ANTI-SURGE CONTROL SYSTEMS
ASC-1000 AND ASC-2000 SERIES

WARNING

These instructions are intended for use only by experienced, qualified combustion start-up personnel.

Adjustment of this equipment and its components, by unqualified personnel, can result in fire, explosion, severe personal injury, or even death.

TABLE OF CONTENTS

These instructions are intended to serve as guidelines covering the installation, operation, and maintenance of Hauck equipment. While every attempt has been made to ensure completeness, unforeseen or unspecified applications, details, and variations may preclude covering every possible contingency. **WARNING: TO PREVENT THE POSSIBILITY OF SERIOUS BODILY INJURY, DO NOT USE OR OPERATE ANY EQUIPMENT OR COMPONENT WITH ANY PARTS REMOVED OR ANY PARTS NOT APPROVED BY THE MANUFACTURER.** Should further information be required or desired or should particular problems arise which are not covered sufficiently for the purchaser's purpose, contact Hauck Mfg. Co.

WARNING

This equipment is potentially dangerous with the possibility of serious personal injury and property damage. Hauck Manufacturing Company recommends the use of flame supervisory equipment and fuel safety shutoff valves. Furthermore, Hauck urges rigid adherence to National Fire Protection Association (NFPA) standards and insurance underwriter's requirements. Operation and regular preventative maintenance of this equipment should be performed only by properly trained and qualified personnel. Annual review and upgrading of safety equipment is recommended.

A. GENERAL INFORMATION

The Hauck Anti-Surge Control System (ASC) consists of a motorized variable vane damper, a Pitot tube assembly, and an adjustable pressure switch. Applicable to both new and existing installations, the system automatically controls surge by modifying the blower pressure vs. delivery curve to maintain the flow above the flow that would allow surging. Additional information on operational theory and application is available in Hauck application sheet GJ61 (attached).

The wiring diagrams for the standard system and two variations are shown on drawing CX3302 (see appendix). The remotely activated version is used to override the pressure switch setting during portions of the control cycle. The dual range version is used when it is desirable to switch between two different pressure switch settings.

