

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED
APPROVED AS NOTED _____
DISAPPROVED _____
SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. **05-82-2552**
APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS & WEIGHTS, COORDINA-
TION OF TRADES, ETC., AS REQUIRED

REVIEWER CCS DATE **7 FEB 1985**

FOR OFFICER IN CHARGE OF CONSTRUCTION

WATER POLLUTION CONTROL
WPC
WEIDNER PUMP CORPORATION

11/6/84

CAMP LEJUNE, N.C.
Sludge Collecting Mechanisms
Tank #4 & #5
Roberts Filter Manufacturing Company
P.O. #35482-2093
Weidner Pump Corporation
Contract #C-291

PAINTING SPECIFICATIONS

1. Electric Motors & Speed Reducers - Manufacturers standard painting specification in accordance with ASTM B117, for outdoor service to withstand 500 hours in a salt spray fog test.
 - a. Shall receive One (1) coat of primer; Koppers 622 Rust penetrating Primer and Two (2) coats of Koppers Galmortex 501 enamel baked.
2. Cast iron sprockets for submerged duty - Ferrous metal surfaces subject to continuous or intermittent immersion shall be sandblasted to a near-white grade, in accordance with the latest revision of SSPC specification SP-10. All blasted surfaces will be coated the same day they are blased.
 - a. Shall receive One (1) coat of Red Oxide Primer and Two (2) coats of Red Enamel.
3. Return Rails, floor rails & supports - For submerged duty. All steel surfaces to be wire-brushed clean and dry.
 - a. Shall receive One (1) coat of penetrating primer, Inertol #621 Primer, and Two (2) coats of enamel.

Revised 1-8-85

WEIDNER PUMP CORPORATION
WATER & SEWAGE TREATMENT EQUIPMENT REPAIR
3 Griswold St., Bethel, CT 06801 / 203-743-4022

300-98

SEX EDUCATION

PERSONNEL SECTION

EDUCATION SECTION

WPC

WEIDNER PUMP CORPORATION

11/6/84

CAMP LEJUNE, N.C.
 Sludge Collecting Mechanisms
 Tanks #4 & 5
 Roberts Filter Manufacturing Co.
 P.O. #35482-2093
 Weidner Pump Corporation #C-291

RECOMMENDED SPARE PARTS LIST

- One (1) Drive Sprocket, H-78 Chain Type, 11 Tooth - 9.26" Pitch Diameter, Cast iron construction, shear pin type hub, (Brewton Style #1) Bronze bushed bore w/grease fitting & grease galley.
 Net Price - \$485.00
- Twenty- Four (24) Shear pins, 1/2" diameter x 2" long with 1/8" neck @ \$6.50 each.
- Twenty (20) Feet, Drive Chain, Moline #MXS881, 2.609" pitch, offset steel chain, 20,000 pounds ultimate tensile strength.
 Net Price/Ft. \$ 12.75
- Six (6) Fiberglass Flights, 3" x 6" x 15'-4" long. Complete with factory drilled holes per list of material C-291-4, item #10.
 Net Price each \$ 79.50
- Twelve (12) Filler Blocks for above flights, P/N CN-1220
 Net Price each 5.52
- Twelve (12) Return Rail wear shoes, for above flights, P/N CN-1190
 Net Price each 3.35
- Twelve (12) Floor Rail Wear shoes, for above flights, P/N CN-1189
 Net Price each 3.88
- Six (6) Sets of flight Hardware for above flights per list of material C-291-4, item #20A thru #20E
 Net Price/set \$ 10.59

EXHIBIT 101
300 HANCOCK STREET
BOSTON 2, MASS.



Roberts

CABLE: WATERFILT PHILA.
TELEX: 753-447

FILTER MANUFACTURING COMPANY

P.O. BOX 167 • DARBY, PENNSYLVANIA 19023 • (215) 583-3131

CERTIFICATE OF COMPLIANCE

CONTRACT NUMBER

N62470-82-C-2552

PROJECT SPECIFICATION SECTION 15397

SLUDGE COLLECTING MECHANISM

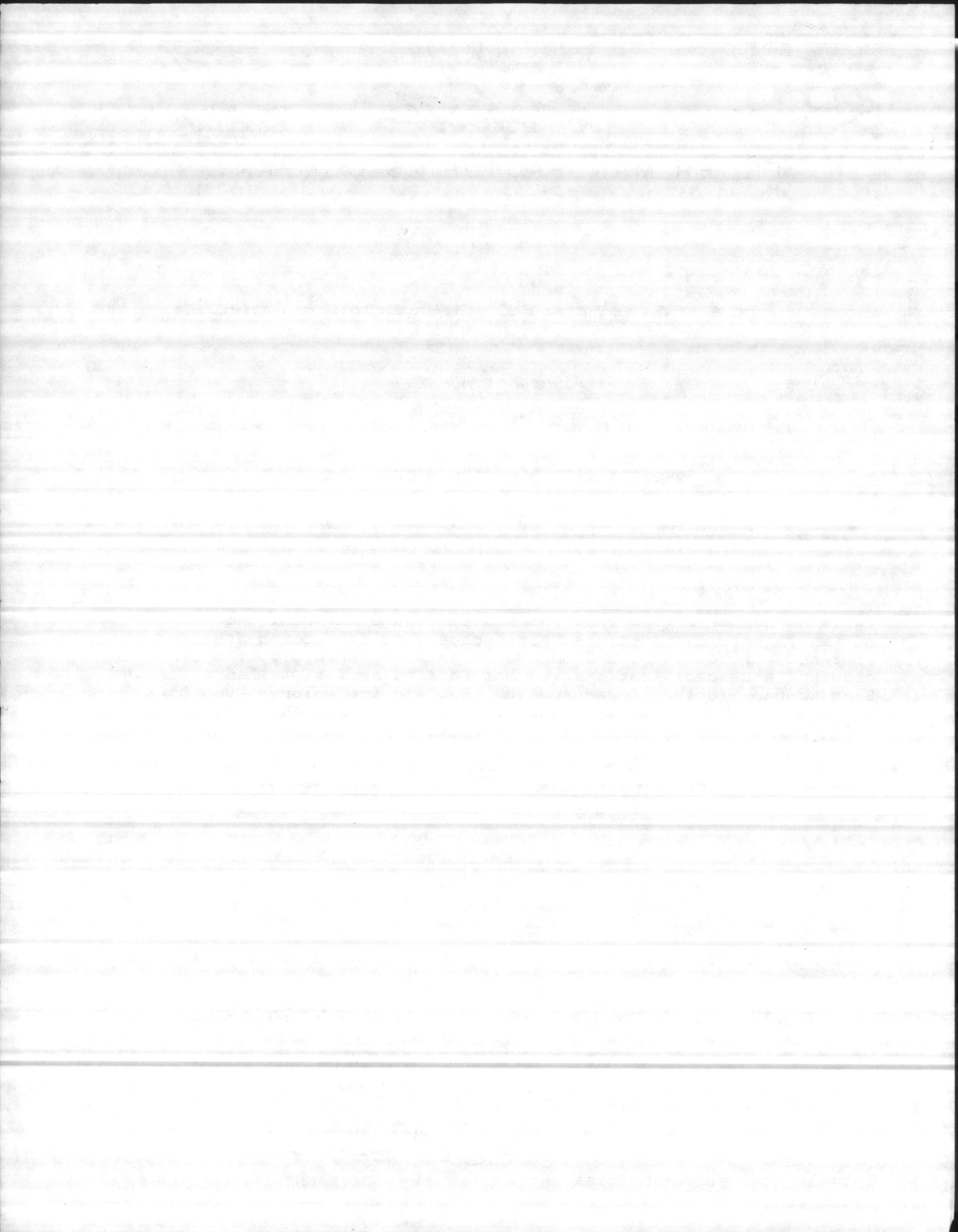
It is hereby certified that the equipment and material shown and marked in this submittal is that proposed to be incorporated into Contract No. N62470-82-C-2552 and is in accordance with the contract drawings and specifications, except for the deviations listed in the Budd Company letter of January 18, 1985 and the Weidner Pump Corp. letters of January 21, 1985 and January 22, 1985. The deviations will entail no change in cost or time to the Government.

This equipment can be installed in the allocated spaces and is submitted for Government approval.

Certified By J.C. Thompson

Date 1-28-85

CCS 2-7-85



Hunt

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO N62470-82-B-2552	TRANSMITTAL NO 17	DATE 12/19/84
---------------------------------	----------------------	------------------

FROM CONTRACTOR
ROBERTS FILTER MANUFACTURING CO.
 TO
NAVAL FACILITIES ENGINEERING COMMAND

PROJECT TITLE AND LOCATION
REPLACE EQUIPMENT - SLUDGE COLLECTORS 4 & 5

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

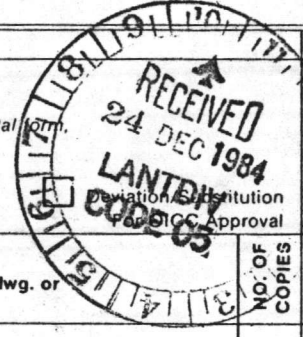
Contractor Approved

OICC Approval

REVIEWER USE ONLY

**ACTION CODES

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit



ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO.	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES	REVIEWER'S INITIALS CODE AND DATE
	Drawing No. CE-2	SLUDGE COLLECTOR MOTOR CONTROL			
1	"	Square D Motor Starter	7	A	REJ 404 1/4/85

CONTRACTOR'S COMMENTS

1. Mounting stand to be provided for starter
2. RFMCo Compliance statement attached.

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

Ensign W. G. Grip

CONTRACTOR REPRESENTATIVE (Signature)

J. E. Thompson

DATE RECEIVED BY REVIEWER

12/24/84

FROM (Reviewer)

LANTDIV

TO

ROICC / ROBERTS FILTER

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

APPROVED

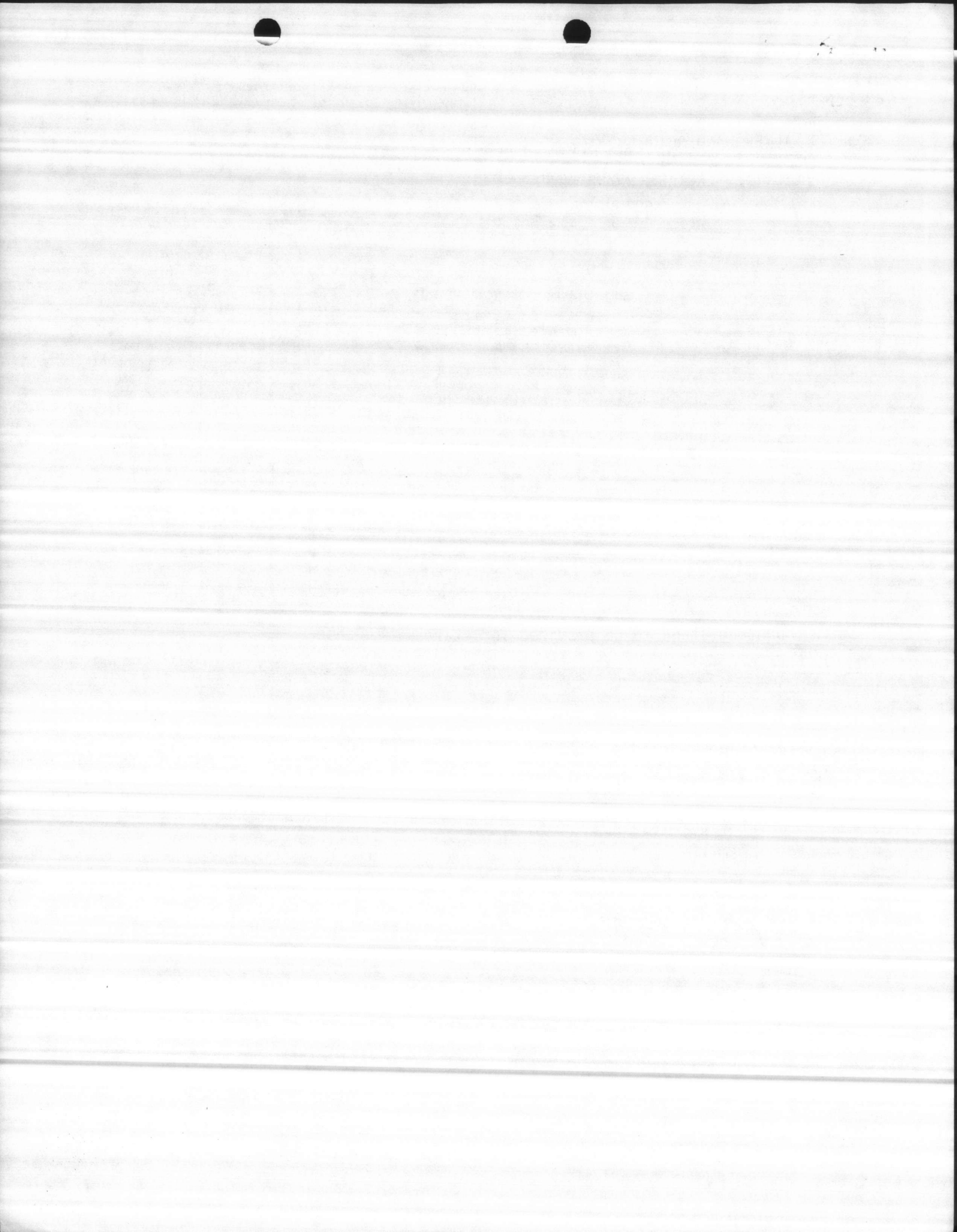
COPIES TO
 ROICC (2)
 LANTDIV (1)
 A-E (1)

DATE

1/2/85

SIGNATURE

J. Haste





Roberts

CABLE: WATERFILT PHILA.
TELEX: 831-439

FILTER MANUFACTURING COMPANY

P.O. BOX 167 • DARBY, PENNSYLVANIA 19023 • (215) 583-3131

CERTIFICATE OF COMPLIANCE

CONTRACT NUMBER

N62470-82-C-2552

PROJECT SPECIFICATION SECTION 15397

PROJECT DRAWING CE-2

It is hereby certified that the (equipment/material) shown and marked in this submittal is that proposed to be incorporated into Contract No. N62470-82-C-2552 and is in compliance with the contract drawings and specifications.

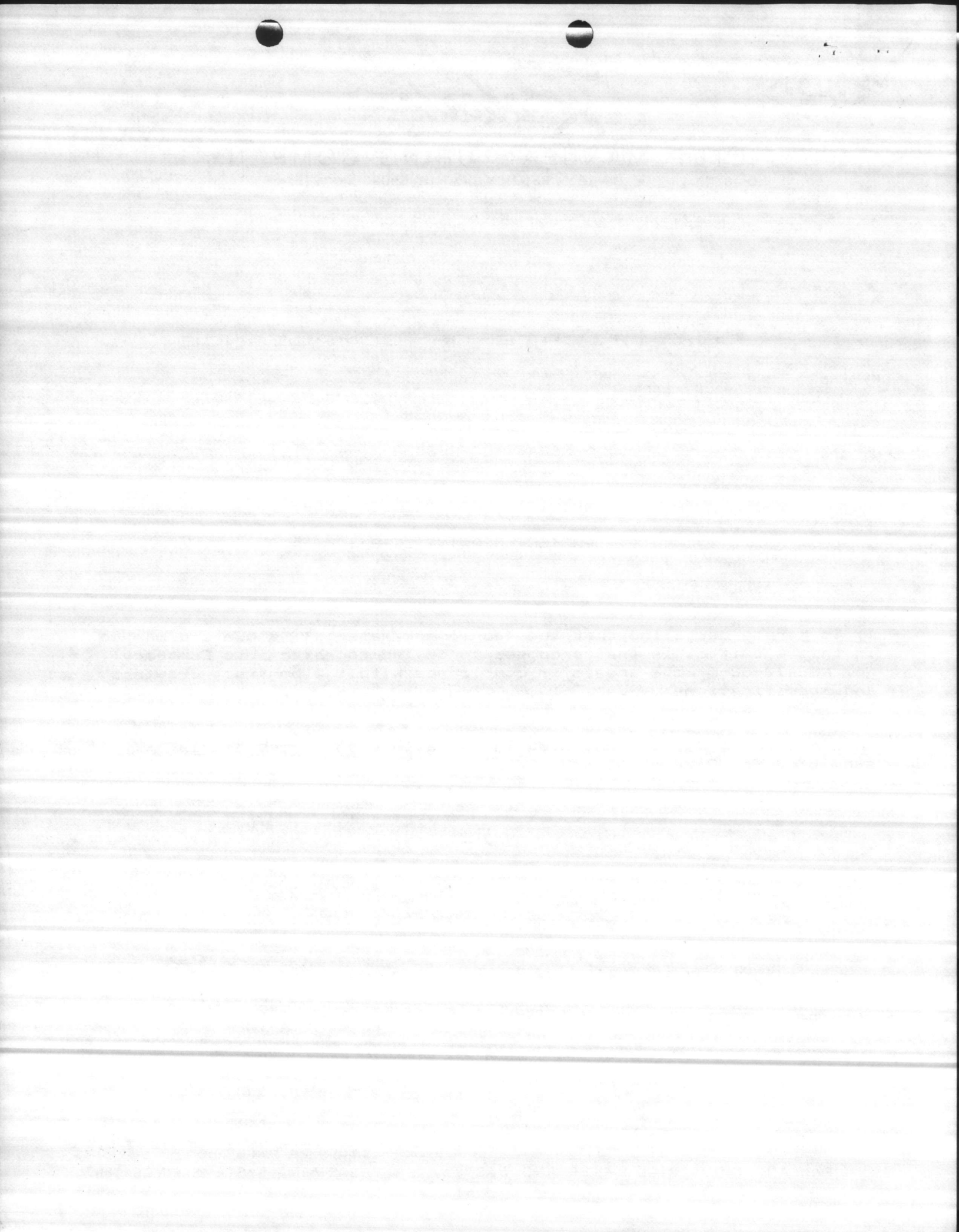
This equipment can be installed in the allocated spaces and is submitted for Government approval.

Certified By

J. C. Thompson

Date

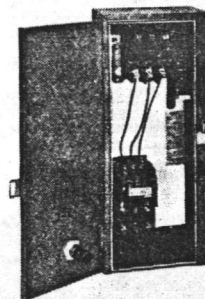
Dec 19th 1984



AC COMBINATION STARTERS NON-FUSIBLE DISCONNECT SWITCH TYPE*

**CLASS
8538**

The disconnect switch type combination starter design utilizes a flange operated visible blade switch. Size 0-2, non-fusible combination starters can be converted to a fusible type. All NEMA Type 1, 4 and 12 enclosures have the same size enclosure for fusible and non-fusible combination starters. Therefore, space is available for the conversion to a fusible type.



Non-Fusible Combination Starter in NEMA Type 1 Enclosure

LINE VOLTAGE TYPE, NON-REVERSING WITH THREE MELTING ALLOY OVERLOAD RELAYS 3 POLE — 600 VOLTS MAX. — 50-60 HERTZ

RATINGS			General Purpose Enclosure NEMA Type 1		Watertight and Dusttight Enclosure Stainless Steel (Sizes 0-5) NEMA Type 4		Watertight, Dusttight and Corrosion Resistant Enclosure NEMA Type 4X▲		Dusttight and Driptight, Industrial Enclosure NEMA Type 12C♦		
Motor Voltage (Starter Voltage)	Max. HP Poly-phase	NEMA Size	Type	Price*	Type	Price*	Type	Price*	With External Reset	Without External Reset	Price*
			Type	Price*	Type	Price*	Type	Price*	Type	Type	
200 (208)	3	0	SBG-11	\$ 364.	SBW-11	\$ 748.	SBW-21	\$ 860.	SBA-21	SBA-11	\$ 460.
	7½	1	SCG-11	384.	SCW-11	768.	SCW-21	884.	SCA-21	SCA-11	480.
	10	2	SDG-11	608.	SDW-11	1200.	SDW-21	1320.	SDA-21	SDA-11	744.
	25	3	SEG-11	1012.	SEW-11	2044.	SEW-21	2248.	SEA-21	SEA-11	1188.
	40	4	SFG-11	1952.	SFW-11	3272.	.....	.....	SFA-21	SFA-11	2440.
	75	5	SGG-11	4382.	SGW-11	7750.	.....	.....	SGA-21	SGA-11	5566.
150	6	SHG-11	11562.	SHW-11	14762.	.....	.....	SHA-21	SHA-11	12942.	
230 (240)	3	0	SBG-11	364.	SBW-11	748.	SBW-21	860.	SBA-21	SBA-11	460.
	7½	1	SCG-11	384.	SCW-11	768.	SCW-21	884.	SCA-21	SCA-11	480.
	15	2	SDG-11	608.	SDW-11	1200.	SDW-21	1320.	SDA-21	SDA-11	744.
	30	3	SEG-11	1012.	SEW-11	2044.	SEW-21	2248.	SEA-21	SEA-11	1188.
	50	4	SFG-11	1952.	SFW-11	3272.	.....	.....	SFA-21	SFA-11	2440.
	100	5	SGG-11	4382.	SGW-11	7750.	.....	.....	SGA-21	SGA-11	5566.
200	6	SHG-11	11562.	SHW-11	14762.	.....	.....	SHA-21	SHA-11	12942.	
460-575 (480-600)	5	0	SBG-11	364.	SBW-11	748.	SBW-21	860.	SBA-21	SBA-11	460.
	10	1	SCG-11	384.	SCW-11	768.	SCW-21	884.	SCA-21	SCA-11	480.
	25	2	SDG-11	608.	SDW-11	1200.	SDW-21	1320.	SDA-21	SDA-11	744.
	50	3	SEG-11	1012.	SEW-11	2044.	SEW-21	2248.	SEA-21	SEA-11	1188.
	100	4	SFG-11	1952.	SFW-11	3272.	.....	.....	SFA-21	SFA-11	2440.
	200	5	SGG-11	4382.	SGW-11	7750.	.....	.....	SGA-21	SGA-11	5566.
400	6	SHG-11	11562.	SHW-11	14762.	.....	.....	SHA-21	SHA-11	12942.	

* Prices do not include thermal units. For selection, see page 487.
 ◊ NEMA Type 12 enclosures may be field modified for outdoor applications. For details refer to page 470.
 ▲ NEMA Type 4X hubs are included with each starter at no additional cost. NEMA Type 4X devices are not U.L. Listed.
 ■ U.L. LISTED

♦ HAZARDOUS LOCATIONS

NEMA Type 12 devices are available U.L. Listed for use in Class II, Division 2, Group G and Class III, Divisions 1 and 2 locations. Request Form G2-1. No additional charge.

AC COMBINATION STARTERS FUSIBLE DISCONNECT SWITCH TYPE WITH CLASS R FUSE CLIPS



LINE VOLTAGE TYPE, NON-REVERSING WITH THREE MELTING ALLOY OVERLOAD RELAYS 3 POLE — 600 VOLTS MAX. — 50-60 HERTZ

RATINGS				General Purpose Enclosure NEMA Type 1		Watertight and Dusttight Enclosure Stainless Steel (Sizes 0-5) NEMA Type 4		Watertight, Dusttight and Corrosion Resistant Enclosure NEMA Type 4X▲		Dusttight and Driptight, Industrial Enclosure NEMA Type 12C♦		
Motor Voltage (Starter Voltage)	Max. HP Poly-phase	NEMA Size	Fuse Clip Size Amps.	Type	Price*	Type	Price*	Type	Price*	With External Reset	Without External Reset	Price*
			Type	Price*	Type	Price*	Type	Price*	Type	Type		
200 (208)	3	0	30	SBG-32	\$ 382.	SBW-32	\$ 766.	SBW-42	\$ 880.	SBA-42	SBA-32	\$ 478.
	5	1	30	SCG-32	402.	SCW-32	786.	SCW-42	904.	SCA-42	SCA-32	498.
	7½	1	60	SCG-33	410.	SCW-33	794.	SCW-43	912.	SCA-43	SCA-33	506.
	10	2	60	SDG-32	630.	SDW-32	1222.	SDW-42	1344.	SDA-42	SDA-32	766.
	20	3	100	SEG-35	1064.	SEW-35	2096.	SEW-45	2306.	SEA-45	SEA-35	1240.
	25	3	200	SEG-32	1152.	SEW-32	2184.	.....	.....	SEA-42	SEA-32	1328.
230 (240)	5	1	30	SFG-35	2032.	SFW-35	3352.	.....	.....	SFA-45	SFA-35	2520.
	7½	1	60	SFG-32	1152.	SEW-32	2184.	.....	.....	SFA-42	SFA-32	1328.
	10	2	60	SFG-35	2032.	SFW-35	3352.	.....	.....	SFA-45	SFA-35	2520.
	20	3	100	SGG-35	4554.	SGW-35	7922.	.....	.....	SGA-45	SGA-35	5738.
	50	4	200	SFG-32	1152.	SEW-32	2184.	.....	.....	SGA-42	SGA-32	1328.
	100	5	400	SGG-35	4554.	SGW-35	7922.	.....	.....	SGA-45	SGA-35	5738.
460-575 (480-600)	150	6	600	SHG-33	12014.	SHW-33	15214.	.....	.....	SHA-43	SHA-33	13394.
	5	0	30	SBG-32	382.	SBW-32	766.	SBW-42	880.	SBA-42	SBA-32	478.
	10	1	30	SCG-32	402.	SCW-32	786.	SCW-42	904.	SCA-42	SCA-32	498.
	15	2	30	SCG-33	410.	SCW-33	794.	SCW-43	912.	SCA-43	SCA-33	506.
	25	2	60	SDG-32	630.	SDW-32	1222.	SDW-42	1344.	SDA-42	SDA-32	766.
	50	3	100	SEG-35	1064.	SEW-35	2096.	SEW-45	2306.	SEA-45	SEA-35	1240.
460-575 (480-600)	25	3	200	SEG-32	1152.	SEW-32	2184.	.....	.....	SEA-42	SEA-32	1328.
	50	4	200	SFG-35	2032.	SFW-35	3352.	.....	.....	SFA-45	SFA-35	2520.
	100	5	400	SFG-32	1152.	SEW-32	2184.	.....	.....	SFA-42	SFA-32	1328.
	200	5	400	SGG-35	4554.	SGW-35	7922.	.....	.....	SGA-45	SGA-35	5738.
	400	6	600	SHG-33	12014.	SHW-33	15214.	.....	.....	SGA-42	SGA-32	13394.
	50	3	100	SEG-33	1084.	SEW-33	3368.	.....	.....	SFA-43	SFA-33	2536.
200	5	400	SGG-33	2048.	SFW-33	3368.	.....	.....	SGA-43	SGA-33	5738.	
400	6	600	SHG-32	12014.	SHW-32	15214.	.....	.....	SHA-42	SHA-32	13394.	

