Check Sheet

Company Name: KENNEDY SPACE CENTER
Permit Number: AC 05-165463
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [ ] Incompleteness Letters
  - [ ] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:

- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [x] BACT Determination
- [x] Unsigned Permit

Correspondence with:

- [ ] EPA
- [ ] Park Services
- [ ] Other

- [x] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [x] Other

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [x] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [x] Extensions/Amendments/~~Modifications~~
  - [ ] Other

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
James D. Phillips
Director of Eng. Dev.
John F KSC
Kennedy Space Ctr., Fl
32899

4. Article Number
P 938 762 845

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X Sherry Watson

7. Date of Delivery
3/5/90

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Mar. 1988 * U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 938 762 845

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to James D Phillips	
Street and No. John F KSC	
P.O., State and ZIP Code Kennedy Sp Ctr Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date AC05-165463 3-2-90	

PS Form 3800, June 1985

File Copy

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

March 1, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James D. Phillips
Director of Engineering Development
John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

Dear Mr. Phillips:

Re: Permit No. AC 05-165463
2.54 MMBTU/hr Hot Water Generator at the Payload Hazardous Servicing Facility (PHSF)

The Department is in receipt of your letters dated July 26, 1989 and February 14, 1990, requesting modification of the BACT determination. This request is acceptable. The BACT determination will be modified as requested. The sulfur content of the fuel will be changed as follows:

From: 0.22% To: 0.5%

A copy of this letter and the BACT determination shall be attached to your permit AC 05-165463 and will become a part of this permit.

Attachment to be Incorporated:

NASA's letters dated July 26, 1989 and February 14, 1990.

Sincerely,

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources Management

SS/TH/plm

Reading File
Teresa Heron } 3/2/90
C. Collins, Cent. Dist.

Best Available Control Technology (BACT) Determination
National Aeronautics and Space Administration
Brevard County

The applicant plans to install and operate a 2.54 MMBtu/hr hot water generator at the Kennedy Space Center. The hot water generator will fire No. 2 fuel oil, and is scheduled to operate 8,760 hours per year.

BACT Determination Requested by the Applicant:

The applicant has requested that No. 2 fuel oil with a sulfur content up to 0.5 percent be used.

BACT Determination by DER:

The amount of particulate and sulfur dioxide emissions emitted from the hot water generator shall be limited by the firing of No. 2 fuel oil containing no more than 0.5 percent sulfur by weight.

BACT Determination Rationale:

Sulfur in fuel is a primary air pollution concern, since most of the fuel sulfur becomes SO_2 and particulate emissions from fuel burning are related to the sulfur content. The firing of No. 2 fuel oil containing no more than 0.5 percent sulfur shall be BACT for the hot water generator.

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

3/2 1990
Date

Approved by:

STEVE SMALLWOOD, P.E., Director
Division of Air Resources Management

3/2 1990
Date

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
James D. Phillips
Dir. of Eng. Development
DMR F Kennedy Space Ctr.
KENNEDY Space Ctr, Fl
32899

4. Article Number
P 938 762 889

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X Sherry Walson

7. Date of Delivery 2/7/90

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 938 762 889

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to James D Phillips
Street and No. JFK Space Ctr
P.O., State and ZIP Code Kennedy Space Ctr. Fl

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 2-5-90	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMITS

Mr. James D. Phillips
Director of Engineering Development
John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

February 1, 1990

Enclosed are construction permits Nos. AC 05-165463 and AC 05-166071 to construct a spray cure cell and a 2.54 MMBtu/hr hot water generator at the Kennedy Space Center in Brevard County, Florida. These permits are issued pursuant to Section 403, Florida Statutes.

Any party to these permits has the right to seek judicial review of these permits pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date these permits are filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

Copy furnished to:
John Turner, Central District

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 2-5-90.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Lynn Doker
Clerk

2-5-90
Date

Final Determination

Payload Hazardous Servicing Facility
John F. Kennedy Space Center
Brevard County

Permit No. AC 05-165463
Hot Water Generator

Permit No. AC 05-166071
Spray Cure Cell No. 5

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

January 25, 1990

Final Determination

National Aeronautics and Space Administration's applications for permits to construct a spray cure cell and a 2.54 MMBtu/hr hot water generator at their existing facility in Brevard County, Florida, have been reviewed by the Bureau of Air Regulation.

Public Notice of the Department's Intent to Issue the construction permits was published in the Florida Today newspaper on September 23, 1989.

Copies of the Preliminary Determination have been available for public inspection at the Department's Central District office in Orlando, Florida, and the Department's Bureau of Air Regulation in Tallahassee.

No comments were received as a result of the public notice period. However, the expiration date of the permits will be extended to July 31, 1990.

The final action of the Department will be to issue the permit as noted during the public notice period.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

PERMITTEE:
National Aeronautics and
Space Administration - NASA
Kennedy Space Center - KSC
Headquarters Bldg.
Kennedy Space Center, FL
32899

Permit Number: AC 05-165463
Expiration Date: July 31, 1990
County: Brevard
Latitude/Longitude: 28°30'35"N
80°30'51"W
Project: 2.54 MMBtu/hr Hot Water and Reheat Hot Water System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a 2.54 MMBtu/hr hot water and reheat hot water system located at the Payload Servicing Facility, Kennedy Space Center (Building No. M7-1354) in Brevard County, Florida.

The source shall be in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application to Construct Air Pollution Source, DER Form 17-2.122(16), received on May 23, 1989.

PERMITTEE:
NASA

Permit No. AC 05-165463
Expiration Date: July 31, 1990

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

(x) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

GENERAL CONDITIONS:

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. Except as required pursuant to these specific conditions, the proposed hot water and reheat hot water system construction shall be carried out in accordance with the statements in the application.

2. The sulfur content of the No. 2 fuel oil to be burned in the proposed hot water generator shall not exceed 0.22 percent by weight, as determined by ASTM Method D-219. The fuel analysis reports of the oil used shall be recorded and these records shall be kept for a minimum of two years for regulatory agency inspection.

PERMITTEE:
NASA

Permit No. AC 05-165463
Expiration Date: July 31, 1990

SPECIFIC CONDITIONS:

3. The visible emissions from the proposed source shall not exceed 20 percent opacity except 40% opacity is permitted for not more than two minutes in any one hour. DER Method 9, F.A.C., (17-2.700(6)(a)9,) December 5, 1988, shall be used for the performance test conducted by the permittee.

4. The test of visible emissions shall be accomplished while the source is operating at 90-100 percent of the design capacity. The permittee shall notify DER's Central District office at least 15 days prior to the compliance test.

5. Upon obtaining a permit to operate, the permittee shall be required to submit annual reports on the emissions from this source. Annual reports shall be sent to the DER's Central District office.

6. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the BAQM prior to 60 days before the expiration of the permit (F.A.C. 17-4.090).

7. An application for an operation permit must be submitted to the DER's Central District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. 17-4.220).

Issued this 30 day
of January, 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Dale Twachtmann

Dale Twachtmann, Secretary

Best Available Control Technology (BACT) Determination
National Aeronautics and Space Administration
Brevard County

The applicant plans to install and operate a 2.54 MMBtu/hr hot water generator at the Kennedy Space Center. The hot water generator will fire No. 2 fuel oil, and is scheduled to operate 8,760 hours per year.

BACT Determination Requested by the Applicant:

The applicant has requested that No. 2 fuel oil with a sulfur content up to 0.22 percent be used.

BACT Determination by DER:

The amount of particulate and sulfur dioxide emissions emitted from the hot water generator shall be limited by the firing of No. 2 fuel oil containing no more than 0.22 percent sulfur by weight.

BACT Determination Rationale:

Sulfur in fuel is a primary air pollution concern, since most of the fuel sulfur becomes SO_2 and particulate emissions from fuel burning are related to the sulfur content. The firing of No. 2 fuel oil containing no more than 0.22 percent sulfur shall be BACT for the hot water generator.

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

January 29 1990
Date

Approved by:

Dale Twachtmann, Secretary
Dept. of Environmental Regulation

30 January 1990
Date

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee

To: _____ Location: _____

To: _____ Location: _____

To: _____ Location: _____

From: _____ Date: _____

Interoffice Memorandum

TO: Dale Twachtmann

for FROM: Steve Smallwood

DATE: January 29, 1990

SUBJ: Approval of Construction Permits for National Aeronautics and Space Administration, Permit Nos. AC 05-165463 and AC 05-166071

Attached for your approval and signature is a permit prepared by Bureau of Air Regulation for the above mentioned company to construct a spray cure cell and a 2.54 MMBtu/hr hot water generator at their facility in Brevard County, Florida.

No comments were received during the public notice period.

Day 90, after which these permits will be issued by default, is February 11, 1990 for permit AC 05-166071 and February 23, 1990 for permit AC 05-165463.

I recommend your approval and signature.

SS/TH/plm

Attachments

RECEIVED
JAN 29 1990
Office of the Secretary

National Aeronautics and
Space Administration

John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

NASA

Reply to Attn of DF-EMS

Florida Department of Environmental Regulation
Attn: Ms. Patricia Adams
2600 Blair Stone Road
Tallahassee, Florida 32391-2400

Subject: Notice of Intent Publications for Two Air Pollution Permits
(Permit Nos. AC05-165463 and AC05-166071)

Enclosed are copies of the subject certifications of publication for the two subject permits. Because of the delay in publishing these notices, the expiration date on the draft permit for the hot water generator (permit # AC05-165463) does not allow enough time for construction. Please extend the expiration date on this permit to June 31, 1990. The expiration date on the other permit remains acceptable.

Any questions concerning either of these permits should be directed to Mr. Mario Busacca of my staff at 407 867-4049.

Mario Busacca

For Kirby K. Key, Chief
Environmental Management Staff

cc: [illegible]
C. Collins, [illegible]

CAPE PUBLICATIONS, INC.

The Times
Published Weekly on Wednesday

THE TRIBUNE
Published Weekly on Wednesday

FLORIDA TODAY
Published Daily

STATE OF FLORIDA
COUNTY OF BREVARD

Before the undersigned authority personally appeared **Linda L. Spicer** who on oath says that he/she is **Legal Advertising Clerk** of the **FLORIDA TODAY**, a newspaper published in Brevard County, Florida; that the attached copy of advertising being a Legal Notice

in the matter of Contract Order No. cc-56282B

in the Court

was published in the **FLORIDA TODAY NEWSPAPER** in the issues of September 23,1989

Affiant further says that the said **FLORIDA TODAY NEWSPAPER** is a newspaper published in said Brevard County, Florida and that the said newspaper has heretofore been continuously published in said Brevard County, Florida regularly as stated above, and has been entered as second class mail matter at the post office in **COCOA**, said Brevard County, Florida for a period of one year next preceeding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in said newspaper.

Linda L. Spicer

Sworn and subscribed to before me this

23rd day of September A.D., 19 89

Notary Public, State of Florida at Large
My Commission Expires July 20, 1990

State of Florida
Department of
Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue permits to National Aeronautics and Space Administration, NASA, Kennedy Space Center, Headquarters Building, Kennedy Space Center, Florida, to install construct a 2.54 MMBtu/hr hot water and retrial hot water system to be located at the KSC, Building MZ-1354, Brevard County, Florida. A Determination of Best Available Control Technology (BACT) was required. The Department is issuing this intent to issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) pursuant to Section 120.57, Florida Statutes.

The petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the applications have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The applications are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation
Central Florida District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

I(01)00J94-11 9/23, 1989.

National Aeronautics and
Space Administration

John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

File Copy

NASA

JUL 26 1989

Reply to Attn of DF-EMS

RECEIVED
JUL 31 1989
DER - BAQM

Florida Dept. of Environmental Regulation
Attn: Mr. Bill Thomas
2600 Blair Stone Road
Tallahassee, FL 32399

SUBJECT: Notice of Intent to Issue an Air Pollution Source Permit for the Payload Hazardous Servicing Facility at Kennedy Space Center (AC File No. AC05-165463)

We have reviewed the subject notice and have several comments:

First, there is a typographical error in Table 1, Summary of Emissions in Section V.1. The value for Particulate Matter is listed as 0.006 lb/hr and should read 0.036 lb/hr.

Second, the permit application stated that the sulfur content of the fuel would be 0.22%. This value was derived from the current fuel analysis. However, all other KSC air pollution permits have a sulfur content of 0.5%. This allows for some flexibility and to be consistent, we request the permit be modified to increase the allowable sulfur content to 0.5%.

Copies of corrected pages 4 and 5 and Attachment C are enclosed. If you have any questions concerning these comments, contact Mr. Mario Busacca at 407 867-4049.

Walter T. Murphy
for James D. Phillips
Director of Engineering Development

Enclosure

CHF/BT/PA
Teresa
} 8-1-89 RRM

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable: NOT APPLICABLE

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1) NOT APPLICABLE

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-?	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
SO_2	1.26		In Accordance with		11038	5.52	
NO_x	0.36		Section 17-2.600(6)		3154	1.58	
Particulate	0.036		F.A.C. - BACT shall		315	0.16	
CO	0.09		Be Applied		788	0.39	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4) NOT APPLICABLE

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 2 Fuel Oil	18.0 GPH	22.0 GPH	2.54

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 0.5 Percent Ash: Nil

Density: 8.0 lbs/gal Typical Percent Nitrogen: Nil

Heat Capacity: 17,625 BTU/lb 141,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution):

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average 15 Maximum 20

G. Indicate liquid or solid wastes generated and method of disposal.

NONE

ATTACHMENT C

CALCULATIONS
PAYLOAD HAZARDOUS SERVICING FACILITY
HOT WATER GENERATOR

Potential Maximum Emissions
Max. Heat Input: 2538 MBH (1)
Max. Heat Output: 2010 MBH
Operating Hours: Assume 8760 hrs/yr

Fuel Oil Characteristics
Sulfur: 0.5% by weight max.
Heat of Combustion: 141,000 BTU/gal (2)
Fuel Usage: 18.0 gal/hr

Emission Factors (3)

Sulfur Dioxide:	(142 S lb/1000 gal)(0.5% S)	= 0.07 lb/gal
	(0.07 lb/gal)(18.0 gal/hr)	= 1.26 lb/hr
		= 5.52 tons/yr
Nitrogen Oxides:	(20 lb/1000 gal)(18.0 gal/hr)	= 0.36 lb/hr
		= 1.58 tons/yr
Particulates:	(2 lb/1000 gal)(18.0 gal/hr)	= 0.036 lb/hr
		= 0.16 tons/yr
Carbon Monoxide:	(5 lb/1000 gal)(18.0 gal/hr)	= 0.09 lb/hr
		= 0.39 tons/yr

(1) MBH = 1000 BTU/hr
(2) No. 2 Fuel Oil Analysis
(3) EPA "Compilation of Air Pollutant Emission Factors" AP-42, Table 1.3-1 Industrial and Commerical Boilers/Distillate Oil

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:	4. Article Number
Mr. James D. Phillips Director of Engineering Dev. John F. Kennedy Space Center Kennedy Space Center, FL 32899	P 938 762 611 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Address X	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X Susan Willis	
7. Date of Delivery 10 July '89	

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 938 762 611

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. James D. Phillips, NASA	
Street and No. Kennedy Space Center	
P.O., State and ZIP Code Kennedy Space Center, FL 3289	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed 7-7-89 Permit AC 05-165463	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

July 7, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. James D. Phillips
Director of Engineering Development
John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

Dear Mr. Phillips:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit for John F. Kennedy Space Center to construct/install a 2.54 MMBtu/hr hot water and reheat hot water system to be located at the KSC, Building M7-1354, Brevard County, Florida.

Please submit any written comments you wish to have considered concerning the Depa_tment's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/TH/s

Attachments

cc: John Turner, CF District

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

National Aeronautics and
Space Administration - NASA
Kennedy Space Center - KSC
Kennedy Space Center, Fl 32899

AC File No. AC 05-165463

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, NASA, applied on May 23, 1989, to the Department of Environmental Regulation for a permit to construct a 2.54 MMBtu/hr hot water and reheat hot water system located at the Payload Servicing Facility (Building M7-1354) at the Kennedy Space Center, Brevard County, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit is required for the proposed work.

