

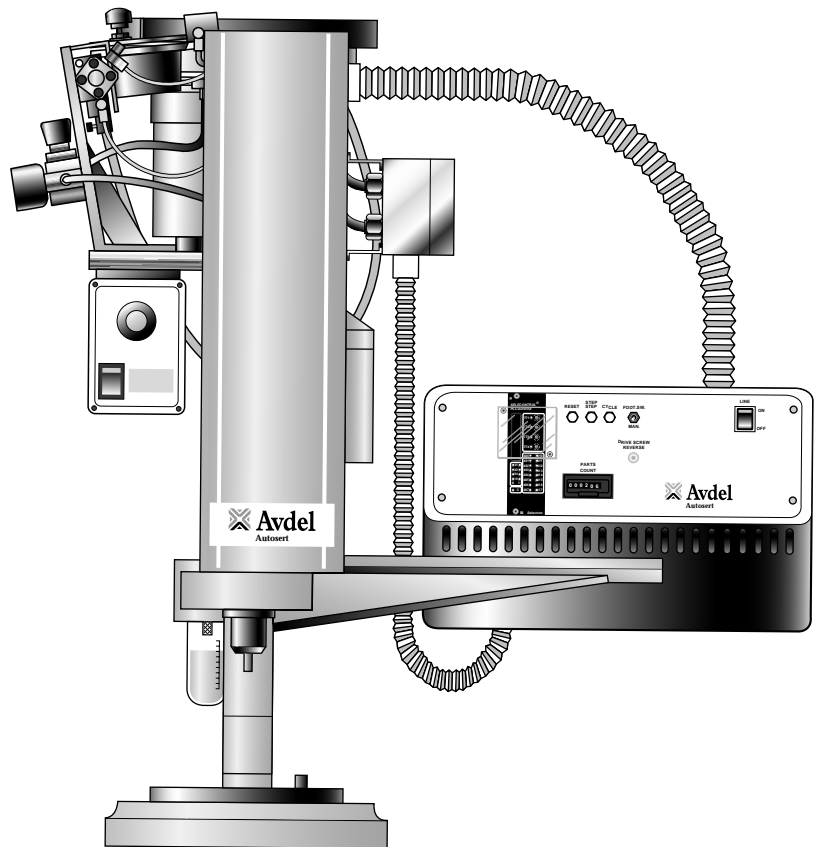


Avdel



Instruction Manual

Pass onto user to read and keep for reference



Threaded Insert Machine

Autosert

07566 - 07567 - 07568 models

AVDEL policy is one of continuous development. Specifications shown in this document may be subject to changes which may be introduced after publication. For the latest information always consult Avdel.

MODULAR HEAD SPIN-PULL UNIT	07666-0200	
INSERT PLACINGS PER HOUR	up to 1200	dependant on size/type
VIBRATING BOWL INSERT CAPACITY MAXIMUM HYDRAULIC	up to 2000	dependant on size/type

SPECIFICATIONS FOR THE 07566 TOOL

AIR PRESSURE	Minimum - Maximum	6 - 6.5 bar	70 - 100 lbf/in ²
AIR PRESSURE TO MODULAR HEAD	Minimum - Maximum	190 bar	2800 lbf/in ²
FREE AIR VOLUME REQUIRED	@ 6 bar or 88 lbf/in ²	12 litres	.4 ft ³
STROKE	Minimum	0.2 mm	.079 in
	Maximum	6.1 mm	.24 in
MOTOR SPEED	SPIN ON	1300 RPM	
	SPIN OFF	2400 RPM	
PULL FORCE	@ X.X bar or XX lbf/in ²	10.6 kN min	2380 lbf min
CYCLE TIME	Approximately	X.X seconds	
NOISE LEVEL		85 dB(A)	
WEIGHT	Without nose equipment	X.X kg	X.X lb
VIBRATION	Less than	X.X m/s ²	X ft/s ²

ELECTRICAL SUPPLY FOR THE 07566 TOOL

MACHINE N° (MAINS)	COMPLETE (V)	VOLTAGE (HZ)	FREQUENCY (AMPS)	FUSE IN PLUG
	0756X-xxxxx	220 a.c.	50	5 Amp
	0756X-xxxxx	110 a.c.	50	5 Amp
	0756X-xxxxx	110 a.c.	60	5 Amp

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S A F E T Y

This instruction manual must be read with particular attention to the following safety rules, by any person installing, operating, or servicing this tool.

⚠ DO NOT USE OUTSIDE THE DESIGN INTENT.

⚠ DO NOT USE EQUIPMENT WITH THIS TOOL/MACHINE OTHER THAN THAT RECOMMENDED AND SUPPLIED BY AVDEL.

⚠ ANY MODIFICATION UNDERTAKEN BY THE CUSTOMER TO THE TOOL/MACHINE, NOSE ASSEMBLIES, ACCESSORIES OR ANY EQUIPMENT SUPPLIED BY AVDEL OR THEIR REPRESENTATIVES, SHALL BE THE CUSTOMER'S ENTIRE RESPONSIBILITY. AVDEL WILL BE PLEASED TO ADVISE UPON ANY PROPOSED MODIFICATION.

⚠ THE TOOL/MACHINE MUST BE MAINTAINED IN A SAFE WORKING CONDITION AT ALL TIMES AND EXAMINED AT REGULAR INTERVALS FOR DAMAGE AND FUNCTION BY TRAINED COMPETENT PERSONNEL. ANY DISMANTLING PROCEDURE SHALL BE UNDERTAKEN ONLY BY PERSONNEL TRAINED IN AVDEL PROCEDURES. DO NOT DISMANTLE THIS TOOL/MACHINE WITHOUT PRIOR REFERENCE TO THE MAINTENANCE INSTRUCTIONS. CONTACT AVDEL WITH YOUR TRAINING REQUIREMENTS.

⚠ THE TOOL/MACHINE SHALL AT ALL TIMES BE OPERATED IN ACCORDANCE WITH RELEVANT HEALTH AND SAFETY LEGISLATION. IN THE U.K. THE "HEALTH AND SAFETY AT WORK ETC. ACT 1974" APPLIES. ANY QUESTION REGARDING THE CORRECT OPERATION OF THE TOOL/MACHINE AND OPERATOR SAFETY SHOULD BE DIRECTED TO AVDEL.

⚠ THE PRECAUTIONS TO BE OBSERVED WHEN USING THIS TOOL/MACHINE MUST BE EXPLAINED BY THE CUSTOMER TO ALL OPERATORS.

⚠ ALWAYS DISCONNECT THE AIRLINE FROM THE TOOL/MACHINE INLET BEFORE ATTEMPTING TO ADJUST, FIT OR REMOVE A NOSE ASSEMBLY.

⚠ DO NOT OPERATE A TOOL/MACHINE THAT IS DIRECTED TOWARDS ANY PERSON(S).

⚠ ALWAYS ADOPT A FIRM FOOTING OR A STABLE POSITION BEFORE OPERATING THE TOOL/MACHINE.

⚠ ENSURE THAT VENT HOLES DO NOT BECOME BLOCKED OR COVERED AND THAT HOSES ARE ALWAYS IN GOOD CONDITION.

In addition to the general safety rules opposite, the following specific safety points must also be observed:

⚠ THE COMPRESSED AIR SUPPLY TO THE MACHINE MUST NOT EXCEED 6.5 BAR - 95 LBF/IN².

⚠ THE ELECTRICAL SUPPLY MUST SUIT THE MACHINE MODEL REQUIREMENTS AS PER THE MACHINE SELECTION TABLE ON PAGE XX. THE MACHINE MUST BE PROTECTED BY A 5 AMP FUSE FITTED IN THE ELECTRICAL PLUG.

⚠ IF A NEW MAINS ELECTRICAL PLUG IS FITTED, IT MUST HAVE A SUITABLE EARTH CONNECTION. CHECK THAT THERE IS CONTINUITY BETWEEN THE EARTH PIN ON THE PLUG AND THE MACHINE FRAME BEFORE SWITCHING ON.

⚠ IF AN ELECTRICAL FAULT IS SUSPECTED, CONTACT AVDEL LTD.

⚠ DISCONNECT THE COMPRESSED AIR SUPPLY AND THE ELECTRICAL SUPPLY BEFORE ATTEMPTING TO ADJUST, CHANGE OR DISMANTLE NOSE EQUIPMENT.

⚠ THIS MACHINE IS NOT DESIGNED FOR USE IN A COMBUSTIBLE OR EXPLOSIVE ATMOSPHERE.

⚠ THE DRIVE SCREW MUST BE EXAMINED REGULARLY FOR SIGNS OF DAMAGE AND/OR WEAR, AND A NEW ONE FITTED IF NECESSARY.

⚠ THE MACHINE MUST BE EXAMINED REGULARLY FOR SIGNS OF DAMAGE OR MALFUNCTION, AND REMEDIAL ACTION CARRIED OUT IF REQUIRED.

⚠ DO NOT OPERATE THE MACHINE WITHOUT THE COVERS AND GUARDS IN POSITION.

⚠ DO NOT OPERATE THE MACHINE WITHOUT FULL NOSE EQUIPMENT IN PLACE.

⚠ DO NOT HOLD THE DRIVE SCREW IF IT IS ROTATING OR PULLING.

⚠ KEEP HANDS CLEAR FROM THE ROTATING DRIVE SCREW OF THE MACHINE. IF AN INSERT BECOMES JAMMED ON THE DRIVE SCREW.

⚠ PROTECTIVE HANDWEAR MUST BE WORN BY THE OPERATOR IF THERE ARE SHARP EDGES OR CORNERS ON THE WORKPIECE.

⚠ PROTECTIVE EYEWEAR MUST BE WORN BY THE OPERATOR AND OTHER PERSONNEL IN THE VICINITY OF THE MACHINE.

⚠ PROTECTIVE EARWEAR MUST BE WORN BY THE OPERATOR AND OTHER PERSONNEL IN THE VICINITY OF THE MACHINE.

INTENT OF USE

INTRODUCTION

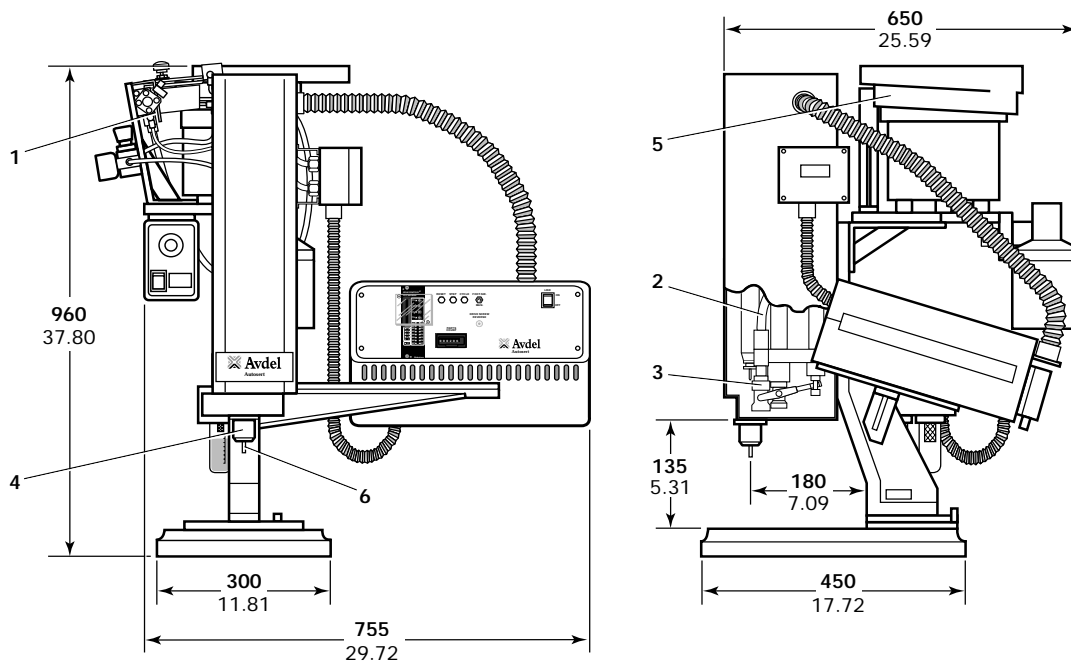
This instruction manual caters for the three types of Autosert machine, which vary in their mains electrical supply requirements only, as per the machine selection table on page XX.

The Autosert is supplied as a complete machine, dedicated to one type and size of unlubricated fastener. However, insert sensitive items of the machine can be replaced to accommodate the following range of fasteners; standard nutserts M3, M4, M5 or thin sheet nutserts M4, M5, M6, M8, 2BA, 10UNF. Refer to page XX for the nose assembly table and page XX for the tool selection table

The Autosert is a continuous and automatic feed machine, designed to place Avdel unlubricated threaded inserts at high speed, making it ideal for batch or flow-line assembly, in a wide variety of applications throughout all industries. The foot pedal allows the operator to handle the workpiece using both hands to facilitate rapid insert placing.

The vibratory bowl feeder provides a constant supply of inserts to the receptacle. The transfer mechanism retrieves the insert from the receptacle and places it onto the drive screw of the tool module, ready for applying to the workpiece. When the transfer mechanism returns to the receptacle, another insert is placed into it, ready for another placing cycle.

A hinged guard at the front of the machine protects the operator from the module, nose assembly, transfer mechanism, receptacle and other moving parts of the machine. As an additional safety feature, the electrical supply and the air supply will both be switched off when the hinged guard is opened.



Dimensions shown in bold are millimetres. Other dimensions are in inches.

0756 TOOL SELECTION

Insert Type	Insert Thread Size	Insert Part N°	Complete Tool Part N° includes items 1 to 8**	0756 TOOL SELECTION							
				1 Feed Gate Part N°	2 Transfer Tube Assembly Part N°	3 Transfer Receptacle Part N°	4 Nose Guard Part N°	5 Bowl Part N°	6 Nose Assembly Kit Part N°	7# Alignment Tool Part N°	8# Alignment Nose Tip Part N°
STANDARD NUTSERT	M3	09508-02312	0756X-00083	08560-01030	08560-01020	08566-01640	08566-00515	08560-02030	07560-09883	08566-01901	07560-00101
	M3	09538-02312	0756X-00083	08560-01030	08560-01020	08566-01640	08566-00515	08560-02030	07560-09883	08566-01901	07560-00101
	M4	09508-02412	0756X-00084	08560-01031	08560-01021	08566-01642	08566-00515	08560-02030	07560-09884	08566-01902	07560-00102
	M4	09538-02412	0756X-00084	08560-01031	08560-01021	08566-01642	08566-00515	08560-02030	07560-09884	08566-01902	07560-00102
	M5	09508-02512	0756X-00085	08560-01031	08560-01022	08566-01643	08566-00515	08560-02030	07560-09885	08566-01903	07560-00103
TSN* (STEEL)	M5	09538-02512	0756X-00085	08560-01031	08560-01022	08566-01643	08566-00515	08560-02030	07560-09885	08566-01903	07560-00103
	M4	09658-02413	0756X-01084	08560-01031	08560-01021	08566-01642	08566-00515	08560-02030	07560-09984	08566-01902	07560-00102
	M5	09658-02514	0756X-01085	08560-01031	08560-01022	08566-01643	08566-00515	08560-02030	07560-09985	08566-01905	07560-00103
	M6	09658-02619	0756X-01086	08560-01032	08560-01025	08566-01645	08566-00515	08560-02031	07560-09986	08566-01910	07560-00104
	M8	09658-02821	0756X-01088	08560-01032	08560-01028	08566-01646	08566-00519	08560-02031	07560-09988	08566-01911	07560-00105
	2BA 10 UNF	09653-02214 09657-02014	0756X-01032 0756X-01070	08560-01031	08560-01022	08566-01643	08566-00515	08560-02030	07560-09932	07560-09970	08566-01903

* TSN stands for Thin Sheet Nutsert

** X varies with electrical supply. See options page Y.

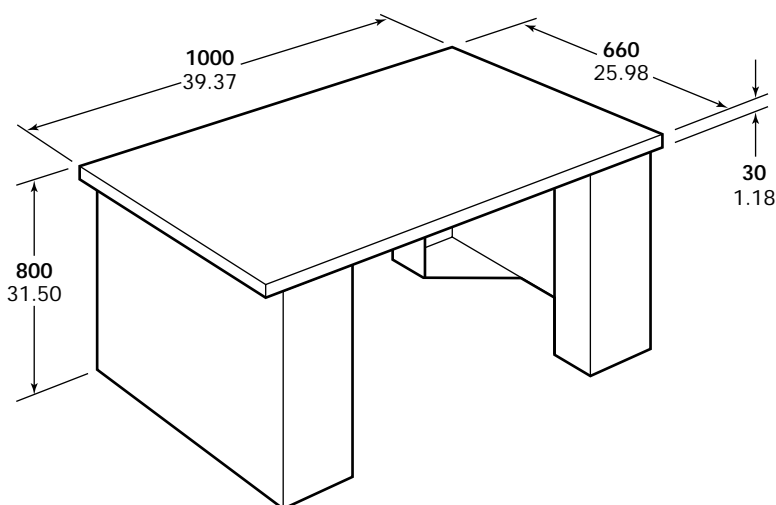
Supplied Separately. See Page ? for details.

