DRAMM

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n 89 Manual

Mo I9 LVH SLVH

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Mo l9 LVH SLVH

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) his is a imited , arranty as defined in the consumer product warranty and ederal) rade ommission mprovement ct.) his warranty gives you specific legal rights which may vary from state to state.

ramm orporation and rimitsu ndustry ompany ncorporated warrants each utofog namely (and to be free from defects in materials and wor manship to the original purchaser for a period of months. &arts sub:ect to wear are not covered under this limited warranty. o le %% & ring no le tip compressor air filter chemical line and pressure gauge are not covered under warranty . efects or damages due to the misuse non observance of safety standards or non observance of & chemical guidelines are not covered under this limited warranty. &lease read and follow the instructions and heed warnings stated in the operating manual and on the *) % % sprayer model or (.

ramm orporation ma es no other further warranty e pressed or implied and all other or further warranties including any warranties of merchantability or fitness for a particular purpose are e pressly e cluded.

* nder no circumstances will ramm orporation or rimitsu ndustry ompany ncorporated be liable for loss of product profit or any other special incidental or conseAuential damages including but not limited to plant damage property or persons. ramm orporation or rimitsu ndustry ompany ncorporated ma es no warranty e pressed or implied in regard to the efficacy of any pesticide or other chemical which may be applied using the ramm utofog.

t is understood that the limit of seller liability for breach of any warranty shall be at ma mum the invoice price of goods.

) his warranty begins on the date of original purchase.) his warranty is void if there is no proof of purchase or warranty registration on file. ail the warranty registration card to the ramm orporation and ep the bill of sale or invoice. f warranty service is reAuired please include a written description of the eAuipment malfunction a return address and telephone number.) he utofog model (or must be thoroughly cleaned of all chemical residue and sent prepaid to

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anitowoc ,

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Mo l9 LVH SLVH

□* se only volt electrical outlet for the (□+ and volt outlet for the □+

□* se only pronged grounded eH-tension cords receptacle boH-es

□! eep all electrical connections away from liAuids

□ (□% □ □□ &) ( ) . & % * (, □* (□ □)) . .

□ e certain all hoses and connections are secure prior to using the utofog

□ o not drag the hoses over sharp ob:ects or bend eH-tessively

□ efore servicing the unit disconnect the utofog from the power source

□, □ &&□ □ / %* (□ □(□ □% must be adhered to. &article si e is very small

□ , % □ □) %□ □(*)) □% * □ □(% &) (□) □ □%(*) %)) eath or health problems from pesticides chemicals could occur

□) □ □+ &% , □□□%) +(□ t is your responsibility to ensure no one can enter the enclosure for the reAuired e ntry nterval as stated on the chemical label.

□&%() / (□(.

□ % □%) *( ) (□ □ □ □ □ □%(* , + &% (□ □) □.) . & % + □) .

□ nsure vapors can not reach buildings or homes in close proHmity to treated enclosure.

□□ %□□.) □%* □) % □ □ (%□*) %□, , □□ *(. □ + □ep store or hold over unused chemical solution.

□ % □) . □* () □ . + □) □ .

□ %□□%, □□ .&. * □□ (for e ntry

□, & %)) + □%) □ as mas□hood gloves and boots.

□ □(* □ □%(* greenhouse barn or building ((* □ □%(with no vents open.

□ (*)% %□□))% %) +%□) &) □. . our machine is labelled +olt single phase or volt single phase. ontact you electrician for an accurate voltage phase reading.

□) *( ) riple rinse pesticidechemical tan□ lean no le and suction line thoroughly.

□(tore unit in a safe location away from children and unauthori ed personnel.

□ .%* *( ) (□ □ % & () □ □ &&□) %□□ % □%) *( ) % □() % %%□□ .

□ %□□%, □□ .&. * □□ (

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) he ramm utofog applies chemicals using the ultra low volume * □+ principle.) he utofog will apply the same amount of active chemical as hydraulic spraying in a given area but using reduced amounts of water. ecause □ow +olume application is very efficient many growers have found that lower volumes of chemical can also be used with the same results.

) ypically hydraulic wet sprays average gallons of water used per sAuare feet.) he utofog will reAuire a minimum of two litres of water and the chemical to fog sAuare feet. specially designed solution tan□ and agitator prevents chemicals from settling out.

) he ramm utofog uses a patented specially designed no le to create spray droplets with an average of R microns in diameter +□ +olume mean diameter with a particle spectrum of sub micronic to R +□ . ir enters the no le from the oilless compressor and then eHts the no le at supersonic speeds.) his movement of air creates a low pressure that draws solution from the chemical tan□ s the solution eHts the no le it is atomi ed into billions of tiny particles.) he atomi ed chemical particles stay suspended for up to hours and are distributed by the utofog s fan hori ontal air fans s and natural air currents.

□ote ramm offers an instructional video on our website. &lease watch this before using your machine.

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efore programming the ramm utostart utofog□ control panel prepare the utofog□ for the actual fogging process.

&lace the compressor control carriage and the fogger head in the proper location for the application.

etermine the total solution volume for the application. ctual running time fogging time will be determined by the amount of solution.

onnect the utofog□ to the power source notice the power lamp that is illuminated on the control panel .

) he utostart utofog□ timers are conventional hour electro mechanical timers.) he face of the times show both hours %uter loc□ ial and minutes nner loc□ ial so that start and running times can be synchroni ed eHactly.) he time on the left side of the control panel as you face it operates the fan agitator.) he time on the right side of the control panel operates the compressor.

, hen programming the times it is important to start the fan agitator at least minutes early to agitate the chemical solution especially when fogging wettable powder formulations.) his pre agitation process assures that the no le does not clog with chemical that has settled to the bottom of the solution tan□ dditionally this process will create a momentum of air to ensure even distribution throughout the house. lways run the fan agitator longer than the compressor to circulate fog in the house for an eHtra hour.

emember that the □+ will disperse litres of solution per hour and the (□+ will disperse litres of solution per hour. (et the actual running time based on these output rates.

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  a. or the most effective performance the greenhouse must be airtight.) a e time to repair any bro en glass torn poly and gaps or openings in vents and door frames.

  b.) he entire greenhouse area being treated should be vacant. o humans or animals should be present.

  c. , e recommend that the fogging process ta e place at the end of the day. (ecure the greenhouse and post ha ard signs before spraying.

  d. void applications when the temperature is over K in the greenhouse or when relative humidity e eeds .

  e. , hen utili ing s ori ontal ir ans they should be run for hour longer than actual spraying time.

  f. ollow all & guidelines regarding application or pesticides.

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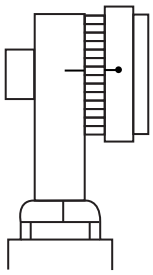
  a.) est run the utofog with clear water for minutes. emember to pass even clear water through the solution tan strainer.

  b. ischarge volume of clear water is cc minute for the (and cc minute with the . , hen testing the unit pull the suction hose out of the solution tan and place it in the small pitcher included with your machine ill it with cc .) he pitcher should be empty after a minute test run. e sure to chec discharge volume occasionally to assure best results.

  . ou will get an accurate output volume if the no le cap is closed completely and then returned to match the red chec mar s. (ee diagram below.



( ) %utput volume will vary . . cc minute for each notch in the no le cap.

( ) hec the % ing located inside the no le cap for wear or damage. eplace if necessary.

  c. %bserve the operating pressure.) he gauge will read . ! g cm or about &(on the . reading of . ! g cm or about &(will be normal on the (. hec for lea s in the piping when the pressure is too low. liminate clogs if the pressure is too high. &ressure readings may vary from location to location. (mall differences are inconseAuential. (ee troubleshooting.

  d. old weather operation , hen temperature falls below K run the compressor in a warm environment before placing the motor compressor assembly outdoors.) he bearing grease may harden in very cold temperatures causing the compressor to not perform properly. * nless absolutely necessary do not operate the utofog in sub Kweather.

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) he ramm utofogM is an air assisted micro particle generator for applying chemicals in enclosed areas. * sing the * ltra □ow +olume principle the utofogM creates billions of tiny particles R average diameter which completely fill the entire treatment area and evenly cover all surfaces.) hese particles circulate in the air pattern created by the utofog s fan ensuring even coverage throughout the greenhouse. ecause of their eH-tremely small si e these particles eliminate costly run off and damaging burn.

) he ramm utofogM can treat between and sA ft model (□+ or between and sA ft model □+ automatically without an operator saving in labor costs and health ris□s. (imply move the utofogM to the desired location miH your chemical set your timers and leave.) he utofogM will start automatically at the time you desire pre circulate the air apply the chemical and shut itself off. fter the appropriate has passed ventilate the greenhouse and remove the machine.

) he utofogM uses a surgical oilless compressor to protect against lea□age of machine oil into the treatment area.) he chemical tan□ has a conical centerpiece in the bottom of the tan□) his special design prevents the chemical especially wettable powders from accumulating in the center of the tan□ while agitation is ta□ing place.) his ensures homogeneous solution at all times. ll components of the utofogM are made from corrosion resistant materials ensuring a long reliable life. lean up is easy and maintenance is simple.) he utofog will remain reliable for many years with very little maintenance.

#03 8 8o 8a3 3 0h

. &lug the uto og into the appropriate power source. v for (□+ v for □+

. (et both cloc□s to the correct time.) he timers are hour for accuracy between day and night. a□e sure to fine tune the two cloc□s and synchroni e them as closely as possible.