* Prices do not include thermal units. For selection, see page 487.
 ◊ NEMA Type 12 enclosures may be field modified for outdoor applications. For details refer to page 470.
 ▲ NEMA Type 4X hubs are included with each starter at no additional cost.
 ‡ Available amperes RMS symmetrical. NEMA Type 4X devices are not U.L. Listed.

♦ HAZARDOUS LOCATIONS

NEMA Type 12 devices are available U.L. Listed for use in Class II, Division 2, Group G and Class III, Divisions 1 and 2 locations. Request Form G2-1. No additional charge.

Ordering Information — Refer to Page 261.

Field modification kits — Refer to Pages 264, 267 & 268 and Class 9999 section.



ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED ✓
APPROVED AS NOTED _____
DISAPPROVED _____
SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. 05-82-2552
APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION--THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS & WEIGHTS, COORDINA-
TION OF TRADES, ETC., AS REQUIRED.

REVIEWER REJ DATE 4 JAN 1985

FOR OFFICER IN CHARGE OF CONSTRUCTION

AC COMBINATION STARTERS DISCONNECT SWITCH & CIRCUIT BREAKER TYPES

CLASS
8538
8539

APPROXIMATE DIMENSIONS AND SHIPPING WEIGHTS

NEMA TYPE 1 ENCLOSURE — FIGURE 1

NEMA Size	Class	Type	DIMENSIONS IN INCHES*														Top & Bottom		Sides	Wt. (Lbs.)		
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	W	X		Y	
0-1	8538 & 8539	SBG SCG	9 ⁵ / ₈	22 ⁵ / ₈	8 ¹ / ₂	6 ³ / ₈	20 ¹ / ₂	14 ² / ₃₂	11 ³ / ₁₆	11 ¹ / ₁₆	3 ³ / ₈	2 ⁵ / ₁₆	1 ¹ / ₁₆	3 ⁷ / ₈	2 ³ / ₁₆	1 ¹ / ₄	7 ⁸ / ₁₆	1 ² / ₄ - ³ / ₄	1 ² / ₄ - ³ / ₄	1 ² / ₄	38	
2	8538 & 8539	SDG	10 ⁵ / ₈	26 ¹ / ₈	9 ¹ / ₂	7 ³ / ₈	21 ¹ / ₄	16 ² / ₃₂	2 ¹ / ₈	2	4	2 ⁵ / ₁₆	1 ¹ / ₁₆	3 ⁷ / ₈	2 ³ / ₁₆	1 ¹ / ₄	7 ⁸ / ₁₆	1 ¹ / ₄	1 ² / ₄ - ³ / ₄	1 ² / ₄	54	
3	8538 & 8539	SEG	15 ¹ / ₃₂	39 ² / ₃₂	10 ² / ₃₂	11 ⁷ / ₈	37	22 ² / ₃₂	2 ² / ₃₂	2 ¹ / ₁₆	5 ³ / ₈	3 ¹ / ₄	11 ¹ / ₃₂	4 ² / ₃₂	2 ⁷ / ₃₂	1 ⁹ / ₃₂	2 ⁹ / ₃₂	1 ¹ / ₄ - ¹ / ₂	1 ² / ₄ - ³ / ₄	1 ² / ₄	102	
4	8538	SFG	16 ⁵ / ₃₂	47	10 ¹ / ₃₂	12 ⁵ / ₈	44 ¹ / ₂	23 ² / ₃₂	2 ² / ₃₂	2 ¹ / ₁₆	5 ³ / ₈	2 ⁵ / ₈	11 ¹ / ₃₂	4 ⁷ / ₈	2 ⁷ / ₃₂	1 ⁹ / ₃₂	2 ⁹ / ₃₂	2 ¹ / ₂	1 ² / ₄ - ³ / ₄	1 ² / ₄	158	
	8539	SFG	15 ¹ / ₃₂	39 ² / ₃₂	10 ² / ₃₂	11 ⁷ / ₈	37	22 ² / ₃₂	2 ² / ₃₂	2 ¹ / ₁₆	5 ³ / ₈	3 ¹ / ₄	11 ¹ / ₃₂	3 ⁵ / ₁₆	2 ⁷ / ₃₂	1 ⁹ / ₃₂	2 ⁹ / ₃₂	1 ¹ / ₄ - ¹ / ₂	1 ² / ₄ - ³ / ₄	1 ² / ₄	120	
5	8538	SGG	20 ¹ / ₄	75	15 ¹ / ₂	12	77	29 ¹ / ₃₂	3 ⁹ / ₁₆	3 ³ / ₁₆	...	6 ⁹ / ₃₂	1 ² / ₂	9 ⁷ / ₃₂	2 ⁵ / ₈	...	...	3 ⁴ / ₄	3	...	...
	8539	SGG	20 ¹ / ₄	63	11 ² / ₃₂	12	65	27 ¹ / ₃₂	3 ⁹ / ₁₆	3 ³ / ₁₆	...	6 ⁹ / ₃₂	1 ² / ₂	9 ⁷ / ₃₂	2 ⁵ / ₈	...	...	3 ⁴ / ₄	3	...	...
6▲	8538 & 8539	SHG	36	90	17 ¹ / ₂

† Left side only.

NEMA TYPE 4 ENCLOSURE — FIGURE 2

NEMA Size	Class	Type	DIMENSIONS IN INCHES*														Bottom	Top & Bot	Wt. (Lbs.)		
			A	B	C	D	E	F	G	H	I	J	K	L	W	X					
0-1	8538 & 8539	SBW SCW	9 ⁵ / ₈	8 ¹ / ₂	24 ¹ / ₁₆	3 ⁷ / ₈	2 ⁹ / ₁₆	4 ¹ / ₂	23 ¹ / ₂	1 ⁹ / ₃₂	4	1 ⁵ / ₈	2 ⁵ / ₁₆	14 ⁹ / ₃₂	3 ⁴ / ₄ Hub	1 Hub	40				
2	8538 & 8539	SDW	10 ⁵ / ₈	9 ¹ / ₂	28 ³ / ₁₆	3 ⁷ / ₈	2 ⁹ / ₁₆	5 ¹ / ₂	27	1 ⁹ / ₃₂	4 ¹ / ₂	2	2 ⁵ / ₈	16 ¹ / ₃₂	3 ⁴ / ₄ Hub	1 ¹ / ₂ Hub	55				
3	8538 & 8539	SEW	15 ³ / ₈	10 ⁹ / ₁₆	42 ³ / ₁₆	4 ² / ₃₂	2 ⁹ / ₁₆	10 ¹ / ₄	40 ¹ / ₂	1 ⁹ / ₃₂	5 ³ / ₁₆	2 ⁹ / ₁₆	3 ³ / ₁₆	22 ³ / ₁₆	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	111				
4	8538	SFW	16 ¹ / ₈	10 ¹ / ₃₂	49 ¹ / ₁₆	4 ⁷ / ₈	2 ⁹ / ₁₆	11	48	1 ⁹ / ₃₂	4 ² / ₃₂	2 ⁹ / ₁₆	3 ³ / ₁₆	22 ³ / ₃₂	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	158				
	8539	SFW	15 ³ / ₈	10 ⁹ / ₁₆	42 ³ / ₁₆	3 ⁵ / ₁₆	2 ⁹ / ₁₆	10 ¹ / ₄	40 ¹ / ₂	1 ⁹ / ₃₂	5 ³ / ₁₆	2 ⁹ / ₁₆	3 ³ / ₁₆	22 ³ / ₁₆	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	120				
5	8538	SGW	20 ¹ / ₄	15 ¹ / ₂	78 ³ / ₃₂	9 ⁷ / ₃₂	4 ¹ / ₈	12	77	9 ¹ / ₁₆	6 ⁹ / ₃₂	3	3 ¹ / ₂	29 ¹ / ₃₂	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	...				
	8539	SGW	20 ¹ / ₄	11 ² / ₃₂	66 ³ / ₃₂	4 ² / ₃₂	4 ¹ / ₈	12	65	9 ¹ / ₁₆	6 ⁹ / ₃₂	3	3 ¹ / ₂	27 ¹ / ₃₂	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	440				
6▲	8538 & 8539	SHW	36	17 ¹ / ₂	98

NEMA TYPE 12 ENCLOSURE — FIGURE 3

NEMA Size	Class	Type	DIMENSIONS IN INCHES*											Wt. (Lbs.)							
			A	B	C	D	E	F	G	H	I	J									
0-1	8538 & 8539	SBA SCA	9 ⁵ / ₈	8 ¹ / ₂	24 ¹ / ₄	3 ⁷ / ₈	2 ⁹ / ₁₆	4 ¹ / ₂	23 ¹ / ₂	3 ⁸ / ₁₆	4 ⁷ / ₁₆	14 ⁵ / ₁₆	40								
2	8538 & 8539	SDA	10 ⁵ / ₈	9 ⁹ / ₁₆	27 ³ / ₄	3 ⁷ / ₈	2 ⁹ / ₁₆	5 ¹ / ₂	27	3 ⁸ / ₁₆	4 ¹ / ₁₆	16 ⁹ / ₁₆	55								
3	8538 & 8539	SEA	15 ¹ / ₃₂	10 ¹ / ₃₂	42	4 ² / ₃₂	2 ⁹ / ₁₆	10 ¹ / ₄	40 ¹ / ₂	1 ⁹ / ₃₂	5 ³ / ₁₆	22 ⁵ / ₁₆	111								
4	8538	SFA	16 ⁵ / ₃₂	10 ¹ / ₃₂	49 ¹ / ₂	4 ⁷ / ₈	2 ⁹ / ₁₆	11	48	1 ⁹ / ₃₂	4 ² / ₃₂	2 ⁹ / ₁₆	3 ³ / ₁₆	22 ³ / ₃₂	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	158				
	8539	SFA	15 ¹ / ₃₂	10 ¹ / ₃₂	42	4 ² / ₃₂	2 ⁹ / ₁₆	10 ¹ / ₄	40 ¹ / ₂	1 ⁹ / ₃₂	5 ³ / ₁₆	2 ⁹ / ₁₆	3 ³ / ₁₆	22 ³ / ₁₆	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	120				
5	8538	SGA	20 ¹ / ₄	15 ¹ / ₂	78	9 ⁷ / ₃₂	4 ¹ / ₈	12	77	9 ¹ / ₁₆	6 ⁹ / ₃₂	3	3 ¹ / ₂	29 ¹ / ₃₂	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	...				
	8539	SGA	20 ¹ / ₄	11 ² / ₃₂	66	4 ² / ₃₂	4 ¹ / ₈	12	65	9 ¹ / ₁₆	6 ⁹ / ₃₂	3	3 ¹ / ₂	27 ¹ / ₃₂	3 ⁴ / ₄ Hub	2 ¹ / ₂ Hub	440				
6▲	8538 & 8539	SHA	36	17 ¹ / ₂	90

▲ Size 6 enclosures are floor mounting.

* Above dimensions include space for control circuit transformers.

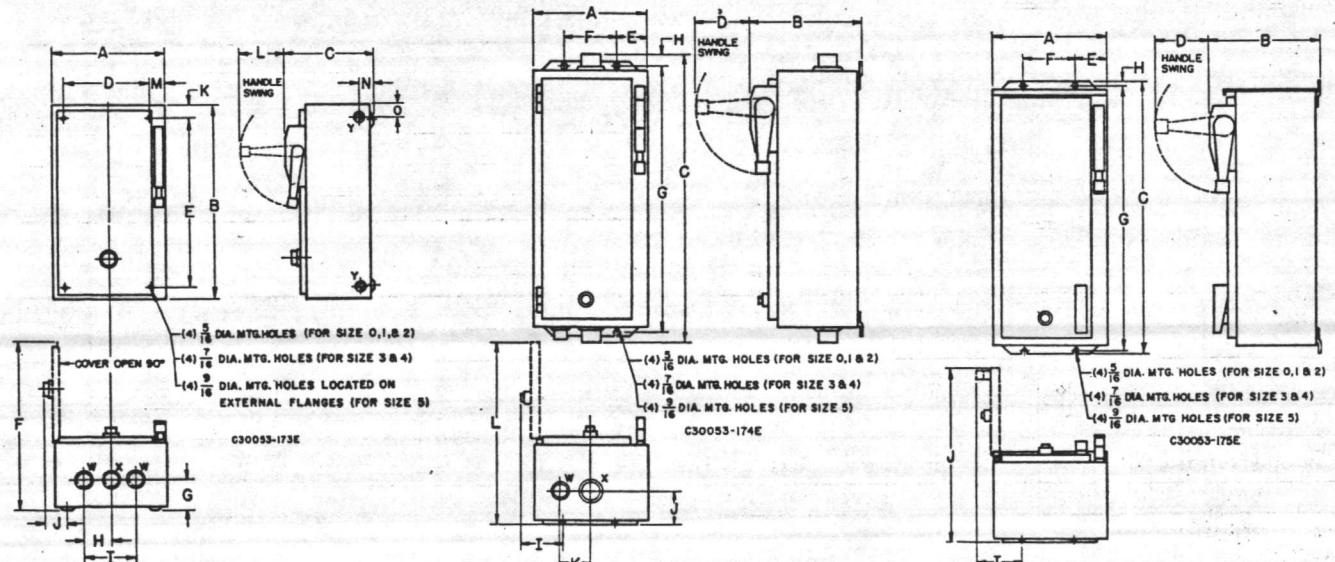
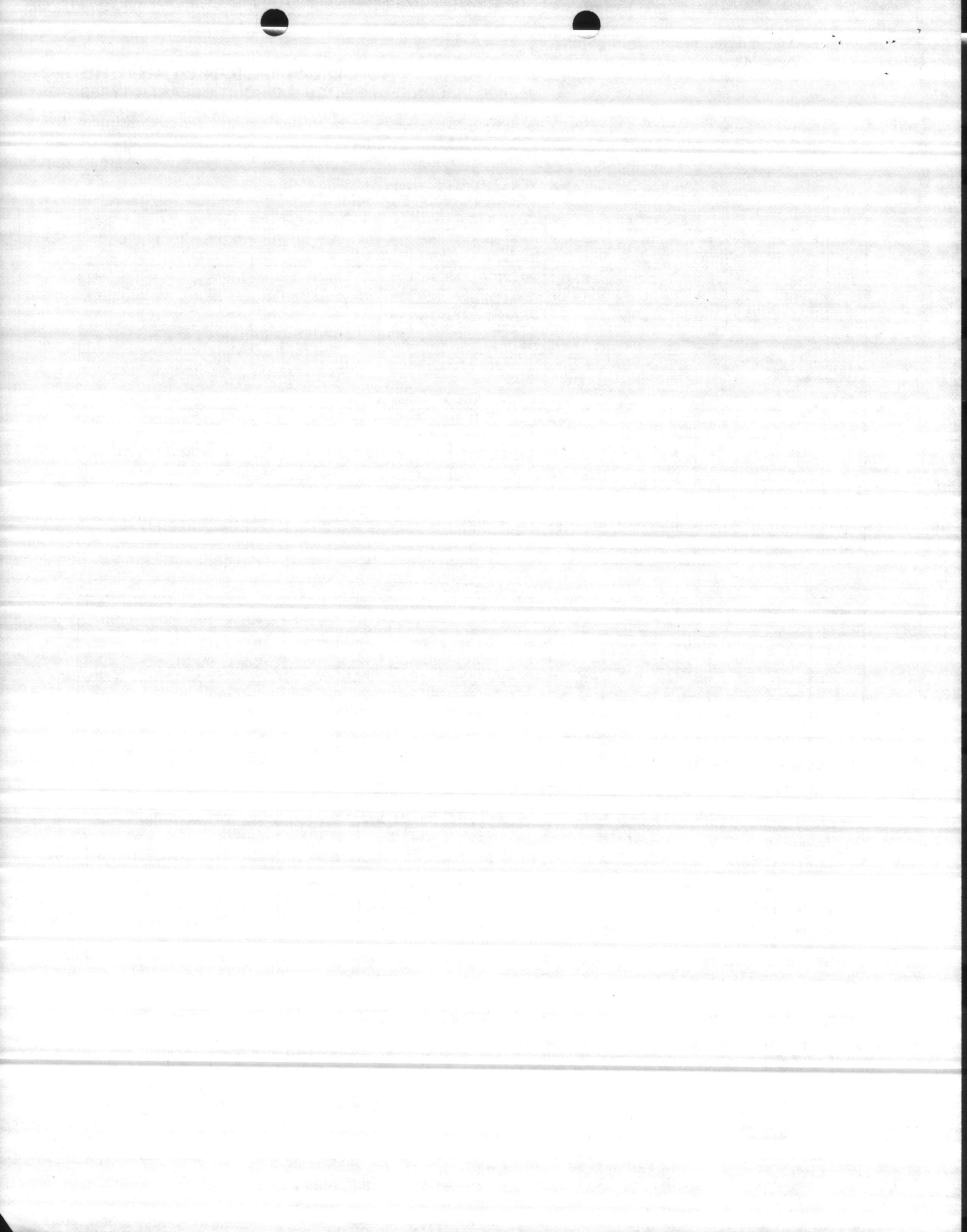


Figure 1
NEMA Type 1 Enclosure

Figure 2
NEMA Type 4 Enclosure

Figure 3
NEMA Type 12 Enclosure





800-855-60

THERMAL UNIT SELECTION

INDEX

Controller					Selection Table Number				
					Melting Alloy		Bimetallic		
Type of Starter	Class	Type	* Series	Size	Standard Trip	Non-Compensated	Compensated		
AC Magnetic Starters (Large Enclosure)	8198	G, S	A (8536 only)	....	....	50	6
				B, C	00	14*	
		SA	A	00	530	55	25		
		SB	A	0	150	64	33		
		SC	A	1	150	64	33		
		SD	A	2	580	57	70		
		SE	A	3	160	51	37±		
		SF	A	4	61	35	29±		
		SG	A	5	24	52	46		
		SH	A	6	200	48	47		
		J	B	7	260	45	45		
		K	B	8	260	45	45		
		8940 Well Guard Control	8940	C, BC WC, XC	A	1	33
					D, BD WD, XD	A	2	..	..	70
				WE, XE	A	3	..	51	..
WF, XF	A			4	..	35	..		
WG, XG	A			5	..	..	46
XH	A			6	..	..	47
XJ	B			7	..	..	45
Separately Mounted Overload Relays	9065	AF	B	4 (133A)	..	30	..		
		AG	A	5 (266A)	..	36	..		
		AR	A	1 (25A)	..	32	..		
		AT	A	2 (45A)	..	60	..		
		AU	....	3 (86A)	..	50	..	
		C	A	1 (25A)	440	..	..
				4 (133A)	19	..	..
				5 (266A)	22	..	..
				S	A	1 (26A)	590	23	42
		2 (45A)	690	27		71			
		3 (86A)	340	..		..
		4 (133A)	28	..		..
		T	A	2 (45A)	310	..	..
U	....	3 (86A)	40	..	..		

QUICK TRIP OR SLOW TRIP APPLICATIONS

Thermal unit selections presented here deal exclusively with standard trip (Class 20) applications.

For quick trip (Class 10) applications, consult local Square D field office.

For slow trip (Class 30) applications, the JB thermal unit, formerly used, has been superseded by the SB thermal unit.

In any application which would normally use a B thermal unit, a slow trip equivalent SB thermal unit can be selected by using the following procedure.

To select Type SB slow trip thermal units, the selection table for a standard Type B thermal unit may be used with the following modifications. For continuous rated motors having service factors of 1.15 to 1.25, select thermal units from the standard Type B using 93% (102% for Class 8198) of the full load current shown on the motor nameplate and then substitute an SB for the B in the thermal unit type number.

Example: A motor with a full load current of 12 amps controlled by an 8536 SCG-3 would require B22 thermal units for standard trip applications and SB19.5 thermal units for slow trip applications. The SB is selected by multiplying 12 amps times 93% for 11.2 amps and using this value to select B19.5's. Then add the S prefix to arrive at SB19.5's. For continuous rated motors having a service factor of 1.0, select thermal units in the same manner using 84% (93% for Class 8198) of full load current shown on the motor nameplate.

In any application except a Size 3 which is already installed and has been using Type JB thermal units, if new thermal units are required, the JB's can be replaced by Type SB thermal units, but a new selection must be made using the procedure above. For Size 3, consult local Square D Field Office.

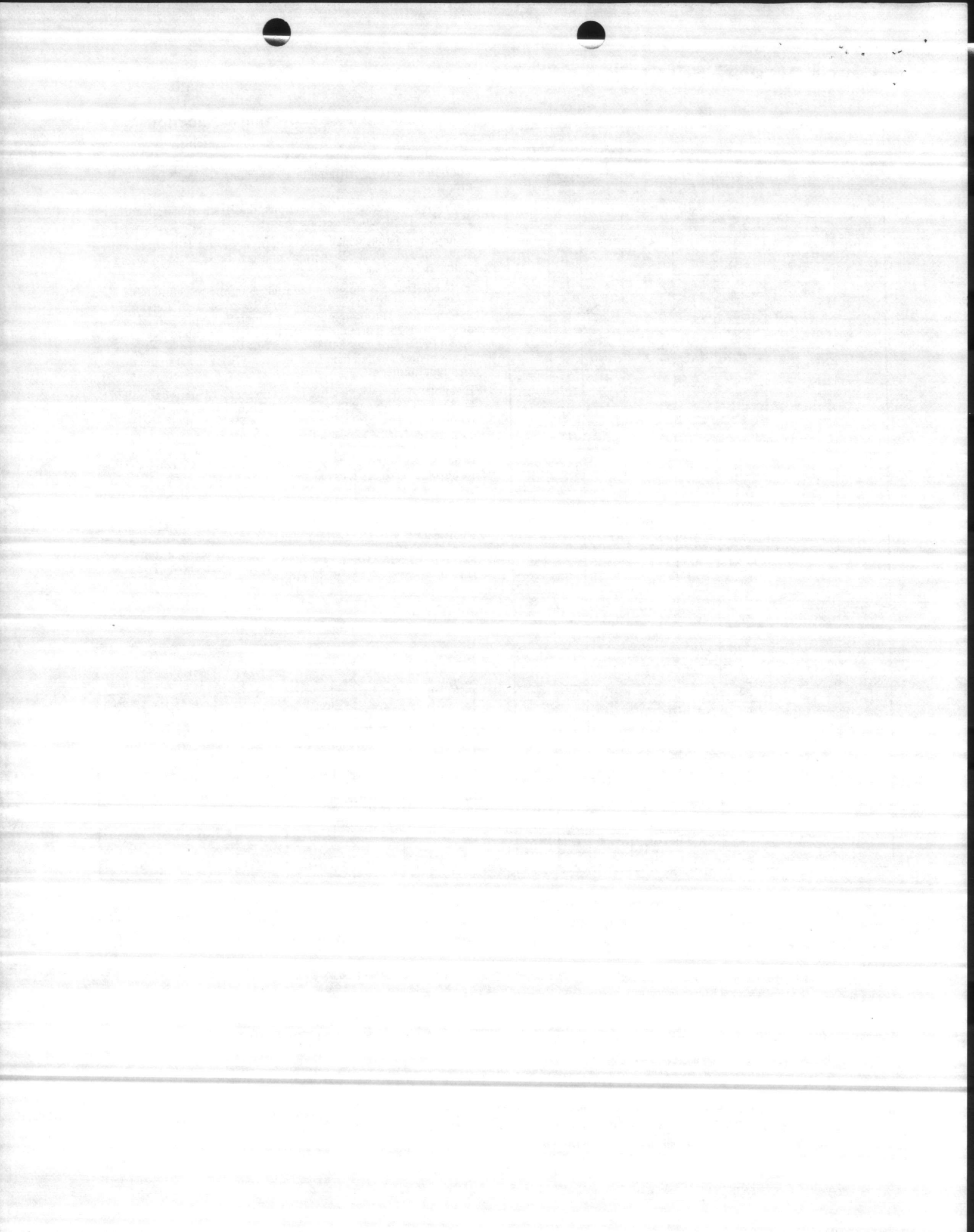
THERMAL UNIT PRICES

Melting Alloy			Bimetallic		
Type of Trip	Thermal Unit Type	Price	Type of Trip	Thermal Unit Type	Price
Standard	A	\$6.	Standard	AR	\$6.
	B	6.		AF	6.
	C	6.		AU	6.
	CC	6.			
	D	16.			
	DD	6.			
	GF	20.			
	W	8.			
	Quick	FB	10.		
	Slow	SB	16.		

- * Series letters listed refer to the marking on the nameplate of the basic open type starter. When the starter is supplied in a controller containing other devices, the controller may have a different series letter marked on the enclosure, nameplate.
- ♦ Small enclosure tables apply for Class 8904 non-combination and non-reversing starters. For combination and reversing Class 8904 starters refer to the large enclosure selections, index above.
- For Class 8630 starters divide the delta connected motor full load current by 1.73, and use this quotient to select thermal units.
- ▲ For Class 8640 starters use the full load current of each motor winding as a basis for thermal unit selection — normally one-half total motor current.
- Large enclosure tables apply for Class 8904 combination and reversing starters. For non-combination and non-reversing Class 8904 starters refer to small enclosure selections, page 487.
- + Use for Autotransformer Starters (Fusible and Circuit Breaker).
- * Order Type E thermal units by number from Square D Company, Furnas Electric Company, Batavia, Illinois or a Furnas distributor at \$6.00 list each, subject to motor control discounts.
- ◊ See page 488 for Quick Trip or Slow Trip Applications.
- * Type A thermal units for full load currents lower than those listed in this table are available. For complete information, consult local Square D field office.

Note: For thermal unit selection tables for other devices including obsolete devices, consult local Square D field office.





