

CLEVELAND SPRAYERS

GAMBETTI UK

OPERATOR'S MANUAL

**LESKO ECO
300, 350, 400, 450 litre
SPRAYERS**

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INTRODUCTION

READ THIS LEAFLET CAREFULLY BEFORE OPERATING OR ADJUSTING YOUR MACHINE.

This manual covers mounted sprayers 200,300,350,400,450 litre .

The CLEVELAND Gambettibarre® Lesko sprayers range in size from 100 litres to 4000 litres. They are fitted with a range of pumps giving from 20 litres per minute to 260 litres per minute. Booms range from 2 metres to 32 metres in length, in both manual and hydraulic versions.

All our machines work on the same principle: liquid is drawn from the tank, or self filler if fitted, through a filter or series of filters to protect the pump, into the main control unit. When the main lever is in the OFF position the liquid is returned to the tank. When the main control lever is switched to the ON position the liquid is diverted to the boom section valves which can be independently controlled. Pressure is regulated by adjustment of the pressure control knob.

GENERAL OPERATING INSTRUCTIONS

To obtain the best performance from your sprayer you should:

- Keep your sprayer well maintained.
- Wear appropriate safety clothing at all times.
- Read chemical instruction leaflets carefully.
- Calibrate the sprayer carefully.
- Select the correct nozzle tips.
- Maintain correct boom height above the target.
- Maintain correct forward speed and spray pressure.
- Keep all filters clean.
- Clean the sprayer thoroughly after use.
- Always test with clean water when new and after making any alterations.
- Protect your machine from frost.

Always wear the appropriate safety clothing, when working with or near your machine

SAFETY

- When attaching the sprayer to the tractor, follow tractor safety procedures.
- Fold away stabiliser legs after attaching machine (if fitted).
- Always make sure that booms are folded correctly and secured in transport position.
- Make sure that the tractor PTO and pump are correctly guarded.
- Always attached pump and PTO guard chains to fixed parts of the tractor and sprayer.
- Take care that the sprayer does not interfere with any part of the tractor when being operated on the hydraulic lift; tighten tractor check chains to maintain stability.
- Fill the hand wash tank coloured blue or green on Lesko sprayers with clean water.
- Check all nuts, bolts, cables and hoses regularly.
- Before disconnecting the sprayer from the tractor be sure booms are parked properly. Position all stabiliser legs correctly. Park on level ground.
- A safety relief valve must be fitted when operating a diaphragm pump.
- Ensure operator has had the relevant training necessary to operate a crop sprayer.
- Check on current Health and Safety recommendations.

Advice on the use of chemicals should be obtained from the chemical supplier.

The manufacturers cannot accept any liability for damage or loss as a result in improper operation or the use of unsuitable spraying materials.

PROTECTIVE CLOTHING

- It is a requirement that operators should wear protective safety clothing when operating spraying equipment.
- Pay particular attention to the spray mask's effectiveness when exposed to chemical vapour.
- Change heavily contaminated clothing.
- Check regularly for signs of wear or deterioration.

PUMP OPERATING INSTRUCTIONS

DO NOT OPERATE THE PUMP ABOVE A SPEED OF 540 RPM
AVOID RUNNING THE PUMP DRY FOR LONG PERIODS

TO FIT THE SPRAYER MOUNTED PUMP

It may be necessary to cut the Cardan PTO shaft to ensure that there is enough travel on the shaft to prevent grounding when the sprayer is attached to the tractor, check with Cardan PTO shaft manufacturer's instructions.

Use clean water to test the pump and sprayer before starting work.

- Before starting the pump, check that the oil is at the correct level, sight gauge A.
- Check that there are no kinks in the feed or delivery hoses.
- With at least one boom selection tap open and zero pressure, start the pump, then if everything is in order, set to the required working pressure.
- Check pump clearance from any other fittings which may lead to abrasion when the tank is filled with water; re-position pump on adjuster slots in base plate as necessary.