. etermine the operation time bloc□ eH-ample p p for the an gitator timer. or best results start the fan and agitator minutes earlier than the compressor to preventilate the greenhouse and to pre miH the chemical solution before spraying. dditionally □eep the fan running for minutes longer than the compressor so that the fog is distributed evenly in the greenhouse.

. (et the an gitator timer by flipping the blue pins to the outside. see photo

.) he uto og will run only during the time that the pins are flipped to the outside of the cloc□ % □%) □&) ()) □ ()%&) %□□.
ach pin represents minutes of time.

. etermine the operation time bloc□ eH-ample p p for the compressor.) he compressor is what actually fogs the chemical solution. % , □□ (& □(* □ %&) %□%) % & ((% .

. (et the ompressor timer by flipping the blue pins to the outside see photo in the same manner as with the an gitation timer.

video on programming your timer is available on our website.

. lip the two toggle switches :ust below the timers to % *) %& for automatic operation.

.) he uto og is now ready and will begin fogging at the appropriate time. (ee discharge chart on page . a□e sure the treatment area is secure and will be empty of all personnel a that time.

0 9 /a8 /a8

LVH		SLVH	
□		□	
.	min	.	min
.	min	.	hr.
.	hr.	.	hr.
.	hr.	.	hr.
.	hr.	.	hr.
.	hr.	.	hr.
.	hr.	.	hr.
.	hr.		
.	hr.		
.	hr.	□ote emember to add hour to spraying time when setting the timer.	
.	hr.		
.	hr.		
.	hr.		
.	hr		

WARNING: The standard model Autofog uses a nozzle that is manufactured with brass components. The use of oxidizers will damage this nozzle within several applications.

If you plan to use oxidizers in your Autofog, *CONTACT DRAMM BEFORE THE FIRST USE OF YOUR MACHINE* to purchase a stainless steel nozzle at a reduced cost. After your machine has been used, Dramm cannot accept the original nozzle back for credit.

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. .. -( ).-0) 5 1 0 ,) , %0(.-0 %22.- % -1 0 %0(4)) 0 4 2) 4-1 (5 1 4 2) 5 - -( ) 5 5) %(,) 4) (1. 0. 4125 , - , %4) .%) ..) (2) 5 - -( ) 5, 1 .( ) 4) %) (.

. % □ hemical rates on chemical labels are stated as amount of chemical to be diluted into gallons of water. ost chemical labels do not advise how much of the spray concentrate should be applied to a given area. reenhouse growers apply from to gallons of spray concentrate per sAuare feet the average application is gallons per sA feet.

□%) (ome chemicals __% state amounts of chemical per acre. n this case follow the area rates on the label

.) he utofog is a low volume applicator. □ow volume means application of pesticide with low volumes of water.) he same amount of chemical is applied to a given area as conventional spraying but in greatly reduced Auantities of water.) his is possible since low volume eAuipment produces very small particle si es . to . microns vs. conventional spray particles of to microns which facilitate uniform leaf coverage.

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. etermine area sAuare feet to be treated.

) he utofog uses litres of water per sAuare feet of treatment area per meter of plant height.

% 2.) l 42) 5 -() %0%) 4, %5 () -() (l 4) % 53. .
) wo litres water pesticide for sAuare feet.

) (□ * %* □) (% ,) . . ou may always use more water in any application.) his is often recommended for , ettable powder formulations or any chemical that does not dissolve easily. * se common sense f a chemical solution seems too thic to apply through the utofog add more water to thin the solution.

lways wear protective clothing including gloves hood etc. when miHng pesticide solutions. ead label of pesticide chemical and determine amount of chemical needed per sAuare feet. ncrease amount of chemical as needed by the appropriate percentage of sA ft. that you are treating. i.e. if you are treating sA ft. multiply the amount of chemical for sA ft by . for chemical rate calculation

0 5l) -05 %0) 5 %) 4 3 %- %0 , %) %0)) l0 ,) 5l . -.- %0(l4) - %
l ,) ,) - %. 24l .) 5 l 4 5) (-5 -..) (%) 4-0 ,) l l .

. , hen using . .s or flowables dilute chemical into a small amount of water then dilute with additional water to reach needed Auantity. (train into tan .

. , hen miHng , .& formulations * se the miHng pitcher rod provided. irst place the power into pitcher add water stirring to ma e a lump free paste. ontinue to add water until you have a sprayable miHture. strain the solution into the tan .

□ .

. &lace tan with pesticide miHture on machine.
. (et timer
. (tart machine
. +acate secure greenhouse and post ha ard signs on all entrances.

.) imer should be set for hour longer than it ta es to empty your insecticide tan .

.) he pesticide will be eHpelled into greenhouse area during the period when no one is present.) he small particles . microns to microns will be carried uniformly to every area of the greenhouse by air currents.) hese micro particles can stay airborne for up to siH hours. uring this period the particles contact the foliage and insects and deposition occurs.

. **-0) ,) ,) - % % %4(l 5 %) 4-% -.. 0l) -5- .) l 5 -05 4) 0l l0)**
%0) 0) 4 ,) %4) %(4-0 %22.- % -l0 %0( ) 0 4 0) 4 % .

8 6a8a:0on o- 9:0 0 M0 :u8 A66l0 a:0on

.) l4) 4)) 0 4) 0 -.%) 4) %) (%4) %. . % 5 l..l %. -( ) .-0) 5 l4
2) 5 - -( ) %22.- % -l0 %0(4)) 0 4 .

/ 3 0al al ula:0on

+. f you spray gallons of spray concentrate into sAuare feet of greenhouse area you are applying of the chemical miHed in gallons of water.

,) - % .%) ..) (4%)	%.105	. -2.-) 4	,) - % 0)) ( ) (-0 53. .
Hample	% .	-	. % .
%	% .	-	. % .

f you spray gallons per sAuare feet you will need . . .

Hample	% .	-	. . % .
%	% .	-	. . % .

) he chart on page carries out this multiplication for you and reduces the amount by to compensate for the fact that there will be no run off.

) he utofog produces many times more particles to produce much more uniform coverage and increase the efficiency of greenhouse chemicals.

%.105 2) 4 .

hemical labelled rate per gallons	ate for sA ft.	inimum mount of water for	sA ft.
% . - .	. % .	litres	
% . - .	. % .	liters	
% . - .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	

%.105 2) 4 .

hemical labeled rate per gallons	ate for sA ft.	inimum mount of water for	sA ft.
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	
% .- .	. % .	liters	

%)) . ounces , % %) % %)) % () %)
) % %) % %* (% & () ((%* (% .) (% ,)
% , .&(%) % %) % % . .(% %, (.

%) ew chemicals or chemicals which have been relabeled may recommend an area rate or amount of chemical per acre. f this is a chemical you intend to use this labelled rate needs to be followed. Hample f label reads apply ounces of chemical per acre you need to divide ounces by . sA ft. acre or . ounces are needed for sA ft.

. . mulsifiable oncentrate , . . , ater lowable

, .& , ettable &owders

Solu:0on #an1

) he utofog solution tan has a very special design that promotes constant agitation of the mi-ture. otice how the cone eeps all of the solution in the path of the agitator blade.) his feature is very important when spraying wettable powder solutions that tend to be heavier thic er solutions that will precipitate Auic ly if not agitated.

efore setting the tan on the fogger frame chec that the agitator rotates smoothly. o not forget to leave the screen agitator on the tan before setting it in the fogger frame. hec that both mi-ng :oints are aligned the small tabs located on the bottom of the fan and on top of the solution tan .

fter each application clean the solution tan thoroughly using warm water and a soft brush.

S68a? 8Lo a:0on

) he utofog system is designed for ease of operation and protection of the components.) he motor compressor unit can be placed outside the greenhouse where the operator can control the unit and the control panel motor and compressor parts are not e-posed to the chemical spray.) his will prolong the life of the utofog and provide an added measure of safety should the controls need to be reached during application.

. % & ((%

(et motor compressor unit outside the greenhouse when spraying avoiding rain and splashing water whenever possible.

. % *) (

&lacement of the fogging unit in the greenhouse is very important. t is best to spray from a center aisle or main aisle to create a good flow of air that will distribute chemical particles throughout the greenhouse.) he fogger head should be placed above the crop and below any bas ets. a e sure that the utofog no le is unobstructed and that nothing is directly in the path of the utofog.

&lace the utofog between feet from the end wall to allow an air reservoir behind the unit.

or best results fog in the direction of the bays. o not aim the utofog across the gutters.

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ecause the droplets created by the utofog are so small air flow is critical for even distribution of solution.) he (+ model utofog can treat up to sA ft alone or up to sA ft with additional fans.) he + model utofog can treat up to sA ft alone or up to sA ft with additional fans.) ype of crop gutter height and other factors may limit these coverage areas.

) he arrangement of the additional fans can be a critical factor in determining coverage in an area. or recommendations on layouts or for a ramm designed system that will maHmi e the utofogs efficacy as well as temperature humidity and % distribution contact ramm.

or best results do not aim the utofog against any fans in the greenhouse. im the utofog so that it is blowing along with the air pattern established by the fans.

lways spray over the crop as the chemical solution is concentrated and may cause some damage or spotting. f necessary you may have to construct a plastic curtain or screen to eliminate direct contact.

l an0n Ma0n: nan

) he ey to successful results with the utofog is eeping the machine clean.) here are only a few steps involved so it will be very easy. e sure to clean the machine after every use.