Pursuant to Section 403.815, F.S. and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department, at the address specified within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the applicant have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office in General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such

person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

Copies furnished to:

John Turner, CF District

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on 7-7-89.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha J. Wise 7-7-89
Clerk Date

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to National Aeronautics and Space Administration, NASA, Kennedy Space Center, Headquarters Building, Kennedy Space Center, Florida, to install/construct a 2.54 MMBtu/hr hot water and reheat hot water system to be located at the KSC, Building M7-1354, Brevard County, Florida. A determination of Best Available Control Technology (BACT) was required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

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(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

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The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation
Central Florida District
3319 Maguire Blvd., Suite 232
Orlando, Florida 32803-3767

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

Technical Evaluation
and
Preliminary Determination

Payload Hazardous Servicing Facility
John F. Kennedy Space Center
Brevard County

Hotwater and Reheat Hot Water System
Permit No. AC 05-165463

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

July 7, 1989

I. SYNOPSIS OF APPLICATION

I.1 National Aeronautics and Space Administration - NASA
John F. Kennedy Space Center
DF-EMS
Kennedy Space Center, Florida 32899

I.2 Reviewing and Process Schedule

Date of Receipt of Application: May 23, 1989
Completeness Review (30 days): June 22, 1989
Applications Completeness Date: May 23, 1989

II. FACILITY INFORMATION

II.1 Facility Location

The proposed facility will be located at the "E" Avenue S.E. Building No. M7-1354 at the Kennedy Space Center in Brevard County, Florida. The latitude and longitude of this facility are 28° 30' 35" North and 80° 38' 05" West, respectively,

II.2 Standard Industrial Classification Code (SIC) and Source Classification Code (SCC)

This new facility will be classified as follows:

Group No. 966, Space Research and Technology
Industry No. 9661, Space Research and Technology
SCC 1-02-004-01

II.3 Facility Category

The Kennedy Space Center (KSC) is classified as a major emitting facility for sulfur dioxide (SO_2) and volatile organic compounds (VOC).

This facility category is not in the list of the 28 Major Facility Categories, Chapter 17-2 ,Table 500-1, Florida Administrative Code.

III. PROJECT DESCRIPTION

The proposed project consists of constructing a hot water and reheat hot water system for the payload hazardous servicing facility (PHSF) at KSC. This hot water generator will be used to heat the PHSF as well as to provide humidity control.

The hot water and reheat hot water system consists of a 2.54 MMBtu/hr boiler with an internal heat exchanger. Because of the precise temperature and humidity requirements associated with this facility, it is assumed that the hot water and reheat hot water system will be in use continuously all year around.

IV. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code (F.A.C.).

The proposed facility, Kennedy Space Center, is located in an area (Brevard County) currently designated attainment for all criterial pollutants in accordance with F.A.C., 17-2.420.

This facility, a major emitting facility for SO_2 and VOC, is not on the list of the 28 Major Facility Categories, F.A.C., Table 500-1. Therefore, this project is exempt from provisions of F.A.C. 17-2.500, Prevention of Significant Deterioration.

The proposed source shall be permitted under F.A.C. 17-2.520, Sources Not Subject to Prevention of Significant Deterioration or Nonattainment Requirements and shall comply with F.A.C. 17-2.610(2) General Particulate Emission Limiting Standards and F.A.C. 17-2.600(6)(b) and (c).

V. SOURCE IMPACT ANALYSIS

V.1. Emission Limitations

The air pollutants emitted from the proposed generator will be sulfur dioxide, nitrogen oxides, particulate matter, volatile organic compounds, and carbon monoxide. Table No. 1 summarizes potential to emit for all the pollutants regulated under the Act which are emitted by the proposed source. As the table shows, this source does not have a significant emission increase of any pollutant.

Best Available Control Technology (BACT) for this source has been determined for sulfur dioxide and particulate matter. The emission limiting standards selected as BACT and made a condition of the permits are listed in the following table.

The permitted emissions, including those determined as BACT, are in compliance with all applicable requirements of Chapter 17-2, Florida Administrative Code.

Table 1
Summary of Emissions

Pollutant	lb/hr	tons/yr	PSD*(tons/yr)
Sulfur dioxide (SO2)	0.56	2.45	40
Nitrogen oxide (NOx)	0.36	1.58	40
Particulate matter (PM)	0.006	0.16	25
Carbon Monoxide (CO)	0.09	0.39	100

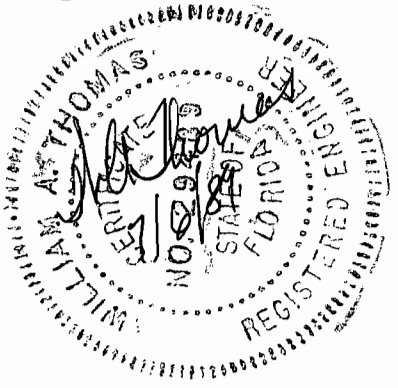
*Prevention of Significant Deterioration (PSD) Significant Emissions Rates.

VI.2 Air Quality Analysis

From a technical review of the application, the Department has determined that the construction and operation of this source will not have a significant impact on Florida's ambient air quality standards.

VI. CONCLUSION

Based on the information provided by NASA, the Department has reasonable assurance that the proposed installation of the hot water and reheat hot water system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.



Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

PERMITTEE:	**Permit Number: AC 05-165463**
National Aeronautics and Space Administration - NASA	Expiration Date: January 30, 1990
Kennedy Space Center - KSC	County: Brevard
Headquarters Bldg.	Latitude/Longitude: 28°30'35"N 80°30'51"W
Kennedy Space Center, FL 32899	Project: 2.54 MMBtu/hr Hot Water and Reheat Hot Water System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a 2.54 MMBtu/hr hot water and reheat hot water system located at the Payload Servicing Facility, Kennedy Space Center (Building No. M7-1354) in Brevard County, Florida.

The source shall be in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application to Construct Air Pollution Source, DER Form 17-2.122(16), received on May 23, 1989.

PERMITTEE:
NASA

Permit No. AC 05-165463
Expiration Date: Jan. 30, 1990

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

(x) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

GENERAL CONDITIONS:

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. Except as required pursuant to these specific conditions, the proposed hot water and reheat hot water system construction shall be carried out in accordance with the statements in the application.

2. The sulfur content of the No. 2 fuel oil to be burned in the proposed hot water generator shall not exceed 0.22 percent by weight, as determined by ASTM Method D-219. The fuel analysis reports of the oil used shall be recorded and these records shall be kept for a minimum of two years for regulatory agency inspection.

PERMITTEE:
NASA

Permit No. AC 05-165463
Expiration Date: Jan. 30, 1990

SPECIFIC CONDITIONS:

3. The visible emissions from the proposed source shall not exceed 20 percent opacity except 40% opacity is permitted for not more than two minutes in any one hour. DER Method 9, F.A.C., (17-2.700(6)(a)9,) December 5, 1988, shall be used for the performance test conducted by the permittee.

4. The test of visible emissions shall be accomplished while the source is operating at 90-100 percent of the design capacity. The permittee shall notify DER's Central Florida District office at least 15 days prior to the compliance test.

5. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the BAQM prior to 60 days before the expiration of the permit (F.A.C. 17-4.090).

6. An application for an operation permit must be submitted to the DER's Central Florida District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. 17-4.220).

7. Upon obtaining a permit to operate, the permittee shall be required to submit annual reports on the emissions from this source. Annual reports shall be sent to the DER's Central Florida District office.

Issued this _____ day
of _____, 1989

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Dale Twachtmann, Secretary

Best Available Control Technology (BACT) Determination
National Aeronautics and Space Administration
Brevard County

The applicant plans to install and operate a 2.54 MMBtu/hr hot water generator at the Kennedy Space Center. The hot water generator will fire No. 2 fuel oil, and is scheduled to operate 8,760 hours per year.

BACT Determination Requested by the Applicant:

The applicant has requested that No. 2 fuel oil with a sulfur content up to 0.22 percent be used.

BACT DETERMINATION BY DER:

The amount of particulate and sulfur dioxide emissions emitted from the hot water generator shall be limited by the firing of No. 2 fuel oil containing no more than 0.22 percent sulfur by weight.

BACT Determination Rationale:

Sulfur in fuel is a primary air pollution concern, since most of the fuel sulfur becomes SO_2 and particulate emissions from fuel burning are related to the sulfur content. The firing of No. 2 fuel oil containing no more than 0.22 percent sulfur shall be BACT for the hot water generator.

Details of the Analysis may be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

_____ _____ 1989
C.H. Fancy, P.E. Date
Deputy Bureau Chief, BAQM

Approved by:

_____ _____ 1989
Dale Twachtmann, Secretary Date

United States Treasury 15-51 000 B 291,555,003 BEST AVAILABLE COPY

Check No.

05 19 89 52 BIRMINGHAM, AL. 3508 20706160

AJ911189 02 STATE OF FLORIDA 80004904

Pay to the order of

STATE OF FLORIDA
DEPT OF ENVIRONMENTAL REG
AIR PERMIT
BOILER AT PHSF

NASA J.FK KENNEDY FL

$****200*00

110

⑈3508⑈ ⑆000000518⑆ 20706160 2⑈

SUBJECT: Construction Permit Application for a New Air Pollution Source at the Payload Hazardous Servicing Facility - Kennedy Space Center

Enclosed are four copies of the subject application and a check for $200 to cover the permit application fee.

Any questions regarding this application should be directed to Mr. Mario Busacca at 407 867-4049.

James D. Phillips
Director of Engineering Development

Enclosures

1631

National Aeronautics and
Space Administration

John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

NASA

Reply to Attn of DF-EMS

MAY 23 1989

Florida Dept. of Environmental Regulation
Attn: Mr. Claire Fancy
Twin Tower Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32391

SUBJECT: Construction Permit Application for a New Air Pollution Source at the Payload Hazardous Servicing Facility - Kennedy Space Center

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J. E. James

James D. Phillips
Director of Engineering Development

Enclosures

#200pd.
5-26-89
Rcpt # 117620

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

RECEIVED
MAY 26 1989
DER - BAQM

AC05-165463

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Hot Water Generator [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: National Aeronautics and Space Administration COUNTY: Brevard

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) No.2 Oil Fired Hot Water Generator

SOURCE LOCATION: Street "E" Ave. S.E. Build No. M7-1354 City Kennedy Space Center

UTM: East X=613,260 North Y=1,518,100

Latitude 28 ° 30 ' 35 "N Longitude 80 ° 38 ' 51 "W

APPLICANT NAME AND TITLE: James D. Phillips, Director of Engineering Development

APPLICANT ADDRESS: John F. Kennedy Space Center, Kennedy Space Center, FL 32899

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of NASA, Kennedy Space Center

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: J. D. Phillips

James D. Phillips, Director of Engineering Dev.
Name and Title (Please Type)

Date: 5/23/85 Telephone No. (407) 867-2565

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed J. E. Powles

for James D. Phillips

Name (Please Type)

National Aeronatics and Space Administration

Company Name (Please Type)

John F. Kennedy Space Center, KSC, FL 32899

Mailing Address (Please Type)

Exempt per F.A.C. 17-4

Florida Registration No. _____ Date: _____ Telephone No. (407) 867-2565

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attachment A

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction Upon Receipt of Permit Completion of Construction Within 60 Days

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

N/A

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

AC05-105814	Issuance: 10/15/85	Expiration: 11/30/86
A005-126432	Issuance: 01/08/87	Expiration: 12/21/91

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe:_____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO

   a. If yes, has "offset" been applied? -

   b. If yes, has "Lowest Achievable Emission Rate" been applied? -

   c. If yes, list non-attainment pollutants. -

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants?_____ -

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable: NOT APPLICABLE

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1) NOT APPLICABLE

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
SO_2	0.56		In Accordance with		4906	2.45	
NO_x	0.36		Section 17-2.600(6)		3154	1.58	
Particulate	0.036		F.A.C. - BACT shall		315	0.16	
CO	0.09		Be Applied		788	0.39	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4) NOT APPLICABLE

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 2 Fuel Oil	18.0 GPH	22.0 GPH	2.54

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 0.22 Percent Ash: Nil

Density: 8.0 lbs/gal Typical Percent Nitrogen: Nil

Heat Capacity: 17,625 BTU/lb 141,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average 15 Maximum 20

G. Indicate liquid or solid wastes generated and method of disposal.

NONE

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 22 ft. Stack Diameter: 1.0 ft.

Gas Flow Rate: 880 ACFM 500 DSCFM Gas Exit Temperature: 450 °F.

Water Vapor Content: 1.8 % Velocity: 18.7 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   Not Applicable
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
   See Attachments B-C (Specifications-Calculations)
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   See Attachments B-C
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
   Not Applicable
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
   Not Applicable
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
   See Attachment D - Flow Diagram
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
   See Attachment E - Plot Plan Location
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   See Attachment F - Plot Plan Facility

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

NOT APPLICABLE

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^{2}* _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A

Hot Water Generator Payload Hazardous Servicing Facility

An air pollution source construction permit application is submitted for a Hot Water and Reheat Hot Water System for the Payload Hazardous Servicing Facility (PHSF) at Kennedy Space Center, Florida. This hot water generator will be used to heat the PHSF as well as to provide humidity control.

This facility was formerly referred to as the Cargo Hazardous Servicing Facility (CHSF) and previously permitted (A005-126432) for operating a smaller capacity hot water generator system. The design capacity of this system was determined insufficient to function properly for facility requirements. A new larger capacity hot water generator system has been designed to accommodate this facility.

The new hot water generator system consists of a No. 2 oil fired 2538 MBH boiler with an internal heat exchanger. A 6,000 gallon oil tank will provide the fuel supply. Because of the precise temperature and humidity requirements associated with this facility it is assumed that the hot water generator will be in use 24 hours/day, 365 days/year.

The use of No. 2 low sulfur distillate oil for this boiler will be considered Best Available Control Technology.