The pressure in the air chamber on the pump should be set at
0.34 bar/5 psi lower than the spraying pressure.

PUMP MAINTENANCE

Diaphragm pumps require very little maintenance as all the moving parts are bathed in oil.

KEEP OIL AT REQUIRED LEVEL
CHANGE PUMP OIL EVERY 500 HOURS
USE SAE 20W40 OIL
DRAIN PUMP TO AVOID FROST DAMAGE

- Check all bolts for tightness before use particularly when new.
- Check pump diaphragm once a year and replace if damaged.
- After use flush with clean water, this prolongs life of rubber parts both in the pump and in the sprayer.

NB If the pump or sprayer cannot be protected from the frost in the winter it is a good idea to spray a few gallons of diluted anti-freeze through the sprayer and then drain fully, this will ensure that any water left in 'pockets' in the machine will not freeze. Flush out machine before using again.

TROUBLESHOOTING		
SYMPTOM	CAUSE	REMEDY
Oil level keeps falling	Leaking shaft seal	Replace seal
Pump shaft seized	Liquid inside pump frozen Internal bearing collapsed	Loosen off head chambers and defrost Replace with new bearings
Oil turns 'milky' colour	Water leaking into oil chamber	Damaged diaphragm Cracked pump body

SPRAYER CONTROLS

There are two basic types of manual control: the Standard (471140200) control which does not have pressure balancing valves and the Pressure Balanced (4712402B0) control which does have pressure balancing valves, (red knobs mounted just below the on/off levers)

The general operating instructions refer to both types.

GENERAL OPERATION

- Where the control is fitted with a telescopic bracket be sure the control clears any obstacles when lifting the sprayer on the tractor hydraulics.
- Do not starve the control of water as this can lead to pressure fluctuation, 540 rpm PTO speed will provide sufficient flow for the control to work effectively.
- Flush out with clean water after use.

STANDARD MANUAL CONTROLS (471140200)

- To activate sprayer, push main spray control On/Off lever B downwards.
- When the control section valve levers C are in the vertical position water is directed to the boom sections. These sections can be controlled individually, on booms less than 10m in length 1 lever valve controls a single boom section whilst another controls the centre and other side sections. Larger booms are divided into more sections.
- It may be necessary to adjust the pressure if a boom section valve is opened/closed.
- Additional lever valves are fitted one for extra sprayer tank agitation (its output hose enters bottom of sprayer tank), it is recommended to keep this open at all times unless excessive tank frothing occurs.
- If your sprayer is fitted with a chemical suction probe an additional lever valve is fitted (easily identified as its output hose goes to the suction probe fitting on the top of the sprayer tank). To activate the suction on the probe lift lever to upright position, place probe in liquid squeeze probe trigger. Increasing the pressure with Knob A increases rate of suction. Keep PTO shaft at a minimum of 250 RPM when probe is activated.

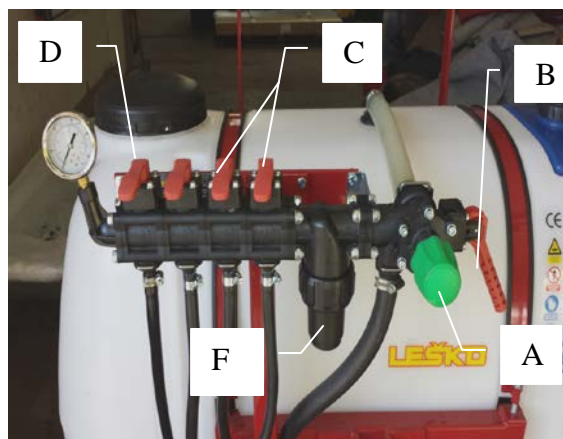
Pressure setting

- Start with the regulation knob A unscrewed (the lowest pressure position), and with some water in the sprayer.
- With the tractor PTO engaged slowly increase the engine revs to working speed.
- To increase the spray pressure rotate regulation knob A clockwise until desired pressure is achieved. (on the latest machines this knob may be

Pressure filter cleaning

- To clean the pressure filter F, ensure main on/off lever B is in the closed position (up).
- Unscrew filter ring nut to release bowl to expose the pressure filter element.
- After cleaning replace filter bowl ensuring sealing 'O' ring is in position. Tighten ring nut.

