FLUID ENGINEERING SERVICES

SYSTEM ANALYSIS AIR AND WATER BALANCING

SUBJECT: Exh. Fan 101. Rooms S155 & S144

A pitot traverse of this unit reveals it is 24% low in air quantity. Motor is overloaded. We do not recommend a larger HP motor with a change in sheaves, since the fan construction cannot with stand higher speeds. A more practical solution may be to install an in-line fan in the existing equipment room adjacent to rooms S155 Hot Lab & S144 Scan Room. There is adequate space to install it above the existing prop fan and adequate space above ceiling to run duct work. Exhaust air from above two rooms is less than 50 CFM. Both rooms are under positive pressure.

Stanley R Parry

Stanley R. Parry
F.E.S. Tech

TELEPHONE: 919-763-0196 • P.O. BOX 3362 • WILMINGTON, N.C. 28401

Division of Johnson Controls, Inc.

FLUID ENGINEERING SERVICES

EXHAUST FAN TEST REPORT

PROJECT CAMP LEJEUNE HOSPITAL LOCATION JACKSONVILLE N C.

EXH. FAN NO. OR LOCATION		EF 101					
MANUFACTURER		P.V.C					
TYPE OR SIZE							
FAN CFM	DESIGN	2985					
	ACTUAL	2263					
TOTAL STATIC PRESS.	DESIGN	.725					
	ACTUAL	.40					
FAN RPM	DESIGN	900					
	ACTUAL	870					
BELTS		1-4L470					
MOTOR HP	DESIGN	3/4					
	ACTUAL	3/4					
AMPS	DESIGN	1.55					
	ACTUAL	1.8/1.9/1.8					
VOLTAGE	DESIGN	460					
	ACTUAL	470					
MOTOR RPM	DESIGN	1725					
	ACTUAL	1725					
BHP		.9226					
AIR QUANT		-24%					

DATE 7/3/85 BY S.R.P. SHEET ____ OF ____

FLUID ENGINEERING SERVICES

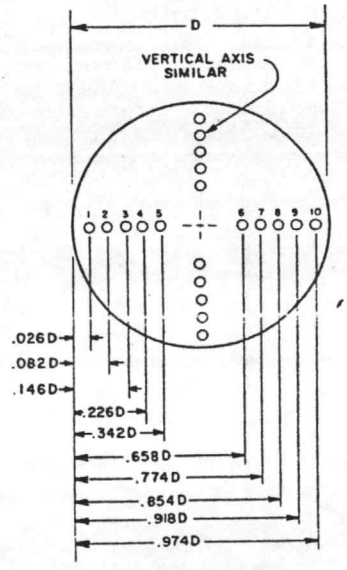
DUCT TRAVERSE READINGS

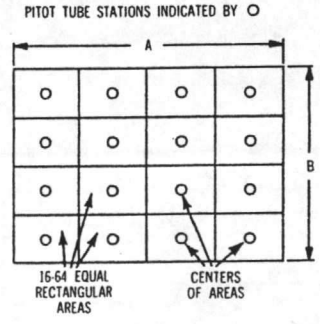
PROJECT CAMP LEJEUNE HOSPITAL LOCATION JACKSONVILLE N.C

SYSTEM EF 101 AREA SERVED/ZONE

READING NUMBER	1	2	3	4	5	
(1)	700	700	600	500		
	700	800	800	600		
	700	900	700	600		
	600	800	700	700		
	600	800	800	700		
(2)	600	600	600	700	400	
	600	600	700	600	400	
	600	600	700	600	500	
	600	600	600	600	500	
	600	500	600	500	500	
	600	500	600	500	500	
	(1)	(2)				
TOTAL	14300	17100				
÷ BY	20	30				
= AVE. VEL.	715	570				
DUCT WIDTH	17	21				
x DUCT HEIGHT	11	15				
= NET AREA *	1.3	2.9				
VEL x AREA = CFM	929	1254	+ 1 DIFFUSER 80 CFM			2263
DESIGN CFM				DESIGN		2985

-24%





RECTANGULAR DUCT

*DUCT I.D. USED TAKING INTO ACCOUNT INSULATION.

DATE 7/3/85 BY S.R.P. SHEET _____ OF _____

FLUID ENGINEERING SERVICES

SYSTEM ANALYSIS AIR AND WATER BALANCING

SUBJECT: Exh. Fan 101. Rooms S155 & S144

A pitot traverse of this unit reveals it is 24% low in air quantity. Motor is overloaded. We do not recommend a larger HP motor with a change in sheaves, since the fan construction cannot with stand higher speeds. A more practical solution may be to install an in-line fan in the existing equipment room adjacent to rooms S155 Hot Lab & S144 Scan Room. There is adequate space to install it above the existing prop fan and adequate space above ceiling to run duct work. Exhaust air from above two rooms is less than 50 CFM. Both rooms are under positive pressure.

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Division of Johnson Controls, Inc.