ATTACHMENT B

SPECIFICATIONS

PAYLOAD HAZARDOUS SERVICING FACILITY

HOT WATER GENERATOR DESCRIPTION

First Thermal Systems, Inc.
60 HP F.T.S. Model SM-5-02
Scotch Supermatic Hot Water Boiler
SO# 71197 ASME #47578

Boiler Rating: Input 2538 MBH
Output 2010 MBH

Sq. Ft. Heating Surface: 312

Fuel: No. 2 Fuel @ 18.0 GPH

Operating Temperature Max.: 300°F

Safety Valve Setting: 125 PSIG

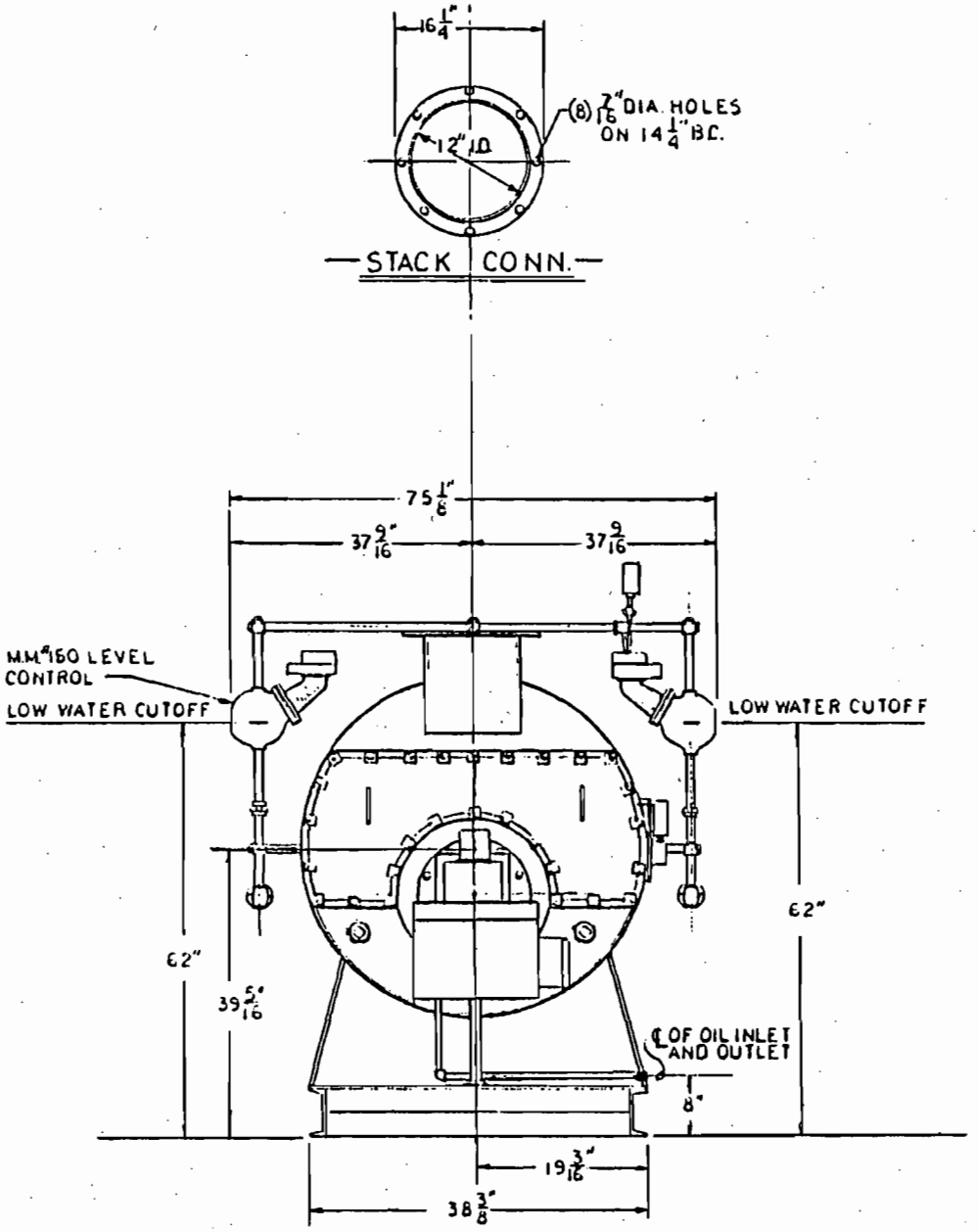
Boiler Relief Valve Setting: 125 PSIG

Burner: Model C2-OB Power Flame, Inc.
Burner Motor: 1 HP, 3450 RPM

Flame Control: Honeywell R4140L1055

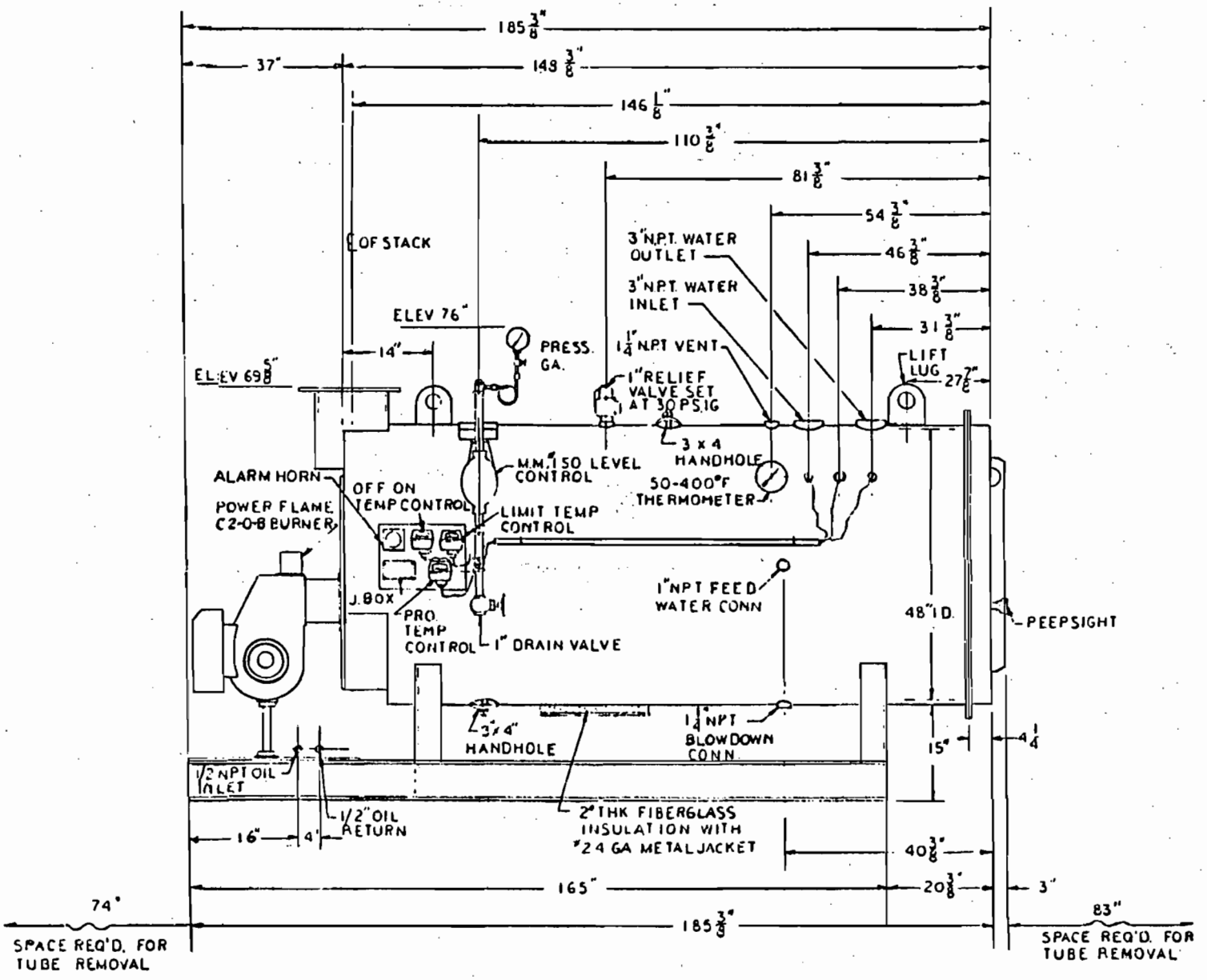
Flame Detector: Honeywell C7027A Ultraviolet

Modulating Motor: Honeywell M934D Modutrol



60 HP SM-5 PF-O-L-PRO-FM HYDRONIC BOILER
125 P.S.I.G. DESIGN, ASME CODE SEC. I

FIRST THERMAL SYSTEMS, INC.
CHATTANOOGA, TENNESSEE

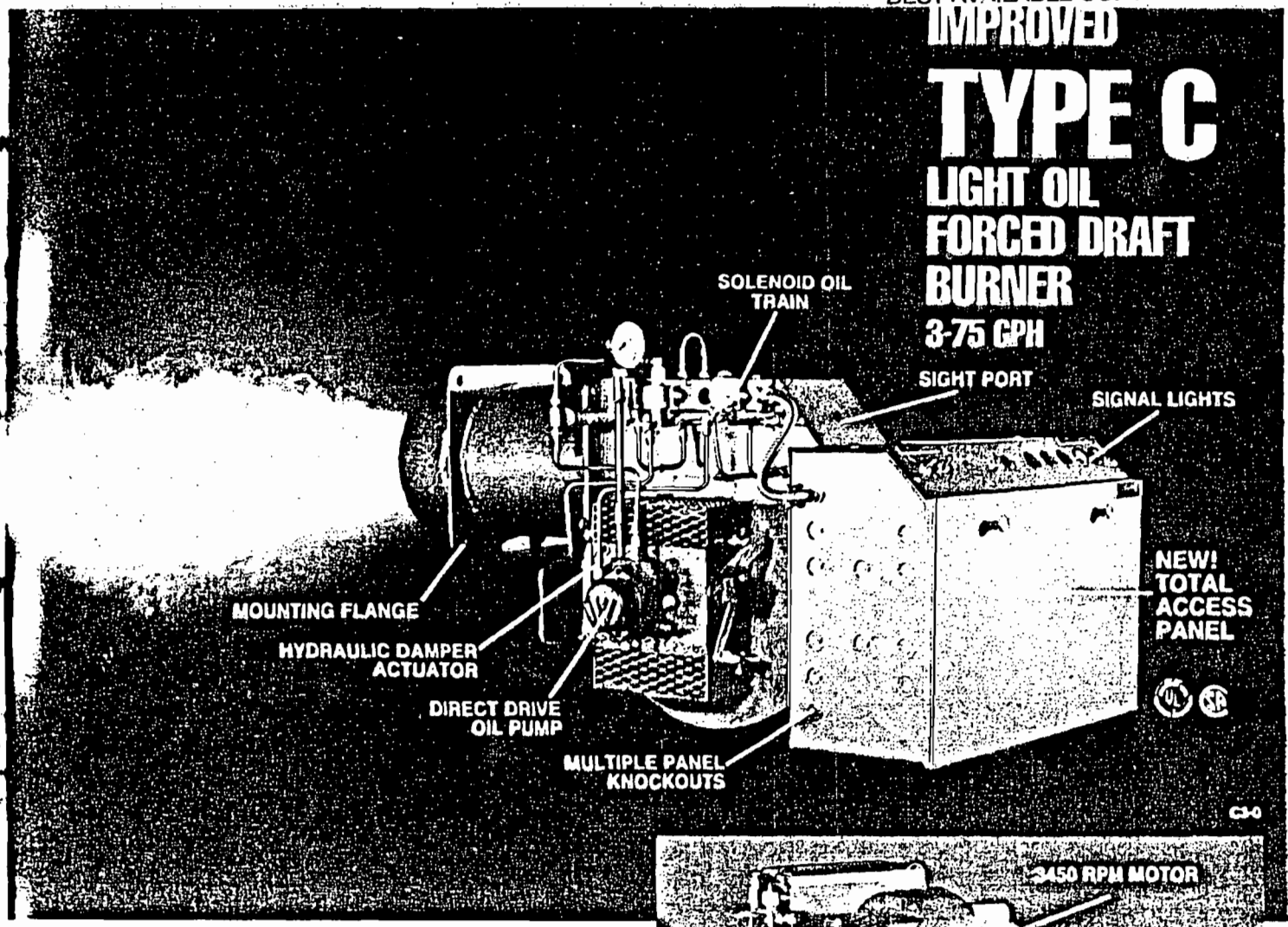


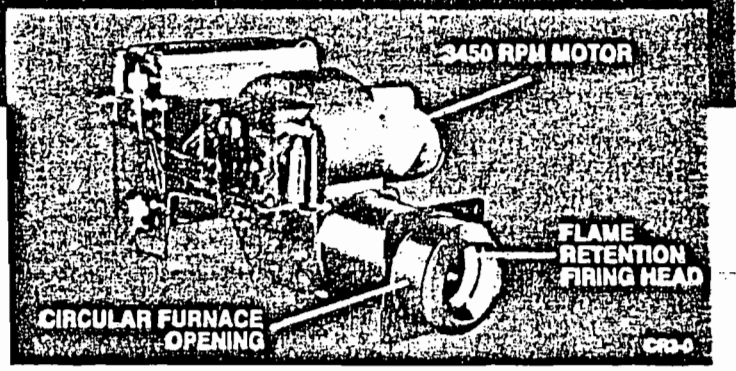
60 HP SM-5 PF-O-L-PRO-FM HYDRONIC BOILER
125 P.S.I.G. DESIGN, ASME CODE SEC. I.

FIRST THERMAL SYSTEMS, INC.
CHATTANOOGA, TENNESSEE

IMPROVED TYPE C LIGHT OIL FORCED DRAFT BURNER

3-75 GPH





- Flame retention firing head designed to permit equally efficient combustion in both positive or negative draft environments
- Complete operational factory fire test of every unit reduces end user start-up time

POWER FLAME

3 to 1 turndown
Multi-annular fuel containment combustor head
Full operational performance with fewer required adjustments.
Exclusive PowerFlame Total Access Panel.
Available for firing light fuel oils, including diesel
Circular opening — no special cutting of furnace front plate
Modular design allows for custom construction — meeting a wide variety of application requirements

[illegible]

3450 RPM Motor, squirrel cage blower, panel with 2 lights (power, main fuel) and control on-off switch, oil valve and nozzle assembly

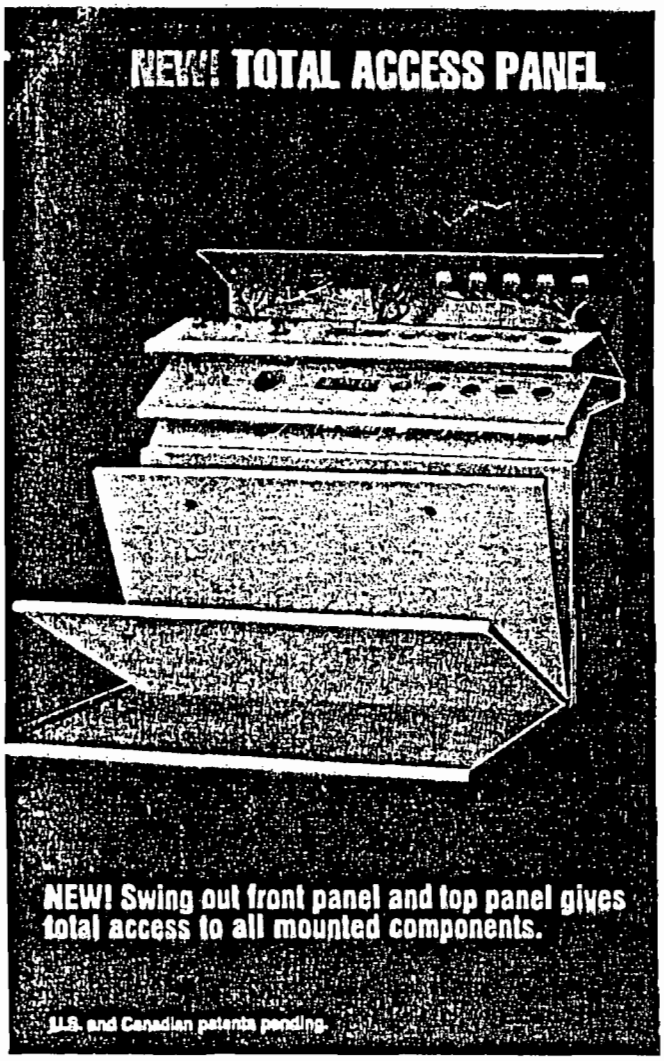
[illegible] FEATURES

— Std. O — Optional NA — Not Available

C1-0 C2-0A	C2-0B	C3-0	C4-0A C4-0B	C5-0
ignition transformer	X	X	O	O
M-ID or RA890F with photocell	X	N.A.	N.A.	N.A.
0-5010 or R4140M control with prepurge, postpurge and photocell	O	X	N.A.	N.A.
egral 2-stage fuel unit	X	X	N.A.	N.A.
note mounted 2-stage fuel unit	O	O	X	X
-5062 or R4140M control with prepurge, postpurge, UV scanner	O	O	X	Note (A)
Off with fixed air control-manual adjustment	X	N.A.	N.A.	N.A.
-Hi-Off with automatic air control	O	X	X	N.A.
odulating firing with automatic air control	O	O	O	X
stomized control systems and accessories	O	O	O	O

NOTE: (A) D20-5066 or equivalent control furnished on C5-0

CO-783



(inches) Standard Models.

