35	28	23	20
	1.5	0.28	57	43	33	28	24
	2.0	0.33	66	50	40	33	28
	2.5	0.37	74	56	44	37	32
	3.0	0.40	80	60	48	40	34
	3.5	0.43	86	65	52	43	37
	4.0	0.46	92	69	55	46	39
110-WR-015 Green	1.0	0.35	70	53	42	35	30
	1.5	0.42	84	63	50	42	36
	2.0	0.49	98	74	59	49	42
	2.5	0.55	110	83	66	55	47
	3.0	0.60	120	90	72	60	51
	3.5	0.65	130	98	78	65	56
	4.0	0.69	138	104	83	69	59
110-WR-02 Yellow	1.0	0.46	92	69	55	46	39
	1.5	0.56	112	84	67	56	48
	2.0	0.65	130	98	78	65	56
	2.5	0.73	146	110	88	73	63
	3.0	0.80	160	120	96	80	69
	3.5	0.86	172	129	103	86	74
	4.0	0.92	184	138	110	92	79
110-WR-03 Blue	1.0	0.69	138	104	83	69	59
	1.5	0.85	170	128	102	85	73
	2.0	0.98	196	147	118	98	84
	2.5	1.10	220	165	132	110	94
	3.0	1.20	240	180	144	120	103
	3.5	1.30	260	195	156	130	111
	4.0	1.39	278	209	167	139	119

MAINTENANCE

After Use

At the end of spraying, flush the system three times with fresh water.

Remove the strainer basket under the lid of the sprayer, rinse and refit.

Remove the main filter element, clean and replace, ensuring that the filter bowl ‘O’ ring is in place, and the bowl nut is tight.

Clean the outside of the sprayer to remove any spray residue.

Remove and rinse the nozzle tip filters.

Routinely

Check the spray tip patterns for wear, replace if necessary.

Calibrate the boom (every 100Ha)

Lubricate any moving boom parts.

Check spray hoses for kinks or damage, replace if necessary.

Annually

Replace spray tips

Lubricate the break away joints with good quality grease.

Filters

Check all filters after the first four hours of use, then at the end of each spraying session, more regularly depending on the water supply and chemicals used.

PERFORMANCE DATA CHART (NOMINAL)

Performance Data (Nominal)

C-Dax Unit Model	**Nozzle Designation**	**Flow Rate per Nozzle** (lit/min)	**Application Rate at Each Forward Speed** (lit/ha at km/hour)			**Range of Tank** (hectares at km/hour)						Time to Empty Tank (mins)	
						SR50			**SR80**				
			8	10	12	8	10	12	8	10	12	50 litre	80 litre
3m	110WR02	0.64	97	78	64	0.51	0.64	0.78	0.82	1.02	1.25	12.8	20.5
4m	110WR02	0.54	80	64	50	0.62	0.78	1.0	1.0	1.25	1.6	11.9	19.0

