Hodge Clemco Ltd

Abrasive Vacuum Recovery System

Model IND 200P ERL HD

DATE OF ISSUE: 26.02.2018 TS.OM 329C

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Machinery Directive

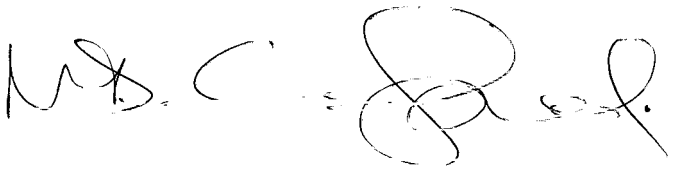
(2006/42/EC)

EC Declaration of Conformity

We HODGE CLEMCO LTD declare that the supplied equipment when installed and used in accordance with the owner's manual provided, conforms with the essential health and safety requirements of the above Directive(s)

Engineering Manager

Managing director



MAINTENANCE INSPECTION CONTRACT

In response to numerous requests we are now able to offer a Maintenance Inspection Contract for your Clemco Equipment.

These requests have been made by customers who appreciate the benefits of regular inspection/servicing on a planned basis. The remedial work that follows a breakdown or worse, the need for early equipment replacement due to accelerated wear may easily exceed the cost of a Maintenance Inspection Contract. If you would like further details please contact our Customer Services Department on 0114 2548811

A request for more information does not represent any form of commitment on your behalf, so can you afford to say 'NO' at this stage?

We look forward to hearing from you soon.

Contents

1.0 General Description

This system is designed to recover spent recyclable abrasive from a blasting area into the silo for subsequent return to the connected blast machine. After depositing the abrasive into the silo/blast machine the vacuum flow containing air and dust continues to the vacuum unit, where the dust particles are removed by a high performance polyester filter cartridge prior to air exhausting to the atmosphere

Optional extras which can be supplied with this equipment includes:-

a) Larger floor hopper
b) Heavy duty floor gratings
c) Level sensor in storage silo - standard on ERL version
d) Magnetic particle screen
e) Intermediate cyclone
f) Wall bush to facilitate alternative recovery by hose from work area direct to silo
g) EDB 90 Eductoblast head and regrader
h) EDBH 75 and EDBH 60 Eductoblast heads

2.0 Installation Instructions

WARNING 1. ALL INSTALLATION WORK MUST BE CARRIED OUT BY SUITABLE COMPETENT PERSONS.

2. STATIC ELECTRICITY CAB BE GENERATED DURING RECOVERY OPERATIONS, THEREFORE THE SUCTION UNIT AND THE SILO MUST BE SUITABLY EARTHED AND ONLY STATIC CONDUCTIVE SUCTION HOSES MUST BE USED WITH THIS EQUIPMENT

Note: These instructions should be used in conjunction with those appropriate to the blast machine and safety protection equipment etc.

2.1 Position the floor hopper when supplied in the prepared concrete foundations. (See foundation plan)

2.2 Insert the suction nozzle into the bracket in the floor hopper

2.3 Position the silo and blast machine to ensure that the suction nozzle points towards the silo inlet in a straight line. The two items must be securely connected and the

seal between them in good condition. Anchor the blast machine to the floor where required

2.4 Position the cyclone /regrader (when supplied) in close proximity to the silo/blast machine

2.5 Cut the length of suction hose supplied to fit between suction nozzle, silo inlet/outlet (cyclone) and vacuum unit

Note: It is important that the suction nozzle and the suction hose form a straight line (at app.30° to the vertical) to the silo inlet. Any curves or bends will reduce efficiency of the recovery and accelerate hose wear

At the blast machine connect a pressure equalising hose to the outlet of the RMS-2000 valve and to the appropriate silo connection elbow

2.6 Position the vacuum unit and cyclone (if supplied) and connect the vacuum hose to their respective spigots between silo(cyclone) and vacuum unit. Secure it by the hose clamps supplied. **Note: The length of the hose can be reduced if required.**

WARNING; UNDER NO CIRCUMSTANCES MUST THIS UNIT BE CONNECTED UP TO AN AIR SUPPLY OF GREATER PRESSURE THAN 7 BAR

WARNING: IT IS ESSENTIAL THAT ALL HOSE COUPLINGS ARE SECURE AND THAT ANY SEALING GASKETS ARE IN GOOD CONDITION AND IN POSITION. ESCAPING AIR AT CONNECTIONS WILL REDUCE EFFICINECY AND CAN BE DANGEROUS.

2.7 Ensure the vacuum unit dust drawer is in place and securely close the unit door

2.8 Connect an electrical supply to the control box on the suction unit

Note: 110v/lph/50hz as standard. 240v/lph/50hz optional

THIS UNIT MUST BE EARTHED

2.9 Securely connect a minimum 1” airline (25mm I.D.) to the suction unit ensuring that the airline is first purged of moisture . N.B. an air volume of 90 cfm (2.55m^3/min) of clean dry compressed air to Pneurop 6611 is required

2.10 Open the air shut off valve slowly to create the vacuum recovery

2.11 Increase the pressure regulator to provide sufficient vacuum to recover the abrasive. N.B. Elevated pressures may result in abrasive being carried over into the vacuum unit

2.12 Switch on the 110v electrical supply at the isolator. N.B. The cartridge is cleaned by the reverse air pulse cleaning mechanism every few seconds

2.13 To stop the vacuum recovery turn off the air shut off valve and switch off the electric supply isolator

2.14 a) Check the filter cartridge dust drawer for abrasive deposits. If there are any present close the access door and reduce the air pressure regulator
b) Check all seals on the unit to ensure they are in good working order