Model	A	B	C	D	E	F	G. Std.	G Max*	H	J	K	S	W	X	Min. Dim. Firing Tube ℄ To Chamber Floor
C1	34	5¼	14½	4⅛	12¼	18	3¼	4¼	7¼	24	10	12¼	7¼	7¼	7
C2	40	6	14⅞	5¼	14	20	4	6¼	8¾	30	10	13¼	8½	8½	8
C3	44	6¼	16¾	6	15	21¼	4½	8	10⅛	34	10	15½	10	10	13
C4	50	7⅛	18¾	7	18½	24	6	9	12⅛	40	10	19	12	12	18
C5	50	7⅛	18¾	7	18½	24	6	9	12⅛	40	10	19	12	12	20

*This dimension may be increased. Consult fa[illegible]

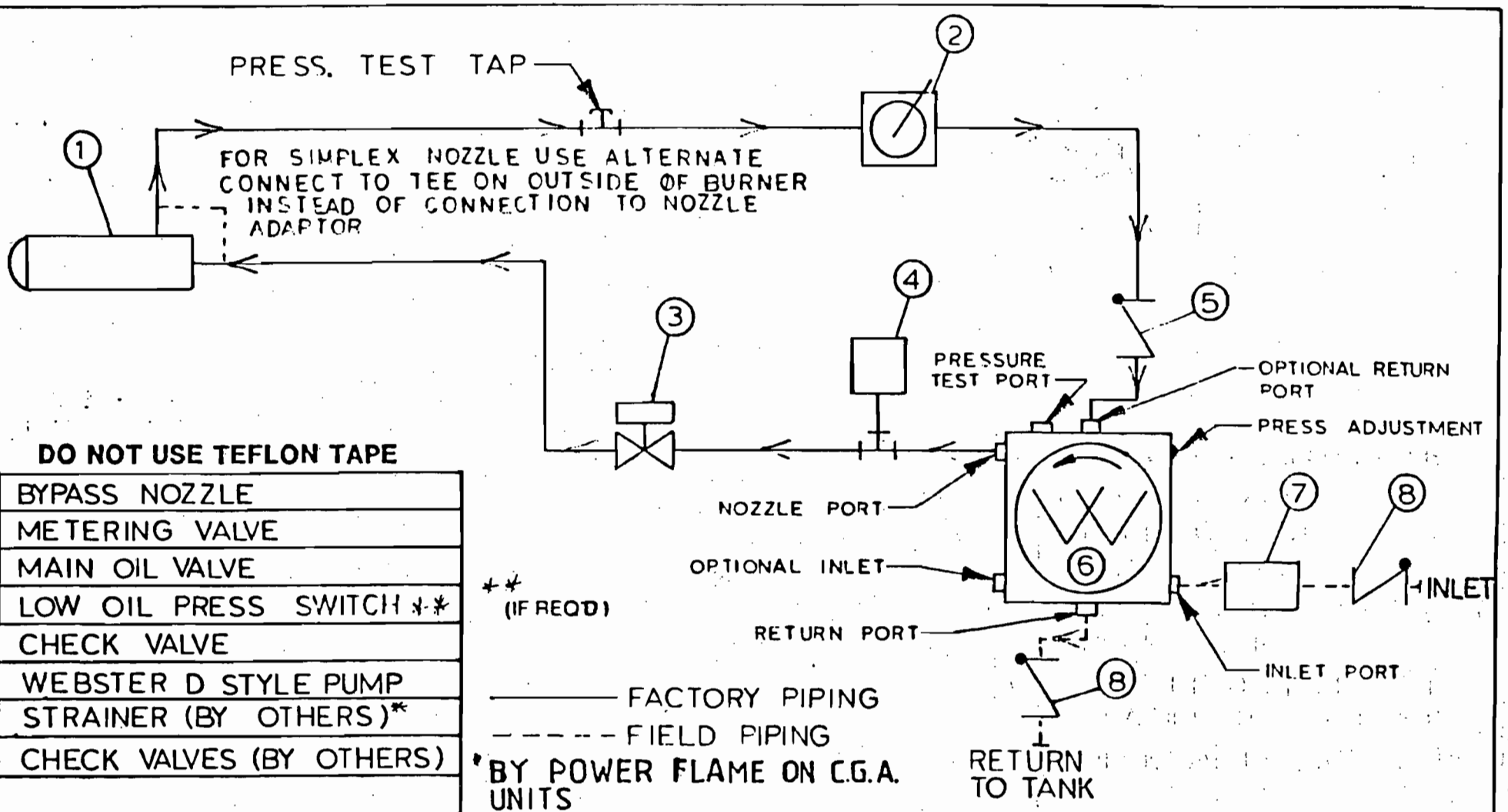
RATINGS & SPECIFICATIONS

CAPACITY #2 Oil GPH Min.	CAPACITY #2 Oil GPH Max.	Nominal Boiler H.P. (Max)	Burner Model Number	Blower Motor H.P. (3450 RPM)	Pressure Pump Suction Capacity (GPH)
3.0	9.0	30.0	C1-0	½	70
5.5	15.0	50.0	C2-0A	¾	70
5.5	22.0	73.5	C2-0B	1	70
7.5	33.7	110.0	C3-0	2	105
12.0	45.0	150.0	C4-0A	3	*125
18.0	56.0	190.0	C4-0B	5	*125
18.0	75.0	250.0	C5-0	7½	*250

NOTE: 1. Capacities listed are based on 0.06" W.C. overfire draft, decrease capacities approximately 10% for 0.5" W.C. positive combustion chamber pressure except for C5-0 which is available to fire 250 BHP at + 0.75" W.C.

*Remote pump set with ¾ H.P. 200 (208) or 230/460 3/60 1750 RPM motor.

Power Flame Incorporated
2001 South 21st Street, Parsons, Kansas 67357
316-421-0480, Telex 43-6401
Controlled energy for commerce and industry



DO NOT USE TEFLON TAPE

1	BYPASS NOZZLE
2	METERING VALVE
3	MAIN OIL VALVE
4	LOW OIL PRESS SWITCH **
5	CHECK VALVE
6	WEBSTER D STYLE PUMP
7	STRAINER (BY OTHERS)*
8	CHECK VALVES (BY OTHERS)

*BY POWER FLAME ON C.G.A. UNITS

-1 ADDED TEFLON TAPE NOTE	MSD	3-2-83

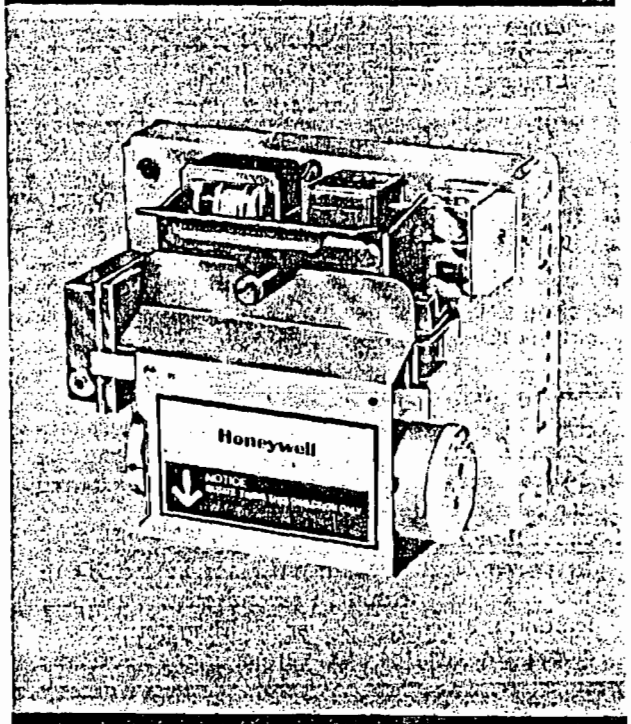
PowerFlame Incorporated

2001 S. 21st • PARSONS, KANSAS 67357 • PHONE (316) 421-0480

DWN. BY: R.A.P.	CHKD. BY:	APVD. BY:	SCALE:	DATE: 8-1-78
JOB NAME:		JOB LOC.:		
TITLE: FM OIL PIPING FOR FULL MOD BURNER			PLATE NO.	OF PLATES
			DWG. NO. PDO-3404-1	

Honeywell

FLAME SAFEGUARD PROGRAMMING CONTROLS



R4140L

Form Number 60-2339—3

THE R4140L FLAME SAFEGUARD PROGRAMMERS PROVIDE FLAMEOUT PROTECTION PLUS AUTOMATIC SEQUENCING OF THE BURNER MOTOR (BLOWER), FIRING RATE MOTOR, IGNITION, PILOT VALVE, AND MAIN FUEL VALVE(S) FOR COMMERCIAL AND INDUSTRIAL BURNERS USING GAS, OIL, COAL, OR A COMBINATION OF FUELS.

- ☐ Approvals: Underwriters Laboratories Inc. listed or component recognized, Canadian Standards Association certified, and Factory Mutual approved for automatic fired burners.
- ☐ With auxiliary equipment, also complies with Industrial Risk Insurers (formerly F.I.A.) recommended good practices for single-burner boilers.
- ☐ The R4140 directly replaces the R4150 for most applications and mounts on the same Q520A Wiring Subbase.
- ☐ Low-high-low proven purge programmers.
- ☐ Field selectable main burner flame-establishing period.
- ☐ Early spark termination (5 second ignition and 5 second pilot only) available on some models.
- ☐ Plug-in, solid state, flame signal amplifiers are color-coded and interchangeable to allow the use of any type of flame detector—flame rod, photocell, infrared detector, or ultraviolet detector.
- ☐ Amplifier capability includes three standard models, three Dynamic Self Check models, and one Dynamic Ampli-Check model.
- ☐ R7427C or R7476A Dynamic Self Check Amplifier, when used with an ultraviolet flame detector with a self-checking shutter (R7247C with a C7012E or F; R7476A with a C7076), tests all electronic components in the flame detection system (amplifier and detector) 60 to 120 times a minute during burner operation and shuts down the burner if the detection system fails.
- ☐ R7247B Dynamic Self Check Amplifier, when used with a rectifying flame rod (which is considered fail-safe), or R7248B Dynamic Ampli-Check Amplifier, when used with a C7015A Infrared (lead sulfide) Flame Detector, tests the flame signal amplifier at least 150 times a minute during burner operation and shuts down the burner if the amplifier fails.
- ☐ All models feature capability of proving high fire position of the firing rate motor near the start of prepurge, and low fire position before starting ignition trials.
- ☐ Provisions for connecting preignition interlocks to prove the proper conditions for startup, and for a combustion airflow switch to prove airflow throughout the operating cycle.
- ☐ All models have 4-wire firing rate switching circuitry—firing rate can be modulated while the burner is firing, and the firing rate motor can be *driven* to both low and high fire positions during prepurge.
- ☐ Safe start check before and during prepurge; if a flame (or a condition simulating a flame) is detected, ignition trials cannot be started and safety shutdown occurs.
- ☐ Safety shutdown also occurs on (1) opening of a preignition interlock during prepurge, (2) opening of a lockout interlock (such as loss of air, or low or high fuel pressure) after 14 seconds, (3) failure to ignite the pilot, (4) failure to light the main burner, (5) loss of flame during the run period, or (6) failure in the flame detection system (if a self-checking system is used).
- ☐ All relays are visible, labeled, and easily accessible.
- ☐ Alarm terminal is available to operate an external, line voltage alarm on safety shutdown.

J.B.
REV. 10-79 (.22)

SEE BACK COVER FOR TABLE OF CONTENTS

SPECIFICATIONS

IMPORTANT

THE SPECIFICATIONS GIVEN IN THIS PUBLICATION DO NOT INCLUDE NORMAL MANUFACTURING TOLERANCES. THEREFORE, THIS UNIT MAY NOT MATCH THE LISTED SPECIFICATIONS EXACTLY. ALSO, THIS PRODUCT IS TESTED AND CALIBRATED UNDER CLOSELY CONTROLLED CONDITIONS, AND SOME MINOR DIFFERENCES IN PERFORMANCE CAN BE EXPECTED IF THOSE CONDITIONS ARE CHANGED.

MODELS: R4140L Flame Safeguard Programming Controls–flame safeguard protection and sequencing controls for use on gas, oil, coal, or combination burners. See Table I for models available.

TABLE I–MODELS AVAILABLE

MODEL	WITH COVER[a]	TIMER CYCLE (SEC)	PREPURGE[b] (SECONDS)	EARLY SPARK TERMINATION[c]	FLAME-ESTABLISHING PERIOD (SECONDS)		POSTPURGE (SECONDS)	INTERLOCK CIRCUITS	FIRING RATE SWITCHING CIRCUIT
					PILOT[d]	MAIN BURNER (FIELD SELECTABLE)[d]			
R4140L1006	Yes	120	60	No	10	10 or 15	16	Preignition, Lockout (including Airflow Switch), High Fire, and Low Fire	4-wire (common, high fire, low fire, modulate)
R4140L1014	No								
R4140L1030[e]	No	120	60	Yes	10	10 or 15	16		
R4140L1055	No	120	60	No	10	10 or 30	15		
R4140L1097	Yes	120	60	Yes	10	10 or 15	16		
R4140L1105	No								

[a] 139695B Cover with reset button; heavy duty, metal cover for outside panel mounting.

[b] Extended proven high fire prepurge capability per Industrial Risk Insurers (formerly F.I.A.) provided by auxiliary timer contact connected in series with and between the high fire switch and terminal 15.

NOTE: All external timers must be listed or component recognized by authorities having jurisdiction, for the specific purpose for which they are used.

[c] Early spark termination available on terminal 18 (5 second ignition and 5 second "pilot only").

[d] If used for direct spark ignition (oil or gas), the flame-establishing period is 10 seconds.

[e] On the R4140L1030, the timer *cannot* be rotated manually.

INTERLOCK CIRCUITS:

Preignition Interlocks–Must be closed to start programmer. If interlocks open during prepurge (after 14 seconds), ignition trials cannot be started and safety shutdown will occur.

Lockout Interlocks–Must be closed (i.e., airflow must be proven, fuel pressure must not be too low or too high, etc.) within 14 seconds after startup or ignition trials cannot be started. They must remain closed through the run period or the automatic fuel valves will be de-energized and safety shutdown will occur.

High Fire Interlock–Timer stops at 10 seconds until high fire proving switch closes, indicating damper is open.

Low Fire Interlock–Timer stops at 51 seconds (52 seconds for the R4140L1030) until low fire proving switch closes, indicating damper is closed prior to ignition.

(continued on page 3)

ORDERING INFORMATION

WHEN PURCHASING REPLACEMENT AND MODERNIZATION PRODUCTS FROM YOUR TRADELINE WHOLESALER OR YOUR DISTRIBUTOR, REFER TO THE TRADELINE CATALOG OR PRICE SHEETS FOR COMPLETE ORDERING NUMBER, OR SPECIFY–

1. Order number.

ORDER SEPARATELY–

1. Flame detection system (amplifier and matching flame detector). See Table IV.
2. Q520A1089 or Q520A1121 Wiring Subbase.
3. Accessories, if desired.

IF YOU HAVE ADDITIONAL QUESTIONS, NEED FURTHER INFORMATION, OR WOULD LIKE TO COMMENT ON OUR PRODUCTS OR SERVICES, PLEASE WRITE OR PHONE:

1. YOUR LOCAL HONEYWELL RESIDENTIAL DIVISION SALES OFFICE (CHECK WHITE PAGES OF PHONE DIRECTORY).
2. RESIDENTIAL DIVISION CUSTOMER SERVICE
   HONEYWELL INC., 1885 DOUGLAS DRIVE NORTH
   MINNEAPOLIS, MINNESOTA 55422 (612) 542-7500

(IN CANADA–HONEYWELL CONTROLS LIMITED, 740 ELLESMERE ROAD, SCARBOROUGH, ONTARIO M1P 2V9)
INTERNATIONAL SALES AND SERVICE OFFICES IN ALL PRINCIPAL CITIES OF THE WORLD.