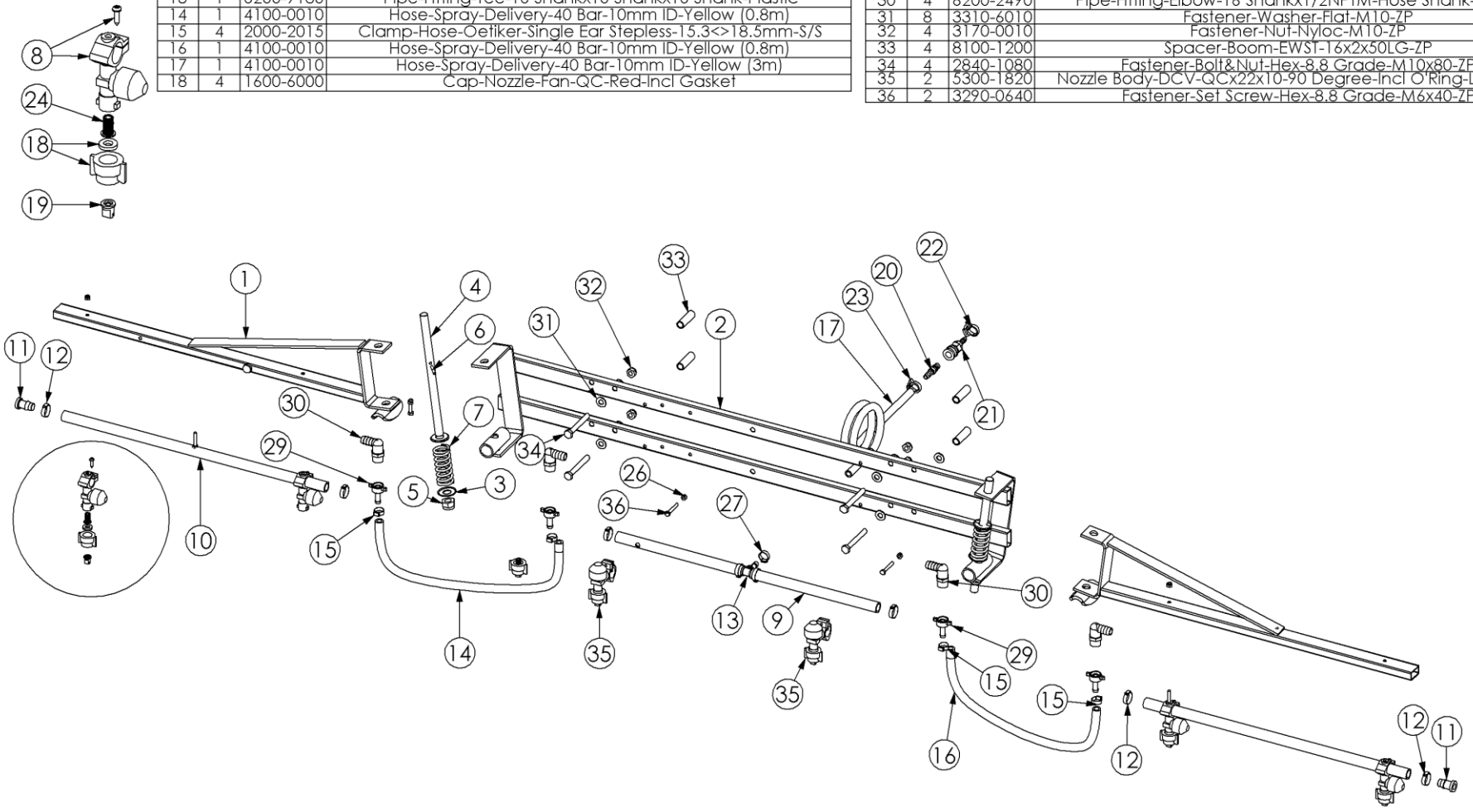
NOTE: "TOTAL FLOW RATE TO BOOM" is pre-determined by nozzles supplied and pumps performance. Calibrate *(check flow form)* nozzles to determine your application rate at each of the above forward speeds. Calibrate nozzles frequently to check application rate.

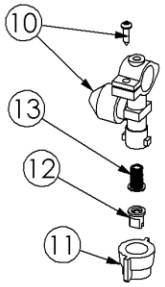
Chemical for tank - multiply range of tank (*hectares)* by chemical rate per hectare. eg, if flow from nozzles *(with ATV at operating rpm)* on ATV3 boom is 0.64 litres/minute each, travel speed is 12 km/hour, and chemical rate is 2 litre/hectare then put 2 x 0.53 = 1.06 litres of active ingredient in the tank.

SUGGESTED operating height for nozzles; 0.5 metres above the target.

