



**ANNOVI
REVERBERI**®
The Power of Experience

**AR 303
AR 403**

140° F - Max Water Temp

1" - Suction

1/2" Hose Barb- Outlet



INSTRUCTION MANUAL

AR303 • AR403 - 550 RPM - SEMI-HYDRAULIC THREE DIAPHRAGM PUMP

MODEL	MAX GPM	MAX L/MIN	MAX PSI	MAX BAR	HP POWER	WEIGHT LBS.
AR303-SP	9.2	34.7	580	40	3.1	19.8
AR303-GR3/4-GCI	9.2	34.7	580	40	3.1	32
AR403-SP	10.7	40.7	580	40	3.7	19.8
AR403-GR3/4-GCI	10.7	40.7	580	40	3.7	32

GCI - Pump with a mounted control unit.



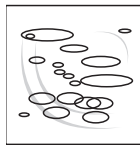
DIAPHRAGM KITS

MODEL	DESCRIPTION
AR43289	BlueFlex
AR43287	Desmopan
AR43286	NBR



VALVE KITS

MODEL	DESCRIPTION
AR2388	Valves



O-RING KITS

MODEL	DESCRIPTION
AR2389	O-Rings



OIL

MODEL	DESCRIPTION
AR64532D	Oil
AR64532D-C	Case (6)Oil

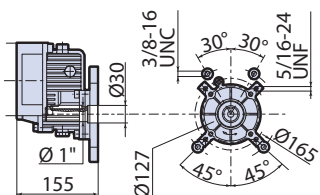


Drive Options

Gearbox Kit AR1639: 1" 8-18 HP Gas Engines



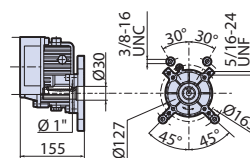
Gearbox for four stroke engines with SAE J609a flange



Gearbox Kit AR1636: 3/4" for 5-6HP Gas Engine



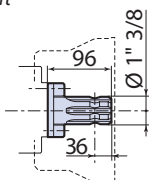
Gearbox for four stroke engines with SAE J609a flange



Shaft Kit AR43393: 1 3/8" 6 Splined Shaft



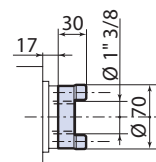
1 3/8" universal shaft



Shaft Kit AR43394: 1 3/8" 6 Spline Female



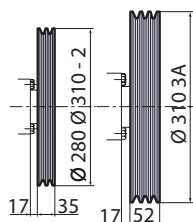
1 3/8" female



Pulley Kits



Pulley



Kit Appl. P AR1504 11" 2A

Kit Appl. P AR1495 12.2" 2A

Kit Appl. P AR1520 12.2" 3A

Hydraulic Motor Flange Kit



AR43396 has open sides
AR43397 has closed sides

For models AR30, AR50, AR303, AR403, AR503 (SP Models Only)

Fits SAE 2-bolt A Flange Motors with 1" Shaft

Shaft Kit: 1" Male Solid Keyed Shaft



AR43387 - for model AR30
AR43388 - for model AR50
AR43390 - for model AR503, AR303, AR403

Kit includes a male PTO shaft adapter, mounting bracket and necessary hardware.

Shaft Kit 1 3/8" Female PTO Kit AR1704



For model AR30, AR50



Intended uses

The pump is designed and constructed for incorporation in plants and machinery (spraying machines for the protective treatment of agricultural crops and garden plants). **All other uses constitute misuse unless approved by the manufacturer's technical service**

The pump must be used in a manner appropriate to its technical data (see "Technical Data"), and must not be modified or improperly used.

Misuses

Do not put the pump into service until the plant or machinery in which it is incorporated has been declared compliant with the relevant national and local legal requirements.

Do not use the pump in a potentially explosive atmosphere.

Do not use the pump for **flammable**, toxic or corrosive liquids or liquids with unsuitable density, especially **seawater, adhesives, bitumens, asphalt sealers, two-step curing compounds, concrete sealers, liquefied gases or solvents** of any kind, paints of any kind or liquids containing solids in suspension, and in all cases **do not** use with any liquid unless certain that it is compatible with the materials used in the pump circuit.

Do not draw in liquids at temperatures above 50°C or below 5°C.

Do not use the pump in drinking water supply systems.

Do not use the pump on products for human consumption.

Do not use the pump on pharmaceutical products.

Do not use the pump without first checking that the intake and delivery circuit pipelines are correctly secured and free from leaks.

Do not use the pump without the safety devices provided: guards for shafts and drive couplings and suitably rated relief valve on the delivery circuit.

Do not use the pump to wash or spray: people, animals or delicate items, live electrical equipment or chemicals whose characteristics are not known.

Safety devices



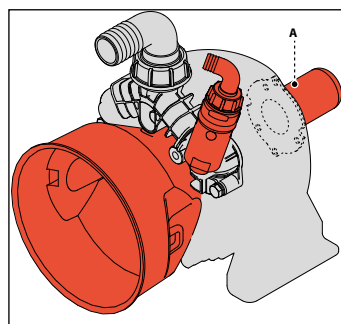
Danger - Warning

Never tamper with or by-pass the safety devices. Maintain all safety devices regularly to ensure they all work efficiently.

The drawing shows the position of the safety devices mounted on the machine.

Additional safety devices must be added as necessary during the design phase (see "Installation information").

A) Fixed guard: provides protection against accidental contacts with the drive shaft when in operation.



Residual risks

Even if the safety regulations and information provided in the manual are complied with, the residual risks described in the declaration of incorporation still apply when the pump is in operation.