SAFETY FEATURES:

Safe Start Check–for the presence of a flame (or a condition simulating a flame), provided before and during prepurge. If the flame relay 2K pulls in before 57.5 seconds, 2K1 opens, relay 3K drops out, ignition trials cannot be started, and safety shutdown occurs.

Safety Shutdown–Ignition transformer and all automatic fuel valves are de-energized. The lockout switch trips and locks out the programmer. If used, the external alarm is energized. The timer completes its revolution and locks up at the standby position (zero seconds). The lockout switch must be manually reset to restart the system.

Safety Shutdown occurs on–

1. opening of a preignition interlock during prepurge (after 14 seconds).
2. opening of a lockout interlock (loss of air, low or high fuel pressure, etc.) after 14 seconds.
3. detection of a flame (or a condition simulating a flame) before or during prepurge until 57.5 seconds.
4. failure to ignite the pilot (or 1st stage burner if using direct spark ignition).
5. failure to light the main burner (unless monitoring an intermittent pilot).
6. loss of flame during the run period.
7. failure in the flame detection system (if a self-checking system is used; see Table IV).

Flame Failure Response Time–2 to 4 seconds.

Lockout Switch Timing–30 seconds (nominal).

ELECTRICAL RATINGS:

Voltage and Frequency–120 Vac (102 V minimum to 132 V maximum), 50/60 Hz.

NOTE: Use of a 50 Hz power supply will lengthen the sequence timings by a factor of 1.2.

Power Consumption (with no loads connected to the output terminals)–18 watts maximum.

Maximum Total Connected Load–2000 VA.

TABLE II–TERMINAL RATINGS

TERMINAL	TYPICAL LOAD	MAXIMUM RATING AT 120 VAC, 60 HZ
5 or 6	Ignition Transformer/ Pilot Valve	4.5 amp ignition & 50 VA pilot duty OR 2.5 amp ignition & 75 VA pilot duty
7	Main Fuel Valve(s) (Solenoid/ Motorized/ Diaphragm) and Vent Valve if required	250 VA pilot duty OR 65 VA pilot duty in parallel with motorized valve or valves using a total of 1150 VA locked rotor (inrush), 460 VA to open, and 250 VA to hold OR Motorized valve(s) using a total of 1500 VA locked rotor (inrush), 600 VA to open, and 250 VA to hold
8	Burner Motor (Blower)	9.8 amp full load, 58.8 amp locked rotor (inrush)
9	120 V Alarm	75 VA pilot duty
10,11,12, and 14	Firing Rate (Damper) Motor Contacts	50 VA pilot duty
18 (if available)	Ignition Transformer	4.5 amp ignition

NOTE: Allowable inrush can be up to 10 times the pilot duty rating.

EXAMPLE–Pilot duty rating = 50 VA.
At 120V, running current is

$$\frac{50}{120} = 0.42 \text{ amp.}$$

Maximum allowable inrush is
10 times 0.42 = 4.2 amp.

TABLE III–INTERLOCK RATINGS

INTERLOCKS	REQUIREMENTS Must be able to carry and break current to:
Limits, Burner Controller, and Lockout Interlocks (including airflow switch)	Ignition transformer, pilot valve, and main fuel valve(s)
Preignition Interlocks (all models except the R4140L1030)	Programmer relays 1K, 3K, and 4K (12 watts max)
Preignition Interlocks on the R4140L1030	Ignition transformer and pilot valve

AMBIENT OPERATING TEMPERATURE RATINGS:
Minimum–minus 40 F [minus 40 C].
Maximum–

PROGRAMMER MOUNTING POSITION	
STANDARD VERTICAL (WITH HANDLE UP)	ANY OTHER
+130 F [+54 C]	+125 F [+52 C]

STORAGE TEMPERATURE RATINGS: Minus 60 F to plus 150 F [minus 51 C to plus 66 C].

MOUNTING: 3-sided Q520A1089 Wiring Subbase, or 4-sided Q520A1121 Wiring Subbase; both have 20 knife-blade contacts (order subbase separately).

DIMENSIONS: See Figs. 1 and 2.

WEIGHT (without plug-in flame signal amplifier): Without 139695B Cover–5 lb, 13 oz [2.64 kg]. With 139695B Cover–8 lb, 1 oz [3.66 kg].

FLAME DETECTION SYSTEM (order separately): Plug-in Flame Signal Amplifier and matching Flame Detector; see Table IV.

TABLE IV–FLAME DETECTION SYSTEMS

PLUG-IN FLAME SIGNAL AMPLIFIERS					APPLICABLE FLAME DETECTORS		
TYPE	COLOR	SELF-CHECKING	MODEL	FLAME FAILURE RESPONSE TIME	FUEL	TYPE	MODELS
RECTIFICATION	GREEN	NO	R7247A	2 TO 4 SEC	GAS	RECTIFYING FLAME RODS	HOLDERS[c]: C7004, C7007, C7011. COMPLETE ASSEMBLIES: C7005, C7008, C7009, Q179.
			R7247A, R7247B[b]	2 TO 4 SEC	OIL	RECTIFYING PHOTOCELLS[d]	C7003, C7010, C7013, C7014.
					GAS, OIL, COAL	ULTRAVIOLET (PURPLE PEEPER)	C7012A OR C.
		DYNAMIC SELF CHECK	R7247B[b]	2 TO 4 SEC	GAS	RECTIFYING FLAME RODS	HOLDERS[c]: C7004, C7007, C7011. COMPLETE ASSEMBLIES: C7005, C7008, C7009, Q179.
			R7247C[a]	2 TO 4 SEC	GAS, OIL, COAL	ULTRAVIOLET (PURPLE PEEPER)	C7012E OR F.
INFRARED	RED	NO	R7248A	2 TO 4 SEC	GAS, OIL, COAL	INFRARED (LEAD SULFIDE)	C7015.
		DYNAMIC AMPLI-CHECK	R7248B[b]	2 TO 4 SEC			
ULTRAVIOLET	PURPLE	NO	R7249A	2 TO 4 SEC	GAS, OIL	ULTRAVIOLET (MINIPEEPER)	C7027, C7035, C7044.
	BLUE	DYNAMIC SELF CHECK	R7476A[a]	2 TO 4 SEC	GAS, OIL, COAL	ULTRAVIOLET (ADJUSTABLE SENSITIVITY)	C7076.

[a]CIRCUITRY TESTS ALL ELECTRONIC COMPONENTS IN THE FLAME DETECTION SYSTEM (AMPLIFIER AND DETECTOR) 60 TO 120 TIMES A MINUTE DURING BURNER OPERATION AND SHUTS DOWN THE BURNER IF THE DETECTION SYSTEM FAILS.
[b]CIRCUITRY TESTS THE FLAME SIGNAL AMPLIFIER AT LEAST 150 TIMES A MINUTE DURING BURNER OPERATION AND SHUTS DOWN THE BURNER IF THE AMPLIFIER FAILS.
[c]ORDER FLAME ROD SEPARATELY; SEE INSTRUCTION SHEET FOR THE HOLDER.
[d]USE HONEYWELL PHOTOCELL, PART NO. 38316, ONLY.

APPROVALS:

UNDERWRITERS LABORATORIES INC. LISTED SECTION OF PRIMARY SAFETY CONTROL (120 V models with covers): File No. MP268; Guide No. MCCZ.

UNDERWRITERS LABORATORIES INC. COMPONENT RECOGNIZED (120 V models without covers): File No. MP268; Guide No. MCCZ2.

CANADIAN STANDARDS ASSOCIATION CERTIFIED: File No. LR1620.

FACTORY MUTUAL APPROVED: Report No. 24181.

INDUSTRIAL RISK INSURERS (formerly F.I.A.): Approvable.

ACCESSORIES:

1. W136A Test Meter (includes 117053 Meter Connector Plug); has SPL position with damping for testing self-checking flame detection systems.

2. 117053 Meter Connector Plug (for older W136A models).

3. 123514A Flame Simulator (for use with R7247A Rectification Amplifiers).

4. 123514B Flame Simulator (for use with R7249A Ultraviolet Amplifiers).

5. 139695C Cover with reset button; heavy duty, metal cover for outside panel mounting. (Like the 139695B cover, but without the Underwriters Laboratories Inc. label.)

6. 118760B Remote Reset Cover; heavy duty, metal cover with remote reset assembly; 120 V, 60 Hz solenoid.

7. R1061012 Ignition Cable; for ignition installations in a high temperature environment; rated at 350 F [177 C] for continuous duty, and up to 500 F [260 C] for intermittent use; tested to 25,000 volts.

8. R1298020 Cable; for flame detector ("F" lead-wire) installations in a high temperature environment; rated up to 400 F [204 C] for continuous duty; tested for operation up to 600 V and breakdown up to 7500 V.

9. R1239001 High Tension Ignition Cable; for ignition installations in a contaminating environment; very resistant to severe conditions of oil, heat, and corona, and tested to withstand high voltages up to 25,000 volts RMS in a salt bath for 1 minute without breakdown; rated at 200 F [93 C] for continuous duty, and up to 350 F [177 C] for intermittent use.

10. 130716A Autotransformer–120 V primary, 135 V secondary. Provides extra power for operation of the shutter on a C7012E or F Purple Peeper Ultraviolet Flame Detector with electron (vacuum) tubes when the detector is mounted vertically, or within 45 degrees of vertical.

11. Q624A Solid State Spark Generator; prevents detection of ignition spark when properly applied with flame detection systems using C7027, C7035, or C7044 Minipeeper Ultraviolet Flame Detectors. For use only with gas pilots.

12. FSP5004 Tester; provides a quick operational check of most R4140 Flame Safeguard Programming Controls.

13. Q520E1002 Service Tool; allows any of the programmer terminals to be monitored while the programmer is operating.

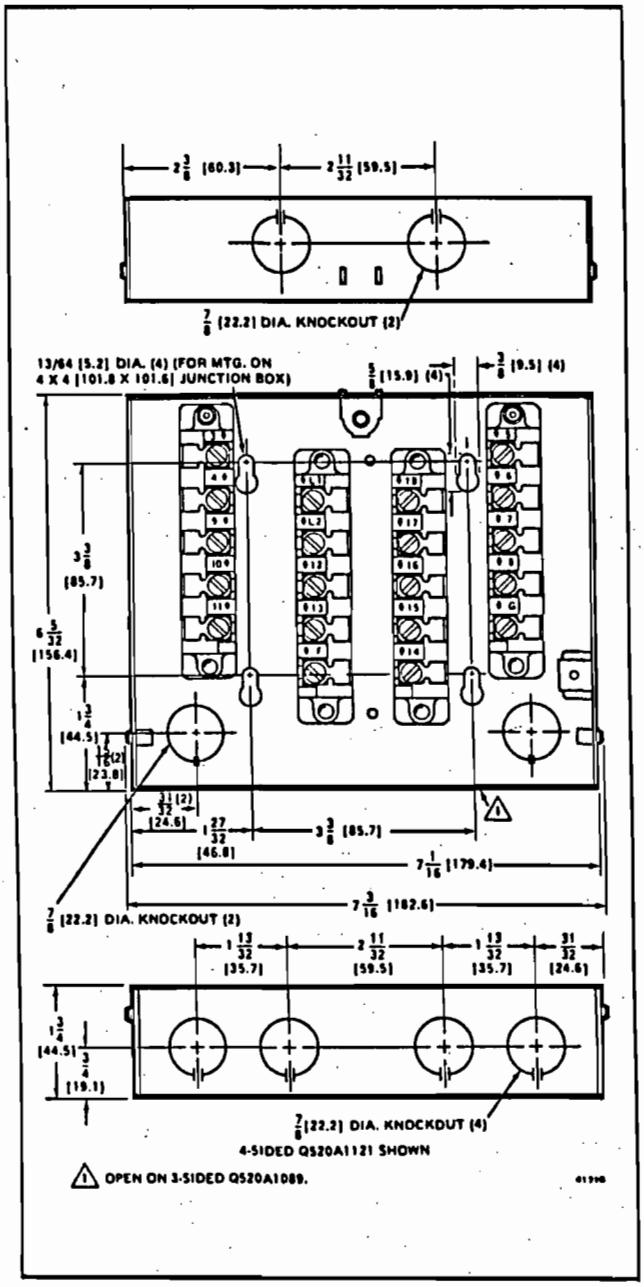


FIG. 1–MOUNTING DIMENSIONS OF THE Q520A WIRING SUBBASE, IN in. [mm SHOWN IN BRACKETS].

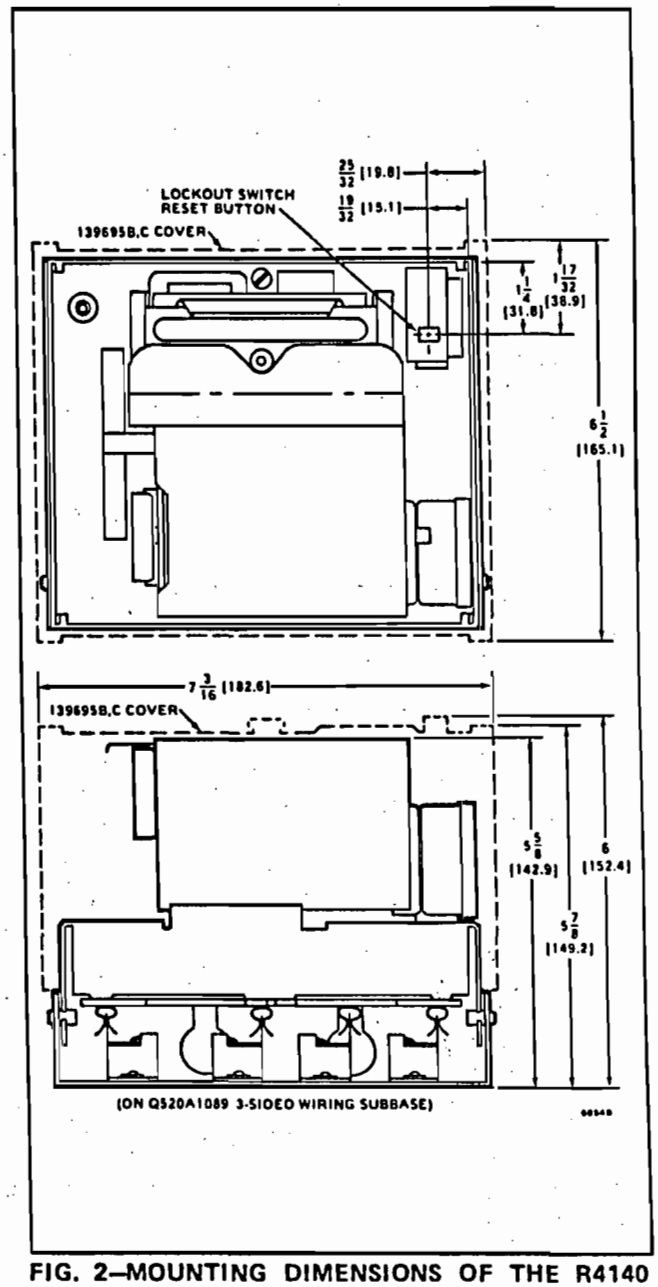
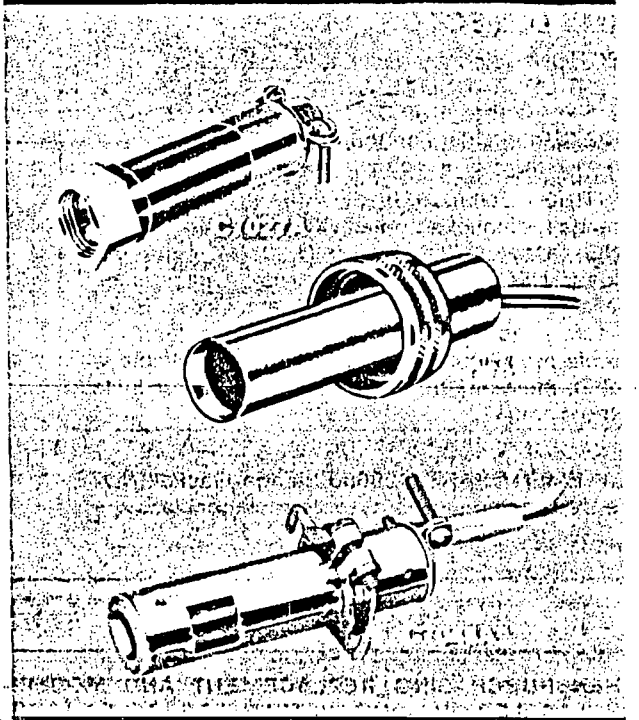


FIG. 2–MOUNTING DIMENSIONS OF THE R4140 PROGRAMMER ON THE Q520A WIRING SUBBASE, IN in. [mm SHOWN IN BRACKETS].