2.15 Fill the abrasive into the floor hopper (If supplied)

2.16 If necessary readjust the air-gap in the suction nozzle to achieve optimum rate of recovery by:

1 Loosening the 3 screws on the outer pipe

2 Adjusting the inner pipe up or down (a few millimeters at a time) until the optimum recovery rate has been achieved

3 Once optimum recovery rate has been established securely refasten the 3 screws

The system is now ready for operation

3.0 Operating Instructions

WARNING: UNDER NO CIRCUMSTANCES MUST THIS EQUIPMENT BE CONNECTED TO AN AIR SUPPLY IN EXCESS OF 7 BAR

3.1 Open the air shut off valve on the vacuum unit slowly to create the desired vacuum recovery.

3.2 Adjust the pressure regulator until the correct setting is achieved. Note: minimum 5 bar (70 psi). Open the drain valve to produce a slight bleed of air

3.3 Open the small bypass valve to the inline filter which supplies the internal air receiver and subsequent reverse pulse cartridge cleaning

3.4 Switch on the 110 v electrical supply

3.5 Fill the floor hopper with abrasive and recover until the blast machine is full or until the silo level sensor is activated when abrasive recovery will stop

DO NOT OVERFILL WITH ABRASIVE

Estimated Abrasive Capacity

1440	Blast Machine	40 ltrs
2040	Blast Machine	90 ltrs
2452	Blast Machine	150 ltrs
	Blast Machine Silo 200 ltrs	
	Floor Hopper	80 ltrs

Note: The average weight of abrasive per litre is as follows

Metallic Abrasive	4.20 kgs per ltr
Al. Oxide	1.85 kgs per ltr
Glass Bead	1.65 kgs per ltr
Expendable	2.00 kgs per ltr
Aerolyte	0.80 kgs per ltr

3.6 Ensure that the reverse pulse cleaning system is operating correctly. The normal setting is one pulse every 30 seconds

3.7 Regrader Adjustment (When Fitted)

On these versions abrasive separation is controlled by adjustment of the knobs A & B on the regrader unit. The cyclone bin serves to collect any unwanted fines separated off at the regrader. It is advisable when introducing a new grade or type of media into the blast system to check the deposits in the bin and adjust the regrader accordingly

3.7.1 Re-usable particles in cyclone bin:-

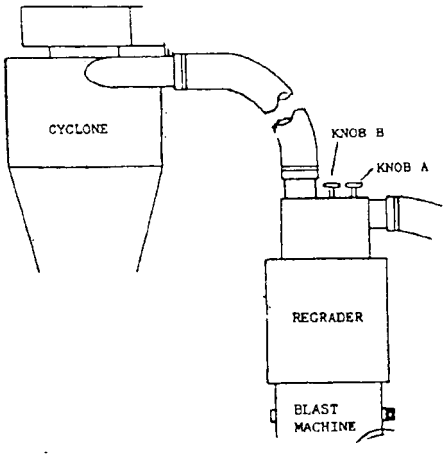
3.7.2 At the regrader, unscrew knob ‘A’ anti clockwise one full turn then carefully screw knob ‘B’ clockwise until resistance is met. Do not over tighten as this will damage the deflector plate

3.7.3 After the next blasting and recovery operation has been completed check the cyclone bin contents and repeat operation 3.7.2 until only unwanted fines are collected

3.8 Unwanted fines returned to the Vacuum Unit:-

3.8.1 Unscrew knob ’B’ anti-clockwise one full turn then carefully screw knob ‘A’ until resistance is detected. DO NOT over tighten as this will cause damage to the deflector plate

3.8.2 Repeat operation 3.8.1 after each subsequent recovery operation until required level of fines removal is achieved



IMPORTANT NOTICE: THE INLET DAMPERS ON THE CYCLONE SHOULD BE IN THE FULLY OPEN POSITION FOR MOST COMMON ABRASIVE TYPES AND GRADES. THESE DAMPERS ENABLE MORE FINITE SEPARATION TO BE ACHIEVED WHEN FINE GRADES OF LIGHTER MATERIAL IS BEING RECYCLED

4.0 Maintenance

WARNING: ENSURE THAT THE ELECTRICITY SUPPLY IS SWITCHED OFF AT THE ISLOLATOR AND THE PLUG REMOVED FROM THE SOCKET BEFORE ANY MAINTENANCE IS CARRIED OUT. MAINTENANCE SHOULD ONLY BE CARRIED OUT BY TRAINED AND COMPETENT PERSONS

WARNING: NEVER INSPECT THE DUST COMPARTMENT ON THE INSIDE OF THE SILO WHILST SMOKING OR ALLOW ANY NAKED LIGHTS IN THEIR PROXIMITY. DUST CONCENTRATIONS CAN BE COMBUSTIBLE, EXPLOSIVE AND HAZARDOUS TO HEALTH, RESPIRATORY PROTECTION SHOULD BE USED

DAILY

4.1 Empty the dust compartment in the vacuum unit. Emptying may be necessary more often than once a day depending on the volume of dust generated in the blasting operation

4.2 With the silo empty remove and clean both abrasive outlet sieves on the silo and ensure they are correctly repositioned and the access doors are securely closed

4.3 Remove any debris from the floor hopper

Weekly

4.4 Check the seals on the silo and the suction unit. Replace leaking or worn seals

4.5 Check that all hose connections and couplings are secure and any gaskets required are in good condition and in place

4.6 Remove waste particles from the two sieves in the silo

4.7 Check seal or hoses between blast machines and silo outlets

WARNING: NEVER LOOSEN OR REMOVE THESE SEALS WHEN THERE IS ABRASIVE IN THE SILO

4.8 Check the filter cartridge in the vacuum unit. If dust layers are attached to the cartridge they should be cleaned off with a soft brush

Note: If these dust layers are difficult to remove from the filter cartridge, it can be the result of using a wet compressed air supply or because the dust generated in the blasting operation is excessively high.

The filter cartridge should be removed and cleaned using a covered water supply. Ensure the cartridge is completely dry before reinstalling.