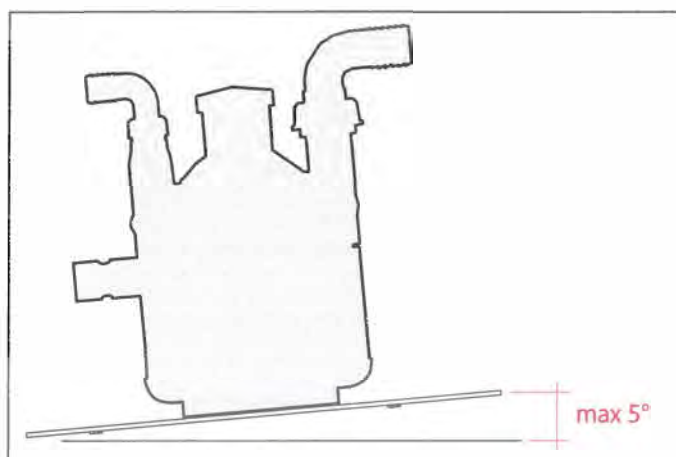
Installation

- The crankshaft may turn in either direction.
- The water connection with the pump must be made using hoses of suitable diameter, in all case no less than that of the pump fittings, securing them to the fittings using good quality clamps. The intake hose must be coil-reinforced to prevent restrictions.
- The pump inlet must be fitted with a filter having suitable capacity for the pump delivery rate and must be designed to generate a vacuum of no more than - 7 Hg. This value can be measured by connecting a vacuum gauge to the pump intake fitting.
- The rated pressure of the outlet hose, fittings and clamps must be no less than the maximum rated pressure of the pump. Replacing the intake and outlet fittings provided on the pump by the manufacturer with smaller diameter alternatives may reduce the pump's performance and void the warranty.

Mounting the pump

The pump must be installed on a horizontal surface with no flexible components between it and the mounting surface.

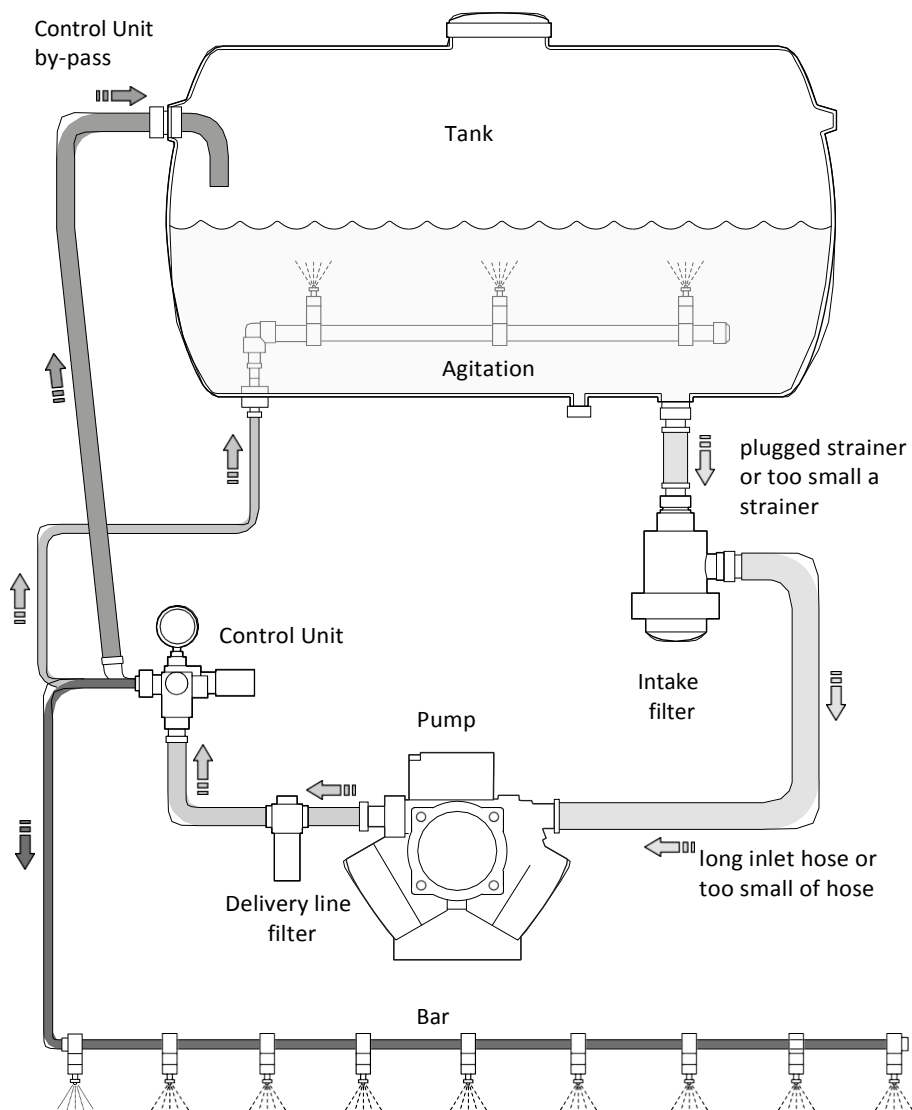
The illustration shows the maximum permitted pump installation angle beyond which proper lubrication of the crank mechanism is not ensured.



Fix the pump by bolting the pump base onto the machine with suitable bolts, tightening appropriately.

Installation diagram (guideline)