Honeywell

MINIPEEPER ULTRAVIOLET FLAME DETECTORS



C7027A, C7035A, C7044A

THE C7027A, C7035A, AND C7044A DETECT ULTRAVIOLET RADIATION EMITTED FROM ALL FLAMES. THEY ARE USED WITH FLAME SAFEGUARD CONTROLS TO PROVIDE SUPERVISION FOR GAS, OIL, OR COMBINATION GAS-OIL BURNERS.

☐ The C7027A, C7035A, and C7044A are used with the following:
- —Flame Safeguard Programmers/ Amplifiers
  R4126 and R4127/R7255B
  R4140/R7249A
  R4150/R7259A
  R4795/R7290
- —Flame Safeguard Primary Controls/ Amplifiers
  R4075C,D,E/R7249A
  R4138C,D/R7249A
- —RA890G Protectorelay Primary Control
- —R7023C Flame Detector Relay.

☐ The C7044A is also used with the following 50 Hz Flame Safeguard Controls/ Amplifiers:
R4341/R7323
R4343/R7323
R4344/R7323

☐ The C7027A mounts on a 1/2 in. sighting pipe by means of an integral collar.

☐ The C7035A mounts on a 1 in. sighting pipe by means of an integral collar. A shield protects the sensing tube.

☐ The C7035A meets outdoor raintight requirements of Underwriters Laboratories Inc., NEMA 3, and NEMA 4.

☐ The C7044A mounts with a simple, 2-screw bracket. Sensing tube enclosed in stainless steel housing.

☐ The C7044A is suitable for side or end viewing.

☐ Compact size makes the C7027A and C7044A particularly useful for blast tube mounting.

☐ Properly installed, the C7027A and C7035A are sealed against pressures as high as 5 psi [34.5 kPa].

☐ The C7035A ultraviolet sensing tube is field replaceable. The C7027A and C7044A sensing tubes are not field replaceable—use on an economical, throwaway basis.

☐ Two Minipeeper detectors can be wired in parallel for difficult sighting applications.

H.K.
REV. 3-84●

Form Number 60-2026—4

SPECIFICATIONS

SUPER TRADELINE MODELS

SUPER TRADELINE models offer features not available on TRADELINE or standard models, and are designed to replace a wide range of Honeywell and competitive controls. SUPER TRADELINE models are selected and packaged to provide ease of stocking, ease of handling, and maximum replacement value. Specifications of SUPER TRADELINE models are the same as those of standard models except as noted below.

SUPER TRADELINE MODEL AVAILABLE:

C7027A1080—includes C7027A1023 Detector, 136733 Heat Block, and 390427B Bushing.

SUPER TRADELINE FEATURES:

- Heat block for insulating the detector from sighting pipe temperatures above 215 F [102 C] up to 266 F [130 C].
- Bushing for mounting the detector on a 3/8 in. sighting pipe.
- SUPER TRADELINE pack with cross reference label and special instruction sheet, form 60-0638.

STANDARD MODELS

C7027A MINIPEEPER ULTRAVIOLET FLAME DETECTOR

DETECTION: Detects ultraviolet radiation only.

AMBIENT OPERATING TEMPERATURE RATINGS: 0 F to +215 F [−18 C to +102 C], or −40 F to +215 F [−40 C to +102 C], depending on the model.

MAXIMUM PRESSURE RATING: 5 psi [34.5 kPa].

MOUNTING: Collar with standard 1/2 in. internal threads for mounting on a 1/2 in. sighting pipe.

WIRING CONNECTIONS: Two, 6 ft [1.83 m], color-coded, NEC Class 1 leadwires. (One model is available with 24 ft [7.32 m] leadwires.) Rear of detector has a clamp type connector for 1/2 in. flexible metallic conduit. (Models are available with 1/2 in. internally threaded spud connector instead of the clamp.)

DIMENSIONS: See Fig. 1.

REPLACEMENT PART: 129685 Flange Gasket. NOTE: The UV sensing tube is not field replaceable.

ACCESSORY: 136733 Heat Block, laminated plastic, for insulating the flame detector from sighting pipe temperatures above 215 F [102 C] up to 266 F [130 C], 1/2-14 NPSM external threads on one end and 1/2-14 NPSM internal threads on the other end (see Fig. 5).

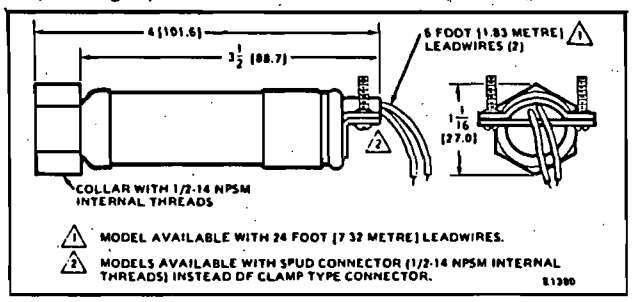


FIG. 1—INSTALLATION DIMENSIONS OF THE C7027A, IN in. [mm IN BRACKETS].

(continued on page 3)

ORDERING INFORMATION

WHEN PURCHASING REPLACEMENT AND MODERNIZATION PRODUCTS FROM YOUR TRADELINE WHOLESALER OR YOUR DISTRIBUTOR, REFER TO THE TRADELINE CATALOG OR PRICE SHEETS FOR COMPLETE ORDERING NUMBER, OR SPECIFY—

1. **Order number.**
2. **Operating temperature range.**

ORDER SEPARATELY—

1. **Replacement parts, if desired.**
2. **Accessories, if desired.**

IF YOU HAVE ADDITIONAL QUESTIONS, NEED FURTHER INFORMATION, OR WOULD LIKE TO COMMENT ON OUR PRODUCTS OR SERVICES, PLEASE WRITE OR PHONE:

1. **YOUR LOCAL HONEYWELL RESIDENTIAL DIVISION SALES OFFICE (CHECK WHITE PAGES OF PHONE DIRECTORY).**
2. **RESIDENTIAL DIVISION CUSTOMER SERVICE HONEYWELL INC., 1885 DOUGLAS DRIVE NORTH MINNEAPOLIS, MINNESOTA 55422-4386 (612)542-7500**

(IN CANADA—HONEYWELL LIMITED/HONEYWELL LIMITEE, 740 ELLESMERE ROAD, SCARBOROUGH, ONTARIO M1P 2V9) INTERNATIONAL SALES AND SERVICE OFFICES IN ALL PRINCIPAL CITIES OF THE WORLD.

C7035A MINIPEEPER ULTRAVIOLET FLAME DETECTOR

DETECTION: Detects ultraviolet radiation only.

AMBIENT OPERATING TEMPERATURE RATINGS: 0 F to 250 F [−18 C to +121 C], or −40 F to +250 F [−40 C to +121 C], depending on the model.

MAXIMUM PRESSURE RATING: 5 psi [34.5 kPa].

MOUNTING: Collar with standard 1 in. internal threads for mounting on a 1 in. sighting pipe. (The DIN approved C7035A1064 has 1-11 BSP.P1 threads.)

WIRING CONNECTIONS: Two, 6 ft [1.83 m], color-coded, NEC Class 1 leadwires. (One model is available with leadwires rated for 400 F [204.4 C], and one model is available with 12 ft [3.66 m] leadwires.) Rear of detector has 1/2-14 NPSM internal threads for connecting to a conduit. (The DIN approved C7035A1064 has 1/2-14 BSP-F threads.)

DIMENSIONS: See Fig. 2.

WEIGHT: 6 oz [0.17 kg].

REPLACEMENT PARTS:

129808 Flange Gasket.

129464M Ultraviolet Sensing Tube, 0 F to 250 F [−18 C to +121 C].

129464N Ultraviolet Sensing Tube, −40 F to +250 F [−40 C to +121 C].

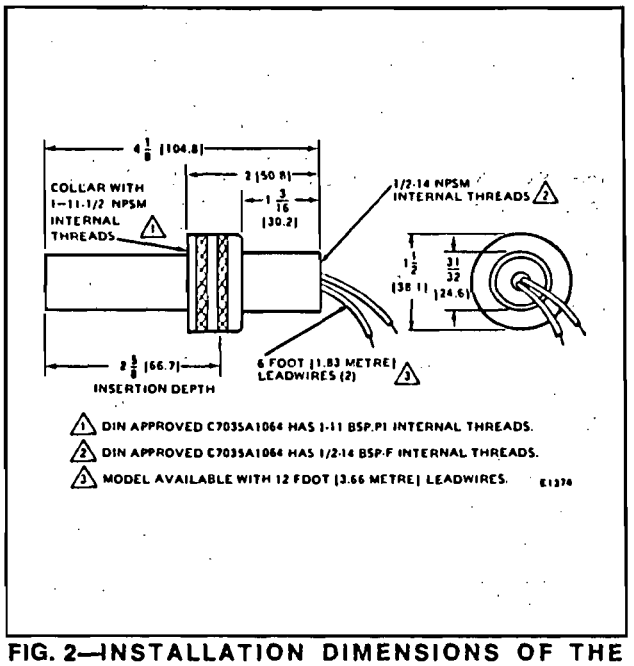


FIG. 2—INSTALLATION DIMENSIONS OF THE C7035A, IN in. [mm IN BRACKETS].

C7027A AND C7035A

APPROVALS:

UNDERWRITERS LABORATORIES INC. LISTED: File No. MP268; Guide No. MCCZ.

CANADIAN STANDARDS ASSOCIATION CERTIFIED: File No. LR1620; Guide No. 140-A-2.

FACTORY MUTUAL APPROVED.

DIN APPROVED MODELS: C7027A1056, C7035A1049, and C7035A1064.

ACCESSORIES:

118367A Swivel Mount; provides adjustable positioning of the C7027A or C7035A.

7616BV Bag Assembly; includes 118373 Pipe Tee, galvanized iron, with 3 female connections (3/4, 3/4, and 1/4 in. NPT internal threads), and 132588 Pipe Nipple, galvanized iron, with 3/4 in. NPT external threads on both ends. For connecting an air supply to ventilate the sighting pipe. Can be used with or without the swivel mount.

C7044A MINIPEEPER ULTRAVIOLET FLAME DETECTOR

DETECTION: Detects ultraviolet radiation only. Housing has 2 openings to permit viewing from either its end or its side. Side viewing is 1/8 as sensitive as end viewing.

AMBIENT OPERATING TEMPERATURE RATINGS: 0 F to 215 F [−18 C to +102 C].

MOUNTING: Bracket (included in 4074 BVR Bag Assembly), secured by two 8-32 RHIS (European M-4) screws (not included).

WIRING CONNECTIONS: Two, 6 ft [1.83 m], color-coded, NEC Class 1 leadwires. Rear of detector has a clamp type connector for 1/2 inch flexible metallic conduit.

DIMENSIONS: See Fig. 3.

WEIGHT: 10 oz [0.28 kg].

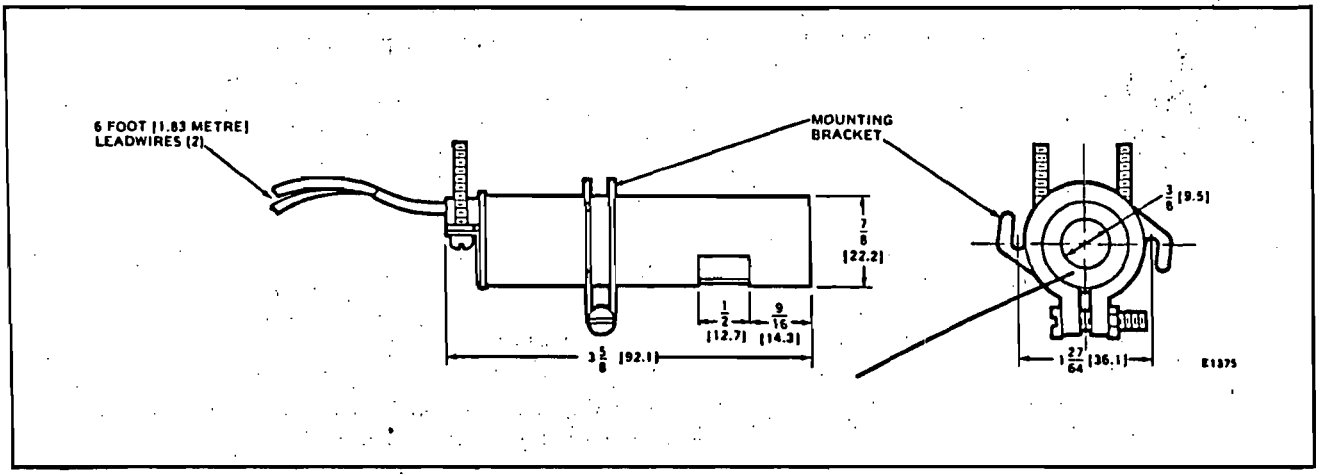
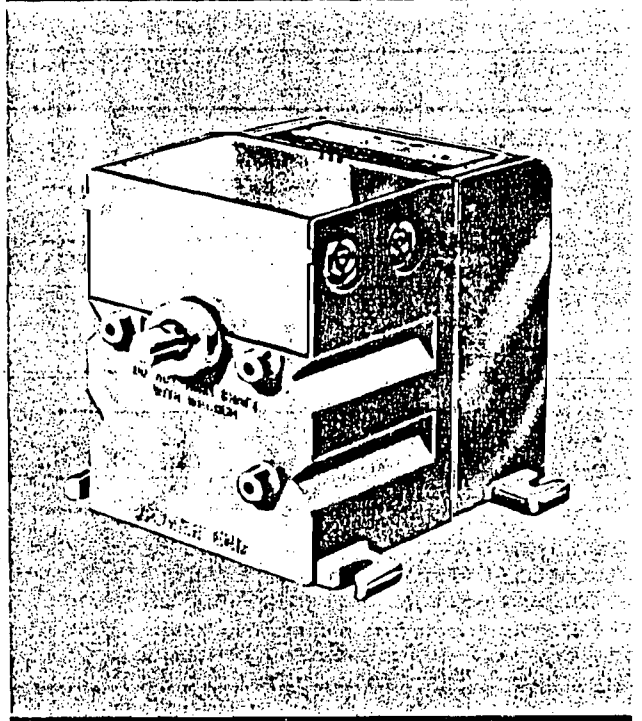


FIG. 3—INSTALLATION DIMENSIONS OF THE C7044A, IN in. [mm IN BRACKETS].

Honeywell

MODUTROL MOTORS



M934A,D

THE M934 MODUTROL MOTORS ARE USED TO OPERATE VALVES AND DAMPERS IN LOW VOLTAGE MODULATING (SERIES 90) CONTROL CIRCUITS.