UNPACKING THE MACHINE

- If the packing case is damaged upon receipt, do not unpack the machine. Contact Avdel Ltd to arrange for an insurance survey to be carried out.
- If the packing case is undamaged, unpack the Autosert machine and check that the contents are as follows:
- Base machine comprising: placing tool module, control panel, intensifier, air regulator and filter, air lubricator, foot pedal, mains cable, vibratory bowl feeder (removed for transportation purposes).
- Nose assembly for the appropriate insert.
- Alignment tool for aligning the feed tube with the transfer receptacle.
- Alignment nose tip for aligning the nose tip with the transfer receptacle.
- 500 ml can of Hyspin VG32 priming fluid.
- Check that the nose assembly, feed gate, feed tube assembly, transfer receptacle, and vibratory bowl feeder are compatible with the insert to be used. Refer to the table on page XX.
- If any items are damaged upon opening the packing case, do not continue to install or prepare the machine. Contact Avdel Ltd to arrange for an insurance survey to be carried out.

MACHINE SITE

- The weight of the machine is approximately XXkg XXlbs.
- The centre of gravity of the machine is XXXX.
- Carefully place the Autosert machine onto a suitable workbench using suitable lifting equipment. Position the slings on the machine as per illustration XXX, ensuring that cables and pipes are not damaged or trapped.
- The workbench must be capable of supporting the Autosert machine, have a smooth level surface and be at a suitable height for the operator. Avdel produce a workbench that meets these requirements; part number 08560-8000.
- The machine mounting plate is provided with four holes to enable fixing the machine to the workbench.
- Before the Autosert machine can be used it must be set as per the 'putting into service' section on page XX.



WORKBENCH (08560-08000)

AIR SUPPLY

Air supply hoses should have a minimum working effective pressure rating of 150% of the maximum pressure produced in the system or 10 bar, whichever is the highest. Air hoses should be oil resistant, have an abrasion resistant exterior and should be armoured where operating conditions may result in hoses being damaged. All air hoses **MUST** have a minimum bore diameter of 6.4 millimetres or 1/4" inch.

PREPARING THE AUTOSERT

- Fit the vibratory bowl feeder to the machine by placing the bowl onto the support and securing it using the screw from underneath. Ensure that the vibrator is secured firmly to its mounting plate.
- Connect the electrical supply cable from the vibratory bowl feeder to the control box. Refer to the wiring diagram on page XX
- Ensure that the clearance between the guide bar and the flight rails is as per the instruction and illustration on page XX.
- Ensure that the clearance between the flight rails and the feed gate mechanism is as per the instruction and illustration on page XX.
- Insert the air pipe into the air jet valve positioned on the side of the vibratory bowl feeder. Ensure that the pipe is pushed fully into the valve.
- Connect the compressed air supply hose to the air regulator/filter of the Autosert machine, with the appropriate connector and using the appropriate tools*.
- Check the oil level in the air lubricator unit. Top up using Hyspin VG32 priming oil to the maximum level indicated on the glass bowl reservoir. Only use oil that is new and clean. Remove the filler screw and use a small funnel or length of pipe to fill the reservoir.
- Set the oil drip feed rate of the air lubricator unit to XX per minute by adjusting the control knob.
- Check the level of oil in the intensifier reservoir. Top up using Hyspin VG32 priming oil to the maximum level. Only use oil that is new and clean.
- Set the oil drip feed rate of the air lubricator unit to XX per minute by adjusting the control knob.
- Ensure that the compressed air supply regulator is set at 6 - 6.5 bar (88 - 95 lbf/in²). Use the control knob to adjust the pressure.
- Ensure that the guards and covers are correctly fitted. Renew them if damaged.
- Check the operation of the hinged guard safety switch. Loosen the three thumb screws, then when the guard is opened, the electrical supply and the compressed air supply should be switched off, causing the machine to be inoperative. If either the electrical and/or the compressed air supplies are still switched on after opening the hinged guard, **DO NOT** use the machine until the fault has been rectified.

OPERATING PROCEDURE

The Autosert machine may now be operated if it has been Put Into Service as per the instructions on page XX and is working satisfactorily. The procedure for operating the Autosert is as follows :

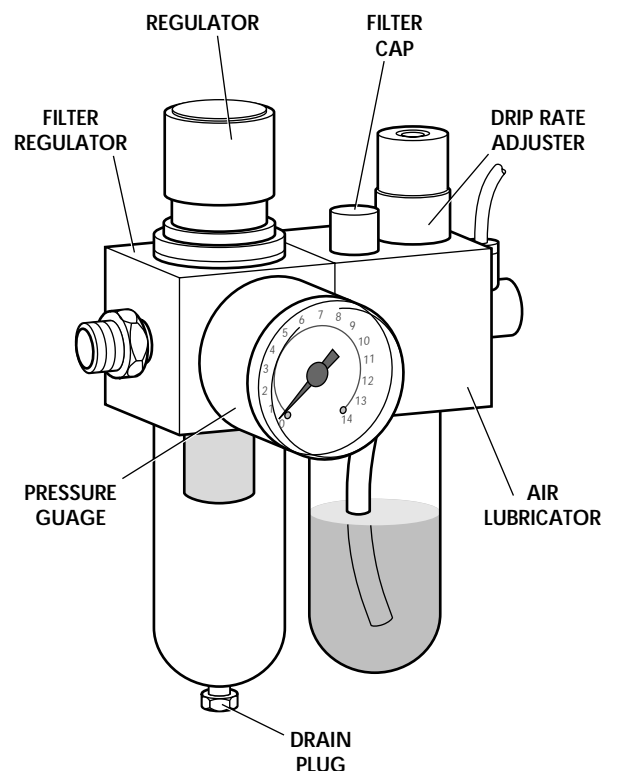
- Fill the vibratory bowl with suitable inserts.
- Add inserts along the full length of the flight rails by hand.
- Ensure that the mains electrical supply is connected and switched on.
- Ensure that the compressed air supply is connected and switched on.
- Ensure that the compressed air supply regulator is set at 6 - 6.5 bar (88 - 95 lbf/in²). Use the control knob to adjust the pressure.
- Set the LINE switch on the control panel to ON.
- Press the RESET button on the control panel.
- Ensure that the FOOT switch is set to FOOT on the control panel.
- If an insert is on the drive screw, offer the workpiece onto the insert.
- Operate the foot pedal to 'place' the insert and accomplish one complete cycle.

NOTE 1 : During the 'placing' cycle, after the insert has been formed, exert a slight downward force to the workpiece as the drive screw is reversed, to aid removal of the workpiece from the drive screw.

NOTE 2 : When an insert is in the transfer receptacle, another insert should be in the transfer tube waiting to be blown into the transfer receptacle by compressed air, when required.

Offer the workpiece to the next insert which should now be located on the drive screw.

Operate the foot pedal to repeat the placing cycle.



FILTER REGULATOR & AIR LUBRICATOR

* Refers to items included in the Avdel service kit. For complete list see page XX.

SETTING UP PROCEDURE

REMOVE EXCESS INSERTS

Inserts must be removed from the following areas before commencing operation of the Autosert machine. This is to ensure that the machine commences to place inserts from a known state.

IMPORTANT

The mains electrical supply and the compressed air supply must both be switched off before removing inserts.

- Remove any inserts from the receptacle and the dispensing tube using the following procedure :
- Loosen the three thumb screws and open the hinged guard.
- Grasp the module and lift it upwards. Use a block of wood to support the module of approximately 100 x 100 x 50 mm - 4 x 2 x 4 inches. Place it between the support base and mounting block, in between the guide bars.
- Rotate the transfer mechanism to expose the insert receptacle.
- Lift the fastener out (if one is present).
- Remove the wooden support block and return the transfer mechanism to its original position.
- Lower the module to its fully lowered position..
- Inserts that are in the dispensing tube may be removed by lifting out the lower portion of the tube from the receptacle.
- Refit the tube to its original position (if removed).
- Close the hinged guard and tighten the three thumb screws.

PRE - OPERATION CHECKS

The following checks and actions must be carried out before commencing a STEP sequence, a Complete Cycle via the control panel, or a Complete Cycle via the Foot Pedal.

- Switch on the mains electrical supply and the air supply to the machine.
- At the control panel, set the LINE switch to the ON position.
- At the control panel, set the FOOT switch to MANUAL and check that the following L.E.D.'s are illuminated :

L.E.D.	FUNCTION
772	Machine ready
410	Module/Drive Screw Down
403	Manual switch selected
404	Rotate back
406	Modular head-up or is it Receptacle Down.
• C	P.L.C. Circuit

- Press the RESET switch and check that L.E.D. 402 is illuminated.
- Set the vibratory bowl feeder control switch to ON and set the rotary control to 7.
- Fill the vibratory bowl with approximately 2000 inserts.
- Ensure there are inserts along the flight rails.
- Ensure that an insert is in the transfer tube and in the receptacle. If an insert is not in the transfer tube and/or the receptacle, then carry out the following procedure completely, once or twice only, until this requirement is met.
- At the control panel, press the RESET button twice.

NOTE 1: The switch will not be illuminated and the vibrator feed bowl will not vibrate until either of the following are pressed; STEP button, CYCLE button, FOOT pedal.

NOTE 2: If the machine is not used for approximately 10 seconds, then the vibratory feeder bowl will stop vibrating until the machine is used again ie. the vibratory feeder bowl will be on standby.

NOTE 3: When carrying out the following actions, keep hands clear of all moving parts.

NOTE 4: At this initial stage, an insert is not usually in the delivery tube or in the transfer receptacle. Therefore, operate the foot pedal either once or twice, to transfer an insert onto the drive screw. If an insert is not on the drive screw after two complete cycles, refer to the Fault Finding section on page XX.

STEP SEQUENCE

Operation of the Autosert machine may be carried out in a step-by-step sequence using the STEP facility of the control system. This procedure is used for the initial setting-up purposes and also to check the sequence of operations during maintenance or fault finding. The following operations are the step-by-step sequence for a complete insert placing cycle. Each operation is initiated by pressing the STEP button on the control panel.

Check that each operation is completed and that the relevant L.E.D's are illuminated. If an operation is not satisfactory, refer to the fault finding instructions on page XX.

After the insert has formed in the workpiece, exert a slight downward force to the workpiece as the drive screw is rotated in the reverse direction.

OPERATION CHECK	DESCRIPTION	AIR	SOL.	PANEL
Check that the intensifier operates to move the drive screw up then down, by approximately 3mm $\frac{1}{8}$ ". This action places an insert in the workpiece.	Insert placing Step	07 08	504	771 401
Check that the drivescrew rotates in the reverse direction. (Screwing out of the insert).	Motor Reverse Step	06	506	774 401
Check that the module/drivescrew moves up to the fully raised position.	Module/drivescrew Up Step	01 02	500	411 401
1. Check that the receptacle moves across to the position beneath the drivescrew. Check that there is an insert in the receptacle.	Receptacle to drivescrew	03 04	502	405
2. Check that the drivescrew rotated in the forward direction, if an insert is present. (Screwing into the insert).	Motor forward Step	05	505	401
1. Check that the pin in the receptacle is operated and prevents the insert from rotating.	Receptacle pin in	09 10 & 09A 10A	510	407
2. Check that the receptacle moves up to engage the insert with the drive screw. The air motor stops when the drivescrew is fully into the insert i.e. when the present torque has been reached.	Receptacle up Feed gate mechanism	09 & 10 09 10 & 09A 10A	510 510	407 407
3. Check that the feed gate mechanism has operated to enable an insert to drop into the transfer tube for placing the next cycle.	Step			401
1. Check that the pin in the receptacle is operated and allows the insert to rotate.	Receptacle pin out	09 10 & 09A 10A	510	406
2. Check that the receptacle moves down and clear of the drivescrew/insert.	Receptacle down	09 & 10	510	406
3. Check that the feed gate mechanism has operated to prevent another insert from dropping into the transfer tube.	Feed gate mechanism Step	09 10 & 09A 10A	510	406 401
Check that the receptacle moves to beneath the transfer tube.	Receptacle to transfer tube Step	03 04	503	404 401
Check that the module/drivescrew moves down so that the drivescrew projects beneath the nose housing guard.	Module/drivescrew down Step	01 02	01	410 401
Check that the air-blast moves the insert from the transfer tube to the receptacle.	Transfer time Step	11	507	773 401

COMPLETE CYCLE AT THE CONTROL PANEL

The following operations are for carrying out a Complete Cycle for placing an insert using the control pad:

Check that each operation is completed and that the relevant L.E.D.'s are illuminated. If the cycle is not satisfactory refer to the fault finding instructions on page XX.

ACTION	OPERATION CHECK	DESCRIPTION	L.E.D.
At the control panel, press the DRIVESCREW REVERSE	Motor Reverse	Grasp the unplaced insert and remove it from the drivescrew. Refer to the instructions on page XX to remove the insert using tools.	416
At the control panel, press	Complete Cycle	Check that the machine carries out a complete cycle of operations, automatically.	400

After the insert has formed in the workpiece, exert a slight downward force to the workpiece as the drivescrew is rotated in the reverse direction.

COMPLETE CYCLE USING THE FOOT PEDAL

The following operations are for carrying out a Complete Cycle for placing an insert using the foot pedal:

Check that each operation is completed and that the relevant L.E.D.'s are illuminated. If the cycle is not satisfactory refer to the fault finding instructions on page XX.