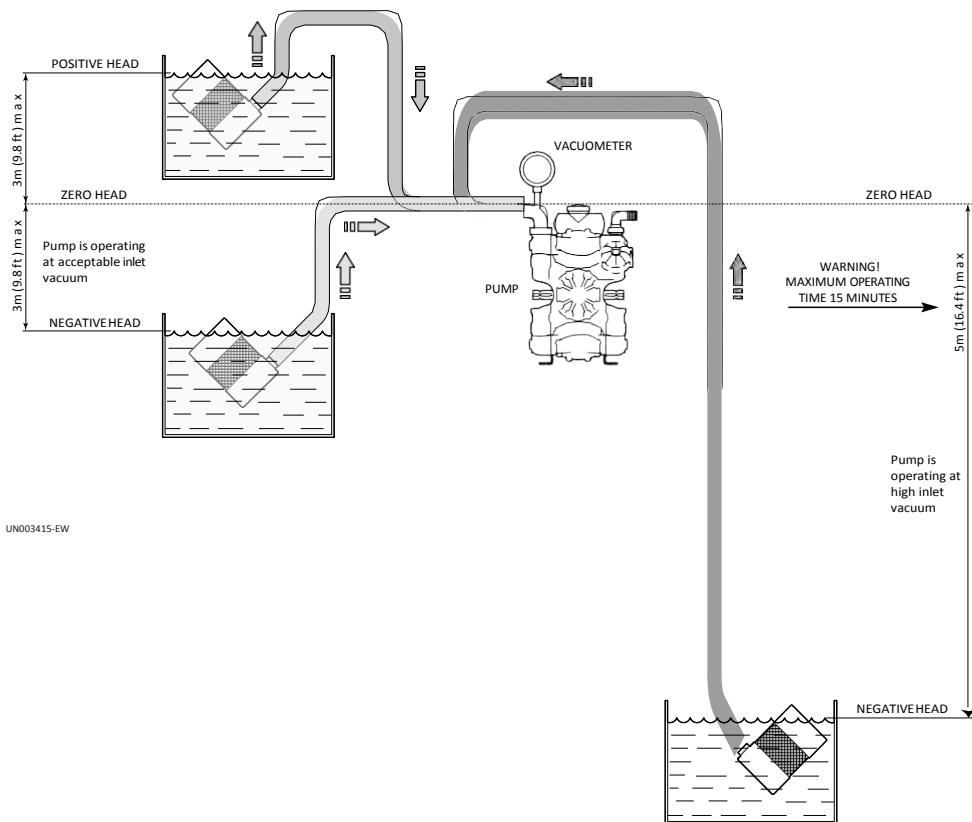
The following is a simplified illustration of the typical installation layout and is purely guideline.



General guidelines on water supply connection

To operate correctly, the diaphragm pump must draw in liquids from containers at atmospheric pressure. **Do not supply the pump with pressurised liquids.**

For continuous duty, the pump should not draw in water by gravity from containers with liquid level at heights above 3m.



For continuous duty, the pump should not draw in liquids by vacuum from containers with the liquid level more than 3m below the pump intake fitting and the circuit must consist of hoses of length and diameter appropriate to the pump intake fitting (see "Technical Data"), free from restrictions and elbows, and with a filter of suitable capacity (see "Installation").

For occasional duty, such as filling water supply tanks, the pump can be operated at a vacuum drawing in liquids from reservoirs having the surface of the liquid up to 5m below the pump intake fitting, for periods of no more than 15minutes.

Drawing in liquids from lower levels or for longer times causes cavitation in the pump circuit and reduces the lifetime of the diaphragms, valves and mechanical parts.



Safety recommendations for handling and lifting

Before starting the operations, organise the intended working area so that the materials can be lifted and handled in safety.

Unloading, loading, handling and lifting operations must be carried out by skilled, authorised, specifically trained staff.

During lifting and handling operations, the people not involved in the operations must remain at a safe distance.

For lifting, use hooks and ropes which are free from damage and appropriate for the load to be lifted.

Packaging description and unpacking

The packaging normally consists of a cardboard box for easy, safe transport.

Depending on the quantity of goods to be shipped and the place of destination, packages may be fixed on a pallet for easier lifting and handling.

Check the weight of the item on the transport documents to allow the use of suitable lifting equipment.

When unpacking, check that all components are present and intact. If items are missing or damaged, contact the dealer or manufacturer to agree the procedures to be followed.

The packaging material must be disposed of appropriately in accordance with the relevant statutory requirements.

Transport

The pump may be shipped by a variety of means of transport (road, rail, sea or air) depending on its destination. Secure the packaging firmly to the vehicle during transport, to prevent random movement.

Storage

In the event of a lengthy period out of use, place the pump (in its packaging if possible, or otherwise protected) under cover, protected from the weather.

Do not store in places where the ambient conditions might impair the pump's operating condition over time.

Safety recommendations for installation

Take all possible precautions to allow the pump to be installed in a safe, risk-free manner.

All installation phases must be taken into consideration when designing the machinery or plant in which the pump is to be installed.

The design must consider all mounting points, the means of transmission of the energy sources, and the protective and safety devices required by the relevant regulations to prevent the risk of injury.



Safety recommendations for use

Before start-up, the operator must perform the necessary safety checks.

In the event of leaks from the pressurized pipes, stop the pump at once and fix the leak.

Do not operate the pump above the limits set by the manufacturer to increase its performance.

Preliminary checks

If the pump has a pressure accumulator, check its level of inflation, see "Checking the inflation pressure".

Check the fittings of the hoses and the pump's intake and delivery circuits to prevent restrictions, the intake of air and leaks of liquid.

Check the pump tank oil level as described in the "Checking the oil level" section.

Before putting the pump into operation, check that the control unit is set for low pressure with the adjustment lever released.

Starting and stopping the pump

To start the pump, proceed as described below.

1. When starting the pump, keep the control unit lever in the full bypass position until the pump has primed.
2. After starting the pump, and after the pump is primed, move the control unit lever into the pressure regulation position desired.
3. During the first few hours of operation, check that the oil level in the tank remains between the minimum and maximum limits. If top-ups are required, use A/R diaphragm pump oil, AR64532D.

To stop the pump, proceed as described below.

1. Reduce the pressure by rotating the control unit lever.
2. Stop the pump.





MAINTENANCE INSTRUCTIONS

Safety recommendations for maintenance



Caution - Take Care

Before doing any maintenance work, depressurise the water system and isolate the pump from all energy sources.

When the jobs are done, before restarting the pump, check that no tools, rags or other materials have been left close to moving parts or in hazardous zones.

Replace any excessively worn components with original parts and use the lubricants recommended by the manufacturer.