If dust is emitted from the vacuum exhaust outlet the filter cartridge must be replaced with a new one immediately

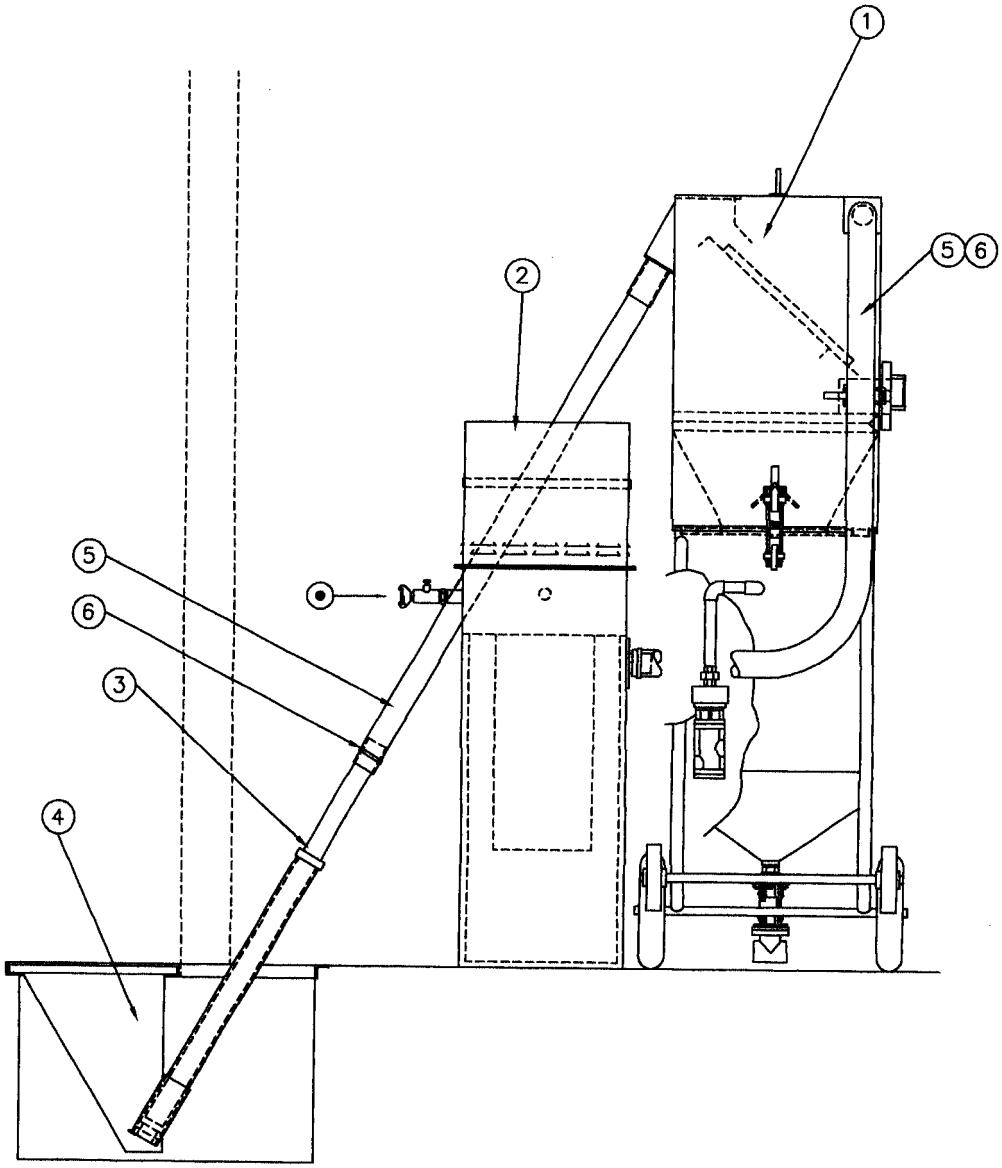
4.9 Check the security and condition of the compressed air supply hoses/fittings and pressure regulator. Also the function of the reverse pulse valve and the in line air filter