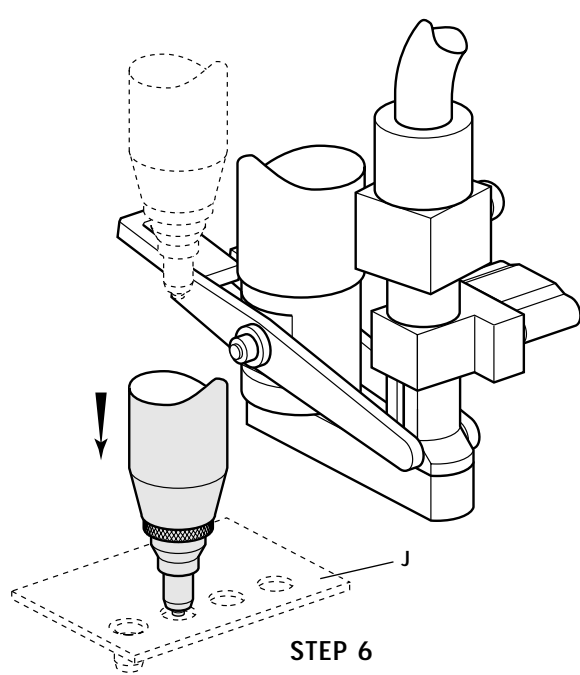
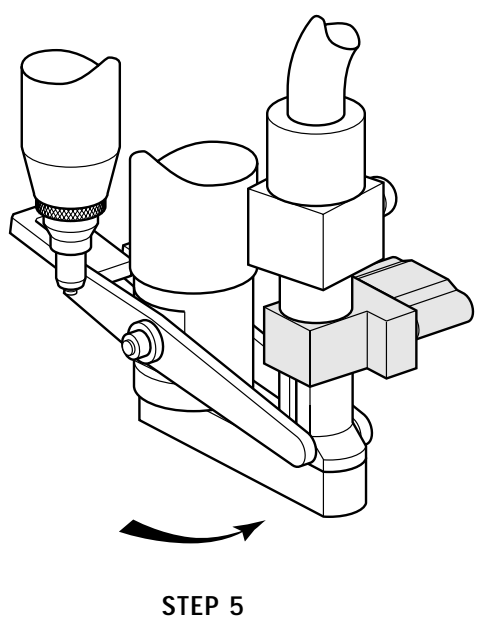
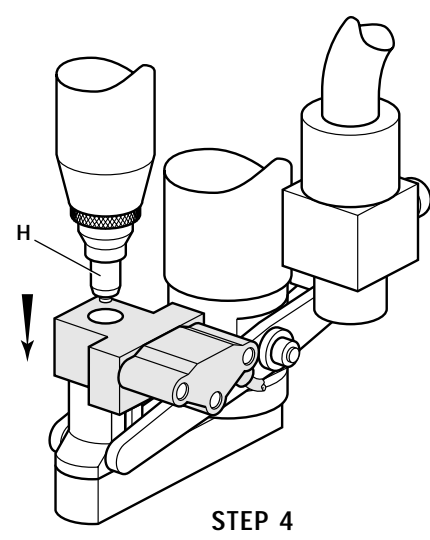
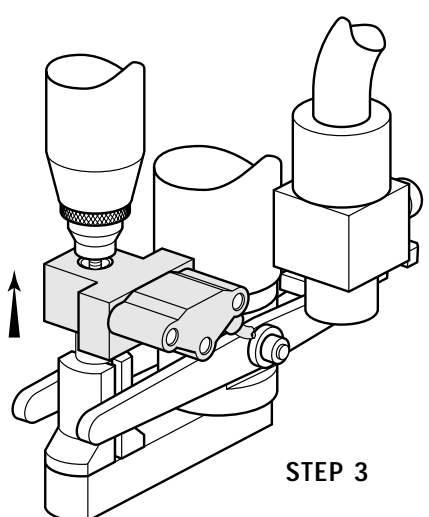
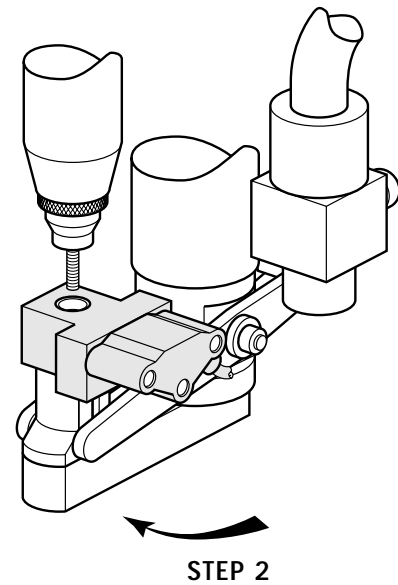
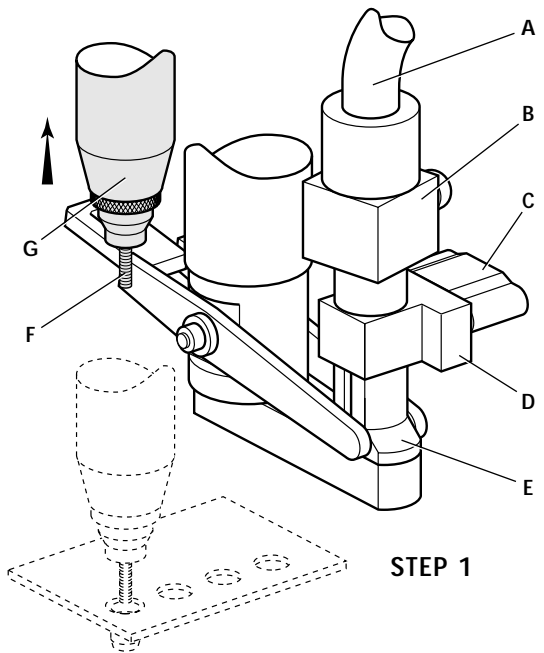
ACTION

At the control panel, set the FOOT switch to FOOT.

Place the workpiece onto the insert, which is protruding from the housing guard nose.

Operate the foot pedal to initiate placing the insert in a complete cycle.

After the insert has formed in the workpiece, exert a slight downward force to the workpiece as the drivescrew is rotated in the reverse direction.



STEP SEQUENCE

NOSE ASSEMBLIES

It is essential that the correct nose assembly is fitted prior to operating the Autosert machine. Refer to page XX for the tool/insert selection table, page XX for the nose assemblies table, and page XX for the nose assembly component table.

FITTING INSTRUCTIONS

IMPORTANT

The air supply must be disconnected when fitting or removing nose assemblies unless specifically instructed otherwise.

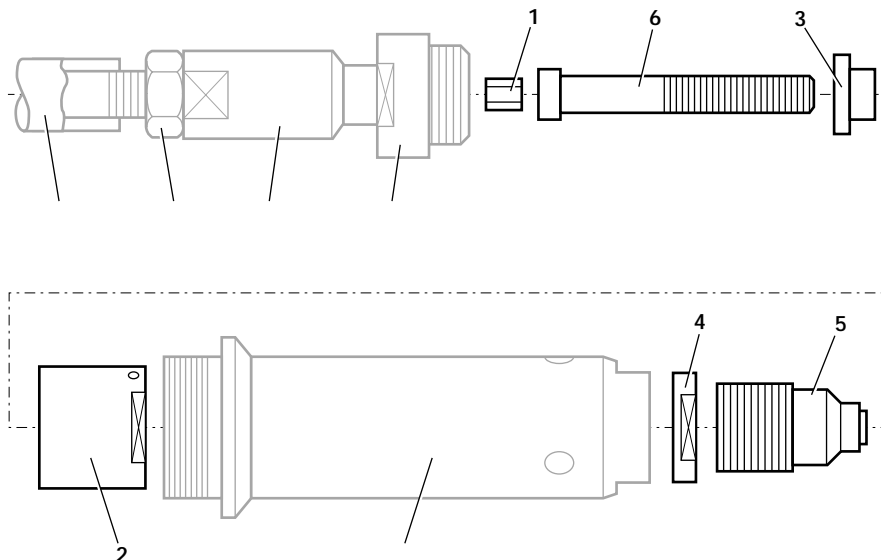
- Fit reducing sleeve 3 if required to drive screw 6.
- Insert reducing sleeve 3 if required, and drive screw 6 into adaptor nut 2.
- Fit drive shaft 1 into drive screw 6.
- Insert the assembly into the spindle, locating drive shaft 1 in the spindle, whilst screwing adaptor nut 2 onto the spindle, anti-clockwise as viewed from above. Hold the spindle stationary and tighten using spanners.
- Tighten the counter lock nut anti-clockwise as viewed from above, until it contacts the adaptor nut to lock it in position, whilst holding the adaptor nut. Tighten using spanners*.
- Screw the nose casing onto the module, anti-clockwise as viewed from above, and tighten using a spanner*
- Screw nose tip 5 onto the nose casing, anti-clockwise as viewed from above, by hand.
- Screw lock nut 4 onto nose tip 5 anti-clockwise as viewed from above, by hand.

SETTING

- Screw the required insert fully onto drive screw 6.
- Adjust the position of the nose casing by screwing it up or down Q - by hand or using a tool ? Q - until when the drive screw is flush with the insert end ? Q - Should it be that the base of the insert is in relation to the nose casing somehow ?
- Tighten lock nut 4 anti-clockwise as viewed from above, and tighten using a spanner*.

REPLACE THE GUARDS

- Refit the bottom guard and its three retaining screws.
- Close the hinged guard and tighten the three thumb screws.



* refers to items included in the Avdel service kit. For complete list see page XX.

SERVICING INSTRUCTIONS

Nose assemblies should be serviced at weekly intervals.

- The nose assembly should be serviced every week. Q - What constitutes a service ?
- Remove the nose assembly as per the removal instructions on page XX.
- Examine the nose assembly components for signs of wear or damage, paying particular attention to the condition of drive screw 6.
- Renew any worn or damaged items.
- Replace the assembly as per the fitting instructions on page XX.

REMOVAL INSTRUCTIONS

I M P O R T A N T

The air supply must be disconnected when fitting or removing nose assemblies unless specifically instructed otherwise.

REMOVE THE GUARDS

- Loosen the three thumb screw and open the hinged guard.
- Remove the bottom guard and its three retaining screws.

REMOVE THE NOSE ASSEMBLY

- Unscrew and remove lock nut 4 clockwise as viewed from above, using a spanner*.
- Unscrew and remove nose tip 5 clockwise as viewed from above, by hand.
- Unscrew and remove the nose casing, clockwise as viewed from above, using a spanner* .
- Unscrew and remove the counter lock nut clockwise as viewed from above. Hold the spindle stationary using spanners* .
- Remove drive screw 6, reducing sleeve 3 if fitted), and drive shaft 1.

NOSE ASSEMBLY COMPONENTS

Nose tips vary in shape according to the insert type. Each nose assembly represents a unique assembly of components which can be ordered individually. All nose assemblies also include item 2 nose tip locknut (part number 07555-00901). Component numbers refer to the illustration on page 7. We recommend some stock as items will need regular replacement. Read the Nose Assemblies servicing instructions, also on page 7 carefully.

NOSE ASSY	1	2	3	4	5	6
07560-09883	07555-01003	07555-00805	07555-09103	07555-00901	07560-06883	07566-09083
07560-09884	07555-01004	07555-00805	07555-09104	07555-00901	07560-06884	07566-09084
07560-09885	07555-01005	07555-00805	07555-09105	07555-00901	07560-06885	07566-09085
07560-09886	07555-01006	07555-00805	07555-09106	07555-00901	07560-06886	07566-09086
07560-09888	07555-01008	07555-00805	07555-09108	07555-00901	07560-06888	07555-09008
07560-09983	07555-01003	07555-00805	07555-09103	07555-00901	07560-08883	07566-09083
07560-09984	07555-01004	07555-00805	07555-09104	07555-00901	07560-08884	07566-09084
07560-09985	07555-01005	07555-00805	07555-09105	07555-00901	07560-08885	07566-09085
07560-09986	07555-01006	07555-00805	07555-09106	07555-00901	07560-08886	07566-09086
07560-09988	07555-01008	07555-00805	07555-09108	07555-00901	07560-08888	07555-09008
07560-09932	07555-01005	07555-00805	07555-09105	07555-00901	07560-08816	07560-08801
07560-09970	07555-01005	07555-00805	07555-09105	07555-00901	07560-08817	07560-08802

* refers to items included in the Avdel service kit. For complete list see page XX.

SERVICING THE TOOL

Regular servicing must be carried out and a comprehensive inspection performed every 6 months, or after 500 000 placings:

IMPORTANT

The employer is responsible for ensuring that tool maintenance instructions are given to the appropriate personnel.
 The operator should not be involved in maintenance or repair of the tool unless properly trained.
 During cleaning, ensure that all swarf and particles are removed as these may adversely affect the machine operation. Use lint free cloths and a 25mm (1 inch) brush for general cleaning purposes.
 Do not use low pressure compressed air lines for cleaning. This is because particles could potentially be blown into eyes and into the Autosert machine.

DAILY OR BEFORE USE

- Examine the drive screw. If there are any signs of wear or damage, fit a new drive screw immediately. Refer to the instructions on page XX.
- Drain any accumulation of liquid from the air filter/regulator unit into a suitable container, and dispose of safely.
- Check the level of oil in the intensifier reservoir. Top up using Hyspin VG32 priming oil to the maximum level. Only use oil that is new and clean.

WEEKLY

- In addition to the daily servicing carry out the following :
- Check the oil level in the air lubricator unit. Top up using Hyspin VG32 priming oil to the maximum level indicated on the glass bowl reservoir. Only use oil that is new and clean. Remove the filler screw and use a small funnel or length of pipe to fill the reservoir.
- Set the oil drip feed rate of the air lubricator unit to XX per minute by adjusting the control knob.
- Clean the vibratory bowl feeder and outlet rail thoroughly.
- Remove all swarf and particles as these may be transferred to the feed gate mechanism, and adversely affect its operation.
- Clean the feed gate mechanism thoroughly.
- Check the feed gate mechanism for correct functioning.
- Clean the transfer mechanism and receptacle thoroughly, to ensure correct seating of the insert.
- Check the condition of the electrical cables and connections. Renew any damaged items.
- Examine the air pipes and valves for loose connections, leaks, trapped or squashed pipes. Renew pipes, valves and fittings if worn or damaged.
- Examine the hydraulic hose, intensifier and reservoir units loose connections or leaks. Check that the connections are good and renew pipes, valves and fittings if worn or damaged.
- Ensure that the guards and covers are correctly fitted. Renew them if damaged.
- Ensure that the fastener delivery tube is clean and clear of swarf. Renew the delivery tube if required.
- Check the operation of the hinged guard safety switch. Loosen the three thumb screws, then when the guard is opened, the electrical supply and the compressed air supply should be switched off, causing the machine to be inoperative. If either the electrical and/or the compressed air supplies are still switched on after opening the hinged guard, DO NOT use the machine until the fault has been rectified.

Grease used during tool maintenance can be ordered as a single item, the part number is shown in the service kit below.

MOLY LITHIUM GREASE EP 3753 SAFETY DATA	
<p>FIRST AID SKIN: As the grease is completely water resistant it is best removed with an approved emulsifying skin cleaner.</p> <p>INGESTION: Make the individual drink 30ml Milk of Magnesia, preferably in a cup of milk.</p> <p>EYES: Irritant but not harmful. Irrigate with water and seek medical attention.</p> <p>ENVIRONMENT Scrape up for burning or disposal on approved site.</p>	<p>FIRE FLASH POINT: Above 220°C. Not classified as flammable. Suitable extinguishing media: CO₂, Halon or water spray if applied by an experienced operator.</p> <p>HANDLING Use barrier cream or oil resistant gloves</p> <p>STORAGE Away from heat and oxidising agent.</p>

* refers to items included in the Avdel service kit. For complete list see page 10.