Figure 2 471140200 Manual Control



PRESSURE BALANCED MANUAL CONTROLS (4712402B0)

These controls are fitted with pressure balancing taps to avoid any increase in pressure when one or more boom sections are switched off. These should be set up at the start of the season or after changing nozzle sizes and application rates. See previous page for general operating instructions.

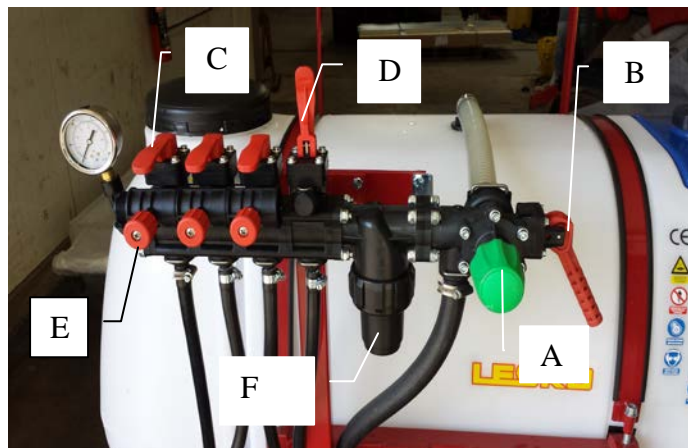
- To activate sprayer, push main spray control On/Off lever B downwards. If fitted with electric motor, ie; electric On/Off then simply activate the switch in the cab.
- Additional lever valves are fitted one for extra sprayer tank agitation (its output hose enters bottom of sprayer tank), it is recommended to keep this open at all times unless excessive tank frothing occurs.
- If your sprayer is fitted with a chemical suction probe an additional lever valve is fitted (easily identified as its output hose goes to the suction probe fitting on the top of the sprayer tank). To activate the suction on the probe lift lever to upright position, place probe in liquid squeeze probe trigger. Increasing the pressure with Knob A increases rate of suction. Keep PTO shaft at a minimum of 250 RPM when probe is activated.
- When the boom section valve levers C (boom section valves being easily identified as they have the red pressure balancing Knobs E under each lever, larger / smaller booms have more or less sections), are in the vertical position, water is directed to that boom section.
- When a boom section valve is switched off the balancing tap diverts the water that was going to that boom section back to tank therefore, providing the balancing taps have been set properly, there is no increase or decrease in spraying pressure.

Figure 3 4712402B0 Control

Pressure Setting

With the tractor PTO engaged slowly increase the engine revs to working speed

To increase the spray pressure turn regulation knob A clockwise until desired pressure is achieved.



Pressure filter cleaning

- To clean the pressure filter F, ensure main on/off lever B is in the closed position (up).
- Unscrew filter ring nut to release bowl to expose the pressure filter element.
- After cleaning replace filter bowl ensuring sealing 'O' ring is in position. Tighten ring nut.

Setting the pressure balancing taps:

- Set sprayer spraying clean water at your selected spraying pressure all boom sections open.
- Close one boom section valve. Note if the pressure rises or falls.
- If the pressure rises, rotate the corresponding knob E anticlockwise until the pressure returns to normal.
- If the pressure falls, rotate knob E clockwise until normal pressure is obtained.
- Open section valve again and check pressure has remained normal.
- Repeat procedure on all boom sections.

NOZZLE SELECTION AND FITTING

Select the appropriate nozzle tip for the required pressure and application rate. See nozzle application chart. Boom height is important and should be set according to the nozzle tip supplier's recommendation. See section on boom height (page 17).