. * sing warm water and a soft brush wash the ...
  . (olution tan
  . (olution tan cover filter andle with care.
  . gitator blades.
  . (uction tube strainer.
  . (uction tube loosen the loc nut on the no le and remove from housing. low air through no le suction tube. *See diagram below:*

video of this cleaning procedure is available on our website.

ote lways wear a glove when covering the no le.

loc the no le with your finger. ir is forced bac from suction tube

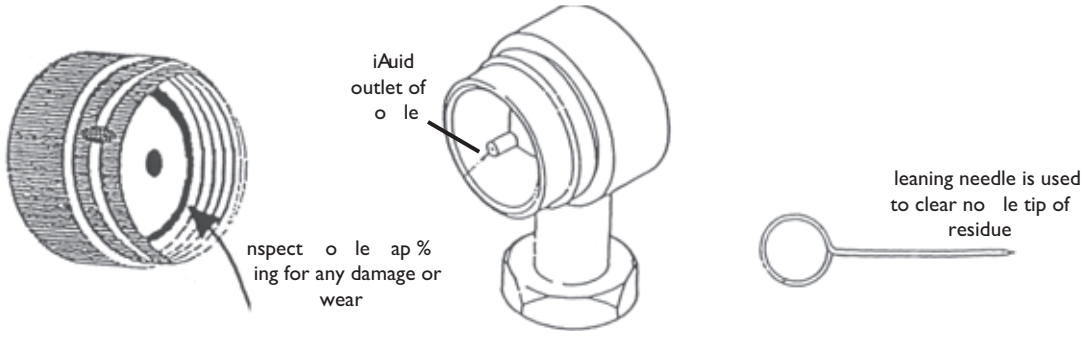
ove the finger off to allow spraying. epeat several times. e sure to use fresh water

. ny time wettable powders are used or every times with other chemicals remove the entire no le and allow to soa in a buc et of hot water for several hours.) his will dissolve any chemicals that have begun to build up over time.

. eplace the chemical solution line once per year to prevent internal build up from clogging no le.

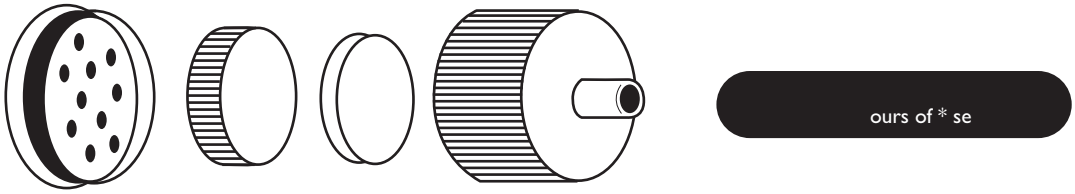
l anOn Ma0n: nan

. emove the no le cap after each use and wipe off any chemical residue. lways handle the no le and cap with care especially the no le tip (ee diagram below .



. , ith a damp cloth wipe clean the following parts
- . ogging unit shell
- . an guard
- . an blades
- . ny other eHposed areas

+. fter every hours of use be sure to clean the air filter s on the compressor. rush any eHcess off of the filter then rinse with warm water. * se a mild detergent if necessary. , . (let the filter air dry completely before reinstalling.



+. (tore the unit where it is away from eHcessive moisture.

. f storing the machine for a long period of time cover the eAuipment with plastic in a suitable place.

ramm offers an nnual aintenance ! it ! to eep your uto % in top shape. ontact us annually to order this it.

video showing the maintenance involved in the ! is available on our website.

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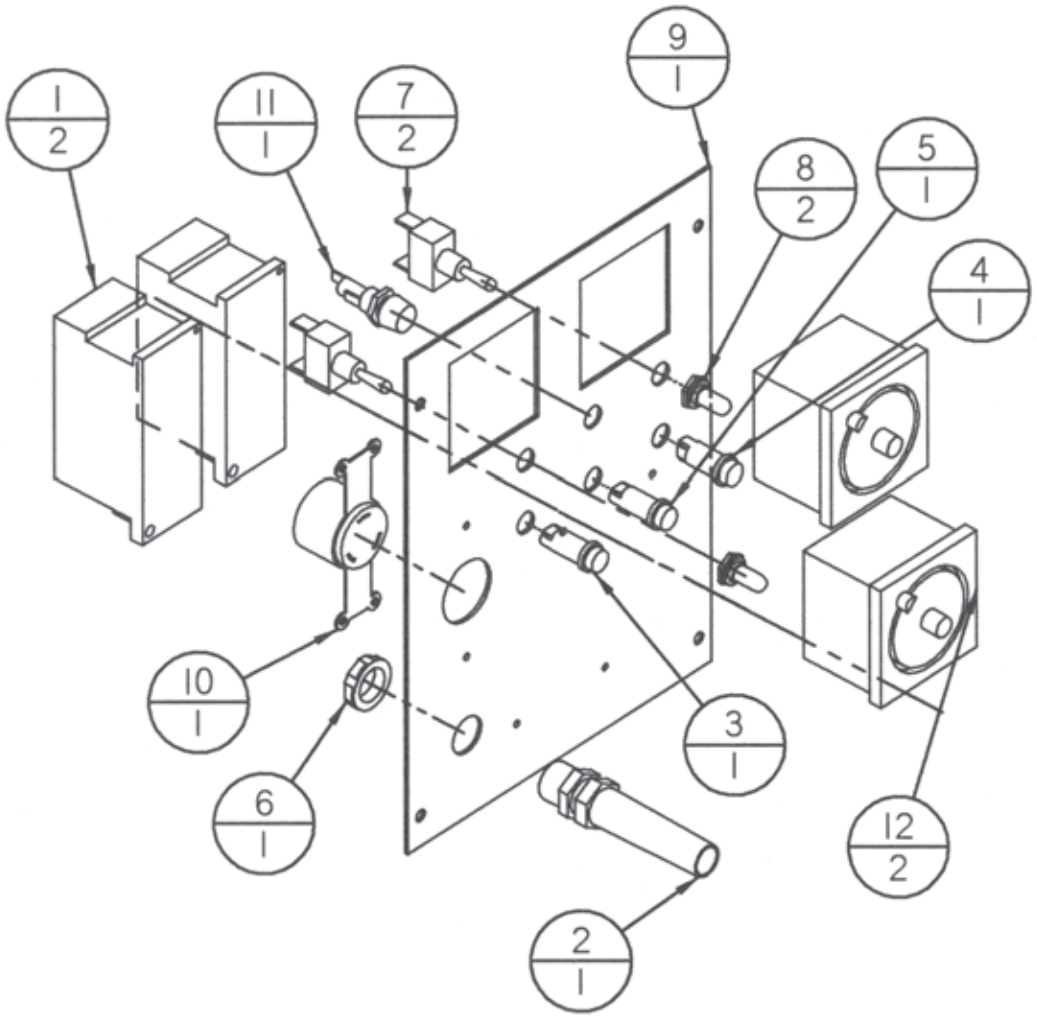

	A # M	S #	#
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2	2 1	&t . 6 e% e	1
	2 2	ee 9 t 6 45t	1
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	2 2	e1 9 t 6 45t	1
6	6	1 2 E9 At	1
	1 000	44% e &C 105	2
	11 1 2	&C 105 t	2
	1120	t 9 . e9	1
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12	&(1	2 A 6 e	2

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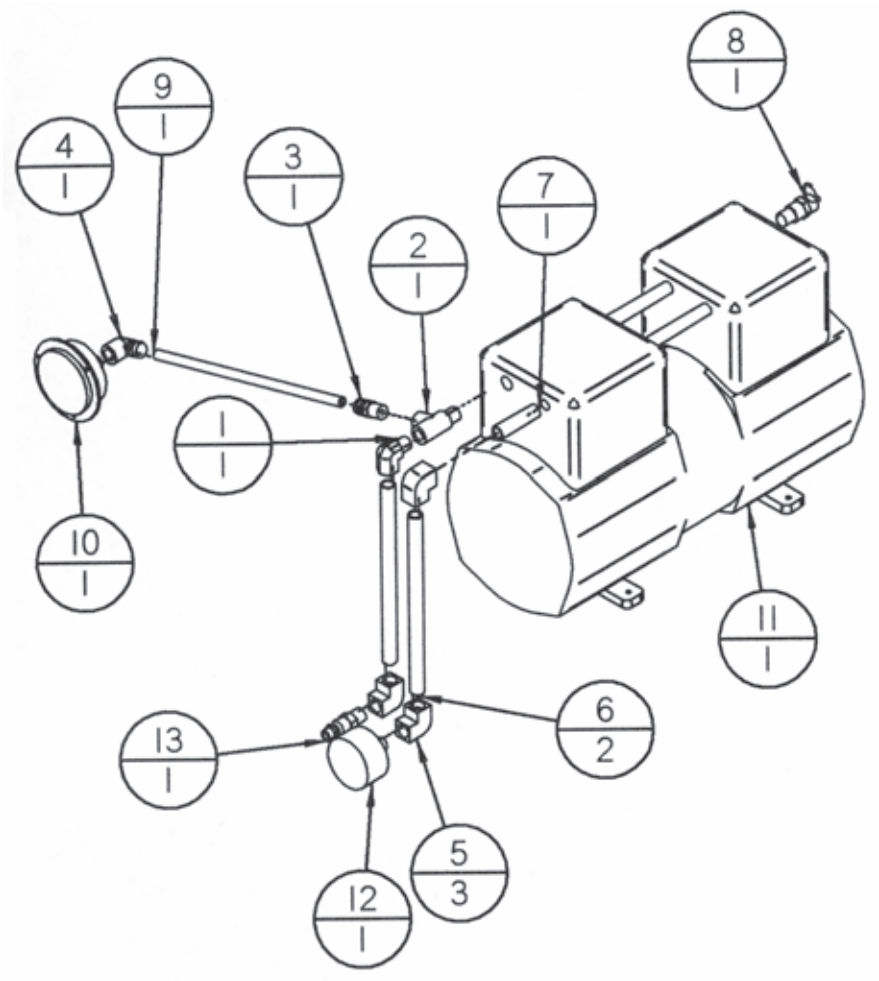

