



OWNER'S MANUAL FOR THE



PRESSURE NOZZLE SPRAY BOOMS: Superline Goldline i-Boom

C-Dax Ltd
PO Box 1010, 145 Harts Road
Tiritea, Palmerston North
Ph: 06 354 6060
Fax: 06 355 3199
E-Mail: sales@c-dax.co.nz
www.c-dax.co.nz

SAFETY PRECAUTIONS

PRESSURE NOZZLE SPRAY BOOMS 6-12m

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

Be warned of the dangers of loading your 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 will alter the stability or handling characteristics of that vehicle.

Spray tanks or other equipment must be filled only to a level where the gross weight is within the load limit of the 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 TRACTOR OR OTHER VEHICLE.
- ALL TRACTOR AND TRAILED EQUIPMENT TYRES SHOULD BE INFLATED TO MANUFACTURERS RECOMMENDED OPERATING PRESSURES.
- PLEASE NOTE THAT FILLING THE SPRAY TANK OR OTHER EQUIPMENT COMPLETELY AND OR THE ATTACHMENT OF ADDITIONAL EQUIPMENT TO THE TRACTOR MAY EXCEED THE TRACTOR'S MAXIMUM LOAD CAPACITY, AND ADVERSELY AFFECT THE STABILITY OF THE TRACTOR OR OTHER VEHICLE.
- 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.

WARNING

To reduce the chance of VEHICLE instability, exercise EXTREME care while spraying on a slope or hillside.

Cautions, Warnings and Notes.

Throughout this document, text has been highlighted as warnings, cautions and notes.

Warnings are mandatory instructions. Failure to comply with these instructions may result in injury or damage.

Cautions are advisory. Failure to comply may result in poor operation or premature failure.

Notes are to assist with convenient operation of the equipment.

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.

C-Dax PRESSURE NOZZLE SPRAY BOOMS 6-12m

OWNERS MANUAL
(Pt.No 2400-5300 Issue 5, October 2015)

TABLE OF CONTENTS

2	Safety Precautions
4	Contents
5	Introduction
	Description
	Specifications
	Order Information
6	Optional Equipment
7	Warranty
8	Boom Installation
	Quick Smart Mounted
	Trailed & 3PL models
10	Boom Height
	Plumbing
	Theory of Operation
	Operation
11	Calibration
	Calibration Chart
	Spray Tip Calibration Table
13	Maintenance
	After Use
	Routinely
	Annually
	Filters
14	Replacement Parts

INTRODUCTION

CONGRATULATIONS on the purchase of your new C-Dax pressure Nozzle Spray Boom. You join the many thousands of New Zealand and overseas farmers who have recognised the remarkable usefulness and uniqueness of these C-Dax sprayers.

DESCRIPTION

The C-Dax Pressure Nozzle spray booms, are range of robust pressure nozzle boom sprayers with models from 6m – 12m effective spray width. The booms are manufactured of sturdy steel construction, all boom arms have breakaway protection, and all models are finished with zinc plated steel components and high pressure PVC gaspipe boom lines. All booms are fitted with flat fan nozzle tips and single non-drip check valve nozzle bodies as standard.

There are several boom models in the range;

- Superline; A strong medium-duty horizontal folding boom with breakaway and shielded nozzles, suitable for flatdeck, trailed or 3 point linkage mounting, available in 6m or 8m.
- i-Boom: A streamlined and lightweight boom with fully integrated hydraulic tilt and fold.

SPECIFICATIONS

(Specifications subject to change without notice)

Construction;	All Models	Steel Frame with breakaway protection on boom arms <i>i-Boom arms are Aluminum</i>
Surface Finish	All Models	Zinc Plating
Nozzle Spacing;	All models	500mm
Spray height;	All models	500mm (nominal above target)
Application Rate;	@4 kph, 110°03 nozzle, 4 Bar @12 kph, 110°03 nozzle, 1.5 Bar	400 Litres per hectare (nominal) 83 Litres per hectare (nominal)
Filtration;	Individual nozzle strainer (50 mesh)	
Attachment System	Rigid mounting at 640mm horizontal centres, 100mm vertical centres	

ORDER INFORMATION

Superline Series	Suitable for mounting to all 3PL sprayers and 500L trailed sprayers	
	6m	Pt.No. 1043
	8m	Pt.No. 1126
i-Boom Series	Suitable for mounting to GoldLine 3PL sprayers	
	8m	Pt No. 1099
	10m	Pt.No. 1091
	10m Manual	Pt.No. 1110
	12m	Pt.No. 1087
	12m Stainless	Pt.No. 1109

OPTIONAL EQUIPMENT

50L Single Foam Marker to suit -GoldLine Sprayers	FM50S	Pt.No.1049
50L Double Foam Marker to suit -GoldLine Sprayers	FM50D	Pt.No.1050
Boom Suspension to suit all models	BOOM SUSP	Pt.No.1055

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 INSTALLATION

Superline Booms

500L Models

Fit boom mounting crossbars to boom support uprights at the rear of the unit (if not fitted from factory). Secure all brackets using fasteners provided. Fit the Superline boom to the cross bars.