SELECTION TABLES 13 THRU 18

Table 13

Motor Full-Load Current (Amp.)			Thermal Unit Number
1 T. U.	2 T. U.	3 T. U.	
0.29-0.31	0.29-0.31	0.28-0.30	B 0.44
0.32-0.34	0.32-0.34	0.31-0.34	B 0.51
0.35-0.38	0.35-0.38	0.35-0.37	B 0.57
0.39-0.45	0.39-0.45	0.38-0.44	B 0.63
0.46-0.54	0.46-0.54	0.45-0.53	B 0.71
0.55-0.61	0.55-0.61	0.54-0.59	B 0.81
0.62-0.66	0.62-0.66	0.60-0.64	B 0.92
0.67-0.73	0.67-0.73	0.65-0.72	B 1.03
0.74-0.81	0.74-0.81	0.73-0.80	B 1.16
0.82-0.94	0.82-0.94	0.81-0.90	B 1.30
0.95-1.05	0.95-1.05	0.91-1.03	B 1.45
1.06-1.22	1.06-1.22	1.04-1.14	B 1.67
1.23-1.34	1.23-1.34	1.15-1.27	B 1.88
1.35-1.51	1.35-1.51	1.28-1.43	B 2.10
1.52-1.71	1.52-1.71	1.44-1.62	B 2.40
1.72-1.93	1.72-1.93	1.63-1.77	B 2.65
1.94-2.14	1.94-2.14	1.78-1.97	B 3.00
2.15-2.40	2.15-2.40	1.98-2.32	B 3.30
2.41-2.72	2.41-2.72	2.33-2.51	B 3.70
2.73-3.15	2.73-3.15	2.52-2.99	B 4.15
3.16-3.55	3.16-3.55	3.00-3.42	B 4.85
3.56-4.00	3.56-4.00	3.43-3.75	B 5.50
4.01-4.40	4.01-4.40	3.76-3.98	B 6.25
4.41-4.88	4.41-4.88	3.99-4.48	B 6.90
4.89-5.19	4.89-5.19	4.49-4.93	B 7.70
5.20-5.73	5.20-5.73	4.94-5.21	B 8.20
5.74-6.39	5.74-6.39	5.22-5.84	B 9.10
6.40-7.13	6.40-7.13	5.85-6.67	B 10.2
7.14-7.90	7.14-7.90	6.68-7.54	B 11.5
7.91-8.55	7.91-8.55	7.55-8.14	B 12.8
8.56-9.53	8.56-9.53	8.15-8.72	B 14
9.54-10.6	9.54-10.6	8.73-9.66	B 15.5
10.7-11.8	10.7-11.8	9.67-10.5	B 17.5
11.9-13.2	11.9-12.0	10.6-11.3	B 19.5
13.3-14.9	....	11.4-12.0	B 22
15.0-16.6	....	....	B 25
16.7-18.0	....	....	B 28.0
Following Selections for Size 1 Only			
....	11.9-13.2	....	B 19.5
....	13.3-14.9	11.4-12.7	B 22
....	15.0-16.6	12.8-14.1	B 25
16.7-18.9	16.7-18.9	14.2-15.9	B 28.0
19.0-21.2	19.0-21.2	16.0-17.5	B 32
21.3-23.0	21.3-23.0	17.6-19.7	B 36
23.1-25.5	23.1-25.5	19.8-21.9	B 40
25.6-26.0	25.6-26.0	22.0-24.4	B 45
....	....	24.5-26.0	B 50

Table 16

Motor Full-Load Current (Amp.)			Thermal Unit Number
1 T. U.	2 T. U.	3 T. U.	
16.2-17.5	15.1-16.2	14.3-15.4	CC 20.9
17.6-18.8	16.3-17.3	15.5-16.4	CC 22.8
18.9-20.5	17.4-19.5	16.5-18.5	CC 24.6
20.6-22.2	19.6-20.7	18.6-19.6	CC 26.3
22.3-23.7	20.8-22.3	19.7-21.1	CC 28.8
23.8-25.4	22.4-24.0	21.2-22.7	CC 31.0
25.5-27.3	24.1-25.7	22.8-24.4	CC 33.3
27.4-29.3	25.8-27.5	24.5-26.1	CC 36.4
29.4-31.5	27.6-29.6	26.2-28.1	CC 39.6
31.6-33.9	29.7-31.7	28.2-30.0	CC 42.7
34.0-36.2	31.8-33.9	30.1-32.1	CC 46.6
36.3-39.3	34.0-36.6	32.2-34.7	CC 50.1
39.4-42.3	36.7-39.3	34.8-37.3	CC 54.5
42.4-45.3	39.4-42.3	37.4-40.1	CC 59.4
45.4-48.3	42.4-44.9	40.2-42.6	CC 64.3
48.4-52.0	45.0-48.3	42.7-45.8	CC 68.5
52.1-54.9	48.4-50.9	45.9-48.3	CC 74.6
55.0-59.7	51.0-55.5	48.4-52.6	CC 81.5
59.8-65.4	55.6-59.9	52.7-56.8	CC 87.7
65.5-69.6	60.0-64.2	56.9-60.9	CC 94.0
69.7-74.8	64.3-68.7	61.0-65.1	CC 103
74.9-79.7	68.8-71.4	65.2-67.7	CC 112
79.8-83.1	71.5-74.8	67.8-70.9	CC 121
83.2-86.0	74.9-78.0	71.0-73.9	CC 132
....	78.1-80.7	74.0-76.5	CC 143
....	80.8-86.0	76.6-80.2	CC 156
....	....	80.3-83.1	CC 167
....	....	83.2-86.0	CC 180

Table 14

Motor Full Load Current Amps.			Thermal Unit Number
1 T. U.	2 T. U.	3 T. U.	
0.43-0.47	0.41-0.45	0.40-0.41	A .49
0.48-0.51	0.46-0.50	0.42-0.46	A .54
0.52-0.56	0.51-0.55	0.47-0.51	A .59
0.57-0.64	0.56-0.62	0.52-0.57	A .65
0.65-0.69	0.63-0.67	0.58-0.62	A .71
0.70-0.76	0.68-0.72	0.63-0.67	A .78
0.77-0.84	0.73-0.81	0.68-0.75	A .86
0.85-0.91	0.82-0.88	0.76-0.80	A .95
0.92-1.01	0.89-0.97	0.81-0.89	A 1.02
1.02-1.15	0.98-1.08	0.90-1.02	A 1.16
1.16-1.23	1.09-1.18	1.03-1.09	A 1.25
1.24-1.37	1.19-1.32	1.10-1.21	A 1.39
1.38-1.45	1.33-1.40	1.22-1.29	A 1.54
1.46-1.56	1.41-1.48	1.30-1.37	A 1.63
1.57-1.67	1.49-1.60	1.38-1.48	A 1.75
1.68-1.77	1.61-1.72	1.49-1.58	A 1.86
1.78-1.92	1.73-1.84	1.59-1.72	A 1.99
1.93-2.09	1.85-2.00	1.73-1.85	A 2.15
2.10-2.31	2.01-2.22	1.86-2.05	A 2.31
2.32-2.56	2.23-2.45	2.06-2.29	A 2.57
2.57-2.92	2.46-2.82	2.30-2.62	A 2.81
2.93-3.16	2.83-3.08	2.63-2.84	A 3.61
3.17-3.41	3.09-3.39	2.85-3.10	A 3.95
3.49-3.83	3.40-3.75	3.11-3.46	A 4.32
3.84-4.24	3.76-4.16	3.47-3.85	A 4.79
4.25-4.62	4.17-4.51	3.86-4.16	A 5.30
4.63-4.92	4.52-4.83	4.17-4.46	A 5.78
4.93-5.61	4.84-5.49	4.47-5.08	A 6.20
5.62-5.85	5.50-5.67	5.09-5.35	A 6.99
5.86-6.36	5.68-6.16	5.36-5.82	A 7.65
6.37-6.99	6.17-6.75	5.83-6.34	A 8.38
7.00-7.67	6.76-7.00	6.35-6.95	A 9.25
7.68-8.15	....	6.96-7.00	A 9.85
8.16-9.00	....	....	A 11.0

Table 17

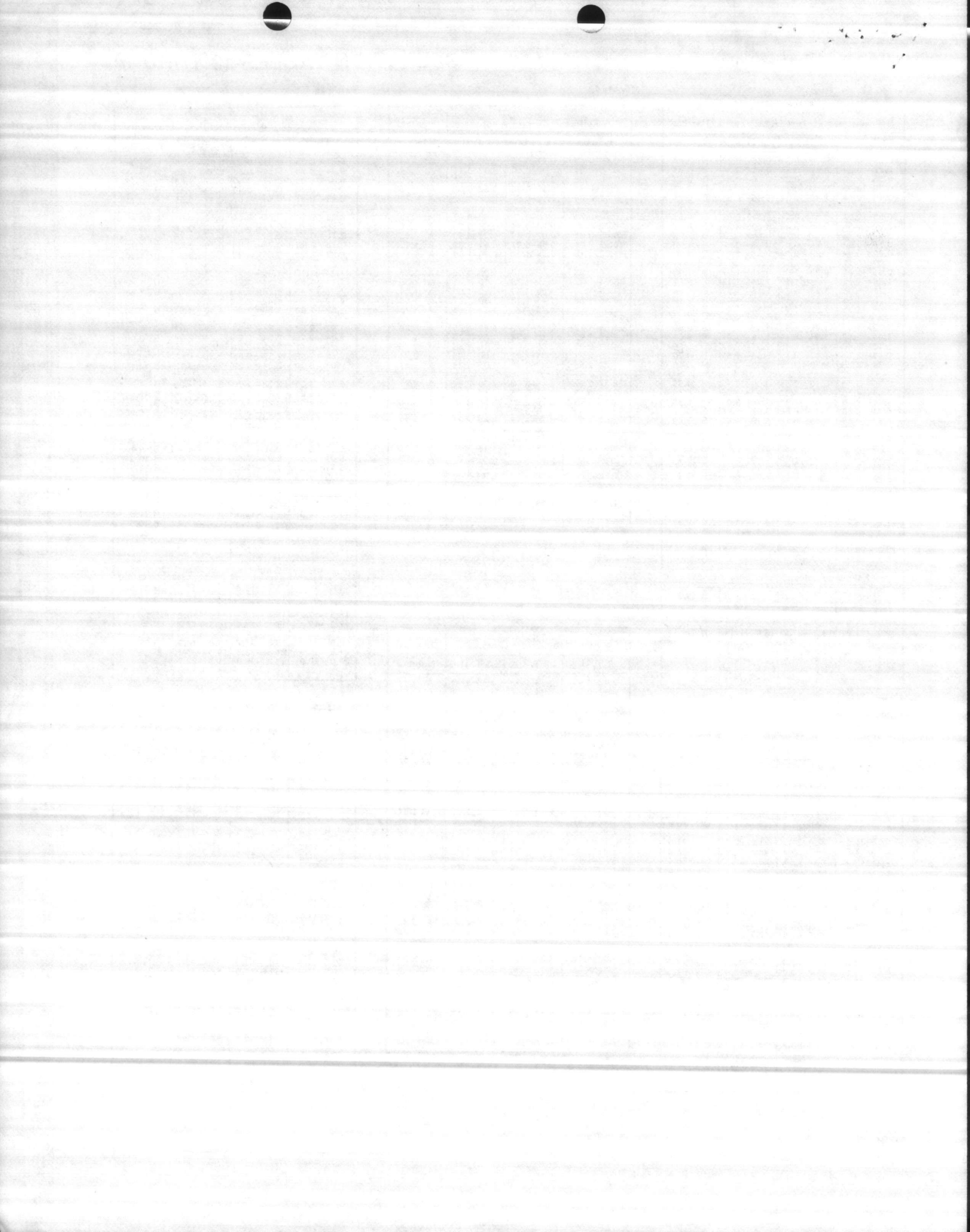
Motor Full Load Current (Amp.)			Thermal Unit Number
1 T. U.	2 T. U.	3 T. U.	
0.42-0.46	0.39-0.43	0.38-0.40	A .49
0.47-0.50	0.44-0.47	0.41-0.44	A .54
0.51-0.55	0.48-0.52	0.45-0.49	A .59
0.56-0.62	0.53-0.58	0.50-0.55	A .65
0.63-0.67	0.59-0.64	0.56-0.60	A .71
0.68-0.73	0.65-0.68	0.61-0.65	A .78
0.74-0.81	0.69-0.77	0.66-0.72	A .86
0.82-0.89	0.78-0.84	0.73-0.79	A .95
0.90-0.98	0.85-0.93	0.80-0.88	A 1.02
0.99-1.12	0.94-1.05	0.89-0.98	A 1.16
1.13-1.20	1.06-1.13	0.99-1.07	A 1.25
1.21-1.34	1.14-1.25	1.08-1.17	A 1.39
1.35-1.41	1.26-1.33	1.18-1.25	A 1.54
1.42-1.51	1.34-1.42	1.26-1.33	A 1.63
1.52-1.62	1.43-1.52	1.34-1.44	A 1.75
1.63-1.73	1.53-1.63	1.45-1.53	A 1.86
1.74-1.86	1.64-1.75	1.54-1.65	A 1.99
1.87-2.02	1.76-1.90	1.66-1.79	A 2.15
2.03-2.25	1.91-2.13	1.80-1.99	A 2.31
2.26-2.46	2.14-2.33	2.00-2.18	A 2.57
2.47-2.77	2.34-2.73	2.19-2.45	A 2.81
2.78-2.99	2.74-2.86	2.46-2.65	A 3.61
3.00-3.26	2.87-3.14	2.66-2.90	A 3.95
3.27-3.59	3.15-3.47	2.91-3.19	A 4.32
3.60-3.99	3.48-3.83	3.20-3.56	A 4.79
4.00-4.42	3.84-4.16	3.57-3.83	A 5.30
4.43-4.61	4.17-4.43	3.84-4.08	A 5.78
4.62-5.23	4.44-5.00	4.09-4.64	A 6.20
5.24-5.39	5.01-5.16	4.65-5.00	A 6.99
5.40-5.88	5.17-5.56	5.01-5.36	A 7.65
5.89-6.56	5.57-6.22	5.37-5.87	A 8.38
6.57-7.18	6.23-6.89	5.88-6.43	A 9.25
7.19-7.80	6.90-7.00	6.44-6.79	A 9.85
7.81-9.00	....	6.80-7.00	A 11.0

Table 15

Motor Full Load Current (Amp.)			Thermal Unit Number
1 T. U.	2 T. U.	3 T. U.	
0.31-0.33	0.31-0.33	0.29-0.31	B 0.44
0.34-0.36	0.34-0.36	0.32-0.36	B 0.51
0.37-0.40	0.37-0.40	0.37-0.38	B 0.57
0.41-0.48	0.41-0.48	0.39-0.46	B 0.63
0.49-0.57	0.49-0.57	0.47-0.55	B 0.71
0.58-0.64	0.58-0.64	0.56-0.61	B 0.81
0.65-0.70	0.65-0.70	0.62-0.66	B 0.92
0.71-0.77	0.71-0.77	0.67-0.75	B 1.03
0.78-0.85	0.78-0.85	0.76-0.83	B 1.16
0.86-0.99	0.86-0.99	0.84-0.93	B 1.30
1.00-1.10	1.00-1.10	0.94-1.06	B 1.45
1.11-1.28	1.11-1.28	1.07-1.18	B 1.67
1.29-1.41	1.29-1.41	1.19-1.31	B 1.88
1.42-1.58	1.42-1.58	1.32-1.47	B 2.10
1.59-1.80	1.59-1.80	1.48-1.67	B 2.40
1.81-2.03	1.81-2.03	1.68-1.83	B 2.65
2.04-2.25	2.04-2.25	1.84-2.04	B 3.00
2.26-2.51	2.26-2.51	2.05-2.38	B 3.30
2.52-2.83	2.52-2.83	2.39-2.60	B 3.70
2.84-3.29	2.84-3.29	2.61-3.13	B 4.15
3.30-3.75	3.30-3.75	3.14-3.59	B 4.85
3.76-4.22	3.76-4.22	3.60-3.94	B 5.50
4.23-4.65	4.23-4.65	3.95-4.19	B 6.25
4.66-5.16	4.66-5.16	4.20-4.72	B 6.90
5.17-5.53	5.17-5.53	4.73-5.21	B 7.70
5.54-6.09	5.54-6.09	5.22-5.51	B 8.20
6.10-6.80	6.10-6.80	5.52-6.17	B 9.10
6.81-7.60	6.81-7.60	6.18-7.07	B 10.2
7.61-8.35	7.61-8.35	7.08-8.05	B 11.5
8.36-9.04	8.36-9.04	8.06-8.69	B 12.8
9.05-9.99	9.05-9.99	8.70-9.32	B 14
10.0-11.1	10.0-11.1	9.33-10.2	B 15.5
11.2-12.3	11.2-12.0	10.3-11.3	B 17.5
12.4-13.7	....	11.4-12.0	B 19.5
13.8-15.4	....	....	B 22
15.5-18.0	....	....	B 25
Following Selections for Size 1 Only			
....	11.2-12.3	....	B 17.5
....	12.4-13.7	11.4-12.1	B 19.5
....	13.8-15.4	12.2-13.7	B 22
15.5-17.2	15.5-17.2	13.8-15.2	B 25
17.3-19.4	17.3-19.4	15.3-17.2	B 28.0
19.5-21.7	19.5-21.7	17.3-18.9	B 32
21.8-23.9	21.8-23.9	19.0-21.4	B 36
24.0-26.0	24.0-26.0	21.5-23.7	B 40
....	....	23.8-26.0	B 45

Table 18

Motor Full-Load Current (Amp.)			Thermal Unit Number
1 T. U.	2 T. U.	3 T. U.	
15.5-16.4	14.4-15.3	13.6-14.5	CC 20.9
16.5-17.6	15.4-16.4	14.6-15.5	CC 22.8
17.7-19.1	16.5-18.4	15.6-17.4	CC 24.6
19.2-20.4	18.5-19.6	17.5-18.5	CC 26.3
20.5-22.1	19.7-21.0	18.6-19.9	CC 28.8
22.2-23.4	21.1-22.7	20.0-21.5	CC 31.0
23.5-25.6	22.8-24.2	21.6-22.9	CC 33.3
25.7-27.3	24.3-25.9	23.0-24.5	CC 36.4
27.4-29.4	26.0-27.8	24.6-26.3	CC 39.6
29.5-31.5	27.9-29.8	26.4-28.2	CC 42.7
31.6-33.7	29.9-31.7	28.3-30.0	CC 46.6
33.8-36.5	31.8-34.2	30.1-32.3	CC 50.1
36.6-39.1	34.3-36.9	32.4-34.9	CC 54.5
39.2-41.7	37.0-39.8	35.0-37.6	CC 59.4
41.8-44.8	39.9-42.3	37.7-40.0	CC 64.3
44.9-48.0	42.4-4		



70/W66
for

Hunt

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

FROM CONTRACTOR

ROBERTS FILTER MANUFACTURING CO.

TO

NAVAL FACILITIES ENGINEERING COMMAND

CONTRACT NO

N62470-82-B-2552

TRANSMITTAL NO

18

DATE

12/27/84

PROJECT TITLE AND LOCATION

REPLACE EQUIPMENT - SLUDGE COLLECTORS 4 & 5

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

Contractor Approved

OICC Approval

Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	<u>15397</u> <u>Para. 2.5.2</u>	<u>PLUG VALVE (SLUDGE DISCHARGE)</u>			
<u>1</u>	<u>A-15001</u>	<u>ECC Plug Valve</u>	<u>7</u>		
<u>2</u>	<u>A-15003</u>	<u>Valve with Manual Actuator (Handwheel)</u>	<u>7</u>		
<u>3</u>	<u>Bulletin 12.00-1</u>	<u>DeZurik Series 100 Valve</u>	<u>7</u>		
<u>4</u>	<u>Letter</u>	<u>Deviation Request</u>	<u>7</u>		
<u>5</u>	<u>Letter</u>	<u>Contractor's compliance</u>	<u>7</u>		

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

Ensign W. G. Grip

CONTRACTOR REPRESENTATIVE (Signature)

J. C. Thompson

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO
ROICC (2)
LANTDIV (1)
A-E (1)

DATE

SIGNATURE

JAN 3 8 37 AM '85

RECEIVED
ROICC JAXNCA



Roberts

CABLE: WATERFILT PHILA.
TELEX: 831-439

FILTER MANUFACTURING COMPANY
P.O. BOX 167 • DARBY, PENNSYLVANIA 19023 • (215) 583-3131

CERTIFICATE OF COMPLIANCE

CONTRACT NUMBER

N62470-82-C-2552

PROJECT SPECIFICATION SECTION 15397

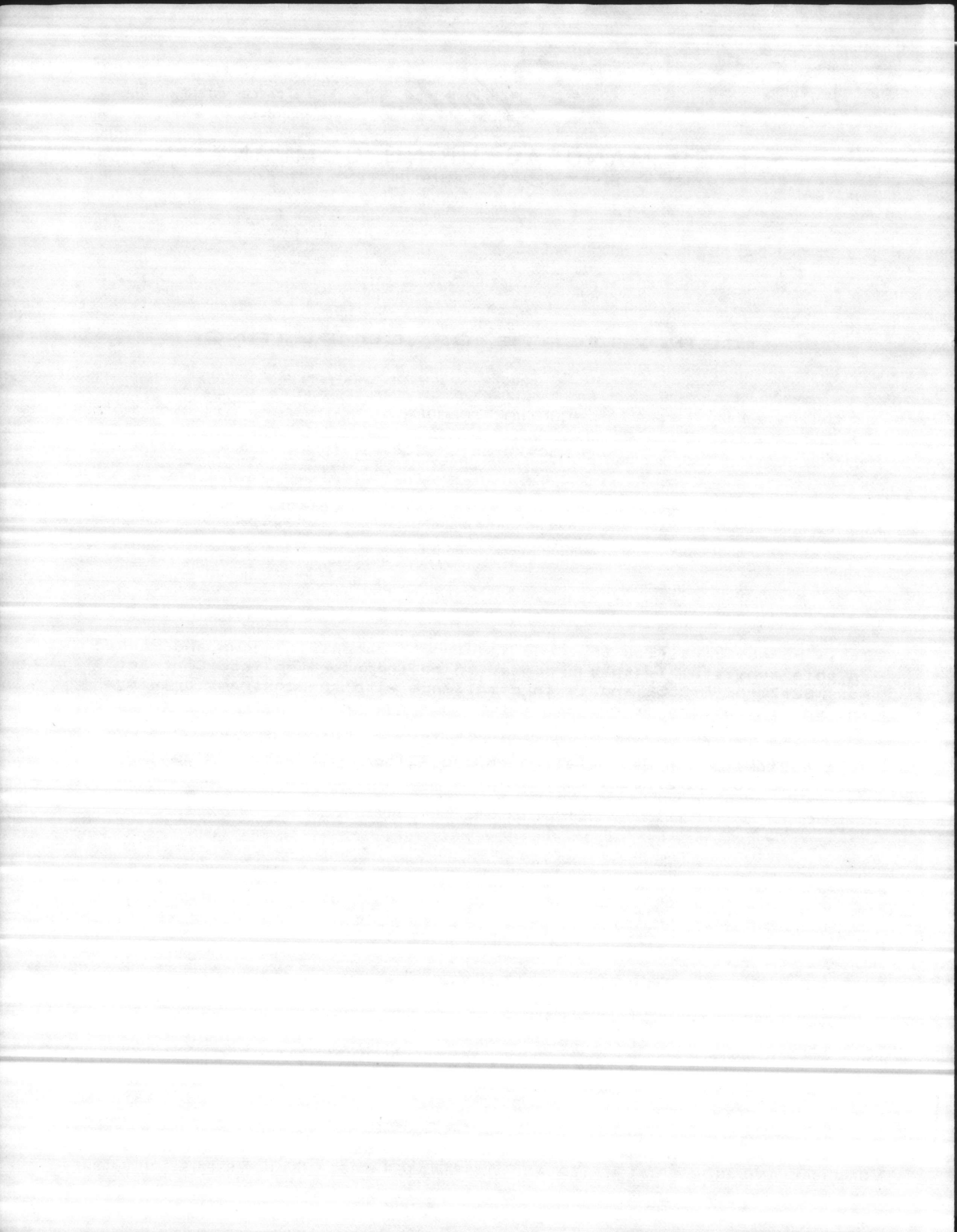
PARAGRAPHS 2.5.2

It is hereby certified that the (equipment/material) shown and marked in this submittal is that proposed to be incorporated into Contract No. N62470-82-B-2552 and is in compliance with the contract drawings and specifications except as listed on a separate sheet.

This equipment can be installed in the allocated spaces and is submitted for Government approval.

Certified By J.C. Thompson

Date 12-28-84



Hunt

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

8/1/82

CONTRACT NO 1271-22-1-265	TRANSMITTAL NO SB, Page 1	DATE 1/24/85
------------------------------	------------------------------	-----------------

FROM CONTRACTOR
ROBERTS FILTED MANUFACTURING COMPANY

TO
NAVAL FACILITIES ENGINEERING COMMAND

PROJECT TITLE AND LOCATION
REPLACE EQUIPMENT IN POOLS, FILTERS AND SLUDGE COLLECTOR

CONTRACTOR USE ONLY

REVIEWER USE ONLY

*List only one specification division per form.