Scheduled maintenance table			
Frequency	Component	Procedure	Reference
Every working day	Filter	Inspect filter cartridge	See "Inspecting the filter"
	Pump	Checking the oil level	See "Checking the oil level"
	Connection of pump to power source (pulley, belt, coupling)	Inspection	-
	Pump	Inspect mounting	See "Inspecting the pump mounting"
	Pipes and connections	Inspection	See "Inspecting the connections and pipes"
Every 100 working hours	Pressure accumulator (if installed)	Check inflation pressure	See "Checking the inflation pressure"
	Reduction gear (if installed)	Check oil	See "Checking the oil level"

Dispose of the worn-out components and lubricants in accordance with the relevant statutory requirements.

Carry out the routine maintenance procedures specified by the manufacturer to keep the pump safe and performing well.



Table of lubricants

The pump is delivered complete with high-performance 30 weight, non-detergent oil suitable for the intended ambient conditions (see "Environmental operating limits").

Inspecting the pump mounting

Check that the pump's fixing screws have not become loose.

If necessary, tighten them with the driving torque stated in the installation design.

Inspecting the connections and pipes

- Inspect the connections for leaks.

Leaks can normally be dealt with by tightening the connections properly.

If leaks from the intake pipeline connections are noticed, the seals must be repaired.

- Inspect the hoses.

If the pipes show signs of aging, breakage, swelling, rubbing, etc., they must be replaced.

Inspecting the Filter

- Inspect the filter cartridge.

If the cartridge is fouled, wash it thoroughly to remove the dirt.

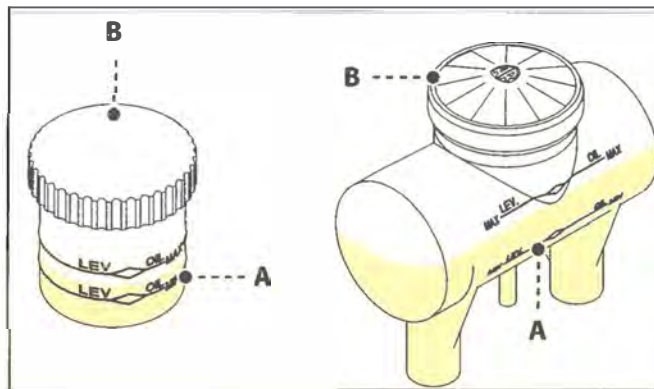
If the cartridge is torn or cracked, it must be replaced.

Checking the oil level

- Check the oil with the pump level, ensuring that it has been running for at least 5 minutes in normal working conditions.
- If the oil level is not between the MIN and MAX marks on the tank, add or remove oil to restore this level and check, still with the pump running, that the oil level does not vary so much that it leaks from or is no longer visible in the tank.
- If necessary, top up with oil with A/R Premium Diaphragm Pump oil.
- Check the oil level regularly, as it may vary significantly with the operating conditions.

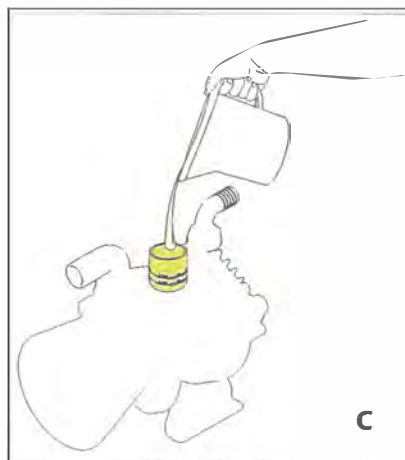
To top up with oil proceed as described below.

- 1) Unscrew the cap (B) and pour in oil (C).
- 2) Screw the cap (B) back into place.



A/R Pump Oil
P/N AR64532D
Specifically Formulated for
A/R Diaphragm Pumps

- Advanced Lubrication Technology
- BlueFlex® Diaphragm Compatible
- SAE 30 Non-Detergent Oil





Pump Storage

It is important to comply with the recommendations for storage in the operator's manual of the machine into which the pump is incorporated.

For the pump itself, at the end of pumping operations it is essential to flush out the internal circuit by pumping clean water. After this, open the intake circuit to the air and leave the pump in operation until the internal circuit is completely empty. Following this simple procedure at the end of every operating session will prevent the retention inside the pump of products which are often corrosive and may damage its liquid circuit over the long-term.

If the pump is in storage during the winter in locations with severe weather conditions, it is very important to flush out the internal circuit as described above and then fill the pump with A/R Pump Saver, AR64511. Then take care to drain the liquid from the system and the pump.

Putting the pump back into service

Before putting the pump back into service after storage, check the oil level and the tightness of the mounting screws.

Scrapping the pump

Used units must be disposed of in compliance with local legislation.



A/R Pump Saver
P/N 64511
Protects Pumps from Freezing Conditions



TROUBLESHOOTING



The information provided is intended to provide guidance how to deal with malfunctions which may occur during use.

Some of these procedures may be carried out by skilled staff, while others have to be performed at specialised service centres since they require the use of specific equipment as well as detailed knowledge of repair operations.

Problem	Cause	Remedy
The pump does not prime properly.	Intake circuit not airtight.	Tighten, repair or replace hoses and fittings as necessary.
	Control unit switching lever on "Pressure" setting.	Move control switching lever to "By-pass" setting.
The pump does not require the required pressure.	Seat and plate of intake and delivery valves worn.	Replace the worn valves.(1)
	Nozzles worn or too large in diameter.	Replace the worn nozzles. Use nozzles of suitable diameter.
	Restriction in intake circuit.	Remove the restriction from the circuit.
	Intake filter fouled.	Clean the filter cartridge.
Pressure gauge needle wobbles, pressure pulsating.	Intake circuit not airtight.	Clean or replace the intake and delivery valves. (1)
	Residual air left inside pump.	Discharge the air by opening a ball valve/central unit connected to the delivery side with the pump in operation.
	Valve plate stuck to its seat.	Tighten, repair or replace hoses and fittings as necessary.
	Pressure accumulator deflated	Inflate accumulator to the correct pressure.
Uneven flow of liquid to nozzles.	Pressure accumulator deflated	Inflate accumulator to the correct pressure.
Increase in noise and simultaneous drop in oil level (pump cavitation).	Restriction in intake circuit.	Remove the restriction from the circuit.
	Intake filter fouled.	Clean the filter cartridge.
	Pump drawing in liquid from too low a level.	See "Pump Intake Conditions" section.