Spare Parts List

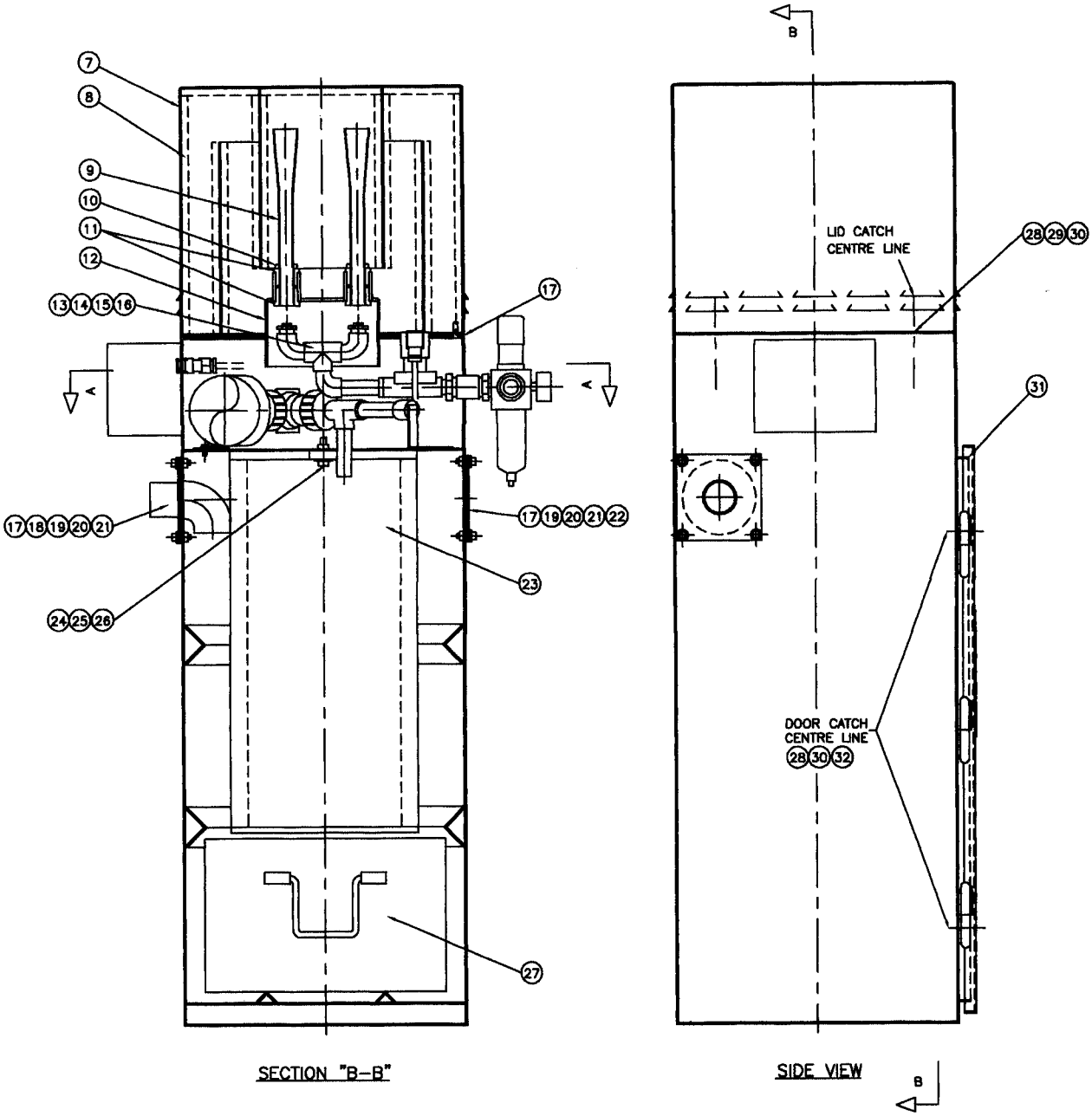
ITEM	PART NO	DESCRIPTION
1	IND 201C	SILO 200 LITRE WITH LEVEL SENSOR
2	IND 2O0P AERL	RECOVERY UNIT ONLY /PNEUMATIC
3	MB 220E2 EHD	2" SUCTION NOZZLE
4	MB 220E2 D	FLOOR HOPPER COMPLETE WITH GRATING
5	HOSE 33	HOSE 2.5" H.D.RUBBER LINED
6	IND 10125	HOSE CLIP (73MM TO 79MM)
7	HC 4227 1	RECOVERY SYSTEM - OUTER CASING
8	IND 10582A	ACCOUSTIC FOAM
9	HC 4289	VENTURI PIPE
10	P 161	BACKNUT - 3/4" - M.I
11	P 99	BUSH 1.1/4" X 3/4" - M.I.
12	HC 4227 2	VENTURI MOUNTING

13	RCAMV 9	ADAPTOR 1/4" X 1/8"
14	P 157	BUSH 3/4" X 1/4"
15	P 158	ELBOW 3/4" M/F
16	P 156	TEE 3/4" FEM
17	IND 10015	DUST SEAL
18	HC 4292	SPIGOT
19	FAS M8 33A	SCREW 25 LONG
20	FAS M8 80A	WASHER
21	FAS M8 81A	SPRING WASHER
22	HC 4226 3	BLANKING PLATE
23	MB 10030	FILTER CARTRIDGE
24	FAS M10 13A	SCREW 40 LONG
25	FAS M10 81A	SPRING WASHER
26	FAS M10 83A	MUDWING WASHER
27	MB 10221	DUST DRAWER
28	CAB 151	TOGGLE CATCH
29	CAB 152	CATCH PLATE
30	RIVET 8	RIVET
31	XX MB SEAL	ACCESS DOOR SEAL
32	CAB 152 90	CATCH PLATE
33	IND 10578A	DIAPHRAGM VALVE (110V)
34	IND 10578	DIAPHRAGM VALVE (240V)
35	IND 10580	TIMER
36	HC 4280	FIXING BRACKET
37	FAS M6 11A	SCREW 16 LONG
38	FAS M6 81A	SPRING WASHER
39	P 181	BUSH 4" - 1"
40	KB 809	ADAPTOR PUSH IN ELBOW
41	RM 42	ADAPTOR FEM 1/4"
42	RCAMV 4	BULKHEAD ADAPTOR
43	CAP S26	ELBOW
44	P 151	ELBOW 4" F
45	P 152	NIPPLE 4"
46	P 206	ELBOW 4" F
47	P 154	END CAP 4"
48	KB 911	TUBE PLASTIC
49	P 196	UNION ELBOW 1" M& F
50	P 190X	PRESSURE REGULATOR/FILTER
51	P 122	NIPPLE 1" X 3/4"
52	KB 11	PRESSURE GAUGE
53	P 26	ELBOW 1" M & F
54	P 58	TEE 1"
55	P 3	NIPPLE 1"
56	P 1	BALL VALVE 1"
57	BW 10	COUPLING 1" MALE