**ACTION CODES:

List only one of the following categories on each transmittal form, and indicate which is being submitted

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit

- Contractor Approved OICC Approval Deviation/Substitution For OICC Approval

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO.	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	1544 15440	Ductile Iron Pipe and Fittings	7	AN	FW/40 30 JAN 85
2	1544	PVC Pipe and Fittings	7	A	↓
3		AWWA Compliance	7	RA	↓

CONTRACTOR'S COMMENTS

See attached sheet

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC: *Mr. J. J. Kimball*

CONTRACTOR REPRESENTATIVE (Signature): *J.C. Thompson*

DATE RECEIVED BY REVIEWER: *1/28/85*

FROM (Reviewer): *LANTDIV*

TO: *ROBERTS/ROICC*

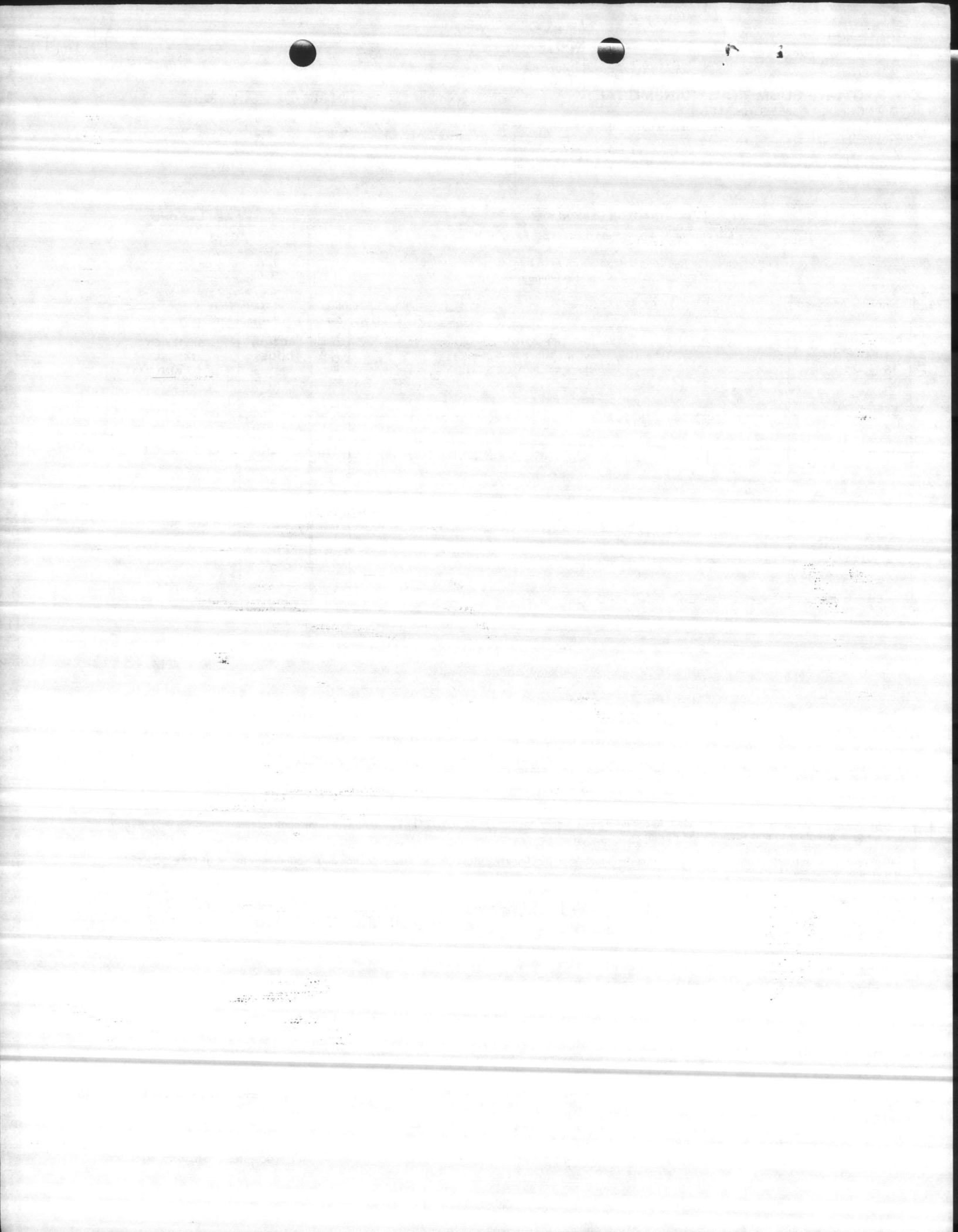
- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS
Item 1: Review AWWA C111 GASKETS WITH THE FLANGES.

COPIES TO: ROICC (2), LANTDIV (1), A-E (1)

DATE: *1/31/85*

SIGNATURE: *J. Hunt*





Roberts

CABLE: WATERFILT PHILA.
TELEX: 753-447

FILTER MANUFACTURING COMPANY

P.O. BOX 167 • DARBY, PENNSYLVANIA 19023 • (215) 583-3131

TRANSMITTAL 9-B
RFMCo Contract 2093

CERTIFICATE OF COMPLIANCE

CONTRACT NUMBER

N62470-82-B-2552

It is hereby certified that all cast and ductile iron pipe and fittings, PVC pipe and fittings shown and marked in this submittal is that proposed to be incorporated into Contract No. N62470-82-B-2552, is in compliance with the contract drawings and specifications, can be installed in the allocated spaces, and is submitted for Government approval.

ROBERTS FILTER MANUFACTURING CO.

Certified By

J.C. Thompson

Date

1-24-85





Roberts

CABLE: WATERFILT PHILA.
TELEX: 753-447

FILTER MANUFACTURING COMPANY

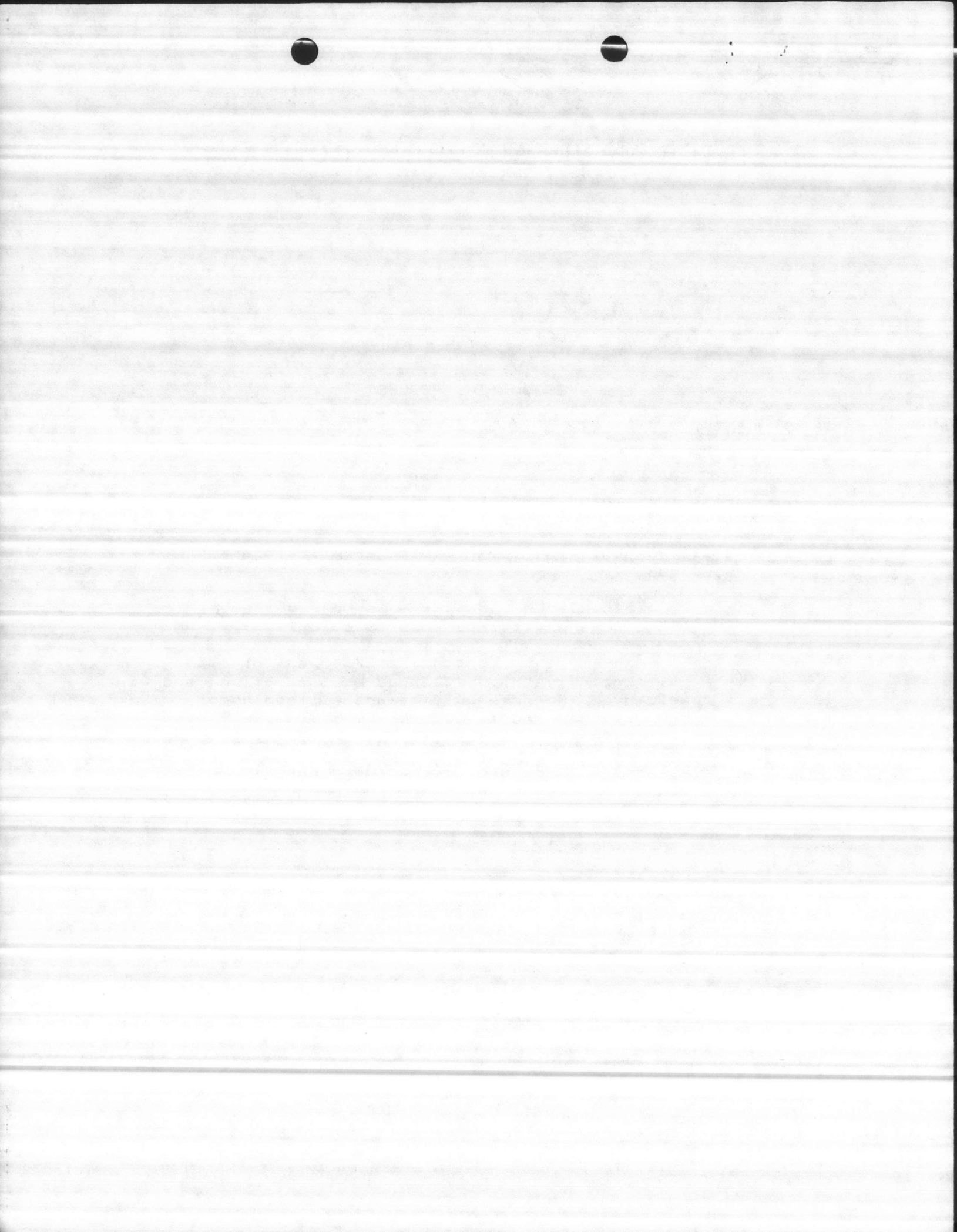
P.O. BOX 167 • DARBY, PENNSYLVANIA 19023 • (215) 583-3131

January 23, 1984

COMMENTS RELATING TO TRANSMITTAL NO. 9-A

RESUBMITTAL REQUEST

1. Certification of the pipe is now included. All piping will be flanged.
2. We are resubmitting the PVC pipe and fittings as requested
 - a) We acknowledge that there is no requirement for PVC pipe and fittings under Section 15397.
 - b) The Harvel letter dated 12/12/84 was intended as "all inclusive", the flanges will be of the socket weld type (no screwed fittings will be used). The PVC pipe was and is covered by the Harvel letter of November 8, 1984.
 - c) Flanges will be provided where connecting pipe sections, valves and other equipment.





**AMERICAN CAST IRON PIPE COMPANY
QUALIFICATION REPORT OF SHIPMENT**

DATE

January 18, 1985

ORDER NO.

CUSTOMER

ROBERTS FILTER MANUFACTURING COMPANY
P. O. Box 167
Darby, Pennsylvania 19023

ACIPCO

CUSTOMER

DESTINATION

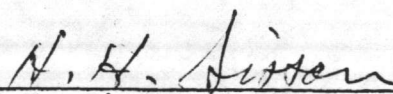
Naval Supply Center
Camp LeJeune, North Carolina

SHIPMENT

PCS	MATERIALS	COATING—LINING—TEST
	Pipe and Fittings manufactured by American Cast Iron Pipe Company meet all applicable requirements to the specifications shown below.	

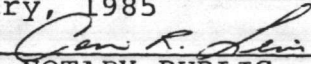
THIS IS TO CERTIFY THAT THESE MATERIALS COMPLY, WHERE APPLICABLE, WITH THE FOLLOWING SPECIFICATIONS:

- ANSI A21.4-1980 American National Standard for Cement Mortar Lining for Cast Iron and Ductile Iron Pipe and Fittings for Water.
- ANSI A21.10-1982 American National Standard for Gray Iron and Ductile Iron Fittings - 3" - 48" for Water and other Liquids.
- ANSI A21.15/
AWWA C115
Class 53 American National Standard for Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges.



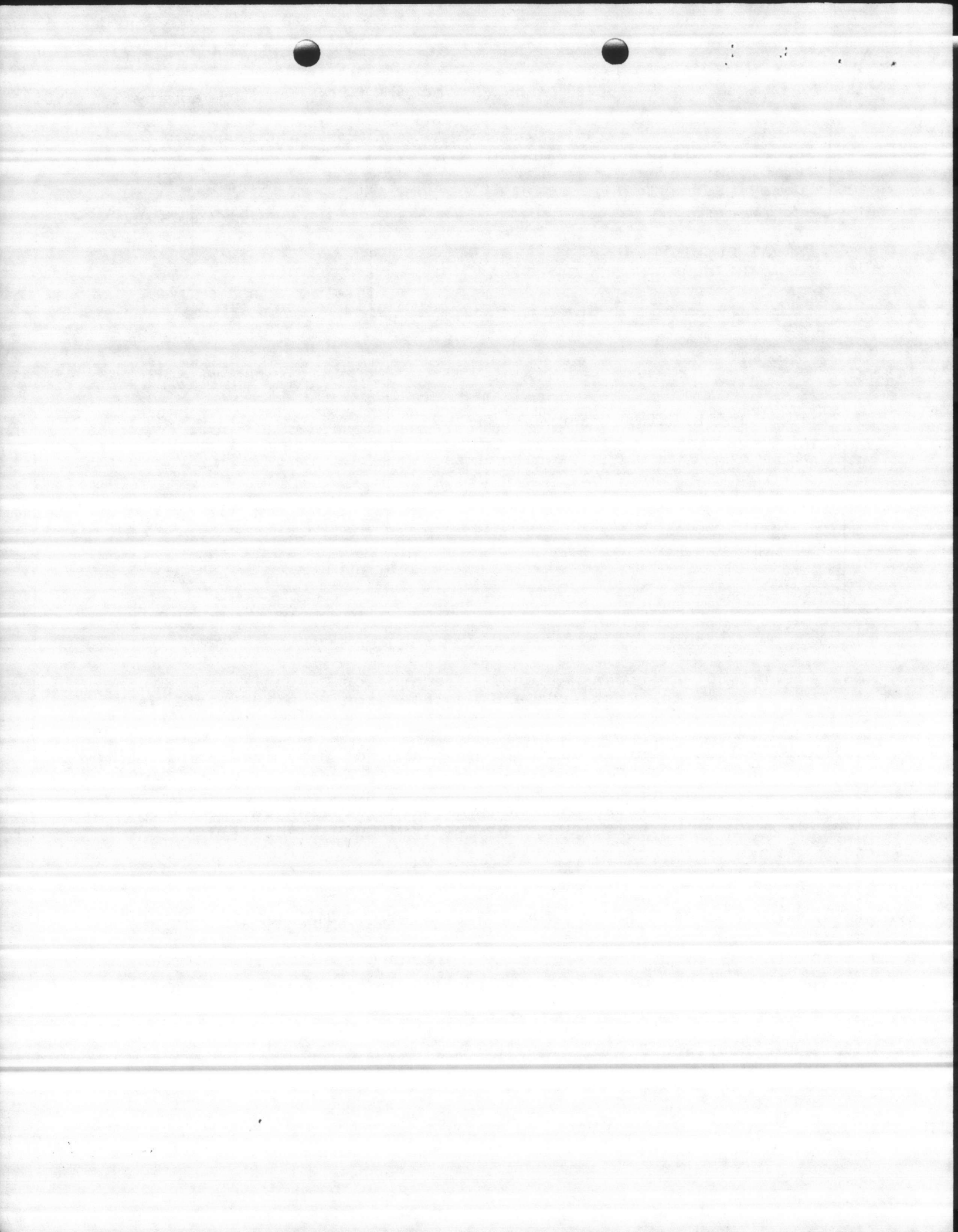
 H. H. Sisson
 American Cast Iron Pipe Company

Sworn to and subscribed to
before me this 18th day of
January, 1985



 NOTARY PUBLIC

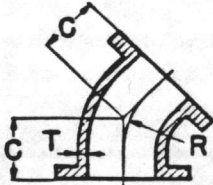
HHS/cl Notary Public, Georgia, State at Large
My Commission Expires Nov. 3, 1987



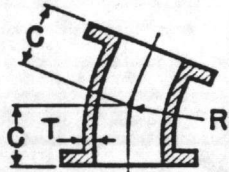


AMERICAN CAST IRON PIPE COMPANY

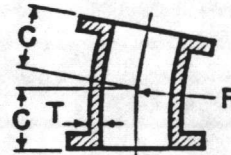
AMERICAN Flanged Fittings
ANSI/AWWA C118/A21.18
Flanged 45°, 22½° and 11¼° Bends



A-30400
45° Bend



A-30420
22½° Bend



A-30440
11¼° Bend

Table No. 6-5

Size In.	Pressure Rating psi	Iron Strength psi (1000's)	T In.	A-30400 45° Bend			A-30420 22½° Bend			A-30440 11¼° Bend		
				C In.	R In.	Weight lb	C In.	R In.	Weight lb	C In.	R In.	Weight lb
*2	250	25	.38	2.5	2.44	12	2.5	5.03	11	—	—	—
3	250	25	.48	3.0	3.62	20	3.0	7.56	20	3.0	15.25	20
4	250	25	.52	4.0	4.81	40	4.0	10.06	40	4.0	20.31	40
*5	250	25	.54	4.5	6.06	45	—	—	—	—	—	—
6	250	25	.55	5.0	7.25	55	5.0	15.06	55	5.0	30.50	55
8	250	25	.60	5.5	8.44	90	5.5	17.62	90	5.5	35.50	90
10	250	25	.68	6.5	10.88	130	6.5	22.62	135	6.5	45.69	135
12	250	25	.75	7.5	13.25	195	7.5	27.62	205	7.5	55.81	205
14	150	25	.66	7.5	12.06	220	7.5	25.12	225	7.5	50.75	225
14	250	D1	.66	7.5	12.06	220	7.5	25.12	225	7.5	50.75	225
16	150	30	.70	8.0	13.25	280	8.0	27.62	285	8.0	55.81	285
16	250	D1	.70	8.0	13.25	280	8.0	27.62	285	8.0	55.81	285
18	150	30	.75	8.5	14.50	325	8.5	30.19	335	8.5	60.94	335
18	250	D1	.75	8.5	14.50	325	8.5	30.19	335	8.5	60.94	335
20	150	30	.80	9.5	16.88	430	9.5	35.19	435	9.5	71.06	435
20	250	D1	.80	9.5	16.88	430	9.5	35.19	435	9.5	71.06	435
24	150	30	.89	11.0	18.12	630	11.0	37.69	640	11.0	76.12	645
24	250	D1	.89	11.0	18.12	630	11.0	37.69	640	11.0	76.12	645
30	150	30	1.03	15.0	27.75	1120	15.0	57.81	1135	15.0	116.75	1150
30	250	D1	1.03	15.0	27.75	1120	15.0	57.81	1135	15.0	116.75	1150
36	150	30	1.15	18.0	35.00	1755	18.0	72.88	1790	18.0	147.25	1805
36	250	D1	1.15	18.0	35.00	1755	18.0	72.88	1790	18.0	147.25	1805
42	150	30	1.28	21.0	42.25	2600	21.0	88.00	2665	21.0	177.69	2680
42	250	D1	1.28	21.0	42.25	2600	21.0	88.00	2665	21.0	177.69	2680
48	150	30	1.42	24.0	49.50	3580	24.0	103.06	3665	24.0	208.12	3695
48	250	D1	1.42	24.0	49.50	3580	24.0	103.06	3665	24.0	208.12	3695
*54	150	30	1.55	27.0	55.53	5755	27.0	115.63	5910	27.0	233.52	5945
*54	250	D1	1.55	27.0	55.53	5755	27.0	115.63	5910	27.0	233.52	5945

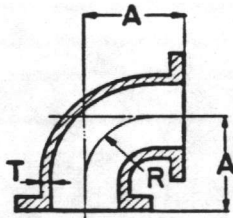
*Not included in AWWA C118.
See general notes on page 6-2.



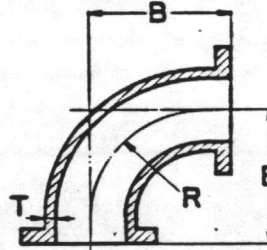


AMERICAN CAST IRON PIPE COMPANY

AMERICAN Flanged Fittings
ANSI/AWWA C110/A21.10 or AMERICAN Standard
Flanged 90° Bends



A-30300
Short Radius
AWWA C110

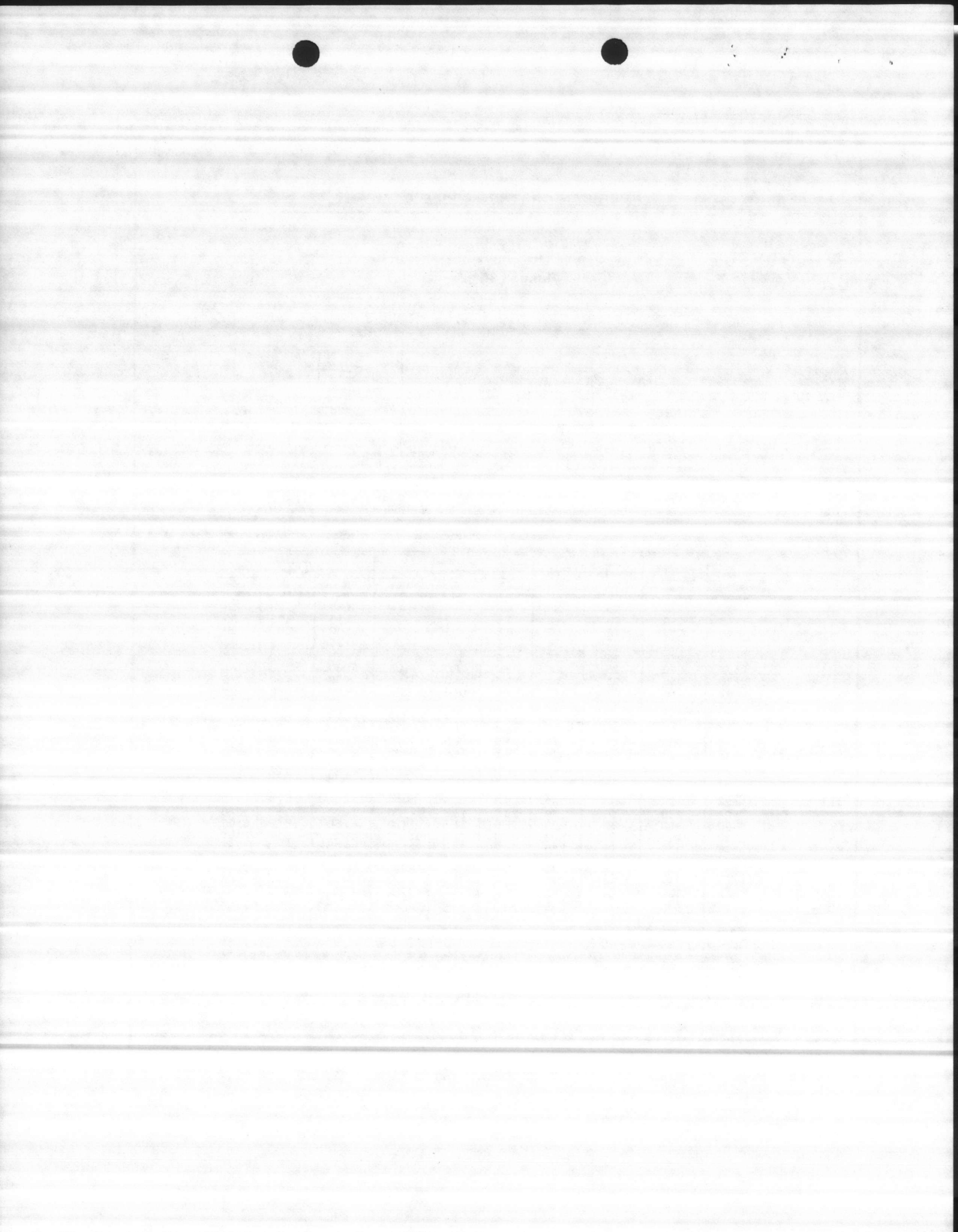


A-32300
Long Radius
AMERICAN Standard

Table No. 6-3

Size In.	Pressure Rating psi	Iron Strength psi (1000's)	T In.	A-30300 Short Radius			A-32300 Long Radius*		
				A In.	R In.	Weight lb	B In.	R In.	Weight lb
*2	250	25	.38	4.5	3.0	14	6.50	5.00	16
3	250	25	.48	5.5	4.0	25	7.75	6.25	30
4	250	25	.52	6.5	4.5	45	9.00	7.00	50
*5	250	25	.54	7.5	5.5	55	10.25	8.25	65
6	250	25	.55	8.0	6.0	65	11.50	9.50	80
8	250	25	.60	9.0	7.0	105	14.00	12.00	140
10	250	25	.68	11.0	9.0	165	16.50	14.50	215
12	250	25	.75	12.0	10.0	235	19.00	17.00	325
14	150	25	.66	14.0	11.5	290	21.50	19.00	385
14	250	DI	.66	14.0	11.5	290	21.50	19.00	385
16	150	30	.70	15.0	12.5	370	24.00	21.50	505
16	250	DI	.70	15.0	12.5	370	24.00	21.50	505
18	150	30	.75	16.5	14.0	450	26.50	24.00	630
18	250	DI	.75	16.5	14.0	450	26.50	24.00	630
20	150	30	.80	18.0	15.5	580	29.00	26.50	810
20	250	DI	.80	18.0	15.5	580	29.00	26.50	810
24	150	30	.89	22.0	18.5	900	34.00	30.50	1240
24	250	DI	.89	22.0	18.5	900	34.00	30.50	1240
30	150	30	1.03	25.0	21.5	1430	41.50	38.00	2105
30	250	DI	1.03	25.0	21.5	1430	41.50	38.00	2105
36	150	30	1.15	28.0	24.5	2135	49.00	45.50	3285
36	250	DI	1.15	28.0	24.5	2135	49.00	45.50	3285
42	150	30	1.28	31.0	27.5	3055	56.50	53.00	4865
42	250	DI	1.28	31.0	27.5	3055	56.50	53.00	4865
48	150	30	1.42	34.0	30.5	4095	64.00	60.50	6790
48	250	DI	1.42	34.0	30.5	4095	64.00	60.50	6790
*54	150	30	1.55	39.0	35.0	6695	—	—	—
*54	250	DI	1.55	39.0	35.0	6695	—	—	—

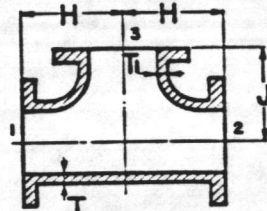
*Not included in AWWA C110.
The long radius bends are not included in AWWA C110; they have center-to-face and radius dimensions according to ANSI B16.1 Class 125. See Table No. 6-2.
See general notes on page 6-2.