6 MONTHLY OR AFTER 500,000 PLACINGS

In addition to the weekly servicing :

- Ensure that the compressed air supply regulator is set at 6 - 6.5 bar (88 - 95 lbf/in²). Use the control knob to adjust the pressure.
- Remove and dismantle the nose assembly and check for signs of wear or damage. Refer to the instructions on page XX.
- Ensure that the exit path from the feeder bowl is correctly adjusted and aligned with the transfer gate.
- Ensure that the nose casing is in the correct position relative to the drive screw.
- Refer to the instructions on page XX.
- Clean the transfer mechanism and linkage system.
- Check that the transfer mechanism and linkage system has freedom of movement.
- Ensure that the pipe adaptor is aligned with the receptacle using the alignment tool. Refer to the instructions on page XX.
- Ensure that all sensors are securely positioned. There are two sensors for each of the three pneumatic cylinders.
- Empty the vibratory bowl and clean it thoroughly. Refill with inserts afterwards.
- Ensure that the vibration level of the vibratory bowl feed feeder is satisfactory so that inserts are fed correctly to the guide bar. Adjust the vibration using the rotary control if required.
- Check that the air lubricator unit is functioning correctly.

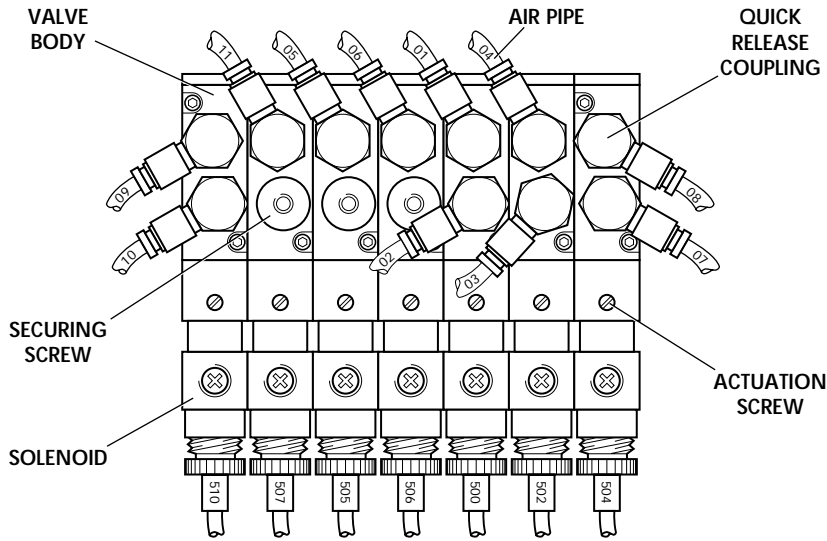
- Using the STEP facility, check each stage of the tool cycle to check that each stage of the operation is satisfactory. Refer to the instructions on page XX.

- Check the stroke of the module.

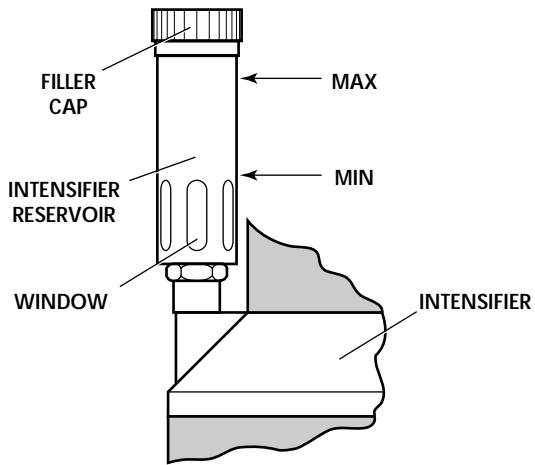
For servicing the Autosert we recommend the use of service kit below (part number 07900-5600) supplied in its own plastic case.

SERVICE KIT		
ITEM PART N°	DESCRIPTION	N° OFF
07900-00008	1/2" A/F 734 PULL GUN SPANNER	1
07900-00092	7/8" x 3/4" A/F D.O.E. SPANNER	1
07900-00158	0.078 Ø PIN PUNCH	1
07900-00224	4mm A/F ALLEN KEY	1
07900-00225	5mm A/F ALLEN KEY	1
07900-00226	6mm A/F ALLEN KEY	1
07900-00243	ELECTRICAL SCREWDRIVER	1
07900-00251	3mm A/F ALLEN KEY	1
07900-00283	8mm A/F ALLEN KEY	1
07900-00393	15mm A/F x 14mm A/F SPANNER	1
07900-00395	1/2"W A/F x 7/16"W A/F SPANNER	1
07900-00407	2.5mm A/F ALLEN KEY	1
07900-00416	22mm A/F SPANNER	1

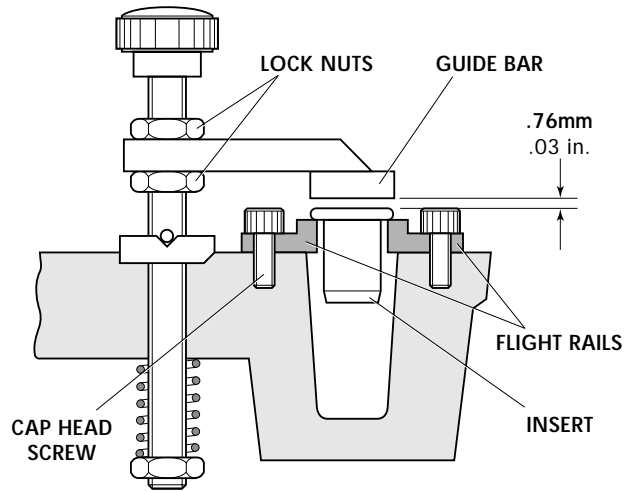
SERVICE KIT (Continued)		
ITEM PART N°	DESCRIPTION	N° OFF
07900-00467	8mm A/F x 10mm A/F SPANNER	1
07900-00486	TIN CLEANER SPRAY	1
07900-00543	12mm A/F SPANNER	2
07900-00544	3mm TOMMY BAR	1
07900-00555	20mm A/F SPANNER	2
07900-00556	SPECIAL COMBINATION SPANNER	2
07900-00559	9mm A/F SPANNER	1
07900-00560	7mm A/F SPANNER	1
07992-00002	1/2 LITRE HYPSPIN VG 32	1
07900-00408	HEXAGON WRENCH 14mm	1
07900-00426	SPECIAL COMBINATION SPANNER	2
07900-00388	COMBINATION SPANNER 13mm	1
07900-00020	80 gms MOLYLITHIUM GREASE EP 3753	1



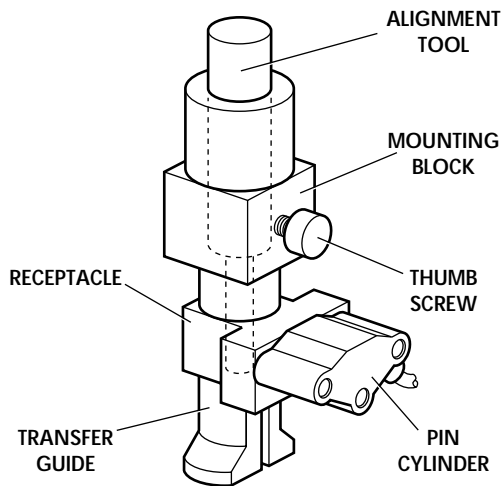
SOLENOID VALVES



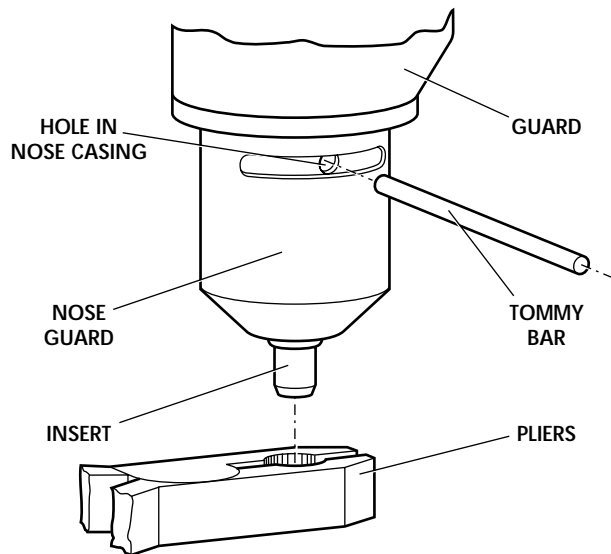
INTENSIFIER RESERVOIR



GUIDE BAR CLEARANCE



ALIGNMENT TOOL



REMOVING INSERT FROM DRIVE SCREW

MAINTENANCE

E s and seals should be renewed and lubricated with Moly Lithium grease EP 3753 before assembling : Module, Pneumatic Cylinders, Vibratory Bowl Feeder Assembly, Feed Gate Mechanism, Transfer Tube Assembly and Transfer Receptacle.

IMPORTANT

**Safety Instructions appear on page 2 & 3.
Before attempting to carry out any maintenance or dismantling tasks, it is imperative that the
AIR AND ELECTRICAL SERVICES ARE DISCONNECTED FROM THE MACHINE.**

The airline must be disconnected before any servicing or dismantling is attempted unless specifically instructed otherwise.

It is recommended that any dismantling operation be carried out in clean conditions.

Item numbers in bold refer to the general assembly and parts list pages XX and XX.

Before proceeding with dismantling, empty the oil from the tool. Remove oil plug from the handle assembly and drain the oil into a suitable container.

Prior to dismantling the tool it is necessary to remove the nose assembly. For simple removal instructions see the nose assemblies section, page X.

For total tool servicing we advise that you proceed with dismantling of sub-assemblies in the order shown on pages XX to XX.

MODULE

REMOVAL OF THE HINGED GUARD AND BOTTOM GUARD

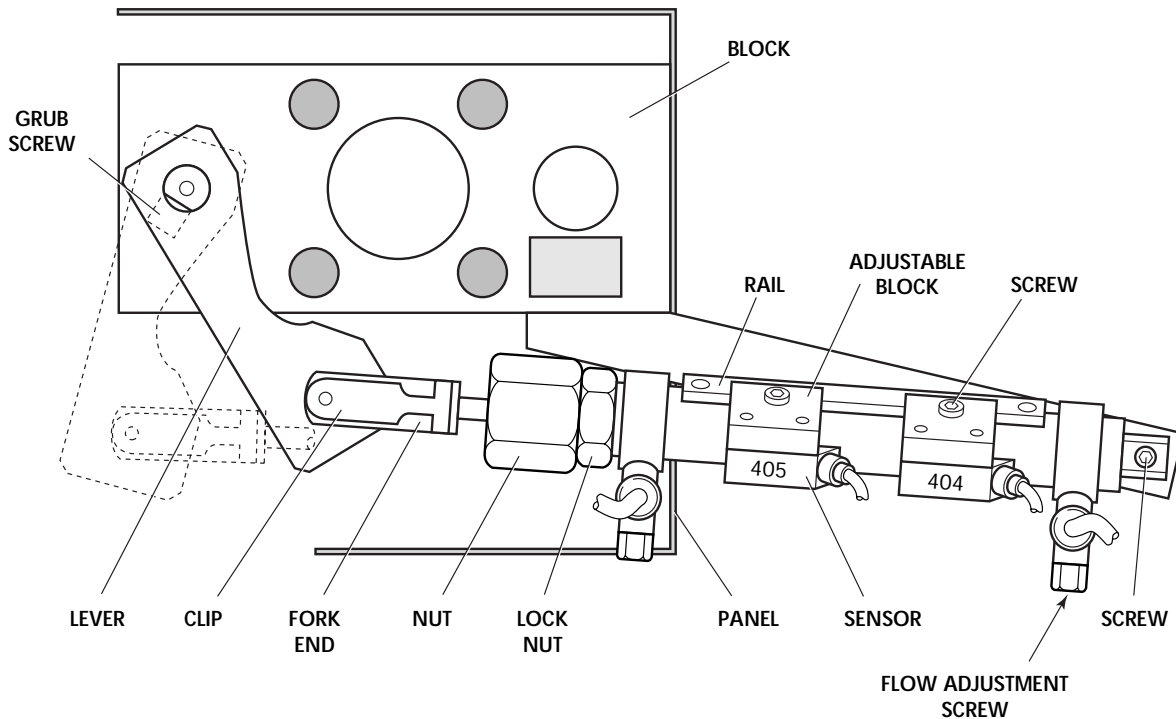
- Refer to parts list 07566-00200 on page XX.
- Loosen three thumb screws **38**.
- Unscrew and remove two screws XX and remove the hinged guard, using an Allen key*.
- Remove the bottom guard by unscrewing and removing three screws XX, using an Allen key*.

REMOVAL OF THE MODULE

- Refer to parts list 0XXXXXXX0 on page XX.
- Disconnect the hydraulic hose from the module using spanners*. Secure the end of the hose to a high point of the machine to prevent oil spillage.
- Pull out the transfer tube from the adaptor block.
- Remove the transfer tube locating block using an Allen key*.
- Mark the hole positions of the two air pipes and fittings on top of the module for replacement purposes. Remove them using a spanner*.
- Remove the module from the mounting plate by unscrewing and removing the two retaining screws, which clamp the module to the mounting plate, using an Allen key*.

REMOVAL OF THE AIR MOTOR

- Refer to parts list 07666-00200 on page XX.
- Screw adjustable lock nut **10** inwards until the spanner flats on piston **24** are exposed, using the pinned end of the spanner*.
- Remove sleeve **26** and motor assembly from piston **24**, using spanners*.



RECEPTACLE POSITION ADJUSTMENT

DISMANTLING THE MODULE

- Refer to parts list 07666-00200 on page XX.
- Remove oil plug 21 and seal 22 from casing head 20 using an Allen key*. Drain the oil from the unit into a suitable container and dispose of safely. DO NOT re-use the oil.
- Unscrew and remove nose casing 1 from casing head 20 using a spanner*.
- Unscrew and remove spindle 2 from movement pivot 7 by loosening locknut 4, using spanners*.
- Using the pinned end of the spanner*, screw adjustable locknut 10 inwards until the spanner flats on piston 24 are exposed.
- Unscrew and remove sleeve 26 and the motor assembly from piston 24, using a spanner*.
- Unscrew and remove lock nut 4 from movement pivot 7, by hand.
- Remove from piston 24; adaptor nut 25, movement pivot 7 and shim adjustment ring 8.
- Unscrew and remove adjustable locknut 10 from casing head 20, using the pinned end of the spanner*.
- Remove spring 9 from piston 24.
- Remove piston 24 from casing head 20.
- Remove 'O' ring 23 from piston 24, taking care not to damage its sealing surfaces.
- Remove retaining ring 5 from casing head 20 using an Allen key*.
- Remove seal 6 from casing head 20.

ASSEMBLING THE MODULE

- Refer to parts list 07666-00200 on page XX.
- Assemble in the reverse order to dismantling.
- Note: When assembling locknut 4 onto movement pivot 7, ensure there is a gap of 1.27 - 1.53 mm (.050 - .060 inch) between the front face of piston 24 and the back face of locknut 4.
- Adjustable locknut 10 can be set to give the required pull stroke for placing an insert, using the pinned end of the spanner*.

* refers to items included in the Avdel service kit. For complete list see page XX.

DISMANTLING THE MOTOR

- Refer to parts list 07666-00200 on page XX.
- Grip motor casing **19** in a vice fitted with soft jaws.
- Unscrew and remove sleeve **26**, using a spanner*.
- Remove from planet gear **29**, the assembly which comprises; bearing **28**, locknut **27** and spider **11**.
- Holding the hexagon of spider **31** in a vice, remove locknut **27** from spider **11**, using a spanner*.
- Remove bearing **28** from spider **11**.
- Remove three planets **12** from planet gear **29**, by lightly tapping the front face of motor casing **19** on a soft surface. Take care not to misplace planets **12**.
- Remove from planet gear **29**, shim **30**, spider **31** and three planets **12**.
- Remove planet gear **29** and spacer **13** from motor casing **19**, taking care not damage the front face of motor casing **19**.
- Remove from motor casing **19**, the stator assembly comprising; bearing **28**, plate **14**, rotor **15**, stator **16**, rear end plate **33**, bearing **17** and pin **18**.
- Turn stator **16** through 180° to rear end plate **33**, so that the flat on it is opposite to the flat on the stator.
- Grip the flat of rear end plate **33** lightly in a vice, allowing the shoulder of stator **16** to rest on the top of the vice jaw. Using a plastic or rubber hammer, tap the splined end of the assembly to free rotor **15** and rotor blades **32**.
- Remove air connectors **34** from casing motor **19**, using a spanner*.