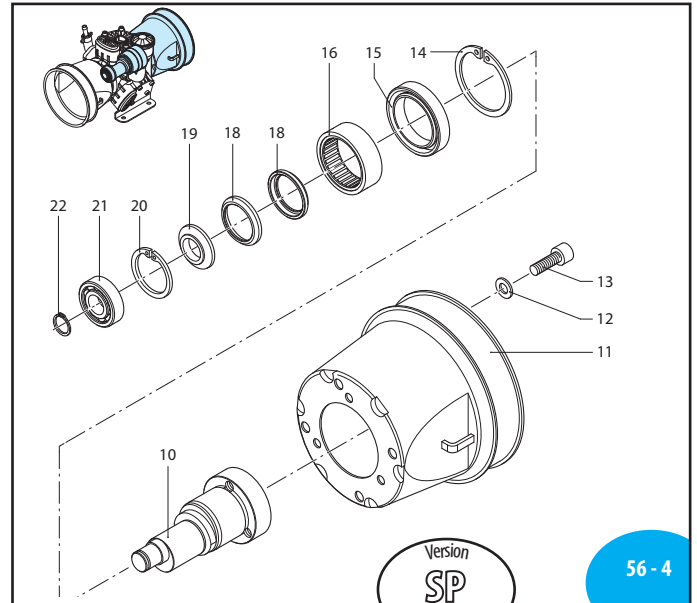
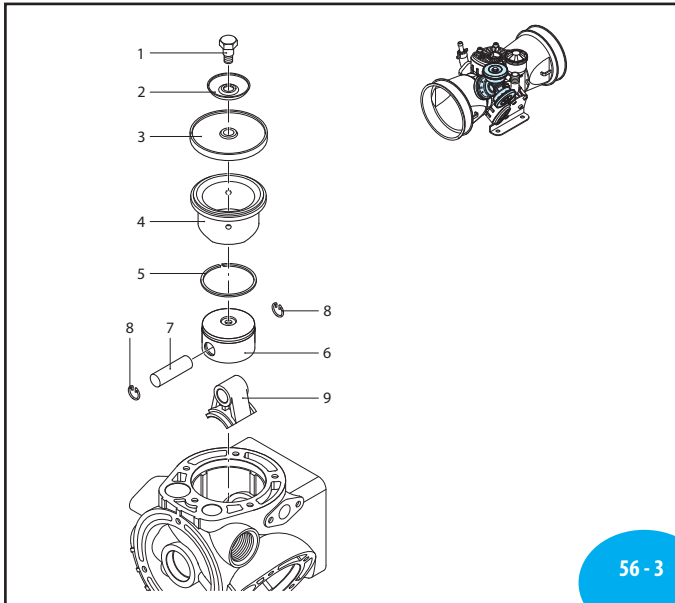
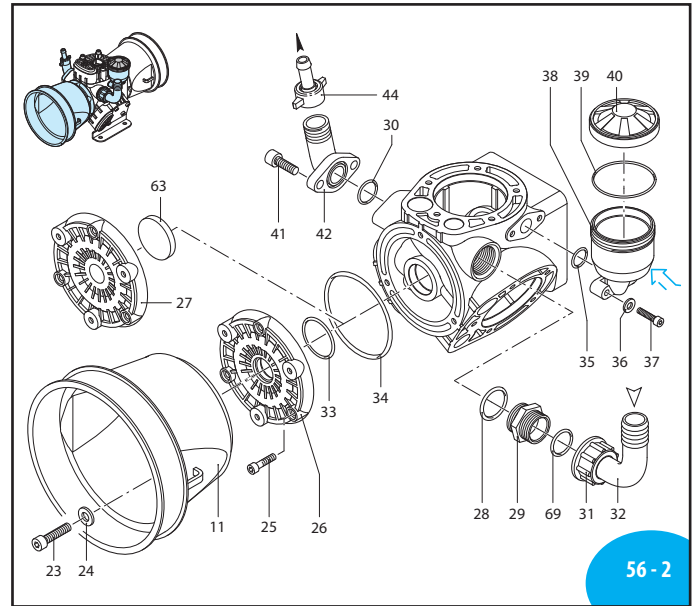
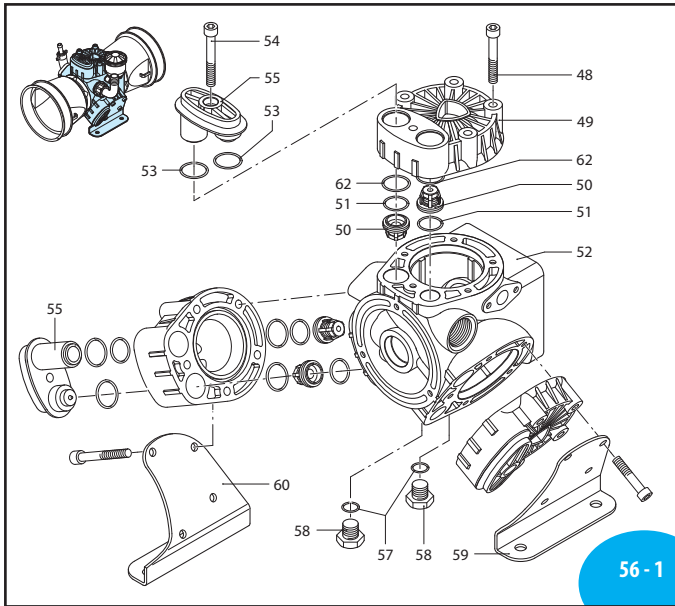