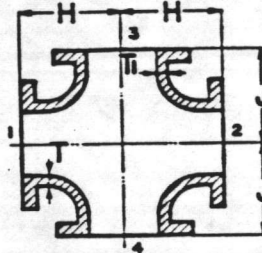


AMERICAN Flanged Fittings
ANSI/AWWA C110/A21.10

Flanged Tees and Crosses



A-30000
Tee

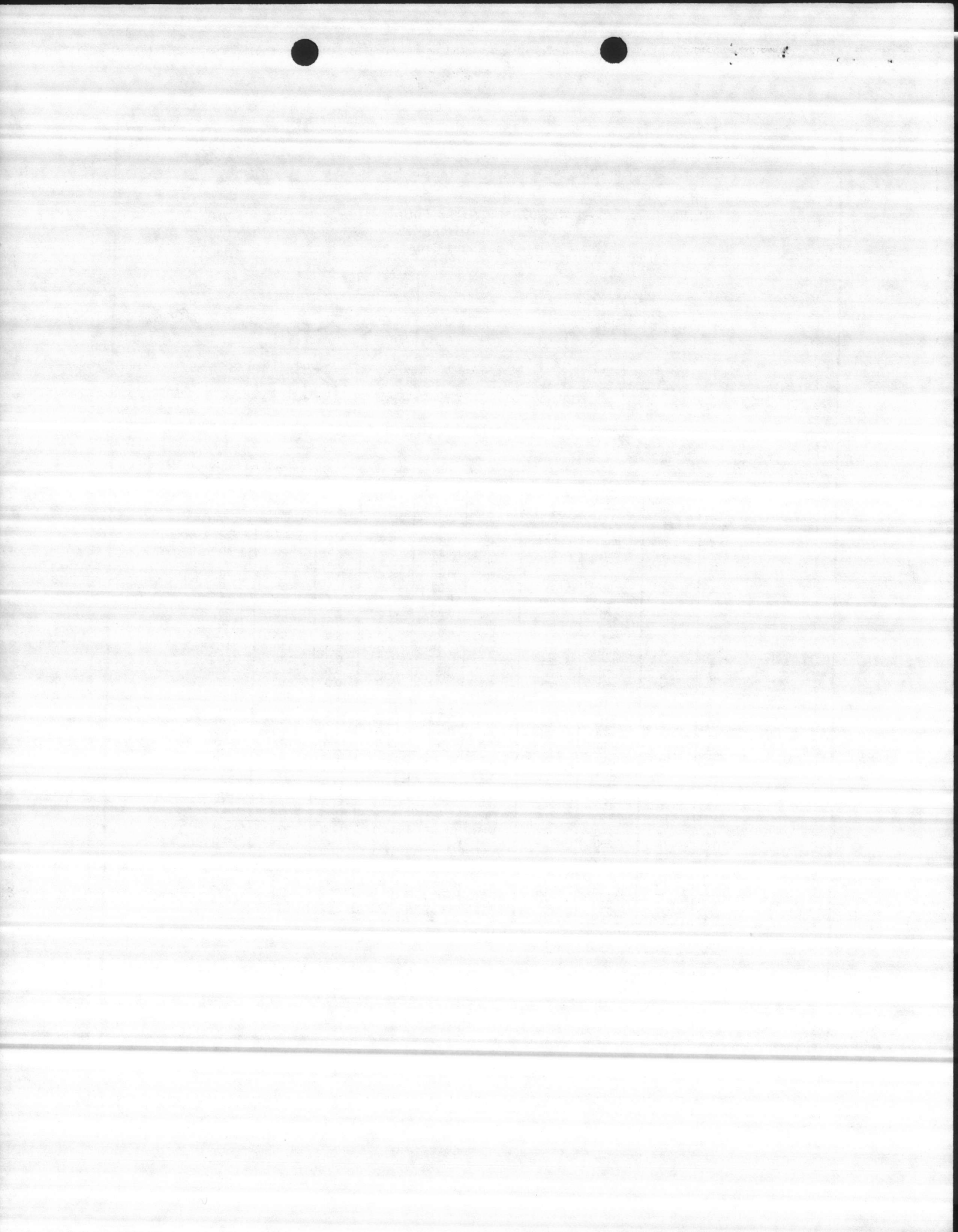


A-30200
Cross

Table No. 6-8

Run	Branch	Size in.	Pressure Rating psi	Iron Strength (1000's)	Dimensions in Inches				Weight in Pounds	
					T	T ₁	H	J	A-30000 Tee	A-30200 Cross
*2	2	2	250	25	.38	.38	4.5	4.5	20	25
*3	2	2	250	25	.48	.38	5.5	5.5	35	40
3	3	3	250	25	.48	.48	5.5	5.5	40	50
*4	2	2	250	25	.52	.38	6.5	6.5	50	60
4	3	3	250	25	.52	.48	6.5	6.5	60	70
4	4	4	250	25	.52	.52	6.5	6.5	65	80
*6	2	2	250	25	.55	.38	8.0	8.0	80	85
6	3	3	250	25	.55	.48	8.0	8.0	85	95
6	4	4	250	25	.55	.52	8.0	8.0	90	110
6	6	6	250	25	.55	.55	8.0	8.0	95	120
*8	3	3	250	25	.60	.48	9.0	9.0	130	140
8	4	4	250	25	.60	.52	9.0	9.0	140	155
8	6	6	250	25	.60	.55	9.0	9.0	145	165
8	8	8	250	25	.60	.60	9.0	9.0	155	195
*10	3	3	250	25	.68	.48	11.0	11.0	200	210
10	4	4	250	25	.68	.52	11.0	11.0	205	220
10	6	6	250	25	.68	.55	11.0	11.0	215	240
10	8	8	250	25	.68	.60	11.0	11.0	225	265
10	10	10	250	25	.80	.80	11.0	11.0	270	330
*12	3	3	250	25	.75	.48	12.0	12.0	285	300
12	4	4	250	25	.75	.52	12.0	12.0	290	310
12	6	6	250	25	.75	.55	12.0	12.0	295	320
12	8	8	250	25	.75	.60	12.0	12.0	310	345
12	10	10	250	25	.87	.80	12.0	12.0	360	415
12	12	12	250	25	.87	.87	12.0	12.0	385	460
14	6	6	150	25	.66	.55	14.0	14.0	375	400
14	6	6	250	DI	.66	.55	14.0	14.0	375	400
14	8	8	150	25	.66	.60	14.0	14.0	390	425
14	8	8	250	DI	.66	.60	14.0	14.0	390	425
14	10	10	150	25	.66	.68	14.0	14.0	400	460
14	10	10	250	DI	.66	.68	14.0	14.0	400	460
14	12	12	250	DI	.66	.75	14.0	14.0	425	505
14	14	14	250	DI	.66	.66	14.0	14.0	435	530

*Not included in AWWA C110.
Numerals on cuts indicate standard order of specifying size of fitting.
See notes at end of Table.





AMERICAN CAST IRON PIPE COMPANY

AMERICAN Flanged Fittings
ANSI/AWWA C110/A21.10
Flange Details

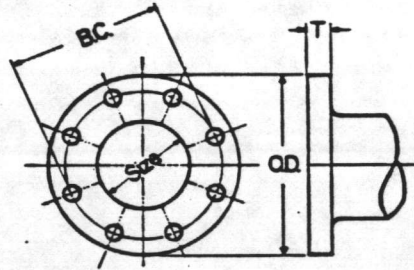


Table No. 6-1

Size In.	O.D. In.	B.C. In.	T In.	Bolt Hole Diameter In.	Bolts		Ring Gasket In.
					No. Per Joint	Size In.	
*1	4.25	3.12	.44	3/8	4	1/2 x 2	1 x 2 3/4
*1 1/4	4.62	3.50	.50	3/8	4	1/2 x 2	1 1/2 x 3
*1 1/2	5.00	3.88	.56	3/8	4	1/2 x 2	1 1/2 x 3 3/4
*2	6.00	4.75	.62	3/8	4	3/4 x 2 1/2	2 x 4 1/4
*2 1/2	7.00	5.50	.69	3/8	4	3/4 x 2 1/2	2 1/2 x 4 3/4
3	7.50	6.00	.75	3/8	4	3/4 x 2 1/2	3 x 5 1/4
*3 1/2	8.50	7.00	.81	3/8	8	3/4 x 3	3 1/2 x 6 1/4
4	9.00	7.50	.94	3/8	8	3/4 x 3	4 x 6 3/4
*5	10.00	8.50	.94	3/8	8	3/4 x 3	5 x 7 1/4
6	11.00	9.50	1.00	3/8	8	3/4 x 3 1/2	6 x 8 1/4
8	13.50	11.75	1.12	3/8	8	3/4 x 3 1/2	8 x 11
10	16.00	14.25	1.19	1	12	7/8 x 4	10 x 13 1/4
12	19.00	17.00	1.25	1	12	7/8 x 4	12 x 16 1/4
14	21.00	18.75	1.38	1 1/8	12	1 x 4 1/2	14 x 17 1/4
16	23.50	21.25	1.44	1 1/8	16	1 x 4 1/2	16 x 20 1/4
18	25.00	22.75	1.56	1 1/8	16	1 1/4 x 5	18 x 21 1/4
20	27.50	25.00	1.69	1 1/8	20	1 1/4 x 5	20 x 23 1/4
24	32.00	29.50	1.88	1 1/8	20	1 1/4 x 5 1/2	24 x 28 1/4
30	38.75	36.00	2.12	1 1/8	28	1 1/4 x 6 1/2	30 x 34 1/4
36	46.00	42.75	2.38	1 1/8	32	1 1/4 x 7	36 x 41 1/4
42	53.00	49.50	2.62	1 1/8	36	1 1/4 x 7 1/2	42 x 48
48	59.50	56.00	2.75	1 1/8	44	1 1/2 x 8	48 x 54 1/2
*54	66.25	62.75	3.00	2	44	1 3/4 x 8 1/2	54 x 61
*60	73.00	69.25	3.12	2	52	1 3/4 x 9	60 x 67 1/2
*72	86.50	82.50	3.50	2	60	1 3/4 x 9 1/2	72 x 80 1/2
*84	99.75	95.50	3.88	2 1/2	64	2 x 10 1/2	84 x 93 1/2
*96	113.25	108.50	4.25	2 1/2	68	2 1/4 x 11 1/2	96 x 106 1/2



*These sizes, listed for information only, are not included in AWWA C110 and of these only 2", 5" and 54" sizes are produced by AMERICAN.

FACING: Flanges are plain faced and are finished smooth or with shallow serrations.

BACK FACING: Flanges may be back faced or spot faced, AMERICAN's option, for compliance with the flange thickness tolerance.

FLANGES: The flanges shown above are adequate for water service of 250 psi working pressure and should not be confused with Class 250 flanges per ANSI B16.1. The bolt circle and the bolt holes match those of ANSI B16.1 Class 125. If flanges are required to be made in accordance with other ratings or other standards, this must be specified on the purchase order.

As listed in the Appendix of AWWA C110, gaskets are rubber — either ring or full face — and are 1/4" thick unless otherwise specified. AMERICAN recommends ring gaskets for normal water service.

See Table No. 6-23 for flanges with ANSI B16.1 Class 25 facing and drilling.

See Table No. 6-24 for flanges with ANSI B16.1 Class 250 facing and drilling.

See Section 8, Table No. 8-2, for information on bolts and studs.

See general notes on page 6-2.

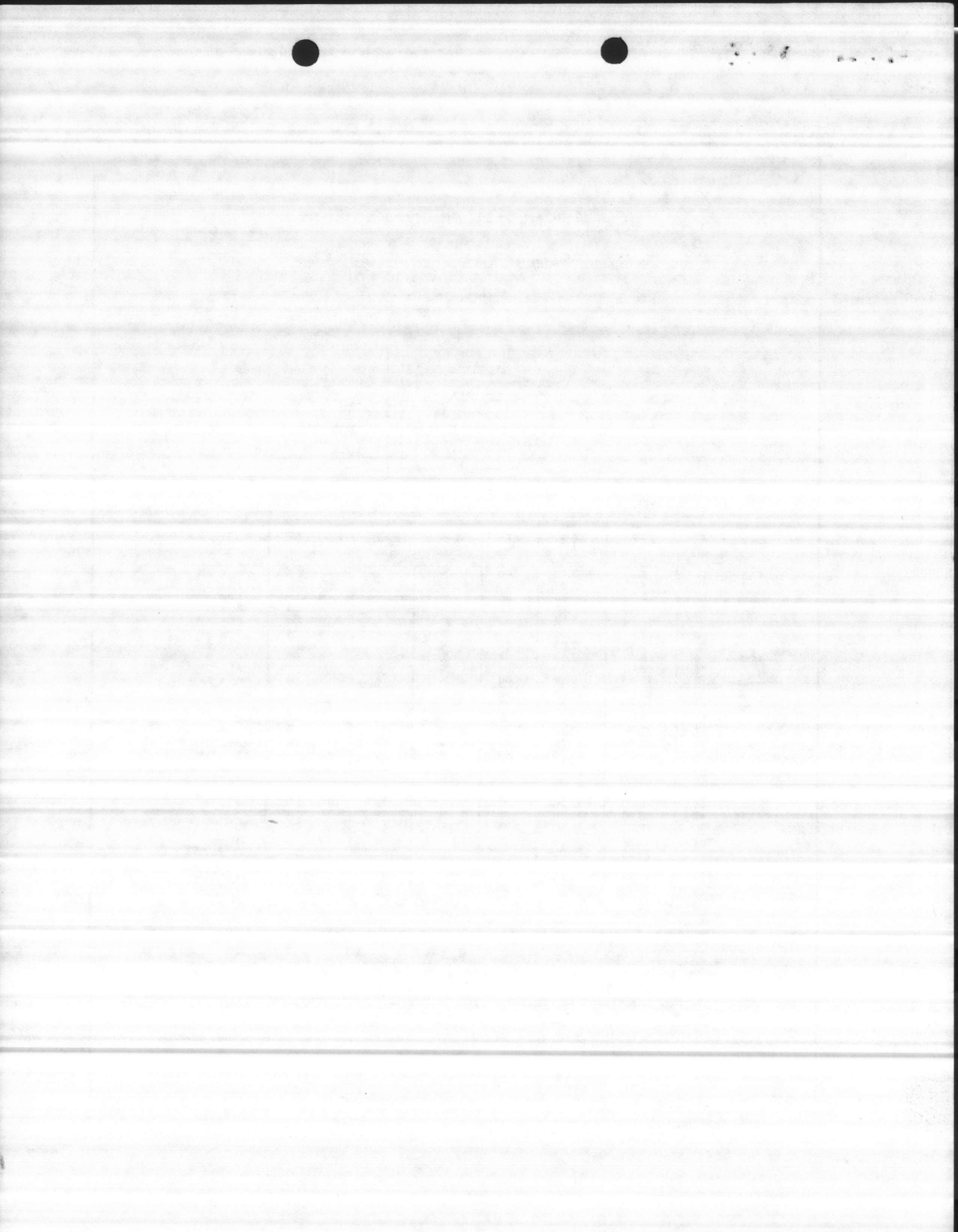


TABLE 50.5

Standard Thickness Classes of Ductile-Iron Pipe

Size in.	Outside Diameter—in.	Thickness Class						
		50	51	52	53	54	55	56
		Thickness—in.						
3	3.96	—	0.25	0.28	0.31	0.34	0.37	0.40
4	4.80	—	0.26	0.29	0.32	0.35	0.38	0.41
6	6.90	0.25	0.28	0.31	0.34	0.37	0.40	0.43
8	9.05	0.27	0.30	0.33	0.36	0.39	0.42	0.45
10	11.10	0.29	0.32	0.35	0.38	0.41	0.44	0.47
12	13.20	0.31	0.34	0.37	0.40	0.43	0.46	0.49
14	15.30	0.33	0.36	0.39	0.42	0.45	0.48	0.51
16	17.40	0.34	0.37	0.40	0.43	0.46	0.49	0.52
18	19.50	0.35	0.38	0.41	0.44	0.47	0.50	0.53
20	21.60	0.36	0.39	0.42	0.45	0.48	0.51	0.54
24	25.80	0.38	0.41	0.44	0.47	0.50	0.53	0.56
30	32.00	0.39	0.43	0.47	0.51	0.55	0.59	0.63
36	38.30	0.43	0.48	0.53	0.58	0.63	0.68	0.73
42	44.50	0.47	0.53	0.59	0.65	0.71	0.77	0.83
48	50.80	0.51	0.58	0.65	0.72	0.79	0.86	0.93
54	57.10	0.57	0.65	0.73	0.81	0.89	0.97	1.05



ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED _____
APPROVED AS NOTED _____
DISAPPROVED _____
SUBJECT TO THE _____

CONTRACT NO. 82-2552

APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS, WEIGHTS, COORDINA-
TION OF TRADES, ETC., AS REQUIRED.

REVIEWER HFCW DATE 30 Jun 85

FOR OFFICER IN CHARGE OF CONSTRUCTION

HARVEL PLASTICS, INC.

PLANT & OFFICES: KUEBLER ROAD - FORKS TOWNSHIP, EASTON, PA. 18042
MAILING ADDRESS: POST OFFICE BOX 757
TELEPHONE: 215-252-7355



December 12, 1984

Ref. No. 84J-417

Roberts Filter Company
6th & Columbia Avenue
Darby, PA 19023

Attention: Mr. Cliff Thompson

Dear Mr. Thompson:

This is an addendum to our letter of 11/8/84, Ref. No. 84J-370 (copy attached), regarding certification of our products.

Molded Schedule 80 PVC fittings manufactured by R & G Sloane Mfg. Company meet the requirements of ASTM Standard D2464 for threaded Schedule 80 PVC fittings, and D2467 for socket Schedule 80 PVC fittings. Among the fittings designated under these standards are PVC flanges, either socket or threaded. In addition, the material utilized in the manufacture of these fittings is Type I Grade I PVC (1120), cell classification 12454-B.

We trust this addendum will meet the requirements of your customer. We remain

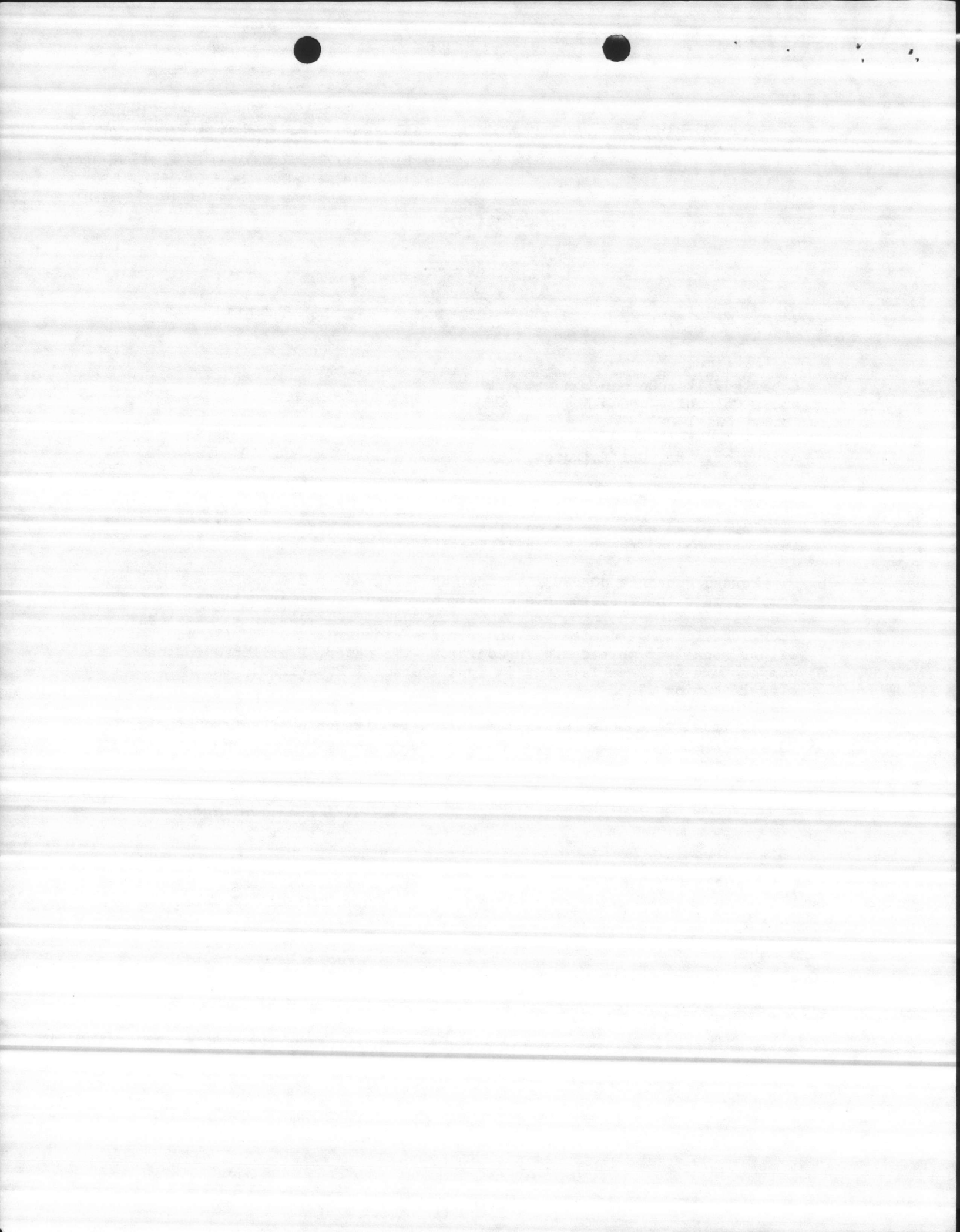
Sincerely,

HARVEL PLASTICS, INC.

John A. Williams
Vice President & Sales Mgr.

JAW/fz
encl.

RECEIVED
DEC 14 1984
ROBERTS FILTER



HARVEL
PLASTICS, INC.



PLANT & OFFICES: KUEBLER ROAD - FORKS TOWNSHIP, EASTON, PA. 18042
MAILING ADDRESS: POST OFFICE BOX 757
TELEPHONE: 215-252-7355

November 8, 1984

Ref. No. 84J-370

Roberts Filter Company
6th & Columbia Avenue
Darby, PA 19023

Attention: Mr. James Mahoney

Gentlemen:

We wish to certify that Harvel PVC pipe is manufactured from material covered by ASTM Standard D-1784. The material utilized in the manufacture of this product is normal impact, Type I Grade I PVC, (1120), cell classification 12454-B. Harvel Schedules 40, 80 and 120 PVC also meets ASTM Standard D-1785 for the end pipe product.

Our Schedule 80 PVC fittings are manufactured by R & G Sloans Manufacturing Company and meet the requirements of ASTM D2464 and ASTM D2467.

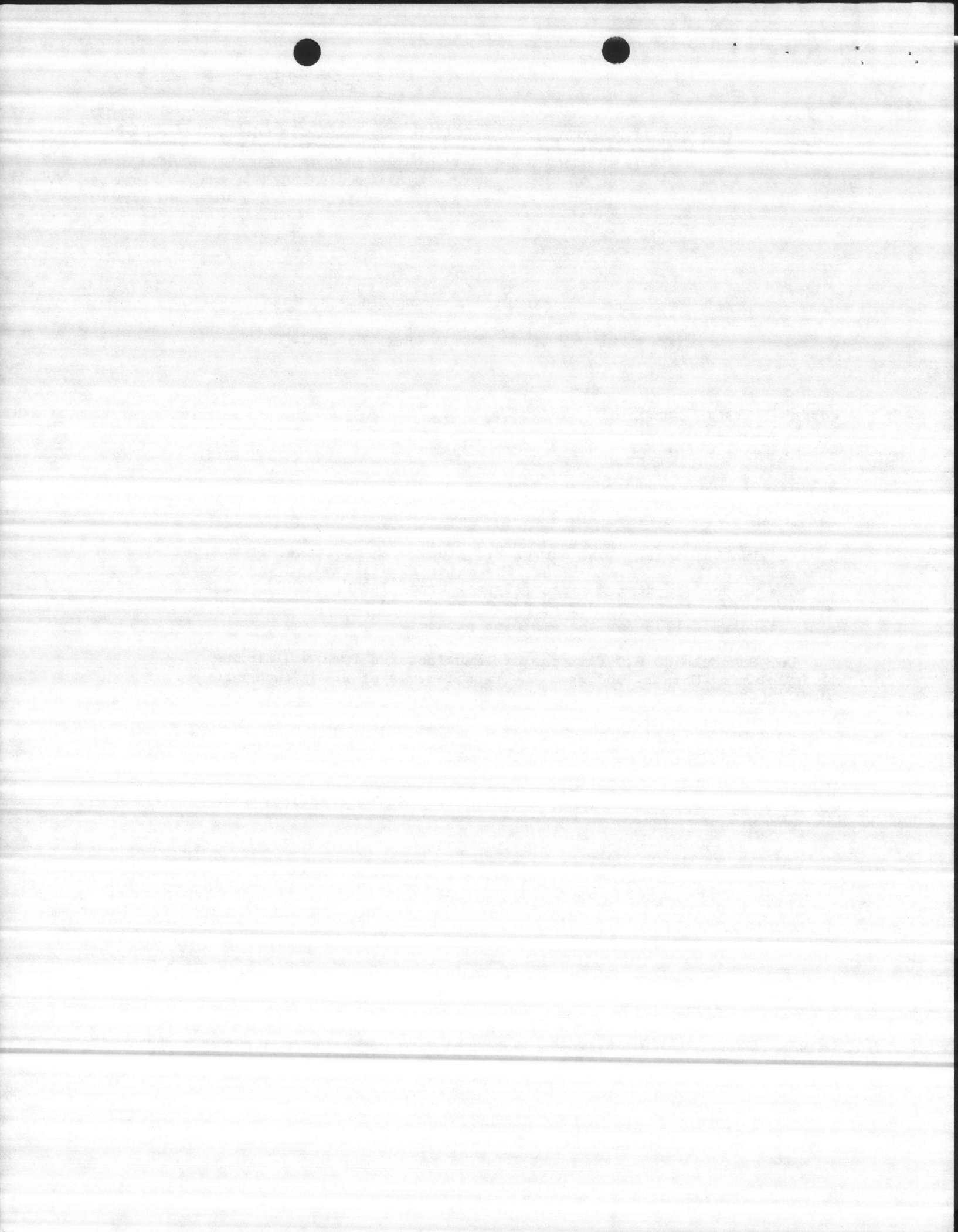
We remain

Sincerely,

HARVEL PLASTICS, INC.

John A. Williams
Vice President & Sales Mgr.

JAW/fz

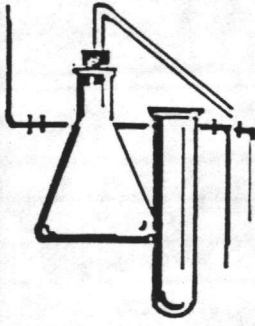


Typical Applications for PVC Plastic Pipe

The outstanding features of rigid PVC plastic pipe (see preceding page) have created countless applications. The following examples are by no means complete, but they illustrate some fields for which Harvel rigid PVC plastic pipe (pipe, tube, fittings, and valves) has become a reliable construction material.

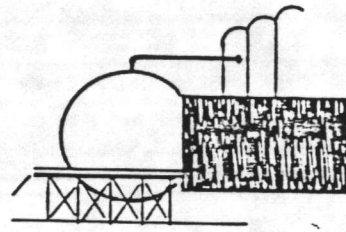
CHEMICAL

Agricultural chemicals / bleach manufacturing / chemical laboratories / cosmetics / electroplating / fertilizer manufacturing / leather tanning / organic color industries / oil refining / petrochemicals / pharmaceuticals / photographic industry / soap manufacturing / water and sewage treatment . . .



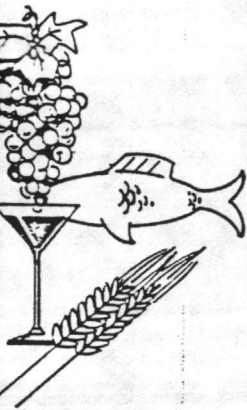
POWER AND ELECTRICAL

Atomic energy / battery manufacturing / coal mining / electric power industries / electroplating / gas industry / oil refining / petroleum industry / water and sewage treatment . . . Harvel PVC UL-approved electrical conduit protects electrical wiring.



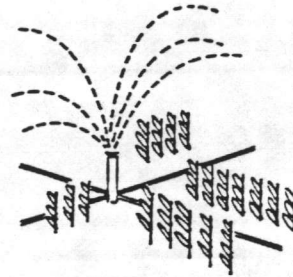
FOOD PROCESSING

Agriculture / beverages / bottling / brewing / canning / corn industry / dairy industries / distilling / fishing industries / meat packing / tobacco / water and sewage treatment / wine . . . Harvel rigid PVC plastic pipe bears the NSF Seal of Approval.