ASSEMBLING THE MOTOR

Refer to parts list 07666-00200 on page XX.

- Assemble in reverse order to dismantling. Take care to replace pin **18** into the centre hole of the three holes located within the rear end plate **33**, and the centre hole within the three internal holes of motor casing **19**.

REFITTING THE MOTOR

Refer to parts list 07666-00200 on page XX.

- Assemble in reverse order to dismantling.

REFITTING THE MODULE

Refer to parts list 07666-00200 on page XX.

- Assemble in reverse order to dismantling.

VIBRATORY BOWL FEEDER MECHANISM

Refer to parts list 07566-00200 on page XX for the following instructions.

REMOVAL OF THE VIBRATORY BOWL

- Remove the inserts from the vibratory bowl.
- Remove the inserts from the flight rails. Lift the guide bar, then rotate it through 90° to gain access to the rails.
- Disconnect the air jet pipe from the side of the vibratory bowl by pushing the collar towards the fitting whilst withdrawing the pipe.
- Remove the vibratory bowl including the flight rails etc from the vibrator, by unscrewing and removing the securing screw from the base of the vibratory bowl, using an Allen key*.

CLEANING THE VIBRATORY BOWL

- Clean the bowl using the special cleaning spray* and a soft lint-free cloth. Do not use any other type of cleaner or cloth as they may damage the coating on the inside of the bowl.
- Clean the flight rails using the special cleaning spray* and a soft lint-free cloth.. The flight rails are accessed by lifting the guide bar and turning it through 90°.

REMOVAL OF THE VIBRATOR

- Disconnect the electrical supply cable from vibrator **2**, at the control box. Refer to the wiring diagram on page XX
- Remove the vibrator along with its mounting plate, by removing the central securing screw from underneath mounting bracket **25**, using an Allen key*.

DISMANTLING THE VIBRATOR

- Remove the vibrator mounting plate and the anti-vibration mounts from the vibrator by removing the three securing screws, using an Allen key*.
- Remove the vibrator cover, to gain access to the electrical connections, by removing the three securing screws, using an Allen key*.
- Examine the electrical connections and the cable/wire condition. Check the wires and connections for electrical continuity.

Note: Mark the position of the wires if the cable is to be renewed. Place a 'tested for electrical safety' sticker on the outside of the cover if the electrical checks are satisfactory.

* refers to items included in the Avdel service kit. For complete list see page XX.

ASSEMBLING THE VIBRATOR

- Assembly is the reverse of the above removal instructions.

REFITTING THE VIBRATOR

- Refitting is the reverse of the above removal instructions.

REFITTING THE VIBRATORY BOWL

- Refitting is the reverse of the above removal instructions.

PREPARING THE AUTOSERT

- After assembly and fitting, the flight rails and guide bar will require setting up as per the instructions on page XX, 'Preparing the Autosert'.

FEED GATE MECHANISM

Refer to parts list OXXXXXX0 on page XX for the following instructions.

REMOVAL OF THE FEED GATE MECHANISM

The feed gate mechanism may be removed from the mounting bracket, complete with guard and feed gate valve in the following way:

- Disconnect the two air jet pipes from the feed gate valve by pushing the collar towards the fitting whilst withdrawing the pipe.
- Disconnect the air jet pipe from the air blast micro-regulator by pushing the collar towards the fitting whilst withdrawing the pipe.
- Disconnect the transfer tube connection by unscrewing the knurled thumb screw, adjacent to the base of the feed gate valve and withdrawing the transfer tube.
- Remove the micro-regulator and pressure gauge from the mounting bracket, by unscrewing and removing the securing screws, using an Allen key*.
- Mark the position of the feed gate mechanism on the mounting bracket.
- Remove the feed gate mechanism from its mounting bracket by unscrewing and removing the two screws, using an Allen key*.
- Remove the feed gate mechanism and guard by unscrewing and removing the two screws, using an Allen key*.

DISMANTLING THE FEED GATE MECHANISM

- Separate the feed gate valve from the feed gate mechanism by removing the two securing screws, using an Allen key*.
- Clean the feed gate valve from the feed gate mechanism using the cleaner spray* and a lint free cloth.

REPLACING THE FEED GATE MECHANISM VALVE

- Hold the piston of the valve using a spanner*.
- Release the valve mechanism from the valve piston using an Allen key*.
- Unscrew and remove the two retaining screws to remove the side plate from the valve, using an Allen key*.
- Fit the new valve in the reverse sequence.

ASSEMBLING THE FEED GATE MECHANISM

- Assemble the feed gate valve to the feed gate mechanism in the reverse order of dismantling.

REFITTING THE FEED GATE MECHANISM

- Fit the feed gate mechanism to the mounting bracket in the reverse order of dismantling.
- Ensure that the feed gate assembly is aligned with the removal marks.
- Ensure that the flight rails are level with the top of the feed gate.
- Set the gap between the flight rails and the feed gate mechanism to approximately .76 mm (.030 inch) by adjusting the position of the feed gate mechanism. It may be necessary to loosen the securing screw to align the vibratory bowl with the flight rail. Refer to the illustration on page XX.

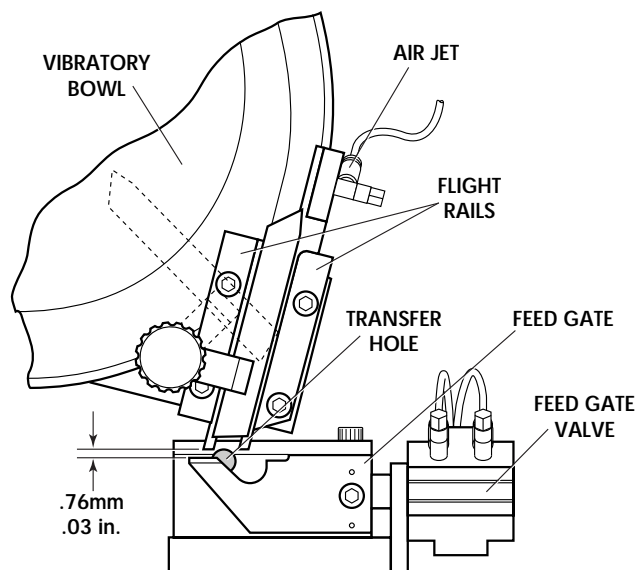
TRANSFER MECHANISM AND RECEPTACLE

Refer to parts list 07566-00400 on page XX for the following instructions.

REMOVAL OF THE HINGED GUARD AND BOTTOM GUARD

- Access to the transfer mechanism is possible after the lower guard from the Autosert machine. This may be removed by unscrewing and removing three screws XX.

* refers to items included in the Avdel service kit. For complete list see page XX.



FEED GATE CLEARANCE

REMOVAL/DISMANTLING OF THE TRANSFER RECEPTACLE

- Lift the module to its fully raised position. Use a block of wood to support the module of approximately 100 x 100 x 50 mm - 4 x 2 x 4 inches. Place it between the support base and mounting block, in between the guide bars.
- Remove mounting block 68 by unscrewing and removing screw 66, using an Allen key*.
- Move the receptacle towards the module, then disconnect the two air jet pipes from the by pushing the collar towards the receptacle whilst withdrawing the pipe.
- Remove the receptacle from transfer guide 32, by unscrewing and removing the two securing screws, using an Allen key*.
- Remove two screws 52 from the rear of levers 48 and 54, using an Allen key*.
- Remove nut 50 from pivot 53 using two spanners*, one on the nut and the other on the pivot head.
- Remove pivot 53 and levers 48 and 54, making a note of their orientation (left and right hand), and the plate lever 51 position.
- Remove pin 55 from transfer guide 32.
- Remove the receptacle by withdrawing it upwards out of transfer guide 32.

REFITTING/ASSEMBLY OF THE TRANSFER RECEPTACLE

- Assemble and refit the transfer receptacle in the reverse order of dismantling.
- It is recommend that nut 50 is replaced by a new one, as the locking ability of the old nut may now be insufficient.

RECEPTACLE PIN

Note: The pin in the receptacle that grips the insert must be carefully examined for wear or damage. A new pin should be fitted rather than dressing the existing pin.

- Adjustment of the pin in the receptacle will be required if the pin has been redressed or renewed. Remove the pin by loosening the locknut on the pin
- Set the pin by slackening off the locknut on the pin, then screwing the pin in or out so that the pin just touches an insert located in the receptacle. Do not test the operation of the pin in a placing cycle without an insert present in the receptacle, as it could damage the drive screw.

INSERT ALIGNMENT

- The receptacle must be aligned with the nose assembly and the transfer tube after removing/dismantling the receptacle and transfer mechanism. The alignment tool, alignment nose tip, transfer receptacle and feed tube assembly must be compatible with the insert type/size that is in use. Refer to the table on page XX.

ALIGNMENT OF THE RECEPTACLE AND THE TRANSFER TUBE

- The module must fully lowered, and the receptacle must be positioned below the transfer tube.
- Withdraw the transfer tube and pipe adaptor by loosening the thumb screw on the mounting block.
- Insert the alignment tool into both the transfer tube adaptor and the insert transfer receptacle.
- If alignment is correct then the alignment tool can be rotated freely. If alignment is not correct, then loosen lock nut 60 and adjust the nut behind the locknut until the alignment tool rotates freely.
- Tighten lock nut 60 and remove the alignment tool.

* refers to items included in the Avdel service kit. For complete list see page XX.

ALIGNMENT OF THE RECEPTACLE AND THE DRIVE SCREW

- Substitute the module nose tip with the alignment nose tip.
- Lift the module to its fully raised position.
- Position the receptacle to below the alignment nose tip.
- Lower the module slowly, observing that the nose tip enters the insert transfer receptacle correctly.
- If adjustment is required, loosen the small lock nut and adjust the shaft to move the insert transfer laterally to achieve the correct insertion of the alignment nose tip.
- Additional adjustment to obtain the correct alignment may be obtained by adjusting the stroke of cylinder 59, using a spanner*. Note that any adjustment to the stroke of the cylinder will not only affect the alignment of the receptacle and the drive screw, but also the alignment of the receptacle and the transfer tube.
- Remove the alignment nose tip and replace it with the module nose tip.

PNEUMATIC SYSTEM

SOLENOID VALVES

- The solenoid operated pneumatic valves are controlled by the P.L.C. and are situated at the rear of the control box. Some solenoid valves are double acting and some are spring return. The solenoid valves are situated at the rear of the control box and are not adjustable. It is on the demo room model. The hose goes to the valve/solenoid pack.

CHECKING VALVE OPERATION

IMPORTANT

Although each step of the sequence may be carried out separately and independantly of the others, it is advisable that the normal sequence is followed otherwise damage is likely to occur to the machine.

Note that the solenoid itself will not be tested.

The electrical supply must be switched off.

The compressed air supply must be switched on.

- The operation and function of each solenoid valve may be checked using the table on page XX. This will indicate the operation check, air pipe numbers, and the solenoid valve numbers. The instructions are listed as per the normal sequence of operations for a placing cycle.
- Use a small flat bladed screwdriver* to rotate the screw on the solenoid valve by around 45 degrees, causing air to operate the valve and consequently a machine mechanism. Return the screw to its original position after each operation is carried out satisfactorily. Refer to the illustration on page XX.

PNEUMATIC PIPE REMOVAL/REFITTING

- The pipes are pushed into the fittings and are held in place by friction collars. To remove a pipe, switch off the compressed air supply to the machine, then push the collar towards the fitting whilst withdrawing the pipe from the fitting. To refit a pipe, switch off the compressed air supply to the machine, then push pipe fully into the fitting.

SENSORS

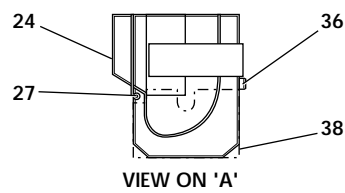
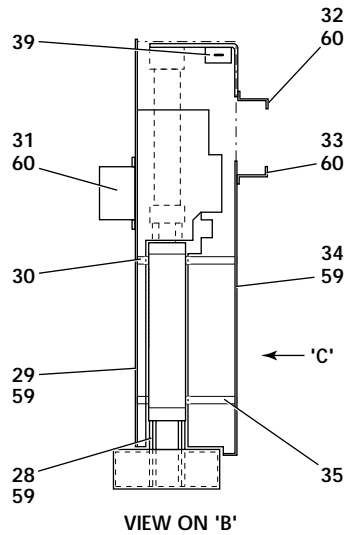
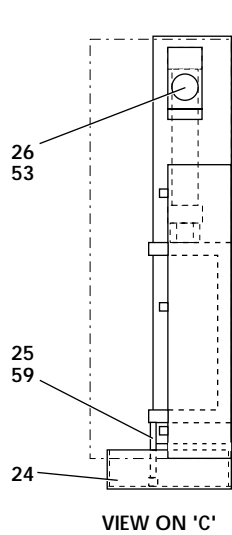
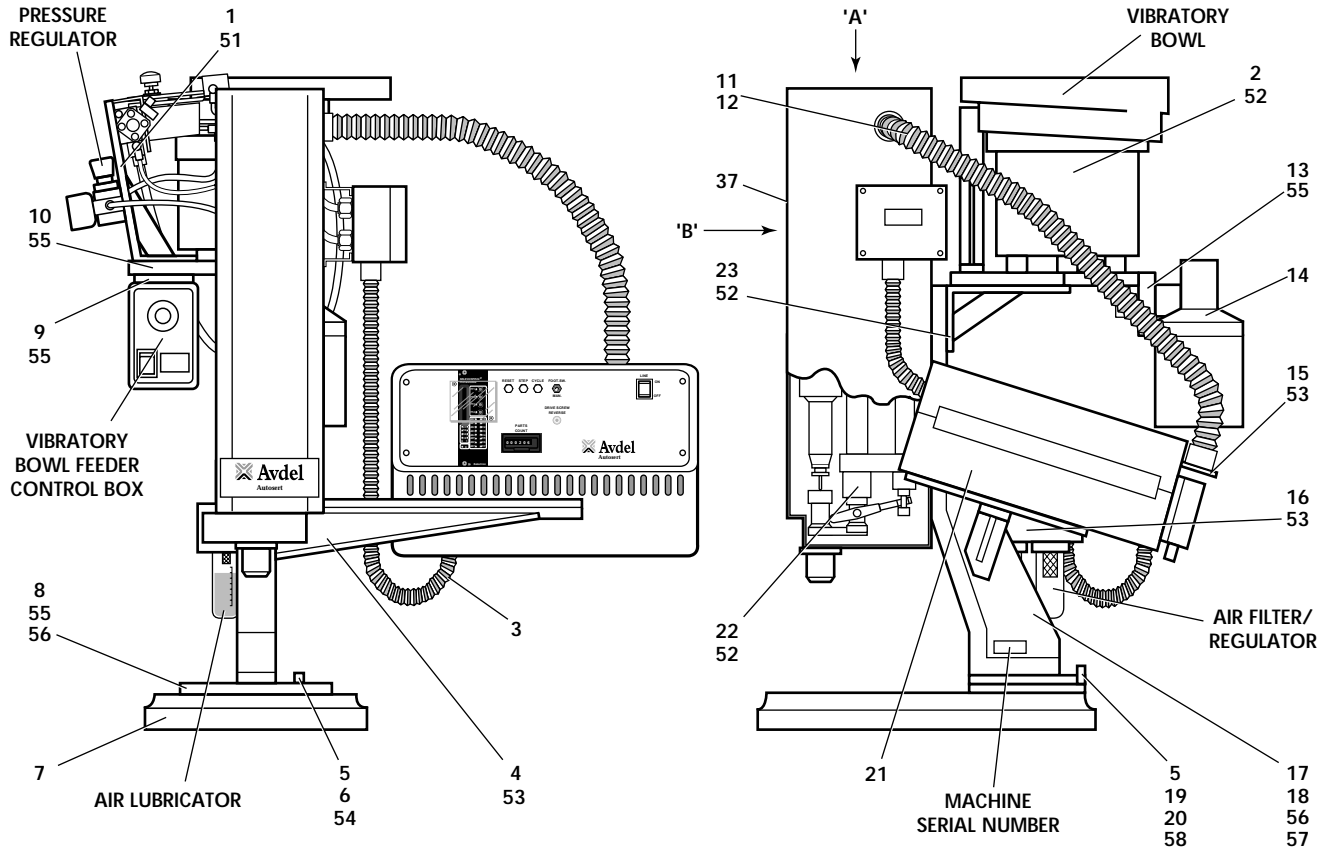
- There are two sensors on three of the five pneumatic cylinders, to detect the position of the cylinder rod. The control signal is sent to the PLC of the control box, which checks that the sensor signal is recieved before the next part of the sequence is commenced.
- The feed gate cylinder and the insert grip cylinder are not fitted with sensors.