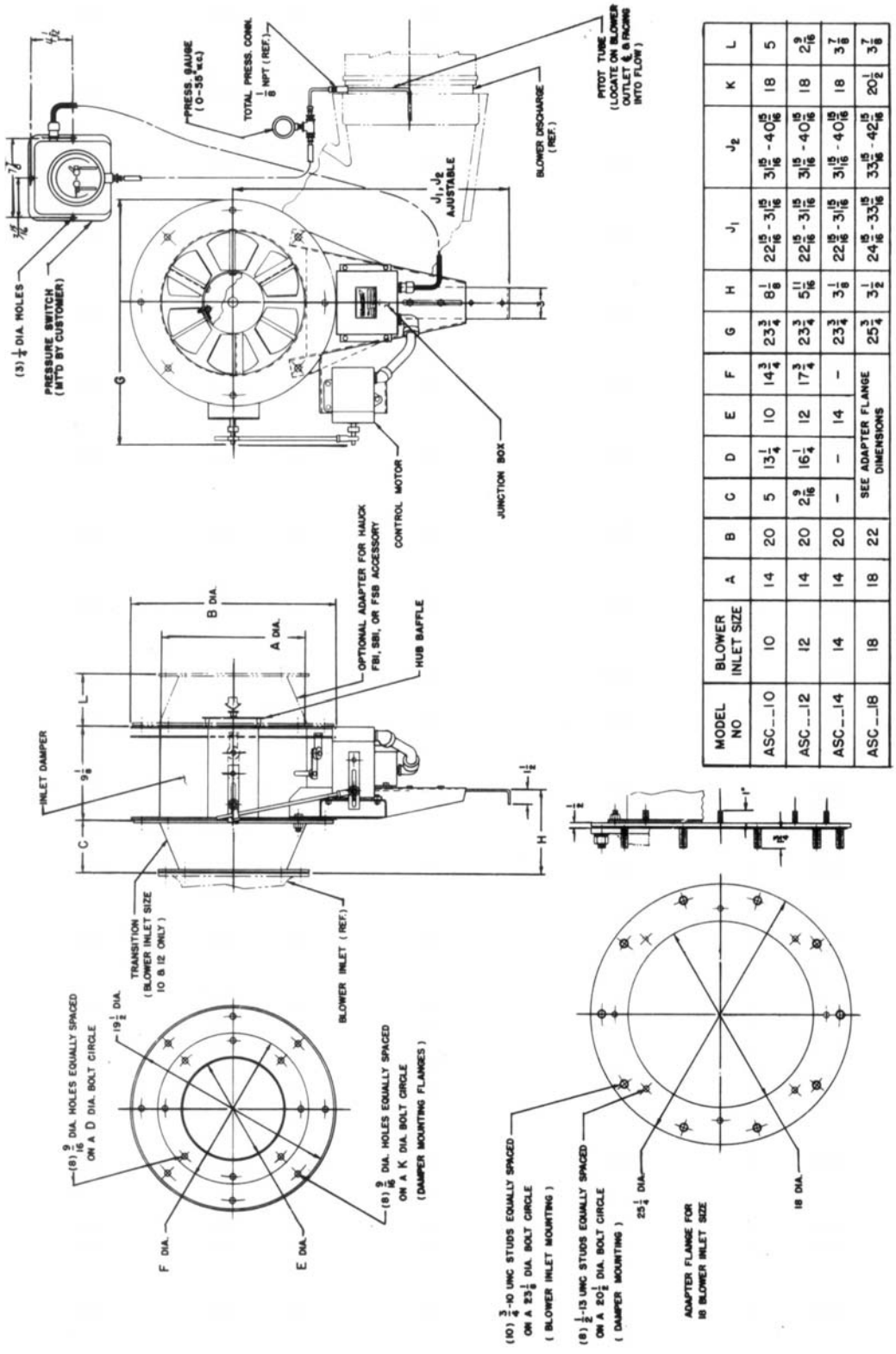
B. RECEIVING AND INSPECTION

Upon receipt, check each item on the bill of lading and/or invoice to determine that all equipment has been received. A careful examination of all parts should be made to ascertain if there has been any damage in shipment.

IMPORTANT

If the installation is delayed and the equipment is stored outside, provide adequate protection as dictated by climate and period of exposure. Special care should be given to all motors and bearings, if applicable, to protect them from rain or excessive moisture.

C. DIMENSIONS



MODEL NO	BLOWER INLET SIZE	A	B	C	D	E	F	G	H	J_1	J_2	K	L
ASC--10	10	14	20	5	13 1/4	10	14 3/4	23 3/4	8 1/8	22 15/16 - 31 15/16	31 15/16 - 40 15/16	18	5
ASC--12	12	14	20	2 9/16	16 1/4	12	17 3/4	23 3/4	5 11/16	22 15/16 - 31 15/16	31 15/16 - 40 15/16	18	2 9/16
ASC--14	14	14	20	-	-	14	-	23 3/4	3 1/8	22 15/16 - 31 15/16	31 15/16 - 40 19/16	18	3 7/8
ASC--18	18	18	22	SEE ADAPTER FLANGE DIMENSIONS				25 3/4	3 1/2	24 15/16 - 33 15/16	33 15/16 - 42 15/16	20 1/2	3 7/8

1100 SERIES FOR CW BLOWER DISCHARGE POS. 1-7; J_1
1200 " " " " " ; J_2
2100 SERIES FOR CCW BLOWER DISCHARGE POS. 11-17; J_1
2200 " " " " " ; J_2

GY3302

D. INSTALLATION AND ADJUSTMENT

1. Attach the damper unit to the blower inlet and install the Pitot tube assembly in the blower discharge as shown in drawing GY3302.

2. Mount the pressure switch on a vibration free support.

3. Wire the pressure switch to the damper junction box using the applicable wiring diagram on drawing CX3302 (see appendix).

4. Wire a 120V/1/60 Hz supply to the damper junction box. Also connect any remotely activated relay contacts, if applicable.

> **NOTE**
> Relay contacts must be dry contacts dedicated to the anti-surge control function.