TROUBLESHOOTING

Problem	Cause	Remedy
Oil on pump body or base.	Oil seal on pump shaft worn.	Replace the worn oil seal.
	Oil pressure inside pump too high.	Restore correct oil level in tank.
Pump using too much oil (oil flowing from delivery port) or oil whitish in color (water/oil emulsion in tank).	One or more diaphragms ruptured.	Stop the pump at once. Replace the diaphragms (1)

A.R. NORTH AMERICA

AR 303 - AR 403



AR 303 - AR 403

	SP	GR3/4-GC1
AR303	31740	31742
AR403	31743	31745

Pos	Code	Description	Qty	Note
1	800090	Hub pin	3	T180*
	800091	Hub pin	3	Viton T180*
2	800350	Retaining washer	3	
3	800080	Diaphragm	3	NBR
	800081	Diaphragm	3	Viton
	800085	Diaphragm	3	Desmopan
	800086	Diaphragm	3	HPDS
	800082	Diaphragm	3	BlueFlex™
4	1880440	Sleeve	3	AR 403 Viton
	1880441	Sleeve	3	AR 303 Viton
	1880050	Sleeve	3	AR 403
	1880051	Sleeve	3	AR 303
5	1880110	Piston ring	3	
6	1880060	Piston Ø 50	3	
7	1880120	Pin	3	
8	380080	Ring circlip Øi 14	6	
9	1880070	Connecting-rod	3	
10	1880101	Shaft marked 2	1	AR 303
	1880100	Shaft marked 1	1	AR 403
11	1500350	Shield	1	
12	900270	Washer	4	
13	820670	Bolt TCEI M10x16	4	T90*
14	620330	Ring circlip Øi 65	1	
15	620130	Ring seal	1	
16	550060	Bushing	1	
17	1880190	Ring seal	1	
18	1880180	Ring connecting rod	2	
19	1880170	Spacer	1	
20	111120	Ring circlip Øi 47	1	
21	1461430	Bearing	1	
22	620291	Ring circlip Øe 20	1	
23	850250	Bolt TCEI M8x12	3	T90*
24	380241	Washer	3	
25	780060	Bolt TCEI M6x25	3	T90*
26	1880021	Manifold suction	1	
27	1880020	Manifold suction	1	
28	390290	O-ring Ø 29x3	1	
29	550340	Fitting 1" G M-M	1	
30	550350	O-ring Ø 23.81x2.62	1	☒
31	550242	Ring nut 1" G	1	

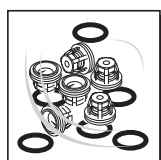
Pos	Code	Description	Qty	Note
32	550370	Elbow 1"	1	
33	390201	O-ring	1	for C/SP
34	1880130	O-ring Ø 88.57x2.62	1	
35	390180	O-ring Ø 18.72x2.62	1	
36	550331	Washer	2	
37	1200440	Bolt TCEI M6x35	2	T90*
38	1040310	Oil sight glass	1	
39	650920	O-ring Ø 53.65x2.62	1	
40	1040326	Plug black	1	AR 303
	1040324	Plug red	1	AR 403
41	540290	Bolt TCEI M8x25	2	T180*
42	450145	Flange	1	Optional
42	450148	Flanged Adapter straight	1	Not shown
43	1880160	Shaft marked 4	1	AR 403
44	110130	Ring nut 1/2"	1	
45	621370	Coupling	1	
46	961340	Washer	1	
47	680350	Bolt TCEI M8x35	1	T180*
48	800860	Bolt TCEI M8x55	12	T180*
49	1880030	Head	3	
50	1889051	Complete valve	6	
51	1140450	O-ring Ø 20.24x2.62	6	
52	1880010	Pump body	1	
53	1880480	O-ring Ø 25x2	6	
54	280080	Bolt TCEI M8x60	3	T180*
55	1880040	Cover	3	
57	740290	O-ring Ø 14x1.78	2	
58	880530	Plug 3/8" G	2	T180*
59	1880080	Base	1	
60	1880090	Base	1	
61	620680	Key	1	
62	780050	O-ring Ø 28.25x1.78	6	
63	1880380	Oil seal	1	For SP version

* Torque: in-lbs +/- 10%

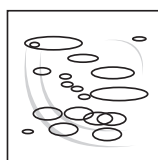
Medium pressure



AR 43289 BlueFlex™ diaphragms	
AR 43286 NBR diaphragms	
AR 43287 Desmopan diaphragms	
Pos.	Qty
3	3
51	6
62	6