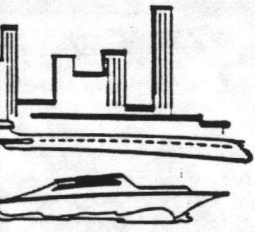
IRRIGATION

Pipe lines / sprinkler systems / water treatment



INDUSTRIAL PLANTS

Air conditioning / aircraft / aluminum industry / automotive / battery manufacturing / construction / fertilizer manufacturing / glass / leather / marine / metals / metalworking / mining and smelting / paper and pulp / plumbing / process industries / shipbuilding / steel industry / textile / water and sewage treatment . . .



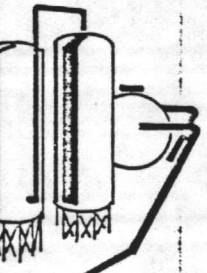
GENERAL SERVICES

Athletic fields / golf courses / hospitals / parks / playgrounds / plumbing / schools / water and sewage treatment . . .



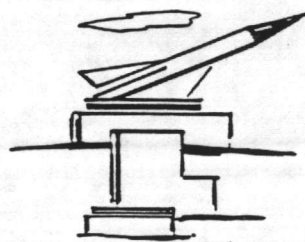
OIL AND GAS

Petrochemical industries / pipe lines / oil refining . . .

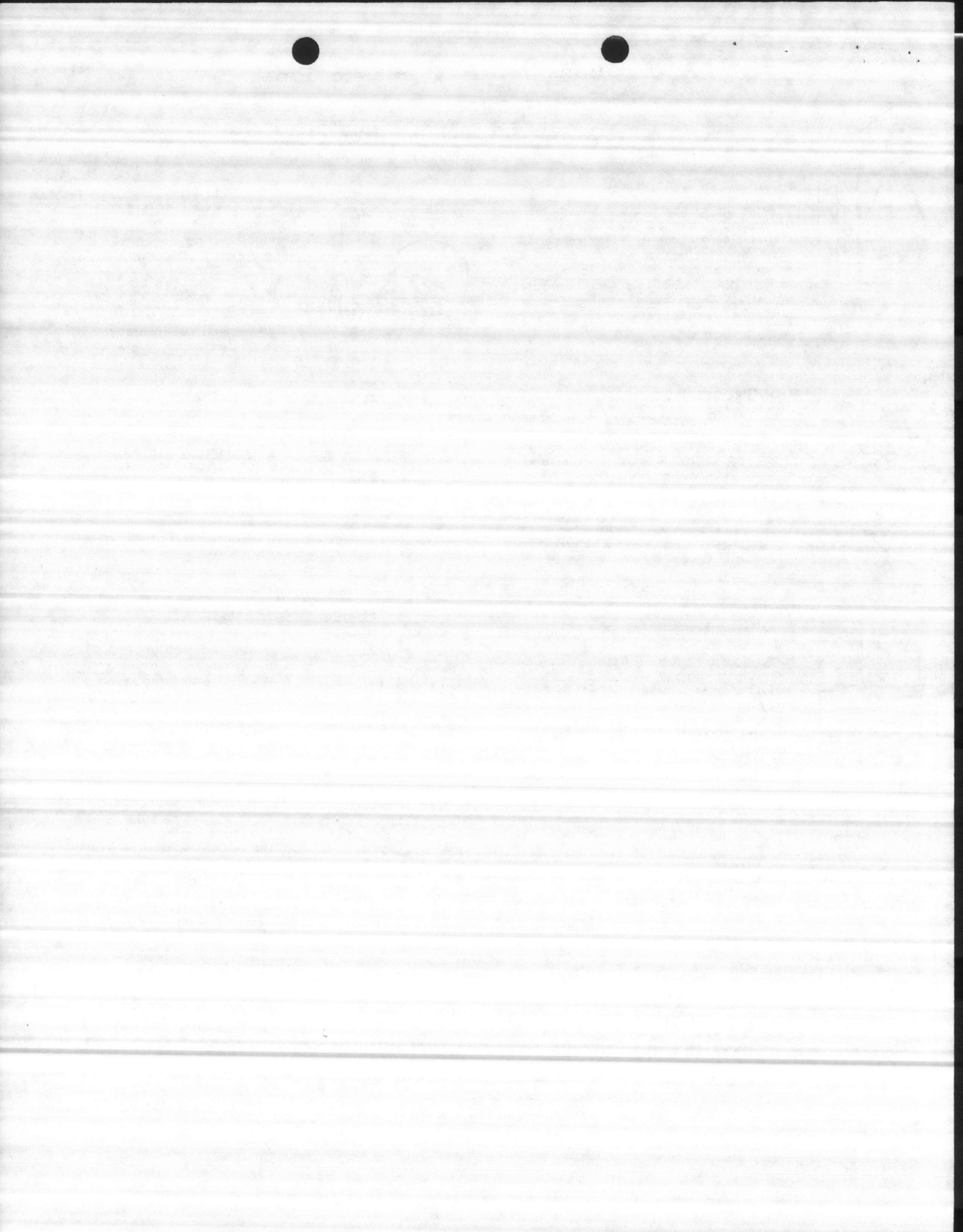


OTHER FIELDS

Bottling / cemeteries / civil defense / construction / engraving / lithography / marine / military / naval and civil defense / newspaper industry / photoengraving / plumbing / refrigeration / restaurant and restaurant equipment / water and sewage treatment . . .



Laboratory tests, as well as actual installations, indicate that there are many additional applications where a changeover to rigid PVC plastic pipe will result in great savings, both in first cost and in maintenance.



PVC Pipe and Fittings Schedule 80

Maximum operating pressures

Nominal Pipe Size	MAXIMUM OPERATING PRESSURE (PSI) AT 73°F.	
	Schedule 80 PVC	
	Socket End	Threaded End
1/4	1130	—
1/2	850	420
3/4	690	340
1	630	320
1 1/4	520	260
1 1/2	471	240
2	400	200
2 1/2	425	210**
3	375	190**
4	324	160**
6	280	N.R.
8	250	N.R.
10	230	N.R.
12	230	N.R.

N.R. — Not Recommended

*Based on water service, an additional correction factor may be required.

**For threaded and backwelded joints.

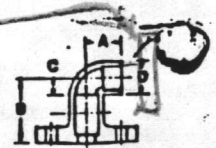
Pipe

(20 ft. lengths)

NOMINAL PIPE SIZE	APPROXIMATE WEIGHT PER 100 FT.	OUTSIDE DIAMETER (IN.)	INSIDE DIAMETER (IN.)	WALL THICKNESS
1/4	10.1	.540	.302	.119
1/2	20.5	.840	.546	.147
3/4	27.8	1.050	.742	.154
1	40.4	1.315	.957	.179
1 1/4	56.7	1.660	1.278	.191
1 1/2	68.9	1.990	1.500	.200
2	94.9	2.375	1.939	.218
2 1/2	144.9	2.875	2.323	.276
3	193.8	3.500	2.900	.300
4	283.3	4.500	3.826	.337
6	541.1	6.625	5.761	.432
8	821.9	8.625	7.625	.500
10	1,227.7	10.750	9.564	.593
12	1,710.4	12.750	11.376	.687

FLANGED ELBOWS
(BOTH ENDS)

90° Elbows



NOMINAL PIPE SIZE	MAX. O.D. DIM. D	THREADED ¹		SOCKET ²		FLANGED ³	
		DIM. A	WT. LBS.	DIM. A	DIM. C	DIM. B	WT. LBS.
1/4	1 1/8	1 1/8	.04	1 1/8	3/8	—	—
1/2	1 1/8	1 1/8	.12	1 1/8	3/8	2 1/8	.60
3/4	1 1/8	1 1/8	.18	1 1/8	3/8	2 1/8	.70
1	1 1/8	1 1/8	.29	1 1/8	3/8	3 1/8	1.23
1 1/4	2 1/8	2 1/8	.43	2 1/8	1 1/8	3 1/8	1.70
1 1/2	2 1/8	2 1/8	.57	2 1/8	1 1/8	4 1/8	2.12
2	3 1/8	2 1/8	.84	2 1/8	1 1/8	5 1/8	3.19
2 1/2	3 1/8	3 1/8	1.25	3 1/8	1 1/8	5 1/8	5.26
3	4 1/8	3 1/8	2.01	3 1/8	1 1/8	5 1/8	6.39
4	5 1/8	4 1/8	3.55	4 1/8	2 1/8	7 1/8	9.74
6	7 1/8	—	—	6 1/8	3 1/8	9 1/8	16.68
8	9 1/8	—	—	9 1/8	4 1/8	13 1/8	37.60

1. Threaded meets ASTM-D 2464 (PVC).

2. Socket meets ASTM-D 2467 (PVC).

3. Center to face dimensions exceed ANSI dimensions. Fabricated from molded parts.

Temperature correction factors

Operating Temperature (°F)	FACTORS	
	PVC	
70	1.00	
80	0.90	
90	0.75	
100	0.62	
110	0.50	
115	0.45	
120	0.40	
125	0.35	
130	0.30	
140	0.22	
150	N.R.	
160	N.R.	
170	N.R.	
180	N.R.	
200	N.R.	
210	N.R.	
240	N.R.	
280	N.R.	

Standards and specifications

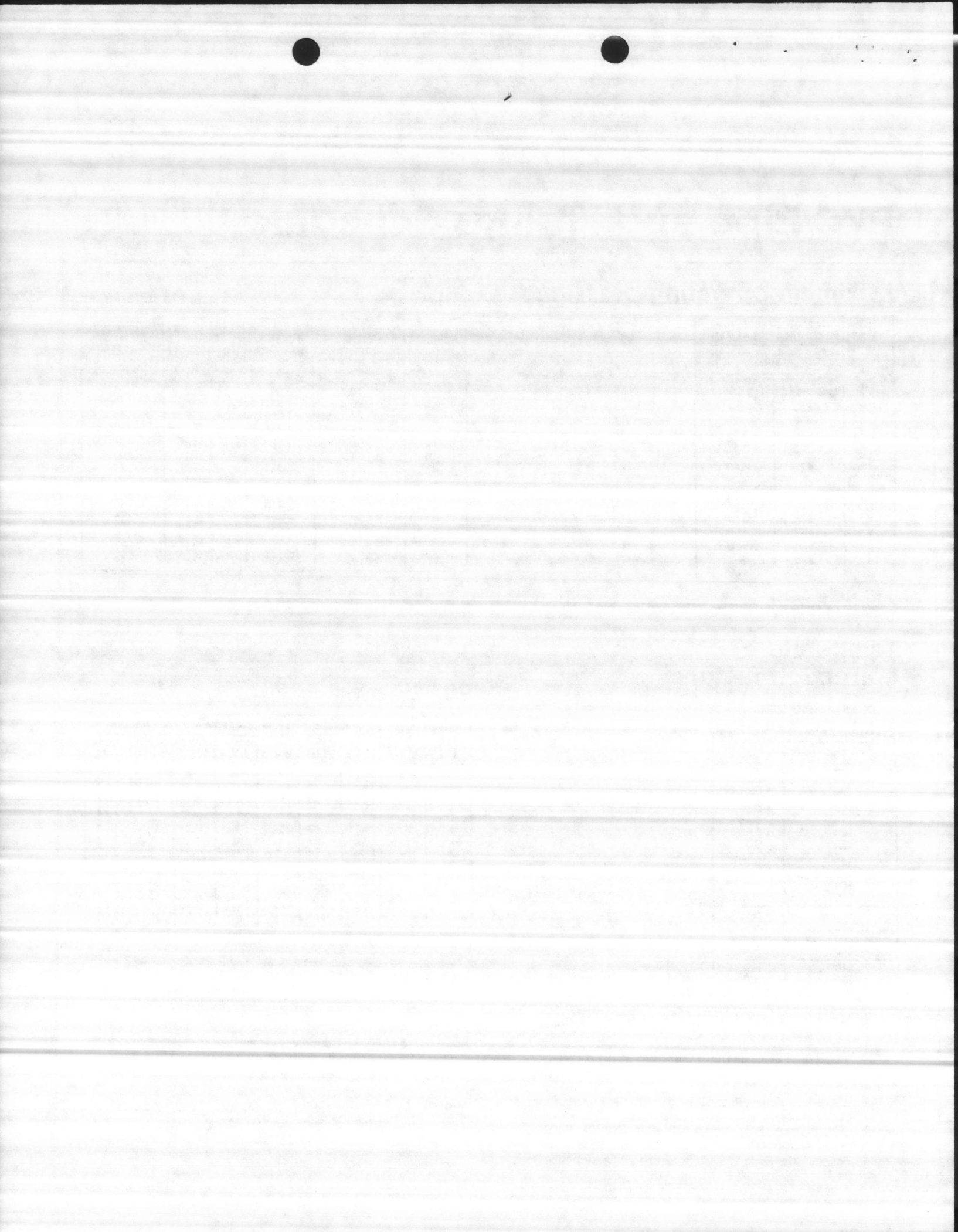
ASTM

- D-1784 Poly (Vinyl Chloride) (PVC) Compounds, Rigid.
- D-1785 Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedule 80.
- D-2464 Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
- D-2467 Socket-type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
- D-2564 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

Products covered in this catalog are not recommended for air or vacuum use unless

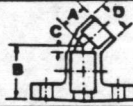
PRODUCT STANDARDS

- PS-21-70 Poly (Vinyl Chloride) (PVC) Plastic Pipe (Schedule 80). Supersedes CS207-60.
- NSF Standard 14 Thermoplastic Materials, Pipe, Fittings, Valves, Traps and Joining Materials (October 1965).
- ANSI B-2.1



5,761

45° Elbows

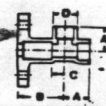


NOMINAL PIPE SIZE	MAX. O.D. DIM. D	THREADED ^{1,2}		SOCKET ²		FLANGED ³	
		DIM. A	WGT. LBS.	DIM. A	DIM. C	DIM. B	WGT. LBS.
1/4	1 1/16	1 1/16	.04	1 1/16	3/16	.04	—
1/2	1 1/8	1 1/8	.11	1 1/8	1/4	.09	—
3/4	1 1/4	1 1/4	.17	1 1/4	5/16	.14	—
1	1 1/2	1 1/2	.26	1 1/2	3/4	.22	2 13/16
1 1/4	2 1/8	1 11/16	.38	1 11/16	7/16	.32	3 3/16
1 1/2	2 1/4	1 7/8	.49	1 7/8	1/2	.42	3 3/8
2	2 3/8	2 1/8	.73	2 1/8	5/8	.63	3 7/8
2 1/2	3	2 1/2	1.03	2 1/2	1 1/16	.91	4 7/16
3	4	2 11/16	1.65	2 11/16	3/4	1.45	4 13/16
4	5 1/8	3 1/8	2.38	3 1/8	1 1/8	2.58	5 13/16
6	7 1/8	—	—	4 13/16	1 13/16	6.16	8 3/8
8	9 1/8	—	—	6 3/4	2 1/4	12.75	11 1/8

1. Threaded meets ASTM-D 2464 (PVC).
2. Socket meets ASTM-D 2467 (PVC).
3. Threaded connections should be back welded. Not recommended for pressure applications.
4. Center to face dimensions exceed ANSI dimensions. Fabricated from molded parts.

Tees

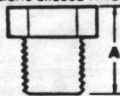
FLANGES (3 PLACES)



NOMINAL PIPE SIZE	MAX. O.D. DIM. D	THREADED ^{1,2}		SOCKET ²		FLANGED ³	
		DIM. A	WGT. LBS.	DIM. A	DIM. C	DIM. B	WGT. LBS.
1/4	1 1/16	1 1/16	.07	1 1/16	3/16	.06	—
1/2	1 1/8	1 1/8	.16	1 1/8	1/4	.14	2 7/16
3/4	1 1/4	1 1/4	.26	1 1/4	5/16	.24	2 15/16
1	1 1/2	1 1/2	.41	1 1/2	3/4	.36	3 1/16
1 1/4	2 1/8	2 1/16	.60	2 1/16	1 1/16	.52	3 11/16
1 1/2	2 1/4	2 1/8	.80	2 1/8	1 1/8	.68	4 1/16
2	2 3/8	2 1/4	1.18	2 1/4	1 1/4	1.03	4 7/16
2 1/2	3	2 3/8	1.47	2 3/8	1 1/2	1.56	5 1/16
3	4	3 1/8	2.16	3 1/8	1 3/4	2.59	5 3/4
4	5 1/8	4	3.52	4	2	4.44	7 1/4
6	7 1/8	—	—	6 1/16	3 3/16	10.04	9 3/8
8	9 1/8	—	—	9 1/16	4 3/16	20.95	13 3/8

1. Threaded meets ASTM-D 2464 (PVC).
2. Socket meets ASTM-D 2467 (PVC).
3. Threaded connections should be back welded. Not recommended for pressure applications.
4. Center to face dimensions exceed ANSI dimensions. Fabricated from molded parts.

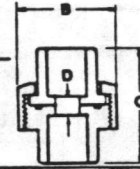
Plugs



NOMINAL PIPE SIZE	END TO END DIM. A	APPROX. WGT. (LBS.)
1/4	3/8	.01
1/2	1 1/4	.03
3/4	1 1/4	.05
1	1 1/8	.08
1 1/4	1 7/8	.11
1 1/2	1 7/8	.14
2	1 7/8	.18
2 1/2	1 3/4	.38
3	2 1/8	.67
4	2 1/2	1.30

1. Threaded meets ASTM-D-2464 (PVC).
- Products covered in this catalog are not recommended for air or compressed gas service.

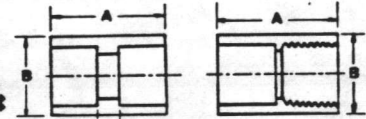
Unions



NOMINAL PIPE SIZE	DIMENSIONS			
	THREADED END TO END	SOCKET END TO END C	SOCKET D	SOCKET OR THREADED B
1/4	1 1/16	1 1/16	3/8	1 3/8
1/2	2 1/16	2 7/32	1/2	2 1/2
3/4	2 1/4	2 1/16	5/8	2 7/8
1	2 7/32	2 1/8	3/4	3 1/8
1 1/4	3 1/16	3 3/32	7/8	4 1/8
1 1/2	3 3/8	3 1/8	1	4 3/8
2	3 7/8	3 3/4	1 1/8	5 1/8
2 1/2	5 1/16	5 1/16	1 3/8	7
3	4 13/16	4 13/16	1 3/4	7 3/8

1. Unions are supplied with Viton O Rings. Socket X Thread is available on request in all sizes except 2 1/2". Threaded connections should be back welded and they are not recommended for pressure applications.
2. Fabricated from molded parts.

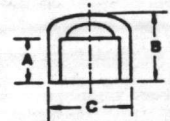
Couplings & Adapter Couplings



NOMINAL PIPE SIZE	MAX O.D. DIM. B	THREADED ¹		SOCKET ²		ADAPTER	
		DIM. A	WGT. LBS.	DIM. A	DIM. C	DIM. A	WGT. LBS.
1/4	1	1 1/4	.06	1 3/8	3/8	1 1/4	.06
1/2	1 1/8	2	.10	2	1/2	2	.09
3/4	1 1/4	2 1/4	.15	2 1/4	5/8	2 1/4	.13
1	1 1/2	2 1/2	.24	2 1/2	3/4	2 1/2	.19
1 1/4	2 1/4	2 3/4	.34	2 3/4	7/8	2 3/4	.31
1 1/2	2 3/8	3	.44	3	1	3	.38
2	3 1/8	3 1/4	.62	3 1/4	1 1/8	3 1/4	.56
2 1/2	3 3/8	3 3/4	.78	3 3/4	1 1/4	3 3/4	.74
3	4 1/8	4	1.30	4	1 1/2	4	1.17
4	5 1/8	4 3/4	2.23	4 3/4	1 3/4	4 3/4	2.02
6	7 1/8	—	—	6 1/16	2 1/4	—	—
8	9 1/8	—	—	9 1/4	3 1/4	—	—

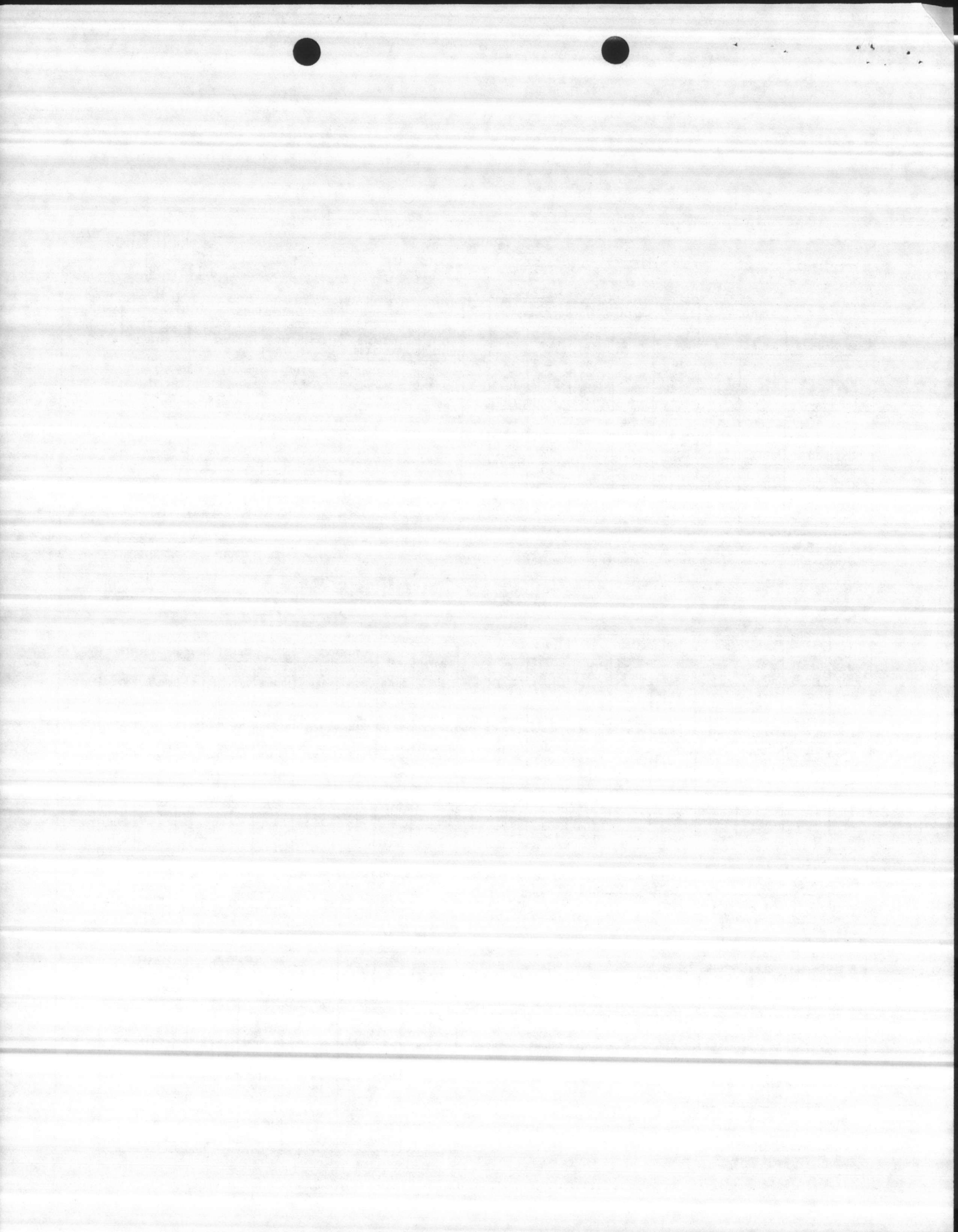
1. Threaded meets ASTM-D 2464 (PVC).
2. Socket meets ASTM-D2467 (PVC).

Caps

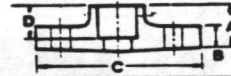


NOMINAL PIPE SIZE	MAX O.D. DIM. C	THREADED ¹			SOCKET ²	
		DIM. A	DIM. B	WGT. LBS.	DIM. B	WGT. LBS.
1/4	1	1 1/16	1	.02	1	.02
1/2	1 1/8	1 1/8	1 1/4	.08	1 1/4	.06
3/4	1 1/4	1 1/4	1 1/2	.09	1 1/2	.09
1	1 1/2	1 1/2	1 3/4	.16	1 3/4	.16
1 1/4	2 1/8	1 3/4	1 11/16	.22	1 11/16	.22
1 1/2	2 1/4	1 3/4	1 7/8	.29	1 7/8	.25
2	3	1 3/4	1 13/16	.43	1 13/16	.38
2 1/2	3 3/8	1 3/4	2 1/16	.61	2 1/16	.55
3	4	1 3/4	2 1/8	1.01	2 1/8	.97
4	5 1/8	2 1/4	2 3/8	1.78	2 3/8	1.53
6	7 1/8	3	—	—	5 3/16	3.64

1. Threaded meets ASTM-D 2464 (PVC).
2. Socket meets ASTM-D 2467 (PVC).



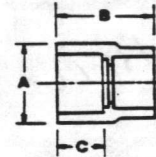
Flanges, 150 lbs. ANSI Threaded, Blind and Socket



NOMINAL PIPE SIZE	DIM. C	DIM. B	DIM. D	DIM. A			DRILLING			APPROXIMATE WEIGHT (LBS.)		
				TRD	BLIND	SOCKET	NO. OF HOLES	DIA. OF BOLT	DIA. OF CIRCLE	THREADED	BLIND	SOCKET
1/2	3 3/8	1/2	3/8	1/8	1/8	1 1/16	4	1/2	2 1/2	.20	.25	.20
3/4	3 3/4	3/4	1	1 1/16	1 1/16	1 1/16	4	1/2	2 1/2	.23	.31	.28
1	4 1/4	1	1 1/4	1 1/16	1 1/16	1 1/16	4	3/4	3 1/4	.40	.42	.40
1 1/4	4 3/4	1 1/16	1 1/4	1 1/16	1 1/16	1 1/2	4	1/2	3 1/2	.53	.56	.53
1 1/2	5	1 3/16	1 1/2	1 1/4	1 1/16	1 1/4	4	1/2	3 3/4	.68	.73	.68
2	6	1 1/2	1 1/2	1 1/2	1 1/16	1 1/4	4	3/4	4 1/4	1.00	1.10	1.00
2 1/2	7	1 3/4	1 3/4	1 1/2	1 1/16	1 1/4	2	1	5 1/2	1.64	1.78	1.64
3	7 1/2	1 7/8	1 3/4	1 1/2	1 1/16	1 1/2	4	1	6	2.24	2.51	2.24
4	9	1 7/8	2 1/4	1 1/2	1 1/16	1 1/2	2 1/2	1 1/2	7 1/2	3.22	3.55	3.22
6 ³	11	1 7/8	3	1 1/2	1 1/16	1 1/2	8	1 1/2	9 1/2	—	5.45	5.89
8 ³	13 1/2	1 7/8	4 1/2	—	—	4 13/16	8	1 1/2	11 1/4	—	10.85	10.55
10 ^{3,4}	16	1 7/8	5 1/2	—	—	5 1/2	12	1 1/2	14 1/4	—	—	10.63
12 ^{3,4}	19	1 7/8	7	—	—	7 1/16	12	1	17	—	—	13.50

1. The "D" dimension refers to depth on socket flanges only.
2. Threaded connections should be backwelded, and they are not recommended for pressure applications.
3. Not available in threaded.
4. Two piece "Van Stone" Design.