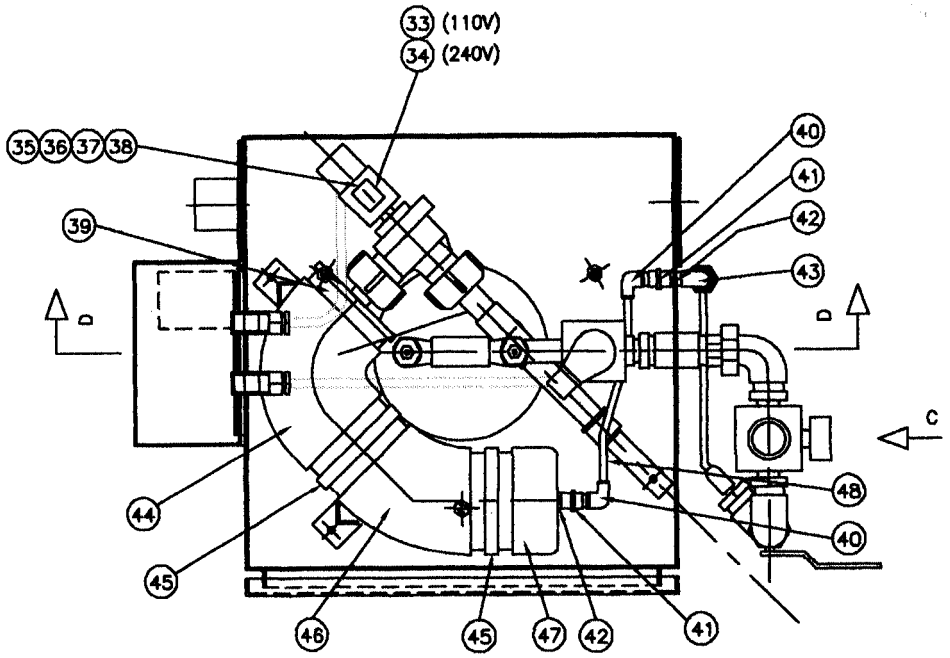
58	EC 100	EXTRACTOR/DRYER 15 CFM
59	IND 10352	ADAPTOR P.I.
60	P 228	BUSH 1" X 1/4"
61	MB 10090B	SOLENOID VALVE
62	MB 10090A	SOLENOID VALVE
63	HC 6861	SILO FABRICATION
64	HC 6601 2 HC 6601 HC 6601 3	SCREEN 4 MESH SCREEN 6 MESH 0794F EXPAMET
65	HC 6861 3 HC 6861 3A HC 6861 3B	DEBRIS DRAWER 4 MESH 6 MESH 0794F EXPAMET
66	BRLM HANDLE	HANDLE -PAIR
67	HC 6861 5	SILO LID
68	FAS M6 80A	WASHER
69	FAS M6 90A	NUT
70	HC 6861 4	DEFLECTOR PLATE - LINED
71	FAS M6 13A	SCREW 20 LONG
72	HC 6861 6	INLET CHUTE
73	FAS M12 80A	WASHER
74	FAS M12 91	NYLOC NUT
75	HC 6861 7	INLET SPIGOT
76	FAS M8 90A	NUT
77	HC 6861 2	SCREEN BRACKET
78	Z9 Z8	LEVEL SENSOR N.C.-CAPACITIVE LEVEL SENSOR N.C - INDUCTIVE
79	MB 10052A	SPIGOT
80	MB 10206	HOOK LOCK CLAMP
81	IND 10135C	CLAMPS FOR 200 LTR SILO - 20" +
82	IND 10135E	CLAMPS FOR 200 LTR SILO - 14"
83	FAS MB 13A	SCREW 16 LONG
84	 HC 6598 HC 6598 2 HC 6598 3	SUPPORT LEGS FOR 52" HIGH MACHINES FOR 46" HIGH MACHINES FOR 40" HIGH MACHINES
85	MB 10052B	BLANKING PLATE



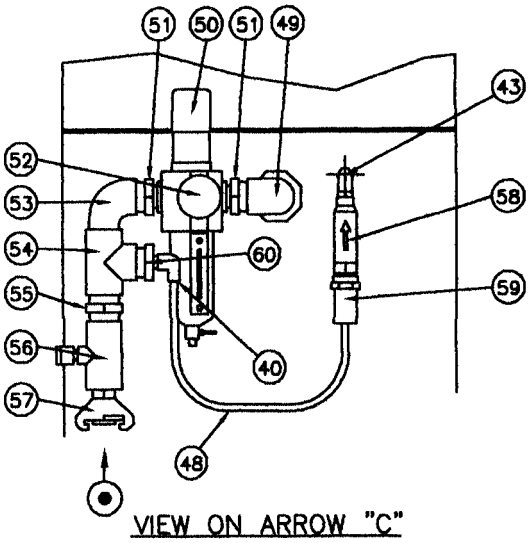
ARRANGEMENT OF IND 200P ERLHD RECOVERY UNIT



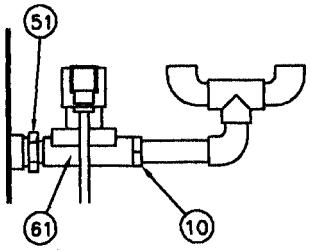
ASSEMBLY RECOVERY UNIT – IND 200P AERL
SIDE VIEW & SECTION



SECTION "A–A"