ITEM	SENSOR	ACTION	ADJUSTMENT
Cylinder Receptacle Transfer	404	Receptacle at Transfer Tube	They must be positioned along the cylinder body at the correct position. Use an Allen key* to adjust their position if necessary.
	405	Receptacle at Drive Screw	
Cylinder Receptacle Lower/Raise	406	Receptacle Lower	They must be set at a gap of XX and secured via the two lock nuts using spanners*.
	407	Receptacle Raise	
Cylinder Module Lower/Raise	410	Module Lower	They must be positioned along the cylinder body at the correct position. Use an Allen key* to adjust their position if necessary.
	411	Module Raise	
Hinged Guard (Open)	-----	Compressed Air Supply Off Electrical Supply Off	Use an Allen key* to adjust the positions of the two halves of the sensor switch if necessary.

* refers to items included in the Avdel service kit. For complete list see page XX.

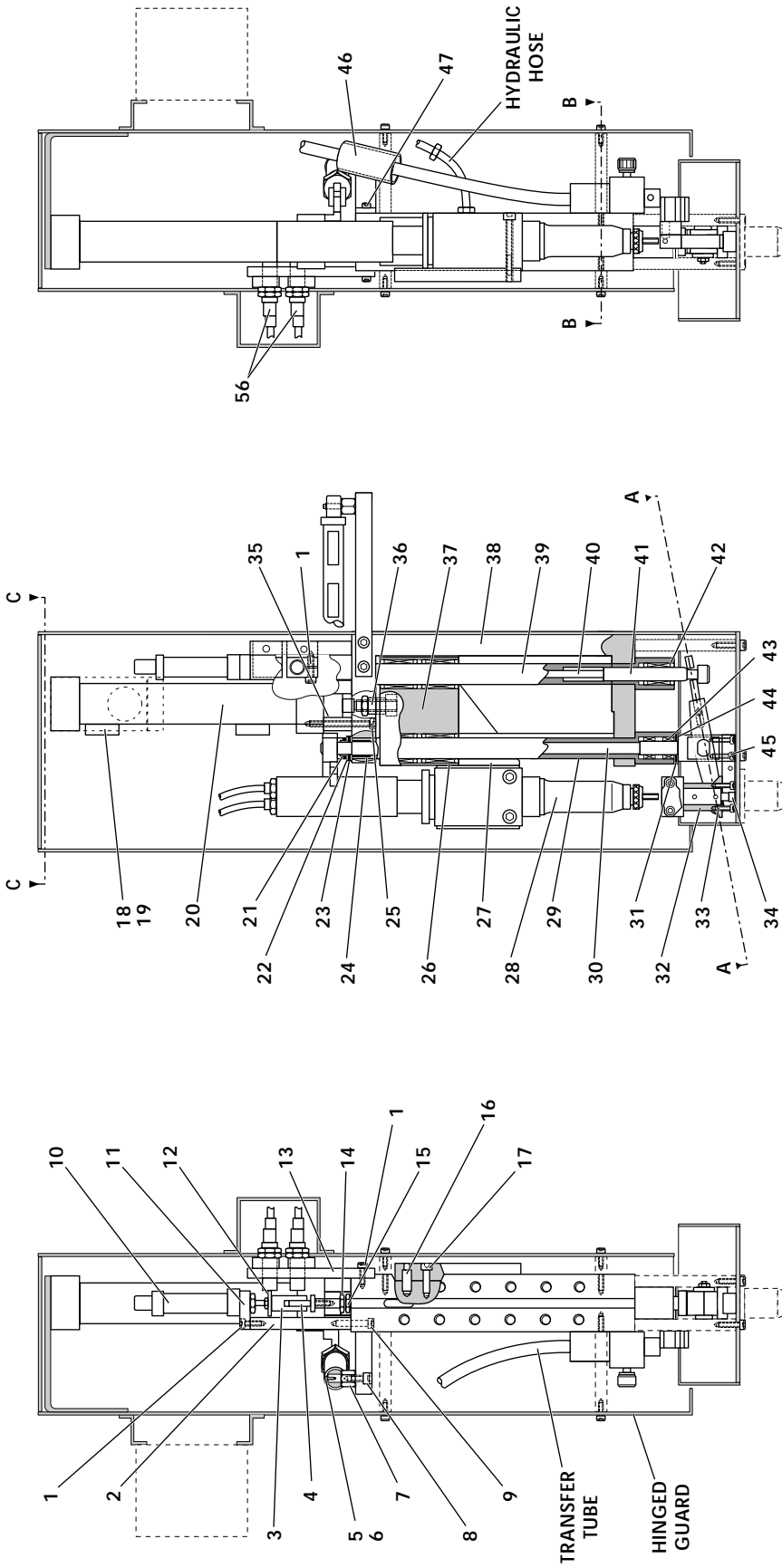


GENERAL ASSEMBLY OF BASE TOOL 07566-00200

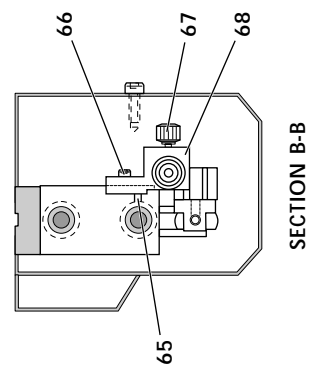
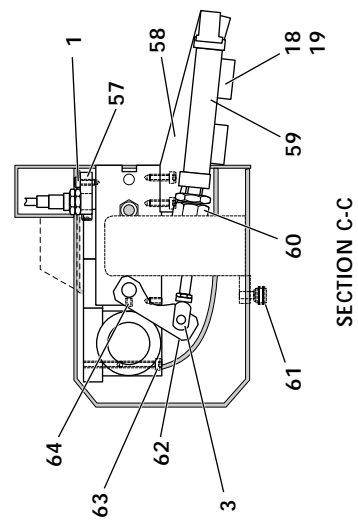


07566-00200 PARTS LIST

ITEM	PART N°	DESCRIPTION	QTY	SPARES
1	08556-01003	MOUNTING BRACKET	1	-
2	08556-01760	VIBRATOR	1	-
3	08556-01737	PROTECTIVE SLEEVE	1	-
4	08556-01107	MOUNTING BRACKET	1	-
5	08560-00237	SCREW	2	-
6	08560-00235	PLATE	1	-
7	08560-00203	MOUNTING PLATE	1	-
8	08560-00202	ADJUSTABLE BASE	1	-
9	08566-01006	MOUNTING BRACKET	1	-
10	08566-01002	MOUNTING PLATE	1	-
11	08566-01731	CONNECTOR	2	-
12	08566-01734	PROTECTIVE SLEEVE	1	-
13	08560-00222	PLATE	1	-
14	08560-00208	INTENSIFIER	1	-
15	08566-01104	MOUNTING BRACKET	1	-
16	08566-01101	MOUNTING PLATE	1	-
17	08566-01108	VERTICAL SUPPORT	1	-
18	08566-01109	KEY	1	-
19	08560-00234	ADJUSTABLE SLIDE	1	-
20	08560-00236	PLATE	1	-
21	07566-01700	CONTROL BOX	1	-
22	07566-00400	PLACING MECHANISM	1	-
23	08566-01001	MOUNTING BRACKET	1	-
24	08566-00503	BOTTOM GUARD	1	-
25	08566-00514	SPACER	1	-
26	08566-00509	MOUNTING BRACKET	1	-
27	08566-00516	HINGE	1	-
28	08566-00513	SPACER	2	-
29	08566-00505	LEFT PANEL	1	-
30	08566-00507	SPACER	2	-
31	08566-00512	PANEL PROXIMITY SWITCH	1	-
32	08566-00511	MOUNTING BRACKET	1	-
33	08566-00510	MOUNTING BRACKET	1	-
34	08566-00504	RIGHT PANEL	1	-
35	08566-00506	SPACER	2	-
36	08566-00517	THUMB SCREW	3	-
37	08566-00501	HINGED GUARD	1	-
38	08566-00502	TOP PANEL	1	-
39	07007-00815	MAGNETIC SWITCH	1	-
51	08560-00405	SCREW	2	-
52	08566-00418	SCREW	3	-
53	08566-00417	SCREW	10	-
54	08560-00240	SCREW	2	-
55	08560-00239	SCREW	11	-
56	08560-00230	SCREW	4	-
57	08560-00229	BUSH	4	-
58	08566-00416	SCREW	9	-
59	08560-00436	SCREW	7	-
60	08566-00415	SCREW	6	-



VIEW ON 'A'



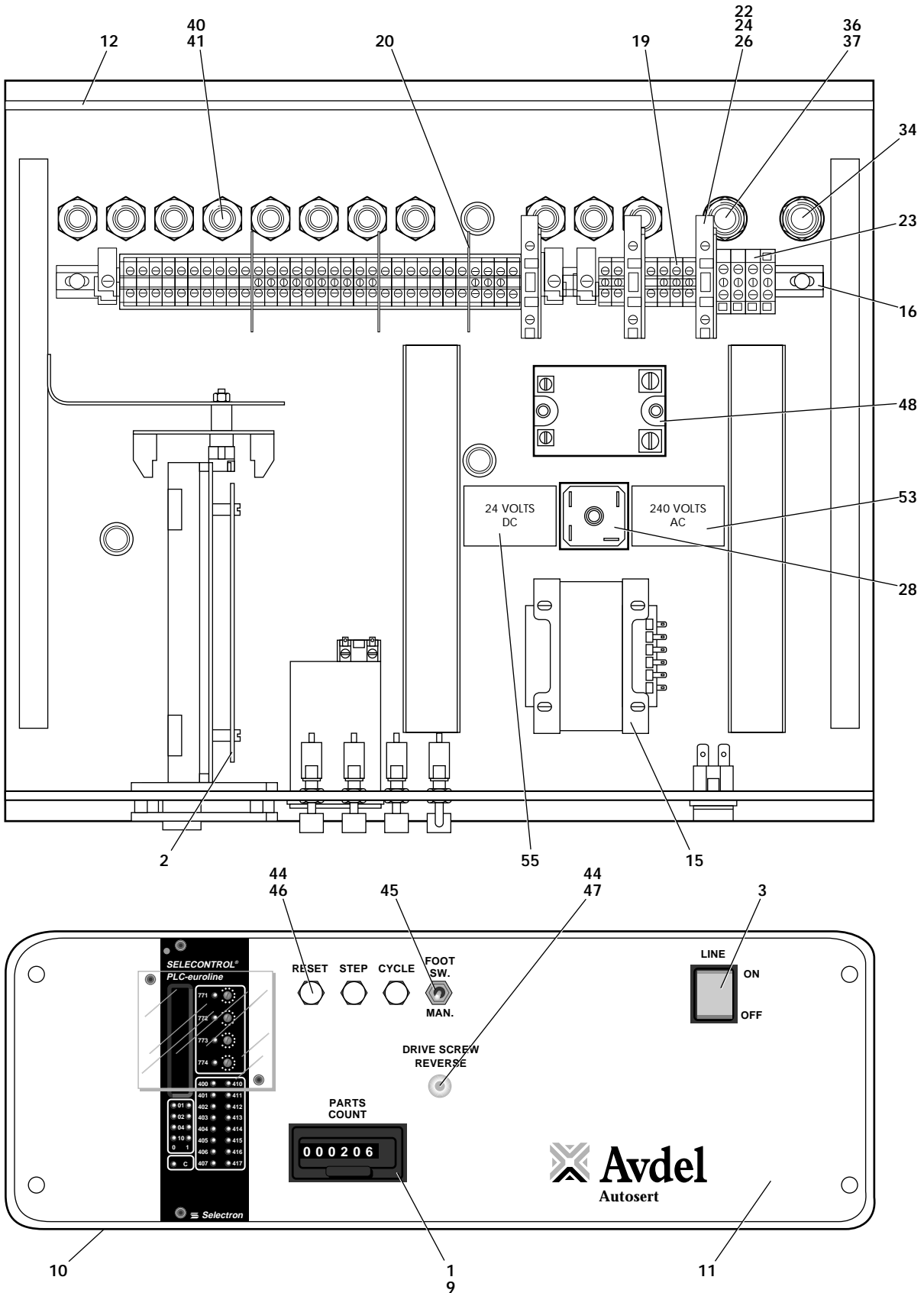
SECTION C-C

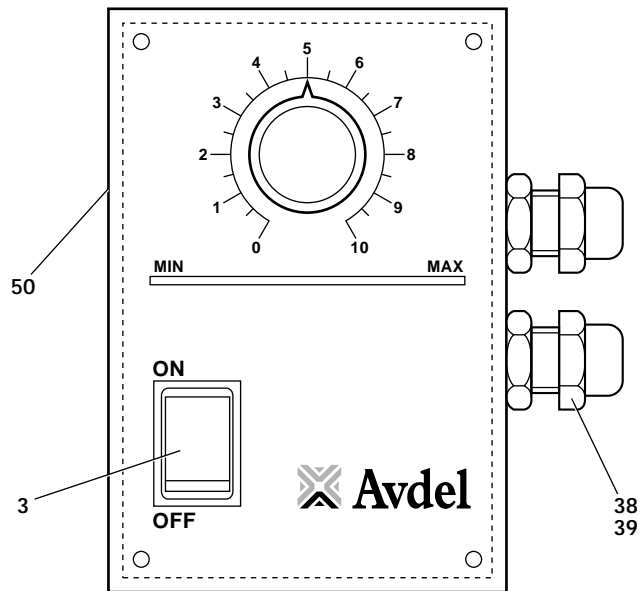
SECTION A-A (2:1)