5. Install the pressure sensing tube between the pressure switch and the Pitot tube assembly.

6. Disconnect the mechanical linkage between the control motor and the inlet damper by removing the cotter pin and sliding the ball connector off of the control lever.

7. Loosen the setscrews on the hub baffle and position the baffle at least 1-1/2" away from the damper body. Retighten the setscrews to prevent the baffle from moving.

8. Start the blower. **BE SURE THE BLOWER IS ROTATING IN THE PROPER DIRECTION.**

9. Set the control valve (s) in the blower discharge line for MAXIMUM flow. Fully open the inlet damper vanes and record the pressure gauge reading.

> **NOTE**
> The pressure gauge and pressure switch scales are calibrated in inches of water. To convert to osig, divide by 1.73.

10. Manually set the inlet damper vanes to the closed position to obtain a minimum gauge reading of 4 "wc less than that measured in step 9.

> **NOTE**
> If this reading can not be achieved, stop the blower and adjust the damper hub opening by positioning the hub baffle closer to the damper body. Repeats steps 9 and 10 until the desired reading is obtained.

11. Set the control valve (s) in the blower discharge line for **MINIMUM** flow.

12. Slowly open the inlet damper vanes until pulsation occurs, then close the vanes slightly until pulsation ceases.

> **NOTE**
> If pulsation occurs with the inlet vanes fully closed, further decrease the damper opening area by adjusting the hub baffle.

13. Record the pressure gauge reading obtained in step 12. This is the system's constant operating pressure.

14. Set the control valve (s) in the blower discharge line for **MAXIMUM** flow.

15. Adjust the pressure switch (Figure 1) as follows:

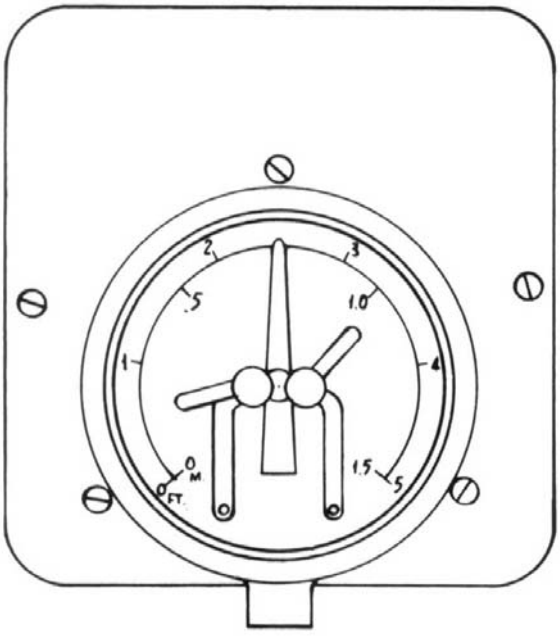


Figure 1. Pressure Switch

a. Slowly move the control valve in the blower discharge line toward minimum flow until the pressure recorded in step 13 is slightly exceeded.