The standard nozzle tip fitted is a flat fan, fitted in a snap-fit, self-aligning cap. Jets are colour-coded E.g.:- **Blue** ISO, which gives an application rate of 150 litres per hectare at 8km per hour with 3 bar pressure with a 110 degree flat fan spray set boom height to 500 mm above the target.

Alternative nozzle tips are available (ceramic, hollow cone, low-drift etc.) for specific applications, e.g. liquid fertiliser.

MAINTENANCE

Worn jets should be changed in order to give maximum performance.

DO NOT clean jets using a pin or piece of wire as this damages the spread pattern and application rate. A soft brush is better.

Nozzle bodies with anti-drip DCVs (diaphragm check valves) diaphragms should be changed when worn: flushing the system with clean water after use prolongs their life.

Nozzles without DCVs are fitted with an anti-drip ball valve filter: keeping the filter clean will prolong life.

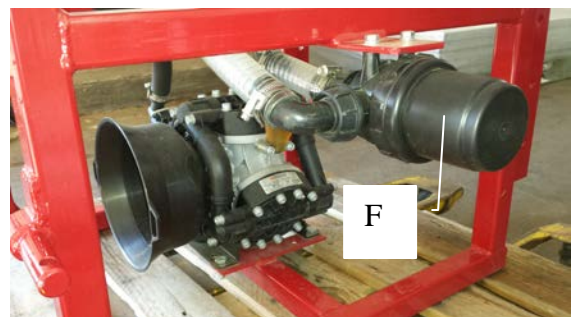
TO OBTAIN THE APPLICATION RATE REQUIRED REFER TO THE APPLICATION RATE CHART




In order to check the application rate, fill the tank with a measured volume of water. Run the sprayer stationary for the number of minutes required to spray an acre/hectare as per the calculations below. Measure the difference in the tank content. This will be the application rate per acre or hectare. The difference compared to the Application Rate Chart should be corrected by adjusting the Operating Pressure. For future reference you should record the following:

- Forward speed.
- Application rate per acre.
- Engine revs/min and gear used.