07566-00400 PARTS LIST

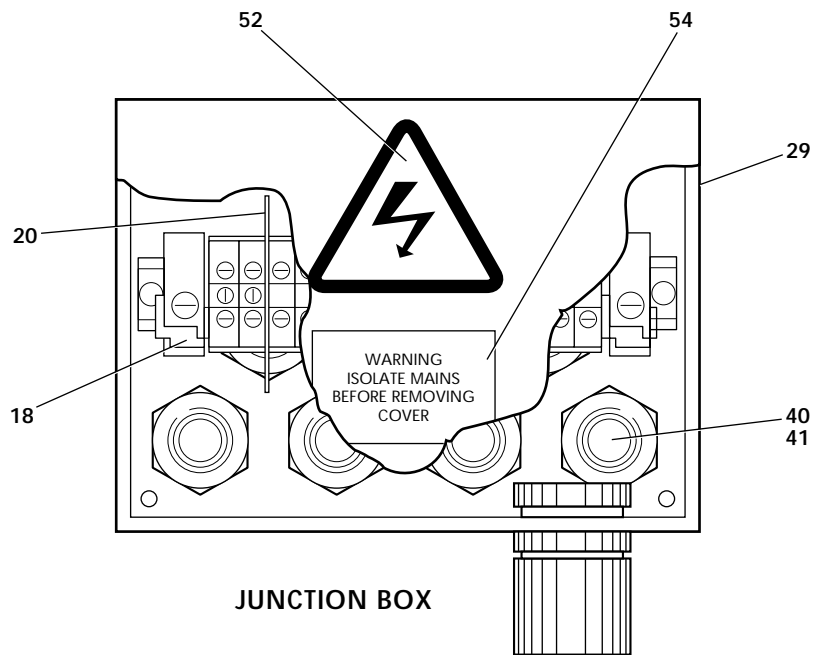
ITEM	PART N°	DESCRIPTION	QTY	SPARES	ITEM	PART N°	DESCRIPTION	QTY	SPARES
01	08566-00416	SCREW	8	-	35	08560-00411	SPACER	4	-
02	08560-00440	SUPPORT	1	-	36	08560-00412	PLUG	1	-
03	08566-00409	FORK END	2	-	37	08560-00414	MOUNTING BLOCK	1	-
04	08566-00401	HOOK	1	-	38	08560-00428	SUPPORT	1	-
05	08560-00444	SCREW	1	-	39	08560-00429	HOUSING	1	-
06	08560-00445	WASHER	1	-	40	08566-00404	SHAFT	1	-
07	08560-00446	ROTATING PIVOT	1	-	41	08560-00431	PILLAR	1	-
08	08560-00447	SCREW	1	-	42	08566-00407	BEARING	1	-
09	08560-00448	SCREW	2	-	43	08560-00421	BEARING	2	-
10	08566-00406	CYLINDER	1	-	44	08560-00423	THRUST RACE	2	-
11	08560-00439	MOUNTING PLATE	1	-	45	08566-00414	SCREW	2	-
12	08560-00441	WASHER	1	-	46	08560-00461	BRACKET	1	-
13	08560-00451	BRACKET	1	-	47	08560-00436	SCREW	2	-
14	08560-00449	NUT	1	-	48	08560-00457	LEFT HAND LEVER	1	-
15	08560-00450	LOCK NUT	1	-	49	08560-00455	WASHER	1	-
16	08560-00406	PIN	1	-	50	08566-00410	NUT	1	-
17	08560-00405	SCREW	1	-	51	08560-00453	LEVER	1	-
18	08566-01707	SENSOR SUPPORT	4	-	52	08560-00427	SCREW	4	-
19	08560-00408	SENSOR	4	-	53	08560-00456	PIVOT	1	-
20	08560-00409	CYLINDER	1	-	54	08560-00482	RIGHT HAND LEVER	1	-
21	08560-00401	LOCK NUT	1	-	55	08560-00458	PIN	1	-
22	08560-00402	THRUST RACE	2	-	56	08560-00468	SENSOR	2	-
23	08560-00403	BEARING	1	-	57	08560-00469	SENSOR BRACKET	2	-
24	08560-00404	BEARING	1	-	58	08560-00472	CYLINDER SUPPORT	1	-
25	08560-00413	SCREW	4	-	59	08560-00471	CYLINDER	1	-
26	08566-00408	BEARING	4	-	60	08566-00403	NUT	1	-
27	08560-00417	MOUNTING PLATE	1	-	61	08566-01512	THUMB SCREW	1	-
28	07666-00200	MODULE	1	-	62	08560-00464	LEVER	1	-
29	08560-00419	HOUSING	1	-	63	08560-00463	SCREW	2	-
30	08560-00420	SHAFT	1	-	64	08566-00411	SCREW	1	-
31	08560-00422	BEARING	1	-	65	08566-00412	SCREW	1	-
32	08560-00424	TRANSFER GUIDE	1	-	66	08566-00417	SCREW	1	-
33	08560-00425	SCREW	2	-	67	08566-01513	THUMB SCREW	1	-
34	08560-00426	MOUNTING PLATE	1	-	68	08566-00402	MOUNTING BLOCK	1	-

GENERAL ASSEMBLY OF BASE TOOL 07566-01700

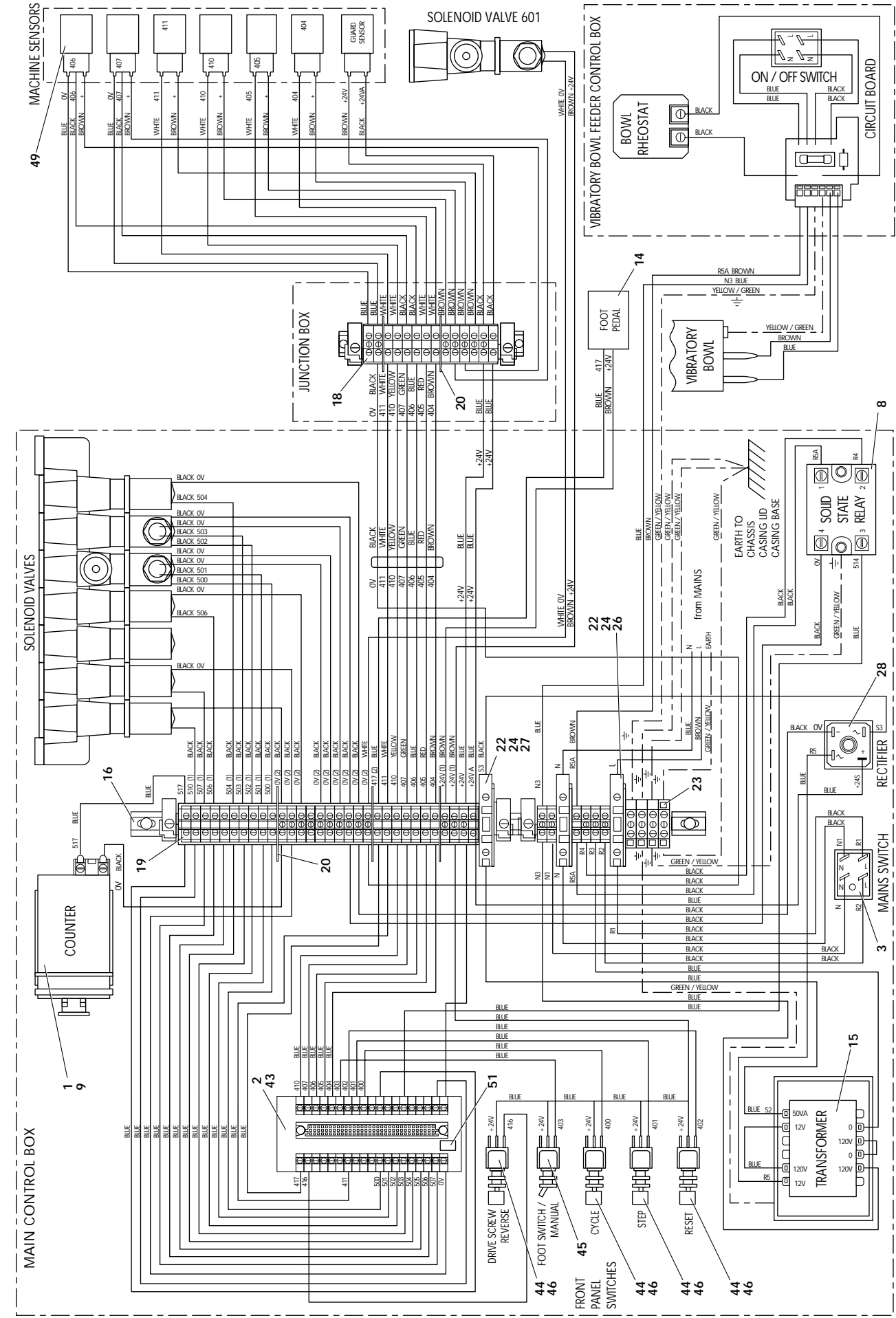




**VIBRATORY BOWL FEEDER
CONTROL BOX**

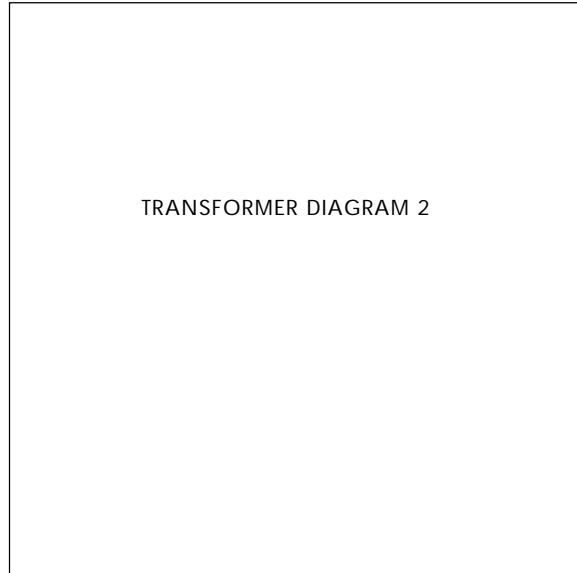
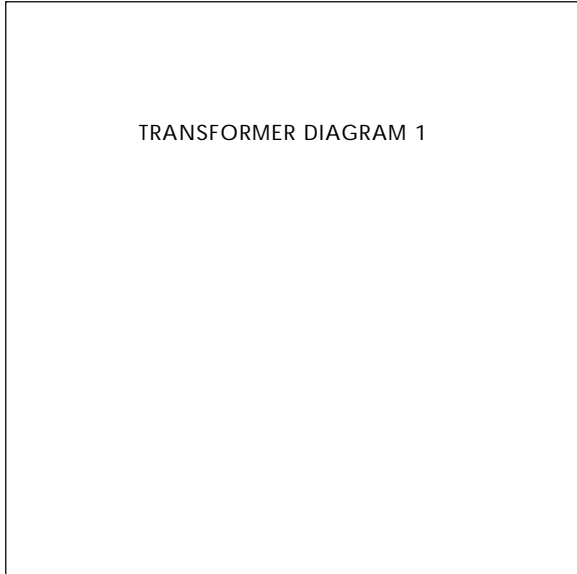


JUNCTION BOX

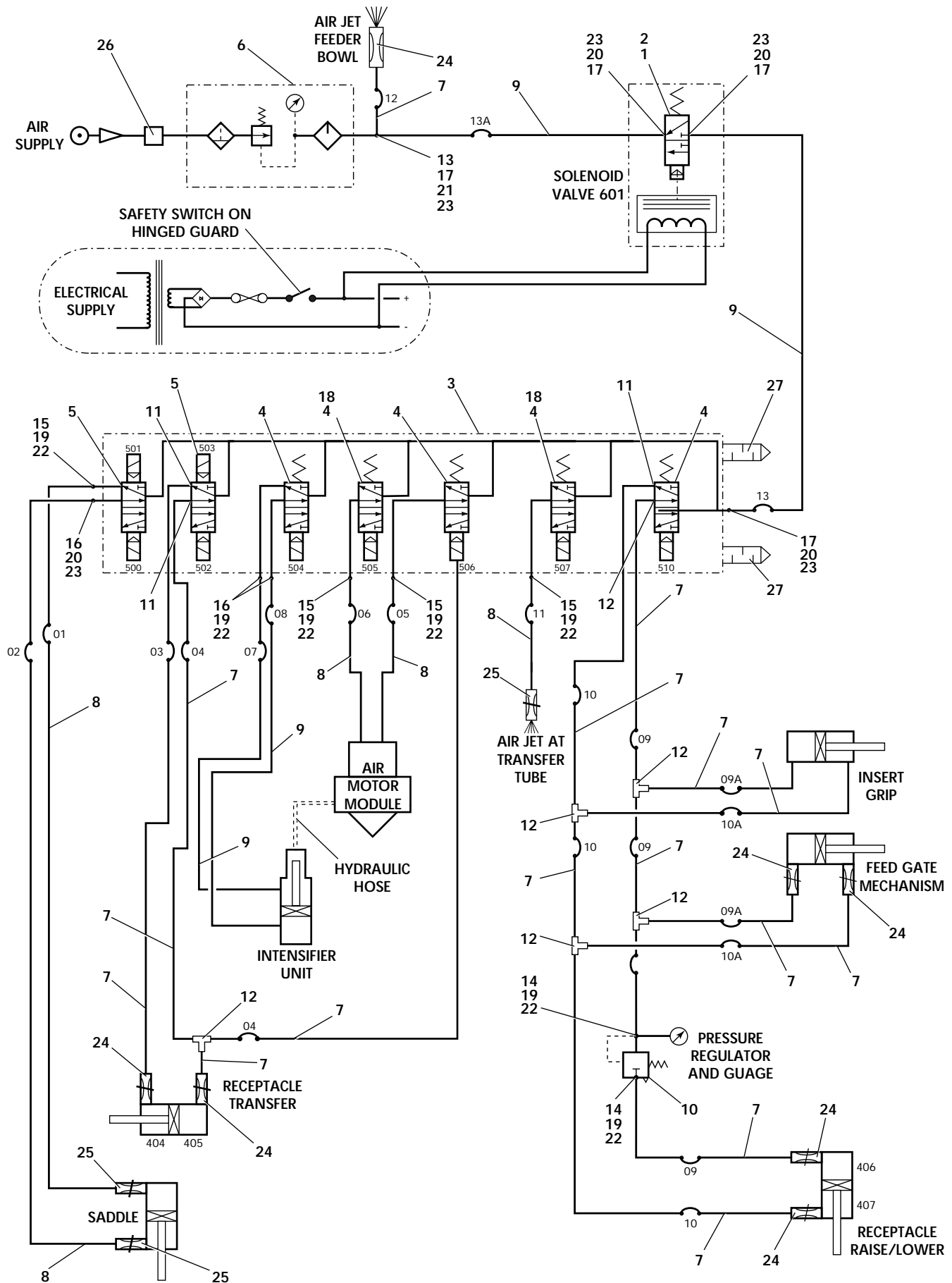


07566-01700 PARTS LIST

ITEM	PART N°	DESCRIPTION	QTY	SPARES
1	08556-00901	COUNTER SUPPORT	1	-
2	08556-01701	PRINTED CIRCUIT BOARD	1	-
3	08556-01702	D/POLE SWITCH 10/4 A.- 250 V.	2	-
4	08556-01703	1mm SQ. BLUE WIRE	AS REQUIRED	NOT SHOWN
5	08566-01704	1mm SQ. GREEN WIRE	AS REQUIRED	NOT SHOWN
6	08566-01705	1mm SQ. BLACK WIRE	AS REQUIRED	NOT SHOWN
7	08566-01706	1mm BLACK WIRE	AS REQUIRED	NOT SHOWN
8	08566-01708	TRACK 25 x 25	1	-
9	08566-01709	COUNTER	1	-
10	08566-01710	CABINET	1	-
11	08566-01711	FRONT PANEL	1	-
12	08566-01712	REAR PANEL	1	-
13	08566-01713	6A. PLUG	1	NOT SHOWN
14	08566-01714	FOOT PEDAL	1	-
15	08566-01715	TRANSFORMER	1	-
16	08566-01716	DRILLED GUIDE	1	-
17	08566-01717	CARD WEIGHT	47	NOT SHOWN
18	08566-01718	BLUE TERMINAL	15	-
19	08566-01719	TERMINAL	35	-
20	08566-01720	SEPERATOR	5	-
21	08566-01721	BOND	AS REQUIRED	NOT SHOWN
22	08566-01722	FUSE HOLDER	3	-
23	08566-01723	EARTH TERMINAL	4	-
24	08566-01724	SEPERATOR	3	-
25	08566-01725	TERMINAL	5	NOT SHOWN
26	08566-01726	2.5A. FUSE	2	-
27	08566-01727	2A. FUSE	1	-
28	08566-01728	RECTIFIER 600V.- 25A.	1	-
29	08566-01729	AL. ALLOY BOX	4	-
30	08566-01730	WIRE 36 x 0.34	AS REQUIRED	NOT SHOWN
31	08566-01735	REGULATOR	1	NOT SHOWN
32	08566-01736	.5mm SQ. BLUE WIRE	AS REQUIRED	NOT SHOWN
33	08566-01738	CABLE CLAMP	5	NOT SHOWN
34	08566-01739	NUT	1	-
35	08566-01740	CABLE CLAMP	1	NOT SHOWN
36	08566-01741	NUT	1	-
37	08566-01742	CABLE CLAMP	1	-
38	08566-01743	NUT	2	-
39	08566-01744	NUT	2	-
40	08566-01745	NUT	17	-
41	08566-01746	CABLE CLAMP	17	-
42	08566-01747	NUT	5	NOT SHOWN
43	08566-01748	EUROLINE CIRCUIT BOARD	1	-
44	08566-01749	SWITCH	4	-
45	08566-01750	SWITCH	1	-
46	08566-01751	WHITE CAP	3	-
47	08566-01752	GREEN CAP	1	-
48	08566-01753	STATIC RELAY	1	-
49	08566-01754	SAFETY SWITCH	1	-
50	08566-01755	AL. ALLOY BOX	1	-
51	08566-01756	E.P.R.O.M.	1	-
52	08566-01757	LABEL	4	-
53	08566-01758	LABEL	2	-
54	08566-01759	LABEL	2	-
55	08566-01760	LABEL	1	-