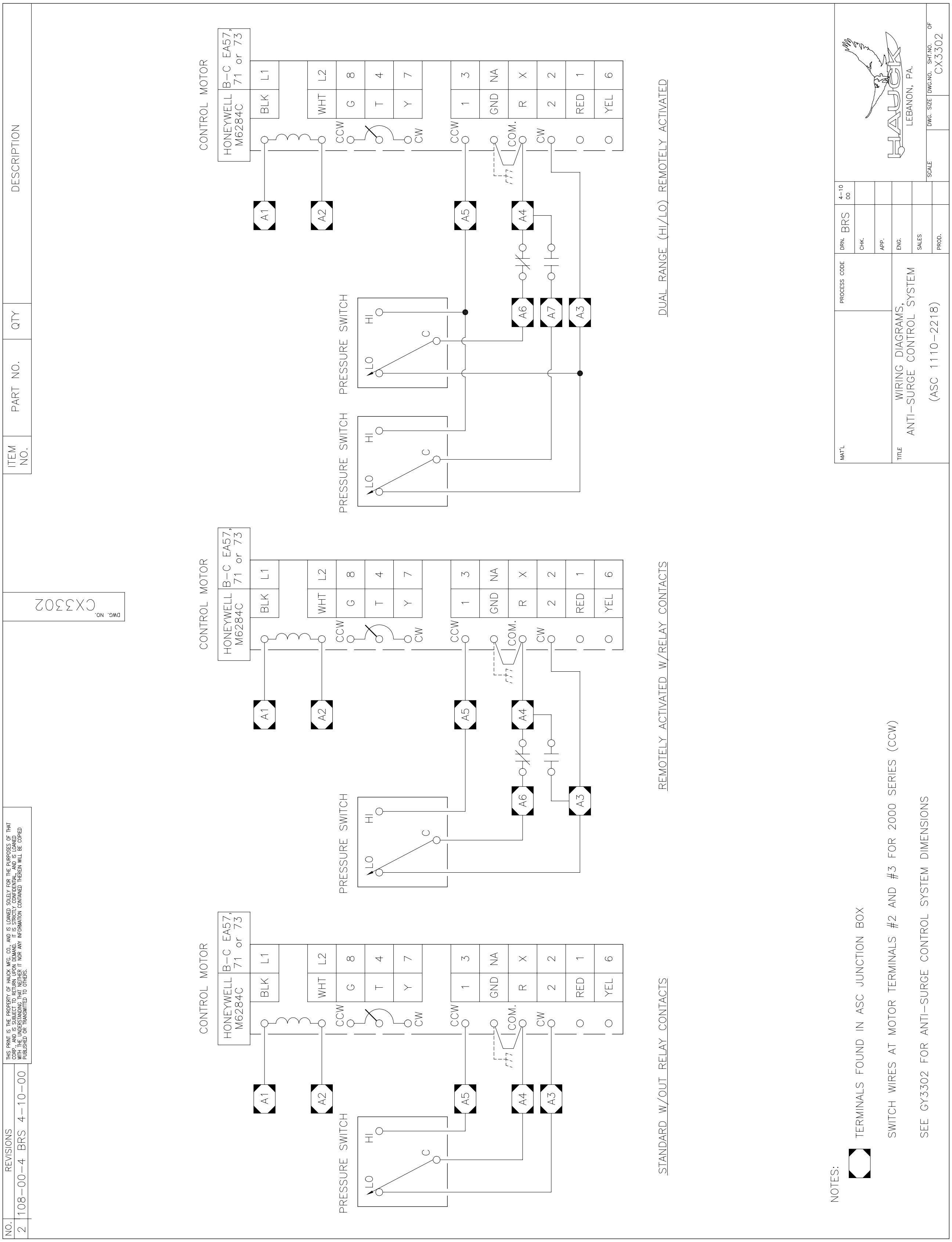
b. Turn the High Limit adjustment knob on the pressure switch until the high limit contact just touches the pointer. Record the pressure switch pointer reading.

c. Stop the blower. Turn the Low Limit adjustment knob until the pressure switch pointer is reading 2 "wc below the reading recorded in step b, above.