i-Booms

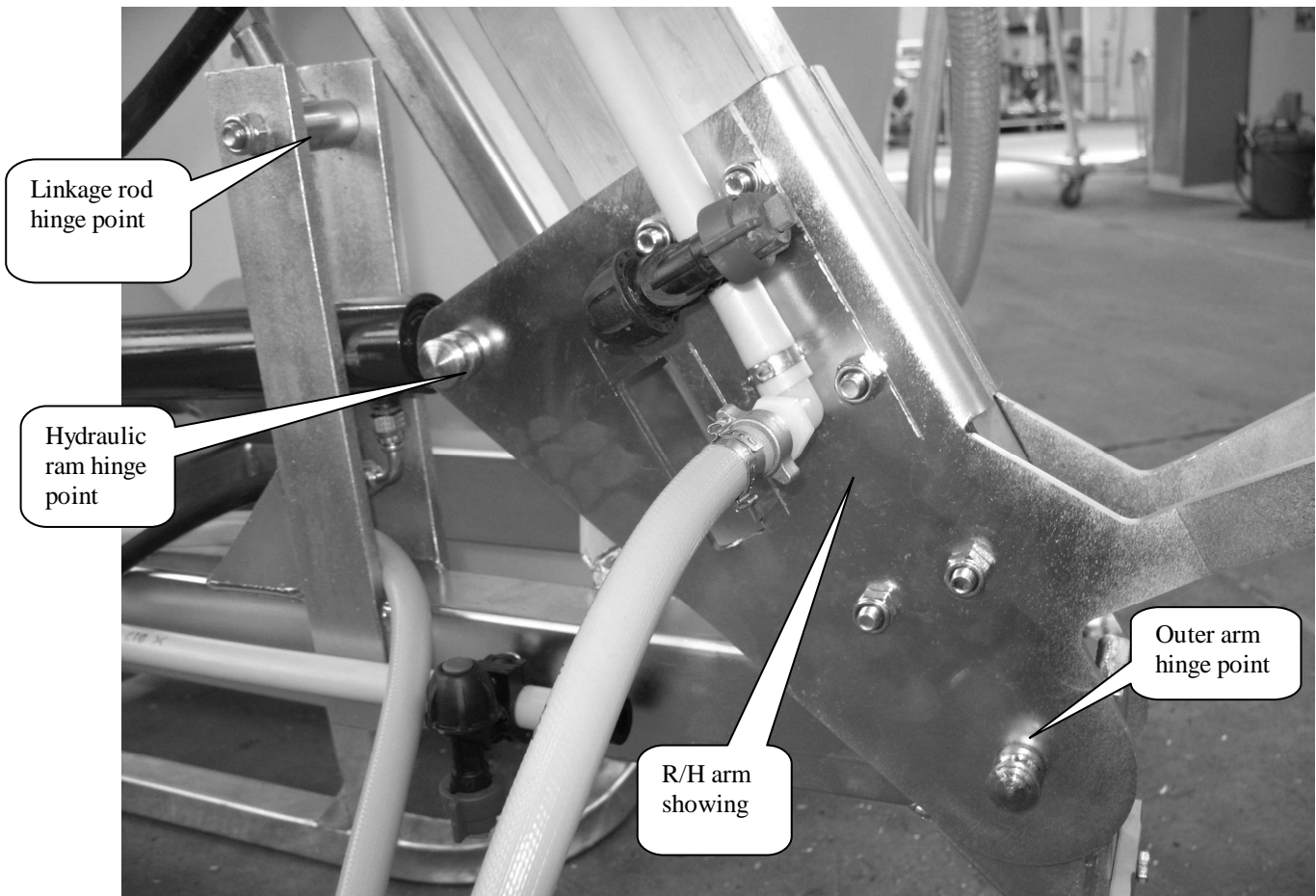
3PL GoldLine Models

Fit boom centre frame to sprayer rear mast frame, secure with M12 fasteners and nyloc nuts. Assemble the boom by fitting the boom arms to the boom centre frame with the pivot pins and secure with the nyloc nuts provided.

Attach cradle to centre section using M12 fasteners and nyloc nuts

For 10m and 12m models, fit both boom arm support linkage rods to boom centre frame mounting bolts and secure, Support linkage rods must be able to rotate on the mounting bolts.

Fold outer arms left and right with nozzles facing rearward, attach arms to centre section using the pins provided as per picture below



Hook up Hydraulic hoses and plumbing hoses, For 10m and 12m models level the outer boom arms by adjusting the stop on the outer pivot joint and also the adjustment clevis on the both boom arm support linkage rods. Fold the boom into the transport position and ensure the boom rests in the cradle and the lock pins are fitted.

Boom Height

Minimum recommended boom height above the **target** is 50cm for 110° nozzles (standard) and 60cm for 80° 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 (PTO or Engine Driven Pump)

Single Section Spraying:

Connect the boom delivery line to a spare outlet port on the sprayer pressure regulator, secure with hose clamps provided.