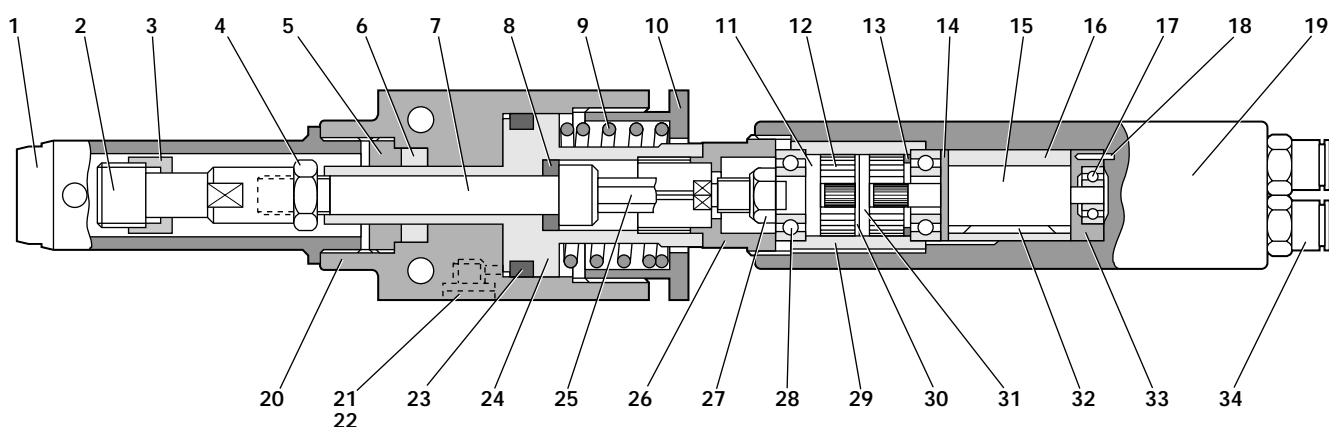
GENERAL ASSEMBLY OF BASE TOOL 07566-01800



O7566-01800 PARTS LIST

ITEM	PART N°	DESCRIPTION	QTY	SPARES
1	08556-01801	SOLENOID ACTUATED VALVE	1	-
2	08556-01802	SOLENOID COIL	1	-
3	08556-01803	MANIFOLD BASE	1	-
4	08556-01804	SOLENOID ACTUATED VALVE	5	-
5	08566-01805	SOLENOID ACTUATED VALVE	2	-
6	08566-00210	FILTER/PRESSURE REGULATOR	1	-
7	08566-01808	BLUE PLASTIC TUBE 4 x 2.7	AS REQUIRED	-
8	08566-01809	BLUE PLASTIC TUBE 6 x 4	AS REQUIRED	-
9	08566-01810	BLUE PLASTIC TUBE 8 x 6	AS REQUIRED	-
10	08566-01811	MICRO-REGULATOR AND GAUGE	1	-
11	08566-01813	MALE STUD CONNECTOR	5	-
12	08566-01814	TEE CONNECTOR	5	-
13	08566-01815	STRAIGHT REDUCER	1	-
14	08566-01816	SINGLE BANJO CONNECTION	2	-
15	08566-01817	SINGLE BANJO CONNECTION	5	-
16	08566-01818	SINGLE BANJO CONNECTION	3	-
17	08566-01819	SINGLE BANJO CONNECTION	5	-
18	08566-01820	MALE PLUG	2	-
19	08566-01821	SINGLE BANJO BOLT	9	-
20	08566-01822	SINGLE BANJO BOLT	3	-
21	08566-01823	DOUBLE BANJO BOLT	1	-
22	08566-01824	ALUMINIUM SEAL	18	-
23	08566-01825	ALUMINIUM SEAL	9	-
24	08566-01826	MICRO-REGULATOR	7	-
25	08566-01827	MICRO-REGULATOR	3	-
26	08566-01828	VALVE	1	-
27	08566-01829	SILENCERS	2	-

GENERAL ASSEMBLY OF BASE TOOL 07666-00200



07666-00200 PARTS LIST				
ITEM	PART N°	DESCRIPTION	QTY	SPARES
1	07555-00806	NOSE CASING	1	-
2	07555-00804	SPINDLE	1	-
3	07555-00808	COUNTER LOCK NUT	1	-
4	07655-00803	LOCK NUT	1	-
5	07555-00802	RETAINING RING	1	-
6	07655-00801	SEAL	1	-
7	07655-00704	MOVEMENT PIVOT	1	-
8	07555-00705	SHIM ADJUSTMENT RING	1	-
9	07655-00702	SPRING	1	-
10	07655-00701	ADJUSTABLE LOCK NUT	1	-
11	07655-09204	SPIDER	1	-
12	07655-09208	PLANET	6	-
13	07655-09209	SPACER	1	-
14	07555-09210	PLATE	1	-
15	07655-09212	ROTOR	1	-
16	07555-09211	STATOR	1	-
17	07555-09215	BEARING	1	-
18	07555-09216	PIN	1	-
19	07666-09201	MOTOR CASING	1	-
20	07655-00101	CASING HEAD	1	-
21	07655-00102	OIL PLUG	1	-
22	07265-02011	SEAL	1	-
23	07655-00707	'O' RING	1	-
24	07655-00706	PISTON	1	-
25	07666-00703	ADAPTOR NUT	1	-
26	07555-09202	SLEEVE	1	-
27	07555-09205	LOCK NUT	1	-
28	07555-09206	BEARING	2	-
29	07655-09207	PLANET GEAR	1	-
30	07655-09219	SHIM	1	-
31	07655-09218	SPIDER	1	-
32	07555-09213	ROTOR BLADE	4	-
33	07555-09214	REAR END PLATE	1	-
34	07666-09220	AIR CONNECTOR	2	-
35	07900-00354	TIE ON SAFETY LABEL	1	NOT SHOWN

ELECTRONIC CIRCUIT

- Refer to parts list 07566-01700 on page XX.
- The electronic circuitry is housed within the main control box. The main items include mains switch **3**, solid state relay **8**, counter **9**, transformer **15**, rectifier **28**, P.L.C. **43**, static relay **48**, E.P.R.O.M. for P.L.C. board **56**.
- The electronic circuitry and associated components within the control box must not be modified or tampered with in any way, as damage may occur and the machine warranty will become void. If malfunctions or faults occur that are attributed to the aforementioned items, then the machine must be returned to Avdel for fault finding/maintenance/repair.

Priming is ALWAYS necessary after the tool has been dismantled and prior to operating. It may also be necessary to restore the full stroke after considerable use, when the stroke may be reduced and inserts are not fully placed by one operation of the trigger.

OIL DETAILS

The recommended oil for priming is Hyspin VG32 available in 0.5l (part number 07992-00002) or one gallon containers (part number 07992-00006). Please find specific table and safety data below.

H Y S P I N V G 3 2 O I L S A F E T Y D A T A				
FIRST AID SKIN: Wash thoroughly with soap and water as soon as possible. Casual contact requires no immediate attention. Short term contact requires no immediate attention. INGESTION: Seek medical attention immediately. DO NOT induce vomiting. EYES: Irrigate immediately with water for several minutes. Although NOT a primary irritant, minor irritation may occur following contact. FIRE Suitable extinguishing media: CO2, dry powder, foam or water fog. DO NOT use water jets.			ENVIRONMENT WASTE DISPOSAL: Through authorised contractor to a licensed site. May be incinerated. Used product may be sent for reclamation. SPILLAGE: Prevent entry into drains, sewers and water courses. Soak up with absorbent material. HANDLING Wear eye protection, impervious gloves (e.g. of PVC) and a plastic apron. Use in well ventilated area. STORAGE No special precautions.	
PROPERTIES	RESULT		PROPERTIES	RESULT
ISO oil type		HL	Foaming tendency/stability	
ISO viscosity grade		32	ml @ 24°C	Trace/Nil
Kinematic viscosity			ml @ 93.5°C	20/Nil
	cS @ 40°C	32	ml @ 24°C after test @ 93.5°C	Trace/Nil
	@ 100°C	5.3	Air release value minutes to	
Relative density	at 20°C	0.875	0.2% air content @ 50°C	4
Viscosity Index		95	Seal compatibility index	10
Pour point	°C	- 30	Water separation time	
Open Flash point	°C	232	in minutes to 40-40-0 @54°C	15
Neutralisation value mg KOH/g		1.5	@83°C	15

PROCEDURE

Item numbers in bold refer to the general assembly and parts list pages 12 and 13.

IMPORTANT

All operations should be carried out on a clean bench, with clean hands in a clean area.
 Ensure that the oil is perfectly clean and free from air bubbles.
Care MUST be taken at all times, to ensure that no foreign matter enters the tool, or serious damage may result.
 The tool must remain on its side throughout the priming sequence.

- The electrical supply must be switched off. The compressed air supply must be switched on.
- Check the intensifier, module and hydraulic hose for signs of leaks and loose connections. Rectify any leaks or loose connections before carrying out the priming procedure.
- Ensure that the oil level in the intensifier is at the maximum level, as per the illustration on page XX. Top up using Hyspin VG.32 priming oil.
- Loosen the connection of the hydraulic hose at the module end, using a spanner*.
- Operate solenoid valve 504, positioned at the rear of the main control box, using a screwdriver*. Turn the screw on the solenoid valve clockwise and anti-clockwise by 45 degrees to operate the piston of the module. Operate the piston until oil flows out of the hydraulic hose at the module end, as opposed to aerated oil. Ensure that the screw is returned to its normal position.
- Tighten the union of the hydraulic hose at the module end.
- Ensure that the oil level in the intensifier is at the maximum level, as per the illustration on page XX. Top up using Hyspin VG.32 priming oil.
- Carry out an insert placing operation, as per the instructions on page XX.

* refers to items included in the Avdel service kit. For complete list see page 10.

FAULT DIAGNOSIS

Item numbers in bold refer to the general assembly and parts list pages 14 and 15.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Inserts will not feed along flight rails	→ Flight rail gap.	→ Reset the height as per the instructions on page XX
	→ Guide bar height, page XX..	→ Reset the height and refer to the instructions on page XX.
	→ Flight rail obstructed.	→ Clean the flight rail and check for obstructions. Refer to the instructions on page XX.
Inserts will not feed into the feed gate.	→ Vibratory bowl feeder, feeder mechanism	→ Adjust the vibration level of the bowl using the rotary control on the vibratory feeder control box.
	→ Flight rail to feed gate assembly gap.	→ Check the gap between the flight rail and the feed gate assembly. Refer to the instructions on page XX.
	→ Flight rail to feed gate mechanism alignment.	→ Check the alignment between the flight rail to the feed gate mechanism, and ensure that the feed gate is level with the top of the flight rail and rotationally correct. Refer to the instructions on page XX.
Transfer receptacle fails to move to the drivescrew position. (L.E.D's on control panel are correct)	→ Inserts in transfer tube.	→ Disconnect the air supply and open the hinged guard by loosening the three thumb screws. Remove the end of the transfer tube out of the tube adaptor and remove any inserts from the tube. Loosen the thumbscrew and remove the tube adaptor, then remove any inserts. Reassembly is the reverse of the above procedure.
	→ Receptacle not aligned with the transfer tube.	→ Align the receptacle as per the instructions on page XX.
Insert placed on the drivescrew when not required. (Module fully lowered)	→ Operator error	→ Grip the insert using pliers*. Press the DRIVESCREW REVERSE button at the control panel. Press the RESET button at the control panel.
Receptacle will not move to the drivescrew, when the drivescrew is fully raised.	→ Insert on drivescrew and in receptacle.	→ Disconnect the air supply. Press the RESET button twice at the control panel. Rotate the hole in the module nose until it in line with the aperture in the nose guard. Insert the tommy bar* to prevent the drivescrew from rotating. Refer to the illustration on page XX. Unscrew and remove the insert from the drivescrew using pliers*. Reassembly is the reverse of the above procedure.
Insert is not placed although performs all functions	→ Solenoid valve.	→ Check that the L.E.D. on solenoid valve 504 is illuminated. If it does not illuminate, there is a problem with the machine control, the solenoid, the valve, or poor connections.
	→ Intensifier.	→ Check the oil level in the intensifier. If it is too low, then carry out the priming procedure as per the instructions on page XX. Also check for oil leaks and poor connections.
Machine will not operate when the switch at the control panel is set to FOOT or MANUAL	→ Air supply	→ Check the compressed air supply is connected and switched on. Also check that the pressure regulator is set to 6 - 6.5 bar (88 - 95 lbf/in ²). Inserts in receptacle. Disconnect the air supply and open the hinged guard by loosening the three thumb screws. Remove the end of the transfer tube out of the tube adaptor and remove any inserts from the tube. Loosen the thumbscrew and remove the tube adaptor, then remove any inserts. Reassembly is the reverse of the above procedure.

Engineered Fastening and Assembly Systems**Declaration of Conformity**

We, *Avdel SRL, Via Manin 350-21, 20099 Sesto Giovanni, Milan, Italy.*

declare under our sole responsibility that the product

type 0756

Serial N°

to which this declaration relates is in conformity with the following standards or other formative documents

EN292 part 1 and part 2

ISO 8662 part 1 and part 7

ISO 3744 and PNEUROP test code PN8TC1

ISO PREN792 part 6 & 14

following the provisions of the Machine Directive 89/392/EEC
(as amended by Directive 91/368/EEC, 93/44/EEC) and 93/68/EEC



M. Dellefave - Quality Manager

Milan - date of issue

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