E. PRESSURE DROP

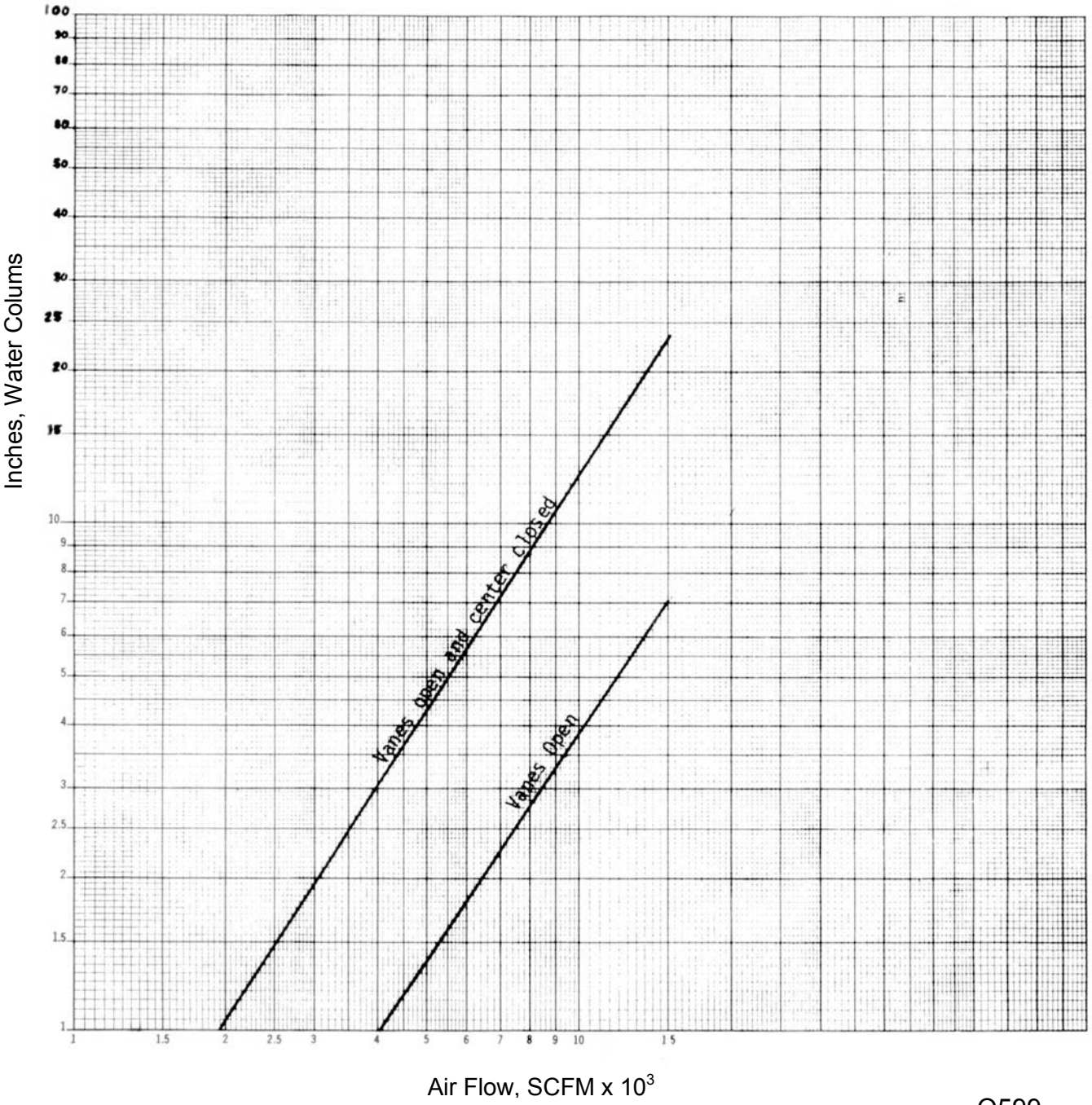
When adding an Anti-Surge Control to a blower, allow for the pressure drop depicted in graph Q599 (see appendix).

APPENDIX:


CONTROL MOTOR
HONEYWELL M6284C
B-C EA57, 71 or 73
BLK L1
WHT L2
G 8
T 4
Y 7
1 3
GND NA
R X
2 2
RED 1
YEL 6
CCW
CW
COM.
PRESSURE SWITCH
LO
C
HI
A1
A2
A3
A4
A5
A6
A7
STANDARD W/OUT RELAY CONTACTS
REMOTELY ACTIVATED W/RELAY CONTACTS
DUAL RANGE (HI/LO) REMOTELY ACTIVATED
NOTES:
TERMINALS FOUND IN ASC JUNCTION BOX
SWITCH WIRES AT MOTOR TERMINALS #2 AND #3 FOR 2000 SERIES (CCW)
SEE GY3302 FOR ANTI-SURGE CONTROL SYSTEM DIMENSIONS
NO. REVISIONS
2 108-00-4 BRS 4-10-00
ITEM NO.
PART NO.
QTY
DESCRIPTION
DWG. NO.
CX3302
WIRING DIAGRAMS, ANTI-SURGE CONTROL SYSTEM
(ASC 1110-2218)
DRN. BRS 4-10-00
HAUCK
LEBANON, PA.

APPENDIX:

PRESSURE DROP ACROSS BLOWER INLET DAMPER



Q599