FLUID ENGINEERING SERVICES

EXHAUST FAN TEST REPORT

PROJECT CAMP LEJEUNE HOSPITAL LOCATION JACKSONVILLE N C.

EXH. FAN NO. OR LOCATION		EF 101					
MANUFACTURER		P.V.C					
TYPE OR SIZE							
FAN CFM	DESIGN	2985					
	ACTUAL	2263					
TOTAL STATIC PRESS.	DESIGN	.725					
	ACTUAL	.40					
FAN RPM	DESIGN	900					
	ACTUAL	870					
BELTS		1-4L470					
MOTOR HP	DESIGN	3/4					
	ACTUAL	3/4					
AMPS	DESIGN	1.55					
	ACTUAL	1.8/1.9/1.8					
VOLTAGE	DESIGN	460					
	ACTUAL	470					
MOTOR RPM	DESIGN	1725					
	ACTUAL	1725					
BHP		.9226					
AIR QUANT		-24%					

DATE 7/3/85 BY S.R.P. SHEET ____ OF ____

Form 4682

FLUID ENGINEERING SERVICES

DUCT TRAVERSE READINGS

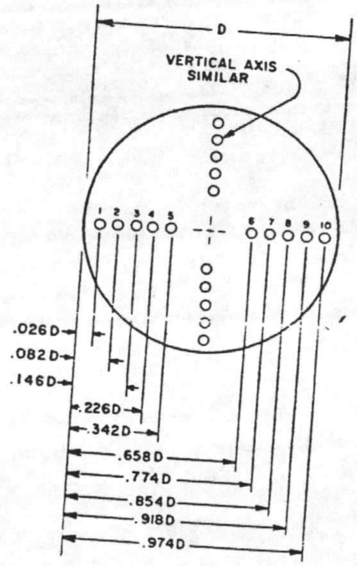
PROJECT: CAMP LEJEUNE HOSPITAL LOCATION: JACKSONVILLE N.C.

SYSTEM: EF 101

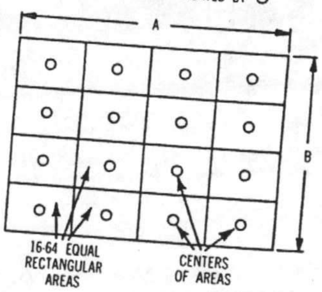
AREA SERVED/ZONE:

READING NUMBER	1	2	3	4	5
(1)	700	700	800	500	
	700	800	800	600	
	700	900	700	600	
	600	800	700	600	
	600	800	800	700	
				700	
(2)	600	600	600	700	400
	600	600	700	600	400
	600	600	700	600	500
	600	600	600	600	500
	600	500	600	500	500
	600	500	600	500	500
	(1)	(2)			
TOTAL	14300	17100			
÷ BY	20	30			
= AVE. VEL.	715	570			
DUCT WIDTH	17	21			
x DUCT HEIGHT	11	15			
= NET AREA *	1.3	2.2			
VEL x AREA = CFM	929	1254			
DESIGN CFM		+ 1 DIFFUSER 80 CFM			2263
			DESIGN		2985

−24%



PITOT TUBE STATIONS INDICATED BY ○



RECTANGULAR DUCT

* DUCT I.D. USED TAKING INTO ACCOUNT INSULATION.

DATE 7/3/85 BY S.R.P.

SHEET ____ OF ____

FORM 1748 REV. 3/75

Division of Johnson Controls, Inc.

PRINTED IN U.S.A.

Johnson Controls, Inc.
Naval Regional Medical Center
Hospital Communications Center
Stone Street & Brewster Blvd.
Post Office Box 4
Camp Lejeune, NC 28542
Tel. 919/353 0558

JOHNSON CONTROLS
Systems & Services Division

August 15, 1985

LtJg R. V. Richards
Facilities Maintenance
Naval Hospital
Camp Lejeune, N. C. 28542

Dear Sir:

Per your request, please find the following balance reports conducted by Mr. Stan Parry, JCI Fluid Service Application Engineer.

Exhaust Fan 101 (Rooms S155 & S144)	2 copies
AH22, Chiller Pumps P116,P117,P118	2 copies

In regard to the balancing work conducted by Mr. Parry and your maintenance staff (Yopp), particular attention should be to the problems found concerning AHU #22. Such attention should be to note, quantitatively, the magnitude of energy waste that can be attributed to inefficiencies noted within the report. Specifically, fan RPM set to maximum speed, spiral duct material and installation, flourescent light return tabs not popped out and a high number of strip line diffusers acting as dampers rather than deflectors. As noted, savings of 15-19% can be achieved, if the Air Handling systems throughout the hospital are experiencing similar characteristics as AHU No. 22, via exhanced preventive maintenance programs that specifically tasks such duties that check/resolve these types of problems. It is agreed that this would be time consuming; however, it is an energy conserving measure that is needed so as to guarantee cost efficiencies and comfort within the facility.