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1	116 0	1 H 9 C	1
2	12 0	1 H . 9e A ee	1
	26 06 0	1 A e	1
	2 0 06 0	1 A e 9 C	1
	206	1 9 C	
6	6 1	1 H . ss 6 9e	2
	6	1 2 . ss 6 9e	1
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10	016 2 1 2	essA e . A4e	1
11	, 1	: ess 220) 9	1
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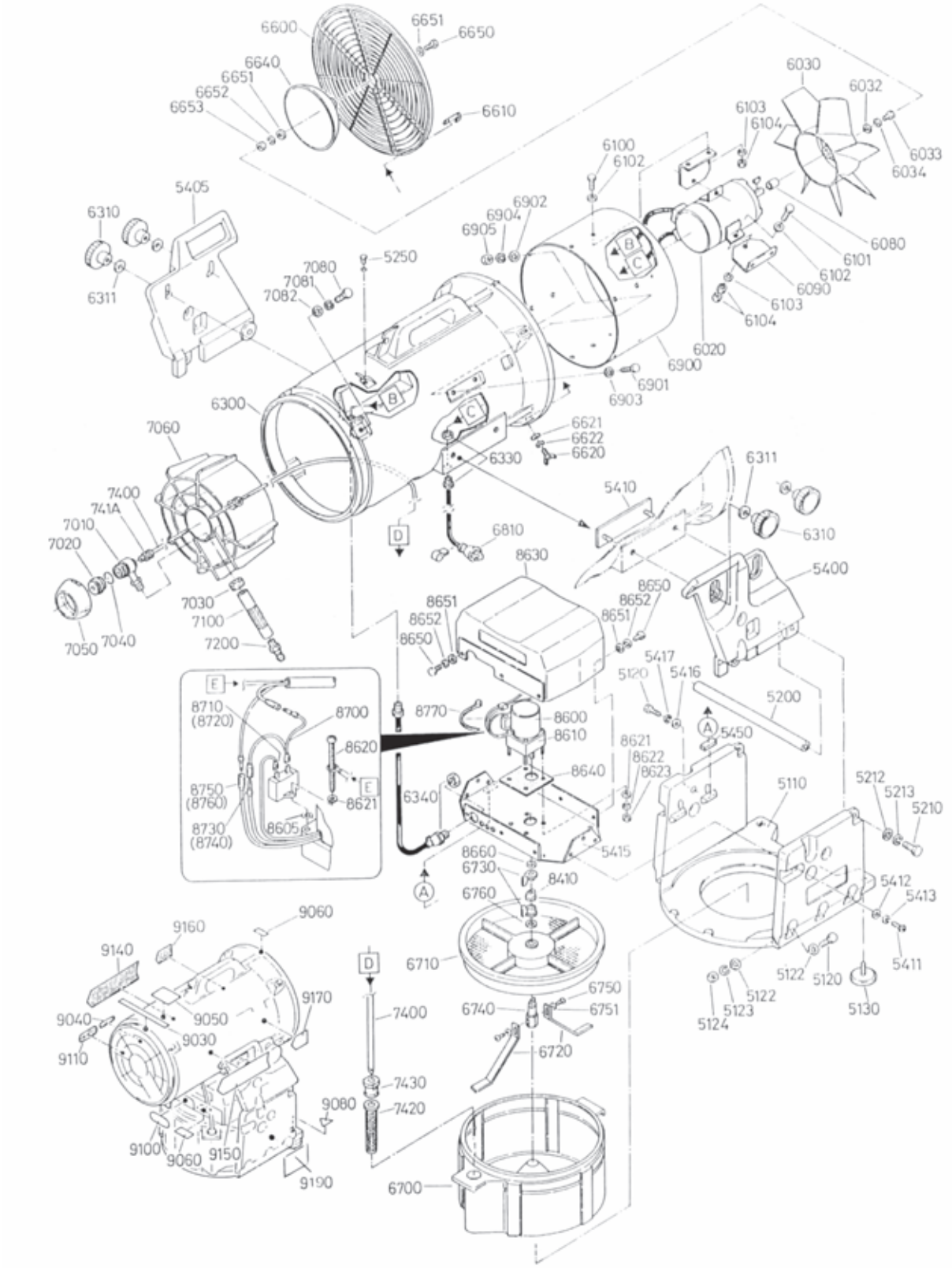
1		. 9e A608 s0 e0t	1

LVH o 8H a A99 3 I?



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122	1628&0 000	. s5e	16
12	16 &0 000	& 6 4 . s5e	
12	1 0 0 000	At	
1 0	1 0 1 01	A17Aste	2
200	2 0 200	.	1
210	101 1002	9	2
212	162&10000	. s5e	2
21	16 &10000	& 6 4 . s5e	2
2 0	2 0 2 0	9A4	1
00	2 0 001	. 08et	1
0	2 0 0 1	. 08et	1
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60	16 &06000	& 6 4 . s5e	10
60 0	0 0	e : 6 . 9	
6060	6 10 00	e : 6 . 9	1
60 0	2 06 20	92	1
60 0	2 060 0	. 08et	
6101	101 06016	9	
610	1 0 06000	At	1
6 00	2 06 001	. se	1
6 10	2 06 10		
6 11	1 06 1	. s5e	
6 0	0 0 1 60	As56 4	2
6 0	0 001 0	. : 9ete	1
6600	0 6600	. A. 1	1
6610	2 066101	9 1e . A. 1	
6620	2 0 1 0	9	
6621	1628&0 000	. s5e	

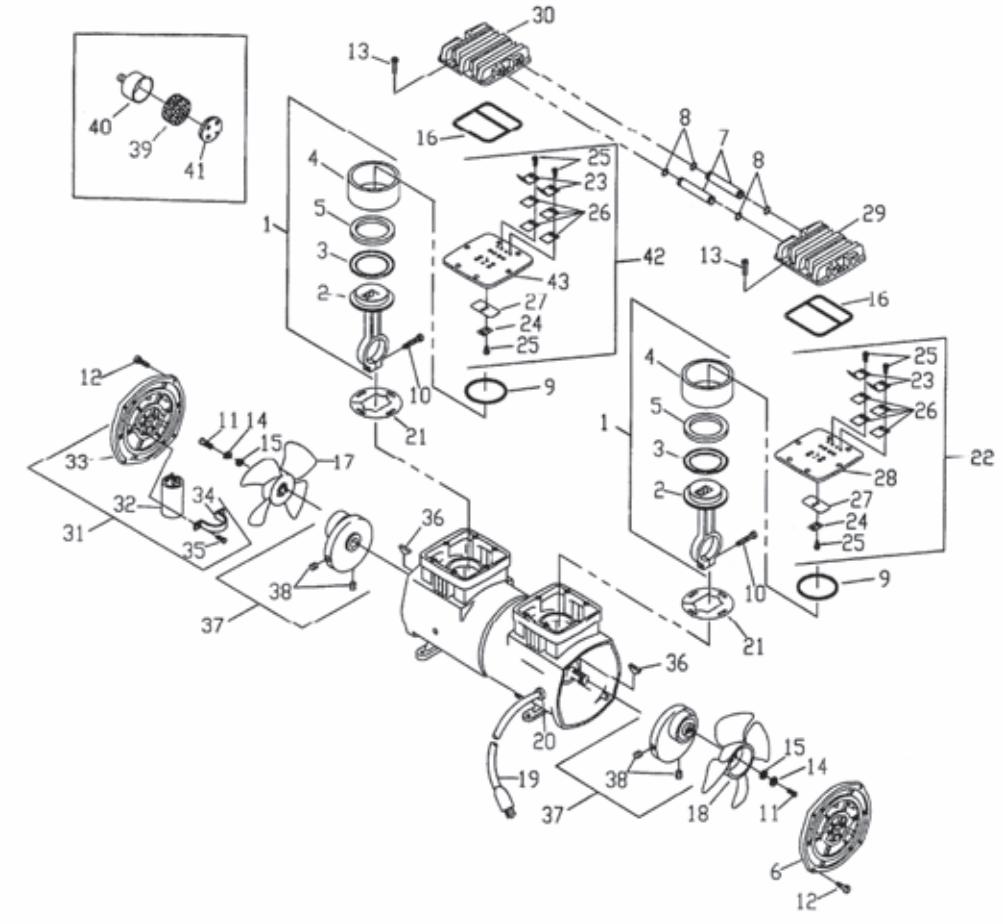
LVH o 8H a a&9 L09:

	A # M	S #	#
6622	16 80 000	& 64 . s5e	
66 0	2 066 0	.	1
66 0	101 06020	9	
66 1	162806000	. s5e	1
66 2	16 806000	& 64 . s5e	
66	1 0 06000	At	
6 00	0A	. 8 Asse: 9E	1
6 10	1 06 101	&t . 6 e	1
6 20	1 06 201	A46. t	2
6 0	1 06 0	6 t	2
6 0	0 6 0	&5. t	1
6 0	1 0 0 010	&0 eC	
6 1	16280 000	. s5e	
6 60	1 06 60	A17Ast & . 0e	1
6 10	1 0 210	A 9e	1
6 00	2 06 00	. . se	1
6 01	101 06020	9	6
6 02	162806000	. s5e	12
6 0	16 806000	& 64 . s5e	6
00A	1 0 00A2	FF9e . se Asse: 9E	1
1A	1 0 1A	A1. te Asse: 9E	1
010	1 0 0102	FF9e . se	1
020	1 0 0201	.	1
0 0	1 0 0 0	At	1
0 0	20 1 02	64	1
0 0	1 0 0 01	.	1
060	2 0 060	es . 0e D e.	1
0 0	101 0 016	9	2
0 1	16280 000	. s5e	2
0 2	16 80 000	& 64 . s5e	2
100	0 0 100	e0t6 6 e	1
00	6A020 0	A e	1
10	1 0 10	A1. te 1E	1
20	1 0 201	&t . 6 e	1
0	1 0 0	&t 0 08	1
0	A0200&	A1. te &eeBe	1
0	A0200	A1. te At	1
60	201 1 006	64	1
10	0 10	et. 9 &5. t	1
600	0 600	t	1
60	16 80 000	&0 eC	

LVH o 8H a a8:9 L09:

A # M	S #	#
610 0 610	e. . se	1
620 1 0 0 0	&0 eC	
621 16280 000	. s5e	
622 16 80 000	& 6 4 . s5e	
62 1 0 0 000	At	
6 0 2 0 6 0	Be	1
6 0 2 0 6 0	. s8et	1
6 0 101 06012	9	6
6 1 16280600 0	. s5e	6
6 2 16 80600	& 6 4 . s5e	6
660 0 660	. s8et	1
00 2 0 00	. e Asse:	1
10 6 20 00	e : 6 . 9	1
20 A 0100	.	1
0 6 10 00	e : 6 . 9	1
0 A 0 00	.	1
0 6 10 00	e : 6 . 9	1
60 6A 0 00	.	1
0 A02000	08 . 1	1
0 1 0 0	E 1e	1
0 1 0 0	A4 t .	1
0 2 0 01	A0t . 1	1
00 6A020 0	A e	1
10 1 0 10	A1 . te 1E	1
20 1 0 201	&t . 6 e	1
0 1 0 0	&t 0 08	1

LVH o3 68 99o8A99 3 I?



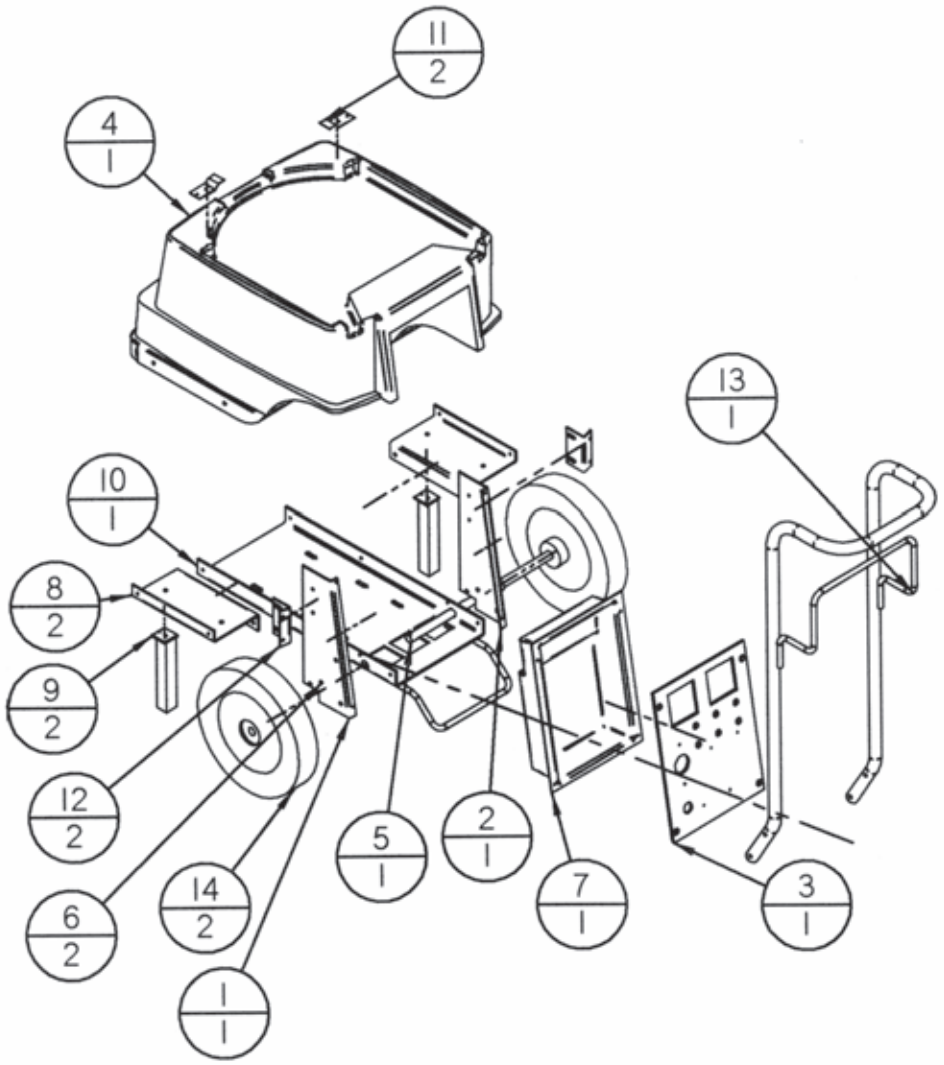
M L A # M S #
2 0 2 60 602 &t. t C &eeBe AssE t &5 C

A #	M #	A #	S #	#
1	666		e0t6 4 1 AssE	2
2	60 206		e0t6 4 1	2
	61		6st A	2
	61 110		6st &eeBe	2
	626 21		et. 6 e 6st A	2
6	61 0		t Be	2
	62 62		e0t A e	2
	62 122		6 4 e0t A e	
	62 6		6 4). Be 9te	2

LVH o3 68 99o8 a8:9 L09:

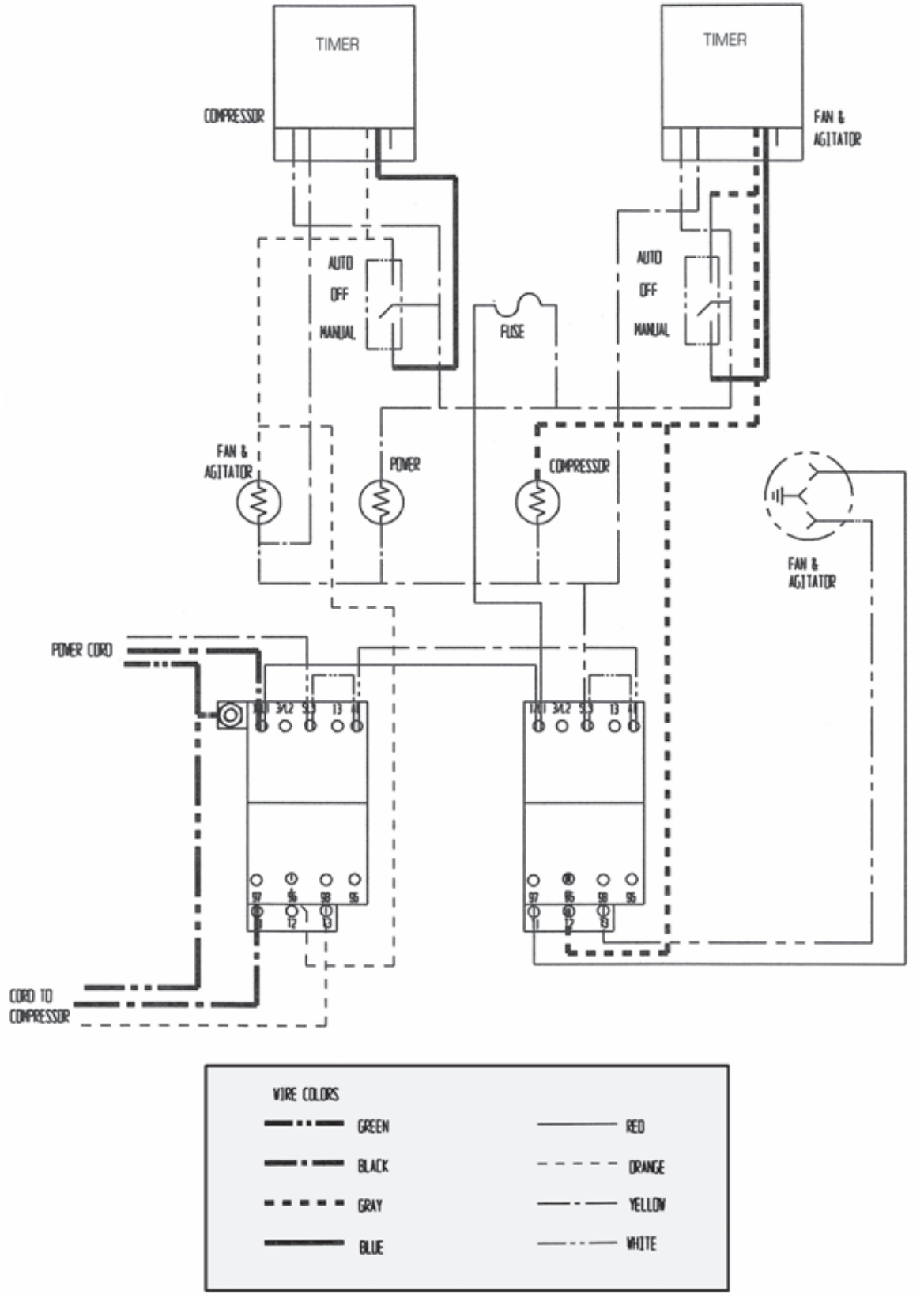
A #	M # A #	S #	#
10 62 11		80 eC e0t6 4 1	2
11 62		80 eC .	2
12 62		80 eC t Be	
1 62 6 6		80 eC e. 1	12
1 626 0		08C. s5e .	2
1 626 6		. s5e . . 8t	
16 6 60		6 4 . s8et e. 1	2
1 6 16		. 5de	2
1 10		. 9 08	1
1 6 0		1 Asse: E	1
20 6 0		8t . 6 e9e	1
21 6 1		Ast 856e9	2
22 662 26 0		). 9Be 9 te AssE	1
2	61 12	). 9Be 9 e est . 6 t	
2	61 1	). 9Be ee e 8t 6	2
2	62 6	80 eC). 9Be 9 e	12
26	6 6 0	). 9Be 9 e D5. Ast	
2	6 6	). 9Be 9 e t. 8e	2
2	662 1 0	). 9Be 9 te	1
2 66111 0		e. 1	1
0 66111 0		e. 1	1
1 662 6		t Be Asse: E	1
2	60 1	. . 06 0 1	1
	61 6	t Be	1
	61	. . 06 . 08et	1
	62	80 eC . 08et	2
6 62661		1 A eE	2
66 1		00 e. 6 4 AssE	2
	62 00	8et 80 eC 00e t60	2
6 1010		6e	1
0 660 6		6e 1E	1
1 660 0		6e 1E .	1
2 6 62 0		). 9Be 9 te AssE	1
	66221 0	). 9Be 9 te	1

LVH SLVH A99 3 I?

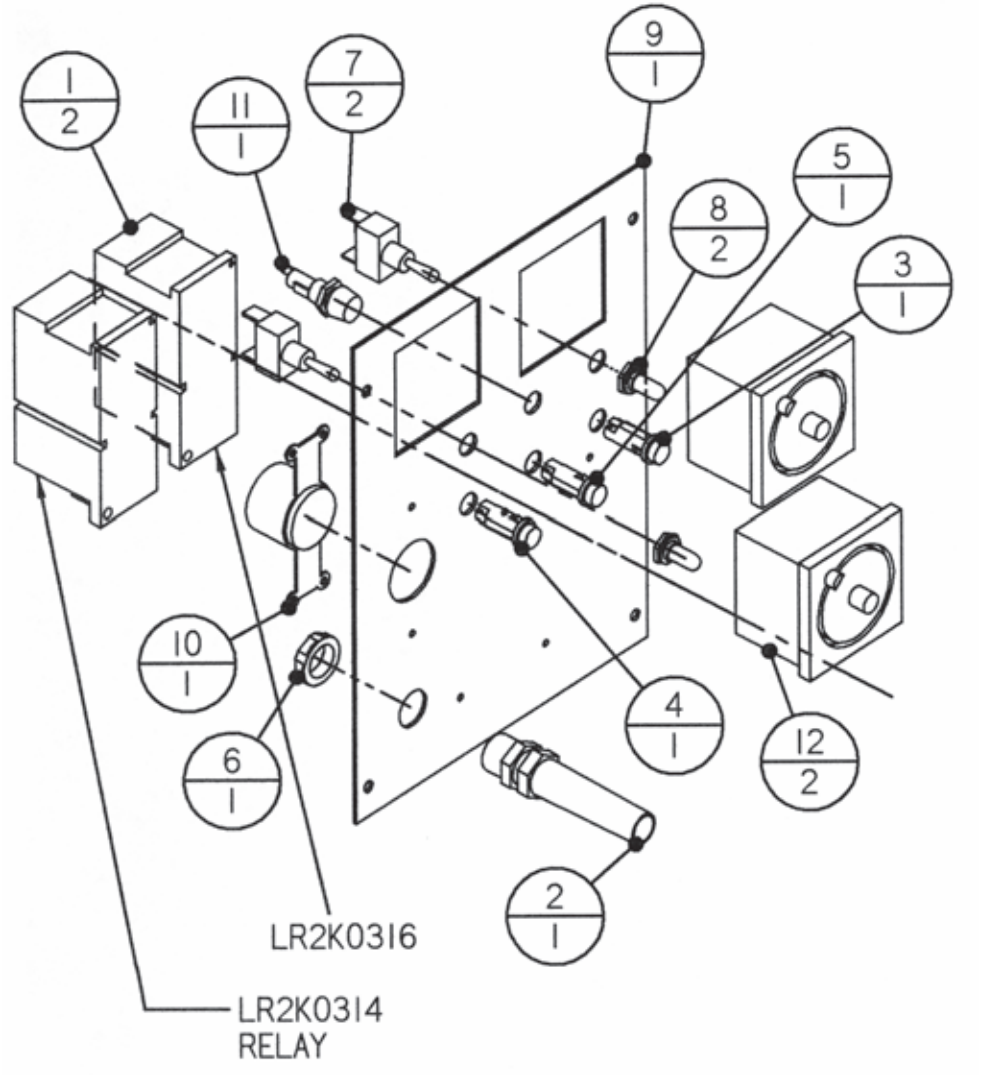


	A # M	S #	#
1	11202	. e9&A t	1
2	11202A	. e9&A t	1
	110	t 9 . e9	1
	1120	Be	1
	1121	AD9e	1
6	1121	& . 0e	2
	1121	9e0t 60. 9 Be	1
	11220	6 4	2
	1122	e4 Asse: 9E	2
10	112	tt : 5. e9	1
11	112 0	9l C	2
12	112 2	Be &A t	2
1	112 6	. 19e Asse: 9E	1
1	& 102	10 2 5ee9	2

LVH SLVH & CLVH Wiring Diagram

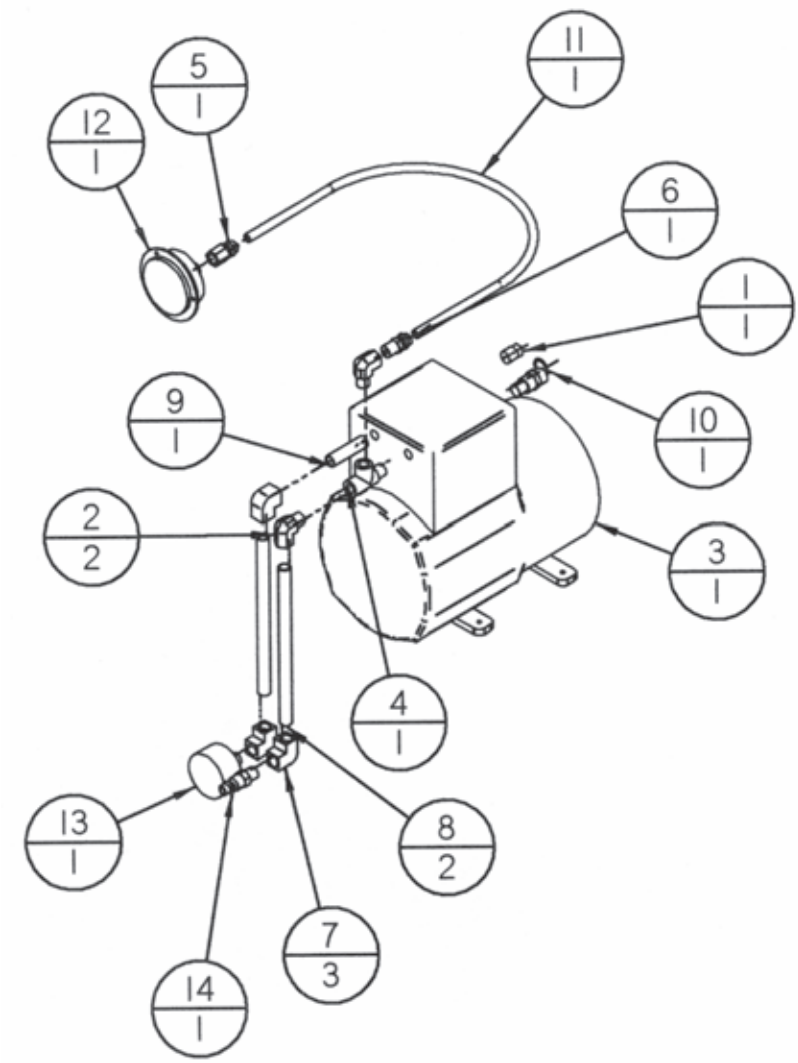


SLVH on:8bl an l A99 3 l?