- ☐ M934A is rated for 35 lb.-in. torque; M934D provides 75 lb.-in. torque.
- ☐ Solid state drive circuit provides resistance to vibration.
- ☐ M934A available with 2 internal auxiliary switches; M934D supplied with 1 or 2 internal auxiliary switches.
- ☐ Available with 90° or 160° operating stroke.
- ☐ Motors position a damper or valve at any point between fully open and fully closed, proportioning the delivery according to the demands of the controller.
- ☐ Line voltage models have integral transformer to supply 24 volt power to the control circuit.
- ☐ External connections are made by means of color-coded leadwires.
- ☐ Up to 6 motors with solid state drive circuits may be paralleled from one series 90 controller.

M.B.
REV. 11-84●

Form Number 60-2110—5

SPECIFICATIONS

TRADELINE MODELS

TRADELINE models are selected and packaged to provide ease of stocking, ease of handling, and maximum replacement value. TRADELINE model specifications are the same as those of standard models except as follows.

MODELS: M934A Modutrol Motor.
ELECTRICAL RATINGS: 24 or 120 Vac, 50/60 Hz.
STROKE: 160°

ADDITIONAL FEATURES:
- 120 V model available with 2 spdt internal auxiliary switches.
- TRADELINE pack with cross reference label and special instruction sheet.

STANDARD MODELS

MODEL: M934 Modutrol Motors.

MODEL	TORQUE (lb.-in.)	STROKE (degrees of motor rotation)	MOTOR TIMING	INTERNAL AUXILIARY SWITCHES AVAILABLE (spdt)	ADDITIONAL FEATURES
M934A	35	90 or 160, fixed	30 sec. or 60 sec.	2	Solid State Drive Circuit
M934D	75	90 or 160, fixed	30 sec. or 60 sec.	1 or 2	

ELECTRICAL RATINGS:

M934A

VOLTAGE	FREQUENCY	CURRENT	POWER	VA
24 Vac	50/60 Hz	1.8 A	27 W	43
120 Vac	50/60 Hz	0.36 A	27 W	43
220 Vac	50 Hz	0.18 A	27 W	40
240 Vac	50/60 Hz	0.18 A	27 W	43

M934D

VOLTAGE	FREQUENCY	CURRENT	POWER	VA
120 Vac	50/60 Hz	0.48 A	33 W	58

MAXIMUM LOAD AT EXTREME RADIUS: 13 lb.
MAXIMUM DEAD WEIGHT LOAD ON SHAFT:
Auxiliary end—50 lb. Power end—100 lb.
SHAFT: Double-ended, 3/8 in. sq, 3/8 in. long.

AUXILIARY SWITCH RATING (A):

	120 Vac	240 Vac
Full Load	8	4
Locked Rotor	48	24

NOTE: If both normally open and normally closed contacts are used on an individual switch, either contact is rated as shown in the table above, but the opposite contact is rated at 40 VA pilot duty only.
MAXIMUM DAMPER AREA:
M934A—23 sq ft.
M934D—50 sq ft.
AMBIENT TEMPERATURE RATING:
Minimum: Minus 40 F.
Maximum at 25% duty cycle.
M934A—150 F @ 50/60 Hz.
M934D—125 F @ 60 Hz; 115 F @ 50 Hz.
UNDERWRITERS LABORATORIES INC. LISTED: File No. E4436, Guide No. XAPX.

(continued on page 3)

ORDERING INFORMATION

WHEN ORDERING REFER TO THE TRADELINE CATALOG OR PRICE SHEETS FOR COMPLETE ORDERING SPECIFICATION NUMBER, OR...

SPECIFY—
1. **Model number, TRADELINE if desired.**
2. **90° OR 160° stroke.**
3. **Internal auxiliary switches, if required.**
4. **Voltage and frequency.**
5. **Accessories, if required.**

ORDER FROM—
1. **YOUR USUAL SOURCE, OR**
2. **HONEYWELL**
1885 DOUGLAS DRIVE NORTH
MINNEAPOLIS, MINNESOTA 55422-4386
(IN CANADA—HONEYWELL CONTROLS LIMITED
740 ELLESMERE ROAD
SCARBOROUGH, ONTARIO
M1P 2V9
INTERNATIONAL SALES AND SERVICE OFFICES IN ALL PRINCIPAL CITIES OF THE WORLD.

DIMENSIONS: See Fig. 1.

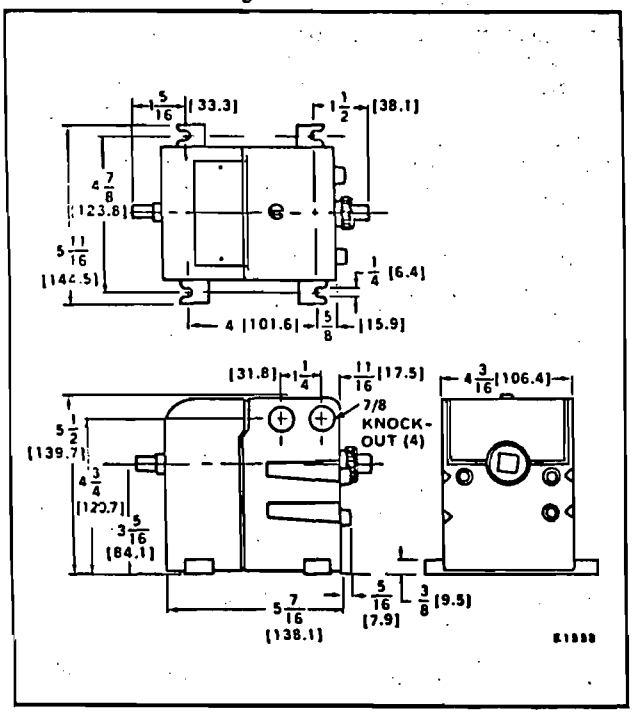


FIG. 1—APPROXIMATE DIMENSIONS IN In. OF M934 MOTOR.

ACCESSORIES:

4074BYK Bag Assembly—resistor kit for unison control of up to 6 series 90 motors from one series 90 controller.

4074EDC Bag Assembly—resistor kit for control of one motor from a 4-20 mA controller.

4074EED Bag Assembly—resistor kit for unison control of up to 4 series 90 motors from on 4-20 mA controller.

4074EAU Bag Assembly—resistor kit for unison operation of 2 or 3 motors from W973 Singlezone Logic Panel.

Q618 Fixed Stroke Linkage for operating valves.

Q601 Valve Linkage for connecting motor to water or steam valve. (Models with 80 lb. spring only.)

Q100 Valve Linkage for connecting motor to butterfly valve.

Q607 Auxiliary Switch for control of auxiliary equipment as a function of motor position.

Q605 Damper Linkage for connecting motor to damper. Includes motor crank arm.

7616BR Crank Arm Assembly for connecting motor to damper.

Q209B Manual Potentiometer to limit the minimum position of motor.

105049P Motor Mounted Transformer with conduit nipple or 4 x 4 in. junction box mount for M934 motors.

NOTE: Use accessories which do not require a tapped hole in the end of the motor shaft.

INSTALLATION

WHEN INSTALLING THIS PRODUCT. . .

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

CAUTION

1. Disconnect power supply before making wiring connections to prevent electrical shock or equipment damage.
2. Voltage and frequency of the power source must be the same as that shown on the nameplate of the motor.
3. Do not attempt to turn the motor shaft by hand or with a wrench. Damage to the gear train will result.

LOCATION

The Modutrol motor may be installed in any location except where excessive moisture, acid fumes, or other deteriorating vapors might attack the metal parts, or in atmospheres of escaping gas or other explosive vapors.

Be sure to allow enough clearance for mounting accessories and servicing when selecting the motor location. See Fig. 1 for motor dimensions.

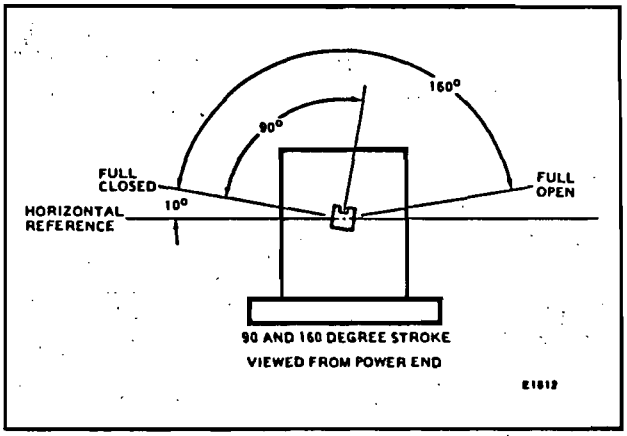


FIG. 2—MOTOR SHAFT POSITION AT ROTATIONAL LIMITS (as viewed from power end of motor).

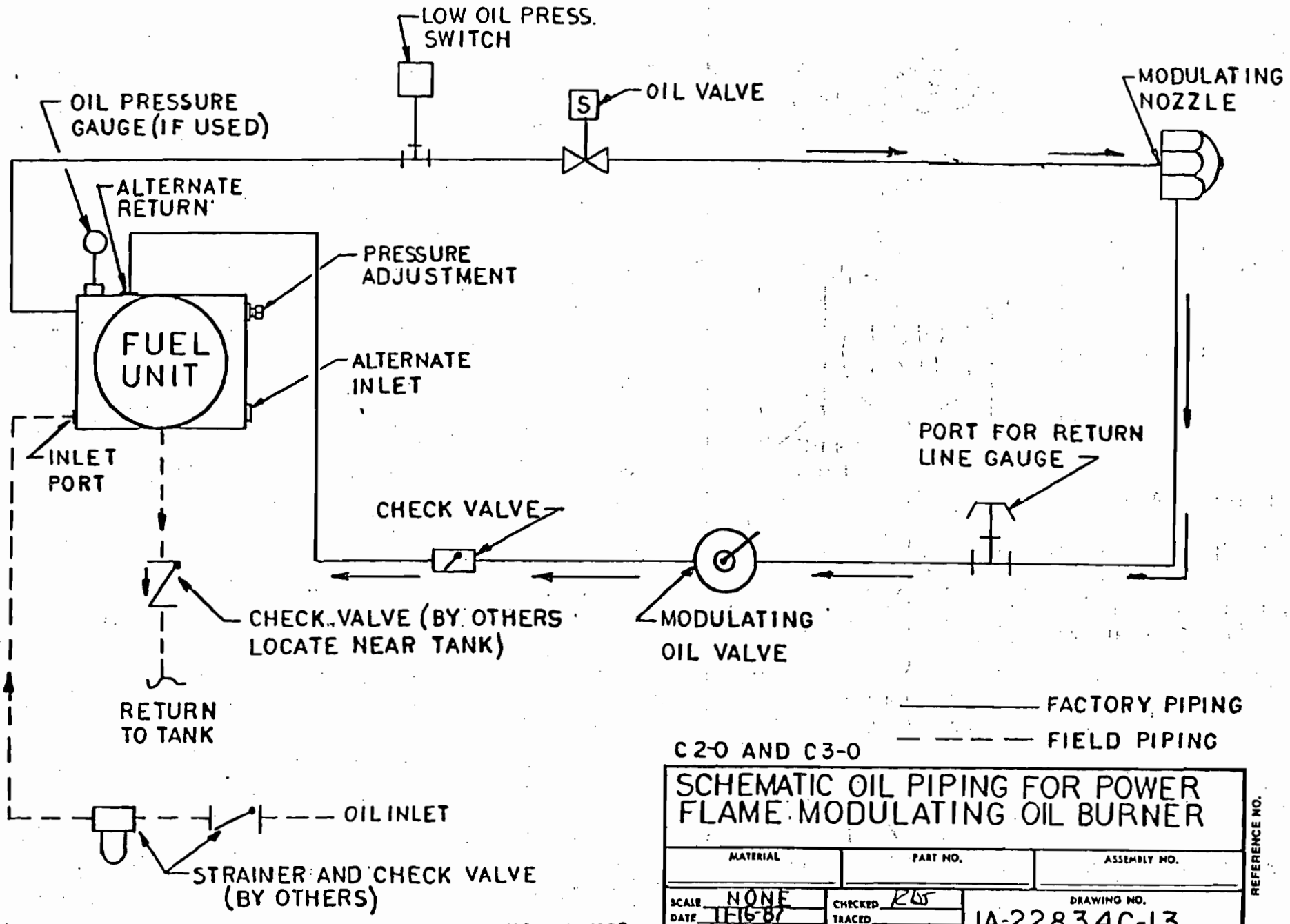
MOUNTING

Our recommended mounting position is with the shaft horizontal. Occasionally an application will require a mounting position with the shaft vertical or at an incline. In these cases, always mount the motor with the power end lowest. Do not mount it with the power end up.

Mount the motor using the mounting lugs extending from the bottom of the case. These lugs are sized for 1/4 inch machine bolts or screws.

The M934A is shipped in the closed position; that is, the position at which the limit of counterclockwise rotation has been reached, viewed from the power end of the motor. See Fig. 2.

AF 38486A



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C2-0 AND C3-0

SCHEMATIC OIL PIPING FOR POWER FLAME MODULATING OIL BURNER

MATERIAL	PART NO.	ASSEMBLY NO.

SCALE NONE	CHECKED RLS	DRAWING NO. IA-22834C-13
DATE 11-16-87	TRACED	
DRAWN BY WLS	APP'D. RAT	

FIRST THERMAL SYSTEMS, INC.
CHATTANOOGA, TENNESSEE

SHEET NO. 1 OF 1 SHEETS

REFERENCE NO.

ATTACHMENT C

CALCULATIONS
PAYLOAD HAZARDOUS SERVICING FACILITY
HOT WATER GENERATOR

Potential Maximum Emissions
Max. Heat Input: 2538 MBH (1)
Max. Heat Output: 2010 MBH
Operating Hours: Assume 8760 hrs/yr

Fuel Oil Characteristics (2)
Sulfur: 0.22% by weight
Heat of Combustion: 141,000 BTU/gal
Fuel Usage: 18.0 gal/hr

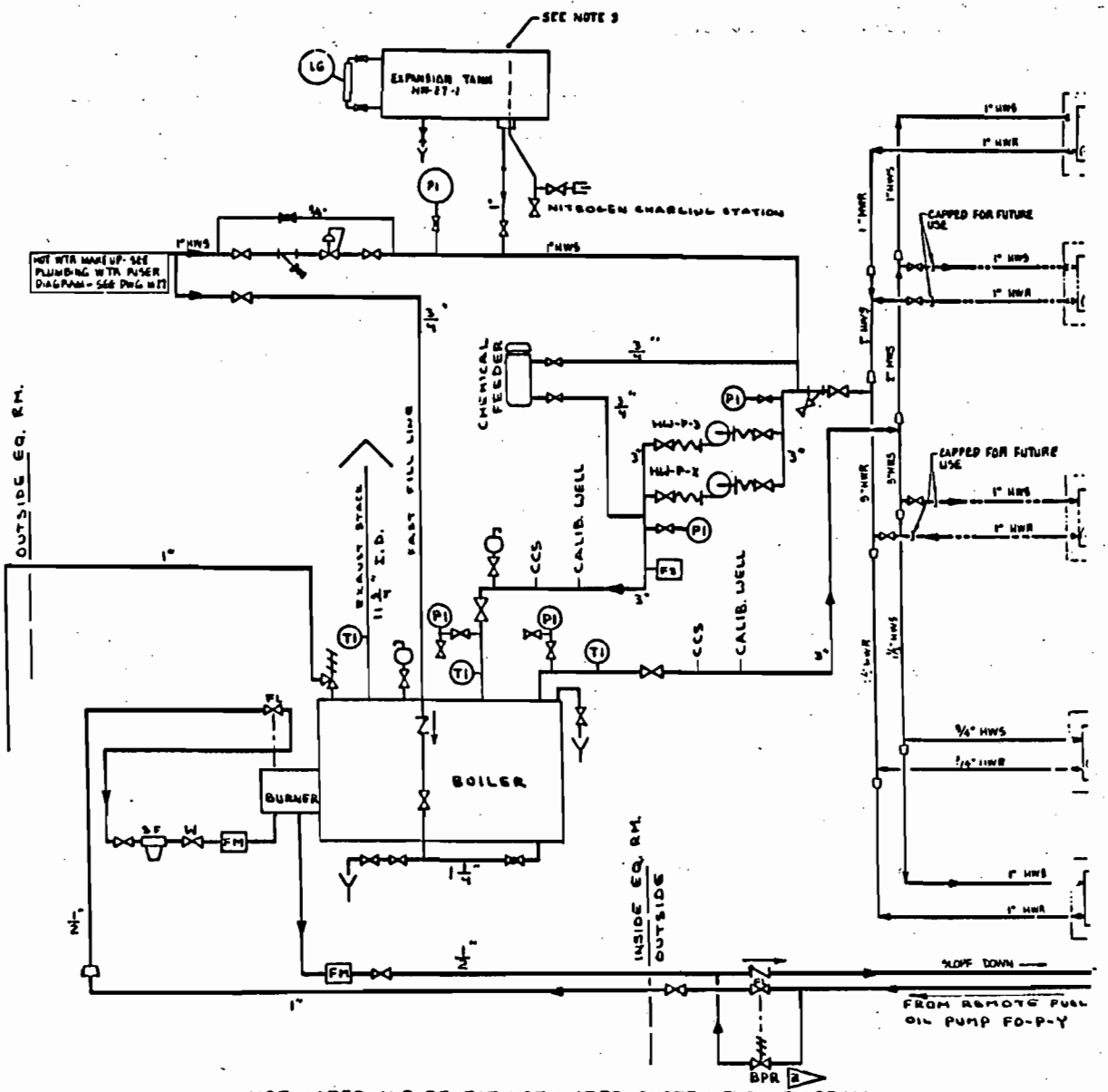
Emission Factors (3)