REDUCING COUPLINGS



NOMINAL PIPE SIZE	THREADED			SOCKET		
	MAXIMUM OVERALL A	END TO END B	APPROXIMATE WEIGHT (LBS.)	END TO END B	SOCKET DEPTH LARGE END C	APPROXIMATE WEIGHT (LBS.)
1/2 x 1/4	1 1/16	2 1/4	.20	2 1/4	1 1/4	.20
3/4 x 1/2	1 1/8	2 1/2	.09	2 1/2	1 1/4	.11
1 x 1/2	1 1/16	2 11/16	.13	2 11/16	1 1/4	.16
1 x 3/4	1 1/8	2 11/16	.13	2 11/16	1 1/4	.16
1 1/4 x 1/2	2 1/4	3 3/4	.19	3 3/4	1 1/4	.39
1 1/4 x 3/4	2 3/8	3	.28	3	1 1/4	.23
1 1/4 x 1	2 3/8	3	.29	3	1 1/4	.24
1 1/2 x 1/2	2 3/8	3 3/4	.22	—	—	—
1 1/2 x 3/4	2 3/8	3 3/8	.35	3 3/8	1 1/4	.25
1 1/2 x 1	2 3/8	3 3/8	.36	3 3/8	1 1/4	.25
2 x 1/2	3 1/8	3 3/4	.75	3 11/16	1 1/2	.70
2 x 3/4	3 1/8	3 3/4	.75	3 3/8	1 1/2	.71
2 x 1	3 1/8	3 3/4	.50	3 3/8	1 1/2	.37
2 x 1 1/4	3 1/8	3 3/4	.75	3 3/8	1 1/2	.38
2 x 1 1/2	3 1/8	3 3/4	.55	3 3/8	1 1/2	.40
2 1/2 x 1 1/2	3 3/8	5 1/4	.56	5 1/4	1 13/16	.64
2 1/2 x 2	3 3/8	4 1/4	1.00	4 1/4	1 13/16	1.02
3 x 2	4 1/8	4 11/16	1.24	4 11/16	1 13/16	.97
4 x 2	5 1/8	5 1/4	1.98	5 1/4	2 1/16	1.59
4 x 3	5 1/8	5 1/4	2.25	5 1/4	2 1/16	1.84

1. Fabricated from molded parts.
- Products covered in this catalog are not recommended for air or compressed gas service.

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED
APPROVED AS NOTED
DISAPPROVED

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. 82-2552

APPROVAL OF A SUBMITTAL FROM THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTS THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING PROPER PHYSICAL DIMENSIONS, COORDINATION OF TRADES, ETC., AS REQUIRED.

REVIEWER HFW DATE 30 Apr 85

FOR OFFICER IN CHARGE OF CONSTRUCTION

LIST OF MATERIAL

WEIDNER PUMP CORP.
CONTRACT NO. & DWG NO.

C-291-4

CUSTOMERS CONTRACT NO. ROBERTS FILTER MFG. CO, P.O. # 35482-2093
CAMP LEJUNE, N.C., SLUDGE COLLECTING MECH. - TANKS # 4 & 5

PREPARED BY TRK DATE 9/5/84 APPD. BY DATE LAST REV. (B) 1/3/85 DATE BY (B) RTK # 1, 2 & 3 ADDED DATA TO ITEMS

SHEET 1 OF 7 SHEET

ITEM	DESCRIPTION	VENDOR	PART NO.	QTY.	DESIGNATION
1.	DRIVE SPROCKET: MX5881 Chain Type, 11 Tooth X 9.26" P.D., CAST IRON Const., Shear Pin Type Hub, STYLE # 1 BRONZE BUSHED BORE WITH GREASE FITTING & GREASE GALLEY, 2-7/16" DIA. BORE W/ 5/8" X 5/16" KEYWAY, 5-7/16" THRU BORE, (SEE SPROCKET FOOTNOTE) WT. EA - 42# - TOTAL - 84#	BREWTON		2	(1) PER COLLECTOR PARA. 2.1.6, 2.3.3
	SHEAR PINS: 1/2" DIAMETER X 2" LONG WITH 3/8" CENTRAL NECK, (SEE SHEAR PIN FOOTNOTE)	BUDD		12	(1) PER COLLECTOR (11) SPARES
2.	DRIVE CHAIN TAKE-UP SPROCKET: 6 TOOTH - 5.22" P.D. 1-3/16" DIA. BORE, 2-1/4" THRU BORE, CAST IRON CONSTRUCTION (SEE SPROCKET FOOTNOTE) WT. EA - 8# - TOTAL - 16#	BREWTON		2	(1) PER COLLECTOR PARA. 2.1.6
2A.	CHAIN TIGHTENERS, DUCTILE IRON W/ C1018 SHAFT, 1 3/16" SHAFT DIA & SET COLLARS, WT. EA - 11# TOTAL - 22#	BREWTON	W-2926-3	2	PARA. 2.1.6
3.	DRIVE SPROCKET: For MX5881 Chain, 40 Tooth - 33.25" P.D., 2-15/16" BORE, W/ STD KEYWAY 3/4" X 3/8" and set screws. CAST IRON Const., Split Const. 4" THRU BORE (SEE SPROCKET FOOTNOTE) WT. EA. 135# TOTAL WT - 270#	BREWTON		2	(1) PER COLLECTOR PARA. 2.3.3
4.	DRIVE CHAIN: MX5881 Chain, 2.609" PITCH, OFFSET. STEEL CHAIN, 20,000 LBS ULTIMATE TENSILE STRENGTH. WT. PER FT - 4.2# TOTAL WT - 168#	MOLINE	MX5881	40	(20') PER COLLECTOR PARA. 2.1.6
(B)	SPROCKET FOOTNOTE: BREWTON CAST IRON SPROCKETS CONFORM TO ASTM A-48, CLASS 35. GRINNEL HARDNESS OF 360 MINIMUM & 3/16" MIN. DEPTH CHILL TENSILE STRENGTH OF 40,000 PSI MINIMUM				
(B)	SHEAR PIN FOOTNOTE: BUDD CAST NYLON SHEAR PINS FOR USE WITH NON-METALLIC CHAIN & THIRTEEN (13) 3" X 6" X 15-4" FIBERGLASS FLIGHTS HAVING 3000 LB WORKING LOAD.				

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 311

PROBLEM SET 1

Due: Monday, September 10, 2012

1. (10 points)

2. (10 points)

3. (10 points)

4. (10 points)

5. (10 points)

6. (10 points)

LIST OF MATERIAL

WEIDNER PUMP CORP.

CONTRACT NO. & DWG NO.

C-291-4

SHEET 2 OF 7 SHEET

CUSTOMERS CONTRACT NO. ROBERTS FILTER MFG. CO, P.O.# 35482-2093
 CAMP LEJUNE, NC., SLUDGE COLLECTING MECH. - TANKS #4 & 5

PREPARED BY DATE APPD. BY DATE LAST REV. DATE BY
 TRK 9/58

ITEM	DESCRIPTION	VENDOR	PART NO.	QTY.	DESIGNATION
*5.	HEAD SHAFT SPROCKETS: For NCS-720S Chain, 19 Tooth - 18.45" P.D., 2-15/16" Bore, W/STD Keyway 3/4" X 3/8" and set screws, CAST IRON Const., Split Const. Chainsaver Rim. <i>NON-METALLIC</i>	BREWTON	NMC TYPE	4	(2) PER COLLECTOR PARA. 2.3.1 & 2.3.2
	WT. EA- 66# TOTAL WT- 264#				
*6.	UPPER REAR SHAFT SPROCKETS: For NCS-720S Chain, 13 Tooth - 12.89" P.D., 2-7/16" Bore, W/Set SCREWS, CAST IRON Const., Split Const., Chainsaver Rim (Fixed). <i>NON-METALLIC</i>	BREWTON	NMC TYPE	2	(1) PER COLLECTOR PARA. 2.3.1 & 2.3.2
	WT. EA- 38# TOTAL WT- 76#				
*7.	UPPER REAR SHAFT SPROCKETS: For NCS-720S Chain, Same as Item #6 above except No Set Screws. (Run Free).	BREWTON	NMC TYPE	2	(1) PER COLLECTOR PARA. 2.3.1 & 2.3.2
	WT. EA- 38# TOTAL WT- 76#				
*8.	LOWER SHAFTS SPROCKETS: For NCS-720S Chain, Same as Item #6 Above) (Fixed).	BREWTON	NMC TYPE	4	(2) PER COLLECTOR PARA. 2.3.1 & 2.3.2
	WT. EA- 38# TOTAL WT- 152#				

THE UNIVERSITY OF CHICAGO
LIBRARY

LIST OF MATERIAL

WEIDNER PUMP CORP.
CONTRACT NO. & DWG NO.

C-291-4

SHEET 3 OF 7 SHEET

CUSTOMERS CONTRACT NO. ROBERTS FILTER MFG. CO, P.O. # 35482-2093
CAMP LEJUNE N.C., SLUDGE COLLECTING MECH. - TANKS # 4 & 5

PREPARED BY TRK DATE 9/5/84 APPD. BY DATE LAST REV. B DATE 1/2/84 BY RTK ^B - ADDED DATA TO ITEMS #10, 11, 12 & 13

ITEM	DESCRIPTION	VENDOR	PART NO.	QTY.	DESIGNATION
* 9.	LOWER SHAFT SPROCKETS: For NCS-720 S Chain, (Same as Item #7 above). (Run Free).	BREWTON		4	(2) PER COLLECTOR PARA 2.3.1 & 2.3.2
	WT. EA. - 38# TOTAL WT - 152#				
10.	FLIGHTS, FIBERGLASS: 3" X 6" X 15'-4" Long, complete W/drilled thru holes and milled scraper lid for flight attachment and wear shoes.	BUDD	10993	26	(13) PER COLLECTOR PARA. 2.2.2
	WT. EA. 11# TOTAL WT - 286#				
11.	HEADSHAFTS: 2-15/16" Dia. X 16'-1" LONG, 1018 COLD FINISHED ROUND BAR EACH WITH THREE (3) KEYWAYS (3/4" X 3/8") X 8" LONG (DWG # C-291-11) 1018 CONFORMS TO ASTM A-108. KEYWAYS SHALL BE FITTED WITH KEYS CONFORMING TO ANSI B17.1 OR B17.2 MAX SHAFT DEFLECTION - 3/64" PER FOOT (WT EA-369# TOTAL-738#)	WEIDNER	C-291-11	2	(1) PER COLLECTOR PARA. 2.3.4.
12.	TAKE-UP SHAFTS: 2-7/16" Dia. (UPPER REAR SHAFT) X 15'-8" LONG, 1018 C.F. BAR CONFORMING TO ASTM A-108. MAX SHAFT DEFLECTION - 3/64" PER FOOT	WEIDNER	C-291-11	2	(1) PER COLLECTOR PARA. 2.3.4
13.	WT. EA - 251 LBS - TOTAL - 502 LBS. IDLER SHAFTS: 2-7/16" Dia. (LOWER SHAFTS) X 15'-8" LONG, 1018 C.F. BAR CONFORMING TO ASTM A-108. MAX SHAFT DEFLECTION - 3/64" PER FOOT	WEIDNER	C-291-11	4	(2) PER COLLECTOR PARA. 2.3.4
	WT EA. - 251 LBS TOTAL - 1004 LBS				

THE UNIVERSITY OF CHICAGO

LIBRARY

PHYSICS DEPARTMENT

THE UNIVERSITY OF CHICAGO
LIBRARY

LIST OF MATERIAL

WEIDNER PUMP CORP.
CONTRACT NO. & DWG NO.

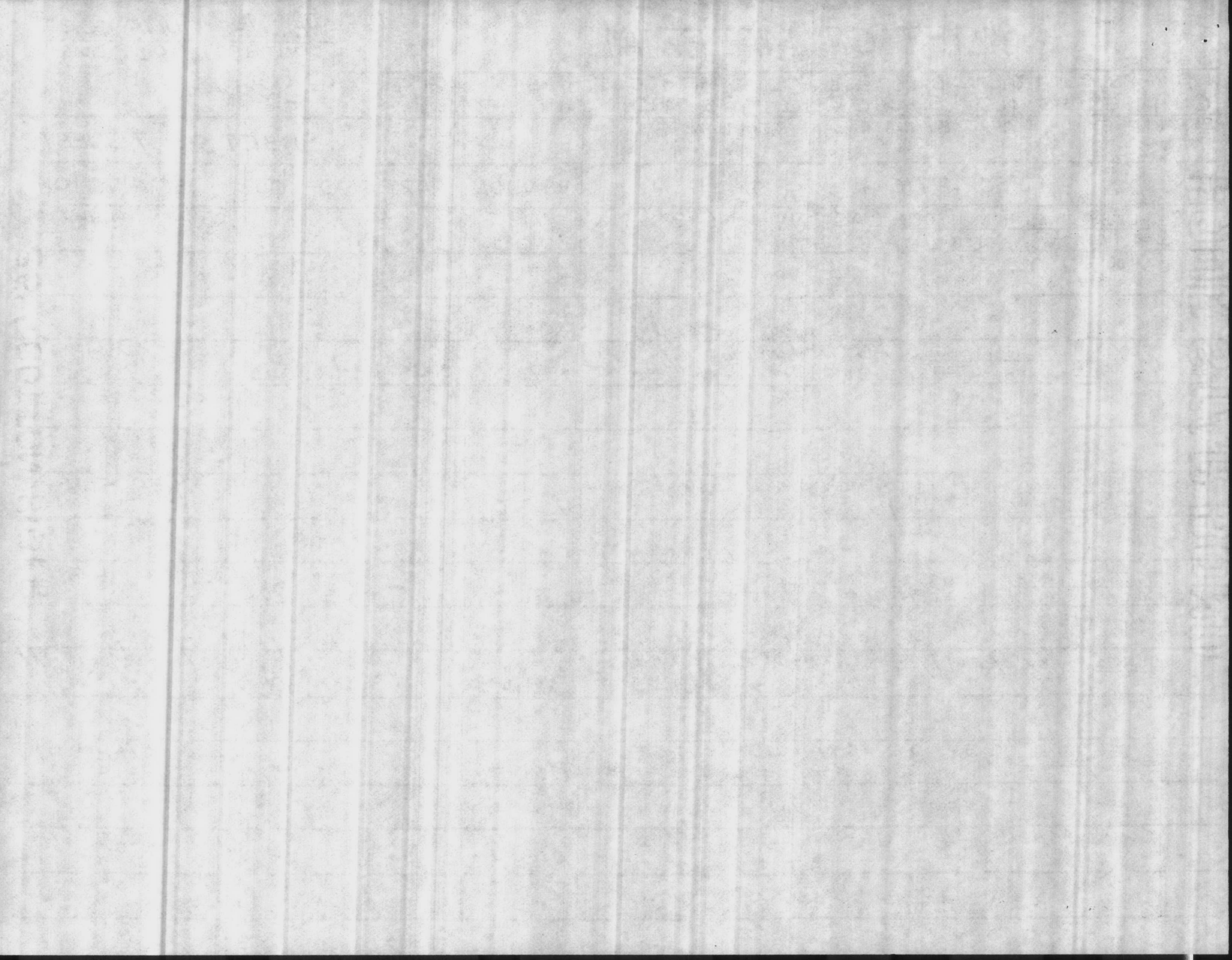
CUSTOMERS CONTRACT NO. ROBERTS FILTER MFG. CO., PO#35482-2093
CAMP LEJUNE, N.C., SLUDGE COLLECTING MECH. - TANKS #4&5

C-291-4

PREPARED BY DATE APPD. BY DATE LAST REV. DATE BY
TRK 9/5/84

SHEET 5 OF 7 SHEET

ITEM	DESCRIPTION	VENDOR	PART NO.	QTY.	DESIGNATION
19.	RETURN RAIL WEAR SHOES: CAST NYLON-6, 3" X 3" X 4" LONG, REVERSIBLE WITH 3/8" BOLT HOLES. 1/2" THICK	BUDD	CN-1190	52	(2) PER FLIGHT PARA 2.2.3
	TOTAL WT - 10#				
19A.	FLOOR RAIL WEAR SHOE: CAST NYLON-6, 3" X 3" X 5 1/2" LONG, REVERSIBLE WITH 3/8" BOLT HOLES. 1/2" THICK	BUDD	CN-1189	52	(2) PER FLIGHT PARA 2.2.3
	TOTAL WT - 10#				
20A.	FLIGHT BOLTS: For Return Wear Shoes, 316 STAINLESS STEEL, 3/8"-16 X 1 1/4" LG	BUDD	-	52	(2) PER FLIGHT
	EST. TOTAL WT - 10#				
20B.	FLIGHT BOLTS: For Flight Attachments & Floor Rail Wear Shoes, 316 STAINLESS STEEL, 3/8"-16 X 4" LG.	BUDD	-	208	(8) PER FLIGHT.
	EST. TOTAL WT - 55#				
20C.	NUTS: Hex, 3/8"-16, 316 STAINLESS STEEL	BUDD	-	260	(10) PER FLIGHT
	EST. TOTAL WT - 10#				
20D.	FLAT WASHERS, 3/8", 316 STAINLESS STEEL	BUDD	-	520	(20) PER FLIGHT
	EST. TOTAL WT - 5#				
20E	LOCKWASHERS, 3/8", 316 STAINLESS STEEL	BUDD	-	260	(10) PER FLIGHT
	EST. TOTAL WT - 5#				



LIST OF MATERIAL

WEIDNER PUMP CORP.
CONTRACT NO. & DWG NO.

CUSTOMERS CONTRACT NO. ROBERTS FILTER MFG. CO, P.O. #35482-2093
CAMP LEJEUNE, N.C., SLUDGE COLLECTING MECH. - TANKS #4&5

C-291-4

PREPARED BY TRK DATE 9/3/84 APPD. BY DATE LAST REV. B DATE 1/21/85 BY RTK CORRECTED ITEM #27

SHEET 6 OF 7 SHEET

ITEM	DESCRIPTION	VENDOR	PART NO.	QTY.	DESIGNATION
21	DRIVE ASSY: ASSEMBLED BY WEIDNER PUMP CORP. (ASSY REF. NO. ONLY)	WEIDNER	C-291-21	1	(1) FOR TANK # 4&5
26.	MOTOR: T.E.F.C., FOR OUTDOOR SERVICE, NEMA MG-1, 208/3 PHASE, 60 HERTZ, OVERLOAD PROTECTION, 3/4 HORSEPOWER, 1725 RPM, FRAME-56C WT. - 26 LBS	BALDOUR	CM3542	1	PARA 2.1.2, 2.1.3, 2.1.4, 2.1.5
27	SPEED REDUCER: WORM GEAR IAW ASTM A536; AGMA 440.04, AGMA 460.05 CASE SHALL HAVE OIL FILL PORT, OIL DRAIN LINE & OIL LEVEL INDICATOR, DOUBLE REDUCTION. INPUT RPM: -1750, RATIO: -1600-1, OUTPUT RPM -1.2, OUTPUT TORQUE: 7592 INCH POUNDS (SERVICE FACTOR OF 2.5 AVAILABLE) AGMA SERVICE CLASSIFICATION II BEARINGS INCORPORATED IN DRIVE ASSY ARE RATED FOR MINIMUM LIFE EXPECTANCY OF L-10 SWALLOW SHAFT NEMA C ADAPTER BASE. WT - 123#	ELECTRA	217P3C-400A	1	REV A - CORRECTED INPUT & OUTPUT RPM REV B - ADDED DATA.
28	COUPLING: FLEXIBLE, ONE HALF - 1.750" W/ 3/8" X 3/16" K.W. - OTHER HALF - 2-7/16" W/ 5/8" X 5/16" K.W. WT - 15#	FALIK	70T10	1	
29.	BASEPLATE: 11" X 11" X 1/4" THICK, HOT ROLLED PLATE W/ FOUR 13/16" THRU HOLES - DWG # C-291-21 WT - 51#	WEIDNER	C-291-29	1	
30.	CHAIN GUARDS: 10" WIDE X 34" LG, 1/16" THK HOT DIP GALVANIZED, 7/16" MOUNTING HOLES (DWG # C-291-21)	WEIDNER	C-291-30	2	

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

LIST OF MATERIAL

WEIDNER PUMP CORP.
CONTRACT NO. & DWG NO.

CUSTOMERS CONTRACT NO. ROBERTS FILTER MFG. CO, P.O. #35482-2093
CAMP LEJUNE, N.C., SLUDGE COLLECTING MECH. - TANKS #4 & 5

C-291-4

PREPARED BY DATE APPD. BY DATE LAST REV. DATE BY
TRK 9/5/84 A 11/17/84 RTK

SHEET 7 OF 7 SHEET

ITEM	DESCRIPTION	VENDOR	PART NO.	QTY.	DESIGNATION
21	<u>DRIVE ASSY. (CON'T)</u>				
31	<u>JACK SHAFT; 2-7/16" DIA. - 1018 COLD FINISHED BAR WITH THREE (3) KEYSLOTS - 5/8" X 5/16" X 50-1/2" LONG (SEE DWG # C-291-11) 15.87#/FT WT 64#</u>	WEIDNER	C-291-31	1	A-ADDED DWG NO.
32.	<u>JACKSHAFT BEARINGS: BABBITTED PILLOW BLOCK 2-7/16" BORE, SPLIT, CAST IRON CONST. WT. EA-10# TOTAL-20#</u>	ROYERSFORD		2	
32A	<u>JACKSHAFT SET COLLARS: 2-7/16" DIA. SOLID W/ SET SCREW, CAST IRON CONST.</u>	BREWTON		2	
22.	<u>RETURN RAILS: 3" X 3" X 3/8" THICK X 51'-10" LONG EACH, ONE (1) RIGHT HAND & ONE (1) LEFT HAND RAIL ASSY PER TANK</u> EST. WT. = 370#	WEIDNER	C-291-22	2	(1) SET PER TANK PARA 2.2.5
23	<u>RETURN RAIL SUPPORTS: WELDED STEEL CONSTRUCTION, ASTM A36, 5/8" BOLT MOUNTING HOLES. (12) RIGHT HAND & (12) LEFT HAND</u> EST. WT. EA-4# TOTAL 96#	WEIDNER	C-291-22	24	PARA 2.2.5
24	<u>FLOOR RAIL WEAR STRIPS: 2" X 3/8" FLAT BAR X 57'-6" LONG EACH, ASTM A36 STEEL; EACH BAR SHIPPED IN 10'-0" LENGTHS, INSTALL. PER DRAWING # C-291-24 WT. - 592 LBS</u>	WEIDNER	C-291-24	4	(2) PER COLLECTOR PARA 2.2.4 AMEND # 1
25.	<u>TAKE-UP BRACKET & BEARING ASSY: BABBITTED BEARING, 12" ADJUSTMENT, STEEL FRAME, 1/4" MOUNTING HOLES.</u> WTEA-85# - TOTAL WT-352#	BREWTON		4	PARA 2.4.2
EST. TOTAL WEIGHT ALL MATERIAL - 6,733#					

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

PHYSICAL CHEMISTRY

R. Hunt

80/100

CONTRACTOR'S SUBMITTAL TRANSMITTAL
LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

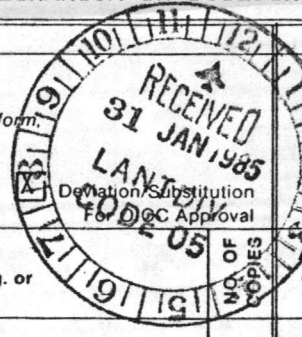
CONTRACT NO N62470-82-C-2552	TRANSMITTAL NO 10-A pg. 1	DATE 1/25/85
PROJECT TITLE AND LOCATION REPLACE SLUDGE COLLECTING MECHANISM IN BUILDING 22		

FROM CONTRACTOR
ROBERTS FILTER MANUFACTURING COMPANY

TO
NAVAL FACILITIES ENGINEERING COMMAND

CONTRACTOR USE ONLY *List only one specification division per form. List only one of the following categories on each transmittal form, and indicate which is being submitted	REVIEWER USE ONLY **ACTION CODES A-Approved D-Disapproved AN-Approved as noted RA-Receipt acknowledged C-Comments R-Resubmit
--	---

Contractor Approved OICC Approval



ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)		ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	Section 15397	SLUDGE COLLECTING MECHANISM			
1	C-291-1	General Arrangement	7	A	CCS 405 2-7-85
2	C-291-2	Shaft Details	7	A	↓
3	C-291-3	Flight Details	7	A	
4	C-291-4	Equipment Data Sheets	7	R	
5	C-291-4	List of Material	7	R	

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC LT. M.I. KIMBALL		CONTRACTOR REPRESENTATIVE (Signature) <i>J. C. Thompson</i>	
DATE RECEIVED BY REVIEWER 1/31/85	FROM (Reviewer) LANTDIV	TO ROBERTS / ROICC	

Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

Approved as noted - see attached comments.