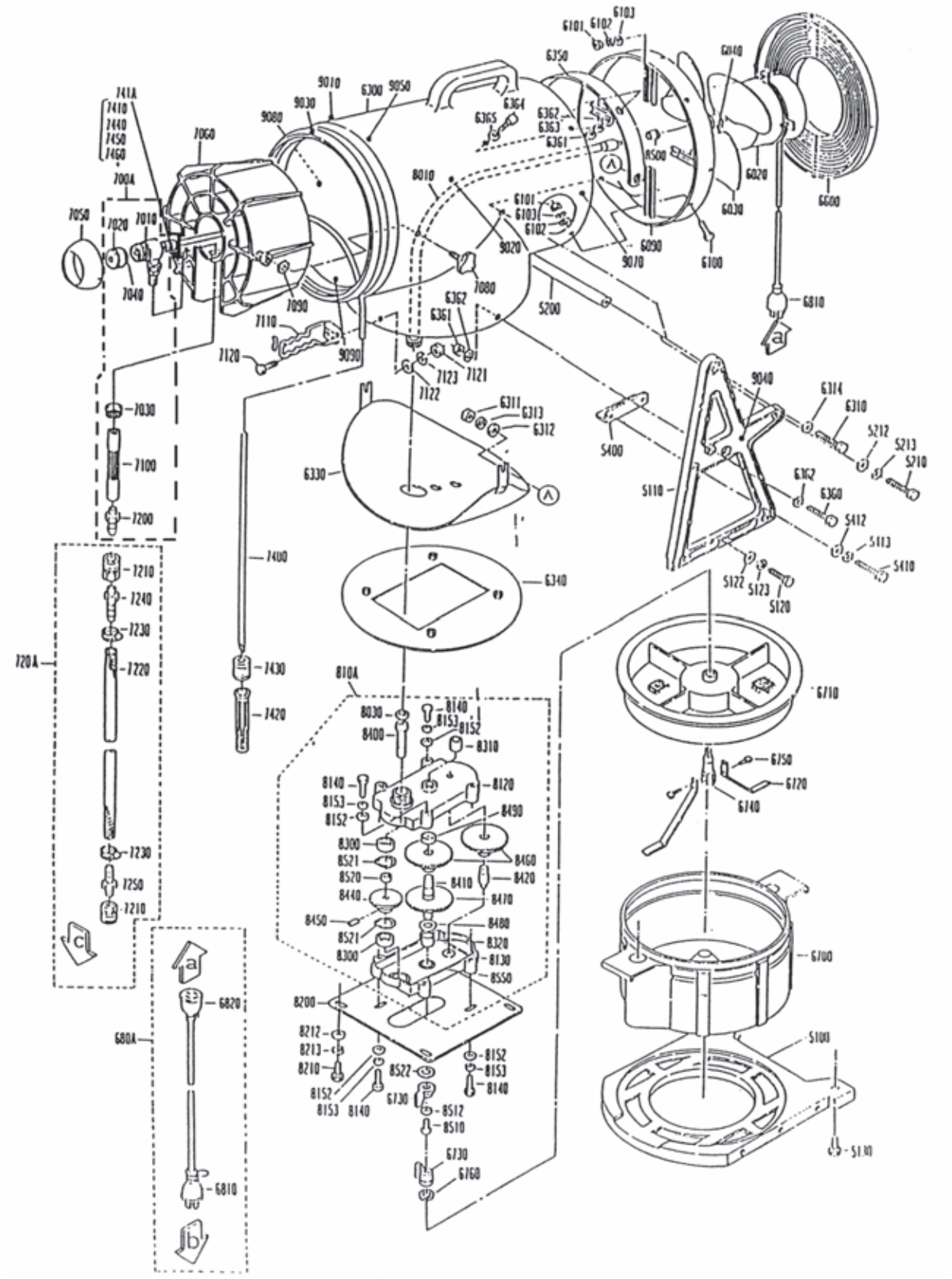
	A # M	S #	#
1	1 0 10	t. 0t e9 E	2
2	2 1	&t . 6 e% e	1
	2 A 1	9 t (45t 120) . : e	1
	2 1	9 t (45t 120) 4 ee	1
	2 1	9 t (45t 120) e1	1
6	6	1 2 E9 At	1
	1 000	44% e &C05	2
	11 1 2	&C05 t	2
	1120	t 9 . e9	1
10	10	e0e t. 0% e	1
11	261	Ase 9 e	1
12	&(1	2 A 6 e	2

SLVH lu3 0n A99 3 l?



	A # M	S #	#
1	10 0	1 H 9A4	1
2	116 0	1 H 9 C	2
	120 0	: ess 120) 9	1
	12 0	1 H . 9e A ee	1
	266 06 0	1 A e	1
6	26 06 0	1 A e	1
	206	1 9 C	
	6 1	1 H . ss 6 9e	2
	6	1 2 . ss 6 9e	1
10	A 0	e9e). 9Be	1
11	66	A 6 4	1
12	016 2 1 2	essA e . A4e	1
1	A	A6 69e	1
1		. 9e A608 6s0 e0t	1

SLVH o 8H a A99 3 I?



SLVH o 8H a a&9 L09:

	A # M	S #	#
100	1 0 1001	tt : 9 te	1
110	1 0 110	. : e	2
120	101 0 0 0	9	6
122	162&0 000	. s5e	6
12	16 &0 000	& 6 4 . s5e	6
1 0	1 0 1 0	A17Aste	2
200	1 0 200	eBe	1
210	101 100	9	2
212	162&10000	. s5e	2
21	16 &10000	& 6 4 . s5e	2
00	1 0 00	&A te	2
10	101 06020	9	
12	162&06000	. s5e	
1	16 &06000	& 6 4 . s5e	
6020	1 660201	. t	1
60 0	1 060 01	.	1
60 0	61 060 0	9	1
60 0	1 060 02	. 08et &(& 0	1
6100	101 06020	9	
6101	1 0 06000	At	
6102	162&06000	. s5e	12
610	16 &06000	& 6 4 . s5e	
6 00	1 06 00	6 1 5. e9	1
6 10	101 0 0 0	9	2
6 11	1 0 0 000	At	2
6 12	162&0 000	. s5e	2
6 1	16 &0 000	& 6 4 . s5e	2
6 1	1 06 1	. s5e	2
6 0	1 06 0	tt : 9 te 9&1	1
6 0	1 06 01	tt : 9 te	1
6 0	1 06 01	9 te &(& 0	1
6 60	101 0 0 0	9	2
6 61	1 0 0 000	At	
6 62	162&0 000	. s5e	
6 6	16 &0 000	& 6 4 . s5e	
6 6	101 0 0 0	9	2
6 6	1 06 1	. s5e	2
6600	1 06600	. A. 1	1
6 00	1 06 00	. 8	1
6 10	1 06 101	&t . 6 e	1
6 20	1 06 201	A46&. t	2
6 0	1 06 0	6 t	2

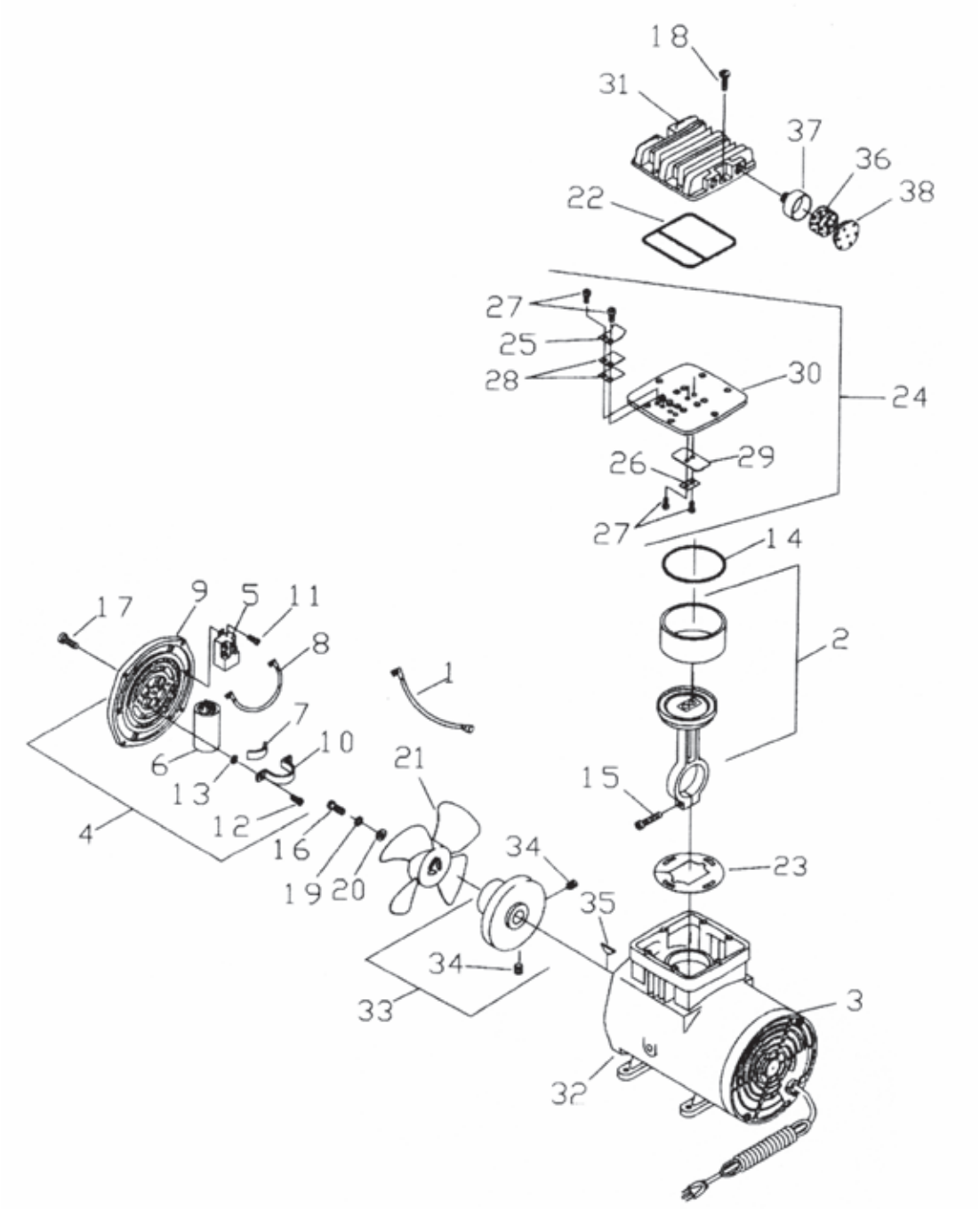
SLVH o 8H a a8:9 L09:

A # M	S #	#
6 0 1 06 0	&5. t	1
6 0 1 0 0 010	&0 eC	
6 60 1 06 60	& . 0e	1
6 0A 1 6 0A1	. / tE e Asse: / 9E 1 2	1
6 10 1 6 10	9A4 2 1 A	1
6 20 1 6 20	e0t 2 1 A	1
00A 1 6 000A	FF9e Asse: / 9E &)	1
010 1 6 101	FF9e . se	1
020 1 6 0201	.	1
0 0 1 0 0 0	08 At	1
0 0 20 1 02	6 4 &2	1
0 0 1 0 0 01	.	1
060 1 0 060	es . 0e D	1
0 0 1 0 0 0	/ 9	2
0 0 16 &0 000	t5e1 . s5e	
100 1 0 100	e0t6 6 e	1
110 1 0 110	&A t	1
120 101 06020	9	2
121 1 0 06000	At	2
122 1628 06000	. s5e	2
12 16 &06000	& 6 4 . s5e	2
20A 1 0 20A	A6 se Asse: / 9E	1
200 1 0 200	. 9e A608 e0t A 9e	1
210 1 0 2010	e: . 9e A608 e0t A 9e	2
220 0 0 10	se	1
2 0 21 1 000	e A9e	2
00 A020 0	A/ e	1
1A 1 0 1A	A1. te Asse: / 9E	1
10 1 0 10	A1. te 1E	1
20 1 0 201	&t . 6 e	1
0 1 0 0	&t 0 08	1
0 A0200&	A1. te &9eeBe	1
0 A0200	A1. te At	1
60 201 1 006	6 4 6	1
010 1 0 0101	9eD/ 9e &5. t	1
0 0 1 0 0 0	. s8et	1
10A 1 0 1201A	e. . se Asse: / 9E	1
120 1 0 1201A	e. . se (e	1
1 0 1 0 1 01	e. . se Ce	1
1 0 101 060	9	
1 2 1628 06000	. s5e	
1 16 &06000	& 6 4 . s5e	

SLVH o 8H a a&9 L09:

A # M	S #	#
200 1 0 2001	e. . se	1
210 101 06020	9	
212 162806000	. s5e	
21 16 806000	& 6 4 . s5e	
00 1 0 00	. 99 e. 6 4	2
10 1 0 10	As56 4	1
20 1 0 20	As56 4	1
00 1 0 001	&5. t	1l
10 1 0 10	&5. t	1
20 1 0 20	&5. t	1
0 1 0 0	e.	1
0 1 80 006	&et &0 eC	1
60 20000 10	e.	2
1 0 1 0 1 01	e. . se Ce	1
1 0 101 060	9	
1 2 162806000	. s5e	
1 16 806000	& 6 4 . s5e	
200 1 0 2001	e. . se	1
210 101 06020	9	
212 162806000	. s5e	
21 16 806000	& 6 4 . s5e	
00 1 0 00	. 99 e. 6 4	2
10 1 0 10	As56 4	1
20 1 0 20	As56 4	1
00 1 0 001	&5. t	1l
10 1 0 10	&5. t	1
20 1 0 20	&5. t	1
0 1 0 0	e.	1
0 1 80 006	&et &0 eC	1
60 20000 10	e.	2
1 0 1 0 1 01	e. . se Ce	1
1 0 101 060	9	
1 2 162806000	. s5e	
1 16 806000	& 6 4 . s5e	
200 1 0 2001	e. . se	1
210 101 06020	9	

SLVH o3 68 99o8A99 3 I?



# M	L #	A	S #	#
2	662 2 0	662 2	). 9Be 9 te Asse: / 9E	9 08 1

SLVH o3 68 99o8 a8:9 L09:

	A #	M # A #	S #	#
1	60 12		e. 1 6e C	1
2	666		e0t6 4 1 AssE	1
	61 6 0		t 1 . AssE eE	1
	61 0		t Be Asse: / 9E	1
		60221	e9 E 11) 60 F	1
6		60 021	. . 06t	1
		60 12	. : &t 6	1
		60 2 6	e. 1 6e AssE 9Ae	1
		61 0	t Be	1
10		61 1 6	. . 06t . 08et	1
11		62 2	80 eC e9 E	2
12		62	80 eC . . 06t . 08et	2
1		626 6	. s5e	2
1	62 6		6 4). 9Be 9 te	1
1	62 11		80 eC e0t6 4 1	1
16	62		80 eC .	1
1	62		80 eC t Be	
1	62 6 6		80 eC e. 1	6
1	626 0		08C. s5e	1
20	626 6		. s5e .	1
21	6 1		.	1
22	6 60		6 4 e. 1	1
2	6 1		Ast &56e9	1
2	662 2 0		). 9Be 9 te Asse: / 9E eE	1
2		61 12	). 9Be 9 e est . 6 t	2
26		61 1	). 9Be ee e &t 6	1
2		62 6	80 eC). 9Be 9 e s	6
2		6 6 0	). 9Be 9 e	
2		6 6	). 9Be 9 e	1
0		662 1 0	). 9Be 9 te eE	1
1	66121 0		e. 1 eE	1
2	661 0 0		As6 4 eE	1
	66 1 6		00e t60 e. 6 4 AssE	
		62 00	&et 80 eC	1
	62661		1 A33 eE	1
6	6 1010		69e	1
	660 6		69e 1E	1
	660 0		69e 1E .	1

L M	A S	S L #
L (pray pattern eHts no le in short bursts. (hould eHt as a steady stream.	L) he no le cap is not secure or properly lined up.	L (crew it on completely and then turn the cap countercloc wise so the two chec mar s on the no le line up.
	L) he no le cap has an % ing inside which may be damaged	L eplace the % ing if it is crac ed bro en or in some way damaged.
	L (uction tube is clogged or damaged	L nspect the suction tube for clogging or damage.) o remove the suction tube from the no le first loosed the nut that holds the tube to the no le. ow pull the tube out of the no le. otice the metal sleeve on the tube inspect it carefully. n most cases the sleeve must be replaced as it is damaged dented bent or crac ed. ote (pray clear water through the machine and with a gloved hand cover the no le tip.) his reverses the flow of air and blows the suction tube clear of any debris. **I 0I I)4 -,)0 0 .**
	L) he no le may be clogged with foreign material.	L lean the inside of the no le.
	L) he suction tube is above the surface of the solution in the tan .	L a e sure the suction tube is pushed down completely.
	L (uction tube strainer is clogged.	L lean it thoroughly.
	L oisture in the air line may restrict spraying.	L lean air hose. efer to cleaning
L o spray eHts the no le	L nsufficient air flow from the compressor may be caused by clogged piping or dirty air filter s .	L hec the piping and clean dirty filters
	L (uction tube is not connected properly or is damaged and lea ing air into the no le which disrupts the venturi effect.	L eplace the suction tube and its connector.

#8ou l 9/oo:0n

L M	A S	S L #
L &ressure gauge reads too low	L &iston and piston ring in compressor are worn out.	L eplace both.
	L &ressure gauge may be defective or bro en.	L eplace it.
L &ressure gauge reads too high	L &iping is clogged.	L hec entire piping for obstructions and replace any defective or clogged sections.
	L logged no le or no le cap will cause pressure to rise.	L lean thoroughly.
L bnormal noise or vibration	L nchor bolts are loose causing vibration.	L e tighten bolts and nuts.
	L ompressor set up vibrates due to unstable position.	L (et the compressor on stable ground when operating.

o: 9

DRAMM

2000 t5 1 t5 &t eet
D1 60
. ó C 0 221 1 60 (&A
1 . : : 0 :

20 6 022
1e . D 20 6
. ts &e B0e . D 20 6 01
6 3 : . t6 1 . : : 0 :