AR 2388 Valves	
Pos.	Qty
50	6
51	6

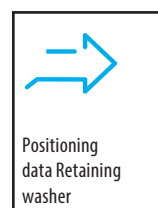


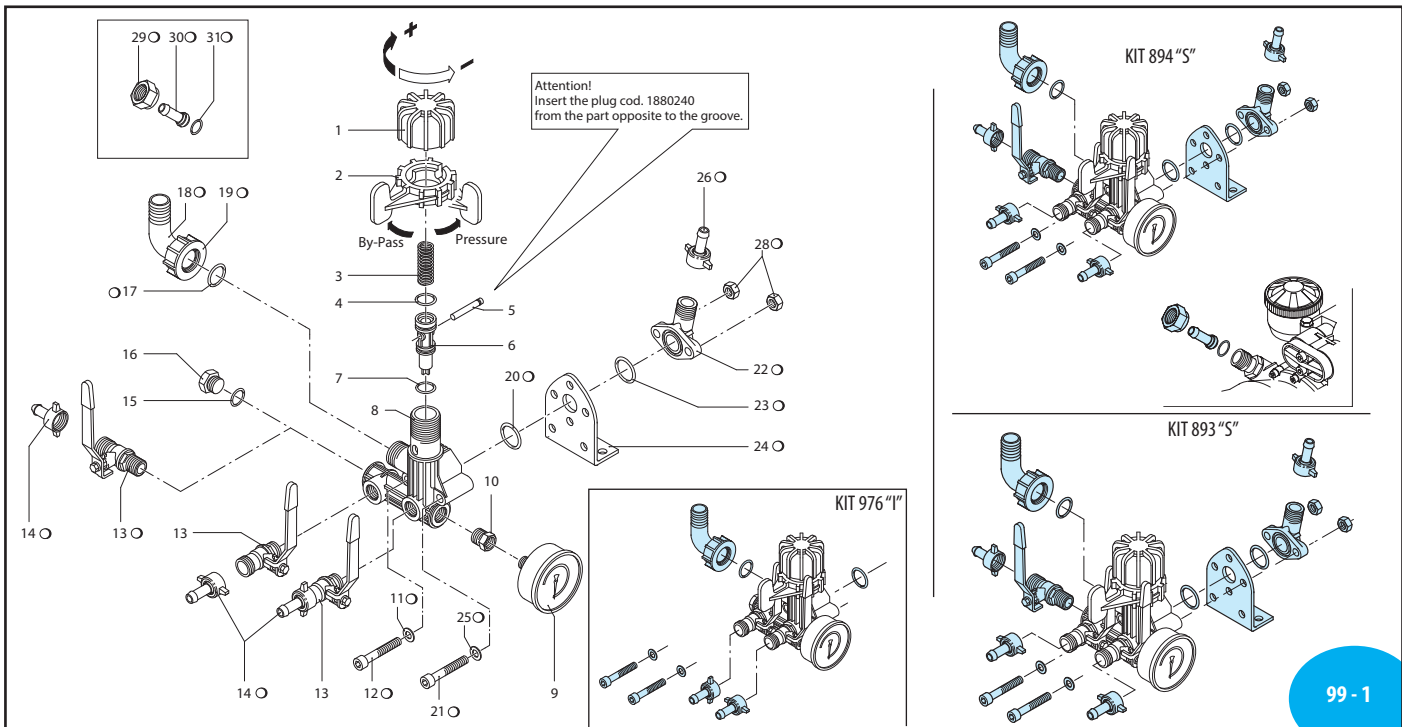
AR 2389 O-Rings	
Pos.	Qty
28	1
30	2
33	1
34	1
35	1
39	1
51	9
53	6
57	2
62	6



Suggested oil	
Type	Oz
AR64532D	32

Crankcase Oil
Capacity 15 oz





Pos	Code	Description	Qty	Note
1	1880220	Knob	1	
2	1880210	Ring nut	1	
3	1880271	Spring	1	
4	480441	O-ring Ø 17.13x2.62	1	Viton
5	1880240	Pin	1	
6	1889201	Valve spool	1	
7	1880260	O-ring Ø 15.08x2.62	1	
8	1880200	Valve body	1	
9	1880290	Pressure gauge Ø63	1	0-1150 PSI T90*
10	1880250	Fitting	1	T90*
11	390311	Washer	2	
12	680360	Bolt TCEI M8x50	2	
13	1880491	Ball valve 3/8" G - 1/2" G M-M DX	3	T90*
14	110131	Ring nut / HB 1/2" x 3/8"	3	
14	110130	Ring nut / HB 1/2" x 1/2"	3	Optional
15	740290	O-ring Ø 14x1.78	2	
16	2841240	Plug 3/8" G plastic	1	T90*
17	880830	O-ring Ø 15.54x2.62	1	
18	550460	Elbow Ø 18	1	
19	550450	Ring nut 3/4" G	1	
20	1140450	O-ring Ø 20.24x2.62	1	
21	1880310	Bolt TCEI M8x65	2	
22	450145	Flange	1	
23	550350	O-ring Ø 23.81x2.62	1	
24	320406	Bracket	1	
25	390311	Washer	2	
26	110130	Ring nut 1/2"	1	
28	390270	Nut M8	2	
29	1040790	Ring nut 3/4" G	1	
30	1150580	Hose barb Ø 13	1	
31	880830	O-ring Ø 15.54x2.62	1	
○ Not part of GR 40				
* Torque: in-lbs +/- 10%				

Build-in control unit and remote control							
AR 976 "I" Build in control				AR 893 "S" Remote control			
Pos.	Qty	Pos.	Qty	Pos.	Qty	Pos.	Qty
11	2			13	1	26	1
12	2			14	3	28	2
14	2			17	1		
17	1			18	1		
18	1			19	1		
19	1			20	1		
20	1			21	2		
				22	1		
				23	1		
				24	1		
				25	2		
For AR 303 - AR 403				For AR 303 - AR 403			
AR 894 "S" Remote control				AR 2488 Repair Kit			
Pos.	Qty	Pos.	Qty	Pos.	Qty	Pos.	Qty
13	1	25	2	3	1		
14	3	26	1	4	1		
17	1	28	2	5	1		
18	1	29	1	6	1		
19	1	30	1	7	1		
20	1	31	1				
21	2						
22	1						
23	1						
24	1						
For AR 503				For AR 503			