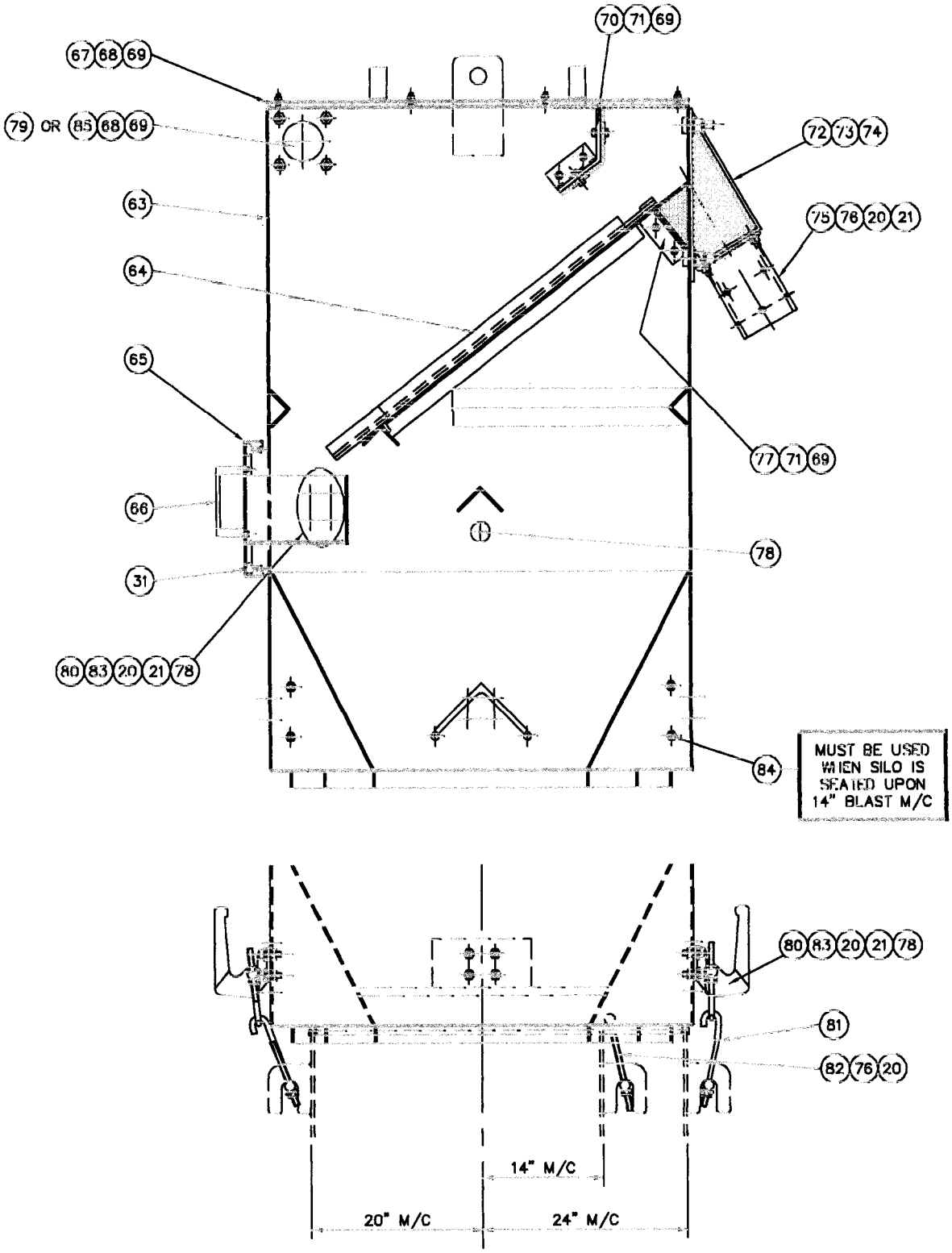
VIEW ON ARROW "C"



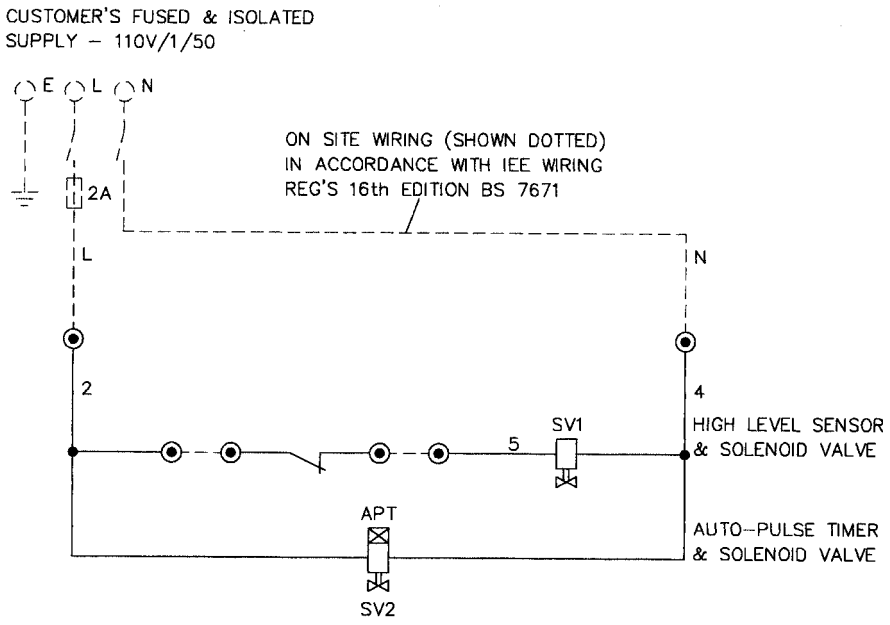
110V/1/50Hz
62
240V/1/50Hz

PART SECTION "D–D"