In regard to the reports concerning exhaust fan 101 (Room S155 & S144) note recommendation to add an in-line fan in the existing equipment room adjacent to Rooms S155 Hot Lab & S144 Scan Room. This recommendation is based upon the existing motor being overloaded yet 24% low in air quantity as referenced to design.

In regard to chiller pump balance reports, note the specific pump curves denoting the "design" characteristics as compared to the pre-balance "original." Note also that the respective pumps (P116, P117, & P118) have been balanced according to design as denoted by "present". This balance has been verified through EMCS reporting of these flow characteristics.

Should you have any questions or comments regarding this balance work and reports, please advise.

Sincerely,
JOHNSON CONTROLS, INC.

Samuel C. Price, Jr.
Application Engineer IV

SCP/bjb

Enclosure

FLUID ENGINEERING SERVICES

SYSTEM ANALYSIS AIR AND WATER BALANCING

New Naval Hospital Camp Lejeune, N. C.

AHU22. Serving 2nd FL Physical Therapy,Minor O.R. & Dental Suite

This unit was origanally found to be running at excessive RPM 1470RPM and producing 5958CFM design is 5200CFM. 15% hi, reducing of speed to 1360RPM produced. 6803CFM, an increase of air quantity. Further reduction of speed to min. of existing sheaves 1200RPM produced 6374CFM still 22% hi. An inspection of duct system revealed many broken flexible spiral ducts on the high pressure side of the terminal boxes. At this point we wish to advise that the type of flexible duct used, was not designed for this high pressure application. We are also advised by the hospital engineering & maintenance staff, that this condition exists thru out the hospital.

Further Inspection revealed some very poor duct connections to terminal units EG: Sharp 180° turns resulting in total shut off of the terminal unit by collapsing of the spiral duct. Some boxes were completely shut off by their individual internal controls, some were wide open. One box in the exterior hall did not have an end cap on it. This cap measures 29" X 14", this cap should have been installed during construction, or found to be missing during testing procedures.

Return air balancing damper to this area was found shut but marked open.

It is the considered opinion of this technician, that this fan was set to max. speed in order to over come the above system deficiencies. Resulting in loss of air due to the characteristics of this particular fan but increased the energy consumption by 20%. There are 46 air handling units in this hospital. If 50% of them are in this condition. an awful lot of energy dollars are being wasted.

EG: At 1470RPM 5958CFM 11.5amps 8.9BHP at 1200RPM 6374CFM 9.4amps 7.24BHP. This is a savings of 19% in energy dollars. But air quantity is still 22% hi.

As of 7/12/85 all of the repairs to the duct system could not be completed due to the unavailability of the proper spiral duct. When these repairs are complete it is possible we will see a higher % of savings and certainly, increased efficiency.

TELEPHONE: 919-763-0196 • P.O. BOX 3362 • WILMINGTON, N.C. 28401

Division of Johnson Controls, Inc.

New Naval Hospital Camp Lejeune,N.C. Con't.

It was also noted that in many areas provision for return air were not used. Each of the florescent lights has two pop-out tabs, 1 on either side. All of them were still installed.
Strip line air diffuser 2 ft. & 4 ft. long. All have 1 or 2 deflecting baffles. A large number were found to be set so that they were acting as a damper not a deflector.

Chilled Water Pumps. P116,P117,P118
All 3 pumps were moving an average of 24% to much water. While this may or may not affect power consumption of each pump, it certainly does affect the power consumption of the chillers.
Cooling 1100GPM from 68° to 45° requires a higher chiller loading than cooling 880GPM from 68° to 45°, even to the possibility of having to use two chillers on occasions , to accomplish what can be done by one.

Respectfully,

Stanley R Parry

Stanley R. Parry
F.E.S. Tech.
8/12/85

FLUID ENGINEERING SERVICES

FAN EQUIPMENT TEST REPORT

PROJECT NAVAL HOSPITAL LOCATION CAMP LEJEUNE N. C.

SYSTEM AHU-22 EQUIPMENT LOCATION 2ND FL

FAN MANUFACTURER

MODEL OR SERIAL NO.

	DESIGN	ACTUAL
TOTAL CFM	5200	5958
O.A. CFM	1040	
RETURN CFM	4160	
SUCTION PRESSURE (TP)		
DISCHARGE PRESSURE (SP)		
TOTAL STATIC PRESSUR	3.5"	4.5"
FAN RPM	1250	1470
FAN PULLEY		2B7"
BELT SIZE & QUANTITY		2-B36

REMARKS

FIRST TEST

MOTOR MANUFACTURER GE

MODEL OR SERIAL NO. 5K215AC205G

	DESIGN OR RATED	ACTUAL
MOTOR H.P.	10	10
BHP		8.9
		L_1
AMPERAGE	12.9	L_2 11.5
		L_3
VOLTAGE	460	457
RPM	1740	1750
MOTOR SHEAVE		2B6"
O.L. HEATERS		

CORRECTED FULL LOAD AMPS = $\frac{\text{NAMEPLATE AMPS X VOLTAGE}}{\text{FIELD CHECKED VOLTAGE}}$ = 12.98

APPROX. BHP = NAMEPLATE HP x $\frac{\text{MOTOR OPERATING AMPS}}{\text{CORRECTED F.L.A.}}$ = 8.9

DATE 7/11/85 BY S.R.P. SHEET _____ OF _____

FLUID ENGINEERING SERVICES

FAN EQUIPMENT TEST REPORT

PROJECT NAVAL HOSPITAL LOCATION CAMP LEJEUNE N.C.