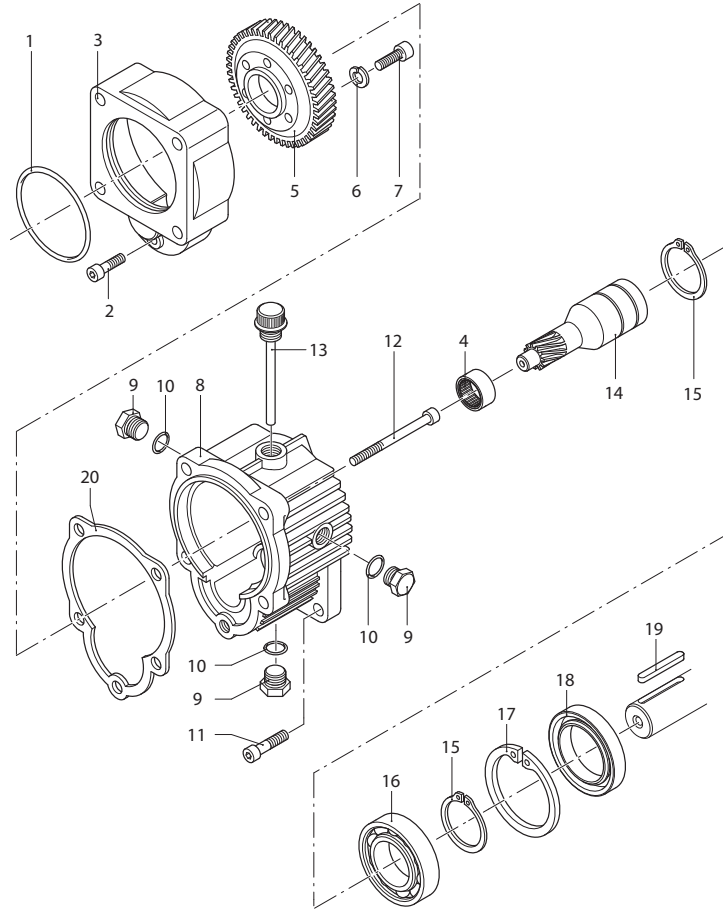
A.R. NORTH AMERICA

AR 1636 : Gear Reduction

Per - For: AR 30 - AR 303 - AR 403

Use of engine :
B&S Vanguard 6.5
Kohler SH265 - CH270
Honda GX120 - GX160 - GP160 - GP200
Subaru EX17 - EX21

Ø 3/4" Straight Keyed Shaft



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Gear boxes

Pos	Cod.	Description	Q.ty	Note
1	620561	O-ring	Ø 78x2,5	1
2	180030	Bolt	TCEI M8x20	1 T220*
3	621000	Adapter Flange		1
4	620990	Bearing		1
5	651620	Gear	Z=64	1
6	200231	Washer		3
7	620470	Bolt	TCEI M10x20	3 T150*
8	620960	Body		1
9	1980740	Plug	3/8" G brass	3 T180*
10	740290	O-ring	Ø 14x1,78	3
11	651000	Bolt	5/16"x24UNFx1"	4 Geomet T220*
12	621010	Bolt	TCEI M10x75	4 T220*
13	1140370	Plug		1
14	621660	Pinion	Z=11	1
15	320240	Ring	circlip Øe 40	2
16	961780	Bearing		1
17	961790	Ring	circlip Øi 68	1
18	961800	Oil seal		1
19	881090	Key		1
20	620950	Gasket		1

Suggested Oil

For gas engine with 3/4" shaft, flange SAE J609a

Type

90 W Gear Lube

*Torque: in-lbs +/- 10%

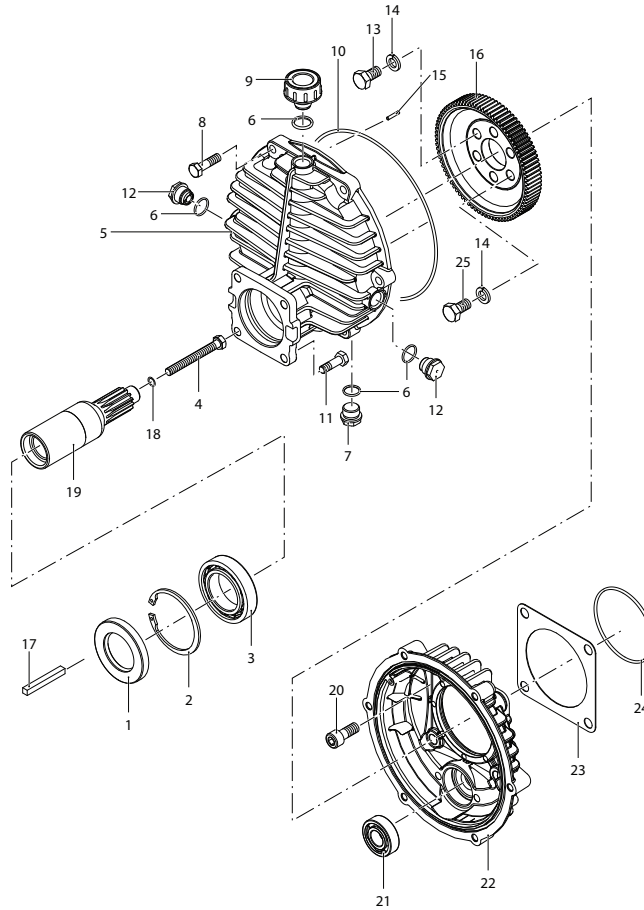
A.R. NORTH AMERICA

AR 1666 : Gear Reduction

Per - For: AR 30 - AR 303 - AR 403


Use of engine :
 B&S Vanguard 6.5
 Kohler SH 265
 Kohler SH 270
 Honda GX 120
 Honda GX 160
 Honda GP 160
 Honda GP 200
 Axi AMG 120
 Axi AMG 121
 Axi AMG 200
 Axi AMG 201
 Axi AMG 20
 Robin Ex 17
 Rato EHR 160
 Rato EHR 210

Ø 3/4" Straight Keyed Shaft



116 - 1

Pos	Cod.	Description	Q.ty	Note
1	540331	Seal	1	
2	200390	Snap ring	1	
3	621130	Bearing	1	
4	2960050	Bolt	1	T177*
5	2960020	Body	1	
6	740290	O-ring	4	
7	1980740	Plug	1	
8	390450	Bolt	6	T177*
9	2960070	Plug	1	
10	2960060	O-ring	1	
11	1382050	Bolt	4	T221*
12	1980290	Sight glass	2	
13	620340	Bolt	3	T217*
14	200231	Washer	6	
15	2960080	Pin	1	
16	2960030	Gear	1	
17	881090	Key	1	
18	600180	O-ring	1	
19	2960040	Pinion	1	
20	160671	Bolt	4	T221*
21	1220260	Bearing	1	
22	2960010	Cover	1	
23	650270	Gasket	1	
24	620561	O-ring	1	
25	160670	Bolt	3	T217*



Suggested Oil

For gas engine with 3/4" shaft, flange SAE J609a

Type

90 W Gear Lube

*Torque: in/lbs +/- 10%