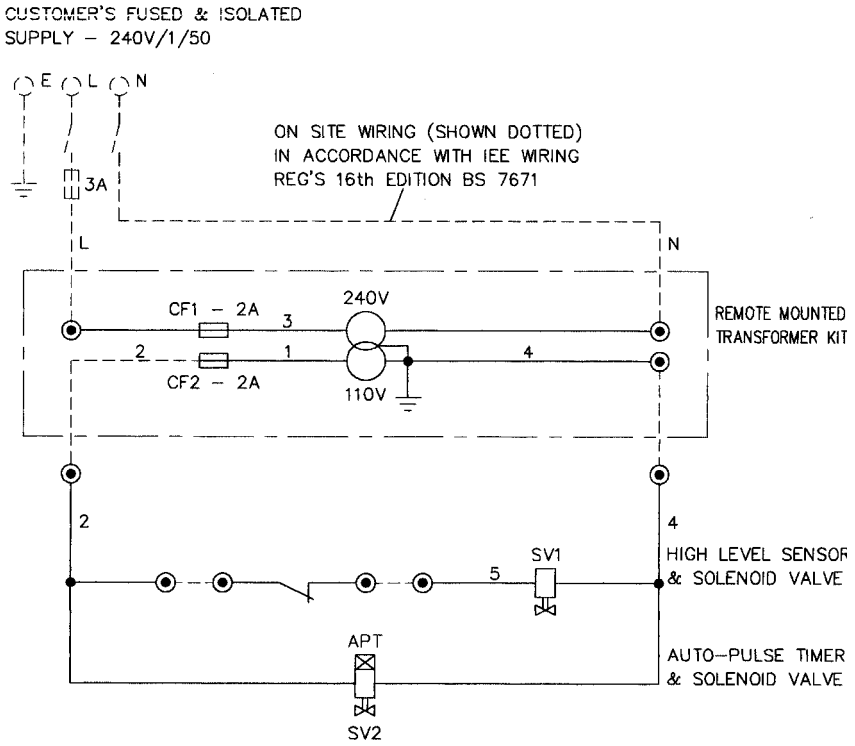
ASSEMBLY RECOVERY UNIT – IND 200P AERL
TOP & SIDE SECTIONS



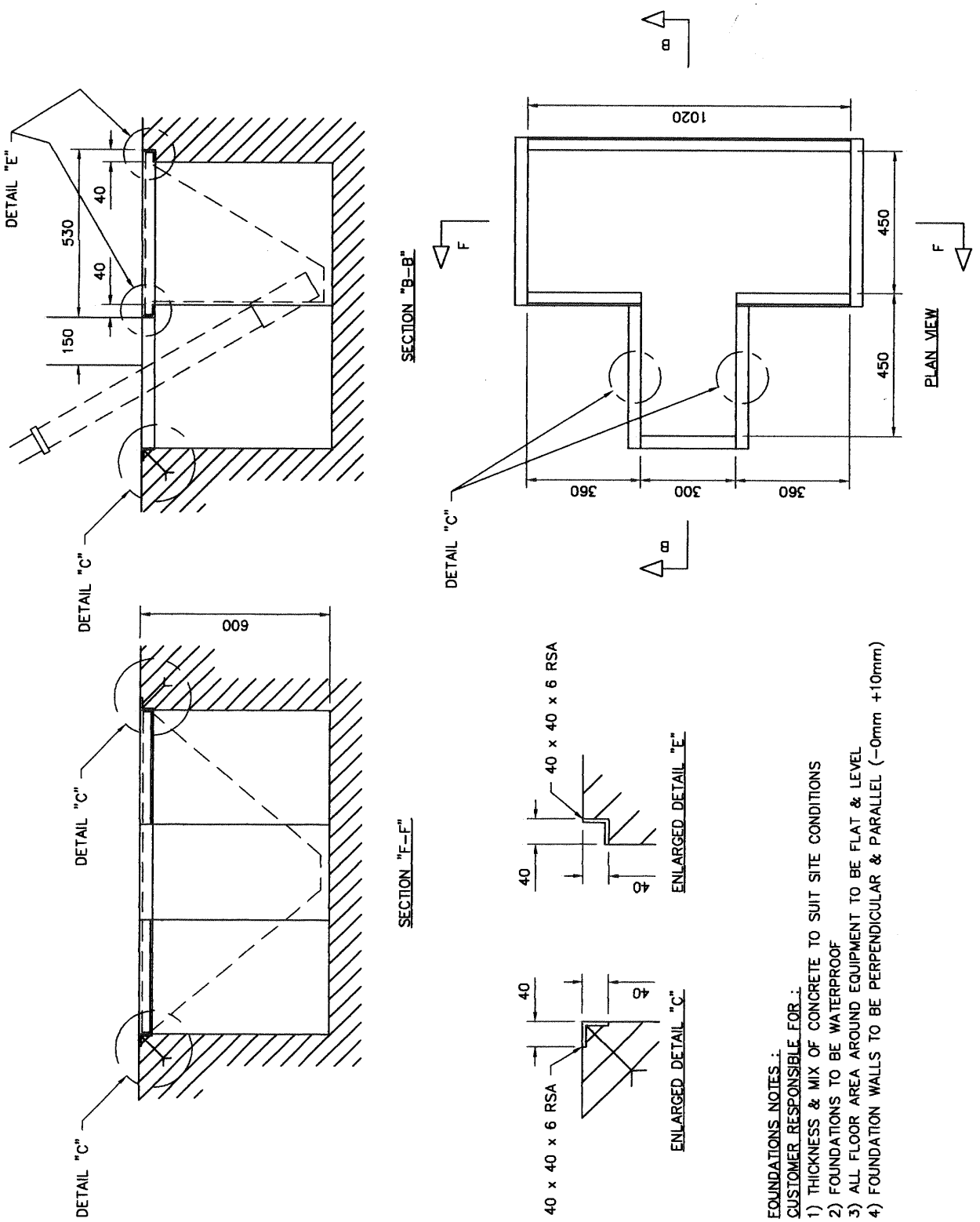
200 LITRE SILO (IND 201C)



STANDARD CONNECTION FOR 110V SUPPLY



OPTIONAL CONNECTION FOR 240V SUPPLY

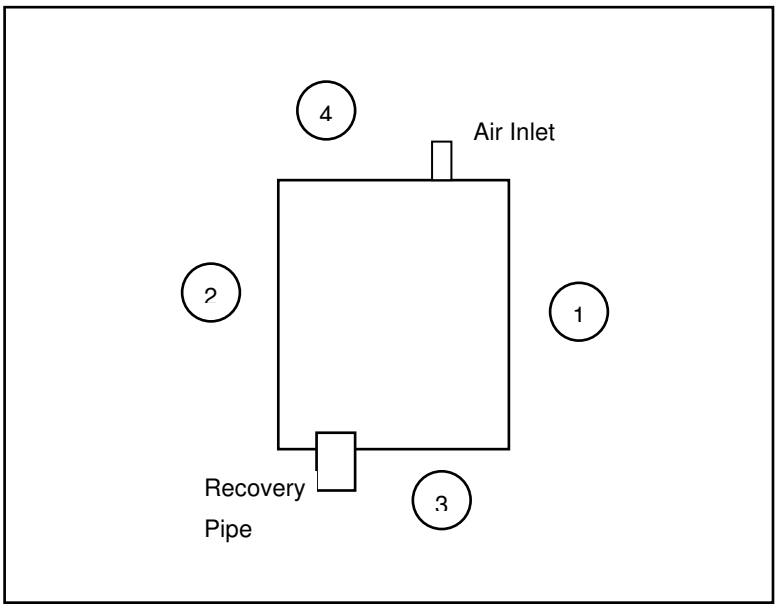


FOUNDATIONS NOTES :
CUSTOMER RESPONSIBLE FOR :
1) THICKNESS & MIX OF CONCRETE TO SUIT SITE CONDITIONS
2) FOUNDATIONS TO BE WATERPROOF
3) ALL FLOOR AREA AROUND EQUIPMENT TO BE FLAT & LEVEL
4) FOUNDATION WALLS TO BE PERPENDICULAR & PARALLEL (-0mm +10mm)