SUCTION FILTER CLEANING

- Always clean suction filter before filling sprayer tank
- **DO NOT attempt to clean suction filter unless the main sprayer tank is empty.**
- Unscrew filter bowl F, to remove filter element.
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		DROPSIZE		CAPACITY ONE NOZZLE IN l/min	l/ha 													
		bar	80°		4 km/h	5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h	18 km/h	20 km/h	25 km/h	30 km/h	35 km/h	
			80°															110°
XR8001 XR11001 (100)	1.0	M	F	0.23	69.0	55.2	46.0	39.4	34.5	27.6	23.0	17.3	15.3	13.8	11.0	9.2	7.9	
	1.5	F	F	0.28	84.0	67.2	56.0	48.0	42.0	33.6	28.0	21.0	18.7	16.8	13.4	11.2	9.6	
	2.0	F	F	0.32	96.0	76.8	64.0	54.9	48.0	38.4	32.0	24.0	21.3	19.2	15.4	12.8	11.0	
	2.5	F	F	0.36	108	86.4	72.0	61.7	54.0	43.2	36.0	27.0	24.0	21.6	17.3	14.4	12.3	
	3.0	F	F	0.39	117	93.6	78.0	66.9	58.5	46.8	39.0	29.3	26.0	23.4	18.7	15.6	13.4	
XR80015 XR110015 (100)	4.0	F	VF	0.45	135	108	90.0	77.1	67.5	54.0	45.0	33.8	30.0	27.0	21.6	18.0	15.4	
	1.0	M	F	0.34	102	81.6	68.0	58.3	51.0	40.8	34.0	25.5	22.7	20.4	16.3	13.6	11.7	
	1.5	M	F	0.42	126	101	84.0	72.0	63.0	50.4	42.0	31.5	28.0	25.2	20.2	16.8	14.4	
	2.0	F	F	0.48	144	115	96.0	82.3	72.0	57.6	48.0	36.0	32.0	28.8	23.0	19.2	16.5	
	2.5	F	F	0.54	162	130	108	92.6	81.0	64.8	54.0	40.5	36.0	32.4	25.9	21.6	18.5	
XR8002 XR11002 (50)	3.0	F	F	0.59	177	142	118	101	88.5	70.8	59.0	44.3	39.3	35.4	28.3	23.6	20.2	
	4.0	F	F	0.68	204	163	136	117	102	81.6	68.0	51.0	45.3	40.8	32.6	27.2	23.3	
	1.0	M	M	0.46	138	110	92.0	78.9	69.0	55.2	46.0	34.5	30.7	27.6	22.1	18.4	15.8	
	1.5	M	F	0.56	168	134	112	96.0	84.0	67.2	56.0	42.0	37.3	33.6	26.9	22.4	19.2	
	2.0	M	F	0.65	195	156	130	111	97.5	78.0	65.0	48.8	43.3	39.0	31.2	26.0	22.3	
XR110025 (50)	2.5	M	F	0.72	216	173	144	123	108	86.4	72.0	54.0	48.0	43.2	34.6	28.8	24.7	
	3.0	F	F	0.79	237	190	158	135	119	94.8	79.0	59.3	52.7	47.4	37.9	31.6	27.1	
	4.0	F	F	0.91	273	218	182	156	137	109	91.0	68.3	60.7	54.6	43.7	36.4	31.2	
	1.0	M	M	0.57	171	137	114	97.7	85.5	68.4	57.0	42.8	38.0	34.2	27.4	22.8	19.5	
	1.5	M	M	0.70	210	168	140	120	105	84.0	70.0	52.5	46.7	42.0	33.6	28.0	24.0	
XR8003 XR11003 (50)	2.0	F	F	0.81	243	194	162	139	122	97.2	81.0	60.8	54.0	48.6	38.9	32.4	27.8	
	2.5	M	F	0.90	270	216	180	154	135	108	90.0	67.5	60.0	54.0	43.2	36.0	30.9	
	3.0	M	F	0.99	297	238	198	170	149	119	99.0	74.3	66.0	59.4	47.5	39.6	33.9	
	4.0	F	F	1.14	342	274	228	195	171	137	114	85.5	76.0	68.4	54.7	45.6	39.1	
	1.0	M	M	0.68	204	163	136	117	102	81.6	68.0	51.0	45.3	40.8	32.6	27.2	23.3	
XR8004 XR11004 (50)	1.5	M	M	0.83	249	199	166	142	125	99.6	83.0	62.3	55.3	49.8	39.8	33.2	28.5	
	2.0	M	F	0.96	288	230	192	165	144	115	96.0	72.0	64.0	57.6	46.1	38.4	32.9	
	2.5	M	F	1.08	324	259	216	185	162	130	108	81.0	72.0	64.8	51.8	43.2	37.0	
	3.0	M	F	1.18	354	283	236	202	177	142	118	88.5	78.7	70.8	56.6	47.2	40.5	