SYSTEM AHU 22 EQUIPMENT LOCATION 2ND FL

FAN MANUFACTURER

MODEL OR SERIAL NO.

	DESIGN	ACTUAL
TOTAL CFM	5200	6803
O.A. CFM	1040	
RETURN CFM	4160	
SUCTION PRESSURE (TP)		
DISCHARGE PRESSURE (SP)		
TOTAL STATIC PRESSUR	3.5"	3.75"
FAN RPM	1250	1360
FAN PULLEY		2B7"
BELT SIZE & QUANTITY		2-B36

REMARKS

2ND TEST

MOTOR MANUFACTURER GE

MODEL OR SERIAL NO. 5K215AC205G

	DESIGN OR RATED	ACTUAL
MOTOR H.P.	10	10
BHP		7.8
		L_1
AMPERAGE	12.9	L_2 10.2
		L_3
VOLTAGE	460	457
RPM	1740	1750
MOTOR SHEAVE		2B6"
O.L. HEATERS		

CORRECTED FULL LOAD AMPS = $\frac{\text{NAMEPLATE AMPS X VOLTAGE}}{\text{FIELD CHECKED VOLTAGE}}$ = 12.98

APPROX. BHP = NAMEPLATE HP x $\frac{\text{MOTOR OPERATING AMPS}}{\text{CORRECTED F.L.A.}}$ = 7.8

DATE 7/11/85 BY S.R.P. SHEET _____ OF _____

FLUID ENGINEERING SERVICES

FAN EQUIPMENT TEST REPORT

PROJECT NAVAL HOSPITAL LOCATION CAMP LEJEUNE N.C.

SYSTEM AHU 22 EQUIPMENT LOCATION 2ND FL

FAN MANUFACTURER

MODEL OR SERIAL NO.

	DESIGN	ACTUAL
TOTAL CFM	5200	6374
O.A. CFM	1040	
RETURN CFM	4160	
SUCTION PRESSURE (TP)		
DISCHARGE PRESSURE (SP)		
TOTAL STATIC PRESSUR	3.5"	
FAN RPM	1250	1200
FAN PULLEY		2B7"
BELT SIZE & QUANTITY		2-B36

REMARKS

3RD TEST

MOTOR MANUFACTURER GE

MODEL OR SERIAL NO. 5K215AC205G

	DESIGN OR RATED	ACTUAL
MOTOR H.P.	10	10
BHP		7.24
		L_1
AMPERAGE	12.9	L_2 9.4
		L_3
VOLTAGE	460	457
RPM	1740	1750
MOTOR SHEAVE		2B6"
O.L. HEATERS		

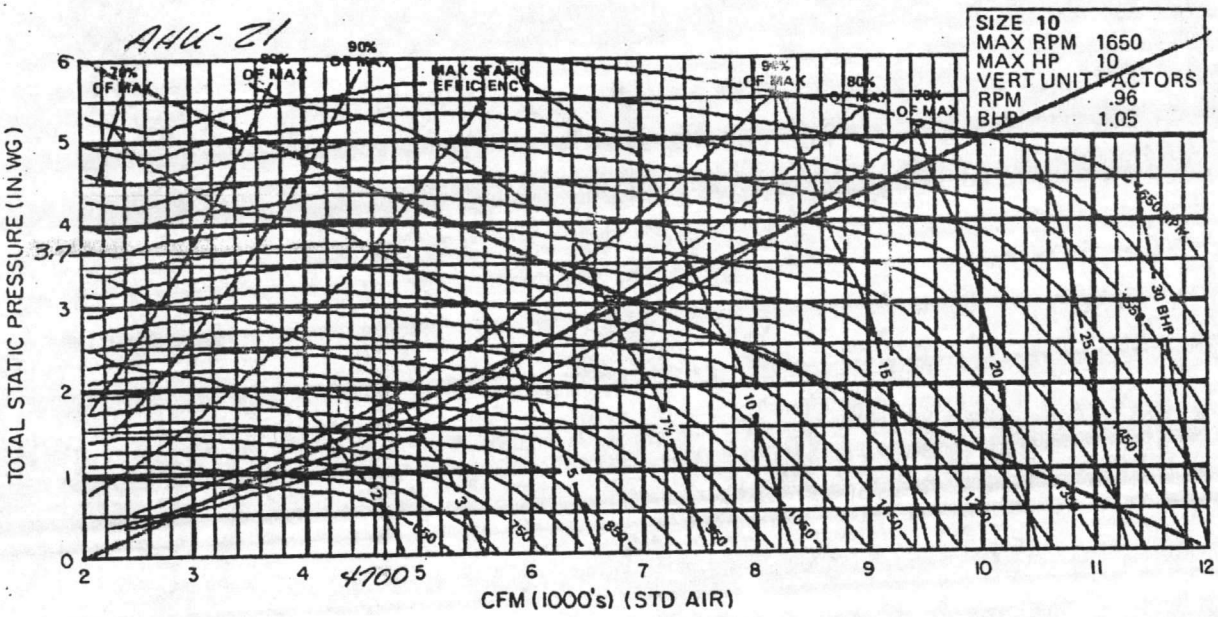
CORRECTED FULL LOAD AMPS = $\frac{\text{NAMEPLATE AMPS X VOLTAGE}}{\text{FIELD CHECKED VOLTAGE}}$ = 12.98