Sulfur Dioxide:	(142 S lb/1000 gal)(0.22% S)	= 0.03 lb/gal
	(0.03 lb/gal)(18.0 gal/hr)	= 0.56 lb/hr
		= 2.45 tons/yr
Nitrogen Oxides:	(20 lb/1000 gal)(18.0 gal/hr)	= 0.36 lb/hr
		= 1.58 tons/yr
Particulates:	(2 lb/1000 gal)(18.0 gal/hr)	= 0.036 lb/hr
		= 0.16 tons/yr
Carbon Monoxide:	(5 lb/1000 gal)(18.0 gal/hr)	= 0.09 lb/hr
		= 0.39 tons/yr

(1) MBH = 1000 BTU/hr
(2) No. 2 Fuel Oil Analysis
(3) EPA "Compilation of Air Pollutant Emission Factors" AP-42, Table 1.3-1 Industrial and Commerical Boilers/Distillate Oil

ATTACHMENT D

Flow Diagram



HOT WATER AND REHEAT HOT WATER SYSTEM FLOW DIAGRAM

BOILER SCHEDULE

TAG NO.	INPUT MBH	OUTPUT MBH	H.P.	FUEL RATE (GPH)	FUEL TYPE	OPERATING TEMP		BLOWER MOTOR	VOLTS Ø	DESIGN PRESSURE	RELIEF VALVE	MANUFACTURER
B-1	2538	2010	60	18.0	#2 OIL	250°F	200°F	1 H.P.	480V-3Ø	125PSI	125	FIRST THERMAL SYSTEMS MODEL SM-S-PF-O-L-PRO-FM, CHATTANOOGA, TENN.

PUMP SCHEDULE

TAG NO.	H.P.	VOLTS Ø	FLOW RATE	MANUFACTURER
HW-P-3	5	480V-3Ø	866PM @ 72 FT. HD.	AMTROL MOD. 1½"x2"-9PC2G, WEST WARWICK, R.I.
HW-P-X	5	480V-3Ø	866PM @ 72 FT. HD.	THRUSH PRODUCTS MOD. 1½"x2"-9PC2G, PERU, IND.
FO-P-Y	⅓	115V-1Ø	656PM @ 10 FT HD.	WEBSTER MOD. SPM-6S-1, RACINE, WIS.

STONE FILTER

FS FLOW SWITCH

FM FLOW METER

WEBSTER VALVE

AUTO AIR VENT

FL FUSIBLE LINK VALVE

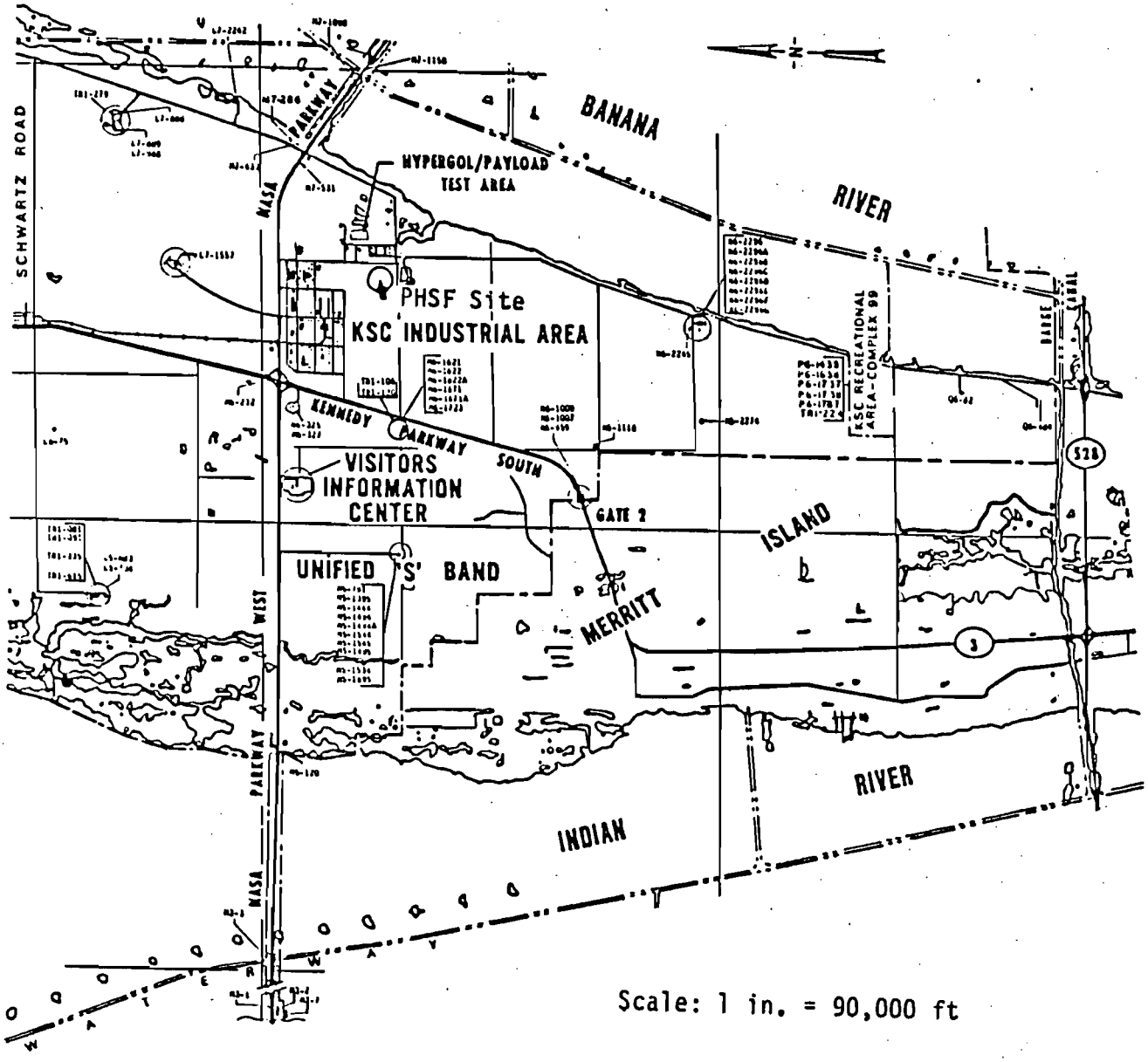
BPR BACK PRESSURE REGULATOR

M VIBRATION ABSORBER

② SET FOR LESS THAN 3 PSIG AT THE BURNER PUMP SUCTION.

ATTACHMENT E

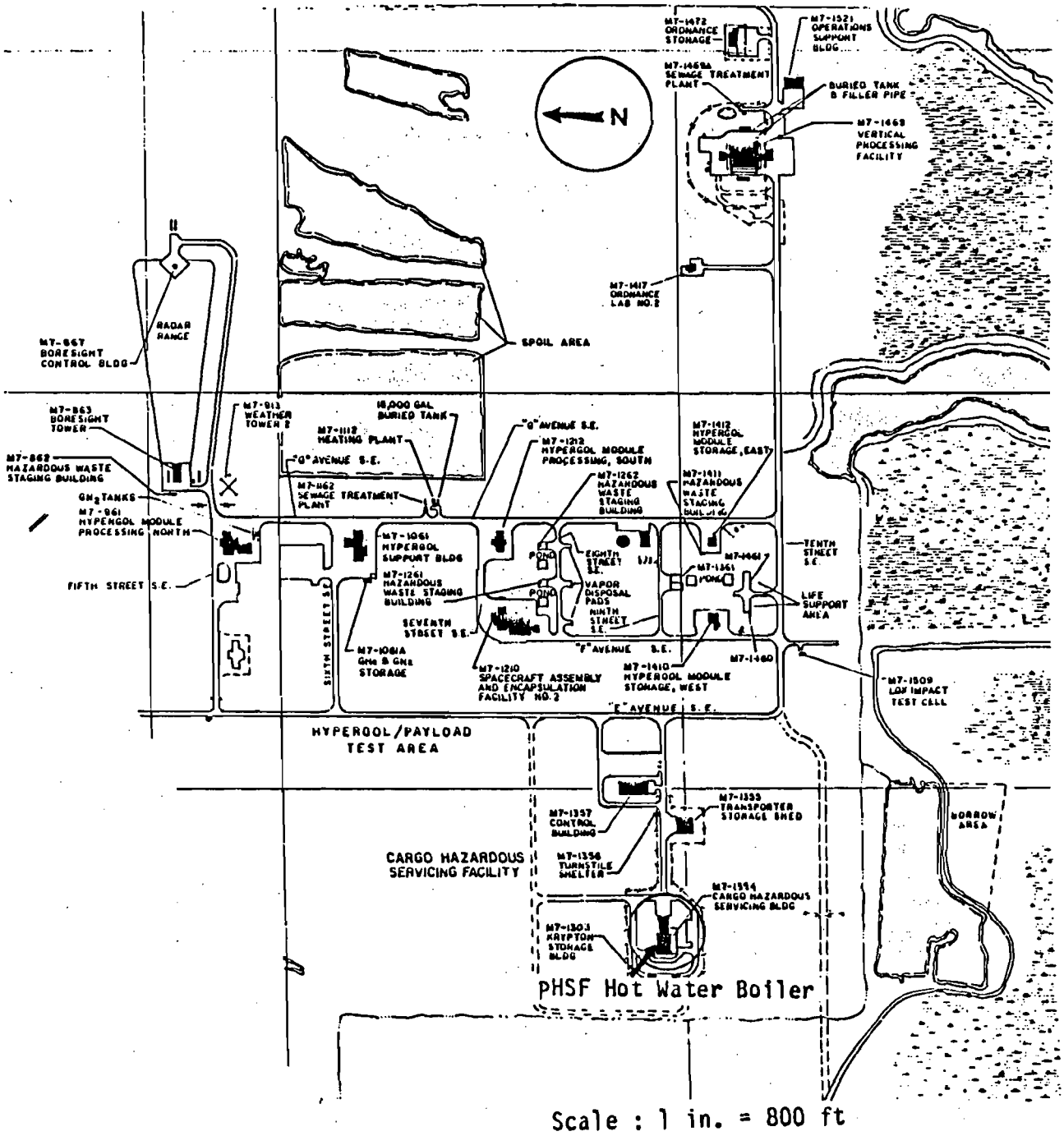
Location Map



Scale: 1 in. = 90,000 ft

ATTACHMENT E

Site Map



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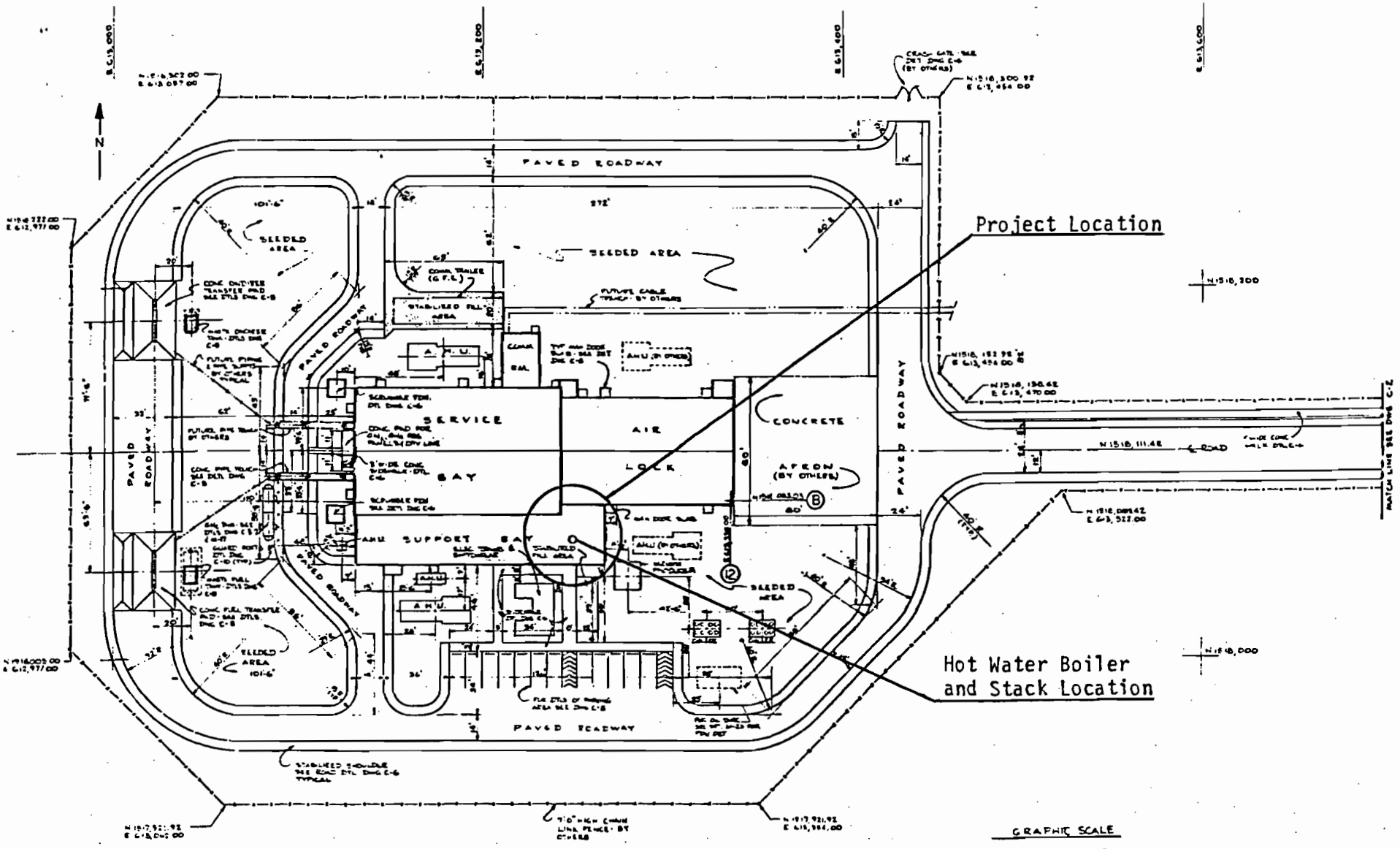
ATTACHMENT F

Facility Plot Plan



PAYLOAD HAZARDOUS SERVICING FACILITY