Typical Airborne Noise Emissions Expected

The following are readings taken from identical equipment operated under the conditions detailed below The readings recorded should be used to determine the level of ear protection required by the operator(s) and personnel at risk

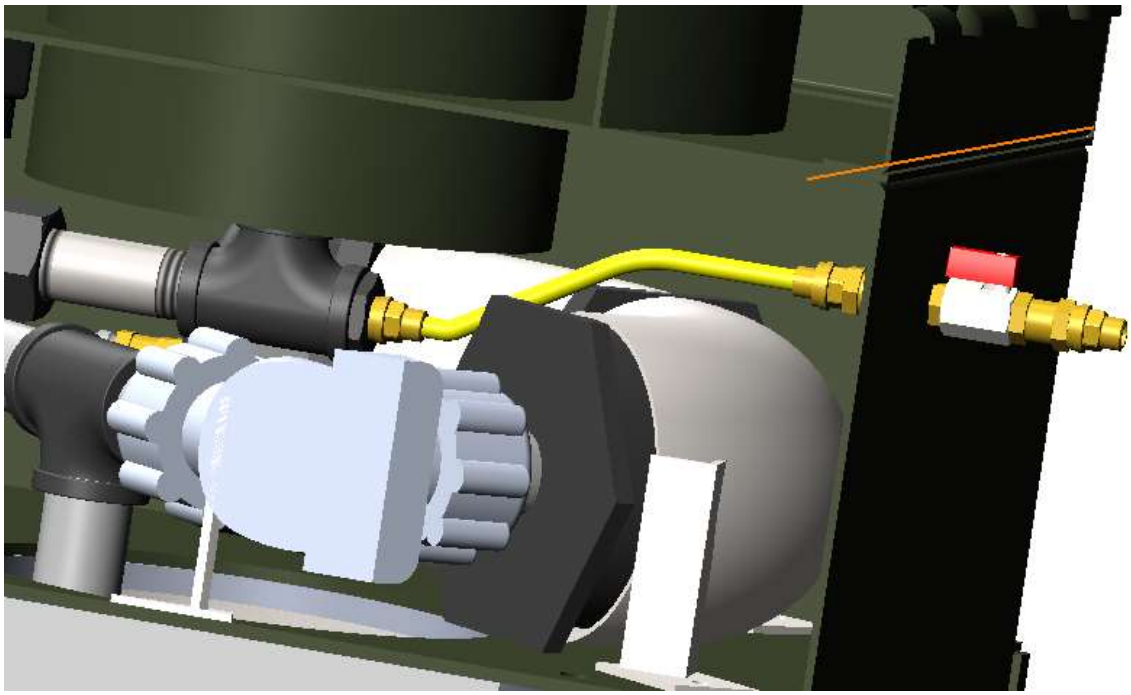
Equipment Description : IND 200P AERL
Location and Test Conditions: Hodge Clemco Ltd Work Area
Power and Load Conditions: 110 p.s.i.

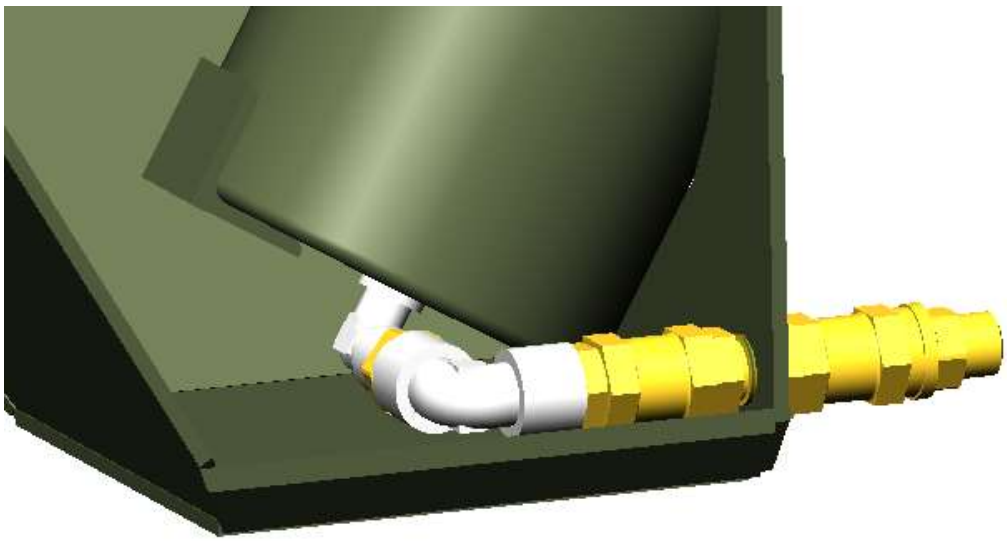


	Continuous		Test Duration	High Surge Reading		Back ground Noise	Notes
Position 1.6 m High	Max dBA	Min dBA		Max dBA	Period		
1. Operators Position	75		5 mins				
2. 1.6m (H) x 1 m (Dist)	76		5 mins				
3. 1.6m (H) x 1 m (Dist)	77		5 mins				
4. 1.6m (H) x 1 m (Dist)	78		5 mins				
Position of high surge	NA	NA	NA	83	2 secs	67	NA

ADDENDUM I – ADDITION OF HOPPER FLUIDISER

The hopper fluidiser will provide a supply of air to the grit in the foundation pit hopper to assist grit recovery rates. As shown below, it is fed from the IND200P suction unit, this is then cable tied to the suction tube and inserted into the hopper. The tap coming out of the suction turns the fluidiser on and off and can be used to regulate the airflow. The specific parts can be found on drawings HC-5247 & HC-6872





Maintenance/Service Record		
Date	Comments	Signed