	4.0	M	F	1.36	408	326	272	233	204	163	136	102	90.7	81.6	65.3	54.4	46.6	
XR8005 XR11005 (50)	1.0	C	M	0.91	273	218	182	156	137	109	91.0	68.3	60.7	54.6	43.7	36.4	31.2	
	1.5	M	M	1.12	336	269	224	192	168	134	112	84.0	74.7	67.2	53.8	44.8	38.4	
	2.0	M	M	1.29	387	310	258	221	194	155	129	96.8	86.0	77.4	61.9	51.6	44.2	
	2.5	M	M	1.44	432	346	288	247	216	173	144	108	96.0	86.4	69.1	57.6	49.4	
	3.0	M	M	1.58	474	379	316	271	237	190	158	119	105	94.8	75.8	63.2	54.2	
XR8006 XR11006 (50)	4.0	M	F	1.82	546	437	364	312	273	218	182	137	121	109	87.4	72.8	62.4	
	1.0	C	C	1.14	342	274	228	195	171	137	114	85.5	76.0	68.4	54.7	45.6	39.1	
	1.5	C	M	1.39	417	334	278	238	209	167	139	104	92.7	83.4	66.7	55.6	47.7	
	2.0	M	M	1.61	483	386	322	276	242	193	161	121	107	96.6	77.3	64.4	55.2	
	2.5	M	M	1.80	540	432	360	309	270	216	180	135	120	108	86.4	72.0	61.7	
XR8007 XR11007 (50)	3.0	M	M	1.97	591	473	394	338	296	236	197	148	131	118	94.6	78.8	67.5	
	4.0	M	M	2.27	681	545	454	389	341	272	227	170	151	136	109	90.8	77.8	
	1.0	C	C	1.37	411	329	274	235	206	164	137	103	91.3	82.2	65.8	54.8	47.0	
	1.5	C	C	1.68	504	403	336	288	252	202	168	126	112	101	80.6	67.2	57.6	
	2.0	C	M	1.94	582	466	388	333	291	233	194	146	129	116	93.1	77.6	66.5	
XR8008 XR11008 (50)	2.5	C	M	2.16	648	518	432	370	324	259	216	162	144	130	104	86.4	74.1	
	3.0	C	M	2.37	711	569	474	406	356	284	237	178	158	142	114	94.8	81.3	
	4.0	C	M	2.74	822	658	548	470	411	329	274	206	183	164	132	110	93.9	
	1.0	VC	C	1.82	546	437	364	312	273	218	182	137	121	109	87.4	72.8	62.4	
	1.5	VC	C	2.23	669	535	446	382	335	268	223	167	149	134	107	89.2	76.5	
XR8010 [†] XR11010 [†]	2.0	C	C	2.58	774	619	516	442	387	310	258	194	172	155	124	103	88.5	
	2.5	C	C	2.88	864	691	576	494	432	346	288	216	192	173	138	115	98.7	
	3.0	C	M	3.16	948	758	632	542	474	379	316	237	211	190	152	126	108	
	4.0	C	M	3.65	1095	876	730	626	548	438	365	274	243	219	175	146	125	
	1.0	VC	C	2.28	684	547	456	391	342	274	228	171	152	137	109	91.2	78.2	
XR8015 [†] XR11015 [†]	1.5	VC	C	2.79	837	670	558	478	419	335	279	209	186	167	134	112	95.7	
	2.0	C	C	3.23	969	775	646	554	485	388	323	242	215	194	155	129	111	
	2.5	C	C	3.61	1083	866	722	619	542	433	361	271	241	217	173	144	124	
	3.0	C	C	3.95	1185	948	790	677	593	474	395	296	263	237	190	158	135	
	4.0	M	C	4.56	1368	1094	912	782	684	547	456	342	304	274	219	182	156	
XR8015 [†] XR11015 [†]	1.0	XC	C	3.42	1026	821	684	586	513	410	342	257	228	205	164	137	117	
	1.5	XC	C	4.19	1257	1006	838	718	629	503	419	314	279	251	201	168	144	
	2.0	VC	C	4.83	1449	1159	966	828	725	580	483	362	322	290	232	193	166	
	2.5	VC	C	5.40	1620	1296	1080	926	810	648	540	405	360	324	259	216	185	
	3.0	C	C	5.92	1776	1421	1184	1015	888	710	592	444	395	355	284	237	203	
XR8015 [†] XR11015 [†]	4.0	C	C	6.84	2052	1642	1368	1173	1026	821	684	513	456	410	328	274	235	

Note: Always double check your application rates. Tabulations are based on spraying water at 70°F (21°C).