Multi Section Spraying:

Connect each spraying section boom delivery line to a spare outlet port on the sprayer pressure regulator, secure with hose clamps provided. Extra regulator outlet ports are available (depending on specification).

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.

Open dump valve on regulator.

Turn on the pump,

-12V sprayers; Switch labeled 'PUMP' on the switch box

-PTO sprayers; PTO lever on tractor

Ensure hoses and lines are free of kinks and blockages.

Close dump valve on regulator.

Allow time for the air to be expelled from the hoses and lines.

With the pump still on, set the pressure in the spray line to approximately 30 psi (2 bar), by turning the pressure adjustment knob on the control unit.

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 PRESSURE NOZZLE BOOM KIT

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 $\pm 5\%$
Discard any nozzle tip that is out by $\pm 10\%$

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

4. Chemical to add to tank

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

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 enter your sprayer details in the following calibration table.

CALIBRATION CHART

NOTES (chemical / field etc)	STEP 1 Application Rate of Chemical (litre/kilo per hectare)	STEP 2 Tank Volume (litres)	STEP 3 Forward Speed (KPH)	STEP 4 Average Nozzle Flow Rate (litres per minute)	STEP 5 Area Covered Per Tank (hectares)	STEP 6 Chemical Per Tank Load (litres/kilogram s)	STEP 7 Application Rate of Spray (litres per hectare)
EXAMPLE 1	1	600	8	.95	4.2	4.2	142
EXAMPLE 2	2	1000	10	.7	11.9	23.8	84
EXAMPLE 3	4	1000	12	0.1	10	40	100

Select 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.

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 tip size for your application;

Spray Tip Calibration Table

Tip Ref Code	Pressure Bar	Flow L/min	6kp h	8kp h	10kp h	12kp h	14kp h	16kp h	18kp h
110-SF-01 Orange	2.0	0.33	66	50	40	33	28	25	22
	2.5	0.37	74	56	44	37	32	28	25
	3.0	0.40	80	60	48	40	34	30	27
	3.5	0.43	86	65	52	43	37	32	29
	4.0	0.46	92	69	55	46	39	35	31
110-SF-015 Green	2.0	0.49	98	74	59	49	42	37	33
	2.5	0.55	110	83	66	55	47	41	37
	3.0	0.60	120	90	72	60	51	45	40
	3.5	0.65	130	98	78	65	56	49	43
	4.0	0.69	138	104	83	69	59	52	46
110-SF-02 Yellow	2.0	0.65	130	98	78	65	56	49	43
	2.5	0.73	146	110	88	73	63	55	49
	3.0	0.80	160	120	96	80	69	60	53
	3.5	0.86	172	129	103	86	74	65	57
	4.0	0.92	184	138	110	92	79	69	61
110-SF-03 Blue	2.0	0.98	196	147	118	98	84	74	65
	2.5	1.10	220	165	132	110	94	83	73
	3.0	1.20	240	180	144	120	103	90	80
	3.5	1.30	260	195	156	130	111	98	87
	4.0	1.39	278	209	167	139	119	104	93
110-SF-04 Red	2.0	1.31	262	197	157	131	112	98	87
	2.5	1.46	292	219	175	146	125	110	97
	3.0	1.60	320	240	192	160	137	120	107
	3.5	1.73	346	260	208	173	148	130	115
	4.0	1.85	370	278	222	185	159	139	123
110-SF-05 Brown	2.0	1.63	326	245	196	163	140	122	109
	2.5	1.83	366	275	220	183	157	137	122
	3.0	2.0	400	300	240	200	171	150	133
	3.5	2.16	432	324	259	216	185	162	144
	4.0	2.31	462	347	277	231	198	173	154
110-SF-06 Grey	2.0	1.96	392	294	235	196	168	147	131
	2.5	2.20	440	330	264	220	189	165	147
	3.0	2.40	480	360	288	240	206	180	160
	3.5	2.60	520	390	312	260	223	195	173
	4.0	2.80	560	420	336	280	240	210	187
110-SF-08 White	2.0	2.61	522	392	313	261	224	196	174
	2.5	2.92	584	438	350	292	250	219	195
	3.0	3.20	640	480	384	320	274	240	213
	3.5	3.46	692	519	415	346	297	259	231
	4.0	3.70	740	555	444	370	317	277	247

MAINTENANCE

After Use

At the end of spraying, flush the system three times with fresh water. Finish with a final rinse using C-Dax Neutralise rinsing solution.

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

Your Pressure nozzle boom sprayer is fitted with three stage filtration consisting of:

- a) filter basket at the tank inlet,
- b) suction filter between the tank and pump, and
- c) nozzle tip 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.

REPLACEMENT PARTS

The following parts are replacements for C-Dax spray booms.
Please order by part number:

Item:	Part number:
Noz body (Incl 'O'ring & DCV, No cap, tip or gasket)	5300-1800
90 degree Nozzle body	5300-1820
Diaphragm only	2300-4390
'O' Ring	5500-4040
Cap and gasket (No tip)	5300-2800
Nozzle gasket	3700-9250
Nozzle tip	Refer nozzle chart listing
Nozzle filter	3400-5400