COPIES TO ROICC (2) LANTDIV (1) A-E (1)	DATE 2/11/85	SIGNATURE <i>J. J. Hester</i>
--	------------------------	----------------------------------

FEB 19 10 38 PM '85

RECEIVED
ROTEC JAXNCA

FEB 19 10 38 PM '85

RECEIVED
ROICC JAXNCA

CONTRACTOR'S SUBMITTAL TRANSMITTAL
 LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO N62470-82-C-2552	TRANSMITTAL NO 10-A pg. 3	DATE 1/25/85
--	-------------------------------------	------------------------

FROM CONTRACTOR
ROBERTS FILTER MANUFACTURING CO.
 TO
NAVAL FACILITIES ENGINEERING COMMAND

PROJECT TITLE AND LOCATION
REPLACE SLUDGE COLLECTING MECHANISM IN BUILDING 22

CONTRACTOR USE ONLY *List only one specification division per form. List only one of the following categories on each transmittal form, and indicate which is being submitted <input type="checkbox"/> Contractor Approved <input type="checkbox"/> OICC Approval <input checked="" type="checkbox"/> Deviation/Substitution For OICC Approval	REVIEWER USE ONLY **ACTION CODES A-Approved D-Disapproved AN-Approved as noted RA-Receipt acknowledged. C-Comments R-Resubmit
--	---

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
12		Painting Specifications	7	A	CCS 405 2-7-85
13		I.O & M Manual	7	A	| ↓
14		Budd Company Installations	7	RA	
15		Weidner Pump Installations	7	RA	
16		List of Deviations (3 letters)	7	R	
17		RFMCo Compliance	7	RA	

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC Lt. M. I. Kimball	CONTRACTOR REPRESENTATIVE (Signature) <i>J. C. Thompson</i>
---	--

DATE RECEIVED BY REVIEWER 1/31/85	FROM (Reviewer) LANTDIV	TO ROICC / ROBERTS
---	-----------------------------------	------------------------------

Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO ROICC (2) LANTDIV (1) A-E (1)	DATE 2/11/85	SIGNATURE <i>J. J. Hart</i>
--	------------------------	--------------------------------

FEB 19 10 38 PM '85

RECEIVED
ROICC JAXNCA



POLYCHEM DIVISION • FRANKLIN AVENUE & GRANT STREET • PHOENIXVILLE, PENNSYLVANIA 19460 0527 • (215) 935-0225

January 22, 1985

Mr. Richard T. Kovacs
General Manager
WEIDNER PUMP CORPORATION
3 Griswold St.
Bethel, CT 06801

RE: Camp LeJeune, N.C.
G.C. - Roberts Filter Mfg. Co.
Darby, PA
Supplier: Weidner Pump Corp.

Dear Dick:

Per your letter of January 3, 1985, enclosed please find data as requested and pertaining to Drawing C-291-4 and the Certificate of Compliance. Supportive information is attached and noted as ATTACHMENTS: "A", "B", & "C" for Items #18A, #19, #19A and Item #10.

If we could be of further assistance, please do not hesitate to contact me.

Sincerely yours,
THE BUDD COMPANY
POLYCHEM DIVISION

Carl D. Brown
Manager, Engineering
and Product Development

CDB/jr

Attachment

THE UNIVERSITY OF CHICAGO
LIBRARY
500 EAST HALEY STREET
CHICAGO, ILLINOIS 60607
TEL: 773-936-3000

January 18, 1985

Weidner Pump Corporation
3 Griswold Street
Bethel, Ct. 06801

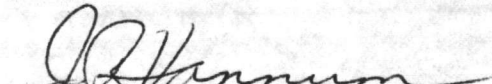
SUBJECT: CERTIFICATE OF COMPLIANCE

It is hereby certified that Item No. 10 of Drawing C-291-4 Flights, Fiberglass has been designed for sludge collection service and have been manufactured and tested accordingly for the following properties:

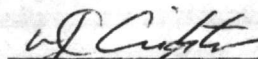
- 1) Glass Content, ASTM 258;
- 2) Tensile Strength, PSI, ASTM D 638-76
- 3) Tensile Modulus $\times 10^6$, Longitudinal, PSI, ASTM D 638-76;
- 4) Shear Strength "Punch", ASTM D 732-78.

RESULTS ARE AS FOLLOWS:

<u>TEST</u>	<u>ACTUAL TEST VALUD</u>
Glass Content	49%
Tensile Strength, Longitudinal	39,965
Tensile Strength, Transverse	11,494
Tensile Modulus, Longitudinal	3.124×10^6
Shear Strength	15,506


Joseph R. Hannum, General Manager

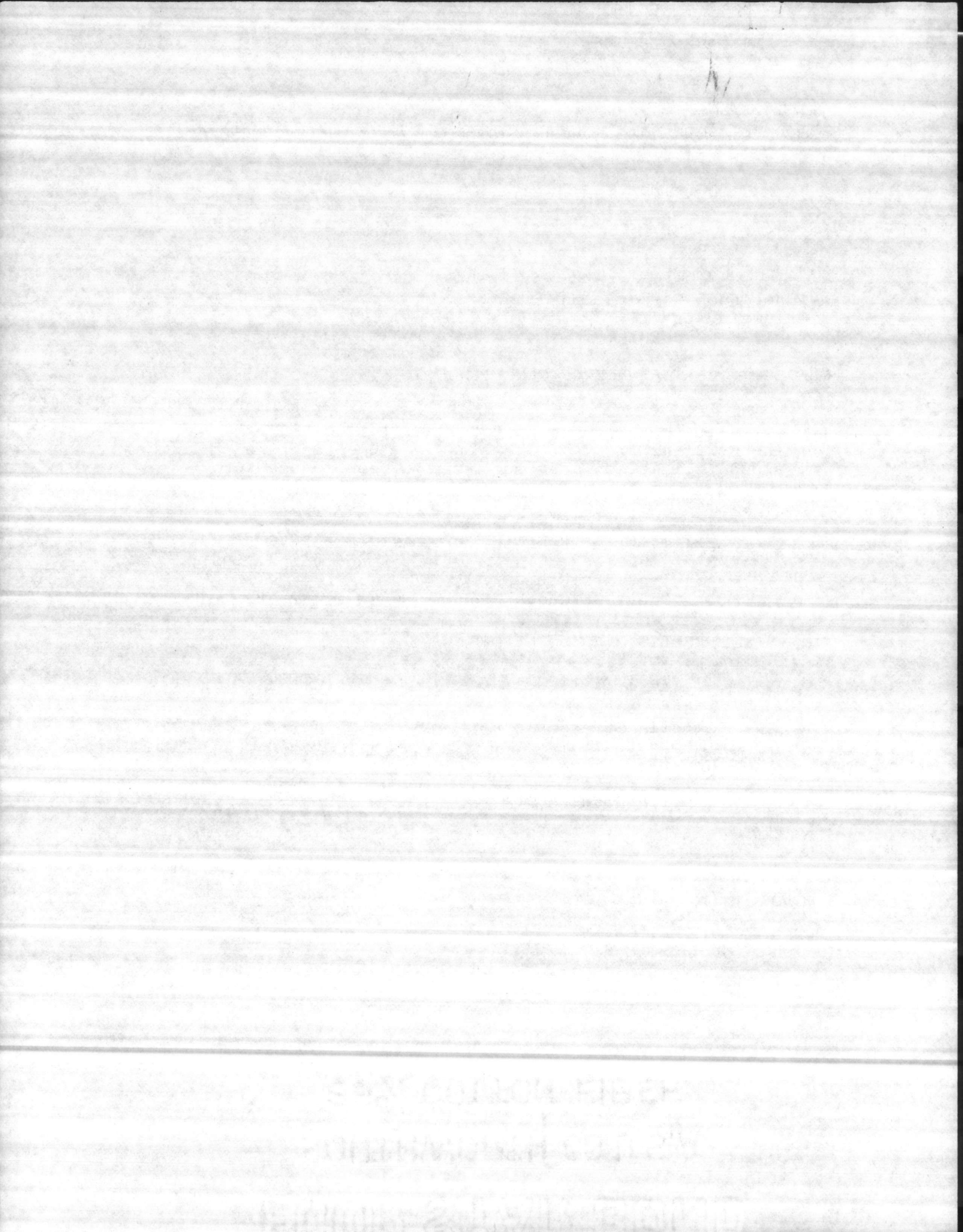
1/21/85
Date

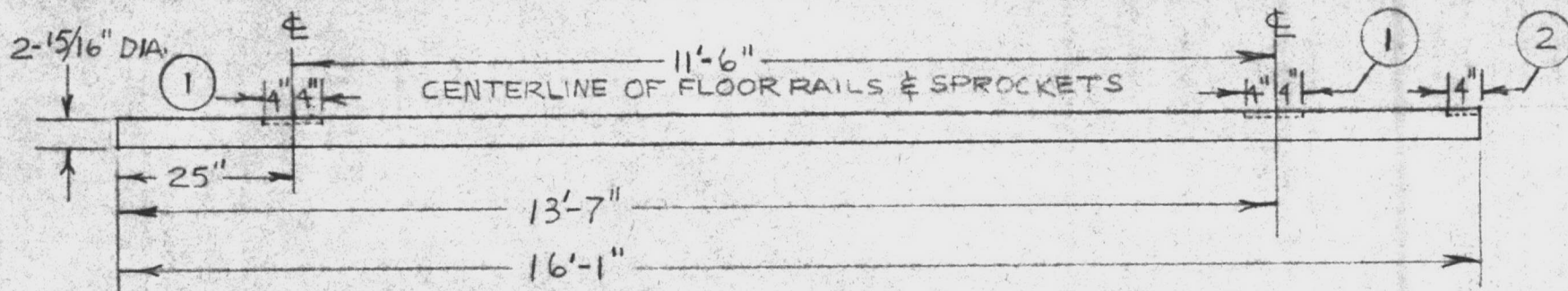

W. J. Crighton, Controller

Sworn and subscribed before me
this 21st day of January, 1985

WILLIAM J. CRIGHTON, Controller
PHOENIXVILLE, PENNSYLVANIA
BY COMMISSIONER OF REVENUE, JAN. 19, 1985
Member, Pennsylvania Association of Notaries



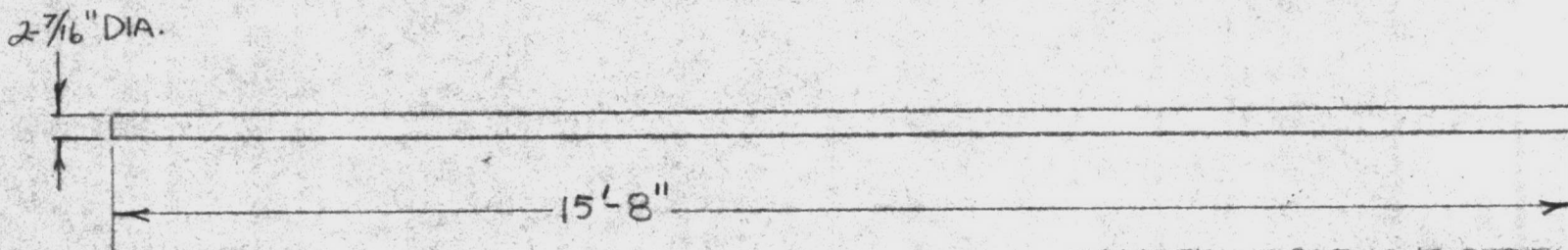




1. 3/4" X 3/8" DEEP KEYWAY X 8" LONG - TWO PLACES
2. 3/4" X 3/8" DEEP KEYWAY X 4" LONG

MAT'L - 1018 C.F. STEEL 2-15/16" Ø BAR
WT. EA - 369#

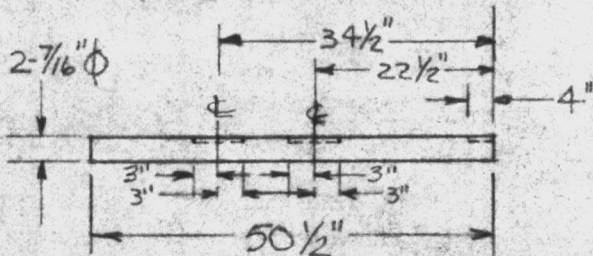
HEAD SHAFT - 2 PCS REQ'D (SEE LIST OF MAT'L #C-291-4 IT.# 11)



MAT'L - 1018 C.F. STEEL 2-7/16" Ø BAR
WT. EA - 251#

TAKE-UP SHAFT & IDLER SHAFTS - 6 PCS REQ'D
(SEE LIST OF MAT'L #C-291-4-IT.# 12 & 13)

- (2) KEYWAYS - 5/8" X 5/16" DEEP X 6" LONG
(1) KEYWAY - 5/8" X 5/16" DEEP X 4" LONG



MAT'L - 1018 C.F. STEEL 2-7/16" Ø BAR
WT. - 64#

JACKSHAFT - 1 PC REQ'D
(SEE LIST OF MAT'L #C-291-4 IT.# 31)

REV. A
11/19/84

ADDED JACKSHAFT DETAILS

WEIDNER PUMP CORP
BETHEL, CT.

CUST.: ROBERTS FILTER MFG CO
P.O. # 35482-2093

SCALE
1/2" = 1'-0"

DRAWN BY
TRK
REVISED "A"
11/19/84

FOR: CAMP LEJEUNE, N.C. - SLUDGE COLLECTING
MECHANISMS - TANK #4 & #5

DATE
9/18/84

APPROVED BY
R. Keracs

DRAWING NUMBER
C-291-11

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED _____
APPROVED AS NOTED _____
DISAPPROVED _____

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. 05-82-2552

APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION--THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS & WEIGHTS, COORDINA-
TION OF TRADES, ETC., AS REQUIRED

REVIEWER CCS DATE 7 FEB 1985

FOR OFFICER IN CHARGE OF CONSTRUCTION

SEE DWG # C-291-21
FOR DETAILS OF
DRIVE UNIT

DRIVE CHAIN
DRIVE CHAIN TAKE-UP

SEE DWG # WPC-291-2
FOR DETAILS OF SHAFT ASSEMBLIES.
& C-291-11 FOR SHAFT LENGTHS.

SEE DWG # C-291-22
RETURN RAILS

MAIN CHAIN
TAKE-UP SHAFT

HEAD
SHAFT

RETURN
TRACK

IDLER
SHAFT


IDLER
SHAFT

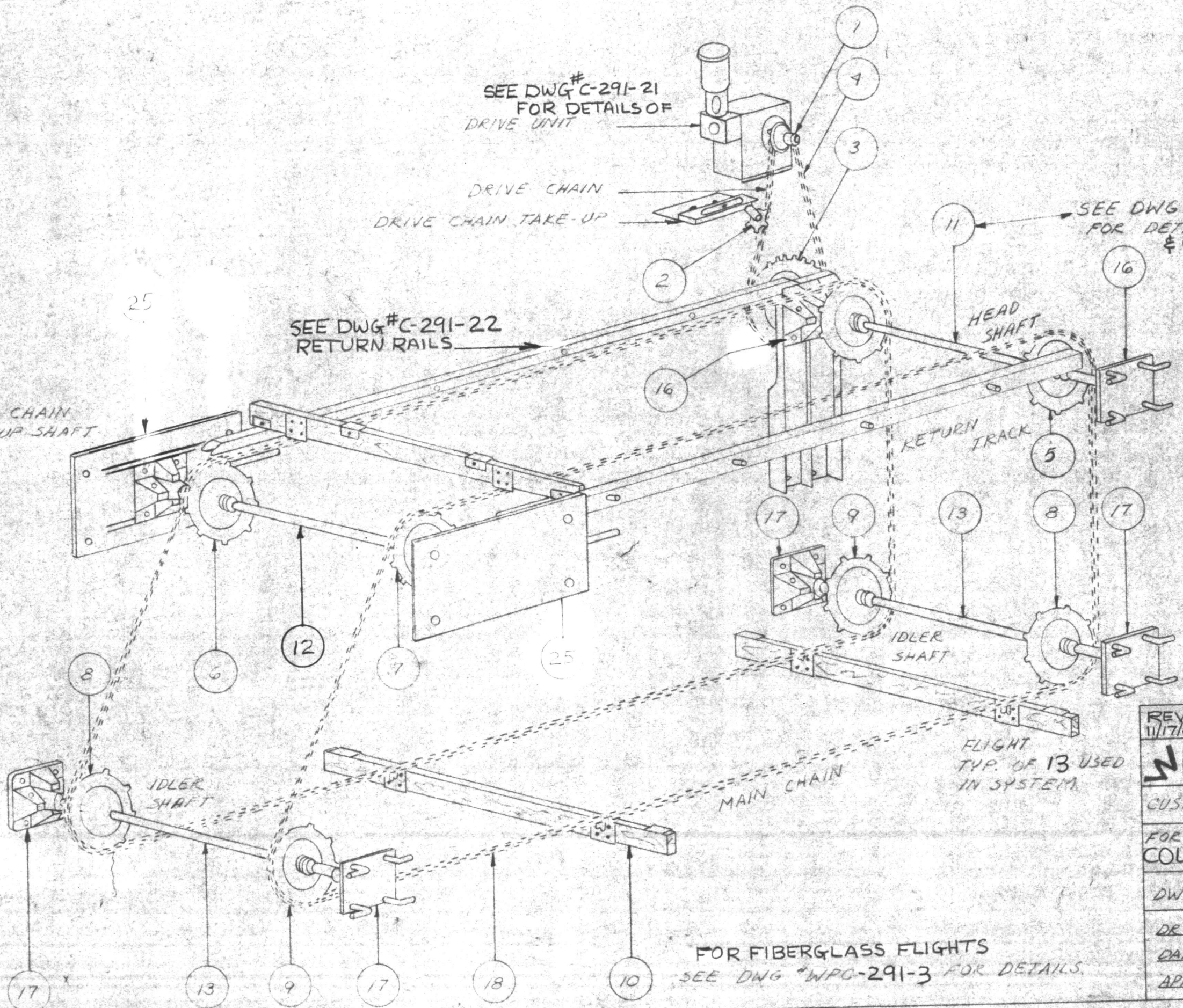
MAIN CHAIN

FLIGHT
TYP. OF 13 USED
IN SYSTEM.

NOTE
ALL NUMBERED ITEMS
REFERENCED ON BILL
OF MATERIAL -
DWG # WPC-291-4

FOR FIBERGLASS FLIGHTS
SEE DWG # WPC-291-3 FOR DETAILS.

REV "A" 11/17/84	CORRECTED ITEM NO.'S
 WEIDNER PUMP CORP BETHEL, CONN.	
CUSTOMER: ROBERTS FILTER MFG CO. P.O. # 35482-2093	
FOR: CAMP LEJEUNE, N.C. - SLUDGE COLLECTING MECHANISMS - TANKS 4 & 5	
DWG TITLE: GENERAL ARRANGEMENT	
DR BY: T.B.D. DATE: 9-19-84 APP'D BY: RTK	DWG # C-291-1 REV # A



ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

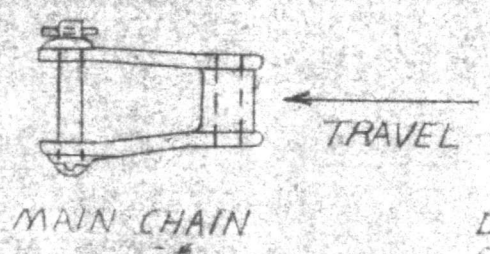
APPROVED
APPROVED AS NOTED _____
DISAPPROVED _____

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. **05-82-2552**

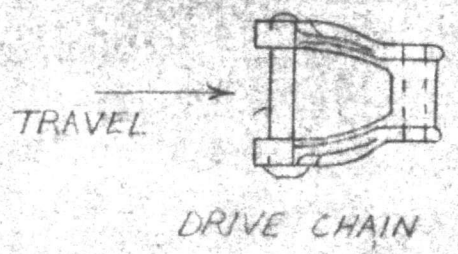
APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION--THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS & WEIGHTS, COORDINA-
TION OF TRADES, ETC., AS REQUIRED

REVIEWER **CCS** DATE **7 FEB 1985**

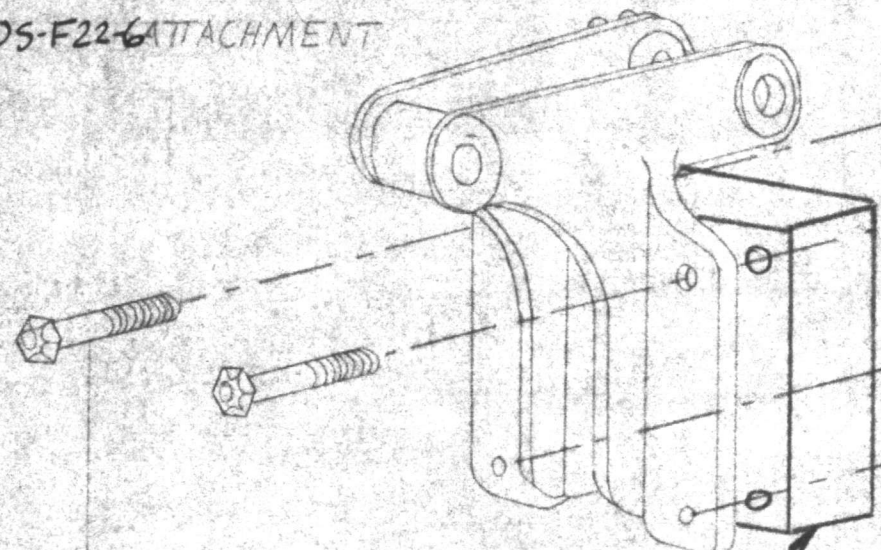
FOR OFFICER IN CHARGE OF CONSTRUCTION



DETAIL A
CHAIN TRAVEL



NCS-7205-F22-6 ATTACHMENT



18A

20A

20D

19

20C

10

DIRECTION OF TRAVEL

DETAIL B: FLIGHT DETAILS

WPC WEIDNER PUMP CORP. BETHEL, CONN.	
CUSTOMER: ROBERTS FILTER MFG CO P.O. #35482-2093	
FOR: CAMP LEJEUNE, N.C., SLUDGE COLLECTING MECHANISMS-TANKS #4&5	
DWG. TITLE: FLIGHT DETAILS	
DR. BY: T.B.D.	DWG # C-291-3
DATE: 9/18/84	REV #
APP'D BY: RTK	

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

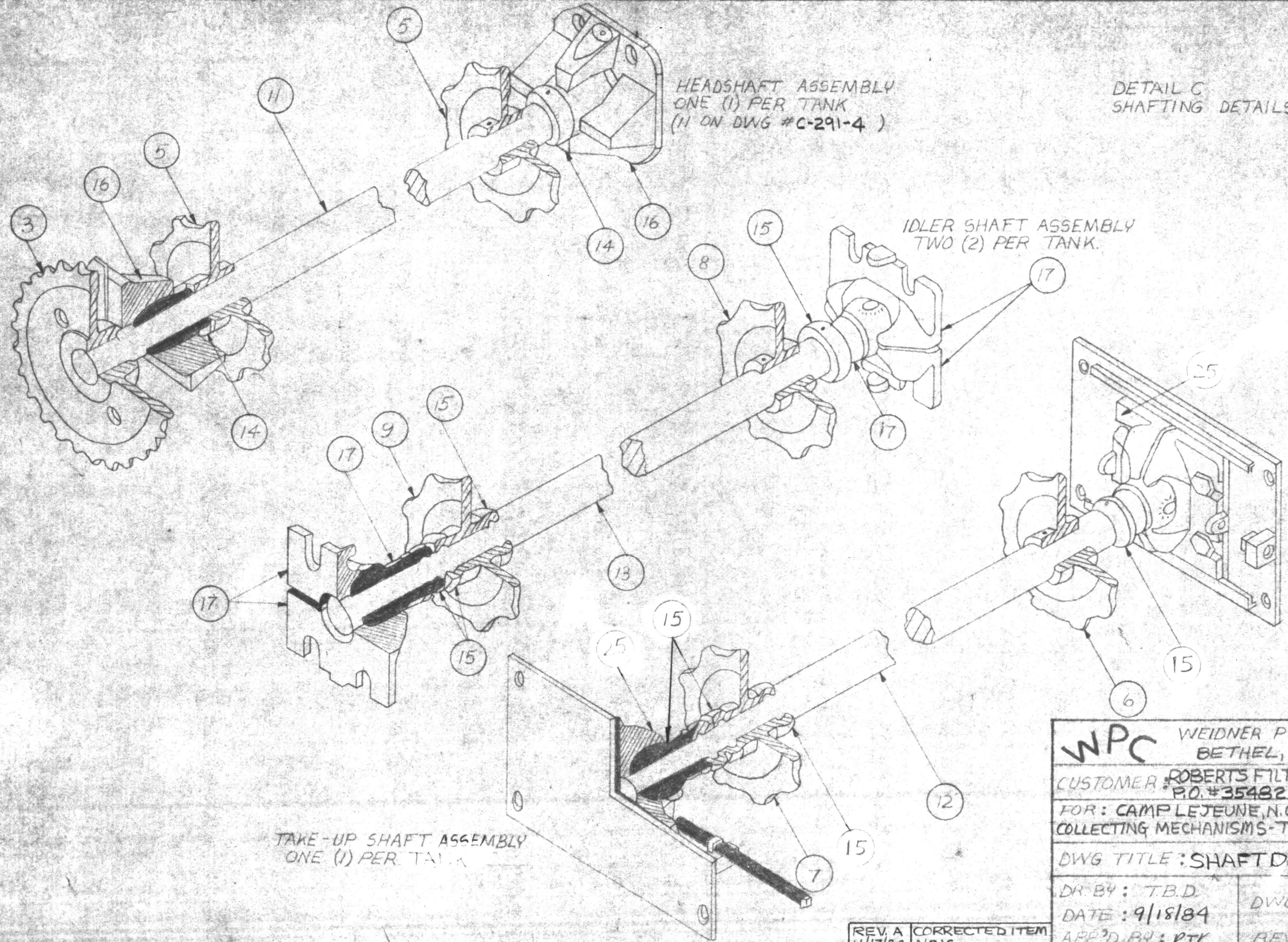
APPROVED
APPROVED AS NOTED _____
DISAPPROVED _____
SUBJECT TO THE REQUIREMENTS OF

CONTRACT NO. **05-82-2552**

APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION--THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS & WEIGHTS COORDINA-
TION OF TRADES, ETC., AS REQUIRED

REVIEWER **CCS** DATE **7 FEB 1985**

FOR OFFICER IN CHARGE OF CONSTRUCTION



HEADSHAFT ASSEMBLY
 ONE (1) PER TANK
 (11 ON DWG #C-291-4)

DETAIL C
 SHAFTING DETAILS

IDLER SHAFT ASSEMBLY
 TWO (2) PER TANK.

TAKE-UP SHAFT ASSEMBLY
 ONE (1) PER TANK

WPC WEIDNER PUMP CORP. BETHEL, CONN.	
CUSTOMER: ROBERTS FILTER MFG CO. P.O. #35482-2093	
FOR: CAMP LEJEUNE, N.C. SLUDGE COLLECTING MECHANISMS-TANKS #4 & 5	
DWG TITLE: SHAFT DETAILS	
DR. BY: T.B.D.	DWG #C-291-2
DATE: 9/18/84	REV # A
APP'D BY: RTK	

REV. A CORRECTED ITEM
 11/17/84 NO.'S

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED _____
APPROVED AS NOTED _____
DISAPPROVED _____

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. **05-82-2552**

APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DEVIATION FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION--THE CONTRACTOR SHALL BE
RESPONSIBLE FOR PROVIDING PROPER
PHYSICAL DIMENSIONS & WEIGHTS, COORDINA-
TION OF TRADES, ETC., AS REQUIRED

REVIEWER **CCS** DATE **7 FEB 1985**

FOR OFFICER IN CHARGE OF CONSTRUCTION