Item No.	QTY.	e9 Part No	e9 Description
1	2	1072-1600	Arm-Boom-ATV3-ZP
2	1	1900-0600	Centre-Boom-ATV3/4-ZP
3	4	3310-0016	Fastener-Washer-Cup-M16-Pressed-ZP
4	2	6100-4000	Pin-Hinge-16x280mm-ZP
5	2	3170-0016	Fastener-Nut-Nyloc-M16-ZP
6	2	3205-0400	Fastener-Pin-Roll-3/16"x1 1/4"-ZP
7	2	8250-1710	Spring-Compression-Boom-SL-ZP
8	4	5300-1800	Nozzle Body-DCV-QCx22x10-Incl O'Ring-Less Cap
9	2	8840-3715	Tube-Gas-Semi Rigid-15mm ID-Yellow-Polyethylene (0.3m)
10	2	8840-3715	Tube-Gas-Semi Rigid-15mm ID-Yellow-Polyethylene (0.63m)
11	2	6200-6250	Pipe-Fitting-Plug-Push In-Barbed Shank-16mm-Plastic-Black
12	8	2000-2021	Clamp-Hose-Oetiker-Single Ear Stepless-20.9<>24.1mm-S/S
13	1	6200-9180	Pipe-Fitting-Tee-16 Shankx10 Shankx16 Shank-Plastic
14	1	4100-0010	Hose-Spray-Delivery-40 Bar-10mm ID-Yellow (0.8m)
15	4	2000-2015	Clamp-Hose-Oetiker-Single Ear Stepless-15.3<>18.5mm-S/S
16	1	4100-0010	Hose-Spray-Delivery-40 Bar-10mm ID-Yellow (0.8m)
17	1	4100-0010	Hose-Spray-Delivery-40 Bar-10mm ID-Yellow (3m)
18	4	1600-6000	Cap-Nozzle-Fan-QC-Red-Incl Gasket

Item No.	QTY.	e9 Part No	e9 Description
19	4	5300-9800	Nozzle-Tip-Wide Range-110WR02-Single
20	1	6200-7220	Pipe-Fitting-Quick Release-Male Connectorx10 Shank-Brass
21	1	6200-7250	Pipe-Fitting-Quick Release-Valve-Stopx8.5 Shank-Brass
22	1	2000-0015	Clamp-Hose-Herbi-F-Ratchet-15.0<>17.1mm-Black-Nylon
23	1	2000-0013	Clamp-Hose-Herbi-E-Ratchet-13.1<>15.1mm-Black-Nylon
24	4	3400-5400	Filter-Nozzle Tip-50 Mesh-Plastic
25	4	3290-0630	Fastener-Set Screw-Hex-8.8 Grade-M6x30-ZP
26	6	3170-0006	Fastener-Nut-Nyloc-M6-ZP
27	1	2000-2017	Clamp-Hose-Oetiker-Single Ear Stepless-16.6<>19.8mm-S/S
28	1	1400-1600	Buffer-Rubber-SL Boom
29	4	6200-1640	Pipe-Fitting-Connector-Straight-10 Shank-Incl 1/2BSPF Fly Nut-Brass
30	4	6200-2490	Pipe-Fitting-Elbow-16 Shankx1/2NPTM-Hose Shank-Nylon
31	8	3310-6010	Fastener-Washer-Flat-M10-ZP
32	4	3170-0010	Fastener-Nut-Nyloc-M10-ZP
33	4	8100-1200	Spacer-Boom-EWST-16x2x50LG-ZP
34	4	2840-1080	Fastener-Bolt&Nut-Hex-8.8 Grade-M10x80-ZP
35	2	5300-1820	Nozzle Body-DCV-QCx22x10-90 Degree-Incl O'Ring-Less Cap
36	2	3290-0640	Fastener-Set Screw-Hex-8.8 Grade-M6x40-ZP





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8	2	8840-3715	Tube-Gas-Semi Rigid-15mm ID-Yellow-Polyethylene (0.3m)
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10	6	5300-1800	Nozzle Body-DCV-QCx22x10-Incl O'Ring-Less Cap
11	6	1600-6000	Cap-Nozzle-Fan-QC-Red-Incl Gasket
12	6	5300-9800	Nozzle-Tip-Wide Range-110WR02-Single
13	6	3400-5400	Filter-Nozzle Tip-50 Mesh-Plastic
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33	4	2840-1080	Fastener-Bolt&Nut-Hex-8.8 Grade-M10x80-ZP
34	2	5300-1820	Nozzle Body-DCV-QCx22x10-90 Degree-Incl O'Ring-Less Cap