APPROX. BHP = NAMEPLATE HP x $\frac{\text{MOTOR OPERATING AMPS}}{\text{CORRECTED F.L.A.}}$ = 7.24

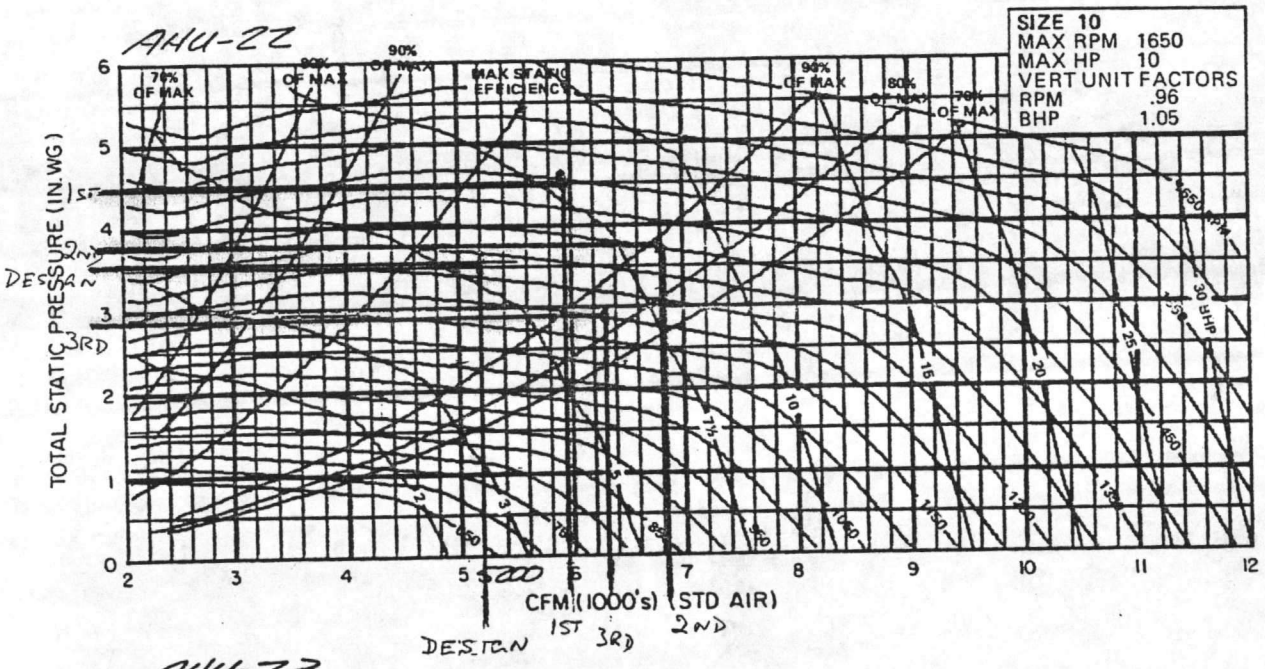
DATE 7/12/85 BY S.R.P SHEET _____ OF _____

NEW NAVY HOSPITAL CHMP LEJEUNE

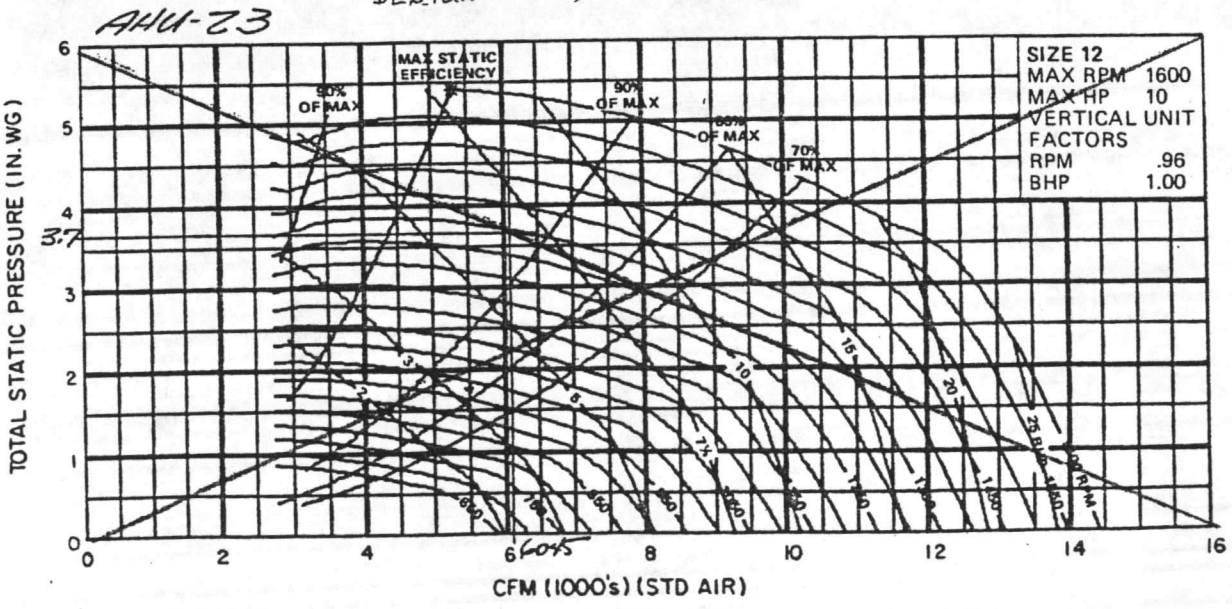
AHU-21



AHU-22



AHU-23



ENGINEERING SERVICES

CIRCULATING WATER PUMP TEST REPORT

PROJECT NEW MEDICAL CENTER LOCATION CAMP LEJEUNE
JACKSONVILLE
NC.

SYSTEM P116 PUMP LOCATION OR NUMBER BOILER ROOM.

PUMP MANUFACTURER BELL & GOSSETT
MODEL OR SERIAL NO. VSC 6x6x12

		DESIGN	BEFORE ACTUAL AFTER
PUMP GPM		880	1100 860
PUMP RPM		1770	1760
DISCHARGE PRESSURE (psig)	NO FLOW		99 99
	FULL FLOW		75 87
SUCTION PRESSURE (psig)	NO FLOW		38 38
	FULL FLOW		35 36
TOTAL HEAD ($FT\ H_2O$)*	NO FLOW		140.7 140.7
	FULL FLOW	110	92.3 117.6

* TOTAL HEAD ($FT\ H_2O$) = PUMP DIFFERENTIAL PRESSURE X 2.307

MOTOR MANUFACTURER LINCOLN
MODEL OR SERIAL NO. 2265795

	DESIGN OR RATED	ACTUAL
MOTOR HP	50	50
BHP		42.38
AMPERAGE	62.5	48 | 51 | 53
VOLTAGE	460	475 470 475
RPM	1770	1760
O.L. HEATERS		

REMARKS:

CORRECTED FULL LOAD AMPS = $\frac{\text{NAMEPLATE AMPS X VOLTAGE}}{\text{FIELD CHECKED VOLTAGE}}$ = 60.24

BHP = NAMEPLATE HP x $\frac{\text{MOTOR OPERATING AMPS}}{\text{CORRECTED F.L.A.}}$ = 42.38

DATE 7/8/85 BY S.R.P SHEET _____ OF _____

PERFORMANCE CHARACTERISTIC CURVE

FOR 6x6x12 VSC CENTRIFUGAL PUMP

SPEED 1750 R.P.M.

P 116

CURVES BASED ON SHOP TEST USING CLEAR COLD WATER AT A TEMPERATURE OF NOT OVER 85°F. PERFORMANCE IS GUARANTEED AT INDICATED OPERATING POINT ONLY. HORSEPOWER CURVES DO NOT INCLUDE MOTOR SERVICE FACTOR

APPROVED L.L.D. DATE 10-4-67

6X6X12

Impellers are trimmed in ⅛" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

NF CURVE

110

PRESENT

ORIGONAL

DESIGN

12" 11" 10" 9" 8½"

50% 65% 40% 60% 70% 75% 80% 81%

55%

40 HP 30 HP 25 HP 20 HP 15 HP 10 HP

N.P.S.H. REQUIRED

TOTAL HEAD IN FEET

N.P.S.H. FEET

0 200 400 600 800 1000 1200 1400 1600

0 10 20 30 40

0 20 40 60 80 100 120 140 160

PERFORMANCE CHARACTERISTIC CURVE

FOR 6x6x12 VSC CENTRIFUGAL PUMP 990

SPEED 1150 R.P.M.

CURVES BASED ON SHOP TEST USING CLEAR COLD WATER AT A TEMPERATURE OF NOT OVER 85°F. PERFORMANCE IS GUARANTEED AT INDICATED OPERATING POINT ONLY. HORSEPOWER CURVES DO NOT INCLUDE MOTOR SERVICE FACTOR

APPROVED L.L.D. DATE 7-16-68

6X6X12

Impellers are trimmed in ⅛" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

12" 11" 10" 9" 8½"

40% 50% 60% 65% 70% 75% 80% 81%

55%

15HP 10HP 7½HP 5HP 3HP

N.P.S.H. REQUIRED

TOTAL HEAD IN FEET

N.P.S.H. FEET

CAPACITY IN U.S. GALLONS PER MINUTE

0 100 200 300 400 500 600 700 800 900 1000 1100

0 5 10 20 30 40 50 60 70 80

0 10

BELL & GOSSETT

A DIVISION OF ITT

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

PRINTED IN U.S.A. 6-68

ENGINEERING SERVICES

CIRCULATING WATER PUMP TEST REPORT

PROJECT NEW MEDICAL CENTER LOCATION CAMP LEJEUNE JACKSONVILLE N.C

SYSTEM P117 PUMP LOCATION OR NUMBER BOILER ROOM

PUMP MANUFACTURER BELL + GOSSETT
MODEL OR SERIAL NO. VSC 6x6x12

		DESIGN	BEFOR FACTUAL	AFTER
PUMP GPM		880	1100	850
PUMP RPM		1770	1750	
DISCHARGE PRESSURE (psig)	NO FLOW		101	
	FULL FLOW		74	85
SUCTION PRESSURE (psig)	NO FLOW		37	
	FULL FLOW		31	35
TOTAL HEAD (FT H_2O)*	NO FLOW		147.7	
	FULL FLOW	110	99.2	124.5

* TOTAL HEAD (FT H_2O) = PUMP DIFFERENTIAL PRESSURE X 2.307

MOTOR MANUFACTURER LINCOLN
MODEL OR SERIAL NO. 2265795

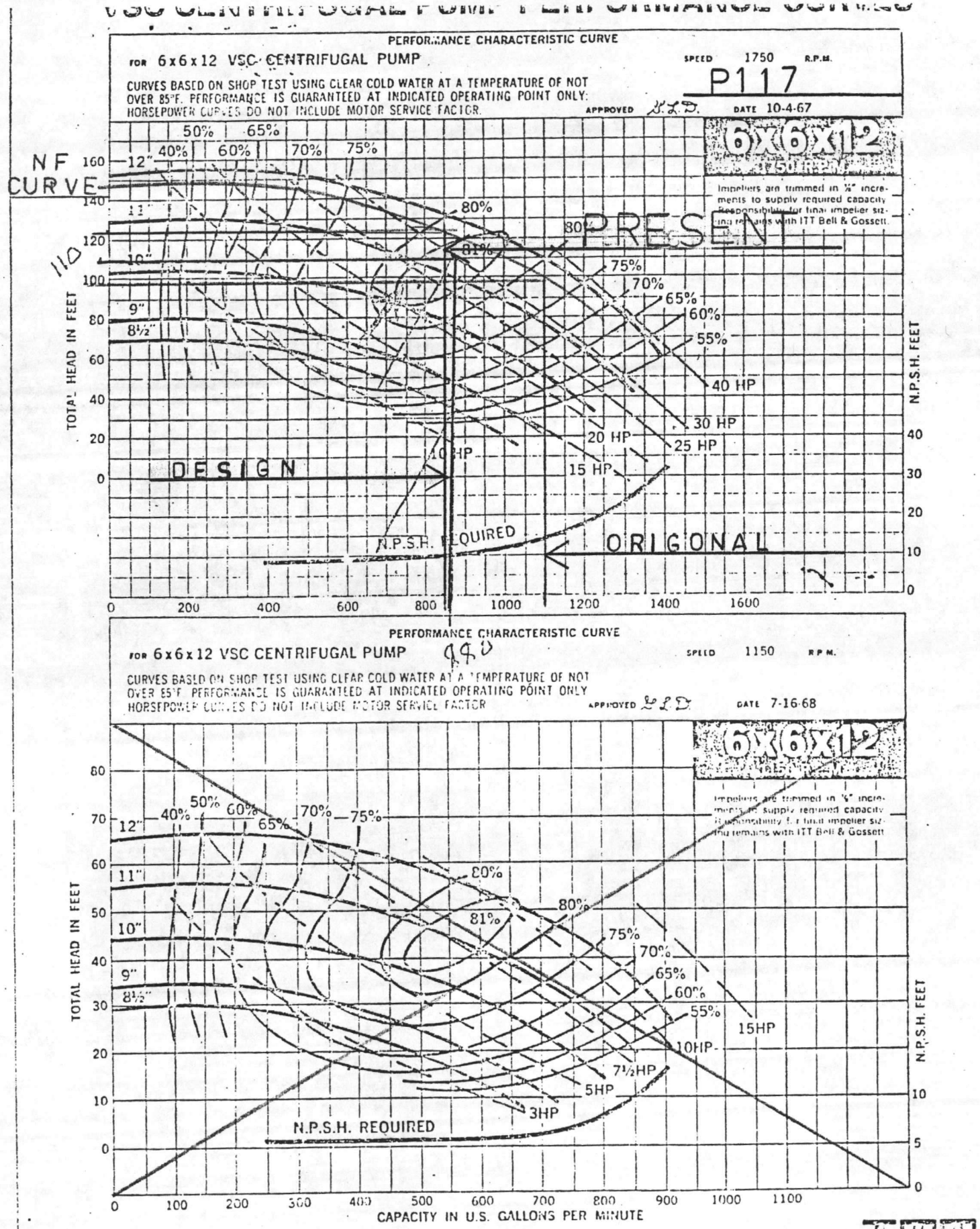
	DESIGN OR RATED	ACTUAL		
MOTOR HP	50	50		
BHP		37.19		
AMPERAGE	62.5	48	46	42
VOLTAGE	460	470	470	475
RPM	1770	1750		
O.L. HEATERS				

REMARKS:

CORRECTED FULL LOAD AMPS = $\frac{\text{NAMEPLATE AMPS X VOLTAGE}}{\text{FIELD CHECKED VOLTAGE}}$ = 60.9

BHP = NAMEPLATE HP x $\frac{\text{MOTOR OPERATING AMPS}}{\text{CORRECTED F.L.A.}}$ = 37.19

DATE 7/8/85 BY S.R.P SHEET _____ OF _____



BELL & GOSSETT

PRINTED IN U.S.A. 6-79

ENGINEERING SERVICES

CIRCULATING WATER PUMP TEST REPORT

PROJECT NEW MEDICAL CENTER LOCATION CAMP LEJEUNE
JACKSONVILLE
N.C.

SYSTEM P118 PUMP LOCATION OR NUMBER BOILER ROOM

PUMP MANUFACTURER BELL & GOSSETT
MODEL OR SERIAL NO. VSC 6x6x12

		DESIGN	BEFORE ACTUAL AFTER
PUMP GPM		880	1070 880
PUMP RPM		1770	1765
DISCHARGE PRESSURE (psig)	NO FLOW		100
	FULL FLOW		81 87.5
SUCTION PRESSURE (psig)	NO FLOW		37.5
	FULL FLOW		34.5 34.5
TOTAL HEAD (FT H_2O)*	NO FLOW		144.2
	FULL FLOW	110	107.3 122.2

* TOTAL HEAD (FT H_2O) = PUMP DIFFERENTIAL PRESSURE X 2.307

MOTOR MANUFACTURER LINCOLN
MODEL OR SERIAL NO. 2265795

	DESIGN OR RATED	ACTUAL
MOTOR HP	50	50
BHP		39.16
AMPERAGE	62.5	48 | 47 | 48
VOLTAGE	460	475 470 475
RPM	1770	1765
O.L. HEATERS		

REMARKS:

CORRECTED FULL LOAD AMPS = $\frac{\text{NAMEPLATE AMPS X VOLTAGE}}{\text{FIELD CHECKED VOLTAGE}}$ = 60.78

BHP = NAMEPLATE HP x $\frac{\text{MOTOR OPERATING AMPS}}{\text{CORRECTED F.L.A.}}$ = 39.16

DATE 7/8/85 BY S.R.P SHEET _____ OF _____

PERFORMANCE CHARACTERISTIC CURVE

FOR 6x6x12 VSC CENTRIFUGAL PUMP

SPEED 1750 R.P.M.

P118

CURVES BASED ON SHOP TEST USING CLEAR COLD WATER AT A TEMPERATURE OF NOT OVER 85°F. PERFORMANCE IS GUARANTEED AT INDICATED OPERATING POINT ONLY. HORSEPOWER CURVES DO NOT INCLUDE MOTOR SERVICE FACTOR

APPROVED L.E.D. DATE 10-4-67

6X6X12

Impellers are trimmed in ¼" increments to supply required capacity. Responsibility for final impeller size remains with ITT Bell & Gossett

NF CURVE

110

PRESENT

DESIGN

ORIGINAL

N.P.S.H. REQUIRED

TOTAL HEAD IN FEET

N.P.S.H. FEET

PERFORMANCE CHARACTERISTIC CURVE

FOR 6x6x12 VSC CENTRIFUGAL PUMP 995

SPEED 1150 R.P.M.

CURVES BASED ON SHOP TEST USING CLEAR COLD WATER AT A TEMPERATURE OF NOT OVER 85°F. PERFORMANCE IS GUARANTEED AT INDICATED OPERATING POINT ONLY. HORSEPOWER CURVES DO NOT INCLUDE MOTOR SERVICE FACTOR

APPROVED L.E.D. DATE 7-16-68

6X6X12

Impellers are trimmed in ¼" increments to supply required capacity. Responsibility for final impeller size remains with ITT Bell & Gossett

N.P.S.H. REQUIRED

TOTAL HEAD IN FEET

N.P.S.H. FEET

CAPACITY IN U.S. GALLONS PER MINUTE

BELL & GOSSETT

ITT

PRINTED IN U.S.A. 6/68